

Land Rights and Economic Security for Women in Vietnam

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Abstract: Vietnam's 1993 Land Law created a land market by granting households land-use rights which could be exchanged, leased, inherited, sold or mortgaged. This study uses quantitative and qualitative methods to analyze whether increased land titling in women's names led to discernible improvements in women's economic security and household vulnerability. Using a matched sample of households from Vietnam's 2004 and 2008 Household Living Standards Survey, we find that on balance, land-use rights held exclusively by women or jointly by couples result in several beneficial effects including higher household expenditures, more education for girls and women, less housework, and lower household vulnerability to poverty. Results from interviews conducted in Vietnam support these conclusions, with evidence that one of the main channels through which these improvements occurred is increased bargaining power within the home.

Keywords: Land-use certificates, property rights, economic security, women, Vietnam

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I. Introduction

Improving women's control over assets such as land may have powerful consequences for women's autonomy. The availability of collateral facilitates borrowing, which, among other things, gives women the capital required to finance home-based self-employment. In addition to facilitating greater access to credit, land rights can also affect women's economic decision-making through increased security of land tenure. Greater security of tenure strengthens the incentive to undertake long-term agricultural investments such as planting perennial crops, which, in turn, may free up women's labor for non-agricultural activities.

In practice, greater control over land in developing countries has come primarily through land titling programs. In the case of Vietnam, the 1993 Land Law created a land market by giving households the power to exchange, lease and mortgage their land-use rights. The law change prompted one of the largest land-titling programs seen to date in the developing world both in terms of scope and pace of implementation; within seven years, rural households were issued about 11 million land-use certificates (Do and Iyer 2008).

Given the comprehensive scope of its land reform, Vietnam constitutes an ideal test case for examining how women's economic security was affected by the creation of an asset that could be traded in the market. By creating the basis for a new formal market in land, the 1993 Land Law contributed to an enormous change in the security of land tenure with potentially large consequences for household decisions regarding agricultural investments and labor inputs. Furthermore, the Land Law may also have had strong implications for women's economic security and well-being, especially in light of the feminization of Vietnam's farm production that began in the 1980s. Estimates indicate that in the 1990s alone, household farm employment by men decreased by 0.3 percent annually while that of women rose by 0.9 percent annually

(Akram-Lodhi 2004). To date, 58 percent of the female labor force is employed in agriculture as compared to 51 percent of the male labor force (ILO 2012).

With proportionately more women employed in agriculture, an important question is whether increased land titling in Vietnam led to overall improvements in women's economic security, and whether such effects were especially evident in households in which women held land rights. This research uses a mixed-methods approach to examine whether land-use rights registered in the names of both husbands and wives or women only portray differential patterns on measures of women's economic security as compared with land-use rights registered in the name of men only.

Using data on matched households from Vietnam's 2004 and 2008 Household Living Standards Surveys (VHLSS) – which asked detailed questions on land-use rights – this study provides evidence on how increased formalization of land ownership affects women's participation and remuneration from farm and off-farm activities. Results indicate that on balance, land rights held by women either exclusively or jointly improve their economic security with increases in household expenditures and education for girls and women, and declines in daily hours of housework and the number of women engaging in housework. Household vulnerability to poverty is also reduced when women's names appear on land-use rights, either exclusively or jointly. Results from interviews conducted with 25 women in Vietnam further indicate that women who own land are more likely to be employed outside the home and feel that their land ownership increased their status within the home. To the best of our knowledge, this research is the first to analyze the effects of gender-segregated land rights on measures of women's economic security and household vulnerability in a developing country.

II. Background on Land-Use Rights in Vietnam

Since the beginning of the government's "Doi Moi" policy in 1986, Vietnam has engaged in a massive transition from a centrally-planned economy to a market-based one. With transition came a surge in economic growth at rates that exceeded many other comparable economies in terms of overall GDP as well as exports, agricultural production, and worker productivity. The transition entailed a distinct shift in patterns of land use in the agricultural sector with a reallocation of communally-held land toward land controlled by individual households.¹ At the same time, the mode of agricultural production shifted from agricultural cooperatives towards farm households.

In 1988, the government began the move away from a collective system based on agricultural cooperatives with a new policy that allowed farm households to lease plots of land for ten to fifteen years. The reform was intended to improve incentives for farmers to invest in their land. However, in practice, the land-use rights were not seen as secure as they were not tradable and consequently, many farmers were reluctant to undertake long-term investments in their fields. To improve the incentive structure facing farm households, the government passed a new Land Law in 1993 that extended the lease period to twenty years for land used to produce annual crops and fifty years for land used to produce perennial crops. In addition, it allowed farmers to trade, transfer, rent, bequeath and mortgage their land-use rights.

The law change was implemented through the issuance to farm households of land-use rights — known in Vietnam as Land-Use Certificates (LUCs). Although the issuance of LUCs proceeded quickly, implementation across the provinces remained uneven. In 1995, just one-third of farm households had been allocated LUCs. Problems included delays on the part of the management agencies in setting guidelines for issuing LUCs, land-use tax rates that were initially too high, inaccurate records on prior landholdings, large numbers of disputes that

required resolution and debts that needed to be cleared before LUCs could be issued, and lack of awareness among farm households and local authorities (especially in remote areas) about the importance of formal land-use rights.

Issuance of land-use rights also demonstrated uneven patterns in terms of gender since formal land rights were held predominantly by men. In principle, the legal reforms did not discriminate in granting rights because legal decrees on implementation of the Land Law relied on gender-neutral language such as “individuals” and “users” in referring to the targeted beneficiaries of the reforms. Rather, gender disparities in the issuance of land-use rights resulted from implementation. For example, a large source of gender disparities was that in the initial years, the LUCs had space for only one name which was to be filled by the household head. Because more households were headed by men than women, the unintended consequence was that fewer women had their names on the LUCs. This changed with a 2001 government decree that stipulated that the names of both husband and wife should be inscribed on the LUCs if the land was jointly owned.² However the new regulation was not well enforced, especially since the government agency in charge of rural land titling lacked the administrative capacity to ensure full compliance across provinces. In fact, a survey conducted in relatively remote rural provinces after 2001 found that most new LUCs issued still had space for only one name which was usually completed by the (male) household head (World Bank 2002).

Another source of gender discrepancies was that many localities stipulated that the amount of acreage allocated to a household should depend on the ages of household members, with individuals of working age receiving the largest allocations and young children the smallest. Because female-headed households tended to have fewer adults of working age, female-headed households, on average, received less land than male-headed households. Contributing to this

discrepancy, the legal retirement age for women remained five years earlier than that for men (age 55 for women as compared to 60 for men). As a result, the amount of land allocated to women ages 55 to 59 was half that of men of the same age. Gender inequities in the issuance of land-use rights were also exacerbated by social norms and cultural traditions in Vietnam in which men make decisions regarding farm production and the ownership of assets.

III. Control of Assets and Women's Bargaining Power

Conceptual Framework

In principle, land rights are positively linked to household behavior through increased security of land tenure and the freedom from expropriation; greater access to credit from being able to use land as collateral; reduced vulnerability to food price shocks; and gains from trade in the rental and sales markets for land.³ With regard to the security of land tenure, land-right holders are more likely to make long-term investments in their land if they are confident that the state cannot expropriate their holdings. Allowing land to remain fallow for longer periods of time to increase soil fertility, investing in improved drainage and irrigation, and planting perennial crops rather than annual crops are all examples of relatively costly investments that farmers might be reluctant to undertake in the absence of secure land rights. Strong land rights thus serve as an incentive for farmers to invest in their land. In addition to enhancing investment incentives, a low risk of expropriation decreases the need for farmers to spend private resources on protecting their land which may liberate capital for alternative agricultural investments.

In terms of the second channel, stronger land rights can make it easier to obtain loans in the credit market. Land is a widely used asset for garnering loans from banks that require collateral. On the third channel, securing women's rights to land has beneficial welfare impacts by reducing vulnerability when economic shocks occur, or after divorce or widowhood. These

beneficial welfare effects do not necessarily arise from simply improving household's access to land since intra-household distribution is not always equitable (Lastarria-Cornhiel *et al.* 2011). In terms of the final channel, when land rights are transferrable, households have the opportunity to generate gains from trade in land sales and rental markets. Households may then use the income to finance expenditures and land-based investments.

Each of these channels affects women's control over resources, with important implications for their economic security and autonomy. Higher yields due to agricultural investments, greater access to credit, and gains from trade in land markets can give women the financial capital they require to finance a host of economic activities. Moreover, long-term investments in land may be labor-saving after the initial planting stage, with a resulting shift of labor hours into other non-agricultural activities (Do and Iyer 2008). Opportunities to begin new entrepreneurial ventures and to increase the scale of existing microenterprises can be particularly beneficial in regions with limited paid-employment opportunities for women due to labor-market discrimination or insufficient labor demand (Karlan and Morduch 2009).

In this context, employment in home-based enterprises can provide women with earnings that improve their socioeconomic status and that of their households. Income generation and access to credit can have feedback effects on measures of autonomy such as an increased role in household decision making, greater mobility, and improved bargaining power vis-à-vis male members in the household (Pitt *et al.* 2006). Women's employment in income-generating activities can strengthen their negotiating power by improving their fallback position, and greater autonomy and a shift in intra-household dynamics that favor women can engender many beneficial effects including a reduction in the incidence of domestic violence, lower fertility, and improved health outcomes (Agarwal 1994).

Earlier Findings for Vietnam

Previous analyses of Vietnam's land reforms have not examined the relationship between land law reforms and women's economic security. Rather, earlier empirical studies on Vietnam's land reforms have mainly fallen into two broad categories: (1) those that examine changes in agricultural production and income at the household level without a focus on gendered effects; and (2) those that include gendered variables without examining the effects of land titling on women's economic status.

In the first category, Do and Iyer (2008) used province-level variation in the speed of implementation and two waves of Vietnam's Living Standards Survey from the 1990s to identify effects of the land reform. The study found that as a consequence of acquired land rights, households allocated a larger proportion of cultivated areas toward perennial crops and increased their labor supply in non-farm activities. Since household borrowing did not exhibit much variation during the period of analysis, these results are attributed mainly to the additional security of land tenure rather than increased access to credit. In contrast to Do and Iyer's (2008) finding of little variation in household access to credit, Kemper and Klump (2010) found that the formalization of property rights through LUCs has a substantial positive effect on household borrowing from formal sources. Explanations for the difference in results include the use of a more recent wave of the VHLSS (2004), as well as a more direct measure of land-use rights at the household level.

In terms of household vulnerability, Imai *et al.* (2011) found that Vietnamese households with more land are less vulnerable to poverty, but again, the analysis does not disaggregate land ownership by gender. Further, Markussen *et al.* (2011) examined repercussions of the Vietnamese government's restrictions on types of crops that may be grown (especially rice) that

accompanied land reforms. The study found that these restrictions helped to promote food security and production without jeopardizing household income.

In the second broad category of studies, Ravallion and van de Walle (2006) found that the reallocation process of agricultural land favored male household heads, mostly because there was space for only one name on the LUCs. Consequently, women lost control of the main productive asset owned by the household even though they might have carried primary responsibility for working that asset. Another source of gender disparities has occurred in land rental and sales markets. In particular, Deininger and Jin (2008) found that Vietnamese women who head households face bias in the market for land sales. Moreover, Linde-Rahr (2008) found that Vietnamese households with a higher proportion of female members appear to have a lower willingness to pay for secure property rights as compared to households with fewer female members, suggesting that women may appear to behave as if they are more risk-averse due to imperfections in land markets.

Two earlier studies that come closest to examining the impact of land titling on measures of women's economic status are Van den Broeck *et al.* (2007) and Fletschner *et al.* (2010). The former study found that land-use rights positively impacted rice yields in male-headed households but not in female-headed households. Possible explanations are that the land ownership right is not viewed in the same way when women have their names on the LUCs; men may experience relatively greater access to credit following land titling as compared to women; or women may be more risk averse than men in offering their land as collateral. This last explanation is confirmed with evidence based on a set of controlled experiments in Fletschner *et al.* (2010), which found that women in Central Vietnam are more risk averse than men. Women are substantially less likely than men to choose risky options even after controlling for the area of

land owned by the household. Although these studies are related, neither examined the impact of women's land rights on indicators of women's economic security within and outside the home.

This research studies the effect of jointly or solely-held LUCs by women on measures of their economic security. These measures include women's total real wages, proportion of women employed in wage and salary work, proportion of women self-employed in agriculture and non-agriculture, proportion of women engaged in housework, hours of housework per day, highest grade attended by women and girls in the household, and measures of household vulnerability such as the incidence of general poverty and food poverty. Using a sample of matched households between 2004 and 2008 and disaggregating effects by the gender of household heads, our study isolates the causal effect of land rights and finds that LUCs registered in women's names, either singly or jointly, have several beneficial implications.

IV. Data and Methodology

Data Sources and Sample Composition

The study uses household survey data from the 2004 and 2008 waves of the Vietnam Household Living Standards Surveys. The VHLSS, begun in 2002 and conducted every two years by Vietnam's General Statistics Office, has data on a range of individual and household characteristics including income, ethnicity, region of residence, household structure, hourly wages, education, and income earned from different agricultural activities. The surveys are panel in nature, with a subset of the households surveyed in one wave tracked and re-surveyed in the following wave. The 2004 and 2008 waves contain specialized modules on land use with detailed information on registration of LUCs and the identity of the first and second stakeholders.⁴ In both 2004 and 2008, the full samples contain information for 9189 households.⁵ In addition to the household data, we also utilized data on communes in both years for

information on commune-level characteristics including geographical terrain, poverty rates, major religion, and access to roads and electrical power.

We began by constructing a panel data set of households and their members from 2004 and 2008. The panel allows us to identify departure of old (2004) members, arrival of new (2008) members, and whether there was a switch in holdings of LUCs from male-only to female household members (either held alone or jointly with the husband). The panel also allows us to control for heterogeneity in household preferences and other unobservables. Construction of the panel involved several steps that began with using the 2004-2006 household identifier cross-walks to match households across these years. Using gender and year of birth of household members between 2006 and 2008, a similar cross-walk was created for households between 2006 and 2008. Matched households between 2004 and 2008 were identified by combining information from the 2004-2006 and 2006-2008 household identifier cross-walks. Using gender and year of birth of members to identify households is similar to the technique employed in McCaig (2009). Several corrections were made because at the household level there were 8 “matched” households in 2008 that were not included in the 2004 dataset, and there were 6 “matched” households in 2004 that were not included in the 2008 dataset. These 14 households were dropped in order to construct a balanced panel of households over 2004 and 2008. The final dataset at the household level has 1728 matched households across the two years.

After creating a panel dataset at the household level for 2004 and 2008, we proceeded to match individuals within households across these years. For individuals common across both years, the main discrepancy was that the identification codes for the same person in a particular household changed from one year to the next. For example, a woman may have an identification code of 1 if she was head of the household in 2004, but in 2008 the same woman may be

identified with an identification code of 3 if she was now living with her adult son and his wife and was no longer considered to be the head of the household. In cases such as these, we assigned a modified identification code value in 2008 that matched their identification code value in 2004 (so in the preceding example, this woman would be assigned a revised identification code of 1 in 2008 so that she would be correctly matched with her individual-level information in 2004). In total, 22 percent of the individuals (1853 out of 8445 people) fell into this category.

As expected, there were new people present in 2008 but absent in 2004 (822 out of 8445 people or about 10 percent), and some individuals from 2004 could no longer be tracked in 2008 (1242 out of 8445 people or about 15 percent). Reasons for new members in 2008 who were absent in 2004 include the birth of a child, a new spouse, or an older child returning home after being away in 2004. In cases such as these, we assigned revised identification codes in 2008 that tallied with their relative position in 2004 had they been present in the household. Alternatively, there were cases where members in 2004 were no longer members of that same household in 2008. Examples include the death of a spouse or an older child leaving home. In cases such as these, the individuals were assigned a revised 2008 identification code that had missing values. The different categories of “corrected” individual-level identification codes for 2008 were then used to match individuals across 2004 and 2008.⁶ In total, after accounting for attrition and new additions to households across 2004 and 2008, we were able to match about 75 percent of the individuals (6381 out of 8445 people) perfectly. The final panel dataset at the household level has 1728 matched households containing 7623 individuals in 2004 and 7203 individuals in 2008. Of the 1728 households in each year, 1296 have male heads and 432 have female heads in 2004. In 2008, 1274 households have male heads and 454 households have female heads.

The VHLSS questions on land-use rights in 2004 and 2008 are at the plot level. Thus, some households had responses for multiple plots of land for a particular type of land and/or for more than one type of land. For purposes of this study, the corresponding LUC variables are aggregated to the household-level. The fact that some households had multiple plots of land implies that the variables describing whether a LUC is inscribed in the name of the husband only, the wife only, and/or both the husband and the wife are not mutually exclusive. However, since the vast majority of households have just one plot in each year, this aspect affects just a small proportion of observations.

Several other sources of information were used to compile the data. First, wages across 2004 and 2008 were deflated both with a regional deflator provided in the original VHLSS databases and with the annual consumer price index for Vietnam (GSO 2012). This is the standard method to adjust VHLSS nominal wages. Second, data from several different years of the *Statistical Handbook of Vietnam* and the *Statistical Yearbook of Vietnam* were used to include information on province-level characteristics including population, number of farms, gross agricultural output, and land area (GSO 2009; 2008a,b; 2005). Finally, to construct measures of the proportion of households falling under the poverty line, we used the general poverty threshold in either year. We also constructed the proportion of all households falling under the food poverty line, an indicator of more abject poverty in which households do not have sufficient income to consume an adequate diet of 2100 calories. The poverty and food poverty lines are calculated by Vietnam's General Statistical Office (GSO) with support from the World Bank; the 2004 benchmarks were published in the *Vietnam Poverty Update Report* (SASS 2006) and the 2008 benchmarks were provided by the GSO.

Sample Statistics

Sample means for the dependent and independent variables are found in Table 1 (means are weighted using the VHLSS sampling weights). There are eight measures of economic security and two measures of economic vulnerability. The economic security measures include per capita household expenditures, two measures related to women's work for wages and/or salary; two measures related to women's self-employment, two measures related to the time that women spend performing housework, and a measure of maximum educational attainment for girls and women in the household. While per capita expenditures, wage and education averages increased from 2004 to 2008, the self-employment measures and hours of housework declined over this time span. Table 1 further indicates that the proportion of women engaged in housework remained about the same across both years. The vulnerability measures are the proportion of households below the overall poverty line and the proportion below the food poverty line. In keeping with other evidence on the success of Vietnam's fight against poverty, both these measures decreased from 2004 to 2008 (Imai *et al.* 2011).

The key independent variables of interest are whether a LUC is held just by a man, just by a woman, or jointly by husband and wife. The regressions include a host of household characteristics as control variables, the choice of which was guided by Imai *et al.* (2011) and Allendorf (2007). As indicated in Table 1, these variables include age, gender, schooling, and marital status of the household head; household ethnicity, gender composition, and dependency ratio; household geographical and employment indicators; and measures of household wealth. The regressions also control for commune characteristics (such as geographical terrain, major religion, infrastructure, and poverty status), and for province-level features (including population, number of farms, gross real agricultural output, and land area).

Sample statistics for land-use certificates by different types of land and by the gender of the holder are reported in Table 2. Panel A shows that for the sample of matched households in 2004 and 2008, 75 percent of all households in the sample held a LUC in 2004 with a decline to 60 percent in 2008. The explanation is that the share of households who responded that they have any type of land fell over time from 95 percent of all sample households in 2004 to 71 percent in 2008. If we condition on households that owned any type of land at the time of the survey, then 81 percent of households had a LUC in 2004 and this share increased to 86 percent in 2008.

Delving deeper into these estimates, the share of newly registered LUCs (defined as those that were acquired in the previous year) is comparatively low in these data. For instance, considering households in 2004, only 57 households reported registering LUCs in the previous year (about 3 percent of the sample). In the case of households in 2008, only 3 households reported registering LUCs in the previous year (about 0.2 percent of the sample). Hence there are just a few cases of newly registered LUCs in our sample. Furthermore, 150 households had LUCs held by males only in 2004 and then switched to either jointly-held LUCs or female-only held LUCs in 2008 (about 9 percent of the sample). Thus, the proportion switching away from male-only held LUCs to jointly-held or female-only held LUCs over time is comparatively higher than the share of newly-registered LUCs in our sample.

In Table 2, the highest incidence of land ownership through formal land-use rights occurs for residential land in 2004 and annual agricultural land in 2008. Also, in both years, male-headed households with any type of land are more likely to hold a LUC relative to female-headed households with any type of land. Further, ethnic minorities have higher rates of possessing land-use certificates as compared to the Kinh/Chinese majority, with a particularly large differential in 2008. Land titling also appears to increase with age. Overall, a land-owning

household with a mature household head is more likely to hold formal property rights as compared to a household with a younger head. However, among households with annual agricultural land, the proportion of LUC ownership by age is quite similar. Panel B shows that in both years, at least 60 percent of land-use certificates of any type of land are held in the name of the male only as compared to about 20 percent of land-use certificates held in the name of females only. Interestingly, the incidence of jointly-held LUCs increased for each type of land from 2004 to 2008, rising from 16 percent of LUCs to 18 percent for any type of land. The increase from 2004 to 2008 is particularly large for perennial agricultural land.

A closer look at land-use certificates among landholders by province in Figure 1 indicates that in 2004, provinces in the northern part of Vietnam tended to have the greatest coverage of land-use certificates while provinces in the south had relatively less coverage. This geographical variation is consistent with the argument that lack of awareness about the importance of formal land-use rights caused implementation of LUCs across provinces to remain uneven after the new Land Law was passed. By 2008, coverage had spread geographically to include the central and southern provinces.

Econometric Methodology

A potential challenge in analyzing the effect of LUCs on measures of economic security and vulnerability is selection bias. In particular, more progressive or egalitarian households may be more likely to seek joint land-use rights and also have favorable economic indicators for women. In a similar vein to our concern regarding household level unobservables, Deininger *et al.* (2008) tested for wealth bias at the household level in the allocation of land rights in Ethiopia. Pitt *et al.* (2006) used a latent method framework and employed a village fixed effects-instrumental variables technique to correct for selection at the household and village levels to

demonstrate beneficial effects of microfinance on women's empowerment in Bangladesh. The method used in the current study controls for endogeneity using a fixed effects framework as in Pitt *et al.* (2006). Furthermore, we include province-level characteristics to address whether registration levels varied systematically with province-level features.

More specifically, to estimate the *causal* impact of LUCs registered in women's names or jointly by husband and wife on the economic security measures, we use a method that controls for household-level unobservable characteristics related to preferences and tastes that may determine patterns of LUC registration and measures of economic security or vulnerability simultaneously. The standard technique to correct for such unobservables and the potential endogeneity of the LUC variables is instrumental variables. However, identifying an instrument that satisfies the exclusion restriction, remains free from correlation with omitted variables, and has adequate strength is not straightforward in this context. For example, province-level characteristics that affected the speed of implementation of the reforms may at first seem a valid instrument, as in Do and Iyer (2008). However, such characteristics would not satisfy the exclusion restriction in our case since although they might be related to LUC coverage, such characteristics are also likely to be correlated with other province level measures that may determine women education and labor market outcomes. For example, funding for education programs may be determined at the province level and simultaneously be related to the speed of implementation of laws (well-funded and administered provinces may implement laws more efficiently and have more resources for programs that build human capital). Since we do not possess information on health, education, and other social development entitlements at the province-level, these indicators would be omitted variables that may invalidate the exclusion restriction. Given the difficulties associated with identifying an instrument that is relevant yet

randomly assigned, we adopt a model that conditions out household-level heterogeneity in a fixed effects framework with region and time dummies and their interactions.⁷ The 2004 to 2008 time window is arguably small enough such that household-level unobservable characteristics may be treated as time-invariant. Region and time dummies and their interactions are included to control for other factors at these levels that may be changing contemporaneously.

The model is of the form below:

$$y_{ijt} = a_0 + a_1H_i + a_2R_j + a_3T_t + a_4(R_j \times T_t) + \beta X_{ijt} + \delta LUC_{ijt} + \varepsilon_{ijt} \quad (1)$$

where i denotes a household, j denotes a province, and t denotes time. The notation H_i is the time-invariant household-level unobservable, R_j is the time-invariant regional unobservable, and T_t is a time dummy. Taking differences of equation (1) over time leads to the household fixed effects model that sweeps out the household and regional time-invariant characteristics. Household, commune, and province characteristics in X_{ijt} are still identified since they vary from 2004 to 2008, as indicated by the sample means. The coefficient of interest, δ , represents the impact of different categories of land-use certificates on y_{ijt} , the ten alternative indicators of economic security and vulnerability. Given this specification, the coefficient δ is identified from variations in LUC_{ijt} over time.

V. Results

The Effect of Land-Use Rights on Measures of Women's Economic Security

Table 3 presents results for the household fixed effects models, with estimates separated into three categories: all households, female-headed households, and male-headed households. Coefficients are presented for the main variables of interest - the LUC variables by gender. The models also include the full set of control variables for type of land (annual, perennial, residential); household characteristics; commune and province characteristics; and dummy

variables for time, region, and their interactions.⁸ Note that jointly-held LUCs are still relevant for female-headed households. Although in 90 percent of female-headed households the LUC is held by the female head only, there is a small proportion of such households in which the LUC is held by the female head and her husband who is present in the household. Some female-headed households may seek to classify LUCs jointly given the history of male preference in Vietnamese institutions.

The discussion begins with an evaluation of the effect of LUCs on log per capita household expenditures, which is considered a general measure of household welfare. Results in Panel A indicate that LUCs held by males only and LUCs held by females only have statistically significant and positive effects on per capita expenditures. Estimates indicate that in households where LUCs are registered in the names of men only, per capita household expenditures are 3.6 percent higher, and LUCs held by females only cause expenditures to be 5.3 percent higher. The last column indicates that in male-headed households, only LUCs held by men matter for household expenditures. Intuitively, this result is in keeping with traditional gender roles in which men serve as the primary breadwinners in male-headed households, so LUCs in men's names, perhaps by improving access to credit and the ability to undertake agricultural investments, lead to higher per capita expenditures.

Panel B reports results of the effects of LUCs on the log of total real wages of women in the household. There are no statistically significant effects of LUCs on women's remuneration from wage/salary work. Similarly, LUCs have very little impact on the proportion of household women working for wages (Panel C). The only exception is for male-only held LUCs for all households. In this case, the proportion of household women working for wages declines by 0.047 (or in other words, the percent of household women working for wages declines by 4.7

percentage points). Intuitively, this result may reflect an income effect in households where women can afford to withdraw from the labor market when their husbands gain land-use rights. The negative effects of LUCs for female-headed households are consistent with those of all households, but a smaller sample size means that these coefficients are measured imprecisely.

Panel D relates to women's self-employment in agriculture, with two very different effects. In female-headed households, LUCs held jointly by husbands and wives have a statistically significant and negative impact (-6.8 percent) on women's self-employment in agriculture. But in male-headed households, the share of household women who are self-employed in agriculture rises by 4.1 percentage points with female-only held LUCs. If one interprets self-employment in agriculture more as subsistence work rather than productive entrepreneurial work, then this positive coefficient for female-only held LUCs could reflect the fact that women are growing crops for subsistence in such households. In so far as only women in the poorest households work in agriculture, the subsistence work they engage in may bring real benefits by supplementing household food and income. However, for female-headed households, LUCs held jointly reduce the proportion of women self-employed in agriculture, perhaps due to an income effect.

The impact of jointly-held LUCs on women's self-employment is evident only for work in agriculture. As shown in Panel E, female-only held LUCs reduce women's self-employment in non-agricultural activities for all households and for male-headed households. In so far as non-agricultural entrepreneurial work may require start-up financing, these results could indicate that the issuance of LUCs in women's names did not appreciably improve women's access to formal or informal credit. Interestingly, LUCs issued in men's names have a positive and statistically

significant coefficient in female-headed households, suggesting that LUCs in men's names and in women's names may carry different weights in credit markets.

Panels F and G report the impact of LUCs on the proportion of household women who engage in housework and the hours of housework per day completed by women in the household. The effects for female-headed households indicate that LUCs held jointly reduce the share of women engaged in housework by 18.7 percentage points. Yet LUCs have no statistically significant effect on total daily hours of housework in female-headed households. These results suggest that LUCs held jointly may result in efficiency effects within the household, with fewer women working about the same number of hours in completing household chores. Interestingly, LUCs in women's names only contribute to a substantial reduction in total hours of housework per day for women in male-headed households, indicating that greater autonomy may be at play for those women who exclusively hold land-use rights in male-headed households.

The final measure of women's economic security is the highest grade completed by adult women and girl children in the household. As shown in Panel H, each of the three LUC variables has a positive impact on women's educational attainment in the full sample. This boost to women's schooling most likely reflects an income effect induced by the formalization of land-use rights. A breakdown by gender of the household heads reveals that the results for all households are being driven by male-headed households.

The Effect of Land-Use Rights on Measures of Household Vulnerability

Panels I and J investigate the impact of LUCs on the incidence of poverty and food poverty at the household level in the household fixed-effects models. Estimates indicate that LUCs held by men only and LUCs held by women only both reduce the incidence of poverty at the household level by 4.1 percent. For female-headed households, jointly held LUCs have the

most power in reducing poverty, with an effect very similar in magnitude to that of male-only held LUCs and female-only held LUCs in all households. In contrast, male-only held LUCs have the strongest beneficial impact on poverty in male-headed households.

The second measure of household vulnerability considers the incidence of food poverty. Male-only held LUCs and jointly-held LUCs reduce the incidence of food poverty among all households, with effects in the range of 2 to 3 percent. Male-only held LUCs also have strong poverty reduction effects in female-headed and male-headed households, a finding in keeping with the interpretation that the formalization of land-use rights generates an income effect induced by greater access to credit and returns to agricultural investments.

In each of the ten outcomes above, for each subset of estimations, we tested for the equivalence of the coefficients of jointly held LUCs and male-only held LUCs in order to determine whether these LUC categories are statistically distinct. In the majority of cases, we could not reject the null hypothesis that jointly held LUCs are equivalent to male-only held LUCs. The only exceptions were in the sample of female-headed households for the proportion of women self-employed in agriculture, the sample of female-headed households for the proportion of women who complete housework, the full sample for total hours of housework completed per day by household women, and the sample of male-headed households for hours of housework by household women. Only in these four instances could we reject that jointly-held LUCs are statistically different than male-only LUCs. For all other cases, these categories of LUCs are equivalent in their impact on the outcomes studied.⁹

VI. Qualitative Evidence

To implement the qualitative approach, we interviewed 25 women in Thot Not, a district of the city of Can Tho, which is located in the Mekong Delta and ranks as Vietnam's fifth

largest city. All respondents live in a rural part of Thot Not. By way of background, although Thot Not's main industry is agriculture (including rice, soybeans, vegetables, and fishing), the economy has grown rapidly and has continued to urbanize as transportation, tourism, and the service sector have prospered. Consistent with the national land reform, the local government granted LUCs to eligible residents of Thot Not during the 1990s. Before the land reform, when a resident purchased land, they were given a white certificate. This certificate was not a legal document but acted as a receipt to prove they paid for a certain plot of land. The certificate did not map out the boundaries of the land however, which increased disputes over land size and ownership between neighbors. During the land reform, these white certificates were brought to the local government office so that the land could be officially measured. After paying fees, an official "measurement team" came to the land in question, took measurements of its boundaries, and took pictures. LUCs were then administered as legal documents (and were changed from white documents to red ones) that named the owner of the land, the type of land, and the land limits. The LUCs also included an image of the outline of land boundaries. This process legitimized and legalized land ownership, which allowed residents to resolve boundary disputes.

The survey administered to the 25 interview subjects included questions regarding land ownership, land use, demographics, decision making in the home and community, gender roles, and the respondent's opinion of her status within the home and the community. The interview data provide new insights into Vietnamese gender roles and decision making power within the households. Overall, of the 25 women interviewed, 12 own the land on which they live and have their names on LUCs while 13 do not have their name on a LUC.

Table 4 provides a set of sample means for a variety of demographic and socioeconomic characteristics for the interview subjects. Respondents' ages range from 24 to 63

years with an average age of 43. The group of women who do not have their names on LUCs are, on average, younger (39 years) than the group of women who do (47 years). Respondents have anywhere from zero to six children, with an average of two. On average, women in the sample have seven years of schooling, with about a quarter of the sample having completed high school. The slightly higher measures of educational attainment for women with no LUCs could reflect the fact that they are, on average, quite a bit younger and more likely to have been affected by compulsory schooling legislation. All the respondents belong to the Kinh ethnic group, the largest ethnic group in Vietnam today. Overall 64 percent are Buddhist, while most of the remaining women stated that they do not follow any religion. Of all those interviewed, 19 respondents (76 percent) are married, three are single, two are widowed, and one is divorced. Among the women landowners, four have just their names on the LUC as sole holders and are currently single (never married, divorced, or widowed). In contrast, the remaining eight women who own land are all married and hold the titles jointly with their husbands. Note that the respondents who do not have their names on LUCs said that they live on land owned by either their spouses or other family members. Among the women who do not own land, one is single, one is widowed and 11 are married.

Table 4 further shows that in 64 percent of all cases, the respondents hold land for farming and housing purposes, while 32 percent hold land for housing purposes only. Land uses are comparable for the sub-groups of women who do and do not hold a LUC. In terms of employment, four women stated that they are not employed and that they are housewives. Of the remaining respondents, most are self-employed as rice farmers. Other types of self-employment included pig farmer, soybean seller, baker, juice vendor, and seamstress. The rest of the women worked in wage-employment (as a farm hand, government worker, construction worker, or

accountant). All women who have their names on LUCs are employed, in contrast to the 69 percent employment rate for those who do not have their names on LUCs. Moreover, women who have their names on LUCs, on average, earn more than women who do not: two thirds of women with their name on a LUC earned more than 900,000 VND per month (about US \$43). Interestingly only 8 percent of respondents had ever used property as collateral for a loan. Finally, 68 percent of all respondents felt economically secure, with a higher percentage of women with no LUC feeling economically secure (77%) as compared to women with a LUC (58%). This is most likely because more single, widowed, and divorced women belong to the group of women with LUCs in their names, therefore, feelings of economic insecurity may possibly be attributed to having just one income source. In fact, Panel B's results for the sub-sample of currently married women indicate that women with and without their names on LUCs have comparable rates of feeling economically secure.

Table 5 demonstrates self-reported decision-making power within the household, and specifically, the percent of respondents who said that they have sole or joint decision-making power for the issue at hand. The table shows clearly that for many of the indicators, women who have their names on a LUC report having greater decision-making power than women who do not have their names on a LUC. This holds for decisions about borrowing money, paying bills, buying groceries, livestock transactions, agricultural-product transactions, land transactions, farm-equipment transactions, home-maintenance transactions and voting in elections. For example, while two-thirds of women with their names on LUCs had decision-making power over the purchase or sale of agricultural products, less than 10 percent of women without their names on a LUC had decision-making power for this type of transaction.

Finally, among currently-married women, women with a LUC in their names were less likely to have a spouse who refused to allow her to work outside of the home compared to women without a LUC in their names (13 percent versus 45 percent). However, women without land in their names are about as likely, or even more likely, than women with land to make decisions about the number of children and the education and health of their children. The most plausible explanation is that women who do not have land in their names are younger on average and have younger children than women who have LUCs, and hence require more parental involvement in health care and schooling decisions.

Table 6 examines respondents' opinions regarding status and empowerment in the household and community. Women who have their names on LUCs are more likely than those who do not to say that women's opinions are equal to men's in the household (83 percent versus 69 percent) and in the community (83 percent versus 62 percent). A similar conclusion applies for women who think that their land ownership will enhance their status in their homes (83 percent vs. 39 percent). For example, one woman who currently does not have her name on the LUC stated, "I currently feel shy and embarrassed because I do not own the land. I feel that my husband has a higher voice. I have already discussed this with him and when the government renews the program in eight years, he will add my name to the certificate."

More women who have their names on LUCs feel or think they will feel empowered by the current or future (through inheritance) possession of land than those who do not (67 percent vs. 54 percent). When asked if she feels empowered, one woman who held a joint LUC with her husband for farming but not for housing, stated, "Yes. I feel that my rights are shared jointly but he has more power because it is the land that he inherited. Once I inherit, I will feel empowered because when he is still alive, I will have my own property as my father will divide

his land equally between his children. Because we live in harmony, my property will be shared between me and my husband and maybe I will have more rights.”

When asked if since they owned land or once they were expected to own land in the future, did their or would their responsibilities increase, more women without land than women with land thought that their responsibilities did or would increase (92 percent vs. 75 percent). When asked if her responsibilities would increase once she inherits land from her mother, one respondent stated, “Once I inherit, I feel I will have more rights...”

When asked if owning land changes their standing in the community, about 54 percent of women who do not own land stated that their standing would increase in the community if they owned land. However, only a third of women who currently own land feel that their status has increased within the community since they obtained LUCs in their names; the remaining women felt that their status has stayed the same. Many stated this is because their parents own land as well and they felt the benefits from their parents’ status. One woman stated that before her husband inherited a LUC from his parents, “my position was higher than my husband at that time. Then, when my husband got his parents’ LUC, the position changed [he now has higher status than her].” She continued to state that once she has her name on the certificate, she will feel that her position will be “higher than other people but not higher than my husband because I have my name on the certificate later than my husband.”

Some women who do not personally have their names on LUCs are optimistic about their status in their homes and community. For example, one woman stated the following in regards to the LUC program, “If both the husband and wife have their names on the LUC, they will be happy. I think this is important for both names to be on the property to protect the rights of the woman if a divorce happens. It ensures the property will be divided equally between

husband and wife. It is a good policy because it ensures the rights of women.” While not all respondents understand the LUC program (one fifth of the women were unable to explain it), all feel that the policy is good. One woman stated, “It makes a person able to live life easier because it’s a law that you have the right to decide what to do with your land...” Another respondent stated, “I feel more confident because before I never thought about property rights.”

VII. Closing Remarks

The study has provided new evidence on the relationship between land titling and women’s economic security in Vietnam. Greater gender equality in land rights matters in light of the priority that Vietnam’s government has placed on achieving gender equality in the 2006 Law on Gender Equality. Increased land titling for women thus remains high on the government’s agenda, and is especially important in cases of widowhood and divorce (Deere and León 2001; Whitehead and Tsikata 2003).

The analysis has shown that Vietnam’s large-scale land titling program resulted in an increase in the share of all landowners who held land-use rights, and in joint-holdings by husbands and wives for any type of land, between 2004 and 2008. We find that land-use rights held exclusively by women have, on balance, beneficial effects on measures of women’s economic self-sufficiency. These measures include higher household expenditures, higher education for women, lower daily hours of housework, and lower poverty. Jointly-held LUCs also have beneficial effects in reducing the proportion of women engaged in housework, in increasing women’s educational attainment, and in reducing poverty. Other results indicate that among female-headed households, jointly-held LUCs lead to a large reduction in the proportion of women engaged in housework. The results for women’s self-employment in agriculture in

female-headed households are more nuanced and depend on whether the female heads have their names singly or jointly on the land title.

The study's small sample size for female-headed households prevented the precise measurement of the impact of female-only or jointly-held LUCs on many of the indicators of women's economic security. In some cases, the lack of positive effects is informational. For example, land-use certificates in women's names are not found to be helpful for women's self-employment in non-agricultural activities. To the extent that non-agricultural entrepreneurial activities require start-up capital, this result suggests that issuance of LUCs may not have improved women's access to credit markets. The lack of beneficial effects of female- and jointly-titled land-use certificates across several of the measures of economic vulnerability suggests that reforms also need to encompass institutional changes in order for land rights to have meaningful and sustained impacts.

What do these measures of economic security and household vulnerability imply for women's empowerment? The exclusion of direct measures of autonomy in the VHLSS led us to formulate other indicators of economic security that should conceivably influence empowerment. Additionally, we conducted 25 interviews in a rural part of Vietnam to directly assess decision-making power and community status. The interview results are consistent with the conclusions from the empirical analysis of the VHLSS data. In terms of the balance of power within the household, the survey respondents overwhelmingly indicated that women with their names on a LUC had relatively more decision-making power within the household for a variety of economic, political, and social transactions. For example, a woman who owns land stated, "Before, when I didn't own the land, I had to work for others which was very hard. Now, I feel better and happy to own land." Another woman who will inherit farmland from her mother stated, "Everybody

thinks I am poor... When I inherit land, maybe it will be different. People will not look down on me.”

Standard economic models argue that improvements in a woman’s fallback position serve to strengthen her relative bargaining position within the home. On balance, our results indicate that land-use rights in women’s names do indeed serve this role, thus providing a clear rationale for strengthening procedures to encourage women’s titling to land. However, the results also indicate that such procedures would have more potent impacts if they were embedded in a broader framework that sought to strengthen social safety nets and change existing institutional structures that may currently disfavor women.

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Table 1. Sample Means for Household Characteristics

Variable	2004		2008	
	Mean	Std. Dev.	Mean	Std. Dev.
Dependent Variables				
Log per capita hh expenditures (log points)	8.189	(0.624)	8.789	(0.601)
Log total real wages of women in hh (log points)	1.246	(2.589)	1.537	(2.878)
% of hh women working for wages	0.185	(0.303)	0.216	(0.330)
% of hh women self-employed in ag	0.472	(0.387)	0.423	(0.392)
% of hh women self-employed in non-ag	0.197	(0.321)	0.185	(0.318)
% of hh women who do housework	0.801	(0.258)	0.807	(0.260)
Total hours of housework by hh women (hrs/day)	3.533	(1.990)	3.441	(2.083)
Highest grade completed by hh women (level)	7.978	(3.380)	8.324	(3.436)
HH lives below poverty line	0.174	(0.380)	0.116	(0.320)
HH lives below food poverty line	0.067	(0.249)	0.058	(0.233)
Independent Variables				
<i>Household Property Rights</i>				
LUC held by male only	0.474	(0.499)	0.370	(0.483)
LUC held by female only	0.161	(0.367)	0.118	(0.323)
LUC held by male and female jointly	0.118	(0.323)	0.109	(0.312)
<i>Household Control Variables</i>				
Age of hh head (years)	49.283	(13.618)	51.732	(13.082)
Age of hh head ² (years)	2614.1	(1465.2)	2847.2	(1460.4)
HH headed by male	0.744	(0.437)	0.730	(0.444)
Grade in school completed by hh head (level)	6.965	(3.668)	7.243	(3.597)
HH head has diploma in vocational training	0.107	(0.309)	0.120	(0.325)
HH head is married	0.806	(0.395)	0.804	(0.397)
HH ethnicity is Kinh, Chinese	0.886	(0.318)	0.892	(0.311)
% of hh members who are female	0.505	(0.189)	0.520	(0.198)
% of hh members who are female ²	0.291	(0.211)	0.309	(0.229)
Dependency ratio	0.318	(0.253)	0.294	(0.274)
Land area owned by hh (sq. meters)	5.138	(14.090)	5.773	(21.529)
Land area owned by hh ² (sq. meters)	224.8	(3457.2)	496.6	(6426.0)
Lives in urban area	0.214	(0.410)	0.238	(0.426)
No. other hh members who work for wage	0.626	(0.739)	0.615	(0.718)
No. other hh members self-emp. in ag	0.871	(0.858)	0.769	(0.816)
No. other hh members self-emp. in non-ag	0.283	(0.532)	0.271	(0.527)
No. other hh members who do housework	1.104	(0.909)	1.085	(0.875)
1st wealth quintile (poorest)	0.167	(0.373)	0.155	(0.362)
2nd wealth quintile	0.212	(0.409)	0.197	(0.398)
3rd wealth quintile	0.215	(0.411)	0.224	(0.417)
4th wealth quintile	0.219	(0.413)	0.202	(0.402)
5th wealth quintile (richest)	0.188	(0.391)	0.221	(0.415)

HH has livestock	0.612	(0.488)	0.522	(0.500)
<i>Commune characteristics</i>				
Commune is in coastal area	0.044	(0.206)	0.047	(0.212)
Commune is in delta area	0.456	(0.498)	0.441	(0.497)
Commune is in hills area	0.060	(0.237)	0.055	(0.228)
Commune is in low mountain area	0.109	(0.311)	0.109	(0.311)
Commune is in mountain area	0.094	(0.291)	0.088	(0.283)
Commune is Buddhist	0.360	(0.480)	0.311	(0.463)
Commune is poor	0.134	(0.340)	0.122	(0.327)
Commune has power	0.753	(0.431)	0.739	(0.439)
Commune has road	0.739	(0.439)	0.732	(0.443)
Commune has market	0.468	(0.499)	0.475	(0.500)
<i>Province characteristics</i>				
Province population (millions)	1.774	(1.211)	2.146	(1.827)
Province no. of farms (thousands)	1.831	(2.117)	2.163	(2.019)
Province real ag. output (trillions dong)	2.539	(1.504)	3.174	(1.870)
Province area (thousands of sq. km)	4.949	(4.054)	5.139	(3.997)

Notes: Means weighted using sampling weights included in the 2004 and 2008 VHLSS. All numbers are proportions unless indicated otherwise. Sample size is 1728 matched households.

Table 2. Sample Statistics for Land-Use Certificates (in weighted proportions)

Panel A: Proportion of All Sample Households who Hold Land-Use Certificates

	<i>Any Type of Land</i>		<i>Annual Ag Land Only</i>		<i>Perennial Ag Land Only</i>		<i>Residential Land Only</i>	
	<i>2004</i>	<i>2008</i>	<i>2004</i>	<i>2008</i>	<i>2004</i>	<i>2008</i>	<i>2004</i>	<i>2008</i>
All Households	0.753	0.597	0.552	0.494	0.115	0.122	0.683	0.243
Male-Headed Households	0.780	0.646	0.595	0.540	0.129	0.139	0.708	0.270
Female-Headed Households	0.672	0.466	0.426	0.372	0.073	0.076	0.613	0.170
HH Head Age <=34	0.657	0.545	0.554	0.491	0.089	0.109	0.609	0.217
HH Head Age >34	0.767	0.601	0.552	0.495	0.118	0.123	0.694	0.245
Kinh/Chinese Ethnicity	0.751	0.580	0.532	0.470	0.108	0.117	0.681	0.227
Ethnic Minorities	0.767	0.738	0.711	0.698	0.169	0.166	0.702	0.372

Panel B: Proportion of Land-Use Certificates Held by Males, Females, and Joint Holders

	<i>Any Type</i>		<i>Annual Ag Land Only</i>		<i>Perennial Ag Land Only</i>		<i>Residential Land Only</i>	
	<i>2004</i>	<i>2008</i>	<i>2004</i>	<i>2008</i>	<i>2004</i>	<i>2008</i>	<i>2004</i>	<i>2008</i>
Male Only	0.630	0.620	0.660	0.632	0.695	0.632	0.626	0.636
Female Only	0.213	0.198	0.194	0.196	0.170	0.157	0.212	0.175
Joint Holders	0.157	0.183	0.146	0.172	0.135	0.211	0.162	0.189

Notes: Means weighted using sampling weights included in the 2004 and 2008 VHLSS. Sample size is 1728 matched households.

Table 3. Effects of Land-Use Certificates on Economic Security Indicators Using Fixed Effects Models

	<i>All Households</i>	<i>Female-Headed Households</i>	<i>Male-Headed Households</i>
<i>Panel A: Log per Capita Household Expenditures</i>			
LUC Held by Male Only	0.036 ^{***} (0.010)	0.001 (0.079)	0.032 ^{**} (0.016)
LUC Held by Female Only	0.053 ^{**} (0.027)	0.052 (0.047)	0.030 (0.061)
LUC Held Jointly	0.020 (0.013)	0.060 (0.078)	0.014 (0.014)
Number of observations	14,826	3,328	11,498
<i>Panel B: Log Total Real Wages of Women in Household</i>			
LUC Held by Male Only	-0.245 (0.280)	-0.341 (0.512)	-0.123 (0.269)
LUC Held by Female Only	0.229 (0.297)	0.301 (0.634)	0.012 (0.397)
LUC Held Jointly	-0.086 (0.317)	-1.003 (0.924)	0.147 (0.164)
Number of observations	14,826	3,328	11,498
<i>Panel C: Proportion of Household Women Working for Wages</i>			
LUC Held by Male Only	-0.047 [*] (0.024)	-0.019 (0.073)	-0.030 (0.021)
LUC Held by Female Only	-0.025 (0.034)	-0.067 (0.071)	0.008 (0.053)
LUC Held Jointly	-0.041 (0.041)	-0.174 (0.144)	-0.011 (0.029)
Number of observations	14,753	3,328	11,425
<i>Panel D: Proportion of Household Women Self-Employed in Agriculture</i>			
LUC Held by Male Only	-0.020 (0.031)	0.019 (0.039)	-0.010 (0.033)
LUC Held by Female Only	0.022 (0.032)	0.018 (0.043)	0.041 [*] (0.022)
LUC Held Jointly	0.035 (0.026)	-0.068 ^{***} (0.021)	0.045 (0.029)
Number of observations	14,753	3,328	11,425

Continued on next page.

Table 3. Continued

	<i>All Households</i>	<i>Female-Headed Households</i>	<i>Male-Headed Households</i>
<i>Panel E: Proportion of Household Women Self-Employed in Non-Agriculture</i>			
LUC Held by Male Only	0.008 (0.008)	0.044** (0.011)	0.004 (0.012)
LUC Held by Female Only	-0.016** (0.007)	0.020 (0.032)	-0.097*** (0.033)
LUC Held Jointly	0.000 (0.005)	-0.044 (0.107)	0.000 (0.010)
Number of observations	14,753	3,328	11,425
<i>Panel F: Proportion of Household Women Who Do Housework</i>			
LUC Held by Male Only	-0.018 (0.018)	0.082 (0.071)	-0.017 (0.019)
LUC Held by Female Only	-0.016 (0.021)	-0.043 (0.031)	-0.036 (0.052)
LUC Held Jointly	-0.026 (0.027)	-0.187*** (0.042)	-0.013 (0.035)
Number of observations	14,753	3,328	11,425
<i>Panel G: Total Hours of Housework per Day by Household Women</i>			
LUC Held by Male Only	-0.153 (0.212)	0.470 (0.481)	-0.260 (0.193)
LUC Held by Female Only	0.271 (0.444)	0.664 (0.566)	-0.558*** (0.107)
LUC Held Jointly	0.091 (0.287)	-0.050 (0.332)	0.014 (0.280)
Number of observations	14,826	3,328	11,498
<i>Panel H: Highest Grade Completed by Household Women</i>			
LUC Held by Male Only	0.282* (0.166)	0.064 (0.498)	0.373** (0.176)
LUC Held by Female Only	0.369** (0.176)	-0.097* (0.057)	0.564* (0.316)
LUC Held Jointly	0.305* (0.183)	0.108 (0.328)	0.381* (0.212)
Number of observations	14,753	3,328	11,425

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Table 3. Continued

	<i>All Households</i>	<i>Female-Headed Households</i>	<i>Male-Headed Households</i>
<i>Panel I: Incidence of Poverty at the Household Level</i>			
LUC Held by Male Only	-0.041 ^{***} (0.008)	-0.097 (0.060)	-0.026 [*] (0.016)
LUC Held by Female Only	-0.041 [*] (0.023)	-0.062 (0.044)	-0.035 (0.030)
LUC Held Jointly	-0.037 (0.026)	-0.038 ^{**} (0.018)	-0.018 (0.029)
Number of observations	14,826	3,328	11,498
<i>Panel J: Incidence of Food Poverty at the Household Level</i>			
LUC Held by Male Only	-0.034 ^{***} (0.007)	-0.056 [*] (0.033)	-0.035 ^{***} (0.013)
LUC Held by Female Only	-0.034 (0.024)	-0.008 (0.028)	-0.116 (0.071)
LUC Held Jointly	-0.024 ^{**} (0.012)	-0.021 (0.041)	-0.024 (0.016)
Number of observations	14,826	3,328	11,498

Notes: Weighted to national level with weights provided by the VHLSS. Standard errors, clustered by region, in parentheses. The notation ^{***} is p<0.01, ^{**} is p<0.05, ^{*} is p<0.10. All regressions include a constant term; controls for types of land; controls for household, commune, and province characteristics; and region dummies and region-time interactions.

Table 4. Respondents' Demographic and Socioeconomic Characteristics

Panel A: Full Sample	All Women n=25	Women w/ LUC n=12	Women w/ no LUC n=13
Age in years	43	47	39
Head of household	40	58	46
Number of children	2	2	2
Years of education	7	6	8
Completed high school (%)	28	25	31
Religion (%)			
No religion	32	42	23
Buddhism	64	58	69
Caodaism	4	0	8
Marital Status (%)			
Single	12	17	8
Married	76	67	85
Divorced or Widowed	12	16	8
Type of Land			
Residential only	32	25	38
Farm only	4	8	0
Residential and farm	64	67	62
Type of Employment (%)			
Not in labor market	16	0	31
Self-employed	60	83	38
Hired worker	24	17	31
Woman's income/month (%)			
0-300,000 VND	16	0	31
300,001-600,000 VND	12	17	8
600,001-900,000 VND	20	17	23
900,001 + VND	52	67	38
Borrowed money in past year (%)			
Did not borrow money	72	75	69
Borrowed from bank	0	0	0
Borrowed from family	12	8	15
Borrowed from money-lender	8	8	8
Borrowed from other source	8	8	8
Ever used property as collateral (%)	8	17	0
Feels economically secure (%)	68	58	77
Panel B: Currently Married Women	All Women n=19	Women w/ LUC n=8	Women w/ no LUC n=11
Years of spouse's education	7	8	6
Spouse completed high school (%)	5	13	0
Spouse borrowed money in past year (%)	21	50	0
Feels economically secure (%)	74	75	73

Table 5. Respondents Have Decision-Making Power (% of Respondents Answering Yes)

Panel A: Full Sample	All women n=25	Women w/ LUC n=12	Women w/ no LUC n=13
Decides borrowing money	72	75	69
Pays bills	96	100	92
Buys groceries	88	92	85
Decides purchase/sale livestock	24	25	23
Implements purchase/sale livestock	24	33	15
Decides purchase/sale ag products	36	67	8
Implements purchase/sale ag products	52	75	31
Decides purchase/sale/mortgage land	56	75	38
Implements purchase/sale/mortgage land	56	75	38
Decides purchase/sale/mortgage farm eq	20	33	8
Implements purchase/sale/mortgage farm eq	12	25	0
Decides home construction/maintenance	52	58	46
Implements home construction/ maintenance	20	33	8
Received health care in last year	72	58	85
Vote in the last election	72	83	62
Own decision for who to vote	72	83	62
Panel B: Currently Married Women	All Women n=19	Women w/ LUC n=8	Women w/ no LUC n=11
Spouse received health care in last year	21	25	18
Decides number of children	74	75	73
Decides health care of children	89	88	91
Decides education of children	84	75	91
Spouse does not allow respondent to work outside of home	32	13	45

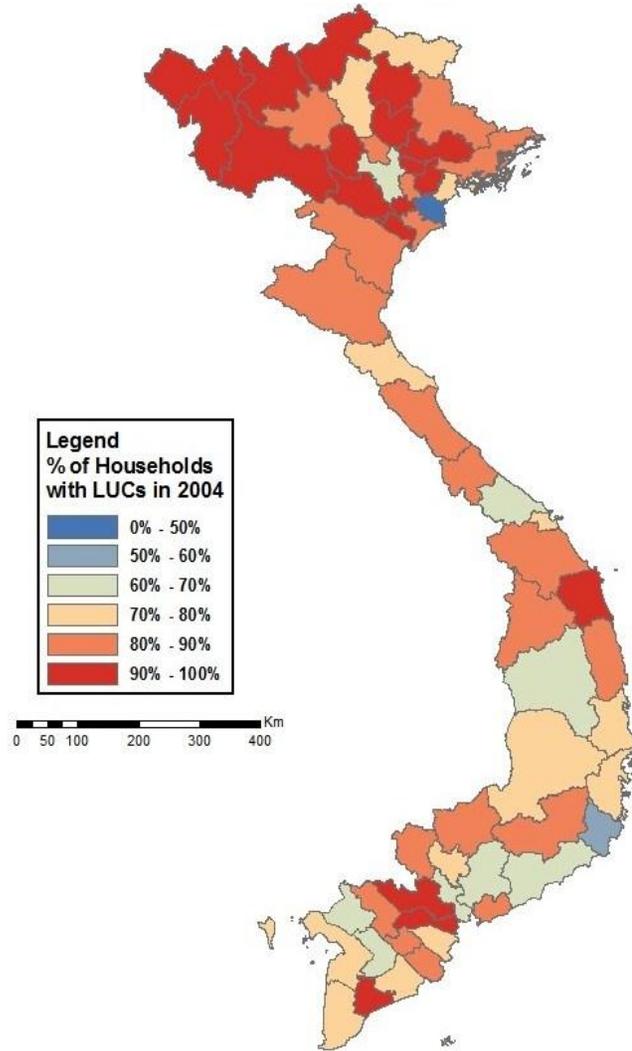
Note: Answering yes includes respondents who have complete control over the decision and respondents who decide jointly with their husbands.

Table 6. Respondents' Opinions on Status and Autonomy (% of Respondents Who Agree)

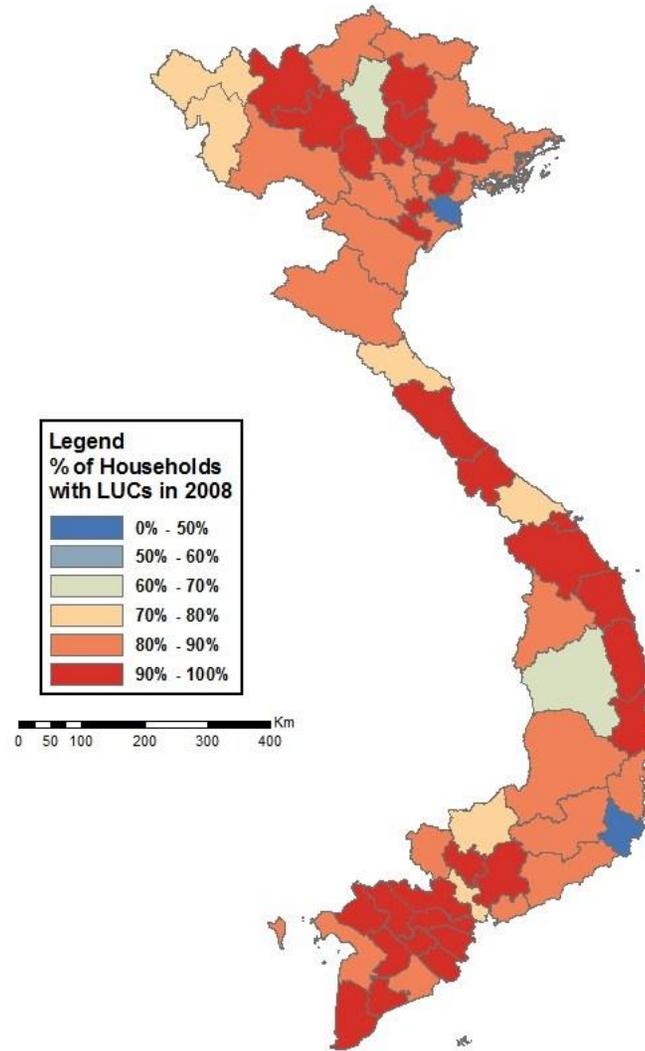
	All women n=25	Women w/ LUC n=12	Women w/ no LUC n=13
Women's opinions equal to men's in household	76	83	69
I attend community meetings and/or participate in community decision making	44	42	46
Women participate enough in community	60	58	62
Women's opinions equal to men's in community	72	83	62
Owning land enhances status in home	60	83	39
I feel empowered by my current or future possession of land	60	67	54
I have more responsibilities owning land	84	75	92
My community standing increases with land	44	33	54
I understand the LUC program	80	83	77

Figure 1. Incidence of Land-Use Certificates Among Landholders in Vietnam, by Province

Panel A: 2004



Panel B: 2008



Source: Constructed using ArcGIS software applied to the 2004 and 2008 VHLSS.

ENDNOTES

¹ This background discussion of Vietnam's land law reforms is based on Do and Iyer (2008), Ravallion and van de Walle (2006) and Tran (1999).

² Closely related, while LUCs were issued at the household level with the original Land Law, the New Land Law of 2003 led to the issuance of LUCs at the plot level. Thus household members could own multiple plots and enjoy greater freedom in how they conducted land transactions.

³ See Besley and Ghatak (2010), and Kumar and Quisumbing (2012) for more discussion of these channels through which land rights affect behaviors.

⁴ Unfortunately we cannot track the management of registered land plots since that information is only contained in the 2004 VHLSS. That is, the 2004 questionnaire also asks who manages the registered plots, over and above whether the plots are registered in the names of individuals.

⁵ Note that in 2004, one household with two members was dropped at the outset due to missing values for the demographic characteristics of individual members, leaving a sample of 9188 households with which we started as a base in the matching procedure.

⁶ Also note that in matching individuals across years, in some cases the original data had typos in the gender and year of birth. We examined the composition of every single household in both years and made corrections accordingly. We assumed a person was the same person as long as the gender matched and the difference in the year of birth recorded did not exceed two years.

⁷ Ideally we would have liked to include province dummies and province-time interactions. However, there are 64 provinces in Vietnam and our sample size with matched households is not large enough to allow identification of all province and time effects.

⁸ The coefficients on these control variables are not reported but are available upon request.

⁹ The F-statistics and the corresponding p -values for these tests are available on request.