

The Uneven Impact of Development: Women's Autonomy in India

by

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A thesis submitted in partial fulfillment  
of the requirements for the  
Degree of Bachelor of Arts with Honors  
in Economics

WILLIAMS COLLEGE

Williamstown, Massachusetts

May 11, 2010

## Abstract

This thesis examines the effects of modernization, proxied by educational and wealth increases, on women's freedom of movement, participation in decision-making and experiences with domestic violence in India. The thesis uses data from the National Family Household survey from 2005-06 (NFHS-3) for the analysis and restricts the investigation to currently married women. Results indicate that the effects of modernization are varied and complex, and, unfortunately, not uniformly positive. We find the effects of women's education to be beneficial across the board, increasing women's freedom of movement and participation in decision-making while decreasing domestic violence. Men's education, however, has a mixed impact; increases in men's education lead to decreases in domestic violence against women, but they also restrict women's freedom of movement and participation in decision-making. Interestingly, we discover backlash against women who are more educated than their husbands, both in terms of increased violence against them and in decreases freedom of movement. Working women, especially those who earn more than their husbands, face similar repercussions in terms of violence, although their autonomy and freedom are not negatively affected. Wealth increases on the household level generally improve autonomy and freedom of movement, and reduce domestic violence. However, wealth generates varying effects across population groups; women from lower-caste groups, specifically Scheduled Caste women, see smaller positive wealth effects on freedom. This result is most likely present due to the Sanskritization phenomenon –imitation of higher-caste customs by lower-caste individuals for purposes of social ascent, - which often involves placement of additional restrictions on women's freedom and autonomy. We conclude that the effects of modernization vary for different population groups of India, and that some women may experience smaller gains or even losses from modernization. A more in-depth investigation into the effects across various groups is needed.

## Acknowledgements

This thesis would not have been possible without the help and support of many people. First of all, I could not express enough gratitude to my advisor, Professor Anand Swamy. He provided the inspiration for the topic, guided me through the process, offered fascinating ideas and feedback, patiently responded to the hundreds of emails I sent him at all sorts of odd hours, and helped preserve my sanity by providing reassurance and a humorous outlook throughout all stages of the research and writing. I also would like to thank Professor Tara Watson for all the encouragement, advice, and incredible amounts of feedback she offered me and all the other thesis students in the program. My second reader, Professor Nicholas Wilson, has also been extremely helpful with my research, providing valuable critiques of my writing, contributing to my interpretation of my findings and always pushing to make my research more rigorous and extensive. Last but not least, I appreciate the support and feedback of the peer students of the 2009-2010 honors economics program and the editing prowess of the students of the Williams College Writing Workshop.

I would also like to thank my family, especially my parents, who supported me every step of the way and patiently listened to my triumphs and frustrations with the thesis up to ten times a day. Last but not least, I could not have enjoyed this process without all my wonderful friends who pushed me to work when I needed it and reminded me to take breaks when I needed them, and who time and time again ignored their own busy schedules to edit my thesis chapters and listen to my defense practices ad nauseum.

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## 1. Introduction

Gender inequality in India is an acknowledged and well-documented fact, but its causes and its future are still a mystery. Numerous studies have noted the sex-selective abortions and the ill treatment of girls that have resulted in millions of “missing” women – women that should exist but do not.<sup>1</sup> Meanwhile, others have focused on documenting the inequalities in society for the surviving women who have less access to nutrition, education, health services, education and employment<sup>2</sup> than men. Finally, copious studies investigate the brutal realities of domestic violence, a practice that is prevalent<sup>3</sup> in India.<sup>4</sup> Another valuable way of thinking about gender disparity is female empowerment. Without the empowerment of women, defined as their increased desire and ability to decide and pursue their own goals, true equality between genders is not possible. Moreover, empowerment has the potential to alleviate other aspects of gender inequality, since some women may choose to promote their own or other women’s equality as their goal.

There are several ways to measure female empowerment, such as surveys of gender attitudes and observation of political representation. This thesis focuses on measures of freedom of movement, control over decision-making, and domestic violence. Previous research indicates that freedom of movement and the decision-making powers of Indian women are considerably restricted.<sup>5</sup> Historically, Indian women have been repressed through various cultural practices that have restricted their mobility within and outside

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<sup>1</sup> Chamarbagwala, R. and M. Ranger. 2006.

<sup>2</sup> Nayak and Mahanta. 2009.

<sup>3</sup> Ackerson et. al. 2008.

<sup>4</sup> Kishor, s. and K. Gupta. 2004.

<sup>5</sup> Jensen, R. and E. Oster. 2008.

the home, controlled their interactions with other people, and limited their influence in household and individual decisions. Some women, especially in the rural areas, still engage in practices such as *purdah* and *ghunghat*, which involve veiling and in many cases confinement to a house or an area within a house.<sup>6</sup>

Despite the obvious prejudices and restrictions that Indian women face, the methods by which to improve their situation are not as clear. While it is possible that modernization and development will reduce the gender gap and that further action is unnecessary, there has been little research done on the subject. Furthermore, it is not clear how gender inequalities have changed over time or how the rise in income and education levels relates to female empowerment. This thesis examines the effects of education and wealth increases on women's decision-making powers, their freedom of movement and their experiences with domestic violence.

The National Family Health Survey from 2005-06 (NFHS-3) provides the data for this analysis. We chose the NFHS since it is a nationally representative survey that obtains extensive information on health, nutrition, fertility, family planning, welfare and other relevant subjects from households throughout India.<sup>7</sup> The data are collected through interviews with various members of the household, with the primary focus on interviews with women of ages 15-49. The analysis focuses on the sample of nearly 88,000 currently married women of that age category in India.

Results indicate that the effects of modernization are varied and complex, and, unfortunately, not uniformly positive. We find the effects of women's education to be beneficial across the board, increasing women's freedom of movement and participation

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<sup>6</sup> Chowdhry. 1993.

<sup>7</sup> IIPS and Macro International. 2007.

in decision-making while decreasing domestic violence. Men's education, however, has a mixed impact; increases in men's education lead to decreases in domestic violence against women, but they also restrict women's freedom of movement and participation in decision-making. Interestingly, we discover backlash against women who are more educated than their husbands, both in terms of increased violence against them and in decreases freedom of movement. Working women, especially those who earn more than their husbands, face similar repercussions in terms of violence, although their autonomy and freedom are not negatively affected. These findings are new in economic literature on effects of education in India, especially pertaining to autonomy and freedom of movement.

Wealth increases on the household level generally improve autonomy and freedom of movement, and reduce domestic violence. However, wealth generates varying effects across population groups; women from lower-caste groups, specifically Scheduled Caste women, see smaller positive wealth effects on freedom. This result is most likely present due to the Sanskritization phenomenon –imitation of higher-caste customs by lower-caste individuals for purposes of social ascent, - which often involves placement of additional restrictions on women's freedom and autonomy. The Sanskritization finding is also new to economic literature on the effects of income increases on women's status.

The remainder of the thesis proceeds as follows. The second chapter presents the background information on the women's situation in India and addresses the concepts and measures of modernization and empowerment employed in this study. The third chapter introduces the data and methodology used and provides the descriptive statistics for the dependent and explanatory variables of interest. The fourth chapter presents and

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discusses regression results. The concluding chapter summarizes the findings and discusses the limitations of the analysis.



## **2. Gender Inequality and Women's Empowerment**

Inequality between men and women is complex and multi-faceted. As Amartya Sen once put it, it is “not one affliction but a multitude of problems”<sup>8</sup> that are all connected and separated in often ambiguous ways. In India, gender inequality manifests itself in natality and survival inequality, unequal access to resources such as jobs and education, unequal rights such as limited inheritance or household ownership, and domestic violence, among others. The majority of the literature on the subject focuses on gender imbalance in birth ratios and infant survival, which are complex and devastating, and therefore interesting, issues. However, another important concept connected to inequality is female empowerment – women's ability to decide and pursue their own goals in life. Empowerment in this case is dually significant: it has immense value to women on its own and has the potential to improve various other aspects of gender inequality. In order to investigate the effects of modernization on empowerment, this thesis will focus on women's freedom of movement, decision-making within the household, and experiences with domestic violence.

### **2.1. Gender Inequality**

This section will provide a short overview of various disadvantages that women face in Indian society, demonstrating the extent of gender inequalities and the need for empowerment. It will first discuss natality and survival inequality, exemplified by the concept of “missing women”. Then it will proceed to address other disadvantages women face, such as educational and work disparities. Finally, it will take a brief look at domestic violence and the topic will be addressed in more detail later in the thesis.

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<sup>8</sup> Sen, A. 2005.

### **2.1.1. India's "Missing women"**

An important and complex issue that will not be explored in detail in this thesis is the natality and survival inequality between women and men in India. Much literature on gender inequality in South Asia has been devoted to this subject. A particular focus of despair of people concerned with the gender inequities in South Asia is the concept of "missing women". The concept was devised to draw attention to the millions of women that should exist but do not due to sex-selective abortions and premature death due to mistreatment, resulting in an abnormally low female to male ratio that characterizes many South Asian populations.

The biological norm for gender ratio at birth is about 95 girls per 100 boys. This expected ratio is observed in areas of the world where sex-specific abortion is not a significant phenomenon, such as North America and Europe. Much of Asia, however, has a lower birth rate of girls to boys: 92 girls per 100 boys in Taiwan and Singapore, 88 girls per 100 boys in South Korea and 86 girls per 100 girls in China.<sup>9</sup> Most of the difference is likely explained by sex-selective abortions; the continually falling costs of gender detection are associated with rising gender imbalance at birth.<sup>10</sup>

Although the use of sex-selective abortions did not become widespread until the 1970s with the development of prenatal screening and legalization of abortion, the cultural phenomenon of son preference and subsequent mistreatment of girls is not new. In the 1830s, the British documented abnormally low female to male ratios in India. The bias in gender ratios further became apparent after the first Indian census of 1871, which

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<sup>9</sup> Sen, A. 2005.

<sup>10</sup> Kim. 2005.

revealed the ratio of 940 females to 1000 males.<sup>11</sup> At the time, this skewed ratio was attributable to female infanticide and general neglect of female health, especially in the North of the country.<sup>12</sup> These practices have since been reduced and seem to have been partially replaced by sex-selective abortions.<sup>13</sup>

Even though sex-selective abortions have been outlawed under the 1994 Pre-Natal Diagnostic Technologies (PNDT) Act and even the determination of the sex of the fetus during prenatal screening was made illegal, the sex ratio trends have barely slowed and have not begun to turn back. This is revealed through a look at another similar indicator, the under-7 ratio, which examines the sex ratio of girls to boys from ages 0-6. This indicator captures not only the natality inequality but also the higher mortality rates for girl infants. The number of girls per 1000 boys in the under 7 age group went from 945 in 1991 to 927 in 2001<sup>14</sup>; the NFHS-3 demonstrates a further continuation of the negative trend by 2006, with 918 girls to 1000 boys.<sup>15</sup> The NFHS-3 found that although the under-seven sex ratio in urban areas has not changed since the 2001 census was administered, in rural areas it has worsened considerably. The ratio now stands at 921 girls per 1000 boys, which is lower than the 934 found in the census.<sup>16</sup> Despite the 1994 law, gender inequalities in the under 7 cohort are still striking, suggesting that legal interventions will not resolve the son preference issue.

### **2.1.2. Inequality in Access and Opportunities**

Education carries a multitude of benefits, which will be addressed in the next

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<sup>11</sup> Patel, R. n.d.

<sup>12</sup> Ibid.

<sup>13</sup> Sudha and Irudaya Rajan. 2003.

<sup>14</sup> The Associated Press. 2007.

<sup>15</sup> IIPS and Macro International. 2007.

<sup>16</sup> Ibid.

section, and individuals with lower levels of education are at a disadvantage economically and socially. Women, on average, have lower educational attainment than men across India. In 2005-06, at the time of NFHS-3, 55% of women age 15-49 were literate, compared with 78% of men in the same age group.<sup>17</sup> Male literacy is higher than female literacy in every state.<sup>18</sup> Literacy rates consistently decrease with age for both men and women. Literacy rates are highest in the 15-19 age group, with 62.9% for women and 80.1% for men, and lowest in the 45-49 age group, with 26.5% for women and 50.6% for men. Therefore, despite the overall improvement in literacy it is clear that the gender gap in literacy has persisted and even increased; women are still not given the same opportunities for advancement as men.

Employment, particularly paid employment outside the home, has the potential to improve the gender imbalance. Besides raising women's bargaining power and improving their fallback options in the event of divorce or abandonment, employment exposes women to the world outside the household and kin, enabling the creation of new support groups. However, previous research has shown that labor force participation in India is a much more complex subject than theory would suggest, as most women are forced to enter the labor force due to economic hardships. Thus the potential positive effects are neutralized by the negative situation in which employment takes place.<sup>19</sup>

Despite the possible complications, employment is an important stepping-stone to reducing gender inequality. Unfortunately, female employment is extremely limited,

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<sup>17</sup> IIPS and Macro International. 2007.

<sup>18</sup> Kishor, S. and K. Gupta. 2004.

<sup>19</sup> Ibid.

whether due to a lack of access or due to preferences. Overall, 36% of all women ages 15-49 were employed at the time of NFHS-3, compared with 85% of men.<sup>20</sup> The level of earnings, and having control over these earnings are also found to be imperative to female empowerment.<sup>21</sup> Nevertheless, only 77.6% of employed women are paid, whether with cash or with in-kind compensation, whereas 94.2% of men receive payment.<sup>22</sup>

Finally, women are at a severe legal disadvantage as well. Women's ownership rights are severely restricted; houses, for example, most often legally belong to the husband only, and therefore can be sold without the consent of women.<sup>23</sup> Other assets are generally bought in the husband's name, and upon divorce, women are not entitled to any share of the mutually acquired holdings. Consequently, even programs intended to alleviate poverty and inequality, such as government-provided housing for informal settlement populations, can exacerbate the gender gap if the program is not carefully designed to give shared property rights.<sup>24</sup>

### **2.1.3. Domestic Violence**

Violence against women is a fundamental violation of their rights. Furthermore, domestic violence, especially violence from one's partner, is associated with adverse outcomes such as physical and psychological trauma, mental and psychosomatic illness, poor health and birth-related behaviors, suicide, and murder.<sup>25</sup> In India, domestic violence is a highly prevalent phenomenon, and about 40% of women report that they have been

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<sup>20</sup> IIPS and Macro International. 2007.

<sup>21</sup> Kabeer, N. 1999.

<sup>22</sup> Ibid.

<sup>23</sup> Datta, N. 2006.

<sup>24</sup> Ibid.

<sup>25</sup> Ackerson et. al. 2008.

physically abused by their husbands.<sup>26</sup> As will be demonstrated later in the thesis, NFHS-3 finds similar rates for the sample investigated.

Abuse is also overwhelmingly justified and accepted, even by the victims themselves. Kishor and Gupta (2004), using NFHS-2, an earlier wave of the National Family Health Survey from 1998-99, look at whether women themselves agree that various incidents, ranging from not cooking properly to neglecting the house or the children, justify a husband beating his wife. They find that as high as 56.7% of women agree with at least one cause for domestic abuse.

## **2.2. Empowerment**

Amartya Sen aptly relates the variety of gender inequality issues to a dichotomy present in human life between well-being and agency, which he defines as the pursuit of goals or desires that a person values and chooses to advance.<sup>27</sup> Sen highlights the value of “agency” by stating that “from the crude barbarity of physical violence to the complex instrumentality of health neglect, the deprivation of women is ultimately linked not only to the lower status of women, but also to the fact that women often lack the power to influence the behavior of other members of society.” He thus stresses that women’s agency, in addition to enriching the lives of women on its own, can lead to significant reduction in other inequalities, and is in fact necessary for this reduction.

Although defining empowerment is rather, it is often regarded as the process by which the powerless gain control over the circumstances of their lives or gain the power to achieve their goals<sup>28</sup>, which is similar to Sen’s concept of agency. The importance of this process cannot be overstated. Without full control over her thoughts and goals and

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<sup>26</sup> Kumar et. al. 2005.

<sup>27</sup> Sen, A. 2005.

<sup>28</sup> Kishor, S. and K. Gupta. 2004.

without the opportunity and power to achieve them, an individual will never truly be equal to those who have this power.

While women's intrinsic and extrinsic control over their lives and environment can be measured in several ways, two unquestionably important dimensions are freedom of movement and decision-making powers of women. Participation in decision-making within the household is crucial to shaping a woman's life. This in particular pertains to decisions about herself, such as her healthcare. Freedom of movement is also crucial for participation in daily economic and social activities and therefore vital for being actively in charge of one's life. Both of these measures stand at very low levels, since cultural traditions often limit women's movements outside the home and their interactions with their husbands inside of it.<sup>29</sup> The levels of these variables as well as their significance will be addressed further in the following chapters.

Another variable of immense significance to empowerment is domestic violence. Lack of physical security, as discussed in section 2.1.3, has widespread negative psychological impacts that can undermine and even thwart the process of empowerment. This study therefore includes measures of domestic violence in addition to measures of freedom of movement and household decision-making in order to paint a more complete picture of impacts of modernization.

### **2.3 Modernization and Development**

Modernization and development are broad terms that encompass a whole spectrum of different phenomena. Attempting to define the terms clearly and examine all the complex implications and interactions between their different parts is beyond the

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<sup>29</sup> Derne, S. 1994.

scope of this paper. This study takes a simplified look at modernization and defines it through a few phenomena associated with it, namely, wealth and educational level increases.

### **2.3.1. Economic growth and wealth increases**

It is unquestionable that the past two decades have brought significant economic growth to India. The allocation of this growth across the population, nonetheless, remains an unresolved question. Researchers have debated whether liberalization of the economy, including trade and agriculture, that has led to increases in India's GDP has significantly decreased poverty and inequality<sup>30</sup> or if it has worsened them tremendously.<sup>31 32</sup> Despite the multitude of studies examining the relationship between economic growth and poverty, there have not been studies that likewise examined the effects of economic growth on gender inequality in depth.

Theoretically, economic growth could be beneficial or detrimental to the women's situation. On one hand, economic growth should increase resources available to everyone, thus improving the absolute levels of health, education, and other service access. It can also act through shifts in sectoral composition of the economy; it would not be surprising if a larger agricultural sector, especially in areas with crops that demand difficult physical labor, was biased towards men and exacerbated gender inequality. An economy more geared towards services or certain types of industry could potentially raise female wages or increase female labor force participation, both of which have been shown to increase autonomy.<sup>33</sup> Women with higher earnings have a way to exit a stifling

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<sup>30</sup> Hasan et. al. 2006.

<sup>31</sup> Vakulabharanam, V. 2005.

<sup>32</sup> Topalova, P. 2005.

<sup>33</sup> Rahman, L. and V. Rao. 2004.



or abusive relationship and can use leaving their husband as a credible threat. Even in less dire situations, increased wages would raise the value and bargaining power of women within the family, which would likely result in more favorable outcomes for women.<sup>34</sup>

Greater wealth can also enable increased interaction with the world for both men and women and increased educational achievements for the women, thus acting together with other modernization factors to improve the gender gap through augmented informational access and liberalization. Additionally, improvements in a family's financial situation could relieve stress associated with poverty and financial difficulties. Indeed, previous research shows that domestic violence is associated with economic disadvantage<sup>35</sup>; this would conceivably lead to less domestic violence against women with improvements in income as well as increased participation in decision-making through improved relations between household members.

On the other hand, biased legal structures could direct economic growth in the wrong direction, exacerbating gender inequalities. For example, if male wages increased in relation to female wages, this could raise men's bargaining power within the household while simultaneously lowering women's, which would result in even more slanted outcomes. Rahman and Rao's study finds that increases in household wealth actually have a detrimental effect on female autonomy, a finding that they attribute to lack of female property rights and social practices that lead to increased observation of rules of respectability.<sup>36</sup> Other research also finds that higher household expenditures are

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<sup>34</sup> Agarwal, Bina. 1997.

<sup>35</sup> Koenig et. al. 2006.

<sup>36</sup> Rahman, L. and V. Rao. 2004.

associated with fewer daughters being born into the family.<sup>37</sup> Thus, one cannot assume that wealth increases unequivocally improve female empowerment.

This amplified concern with respectability is a noted phenomenon known as Sanskritization. The term refers to “a process whereby people of lower castes... try to adopt upper caste practices and beliefs to acquire higher status”.<sup>38</sup> In order to understand Sanskritization fully, a brief overview of the structure of Indian society is in order.

The original notion of the caste system comes from sacred Hindu texts, but has now spread across other religious groups in India. In its most simplified form, the system is formed by four castes: *Brahman*, *Kshatriya*, *Vaishya* and *Shudra*.<sup>39</sup> The first three form the upper, “twice-born” castes, and the *Brahman*, or priests, is the most religiously and socially privileged group. The *Shudra*, or workers, are the lowest caste within the system. However, many groups were considered beyond the scope of the caste system, too ritually unclean to be included into the classification. These groups evolved outside the mainstream Indian society and therefore have the potential to be affected differently by modernization than other groups.

One of the broad categorization of these outcast groups is the Scheduled Castes (SC), which were previously known as the Untouchables. The SC have been economically and socially depressed for centuries, and have only recently began to integrate into mainstream society. This integration began after the independence of India, which is when the disadvantaged groups were put on a list that gave them access to affirmative action, known as “reservations” in India. This affirmative action list, or “schedule”, is how the term Scheduled Castes originated.

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<sup>37</sup> Chamarbagwala, R. and M. Ranger. 2006.

<sup>38</sup> Sociology Guide. 2010.

<sup>39</sup> Encyclopedia of India. n. d.

Another non-caste group is now known as the Scheduled Tribes (ST), but is also called *Adivasi* and “Tribals”. It is most useful to think of the ST as the indigenous population, which mainly lived in locations far away from mainstream society. The ST are currently entitled to similar affirmative action as the SC, although some still remain segregated.

Separation from the caste system and the current integration into society has given some members of the SC and ST the opportunity to rise to economic success.

Sanskritization is often observed when lower caste, and especially Scheduled Caste, households acquire wealth and aim for upward social mobility as well. This is achieved through a strict imitation of traditional upper caste, especially *Brahman*, customs. The phenomenon often results in placing greater restrictions on women’s mobility and voice for the sake of “respectability” and can undermine positive effects of wealth. Therefore it would not only be incorrect to assume that the effects of wealth would unequivocally be positive but also to assume that the effects will be uniform across all population groups. This analysis will conduct a brief investigation into the possible difference in effects of wealth on SC and on the presence of Sanskritization.

### **2.3.2. Educational increases**

Education is one of the most promising ways to better the situation of many of the disadvantaged members of society. First, it provides information essential for effective functioning in the modern world. Kishor and Gupta (2004) provide a fairly comprehensive, although not exhaustive, list of various ways in which this increased access to information is valuable. It “equips [women] with the awareness and knowledge required to make beneficial life choices, increases their ability to access resources and

services, enables them to become informed consumers and citizens, inculcates a feeling of self-worth, and increases their ability to challenge and make accountable those who hold power and authority.” Additionally, education can improve knowledge of health and nutrition, improving the situation of both the woman herself and her children. Education also improves women’s economic opportunities by providing them with useful skills, especially for paid employment. Last but not least, education improves women’s bargaining power in relation to their husbands, much like an increase in income would, leading to more advantageous outcomes.

Education can also catalyze positive change through its liberalizing effect. That is, increasing men’s education should increase women’s autonomy and decrease abuse due to the fact that men with more education are less likely to believe that they are justified in controlling their wives and especially in using violence to do so.<sup>40</sup> At the same time, it is possible that increases in men’s education will have the opposite effect if the education is not geared towards these relatively liberal opinions. It could also increase the men’s bargaining power in relation to their wives, potentially resulting in worse outcomes for the women.

Ackerson et. al. (2008) have looked at both women’s and men’s education as determinants of domestic violence using the NFHS-2. They found that increases in both men’s and women’s education led to reductions in domestic abuse. However, the educational gap between wife and husband and the wife having more education than the husband actually increased domestic violence, a phenomenon that this thesis will replicate and extend to other outcomes. Therefore, it appears that although effects of

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<sup>40</sup> Martin, S.L. 2002.

education are largely positive, the story is much more complex than can initially be expected and needs further investigation.

### **2.3.3. Omitted channels**

Naturally, there are many other factors associated with modernization that could be important to female empowerment. For example, modernization results in increased levels of media exposure, and especially the exposure to television. In India, cable access doubled between 2000 and 2005<sup>41</sup>, reaching increasingly rural and remote locations. Television, as well as other media sources, can be extremely powerful in changing prevailing cultural practices and attitudes by providing information on the outside world, generally exposing its audiences to more liberal practices. Jensen and Oster (2008) provide an excellent study on the subject, looking at the effects of introduction of cable television in rural India. They find that the introduction of cable leads to increases in women's autonomy and decreases in fertility, as well as to lower reported acceptability of domestic violence, although they do not actually explore domestic violence rates. Other effects include reduced fertility and son preference and even school enrollment for younger children, particularly girls. Although the present study does not examine the influences of the media and other changes that take place with modernization, it is important to recognize that there are additional channels by which development may affect gender inequality.

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<sup>41</sup> Jensen, R. and E. Oster. 2008.

### 3. Data and Methodology

This chapter builds the framework for the detailed regression analysis of Chapter 4. The first section of this chapter will explain the data in detail. The second section will lay out the construction of dependent variables and provide the reader with descriptive statistics of these variables. The last section will present the model and describe the explanatory variables.

#### 3.1. Data

The main data source for this study is the National Family Health Survey of India from 2005-06 (NFHS-3). The NFHS is a nationally representative survey that obtains extensive information on health, nutrition, fertility, family planning, welfare and other relevant subjects from households throughout India. The survey was commissioned by the Ministry of Health and Family Welfare of India in order to monitor the existing Health Ministry programs and to detect any emerging health issues.<sup>42</sup> The survey has been previously been conducted twice, in 1992-93, 1998-99 and has grown in sample size and scope with each wave. Unfortunately, modifications in the phrasing of the questions and other variations between the surveys make it difficult to rigorously compare the responses from different years.<sup>43</sup> This analysis restricts itself only to the 2005-06 wave, since it collected the most relevant and best quality information on various measurements of women's empowerment and is the most recent.

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<sup>42</sup> IIPS and Macro International. 2007.

<sup>43</sup> For instance, the questions regarding freedom of movement in NFHS-2 ask whether the woman requires permission to go to certain locations, whereas the corresponding questions in NFHS-3 ask if she is permitted to go to those locations alone. The two are clearly not rigorously comparable. Other variables involve similar modification in the wording of the question or ask identical questions about different events. The question on decision-making is very similar, for example, but whereas the NFHS-3 it asks about the involvement of the woman in decisions on large purchases, the NFHS-2 asks about decisions on purchases of jewelry instead. None of the variables used in this analysis are strictly comparable across the two waves.

The NFHS-3 was conducted from November 2005 to August 2006 in all 29 Indian states and contains a sample of 109,041 households. The field data collection, as well as the data entry and editing, were carried out by 18 different research organizations under the supervision of the International Institute for Population Sciences (IIPS), based in Mumbai.<sup>44</sup> The target sample sizes differed depending on the state population and were higher for states with higher HIV prevalence rates, since one of the primary purposes of the NFHS-3 was to collect extensive data on HIV/AIDS knowledge and prevalence. Urban and rural samples within each state were drawn separately and, whenever possible, were allocated to the urban and rural state populations proportionally. The sampling process then consisted of two stages for the rural areas, where Primary Sampling Units (villages) were randomly selected during the first stage and households were randomly selected within each PSU during the second. The urban areas process was similar but involved a three-stage randomization procedure.<sup>45</sup>

The information was collected through interviews with 124,385 randomly selected women age 15-49 within the households and additionally included interviews with 74,369 men age 15-54, who were typically the husbands of the female respondents. Further demographic and economic information on the household was also collected and both the respondents and their household members underwent several medical tests, including an HIV test for the respondents. All interviews were conducted by a surveyor of the same sex as the respondent in order to ensure more honest and complete answers

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<sup>44</sup> IIPS and Macro International. 2007.

<sup>45</sup> Ibid.

on sensitive subjects.<sup>46</sup>

### **3.2. Sample**

Since the relevant questions on autonomy were only asked of married interviewees, all the women who were not married at the time of the survey were dropped from the sample. Imposing this restriction resulted in a sample size of 87,925 individual observations.

The age of the women in the sample ranges from 15 to 49, with the mean of 31.4 years of age. The husbands' age ranges from 10 to 95, with 37.1 years of age as the average. The respondents got married at 17 years of age on average have an average of 2.5 children.

The mean educational attainment of respondents in the sample stands at 4.3 years, whereas the average educational attainment of their husband is 6.6 years. About 47.3% of the respondents report 0 years of education, and 51.4% are illiterate, meaning they cannot read at all.<sup>47</sup>

Employment rates are fairly typical of the Indian population: 43% of the respondents currently work<sup>48</sup>, although not all work for wages. 3% of the women earn more than their husbands.

The sample is overwhelmingly Hindu (82%), with Muslims as the largest religious minority at 13%. Other sizeable groups include Christians and Sikhs comprising 2% of the population each. All other religious groups, including Buddhists and Jains,

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<sup>46</sup> IIPS and Macro International. 2007.

<sup>47</sup> By contrast, 26.7% of married men cannot read at all.

<sup>48</sup> Compared to 98% of their husbands who currently work.



have been grouped together into the “other religion” category, which constitutes 1% of the sample. The weighted sample is consistent with the general population.

The caste distribution of the sample represents the general population accurately as well. 19% of the respondents belong to scheduled castes (SC) and 8% to scheduled tribes (ST). 41% of the sample are individuals belonging to ‘other backwards castes’ (OBCs) – castes that were traditionally in the caste system, as opposed to the SCs and STs, but are also considered disadvantaged due to their low position in the caste system. Finally, 32% of the sample is upper caste.

The number of household members in the sample ranges from 1 to 35, although households have about 6 members on average. 52% of the respondents report living in a nuclear household and only about 9% of the household heads are female. Finally, 43.7% of the households are urban.

### **3.3. Dependent Variables and Summary Statistics**

This analysis looks at women’s empowerment through three types of variables. The first type is concerned with a woman’s decision-making powers within the household. The second type addresses the freedom of movement of the women. Finally, the third type discusses the experiences of the women with domestic violence.

All the tables in this section provide the descriptive statistics for the total sample and for sub-categories within the sample. First, the sample is disaggregated by the respondent’s educational attainment, with each category representing different achievements in the Indian school system. The educational categories are taken directly from Ackerson *et.al.* (2008). The tables also present statistics by whether the woman has more education than her husband. The sample is categorized by work status and by

earnings of the woman in comparison to her husband as well. Wealth quintiles compose another section of the breakdown by categories. Last, but not least, the sample is separated by caste and religion.

Gender inequality is inextricably tied to other social and economic divisions in India, such as class, caste and religion. Belonging to a privileged class or caste can help overcome the barriers that come from being female. For example, even though South East Asian women are considerably underprivileged compared to men, both India and the surrounding countries have seen their share of female leaders: India, Pakistan, Bangladesh and Sri Lanka have all had women Prime Ministers.<sup>49</sup> Likewise, being from an underprivileged caste or class could potentially worsen the plight of women by further restricting their access to resources. On the other hand, upper classes or higher castes may place more restrictions on women in an effort to maintain the behavior appropriate for their desired status. Various curtailment practices mentioned earlier, such as *purdah* and *ghunghat*, which involve veiling and sometimes confinement to the house, are associated with certain religions and social classes. Alternatively, lower class or lower caste households who see their situation improve may restrict their women in order to improve their social standing. For all these reasons, a closer look at female empowerment disaggregated by religion, caste and class, in addition to education and work categories, is necessary.

### **3.3.1. Decision-Making**

The variables of the first type focus on decision-making about healthcare, household purchases and visits to the woman's family. The questions for the three

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<sup>49</sup> Sen, A. 2005.

variables have identical wording in the survey. During the interviews the respondents were asked who had the final say in: respondents' own healthcare; making large household purchases; and making visits to their family or relatives.<sup>50</sup> All these decisions are of strategic importance to women; the first and the third affect their individual needs and the second shapes their immediate environment.

The interviewees were presented with the following options for an answer: the respondent herself, the respondent together with her husband, the husband alone, and 'others', which may represent older family members alone or together with the respondent's husband.<sup>51</sup> Dummy variables were then constructed for the purposes of this thesis. The dummy for each autonomy variable was set equal to 1 if the respondent had any say in the decision, i.e. the respondent herself or the respondent and her husband together made the decision, and to 0 if the respondent had no say.

The descriptive statistics for decision-making are presented in Table 1. Overall participation of Indian women in decision-making seems severely restricted, especially when one keeps in mind that the demographic described is married adult women, who by all accounts should be capable of managing their own affairs. Only 27.2% of respondents report that they alone have a final say in their own healthcare and 62.3% total report having any say in their own healthcare. In terms of making visits to their family or relatives, 60.5% have a part in the final say on the decision and 10.7% make the decision alone. In general women report higher rates of participation in decisions that primarily concern themselves, such as their own healthcare or family visits. The decision-making participation rates are even lower for household decisions that affect the entire family,

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<sup>50</sup> IIPS and Macro International. 2007.

<sup>51</sup> Ibid.

**Table 1: Descriptive statistics for decision-making**

	Participates in decisions on:		
	Own Health	Large Purchases	Visits to own family
Obs	87857	87853	87855
<b>Total Sample</b>	62.3%	52.9%	60.5%
<b>By Educational Category:</b>			
No education	59.4%	51.5%	57.5%
1-5 years	61.3%	50.9%	59.4%
6-8 years	61.4%	50.7%	59.5%
9-10 years	66.2%	55.0%	64.8%
11-12 years	68.3%	56.9%	66.5%
More than 12 years	76.2%	66.7%	75.4%
<b>Wife-husband educational comparison:</b>			
Woman has more	67.1%	55.3%	64.5%
Woman has same/less	61.5%	52.6%	59.9%
<b>Work status and earnings:</b>			
Woman currently works	63.0%	55.4%	62.9%
Woman doesn't work	61.7%	51.1%	58.7%
Woman earns more than husband	73.0%	69.8%	73.9%
Husband earns more/same	61.9%	52.3%	60.1%
<b>By Wealth:</b>			
Poorest quintile	58.5%	51.2%	55.8%
2nd quintile	58.1%	49.2%	55.6%
3rd quintile	60.2%	49.7%	57.4%
4th quintile	63.7%	52.9%	61.9%
Richest quintile	70.3%	61.0%	71.1%
<b>By Caste/Tribe:</b>			
Scheduled Caste (SC)	63.1%	53.2%	60.3%
Scheduled Tribe (ST)	59.9%	54.8%	63.0%
Other Backwards Caste (OBC)	59.7%	51.5%	58.5%
Upper Caste	65.7%	54.6%	63.0%
<b>By Religion:</b>			
Hindu	61.6%	52.9%	60.5%
Muslim	61.6%	49.8%	55.1%
Christian	75.6%	69.2%	79.6%
Sikh	75.8%	49.2%	67.8%
Other	69.0%	61.1%	72.8%

Note: the sample sizes for each grouping of categories range from 84640 to 87925 observations

such as the making of large household purchases. 8.5% claim that they have a final say in large household purchases alone and only 52.9% report having any say at all.

As can be seen in Table 1, the decision-making power of women appears to vary noticeably across wealth and educational categories, as well as across castes and religions. Women from wealthier households tend to have more say in all types of decisions. 70-71% of the women belonging to the wealthiest quintile report that they have some say in decisions regarding themselves and 61% report some say in decisions regarding household purchases. This shows a 10-15 percentage point improvement between the poorest and the richest quintiles of the population. In the lowest two quintiles 55.6-58.5% of women have a say in decisions on their own healthcare and visits to their family and 49-51% report having a say in large household purchases.

Education also appears to significantly improve the participation of women in household decision-making. Achieving an educational milestone, such as moving from having no formal education to having some primary school education (1-5 grade), is associated with a 1-9 percentage point increase in decision-making participation, with the exact percentage point difference dependent on the educational categories and the variable in question. The increases in decision-making participation are highest for the highest educational categories. Overall, the disparity between the lowest educational group with no formal education to the highest education group with 13 or more years of education is about 15 percentage points in regards to household purchases variable (51.5% versus 66.7%) and about 17 percentage points in regards to the woman's own health care and family visits (57.5-59.4% versus 75.4-76.2%).

Women who have more education than their husbands participate more in all types of decision-making than the women who have the same level of education or less education than their husbands. The difference is largest in participation in decisions on the woman's own healthcare; the women who have more education report 67.1% participation versus the 61.5% participation of other women. This result is predictable, since one would hope that the more educated member of the household would participate in decision-making; however, the correlation between having more education and more say may not hold once we control for other factors, such as the wealth of the household or even the absolute levels of education of the couple.

Women who currently work have higher rates of participation in decision-making than women who do not. For example, 55.4% of women who work have a say in decisions regarding visits to their family whereas 51.1% of women who do not have a say, which is a 4.3 percentage point difference. Women who earn more than their husbands have noticeably larger decision-making powers than those who do not: 52.3% of women who earn less than their husbands versus 69.8% of women who earn more report participation in decisions regarding large household purchases.

Various caste groups have similar rates of women's participation in decision-making, although OBC women have the lowest decision-making rates for all the variables. Among different religious groups participation rates depend markedly on the type of decision involved. Sikh women, for instance, have the lowest rate of participation in decisions on large purchases (at 49.2%), but have the most say in their own healthcare (at 75.8%). Christian women have the highest rates of participation in decision-making

for large purchases and visits to their family, and are barely behind Sikh women for decisions on their own health.

### **3.3.2. Freedom of Movement**

The variables of the second type focus on the freedom of movement of the respondents. The three variables follow the same construction pattern, much like the decision-making variables. The NFHS asked the women if they were usually allowed to go to the market, the health facility or to places outside the village/community alone. We then constructed dummy variables to equal 1 if the particular woman was allowed to go to the destination alone and 0 if the woman was only allowed to go with someone else or not permitted to go at all. The descriptive statistics for these variables, both in total and divided by categories, are presented in Table 2.

Access to these three locations is vital for both the women's well being and their meaningful participation in the economy. The ability to freely go to the market, for example, is needed for both the economic and social participation in the community. Out of the currently married sample, 52.8% reported that they are allowed to go to the market alone. In respect to going to the health facility, 50.2% of the women reported that they were allowed to go alone. 39.3% of the women were allowed to go alone outside the community.

As with decision-making, there are notable differences in women's freedom of movement across various population categories. The differential in women reporting that they are allowed to go to the three locations alone between the poorest quintile and the richest quintile is 20-27 percentage points, depending on the location. For example, only 42.8% of the women in the poorest quintile can go to the market alone, but for the

**Table 2: Descriptive statistics for freedom of movement**

	Allowed to go alone to:		
	Market	Health Facility	Outside Community
Number of observations	87904	87904	87899
<b>Total Sample</b>	52.8%	50.2%	39.3%
<b>By Educational Category:</b>			
No education	49.1%	46.2%	35.7%
1-5 years	49.4%	48.2%	37.4%
6-8 years	51.7%	49.7%	38.1%
9-10 years	57.5%	54.6%	43.9%
11-12 years	60.5%	57.8%	44.7%
More than 12 years	77.8%	73.7%	61.6%
<b>Wife-husband educational comparison:</b>			
Woman has more	56.6%	54.9%	43.8%
Woman has same/less	52.3%	49.5%	38.5%
<b>Work status and earnings:</b>			
Woman currently works	58.3%	54.9%	45.2%
Woman doesn't work	48.8%	46.8%	34.9%
Woman earns more than husband	69.9%	66.6%	59.3%
Husband earns more/same	52.3%	49.7%	38.6%
<b>By Wealth:</b>			
Poorest quintile	42.8%	40.7%	30.2%
2nd quintile	44.2%	42.9%	33.9%
3rd quintile	50.4%	48.2%	38.1%
4th quintile	55.8%	52.7%	41.4%
Richest quintile	69.4%	65.4%	51.6%
<b>By Caste/Tribe:</b>			
Scheduled Caste (SC)	54.6%	52.1%	39.9%
Scheduled Tribe (ST)	50.3%	44.1%	35.6%
Other Backwards Caste (OBC)	51.0%	47.7%	37.1%
Upper Caste	55.6%	54.3%	42.4%
<b>By Religion:</b>			
Hindu	53.4%	50.3%	39.4%
Muslim	43.6%	44.7%	32.8%
Christian	70.2%	65.4%	54.7%
Sikh	57.6%	55.4%	49.5%
Other	72.1%	68.4%	55.5%

Note: the sample sizes for each grouping of categories range from 84640 to 87925 observations



women in the wealthiest quintile the proportion increases to 69.4%. Education also seems to have a strong positive effect, although the effects appear to be larger for higher educational categories, namely after completing more than 5 years of education. The differential between the lowest and the highest categories is over 25 percentage points. 46.2% of women with no formal education testify that they are allowed to go alone to the health facility, while 73.7% of women with more than a 12<sup>th</sup> grade education say they can go alone, for instance. Women who have more education than their husbands report higher rates of freedom of movement, by 4-5 percentage points, than others.

Working women have more freedom than those who do not work by approximately 8-10 percentage points, depending on the variable; in regard to going outside the community, 45.2% of working women are allowed to go alone compared to 34.9% of non-working women. About 17 percentage points more women who earn more than their husbands are permitted to go to whatever destination alone: 59.3% of women who earn more compared to 38.6% of those who do not can go outside the community alone.

### **3.3.3. Reported autonomy and actual outcomes**

A question remains: how do the measures of reported participation in decision-making and reported freedom of movement compare to the actual outcomes? It is possible that even though women with certain characteristics perceive themselves as having more autonomy and freedom, their perceptions in reality do not actually affect the outcomes and they are no more empowered than other individuals with lower reported autonomy rates. It is also possible that women with higher educational status or income claim to have more participation in decision-making for other reasons, for instance if

heightened realization of their disadvantage results increased shame at being repressed. While this is unlikely, it is important to look at a household-level outcomes preferable to women and establish its correlation with women's autonomy measures.

One such outcome for which NFHS-3 provides sufficient data is having a flushing toilet in the household. Thakkar (2010), stresses the comparative importance of sanitary toilet facilities for women. According to Thakkar, "restricted toilet opportunities increase chances of urinary tract infection and chronic constipation as well as psychological stress", since it is difficult for women to find appropriately private spaces outside. A need for sanitary toilet facilities is especially acute during menstruation, pregnancy and post-natal period. She also finds that "whenever women are consulted, the demand for safe water and adequate sanitation, including both toilet and bathrooms is strongly expressed."<sup>52</sup>

This analysis therefore constructs a dummy variable for availability of a flushing toilet in the household, and regresses it on the measures of women's autonomy and freedom of movement as well as on household wealth. We find that all the measures of autonomy and freedom in this analysis have a positive significant effect on the presence of a flushing toilet in the household, as seen in Table 3. It therefore appears that the decision-making and freedom of movement variables employed in this thesis at least to some extent capture female empowerment.

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<sup>52</sup> Thakkar. 2010.

**Table 3: Household has a flushing toilet facility**

	(1)	(2)	(3)	(4)	(5)	(6)
<u>Participates in decisions on:</u>						
Own Health	0.027*** (0.002)					
Large Purchases		0.019*** (0.002)				
Visits to own family			0.028*** (0.002)			
<u>Allowed to go alone to:</u>						
Market				0.026*** (0.002)		
Health Facility					0.032*** (0.002)	
Outside community						0.017*** (0.002)
Wealth index: Bottom quintile	-0.218*** (0.004)	-0.218*** (0.004)	-0.218*** (0.004)	-0.216*** (0.004)	-0.216*** (0.004)	-0.217*** (0.004)
Wealth index: 2nd quintile	-0.157*** (0.004)	-0.158*** (0.004)	-0.157*** (0.004)	-0.156*** (0.004)	-0.156*** (0.004)	-0.157*** (0.004)
Wealth index: 4th quintile	0.401*** (0.004)	0.401*** (0.004)	0.400*** (0.004)	0.400*** (0.004)	0.400*** (0.004)	0.401*** (0.004)
Wealth index: Top quintile	0.711*** (0.004)	0.711*** (0.004)	0.710*** (0.004)	0.709*** (0.004)	0.708*** (0.004)	0.711*** (0.004)
Constant	0.214*** (0.003)	0.221*** (0.003)	0.214*** (0.003)	0.217*** (0.003)	0.215*** (0.003)	0.224*** (0.003)
Observations	87025	87027	87026	87066	87063	87061
R-squared	0.540	0.540	0.540	0.540	0.540	0.540

Note: Robust standard errors in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

### 3.3.4. Domestic Violence

An entirely different set of dependent variables focuses on the experiences of the respondents with domestic violence, or, more specifically, physical violence from their husbands. Domestic violence is an extremely sensitive subject, which, as discussed earlier, is likely to be underreported. The underreporting occurs for various reasons, among which are shame about talking on such a private issue, fear of repercussion from the abuser, and misunderstanding of what constitutes domestic violence.<sup>53</sup>

<sup>53</sup> IIPS and Macro International. 2007.

The NFHS-3 underwent several steps in order to maximize the disclosure of domestic violence. The interviewers were trained to collect the data in a sensitive and confidential manner and to establish a connection with the interviewee in order to overcome the issue of shame. Additionally, the interviews were designed to minimize the chances of backlash against women who disclose domestic violence. In order to ensure that there are no repercussions for reporting violence, the interviews were only conducted if a private place could be found for their duration. Moreover, only one woman in each household was given the domestic violence questionnaire to guarantee that other household members were not aware of the questionnaire's existence.<sup>54</sup> Due to these restrictions the sample size for the violence variables was reduced to around 62,300. The distribution of demographic characteristics of the women omitted for various reasons is virtually identical to the distribution of the entire sample,<sup>55</sup> so these omissions should not result in an introduction of a significant bias.

The questionnaire itself was constructed to measure violence in the most complete and effective manner as well. Since different women and population subgroups can perceive what constitutes domestic violence differently, simply asking women if they have experienced, "violence" can result in significant under-estimation of domestic violence.<sup>56</sup> Instead, NFHS-3 follows a shortened and modified Conflict Tactics Scale (CTS)<sup>57</sup>. The CTS method measures incidences of violence by asking about specific violent acts, such as slapping or kicking, rather than generalized experience of violence,

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<sup>54</sup> IIPS and Macro International. 2007.

<sup>55</sup> Ibid.

<sup>56</sup> Ellsberg et. al. 2001.

<sup>57</sup> Straus. 1990.

and in fact avoids mentioning terms like “abuse” and “violence”. The multiplicity of questions also has a positive benefit of allowing people several opportunities to disclose violence, which increases the report rates. The specificity of the question makes it easier to assess the severity of violence in a more objective manner as well.

The women interviewed were asked the following question: *(Does/did) your husband ever do any of the following things to you:*

- a) Slap you?*
- b) Twist your arm or pull your hair?*
- c) Push you, shake you, or throw something at you?*
- d) Punch you with his fist or with something that could hurt you?*
- e) Kick you, drag you or beat you up?*
- f) Try to choke you or burn you on purpose?*
- g) Threaten or attack you with a knife, gun, or any other weapon?*
- h) Physically force you to have sexual intercourse with him even when you did not want to?*
- i) Force you to perform any sexual acts you did not want to?*

An indicator of violence experienced by the women was then constructed based on the responses to these queries. If the woman reported experiencing any of the behaviors in (a)-(d), she was reported as experiencing less severe violence; (e)-(g) constituted severe violence and (h) and (i) sexual violence. Since the effects of most of the explanatory variables are similar across the three types of violence, this analysis uses a composite indicator, where a woman is reported as having experienced violence if she has ever experienced any of the behaviors (a)-(i), regardless of the severity or characteristics of the violent act.<sup>58</sup> The dependent dummy variable is therefore set equal

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<sup>58</sup> IIPS and Macro International. 2007.

to 1 if the woman reported any violent behaviors towards herself and 0 if none of the violent behaviors occurred.

Clearly, despite all efforts it is likely that violence will go underreported; moreover, it is entirely possible that certain groups are more likely than others to underreport domestic violence. For example, more educated women or wealthier women may be more ashamed to report that they experience domestic violence than poor or less educated women, since for the latter groups it is a more likely a common experience and therefore less of a taboo subject. The differentials between more educated and less educated groups, for example, may therefore be exaggerated. On the other hand, it is possible that more educated or wealthier women may realize the unacceptability of their situation more and therefore be more likely to report it, so the bias may run either way. Taking the precautions described above and investing in significant training for the interviewers should reduce this unavoidable bias.

Table 4 presents the descriptive statistics for domestic violence. Out of the women interviewed, 36.7% report experiencing at least one violent behavior from their husband during their lifetime. The experience of domestic violence differs significantly by wealth of the household. In the poorest quintile of women, 49.3% report experiencing violence from their current spouse, while in the richest quintile 17.8% report the same, which is a 31.5 percentage point difference. Curiously, the difference between the wealthiest quintile and the second wealthiest quintile is almost 15 percentage points, so wealth may not have a uniform effect.

Education seems to have a dramatic decreasing effect on violence as well. Of the group with no formal education, 46.5% reports experiencing domestic violence, whereas

**Table 4: Descriptive statistics for domestic violence**

	Ever Experienced Violence from Husband	Ever got injuries due to husband's violence
Number of observations	65575	65499
<b>Total Sample</b>	36.7%	13.4%
<b>By Educational Category:</b>		
No education	46.5%	18.4%
1-5 years	39.0%	14.0%
6-8 years	31.7%	10.0%
9-10 years	22.9%	6.9%
11-12 years	16.1%	4.1%
More than 12 years	9.6%	2.1%
<b>Wife-husband educational comparison:</b>		
Woman has more	30.8%	10.6%
Woman has same/less	37.7%	13.9%
<b>Work status and earnings:</b>		
Woman currently works	42.9%	16.8%
Woman doesn't work	32.0%	10.9%
Woman earns more than husband	47.4%	22.0%
Husband earns more/same	36.3%	13.1%
<b>By Wealth:</b>		
Poorest quintile	49.3%	19.6%
2nd quintile	45.9%	18.1%
3rd quintile	39.8%	14.8%
4th quintile	32.1%	10.3%
Richest quintile	17.8%	5.1%
<b>By Caste/Tribe:</b>		
Scheduled Caste (SC)	45.5%	17.5%
Scheduled Tribe (ST)	43.2%	15.0%
Other Backwards Caste (OBC)	37.2%	14.5%
Upper Caste	28.9%	9.2%
<b>By Religion:</b>		
Hindu	36.5%	13.4%
Muslim	40.5%	14.4%
Christian	29.4%	13.0%
Sikh	23.1%	10.7%
Other	38.1%	12.3%

Note: the sample sizes for each grouping of categories range from 84640 to 87925 observations

only 9.6% of the women with 13 or more years of education report the same. The reduction of violence across educational categories is more uniform than that of wealth. Even within the low-education categories, moving from one category to another reduces one's chances of experiencing violence by 7-8 percentage points. On average 30.8% of women who have more education than their husbands experience domestic violence, which is 7 percentage points less than women who have same or lower educational level.

Oddly, 42.9% of women who currently work report domestic violence, compared with 32% of women who do not. A similar effect is observed for women who make more than their husbands. The rate of domestic violence for women with higher earnings stands at 47.4%, which is 11 percentage points higher than that for women with lower or no earnings.

Differences in domestic violence experiences across caste appear to be tied to historical privilege. The most historically disadvantaged groups, Scheduled Castes and Scheduled Tribes, report the highest levels of domestic violence with 45.5% and 43.2% respectively. 37.2% of the slightly more privileged Other Backwards Caste women experience violence. Finally, the most privileged social group, the Upper Castes, report 28.9% rate of domestic violence. Across religions, domestic violence is highest for Muslims at 40.5%, second highest for Hindus at 36.5% and lowest for Sikhs at 23.1%.

The last dependent variable is an indicator of injuries due to domestic violence. Obtaining the data for this variable has the same concerns associated with it as with domestic violence. The same procedures were followed in order to collect the most reliable data possible, including the breakdown of "injuries" into easily defined



subcategories.<sup>59</sup> Specifically, the women were asked “if, as a consequence of what their husbands did to them, they ever had any of four different sets of injuries: 1) cuts, bruises or aches; 2) severe burns; 3) eye injuries, sprains, dislocations, or minor burns; and 4) deep wounds, broken bones, broken teeth or any other serious injury.”<sup>60</sup> For the purposes of this thesis, an injury indicator is constructed that is set equal to 1 if the woman reported any of the injuries mentioned and 0 if she reported none. As can be seen in Table 4, 13.4% of the total sample reported experiencing an injury due to their husbands’ abusive behavior.

Injury rates decrease perceptibly as wealth of the household rises: 19.6% of the women in the poorest quintile report receiving an injury, while 5.1% in the wealthiest quintile do. The decrease appears to be uniform at about 4-5 percentage points from quintile to quintile, except for the bottom two quintiles which only register a 1.5 percentage point difference. Injury rates among women with no formal education stand at 18.4%, while having 1-5 years of education reduces them to 14%. The reduction is most notable at the lowest levels of education; moving from having 11-12 years of education group to the more than 12 years of education group decreases the injury rates from 4.1% to 2.1%. The difference between the women who have more education than their husbands and those who do not is 3.3 percentage points.

As with domestic violence, working women, especially those who earn more, experience much higher rates of injury. 10.9% of women who do not work report an injury due to violence, whereas 16.8% of working women do. The difference is even more dramatic for higher earners: injury rate stands at 22%, compared with 13.1% of

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<sup>59</sup> IIPS and Macro International. 2007.

<sup>60</sup> IIPS and Macro International. 2007.

women who do not make more than their husbands.

Finally, breakdowns by caste and religion for injuries demonstrate the same trends as the violence variable.

### **3.3.5. Descriptive statistics summary**

Descriptive statistics have demonstrated that Indian women are disempowered absolutely, with low rates of participation in decision-making and restricted freedom of movement. Women also experience high rates of domestic violence and injuries from violence, standing at 36.7% and 13.4% respectively. Disaggregating the statistics by demographic characteristics suggests certain correlations between the dependent variables and variables of interests, which will be explored in more detail in Chapter 4. First of all, women in higher categories of educational achievement have more autonomy and freedom of movement, and report much lower rates of domestic violence and injury than women with less education. Women who have more education than their husbands also benefit across the board. Wealth categories have similar effects to education: women are better off in higher categories for all dependent variables. Women who work and especially those who earn more have higher rates of autonomy and freedom but also noticeably higher rates of domestic violence and injuries.

### **3.4. Model**

The core part of this thesis is a regression analysis of the effects of education and wealth on women's empowerment. The analysis employs a standard linear probability model:

$$Y_{it} = \beta_0 + \beta_1(Edu) + \beta_2(HusbEdu) + \beta_3(WomanHasMoreEdu)$$

$$\beta_4(\text{Wealth}) + \beta_5(\text{WomanWorks}) + \beta_6(\text{WomanEarnsMore}) + \beta_7(\text{Other Controls})$$

The specification of the model is influenced by Jensen and Oster (2008), and Rahman and Rao (2004). Table 5 provides the summary characteristics of all the explanatory variables, except for the wealth quintiles.<sup>61</sup>

**Table 5: Summary statistics of the explanatory variables**

Variable	Obs.	Mean	Std. Dev.
Education	87920	4.31	4.89
Husband's Education	87182	6.63	5.18
Woman has more education	87177	0.15	0.36
Woman currently works	87779	0.43	0.49
Husband doesn't work	87657	0.02	0.13
Woman earns more	87925	0.03	0.18
Media Access	87876	0.61	0.49
Age	87925	31.40	8.61
Husband's Age	87623	37.11	9.63
Age at 1st marriage	87925	17.16	3.46
Woman's father beat her mother	60813	0.20	0.40
Scheduled Caste (SC)	84640	0.19	0.39
SC and in top 2 wealth quintiles	84640	0.05	0.22
Scheduled Tribe (ST)	84640	0.08	0.28
Other Backwards Caste (OBC)	84640	0.41	0.49
Upper Caste	84640	0.32	0.46
Religion: Hindu	87813	0.82	0.39
Muslim	87813	0.13	0.34
Christian	87813	0.02	0.15
Sikh	87813	0.02	0.13
Other religion	87925	0.01	0.12
Household head is female	87925	0.09	0.29
Number of household members	87925	6.17	3.18
Number of live children woman has	87925	2.52	1.70
Lives in nuclear household	83556	0.52	0.50
Urban	87925	0.31	0.46

*Edu* and *HusbEdu* and are the completed years of the respondent's and her husband's education, respectively, and *WomanHasMoreEdu* is a dummy variable indicator for whether the woman has more education than her husband. As noted, the

<sup>61</sup> It also excludes the statistics for state fixed effects that are present in the model.

mean value of women's education is 4.3 years, and that of their husbands' is 6.6 years, and 15% of the women have more education than their husbands.

*WomanWorks* is the dummy variable for whether the woman currently works, regardless of whether or not she is paid. 43% of women report working within the past year, although many of them are paid in kind or are not paid at all. *WomanEarnsMore* is the dummy indicator for whether the respondent has higher earnings than her husband; this includes both the case where the husband works and has a lower income or if the husband does not work when the respondent does. Only 3% of women earn more than their husbands. Finally, *Wealth* represents four dummy variables constructed from the NFHS-3 provided wealth index. The wealth index is assembled from available information on household residence conditions and ownership of various assets. The index is partitioned into quintiles; for the purposes of this study we constructed a dummy variable for each quintile, excluding the middle quintile to avoid multi-collinearity.

Other controls in the model include various personal, household, demographic and geographic characteristics. In addition to controlling for various educational and employment factors, the individual-level controls of the model include ages of both the respondent and the husband, the quadratic of the respondent's age, the age of the respondent at her first marriage and how much media access the woman has. As mentioned, the age of the women ranges from 15-49, with the mean at 31.4 years of age and the age of their husbands ranges from 10-95, with the mean at 37.1 years of age.

The model also controls for household-level characteristics, such as the number of members in the household (with 6 household members the mean), number of living children the woman has (2.5 on average), whether the household is nuclear (52% of

households), and whether the household head is female (9% of all households) or male. Demographic characteristics include whether the household belongs to a scheduled caste or tribe, or to the 'other backwards castes' categories. The model includes the religion of the respondent as well, which involves five categories, with Hindu category as the default. The model also includes a dummy variable for whether the household is urban, which is the case for 44% of the population. Finally, geographic explanatory variables include state fixed effects, with Bihar and Delhi excluded to prevent multi-collinearity.

## **4. Results and Discussion**

This chapter presents the regression analysis. The first section of this chapter will present the main results and discuss the effects of women's and men's education. The second section will address the finding of male backlash against more educated or higher-earning women. The third section will present the effects of wealth and discuss the phenomenon of Sanskritization. Finally, the last section will briefly confer some of the noteworthy effects of other independent variables included in the model.

### **4.1. Educational Effects**

While one would hope that education would improve gender inequality regardless of the gender of the recipient due to its liberalizing effects, it is important to investigate the effects of education on women and men separately. While women's education is likely to have positive effects on autonomy, and also likely to decrease domestic violence, the effects of men's education could go either way. The main results regarding education and wealth effects are presented in Table 6. Although the table only presents the coefficients for education and wealth, the regression it uses includes a full set of controls, which are presented separately in Table 10, as well as the backlash and Sanskritization indicators from Tables 7 and 9.

As expected, women's education has positive effects across the board, although the effects are not large. Holding the husband's education constant, an additional year of education raises a woman's chances of participation in decision-making by 0.5 to 0.9 percentage points (p.p.) depending on the variable, at the 1% significant level. Freedom of movement of a woman also improves significantly: the likelihood of the woman being allowed to go to the three destinations alone increases by 0.9-1.1 p.p. with an additional

year of education. The effects on domestic violence are beneficial as well: a woman's chances of experiencing any of the forms of physical abuse from her husband decreases by .5 p.p. with each extra year of her education, and the rate of injuries due to domestic abuse decreases by .3 p.p.

**Table 6: Main Regression. Education and wealth effects on women's empowerment**

	Participates in decisions on:			Allowed to go alone to:			Violence	Injuries
	Own Health (1)	Large Purchases (2)	Visits to own family (3)	Market (4)	Health Facility (5)	Outside Community (6)	Outcomes (7)	(8)
Education	0.009*** (0.001)	0.007*** (0.001)	0.005*** (0.001)	0.009*** (0.001)	0.011*** (0.001)	0.011*** (0.001)	-0.010*** (0.001)	-0.003*** (0.001)
Husband's education	-0.004*** (0.001)	-0.002*** (0.001)	-0.001* (0.000)	-0.005*** (0.000)	-0.004*** (0.000)	-0.003*** (0.000)	-0.003*** (0.001)	-0.002*** (0.000)
Wealth index: Bottom quintile	-0.002 (0.006)	0.015** (0.006)	0.004 (0.006)	-0.028*** (0.006)	-0.031*** (0.006)	-0.020*** (0.006)	0.020*** (0.007)	0.024*** (0.005)
Wealth index: 2nd quintile	-0.008 (0.005)	0.001 (0.005)	-0.000 (0.005)	-0.021*** (0.005)	-0.017*** (0.005)	-0.006 (0.005)	0.026*** (0.006)	0.024*** (0.005)
Wealth index: 4th quintile	0.009 (0.006)	0.000 (0.006)	0.010* (0.005)	0.017*** (0.005)	0.003 (0.006)	0.001 (0.005)	-0.042*** (0.007)	-0.023*** (0.005)
Wealth index: Top quintile	0.022*** (0.007)	0.018*** (0.007)	0.044*** (0.007)	0.065*** (0.006)	0.042*** (0.007)	0.028*** (0.007)	-0.121*** (0.008)	-0.050*** (0.006)
Constant	0.003 (0.026)	-0.133*** (0.026)	-0.015 (0.026)	-0.461*** (0.025)	-0.532*** (0.026)	-0.427*** (0.025)	0.344*** (0.031)	0.093*** (0.023)
Observations	83837	83839	83841	83871	83869	83866	56410	56363
R-squared	0.078	0.127	0.130	0.197	0.166	0.151	0.117	0.064

Note: Full set of controls included (Additional variables presented in tables 7, 8 and 9). State fixed effects included. Injuries variable defined over all women chosen for the domestic violence questionnaire. Robust standard errors in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Possible channels through which this positive effect is achieved have already been discussed in the second chapter of this paper, but are worth reiterating. First of all, education empowers women through increasing their skills and employment opportunities and therefore improving women's bargaining power in relation to their husbands'. Since the woman's backup options improve and her value in the relationship increases, she is both more likely to get her opinions heard and is less likely to experience abuse. A more educated and knowledgeable woman's opinions are also more likely to be

taken into account when making household decisions. It is more difficult to deny a woman her right to make decisions on her own well-being on the basis of her potentially making a bad, uninformed choice if that woman is educated. A woman's access to the outside world also means the exposure to new information and ideas, including ideas on gender equality and empowerment. Thus more education not only gives a woman increased means to reach her goals, but may help her develop a sense of self-worth and a conviction that her situation can and should be improved.

Men's education, on the other hand, does not have equally beneficial effects across all variables. Domestic violence and injuries decrease by 0.2 p.p. per each additional year of the husband's education, a finding that is consistent with previous studies on the subject.<sup>62</sup> The results are also consistent with reasonable expectations, since men with more education are less likely to find it acceptable or justifiable to abuse their wives. Moreover, men with more education are more likely to have better employment opportunities and a higher social status, relieving undue stress and thus reducing the possibility of taking their frustrations out on their wives. Men of higher standing are also less likely to feel threatened by their wives successes to the point of resorting to physical violence.

The effects of men's education on women's autonomy are less favorable. Both decision-making participation and freedom of movement of women decrease as their husbands' educational attainment increases. There are a few possible reasons for this effect. First of all, it could potentially come from entirely benevolent causes. For example, it is possible that since the men have more education and are therefore more

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<sup>62</sup> Ackerson et. al. 2008.



knowledgeable and better at making decisions, it becomes their delegated task in the family, thereby decreasing their wives' participation in decision-making. It is also possible, although not likely, that more educated men actually care for their wives more and are thus more worried about the dangers of letting women go out alone, which would make them more likely to restrict their wives' freedom.

On the other hand, it is probable that education is simply not having a large liberalizing effect on men; it is enough to decrease domestic violence but not to increase autonomy. It is also possible that an effect similar to Sanskritization is present, and as the household's status rises with the male's education the women are more restricted for propriety's sake. Another feasible explanation is that due to the men's increased skills and value, an augmentation in men's bargaining power within the household vis-à-vis the women occurs, which would lead to less favorable outcomes for the women under the basic household bargaining model assumptions. In any case, it appears that increases in education do not have a purely beneficial effect if the men are the ones getting more educated. This suggests a need for more directed educational interventions in favor of women in order to promote women's empowerment. Alternatively, adjusting the character of education towards promoting gender equality, if that is possible, may have a positive effect as well.

#### **4.2. Male Backlash to Women's Education and Employment**

An unexpected finding of this study is that having more education than one's husband carries repercussions. Although having more education overall increases autonomy and decreases the chances of domestic violence, having a higher educational attainment than one's husband has a negative effect on both sets of variables, controlling

for both the spouses' education. As seen in Table 7, freedom of movement of women decreases if their educational level is higher than their husbands. The rates of ever experiencing domestic violence and of injuries, on the other hand, increase at 1% significance level for all the coefficients.

**Table 7: Male backlash?**

	Participates in decisions on:			Allowed to go alone to:			Violence	Injuries
	Own Health (1)	Large Purchases (2)	Visits to own family (3)	Market (4)	Health Facility (5)	Outside Community (6)	Outcomes (7)	(8)
Education	0.009*** (0.001)	0.007*** (0.001)	0.005*** (0.001)	0.009*** (0.001)	0.011*** (0.001)	0.011*** (0.001)	-0.010*** (0.001)	-0.003*** (0.001)
Husband's education	-0.004*** (0.001)	-0.002*** (0.001)	-0.001* (0.000)	-0.005*** (0.000)	-0.004*** (0.000)	-0.003*** (0.000)	-0.003*** (0.001)	-0.002*** (0.000)
Woman has more education	-0.001 (0.006)	0.005 (0.006)	0.004 (0.006)	-0.020*** (0.006)	-0.010* (0.006)	-0.011** (0.006)	0.039*** (0.007)	0.010* (0.005)
Woman currently works	0.027*** (0.004)	0.031*** (0.004)	0.028*** (0.004)	0.091*** (0.004)	0.089*** (0.004)	0.111*** (0.004)	0.041*** (0.004)	0.024*** (0.003)
Husband does not work	0.054*** (0.012)	-0.010 (0.012)	-0.029** (0.012)	0.002 (0.012)	0.010 (0.012)	0.002 (0.012)	0.015 (0.015)	0.024** (0.011)
Woman earns more than husband	0.045*** (0.009)	0.088*** (0.009)	0.052*** (0.009)	0.036*** (0.009)	0.041*** (0.009)	0.073*** (0.009)	0.072*** (0.011)	0.063*** (0.008)
Constant	0.003 (0.026)	-0.133*** (0.026)	-0.015 (0.026)	-0.461*** (0.025)	-0.532*** (0.026)	-0.427*** (0.025)	0.344*** (0.031)	0.093*** (0.023)
Observations	83837	83839	83841	83871	83869	83866	56410	56363
R-squared	0.078	0.127	0.130	0.197	0.166	0.151	0.117	0.064

Note: Full set of controls included (Tables 6, 8, and 9). State fixed effects included. Injuries variable defined over all women chosen for the domestic violence questionnaire. Robust standard errors in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Although the rates for decision-making participation do not decrease significantly, the fact that they are not positive is telling in itself. One would expect that if a household wanted to optimize outcomes, a more educated member would be in charge of decision-making, or at least that educated women would be permitted to make the decisions concerning themselves. However, women that have more education than their husbands are no more likely to be included in decisions.

These findings suggest a presence of male backlash: men feel threatened in their traditional masculine gender role by the women's increasing status, especially once the women's achievements trump the achievements of their husbands. Men will therefore attempt to "control" this situation and the "threat" from the woman by restricting the woman and even suppressing her through violence.

The finding of male backlash in reaction to increases in women's education is not unique, although it is rather rare in the research on the subject. As mentioned before, Ackerson et. al. (2008) using the earlier NFHS-2 data find that women who are more educated than their husbands are more likely to report lifetime and recent abuse, but their research does not extend to measures of autonomy. The backlash phenomenon has also been observed in other developing countries, such as Albania<sup>63</sup> and Peru<sup>64</sup>. However, other studies in India, such as Panda and Agarwal (2005), have found no relationship between the spousal differential and domestic violence experience. Nevertheless, Panda and Agarwal's analysis is limited to the state of Kerala only, which does not have dramatic educational differentials between wives and husbands, whereas Ackerson's analysis, like this study, uses a nationally representative dataset.

The finding of male backlash varies across different regions, castes, religions and wealth categories, but occurs to some extent in roughly half of them. In general, it appears that the more privileged the category, the more likely the backlash effect to be present. For instance, the backlash effect in freedom of movement is significant for the top two wealth quintiles but not for the bottom two. However, the violence backlash effect is comparable for the two top and two bottom quintiles, and is actually lowest for

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<sup>63</sup> Burazeri et. al. 2005.

<sup>64</sup> Flake, D.F. 2005.

the middle quintile. The breakdown of modernization effects by various population categories can be seen in Tables A1-A9 of the appendix.

In order to verify the existence of the backlash effect this study included another similar dependent variable: whether the woman earns more than her husband. The dummy variable is set to equal 1 if the woman makes more money than her husband, which includes both the case where the husband works and has a lower income or if the husband does not work while the respondent does. The variable is set equal to 0 otherwise, whether the woman works or not. In order to control for employment, a dummy variable for whether the woman currently works is included in the analysis as well. The effects of both variables can be seen in Table 7.

Both variables have a significant positive correlation with domestic violence and injuries: women who are currently employed are 2.7 p.p. more likely to experience abuse and women who earn more are 5.3 p.p. more likely to experience abuse than those who do not. Chances of experiencing an injury go up by 2.4 p.p. and 6.3 p.p. for the two indicators, respectively. All coefficients are significant at the 1% level. These findings are once again consistent with the male backlash theory. An alternative explanation is that men use violence against their employed wives in order to extract the earnings from the women. However, the finding of backlash against more educated women suggests that backlash is present against working women as well, even if the violence increase is partially driven by other factors.

Work and higher earnings variables also have a positive and significant (at the 1% level) correlation with both types of empowerment variables, which is the opposite of the effect of the indicator of higher education of the women. Women who work and women

who make more than their husbands therefore face more domestic violence but also have greater freedom of movement and powers of decision-making. The effects are particularly strong for decision-making on household purchases, indicating that the women use their earnings to successfully negotiate a more significant position for themselves in the household. It is possible that this incongruity occurs because placing restrictions on working women is more difficult, since they are often required to freely move around in order to perform their work tasks. An alternative explanation is that of reverse causality; women who have more education than their husbands but do not earn more may have been prevented from realizing the labor market returns to their education precisely due to their husbands' restrictive behavior.

One aspect that makes one hopeful about the benefits of education despite the presence of a backlash is that the backlash effect is not observed at very high levels of education. Table 8 presents the indicator effects for women with more than 12

**Table 8: Modernization effects for women with more than 12 years of education**

	Participates in decisions on:			Allowed to go alone to:		Violence Outcomes	Injuries	
	Own Health	Purchases	Visits to own family	Market	Health Facility			Outside Community
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Woman has more education	-0.004 (0.013)	-0.009 (0.013)	-0.035*** (0.012)	-0.007 (0.011)	0.006 (0.012)	0.005 (0.014)	0.016 (0.011)	0.005 (0.005)
Woman currently works	0.060*** (0.014)	0.091*** (0.015)	0.069*** (0.013)	0.101*** (0.013)	0.131*** (0.013)	0.187*** (0.015)	0.005 (0.012)	0.003 (0.006)
Woman earns more than husband	-0.022 (0.027)	0.013 (0.028)	0.042* (0.025)	-0.028 (0.024)	-0.024 (0.026)	0.023 (0.029)	0.042* (0.023)	0.014 (0.012)
Constant	0.153 (0.140)	-0.165 (0.146)	-0.248* (0.132)	0.398*** (0.126)	-0.650*** (0.136)	-0.474*** (0.150)	-0.035 (0.124)	0.062 (0.062)
Observations	4911	4912	4912	4914	4914	4914	3250	3249
R-squared	0.063	0.162	0.180	0.164	0.156	0.161	0.063	0.036

Note: **Full set of controls included.** State fixed effects included. Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

years of education and demonstrates that the harmful effects on violence and control are barely present. Unfortunately, due to the small sample size it is possible that the estimations are simply not accurate. However, if the estimations are true and the backlash effect disappears for highly educated women, education may at least resolve one of its potential negative effects in time without further intervention. Although, the backlash effect is present for all educational categories under 13 years, so this resolution may take awhile.

### **4.3. Household Wealth Effects and Sanskritization**

#### **4.3.1. Wealth Effects**

Controlling for all other factors, wealth generally has a positive correlation with both measures of a woman's empowerment, as seen in Table 6. The effects are less pronounced for participation in decision-making, even regarding the woman herself: only the women in the top quintile are better off than the other four quintiles for all three measures at the 1% significance level. Moreover, in terms of participation in household-level decisions, such as the making of large purchases, both the wealthiest quintile and the poorest quintile participate the most in the decisions, while the middle three quintiles are worse off.

The effects of wealth on freedom of movement are unambiguously positive and significant (at the 1% level), as seen in columns (4)-(6) of Table 6. Overall, women from the poorest quintile are 2 p.p. to 3.1 p.p. less likely to be able to go to the three locations alone than those in the middle quintile, with the exact difference dependent on the destination. Women from the wealthiest quintile, on the other hand, are 2.8 p.p. to 6.5 p.p. more likely than the middle quintile women to be able to go to the three locations

alone. The positive effect may be attributable to the fact that greater wealth usually leads to greater exposure to the world and therefore to liberal ideas, like gender equality, that are associated with modernization. Greater wealth and social status also permit for more non-traditional behavior without condemnation of the community. Qualitative research often observes that social norms can be contested and village leaders and the wealthy members of the community often decide which actions are acceptable and which are censured.<sup>65</sup> Economic power and political power are often linked, so even though the wealthy women may be disadvantaged compared to their husbands, they may still possess more influence than other members of the community, and therefore may have some means of shaping social and religious norms to their own advantage where the poor women simply have to comply.

The effects of wealth increases on violence are negative and significant at the 1-5% levels throughout; poor women are much more likely to experience domestic abuse than those from wealthier households. This result is not new: as noted earlier, domestic violence is associated with economic disadvantage,<sup>66</sup> since poverty brings increased stress and frustrations, while simultaneously decreasing the accessibility of acceptable means of venting those frustrations. Men who are unable to provide for their families, for instance, may feel emasculated and take their anger at the situation out on their wives.

#### **4.3.2. Sanskritization**

However, there is a caveat that needs to be explored: the possible presence of the Sanskritization phenomenon. As noted, the term refers to the process of imitation of upper-caste customs by lower castes or classes in an effort at upward social mobility.

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<sup>65</sup> Agarwal, B. 1997.

<sup>66</sup> Koenig et. al. 2006.

Since the imitation of upper castes usually translates into increased concern with “respectable” behavior, it may result in more restrictions on women. Therefore the effect of wealth may be different for Scheduled Castes and other historically disadvantaged groups than for the mainstream society.

In an effort to capture the Sanskritization effect this study employs an interaction term for belonging to a scheduled caste and to the two higher wealth categories simultaneously. The variable will therefore capture if, controlling for wealth and caste, wealthy women from scheduled castes are more restricted compared to their equals in caste or in wealth. As shown in Table 9, the effect is indeed present, and is especially apparent in the freedom of movement variables. In particular, women’s ability to go to the market and to the health center alone is diminished by 3.1 p.p. and 2.4 p.p. respectively, likely reflecting the increased concern for the community’s opinion. The

**Table 9: Sanskritization?**

	Participates in decisions on:			Allowed to go alone to:			Violence Outcomes	Injuries
	Own Health	Large Purchases	Visits to own family	Market	Health Facility	Outside Community		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Wealth index: Bottom quintile	-0.002 (0.006)	0.015** (0.006)	0.004 (0.006)	-0.028*** (0.006)	-0.031*** (0.006)	-0.020*** (0.006)	0.020*** (0.007)	0.024*** (0.005)
Wealth index: 2nd quintile	-0.008 (0.005)	0.001 (0.005)	-0.000 (0.005)	-0.021*** (0.005)	-0.017*** (0.005)	-0.006 (0.005)	0.026*** (0.006)	0.024*** (0.005)
Wealth index: 4th quintile	0.009 (0.006)	0.000 (0.006)	0.010* (0.005)	0.017*** (0.005)	0.003 (0.006)	0.001 (0.005)	-0.042*** (0.007)	-0.023*** (0.005)
Wealth index: Top quintile	0.022*** (0.007)	0.018*** (0.007)	0.044*** (0.007)	0.065*** (0.006)	0.042*** (0.007)	0.028*** (0.007)	-0.121*** (0.008)	-0.050*** (0.006)
Household head (HH) is scheduled caste (SC)	0.015** (0.006)	0.018*** (0.006)	0.020*** (0.006)	0.041*** (0.006)	0.033*** (0.006)	0.023*** (0.006)	0.060*** (0.007)	0.038*** (0.005)
HH is SC and in top 2 wealth quintiles	-0.003 (0.009)	-0.015 (0.009)	-0.017* (0.009)	-0.031*** (0.009)	-0.024*** (0.009)	-0.007 (0.009)	0.017 (0.011)	-0.024*** (0.008)
Constant	0.003 (0.026)	-0.133*** (0.026)	-0.015 (0.026)	-0.461*** (0.025)	-0.532*** (0.026)	-0.427*** (0.025)	0.344*** (0.031)	0.093*** (0.023)
Observations	83837	83839	83841	83871	83869	83866	56410	56363
R-squared	0.078	0.127	0.130	0.197	0.166	0.151	0.117	0.064

Note: Full set of controls included (Table 6, 7 and 8). State fixed effects included. Injuries variable defined over all women chosen for the domestic violence questionnaire. Robust standard errors in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1



woman's ability to participate in decisions is slightly diminished as well, although only the coefficient on decisions regarding visits to her family is significant (at the 10% level). On a positive note, striving for social approval also reduces abuse injury rates for the women, with 2.4 p.p. less women reporting having experienced at least one type of injury. Unfortunately, it is possible that this group is particularly likely to underreport domestic abuse or injuries due to the concern with the status of the household.

Although this analysis does not include an interaction term for wealth and Scheduled Tribe, Table A5 of the appendix presents the effects of various modernization factors on the ST alone. The controls for wealth only come in as significant for 3 out of the 24 possible coefficients, and the variable shows no strong trends even if one disregards significance levels. This suggests that wealth has a different effect for the Scheduled Tribes than for the mainstream society as well, and that it is possibly even smaller than the effect for the Scheduled Castes.

#### **4.4. Other Factor Effects**

This section presents the full set of controls employed in the main regression and briefly discusses some of the more noteworthy effects of these controls. All the independent variables and regression coefficients are displayed in Table 10.

First, we include a control for the media exposure of the woman, which controls for the frequency of her access to television, radio and newspapers. We find that increased media exposure has positive effects on decision-making participation and on freedom of movement; however, we also see that it increases domestic violence. This finding goes contrary to Jensen and Oster (2008), who find that the spread of cable television both increases women's autonomy and decreases the acceptability of violence.

**Table 10: Main Regression: Full set of controls**

	Participates in decisions on:			Allowed to go alone to:			Violence Outcomes	Injuries
	Own Health	Large Purchases	Visits to own family	Market	Health Facility	Outside Community		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Media Access	0.019*** (0.004)	0.033*** (0.004)	0.029*** (0.004)	0.037*** (0.004)	0.042*** (0.004)	0.033*** (0.004)	0.024*** (0.005)	0.019*** (0.004)
Age	0.029*** (0.002)	0.034*** (0.002)	0.030*** (0.002)	0.047*** (0.002)	0.048*** (0.002)	0.033*** (0.002)	0.018*** (0.002)	0.009*** (0.001)
Husband's age	0.001** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.002*** (0.000)	-0.000 (0.000)	0.001*** (0.000)
Age at 1st marriage	0.000 (0.001)	-0.002*** (0.001)	-0.002*** (0.001)	-0.001** (0.001)	-0.001*** (0.001)	-0.001* (0.001)	-0.007*** (0.001)	-0.002*** (0.001)
Scheduled caste (SC)	0.015** (0.006)	0.018*** (0.006)	0.020*** (0.006)	0.041*** (0.006)	0.033*** (0.006)	0.023*** (0.006)	0.060*** (0.007)	0.038*** (0.005)
Scheduled tribe (ST)	0.016** (0.007)	0.031*** (0.007)	0.042*** (0.007)	0.020*** (0.007)	-0.016** (0.007)	0.001 (0.007)	0.045*** (0.009)	0.021*** (0.006)
Other backwards caste (OBC)	-0.012*** (0.004)	-0.012*** (0.004)	-0.004 (0.004)	-0.019*** (0.004)	-0.020*** (0.004)	-0.006 (0.004)	0.002 (0.005)	0.010*** (0.004)
Household Head (HH) is Muslim	0.003 (0.006)	-0.006 (0.006)	-0.021*** (0.005)	-0.066*** (0.005)	-0.048*** (0.005)	-0.045*** (0.005)	0.038*** (0.007)	0.012*** (0.005)
HH is Christian	0.014 (0.012)	0.023* (0.012)	0.018 (0.012)	0.023* (0.012)	0.030** (0.012)	0.032*** (0.012)	0.032** (0.014)	0.037*** (0.011)
HH is Sikh	0.027 (0.016)	0.007 (0.016)	0.020 (0.016)	0.009 (0.016)	0.006 (0.016)	0.032** (0.016)	0.001 (0.019)	-0.001 (0.014)
HH belongs to other religion	0.013 (0.014)	-0.014 (0.014)	0.011 (0.014)	0.079*** (0.014)	0.088*** (0.014)	0.111*** (0.014)	0.044*** (0.017)	0.025** (0.012)
Household head is female	0.110*** (0.006)	0.080*** (0.006)	0.066*** (0.006)	0.101*** (0.006)	0.099*** (0.006)	0.096*** (0.006)	0.007 (0.007)	0.001 (0.005)
Number of household members	-0.014*** (0.001)	-0.021*** (0.001)	-0.017*** (0.001)	-0.013*** (0.001)	-0.012*** (0.001)	-0.010*** (0.001)	0.002** (0.001)	-0.000 (0.001)
Number of children woman has	0.014*** (0.001)	0.019*** (0.001)	0.014*** (0.001)	0.013*** (0.001)	0.017*** (0.001)	0.007*** (0.001)	0.011*** (0.002)	0.005*** (0.001)
Household is nuclear	0.041*** (0.004)	0.089*** (0.004)	0.077*** (0.004)	0.032*** (0.004)	0.034*** (0.004)	0.018*** (0.004)	0.036*** (0.005)	0.010*** (0.004)
Urban	0.047*** (0.004)	0.085*** (0.004)	0.061*** (0.004)	0.135*** (0.004)	0.120*** (0.004)	0.063*** (0.004)	0.031*** (0.005)	0.013*** (0.004)
Constant	0.003 (0.026)	-0.133*** (0.026)	-0.015 (0.026)	-0.461*** (0.025)	-0.532*** (0.026)	-0.427*** (0.025)	0.344*** (0.031)	0.093*** (0.023)
Observations	83837	83839	83841	83871	83869	83866	56410	56363
R-squared	0.078	0.127	0.130	0.197	0.166	0.151	0.117	0.064

Note: Full set of controls included (including Tables 6A, 7 and 8). State fixed effects included. Injuries variable defined over all women chosen for the domestic violence questionnaire. Robust standard errors in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

This disparity can be ascribed to two possible factors. First of all, Jensen and Oster investigate the spread of cable TV in rural areas, which is in general a more

liberalized medium than government television or newspapers, and is more likely to show engaging portrayals of modern city life that the viewers may want to imitate. It is possible that not all media has the same effects. Secondly, Jensen and Oster only measure the effects of cable TV on violence attitudes, and not outcomes, which do not necessarily coincide.

The regression also shows that belonging to a Scheduled Caste or Tribe increases a woman's autonomy and freedom of movement, but also increases her experiences with domestic violence. This finding is consistent with the fact that both groups have been marginalized for centuries and therefore may not have had the same cultural inclination to control and subjugate their women. At the same time, their historical deprivation explains the higher domestic violence rates, since even the families that are not poor would have been surrounded by a relatively deprived community. Community standards no doubt play a role in a woman's experiences with violence. Ackerson et. al. (2008), for instance, show that the levels of community education have a significant effect on violence outcomes, and in particular the insulating effects of education against violence are reduced for women who resided in uneducated communities. The significance of belonging to various castes once again supports our investigation of the Sanskritization phenomenon and suggests that further research into the differences of effects of development for various population subgroups is necessary. Finally, the structure of the household itself has a significant effect on female empowerment. Living in a nuclear household increases a woman's decision-making participation and freedom of movement, most likely because she simply has fewer individuals with higher status than her in the family and thus has more responsibility. However, it also increases domestic violence,

probably due to a reduced number of witnesses. Increasing number of household members has the opposite effect, decreasing a woman's autonomy and freedom. In this case, it is interesting to keep in mind that the structure of the household unit is fluid and is itself subject to change due to cultural and economic shifts. Studying the effects of modernization on gender equality through the lens of household size and structure would be a fascinating matter in itself, although it cannot be accomplished with the NFHS-3 alone.

## 5. Conclusion

The main goal of this analysis is to explore how modernization affects female empowerment through the channels of education and wealth. Female empowerment is proxied by three sets of variables: domestic violence, decision-making participation in the household and freedom of movement outside of it. We find that the effects of modernization on empowerment are mixed. Although both education and wealth generally have positive effects, their impact is different for different population groups and can sometimes have unexpected negative consequences.

The analysis discovers that although most Indian women have low levels of autonomy and freedom of movement, and experience high rates of domestic violence, some women perform better than others. More educated women report higher rates of decision-making participation and freedom of movement, and lower rates of domestic violence. Increases in men's education, on the other hand, decrease domestic violence against the women, but also decrease women's autonomy and freedom.

Most notably, the study discovers that women that have more education than their husbands seem to suffer from the "male backlash" effect. This occurs when men try to regain control over more successful women through restricting the women's freedom of movement and through increased incidences of domestic violence. Women who work and especially women who earn more than their husbands experience a similar backlash effect in violence, although their freedom of movement is not negatively affected.

Women residing in wealthier households have more freedom, participate more in decision-making, and face less domestic violence. However, the analysis also finds that women from socially depressed groups, such as scheduled castes benefit less from

increases in wealth, most likely due to Sanskritization effect. As members of socially depressed groups achieve economic success, they aim to rise socially as well via the imitation of traditional higher-caste customs, which involve placing more restrictions on women. This thus undermines the positive effects of wealth increases.

In general, this analysis finds that an inverse relationship between improvements in freedom of movement and in domestic violence seems to be in place. Most independent variables that improve freedom also increase violence, and those that decrease violence also decrease freedom. In Table 11, we regress violence and injuries on the full set of measures of freedom of movement as well as on a decision-making index that combines all three of the autonomy indicators; the regression includes the full model. This exercise confirms the positive correlation between freedom of movement and violence: as one increases, so does the other.

**Table 11: Relationship between Freedom of movement and decision-making, and violence outcomes**

	Violence Outcomes				Injuries			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Allowed to go alone to market	0.011*** (0.004)				0.006** (0.003)			
Allowed to go alone to health facility		0.015*** (0.004)				0.007** (0.003)		
Allowed to go outside community alone			0.022*** (0.004)				0.008*** (0.003)	
Decision-making index				- 0.023*** (0.005)				- 0.012*** (0.004)
Constant	0.377*** (0.031)	0.380*** (0.031)	0.383*** (0.031)	0.371*** (0.031)	0.108*** (0.022)	0.109*** (0.022)	0.109*** (0.022)	0.104*** (0.022)
Observations	63442	63439	63436	63411	63369	63368	63365	63336
R-squared	0.119	0.119	0.120	0.119	0.063	0.063	0.063	0.063

Note: **Full set of controls included.** State fixed effects included. Robust standard errors in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

This curious relationship, which potentially stems from male backlash, is at the root of many of the mixed effects of modernization and needs to be explored further. If

this undesirable correlation can be disrupted, modernization may turn into a greater beneficial force for gender equity.

Another aspect of this analysis that begs further investigation is establishing causation rather than correlation, although it is unlikely that a conclusive analysis of the sort is possible using the NFHS. We are especially concerned with potential omitted variables related to male backlash in education and employment. Although the more probable explanation is that the increased violence and decreased autonomy associated with having more education than the husband is caused by male backlash, other justifications are also possible. It is not typical that a woman would marry someone who has less education than her or who has a smaller income than she does. Therefore it is possible that these women have some other unobservable characteristics that could increase their chances of both marrying poorly and being treated poorly by their husbands.

For instance, having a more assertive personality could help a woman succeed in education and employment. However, it could also lead to more conflict in a marriage or the escalation of this conflict into violence if the woman refuses to back down in the face of her husband's threats. Other characteristics, positive or negative, could ostensibly be used to explain the male backlash findings. Although this argument is morally difficult to justify, since it implies that the woman somehow encourages the lack of freedom or the abuse, it is nonetheless important to address its possibility in order to test the rigorosity of this study's results.

Although unobservable characteristics, such as a woman's personality, are impossible to quantify, it is possible to look at observable characteristics that could

potentially result in an unfavorable marriage. Table 12 shows the correlation between backlash indicators and certain physical characteristics of a woman. Although the list of these characteristics can be expanded to include other measures of the woman's health, here we limit it to measures of whether the woman is obese or underweight.

**Table 12: Correlation of Backlash and Health Measures**

	Obese	Underweight
Woman has more education	-0.011*** (0.003)	-0.009 (0.006)
Woman currently works	-0.011*** (0.002)	0.028*** (0.004)
Woman earns more than husband	-0.003 (0.005)	-0.003 (0.009)
Constant	0.001 (0.014)	0.501*** (0.025)
Observations	83879	80813
R-squared	0.066	0.099

Note: Full set of controls included. State fixed effects included. Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

The only positive correlation found is that underweight women are more likely to work, which needs to be investigated further. In terms of obesity, the coefficients are either negative or insignificant, suggesting that this factor definitely does not explain the backlash coefficients. However, none of the coefficients on having more education or earning more are significant and positive, suggesting that observable physical characteristics at least do not undermine the backlash phenomenon theory. Unfortunately, all these tests suffer from the risk of reverse causality. Women who work, for instance, may not get more calories than those who do not, causing them to become underweight. Nonetheless, this observation is of a limited relevance since it does not seriously undermine the purpose of our exercise.

In any case, even if causality cannot be established the potential presence of backlash against women's education is noteworthy and should be investigated further.



The finding of increased autonomy and participation coupled with increased violence for women who work and those who earn more than their husbands is equally interesting.

These findings combined with the presence of the Sanskritization effect and the negative effects of the husbands' education on women's autonomy suggest that the effects of modernization are more complex and potentially less beneficial among certain population groups.

However, these findings do not mean that the effects of the entire phenomenon of modernization are negative as a whole; rather, they suggest a level of depth to a largely positive phenomenon that needs to be explored further. Education and wealth both have positive effects on women's empowerment and decrease domestic violence. Men's education, despite its negative effects on empowerment, decreases domestic abuse. Taking these findings into account, the most sensible course of action would be to continue to investigate both the positive and the negative consequences of modernization, focusing on Sanskritization and male backlash effects. Once these negative phenomena are understood better, it may be possible to alleviate them with careful policy or education interventions, and to maximize on positive impacts of modernization. Additionally, it is important to investigate the difference in modernization effects among different population groups and to find ways of extending its benefits to women from socially and economically marginalized populations in order to avoid exacerbating other inequalities present in India.

## References

- Ackerson, Leland K., Ichiro Kawachi, and Elizabeth M. Barbeau. 2008. "Effects of Individual and Proximate Educational Context on Intimate Partner Violence: A Population-Based Study of Women in India." *American Journal of Public Health*, Vol. 98, No. 3: 507-514.
- Agarwal, Bina. 1997. "'Bargaining' and Gender Relations: Within and Beyond the Household." *Feminist Economics*, Vol. 3, No. 1: 1-51.
- Aizer, Anna. 2010. "The Gender Wage Gap and Domestic Violence." *American Economic Review*. Forthcoming.
- Arokiasamy, Peranayagam. 2006. "Regional Patterns of Sex Bias and Excess Female Child Mortality in India." *Population*, Vol 59: 831-863.
- Bloch, Francis and Vijayendra Rao. 2002. "Terror as a Bargaining Instrument: A Case Study of Dowry Violence in Rural India." *The American Economic Review*, Vol. 92, No. 4: 1029-1043.
- Browning, Martin and Valerie Lechene. 2001. "Caring and Sharing: Tests between Alternative Models of Intra-Household Allocation." Discussion Paper No. 70. Oxford Department of Economics.
- Burazeri, Genc, Enver Roshi, Rachel Jewkes, Susanne Jordan, Vesna Bjegovic and Ulrich Laaser. 2005. "Factors Associated with Spousal Physical Violence in Albania: Cross Sectional Study." In Ackerson, Leland K., Ichiro Kawachi, and Elizabeth M. Barbeau. 2008. "Effects of Individual and Proximate Educational Context on Intimate Partner Violence: A Population-Based Study of Women in India." *American Journal of Public Health*, Vol. 98, No. 3: 507-514.
- Chamarbagwala, Rubiana, and Martin Ranger. 2006. "India's Missing Women: Disentangling Cultural, Political and Economic Variables," Working Papers 2006-05, Indiana University, Kelley School of Business, Department of Business Economics and Public Policy.
- Chowdhry, Prem. 1993. "Persistence of a Custom: Cultural Centrality of Ghunghat." *Social Scientist*, Vol. 21, No. 9/11: pp. 91-112.
- Das Gupta, Monica. 1995. "Life Course Perspectives on Women's Autonomy and Health Outcomes." *American Anthropologist*, New Series, Vol. 97, No. 3: 481-491.
- Datta, Namita. 2006. "Joint Titling – a Win-Win Policy? Gender and Property Rights in Urban Informal Settlements in Chandigarh, India." *Feminist Economics*. Vol. 12, No. 1: 271-298.

Derne, Steve. 1994. "Hindu Men Talk about Controlling Women: Cultural Ideas as a Tool of the Powerful". *Sociological perspectives*, Vol. 36, no 2: 203-227.

Dreze, Jean and Amartya Sen. 2002. *India: Development and Participation*. New York: Oxford University Press. 2<sup>nd</sup> ed.

Dyson, Tim and Mick Moore. 1983. "On Kinship Structure, Female Autonomy, and Demographic Behavior in India." *Population and Development Review*, Vol. 9, No. 1: 35-60.

Ellsberg, Mary Carroll, Lori Heise, Rodolfo Pena, Sonia Agurto, and Anna Winkvist. 2001. "Researching domestic violence against women: Methodological and Ethical Considerations." *Studies in Family Planning* Vol. 32, No. 1: 1-16

Flake, Dallon F. 2005. "Individual, Family, and Community Risk Markers for Domestic Violence in Peru." In Ackerson, Leland K., Ichiro Kawachi, and Elizabeth M. Barbeau. 2008. "Effects of Individual and Proximate Educational Context on Intimate Partner Violence: A Population-Based Study of Women in India." *American Journal of Public Health*, Vol. 98, No. 3: 507-514.

Hasan, R., Mitra, D. and Ural, B.P. 2006. "Trade-Liberalization, Labor-Market Institutions and Poverty Reduction: Evidence from Indian States." Mimeo, Asian Development Bank.

Holvoet, Nathalie. 2005. "Credit And Women's Group Membership In South India: Testing Models Of Intrahousehold Allocative Behavior." *Feminist Economics*, Vol. 11. No. 3: 27-62.

International Institute for Population Sciences (IIPS) and Macro International. 2007. *National Family Health Survey (NFHS-3), 2005-06: India: Volume I*. Mumbai: IIPS.

Jensen, Robert and Emily Oster. 2008. "The Power of TV: Cable Television and Women's Status in India." *Quarterly Journal of Economics*, Vol. 124, No. 3: 1057-1094.

Kabeer, Naila. 1999. "Resources , Agency, Achievement: Reflections on the Measurement of Women's Empowerment". *Development and Change*, Vol. 30. No. 3: 435-464.

Kim, Jinyoung. 2005. "Sex Selection and Fertility in a Dynamic Model of Conception and Abortion." *Journal of Population Economics*, Vol. 18, No. 1: pp. 41-67

Kishor, Sunita and Kamla Gupta. "Women's Empowerment in India and Its States: Evidence from the NFHS." *Economic and Political Weekly*, Vol 39, No. 7: 694-712.

Koenig, Michael A., Rob Stephenson, Saifuddin Ahmed, Shireen J. Jejeebhoy and

Jacquelyn Campbell. 2006. "Individual and Contextual Determinants of Domestic Violence in North India." *American Journal of Public Health*, Vol 96, No. 1: 132-138.

Kumar, Shuba, Lakshmanan Jeyaseelan, Sarasha Suresh and Ramesh Chandra Ahuja. 2005. "Domestic Violence and Its Mental Health Correlates in Indian Women". *Br J Psychiatry*.

Martin, Sandra L. , Amy Ong Tsui, Kuhu Maitra and Ruth Marinshaw. 1999. "Domestic Violence in Northern India. In Ackerson, Leland K., Ichiro Kawachi, and Elizabeth M. Barbeau. 2008. "Effects of Individual and Proximate Educational Context on Intimate Partner Violence: A Population-Based Study of Women in India." *American Journal of Public Health*, Vol. 98, No. 3: 507-514.

Nayak, Purusottam and Mahanta, Bidisha, 2009. "Women Empowerment in India," MPRA Paper 12685, University Library of Munich, Germany.

Oster, Emily. 2005. "Hepatitis B and the Case of the Missing Women." *Journal of Political Economy*, Vol. 113, No. 6

Panda, Pradeep and Bina Agarwal. 2005. "Marital Violence, Human Development and Women's Property Status in India". *World Development*: Vol. 33, No. 5: pp. 823–850.

Patel, Rita. "The Practice of Sex Selective Abortion in India: May You Be the Mother of a Hundred Sons." Center for Global Initiatives.  
<http://cgi.unc.edu/research/pdf/abortion.pdf>.

Rahman, Lupin, and Vijayendra Rao. 2004. "The Determinants of Gender Equity in India: Examining Dyson and Moore's Thesis with New Data." *Population and Development Review*, Vol 30, No. 2: 239-268.

Sen, Amartya. 2005. *The Argumentative Indian: writings on Indian history, culture and identity*. New York: Picador.

Simister, John and Judith Makowiec. 2008. "Domestic Violence in India: Effects of Education." *Indian Journal of Gender Studies*, Vol. 15, No. 3: 507-518.

Sociology Guide. 2010. Social Stratification: Sanskritization. Concern Infotech Pvt. Ltd.  
<http://www.sociologyguide.com/social-stratification/Sanskritization.php>

Straus, M.A. 1990. Measuring intrafamily conflict and violence: The conflict tactic (CT) scales. In International Institute for Population Sciences (IIPS) and Macro International. 2007. *National Family Health Survey (NFHS-3), 2005–06: India: Volume I*. Mumbai: IIPS.

Sudha, S. and S. Irudaya Rajan. 2003. "Persistent Daughter Disadvantage: What Do Estimated Sex Ratios at Birth and Sex Ratios of Child Mortality Risk Reveal?" *Economic and Political Weekly*, Vol. 38, No. 41: pp. 4361-4369.

Thakkar, Mamita Bora. 2010. "Environmental Health Improvement Project: Lessons from the field." Report for Aga Khan Foundation and Aga Khan Planning and Building Services.

Topalova, P. 2005. "Trade Liberalization, Poverty, and Inequality: Evidence from Indian Districts." NBER, Working Paper 11614.

Vakulabharanam, Vamsi. 2005. "Growth and Distress in a South Indian Peasant Economy During the Era of Economic Liberalization." *Journal of Development Studies* Vol. 41, No. 6: 971-997.

## Appendix: Modernization Effects by Population Categories

### By wealth:

**Table A1: Modernization effects categorized by wealth: 1st and 2nd wealth quintiles (poorest)**

	Participates in decisions on:			Allowed to go alone to:			Violence	Injuries
	Own Health	Purchases	Visits to own family	Market	Health Facility	Outside Community	Outcomes	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Education	0.008*** (0.001)	0.003** (0.001)	0.002* (0.001)	0.004** (0.001)	0.005*** (0.001)	0.004*** (0.001)	- (0.002)	- (0.001)
Husband's education	0.003*** (0.001)	-0.001 (0.001)	0.000 (0.001)	-0.003*** (0.001)	-0.003*** (0.001)	-0.001* (0.001)	0.003*** (0.001)	-0.002** (0.001)
Woman has more education	0.016 (0.012)	0.031*** (0.012)	0.035*** (0.012)	0.017 (0.011)	0.015 (0.012)	0.018* (0.011)	0.034** (0.015)	0.006 (0.012)
Woman currently works	0.020*** (0.006)	0.024*** (0.006)	0.031*** (0.006)	0.074*** (0.006)	0.062*** (0.006)	0.087*** (0.006)	0.056*** (0.007)	0.037*** (0.006)
Woman earns more than husband	0.035** (0.014)	0.076*** (0.014)	0.044*** (0.014)	0.047*** (0.014)	0.045*** (0.014)	0.082*** (0.013)	0.039** (0.018)	0.039*** (0.014)
Scheduled caste (SC)	0.005 (0.009)	0.023** (0.009)	0.018** (0.009)	0.060*** (0.009)	0.036*** (0.009)	0.038*** (0.009)	0.042*** (0.012)	0.035*** (0.009)
Constant	-0.025 (0.041)	-0.056 (0.041)	0.067 (0.041)	-0.435*** (0.041)	-0.484*** (0.041)	-0.385*** (0.039)	0.440*** (0.052)	0.142*** (0.041)
Observations	31974	31972	31974	31983	31984	31982	21711	21694
R-squared	0.085	0.117	0.108	0.147	0.122	0.132	0.060	0.046

Note: Full set of controls included. State fixed effects included. Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table A2: Modernization effects categorized by wealth: 3rd wealth quintile**

	Participates in decisions on:			Allowed to go alone to:			Violence	Injuries
	Own Health	Purchases	Visits to own family	Market	Health Facility	Outside Community	Outcomes	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Education	0.006*** (0.001)	0.003** (0.001)	0.003* (0.001)	0.008*** (0.001)	0.011*** (0.001)	0.010*** (0.001)	- (0.002)	-0.001 (0.001)
Husband's education	0.004*** (0.001)	-0.002* (0.001)	-0.001 (0.001)	-0.005*** (0.001)	-0.004*** (0.001)	-0.004*** (0.001)	0.004*** (0.001)	0.003*** (0.001)
Woman has more education	0.006 (0.013)	0.020 (0.013)	0.010 (0.013)	-0.041*** (0.013)	-0.026** (0.013)	-0.020 (0.013)	0.022 (0.017)	0.026** (0.012)
Woman currently works	0.044*** (0.008)	0.044*** (0.008)	0.022*** (0.008)	0.099*** (0.008)	0.106*** (0.008)	0.118*** (0.008)	0.037*** (0.010)	0.018** (0.007)
Woman earns more than husband	0.034* (0.020)	0.087*** (0.020)	0.052*** (0.020)	0.031 (0.019)	0.015 (0.020)	0.038** (0.019)	0.101*** (0.024)	0.132*** (0.018)

Spektor

Scheduled caste (SC)	0.021*	0.003	0.008	0.045***	0.050***	0.030***	0.046***	0.024**
	(0.012)	(0.012)	(0.011)	(0.011)	(0.011)	(0.011)	(0.014)	(0.010)
Constant	0.098*	-0.094	0.044	-0.494***	-0.573***	-0.407***	0.130*	-0.032
	(0.058)	(0.059)	(0.057)	(0.056)	(0.057)	(0.056)	(0.073)	(0.054)
Observations	16781	16784	16784	16792	16790	16790	11268	11261
R-squared	0.077	0.115	0.124	0.201	0.162	0.155	0.068	0.052

Note: Full set of controls included. State fixed effects included. Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table A3: Modernization effects categorized by wealth: 4th and 5th wealth quintiles (wealthiest)**

	Participates in decisions on:			Allowed to go alone to:			Violence	Injuries
	Own Health	Purchases	Visits to own family	Market	Health Facility	Outside Community	Outcomes	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Education	0.010***	0.010***	0.008***	0.013***	0.014***	0.014***	0.012***	0.004***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Husband's education	0.005***	0.002***	-0.002*	-0.004***	-0.004***	-0.002***	0.004***	0.002***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Woman has more education	-0.012	-0.008	-0.011	-0.021***	-0.014*	-0.014*	0.039***	0.009
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.009)	(0.006)
Woman currently works	0.022***	0.025***	0.020***	0.092***	0.101***	0.122***	0.042***	0.016***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.004)
Woman earns more than husband	0.065***	0.110***	0.071***	0.013	0.034**	0.067***	0.092***	0.058***
	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.016)	(0.017)	(0.011)
Scheduled caste (SC)	0.015*	0.005	0.002	0.007	0.010	0.017**	0.094***	0.018***
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.009)	(0.006)
Constant	-0.030	0.280***	0.155***	-0.566***	-0.696***	-0.648***	0.407***	0.129***
	(0.043)	(0.043)	(0.041)	(0.040)	(0.042)	(0.043)	(0.048)	(0.031)
Observations	35081	35082	35082	35094	35094	35094	23429	23408
R-squared	0.068	0.144	0.142	0.207	0.180	0.151	0.107	0.047

Note: Full set of controls included. State fixed effects included. Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**By Caste:****Table A4: Modernization effects categorized by caste/tribe: Scheduled Castes**

	Participates in decisions on:			Allowed to go alone to:			Violence Outcomes	Injuries
	Own Health	Purchases	Visits to own family	Market	Health Facility	Outside Community		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Education	0.008*** (0.002)	0.005*** (0.002)	0.006*** (0.002)	0.004*** (0.001)	0.007*** (0.001)	0.009*** (0.001)	-0.011*** (0.002)	-0.003* (0.001)
Husband's education	-0.002** (0.001)	0.000 (0.001)	0.000 (0.001)	0.003*** (0.001)	-0.002** (0.001)	-0.003*** (0.001)	0.001 (0.001)	-0.002 (0.001)
Woman has more education	-0.017 (0.014)	0.003 (0.014)	0.002 (0.014)	0.006 (0.014)	0.019 (0.014)	0.005 (0.014)	0.079*** (0.018)	0.014 (0.014)
Woman currently works	0.017** (0.008)	0.025*** (0.008)	0.036*** (0.008)	0.079*** (0.008)	0.076*** (0.008)	0.109*** (0.008)	0.048*** (0.010)	0.040*** (0.008)
Woman earns more than husband	0.039** (0.019)	0.111*** (0.019)	0.048*** (0.019)	0.056*** (0.018)	0.037** (0.018)	0.104*** (0.018)	0.052** (0.023)	0.053*** (0.018)
Wealth index: Bottom quintile	-0.017 (0.012)	-0.001 (0.012)	-0.006 (0.012)	-0.022* (0.012)	-0.038*** (0.012)	-0.028** (0.012)	0.000 (0.015)	0.014 (0.012)
Wealth index: 2nd quintile	-0.003 (0.011)	0.011 (0.011)	0.005 (0.011)	-0.019* (0.011)	-0.024** (0.011)	-0.010 (0.011)	0.034** (0.014)	0.026** (0.011)
Wealth index: 4th quintile	0.017 (0.013)	0.008 (0.013)	0.015 (0.013)	0.005 (0.012)	-0.013 (0.013)	0.006 (0.012)	-0.030* (0.016)	-0.036*** (0.012)
Wealth index: Top quintile	0.007 (0.017)	0.021 (0.017)	0.044*** (0.016)	0.050*** (0.016)	0.019 (0.016)	0.018 (0.016)	-0.116*** (0.021)	-0.068*** (0.016)
Constant	0.020 (0.058)	-0.078 (0.059)	0.150*** (0.058)	0.484*** (0.055)	-0.554*** (0.057)	-0.410*** (0.056)	0.530*** (0.072)	0.206*** (0.056)
Observations	16061	16061	16061	16070	16071	16071	10879	10883
R-squared	0.075	0.117	0.114	0.207	0.178	0.162	0.097	0.069

Note: Full set of controls included. State fixed effects included. Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table A5: Modernization effects categorized by caste/tribe: Scheduled Tribes**

	Participates in decisions on:			Allowed to go alone to:			Violence Outcomes	Injuries
	Own Health	Purchases	Visits to own family	Market	Health Facility	Outside Community		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Education	0.007*** (0.003)	0.008*** (0.003)	0.005** (0.003)	0.006** (0.003)	0.009*** (0.003)	0.009*** (0.003)	-0.002 (0.003)	-0.002 (0.002)
Husband's education	0.006*** (0.002)	-0.003 (0.002)	-0.002 (0.002)	-0.004** (0.002)	-0.004** (0.002)	0.000 (0.002)	-0.005** (0.002)	-0.003** (0.002)
Woman has more education	-0.041* (0.023)	-0.018 (0.023)	-0.003 (0.022)	-0.029 (0.023)	-0.017 (0.023)	-0.022 (0.022)	0.013 (0.029)	0.003 (0.021)



Spektor

Woman currently works	0.039*** (0.014)	0.043*** (0.014)	0.040*** (0.013)	0.088*** (0.014)	0.116*** (0.014)	0.128*** (0.013)	0.056*** (0.018)	0.037*** (0.013)
Woman earns more than husband	-0.021 (0.027)	0.021 (0.027)	-0.001 (0.026)	0.072*** (0.027)	0.060** (0.027)	0.068*** (0.026)	0.037 (0.033)	0.064*** (0.024)
Wealth index: Bottom quintile	-0.026 (0.020)	0.002 (0.019)	-0.021 (0.019)	-0.015 (0.019)	-0.039** (0.019)	-0.011 (0.019)	-0.022 (0.025)	-0.016 (0.018)
Wealth index: 2nd quintile	-0.015 (0.019)	-0.001 (0.019)	0.010 (0.019)	-0.017 (0.019)	-0.026 (0.019)	-0.018 (0.018)	-0.014 (0.024)	0.000 (0.018)
Wealth index: 4th quintile	0.030 (0.026)	-0.024 (0.026)	0.048* (0.025)	-0.003 (0.026)	0.011 (0.026)	0.012 (0.025)	-0.005 (0.033)	-0.020 (0.024)
Wealth index: Top quintile	0.075** (0.034)	-0.008 (0.034)	0.013 (0.033)	0.049 (0.034)	0.046 (0.034)	-0.012 (0.033)	-0.042 (0.043)	0.024 (0.031)
Constant	0.256** (0.115)	0.071 (0.114)	0.211* (0.110)	0.342*** (0.114)	-0.423*** (0.114)	-0.531*** (0.109)	0.292** (0.147)	0.177 (0.108)
Observations	7123	7123	7122	7125	7125	7125	4812	4811
R-squared	0.098	0.141	0.140	0.155	0.143	0.155	0.084	0.042

Note: Full set of controls included. State fixed effects included. Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table A6: Modernization effects categorized by caste/tribe: Other Backwards Castes**

	Participates in decisions on:			Allowed to go alone to:		Violence	Injuries	
	Own Health	Purchases	Visits to own family	Market	Health Facility	Outside Community	Outcomes	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Education	0.009*** (0.001)	0.007*** (0.001)	0.006*** (0.001)	0.008*** (0.001)	0.010*** (0.001)	0.010*** (0.001)	-0.007*** (0.001)	-0.004*** (0.001)
Husband's education	0.003*** (0.001)	0.003*** (0.001)	-0.002** (0.001)	0.005*** (0.001)	-0.005*** (0.001)	-0.004*** (0.001)	-0.005*** (0.001)	-0.002*** (0.001)
Woman has more education	0.013 (0.009)	0.009 (0.009)	0.010 (0.009)	-0.013 (0.009)	-0.012 (0.009)	-0.013 (0.009)	0.026** (0.011)	0.019** (0.008)
Woman currently works	0.028*** (0.006)	0.031*** (0.006)	0.026*** (0.006)	0.083*** (0.006)	0.081*** (0.006)	0.097*** (0.006)	0.027*** (0.007)	0.016*** (0.005)
Woman earns more than husband	0.045*** (0.015)	0.098*** (0.015)	0.060*** (0.015)	0.045*** (0.014)	0.071*** (0.015)	0.097*** (0.014)	0.091*** (0.018)	0.064*** (0.013)
Wealth index: Bottom quintile	-0.000 (0.009)	0.024*** (0.009)	0.015* (0.009)	0.055*** (0.009)	-0.047*** (0.009)	-0.031*** (0.009)	0.031*** (0.011)	0.034*** (0.008)
Wealth index: 2nd quintile	-0.014* (0.008)	0.000 (0.008)	-0.005 (0.008)	0.021*** (0.007)	-0.015** (0.008)	0.002 (0.008)	0.026*** (0.009)	0.021*** (0.007)
Wealth index: 4th quintile	-0.001 (0.008)	-0.004 (0.008)	0.002 (0.008)	0.016** (0.008)	0.002 (0.008)	-0.000 (0.008)	-0.039*** (0.010)	-0.027*** (0.007)
Wealth index: Top quintile	0.011 (0.010)	0.010 (0.010)	0.035*** (0.010)	0.051*** (0.010)	0.027*** (0.010)	0.013 (0.010)	-0.100*** (0.012)	-0.055*** (0.009)
Constant	-0.050 (0.040)	0.169*** (0.040)	0.120*** (0.039)	0.436*** (0.039)	-0.532*** (0.040)	-0.399*** (0.039)	0.235*** (0.049)	0.053 (0.037)

Observations	34071	34071	34072	34078	34076	34075	22897	22863
R-squared	0.096	0.138	0.142	0.208	0.171	0.152	0.110	0.062

Note: Full set of controls included. State fixed effects included. Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table A7: Modernization effects categorized by caste/tribe: Upper Castes**

	Participates in decisions on:			Allowed to go alone to:			Violence	Injuries
	Own Health	Purchases	Visits to own family	Market	Health Facility	Outside Community	Outcomes	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Education	0.010*** (0.001)	0.007*** (0.001)	0.004*** (0.001)	0.013*** (0.001)	0.013*** (0.001)	0.012*** (0.001)	-0.012*** (0.001)	-0.003*** (0.001)
Husband's education	0.005*** (0.001)	-0.001 (0.001)	0.000 (0.001)	0.004*** (0.001)	-0.004*** (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.003*** (0.001)
Woman has more education	-0.006 (0.009)	0.006 (0.009)	0.000 (0.009)	0.029*** (0.009)	-0.015* (0.009)	-0.007 (0.009)	0.033*** (0.011)	0.001 (0.007)
Woman currently works	0.034*** (0.007)	0.035*** (0.007)	0.024*** (0.007)	0.094*** (0.007)	0.090*** (0.007)	0.116*** (0.007)	0.052*** (0.008)	0.017*** (0.005)
Woman earns more than husband	0.063*** (0.018)	0.072*** (0.018)	0.066*** (0.018)	-0.014 (0.017)	-0.012 (0.018)	0.013 (0.018)	0.069*** (0.020)	0.071*** (0.013)
Wealth index: Bottom quintile	0.017 (0.013)	0.015 (0.013)	-0.002 (0.012)	-0.010 (0.012)	0.002 (0.013)	0.001 (0.013)	0.030** (0.014)	0.016* (0.009)
Wealth index: 2nd quintile	-0.000 (0.011)	-0.013 (0.011)	-0.007 (0.011)	-0.024** (0.010)	-0.016 (0.011)	-0.014 (0.011)	0.023* (0.012)	0.028*** (0.008)
Wealth index: 4th quintile	0.013 (0.009)	-0.002 (0.010)	0.006 (0.009)	0.017* (0.009)	0.006 (0.009)	-0.002 (0.009)	-0.051*** (0.011)	-0.025*** (0.007)
Wealth index: Top quintile	0.027** (0.011)	0.013 (0.011)	0.040*** (0.011)	0.061*** (0.011)	0.050*** (0.011)	0.036*** (0.011)	-0.130*** (0.013)	-0.051*** (0.008)
Constant	0.052 (0.048)	-0.098** (0.048)	-0.015 (0.047)	0.441*** (0.046)	-0.529*** (0.047)	-0.431*** (0.047)	0.404*** (0.055)	0.050 (0.036)
Observations	26580	26583	26584	26596	26596	26594	17820	17804
R-squared	0.061	0.128	0.130	0.209	0.168	0.152	0.128	0.065

Note: Full set of controls included. State fixed effects included. Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## By Religion:

**Table A8: Modernization effects categorized by religion: Hindu**

	Participates in decisions on:			Allowed to go alone to:			Violence	Injuries
	Own Health	Purchases	Visits to own family	Market	Health Facility	Outside Community	Outcomes	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Education	0.009*** (0.001)	0.007*** (0.001)	0.006*** (0.001)	0.010*** (0.001)	0.011*** (0.001)	0.011*** (0.001)	0.009*** (0.001)	0.003*** (0.001)

Spektor

Husband's education	0.004*** (0.001)	0.002*** (0.001)	-0.001* (0.001)	0.005*** (0.001)	0.004*** (0.001)	-0.002*** (0.001)	0.003*** (0.001)	0.002*** (0.000)
Woman has more education	0.000 (0.006)	-0.000 (0.006)	0.002 (0.006)	0.021*** (0.006)	-0.010 (0.006)	-0.006 (0.006)	0.039*** (0.008)	0.011** (0.006)
Woman currently works	0.026*** (0.004)	0.029*** (0.004)	0.028*** (0.004)	0.091*** (0.004)	0.087*** (0.004)	0.111*** (0.004)	0.041*** (0.005)	0.023*** (0.003)
Woman earns more than husband	0.043*** (0.010)	0.086*** (0.010)	0.046*** (0.010)	0.035*** (0.010)	0.038*** (0.010)	0.072*** (0.010)	0.070*** (0.012)	0.072*** (0.009)
Wealth index: Bottom quintile	0.002 (0.006)	0.016** (0.006)	0.003 (0.006)	0.024*** (0.006)	0.027*** (0.006)	-0.019*** (0.006)	0.007 (0.008)	0.016*** (0.006)
Wealth index: 2nd quintile	-0.009 (0.006)	-0.002 (0.006)	-0.007 (0.006)	0.017*** (0.006)	0.016*** (0.006)	-0.006 (0.006)	0.015** (0.007)	0.015*** (0.005)
Wealth index: 4th quintile	0.010* (0.006)	0.000 (0.006)	0.009 (0.006)	0.022*** (0.006)	0.007 (0.006)	0.006 (0.006)	0.038*** (0.007)	0.021*** (0.005)
Wealth index: Top quintile	0.022*** (0.007)	0.019** (0.007)	0.045*** (0.007)	0.081*** (0.007)	0.056*** (0.007)	0.045*** (0.007)	0.112*** (0.009)	0.044*** (0.006)
Scheduled caste (SC)	0.021*** (0.007)	0.025*** (0.007)	0.028*** (0.006)	0.045*** (0.006)	0.039*** (0.006)	0.031*** (0.006)	0.070*** (0.008)	0.041*** (0.006)
SC and HH in top 2 wealth quintiles	-0.011 (0.010)	-0.025** (0.010)	-0.023** (0.010)	0.031*** (0.009)	0.027*** (0.010)	-0.009 (0.010)	0.013 (0.012)	0.027*** (0.009)
Constant	-0.014 (0.029)	0.141*** (0.029)	-0.037 (0.028)	0.453*** (0.027)	0.538*** (0.028)	-0.438*** (0.028)	0.393*** (0.034)	0.134*** (0.025)
Observations	69713	69715	69716	69743	69741	69737	46891	46851
R-squared	0.078	0.127	0.130	0.200	0.169	0.155	0.117	0.065

Note: Full set of controls included. State fixed effects included. Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table A9: Modernization effects categorized by religion: Muslim**

	Participates in decisions on:			Allowed to go alone to:			Violence	Injuries
	Own Health	Purchases	Visits to own family	Market	Health Facility	Outside Community	Outcomes	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Education	0.008*** (0.002)	0.003 (0.002)	0.005** (0.002)	0.009*** (0.002)	0.012*** (0.002)	0.010*** (0.002)	0.018*** (0.003)	0.005*** (0.002)
Husband's education	0.000 (0.002)	0.004*** (0.002)	0.001 (0.001)	0.005*** (0.001)	0.008*** (0.001)	-0.005*** (0.001)	0.002 (0.002)	-0.001 (0.001)
Woman has more education	0.023 (0.017)	0.054*** (0.017)	0.026 (0.017)	-0.024 (0.017)	-0.017 (0.017)	-0.029* (0.016)	0.056*** (0.021)	0.019 (0.016)
Woman currently works	0.046*** (0.012)	0.034*** (0.012)	0.009 (0.012)	0.105*** (0.012)	0.107*** (0.012)	0.113*** (0.011)	0.041*** (0.014)	0.032*** (0.011)
Woman earns more than husband	0.064** (0.032)	0.096*** (0.032)	0.095*** (0.032)	0.038 (0.031)	0.037 (0.032)	0.088*** (0.030)	0.131*** (0.037)	0.035 (0.028)

Spektor

Wealth index: Bottom quintile	-0.000 (0.017)	0.036** (0.017)	0.038** (0.017)	-0.036** (0.017)	-0.033* (0.017)	-0.003 (0.016)	0.069*** (0.020)	0.065*** (0.015)
Wealth index: 2nd quintile	0.009 (0.016)	0.036** (0.016)	0.043*** (0.016)	-0.027* (0.015)	-0.014 (0.016)	0.007 (0.015)	0.092*** (0.019)	0.071*** (0.014)
Wealth index: 4th quintile	-0.015 (0.015)	-0.015 (0.016)	0.007 (0.015)	-0.012 (0.015)	-0.015 (0.015)	-0.019 (0.015)	0.062*** (0.019)	0.037*** (0.014)
Wealth index: Top quintile	-0.000 (0.019)	-0.022 (0.020)	0.030 (0.019)	0.007 (0.019)	0.008 (0.019)	-0.030 (0.019)	0.141*** (0.024)	0.080*** (0.018)
Scheduled caste (SC)	0.122*** (0.038)	0.111*** (0.038)	0.152*** (0.038)	0.044 (0.037)	-0.004 (0.038)	0.036 (0.036)	-0.073 (0.047)	-0.072** (0.035)
SC and HH in top 2 wealth quintiles	0.282*** (0.078)	0.249*** (0.078)	0.349*** (0.077)	-0.013 (0.076)	0.140* (0.077)	0.101 (0.074)	0.161 (0.103)	0.110 (0.077)
Constant	0.079 (0.076)	-0.066 (0.077)	0.050 (0.076)	0.470*** (0.074)	0.511*** (0.076)	-0.262*** (0.072)	0.026 (0.093)	-0.171** (0.069)
Observations	9712	9712	9712	9712	9713	9713	6499	6492
R-squared	0.084	0.128	0.136	0.178	0.145	0.115	0.133	0.076

Note: Full set of controls included. State fixed effects included. Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1