CHANGES OF FARMERS' LIVELIHOOD AFTER LAND ACQUISITION IN NORTHERN VIETNAM UNDER THE INDUSTRIALIZATION

(工業化期ベトナム北部における農地収用後の農民による生計支持策の変化に関する研究)

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ABSTRACT

In Vietnam, since the 1990s, industrialization-related agricultural land acquisitions have affected farming communities' livelihood choices. Previous studies have investigated how livelihood choices at the household level were affected just after land acquisitions. However, there is little explanation for the transformation of livelihood choices of individuals, particularly individual farmers, after a certain period of land acquisitions. Therefore, this study attempts to investigate how individuals' livelihood choices changed five years after a land acquisition and to analyze the determinants of their current livelihood choices.

This study was conducted in three villages in the Di Su Commune where a land acquisition took place in 2012 to develop Thang Long Industrial Park II. Individuals of 474 in 200 sample households were analyzed. Besides, a subsample of 110 farmers, one randomly selected from each 110 household that lost their farmland was analyzed. For both analyses, a multinomial logistic regression model was run to determine statistically significant factors of the current livelihood choices.

After the land acquisition, 43 % of 474 individuals changed their livelihoods and majority of them selected formal wage work, followed by unemployed, non-farm self-employment, farm work, informal wage work, and diversifier. Compared to formal wage work, five other livelihood choices were significantly affected by ten determinants. Specifically, age, living in Thap village, dependency ratio, gender, and number of individuals in the household were positive determinants of unemployment, while education level was the only negative

determinant of unemployment. Individuals who got married had a higher probability of choosing non-farm self-employment. Farm work was positively determined by age and farmland size per individual, whereas education level and distance to Thang Long Industrial Park II had negative influences. Moreover, farmland size per individual had a positive effect on choosing informal wage work. Finally, living in Thap village was the positive determinant of diversifiers, while dependency ratio, distance to Thang Long Industrial Park II, and land loss area were negative determinants.

For the subsample of 110 farmers, many of them became unemployed and had no income five years after the land acquisition. Farmers who selected non-farm work had a much higher income, and others who continued farm work had unchanged average income. Their livelihood choices were significantly affected by three determinants. Notably, if farmer's age was in working age and they were living in Thap village, it positively influenced on choosing non-farm work over continuing farm work. On the other hand, if farmer's age was at working age it would negatively impact on becoming unemployed while living in Thap village and farmland loss ratio had positive impacts.

This study concluded that the conditions occurred during five years after the land acquisition in 2012 created significant impacts on the changes of individuals' and farmers' livelihood choices. It tended to increase chances of getting stable jobs for individuals and it might create some consequences for rural communities as well. Therefore, individuals and farmers are suggested necessary to improve their competencies more to meet a new socio-economic circumstance after land acquisitions.

摘要

1990 年代以降、工業化への移行期にあるベトナムでは、農地収用の広範な展開が農村地域の人々の生計選択に重大な影響を及ぼしてきた。この点に関して、先行研究では主に世帯レベルでの農地収用直後の生計維持方策が分析されてきたが、世帯員個人レベルでの生計選択については十分に検討されてこなかった。そこで、本研究では、農家世帯員個人について、農地収用から 5 年後の生計維持方策の変化とその変化に影響を及ぼした要因を分析した。

本研究で分析に用いたデータは、タンロン工業団地 II の造成のため、2012 年に大規模な農地収用が実施されたベトナム北部の首都ハノイ近郊にあるジス行政村内 3 集落で 200 世帯 474 人から収集した。また、その中から保有する農地の全部または一部を収用された世帯で実際に農業生産に従事していた世帯員 110 人を無作為に抽出して副次標本を作成した。以上の一次データの分析には、多項ロジスティック回帰分析を用いた。

世帯員個人 474 人を対象とした分析では、農地収用 5 年後に、43%の個人の生計維持策に何らかの変化が生じたことが明らかになり、正規賃労働従事者、成人

被扶養者、非農業自営就業者、自家農業従事者、非正規賃労働従事者、複数就業により収入を確保する者の順に多い結果となった。正規賃労働従事者との対比で、他の 5 つの就業選択をした者の要因を分析したところ、統計的に有意な 10 要因が検出された。そのうち、成人被扶養選択に正の影響を及ぼした要因は、年齢、居住地（タップ集落）、従属世帯員比率、性別、家族世帯員数であり、負の影響を及ぼした唯一の要因は教育水準であった。次に、非農業自営就業には既婚であることが正の影響を及ぼしていた。自家農業従事の選択には、年齢と世帯員 1 人当たり農地面積が正に影響し、教育水準とタンロン工業団地 II への距離は負に影響していた。また、非正規賃労働従事の選択は、世帯員 1 人当たりの農地面積が大きい世帯の個人ほど強まる傾向があり、複数就業選択には居住地（タップ集落）が正に影響し、従属世帯員比率、タンロン工業団地 II への距離、農地遺失面積が負に影響していた。

農地収用時に農業生産に従事していた 110 人を対象にした分析では、その多くが 5 年後に非就業状態となり無収入になっていたことが明らかになった。また、その他はより高い収入を得られる非農業に就業するか、以前と同程度の平均収入を

得る自家農業に継続して従事していた。農業従事を継続している者との対比で、他の2つの生計維持策を選択した者の要因を分析したところ、年齢、居住地（タップ村）、農地遺失率が統計的に有意な3要因として検出された。そのうち、生産年齢にあることと居住地（タップ村）は、非農業従事の選択に正に影響した。一方で、生産年齢であることは非就業の選択に負の影響を与えたのに対し、居住地（タップ村）と農地損失率は正の影響を及ぼした。

以上のとおり、本研究は、2012 年の農地収用後の 5 年間に生じた諸条件の変化が農家世帯員個人や農業従事者の生計選択に重大な影響を与えたことを明らかにした。それは個人にとってより安定した就業機会をもたらしたものの、同時に農村社会に非就業の増加という新たな現象を生み出した。したがって、このような農地収用後の新たな社会経済環境に対応するため、個人それぞれの適応能力の向上が必要になることが示唆された。

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LIST OF ABBREVIATIONS

ADB	Asian Development Bank
AGROINFO	Information Center for Agriculture and Rural Development
ANOVA	Analysis of variance
DFID	Department for International Development
DPC	District People Committee
FAO	Food and Agriculture Organization
GoV	Government of Vietnam
GSO	General Statistical Office
HH	Household
IIA	Independence of irrelevant alternatives
MoNRE	Ministry of Natural Resources and Environment
PCP	People Committee of the Province
RRRs	Relative risk ratios
SPSS	Statistical Package for the Social Sciences
STATA	Statistical software for data science
UNDP	United Nations Development Programme
WB	World Bank

CHAPTER ONE

INTRODUCTION

1.1 Background of industrialization and land acquisition in Vietnam

Land is the most precious resource in every nation. It provides not only indispensable means of production, but land is also the basis for the establishment of social, cultural, and economic infrastructures and securities (FAO, 2002). For people in the agricultural community, land is the most valuable asset and a fundamental asset, as it creates a primary source of income, security, and status when used for farming (FAO, 2011). In almost all developing countries, agricultural production plays a crucial role in the country's economic growth, employment, and livelihoods. Thus, land and rural livelihood have been topics of interest for researchers and development practitioners. As concluded by Deininger and Feder (1999), "In agrarian societies land serves as the main means of not only generating livelihood but often also for accumulating wealth and transferring it between generations". For this reason, land continues to play a key role in the livelihood strategies of rural people, and land change will result in significant impacts on their livelihoods.

The conversion of agricultural land to non-agricultural uses is a common way to provide space for infrastructure development, urbanization, and industrialization in many countries and is, therefore, an almost unavoidable tendency during phases of economic development and population growth (Chen et al., 2018; Nguyen, 2009a; Tan et al., 2009). In a fast-changing economy, land is altered for economic uses to achieve greater efficiencies (Tran et

al., 2013; Wang et al., 2019). However, that objective is not always true, and it takes time to evaluate the results. Most obviously, farmers experience major negative impacts when land has been transformed for other uses. Therefore, whenever we use land, we must carefully consider the total effects on the whole society (Wang et al., 2019).

Vietnam provides an example of such a transformation. Since launching the economic reforms called renovation ("Đổi Mới") in 1986, Vietnam started a socialist-oriented market economy (Nguyen, 2011). Industrialization appeared as a slogan for economic development to turn Vietnam into an industrial country by 2020 (Nguyen, 2009b). Following the industrial zone model launched by the establishment of the first industrial zone (the Tan Thuan export processing zone in 1991 in Ho Chi Minh City), the first regulations regarding the establishment of industrial zones were issued in 1994 (United Nations, 2008). After that, many industrial zones were established throughout the whole country. Industrialization in Vietnam has resulted in many achievements for economic development. In fact, the development of the industrial and major economic zones has contributed significantly to the growth of the Vietnamese economy, and the conversion from agricultural land to industrial land has helped basically change a rural society into an industrialized society (United Nations, 2008). The country's overall poverty rate reduced significantly, from 58% (1992) to 7.6% (2013) (Asia Society, 2014), and the industrial sector contributed about one-third of the total GDP (GSO, 2017). The labor force in the industrial sector increased from 13.1% in 2000 to 25.7% in 2017 (Ministry of Planning and Investment, 2018). During the most recent three decades, Vietnam has had a high annual GDP growth rate of about 6% to 7% per year (World Bank, 2020). The continuing pattern shows that the percentage of the GDP from the industrial

and service sectors will reach about 85% by 2020, of which the GDP of the industrial sector alone will be nearly 40% (National Assembly of Vietnam, 2016).

This rapid industrialization and urbanization experienced by Vietnam has led to conversions of huge areas of farmland for non-farm use purposes (Nguyen, 2009b; Tran and Doan, 2010). Together with forming industrial zones, much of the converted agricultural land has been converted for industrial purposes. In 2006, more than 157,000 ha were converted from agricultural land, including 28,644 ha for building industrial zones (Nguyen, 2010). As of June 2018, nearly 95,000 ha have been converted for building industrial zones. Vietnam had 325 industrial parks, with 231 industrial parks coming into operation and 94 at the compensation and clearance stage (Ministry of Planning and Investment, 2018).

Although the industrialization has contributed the above achievements for economic development, this process has brought about many social problems that need settling. One of those problems is that of the livelihood, employment, and income of the people who had their land revoked for industrialization. Since agricultural land is a key livelihood asset of small households, loss of agricultural land clearly forces households to seek new forms of income (Nguyen, 2010). The fourth Land Law in 2013 is the current Land Law of Vietnam, and it 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. Land use rights are granted to individuals, households, enterprises, and other organizations (National Assembly of Vietnam, 2013b). According to the Land Law, for land-users whose land is compulsorily acquired, a general principle is to provide adequate assistance so that they can find new jobs, recover their livelihoods, and be compensated for their income loss. In practice,

the greatest problem is the lack of opportunities for farmers to transfer jobs and recover their livelihoods. This is because farmers might not meet the necessary qualifications requirements for non-agricultural jobs, and the local government and the investor may not be active in searching for a practical solution to this issue (WB, 2011). Farmers who have their land revoked are entitled to compensation, support with services and job training, and job generation from the State in order to stabilize their life (National Assembly of Vietnam, 2013b). There are, however, shortcomings, obstacles, and drawbacks in the process of compensation that force farmers into difficult situations, especially for those who have a very high land loss ratio for the cultivated land revoked, making their lives uncertain (Phan and Ha, 2011).

1.2 Statement of the problem

In 2019, Vietnam had a population of 96.5 million, 65% of which lives in rural areas, and 34.5% of employees work in the agriculture, forestry, and fishing sectors (GSO, 2019). With about less than 0.3 hectares of agricultural land available per person, Vietnam is one of the world's lowest per capita land endowments (USAID, 2013). A report by the Ministry of Agriculture and Rural Development showed that approximately 59,000 hectares of rice land were being appropriated each year for non-agricultural purposes (AGROINFO, 2009). As of the end of 2013, 81% of Vietnam’s total land area was classified by the government as agricultural land, of which 3.8 million ha (about 35% of all cropland) is legally reserved for

rice cultivation only (MoNRE, 2014); although, the total rice land area has decreased slightly since 2011 (Giesecke et al., 2013).

Overall, the Vietnam government's priorities for land use are emphasizing infrastructure construction, industrialization, and urban expansion (GoV, 2016), as evidenced by the intense process of land conversions Vietnam is experiencing. Over the past three decades, escalated industrialization and urbanization have encroached on a large agricultural land area. In the period 1990–2003, about 700,000 hectares of land was taken for the construction of industrial zones, urban areas, and infrastructure and other national use purposes (Le, 2007). According to Mai Thanh (2009), in the period 1995–2005, over 766,000 hectares of agricultural land were converted to urban and industrial use by the local governments. During the period 2001–2010, 900,000 hectares of agricultural land (4% of the total agricultural land in the year 2000) were converted to land for residential use, commercial non-agricultural establishments use, public works, and other non-agricultural purposes (WB, 2011).

The conversion of agricultural land to non-agricultural use, especially for industrialization purposes, significantly impacts farmers' livelihood choices (ADB, 2007). A report by the Ministry of Agriculture and Rural Development showed that, from 2003 to 2008, the agricultural land acquisition programs influenced the livelihoods of about 627,000 households, 950,000 farmers, and 2.5 million people in the entire country (Mai Thanh, 2009, Huyen Ngan, 2009). Farmland loss for urban and industrial expansion has not only taken place in large cities such as Hanoi and Ho Chi Minh City, but also in the small and medium-sized cities such as Vinh, Hue, Binh Duong, Dong Nai, Vinh Phuc, Hai Duong, Phan Thiet, Dong Hoi, among others. In the asset region of Hanoi, urban expansion between 2000 and

2010 entailed the conversion of 11,000 hectares for 1,736 projects, which resulted in the loss of traditional employment for some 150,000 farmers (Nguyen, 2009a).

In addition, farmers are also unable to use traditional on-farm skills (Do, 2006). In land acquisitions, they receive a sum of money as compensation and support for their land loss. Despite governmental support, this vulnerability context still had an impact on household livelihood asset status in terms of natural assets, human assets, and financial assets. Accordingly, it put farmers under pressure to seek new income-generating activities. According to Tran (2013), the land acquisition not only resulted in a remarkable change in farmers' livelihood assets, but it also led to changes in the character of their employment, incomes, and social life. After the land acquisition, there are farmers who lost a part or all of their farmland. This land loss may lead some farmers to successfully find stable and high-income jobs, but it may also lead some other farmers to continue farming on a small scale, to engage in seasonal work, or to become jobless, despite the significant number of job opportunities available in their local areas (Nguyen, 2009a; Tan et al., 2009), as they become unskilled laborers in the context of off-farm activities. Farmers also have to face constraints from both internal, personal, and the external environment, such as policies, the macro-economy context, processes, and so on (Tran, 2013).

Most previous studies have investigated how livelihood choices at the household level were affected just after the land acquisition (Do, 2006; Nguyen, 2010; Nguyen et al., 2013; Tran, 2013; Nguyen et al. 2019). Nguyen et al. (2013) found that most of the households with a higher land loss ratio experienced a livelihood change after the land acquisition in Van Lam District. Among farm households that lost more than 70% of their total farmland, 94% of

them changed their livelihood. Tran (2013) studied how land acquisition affects different livelihood choices (informal wage work, formal wage work, non-farm self-employment, and farm work) of farm households in the Hanoi peri-urban area. He found that farmland loss positively affects the choice of informal wage work. Do (2006) revealed that wage work became a dominant livelihood in households with a head of working age, and poultry raising became popular in households with a head over working age after land acquisition in another Hanoi suburban area.

Although there might be several individuals with different livelihoods within a household, the above studies have focused on the main livelihood strategies of the whole household but not individuals. Studies on livelihood choice at an individual level have not yet been done. In fact, the family unit is very important in Vietnamese culture, with an emphasis on collective decision making for livelihood activities of family members (Pamela LaBorde, 1996). However, economic development and cultural integration promote individuals' roles, and individuals may choose their livelihood in their own way to meet the demands of the industrial society without pressure from their families (Nguyen, 2011). Moreover, the impact of a land acquisition on individuals' livelihood choice can differ change with each place and with time passed period after the land acquisition, for several reasons such as geography, condition of the economy, infrastructure conditions, and the availability of other non-farm employment opportunities.

Personal characteristics might also affect individuals' livelihood choices. It is necessary to understand the most relevant determinants behind the livelihood choices of these individuals after land acquisition. For example, in a situation of a complete farmland loss, a

well-educated young farmer might have a better chance of getting another job with a higher salary than a non-educated elderly farmer in the same area. In addition, the most influenced individuals under a new context after the land acquisition may be persons who were engaging in farming activities when the land acquisition was taken place (hereinafter, they are referred to as farmer in this dissertation). Those farmers were more severely affected by land acquisition than other individuals. However, previous studies have not provided a clear explanation of the livelihood choices of farmers. Thus, the findings of previous studies might be insufficient because there is less explanation about the transformation of livelihood choices of individuals, particularly farmers, after a certain period of land acquisition. Furthermore, previous studies have shown the impact of land acquisition just after the land acquisition occurred. The impact after a period of time, thereby allowing for people to adapt to new situations, is a limited factor in previous studies. Therefore, livelihood choice at an individual level five years after the land acquisition might be different from that of livelihood choice at the household level. For the above reasons, this study attempts to answer the question of how individuals' livelihood choice changed after five years of land acquisition and what factors determined the individual's current livelihood choices.

1.3 Research objectives

The general objective of this study is to investigate individuals' livelihood choices five years after land acquisition in the context of Di Su Commune in Vietnam. Accordingly, the specific objectives are:

1) To investigate the change in individuals' livelihood choices five years after the land acquisition;
2) To analyze the determinants of individuals' livelihood choices after the land acquisition;
3) To investigate the change of livelihood choices and income of farmers after the land acquisition; and
4) To analyze the determinants of farmers' current livelihood choices.

1.4 Significance of the study

This study was conducted in the case of Di Su Commune, which is one of the most developed communes of the My Hao District in Hung Yen Province, Vietnam. This study represents a different approach (individual level) from previous studies (household level) with a study period of 5 years after the land acquisition In addition, the study provided econometric evidence to determine the impact of the 2012 land acquisition on the livelihood choice at the individual level in 2017. Particularly, the determinants of the current livelihood choices of individuals and farmers after land acquisition are also examined. Moreover, the research proposes recommendations to both the individuals and the government to improve the livelihood choices and economic outcomes under the impacts of land acquisition.

1.5 Structure of the thesis

The thesis is organized as six chapters as follows:

Chapter 1 introduces the background of the land acquisition under the industrialization in Vietnam and the impact of the land acquisition on farmers' livelihood choices. Then, the objectives and significance of the study are indicated.

Chapter 2 reviews the previous literature with definitions and terms related to the livelihood approach. This chapter focuses on literature reviews about land policies relating land acquisition and livelihoods of farm households as well as farmers after the land acquisition.

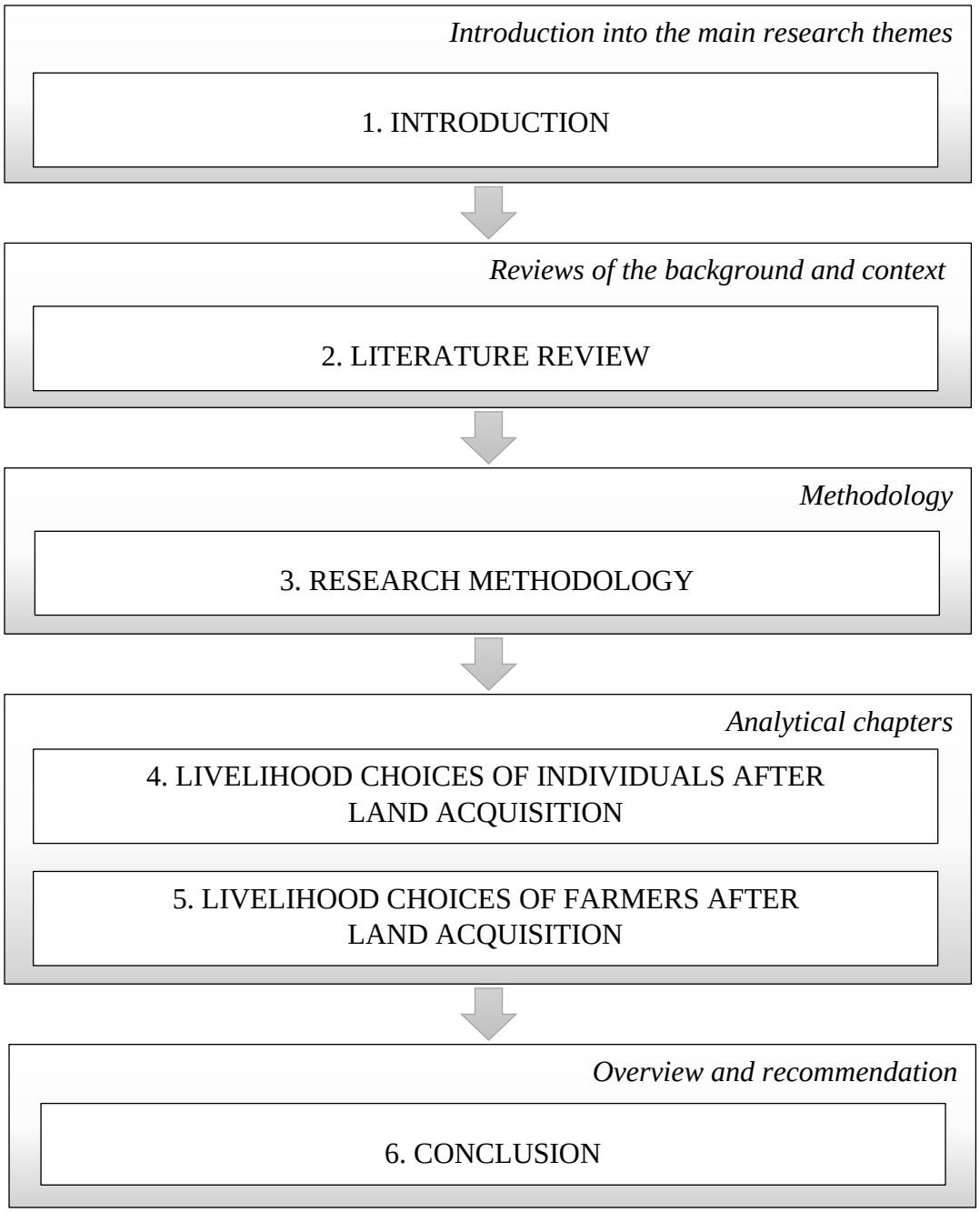
Chapter 3 provides a detailed description of the research site - Di Su Commune in Hung Yen Province, data collection, and data analysis of the study.

Chapter 4 investigates changes in individuals' livelihood choices five years after the land acquisition. The determinants of the current livelihood choices of individuals after land acquisition are also examined. In this chapter, the diverse livelihoods of individual people and determinants of livelihood choices of individuals will be shown.

Chapter 5 continues to determine the impact of the land acquisition on livelihood choices but focuses on farmers who were doing farming when the land acquisition happened. Additionally, this chapter identifies the change of livelihood choices and incomes of farmers after the land acquisition.

Chapter 6 presents the conclusion and policy recommendations. Furthermore, some avenues for further research on this topic are proposed.

The following diagram illustrates the outline of this thesis.



Source: Author's results in 2020

Figure 1.1 Outline of the thesis

CHAPTER TWO

LITERATURE REVIEW

2.1 Concept and content of livelihood

2.1.1 Concept of livelihood and sustainable livelihood

The ideas of livelihood were firstly addressed in the research work of Chamber R. in the 1980s. Later, this concept appeared in the research of Scoones (1998), Bebbington (1999), DFID (1999), F. Ellis (2000), Kollmair and Gamper (2002), and others. There are many approaches and different definitions of the term "livelihood". However, there is a consensus that the concept of livelihood involves many factors that affect the life activities of each individual or household. Basically, livelihood activities are unique to each individual or household to decide based on their capacity and their ability within the effects of their institutions, policies, and social relations that individuals or households in the community are set.

The definition used by the Department for International Development (DFID) incorporates these sentiments: "A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living" (Chambers and Conway, 1991). Chambers and Conway (1991) also indicated that, "Livelihood in its simplest sense is a means of gaining a living".

From Chambers to Ellis, understanding of livelihood seems to stress the economic or material objectives of life. Other scholars have developed concepts of livelihood that go beyond the conventional material indication. Bebbington (1999) clarified that:

> A person's assets, such as land, are not merely means with which he or she makes a living: they also give meaning to that person's world. Assets are not simply resources that people use in building livelihoods: they are assets that give them the capability to be and to act. Assets should not be understood only as things that allow survival, adaptation and poverty alleviation: they are also the basis of agents' power to act and to reproduce, challenge or change the rules that govern the control, use and transformation of resources.

This means that livelihood contains both matters of material and non-material aspects of well-being. Livelihood, thus, should be seen as a dynamic and holistic concept that can be changed in accordance with particular situations. It could be said that the former definitions of livelihood are suitable for poor individuals or groups who are struggling for their basic needs (Nguyen, 2010).

DFID (1999) indicated that, "A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base". Further, livelihoods are sustainable when they are resilient in the face of external shocks and stresses and are not dependent upon external support. A sustainable livelihood should maintain long-term productivity of natural resources and should not undermine the livelihoods of, or compromise the livelihood options open to, others (DFID, 1999). Chambers and Conway (1991), in

elaborating on sustainability, divided this term into environmental and social sustainability. Scoones (1998) indicated that the concept of sustainable livelihood engenders a wide range of debates about the relationship between poverty and environment, and little existing literature has clarified the contradictions and trade-offs between them. Thus, elements were proposed by Scoones (1998) to consider determining whether a livelihood is sustainable, including the number of working days, poverty reduction, wellbeing and capabilities, and livelihood adaptation, vulnerability, resilience, and natural resource base sustainability (Scoones, 1998).

2.1.2 Livelihood assets

Assets are the building blocks of sustainable livelihood (DFID, 1999). By building assets, individuals and households develop their capacity to cope with the challenges they encounter and to sustainably meet their needs. The framework draws attention to the variety of assets that contribute to making a sustainable livelihood and to ways in which they are interdependent.

Theoretically, livelihood assets include tangibles, such as material assets, and intangible assets, such as social resources. According to Scoones (1998), the ability to adopt various livelihood strategies is based on the material and social assets that people own. Livelihood assets are assets considered those owned, controlled, claimed, and accessed by the households. These assets, "may be described as stocks of asset that can be utilized directly or indirectly, to generate the means of survival of the households" (Ellis, 2000; FAO, 2002).

DFID (1999) divided livelihood assets into five categories that present a useful starting point for a household livelihood analysis: natural, human, financial, physical, and social assets.

(1) Natural asset:

"Natural asset is the term used for the natural resource stocks from which resource flows and services (e.g. nutrient cycling, erosion protection) useful for livelihoods" (DFID, 1999). There is a wide variation in the resources that make up natural assets, from intangible public goods such as the atmosphere and biodiversity to divisible assets used directly for production (trees, land, etc.). Clearly, natural assets are very important to those who derive all or part of their livelihoods from resource-based activities such as farming, fishing, gathering in forests, mineral extraction, etc. (DFID, 2002).

The natural resource base has recently come to be thought of as an asset stock in a purely economic sense. Natural assets comprise land, water, and biological resources that are utilized by people to generate means of survival (Ellis, 2000). In terms of natural processes (e.g. fires, flood, earthquake, seasonality, storms), there is a close relationship between natural assets and the vulnerability context, in which many shocks can devastate livelihoods of the poor (DFID, 1999). Sometimes, shocks can be caused by human interaction; for example, land acquisition in many locations is not a matter of natural process. The dispossession of accessibility to land can cause shocks and disturb households' livelihoods. Ability to cope with shocks depends on household livelihood assets and their process of responding.

(2) Human asset:

According to DFID (1999) “Human asset represents knowledge, skills of labor and good health that together enable people to pursue different livelihood strategies and achieve their livelihood objectives”. The human asset influences the amount and quality of labor available at a household level and is a factor of production along with education, skills, and health (DFID, 1999; Ellis, 2000). Especially, the poor have their own labor as a key livelihood asset (FAO, 2002). Furthermore, human asset is increased by investment in education and training as well as by the skills acquired through pursuing one or more occupations (Ellis, 2000) or by providing skills and training (FAO, 2004).

Emphasizing education and skills, it is clear that gaining improvement in human asset is not easy and quick, especially to peasants who are confronted with shocks and risks (Kollmair and Gamper, 2002). In fact, human asset plays a vital role in household decision making in terms of investment in education and learning skills. Among livelihood assets, human asset seems to play an important role, since it promotes the effective use of other types of assets and should be considered as a decisive factor. Any changes in the human asset will result in the transformation of other assets, and therefore it must be considered as a supportive factor for other livelihood assets (Kollmair and Gamper, 2002). Scoones also emphasised that human assets are crucial factors in pursuing various livelihood strategies (Scoones, 1998).

(3) Financial asset:

According to DFID (1999), financial asset denotes an important resource that people can use to achieve their livelihood objectives. Financial asset refers to stocks of money to which the household has access, and this asset is most likely to be savings and access to credit in

the form of loans. Financial assets consist of two main sources: available stocks and regular inflows of money (DFID, 1999). The first source exists in the form of cash, bank deposits, and sometimes is not only in the form of money. Each household converts financial assets into a form of productive physical assets, such as breeding livestock, machines, vehicles, etc. This depends on choices farmers make for their investments. Financial assets can also be obtained through credit institutions. The second source is received from pensions, transfers from the state, and remittances (DFID, 1999; Kollmair and Gamper, 2002).

In addition, Ellis (2000) stressed that the access status of an individual or household with respect to savings, loans, or other forms of finance or credit clearly makes a big difference to the livelihood choices that are open to them, and therefore financial asset is recognized as an important component of individual and family livelihoods.

(4) Physical asset:

Ellis (2000) expressed that physical asset refers to assets brought into existence by economic production processes, for example, tools, machines, land improvements like terraces and irrigation canals, and roads and buildings. Thus, physical assets comprise the basic infrastructure and producer goods needed to support livelihoods. DFID (2002) indicated that infrastructure could help people meet their basic needs and be more productive. It is commonly a public good that is used without direct payment. Components of infrastructure for sustainable livelihoods include affordable transport, secure shelter and buildings, adequate water supply and sanitation, cleaning, affordable energy, and access to information (communications).

At the household level, physical assets include equipment and tools that can be used to work more productively (DFID, 1999) and other assets such as livestock, vehicles, and housing (Jansen et al., 2006). Rural households who do not have productive assets such as buffalo, horses, tractors, and water pumps will have to use their human physical strength, spending more time on hard work and therefore functioning less productively.

(5) Social asset:

Social asset is a relatively new concept that departs from the narrow definition of economic assets. The definition of social asset is also a subject of a continuing debate (Ellis, 2000).

Social asset was defined by Moser (1998) as "reciprocity within communities and between households based on trust deriving from social ties". In addition, Ellis (2000) indicated that this asset refers to networks and associations in which people engage and from which they can receive assistance for their livelihoods. Therefore, the social assets of a society include institutions, relationships, attitudes, and values that govern interactions among people and contribute to economic and social development (Ellis, 2000).

Social asset was defined by DFID (1999) as "the social resources upon which people draw in pursuit of their livelihood objectives". These are developed through networks and connectedness and increase people's trust and ability to work together and expand their access to wider institutions. Thus, as pointed out by DFID (1999), social assets in many ways bring about several positive effects, such as people increasing their belief and ability to cooperate and broaden their approach to wider institutions. Consequently, by enhancing the

performance of economic relationships, social assets can improve people's income and savings. In addition, being a member of a formalized group forces people to adhere to common rules, norms, and regulations. In certain situations, social assets may help by mitigating shocks and compensating for shortages in other assets. Conversely, in some cases, social assets may cause negative effects, for example, a membership may exclude non-members from access to opportunities and resources, which disadvantages outsiders (DFID, 1999). Moreover, in a stringently hierarchical network, a lower hierarchical member may be at a disadvantage (Kollmair and Gamper, 2002).

2.1.3 Livelihood strategies and livelihood outcomes

Livelihood strategies can be defined as the range and combination of activities and choices that people pursue to achieve their livelihood objectives (Kollmair and Gamper, 2002). As pointed out by Ellis (2000) and DFID (2002), livelihood strategies include various activities that create the means of household survival, such as how people combine their income-generating activities and the way in which they use their assets, which assets they chose to invest in, and how they manage to preserve existing assets and income.

Scoones (1998) considered that livelihood strategies could be identified at different levels, ranging from the individual, household, and village levels, to regional and even national levels. He also realized that, for research or policy work, classification of livelihood strategies might be useful. People's access to different levels and combinations of livelihood assets probably has a considerable effect on their choice of livelihood strategies. In addition, although different livelihood strategies require different conditions, the common rule is that

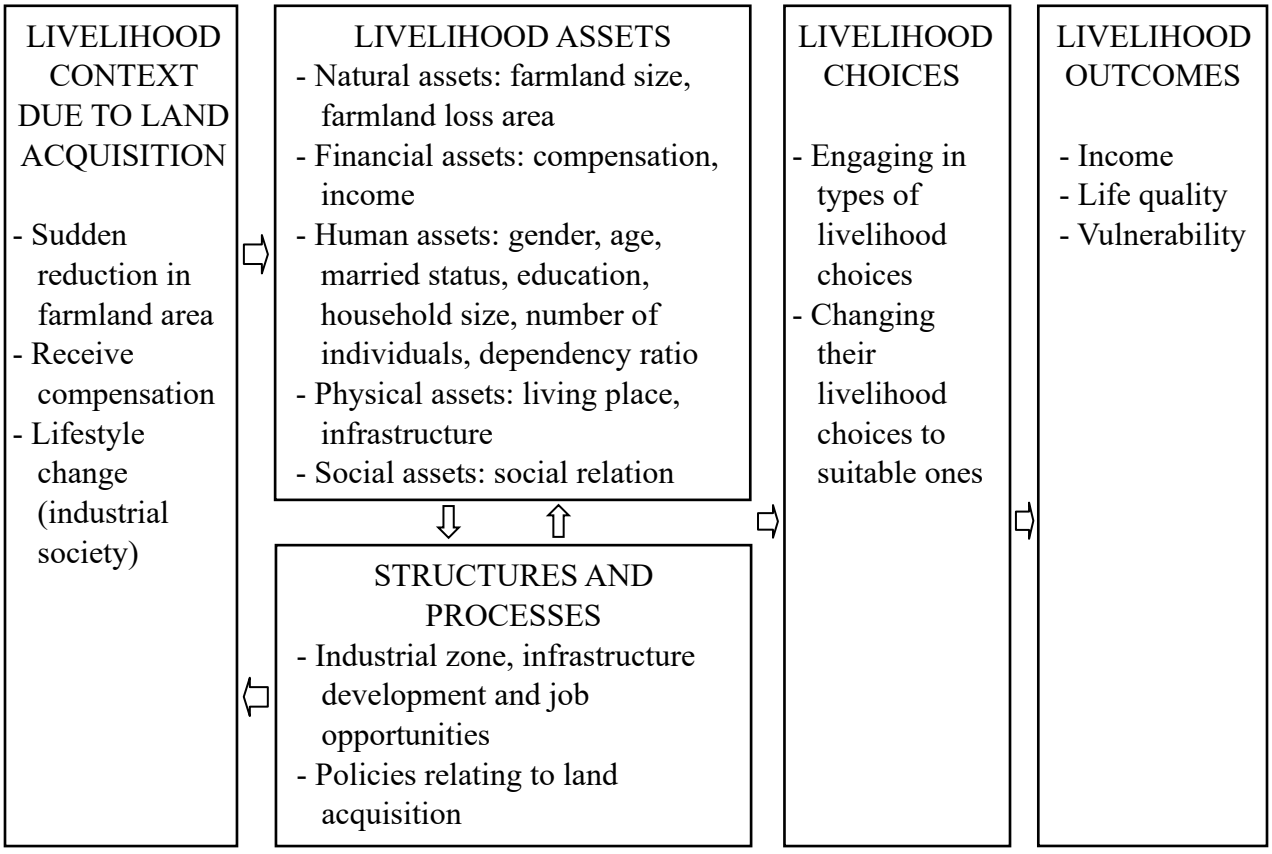
those who are abundantly endowed with assets are more likely to make better livelihood choices (DFID, 1999).

In fact, during the process of responding and recovering from shocks, a household's choice for livelihood based on its resources seems to be a risk coping strategy (Ellis, 2000). In some cases, diversification means spreading risks, because if a livelihood depends on a single source, then the household is at greater risk. In contrast, for some households, their income diversification is to cope with a risk that happened. This is clearly a compelled situation for survival as a response to a shock (UNDP, 2001). The achievements and results of the livelihood strategies are called livelihood outcomes. Outcome categories can be examined in relation to the following five categories: more income, increased life quality, reduced vulnerability, improved food consumption, improved social interaction, and more sustainable use of the natural resource bases, social relations and status and dignity and respect (DFID, 2002).

According to Scoones (1998), the above five indicators are quite distinct in scope and can be measured using a wide range of criteria, from precisely quantitative assessments to diffuse indicators with qualitative measures. Ellis (2000) noted that, "…the composition and level of individual and household income at a given point in time is the most direct and measurable outcome of the livelihood process". Also, Ellis (2000) suggested that it is useful to decompose total household income into various categories and sub-categories of income sources or activities. Such decompositions enable one to identify different attributes of the resources that are required to create different income sources.

2.1.4 Conceptual framework

The conceptual framework for analysis of the study is adapted from DFID's (1999) sustainable livelihoods framework.



Source: Adapted from DFID's sustainable livelihoods framework (DFID, 1999)

Figure 2.1 Conceptual framework for analysis of the study

2.2 Land acquisition and livelihood of people in Vietnam

2.2.1 Land policies relating land acquisition

Vietnam's Constitution holds that land and other natural resources are "public property, owned by all the people, and represented and uniformly managed by the State". (National Assembly of Vietnam, 2013c). Land policy is the actions and activities through which the Government of Vietnam determines individuals' and organizations' rights over land, specifies the circumstances in which the land-related rights can be transferred, and develops mechanisms to protect those rights and gives orientations to deal with related disputes. These policies were previously reflected through several laws (such as the Land Law 1987, 1993, 2003 and the current Land Law 2013), decrees, directives, decisions, and circulars.

Since launching the economic reforms called renovation ("Đổi Mới") in 1986, Vietnam has made a number of reforms to change itself from a centrally planned to a market-oriented economy. The reform not only dissolved collective farms but also granted land use rights to farm households (Kirk and Nguyen, 2009). The first Land Law of 1987 recognized the land use rights of households and individuals (National Assembly of Vietnam, 1987). Since the second Land Law was promulgated in 1993, farmers' long-term and stable use of agricultural land have been secured (National Assembly of Vietnam, 1993; Nguyen, 2012). By 1999, more than 10 million households had been granted Land Use Certificates for agricultural land, accounting for 87% of agricultural households and 78% of agricultural land in Vietnam. The second Land Law of 1993 also stipulated that the State can revoke land to allocate what the development projects and project investors have to pay in compensation to land users. It should be noted that land acquisition is the only way to take land from private use for projects in Vietnam (Thien Thu and Perera, 2011). Prior to the Land Law of 2003, the compulsory acquisition of land by the State was the only way to take land for projects. However, the third

Land Law of 2003 proposed a new method of land acquisition, which is a voluntary land conversion based on a voluntary agreement between project investors and land users (National Assembly of Vietnam, 2003; WB, 2011).

Land Law of 2013 is the current Land Law of Vietnam. It 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, but that land use rights are to be granted to individuals, households, enterprises, and other organizations (National Assembly of Vietnam, 2013b). The compulsory acquisition of land by the State is applied to cases in which land is acquired for national or public projects for projects with 100% of contributions from foreign funds (including Foreign Direct Investment and Official Development Assistance), and 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, 2011). Voluntary land conversion is to be used in cases of land acquisition for investment projects by 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 the land users (WB, 2011). Evidence suggests that all matters relating to land are regulated in the Land Law of 2013, which contains strong legal provisions regarding the transparency of the approved plans for compensation, resettlement, and support.

According to Decree 17/2006/ND-CP by the Government of Vietnam, in the acquisition of agricultural land from farmers, farmers must be compensated with other cultivable land or

cash compensation (GoV, 2006). In the case of having no more cultivable land available for compensation, the provincial authority can compensate farmers by providing a plot of land suitable for use in carrying out their services, such as running a small business or a boarding house, which provides farm households with conditions under which they can change their livelihoods. If cash compensation is the only choice, then the provincial government must have specific planned solutions for job assistance for farmers (General Department of Taxation of Vietnam, 2006). In recent years, compensation and support for land acquisition have usually been done in cash, and it is considered as a significant financial asset to households.

WB (2011) and Wit (2013) summarized the land recovery and compensation policies in Vietnam as mentioned below:

> Where the process of land recovery and compensation is concerned, the District Board of Compensation, Support and Resettlement prepares the Plan of Compensation, Support and Resettlement, and this is approved by the District People Committee (DPC). If there are more districts this Plan is approved by the Provincial Organization of Land Development and approved by the People Committee of the Province (PCP). As per the law, the plan must be publicized to obtain the views of the public- both at the Commune People Committee office but also at locations where land is recovered. Then the plan is adjusted by the above-board/organization and is appraised by the Department or District office of Natural Resources and Environment, after which it is publicized. If there are complaints, they are first dealt with by the DPC and the chairman of the PCP. The

settlement decisions must be disclosed. After the decision of one of these Committees, the complaint can be taken to court.

2.2.2 Livelihoods of people after the land acquisition

Various studies conducted in China, India, Philippines, Ghana, and Central America have shown that the process of land acquisition for industrialization and urbanization has both positive and negative impacts on people and communities (Nguyen, 2017). On the positive side, land acquisition makes land available for housing, infrastructure development, and other facilities to allow for both economic growth and urban development. As an indirect result of socio-economic development, many non-farm employment opportunities are created for the local population. Such opportunities can enable farmers to diversify and improve their livelihoods (Oduro, 2010; Zhang and Lu, 2011). Moreover, improved infrastructure and the development of village enterprises in the acquired land area offer many non-farm livelihood opportunities for rural populations (Tacoli, 2004), and compensation money for land loss can help people to repair houses, purchase furniture, or invest in their new livelihoods (Zhou, 2012).

On the negative side, the loss of traditional livelihoods is one of the direct consequences of land acquisition, especially the acquisition of agricultural land (Guilio, 2014; Firman, 2000; Zhang and Lu, 2011; Mattingly, 2009). Due to a decline in the availability of cultivatable land, finding jobs for laborers is a great challenge for the population living in rural areas (Fazal, 2001). In addition, a lack of sustainable livelihoods is also a serious consequence of land acquisition (Zhang and Lu, 2011; Oduro, 2010).

In Vietnam, several studies have tried to address how and to what extent land acquisition has affected rural livelihoods. According to a report by the Ministry of Agriculture and Rural Development, from 2003 to 2008, only 13% of agricultural laborers who lost their land obtained new jobs, while between 25% and 30% became jobless or had unstable jobs. The report also stated that over 53% of the households suffered a decline in income, while only 13% increased their income after land loss (Mai Thanh, 2009; Huyen Ngan, 2009). A large-scale survey in 2005 in the eight provinces with the highest urbanisation rate (including Hanoi, Ho Chi Minh City, Da Nang, Hai Phong, etc.) provided a quite detailed picture of both positive and negative effects of farmland acquisition on household livelihood outcomes. Regarding the total income that households earned after farmland loss, 25% obtained a higher level, while 44.5% maintained the same level, and 30.5% experienced a decline (Le, 2007). Changes to livelihood vary greatly under the effects of industrialization and urbanization. Among the respondents who found jobs after land loss, nearly 47% in the peri-urban area of Hanoi answered that they found fewer alternative sources of work in the local labor market. This figure in Da Nang was 36.1%, 54.4% in Hai Phong, and 10.8% in Ho Chi Minh City. The majority of affected people engage in non-farm employment, for example, building apartments to rent out, while others wait for urban expansion and the resulting compensation payments. Almost all households have changed their livelihoods; however, farming still remains important for household food security (Tran et al., 2014; Nguyen, 2017).

Studies of livelihood diversification have stated that livelihoods are diverse even in rural areas that are also in peri-urban zones. Farmer livelihoods increasingly depend on a variety of assets and operate on multiple spatial scales (Rigg, 2005). Agricultural land shrinkage due

to industrialization and modernization has a negative impact on the livelihood strategies of people, who depend on agricultural land or other natural resources (Nguyen et al., 2019). The need to convert a large amount of agricultural land into industrial, commercial, and residential land has raised many issues, such as labor conversion, reduced traditional food production, the need for compensation, and future risk (Nguyen, 2011).

While farmers who have their land revoked are entitled to compensation, support with services and job training, and job generation by the State in order to stabilize their life, there remain shortcomings, obstacles, and drawbacks in the process of compensation that force farmers into difficult situations, especially for those who have 70% to 100% of their cultivated land revoked, as their lives become uncertain (Nguyen, 2013). On average, after land loss, each household has 1.5 unemployed laborers. For every hectare of agricultural land, there are 13 unemployed laborers who had to find ways to change their jobs (Huyen Ngan, 2009). According to the summary of Phan and Ha (2011) from the results of surveys done in Long An, Nghe An, and Phu Tho provinces in 2008, each hectare of agricultural land that was transferred to another purpose would make 13 to 15 agricultural workers redundant. Only 10% to 20% of laborers in households suffering from land acquisition are able to adapt to other non-agricultural occupations and about 70% of such households have lower living standards than before their land rights were revoked. In the period between 2001 and 2005, due to the revocation of 366,440 hectares, nearly 4.8 million farmers lost their agricultural jobs. Topping the list is the former Ha Tay province with 37,703 people, followed by Vinh Phuc province with 28,800, and Dong Nai province with 12,295 (Phan and Ha, 2011). These laborers had to change their jobs to non-agricultural ones, but facts show that they

encountered a lot of difficulties, and complete unemployment among them is an increasing trend. Therefore, it can be said that agricultural land acquisition has a significant impact on poor households in rural and peri-urban areas of Vietnam. Moreover, livelihoods of rural households have been faced with the challenge of losing arable land on a large scale.

The impact of agricultural land acquisition is especially potent among households with larger amounts of farmland. The relationship between farmland and rural livelihood shows that households with more farmland tend to be less actively engaged in non-farm activities (Pham et al., 2010; Van de Walle and Cratty, 2004). There is a relationship between diversification out of agriculture and poverty reduction, and therefore promoting rural non-farm activities, together with support for improving the poor's access to these activities are important factors in rural poverty alleviation in Vietnam. A case study in a village of Hanoi by Do (2006) indicated that farmland acquisition caused a loss of arable land, food supply, and agricultural income sources. Many land-losing households actively adapted to the new circumstance by diversifying their labor in manual labor jobs. Consequently, a high but unstable income from casual wage work became the main income source for many households.

In the case of a peri-urban commune in Ho Chi Minh City where most agrarian land was taken for non-agricultural land uses, such as industrial zones or residential land, Vo (2006) found that farmers there actively switched from rice cultivation to animal husbandry and horticulture. Moreover, non-farm job opportunities also increased with rapid urbanization and industrialization, making young rural workers less interested in agricultural jobs. In a study conducted by Nguyen et al. (2005), while a number of land-losing farmers who resided

close to newly urbanized areas earned higher cash income than farm work, other land-losing farmers, particularly those with low levels of education, became jobless and impoverished. Nguyen et al. (2011) investigated livelihood adaptation and social differentiation among land-losing households in some communes of Hung Yen, where the farmland of communes in the study declined by 70% due to farmland conversion for industrial purposes in the period 2001-2006. They found that diversification in both farm and non-farm activities emerged as the most common livelihood strategy among land-losing households, followed by a livelihood strategy based on non-farm paid work and self-employment and finally by an agricultural intensification strategy.

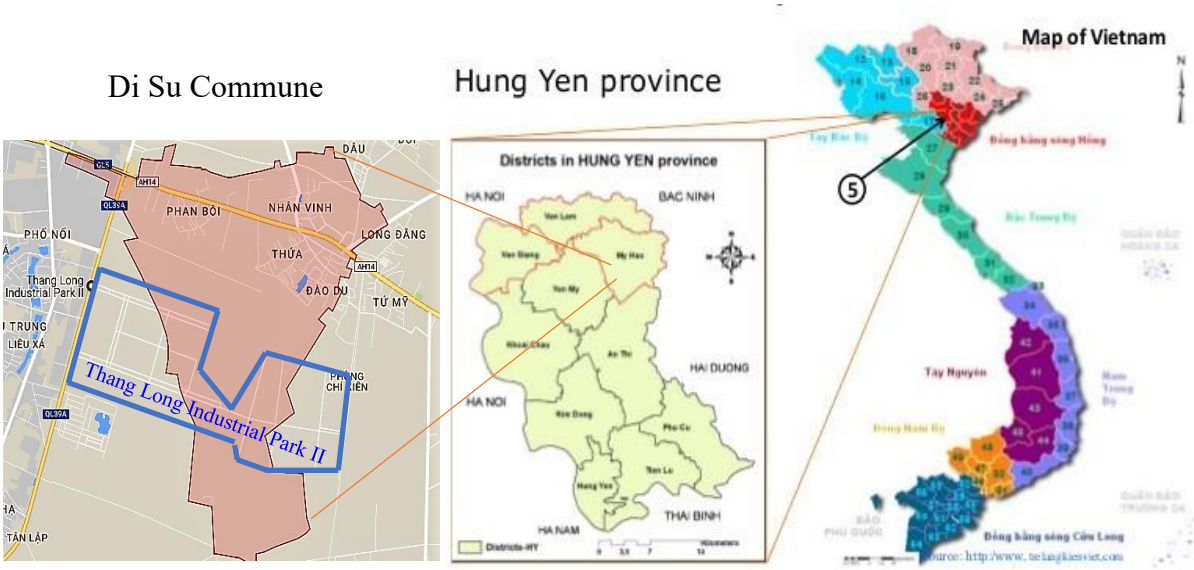
Despite the low return from agriculture and more opportunities for lucrative non-farm jobs, households maintained farming activities not only for their basic and secure livelihood but also for cultural identity. In addition, among land-losing households, those with a farming background tend to be at a disadvantage in taking up high-return activities. Finally, the difference in returns among different livelihood strategies was one of the main causes of increasing social stratification (Tran, 2013).

CHAPTER THREE

RESEARCH METHODOLOGY

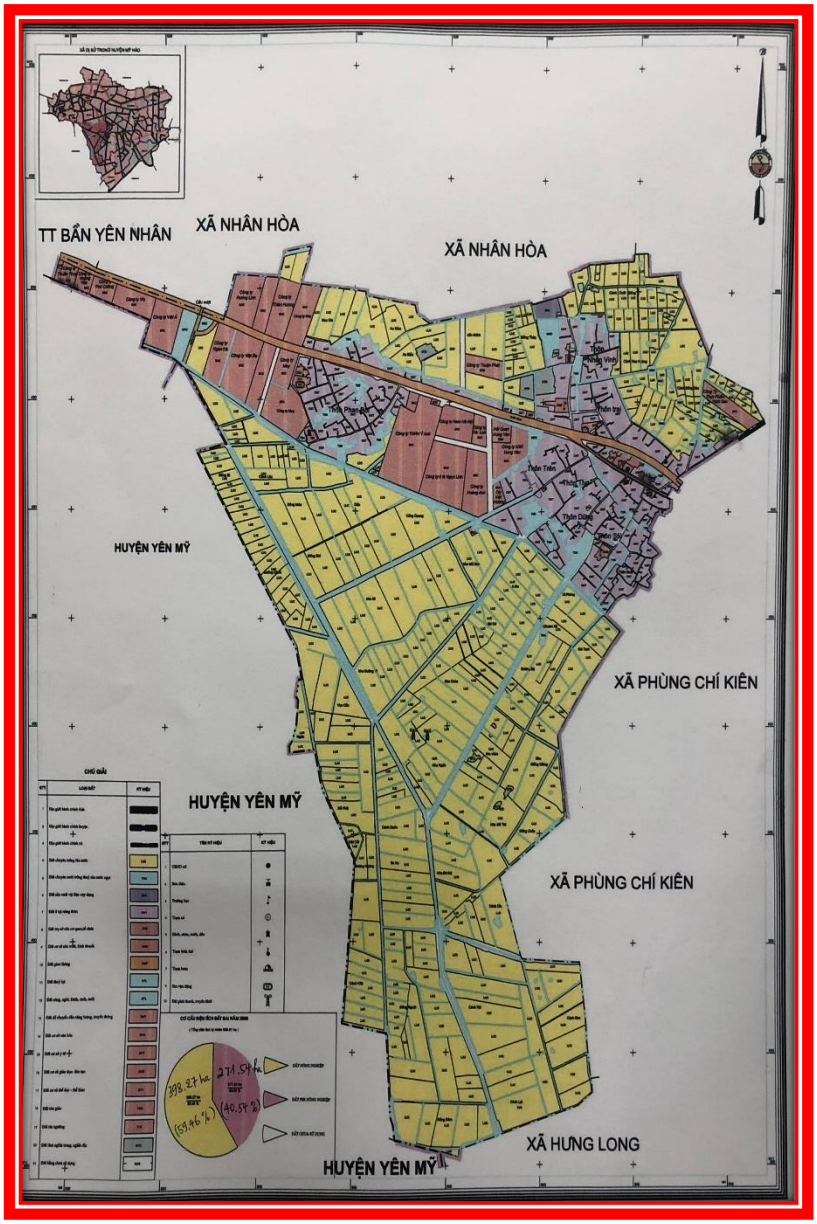
3.1 Selection of research site

This study was conducted in the Di Su Commune in My Hao District, Hung Yen Province. This commune is located 30 km from Hanoi and has 669.81 ha of land area. The commune is highly attractive for both local and foreign investors in the industrial sector due to improvements in infrastructure such as National Road No. 5 and modernized industrial zones. Particularly, there are two industrial parks located in this commune, including Pho Noi Textile and Garment Industrial Park and Thang Long Industrial Park II.



Source: Dang, 2013; Google map, 2017 and author's field survey in 2017 (redrawing)

Figure 3.1 Location of Di Su Commune in Hung Yen Province



Source: People's Committee of Di Su Commune, 2005

Figure 3.2 Map of land use in Di Su Commune in 2005

From 2005 to the end of 2012, 65% of the total agricultural land in the commune was converted to industrial land. Within less than a decade, the agricultural land area in the

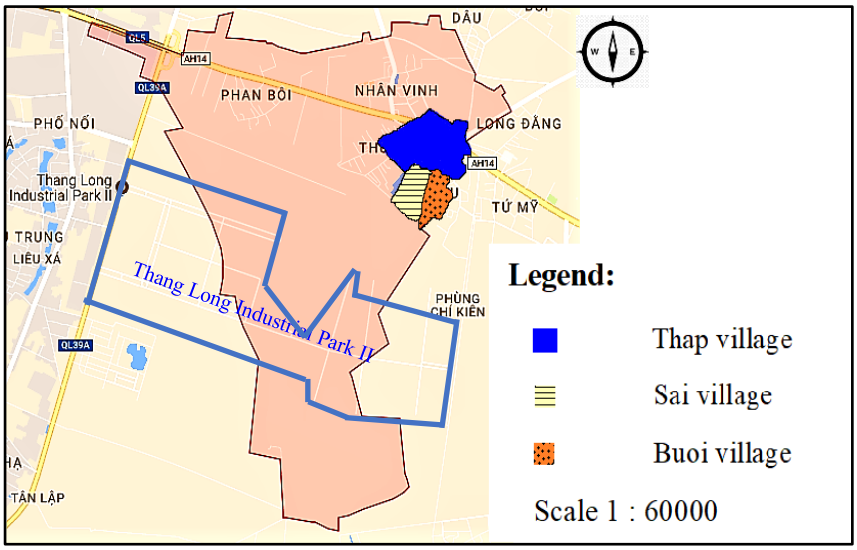
commune decreased dramatically from about 400 ha (60% of total land area) in 2005 to about 140 ha (20% of total land area) in 2012. At the beginning of 2012, Di Su Commune had a population of about 10,500 people in nearly 2,500 households, of which 80% were farm households (People's Committee of Di Su Commune, 2012). As a result, by the end of 2016, 49 companies were operating in different manufacturing sectors, creating thousands of employment opportunities in the service and industrial sectors.

Di Su Commune consists of nine villages, three of which (Buoi, Sai, and Thap) were selected as the survey sites for this study. These locations were chosen because the farmlands in these villages were subject to the land acquisition in 2012, which was intended for the construction of Thang Long Industrial Park II.

Source: Hung Yen Portal, 2017

Figure 3.3 Thang Long Industrial Park II

In 2012, 365 households lived in Thap village, while 132 and 133 households lived in Buoi and Sai village, respectively (People's Committee of Di Su Commune, 2012). Of these, 503 households lost 36.5 ha of farmlands in total. Out of those households, 263 were in Thap village, 107 and 133 were in Buoi and Sai village, respectively (My Hao District People's Committee, 2012). The farmland area was separately located from their residential land, at about 2.4 km away in distance. The administrative office, national road, and major local market are located in the residential land of Thap village.



Source: Google map, 2017 and authors' field survey in 2017 (redrawing)

Figure 3.4 Map of Three Villages in Di Su Commune

3.2 Data collection

This study employed a quantitative methodology approach, and the data collection was conducted from February to March and August to September 2017.

The secondary data used for this study were collected from published reports on the revoked land area gathered from the Hung Yen Provincial Department of Natural Resources and Environment, My Hao District People's Committee, and People's Committee of Di Su Commune. The information regarding land laws, government's target in land acquisition, and its benefit to the people were collected from the National Library of Vietnam. Data on changes in land area, information on projects due to the industrialization process, and socio-economic conditions of the commune were collected from statistical data, annual reports, and related decisions in the Di Su Commune. In addition, the data and information on the impact of land acquisition on farm households and rural communities were collected from related studies and published documents on the Internet.

The primary data was collected from household interviews. A questionnaire was designed to gather a set of quantitative data on basic information of livelihood assets of households and detailed information on individuals' job and income in 2012 and 2017. The data collection was conducted by face-to-face interviews with the head of households. The information of household members was also provided by the head of household in the presence of other household members.

There were 630 households in the three villages. Among them, 503 had farmland revoked by the land acquisition project for constructing Thang Long Industrial Park II in 2012. A sample of 200 households in three villages was selected for this study using a proportionate sampling technique. Of those 200 households, 160 households lost their farmland by acquisition and 40 households did not lose their land.

Table 3.1 The number of interviewed households in Di Su Commune

Village	Total no. of households	No. of households that lost farmland	No. of households that did not lose farmland
1. Total households in 3 villages (2012)	630	503	127
- Buoi village	132	107	25
- Sai village	133	133	0
- Thap village	365	263	102
2. No. of interviewed households (2017)	200	160	40
- Buoi village	42	34	8
- Sai village	42	42	0
- Thap village	116	84	32

Source: Author's field survey in 2017

3.3 Data analysis

This study aimed to examine the determinants of individuals' livelihood choices and farmers after land acquisition. Because there were more than two nominal outcomes of the dependent variable in the study, multinomial logistic regression models were used for data analysis.

The multinomial logistic regression model, which analyzes nominal outcomes, is one of the most common methodologies in economics and social sciences. It has been used in

previous studies to analyze the determinants of livelihood choices in the context of more than two unordered outcomes (Scott, 2002; Gujarati, 2004). As this model has been recently applied to understanding the impact of land acquisition on livelihood choices in the Vietnamese context (Tran, 2013), it is considered suitable to apply in the current study.

Chapters 4 and 5 will provide a specific description of the model used for data analysis in each chapter. The data analysis in Chapter 4 was conducted using both SPSS version 18 and STATA version 13 because we used STATA to support SPSS version 18 in using a multinomial logistic regression model. However, in Chapter 5, only SPSS version 23 was applied because it can analyze the data by using this kind of model. In addition, descriptive analysis, ANOVA, and Chi-square were used for data analysis in the study.

CHAPTER FOUR

LIVELIHOOD CHOICES OF INDIVIDUALS AFTER LAND ACQUISITION

4.1 Introduction

In developing countries, where most people largely rely on agricultural production, agricultural land is an asset that plays an important role in farmers' livelihood. Thus, the conversion of their agricultural land to non-agricultural use significantly impacts farmers' livelihood choices (DFID, 2002). Since the 1990s, agricultural land acquisition has been a common method in Vietnam to help further the urbanization and growth of the industrial sector (Nguyen, 2009b). The government provides compensation and assistance for farm households to minimize the shock and to help farmers change their livelihood after the land acquisition (Nguyen et al., 2005). Because of this, people who are in agricultural areas have adjusted their livelihood activities (Nguyen, 2010), some of which have become prominent, while others have become obscure.

After the land acquisition, some farmers lost part or all their farmland. Consequently, this land loss may lead some farmers to successfully find stable and high-income jobs. However, the land loss may also lead some other farmers to continue farming in small-scale, to engage in seasonal works or to become jobless, despite the significant number of job opportunities available in their local areas. Previous studies have focused on the livelihood choice at the household level (Do, 2006; Nguyen, 2010; Nguyen et al., 2013; Tran, 2013). While the family unit is very important in Vietnamese culture, as its emphasis collective decision making on livelihood activities of family members (Pamela LaBorde, 1996), today, economic

development and cultural integration promote individuals' role in the choice of livelihood activities. However, studies that explain the determinants of individuals' livelihood activities are limited. This paper, therefore, attempts to provide econometric evidence of determinants of individuals' livelihood choices after the land acquisition.

4.2 Methodology

This research was conducted in the Di Su Commune, My Hao District, Hung Yen Province. From 2005 to 2012, 65% of the total agricultural land in Di Su Commune was converted to industrial land (My Hao District People's Committee, 2012). In this study, we focused on the land acquisition in 2012 used to construct Thang Long Industrial Park II.

There were 630 households in the three villages (Buoi, Sai, Thap) in the Di Su Commune, and among them, 503 were affected by the land acquisition. A sample of 200 households in three villages was selected for this study using a proportionate sampling technique. Of those households, 160 lost their farmland by acquisition, while 40 did not. There were 474 individuals living in the 200 households surveyed, of which 114 persons were from Buoi village, 92 persons were from Sai village, and 268 persons were from Thap village.

A questionnaire was designed to gather a set of quantitative data on livelihood assets (natural, human, financial, physical, and social assets). The data collection was conducted from August to September 2017 by face-to-face interviews with the head of households.

Information about household members was also provided by the head of household in the presence of other household members.

A livelihood comprises the capabilities, assets, and activities required for a means of living (Chambers and Conway, 1991). The livelihood activities suggested by Tran (2013) were selected as guidelines to develop the main six livelihood activities considered in this study:

1. Informal wage work: This is often casual, low-paid work that often requires low education levels. This worker is often a manual one who works for other individual or household without a formal labor contract.

2. Formal wage work: This means regular and relatively stable employment in factories, companies, and state offices with a formal labor contract. Therefore, this often requires higher levels of skills and education.

3. Non-farm self-employment: This work is self-employment in non-farm activities of their own businesses.

4. Farm work: This is self-employment in agriculture production.

5. Unemployed: An unemployed person who has no income and is living based on other household members' income or small support from an individual or organization outside the household.

6. Diversifier: This is a person who engages in more than one income-earning activity, of which any source of income accounts for less than 75% of this person's total income.

Additionally, the labor force includes both employed persons aged 15 and over and unemployed persons (GSO, 2017). An "individual" in this study is defined as a person in the labor force, excluding students and people who have no physical ability to work, who have stayed in the household from 2012 to 2017.

Once the whole sample was clustered into the six livelihood activities groups, a multinomial logistic regression model was employed. This model makes it possible to analyze determinants of choices of livelihood activities in the context of more than two unordered outcomes (Scott, 2002; Gujarati, 2004). In general, it can be used to model the probability of choosing a livelihood activity conditional on the independent variables. Livelihood choice was the dependent variable. A livelihood choice is determined by fixed or slowly changing factors, including natural assets and human assets (Van den Berg, 2010).

Let $P\ (j=1, 2, 3, 4, 5, 6)$ denote the probability of livelihood choice j of an individual. For j=1 if the individual engaged in informal wage work; j=2 if the individual engaged in formal wage work; j=3 if the individual engaged in non-farm self-employment; j=4 if the individual remained in farm work; j=5 if the individual became unemployed, and j=6 if the individual engaged in more than one income-earning activity (diversifier). In data analysis, the reference category is formal wage work (j = 2). The equations for calculating the log (odds) is defined by the following multinomial logistic regression:

$$\text{Ln}\left[\frac{P(j)}{P(2)}\right] = \beta_{0,j} + \beta_{k,j}X_k \ (j = 1, 3, 4, 5, 6)$$

Where $\beta_{0,j}$ is an intercept coefficient; $\beta_{k,j}$ is a regression coefficient associated with the k^{th} independent variable and the j^{th} outcome. The choice probability is defined based on relative risk ratios as follows:

$$P(j) = \frac{\exp(\beta_{0,j} + \beta_{k,j}X_k)}{\sum_{j=1}^{3}\exp(\beta_{0,j} + \beta_{k,j}X_k)} \ (j = 1, 2, 3, 4, 5, 6)$$

Individuals' characteristic variables including gender, age, married status, and education level were included in the model. Additionally, some independent variables such as number of household members, number of working members, number of individuals, and dependency ratio had an influence on livelihood activity choices. However, these variables have correlation with others; therefore, the number of individuals and dependency ratio were chosen in the model. In addition, the location of an individual's house was assumed as explanatory variables in the model of livelihood choice. Therefore, living in Thap village, the distance to Thang Long Industrial Park II was included in the model. Finally, farmland size per individual and land loss area were hypothesized to be linked to specialize in farm work, thus they also comprise the econometric model. The independent variables are described in Table 4.1.

The analysis was conducted using SPSS version 18 and STATA version 13 to describe explanatory variables and to examine the determinants of livelihood choices at the individual level after the land acquisition.

Table 4.1 Summary statistics of independent variables

Variable	Mean	Std. Dev.	Min	Max
Gender of individual (Male=1, Female=2)	1.49	0.50	1	2
Age of individual (Years)	50.70	14.68	20	94
Married status of individual (Yes=1, Otherwise=0)	0.96	0.19	0	1
Above secondary education level (Yes=1, Otherwise=0)	0.40	0.49	0	1
Living in Thap village (Yes=1, Otherwise=0)	0.56	0.50	0	1
Number of individuals (Persons)	3.05	0.10	1	6
Dependency ratio (Measured in number)	0.42	0.26	0	1
Farmland size/individual (m^2)	341.33	373.90	0	3896
Land loss area (m^2)	710.39	657.08	0	2888
Distance to Thang Long IP 2 (km)	2.42	0.86	1	5

Source: Author's field survey in 2017

4.3 Research Results

4.3.1 Changes of individuals' livelihood choices

We propose a distribution of the data regarding the individuals' livelihood choice in 2012 and 2017 among six categories, as shown in Table 4.2. The results show that before the land acquisition in 2012, the highest proportion of individuals selected farm work (44.7%),

followed by formal wage work (27.8%), non-farm self-employment (11.4%), unemployed (9.1%), informal wage work (4.6%), and diversifier (2.3%).

Table 4.2 Distribution of individuals' livelihood choices before and after land acquisition

Livelihood choices	In 2012		In 2017	
	Frequency	Percentage	Frequency	Percentage
1. Informal wage work	22	4.6	34	7.2
2. Formal wage work	132	27.8	144	30.4
3. Non-farm self-employment	54	11.4	98	20.7
4. Farm work	212	44.7	61	12.9
5. Unemployed	43	9.1	121	25.5
6. Diversifier	11	2.3	16	3.4
Total observations	474	100	474	100

Source: Author's field survey in 2017

However, in 2017, the highest proportion of individuals selected formal wage work (30.4%), followed by unemployed (25.5%), non-farm self-employment (20.7%), farm work (12.9%), informal wage work (7.2%), and diversifier (3.4%). Therefore, there were dramatic changes in individuals' livelihood choices of farm work, unemployed, and non-farm self-employment after the land acquisition.

The change in individuals' livelihood choices from 2012 to 2017 is shown in Table 4.3. We can see the number of persons and the percentage of change in parentheses of individuals' livelihood choices.

Table 4.3 Changes of individuals' livelihood choices from 2012 to 2017

		Livelihood choices in 2012					
		LC1	LC2	LC3	LC4	LC5	LC6
Livelihood choices in 2017	LC1	13 (59%)	4 (3%)	0 (0%)	16 (8%)	0 (0%)	1 (9%)
	LC2	6 (27%)	108 (82%)	2 (4%)	23 (11%)	3 (7%)	2 (18%)
	LC3	2 (9%)	12 (9%)	49 (91%)	29 (14%)	4 (9%)	2 (18%)
	LC4	0 (0%)	0 (0%)	0 (0%)	60 (28%)	0 (0%)	1 (9%)
	LC5	0 (0%)	4 (3%)	3 (6%)	76 (36%)	36 (84%)	2 (18%)
	LC6	1 (5%)	4 (3%)	0 (0%)	8 (4%)	0 (0%)	3 (27%)

Note: 1) Unit: number of person and percentage in parentheses

2) LC1: Informal wage work; LC2: Formal wage work; LC3: Non-farm self-employment; LC4: Farm work; LC5: Unemployed; LC6: Diversifier

Source: Author's field survey in 2017

The results show that from 2012 to 2017, the significant movement of individuals' livelihood choices can be seen from farm work to unemployed (76 persons), non-farm self-employment (29 persons), and formal wage work (23 persons). Eight persons out of 11 individuals changed from diversifier to other livelihoods. Additionally, 12 persons moved

from formal wage work to non-farm self-employment, and 6 persons moved from informal wage work to formal wage work.

Regarding the percentage of change of individuals' livelihood choices, individuals who engaged in farm work and diversifier tended to change their livelihood to others (only 28% and 27% remained in their previous livelihood). However, most individuals in the groups of non-farm self-employment (91%), unemployed (84%), and formal wage work (82%) remained in their livelihood.

4.3.2 Determinants of individuals' livelihood choices after land acquisition

The land acquisition for constructing the industrial park contributed to the community by creating employment opportunities for laborers in Di Su Commune. As shown in Table 4.2, the number of people who chose formal wage work had the highest proportion among livelihood activities in 2017. With the focus on identifying the determinants for the individuals' livelihood choices and investigating the constraints on individuals who depend on formal wage work instead of a less remunerative livelihood, formal wage work is the base outcome in the model. Therefore, the log (odds) and RRRs reveal the influence of the independent variables on the likelihood of the current livelihood choices relative to formal wage work. The statistical results of an econometric model are shown in Table 4.4.

Collinearity diagnostics and tolerance statistics were used to diagnose potential multicollinearity problems (Scott, 2002). No evidence of multicollinearity is presented in the model (VIF < 10). The likelihood ratio (LR) chi^2 (80) = 547.55 and Pro>chi^2 = 0.0000 indicates that at least one of the explanatory variables has a significant influence on the

dependent variable. Table 4.4 shows that many explanatory variables are statistically significant at 10% or lower. According to Louviere et al. (2000), in a practical experiment, a model is confirmed as extremely good if the value of the Pseudo R^2 ranges from 0.2 to 0.4. Thus, the Pseudo R^2 = 0.3820 indicates that this model has strong explanatory power. Although the sample size of the study was 474 individuals, the result of a multinomial logistic regression model considered only 445 observations due to missing data.

Table 4.4 Determinants of individuals' livelihood choices

Factors	**LC1**	**LC3**	**LC4**	**LC5**	**LC6**
Gender of individual	-0.527 (0.590)	0.105 (1.111)	0.248 (1.281)	1.351*** (3.861***)	-0.078 (0.925)
Age of individual	0.011 (1.011)	-0.009 (0.991)	0.051*** (1.052***)	0.098*** (1.103***)	-0.013 (0.987)
Married status of individual	0.603 (1.828)	1.252* (3.497*)	13.741 (928198)	14.537 (2057495)	14.493 (1968928)
Above secondary education level	-0.935 (0.393)	1.088 (2.968)	-2.256*** (0.105***)	-1.912** (0.148**)	-1.871 (0.154)
Living in Thap village	2.190*** (8.935***)	0.65 (1.916)	0.044 (1.045)	1.198* (3.313*)	16.57 (15713016)
Number of individuals	0.121 (1.129)	0.042 (1.043)	-0.335 (0.715)	2.865*** (17.549***)	-0.362 (0.696)
Dependency ratio	1.431 (4.183)	-0.078 (0.925)	2.039 (7.683)	11.383** (87816**)	-8.869** (0.0001**)
Farmland size/individual	0.004* (1.004*)	0.002 (1.002)	0.003* (1.003*)	0.002 (1.002)	0.004 (1.004)

Land loss area	-0.0003	0.0002	0.00004	-0.0002	-0.004***
	(0.9997)	(1.0002)	(1.00004)	(0.9998)	(0.996***)
Distance to Thang Long IP II	0.219	-0.088	-0.641**	-0.253	-1.554***
	(1.245)	(0.916)	(0.527**)	(0.776)	(0.211***)
Constant	-4.771*	-2.262	-18.326	-28.755	-27.367
Number of observations		445			
LR chi^2 (80)		547.55			
Prob > chi^2		0.0000			
Pseudo R^2		0.3820			

Note: 1) *, **, and *** indicate statistical significance at 10%, 5%, and 1%, respectively

2) LC1: Informal wage work; LC2: Formal wage work; LC3: Non-farm self-employment; LC4: Farm work; LC5: Unemployed; LC6: Diversifier

3) LC2 (base outcome). Estimates are adjusted for log (odds) and RRRs in parentheses.

Source: Author's field survey in 2017

Regarding the livelihood choices of individuals in informal wage work, the results show that living in Thap village and farmland size per individual have a significantly positive effect on the probability of informal wage work. It can be seen that the abundance of daily paid jobs and manual labor jobs available in Thap village and individuals having more farmland means the less pressure in finding a job. In fact, Thap village has advantages in infrastructure because the main road passes through Thap village, and the local market is located in this village. This finding also supports the previous survey findings obtained by Do (2006). This trend may reflect the fact that there is an abundance of daily paid jobs and manual labor jobs available in Thap village and nearby. In addition, this suggests that there has been relative

ease of entry into these jobs because the informal wage work sector provides the most job opportunities for most unskilled workers.

Only the married status of individuals shows an influence on non-farm self-employment, with a link to a higher probability of engaging in non-farm self-employment. The RRRs for a married individual moving to non-farm self-employment compared to formal wage work is around 3.5 times, holding all other variables constant. This finding implies that married individuals are likely to be more active than single ones in business operations, as they have more responsibility to take care of a family and try to earn a high income by running a business.

The results indicate that four factors influenced choosing farm work. Farm work was positively determined by age and farmland size per individual. These findings imply that elder people tend to use traditional skills in agricultural production instead of trying to find formal wage work; also, individuals who have more farmland size tend to choose farming. However, the study found that the distance from the house to Thang Long Industrial Park II and high education level has a negative effect on farm work choice. This means that formal wage work is likely to be adopted by individuals. This could be explained by the fact that the formal wage work in Thang Long Industrial Park II may be more attractive to people (good working environment, high salary, closer distance), holding all other variables constant. In addition, a remunerative livelihood will be awarded for individuals with a better education level. This finding is in line with the studies of Tran (2013) and Huang et al. (2009). This implies that investment in education is a successful key for individuals choosing profitable livelihood opportunities such as formal wage work.

The results show that there are six factors influencing individuals' choice to become unemployed than to do formal wage work. The individuals' gender has a significantly positive effect on the probability of becoming unemployed, because females often have more responsibility than males for doing housework and taking care of children or grandchildren. Regarding individuals' age, the finding implies that elders are more likely to become unemployed due to losing physical ability and a lack of necessary qualifications for engaging in formal wage work. In addition, the findings indicate that higher education level is negatively related to the probability of becoming unemployed, as individuals with better education levels will tend to choose a remunerative livelihood such as formal wage work. The model's results show that individuals who live in Thap village have a higher probability of choosing to be unemployed, implying that other family members may cover for farmers' living costs. The number of individuals and dependency ratio has positive effect on the probability of becoming unemployed. These findings may imply that families who have more individuals or a high dependency ratio may have older people who want to retire to become unemployed rather than find formal wage work.

The results indicate that the dependency ratio, land loss area, and distance to Thang Long Industrial Park II have a negative impact on diversifier livelihood. In this study, all the individuals pursuing a diversifier livelihood remain in farming activity, and the other activities are informal wage work or non-farm self-employment. The finding indicates that families with a high dependency ratio may tend to concentrate on formal wage work to get a higher income for their family. After land acquisition, farmland size per individual decreased, suggesting that individuals with high land loss area tended to concentrate on one job only,

such as a formal wage work livelihood. Regarding the distance from the house to Thang Long Industrial Park II, this distance is also the distance from the house to the farmland area. The finding implies that when this distance increases, the individual tends to retire from farm work farming to concentrate on formal wage work.

The results also indicate that land loss area increases with a lower probability of individuals diversifying their livelihood. This implies that after farmers lost a lot of farmland, they tended to pursue a livelihood specializing in formal wage work or non-farm self-employment. This suggests that job creation policies and supportive services should focus on promoting non-farm activities to individuals. For example, local government facilitates enterprises in industrial parks to employ local laborers, enhance infrastructure investment, and support procedures to promote and develop trade services, etc. Lastly, the results of the econometric model show that there is only one independent variable that is statistically significant in choosing non-farm self-employment activity. This suggests that not only should individuals actively access and improve their skills in business operation, but only the local government should consider increasing investment in infrastructure and the developing market to enhance individuals' accessibility in this sector.

4.4 Conclusion

The study represents a different approach (individual level) from previous studies (household level) over a period of five years after land acquisition. This study also investigates further than previous studies those who are unemployed within a household.

Among 474 individuals in both land losing households and non-land losing households, 43% of individuals changed their livelihood. The big movement can be seen from farm work to unemployed, non-farm self-employment, and formal wage work. In addition, while individuals pursue formal wage work, unemployed, and non-farm self-employment as their main livelihood activities after land acquisition, farm work is considered the less remunerative livelihood to choose. Before land acquisition, farm work was the dominant livelihood of individuals; however, 72% of those farmers gave up farming to shift to other livelihoods after the land acquisition. Additionally, only 3% of the individuals chose a diversifier livelihood after land acquisition.

The multinomial logistic regression model provided insights into the determinants of the choice of livelihood activity of individuals after land acquisition. The results suggest that different livelihood activities are influenced by different factors. Among ten determinants, only one factor directly relating to land acquisition the land loss area influenced the livelihood choice of individuals. The land loss area increased with the lower probability of individuals diversifying their livelihood.

CHAPTER FIVE

LIVELIHOOD CHOICES OF FARMERS AFTER LAND ACQUISITION

5.1 Introduction

Farmers' livelihoods are affected by industrialization and urbanization not only because these projects acquire farmers' farmlands, but also, they create new opportunities of non-farm employments for local people (Nguyen, 2009a; Tan et al., 2009). As a result of this, some farmers shifted to non-farm work, while some others became unemployed (Nguyen et al., 2013; Oduro, 2010; Zhang and Lu, 2011). Farmers who remained in farm work even after losing part of their farmland tried to diversify and increase the agricultural productivity of their farmlands (Tran, 2013).

In Vietnam, according to a report by the Ministry of Agriculture and Rural Development, from 2003 to 2008, agricultural land acquisition programs affected the livelihoods of 950,000 farmers in the entire country. As a result, 13% of them started non-farm work, and 25-30% became unemployed or had unstable jobs, while 67% remained in farming. And, 13 % of farmers had an increased income following these land acquisitions, but 53 % had a reduced income (Huyen Ngan, 2009).

Several studies investigated how such land acquisition programs affected livelihood choices at the household level (Do, 2006; Nguyen et al., 2013; Tran, 2013). In short, although the government report (Huyen Ngan, 2009) paid attention to farmers and their livelihoods, many subsequent scientific studies did not do that. They have just focused on the immediate

impact of land acquisitions on livelihood choices at the household level. But it might change with the time because people could adapt to new situations from land acquisition and tend to change their livelihood choices to suitable ones. Also, the impact of a farmland acquisition on livelihood choice at an individual level might be different from that on livelihood choice at the household level because personal characteristics might affect individuals' livelihood choices.

The study in chapter four focused on livelihood choices at the individual level after five years from land acquisition. The authors analyzed the livelihood choices of 474 individuals in the 200 surveyed households including both land losing households and non-land losing households. The authors found six livelihood choices were affected by ten determinants including both household and individual characteristics. In the sample, either individual who engaged in farming activities or engaged in non-farming activities were included. However, they did not clearly explain the livelihood choice of the persons who were engaging in farming activities.

Therefore, this study in the fifth chapter tries to focus on individuals who mainly engaged in farming activities before land acquisition because it is considered that the land acquisition severely affects their livelihood choices. Due to land loss, they must actively change their livelihood for living. The main objective of this study is to investigate how farmers changed their livelihood choices in five years after they lost their farmlands by land acquisition. The specific objectives of this study are being set to investigate the change of livelihood choices and income of farmers, and to analyze the determinants of their current livelihood choices.

5.2 Methodology

This study includes a sub-sample of 110 households from the sample used in the fourth chapter[1)]. These 110 households had at least one farmer at the time of land acquisition. For this study purpose, authors defined farmers in those households as persons who were at least 15 years old[2)], who earned at least 75% of income from farming activities at the time of the land acquisition in 2012, and who lived in the same household since 2012 until the survey time in 2017. For the current study, one farmer from each surveyed household was selected. If a household had two or more farmers, only one farmer was randomly selected from them[3)] to avoid the correlation errors among the farmers in the same household when employing a multinomial logistic regression model. Finally, 110 farmers were selected from 110 households.

Among these surveyed farmers, 79 farmers have changed their livelihood only once since the land acquisition in 2012 and 31 farmers have not changed. Referring to the explanations about types of livelihood choices by Tran (2013) and the study in chapter four,

[1] There were 160 surveyed households that lost farmlands by the land acquisition. Of which, however, 50 households had no farmers even though they held land-use right issued by the local government under the land law since 1993. Their farmlands were either unused or leased out to other farming households.

[2] In the Vietnamese context, peoples working age is defined as 15 years old to 60 years old for male and as 15 years old to 55 years old for female (National Assembly of Vietnam, 2013a). Also, in this study, the eldest over working age is 85 years old for male and 80 years old for female.

[3] We marked the code of farmers in a household from 1 to 2, 3 or 4 on small papers. Then we chose randomly a paper from them as using Fishbowl technique to select one farmer from the household.

the 110 farmers' current livelihood choices were broadly arranged into three categories, i.e. non-farm work, farm work, and unemployed[4)]. A detailed explanation for each livelihood choice is given as follows.

i. Non-farm work: Employment in non-agricultural activities. The three common types of non-farm work are: (a) informal wage work for other individual or household without a formal labor contract; (b) formal wage work as regular and relatively stable employment in factories, companies, and state offices with a formal labor contract; and (c) non-farm self-employment in non-farm activities of their businesses.
ii. Farm work: Self-employment in agriculture production, including crop cultivation and livestock breeding.
iii. Unemployed: The person has no income-earning activity and lives depending on other household members, relatives, or government supports.

The multinomial logistic regression model is one of the most common methodologies in economics and social sciences which analyzes the nominal outcomes. Previous studies used this model to analyze the factors influencing the livelihood choices in the context of more than two unordered outcomes (Scott, 2002; Gujarati, 2004), and even for understanding the impact of land acquisition on livelihood choices in the Vietnamese context (Tran, 2013).

[4] Tran (2013) and the study in chapter four categorized peoples' livelihood choices into six types such as informal wage work, formal wage work, non-farm self-employment, farm work, unemployed and diversifier. Due to the small sample size (110) of this study, however, we categorize into three types only.

Thus, this study applied this regression model to determine the factors which affect livelihood choices of 110 farmers. The model explanation is given as follows.

Let *P (j=1, 2, 3)* denote the probability of livelihood choice *j* of a farmer. For j=1 if the farmer engaged in non-farm work; j=2 if the farmer remained farm work; and j=3 if the farmer became unemployed. In our analysis, the reference category is farm work (j = 2). The equations for calculating the log (odds) is defined by the following multinomial logistic regression:

$$\text{Ln}\left[\frac{P(j)}{P(2)}\right] = \beta_{0,j} + \beta_{k,j}X_k \ (j = 1, 3)$$

Where $\beta_{0,j}$ is an intercept coefficient; $\beta_{k,j}$ is a regression coefficient associated with the k^{th} independent variable and the j^{th} outcome. The choice probability is defined based on relative risk ratios (RRRs) as follows:

$$P(j) = \frac{\exp(\beta_{0,j} + \beta_{k,j}X_k)}{\sum_{j=1}^{3}\exp(\beta_{0,j} + \beta_{k,j}X_k)} \ (j = 1, 2, 3)$$

The independent variables used in this analysis include both characteristics of household and personnel level (Table 5.1). A detailed explanation of those variables is given in the following paragraphs.

Demographic variables such as the age, gender, and education level of individuals usually affect their livelihood choices (Babulo et al., 2008; Ta, 2016). In this study, the age of farmers was included in the model as a dummy variable, expecting that farmers at over working age have a higher probability of becoming unemployed. The gender of farmers was

also considered expecting that females are likely to become unemployed than males due to their responsibility in doing housework and taking care of the family. The education level of farmers was also added in the model expecting highly educated farmers have many chances to access

Table 5.1 Description and measurement of variables in the model

Variables	Description	Measurement
Dependent variable:		
Livelihood choice	Type of livelihood choice of farmers in 2017 (Non-farm work=1, Farm work=2, Unemployed=3)	Categorical
Independent variables:		
Age	Age of farmers (Working age=1, Over working age=0)	Dummy
Gender	Male=0, Female=1	Dummy
Education	The education level of farmer (Lower and secondary education=0, High school or higher=1)	Dummy
Living in Thap village	Living in Thap village (Yes=1, Otherwise=0)	Dummy
Number of household members	The number of persons in the household	Continuous
Farmland area per farmer	Farmland area of household after land acquisition divided by the number of farmers in 2012 (m^2)	Continuous
Farmland loss ratio of household	Farmland loss area divided by the total farmland area of household in 2012 (%)	Continuous

Source: Author's field survey in 2017

non-farm work. However, married status was not included in the model because only one farmer has not married yet and the other 109 farmers have married.

For household characteristics, living in Thap villages was included as an explanatory variable in the model, because Thap village is the most urbanized area in the Di Su Commune with major social infrastructures. It is expected that the farmers in Thap village might have a better chance to access non-farm work than the farmers in the other two villages. Of the number of household members and the dependency ratio, the former was chosen as another explanatory variable in the model because two of them showed a high correlation. It was assumed that if farmers have bigger families, they are more likely to select non-farm work. Regarding important assets of households, both farmland area per farmer and farmland loss ratio were included in the model. It is expected that farmers who received much farmland from a household are more likely to choose farm work. Also, farmers living in households with higher farmland loss ratio is more likely to retire from farm work.

The SPSS version 23 was used as the statistical tool of the data analysis.

5.3 Results and Discussion

5.3.1 Changes of livelihood choices of farmers after land acquisition

Table 5.2 indicates that during the five years after land acquisition, 79 farmers changed their livelihood choices and 31 did not. According to the interviews, the farmers who changed their livelihood choices mentioned that they changed only once. Among them, 35 farmers

changed their livelihood into non-farm work and 44 became unemployed during the five years after land acquisition. Of 35 farmers who chose non-farm work, 16 started self-employments, 12 got formal wage work, and 7 had informal wage work. Among 31 farmers who remained in farm work, 23 produced agricultural products for their self-consumption, while 8 produced rice and livestock for commercial purpose. Meanwhile, among 44 farmers unemployed, 19 lost all their farmland and 25 lost part of their farmland. Additionally, according to the interviews, all the farmers except 31 remained in farm work changed their livelihood only once.

Table 5.2 Distribution of livelihood choices of farmers

Particular	**Livelihood choices**		
	Non-farm work	Farm work	Unemployed
Farmers in 2012 (before land acquisition)	0 (0%)	110 (100%)	0 (0%)
Farmers in 2017	35 (31.8%)	31 (28.2%)	44 (40.0%)

Source: Author's field survey in 2017

Table 5.3 shows the distribution of characteristics of farmers by the three types of livelihood choices after the land acquisition.

Regarding individual characteristics, there was a significant association between age (working age or overworking age) and livelihood choices. Twenty-nine farmers in working age engaged in non-farm work, while 34 farmers in overworking age became unemployed. On the other hand, it cannot be said that there were significant associations between gender (male or female) and livelihood choices, and between education (lower or secondary, or high

school or higher) and livelihood choices. Eighty-one out of 110 farmers had either a primary level or secondary level education.

Table 5.3 Individual and household characteristics of farmers

Characteristics of farmers	Unit	NFW (n=35)	FW (n=31)	UN (n=44)	Subtotal (n=110)	Test
Individual characteristics:						
Age:						28.237 [a]***
- Working age	Persons	29	16	10	55	
- Over working age	Persons	6	15	34	55	
Gender:						0.617[a]
- Male	Persons	15	13	22	50	
- Female	Persons	20	18	22	60	
Education:						2.365[a]
- Lower or secondary	Persons	24	26	31	81	
- High school or higher	Persons	11	5	13	29	
Household characteristics:						
Living village:						17.201[a]***
- Thap village	Persons	22	6	28	56	
- Other villages	Persons	13	25	16	54	
Number of household members	Persons	4.1	3.8	4.3	4.1	0.766
Farmland area per farmer	m^2	509.0	840.4	463.7	584.3	4.456**

Farmland loss ratio of household	%	55.0	36.8	65.4	54.0	8.153[b]***
Compensation for land loss of household	Million dongs	257.6	228.8	321.0	274.8	2.330[b]
Total income and support from others in 2017	Million dongs	92.7	83.9	115.3	99.3	1.951[b]
- Thap village	Million dongs	101.5	92.3	132.1	115.8	1.2[b]
- Otherwise	Million dongs	78.0	81.8	86.0	82.2	0.1[b]

Note: 1) NFW: Non-farm work; FW: Farm work; UN: Unemployed

2) ** and *** indicate statistical significance at 5% and 1%, respectively.

3) a=Chi-square test of independence for dummy variables[5)] and b=ANOVA test for continuous variables

Source: Author's field survey in 2017

Regarding household characteristics, there was a significant association between living village (Thap village or otherwise) and livelihood choices. In addition, farmland area per farmer and the farmland loss ratio of household performed significant differences in choosing livelihood choices. The number of farmers engaged in farm work was greater in Buoi and Sai villages even after the land acquisition, while the number of farmers engaged in non-farm work and unemployed was more in Thap village. The average farmland area per farmer was the largest in farm work category (840.4 m^2), and the smallest in unemployed (463.7 m^2). The

[5] The Chi-Square test of independence is used to determine if there is a significant relationship between categorical variables. In Table 5.3, age, gender, education and living village of farmer are dummy variables.

farmland loss ratio in the unemployed group was 65.4%, and it was much higher than the farmland loss ratio in the group of farm work (36.8 %). The average number of household members, compensation for land loss of household and total income and support from others in 2017 were not statistically different among livelihood choices.

5.3.2 Changes of income of farmers before and after land acquisition

Table 5.4 indicates that the income of farmers changed among the three types of livelihood choices after the land acquisition. Thirty-four out of 35 farmers who selected non-farm work increased their income than that of 2012. They said that their income derived from self-employment, formal wage work, and informal wage work. Among 31 farmers who remained in farm work, 16 farmers reduced their income than that of 2012. They explained that they could not maintain the gain from their small farmland as their production cost increased, and soil and water degradation happened. However, eight farmers who remained in farm work could increase their income by changing their production strategies, such as expanding

Table 5.4 Changes of income among livelihood choices of farmers

Change in income after the land loss	NFW (n=35)	FW (n=31)	UN (n=44)	Subtotal (n=110)	Percentage (%)
Increased	34	8	0	42	38.2
Unchanged	1	7	0	8	7.3
Decreased	0	16	44	60	54.5

Note: NFW: Non-farm work; FW: Farm work; UN: Unemployed

Source: Author's field survey in 2017

cultivation land by rent-in, shifting from crop production to animal rearing, and diversifying farm business with processing. Surprisingly, all 44 farmers who became unemployed had no income after the land acquisition.

Table 5.5 shows nominal incomes of farmers[6)] in 2012 and 2017. The results indicate that farmers who selected non-farm work had the lowest average income in 2012 (1 million dongs) but with a dramatic rise in 2017 (3.5 million dongs). In addition, the income range in this category has also increased from 1.5 million dongs in 2012 by 5 million dongs in 2017. According to a socio-economic report[7)], in Di Su Commune, the average income per month per capita in 2016 was 2.7 million dongs which are lower than the income of non-farm work in 2017. It suggests that a profound transition from farm work to non-farm work may be a good way to gain a much higher income and cover for other members in the household.

Farmers who remained in farm work had the highest average income in 2012 (1.5 million dongs), and their average income was almost unchanged in 2017. However, the income range of this group has changed extensively by the time. It increased from 2.5 million dongs in 2012 to

[6] The non-farm work income and farm work income were calculated by subtracting the total revenue by the total cost incurred. In agricultural production, the total revenue is referred to as the total agricultural products multiplied by the market price. When the income was generated collectively by several persons, each individuals' income was calculated based on their contributions (e.g., hours of work, degree of responsibility, decision making) to the total generated income.

[7] The income per capita of Di Su Commune in 2016 was 32 million dongs (People's committee of Di Su commune, 2017).

4.5 million dongs in 2017. This could be explained by a few numbers of farmers who attempted to improve the productivity of their lands to get a very high income in farming activities.

Though the farmers who became unemployed had the medium income in 2012 (1.1 million dongs), they had no income in 2017 as they did not engage in any job. Thus, their cost of living should be supported by other means (e.g., family members, relatives, state subsidies).

Table 5.5 Nominal income of farmers in 2012 and 2017 among livelihood choices

Income of farmers (thousand dongs/month)	**Non-farm work (n=35)**	**Farm work (n=31)**	**Unemployed (n=44)**	**Subtotal (n=110)**
1. Income in 2012:				
+ Mean	997	1510	1136	1197
+ SD	378	605	491	532
+ Min	500	500	500	500
+ Max	2000	3000	3000	3000
2. Income in 2017:				
+ Mean	3527	1526	0	1552
+ SD	1099	987	0	1694
+ Min	1000	500	0	0
+ Max	6000	5000	0	6000
3. Ratio of Income in 2017 and Income in 2012	3.5	1.0	0.0	1.3

Note: 1) The impact of inflation is not mentioned in this context

2) USD 1 equated to about VND 20,900 in 2012 and VND 22,700 in 2017.

Source: Author's field survey in 2017

5.3.3 Determinants of farmers' livelihood choices after land acquisition

The multinomial logistic regression model was used to analyze the probabilities of the farmers' livelihood choices. The test of Hausman, which examines the independence of irrelevant alternatives (IIA) failed to reject the null hypothesis of independence of alternatives; thus, the IIA assumption was not violated. The statistical results indicate that there was no evidence of multicollinearity in the model (VIF < 5). The likelihood ratio Chi^2 (14) = 57.374, and Pseudo R^2 (Nagelkerke) = 0.458. The Pro > Chi^2 = 0.0000 indicates that at least one of the explanatory variables has a significant influence on the dependent variable.

Table 5.6 presents the determinants of choosing livelihood choices of farmers five years after the land acquisition. According to the results, three out of seven variables (Age, Living in Thap village, and Farmland loss ratio) had a significant influence on farmers' livelihood choices. However, other variables such as gender, education, number of household members and farmland area per farmer do not influence significantly. In the following section, a detailed discussion of influential variables is given.

First, farmers at working age have a higher probability of getting non-farm work than farm work. The RRRs for a farmer getting non-farm work compared to farm work is around 3.622 times, holding all other variables constant. The farmers at working age have more opportunities to find a new job in non-farm work. For example, in a major case, companies require persons less than 40 years old for permanent factory workers and persons over 40 to 60 years old for subsidiary jobs like guards or cleaners. On the other hand, farmers at over working age have a higher probability of becoming unemployed, instead of engaging in farm

work. The RRRs for this choice is around 0.174 times, given the other variables constant. This result could be due to that elderly farmers tend to lose their physical strength to engage in farm work and they do not meet requirements for joining non-farm works. Therefore, it is considered that such conditions lead these elderly farmers to retire form farm work and restrict them to join non-farm work.

Second, farmers living in Thap village have a higher probability of choosing non-farm work or becoming unemployed than farm work. Given the other variables constant, corresponding RRRs for the case of non-farm work and unemployed are 4.037 times and 5.258 times sequentially. In fact, besides Thap village is located closer to industrial parks than the other villages, it has additional advantages for non-farm work opportunities such as easy access to a national road, the major local market and the administrative office. Thus, the farmers living in Thap village are in much better condition to move to non-farm work such as running a small shop or restaurant, day laboring, motor-taxi driving, etc. However, at the same time, living in Thap village has a higher probability for farmers to become unemployed than engaging in farm work. This result could be due to the other family members of farmers in the unemployed group may cover for farmers' living cost; this economic condition may encourage them to retire from farming. As shown in Table3, in Thap village, the total income and support from others in 2017 of unemployed were 132.1 million dongs, this amount was higher than that of farmers who engage in farm work (92.3 million dongs). Also, this amount was much higher than the total income and support from others in 2017 of unemployed living in other villages (86.0 million dongs).

Finally, results reveal that a farmer living in a household with a higher farmland loss ratio has a higher probability of becoming unemployed than continuing farm work. Holding all other variables constant, a one-percentage-point increase in farmland loss ratio increases the relative risk for a farmer to become unemployed by 1.024 times with reference to farm work. This result suggests that the higher the farmland loss ratio, the more likely farmer will be unemployed. In addition, farmers who lost their farmland could receive compensation from the government to recover from farmland loss. As Table3 showed, the average amount of compensation for land loss of household in the unemployed group (321.0 million dongs) was much higher than compensation in the farm work group (228.8 million dongs). Since this is a large amount of money for farmers, we can assume that they tend to retire from farming, and they use that money for their daily consumption. Or else, they may distribute the money among their children to use it for their benefits. Because of that, these farmers may seek future dependency from their children. Therefore, it is thinkable that farmland loss associated compensation influences farmers to retire from farm work and become unemployed.

Table 5.6 Determinants of choosing livelihood activities of farmers

Factors	Non-farm work vs. Farm work	Unemployed vs. Farm work
Age	1.287*	-1.750***
	(3.622*)	(0.174***)
Gender	-0.094	-0.971
	(0.911)	(0.379)
Education	-0.043	0.427

	(0.958)	(1.533)
Living in Thap village	1.396**	1.660**
	(4.037**)	(5.258**)
Number of household members	0.085	0.082
	(1.089)	(1.086)
Farmland area per farmer	0.00003	0.0002
	(1.00003)	(1.0002)
Farmland loss ratio of household	0.018	0.024*
	(1.018)	(1.024*)
Constant	-2.431	-0.803
Number of observations	110	
LR chi^2 (14)	57.374	
Prob > chi^2	0.0000	
Pseudo R^2 (Nagelkerke)	0.458	

Note: 1) *, ** and *** indicate statistical significance at 10%, 5% and 1%, respectively

2) Farm work (base outcome). Estimates are adjusted for log (odds) and RRRs in parentheses.

Source: Author's field survey in 2017

This study examined livelihood choices of farmers after land acquisition. This represents a different approach from previous studies that dealt with the household level. As a result, only three factors − age, living place, and land loss ratio − significantly affected the livelihood choice of farmers in the five years after land acquisition. This is a unique finding compared with previous studies that identified up to 10 determinants for the household level. Therefore,

fewer variables than the variables for their household seem to determine the livelihood choice of farmers after a land acquisition.

In particular, the study suggests that land acquisition may not significantly affect farmers' decision making when they chose non-farm work. This is also a unique finding that differs from previous studies indicating that the land loss ratio is positively associated with the choice of non-farm work. For example, Tran (2013) and Do (2006) argued that working members who live in households that lost farmland tried to find informal wage work. In addition, this study found that the land loss ratio has a positive effect on farmers' decision to retire from farming. Previous studies did not report this finding as their focus was not specifically on farmers or unemployment.

5.4 Conclusion and recommendation

This study paid attention to livelihood choices of farmers after land acquisition. This was a different approach from the previous studies that dealt with the household level. In the case farmers in three villages of Di Su Commune, where a land acquisition took place to construct Thang Long industrial park II in 2012, 31.8% of 110 surveyed farmers changed their livelihoods into non-farm work, 28.2% remained farm work and 40% became unemployed in five years after the land acquisition. Most farmers engaging in non-farm work could increase their income than before, but half of the farmers who remained farm work reduced income. Among the farmers who remained farm work, only a small number of them could increase their farming income, as they successfully changed their conventional farming into

commercial purpose. Surprisingly, on the other hand, the farmers who became unemployed had no own income; thus, their cost of living was supported by other family members and the government.

This study also revealed the determinants of livelihood choices of farmers after the land acquisition as the age, economic and infrastructure conditions of living place, and farmland loss ratio. The econometric model of this study explained 45.8% of the factors behind the farmers' livelihood choices. The unexplained determinants of the model could be associated with other factors such as consumption pattern, previous experience or training in non-farm jobs, and health condition of farmers. Therefore, future research is recommended to address these limitations for a better understanding of farmers' livelihood choices after land acquisition.

Seemingly previous scientific studies on farmers' livelihood choices after land acquisitions in Vietnam did not refer to an association of land loss with the retirement of farmers from farming. This is perhaps due to the lack of their focus on farmers. However, the findings in this study could elaborate on how land loss can affect farmers' decisions on retirement and make them unemployed. Therefore, the author of this study again confirms that focusing on how land loss affects farmers can provide a better understanding of the impact of economic development due to the land acquisition to livelihood choices at the individual level.

CHAPTER SIX

CONCLUSION

6.1 Concluding summary

Since the 1990s, agricultural land acquisition has been a common method in Vietnam to develop industrialization. Because of this, people who are in agricultural areas have adjusted their livelihood activities. Previous studies have investigated how livelihood choices at the household level were affected by land acquisition. However, to date, there has been less explanation about the impact of farmland acquisition on the transformation of livelihood choices of individuals, particularly farmers. Moreover, previous studies have focused on the immediate impact of land acquisition rather than the impact after a certain period of time after land acquisition. This study, therefore, attempts to investigate how individuals' livelihood choices changed five years after the land acquisition and to analyze the determinants of their current livelihood choices. Two multinomial logistic regression models were run to analyze the determinants of current livelihood choices of both selected samples.

Firstly, Chapter 4 aimed to examine the determinants of livelihood choices at the individual level after the land acquisition. There are 474 individuals living in the 200 households surveyed in the three villages. The results of the descriptive statistics and multinomial logistic regression model indicated that 43% of individuals changed their livelihood after the land acquisition. Formal wage work became the dominant pursued

livelihood activity among the six livelihood activities, followed by unemployed, non-farm self-employment, farm work, informal wage work, and diversifier. The results indicate that, while individuals pursue formal wage work and non-farm self-employment as their main livelihood activities after land acquisition, farm work is considered a less remunerative livelihood to choose. Compared to formal wage work, five other livelihood choices were affected by 10 determinants. Specifically, age, living in Thap village, dependency ratio, gender, and number of individuals in household were positively associated with unemployed, while education level was the only negative determinant of unemployed. Individuals who got married had a higher probability of choosing non-farm self-employment. Farm work was positively determined by age and farmland size per individual, whereas education level and distance to Thang Long Industrial Park II had a negative influence. Moreover, individuals who lived in households with a larger farmland size per individual had a high tendency to choose informal wage work. Finally, living in Thap village had a positive effect on becoming diversifiers, while dependency ratio, distance to Thang Long Industrial Park II, and land loss area had negative effects.

Secondly, Chapter 5 aimed to identify the change of livelihood choices of farmers, to investigate the change of income, and to analyze determinants of farmers' livelihood choices five years after the land acquisition. This part of the thesis used a sample of 110 farmers who were engaging in farming activities at the time of land acquisition in a sub-urban area named Di Su Commune in 2012. The livelihood choices of 110 farmers in 2017 were broadly arranged into three categories, namely, non-farm work, farm work, and unemployed. The results show that, among the 110 surveyed farmers, 31.8% adapted by changing their

livelihood from farm work to non-farm work and could earn a higher income than before the land acquisition. Among the 28.2% of farmers who continued farm work, most of them continued farming as it was before, while a few changed to farming for commercial purposes to earn higher income. Surprisingly, 40% of farmers became unemployed and covered their cost of living by the support of other people such as children, relatives, and the government. This study revealed the determinants of livelihood choices of farmers after the land acquisition to be age, economic and infrastructure conditions of the living place, and farmland loss ratio. Farmers' age and living in Thap village had a positive impact on choosing non-farm work. However, farmers' age had a negative influence while living in Thap village, and farmland loss ratio had a positive influence on becoming unemployed over continuing farm work.

In conclusion, this study represents a different approach from previous studies with a study period of 5 years after the land acquisition. Individuals tend to change their livelihoods to remunerative non-farm work or unemployed. Nearly half of the surveyed individuals and three-fourths of farmers changed their livelihood to various other non-farm choices. Becoming unemployed was one of the livelihood choices with the highest proportion. Previous studies did not refer to this finding, as their focus was not specifically on individuals or unemployment. Therefore, those unemployed within a household was investigated further in this study than it was in previous studies. In addition, land loss area increased with the less probability of individuals diversifying their livelihood. While land acquisition might not have significantly affected farmers' decision making when they chose non-farm work, the land loss ratio perhaps had a positive effect on the farmers' decision to retire from farming.

6.2 Policy recommendation

In summary, industrialization-related land acquisition has a significant impact on individuals' livelihood choices. Individuals tend to change their livelihoods to remunerative non-farm work or unemployed. Most farmers did not continue traditional farming. The study also suggests recommendations to both individuals and the government to improve the livelihood choices and economic outcomes under the impacts of land acquisition.

To adapt to the changing farmland conditions, it is expected that individuals need to find non-farm jobs that are suitable for their conditions to increase their income. They could improve their skills and capabilities to meet the requirements of non-farm work. Participating in suitable training courses and consultations may be a good way to improve their skills. Also, farmers need to modify their traditional farming systems into modern ones. In order to improve agricultural profitability, they should target not only crops but also animal husbandry production with food processing and marketing.

To support these individuals' adaptive processes, the government is expected to give supports to individuals in choosing a livelihood. Providing technical and financial support, such as organizing training courses, consultations, and micro-credit are good ways for individuals to improve their qualifications and access to a good job. Job creation policies and supportive services should focus on promoting non-farm activities to suit the needs and circumstances of different groups of individuals. For example, local government should help enterprises in industrial parks employ local labors, enhance infrastructure investment, support procedures to promote and develop trade services, among other supports. Regarding

economic and infrastructure conditions of residences, the local government should consider increasing investments in infrastructure and developing markets to enhance individuals' accessibility in this sector. In addition, not only developing infrastructure but also improving individuals' financial, human, and social assets and also some land policies regarding agreements with investors for industrialization development are recommendations from the study.

6.3 Future research

There is some future research that should be done to address the limitation of the thesis. This study mainly focused on production and earning aspects and did not examine other important factors that may affect livelihood choices, such as consumption pattern, family structure, previous experience in non-farm jobs, working time allocation, and health condition of farmers. Therefore, future research is recommended to address these limitations to achieve a better understanding of farmers' livelihood choices after land acquisition.

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APPENDIX

QUESTIONNAIRE

INDIVIDUALS' LIVELIHOOD STRATEGY AFTER LAND ACQUISITION

Respondent code: …… Date of interview: ……

Name of respondent: ……. ……. ……. Age: ……..….

Address: ……. village, Di Su commune, My Hao district, Hung Yen province.

Loss of farmland in 2012: ……. (Yes = 1; No = 0) Phone number: ……...

I. INFORMATION OF MEMBERS IN HOUSEHOLD

1.1 Members of household (HH) in August 2017

Member code	Name of HH members (Start with HH head)	Relation to HH head *1: Wife/husband* *2: Son/Daughter* *3: Daughter-in-law/ Son-in-law* *4: Mother/Father* *5: Grandchild* *6: Other relationship*	Gender *1: Male* *2: Female*	Age (2017)	Education level *1. Primary school* *2. Secondary school* *3. High school* *4. Vocational college* *5. University*
1		Head			
2					
3					
4					
5					
6					
7					
8					

II. INDIVIDUALS' LIVELIHOOD CHOICES AND INCOME

Use these questions as a flexible way to **describe** the family's human assets and strategies.

2.1 Job history of working member 1 from 2012 until Aug 2017: (**Member code: ……**)

Month/Year	Job (kind of contract/no contract)	Location	Wage/Income (1000 dongs)	Description of the job (working time)	Why did member change jobs?	How did the member get the job?
At the moment (Aug 2017)						
July 2012						

2.2 Job history of working member 2 from 2012 until Aug 2017: (**Member code: ……**)

Month/Year	Job (kind of contract/no contract)	Location	Wage/Income (1000 dongs)	Description of the job (working time)	Why did member change jobs?	How did the member get the job?
At the moment (Aug 2017)						
July 2012						

2.3 Job history of working member 3 from 2012 until Aug 2017: (**Member code: ……**)

Month/Year	Job (kind of contract/no contract)	Location	Wage/Income (1000 dongs)	Description of the job (working time)	Why did member change jobs?	How did the member get the job?
At the moment (Aug 2017)						
July 2012						

2.4 Job history of working member 4 from 2012 until Aug 2017: (**Member code: ……**)

Month/Year	Job (kind of contract/no contract)	Location	Wage/Income (1000 dongs)	Description of the job (working time)	Why did member change jobs?	How did the member get the job?
At the moment (Aug 2017)						
July 2012						

2.5 Job history of working member 5 from 2012 until Aug 2017: (**Member code: ……**)

Month/Year	Job (kind of contract/no contract)	Location	Wage/Income (1000 dongs)	Description of the job (working time)	Why did member change jobs?	How did the member get the job?

At the moment (Aug 2017)						
July 2012						

2.6 Job history of working member 6 from 2012 until Aug 2017: (**Member code: ……**)

Month/Year	Job (kind of contract/no contract)	Location	Wage/Income (1000 dongs)	Description of the job (working time)	Why did member change jobs?	How did the member get the job?
At the moment (Aug 2017)						
July 2012						

2.7 Did your family receive the following income in the past one year?

Yes [ ] No [ ]

From	Other income	Amount (1000 dongs)
1. Family/ Relatives	From children/grandchildren who live in separate household	

	From relatives	
2. Formal social organizations	Pension	
	Jobless allowance	
	Social welfare allowance	
3. Informal social organizations	From friends or other people	
	From charity organizations, associations, or companies	

III. CHANGES IN LAND TENURE

3.1 Land area that household managed:

(Unit: m^2)

	In 2012	In 2017
The total area that household managed		
1. Residential land		
2. Cultivated land		
- Cultivated lands where HH had land use rights		
- Rented land		
- Land area which lent out HHs		

3.2 Agricultural production:

Products		Unit	2012	2017
Rice	Quantity	Kg		
	For self-consumption	Kg (%)		
	For sale	Kg (1000 dongs)		
Vegetable/ Fruit	Quantity	Kg		
	For self-consumption	Kg (%)		
	For sale	Kg (1000 dongs)		
Livestock (cow/ pig/	Quantity	Kg		
	For self-consumption	Kg (%)		

poultry)	For sale	Kg (1000 dongs)		
Aquaculture (fish)	Quantity	Kg		
	For self-consumption	Kg (%)		
	For sale	Kg (1000 dongs)		

3.3 Was there a remarkable transformation of agricultural production between 2012 and 2017? Yes [ ] No [ ]

Why? ……

……...……

……...……

3.4 How far away (distance) from your residential land plot are the following locations?

Type of infrastructure	Distance (km)
National number 5 road	
Main street of village	
Thua local market	
School	
Commune people's committee	
Thang Long industrial park II	
Pho Noi B industrial park	
Other: ……	

3.5 Residential land area

	Unit	Amount	Use purpose
1. Total residential land	m^2		
2. Estimated value	Million dongs		
3. Area by use purpose:			
- For housing	m^2		
- For garden/ground	m^2		
- For non-farm business	m^2		

- For garden/ground	m^2		
- For rental	m^2		

IV. COMPENSATION AND SUPPORT FOR LAND ACQUISITION

4.1 Individuals' opinion toward the land acquisition process from the local government:

	Individuals' opinion *1: Agree* *0: Disagree*	Why did you agree/ disagree?
Notification of land acquisition (Apr 2012)		
Decision on land acquisition and plan for compensation, support (Jul 2012)		

4.2 How did the household use compensation and support from the government?

Type of compensation and support use	Amount of money (1000 VND)	Proportion (%)	What reason did you suppose?
Total compensation and supports			
1. Consumption purposes:			
- House repairing or building and purchasing furniture			
- Daily expenses			
2. Production investment purposes:			
- Investing in farm production			
- Investing in non-farm business			
3. Future investment purposes:			
- Investment for farmer's education, vocational training			
- Investment for children's education			

4. Bank savings			
5. Paying back debt			
6. Buying land			
7. Health care			
8. Dividing between children			

V. PHYSICAL ASSETS

5.1 Productive assets

	Type of asset	In 2017		When did you purchase it?	
		How many units of this asset?	Value (1000 VND)	Year	Value (1000 VND)
1	Tractor				
2	Motorcycle				
3	Farm cart				
4	Water pump				
5	Sprayer				
6	Cattle				
7	Rice storage				
8	Track/pick up				
9	Breeding				
Total of value					

5.2 Durable assets:

	Type of asset	In 2017		When did you purchase it?	
		How many units of this asset?	Value (1000 VND)	Year	Value (1000 VND)
1	Telephone				
2	Fridge				
3	Washing machine				

4	Gas cooker				
5	Television				
6	Computer				
7	DVD player				
8	Water well				
Total of value					

VI. FINANCIAL ASSETS

6.1 Living expenditures:

Expenditure list	Amount in 2012 (1000 VND)	Amount in 2017 (1000 VND)
1. Regular expenditures:		
- Food		
- Electricity, water, gas, internet, communication		
- Transportation cost		
- Cost for children		
- Medical expense		
2. Unregular expenditure (Wedding, funeral, festivals)		
Total		

6.2 Debt

a. Have you had any debt? Yes [ ] No [ ]

b. If "Yes",

	In 2012	In 2017
Total debt		

Lender		
Purpose to use that loan for		
Plan to pay off your debt		

6.3 Savings

a. Did you have any savings? Yes [ ] No [ ]

b. If "Yes",

	In 2012	In 2017
Total saving		
Purpose to saving		

VII. SOCIAL ASSETS

7.1 How do you feel about the changes in relationships among family members between 2012 and 2017?

Number code *1: More closed* *2: No change* *3: Less closed*	In 2012		In 2017	
	Farmer's opinion	Explanation	Farmer's opinion	Explanation

7.2 How about the changes of villagers' relationships in the community?

Number code *1: More closed* *2: No change* *3: Less closed*	In 2012		In 2017	
	Individuals' opinion	Explanation	Individuals' opinion	Explanation

7.3 Has anyone in your family been a member of the following groups/associations?

After losing farmland, has the individual received any support for finding a job or for job conversion from the groups/associations?

(1: Yes 0: No)

Groups/Associations	In 2012		In 2017	
	Was a member	Received support	Is a member	Received support
a. Communist party				
b. Farmer's Union				
c. Women's Union				
d. Youth Union				
e. Veteran's Union				
f. Elder age group				
g. Occupation group				
h. Credit group				
i. Other: …….				

VIII. NEGATIVE EFFECTS FROM LAND ACQUISITION

8.1 Do you have any complaint about the land acquisition procedure? Yes [ ] No [ ]

Why? ……..……..……

……...……

……...……

8.2 Do you know of any land dispute in the commune because of the land acquisition?

Yes [ ] No [ ]

If "Yes", please explain. ……...

……...……

……...……

……...……

8.3 How do you evaluate the environment in the commune?

	Evaluation	Explanation
Land environment pollution		
Water environment pollution		
Air environment pollution		
Noise pollution		

8.4 Did members in your household have any health problems because of environmental pollution?

Yes [ ] No [ ]

If you answered "Yes", please explain. ……

……...……

……...……

8.5 Did the competent agencies inspect and manage environmental pollution?

Yes [ ] No [ ]

How did they do?

……...……

……...……

……...……

8.6 What is your opinion on social evils in the village or commune after the land acquisition in 2012?

Social evils	Evaluation *1: Increase* *2: No change* *3: Reduce*	Explanation about social evils
Corruption (Bribe, graft)		
Theft		
Drugs		
Gambling		
Violence		
Murder		

Thank you very much for your cooperation!