

Responding to Loss of Farmland: The Role of Social Capital

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Introduction

Vietnam has a total area of around 33 million hectares and a population of 86 million. With less than 0.3 hectares of land per capita, Vietnam has one of the lowest land endowments per person in the world (WB, 2011b). Nevertheless, the combination of fertile land, favourable weather conditions and abundant labour enables the country to maintain national food security and still export a number of crucial agricultural products such as rice, rubber, cashew, coffee and pepper. As a result, in Vietnam's rural areas which have three-quarters of the total population and most of the poor, agricultural production is the main livelihood for more than half of the total workforce (WB, 2011b).

The conversion of agricultural land to non-agricultural uses is a common way to provide the space for urbanization and industrialization and is, therefore, an almost unavoidable tendency in economic development and population growth (Tan, Beckmann, Van Den Berg, & Qu, 2009). In Vietnam over the past two decades, escalated industrialization and urbanization have encroached on a huge area of agricultural land. Despite this, there are no accurate statistical data on the total area of land, especially the area of farmland, that has been acquired by the State since the early 1990s (V. S. Nguyen, 2009a). Le (2007) calculated that, from 1990 to 2003, 697,417 hectares of land were taken for the construction of industrial zones, urban areas and infrastructure and other national use purposes. In period 2000-2007, about half a million hectares of farmland were converted for nonfarm use, accounting for 5 percent of the country's farmland (VietNamNet/TN, 2009).

Vietnamese rural labourers are mainly unskilled and low skilled and their single valuable

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livelihood asset is farmland. In 2007, 73 percent of the Vietnamese population lived in rural areas, and about 71 percent of the population engaged in agriculture, of which 51 percent relied on paddy cultivation (WB, 2008). Therefore, the farmland acquisition has a major effect on poor households in Vietnam's rural and peri-urban areas (ADB, 2007). On average, the loss of 1 hectare of farmland will cause the jobloss of 13 farmers, and the figures are much higher in the Red River Delta (15.53) and Hanoi (20) (T. Nghi, 2009). Consequently, in 2003-2008, it was estimated that the acquisition of agricultural land considerably affected the livelihood of 950,000 farmers in 627,000 farm households. About 25-30 percent of these farmers became jobless or had unstable jobs and 53 percent of the households suffered from a decline in income (VietNamNet/TN, 2009).

Land acquisition directly and indirectly affects livelihood choices through creating new non-farm employment opportunities and livelihood asset changes, respectively. However, apart from a number of rural households who attain benefits from this process because such households have enough resources or take full advantages of urbanization to reach better livelihoods, many other households have become jobless and vulnerable and had precarious livelihoods even after receiving a significant money compensation for their land loss. In practice, farmland acquisition has resulted in distinct impacts among households. As indicated by ADB (2006), approximately 60 percent of land-losing households received favourable opportunities for non-farm employment, improved infrastructure, and a significant amount of compensation money for losing land. Nevertheless, this process resulted in the interruption of economic activities and loss of income for a large number of other households. Other figures drawn from a recent survey on employment and income of those whose land was converted for urban and industrial expansion in 8 provinces having the highest urbanization rate in Vietnam after agrarian revocation, saw an 8 percent unemployment increase, an 18.17 percent decline in farm jobs, just under 2.8 percent job growth for the industrial and trade sectors, and a visc in the number of wage-employment and other jobs earners of 6.7 percent (Le, 2007).

Increasing urban population and rapid economic growth, particularly in urban areas of Vietnam's large cities, have resulted in a great demand for urban land. In practice, there was an intensive conversion of agricultural land into higher value nonagricultural land, especially in urban peripheries. In the 1993-2008 period, about half of a million hectares of farmland were converted to urban, industrial or commercial land (WB, 2011b). In order to satisfy the rising land demand for urban expansion and economic development in the Northern key economic region¹, most the farmland acquisitions have taken place in the Red River Delta which has a large area of fertile agricultural land, a prime location and high population density (B. T. Hoang, 2008). Taking Hanoi as an example, according to its land use plan for 2000-2010, 11,000 hectares of land-mostly annual crop land would be taken for 1,736 projects related to industrial

¹ This key economic region includes Hanoi, Hai Phong, Vinh Phuc, Bac Ninh, Hung Yen, Quang Ninh, and Hai Duong.

and urban development. (V. S. Nguyen, 2009a). Consequently, the encroachment of farmland at such a large scale has raised special concerns about rural household livelihoods. This farmland conversion would cause the loss of agricultural jobs of 150,000 farmers (V. S. Nguyen, 2009a). Moreover, thousands of households have been anxious about a new plan of massive farmland acquisition for the expansion of Hanoi to both banks of the Red River by 2020. This plan will induce about 12,000 households to relocate and nearly 6,700 farms to be removed (Hoang, 2009).

In the setting of accelerating conversion of farmland for urbanization and industrialization in the urban fringes of large cities, a number of studies in Vietnam have addressed the question of how farmland loss has affected rural household livelihoods. The studies have mostly used either qualitative or descriptive statistics methods (Do, 2006; Le, 2007; T. D. Nguyen, Vu, & Lebailly, 2011; V. S. Nguyen, 2009b). In general, almost all of these studies indicate that while the loss of agricultural land causes the loss of traditional agricultural livelihoods and threatens food security, it can also bring about a wide range of new opportunities for households to diversify their livelihoods and sources of well-being.

Similar impacts of farmland loss are not confined to just Vietnam. Negative have been found elsewhere, for example in China (J. Chen, 2007; Deng, Huang, Rozelle, & Uchida, 2006; Xie, Mei, Guangjin, & Xuerong, 2005) and in India (Fazal, 2000, 2001). Nevertheless, other studies show positive impacts of farmland loss on rural livelihoods in China (W. Chen, 1998; Gale Johnson, 2002; Parish, Zhe, & Li, 1995) and Bangladesh (Toufique & Turton, 2002). In this literature for Vietnam and other countries, although much has been discussed about the mixed impacts of farmland loss on rural household livelihoods, no econometric evidence of these impacts has been provided thus far. Our study, therefore, is an early attempt to apply an econometric approach to answer two key research questions: *how has farmland loss affected households' livelihood strategies in Vietnam, and what is the role of social capital in assisting households to cope with the farmland loss?* Our study focuses on Hanoi's peri-urban areas, which have been experiencing a massive farmland conversion for urbanization and industrialization in recent years.

Compulsory land acquisition

Following periods of slow economic growth, decrease in food production, and the risk of famine as a consequence of having pursued a collective agriculture system, Vietnam has made a number of reforms since 1986 to change itself from a centrally planned to a marketed oriented economy. The reform (Đổi Mới) not only dissolved collective farms but also granted land use rights to farm households (Kirk & Nguyen, 2009). The first Land Law of 1987 recognized the land use rights of households and individuals. Since the second Land Law was promulgated in 1993 farmers' long-term and stable use of agricultural land has been secured (T. T. Nguyen, 2012). By 1999, more than 10 million households had been granted land use certificates of agricultural land, accounting for 87 percent of agricultural households and 78 percent of agricultural land in Vietnam (ANZDEC Limited, 2000).

Similar to the second Land Law of 1993, the third Land Law of 2003 (the current Land Law of Vietnam) continues to confirm that land is not privately owned because it is the collective property of the entire people, which is representatively owned and administrated by the State and the land use rights are to be granted to individuals, households, enterprises and other organizations. Such rights include the rights to exchange, transfer, inherit, lease, mortgage land and use land as a capital contribution (National Assembly of Vietnam, 2003). It should be noted that land acquisition is the only way to take land for projects in Vietnam (Thien Thu & Perera, 2011). Prior to the Land Law of 2003, the compulsory acquisition of land by the State is the only way to take land for projects. However, the Land Law of 2003 proposed a new way for land acquisition, which is the voluntary land conversion based on a voluntary agreement between project investors and land users (WB, 2011a)².

Compulsory land acquisition is applied to cases in which land acquisition projects are served for national or public projects, for projects with 100 percent contributed by foreign funds (including foreign direct investment and Official Development Assistance), for the implementation of projects with special economic investment such as building infrastructure for industrial and services zones, hi-tech parks, urban and residential areas and projects in the highest investment fund group (WB, 2011a). Voluntary land conversion is to be used in cases of land acquisition for investment projects of domestic investors that are not subject to compulsory land conversion; or where the compulsory acquisition of land can be carried out but the investors volunteer to acquire land for their projects through a mutual agreement between the investors and land users (WB, 2011a).

According to the current Land Law, for land-users whose land is compulsorily acquired, a general principle is to provide adequate assistance for them and thereby they can find new jobs, recover their livelihoods and be compensated for income loss. In practice, the greatest problem is the lack of opportunities for farmers to transfer job and recover livelihoods. This is because farmers might not meet necessary qualifications for non-agricultural jobs, while the local government and the investor may not be active in searching for a practical solution to this issue (WB, 2011a). According to the Decree 17/2006/ND-CP by The Government of Vietnam, in the acquisition of agricultural land from farmers, farmers must be compensated with other types of cultivable land, and cash compensation is the last option. In the case of having no more cultivable land for compensation, the provincial authority can compensate farmers with a plot of land for doing services, which provide farm households with conditions to change their livelihoods. If cash compensation is the only choice, the provincial government must have specific planned solutions for job assistance to farmers (General Department of Taxation, 2006). In some localities, the provincial authority has compensated farmers who lose more than 30 percent of their farmland with a plot of commercial land close to industrial zones or residential

² Land conversion means a process through which land (farmland, urban or residential land, etc) is acquired compulsorily or voluntarily from land users (households, individuals or organizations) for projects.

land in urban areas. This compensation with "land for land" has been successfully implemented in some localities, while others do not believe in the appropriateness of this policy because more agricultural land needs to be converted to nonagricultural land (WB, 2011a).

When land is acquired compulsorily for a project, farmers will receive direct compensation from investors (compensation for the loss of land, crops and assets attached to the area of acquired land, and job transfer, etc). Besides, some additional assistance is also provided by the city/provincial government such as job transition training courses, agricultural extension and new job introduction services (Q. V. Nguyen, Nguyen, Nguyen, Pham, & Nguyen, 2005). Subject to Decree 197/2004/ND-CP dated on 03/12/2004, compensation for land-losing people will be based on land area, and land category (residential, nonagricultural, agricultural land) being used by the land users. As indicated in this Decree, the land prices applied to the compensation will be decided by the Province's People Committee at the time of making the decision on land acquisition (The Government of Vietnam, 2004). In fact, however, there exists a large gap between the compensation level defined by the government guidelines and that determined by market principles (Han & Vu, 2008). Such compensation is unsatisfactory to many farmers because the compensation price is often much lower than the real value of land, leading to a boom in complaints about land acquisition in Vietnam (Thien Thu & Perera, 2011). This topic, however, is beyond the scope of this study.

In this paper, the term "*land loss*" also means *farmland loss*, and households whose farmland was lost partly or totally by the State's the farmland acquisition are called *land-losing households*. Households whose farmland was not taken by this policy are called *households without land loss* or *non-land-losing households*.

Background of the case study area

Our research was conducted in Hoai Duc, a peri-urban district of Hanoi (see Figures A1 and 2 and 3 in the Appendix). Before 1 August 2008, Hoai Duc was a district of Ha Tay Province, a neighbouring province of Hanoi Capital, which was merged into Hanoi on 1 August, 2008. The district occupies 8,247 hectares of land, of which agricultural land accounts for 4,272 hectares and 91 percent of this area is used by households and individuals (Hoai Duc District People's Committee, 2010a). There are 20 administrative units in the district, including 19 communes and 1 town. Hoai Duc has around 50,400 households with a population of 193,600 people. In the whole district, the employment in the agricultural sector dropped by around 23 percent over the past decade. Nevertheless, a significant proportion of employment has remained in agriculture, accounting for around 40 percent of the total employment in 2009. The corresponding figures for industrial and services sectors are 33 and 27 percent respectively (Statistics Department of Hoai Duc District, 2010). Prior to 1 August 2008, Hoai Duc used to be the richest district in Ha Tay Province (MONRE, 2007). In 2009, Hoai Duc GDP per capita reached 15 million VND per year (Hoai Duc District People's Committee, 2010b), which is less than half of Hanoi's average (32 million VND per year) (Vietnam Government Web Portal,

2010)³.

Among the districts of Hanoi, Hoai Duc has the biggest number of land-acquisition projects and has been experiencing a massive conversion of farmland for nonfarm uses (Huu Hoa, 2011). Hoai Duc is located on the northwest side of Hanoi, 19 km from the Central Business District (WB, 2011c). The district has an extremely favourable geographical position, surrounded by various important roads namely Thang Long highway (the country's biggest and most modern highway), National Way 32, and is in close proximity to industrial zones, new urban areas and Bao Son Paradise Park (the biggest entertainment and tourism complex in North Vietnam). Consequently, a huge area of agricultural land in the district has been taken for the above projects in recent years. In the period 2006-2010, around 1,560 hectares of farmland were acquired for 85 projects (LH, 2010).

According to Decision 289/2006-QĐ-UBND issued by Ha Tay Province People's Committee, apart from the compensation for the area of lost land due to the State's land acquisition, households would receive other payments. These include support for relocation, job generation, support for those whose lost land adjacent to Hanoi City, and other support (Ha Tay Province People's Committee, 2006). In general, the compensation for 1 Sào (360 m²) of agricultural land in Ha Tay was about 45,700,000 VND in 2008 (Truong Giang, 2008)⁴. In addition, households receive payments for the existing property attached to land and for expenses invested in the area of lost land (Ha Tay Province People's Committee, 2008a).

Also, Ha Tay Province People's Committee issued the Decision 1098/2007/QĐ-UB and Decision 371/2008/QĐ-UB, which states that a plot of commercial land or "*land for services*" would be granted to households with more than 30 percent of agricultural land recovered. Each household receives an area of "*land for services*" equivalent to 10 percent of the area of farmland that is taken for each project (Hop Nhan, 2008). Thanks to this compensation with "*land for land*", land-losing households would have not only an extremely valuable asset⁵ but also a potential source of livelihood, particularly for elderly land-losing farmers. This is because "*land for services*" can be used as business premises for non-farm activities such as opening a shop, a workshop, or for renting, etc.

Data collection

We adapted from GSO (2006), De Silva, et al (2006), and Doan (2011) a household questionnaire to gather a set of quantitative data on livelihood assets (human, social, financial, physical and

³ 1 USD equals about 19,000 VND in 2009.

⁴ 1 USD equaled about 18,000 VND in 2008.

⁵ The prices of "*land for services*" in some communes of Hoai Duc District were offered from 17,000,000 to 35,000,000 VND per m² in 2011, depending on the location of the commercial land plot (Minh Tuan, 2011) (1USD equaled about 20,000 VND in 2011). Note that farmers have already received the certificates which confirm that "*land for services*" will be granted to them but they have not received "*land for service*" in fact. However, these certificates have been widely purchased (Thuy Duong, 2011).

natural capitals), economic activities (time allocation data), and livelihood outcomes (income and consumption expenditure). The target sample size was set at 480 households from 6 communes, consisting of 80 households (40 with land loss and 40 without land loss) from each commune. Therefore, 600 households were selected, including 120 reserves. A disproportionate stratified sampling method was used with two steps as follows: First, 12 communes with farmland acquisition were partitioned into 3 groups based on their employment structure. The first group included purely agricultural communes; the second one was characterized by communes with a combination of both agricultural and non-agricultural production, while the third one represented purely non-agricultural communes. From each group, two communes were randomly chosen (using STATA software). Second, from each commune, 100 households (50 with land loss and 50 without land loss) including 20 reserves (10 with land loss and 10 without land loss) were randomly selected using Circular Systematic Sampling (Groves, Fowler, Couper, Lepkowski, & Singer, 2009).

Sixteen sociology students of Vietnam National University were carefully selected and trained to become potential members of a fieldwork team. These students were very competent and experienced in fieldwork in Vietnam's rural areas. After the training courses, 12 out of 16 trainees were officially employed, forming a fieldwork team of 10 interviewers and 2 survey supervisors. Two training courses (one week before and one week after the pilot survey) were held to provide trainees with a thorough understanding of the survey context and purposes, contents of all questions in the questionnaire, requirements and expectations of interviewers. In addition, the training courses provided trainees with further necessary skills for the survey and included practice, using the questionnaire, in interviewing actual households. A pilot test was conducted, including a test of questionnaire design, fieldwork and data entry plans. It involved interviewing 30 households from six communes (five households from each commune). For each interviewer, at least one of their pilot interviews was performed in the presence of a survey supervisor. Based on the results from the pilot test, some final edits were made to the questionnaire. Useful and valuable experiences on interview practice or techniques that were performed well during the pilot interviews were imparted to all other interviewers. Three survey supervisors were employed to check for mistakes and to maximize the accuracy and quality of survey data and data entry (data entry was checked and any mistakes were corrected on the same day of the interview by one of three supervisors).

The survey was carried out from the beginning of April to the end of June 2010, and the data were collected by means of face-to-face interviewers with the head of a household in the presence of other household members. In fact, 477 households were successfully interviewed, among which 237 households lost their farmland at different levels. Some lost little, some lost partly, and others lost mostly or entirely. Their farmland was compulsorily acquired by the State for a number of projects relating to the enlargement and improvement of Thang Long highway, the construction of industrial clusters, new urban areas and other non-farm use purposes (Ha Tay Province People's Committee, 2008b). Due to some delays in the implementation of the farmland acquisition, among 237 land-losing households, 124 households had farmland acquired

in the first half of 2008 and 113 households had farmland acquired in early 2009.

Analysis

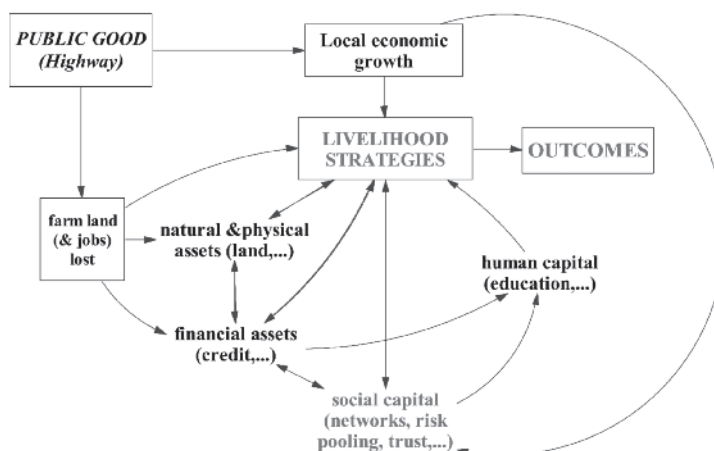
To identify the distinct livelihood strategies that households pursued before and after the loss of farmland, cluster analysis techniques were used to group households into distinct livelihood categories using SPSS software (version 17). Using labour time allocation, the survey found six livelihood groups:

- 1 . Mainly farm production (cultivation and husbandry)
- 2 . Unprotected wage work (working for households or individuals)
- 3 . Nonfarm self-employment outside the village
- 4 . Diversified livelihoods (farm production, wage work and nonfarm self-employment in the village)
- 5 . Nonfarm self-employment in the village
- 6 . Protected wage work (working for the state sector, enterprises and other organisations).

Inspection of the data reveals that farmland loss impacted significantly on the choice of livelihood based on farm production. The number of farming households approximately halved after the government's land acquisition programme. However, farmland loss was associated with higher urbanization, a process which also brought households opportunities for nonfarm jobs.

Thus, our first question is: *what is the transmission mechanism by which an infrastructure shock (that involves land loss by farmers) alters livelihood choices in the affected area?* To help answer this question we turn to Figure 1, below, which offers a conceptual framework for analysing livelihood strategies:

Figure 1: From a public good to livelihood strategies and outcomes



The figure focuses on household assets/capitals as the key link between the infrastructure shock (the building of a highway via farmland acquisition) and changes in people's livelihood strategies and outcomes. The transmission mechanism relates to the way in which household assets change and interact, leading to livelihood 'doors' that may open or close. For example, we see from the figure that the construction of the highway, a public good, has a direct impact on farmland – consequently, farm jobs may be lost. A household's natural assets, such as land, may diminish. In the process the household might receive compensation, which increases its financial assets. But it is also possible for the household's financial assets to fall, as access to credit decreases with the loss of land as a loan security. If financial assets fall overall, this can have adverse implications for the household's ability to increase its human capital. Livelihood strategies and outcomes (relating to income and expenditure) may be compromised.

On the other hand, the public good spurs local economic growth, whereby diverse non-farming livelihood opportunities emerge. As more people avail themselves of the new income-earning opportunities, households' social capital increases. Social capital (in particular the financial and other resources that a household may receive from people within the household's network) can substitute for formal credit. Thus, alternative paths emerge for a household to expand its livelihood options and, in particular, to improve its livelihood outcomes.

This brings us to our second question: *What is the actual pattern of asset or capital linkages that exists in the communities studied?* Our correlation analysis in Table 2 (Appendix) indicates that the actual correlations between assets is quite low except for human capital and social capital (measured by the average and median schooling years of labourers and the number of groups that households have at least one member belonging to, respectively). The correlation between human capital and social capital is 0.48, reflecting the fact that households with higher education levels have more chance to participate in groups or organisations such as trade unions, alumni associations, youth unions, and so on. The social and human capital links could be an encouraging result, since social capital is also related to local economic growth. The link between human capital and physical capital (measured by the log of value of productive assets) is statistically significant, but the coefficient is quite small (0.4).

As an aside, we also note that location plays an important role in predicting the choice of livelihood strategy. Households that live near factories or town have better chance to work in the formal sector (such as for the state or in factories). In addition, households living in communes with traditional wage employment were likely to engage in wage work. Human capital is of much importance to choose a livelihood based on wage employment, while it does not appear important in choosing other livelihood strategies.

Our last question, then, is: *which of the capitals are the most important for helping land-losing households to improve their livelihood outcomes, especially in terms of income and expenditure?* For the answer we turn to econometric analysis. We undertake two sets of empirical tests, where income and expenditure are separately regressed against a number of explanatory variables. The variables include the timing of farmland loss and measures of assets or capitals. The results are given in Table 1:

Table 1: Livelihood outcome regressions - household income and expenditure

Explanatory variables	Income (IV regression)	Consumption expenditure (IV regression)
	Effects	Effects
<i>Livelihood strategy</i>	Yes	Yes
Informal wage work	+0.25	+0.33
Formal wage work	+0.50	+0.44
Nonfarm self-employment	+0.40	+0.41
<i>Farmland acquisition</i>	No	Yes
Land loss 2009	0	+0.13
Land loss 2008	0	0
<i>Human capital</i>	Yes	Yes
Household size	-0.16	-0.05
Dependency ratio	-0.17	-0.22
Number of male working members	+0.05	+0
Gender of household head	+0	+0.07
Age of household head	+0	+0
Average schooling years of working members	+0.03	+0.01
<i>Social capital</i>	Yes	Yes
Number of group memberships	+0.023	+0.019
<i>Natural capital</i>	Yes	Yes
Owned farmland per adult	+0.035	+0.027
Size of residential land	+0	+0.0016
<i>Physical capital</i>	Yes	Yes
Value of productive assets per working member in Ln	+0.011	+0.10
<i>Financial capital</i>	Yes	Yes
Access to formal credit	+0.12	+0.06
Access to informal credit	-0	0
<i>Commune dummies (included)</i>	Yes	Yes
<i>Number of observations</i>	451	451
<i>Prob > F</i>	0.0000	0.0000
<i>Centered R2</i>	0.5318	0.4460
<i>Uncentered R2</i>	0.9978	0.9989

Note: 0 means not statistically significant. + and - mean the coefficients are statistically at 10 % or lower , with their signs are positive and negative, respectively.

The statistical results indicate that social capital is important. An additional group membership is associated with income rises of 2.3% and expenditure rises of 1.9%. Members can generate indirect and direct economic benefits from their groups. For example, the social capital from group members can make households more profitable, such as through better access to credit, inputs, and information for production. It can also contribute to a better network of customers and suppliers, thus increasing value added and sales.

In sum, household wellbeing, especially if proxied by income or expenditure, is significantly affected by livelihood strategy. Our data from Vietnam show that nonfarm strategies offer higher incomes than a farm strategy. (And for nonfarm strategies themselves the income ranking is formal wage work, followed by nonfarm self-employment, and lastly informal wage work). Livelihood strategy is the most important factor determining livelihood outcome. That is, household welfare can be improved by changing livelihood strategies. In turn, livelihood strategies can be changed by changing social capital.

Conclusion

This study provides early econometric evidence of the impact of land loss on households' livelihood strategies and outcomes. The findings of this case study of Hanoi's peri-urban areas can be seen as valuable to other localities of Vietnam as well as developing countries which are similar in socio-economic characteristics. In this regard our study contributes new perspectives concerning the relationships between farmland, social capital and rural households' livelihoods, given the context of farmland shrinking in Vietnam and other developing countries.

Appendix

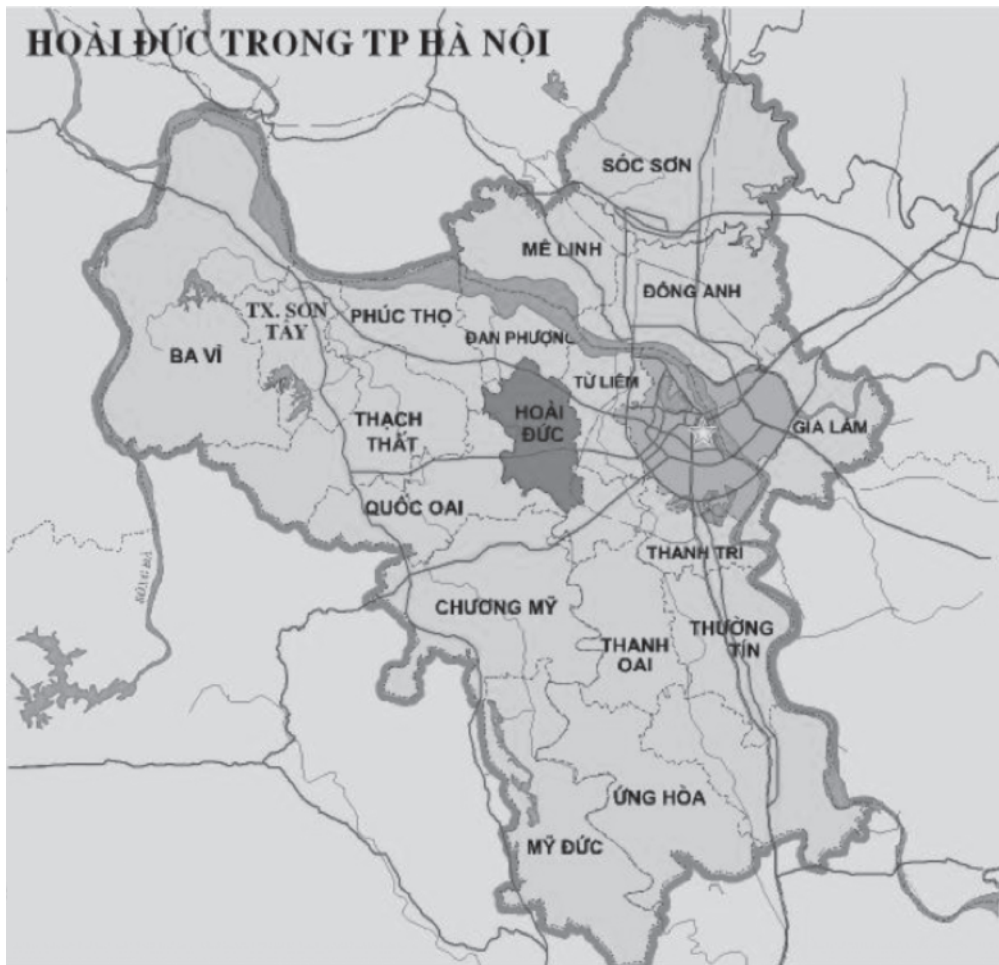


Figure 2: Map of Hanoi, Vietnam (Thuy, 2011b)

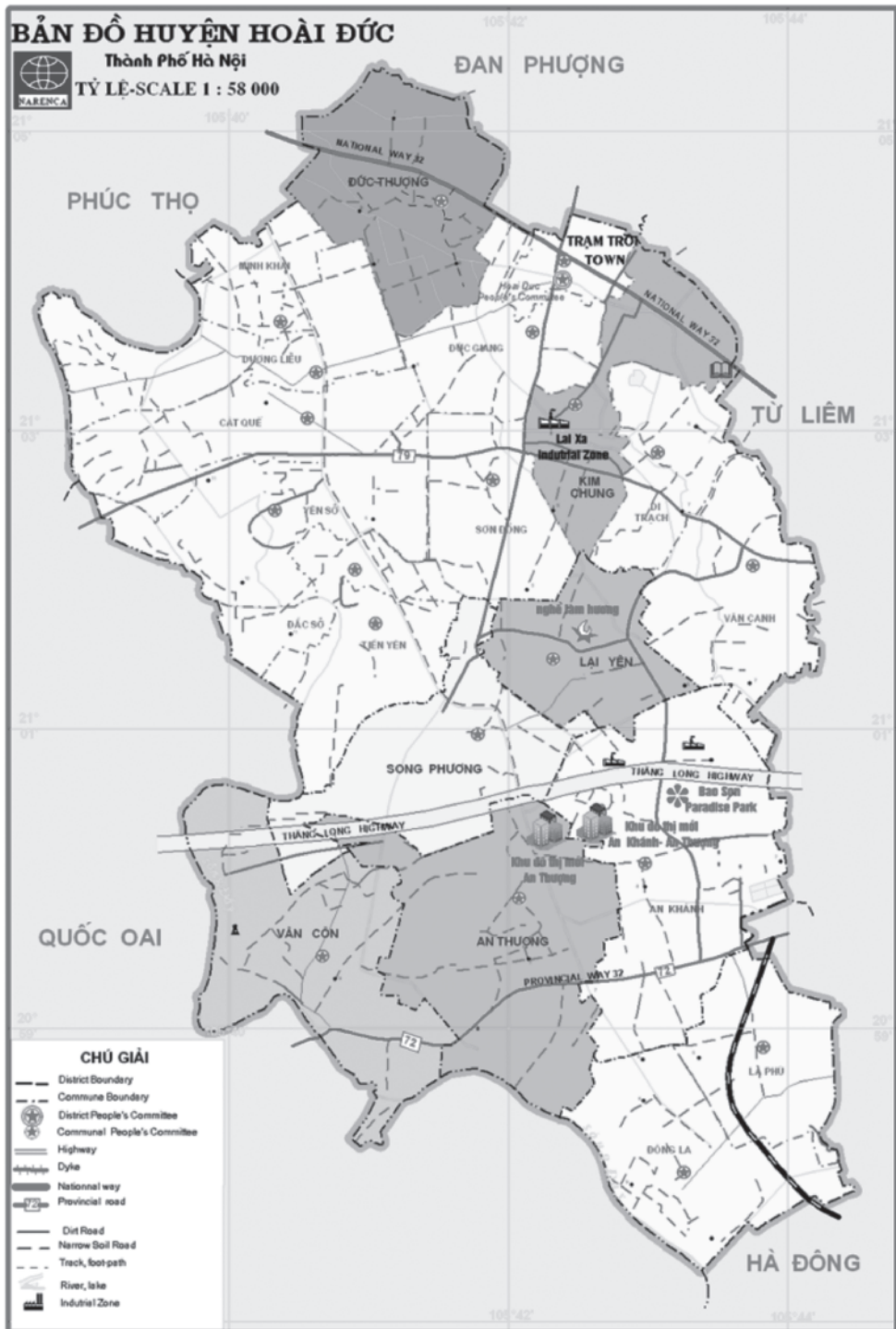


Figure 3: Administrative Map of Hoai Duc District, Hanoi (Thuy, 2011a)

Table 2: Correlations between livelihood capitals

	Farmsize in square meters	Farmsize per capita	Average schooling years of labourers	Median of schooling years of labourers	Schooling years of household head	Social capital measured by the number of membership	The total value of loan in the past two years	The amount of loan borrowed from the informal credit market	The amount of loan borrowed from the formal credit market	The value of productive assets in log
Farmsize in square meters	1	.783(**)	.051	.051	-.006	.080	.011	.005	.010	.266(**)
		.000	.269	.269	.901	.083	.816	.914	.828	.000
	477	477	477	477	477	477	477	477	477	477
Farmsize per capita	.783(**)	1	-.107(*)	-.117(*)	-.048	-.091(*)	-.063	-.054	-.035	.108(*)
	.000	.020	.010	.293	.047	.167	.243	.448	.448	.019
	477	477	477	477	477	477	477	477	477	477
Average schooling years of labourers	.051	-.107(*)	1	.971(**)	.563(**)	.486(**)	.114(*)	.039	.119(**)	.403(**)
	.269	.020	.000	.000	.000	.000	.013	.390	.009	.000
	477	477	477	477	477	477	477	477	477	477
Median of schooling years of labourers	.051	-.117(*)	.971(**)	1	.545(**)	.484(**)	.122(**)	.038	.132(**)	.396(**)
	.000	.020	.000	.000	.000	.000	.013	.390	.009	.000
	477	477	477	477	477	477	477	477	477	477

	Farmsize in square meters	Farmsize per capita	Average schooling years of labourers	Median of schooling years of labourers	Schooling years of household head	Social capital measured by the number of membership	The total value of loan in the past two years	The amount of loan borrowed from the informal credit market	The amount of loan borrowed from the formal credit market	The value of productive assets in log
Sig. (2-tailed)	.269	.010	.000		.000	.000	.008	.414	.004	.000
N	477	477	477	477	477	477	477	477	477	477
Schooling years of household head	-.006	-.048	.563(**)	.545(**)	1	.232(**)	.021	-.018	.047	.269(**)
Sig. (2-tailed)	.901	.293	.000	.000		.000	.646	.693	.304	.000
N	477	477	477	477	477	477	477	477	477	477
Social capital measured by the number of membership	.080	-.091(*)	.486(**)	.484(**)	.232(**)	1	.026	-.020	.056	.301(**)
Sig. (2-tailed)	.083	.047	.000	.000	.000		.570	.659	.220	.000
N	477	477	477	477	477	477	477	477	477	477
The total value of loan in the past two years	.011	-.063	.114(*)	.122(**)	.021	.026	1	.693(**)	.700(**)	.133(**)
Sig. (2-tailed)	.816	.167	.013	.008	.646	.570		.000	.000	.004
N	477	477	477	477	477	477	477	477	477	477
The amount of loan borrowed from the informal credit market	.005	-.054	.039	.038	-.018	-.020	.693(**)	1	-.029	.087

	Farmsize in square meters	Farmsize per capita	Average schooling years of labourers	Median of schooling years of labourers	Schooling years of household head	Social capital measured by the number of membership	The total value of loan in the past two years	The amount of loan borrowed from the informal credit market	The amount of loan borrowed from the formal credit market	The value of productive assets in log
Sig. (2-tailed)	.914	.243	.390	.414	.693	.659	.000		.530	.058
N	477	477	477	477	477	477	477	477	477	477
The amount of loan borrowed from the formal credit market	.010	-.035	.119(**)	.132(**)	.047	.056	.700(**)	-.029	1	.099(*)
Sig. (2-tailed)	.828	.448	.009	.004	.304	.220	.000	.530		.031
N	477	477	477	477	477	477	477	477	477	477
The value of productive assets in log	.266(**)	.108(*)	.403(**)	.396(**)	.269(**)	.301(**)	.133(**)	.087	.099(*)	1
Sig. (2-tailed)	.000	.019	.000	.000	.000	.000	.004	.058	.031	
N	477	477	477	477	477	477	477	477	477	477

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

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