Do Women's Land Rights Promote Empowerment and Child Health in Nepal?

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Abstract

Women's land rights are increasingly put forth as a means to promote development by empowering women and increasing productivity and welfare. However, little empirical research has evaluated these claims. I use the 2001 Nepal Demographic and Health Survey to explore whether women's land rights empower women and benefit young children's health. Regression models provide evidence that land rights empower women by increasing their control over household decision making. Regression models using nutritional indicators also support the hypothesis that women's land rights benefit children's health. Children of mothers who own land are significantly less likely to be severely underweight or stunted.

Introduction

In many developing countries, most people live in rural areas and depend on agriculture. Thus, access to arable land is vital to maintaining a secure livelihood. Control over land also plays a critical role in determining social status and political power. Large landowners often play dominant roles in their communities, including holding political office and controlling employment of agricultural laborers. Conversely, landless people are often the poorest and least powerful members of their communities.

Agrarian reform and access to land have long been contentious issues in many countries. Usually, land inequalities are considered on the basis of class or racial and ethnic differences. However, gender is another basis of land inequality. Worldwide, women own only one to two percent of land (Crowley 1999; Seager 1997; Sachs 1996). Like men, women depend on agriculture and are active farmers. However, despite their need and labor contribution, most women remain dependent upon the existence and goodwill of male relatives for access to land.

In recent years, this gendered inequality has received attention from development practitioners and activists. In the international arena, the Food and Agriculture Organization of the United Nations, the

Convention on the Elimination of Discrimination Against Women, and the UN Human Rights Commission have all called for equal treatment for women and men in access to land and agrarian reform (Crowley 1999; FAO 1995; UN Commission on Human Rights 2002). Multilateral and bilateral development agencies, including the World Bank (World Bank 2001), the Australian Agency for International Development (AusAID 2000), and Britain's Department for International Development (DFID 2002), have also noted the importance of women's land and property rights.

These institutions and others address women's land rights because they are seen as a tool to promote development. Like other women's issues, such as girls' education, women's land rights are put forth as a way to realize human rights, increase economic efficiency and productivity, empower women, and promote general welfare and well-being. Despite the increasing prevalence of these claims, little research has empirically evaluated their validity. This paper attempts to address this gap by exploring the effects of women's land rights on women's empowerment and child health in Nepal.

Defining Land Rights

Land rights broadly defined can be understood as a variety of legitimate claims to land and the benefits and products produced on that land (e.g. Schlager and Ostrom 1992; Meinzen-Dick et al. 1997; Mearns 1999). It is important to note that land rights actually comprise a bundle of multiple rights. For example, in an analysis of land and tree tenure in Africa, Rocheleau and Edmunds (1997) map a web of rights, including rights to cultivate and control the proceeds of cash crops, harvest and dispose of medicinal plants, plant and harvest fruit trees, graze livestock in the fields during the dry season, and cultivate and dispose of vegetables. These bundles of rights also vary in their sources of legitimacy and the extent to which they are put into practice. A distinction is commonly made between *de jure* and *de facto* rights, or legal rights and those demonstrated in practice. Social legitimacy is another important aspect of rights, along with strict legality and effective control (Mearns 1999).

Women's claims to land often lack legal recognition, social legitimacy, and control in practice. For most women, the lack of legal and social recognition of claims keeps them from exercising any

control over land. Other women legally own or have a legal claim to land, but a lack of social legitimacy prevents them from exercising that claim in practice. Conversely, some women have a claim to land that is socially recognized, such as managing land owned by their husbands while their husbands live elsewhere or are engaged in wage work. Yet, the lack of legal and social recognition of their claims in their *own* right means that their claims lack security.

These gaps in women's existing land rights highlight the importance of a complete set of land rights, or *effective* land rights, secure social and legal recognition of a claim to land that translates into the ability to control land in practice. When activists and others call for women's land rights they are really referring to these *effective* land rights, which Agarwal defines as "claims that are legally and socially recognized and enforceable by an external legitimized authorized, be it a village-level institution or some higher-level judicial or executive body of the State" (Agarwal 1994:19).

The Nepali Context

Land rights play a crucial role in Nepal. Nepal is predominantly rural and over 80 percent of households directly depend on agriculture and land (Lumsalee 2002). Since land comprises the main source of economic livelihoods, it is also an important source of power and status in Nepal: "Land is more than a physical entity; it has been, and continues to be, the economic backbone of the agrarian system and the rural power structure" (Bhandari 2001: 168).

Women play an important role in agriculture in Nepal. Although some agricultural activities, such as plowing and irrigation, are largely or entirely done by men, many other activities are done by both men and women, or women exclusively (Pun 2000). Furthermore, Nepal is experiencing a feminization of agriculture. Men are increasingly moving into nonagricultural work or migrating to urban areas or outside of Nepal for employment, leaving women to take over agricultural activities (Cameron 1995; ADB 1999). As of 2001, over 90 percent of women workers were agricultural laborers or land managers compared to 64 percent of male workers (Nepal Ministry of Health et al. 2002).

Despite their active role in agriculture, women have limited land rights. In Nepal, the main means of gaining land is through inheritance, which is largely patrilineal. Thus, when discussing land rights and inheritance, women's rights are usually defined in terms of their relation to men. As reflected in national law, widows' rights to inheritance have greater legitimacy than daughters' rights. Widows have a relative advantage because they keep property within the same patrilineal line of descent. Daughters, on the other hand, marry into other families and transfer property out of one line of descent and into another.

While they are rare, there are women in Nepal that have at least some type of land rights. In 2001, 14 percent of land owning households in Nepal contained women landowners and in a few districts as many as 30 percent of landed households included women landowners (authors calculations from Nepal Census 2001a & 2001b). There is very little research on how these women gain land, so it is not clear exactly how and why these women landowners exist or if they are exercising control over their land. Clearly, some of these women are widows who inherited land when their husbands died. Different ethnic and local inheritance practices also play an important role. Some ethnic groups, especially Tibeto-Burman groups, have more egalitarian inheritance practices and do pass on land to daughters (e.g. Watkins 1996; Holmberge 1989; Molnar 1980; Jones and Jones 1976). Additionally, some parents may choose to give land to daughters because they have no sons, they have plenty of land to go around, or for other reasons.

In the last few years, women activists have taken up the issue of women's equal inheritance rights in Nepal (ADB 1999). In 1994, a group of activists and lawyers challenged the inheritance law in the Nepali Supreme Court, starting a process that led to the introduction of a bill on inheritance of parental property to parliament (Malla 1997). In 1998, when parliament failed to discuss the new bill there were demonstrations by women all over the country (ADB 1999). In 2002, a version of the bill was finally passed [1].

A variety of arguments have been used to promote women's property rights in Nepal. The legal arguments used by women's NGOs and lawyers to justify inheritance rights were based on rights of

equality as laid down in the Nepali constitution and international treaties, like the Convention on the Elimination of Discrimination Against Women (Malla 1997). Other activists argue that property rights will empower women. For example, an editorial in the Kathmandu Post stated that:

> "Women are considered second class citizens in many areas, one of them being property rights. There is no doubt that this discrimination is what hinders women's socio-economic and political status" (Adhikari 2001).

Another activist invoked the importance of women's property rights in promoting the welfare of women and children:

> "The risk of poverty and the physical well-being of a woman and her children could depend significantly on whether or not a woman has direct access to income and productivity assets such as land, and not just access mediated through her husband" (Shrestha 1999).

These arguments for promoting women's property rights have also found their way into development organizations and national development plans. For example, the Asian Development Bank (1999) states that women's property rights should be addressed in projects and policy dialogue "as a first step to empowerment" in Nepal. The National Planning Commissions' Ninth Five Year Plan (1997-2001) included ensuring women's land ownership as part of their gender strategy on empowerment (ADB 1999). Similarly, the Tenth Five Year Plan (2002-2007) includes social inclusion by gender and caste as one of the four pillars of the plan; stating that "women will need to be empowered by removing the social, legal, economic and other constraints, which have traditionally hampered their access to and use of resources" (HMG National Planning Commission 2003:56). The Tenth Plan also cites implementation of the new inheritance laws on parental property as one of its goals.

The Rationale for Women's Land Rights

As noted above, the attention to women's land rights is certainly not unique to Nepal. The importance of women's land rights to development has been discussed in similar ways in reference to many countries. In this paper, I focus on the impact of women's land rights on empowerment and child health, an aspect of welfare. Thus, I discuss below how women's land rights may promote development by facilitating women's empowerment and benefiting family welfare.

Empowerment

Before discussing how land rights may empower women, it is first necessary to define empowerment. No single definition of empowerment has been widely adopted, but definitions commonly include two main elements: 1) empowerment is a process of change and 2) that this process entails gaining agency – women's ability to control resources and make decisions that affect their lives and environment (Malhotra et al. 2002). What sets empowerment apart from similar concepts, like autonomy, is the element of change (e.g. Kabeer 1999; Jejeebhoy 2000).

Kabeer (1999) further conceptualizes empowerment as three moments in time. The first moment comprises pre-conditions or resources, the second is the element of action or agency, and the third is the outcome. Thus, when using the concept of empowerment it is important to not only consider direct indicators of empowerment, but also pre-conditions of empowerment. Following Kishor (2000), these pre-conditions can further be divided into sources and settings of empowerment. Sources of empowerment are objects and assets which women have that may improve their security or influence and thus improve their household bargaining power and facilitate empowerment more broadly. Settings of empowerment are characteristics of women's past and current environments that also facilitate empowerment, such as the education of their parents. The broader social context also comprises an important part of the setting of empowerment. As Mason (1998) points out, national, regional, and local social contexts affect women's power directly and indirectly. Further, as transnational networks on land rights and other issues take shape, the transnational context should also be considered as a setting of empowerment.

Collective levels of sources of empowerment and empowerment itself are also important. While access to resources is often at the individual or household level this is not always the case. For example, rights to common lands held collectively by a women's users group or other collectives may be an important source of empowerment. In terms of empowerment directly, women may also be empowered at collective levels. Moreover, empowerment at a collective level may add value. For example, it is

likely that the more women who have land rights, the greater all women's ability to make social, political, and economic change (Agarwal 1994).

Based on this understanding of empowerment, land rights may contribute to women's empowerment in different ways. First, the realization of women's *effective* land rights constitutes empowerment by itself. By and large, women lack effective land rights, thus gaining them would entail a process of change that would, by definition, give them greater range to exercise choice through control over land. Lesser or incomplete forms of land rights, such as land ownership, do not constitute empowerment by themselves. However, as sources and settings of empowerment, land ownership and other incomplete forms of land rights should facilitate women's empowerment. In addition, effective land rights may expand women's agency beyond control over land and into other dimensions of their lives. For example, within the household, effective land rights may facilitate women's participation in household decisions about health care or children's schooling. Outside the household, Agarwal (1994) suggests that land rights are crucial for women's access to local political power.

To my knowledge, only one quantitative study directly reflects on the impact of women's land rights on empowerment. In a survey of five Asian countries, women who owned land in India and Thailand had greater domestic economic power (Mason 1998). More commonly, the empowerment rationale is accepted and land ownership is included in a larger indicator of assets or economic power, which makes it impossible to distinguish the impact of land. For example, in her study of how women's empowerment affects infant mortality and immunization in Egypt, Kishor (2000) uses an index of seven assets owned, including land, as one of 32 empowerment indicators. Similarly, in a study of women's autonomy in India, Jejeebhoy (2000) includes an index of control over economic resources which refers to whether the respondent owns and controls any family valuables (including land, jewelry, or vessels) and whether she expects to support herself in old age.

There is also some support for the direct effects of land rights on empowerment from anecdotal and ethnographic evidence. Women in Gujarat who participated in a loan program which insisted on joint legal titles for the husband and wife land said that they gained security from the joint title, in that the

family would not expel them from the household, nor sell the land without their permission (Unni 1999). Similarly, in Rajasthan, Agarwal (1994) found that widows who owned land were given greater respect and consideration than widows who did not. And, as one of the women from the Bodhgaya land movement in India eloquently put it, "Earlier, we had tongues but could not speak. We had feet but could not walk. Now that we have the land we have the strength to speak and walk!" (Alaka and Chetna 1987).

Welfare

This argument contends that securing women's land rights will promote the welfare and well-being of women and their families, as well as the broader community. This welfare rationale rests on the notion that resources put in the hands of women, rather than men, are more likely to be used to the benefit of children and others. This point is supported by studies on the effects of women's and men's income on household well-being measures. Compared to equal amounts of men's income, women's income is consistently associated with greater positive effects, as measured by child survival, household calorie level, food expenditures, and children's nutritional status (e.g. Quisumbing et al. 1995; Thomas et al. 1997). Women themselves often note that land rights would provide security in the face of their husband dying or abandoning them and in cases of domestic violence (Agarwal 1994). As a Nepali woman stated,

> "The wife should get her property when her husband is still alive, so that she can make her own living even if her husband leaves her or treats her badly, and she doesn't have to depend on anybody" (Panos Institute 2003).

Only a few studies have examined whether women's land rights promote welfare and well-being. In Kerala, Kumar (1978 as cited in Agarwal 2002) found that women's home gardens were associated with better child nutrition. Quisumbing and de la Briere (2000) found that women's assets at marriage were positively related to expenditure on children's clothing and education in Bangladesh, but only a few women in the survey brought land to their marriage so their result is most likely due to other assets besides land.

Securing and recognizing women's land rights may improve welfare by not only putting resources in the hands of women, but by increasing agricultural productivity and thereby increasing the

total amount of resources available. This rationale is often termed the efficiency argument (Agarwal 1994), but increasing agricultural productivity can improve welfare as well [2]. This argument comes in two main variants. The first variant of this argument notes that a considerable number of farmers are women whose productivity is hindered by a lack of secure land rights, including an inability to get credit, barriers to selling produce, and a lack of access to agricultural inputs. The second form of the argument suggests that women's desire to invest in their children makes them *more* productive and sustainable farmers than men when given the same opportunities (Kodoth 2001).

Several studies have shown that a lack of secure land rights in general do lead to less productive and sustainable production (Faruqee and Cary 1997). Ethnographic studies from South Asia also specifically demonstrate how women's lack of rights hinders productivity. For example, in Nepal, irrigation is a men's activity and women are often barred from water committees and forced to pay high irrigation fees while men can donate labor for canal maintenance in lieu of fees (e.g. Pun 2000; van der Schaaf 2000; van Koppen et al. 2001). This barrier limits productivity when women household heads take sons out of school to irrigate or male family members are unable to undertake wage work because they have to stay and irrigate (Pun 2000). In India, productive assets such as ploughs, bullocks, and wells are often held collectively by male relatives and women can have trouble accessing them (e.g. Sharma 1980; Chen 2000). Additionally, extension services often assume that women are not farmers, and thus, do not provide information and technology directly to women (e.g. Arun 1999).

The few studies that explore whether women are more productive farmers come largely from surveys in Sub-Saharan African countries. Overall, these studies have found that women's plots are not as productive as men's, but if differences in agricultural inputs are controlled for these differences disappear or women's plots become more productive (e.g. Udry 1996; Saito 1994). There is also some limited evidence from South Asia to support the idea that women have the potential to be more productive farmers. In Andhra Pradesh, groups of women collectively leased land that the owners were not farming because the owners either had too much land for themselves to cultivate or the land was marginal (Rajan 1990). The women were able to farm the land and produce productive harvests, as well as employ several

other village women while doing so. Further, after the Bodhgaya land movement in India, small agricultural loans were made available to those who had received land. Women used the loans to buy bullocks, while many men wanted to spend it on alcohol (Alaka and Chetna 1987).

The Pathways

In this paper I explore the impact of women's land rights on women's empowerment and child health, a dimension of welfare. I have chosen to examine the welfare and empowerment rationales together because I hypothesize that these rationales are intertwined. In order to see how these rationales may be connected it is important to better delineate the potential pathways from women's land rights to empowerment and welfare outcomes. First, I expect that land rights, or land ownership, should increase women's status or influence both inside and outside the household. Depending on how they use their land, land rights should also provide food, crops, fodder, and other resources to women. These resources provide a direct means of subsistence and also facilitate rearing livestock and other livelihood activities. Land rights should also improve women's economic situation by improving their access to credit and providing income through selling crops and other products or renting the land. Land rights may also increase women's income from employment. Agarwal (2002) suggests that agricultural laborers who own land are paid more, possibly due to the greater status that owning land bestows.

It is these effects of land rights that should directly impact both empowerment and welfare. As discussed above, the increase in women's status or influence should promote women's empowerment. Women who individually bring more assets and income to the household should have more control over decisions (Haddad et al. 1997; Agarwal 1997). The income and resources that come from land rights may also *directly* improve welfare. For example, the different types or greater amount of food that women's land rights provide may improve the nutrition of their families.

Alternatively, land rights may impact welfare *via* empowerment. Greater welfare may also come from women, rather than men alone, making key decisions that affect welfare, such as how household income should be used and when, where, and which children should receive health care and schooling.

Many studies have found that women's empowerment is associated with a variety of outcomes, including better health care, contraceptive use, household consumption, child immunization and nutritional status, and reduced child mortality (e.g. Bloom et al. 2001; Govindasamy and Malhotra 1996; Gage 1995; Kishor 2000). While these are household level examples, these pathways may also apply to broader contexts. For example, in their study of village council members in West Bengal, Chattopadhya and Duflo (2001) found that women leaders were more likely to invest money in infrastructure needs and health, while men were more likely to invest in education.

Data and Methods

Data for this analysis come from the 2001 Nepal Demographic and Health Survey (NDHS), a nationally representative, cross sectional, household survey (Nepal Ministry of Health et al. 2002). 8,633 households were surveyed and within those households 8,726 ever married women aged 15-49 were interviewed. The overall response rate was 97.8 percent. The sample of women used in this study is limited to agricultural workers because, as will be discussed later, an important question was asked only of agricultural workers. After further excluding women who are not regular members of the household, data for 6,452 women are used [3].

The cross sectional design poses a problem for this analysis. First, empowerment is conceptualized as a process of change. However, the data come from one point in time and do not address whether change has occurred. Second, assuming change did occur, the cross sectional design poses a reverse causation problem. The theorized order of cause and effect is that first a woman gains land rights and then these land rights facilitate an increase in agency. However, with a cross sectional survey that does not include retrospective questions this time ordering is lost. The causal order that I theorize may also occur in the opposite direction or in both directions. Women who are already empowered, due to other reasons, may use their greater agency to secure land rights. Although, these women may be empowered still further after they have gained land rights.

The target population poses more minor concerns. Ever married women aged 15-49 do not include two important groups of women in terms of land rights. First, the target population excludes women who have never been married. Under the national law, only unmarried women inherit land from their parents. So, leaving out these women omits a group of women who legally are more likely to possess some type of land rights. However, marriage is almost universal so this is a very small group of women. Furthermore, as noted above, inheritance practices are more closely associated with local and ethnic traditions than national law, so this legal barrier should not be as problematic as it might first appear. Second, the target population leaves out women over age 49, the women who are probably the most likely to inherit land. However, the omission of older women only restricts the population of land owners, which probably has only a minor effect on the empowerment analysis. Moreover, this omission should have no effect on the child health analysis since women over 49 are extremely unlikely to have young children.

Measures of Land Rights

In the NDHS women were asked, "Do you own any land, either by yourself or jointly with someone else?" This question provides an indicator of land ownership, an incomplete form of land rights, which can be conceptualized as a source of empowerment. An additional question provides a measure of control over land in practice. Women who owned land were further asked, "If you ever needed to, could you sell the land without anyone else's permission?" The addition of this question allows me to identify women who both own land and have control over it in practice, thus it provides an indicator of effective land rights.

Results using these measures alone may be misleading, however, because they compare women with land rights to all other women. Women with land rights are a subset of landed households. The reference group, women who do not own land, includes both landless households where no one owns land and landed households where men (and possibly other women) in the family own land. Households with land tend to be wealthier, and wealthier households perform better on many health outcomes, including

the health outcomes used here (Gwatkin 2000; Wagstaff and Watanabe 2000). Therefore, if women's land rights are used alone, the resulting effect may be positively biased by the comparison of women with land rights to women from male-headed landless households. Thus, it is important to control for other household members' land ownership to make sure that it is not this wealth relationship that is responsible for the effects of *women's* land rights [4].

Ideally then, one would create a measure of land rights that takes into account whether or not men in the women's household own land or, even better, the amount of land that each member owns. Unfortunately, the NDHS did not ask whether other household members, or if the household in general, owned land. However, women who worked in agriculture were asked if they mainly worked on their own or family land, rented land, or land owned by someone else. This question is used as a proxy for other household members' land ownership. I assume that other household members own land if the respondent said she worked on family land and did not own land herself.

Thus, the measure of land ownership used here has four categories (table 1). The first category, which I refer to as "lives in landed household," comprises women who do not own land themselves and work on land owned by their family. The second category, "owns land herself," contains respondents who own land, but cannot sell it without permission. The third category, "owns land and could sell," includes respondents who both own land and can sell it. Finally, the fourth category, "lives in landless household," comprises women who neither own land themselves, nor work on family land.

The NDHS also asked women whether they owned and could sell livestock. Livestock play an important role in farming, so livestock rights are also included in the analysis. However, it should be noted that no information is available about other household members' livestock ownership. Thus, this variable compares women who own livestock to both women who live in households where other members own livestock and in households without any livestock at all and thus its effects may be overestimated.

Measures of Empowerment

The empowerment measures are drawn from questions on household decision making. Respondents were asked who in their household usually has the final say on five decisions: 1) their own health care; 2) making large household purchases; 3) making household purchases for daily needs; 4) visits to family, friends, and relatives; and 5) what food should be cooked each day. Women could respond that they had the final say alone or jointly. The vast majority of joint decisions are made with husbands, but a few are with someone else.

Two measures of empowerment were created using these questions (table 1). The first measure is an empowerment index, ranging from zero to five, including a point for each decision that a woman usually has the final say on either alone or jointly [5]. The internal reliability of this empowerment index is high; it has a Cronbach's alpha of 0.82. A second empowerment variable was created to compare the effect of women having the final say alone on decisions versus doing so jointly. This second measure is a dummy variable denoting whether the respondent usually has the final say alone in at least one of the first four decisions. A dummy was used in this case because relatively few women made decisions alone, apart from cooking. The cooking decision is not included in this measure, however, because the significance of choosing daily food is substantially different from the other decisions. Cooking food is traditionally women's responsibility (Acharya and Bennett 1981). Seventy-three percent of respondents said they alone chose what food to cook each day while the next largest percent for any other decision was 27.

These are not perfect measures of empowerment. First, in their early work on the status of women in Nepal, Acharya and Bennett (1981) note that in response to generalized questions on decision making, women often respond according to local cultural norms. More specific questions are better able to get at actual practices. More specific questions may include asking what household purchases were made yesterday and then following up by asking who initiated the idea, who discussed whether or not to make the purchase, who finally decided, and who carried it out. Ideally, it would also be beneficial to have more questions on different kinds of assets and decisions, such as decisions about mobility.

However, having any decision making questions available in the survey is extremely valuable. Further, the decision making is extremely close to the conception of empowerment as agency. Thus, these measures provide a good view of women's empowerment level at a single point in time, which some term autonomy (e.g. Jejheeboy 2000).

Measures of Welfare

Welfare is obviously a very broad term, which can encompass health, different standards of consumption, and a variety of other dimensions. Since I am using data from a Demographic and Health Survey I focus on the health of children ages five and under. More specifically, I use two indicators of children's nutritional status: 1) whether the child is severely stunted (whether their height is more than three standard deviations below the international reference median for their age), a measure of long term malnutrition and chronic illness; and 2) whether the child is severely underweight (whether their weight is more than three standard deviations below the international reference median for their age), a measure of chronic and acute malnutrition and disease [6].

I use these nutritional indicators for several reasons. First, children's nutritional, or anthropometric, status is a good general measure of child health (de Onis et al. 1993). Second, these nutrition variables pertain to the time of survey and thus are contemporaneous with the land rights measures. Other potential health measures, including prenatal and delivery care and immunization status could have occurred as long as five years ago when the mother's land rights status may have been different. Third, these nutrition indicators are available for all 4,824 non-twin children born in the last five years and still alive at the time of survey. Other outcomes available in the NDHS, such as treatment of an illness experienced in the last two weeks, apply only to a subset of children.

The third commonly used indicator of children's nutritional status is wasting, a measure of weight-for-height. I do not include wasting for two main reasons. First, I expect mother's land rights to have a continual effect, which is better represented by longer term indicators. Wasting is a short term measure of recent illness and acute malnutrition. Further, the fieldwork for the NDHS was carried out

over several weeks from January to June of 2001. Thus, the wasting measure may be affected by seasonal differences in illness and food availability.

[tables 1 and 2 about here]

Results and Discussion

Hypothesis 1: Empowerment

The empowerment hypothesis was tested with linear regression models using the empowerment index and with logistic regression models using the final say alone dummy. The full models for each empowerment variable are presented in table 3. Both models include basic controls of urban residence, religion, caste, household wealth, and household structure. I also control for other potential sources and settings of empowerment by including age, education, and employment remuneration. These models have a fairly good fit. The linear regression model accounts for 33 percent of the variation in the empowerment index and the fit improved as variables were added to successive logistic regression models using the final say alone dummy.

[table 3 about here]

The probability that a woman is empowered does increase if she has land rights. First, it appears that owning land, a source of empowerment, does indeed facilitate actual empowerment. Women who own land are significantly more likely to have the final say on more decisions and are 54 percent more likely to have the final say *alone* on a decision . Second, effective land rights appear to expand women's agency beyond decisions about land and into other household decisions. Women who could sell their land without permission have the final say on more decisions and are 69 percent more likely to do so alone.

Livestock rights are associated with women's empowerment in similar ways. Livestock owners also have the final say on more decisions. Most strikingly, women who can sell their livestock without permission are more than twice as likely to make a decision alone. Livestock ownership is clearly not as influential as land ownership. The impact of livestock ownership on the empowerment index is about half the size of the effect of land ownership. Furthermore, women who owned livestock were nine

percent more likely to have the final say alone, but this result is not significant and much smaller than the result for land ownership. The supremacy of land over livestock is not as clear when it comes to effective rights however. According to the empowerment index, the effect of being able to sell land is also larger than being able to sell livestock. Conversely, women that can sell livestock are four times as likely as women who can sell land to have the final say alone.

As expected, other sources and settings of empowerment are also associated with greater empowerment. Most notably, receiving payment in kind increases the probability that a woman makes a decision alone by 47 percent and being paid cash more than doubles the probability. However, it should be noted that part of this effect is an indirect effect of land rights. Women who own land are also more likely to be paid.

These results also confirm that age is a significant source of empowerment. Older women are five percent more likely to make a decision alone and, all else being equal, every 25 years of age is associated with having the final say on one additional decision. For example, a 45 year old woman has the final say on one more decision than a 20 year old woman.

Women's education is also associated with empowerment, but the results are relatively weak. As expected, the coefficients of women's education are positive, but they are small and insignificant in the empowerment index model, indicating that educated women do not usually have the final say on more decisions. Education is significant in models where final say alone is the dependent variable, but the odds ratios are comparatively small. This result is at least partially due to the nature of the sample. Agricultural workers are less educated than the general population of women. Reaching statistical significance is more difficult simply because the sample size of women with higher levels education is small; only seven percent of the sample has at least some secondary education (table 2). This problem aside, however, the results also suggest that education is comparatively unimportant for agricultural workers' empowerment. The effects of women's education are larger in similar models that include women who do not work in agriculture (results not shown).

Husband's education has only a small effect on women's empowerment. I expected that husbands' gender norms would affect their wives participation in decision-making and that more educated men would have more egalitarian gender norms on average. These results provide limited support for this idea. According to the empowerment index model, women with educated husbands do *not* have the final say on a significantly larger number of decisions. However, women whose husbands completed secondary school are more likely to make a decision alone.

Caste and ethnicity are included as a basic contextual control, but caste also plays a role as a setting of empowerment. There are no significant differences by caste in the empowerment index, but there are fairly strong differences by caste in whether a woman has the final say alone on a decision. Tibeto-Burman women are 61 percent more likely to make a decision alone than lower caste women and by comparison they are more likely than high caste women to do so as well. This result is consistent with caste's role as a setting of empowerment. High castes have more restrictive gender norms (Bennett 1983; Acharya and Bennett 1981 and 1983). For example, high caste women generally have less choice over marriage partners, marry at younger ages, and have stricter customs regarding ritual purity and sexuality. By contrast, the Tibeto-Burman ethnic groups are known for more egalitarian gender norms where love marriages and greater freedom of movement are common. Morgan and Niraula (1996) found similar results in their comparison of Terai and hill villages in Nepal. Multiple marriages, distance between natal and marital families, and other characteristics associated with Tibeto-Burman ethnic groups were associated with greater freedom of movement and decision-making.

Predictably, the higher the respondent is in the household hierarchy the greater her empowerment. Women who live in joint families *without* their mother-in-law are more likely to make decisions than those who live *with* their mother-in-law. Similarly, women who live in nuclear families, and thus are the wife of the household head, make more decisions than those living in joint families. At the extreme, women who are the household head are virtually guaranteed to have the final say on decisions. These results should stem mainly from competition in decision-making. If other primary decision makers are *not* present, including husbands, mothers-in-law, and others, the respondent should have the final say on

decisions by default alone. It is also likely that joint families reflect more traditional gender norms than nuclear families.

Hypothesis 2: Child Health

The hypothesis on child health was tested using logistic regression models on the two nutrition outcomes discussed above. In these models, however, a small change was made in the measures of land and livestock rights. The proportion of *mothers* of children under age five with land rights (6 percent) is substantially smaller than the proportion of *women* with land rights (11 percent). So, in these health models, mothers who owned land and livestock are collapsed into single categories; no distinction is made between merely owning land or livestock and being able to sell it without permission.

The logistic regression models of children's severe stunting are presented in table 4 and identical models of severely underweight children are presented in table 5. All of these models include basic controls of urban residence, religion, caste, household wealth, education, and mother's age. Models 2 and 3 add mother's empowerment as measured by the empowerment index and the final say alone dummy respectively. Both empowerment measures are used alternatively to determine if decisions that women make alone have a different impact from decisions made jointly. Finally, model 4 drops the land variables in order to measure the effect of empowerment without controlling for land ownership.

[tables 4 and 5 about here]

Overall, these results support the second hypothesis that mothers' land rights benefit children's health. The probability that a child is severely underweight is reduced by almost half if their mother owns land (table 5). Children whose mothers own land are also significantly less likely to be severely stunted (table 4).

The results suggest that children whose mother's live in landless households also have better nutritional outcomes. These children are significantly less likely to severely stunted (table 4). They are also less likely to be severely underweight, although this result is not significant (table 5). It is not entirely clear why these children have better health. This category is a proxy for landless households, a

group which I would expect to have worse nutrition. Further, all of these mothers work on non-family land and I would expect breast feeding and child care in general to be less regular among this group. However, almost all of the women who are paid are in this group of mothers. The greater mobility and income earned by these mothers may outweigh these other disadvantages, creating a net benefit.

Children whose mothers own livestock do not have significantly better nutrition. In fact, while the odds ratios are significant they are in the wrong direction, suggesting that, if anything, these children have worse nutrition (tables 4 & 5).

The results of the final say alone variable suggest that mother's empowerment does have a beneficial impact on child nutrition. Children whose mothers have the final say alone on a decision are less likely to be severely stunted (table 4). The results of the underweight models also suggest that the mother having the final say alone is beneficial; the odds ratio for final say alone is less than one, although it is only significant at the 10 percent level (table 5).

By contrast, the results of the empowerment index do not demonstrate a positive impact on child nutrition. The empowerment index has no effect on either the stunting or underweight outcome, showing odds ratios of 1.01 and 1.02 respectively (tables 4 & 5). These results suggest that there is a significant difference between decisions that women make alone and those that they make jointly with someone else. Children's nutrition is only benefited when their mother has the final say *alone* on a decision.

Above I speculated that a major pathway for the impact of land rights on child nutrition may be through empowerment. If empowerment is a major pathway, I expect that the inclusion of empowerment in the health models should substantially diminish the effect of land ownership. Similarly, the effects of empowerment on child health should become stronger when land ownership is dropped from the model. Overall, the odds ratios for land ownership do not change substantially when the final say alone is added to the model as the measure of empowerment. Similarly, the odds ratios for empowerment do not change substantially when land ownership is dropped from the model. It should be noted, however, that the small changes that do occur are in the expected direction. For example, in the case of severe stunting, the land ownership odds ratio increases from 0.70 to 0.73 when empowerment is added and the

empowerment odds ratio for severe stunting decreases from 0.83 to 0.80 when land ownership is dropped. Overall, these results suggest that empowerment is not a major pathway from women's land rights to better child nutrition. The primary route appears to be a more direct path through the income and resources that women's land rights provide.

Conclusion

While it is increasingly recognized as important, the issue of women's land rights remains a difficult one. The argument is often made that empowering women, educating girls, and otherwise working to improve women's situation will ultimately benefit everyone. However, this argument is more difficult in the context of land, a finite resource. In Nepal, as in other countries, there is a clear resistance to women's equal inheritance rights, a primary means by which they would gain land. The land issue can appear as an intractable case of zero sum game; if women gain independent land rights, men will have to lose land. Thus, the structural quality of land, which places it at the heart of established power relations and makes it such a fundamental source of inequality, is simultaneously the barrier that stands in the way of it being addressed in a meaningful way. Further, the increasing pressure of growing populations on land, resulting land fragmentation, and resistance to women's inheritance create ambivalence among those who might be even the most avid supporters of women's land rights. As early as 1981, Acharya and Bennett (1981; 1983) recommended promoting women's property rights as a key element in promoting the status of women in Nepal. However, citing land fragmentation and the difficulty of the inheritance issue, they stressed that it should be a long term goal and, instead, emphasized moving women outside the subsistence economy.

In the face of such a sensitive and fundamental issue, it is critical to better understand the current and potential impacts of women's land rights. This analysis provides a rare empirical reflection on the claims that women's land rights empower women and benefit family welfare. In this case, there is evidence that women's land rights empower women by increasing their control over household decision making. The findings also show support for the benefits of women's land rights for children's health.

Young children of mothers who own land are significantly less likely to be severely underweight or stunted.

While these findings provide an initial step towards greater understanding with available data, it is clear that much further research is needed to confirm and extend the findings presented here. First, longitudinal studies, or at least retrospective questions, are needed to better capture how women acquire land and how it is connected to the process of empowerment. Are empowered women gaining land or are women landowners becoming empowered or both? It is also important to explore the impact of women's land rights on additional outcomes, such as household consumption, schooling, and food security, especially among older women and their children. The impact that women farmers' lack of secure land tenure has on sustainable farming practices and agricultural productivity should also be further addressed, especially in the light of the feminization of agriculture throughout developing countries.

Finally though, it should be reiterated that the current effects of women's land rights may be quite different from their potential impact. In Nepal, as elsewhere, women landowners are rare and women with effective land rights are even rarer. It is likely that if women gain land rights in substantial numbers the cumulative and broader effects of these rights on a collective level will palpably differ from the household level effects of the rare individual woman who owns land.

Notes

1. Under the previous law, women could only inherit parental property if they were at least 35 and unmarried. If they later married they were to return the property. Under the new legislation there is no longer an age restriction for daughters, but daughters' inheritance rights are still contingent on their marital status. Married women still have no legal right to inherit parental property and unmarried women must still return it if they later marry. However, under the new legislation, widows' inheritance rights are no longer contingent on their marital status. Legally, they have a right to keep a share of their husband's property even if they remarry.
2. Another common rationale for women's land rights is that securing women's land rights will promote equality (Agarwal 1994; 2002). Similarly, women's land rights have been incorporated into the human rights framework under the right to equality (e.g. DFID 2002; UN Commission on Human Rights 1998). However, this human rights argument is a moral, as well as legal, argument. Research can only be used to determine the extent to which equality has been achieved or explore how to better realize equality in practice. Thus, this rationale is indirectly touched on within the empowerment analysis included here, but is not otherwise reflected on.
3. The 305 women who are not regular members of the household are excluded because the household structure and wealth variables are at the household level and must come from the household that the woman regularly lives in. The majority of the women who are not regular members appear to be visiting their natal families; they are largely daughters and sisters of the household head.
4. As shown later, a control for household wealth is included in the analysis. However, the measure does not take land ownership into account. Thus, the potential wealth effects of land ownership may not be sufficiently controlled for by using the wealth measure alone.
5. Women could also respond that the decision was not applicable. These "not applicable" responses were coded as not having the final say. This categorization could present a bias if poor women are more likely to reply that a decision is not applicable because they are not able to use

health care as much or make large purchases. However, the largest number of women who responded not applicable to a decision is only 37, less than one percent of the sample. Thus, categorizing "not applicable" answers as not having the final say does not create any bias in this case.

6. Before puberty, children from all populations for which data exist have similar growth patterns, demonstrating similar height and weight distributions by age (Martorell and Habicht 1986). Therefore, comparison to an international reference population is used to indicate malnutrition among young children in Nepal (Nepal Ministry of Health et al. 2002).

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Table 1. Definitions of selected variables.

Variable Name	Variable Definition
Land rights: Lives in landed household	Respondent does not own land, but works on land owned by other family members
Land rights: Owns land herself	Respondent owns land either alone or jointly, but cannot sell it without permission
Land rights: Owns land and could sell	Respondent owns land alone and could sell it without permission
Land rights: Lives in landless household	Respondent does not own land and does not work on family land
Empowerment index	Number of decisions that the respondent usually has the final say on either *alone or jointly* of the following: 1) her own health care; 2) making large household purchases; 3) making household purchases for daily needs; 4) visits to family, friends, and relatives; and 5) what food should be cooked each day
Final say alone	Respondent usually has the final say *alone* on at least one of the following four decisions: 1) her own health care; 2) making large household purchases; 3) making household purchases for daily needs; and 4) visits to family, friends, and relatives
Child severely stunted	Child's height is more than three standard deviations below the international reference median for their age
Child severely underweight	Child's weight is more than three standard deviations below the international reference median for their age
Caste: High caste	Respondent is a member of Brahman, Chhetri, Thakuri, or Rajput castes
Caste: Tibeto-Burman ethnic group	Respondent is a member of Newar, Gurung, Magar, Tamang, Sherpa, Rai, or Limbu ethnic groups
Caste: Other caste	Respondent is neither high caste nor Tibeto-Burman
Household wealth groups	These groups are quintiles from the original full household sample. The wealth index used to rank the households is a principle components analysis of the flooring material, toilet facilities, cooking fuel, water source, electricity and consumer durables, including a radio, television, telephone, and bicycle, adjusted by the number of household members.

Table 2. Variable descriptives.*

Variable	**6,425 Women** Empowerment Models Sample %	**4,824 Children and Mothers** Health Models Sample %
Empowerment index	mn: 2.23 sd: 1.74	mn: 2.04 sd: 1.66
Final say alone	32	27
Child severely stunted	n/a	22
Child severely underweight	n/a	13
Urban residence	3	2
Hindu	86	84
Caste/Ethnicity		
High caste	33	30
Tibeto-Burman ethnic group	24	24
Other caste	43	45
Household wealth		
Group 1 (highest)	11	7
Group 2	20	19
Group 3 (middle)	19	19
Group 4	22	25
Group 5 (lowest)	27	31
Household structure		
Joint family with mother-in-law	30	33
Joint family without mother-in-law	22	16
Nuclear family	36	41
Respondent is household head	11	9
Age	mn: 31.7 sd: 9.0	mn: 28.3 sd: 6.5
Employment remuneration		
Unpaid	77	78
Paid in kind only	16	16
Paid in cash	7	6
Education		
None	79	79
Primary	14	14
Some secondary or more	7	7
Husband's education		
None or unknown	41	38
Primary	27	28
Some secondary	22	22
Completed secondary	10	10
Land rights		
Lives in landed household	70	74
Owns land herself	7	4
Owns land and could sell	3	1
Lives in landless household	20	20
Livestock rights		
Does not own	71	74
Owns livestock herself	16	16
Owns livestock and could sell	14	11

*Percents are rounded to the nearest whole number and, thus, do not necessarily add to 100.

Source: Nepal Demographic and Health Survey, 2001

Table 3. Linear regression model of the empowerment index and logistic regression model of the final say alone dummy (n = 6,425 women).

	Empowerment Index		**Final Say Alone**
	β	SE	OR
Urban residence	-0.04	(.085)	1.20
Hindu	0.15**	(.067)	1.20*
Caste/Ethnicity			
High caste	-0.05	(.051)	1.19*
Tibeto-Burman caste	0.09	(.060)	1.61***
Other caste (ref)	0		1.00
Household wealth			
Group 1 (highest)	0.19**	(.076)	1.19
Group 2	0.10*	(.060)	1.09
Group 3 (middle)	0.10	(.061)	1.14
Group 4	0.05	(.057)	1.07
Group 5 (lowest) (ref)	0		1.00
Household structure			
Joint family with mother-in-law (ref)	0		1.00
Joint family without mother-in-law	0.48***	(.059)	1.68***
Nuclear family	0.92***	(.054)	2.19***
Respondent is household head	2.69***	(.064)	66.61***
Age	0.04***	(.003)	1.05***
Employment remuneration			
Unpaid (ref)	0		1.00
Paid in kind only	0.15**	(.067)	1.47***
Paid in cash	0.29***	(.090)	2.18***
Education			
None (ref)	0		1.00
Primary	0.04	(.059)	1.26**
Some secondary or more	0.14	(.082)	1.45**
Husband's education			
None or unknown (ref)	0		1.00
Primary	0.07	(.052)	1.12
Some secondary	-0.05	(.057)	1.15
Completed secondary	0.06	(.078)	1.37**
Land rights			
Lives in landed household (ref)	0		1.00
Owns land herself	0.27***	(.083)	1.54***
Owns land and could sell	0.47***	(.125)	1.69**
Lives in landless household	0.05	(.673)	1.19
Livestock rights			
Does not own (ref)	0		1.00
Owns livestock herself	0.13**	(.058)	1.09
Owns livestock and could sell	0.40***	(.059)	2.15***
Constant	-0.10	(.110)	
Model R2	0.326		
-2 Log Likelihood			6,096.60
Model Chi-Square			911.04

*p<0.10 ** p<0.05 *** p<0.01

Source: Nepal Demographic and Health Survey, 2001

Table 4. Odds ratios and robust standard errors for logistic regression models of severely stunted children (n = 4,824).

	Model 1 OR	**Model 2** OR	**Model 3** OR	**Model 4** OR
Urban residence	0.78	0.78	0.79	0.78
Hindu	0.86	0.86	0.86	0.86
Caste/Ethnicity				
High caste	0.82**	0.82**	0.83*	0.88
Tibeto-Burman ethnic group	0.71***	0.71***	0.71***	0.75
Other caste (ref)	1.00	1.00	1.00	1.00
Household wealth				
Group 1 (highest)	0.56**	0.56***	0.55***	0.53***
Group 2	0.63***	0.63***	0.63***	0.61***
Group 3 (middle)	0.56***	0.56***	0.55***	0.53***
Group 4	0.71***	0.71***	0.70***	0.67***
Group 5 (lowest) (ref)	1.00	1.00	1.00	1.00
Mother's age	1.02***	1.02***	1.02***	1.02***
Mother's education				
None (ref)	1.00	1.00	1.00	1.00
Primary	0.66***	0.66***	0.67***	0.67***
Some secondary or more	0.61**	0.61**	0.61**	0.61**
Father's education				
None or unknown (ref)	1.00	1.00	1.00	1.00
Primary	0.87	0.87	0.88	0.90
Some secondary	0.63***	0.63***	0.63***	0.66***
Completed secondary	0.57***	0.57***	0.58***	0.60***
Mother's land ownership				
Lives in landed household (ref)	1.00	1.00	1.00	
Owns land herself	0.70**	0.70**	0.73*	
Lives in landless household	0.75**	0.75**	0.77**	
Mother owns livestock	1.04	1.04	1.05	
Mother's empowerment index		1.01		
Mother has final say alone			0.83**	0.80**
-2 Log Likelihood	4,921.29	4,921.09	4,916.15	4,925.63
Model Chi-Square	174.74***	174.69***	178.06***	168.69***

*p<0.10 ** p<0.05 *** p<0.01

Source: Nepal Demographic and Health Survey, 2001

Table 5. Odds ratios and robust standard errors for logistic regression models of severely underweight children (n = 4,824).

	Model 1 OR	**Model 2** OR	**Model 3** OR	**Model 4** OR
Urban residence	1.01	1.01	1.02	0.99
Hindu	1.18	1.18	1.18	1.18
Caste/Ethnicity				
High caste	0.63***	0.62***	0.63***	0.66***
Tibeto-Burman ethnic group	0.36***	0.36***	0.36***	0.37***
Other caste (ref)	1.00	1.00	1.00	1.00
Household wealth				
Group 1 (highest)	0.46***	0.47***	0.45***	0.44***
Group 2	0.57***	0.57***	0.57***	0.56***
Group 3 (middle)	0.50***	0.50***	0.49***	0.48***
Group 4	0.78**	0.79*	0.78**	0.76**
Group 5 (lowest) (ref)	1.00	1.00	1.00	1.00
Mother's age	1.01*	1.01*	1.02**	1.01*
Mother's education				
None (ref)	1.00	1.00	1.00	1.00
Primary	0.81	0.81	0.82	0.81
Some secondary or more	0.63	0.62	0.63	0.63
Father's education				
None or unknown (ref)	1.00	1.00	1.00	1.00
Primary	0.82*	0.82*	0.83*	0.84
Some secondary	0.59***	0.59***	0.60***	0.62***
Completed secondary	0.45***	0.45***	0.45***	0.46***
Mother's land ownership				
Lives in landed household (ref)	1.00	1.00	1.00	
Owns land herself	0.54**	0.53**	0.56**	
Lives in landless household	0.81	0.81	0.83	
Mother owns livestock	1.00	1.00	1.01	
Mother's empowerment index		1.02		
Mother has final say alone			0.83*	0.79**
-2 Log Likelihood	3,529.47	3528.83	3,526.02	3,534.57
Model Chi-Square	157.67***	158.45***	160.07***	154.95***

*p<0.10 ** p<0.05 *** p<0.01

Source: Nepal Demographic and Health Survey, 2001