Land ownership as a safety net and land sales : a study among rural-urban migrants in Thailand

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Abstract

This paper proposes empirical insights to analyze the relationship between the safety net value of land and the determination of supply to the land sale market, using data collected among permanent rural-urban migrants in Thailand. As a general hypothesis, the safety net value provided by land ownership could hold back migrants' decisions to sell land, except for the case of distress sale. More precisely, Thai permanent rural-urban migrants with a greater non-land economic stability are expected to sell their land more frequently, as they credit it with a lower safety net value. The results of the paper confirm both the idea that Thai permanent rural-urban migrants with a greater economic stability are more likely to sell, and the idea of distress sales in case of livelihood shocks.

Keywords : Land Market, Vulnerability, Poverty, Income Shocks, Subsistence Agriculture. Jel code: O12, O13, O17; O53

1 INTRODUCTION

Recent years have seen the development of two major streams of literature in development economics. The first deals with the development of land markets and the effect on poverty reduction and economic efficiency (see Deininger and Feder, 2001; De Janvry et al., 2001, for review of the literature). The second has revived the concept of vulnerability and risk aversion of poor households and identified this as being salient in the mechanisms driving poverty (see Morduch, 1994; Dercon, 2004; Hulme and Shepherd, 2003, for a literature review). These two streams of literature have been combined to analyze a particular feature of rural land sale markets: the phenomenon of distress sales. Distress sales arise as desperate risk-coping mechanisms which increase the liquidity of land and create an inefficient supply on the land sale market (Carter and Mesbah, 1993; Ruben and Masset, 2003; Sahu et al., 2004; Deininger et al., 2009).

We believe that the relationship between the risk-coping strategies set by households in developing countries and the development of the land sale market is much more complex than the sole phenomenon of distress sales. Distress sales - i.e. selling land in case of shock- is an ex-post and last resort coping strategy (see Ruben and Masset, 2003). But for those who are not submitted to shocks, keeping land - i.e. not selling land - can also be seen as an insurance strategy implemented *ex ante*. Land has an intrinsic safety net or self-insurance function which is made more valuable through retention of ownership rights than through sale (De Janvry et al., 2001). When food, labour, financial or insurance markets are incomplete, land may indeed help to safeguard minimum levels of subsistence. Ownership rights on land not only guarantee staple food or agricultural income; they also provide credit collateral and a range of risk-coping strategies that we classify in this paper as the 'safety net value' of land.

Apart from the phenomenon of distress sales, the impact of this safety net value on the activity of the land sale market has hardly been studied empirically. This relationship could nevertheless have significant consequences on the development of land sale markets in the transitional phase of economic development. In particular, households leaving agriculture to undertake non-farm activities could be found to supply land to sale markets with an significant time-lag; hence delaying the rationalization of remaining landholdings in rural areas. Accordingly, this paper proposes to look empirically at the willingness of a particular category of households to sell land: permanent rural urban migrants, who are permanently opting out of agriculture and are potentially heterogeneous in their valuation of the land safety net. For this purpose, data was collected in Thailand among 467 permanent rural-urban migrants. These migrants have moved permanently to cities, i.e. with no conscious intent to return. Through occupational choice, they cease to be involved in rural land cultivation. Moreover, since unused land in Thailand can legally be seized by the State, they are inclined to transfer land permanently - as sales or gifts - or temporarily - as rentals or free loans. Interestingly, sales are not often used to transfer land rights by the Thai migrants studied.

The safety net function of land could be one way to explain this reluctance to sell land in lieu of other types of transfers. Retaining a safety net through land rights is particularily important for this migrant population, generally determined as vulnerable. First, land ownership may improve the sustainability of temporary return as a way to deal with catastrophic shocks. Secondly, retaining land may help maintain a relationship with rural risk-sharing networks (Promsopha, 2010).

Finally and in accordance with the present empirical strategy, rural-urban migrants display a significant heterogeneity in the degree of income risk they face and the non-land risk-coping strategies they implement. Hence, the safety net value that permament rural-urban migrants associate to rural land, and therefore their will-ingness to sell land, might differ according to their current level of economic stability. We test whether Thai permanent rural-urban migrants in terms of non-land economic stability. We use the methodology from Chaudhuri et al. (2002) to measure economic stability and lower the potential endogeneity in our estimation as far as possible.

Results show that migrant households who sell land are significantly more economically stable than those who do not sell land. Interestingly, households who have been submitted to consumption shocks also sell land more frequently than others. We conclude that vulnerable households are reluctant to sell land, except when the shocks they fear are realized. We therefore confirm both the idea of keeping ownership rights as a risk-coping strategy for migrant households with low levels of non-land economic stability, and the phenomenon of distress sale.

The next section of the paper (2) presents the main insights from the literature and outlines the theoretical framework. Section 3 gives an overview of land markets

and migration in Thailand. Section 4 presents the data. Section 5 explains the empirical strategy, section 6 discusses the main results of the research, and section 7 concludes.

2 A review of the literature

(a) Land as an insurance

When a number of markets fail, farm land acquires a multiplicity of functions which exceed the sole agricultural production function and generates imperfections on land markets (Binswanger et al., 1995; De Janvry et al., 2001). Among these, one function has been clearly identified by the economic literature as a risk-coping instrument: according to the asset-based insurance framework (Zimmerman and Carter, 2003), land is a liquid asset that cannot physically be destroyed and is resistant to inflation. Upon imperfections on insurance markets it is accumulated *ex ante* as a risk-coping mechanism and its insurance function materializes through sale when a shock occurs.

But if we look carefully, many more of the functions supplied by land carry a riskcoping component. First, land allows the production of staple food and as such improves the food security of poor households when food markets are incomplete (Maxwell and Wiebe, 1998, 1999; De Janvry et al., 2001). Secondly, land provides a source of self-employment when labour markets are imperfect, thin and fluctuating, and as such helps safeguard minimum levels of consumption (Binswanger et al., 1995; De Janvry et al., 2001; Jayne et al., 2003). This perception has been revived with the Asian financial crisis which was partially absorbed by a temporary increase in agricultural employment through access to land. A 'safety net' interpretation of this self-employment function is particularly appealing in economies where the market off-farm economy is rising, combining increased income opportunities with new sources of risk such as job layoff and macro-economic crisis. In this case, land ownership can be assimilated to risk diversification and a safety cushion.

Land also provides an access to credit which is decisive for *ex post* consumption smoothing (Udry, 1990; Deaton, 1992; Rosenzweig and Binswanger, 1993; Besley, 1995; Morduch, 1995). Land ownership as collateral is indeed more or less compulsory for access to formal credit (Eswaran and Kotwal, 1986; Binswanger et al., 1995; De Janvry et al., 2001), and might also generate access to informal money-borrowing (Diagne, 1999; Mohieldin and Wright, 2000).

Finally, land ownership probably plays a role in the functioning of risk-sharing networks, even more so when such risk-sharing networks operate along the natural line of land inheritance, i.e. matrilineality or patrilineality. Land temporary contracts such as sharecropping have already been observed to carry an insurance component, and have frequently been seen to be intertwined with credit provision for consumption smoothing (Otsuka et al., 1992). However, land ownership may also, on the one hand, guarantee the owner access to the risk-sharing network; and on the other hand, ease enforcement processes within this same risk-sharing network, specifically in limiting absentee or migrant owners from opting out of decision-making.

Land ownership therefore allows or eases the access to a range of risk-coping strategies that we call here the 'land safety net', as opposed to the 'non-land safety net' including all the risk-coping layouts accessible outside of land ownership.

(b) The insurance value of land and the market for land

The nature of the relationship between this land safety net function and land sale markets depends on which element of the safety net one looks at. On the one hand, the asset-based insurance materialized through land accumulation and distress sales generates additional supply of land to the sale market and may well encourage its activity and liquidity (Zimmerman and Carter, 2003; Vatsa, 2004; Carter et al., 2007). Distress sales nonetheless mainly affect the most vulnerable and asset-poor households submitted to severe shocks. Thus, it intensifies land concentration and inefficiencies in land distribution (Shearer et al., 1991). Distress sales have been confirmed empirically in various studies (Carter and Mesbah, 1993; Sarap, 1998; Ruben and Masset, 2003; Sahu et al., 2004; Deininger et al., 2009).

On the other hand, most aspects of the land safety net function - access to food, self-employment, credit or risk sharing - can only be realised if at least some components of the bundle of rights on land are retained by the household. The safety net value of land may therefore make households reluctant to give their holdings to the sales market; and therefore also potentially reduce the liquidity of markets. In a risky environment with multi-market failures, the safety net value of land ownership might be very high, increasing a potential gap between the land thirst coming from a credit-constrained demand-side and a low willingness to sell from a risk-adverse supply-side.

As a matter of fact, land sale is distinctive among all types of land transfers available to households since it implies an irreversible loss of the full bundle of land ownership rights together with the access to land risk-coping abilities. According to Platteau (2000), social security considerations may explain the observed reluctance of landholders to sell land (Migot-Adholla, 1991) even when they have moved to urban areas. Rentals, sharecropping contracts or even free loans might look much more attractive for households attaching a strong safety net value to land (Promsopha, 2010).

On a macro perspective, the safety net value of land is likely to be higher when nonland risk coping mechanisms are not available and when 'non-land' income sources are volatile. At the household level, the safety net value of land is likely to be higher for the households who are particularly vulnerable and have the weakest access to modern and cost effective risk-coping mechanisms. Households with a better access to stable non-land sources of income or to non-land insurance mechanisms might display *ceteris paribus* a lower valuation of the safety net function of land, and be more inclined to sell their land than others. This relation will not hold, however, for the most vulnerable households of the society when they are forced into selling to cope with shocks.

As an empirically testable proposition, we propose that households that are more economically stable - independently of their access to land - may also be found to sell their land more frequently. The safety net value of land will typically factor in the selling decision when social protection or private insurance do not exist, when access to credit depends on land collateral; or when labour markets are incomplete, and the off-farm economy is unsteady and offers only precarious low-skill employment prospects.

The effect of the safety function of land could particularly help to explain the willingness to sell of households leaving agriculture for off-farm activities in the industrialization phase of development. The decision to sell is indeed the product of two different ingredients: the decision to use or not use the land; and the decision to transfer ownership rights through sale in particular. Factors affecting the first type of decision might blur the readability of the factors affecting the second type. Think for instance of a household fully insured through a private financial scheme, but still optimally cultivating his entire farm holding. This household credits land with an almost zero safety net value, but will nevertheless not sell. But for households who are definitively exiting agriculture, through permanent migration for instance, the safety net function of land may be a prime factor in explaining why they would not necessarily release their plots to the sale market.

(c) Land ownership as a safety net, sale markets, and permanent rural-urban migrants

There is actually very little research analyzing or quantifying the impact of permanent rural urban migration on the evolution of land sale markets at the source location. Most studies have focused on the activation of a rental market through migration (Deininger and Jin, 2005); or have looked at sales markets as a causal push or pull factor in the decision to migrate (Chimhowu and Woodhouse, 2006). However, in a phase of industrial transition and structural change, permanent migration from rural to urban areas could reasonably be expected to influence the functioning of sale markets. More specifically, economic theory would expect it to increase the supply on sales markets and help the consolidation of farms.

Indeed, permanent migrants do not return to their village other than for occasional visits, have no intention of settling back in their village, and do not farm their own plots. As such, they either leave their holdings idle or transfer it, generally through sales, rental, free loans, and much less frequently, gifts (Promsopha, 2010). Permanent rural urban migrants would be expected to sell their land if markets were to be perfect, land would be valued only for agricultural production and land rights would be secure. The income generated through land sale would then be re-invested by the migrants more profitably. However, this situation is not necessarily observed, and permanent migrants are often found to hold on to their plots and to favour arrangements such as free loans or rentals in order to retain land rights (Sjaastad, 2003).

The literature on land markets development provides a few potential explanations to the reluctance of permanent migrants to sell land. First, in line with the standard theory of property rights, the nature of land rights and enforcement can impact the functioning of sales markets (see Demsetz, 1967; Libecap, 1989; Feder and Feeny, 1991)¹. If land is under communal tenure, the migrant may be constrained by community prohibitions on sales and thus release his plots to the community pool or loan it freely to his kin (Sjaastad, 2003; Platteau, 2000). Moreover, if land rights are not formally defined, transaction costs may be high enough to discourage migrants from sales transactions. Insecurity of land rights under freehold tenure systems may nonetheless have ambiguous effects on migrants' decisions to sell: under the threat of seeing land plots seized and lost, migrants may be tempted to sell immediately (for some evidence on insecure rights and sales see Ruben and Masset, 2003). Lastly, in the spirit of the evolutionary view of land rights (see Platteau, 1996), the lower the market value of land - given low population densities or commercialization of agriculture- the lower the activity in land markets. In this respect, the characteristics of the land itself may factor in the selling decision: plots of a greater quality allowing the cultivation of cash crops may have a greater market value and be sold more frequently.

From a different perspective, retaining land may also make sense if identity considerations affect migrants' selling decisions: migrants may want to keep their land in order to maintain some form of cultural identity (Cleveland and Chang, 2009). In this respect, migration duration and the frequency of visits back home may matter in shaping migrants' sentimental ties with their source locations. Long-planned retirement strategies have also been stated as motivation to return home (Dustmann and Kirchkamp, 2002) and therefore to retain the land throughout migration. Finally, the relatively small number of land sales observed in permanent migrant populations may also be a reflection of demand side constraints. Indeed, drastic credit rationing in rural areas could obstruct purchases by local farmers at the source location. Thus, permanent migrants would be willing to sell but be unable to find a purchaser.

This last proposition only holds if market imperfections generate additional nonagricultural functions to the land, which prevent the market from clearing. The safety net value of land is one of those functions, and might seem particularily appealing to explain the reluctance to sell of permanent rural urban migrants. First, a growing body of research underlines that migration carries its own risks: it might displace migrants from their political, social and economic rights (Li, 2005) and ex-

¹For a review see Platteau (2000); Deininger and Feder (2001).

poses them to 'urban risk', such as unemployment (Jayaweera and Anderson, 2008). Secondly, land ownership in migrants' source location may ease the process of return in case of failed migration or chronic unemployment. The literature on return migration gives quite contradictory results on the motives and sustainability of return (Ilahi, 1999). Nonetheless, in the event of severe shocks, leaving the door open to return may appear to migrants as an important safety cushion - even if used only as a last resort. Furthermore, access to land has been stated earlier in the paper to be closely interrelated with access to risk-sharing networks. Permanent migrants at subsistential risk could therefore favour arrangements that allow to keep a hand on land and hence through land maintain relationships with rural risk-sharing networks. For instance, favouring free loans to relatives - with no direct compensation - may grant migrants access to solidarity from those same relatives. On the same lines, giving relatives priority over a rental agreement when land is scarce may be repaid to the migrant later through reciprocity.

In summary, retaining land ownership in the village of origin, even with no *a priori* plan to return, might therefore appear as a potential safety net for those migrants who have not secured their livelihood. Migrants who have secured a stable position in their new location and do not feel the threat of forced return migrations may place a lower emphasis on the land safety net function. Consequently, they may also be more willing to sell land to benefit from the income flows generated by sale and enjoy the immediate profit.

Applying the idea of land ownership as a safety net to migrants and their land sale decision nonetheless requires two observations. First, migration has traditionally been viewed in the literature as a risk-coping strategy implemented to diversify risk (Katz and Stark, 1986; Hussein and Nelson, 1998; Chen et al., 2003; Wouterse and Taylor, 2008). Migrants may therefore appear as a specific population in their relation to risk. Secondly, lack of land is a common push factor in the decision to migrate, so that permanent migrants may have land holdings which are much smaller than national averages. Thus, there might be a minimum threshold to the size of landholdings in order for land to provide a safety net. These observations prove that caution is necessary when identifying a potential selection bias in the permanent migrant population, and indicate the need to acknowledge the process of migration itself in the empirical identification strategy. Conclusions made for this particular population are otherwise difficult to extend to the population as a whole without further inquiries.

3 Land and risk-coping mechanisms in Thailand

(a) Land markets in Thailand

Thailand is of particular interest for our story. Since its large scale titling programs in the 1980's it has been described as a pilot and successful case for developing land and credit markets through the formalization of land rights (Rattanabirabongse et al., 1998). That such titling programs have had an impact on access to formal credit in Thailand is of little doubt (Feder and Onchan, 1987; Chalamwong and Feder, 1988). However, the real impact of the formalization of land rights on the development of land markets is not as transparent. The existence of land markets in Thailand can be traced back to the late 19th century, at least for the most fertile areas of the central plain (Mehl, 1986). The land pattern in Thailand displays a low concentration of land, a dominance of small-holders in agriculture with a very low number of landless farmers, and a moderate activity both on the rental² and the sale market (Phelinas, 1995; Srijantr and Molle, 2000; Phelinas, 2001; Molle and Srijantr, 2003)³. Property rights are formally and informally detained by individuals or more often household units (Mehl, 1986).

The usual hindrance of sales market activity does not fully explain this stylized fact. The definition of property rights is not overly conflictual or imprecise and according to Phelinas (2001) around 80 per cent of land plots were titled in the 1990's. Agriculture is increasingly commodified, with farmers devoting a growing part of their fields to cash crops. Average size of land holdings is typically small and decreasing since the closure of the land frontier in the 1980's (Phelinas, 2001). The thirst for land purchase is very explicit. But this does not seem to have created a spur in the market, as the evolutionary theory of land rights had predicted⁴. Financial markets are, as elsewhere, imperfect (Paulson and Townsend, 2004). However, access to fi-

 $^{^{2}}$ The fact that the rental market has not greatly developed since the closing of the land frontier is surprising in itself (Srijantr and Molle, 2000).

³According to Phelinas (1995), the egalitarian structure of land ownership in Thailand is mainly the consequence of legal limits on the quantity of land Thai elites were able to appropriate. The rate of landlessness is around 2 per cent of the farmer population.

⁴According to Richter (2005), only 5 per cent of the land is rented in the region we will study here, the Northeast of Thailand, against 17 per cent for the North.

nancial intermediation has been improved throughout the country during the 1990's and 2000's (Jeong and Townsend, 2007; Kaboski and Townsend, 2009). Finally, sentimental attachment to the land is not prevailing, probably because the closure of the land frontier is recent and Thai peasants have experienced a long history of mobility. For most Thai farmers, one particular plot is as good as another, provided its production abilities are equivalent (Mehl, 1986). There is also no evidence of a community ban or caveat on land sales.

Typically, in such a situation, we would naively expect that markets, rental if not sale, play an important part in the redistribution of land. Nonetheless, although the data are scarce, it seems that ownership and use rights mainly change hands through non-market transfers: inheritance of course, but also, more surprisingly through free loans and intra-generational gifts (Phelinas, 2001; Molle, 2002; Molle and Srijantr, 2003). Sales are actually not very frequent relative to the other types of individual transfer, especially in some areas of the Northeast.

(b) Rural-urban migration and the land markets in Thailand

Rural-urban migration has also been a sizeable phenomenon since the mid twentieth century. The policy emphasis has long been on permanent migration, in the hope that it would help urbanization and alleviate poverty pressure in rural areas (Singhanetra-Renard, 1999). Circular or temporary migration has been acknowledged more recently. Migration in Thailand is the result of the usual push and pull factors⁵, and permanent migration is only a fragment of a very complex migration pattern including seasonal or intra-household migration as a diversification strategy⁶. Small plots of land, rather than landlessness, is likely to generate migration movements (Vanwey, 2003).

Many studies have focused on the effect of migration, temporal or permanent, on

⁵Permanent rural-urban migration is the result both of push factors such as lack of opportunities in rural areas due to lack of land or scarcity of off-farm jobs; and of pulling factors such as aspirations to benefit from the urban life, at least for the better educated households (Chamratrithirong et al., 1995; Richter, 2005).

⁶Many males and females under 25 years old move to urban areas to search for employment. This is both the consequence of life-cycle and of the structure of urban low-skill labor which is more likely to attract young people.

the source locations (Vanwey, 2004). However, none has yet looked in depth at the effects of such migration on the distribution of land rights and the development of land markets.

Rural-urban migration is mainly a 'Northeast to Bangkok story' (Chamratrithirong et al., 1995). The Northeast is the poorest area of the country, although it has been developing rapidly in the last 20 years. But even though migration from the Northeastern region is high, Grandstaff et al. (2009) offer mixed conclusions on the ability of out-migration to stimulate land markets, to slow the fragmentation of plots, and to drive land redistribution. Interestingly, although the Northeast is the main source of rural-urban migration, it has not yet created a radical change in land rights distribution, nor has it greatly activitated land markets, either sale or rental. Migrants, even when permanently settled in their destination locations, often keep their landholdings and leave land freely to kin for minimal compensation. Free or quasi-free loans are actually favored by migrants when it comes to transferring land; and if rental or sharecropping are frequently seen for migrants' highlands suitable for cash cropping, it is extremely rare for migrants' rice fields (Promsopha, 2010).

(c) Land as a safety net and Thai rural-urban migrants

The safety net value of land seems a plausible explanation to the pattern of land transfers observed among permanent migrant households. First, land has a strong 'security' value for the Thais in general, even though it does not create the sentimental attachment found elsewhere. Land ownership has long been at the center of households' asset strategy, and a good predictor of household's wealth (Moerman, 1968). The value of land is clearly attached to its safety net and food production component. In a very stimulating study, Vanwey (2003) states that the "second economic motivation [in keeping land ownership] is the security provided by land. Owning at least a small piece of land guarantees that a household will always be able to produce at least a little food. Owning a more substantial piece of land (even if not large enough to support a family) provides old age security as well as security against unemployment. Socially, land ownership provides less quantifiable but no less important benefits. Individuals can maintain symbolic membership in a community through continuing to own land in the community, regardless of where they

work" (Vanwey, 2003, p. 125).

Land ownership is in fact a determinant of security in the generic Thai culture. Land is rice, and rice is, as so well stated by Moerman (1968) or Scott (1976), survival. Today still, even with the development of highland cash crops culture which yield profitable income, rice fields are still valued, and local farmers who completely abandon rice production for cash crops are not numerous (Barnaud et al., 2006). However, land is also much more: it is a key to independent income generation, to credit provision (Ahlin and Townsend, 2007), and to insurance of contractual agreement with relatives. This last point has never been subjected to indepth analysis in Thai studies. Vanwey (2004) or Rigg (2003), in the context of the anthropology of Thai rural life underline the centrality of land ownership to maintaining membership in the community. This is of specific importance for the migrants, who can make intertemporal contracts with their relatives - generally matrilineal networks⁷- who use the migrants' land free or quasi-free of charges (Promsopha, 2010).

Land's security is particularily relevant for migrants in Thailand, as they are generally found to insure themselves through safeguarding a possibility to return to their village in case of failure. Land ownership and remittances are two ways to do so (Vanwey, 2003, 2004), as they allow to maintain relationships with relatives back home, and to stay in some form of reciprocal relations with potential future claims for assistance. The 1997 and 2007-08 crisis highlighted this: with the surge of unemployment, millions of migrants returned home to farm their land⁸. Those returns were nonetheless often temporary and generally followed by re-migration (Grandstaff et al., 2009). This would seem to suggest that temporary return is sometimes used in Thailand as a risk-coping strategy.

Apart from land ownership, risk-coping mechanisms available to migrant households are, as elsewhere, mainly informal. Formal private insurance is lacking. Social protection has only a marginal ability to smooth consumption despite the growing

⁷The preferential risk-sharing network of a household in Thailand comes from the wife's network and constitutes her parents and siblings. Land is traditionally bequeathed in equal share to daughters, with sons accessing land through marriage (Phelinas, 1995; Whittaker, 1999). With an increasing land scarcity, this pattern is nonetheless shifting to equal share among daughters and sons.

⁸According to the survey, around 1.5 or 2 millions returnees have been recorded in the period 1997-98 (Grandstaff et al., 2009).

involvement of the State in this matter⁹. Migrants therefore use credit from informal money lenders or kin; social transfers or reciprocity within urban risk-sharing networks; a portfolio of assets which in an urban setting are generally cars, housing, gold, hoading or bank saving accounts. Migrants' ability to insure against shocks is also probably improved by social capital availability and access to a risk-sharing network in their hometown¹⁰. There is, consequently, a significant heterogeneity in migrant's economic stability.

4 Data

(a) Survey methodology

Data were collected in the Spring 2010 among 467 permanent rural-urban migrant households from the Northeast of Thailand, now settled in Bangkok. We decided to restrict our sample to migrants from the Northeast to ease the analysis of inheritance and other cultural features likely to influence the bond to the land; but also because migrants from the Northeast are the most numerous and visible. This is of course at the expense of the potential generalization of our results. The Northeast is generally the poorest region of Thailand, although its poverty rates have rapidly decreased since the beginning of the 1990's (Richter, 2005), and average income differs greatly among its 20 provinces.

The surveyed population consists of permanent rural-urban households and respondents had to fulfill a set of conditions to be eligible for the survey. They had to have owned land at the time of migration¹¹, they had to be full migrant households with no household members, children or spouse, left in their village; they had to be staying in Bangkok the whole year with visits home of no longer than a month; and were not to farm their land themselves. These last conditions are necessary to ensure that respondents' plots are available to transfer and therefore to sale. Finally,

⁹Social protection has been expending fast since the administration of prime minister Thaksin Chinawatra, which consolidated and universalized health insurance, paved the way for unemployment compensation and the pension system (Looney, 2004).

¹⁰Social capital is central in the decision to migrate, in the localization of migration, and in the access to employment upon arrival (Garip, 2008).

 $^{^{11}\}mathrm{If}$ our respondent did not own land, our study made little sense.

our respondent had to have no intention of returning to the village voluntarily. A main concern of the survey is its representativity. Population Census are available in Thailand, but in the Spring 2010, the last census available was made in 2000. Obtaining a random sample from this census would have in fact been very difficult, as the urban population and migrants in particular are very mobile, and there is no such referent as a village head to provide new contact addresses. Drawing a sample of migrants from the 2000 sample would therefore have introduced a selection bias in interviewing only the migrants who have not moved since 2000, rather than providing a representative population of migrant. We therefore had to resort to a much more primitive methodology to select our respondents. In order to reduce potential selectivity bias, we multiplied the sampling methodologies to approach respondents: migrants were approached in areas of varying affluence; through systematic sampling of randomly chosen street and workplaces; through accidental sampling¹²; and snowballing. This does not insure that our sample is representative, specifically knowing sample size, but we hope to have reduced the potential bias as much as technically possible.

We computed basic statistics from our sample to compare with some nationally representative reports (UNDP, 2009), and found no major discrepancies.

Surveying migrants in their urban environment is arduous: they have little free time and it is hard to gain their trust in a place like Bangkok where there is no trustworthy spokesman. The design of the questionnaire was therefore a compromise between aiming to gather precise and quantifiable information, and avoiding the risk of initiating a high rate of non-response. Data were collected on households' basic characteristics: land holdings, history of migration and land transfers including sales, rentals, gifts and free loans, the economic situation of households focused on economic stability or vulnerability, and the access to both rural and urban risksharing networks.

 $^{^{12}\}mathrm{Using}$ a randomized track where the enumerator approaches potential respondents close at hand.

(b) Basic descriptive statistics: Land transfers

Household heads in our sample have on average 43 years and in 90 per cent of the cases are males. Many studies on rural-urban migration in Thailand find that migrants are typically young individuals and females (Chamratrithirong et al., 1995): this finding does in fact not hold when we consider only permanent and full household migration and exclude temporary and individual migration.

The migrant households interviewed have left their village in average 16 years ago. 86 per cent declare farming to be their main occupation before moving. Almost half of our sample cite appeal for urban life as the main reason to migrate. 19 per cent declare their goal to be future in-farm investment: this might have important implications on their decision to sell. Other reasons to migrate are, in order of importance, career concerns, lack of land, and education motives.

Sampled households own on average 14 rai of land¹³, which is very small and much less than the Northeast regional average. This is not that surprising since lack of land is a common push factor in the decision to migrate. Almost 90 per cent of land holdings are rice fields, with the remainder being highland used for the cultivation of cash crops such as sugarcane, cassava, rubber, fruit and vegetable, or other tree plantations. 85 per cent of the households had a full ownership title on all their plots, with 10 per cent detaining no legal title at all¹⁴. This is equivalent to the numbers proposed by Phelinas (2001) in various provinces of the Northeast. Finally, only 11 per cent of the sampled migrants households had ever bought land, with the remaining households having accessed land only through inter-vivo or post-mortem inheritance. The ratio of purchases might seem low by international standards, but is consistent with the recorded facts in Northeast Thailand (Phelinas, 2001).

12 per cent of the migrant households we interviewed had sold part or all of their land holdings since moving. 18 per cent of the sold plots were highland - highland being therefore over-represented in sales - and 81 per cent of these plots carried a full legal title, which is lower than the numbers for the full sample. Property titles do not therefore seem compulsory to engage in a sale transaction. Almost half of the sale transactions were made with siblings, a quarter with outsiders (someone that the household did not know prior to the transaction), and the remainder with

 $^{^{13}14}$ rai correspond to around 2.24 hectares.

¹⁴The 5 remaining per cent own incomplete titles with no legal power to sell.

parents, children, or neighbors. Interestingly then, land sales primarily occur with people that the household had/have/will have relationships with.

Plots that are not sold are exchanged through two main channels: free loans and some form of sharecropping or rental arrangement. Free loans are in the majority: 73 per cent of the migrant households loan their plots for free, 11 per cent loan their plot for free but declare a small compensation in kind, eight per cent leave their plot in sharecropping arrangements and six per cent rent it at a fix price¹⁵. The land market, whether rental or sale, was therefore not widely used by migrants to transfer their plots, in benefit to free loans.

Basic descriptive statistics: Economic situation

The main occupation of our sampled migrants is, unsurprisingly, low-skill factory employment, street selling, or taxi driving. These occupations are generally unstable, sensitive to macro economic shocks and with a high rate of turnover, although the actual situation depends on the size of factory¹⁶ on the amount of capital invested in the street selling business, and on the status of the taxi-driver¹⁷. Self-employed activities including street selling and more steady businesses are overly represented as they involve 42 per cent of respondent households. Only four per cent of the sample had a member employed as a government worker, and other stable occupations such as office work or high-skilled positions are not frequently accessed.

14 per cent of the migrant households in our sample have achieved a university degree of education. This means half of the households have at least one member with a full secondary education. This education performance does not, nonetheless, translate into equivalent output in high skilled jobs, as seen above. Education, therefore, may not be the grail of consumption security described by Rigg and Salamanca (2009), at least for the population we observe.

18 per cent of households declare to have suffered from unemployment shocks, and 64 per cent that they have experienced consumption strain. 66 per cent of the sample

 $^{^{15}\}mathrm{We}$ find almost no land left unused, as unused land can be seized by the State according to Thai Law.

 $^{^{16}\}mathrm{Bigger}$ factories resist economic shocks better and are legally obliged to provide lay-off compensations or health insurance.

¹⁷Independent taxi-drivers own their car and are generally better off.

migrant households have known credit constraint, i.e. have been refused a loan, or have not applied for one for fear of being refused. This constraint might be lowered by access to a rural and urban risk-sharing network: 82 per cent of the sample have close ties with relatives in Bangkok, of which half have ties with relatives enjoying a better economic situation than the migrant's. 60 per cent of our respondents admit to having already borrowed money from their relatives in Bangkok, compared to 52 per cent of village relatives.

Overall, it seems that most of the permanent rural-urban migrants belong to the vulnerable classes of Bangkok, and that their access to efficient risk-coping mechanisms are limited.

5 Estimation strategy

(a) Main estimation strategy

The purpose of the study is to evaluate the impact of the safety net value of land on migrants' decision to sell, under the hypothesis that migrants' valuation of the safety-net function of land is heterogeneous and depends on their access to non-land economic stability. We propose to estimate the probability that a permanent migrant household will sell its plot according to his non-land economic stability level and a set of control variable, using a probit specification.

$$Pr(S_i = 1) = \phi(\beta_0 + \beta_1 Z_i + \beta_2 X_i) \tag{1}$$

Where $S_i = 1$ if the permanent migrant household $i \in \{1, ..., n\}$ has sold land since migrating and $S_i = 0$ if the permanent migrant household i has not sold any land. Z_i is a measure of the migrant household non-land economic stability, X_i is a vector of control variables, β is a set of unknown parameters, and ϕ is the cumulative distribution function of the standard normal distribution. Our specification of S_i covers an underlying relationship of the type $S_i = \begin{cases} 1 & if S_i^{share} > 0 \\ 0 & otherwise \end{cases}$ with S_i^{share} is the share of the total land holding which is sold by migrant household i.

Entirely selling farm holdings rather than piecemeal might generate very distinct effects on migrants' access to risk coping through land. Therefore, the quantity of land sold might matter in the relationship between the non-land economic stability and the decision to sell. Economically vulnerable households exposed to extreme consumption shocks might for instance sell only parts of their holdings, and keep the rest of it for future risk-coping eventualities, whereas very stable households would sell all their holdings at once as there is no necessity for a land safety-net value. The binary specification of S_i ignore this potential outcome, therefore we also want to explain the share of the total land holding which is sold. An OLS estimation would lead to biased estimates here as almost 90 per cent of the sample has sold no land at all. In addition to the probit, we therefore estimate a tobit methodology, and censor the left hand observation when $S_i^{share} = 0$.

(b) Measuring vulnerability

The core of our estimation strategy depends on the assessment of the non-land economic stability of households. The non-land economic stability is not directly observable and depends on various dimensions of a migrant's life, from his source of income to his relationship with a risk-sharing network or access to credit. A clear measurement implies a clear theoretical definition: economic stability is understood here as being a function of the probability to fall under a socially defined standard of poverty. It is in fact decreasing in the probability to fall under the poverty line. A household is regarded as perfectly stable if it has a null probability of falling under the poverty line. In more general terms, it implies that stable households have no risk of suffering from poverty incidents.

In this sense, the economic stability is the reversal of the concept of economic vulnerability, which has been widely discussed in the literature (see Alwang et al., 2001; Dercon, 2006; Bhattamishra and Barrett, 2010). The notion of vulnerability has become increasingly prominent in the economic literature to account for poverty trajectories in the presence of uninsured risks. Due to its novelty, the notion of vulnerability is associated with many different definitions, each definition leading to a specific measurement methodology (Hoddinott and Quisumbing, 2010). We use here the idea of vulnerability as expected poverty, in the spirit of Chaudhuri et al. (2002). According to this view, vulnerability increases when the probability of falling under the poverty line, or of being in 'danger' in the future, increases (Calvo and Dercon, 2005). In a more general perspective, it is understood as a function that increases with the probability of future poverty. This probability depends both on the variability of income or consumption and on its average levels.

In this sense, economic stability is indeed the exact inverse of economic vulnerability. We state that $Z_i = -(V_i)$, where V_i is a measure of the economic vulnerability of an individual household *i*. Referring to the concept of vulnerability is actually convenient because measurement methodologies already exist in the literature. In general, vulnerability as expected poverty is best measured with panel data which allow an evaluation of income means and variance over time (Calvo and Dercon, 2005; Ligon and Schechter, 2003). We, unfortunately, do not have such panel data. Instead we use the methodology from Chaudhuri et al. (2002) to measure vulnerability with cross-section data. This methodology proposes to estimate a consumption function and to derive the estimated mean and variance of consumption using 3 step feasible least squares. The basic logic behind this methodology assumes first that expected consumption can be functionally derived from basic households' characteristics, and secondly that the disturbance term in the estimation of the consumption function can be understood as proxying idyosyncratic shocks and income variance. It is close to the more classical measure of poverty, but differs in making the assumption that the disturbance term of the consumption function depends on individual characteristics.

Rather than calling upon a consumption function as in Chaudhuri et al. (2002), we base our measurement on an income function. The first rational behind this choice brings us back to our data: income reports are of a much better quality than the consumption reports. Consumption was hard to compute for respondents, implying a high rate of non-response and a discrepancy or inaccuracy in their accounts. Income accounts, on the other hand, were more detailed and informed. Secondly, income is sometimes found as a substitute to consumption in poverty measures when consumption information are missing or inaccurate (Ravallion, 1996; Meyer and Sullivan, 2003). Finally, using income is not as bothersome for urban households whose consumption is largely auto-produced.

¹⁸Migrants might also receive bags of rice when visiting their rural relatives or consume some of the food produced in a street selling business, but this is, from our field accounts, marginal relative to total consumption, especially as our respondents do not farm their own fields.

Based on Chaudhuri et al. (2002), the income function is as follow:

$$\ln Y_i = \eta C_i + e_i \tag{2}$$

Where $\ln Y_i$ is the logarithm of household *i* annual income Y_i , C_i is a bundle of characteristics of household *i*, η is a vector of parameters and e_i is a mean zero disturbance term. This disturbance term captures idiosyncratic shocks explaining the different income levels of households otherwise equivalent. The variance of the error disturbance term depends on the same households characteristics C_i . To obtain a measure of economic stability, we estimate both income mean and income variance using 3 steps feasible least squares in order to deal with heterosedasticity:

$$\hat{E}\left[\ln Y_i \mid C_i\right] = C_i \hat{\eta} \tag{3}$$

$$\hat{V}\left[\ln Y_i \mid C_i\right] = \hat{\sigma}_{e,i} = C_i \hat{\theta} \tag{4}$$

Since we posed economic stability as the inverse of vulnerability, we therefore obtain:

$$\hat{Z}_{i} = -(\hat{V}_{i}) = -\left\{\phi\left(\frac{\ln z - \hat{E}\left[\ln Y_{i} \mid C_{i}\right]}{\sqrt{\hat{V}\left[\ln Y_{i} \mid C_{i}\right]}}\right)\right\}$$
(5)

where ϕ is the cumulative distribution function of the standard normal distribution and z is the poverty line. We do not use the official poverty line set for Bangkok compound (UNDP, 2009), which is much too low and identifies an underrated 2 per cent of Bangkok population as being 'poor' (UNDP, 2009). Instead, we use the minimum wage as a base for the poverty line. The minimum wage indeed seems to be a good approximation of a minimum acceptable livelihood in Bangkok, in that it is close to a natural wage. The minimum wage in Thailand is indeed defined in a narrow sense - to offer sufficiency to a single person. Moreover, the minimum wage is determined at the provincial level, which allows to account for significant provincial variations in the cost of living. The cost of living is indeed significantly higher in Bangkok than in the rest of the country, a difference which is not captured by the national official poverty line. We use the 2010 minimum wage level for Bangkok compound. We expected the parameter β_1 of this variable of economic stability \hat{Z}_i to be positive¹⁹.

Summary statistics on the measure of stability are presented in table 4.1 and the result from the first stage OLS estimation of the income function (equation (4.2)) are proposed in table 4.2. As the negative size of the stability variable complicates the interpretation of its value, we transform it by adding 1. Households with a stability of zero face a certain outcome of being under the poverty line and are said to be fully vulnerable. Those with a stability of 1 have a null probability to fall under the poverty line and are therefore classified as perfectly stable. Between these two extremes, stability increases when the stability and potentially important parts of the non-land economic stability of migrant households (table 4.3). Our estimate of economic stability is tightly related to both estimated level and variability of income. It is negatively related to income shocks, but positively to education, asset ownership (car and house), savings, or the stability of employment.

[TABLES 4.1 AND 4.2 AND 4.3 HERE]

Most papers using the expected poverty approach to measure vulnerability impose a threshold in the estimated probability to define households that are vulnerable. Since our interest relates to the continuous value of the estimated probability, we do not need to impose such a threshold here. As stated in section 4.2, the relationship between the economic non-land stability of migrant households and their decision to sell land might not be linear, as a consequence of distress sales. To capture a potential non-linearity, we propose to introduce the square of our economic stability variable.

(c) Control variables

The measurement of stability that we propose measures overall economic stability of migrant households and not the non-land economic stability specifically. To improve our estimates, we also control for leading dimensions of the non-land economic

 $^{^{19}\}mathrm{A}$ k density test insures that our model satisfies the conditions for normality assume in equation (4.5).

stability of migrant households. These dimensions include: secondary education attainment; yearly income; asset wealth captured by house and car ownership; constraints on credit access with a dummy for households who have been refused a loan or have desisted from applying for fear of being refused; the stability of employment²⁰; public sector employment; and the amount of savings. As these dimensions are redundant with the summary indicator of economic stability presented in the previous subsection, we do not include them in the regressions.

We also check whether households experienced on consumption strain²¹, and whether households have suffered unemployment periods. Controlling for shocks might seem redundant in regard to the variable of economic stability. Nonetheless, we believe that the probability of falling under the poverty line or receiving a shock, and the number of shocks which already occurred, are distinct realities, particularly for our purposes. Indeed, a household vulnerable to shocks might be keeping land to insure in case of shock but might also be selling land when a severe shock actually occurs. To account for other factors that might influence the decision to sell land, we construct several additional control variables capturing characteristics relative to household structure, migration history, risk-sharing networks, and land holdings. These variables capture the various determinants of land sales described in the literature and in sections 4.2 and 4.3. Household specific characteristics include whether the household head is female, the age of household head and the size of the household. Migration specific variables include whether the household has migrated with the aim of future in-farm investment, because of lack of land access, or due to education aspirations; and the number of years elapsed since the household moved to Bangkok. Variables concerned with the risk-sharing network accessible to the household combine the frequency of visits made to the village in a year; whether the household remits money to his village relatives; whether the migrant household has richer relatives in the village; and whether he has richer relatives in Bangkok. This last variable can also be understood as an element of the non-land economic stability of migrant households. Finally, land holding characteristics include whether households detain full ownership titles on their plots, whether they own highlands

 $^{^{20}}$ We measure the stability of employment as the share of occupation type in the household which can be classified as stable, depending both on the nature of the job and of the employer.

²¹We measure shocks with a dummy equal to one if the household declares financial difficulties which made it hard to consume as usual in the last five years and zero otherwise.

suitable for cash cropping; total size of land holdings; and whether migrant households have ever bought plots, as this creates an experience of the sale market and because purchased plots are said to be more easily sold. Summary statistics of these control variables are proposed in table 1.

(d) For further robustness

First, to insure that there is no risk of reverse causality between the economic stability of households and their probability to sell, we introduce an artificial lag in the measure of stability. For the selling households, the components building the non-land economic stability have been calibrated to represent the situation before the time of the transaction²². Moreover, respondents who had not sold their holdings were asked if they had plans to sell land in the future. They could respond either "definitely not", "yes, maybe", or "yes, definitely". We therefore extend the model to account for those households who demonstrate a firm intent to sell (answered "yes definitely"). We revise the dependent variable in (4.1) to be S_i^{will} now equal to one if the household has sold or will definitely sell land. This is maybe not very orthodox, but it potentially expands our analysis. We now have:

$$Pr(S_i^{will} = 1) = \phi(\beta_0 + \beta_1 Z_i + \beta_2 X_i) \tag{6}$$

The main shortcoming of our estimation is the potential endogeneity bias. The most frequent methodologies proposed in the economic literature to deal with this problem are lagged and/or instrumental variables. Unfortunately, we only have cross-section data which, in addition, do not provide a strong and valid instrument of the non-land economic stability.

²²Information has been adjusted to represent the situation before the sales transaction for income, consumption, asset ownership, savings, credit constraint, consumption shocks, occupation, and business ownership.

6 Results

Results are proposed in tables 4.4, 4.5 and 4.6. Table 4.4 gives the probit results for the estimation of equation (1), i.e. of the probability that the household has sold land according to its economic stability and a set of control variables. The two first specifications give the results for a linear estimation of the variable of economic stability with no control variables at all (1) or excluding controls on the dimensions of economic vulnerability (2). Specification (3) looks at the individual effects of some dimensions of stability in the relationship between economic stability and the probability to sell, and specification (4) incorporates the square value of the economic stability to capture potential non-linearity.

Table 4.5 is identical except that it looks at the model with the extended dependent variable S_i^{will} from equation (4.6), an estimation of the probability that a household has sold or will definitely sell land. Finally, table 6 gives the results from the tobit estimation on the share of land holdings sold, which mostly back up results from the probits.

[INSERT TABLE 4.4 and TABLE 4.5 and TABLE 4.6 HERE]

The coefficient of the economic stability is significant, and indicates a positive and stable relationship with the probability to sell in all specifications, and in both models from tables 4.2 and 4.3, as well as in the tobit estimation. Interestingly, the coefficient of the indicator of economic stability is also significant when we explain the probability that a household has sold or will sell (table 4.5). Stable households are likely to know in advance if they are going to sell, whereas vulnerable household do not make this type of decision ahead of time but rather when faced with an unexpected shock. Our variable S_i^{will} therefore self-selects stable households with definite intentions of selling land.

Specifications (3) in table 4.4, 4.5 and 4.6 show the effects of particular dimensions of stability on the probability to sell. Education levels, wealth in the form of car or house ownership and the stability of migrant's jobs - all measured before the sale took place - are all found to significantly and positively correlate with the probability to sell land. Credit constrained households, on the other hand, are found to sell land less frequently. The level of cash savings does not seem to influence the selling decision. Overall, it seems that the most important alternatives to land in securing livelihood are education, asset ownership, and occupational options.

The non-linearity in the relationship between the economic stability of migrant households and their decision to sell land is not confirmed by our data, as the coefficient of the square value of stability is insignificant, while not affecting the estimates for the variable of economic stability. Results therefore confirm a linear relationship. To strengthen our conclusions, we also created two additional dummies corresponding respectively to the highest and lowest percentiles of the economic stability variables: we did not find any significant results. We do not report these results here due to space limitations.

The linearity found in the relationship between economic stability and the probability to sell land does not however invalidate the existence of a distress sale phenomenon in our data. The coefficient of the dummy capturing consumption shocks is indeed positive and strongly significant in tables 4.4, 4.5 and 4.6 and in all their specifications, implying that suffering consumption shocks makes sale more likely. Employment shocks have a significant positive impact only on the probability that households have sold or will definitely sell (table 4.5), or when we do not add any control variable in the sale model (first specification (1) of table 4.4). The coexistence of positive estimates both for the economic stability of households and the previous occurrence of shocks confirm that insurance considerations can both generate sales or hold them back. Sales are made when unexpected shocks occur, but in the absence of shocks, migrant households prefer to retain their land unless their stable situation renders this unnecessary. We also introduced two interaction variables, one for economic stability and consumption shock dummy (stab x shock), and one for economic stability and unemployment shock (stab x unempl). The idea was to ascertain whether the degree of stability affects the response to shocks through sales decisions. As none of those interactions were found to be significant, we do not report the results.

Some of the results from the control variables are also worth noting. Households who migrated due to lack of access to land are more likely to sell land: this is not surprising as a very small size of holding does not permit self-sufficiency in income or in food in the event an income shock forces the household to return. The safetynet value of land would, in such cases, be compromised. The length of migration is also significantly and positively related to the probability to sell land in the S_i^{will} model (table 4.5) and specification (3) of the tobit model (table 4.6). The lack of significance in other specifications probably comes from the fact that the duration of migration is strongly correlated to the economic stability, and to the frequency of visits back home which is significant in most specifications. A basic interpretation of these results suggests that the longer a migrant has settled, the more stable his economic situation, the less he visits his relatives back home, and the lower are his aspirations to retain land against the eventuality of a hypothetical forced return.

Access to richer relatives in the village is also positively related to the probability to sell. We may find an explanation in Promsopha (2010): in Thailand there is an implicit procedure that a migrant would have to follow to sell his land. He would first ask if any of his relatives wish to buy the plot. If this is the case, they may purchase it. If they don't want to or lack the liquidity to buy, the migrant is then given the green light to sell to an outsider. Moreover, sales to relatives are, contrary to sales to outsiders, potentially reversible, and help to maintain a healthy relationship with the relatives as well as their assistance power. If the migrant has rich relatives able to purchase, selling would probably look more appealing. Rich village relatives with a land thirst are also likely to urge migrants to sell.

The characteristics of land holdings are also significantly correlated with the probability to sell land. In contradiction to the propositions made in the literature, the coefficient of the dummy for the ownership of a legal property title is negative, although not significant in all specifications and models. The negative sign suggests two possible hypotheses: first, plots that are not titled are insecured and at risk of being grabbed by others. Households would therefore sell their untitled holdings as quickly as possible. We may guess that for permanent migrants, the insecurity of rights becomes even more of an issue if they have no relatives to monitor their land, or if they are in conflict with their relatives. Secondly, untitled land precludes collateral. If there is a strong difference in the way households have access to finance in urban and rural areas, these households may place different values on the collateral function of land. If urban credit relies more on land collateral than rural credit, the non-agricltural value that migrants give to their land could be lower when there is no title, thus helping to clear the market.

7 CONCLUSION

Our results provide evidence of a positive relationship between the economic stability of households retiring from agriculture and their decision to sell their farm land. This positive relationship confirms both the idea that the safety net function of land can, in some cases, restrain the supply of land to the sale market; and when shocks occur feed the land market through distress sales.

The empirical insights proposed in this paper are only a first empirical enquiry into some of the fugitive and qualitative statements found in the anthropological and development literature on the safety net function of land and the supply of land to the sale market. Important progress could be made using panel data to improve the measurement of non-land economic stability and valid instruments to strenghten the endogeneity check. Further research should also confirm the existence of such a relationship in different settings and countries.

The relationship identified in the paper could also have important significance for the evolution of land markets over time and along the rural-urban migration movement driving the development progress. Historical accounts from todays' developed countries suggest that the redistribution of farm land operating along the industrialization process has not always been most efficient, nor driven by the market, at least not by the sales market. The idea that the safety net function of land might generate resistance to the development of the land sales market could be an interesting avenue to observe both comtemporary and historical cases.

If the results of this paper were to be confirmed by further research, it would enable further discussion on the desirability of land sale markets in settings where land ownership represents an essential tool for social protection. Moreover, it would help confirm that, frequently, forcing land markets to households when the public social protection is lacking and insurance markets are imperfect is liable to produce counterintuitive and poverty enhancing effects.

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Variable name	Unit Mean		Min	Max
economic stability	Probability [0;1]	0.534	0	1
shock dummy	0/1	0.640	0	1
unemployment dummie	0/1	0.171	0	1
Stability dimensions:				
highest degree	lowest to highest degree	2.749	0	5
income per head	baht per year	96104.62	7200	740000
own housing dummy	0/1	0.178	0	1
own car dummy	0/1	0.405	0	1
crediconstr	0/1	0.644	0	1
stable employment	persons	0.574	0	2
government employ. dummy	0/1	0.060	0	1
saving	months	5.832	0	60
household charac.				
head as female dummy	0/1	0.103	0	1
age of head	years	43.163	21	71
size of household	persons	3.737	1	16
migration charac.				
migr: in-farm inv.	0/1	0.191	0	1
migr: education	0/1	0.053	0	1
migr: lack of land	0/1	0.079	0	1
years since migration	years	16.318	1	50
Relatives charac				
village visit	times per year	1.40257	0	2
remittances dummy	0/1	0.595	0	1
village rich relatives	0/1	0.465	0	1
Bangkok rich relatives	person	1.034261	0	20
land charac.				
legal title dummie	0/1	0.899	0	1
highland owner dummy	0/1	0.206	0	1
bought land dummy	0/1	0.109	0	1
size of land holdings	rai $(1 \text{ rai} = 0.16 \text{ hec})$	13.952	1	100
Debt Dummy	0/1	0.597	0	1
Business dummy	0/1	0.424	0	1
Health insurance dummy	0/1	0.233	0	1
Observations	464			

 Table 1: Variables: Summary Statistics

	Dependent var.: ln(income)
	(1)
shock dummy	-0.080
credit constraint	0.011
health insurance dummy	-0.014
households with secondary educ.	0.104
size of land holdings	0.003
stable job	0.085^{**}
Bangkok rich relatives	0.034^{**}
saving	0.006**
own car dummy	0.299***
business dummy	0.168***
average years in an occup	0.006^{*}
highest degree	0.010
size of household	-0.164***
head as female dummy	-0.046
age of head	-0.004
government employ dummy	0.162
Debt dummy	0.043
own housing dummy	0.203***
cons	9.388***
\mathbb{R}^2	0.295
Ν	464

Table 2: OLS results: income function

Notes: significance levels: * 0.10 ** 0.05 *** 0.01

Variable name	(1)	(2)	(3)	(4)	(2)	(9)	(2)	x	(6)	(10)	(11)	(12)
economic stability (1)												
shock dummy (2)	-0.14***											
unemployment dummie (3)	-0.06	0.14^{*}										
schooling (4)	0.26^{***}	-0.05	0.00									
income per head (5)	0.31^{***}	-0.07	-0.02	0.18^{***}								
own housing dumm (6)	0.29^{***}	-0.01 -	0.10^{**}	0.07^{*}	0.24^{***}							
own car dummy (7)	0.41^{***}	0.03	-0.02	0.17^{***}	0.28^{***}	0.22^{***}						
crediconstr (8)	-0.05	0.18^{***}	0.06	0.06	-0.03	0.02	-0.01					
stable employment (9)	0.32^{***}	-0.02	0.08	0.22^{***}	0.19^{***}	0.12^{***}	0.29^{***}	-0.9*				
government employ. dummy (10)	0.9**	0.06	0.05	0.08^{*}	0.06	0.11^{**}	0.01	0.01	0.09			
saving (11)	0.29^{***} -	-0.12^{***}	-0.03	0.12^{**}	0.17^{***}	0.15^{***}	0.12^{***} .	-0.10^{**}	0.13^{***}	-0.00		
Estimated income means (12)	0.34^{***}	-0.04	0.04	0.33^{***}	0.33^{***}	0.25^{***}	0.54^{***}	-0.01	0.35^{***}).16***	0.31^{***}	
Estimated income st.dev (13)	0.18^{***}	0.19^{***}	-0.00	0.14^{***}	0.14^{***}	0.15^{***}	0.49^{***}	-0.01	0.36^{***}	-0.03	-0.03	0.37^{**}

correlation
of
Coefficients
dimensions:
\mathbf{its}
and
Stability
Table 3:

Notes: Significance levels:* 0.10 ** 0.05 *** 0.01

		Dependent vo	uriable sale S	۲ :
	(1)	$\frac{2 \text{ openaent } \text{ of}}{(2)}$	(3)	<u>(4)</u>
Economic stability	0.709***	0.746***	(0)	0.618*
Economic stability square				0.170
Shock dummy	0.594^{***}	0.647^{***}	0.890^{***}	0.643***
Unemployment dummie	0.372^{**}	0.277	0.361	0.279
Stability dimensions:				
schooling			0.850^{***}	
income per head			0.000^{***}	
own housing dummy			0.402^{*}	
own car dummy			0.615^{***}	
credit constraint dum.			-0.475**	
stable employment			0.306^{***}	
government empl. dum.			0.101	
saving			0.010	
household charac.				
head as female dum.		-0.003	-0.032	-0.017
age of head		0.009	0.007	0.009
size of household		0.067	0.006	-0.071
migration charac.				
migr: in-farm inv.		0.065	0.258	0.075
migr: education		0.181	-0.257	0.176
migr: lack of land		0.604^{**}	0.667**	0.605^{***}
years since migration		0.011	0.017	0.011
Relatives charac		0.040**	0.901***	0.044***
village visit		-0.248	-0.361	-0.244
remittances dummy		0.200	0.190	0.202
Paralala rich relatives		0.518	0.001	0.587
land shares		0.041	0.059	0.043
and charac.		0.406**	0 751***	0 506***
bighland dummy		-0.490	-0.751	-0.300
hought land dummy		0.175	0.113	0.170 0.327
size of land holdings		0.525	0.101	0.027
size of fand holdings		0.005	0.002	0.005
cons	-2.103***	-3.004**	-3.123***	-3.046***
chi2	27.94	65.22	110.57	65.38
N	464	464	464	464
	-	-	-	-

Table 4: Probit on the sale model

Notes: Significance levels:* 0.10 ** 0.05 *** 0.01

	Dep	endent varial	ble sale will	S_i^{will}
	(1)	(2)	(3)	(4))
economic stability	0.710***	0.440**		0.636**
Economic stability square				-0.263
shock dummy	0.594^{***}	0.566^{***}	0.648^{**}	0.578^{***}
unemployment dummie	0.372^{*}	0.321^{*}	0.373^{*}	0.318*
Stability dimensions :				
schooling			0.156	
income per head			0.000^{***}	
own housing dummy			0.170	
own car dummy			0.344^{**}	
crediconstr			-0.120	
stable employment			0.270^{**}	
government employ. dummy			0.103	
saving			-0.000	
household charac.				
head as female dummy		-0.219	-0.262	-0.196
age of head		0.010	0.006	0.010
size of household		0.054	0.023	0.048
migration charac.				
migr: in-farm inv.		0.099	0.239	0.082
migr: education		0.086	-0.334	0.101
migr: lack of land		0.321	0.389	0.323
years since migration		0.015^{*}	0.317^{*}	0.015^{*}
Relatives charac				
village visit		-0.150	-0.203*	-0.156
remittances dummy		0.085	0.035	0.089
village rich relatives		0.478^{***}	0.440^{***}	0.480^{***}
Bangkok rich relatives		0.007	-0.016	0.009
land charac.				
chanot dummie		-0.244	-0.341	-0.232
highland owner dummy		0.061	0.047	0.059
bought land dummy		0.146	-0.066	0.146
size of land holdings		0.003	0.002	0.003
cons	-2.103***	-2.575***	-2.605***	-2.561***
chi2	24.94	49.78	80.61	50.32
Ν	464	464	464	464

Table 5: Probit on the sale will model

Notes: Significance levels:* 0.10 ** 0.05 *** 0.01

	Dependent v	ariable: share a	of total land he	oldings sold
	(1)	(2)	(3)	(4)
Economic stability	13.788***	12.762***		16.731
Economic stability square				-3.979
shock dummy	12.213^{***}	10.964^{***}	15.175^{***}	10.556^{**}
unemployment dummie	5.765	3.950	3.607	
Stability dimensions:				
schooling			14.366^{***}	
income per head			0.000	
own housing dummy			4.374	
own car dummy			10.717^{***}	
crediconstr			-9.487**	
stable employment			4.126	
government empl. dummy			0.477	
saving			0.080	
household charac.				
head as female dummy		0.809	0.283	0.972
age of head		0.131	0.079	0.130
size of household		0.946	-0.053	0.921
migration charac.				
migr: in-farm inv.		1.603	3.057	1.662
migr: education		-1.351	-7.326	-4.438
migr: lack of land		11.381**	11.864**	11.331**
years since migration		0.256	0.345^{*}	0.255
Relatives charac				
village visit		-4.935**	-6.342***	-4.951**
remittances dummy		4.820	4.256	4.748
village rich relatives		10.380***	7.936**	10.380***
Bangkok rich relatives		0.672	0583	0.671
land charac.				
chanot dummie		-7.892*	-10.356**	-7.702
highland dummy		2.804	2.178	2.789
bought land dummy		4.761	0.875	4.620
size of land holdings		0.254^{**}	0.270**	0.255^{**}
cons	-45.073***	-56.863***	-54.211***	-57.021***
sigma	22.571***	20.382***	18.674***	20.373***
chi2	19.65	55.67	94.76	55.71
Ν	464	464	464	464

Table 6: Tobit model: share of land holdings sold

Notes: significance levels: * 0.10 ** 0.05 *** 0.01