Land Ownership as Insurance and the Market for Land.
A Study in Rural Vietnam
Preliminary version

PROMSOPHA G.

February 2011

Abstract

This paper investigates in which respect farm land sales differ from other kinds of land transaction. In an environment of relative individualization of property rights, different avenues are available to households wishing to transfer plots of agricultural land. They can either sell, make plots available on the renting market, or hand it over through non-market transmission mechanisms -mainly pre-mortem bequests, gift, or lending. In our perspective, selling is the only kind of transfer that both implies an irreversible loss of land rights and a disinvestment in local social networks. If access to land can provide a safety net against potential loss of income and consumption failure, and if local social networks play a role in protecting households against falls under poverty thresholds, then selling land increases households economic vulnerability. We use data from the Vietnamese Access to Resources Survey 2006 (VARHS)to test this hypothesis. We find that households who transfer land are either old or not very productive. Moreover, those who go through sales to exchange there plots are at once more intensely involved in off-farm activities, wealthier, more educated, better insured, and have access to more secure sources of income than all other "land transferring" households. On the other hand, we do not find that rental transfers differ from non-market transactions in these respects, and therefore conclude that sale, as a complete loss of access to land and food producing activities, is for economically well-protected households only.

Introduction

> ʿThe fear of food shortage has, in most precapitalist peasant societies, given rise to what might appropriately be termed a "subsistence ethic". This ethic, which Southeast Asian peasants shared with their counterparts in nineteenth century France, Russia, and Italy, was a consequence of living so close to the margin." James C. Scott, in *The Moral Economy of the Peasant, Rebellion and Subsistence in Southeast Asia*

Farm land is the main input into productive agriculture ; it is also a source of food production, a collateral for credit, a source of power and conflicts. In developing countries with missing or failing markets for food, credit, agricultural inputs or insurance, those various functions tend to make farm land values differ from its price and contribute to a potential failure of land markets.

The standard evolutionary theory of property rights (Demsetz (1967); Boserup (1965, 1981); Alston and Schneider (1996) and for a review see Platteau (1996)) assumes that the individualization of land rights will change the pattern of distribution toward market exchange, that is land sales and rental markets. But the individualization of farm land rights also goes in hand with other kinds of land transfers imprecisely denominated as either "informal", "non-market" or "customary" modes of exchange. Those transfers might be found in the form of pre-mortem inheritance, gifts, or lending, where it is the individual owner and not the community who stands as the only unit of decision. In a world of at least relative individualization of land rights as displayed in developing countries or 19th century Europe, transfers are therefore found in a large panel of ways[1].

The economic literature has mainly accounted for this diversity of transfers in developing private rights context through the creation of a "market exchange" vs. "non-market exchange" taxonomy. "Non-market exchange" is treated as a black box classifying everything not processing through a clear payment and price.

Interestingly, those "non-market" transfers seem to be made in at least equal

---

[1]Historians are still discussing the weak power of sales in the overall distribution of land in 19th century France, specially when compared to inheritance and non-market transfers to relatives. See Habakkuk (1955); Boudjaaba (2008); Derouet (1995, 2001); Vigneron (2003)

if not higher volumes that market transfers. Even more remarkable, market transfers mainly display temporary transactions in the form of loans. Overall, the most infrequent transfers observed are land sales, which remain a very minor way of redistributing farm land.

This paper therefore asks whether land sale could actually be isolated from other kinds of transfers because of its impact on future access to farm land functions. The literature has already introduced farm land's numerous functions as one of the determinant of land market failure in developing countries. Here, we focus on a specific function of land : we suggest that land sale differs from the other types of transfers because of its implication on the loss of the safety net value of land. In absence of insurance markets and other risk sharing mechanisms, land provides an access to food, credit, asset accumulation, and plays a role in risk sharing networks. We propose that land sale is the only type of land transfer which implies at once an irreversible loss of property rights on land and a disinvestment in local risk-sharing social networks.

To approach this question, we use 2006 data from the Vietnamese Access to Resource Household Survey. Vietnam has shifted with its 1993 Land Reform towards an individualization of land rights : what was previously under collective or State ownership is since 1993 in the hands of households, who detain use rights on their plot and have been granted the right to transfer land, either through sales, rentals, loans, bequests or mortgages. We use the VARHS dataset to look whether the decision to sell land rather than transferring it through renting or "informal" channels is contingent on households characteristics, specifically on their economic stability. We expect households crediting land with the lowest safety net value, i.e. the most stable, to have a greater willingness to sell land.

We find a positive relationship between households economic stability levels and the probability to sell land rather than exchanging it through any other way. This relationship doesn't hold when we compare market -sales and rentals- to non-market exchanges of land -gifts and loans. Those results support the idea that sales differ from any other types of land transfer because of their impact on the loss of land-related safety nets.

Section I provides a short literature review on the main identified factors impeding land sales. Section II discusses the potential role of insurance mar-

ket failure on the functioning of land markets and exposes our theoretical framework. Section III describes the land rights situation in Vietnam and presents the VARHS data. Section IV define our empirical strategy. Section V discusses the main results, and finally we conclude.

1 Literature review

1.1 The evolutionary theory of land rights and the endogenous emergence of land markets

The standard property right theory proposes a general framework explaining why land property rights inevitably tend to individualization and why it is an efficient process when technology changes and population increases (see Demsetz (1967); Boserup (1965, 1981); Alston and Schneider (1996); Platteau (1996)). In the end, when access to land ownership has endogenously become an individual matter, a third party, generally the State, intervenes and guarantees the enforcement of these rights through formalization, standardized registration of title deeds and workable land administration and land mapping systems. This process is then followed by the emergence of a new pattern of land circulation, the market, which is allowed by the significant reduction of transaction costs offered by the formalization of property rights. Land sales naturally emerge to reallocate land from the least efficient to the most efficient users, correcting initial inefficiencies displayed by the communal distribution of land.

According to this framework, the non-emergence of land sales in developing countries has to do with the absence of third party enforcement of land rights. Even when land registries and titling are officially available, they seldom if ever propose full enforcement of rights, as keeping the records up to date is technically very challenging (see Feeny (1988) for Thailand and Wadhwa (1989) for India).

Nonetheless, worldwide empirical studies do not necessarily confirm a correlation between the degree of formalization of land rights and the raise of land markets and sales [2]. In some cases, the introduction of formal land

---

[2](see Pinckney and Kimuyu (1994); Migot-Adholla et al. (1991) for the case of Sub-Saharan Africa, Barnes and Griffith-Charles (2007) for Saint-Lucia, or Habakkuk (1955); Boudjaaba (2008); Derouet (1995, 2001); Vigneron (2003) for 19th century Europe.

rights might even increase transaction costs through an incompatibility between formal and informal tenure systems (De Janvry et al. (2001); Platteau (1996)). Informal institutions therefore remain the foundation of the definition and transfers of land rights even when legal systems are in place.

1.2 Multi-market failure and the inefficiency of land sales markets

The evolutionary theory of land rights indirectly identifies the high transaction costs of informal tenure systems as the main barrier to the emergence of land markets in most developing economies. But it does not investigate in depth the complex mechanisms which drive the demand and supply of land, and the formation of land prices at equilibrium.

The economic literature on sharecropping and on land markets in developing countries both associate multi-markets failure -in the capital and labour markets- with a lower efficiency of land sales market compared to rental markets. (Binswanger and Rosenzweig (1986); Kimura et al. (2011)). This lower efficiency of sale markets explains why it is less frequently used than rental. In countries with failing financial markets, land possess many attributes which greatly exceed the sole agricultural production: land determine the access to collateral for loans or entrance into obtaining political power; it can also be used as a store of value when macroeconomic indicators are volatile, and, as for most assets, be subjected to speculative motives ((Binswanger et al. (1995); De Janvry et al. (2001). All these functions are conveyed into the price, supply of land occurring only at high values to compensate for opportunity costs (Binswanger et al. (1995)). Meanwhile, the demand side cannot afford to pay such a high price without offering its own assets as collaterals for loan (Binswanger and McIntire (1987); Shearer et al. (1991); Carter and Mesbah (1993)).

According to this approach, we are confronted to a failure of land markets triggered by constraints on credit and an illiquidity of the demand side. In economies with dual initial allocation of land, market exchanges might lead to a concentration process which is not always efficient. In economies made of a majority of smallholders and rather equal initial distributions, the whole demand side is illiquid or insolvent, and the amount of land exchanged is low or nil.

This approach has been empirically looked at and it confirms the role of the credit market in the inefficiency of land markets, driven by the demand-side. Our purpose here is to extend the idea of the multi-functions of land in environment of multi-market failure, by introducing a connection between the low willingness to accept land sales displayed by economic agents and the absence of insurance markets or other modern income-smoothing mechanisms.

2 Theoretical Framework

2.1 Access to land as a safety net

As mentioned, land is the most important asset in agriculture production, allow access to credit, is generally the core component of rural households wealth, and as an indestructible asset with quite stable value over time is the safest if not the highest return asset to hold (for a review of arguments on land values see Binswanger et al. (1995)).

Our present work focuses on an additional aspect of the "special value of land". At the margin of the "market-constraints" literature and the theory of embeddedness of land in the social structure, many allusions have been made to the "safety net function of land". Land is also included in the literature on asset-based insurance. With high probabilities of shocks on agricultural incomes and the absence of social security or private insurance, households use their stocks of assets to buffer income and consumption over time(Zimmerman and Carter (1999); McPeak and Barrett (2001); Dercon (1999, 2004); Jalan and Ravallion (2001) among others).

For our own concern, this theory's main conclusions are summarized as follow : land is accumulated and kept to buffer households consumption against major shocks, and is sold by very vulnerable households after repeated shocks on income which deplete all their asset stocks and endanger households survival. Empirical studies do confirm that land sales are occasionally used to protect current consumption at the expense of future productive capacities[3]. (Sarap (1988); Rawal (2001); Ruben and Masset (2003); Deininger et al. (2009))

But most of the asset-based insurance literature relies on a crucial assumption: land is regarded as one of the riskiest asset being hold by households. Yet, land might actually be one of the safest assets of all, despite the pronounced risks of agricultural production in tropical or semi-arid settings.

---

[3]This type of sales is denominated in the literature as "distress sales"

First, if we consider assets as stocks rather than pure agriculture income flows, land value is indestructible, whereas grain, livestock or bank accounts can disappear for ever following the destruction of storage facilities, an epidemic disease on herds, or if banks go bankrupt. This kind of matter is particularly relevant to the case of developing countries. Secondly, Zimmerman and Carter (1999) assume that risks are independently distributed among households : however, households can influence risk distribution through ex-ante decisions on production and activity, through the choice of reliable crops and varieties, and through the diversification of land-use.

Moreover, asset based insurance is not the only way for land to provide a safety net. It is an essential tool for social protection through its ability to produce food (see Maxwell and Wiebe (1999)), allow self-sustainability at time of market-based or unemployment crisis, and allow access to credit for consumption smoothing. Land also has an essential role to play in the functioning and enforcement of risk-sharing local networks, although we have not found any indepth study on this issue. Compared to the distress sale argument, all this lead us to make the reverse proposition: household giving the highest value to the insurance function of land would keep it over all other alternatives. Therefore, two different profiles of households are expected to abdicate their right to land : those who have exhausted every alternative possibilities after repeated shocks, or those who have access to sufficient alternative insurance mechanisms or have a low exposure to livelihood shocks and therefore give a lower value to the safety net functions of land.

2.2 Sales and the loss of the "safety net value" of land

What should this teach us for our present matter on describing land sales as fundamentally aside from other kinds of land transfers in private property rights situation? Our proposition is simple : of all the patterns of land exchanges, land sales are the only one which necessarily lead to an irreversible loss of the land's safety net functions. Let us come back on our intuition, which is not yet verified by empirical work.

Land rental consists in a temporary transfer of land-use rights, for a given period of time, under a two-party contract, and in exchange of a payment. The owner retains its credit access through land collateral, and can return to farming the land any time contingent on rental contract terms and contract enforcement power - when contract enforcement power is in the hand of the

landlord, he might break the terms and kick the tenant out at any time.
Land lending is pretty similar to land rental - a temporary transfer of land use rights - except that no formal payment is made, and that land borrowers are somehow informally "indebted" to the owner. It is not clear to what extent it is an indebtedness and in what form it is supposed to be repaid ; nevertheless, tenants may not have much to say if the owner commands them to immediately return his use right. Moreover,lending generally takes place within relatives and eventually nourish the operations provided by this type of risk-sharing network. Finally, lending land also permit collateral use of land, as do rentals.

The role of gifts in keeping access to land insurance function is not as straight forward. Gifts imply a transfer of both use and ownership rights, with a transfer of title deeds when those are available : the collateral function of land is therefore handled to someone else. Further, gifts are not temporary but permanent transfers of rights : at first sight, return to the land is then not possible. But, as for loans, no payment is made in exchange of the transfer, and we can imagine that, similarly, land recipients are indebted in some way to the previous owner. It is not our intent here to analyze the enforcement mechanisms guaranteeing that the debt will be honored nor to evaluate whether enforcement is successful : it might anyway depend on the form of the gift -pre-mortem bequest or intra-generational transfer- and on the identity of the two parties. Nevertheless, the literature has already underlined how pre-mortem bequests, as "fake gifts", are set-up to both preserve incentives to insure elders consumption levels and to allow access to land to the younger generation. In many cases then, gifts are made in exchange of something, and this something could well be an assistance in case of shocks or welfare loss striking the previous owner.

The idea that customary transfers of land are made in accordance with insurance motives have already been stated elsewhere for the case of collective ownership, although scarcely empirically looked at (Pinckney and Kimuyu (1994); Soludo; Platteau (1996)).

What we add here is that preserving the insurance function of land is also a motive to choose temporary or informal exchanges, even when renting out land.This leaves land sales apart : in the case of land sales, the transfer of right is both permanent and irreversible. As sales imply a monetary payment, recipients have no obvious reason to be indebted to sellers after the

transactions take place [4], and therefore, based on the implicit terms of the transaction, do not owe them social support in case of trouble. Moreover, as already advanced by Basu (1986), when land markets are imperfect and demand hardly solvable, recovering some land through purchase after selling might be arduous, specially for the most vulnerable.

To conclude, sales probably imply the most intense cut from safety net access, obstructing both direct land insurance provision -collateral, food production or capability of self income generation- and the obtention of an indirect claim for appealing to social support from the new receipients of land. In respect with these insurance preservation motives, we may not follow the traditional taxonomy of market vs. "individual customary" exchange, but may instead favor a "sale" vs. "all other types of transfer" classification. As a consequence, we would expect households choosing to transfer plot through sale to give a low value to the insurance function of land. Those households should be at once less vulnerable, wealthier, receiving more secure sources of income, and better insured - either through alternative access to credit or a large stock of non-land assets- than households transfering land through rental, loans or gifts. This lead us to the following testable proposition:

1. Selling households might be significantly different from households transfering land through rentals, loans, or gifts, in term of access to insurance and safety of income : We expect them to display a significantly higher level of economic stability than those transferring land through other types of transfers.

---

[4]except in very specific cases such as the institution of Tutorat in Ivory Cost (see Colin 2006). Irreversibility may also be decreased when the sale's recipient is a relative to the seller and selling price have been fixed below market values

3 The Land issue in Vietnam and descriptive statistics

3.1 The Land Reform in Vietnam : the Land Market controversy

As previously did China, the communist country of Vietnam has embarked since the 1980's in a process of individualization of property rights with the *doi moi* reforms. This process has started for agriculture with the recognition of households as the main units of farm production, and culminated with the 1988 "resolution 10" which established individual use rights on land. Plots were distributed to households following equity principles, which have widely been applied although with various intensity according to regions. A complementary Land Law was also enacted in 1993, to clarify some of the yet missing constituents necessary to establish a workable private property right system : legal titles (the Land Use Certificates or LUC) were introduced and land transfers made legal.

The 1988 and 1993 Land Laws have established in Vietnam a system under which legal ownership rights symbolically belong to the State, but where land use rights are in households'hands for a period of 50 years . As for land transfer such as sales, rentals, bequests, loans, gifts and mortgaged, they are authorized but submitted to authorities' official validation. Diverse later revisions further eased the transfer procedure and optimized the registration process.

All together, the process at stakes in Vietnam is one that increasingly facilitates land transfers : the liberalization of land rights has been followed, as could be expected, by a boom in land exchange rates, specifically through the development of land markets and other non-markets transfer forms - loans and gifts of all sorts.

The case of Vietnam actually provides a life-size evaluation for the economic literature on land reforms : the individualization of land rights and the permission to transfer it is not neutral for economic welfare. As always when coming to land issues, the analysis of the 1993 Land law 's impact have been quite split between those who see in land market development the origin to the economic growth of the 90's and 2000's (Deininger and Jin (2008); Do and Iyer (2003); den Broeck et al. (2007);

Van de Walle and Cratty (2004); Ravallion and van de Walle (2008)); and those who accuse it to have dampened inequalities and created a growing class of landless (Akramlodhi (2005)).

All of these studies have focused on the effect of land market legalization, but have not yet looked at the impact of legalizing the "non-market" type of transfer. But the 1993 land law has also freed households' initiative in exchanging, lending or bequeathing their newly acquired land rights. Actually, and according to the VARHS database, land market transactions seems to account for a small share of the total land area changing hands each year, among State re-allocation, mortgages, gifts and loans. Strangely, this last fact has not yet caught the interest of Vietnamese specialists. The only study attempting to distinguish between distinct forms of transfers is the work by Deininger and Jin (2008), but they look only at the determinants of land sales and land rentals, and conclude that even though rental markets are pretty redistributive in favour of "poor but efficient" households, land sale market can generate some process of accumulation through distress sale and speculative purchases.

3.2 Data description

3.2.1 The VARHS survey

One of the difficulties of the relatively low interest toward non-market transfers in Vietnam might be due to the lack of data on these kinds of transfers. Indeed, the most frequently used database when coming to rural and agricultural issues in Vietnam is the VHLSS survey (Vietnamese Household Labor Survey), which provides only information on market transfers. For our present study, we use another database, the VARHS 2006 [5]. This survey has been carried out in 2006 in 12 provinces of Vietnam from the North to the South, and among 2300 households. The database provides various information that are generally hard to

___

[5]the VARHS database has been set up thanks to the collaborative work of the Central Institute of Economic Management (CIEM), the Ministry of Planning and Investment (MPI), the Institute of Policy and Strategy for Agriculture and Rural Development (IP-SARD), the Institute of Labour Science and Social Affairs (ILSSA), together with the assistance of Danida (Danish International Development Assistance).

find in equivalent datasets, or rarely come combined in the same questionnaire : we have information on any type of land transfers made by the household during the last five years, including the identity of the transactor and the price of the transaction; we know about household' access to credit, savings, consumption and expenditure, as well as other measures of income and assets levels. We know precisely which kind of activity is undertaken by household'members. We are informed of households access to insurance and social transfers from the State and NGOs. Finally, information are provided at the household and plot level, allowing very precise analysis.

We base the following descriptive statistics on an analysis of the VARHS survey, with the help of den Broeck et al. (2007).

3.2.2 Land ownership and transfers in Vietnam : VARHS descriptive statistics

Land ownership is typically small in Vietnam : average land holding size per head in our sample is only 814 sqm, with high differences among provinces (see table1). The land distribution in Vietnam is relatively equal, as it is in many other Southeast Asian countries, but also as a direct consequence of the 1988 allocation policy adopted by the government for the first land distribution (Ravallion and van de Walle (2008)). The Gini coefficient of land distribution in the VARHS sample is 0.66 for total land holdings, but have undergone an upward movement during the last ten years (Deininger and Jin (2008)). Landlessness is also a raising phenomenon but rural landless households represent a rather small portion of our sample -1 percent of households.

The Vietnamese land property rights situation is not as clean as it looks on the paper, as reported by other studies (see for instance Do and Iyer (2003)). 78 percent of plots are recorded under LUC, which therefore leaves 22 percent of plots without any kind of legal recognition. Titled are issued according to the progressive surveying and registration supplied by the State. Issuance of LUC seems to differ greatly among provinces, indicating bias in the quality of administrative procedure according to authorities. It should be noticed, though, that these differences do not follow any North-South pattern, as could have been believed.

Table 1: Land holding adjusted for household size and quality

Table 3.2 : Land holdings adjusted for household size and quality	Average land per capita (in sqm)	Average annual land per capita (in sqm)	Approx. sales value of cropland	Approx. sales value of annual cropland	Approx. sales value of perennial cropland
Province					
Ha Tay	486	398	160	159	210
Lao Cai	2,347	1,022	7	7	5
Phu Tho	1,099	515	11	11	6
Lai Chau	2,204	1,745	3	3	1
Dien Bien	3,895	1,711	2	2	6
Nghe An	1,339	576	10	9	49
Quang Nam	2,301	1,226	12	12	7
Khanh Hoa	1,355	706	14	11	24
Dak Lak	2,224	523	15	9	21
Dak Nong	5,054	845	26	33	22
Lam Dong	2,451	427	25	40	16
Long An	2,983	2,272	28	28	7
Household head					
Female	1,157	608	92	97	16
Male	1,892	868	42	44	29
Food expenditure quintile					
Poorest	1,783	814	26	28	7
2nd poorest	1,783	699	56	58	30
Middle	1,346	671	78	85	16
2nd richest	1,530	658	40	41	31
Richest	2,259	1,229	46	46	49
Total	**1,739**	**814**	**51**	**53**	**28**

From : den Broeck et al. (2007)

What we just described here is a rural world of small owners, still relatively homogenous in holding size, although differing in access to agricultural assets and inputs. The main cultivated Vietnam crop is rice, which represents 64 percent of all agricultural land, complemented by various cash crops such as sugarcane, coffee, corn, and other. 77 per cent of our households also practice livestock farming, in cattle and pigs breeding.

For Vietnamese households, diversification of activities is a necessary step to make ends meet, as it is commonly observed in other rural economies of the developing world. 74 per cent of our sample declare agriculture as their main activity and 51 percent participate to some off-farm activities. 43 per cent of the active population actually take up at least two activities -typically on farm and off-far-) which indicates both that agricultural income is not sufficient to cover households' needs and that they are diversifying their income sources, probably to smooth cash flows over time and seasons. Interestingly, richer people seem to have less diversified income source than other and to rest more on off-farm income alone.

3.2.3 Transfer pattern

In the whole country, around 15 percent of available plots have been exchanged in some way, during the five years preceding 2006: we include expropriation by the State, loss, rental and loans, gits and sales. Four types of individual transfers have been recorded as broad categories in the VARHS survey : sales, rentals, loans –temporary exchange for no payment– and gifts –permanent transfer with no payment–. No specific mention has been made to pre-mortem inheritance, and it is therefore classified with all other gifts in a single category. 7 percent of plots have actually been exchanged through any of those transfers during the five years preceding the survey.

The supply and demand side of land transfers can not converge in the design chosen in the questionnaire to deal with these issues : the means of acquisition of land was informed for all plots whenever the date of acquisition, whereas the transfers out have been collected only for the last five years, that is after the 1993 Land Law.Moreover, the informa-

tion on land transfers and land acquisitions is not perfectly symmetric as land loans and gifts other than bequests have not been recorded as distinctive categories for land acquisition types. This prohibit to make a parallel study from both sides of the transactions, the supply and the demand.

The data show a overwhelming dominance of the State as a source of access to land for all plots acquired before the land reform (see table 2). But since the land reform, individual acquisitions have replaced the State. The mode of acquisitions obtained in our data actually suggests that the emergence of individual transfers has yet redistributed less than half of total land area in Vietnam.

Table 2: acquisition modes in percent of plots

Item	Number	Per cent
given by State/commune	8,045	61
inherited	1,849	14
Bought	984	7
cleared and occupied	1,464	11
rented in or borrowed	775	6
Total	13,181	100

The pattern of individual transfers of land is quite astonishing : land sales represent only 7 percent of total individual transfers undertaken in the 5 years preceding the survey - ie. 0.45 percent of total land plots- and if we add rentals to look at a "market transfers" category, they constitute together only 36 per cent of all transfers. The other types of exchanges such as loans and gifts therefore account for 2/3 of all the individual transfers undertaken by households from 2001 to 2006. Their preponderance once more stresses the relevance of analyzing their determinants and potential effects for land distribution.

A North-South examination of transfers also reveals some interesting features. The overall mobility of land does not differ between the North and South of Vietnam, as the political history could have suggested. But on the other hand, sales alone are mostly concentrated in the South of Vietnam, as do gifts though in a smaller extent. Sales represent only 2 percent of total exchange in Northern Vietnam, and are replaced

Table 3: type of receiver of plot

Type of receiver of exchanged plots, in percentage of plots transfered

	Sales	Rental	Gift	Loan	Average
Receiver					
Relative	13.56	47.62	99.09	77.88	59.54
Friend	45.76	3.97	0.45	2.42	13.15
Other households or private organization	39.07	47.62	0	19.7	26.6

mostly by the practice of land loans, which occur almost twice as frequently as they do in the South. On the other hand, rentals are made in the same proportion, with a near similar prevalence of total transactions in both regions. Overall, we therefore describe more frequent transfers with a shift of legal ownership document in the South of Vietnam, and a greater concentration of land exchange with no document shifting in the North. This fact might be explained by historical differences in the degree of involvement in land issues displayed by local authorities. To be noticed also, the percentage of households who sold land is highest both for the poorest and richest quintile of our distribution, and lowest for middle poor and average households.

Another interesting information can be derived from the analysis of the survey information on the setup of land transfers. As expected, market transfers tend to rely less on interpersonal relations, though the percentage of market transactions which have been pursued between relatives remains quite high (see table 3).

Finally, we look at the possession of Land Use Certificates on plots according to the kind of transfer undertaken (table 4). Classic theory of property rights would predict that plots going through the market should be better titled. Nevertheless, we do not directly observe this hypothesis, with only 68 percent of titled plots among sales for around 85 per cent among gifts.

We now come to the estimation of the model of land sale decision in relation to the vulnerability situation of households.

15

Table 4: Plots with LUC

Plots with Land Use Certificate in percentage of plots transferred		
	Ownership of LUC	
	Yes	No
Type of transfer		
Sales	67.8	32.2
Rentals	79.76	20.24
Gifts	84.55	15.45
Loans	87.88	12.12

4 Econometric Specification

4.1 Estimation Strategy

Our study modelizes a household entitled with a binary decision: either selling land, or transferring it through another type of exchange. The household chooses the outcome which maximizes his welfare, depending on a set of characteristics influencing the attractiveness of each outcome for the household. Among this set of characteristics, we are here specifically looking at the impact of the level of economic stability on the attractiveness of selling land relative to using other transfers.

We therefore estimate the probability that a household will choose to sell land rather than transferring through another way, using successively a logit estimation strategy.

$$Pr(S_i = 1) = \alpha + \beta_1 V_i + \beta_2 V_i^h + \beta_3 V_i^l + \beta_4 C_i + \varepsilon \qquad (1)$$

$Pr(S_i = 1)$ is the probability that household i chooses to sale some plot conditional on having decided to transfer it. $S_i = 1$ if the household has sold land at least once in the last five years, and $S_i = 0$ if the household has transferred land in the last five years but not in the form of sales -either through rental, loans or gifts.
V_i is an indicator of household stability (see section 4.2 for further de-

tails). We expect β_1 to be positive.

V_i^h is a dummy taking the value of one when the household is in the lowest decile of the stability indicator, and V_i^h is a dummy taking the value of one when the household is in the highest decile of stability. Those two dummies aim at identifying a non-linearity in the relationship between stability and the probability to sell land, due to the combination of two phenomenons : the "static" insurance function of land through which a higher stability of income leads to a higher probability of selling land, and the asset-based insurance function of land suggesting that households at the bottom of the stability chain could resort to distress sales. If the non-linearity is confirmed, we should obtain β_2 and β_3 greater than 0.

C_i is a set of controls on household situation, coherent with previous results from the literature (see section 4.3).

We observe 373 transfering households within the VARHS survey.

Of course, the workability of our model greatly depends on our measurement of vulnerability levels. As this is a crucial issue, we come back on it in a specific subsection (4.2)

4.2 Measuring Stability

We understand stability here as the direct opposite of a well-discussed notion : vulnerability. But measuring accurately the level of stability -as the inverse of vulnerability- remains a challenge.

Firstly because in the extensive economic literature on insurance, income smoothing and related fields, the definition of vulnerability is still not steady Alwang et al. (2001). Indeed, at least two definitions of vulnerability are proposed : the first considers the income variability aspect of vulnerability and measures it through consumption mean and standard deviation (Coudouel and Hentschel (2000)).

The second definition of vulnerability reproach to consumption variance variables to ignore that some types of shocks have worse consequences than other for households behaviors and poverty coping. In their perspective, a household is *"said to be vulnerable to future loss of welfare below socially accepted norms caused by risky event"* (**??**). Vulnerability here corresponds to the probability of future consumption levels to be under some defined lower bounds. This lower bound is understood

as the threshold under which households' basic needs are not sustained and households investment strategies compromised [6].

As such, stability is seen as the absence of variability in income, or as a null probability that income falls under a certain threshold.

According to those definitions, panel data would fit best a measure of stability : unfortunately, we do not possess such data with the VARHS survey. Stability is also portrayed as a multi-dimensional notion: stability levels depend at the same time on income risk, ex-ante insurance mechanisms, and on available ex-post risk responses. Moreover existing sources of risks and risk coping strategies are numerous.

Although our data relate to a single year and do not allow to fully capture income variability, we propose to create a composite indicator to measure stability[7]. The indicator is built on a set of dimensions which should positively influence households' economic stability -i.e. the probability that they will never fall under the subsistence threshold.

Among the long list of potential dimensions, we use principal component analysis and cross correlation check to select the variables which will be used in the indicator. The number of variables retained through a strict principal component analysis might be a little restrictive and we chose to add a few dimensions for their theoretical relevance and their rank in principal component analysis. We check for possible correlation bias among the different variables and end-up with the following composites for our indicator:

- wealth proxied by the value of household's housing,

- savings in cash,

- the number of insurance scheme to which households subscribe, measured only in insurance programs that are meaningful for households economic stability levels, such as health insurance, life insurance, social insurance, and vehicle insurance [8],

- household's income per head,

---

[6]this version of vulnerability has been mainly developed by the poverty dynamic literature. see for instance Jalan and Ravallion (1998); Morduch (1994); Dercon (1999); Pritchitt et al. (2000)

[7]For the basic procedure in building a composite indicator, see OECD (2008)

[8]those insurance were selected with the help of a principal component analysis among a wider list of insurance schemes proposed in the questionnaire

- the stability of economic activities undertaken in the household proxied by the percentage of the active population within the household which participate to "stable" economic activity. To classify an activity as stable, we compute the number of days per month worked in average in each type of job quoted by respondent, and separate this sample in two half around the mean. The first half of jobs is labelled as not stable and the other half as stable. We then counted how many members in a household have a stable job according to this definition and divided it by the total amount active members to obtain a ratio. The measure of "job stability" obtained is highly correlated with the probability of having a labor contract, suggesting that our proxy is reasonable. We measure average schooling years through the ratio of total numbers of schooling years within a household and the number of individual in a household.

- schooling level, measured through the average number of school years of a member of the household.

To compute the composite indicator of economic stability, we use standard normalization and a linear aggregation methodology without weights, under the assumptions that income buffering strategies are compensable and that their relative importance is household specific. We obtain our stability indicator V_i. For descriptive statistics on the indicator and its dimension, see table 5. The indicator is also significantly negatively correlated to the number of consumption shocks that the household has suffered in the last five years, suggesting that our measure of stability is not a bad fit.

4.3 Description of variables

We add a set of control variables to our theoretical model. To take into account the quality of land rights security, we measure the percentage of agricultural land in households' holdings falling under a LUC title. Another interesting methodology to measure the security of land rights consists in looking at titling status at the communal level, since the security of land rights greatly depends on the quality of the local

Table 5: Vulnerability indicator

Variable	Obs	Mean	Min	Max
housing value (000 VD)	373	157569	0	3500000
income per head in (000VD)	372	9678.93	0	227168.3
insurance schemes subscription	373	1.22	0	4
rate of active members engaged				
in stable activities	372	0.17	0	1
saving amount (000VD)	373	16642.11	0	450000
average schooling years	373	0.61	0	11.38
stability indicator	372	0.53	-4.72	15.15

administration. Unfortunately, we could not gather data on all the communes of the sample.

The quality of the plot relative to the household's capacity to exploit it is also guessed to be conducive of a higher probability to sell land, as it brings to a higher sale price and increase the willingness to accept. In that purpose, we control for land quality through the agricultural income generated per square meter cultivated by the household, and for the total size of land holdings.

We control for age with a dummie capturing whether the household head is more than 60 years old. The sign of the coefficient of the age variable is uncertain, as two phenomenon can be combined together: in the spirit of the life cycle theory, older households sell land in a de-saving spirit; but on the other hand they also undertake pre-mortem bequest, which would reduce the proportion of land sales relatives to gifts.

We look at the strength of potential family claims on land through the number of sons in age to make claims on land inheritance (14 to 60 years old), and a dummy variable equal to one if the household receive financial support from their children. Both of those variables identify potential bequest pressure.

Finally, we check whether the household lives in the North or in the South of Vietnam: and we measure the number of chocks he has encountered in the last five years as an additional investigation into the distress sales phenomenon.

4.4 A selection bias in transferring households

In the model described above, we observe the type of transfer chosen by households within a restricted sample, i.e. the land-transferring households, and ignore all non-transferring households. Typically, this could imply a problem of selection bias due to a restriction in our dependent variable.

Less vulnerability on the part of land sellers, illustrated by more stable job, better education and wealth, could in fact be interpreted as the consequence of a single factor : the withdrawal from farm work for off-farm activities, phenomenon also synonym of improved human capital, higher income, and more stable sources of income than the fluctuating agricultural cash flows. Empirical results on the determinant of land sales would then not have much to do with insurance motives, and could rather be only driven by the phenomenon of occupational change necessary to any industrializing country.

On the other hand, if after incorporating the "off-farm activity" bias in our model we still find a significant impact of households' stability, the interpretation of our results on land sales determinants will be more robust.

In respect to those considerations, we use a probit estimation with Heckman selection. The model regression equation is still (1). The selection equation is :

$$Pr(T_i = 1) = \alpha + \beta_1 Pr(A_i > A_i^*) + \beta_2 O(i) + \beta_3 H_i + \beta_4 TC_i \qquad (2)$$

Where $Pr(T_i = 1)$ is the probability that household i will transfer some land. T_i equal 1 if in the last five years the household has transferred at least one plot through any of the available ways -sale, rental, loan or gift- and 0 if he has transferred no land during this period.

According to the literature, the decision to transfer a plot in a rural environment is generally attached to four crucial issues: occupational choice between agriculture and off-farm activities, life-cycle considerations, intra-relative transfers, and an insecure land environment making transfers costly to go through. A is the land endowment of

household i, A^* is the size of land endowment which maximize welfare, and $Pr(A_i > A_i^*)$ is the probability that the size of land endowment is above the optimal size(Deininger and Jin (2008)). We measure it through total land holding size, the agricultural income generated per square meter of cultivated land, and the total value of agricultural assets.

O_i measures the integration of the household in the off-farm economy through the percentage of total income generated through off-farm labour, and the percentage of active member within the household undertaking off-farm activities. We also look at the average years attended at school by households members.

H_i identifies the life cycle mechanism, and is a dummy equal to 1 if the household head is older than 60 years old.

CT_i measure the degree of tenure security, and is the percentage of land that household i own with a proper property title. Finally, we check at the links between the household and his relative, and the income per head within the household, and whether the household lives in the North or the South of Vietnam.

5 Empirical Results

We describe our variables and report our estimation results on the three models of regression described in section (IV). The estimations seem to confirm our main theoretical propositions. In Vietnam, selling households are less vulnerable than their transferring counterparts - they have more stable sources of income, are better educated and wealthier.

5.1 Land sales : the prerogative of the less vulnerable

We estimate a model at household level using a binary logit estimation of sale versus every other types of individual transfers. The dependent variable takes the value of 1 if the household has sold land in the last five years and 0 if he has transfered land through any other way

-rentals, gifts or loans.

Specification 1 presents the result with no mention to the potential non-linearity in the stability indicator. The other three specifications investigate this non-linearity effect by integrating dummies for the lower and higher deciles of stability. We find a significant positive relationship between the degree of economic stability of households as measured by our indicator, and the probability of selling land rather than transferring it through other channels. The odds ratio give us that a variation of 1 in the stability indicator increases the probability to sell by 7 per cent.

Being in the highest or lowest decile of stability does not significantly influence the probability to sell land rather than using another type of transfer, neither does the number of shock received in the last five years. Our data therefore do not confirm the phenomenon of distress sales for the surveyed Vietnamese households. Overall, our results tend to show that households selling land have a more stable situation than "transfering but not selling" households. We can not exclude that the lowest extremity of the stability chain also sell land more frequently, and more tests have to be run to investigate this issue.

We need to mention that our estimates nevertheless suffer from a potential endogeneity problem, even though sales have been recorded only for the last five years. Because of this potential problem of reversed causality, our results may not prove an effective impact of stability level on the probability to sell. We have yet not find sound instruments to run out the endogeneity problem, so our results can not be interpreted as more than a correlation. They only indicate that a large share of selling households are actually among the most stable households.

The results obtained on the control variables are also interesting: as expected, the probability to sell compared to other transfers is much lower in the North. Older households also seem to sell less or to prefer alternative forms of transfers, either because they are "culturally" less involved in the new "market" economy, because they come at an age where rationalization of land holding or farm/off-farm investment are no more in their agenda, or because bequest plans have become their

23

Table 6: Land sales versus any other transactions, Logit Estimation results

Variable	Coefficient	(Std. Err.)		
	()1	(2)	(3)	(4)
stability ind.	0.070**	0.120**		0.093**
	(2.119)	(2.245)		(2.144)
old dummy	-0.916**	-0.925**	-0.965**	
	(-2.034)	(-2.019)	(-2.162)	
North Vietnam	-2.259***	-2.250***	-2.217***	
	(-5.050)	(-4.978)	(-4.977)	
property title	-0.020**	-0.019**	-0.019**	
	(-2.495)	(-2.427)	(-2.388)	
total land area	-0.000	-0.000	-0.000	
	(-1.403)	(-1.444)	(-1.471)	
agr. productivity	0.000*	0.000*	0.000*	
	(1.777)	(1.808)	(1.932)	
number of sons	-0.214	-0.200	-0.144	
	(-0.853)	(-0.802)	(-0.582)	
children support	-0.077	-0.106	-0.099	
	(-0.177)	(-0.239)	(-0.231)	
chock	0.231	0.233	0.189	
	(1.358)	(1.360)	(1.119)	
stab. lower decile		0.294	-0.153	-0.500
		(0.353)	(-0.190)	(-0.648)
stab. higher decile		-0.880	0.374	-0.888
		(-1.133)	(0.790)	(-1.368)
$_{c}ons$	0.511	0.258	0.891	-2.384***
	(0.653)	(0.319)	(1.170)	(-7.863)
N	351.000	351.000	351.000	372.000
chi2	55.786	57.182	52.337	6.275
LL	-106.53	-105.83	-108.25	-139.91

Significance levels : $*: 10\%$ $**: 5\%$ $***: 1\%$; tstat between brackets

24

main focus in asset management. The number of living sons, the total land area owned and land productivity are not significant or have a null impact.

Surprisingly, the percentage of commune land under a LUC title has a significantly negative impact on the probability to sell. If our variable correctly proxies the security of land tenure, those results go against the basic theory of titling programs and market activity. To find a possible explanation to this phenomenon, we need to look at the demand side of the market: as in Vietnam most of the land is expected to be titled in a more or less close future, well-informed purchasers use their power to take advantage of the potential raise in value of presently untitled land. They buy land now at a cheap price expecting to increase the value of their investment once the titling program will cover the newly purchased plot. The negative relationship between the percentage of LUC titles in communes and the probability to sell might also reveal that legal titles in Vietnam are not synonym of land rights security, but rather of exposure to corruption and capture of land rights by the elite (see Van de Broeck et al 2007). The registration of plots maybe put households land rights at risk if it means reminding corrupted officials of the existence of valuable plots. Moreover, a growing part of the economic literature has underlined that formalization of land rights somehow goes in contradiction with local customary definition of land ownership and can increase initial tenure insecurity (Migot-Adholla et al. (1991); De Janvry et al. (2001).

5.2   Potential extensions

We check for the potential selection bias by running a two-steps probit model with Heckman selection (see Annexe). The selection equation estimates the probability to transfer land through any other type; and we use the results to estimate the model equation of selling land rather than transferring it. The results of our model of land sales are not modified, and we cannot conclude to an actual selection bias. The probit estimation of land transfers is nonetheless interesting: transferring households are at once older and richer, and they own bigger holding with a lower productivity, than non-transferring households.

To extend our results, we finally test whether the relationship between the stability level of household and the probability to sell could be extended to explain the decision to exchange land through the market (sales or rental) rather than through non-market transfers (loans and gifts). We run a logit binary estimation with a dependent variable equal to 1 if the household has transferred through the market, and 0 if he has transferred through non-market ways. We use the same explanatory and control variable as in the sales model above.

As expected, the probability to choose market rather than non-market land transfers are not significantly correlated to stability levels, which seems to further indicate that sales are singular in respect to the loss of safety net and that stability levels play a role on sale decision much more than in rental. (See annexes)

Conclusion

The land rights situation in Vietnam has brought a lot of debate, specially around the impact of the 1993 decision to authorize land markets. The debate opposes advocates and opponent to market exchange, seens respectively as poverty reducing or poverty enhencing. What has not been yet considered in this debate is the mention of the 1993 land law to the individual customary transfers such as gifts and rentals. These individual customary transfers actually have the reputation of following insurance and "altruistic" motives, where market answers mainly to profitability and price mechanisms. What we find here is that the debate might have been wrong in rigidly opposing customary and market transactions in their ability to follow safety net considerations. In fact, according to our analysis of the VARHS, only land sales seem to differ from the other individual transactions in that respect, as more stable households have a higher probability to sell land rather than exchanging it through any other channel. Among all types of existing transfers, land sales might indeed represent the transfer type reducing access to land safety net functions in the most considerable proportions. The consequence is that households with significant alternative -non land- coping mechanisms are more inclined to give up their land

rights than others. For less stable households, the position of land in their risk-coping strategies make it very valuable, and selling price are too low to composate for land loss through sales. Market rental themselves do not seem to bring such a degree of loss in land safety net access: market transfers as a category do not differ significantly from non market transfer in the degree of stability displayed by households. We therefore propose that when looking at some specific aspects of land such as the access to safety net provision, the strict classification of market vs. non-market land transfers might not always be the most relevant, and might conduce to some unfitted policy recommendations. Our results are very preliminary though, and we intend both to refine our empirical methodology, to test for the endogeneity bias, and to go further in understanding how all these individual transfers deal with the insurance motives in access to land.

References

Akramlodhi, A. (2005). Vietnam's agriculture: Processes of rich peasant accumulation and mechanisms of social differentiation. *Journal of Agrarian Change*, 5(1):73–116.

Alston, L.J., L. G. D. and Schneider, R. (1996). The Determinants and Impact of Property Rights: Land Titles on the Brazilian Frontier. *J Law Econ Organ*, 12(1):25–61.

Alwang, J., Siegel, P., and Jorgensen, S. (May 2001). Vulnerability: a view from different disciplines. *Social Protection Unit, Human Development Network, World Bank,*.

Barnes, G. and Griffith-Charles, C. (2007). Assessing the formal land market and deformalization of property in st. lucia. *Land Use Policy*, 24(2):494–501.

Basu, K. (1986). The market for land : An analysis of interim transactions. *Journal of Development Economics*, 20(1):163 – 177.

Binswanger, H. and McIntire, J. (1987). Behavioral and material determinant of production relations in land-abundant tropical agriculture. *Economic Development and Cultural Change*, 36(1):73–99.

Binswanger, H. and Rosenzweig, M. (1986). Behavioral and material determinants of production relations in agriculture. *Journal of Development Studies*, 22(3):503–539.

Binswanger, H. P., Deininger, K., and Feder, G. (1995). *Handbook of Development Economics (3)*, chapter Power, Distortions, Revolt, and Reform in Agricultural Land Relations. Amsterdam: North-Holland.

Boserup, E. (1965). *The Conditions of Agricultural Growth : The Economic of Agrarian Change Under Population Pressure.*

Boserup, E. (1981). *Population and Technological Change: A Study of Long-Term Change.*

Boudjaaba, F. (2008). *Des paysans attach?s ? la terre ? Familles, march?s et patrimoines dans la r?gion de Vernon (1750-1830).*

Carter, M. and Mesbah, D. (1993). Can land market reform mitigate the exclusionary aspects of rapid agro-export growth? *World Development*, 21(7):1085–1100.

Coudouel, A. and Hentschel, J. (2000). Poverty data and measurement. *Preliminary Draft for A Source Book on Poverty Reduction Strategies, The World Bank, Washington.*

De Janvry, A., Gordillo, G., Sadoulet, E., and Platteau, J. (2001). *Access to Land, Rural Poverty and Public Action.* Oxford New York.

Deininger, K. and Jin, S. (2008). Land sales and rental markets in transition: Evidence from rural vietnam's. *Oxford Bulletin of Economics and Statistics*, 70(1):67–101.

Deininger, K., Jin, S., and Nagarajan, H. K. (2009). Determinants and consequences of land sales market participation: Panel evidence from india. *World Development*, 37(2):410 – 421.

Demsetz, H. (1967). Toward a theory of property rights,. *American Economic Review*, 57:347–359.

den Broeck, K. V., Newman, C., and Tarp, F. (2007). Land titles and rice production in vietnam. Trinity Economics Papers tep1207, Trinity College Dublin, Department of Economics.

Dercon, S. (1999). Income risk, coping strategies and safety nets. Technical report, 2000/1 World Development Report.

Dercon, S. (2004). Growth and shocks: evidence from rural ethiopia. *Journal of Development Economics*, 74(2):309 – 329.

Derouet, B. (1995). Territoire et parent?: Pour une mise en perspective de la communaut? rurale et des formes de reproduction familiale. *Annales, Histoire, Sciences Sociales*, 50e annee (3):645–686.

Derouet, B. (2001). Parente et marche foncier a l'epoque moderne : une reintrepretation. *Annales, Histoire, Sciences Sociales*, 56(2):337 –368.

Do, Q. T. and Iyer, L. (2003). Land Rights and Economic Development: Evidence from Vietnam. *SSRN eLibrary*.

Feeny, D. (1988). *Toward a Political Economy of Development*, chapter The Development of Property Rights in Land: A Comparative Study, pages 272–299. Berkeley and Los Angeles, CA; London: University of California Press.

Habakkuk, H. (1955). Family structure and economic change in nineteenth-century europe. *The Journal of Economic History*, 15(1):1–12.

Jalan, J. and Ravallion, M. (1998). Transient poverty in postreform china. *Journal of Comparative Economics*, 26:338–357.

Jalan, J. and Ravallion, M. (2001). Behavioral responses to risk in rural china. *Journal of Development Economics*, 66(1):23 – 49.

Kimura, S., Otsuka, K., Sonobe, T., and Rozelle, S. (2011). Efficiency of land allocation through tenancy markets: Evidence from china. *Economic Development and Cultural Change*, 59(3):pp. 485–510.

Maxwell, D. and Wiebe, K. (1999). Land tenure and food security: Exploring dynamic linkages. *Development and Change*, 30(4):825 – 849.

McPeak, J. G. and Barrett, C. B. (2001). Differential risk exposure and stochastic poverty traps among east african pastoralists. *American Journal of Agricultural Economics*, 83(3):674–679.

Migot-Adholla, S., Hazell, P., Blarel, B., and Place, F. (1991). Indigenous land rights systems in sub-saharan africa : a constraint on productivity? *The World Bank economic review*, 5(1):155–175.

Morduch, J. (1994). Poverty and vulnerability:. *American Economic Review*, 84(2):221–225.

OECD (2008). Handbook on constructing composite indicators, methodology and user guide. OECD Publication.

Pinckney, T. and Kimuyu, P. (1994). Land titling: Good, bad, or unimportant? *Journal of African Economies*, 3(1).

Platteau, J.-P. (1996). The evolutionary theory of land rights as applied to sub-saharan africa: A critical assessment. *Development and Change*, 27(1):29–86.

Pritchitt, L., Suryahadi, A., and Sumarto, S. (2000). Quantifying vulnerability to poverty: A proposed measure, applied to indonesia. *Policy Research Working Paper No. 2437, The World Bank, Washington.*

Ravallion, M. and van de Walle, D. (2008). Does rising landlessness signal success or failure for vietnam's agrarian transition? *Journal of Development Economics*, 87(2):191–209.

Rawal, V. (2001). Agrarian reform and land markets: A study of land transactions in two villages of west bengal, 1977-1995. *Economic Development and Cultural Change*, 49(3):611–629.

Ruben, R. and Masset, E. (2003). Land markets, risk and distree sales in nicaragua : the impact of income shocks on rural differentiation. *Journal of Agrarian Change*, 3(4):481–499.

Sarap, K. (1988). On the operation of the land market in backward agriculture: Evidence from a village in orissa, eastern india. *The journal of Peasant Studies*, 25(2):103–30.

Shearer, E., Lastarria-Cornhiel, and Mesbah, D. (1991). The reform of rural land markets in latin america and the caribbean: Research, theory, and policy implications,. *Land Tenure Center Paper*, 141.

Soludo, C. Comparative institutional development: Lessons from rural land markets in africa. Background Paper for the World Development Report 2002, manuscript, 2000.

Van de Walle, D. P. and Cratty, D. (2004). Is the Emerging Non-Farm Market Economy the Route Out of Poverty in Vietnam? *Economic of Transition*, 12(2):237–274.

Vigneron, S. (2003). La sphère des relations foncières des ruraux : L'exemple du cambrésis (1681-1791). *Histoire et Sociétés Rurales*, 20:53–77.

Wadhwa, D. C. (1989). Guaranteeing title to land. a preliminary study. *Economic and Political Weekly*, 24(41):2323–2334.

Zimmerman, F. J. and Carter, M. R. (1999). A dynamic option value for institutional change: Marketable property rights in the sahel. *American Journal of Agricultural Economics*, 81(2):467–478.

A Appendix

Table 7: Correlation table of variables used in the stability indicator

	housing value (000 VD)	income per head in (000VD)	insurance schemes subscription	rate of active members engaged in stable activities	saving amount (000VD)	average schooling years	number of chocks
housing value (000 VD)	1						
income per head in (000VD)	0.29	1					
insurance schemes subscription	0.14	0.17	1				
rate of active members engaged in stable activities	0.1	0.1	0.2	1			
saving amount (000VD)	0.25	0.47	0.16	0.02	1		
average schooling years	0.24	0.23	0.27	0.12	0.16	1	
number of chocks experienced in the last 5 years	-0.12	0.08	0	-0.02	-0.07	-0.07	1

Table 8: Variables used in regression models

Variable name	variable description	unit of measurement
total land area	Total size of a household's farm land holding	square meters
agr. productivity	agricultural income (including livestock farming) per square meter of farm land holding	000 VD
share of income from off-farm	Share of the income from off-farm activity in total household's income	%
share of active HH mber in off-farm	Share of members declaring off-farms job as main activity in the total number of active population (15-60) within the households	%
old	Takes the value of 1 if the household's head is older than 60 years old, and 0 if otherwise	{0,1}
LUC dummie	Takes the value of 1 if the plot is detained under a valid property title and 0 otherwise	{0,1}
irrigated plot dummie	Takes the value of 1 if the plot falls under an irrigation system and 0 if it's not the case	{0,1}
annual land dummie	Takes the value of one if the plot is cultivated with annual crops, and 0 if it's not the case	{0,1}
perenial land dummie	Takes the value of one if the plot is cultivated with perenial crops, and 0 if it's not the case	{0,1}
farm asset value	Total value of farm assets (machines, livestock, buildings)	000 VD
North Vietnam	Dummy variable, takes the value of 1 if the household lives in the North and 0 if the household lives in the South	{0,1}
Bonds to relatives	Composite indicator, aggregating three dummies: wether the household receive support from children {0,1}, wether the household is born in the commune {0,1}, wether the household recieve remittances {0,1}	{0,1,2,3}
housing value	Household's house value as declared by household	000 VD
income per head	Total income in household per active member in the household	000 VD
schooling	Average number of school years per member in the househod	years
insurance schemes subscription	Number of insurance schemes to which the household subscribes or participate, among : health insurance, life insurance, social insurance, vehicule insurance	{0,1,2,3,4}
savings	Total amount of monetary savings	000 VD
stability indicator	Composite indicator of stability (see above)	
LUC title	Share of the total land owned by household detained under a proper property title	%
number of sons	Number of sons in the household	
children support	dummy variable, equal 1 if the household receive any financial support from his children, 0 otherwise.	{0,1}
Shock	number of consumption chock experienced by the households in the last five years	{0,1,2,3,4,5}
indicator low stability	Dummy variable, equal 1 if the household is in the lowest centile of vulnerability.	{0,1}
indicator high stability	Dummy variable, equal 1 if the household is in the highest centile of vulnerability.	{0,1}

Table 9: Summary statistics

Variable	Mean	Std. Dev.	N
area	8950.960	27033.3	2323
pagr	10857.981	20225.542	2323
yoffrate	0.417	0.343	2322
ofmberrate1	0.501	0.373	2320
old	0.309	0.462	2320
LUCcult	75.946	27.655	2154
agrassets	1575.063	13650.719	2320
region	0.572	0.495	2323
support	1.805	0.864	2323
houseva	113678.109	169360.842	2323
yhead	6046.467	8944.782	2319
schooling	5.337	2.542	2320
insurancecount	1.056	0.968	2323
savings	10171.598	31891.408	2323
indxx	0	3.44	2319
inhson	0.731	0.847	2323
childout	0.45	0.498	2323
chock	0.663	0.982	2321
indxxlow	0.099	0.299	2347
indxxhigh	0.1	0.3	2319

Table 10: Estimation results : probit with Heckman selection

Variable	Coefficient	(Std. Err.)
Equation 1 : Model of sales		
Stability ind.	0.083	(0.028)
Age of hld head	-0.012	(0.011)
North Vietnam	-1.065	(0.273)
property title	-0.008	(0.004)
Agr. productivity	0.000	(0.000)
Total Land area	0.000	(0.000)
Number of sons	-0.089	(0.123)
Children support	0.055	(0.231)
Shock	0.103	(0.087)
Ind.lowest decile	0.319	(0.381)
Ind.highest decile	-0.443	(0.390)
Intercept	-0.547	(1.142)
Equation 2 : Selection Model : transfer		
Total land area	0.000	(0.000)
Agr. productivity	0.000	(0.000)
hld member off-farm	0.117	(0.096)
old	0.526	(0.075)
Property title	0.002	(0.001)
Agr. assets	0.000	(0.000)
North Vietnam	-0.089	(0.078)
Bonds to relatives	0.193	(0.045)
income per head	0.000	(0.000)
schooling	0.030	(0.014)
Intercept	-2.040	(0.171)
Equation 3 : athrho		
Intercept	0.601	(0.531)

rho=0.54 and Prob>chi2=0.1862; tstat between brackets

Table 11: Market transfers versus non market transfers, Logit Estimation results

Variable	Coefficient	(Std. Err.)
. estout1 market, style(tex) star t(par) stat(N ll chi2)	market	
Stability ind.	0.064	
	(1.576)	
old	-0.210	
	(-0.751)	
North	-1.606***	
	(-6.022)	
Property title	-0.009	
	(-1.751)	
Total land area	-0.000	
	(-0.691)	
Agr. productivity	-0.000*	
	(-2.132)	
Number of son	-0.411*	
	(-2.542)	
children support	-0.135	
	(-0.476)	
Shock	0.245	
	(0.997)	
ind. lowest decile	0.788	
	(1.789)	
ind. highest decile	-0.168	
	(-0.345)	
$_cons$	1.632**	
	(2.765)	
N	351.000	
log-likelihood	-213.526	
chi2	58.509	

Significance levels : $*: 10\%$ $**: 5\%$ $***: 1\%$