JOURNAL OF WATER AND LAND DEVELOPMENT
e-ISSN 2083-4535
Polish Academy of Sciences (PAN) Institute of Technology and Life Sciences – National Research Institute (ITP – PIB)

JOURNAL OF WATER AND LAND DEVELOPMENT
DOI: 10.24425/jwld.2024.151792
2024, No. 63 (X-XII): 78–85

Livelihood adaptation strategies of farming households to land acquisition: A case study in Vietnam

Nguyen To-The[1)], Linh Nguyen-Thi-Thuy[1)], Phuong Bui-Thi-Thu[1)], Ashfaq Ahmad Shah[2)], Anh Dao-Mong [1), 3)], Quynh Pham-Ngoc-Huong[1)], Linh Pham-Thi[1)], Huong Nguyen-Thi-Lan*[1)]

[1)] Faculty of Political Economy, VNU University of Economics and Business, 144 Xuan Thuy St, Cau Giay Dist, Hanoi, Vietnam
[2)] College of Humanities and Development Studies (COHD), China Agricultural University, No. 17 Qing Hua Dong Lu, Beijing 100183, China
[3)] Faculty of Law and Political Theory, Thuyloi University, 175 Tay Son St, Dong Da Dist, Hanoi 116705, Vietnam

* Corresponding author

RECEIVED 11.06.2024 ACCEPTED 02.09.2024 AVAILABLE ONLINE 02.12.2024

Abstract: The livelihoods of households affected by land acquisition in rural Vietnam are crucial for sustainable development and community resilience. This study employs the sustainable livelihoods approach, which recognises the interconnectedness between various factors shaping livelihood outcomes, to investigate factors behind livelihood changes among 474 farm households affected by land acquisition in rural Vietnam. By applying Multinomial Logit (MNL) regression, this paper delves into how personal and household characteristics influence the transition from farming to non-farming activities in agrarian settings. Our findings reveal the diverse and multifaceted impacts of various factors such as gender, age, educational level, household size, household labour force, and the extent of land loss on livelihood strategy choices. This study offers nuanced insights that can guide policymakers and practitioners to design effective interventions that promote sustainable livelihoods and enhance community resilience amidst the challenges posed by land acquisition and rural transformation.

Keywords: land acquisition, livelihood transitions, multinomial logit regression, non-farm activities, rural Vietnam, sustainable livelihoods approach

INTRODUCTION

Land conversion – a process of transferring land from one type of use and user to another – is inevitable during periods of economic development, urbanisation, and population growth (Liu and Lo, 2022; Whiting, 2022). Different countries with particular land tenure regimes and land rights implement different methods of land purchase and sale, which also affect how benefits of land conversion are distributed (Li, Wang and Song, 2018; Şen, Güngör and Şevik, 2018; Ustaoglu and Collier, 2018). In Vietnam, a rapidly developing country in Southeast Asia, with rapid urbanisation, land acquisition for socio-economic goals has been a widespread phenomenon since the country began transitioning to a market economy (Tuyen and Tinh, 2011). Annually, an average of 18,816 ha of rice cultivation land is lost to population growth and changes in land use for non-agricultural purposes, primarily in the Red River Delta and the Southeast (Tuan, 2022). Although land is recognised as a marketable commodity, specific land management issues in Vietnam – where land is owned by the entire people and managed by the State (Tuan, 2023) – pose certain difficulties in land valuation and compensation, and conversion of land use. These issues contribute to inequality in access to land and conflicts between parties during land recovery and conversion (Nguyen and Kim, 2020; Thông, 2015; Pham-Thi *et al.*, 2021; Tuan, 2021b).

Land acquisition often leads to significant livelihood challenges for farmers, mainly due to their reduced ability to work (Heurlin, 2019; Sullivan *et al.*, 2022) ineffective maintenance

of rights and benefits (Nguyen, Hegedűs and Nguyen, 2019), and inadequate social welfare (Wang, Qian and Guo, 2019; Nanhthavong *et al*., 2021). On one hand, the positive side of land acquisition policies includes the improvement of the economy, infrastructure development, rapid increase in occupational diversity, reduced poverty, and improved quality of life (Mechiche-Alami, Yagoubi and Nicholas, 2021; Nkansah-Dwamena, 2021). On the other hand, land acquisition disrupts the endogenous rural-urbanisation pattern and generates many difficulties in the initial relocation and settlement of households, affecting employment and livelihood. This forces many to seek alternative non-farm employment (Cu *et al*., 2020), and pushes numerous peri-urban residents into precarious situations (Huang *et al*., 2017; Pham-Thi, Kappas and Faust, 2021). Farmers often receive only a fraction of the compensation compared to the benefits gained by the government and investors (Nguyen *et al*., 2016). Widespread corruption, misuse of power by the government, and the lack of transparency and democratic values in the land acquisition process (Wubneh, 2018; Nguyen-Thanh, 2022) have led to significant conflicts between the government and local communities, which resulting in various forms of resistance from the latter (Shafi *et al*., 2023). These challenges highlight the need for non-farm livelihood diversification in rural areas. Additionally, it is important to understand that rural households employ diverse strategies to secure their livelihoods, varying widely based on factors such as socioeconomic status, education, and local knowledge.

A substantial body of research on livelihood diversification strategies reveals that these strategies are typically categorised into distinct sectors, specifically farm-based and non-farm-based options. A household's choice of livelihood strategy can be influenced by household demographic factors such as the gender of the household head (Hoq *et al*., 2022), educational level (Yuya and Daba, 2018), age of the household head (Abera, Yirgu and Uncha, 2021), and household size (Tassie Wegedie, 2018). Moreover, the choice of livelihood diversification depends on the access to livelihood resources, with households that have limited access more likely to choose non-agricultural livelihoods or diversify their income sources (Huang *et al*., 2022). In addition, households located further away from cities are less likely to engage in non-agricultural businesses or livelihoods outside of agriculture (Amevenku, Asravor and Kuwornu, 2019; Abera, Yirgu and Uncha, 2021).

Land loss is associated with a higher likelihood of households adopting a strategy that focuses on either a single non-farm activity, such as informal paid work or household businesses, or diversifying into multiple activities. This suggests that the increased land loss should not necessarily be viewed as a negative outcome, as it can lead to improved household welfare by encouraging families to adapt and diversify their livelihoods (Nkansah-Dwamena, 2021).

The study was conducted in three villages in Van-Lam district, Hung-Yen province. With the advantage of being located next to the capital and at the centre of the Red River Delta, Hung-Yen province has many advantages in attracting domestic and foreign investment capital. Therefore, the industrialisation and urbanisation process here have taken place earlier and faster than in neighbouring provinces. In 2008–2015, the total area of land recovered in Hung-Yen province was over 11.8 mln square metres. Of this, agricultural land recovered from farming households was nearly 7.9 mln square metres, accounting for 67% of the total area of land recovered. Agricultural land in Hung-Yen is gradually shrinking and will be further reduced by the development of industrial parks and urban areas.

A significant number of farmers whose land has been recovered in Hung-Yen (67%) still maintain their agricultural production but on smaller plots of land. Meanwhile 13% have transitioned to new occupations, and about 20% are unemployed or have unstable jobs. Among farming household whose land was recovered, 37% have experienced a decrease in income, while only 13% have seen an increase in income compared to previous levels (GSO, 2022; GSO Hung Yen, 2023).

Most current studies examine the impact of agricultural land acquisition on various aspects of farming households, such as job search, income growth, poverty reduction, and food security. However, there is still limited research literature on how land acquisition influences the livelihood choices of households, especially in the study area.

Thus, this study aims to answer how land acquisition rates affect the choice of livelihood strategies. Our study evaluates four livelihood diversification strategies: farm, off-farm, non-farm, and mixed, with the focus on factors related to land acquisition. Our survey assesses various factors impacting household livelihood choices post-land acquisition. In addition to household characteristics, such as gender, education level, age, household size, labour force, and distance to the municipality, we include land recovery rate in our analysis model. This approach enables to evaluate how each factor affects the likelihood of households adopting different livelihood strategies, whether continuing in agriculture, transitioning to non-agricultural jobs, or starting new businesses. This nuanced analysis helps us understand the diverse impacts of land acquisition on households and can guide policy decisions to support affected families in finding sustainable livelihood solutions.

MATERIALS AND METHODS

RESEARCH SITE AND DATA COLLECTION

Hung-Yen, a province in the Red River Delta region of Northern Vietnam, has undergone extensive land conversion for industrial purposes (Nguyen *et al*., 2020). Prior to 2000, Hung-Yen was predominantly agricultural with minimal investment activity. Currently, the province boasts 26 industrial clusters and 17 industrial zones spanning over 4,300 ha. Among these, 14 industrial zones have attracted investment policy approval and are in the process of infrastructure development. These zones have attracted over 10 bln USD in total investment, supporting more than 500 projects and creating thousands of jobs (GSO Hung Yen, 2023).

The land use structure is primarily shifting from agricultural land to non-agricultural purposes, with a particular focus on transitioning to land designated for national defence and security, production and business, residential use, and infrastructure development. In this context, Van-Lam district, the study site, has become one of the fastest growing areas of land conversion to industrial use in Hung-Yen province in recent years (Nguyen and Tsuji, 2019).

For this study, data were gathered in 2022 through a field survey in three villages – Buoi, Sai, and Thap – within the target

district. The survey involved face-to-face interviews with 474 randomly selected farmers from each village, focusing on factors influencing their livelihoods post-land acquisition. On average, each interview lasted 1 h and 13 min, with a maximum duration of 2 h in the evening. Definitions of variables used in the study are listed in Table 1.

Table 1. Definition and summary statistics of variables

Variable	Definition	Mean	Standard deviation	Min.	Max.
Gender	gender of the household's head (0: male, 1: female)	1.19	0.39	0	1
Education	education level of the household's head (1: less than secondary, 2: secondary, 3: above secondary)	2.28	0.66	1	3
Age	age of the household's head (year)	59.21	11.27	33	94
Labour force	number of workers in working age in the household (age: 15–62) (numbers)	2.36	1.07	0	5
Distance	distance from three villages (Buoi, Sai, and Thap) in Van-Lam district to Hung-Yen city centre (Vietnam) (km)	2.37	0.79	1	3
Land loss	percentage of agricultural land acquired	0.45	0.36	0	1

Source: own elaboration.

The data show that gender is coded 0 when the household head is male and 1 when the household head is female. Among 474 surveyed individuals, the mean gender value is 1.19 with a standard deviation of 0.39, indicating a higher number of male participants than females. This outcome aligns with expectations in Vietnam, where Confucian ideology has historically influenced the patriarchal family model in rural areas. Men, typically regarded as household heads, often have better access to livelihood resources and make important family decisions. Consequently, women tend to adopt on-farm and non-farm livelihood strategies, while men are more likely to pursue off-farm strategies (Anugwa *et al.*, 2020).

The age of the household head appears to be a significant factor. The average age is approximately 59.21 years, with a standard deviation of 11.27. These figures reflect significant age variability among household members and indicate an aging population trend. Specifically, our data show that households have maximum of five workers and minimum of 0, with an average of 2.36 workers per household. In Vietnam, many people continue to engage in farm production even beyond the typical working age.

We believe that the composition of a household might affect farmers' livelihoods after land expropriation. Household members can contribute additional labour, provide experience, and offer ideas for reorganising production after land loss. Thus, our analysis also includes dummy variables for household members' characteristics, such as gender, education level, and geographical location. Examining these factors allows us to assess their potential influence on livelihoods after land expropriation. Additionally, we investigate the proportion of agricultural land area acquired by households. Notably, while some households lost 100% of their agricultural land, others retained theirs; the average land loss rate is 45%.

The dependent variable is a qualitative measure representing the livelihood strategies selected by households with four options: (1) farm – activities related to the production of crops and livestock on the farm, (2) off-farm – activities that take place outside the household farms, such as natural resource-based work and agricultural product processing, (3) non-farm – activities outside the agricultural sector, including role like industrial worker and retail, (4) mix – a combination of farm and non/off farm activities – Table 2.

Table 2. Distribution following multiple choice on livelihood strategy

Livelihood strategy	Frequency	Percentage
Farm	34	7.17
Off-farm	144	30.38
Non-farm	198	41.77
Mix	98	20.68
Total	**474**	**100.0**

Source: own elaboration.

ECONOMETRIC SPECIFICATION

The general model is based on the works of Hausman and McFadden (1984) and Greene and Hensher (2013). Many researchers have utilised the multinomial logit (MNL) model to analyse factors influencing households' decisions regarding livelihood strategies when multiple options are available (Yuya and Daba, 2018; Wang *et al.*, 2019; Abera, Yirgu and Uncha, 2021).

$$Pr(y_i = 1|X_i) = \frac{1}{1 + \sum_{k=2}^{J} \exp(X_i' \beta_k)} \quad (1)$$

$$Pr(y_i = j|X_i) = \frac{\exp(X_i' \beta_j)}{1 + \sum_{k=2}^{J} \exp(X_i' \beta_k)} \text{ for } j = 2, \ldots, J \quad (2)$$

where: Pr = probability function, y_i = dependent variable with j outcomes numbered from 1 to J, X_i = vector of K independent variables, β = parameters to be estimated.

In our analysis, each household makes a choice among four livelihood strategies: (1) farm, (2) off-farm, (3) non-farm, and (4) mix.

While the MNL model parameters do not provide the exact magnitude or probability, they do indicate the direction in which explanatory factors affect the dependent variable (livelihood strategies). To better understand the impact of these variables on probabilities, it is common practice to calculate marginal effects, as highlighted by Greene and Hensher (2003) and Greene and Hensher (2013). According to Nguyen-Van, Poiraud and To-The (2017), the coefficients from the MNL model can be challenging to interpret, whereas associate them with the j^{th} outcome can be both tempting and misleading. Instead, marginal effects offer a clearer view of how independent variables impact the probabilities of the dependent variable.

RESULTS AND DISCUSSION

From 2016 to 2021, Hung-Yen province in Vietnam saw significant changes in its land use, particularly in agricultural land, which decreased by nearly 10 thous. ha over six years. This reduction, representing more than 10% decline in agricultural land, indicates a major shift towards other land uses, such as urban development, industrial expansion, and infrastructure projects. These changes reflect broader trends in development and modernisation, impacting the province's traditional agricultural base and potentially transforming its economic and social structure, as detailed in Table 3.

Table 3. Land area of Hung-Yen province

Parameter	Value in the year					
	2016	2017	2018	2019	2020	2021
Total area (1,000 ha)	93.022	93.022	93.022	93.019	93.019	93.000
Agriculture land (1,000 ha)	60.524	60.369	60.116	59.998	58.876	50.700
Ratio (%)	65.06	64.9	64.63	64.5	63.3	54.52

Source: Statistics Office of Hung Yen (GSO Hung Yen, 2023).

In analysing the factors influencing household livelihood choices following land acquisition, we use an MNL model with "farm livelihood" (livelihood = 1) as the base outcome. Specific results on the impact of various factors on households' livelihood strategy choices are presented in Tables 4 and 5.

Research results have shown that gender has no significant effect on any of the livelihood strategy options. This result contrasts with the findings of previous studies by Shiferaw *et al.* (2020). This difference could stem from unique contextual factors in our study area or changes in social dynamics and economic opportunities that reduce gender disparities in livelihood choices. Although Vietnam, as a developing Southeast Asian country, is influenced by the Confucian ideology of "respecting men over women", the government efforts have increasingly empowered women within the family. Legal provisions supporting women rights, especially in land use and access to education, have expanded women's opportunities for better jobs (Menon *et al.*, 2017).

The education level significantly increases the likelihood of selecting off-farm ($j = 1$) and mix ($j = 4$) strategies. This can be attributed to the fact that educated individuals generally acquire superior skills, experience, and knowledge, supporting a wider range of livelihood options. This finding aligns with the research by Yuya and Daba (2018) and Nguyen and Tsuji (2019). Conversely, the level of education has a negative effect on the probability of choosing non-farm ($j = 3$) strategies, differing from studies by Anang (2019) and Wang *et al.* (2019), which associated higher education levels with greater participation in non-farm employment.

The impact of age is more complex: it decreases the probability of choosing farm and mix strategies at the 5% and 1% significance levels, respectively, while positively influencing the likelihood of choosing farm and non-farm strategies. This is consistent with Hoq *et al.* (2022), who suggest that older farmers are more inclined to diversify into non-farm activities. On the contrary, Yuya and Daba (2018) observed that older household members are more often engaged in farm-based strategies. According to Kassie (2017), non-farm work often requires more physical stamina, meaning that younger farmers, being generally stronger, are more attracted to non-farm opportunities, while older farmers are more inclined to continue with traditional farm work.

Table 4. Estimation results of multinomial logit model

Variable	Off-farm (1)		Non-farm (2)		Mix (3)	
	coefficient	standard error	coefficient	standard error	coefficient	standard error
Gender	–0.240	0.491	–0.490	0.488	–0.465	0.509
Education	0.826**	0.351	–0.631*	0.344	0.523	0.360
Age	0.066***	0.023	0.068***	0.022	0.022	0.023
Labour force	–0.254	0.208	–0.801***	0.213	–0.251	0.216
Distance:						
– from Buoi village to Hung-Yen city centre	0.635	0.956	0.578	0.957	0.481	0.983
– from Thap village to Hung-Yen city centre	–1.547**	0.671	–1.553**	0.663	–1.204*	0.691
Land loss	–0.348*	0.528	0.010	0.525	0.617**	0.537
Intercept	–2.156	1.696	2.757	1.682	0.376	1.730

Explanations: statistical significant values: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.
Source: own study.

Table 5. Marginal effects results of multinomial logit model

Variable	Farm (1)		Off-farm (1)		Non-farm (2)		Mix (3)	
	coefficient	standard error	coefficient	standard error	coefficient	standard error	coefficient	standard error
Gender	0.025	0.028	0.035	0.052	–0.037	0.052	–0.022	0.049
Education	–0.013	0.018	0.181***	0.030	–0.234***	0.027	0.066**	0.029
Age	–0.003**	0.001	0.004**	0.002	0.005***	0.002	–0.006***	0.002
Labour force	0.028**	0.012	0.049**	0.019	–0.108***	0.019	0.032*	0.018
Distance:								
– from Buoi village to Hung-Yen city centre	–0.013	0.021	0.023	0.064	0.005	0.064	–0.015	0.056
– from Thap village to Hung-Yen city centre	0.082*	0.027	–0.053	0.056	–0.057	0.053	0.028	0.050
Land loss	–0.005	0.029	–0.107*	0.058	–0.004	0.059	0.116**	0.050

Explanations: statistical significant values: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.
Source: own study.

The impact of labour force varies across different livelihood strategies. Specifically, this variable has a significantly negative effect on choosing non-farm activities, while it positively influences farm, off-farm, and mixed strategies. As agricultural land is reclaimed for industrial parks, job opportunities in these parks increase (Pham-Thi, Kappas and Faust, 2019), thereby contributing to poverty reduction in areas affected by land acquisition (Ding *et al.*, 2020; Nkansah-Dwamena, 2021). Therefore, supporting non-agricultural vocational training can further help farmers secure better jobs after land reclamation. However, distance to the city, it has a significantly positive effect on farms-based strategies. When the distance to the city is greater, people are less likely to commute long distances, often choosing careers in the local agricultural sector to reduce travel time and costs (Vellema *et al.*, 2015).

Regarding the land loss variable, the proportion of agricultural land acquired has a positive and significant association with choosing mixed strategy, while it is negatively associated with both farm and off-farm strategies. These findings are similar to those of Nguyen and Tsuji (2019) and Shackleton (2020), suggesting that land loss may reduce the capacity to maintain traditional agricultural livelihoods (Mabe *et al.*, 2019) while increasing the likelihood of households shifting toward new economic strategies. These strategies could involve concentrating on a single non-farm activity, such as informal employment or small business ventures, or diversifying their income across multiple activities. This shift indicates that many households have actively adapted to the disruption caused by land loss, reducing their dependence on agriculture and potentially enhance their overall well-being.

Consequently, land loss might not necessarily be seen as a negative development; instead, it could lead to improved household welfare by motivating a shift or diversification in livelihoods. However, our data does not show a strong statistical link between land loss and the likelihood of households specialising in non-farm jobs. This is possibly due to barriers such as the need for specific educational qualifications.

This finding reflects the impact of land acquisition on employment for households in the study area. Although household incomes may increase by USD1,500 per household compared to pre-acquisition levels, unemployment rates also rise (Tuan, 2021a). In Hung Yen, each household affected by land recovery has, on average, 1.5 workers who lose their jobs, while each hectare of agricultural land creates jobs for 13 agricultural workers annually. The newly unemployed are predominantly farmers with low education and professional skills, many of whom have not received training in non-agricultural fields, making it challenging for them to find jobs outside of agriculture.

In areas where farmers lost their land, the proportion of untrained and unskilled workers was notably higher, accounting for about 80%. This led to a rapid increase in unemployment following land recovery. Before the land was acquired, the unemployment was 4.7%, but it increased to 12.0% afterward (Hanh, Tra and Tra, 2013). The majority of farming households affected were purely agricultural, relying primarily on income from self-cultivation and small-scale livestock farming. The land recovery meant losing a significant or complete means of production, leaving many workers unemployed and facing considerable difficulties in finding new jobs. The number of workers employed in industrial parks is very limited due to many different reasons. Thus, industrial parks have not significantly increased job opportunities for workers who have lost or had their agricultural land reduced (Nguyen and Tsuji, 2019).

In Hung Yen, only 0.02% of workers who have lost land receive vocational training from enterprises. However, even for those trained by companies, job stability remains a challenge (Hanh *et al.*, 2013). Due to limited qualifications, training time, and labour capacity, many workers leave their positions in industrial parks after a short time, resulting in partial or full unemployment. Meanwhile, the number of workers trained by the State for affected farmers is also minimal, and while family-initiated training rates are higher, there remains a large gap between skills provided and the demands of non-agricultural jobs. This situation suggests that, beyond providing material compensation for households whose land has been recovered, the government should diversify its support through career transition assistance and job creation. A potential approach could involve establishing a collaborative vocational training mechanism among the government, enterprises, and training institutions, ensuring

legal and mutual agreement to enhance employment prospects for workers affected by land loss.

Following land acquisition, farmers' natural capital has declined, and their land holdings have become fragmented (Shackleton, 2020). As a result, households with high levels of land acquisition face reduced options for choosing agricultural livelihoods. In many cases, farmers prefer not to continue farming or transfer their land, hoping instead that their land will eventually be acquired, which often leads to inefficient land use or leaving land fallow. For those farmers who wish to continue cultivating their land, small land parcels limit the use of modern production methods, leading to inefficient land use. Therefore, site clearance can serve as an opportunity to promote scale-based management, and establish adjacent production areas. Such changes could help shift away from fragmented agricultural management and production, ultimately enhancing the quality and efficiency of natural capital.

Land consolidation can overcome the issue of land fragmentation (Nguyen *et al*., 2020). Therefore, the government should improve the legal framework, enhance supporting policies, and provide comprehensive solutions to support and encourage the formal transfer and leasing of land use rights.

CONCLUSIONS

This article investigated the factors affecting farmers' livelihoods following land acquisition, using data from 2020 survey of 474 households across three villages in Hung-Yen, Vietnam. This analysis explored farmers' livelihood characteristics and applied an MNL model with marginal effects to evaluate factors influencing livelihood choices, identifying both positive and negative effects. To create sustainable livelihoods and improve living standards after land acquisition, several important policy implications emerge. Firstly, the government should improve the compensation mechanism for households whose land is acquired, establishing clear criteria for compensation based on the purpose of land acquisition. In particular, non-cash benefits should include life security measures, vocational training, unemployment insurance, and other social security benefits. These supports aim to boost job competitiveness and improve material, human, and financial capital, thereby fostering non-agricultural livelihood strategies and diversifying income sources.

Moreover, the government should reform land organisations in rural areas. During the land acquisition process, farmers should be able to share in the benefits of the land acquisition enterprises, receiving compensation for land acquisition and land use rights. Additionally, they could earn wages by working within these enterprises, significantly enhancing agricultural productivity, supporting the sustainable development of the collective economy, increasing financial capital for farmers, and promoting strategic livelihood diversification by fully utilising land, capital, and labour resources. Finally, the government should promote land conversion by strengthening support for land concentration and promoting the transfer and lease of specific land use rights.

CONFLICT OF INTERESTS

All authors declare that they have no conflict of interests.

REFERENCES

Abera, A., Yirgu, T. and Uncha, A. (2021) "Determinants of rural livelihood diversification strategies among Chewaka resettlers' communities of southwestern Ethiopia," *Agriculture & Food Security*, 10(1), 30. Available at: https://doi.org/10.1186/s40066-021-00305-w.

Amevenku, F., Asravor, R. and Kuwornu, J.K. (2019) "Determinants of livelihood strategies of fishing households in the volta Basin, Ghana," *Cogent Economics & Finance*, 7(1), 1595291. Available at: https://doi.org/10.1080/23322039.2019.1595291.

Anang, B. (2019) "Effect of off-farm work on agricultural productivity: empirical evidence from northern Ghana," *Agricultural Science & Technology*, 11(1), pp. 49–58. Available at: https://doi.org/10.15547/ast.2019.01.008.

Anugwa, I.Q. *et al*. (2020) "Gender-specific livelihood strategies for coping with climate change-induced food insecurity in Southeast Nigeria," *Food Security*, 12(5), pp. 1065–1084. Available at: https://doi.org/10.1007/s12571-020-01042-x.

Cu, T. *et al.* (2020) "The effect of agricultural land recovery on people's livelihoods in the context of urbanization in Vietnam," *Management Science Letter*s, 10(9), pp. 1969–1974. Available at: https://doi.org/10.5267/j.msl.2020.2.016.

Ding, J. *et al.* (2020) "Rural households' livelihood responses to industry-based poverty alleviation as a sustainable route out of poverty," *Regional Sustainability*, 1(1), pp. 68–81. Available at: https://doi.org/10.1016/j.regsus.2020.07.002.

Greene, W.H. and Hensher, D.A. (2003) "A latent class model for discrete choice analysis: Contrasts with mixed logit," *Transportation Research Part B: Methodological*, 37(8), pp. 681–698. Available at: https://doi.org/10.1016/S0191-2615(02)00046-2.

Greene, W.H. and Hensher, D.A. (2013) "Revealing additional dimensions of preference heterogeneity in a latent class mixed multinomial logit model," *Applied Economics*, 45(14), pp. 1897–1902. Available at: https://doi.org/10.1080/00036846.2011.650325.

GSO (2022) *Niên giám thống kê Việt Nam [Statistical yearbook of Viet Nam 2022]*. Ha Noi: General Statistics Office. Available at: https://www.gso.gov.vn/wp-content/uploads/2023/06/Sach-Nien-giam-TK-2022-update-21.7_file-nen-Water.pdf (Accessed: Jan 16, 2024).

GSO Hung Yen (2023) *Statistical yearbook of Hung Yen 2023*. Hung Yen: General Statistics Office of Hung Yen province.

Hanh, N.T.H., Tra, N.T. and Tra, H.T.L. (2013) "Ảnh hưởng của việc thu hồi đất nông nghiệp đến đời sống, việc làm của nông dân huyện Văn Lâm, tỉnh Hưng Yên [Effects of recovery of agricultural land to life, the jobs of farmers in Van Lam district, Hung Yen province]," *Journal of Science and Development*, 11(1), pp. 59–67.

Hausman, J. and McFadden, D. (1984) "Specification tests for the multinomial logit model," *Econometrica: Journal of the Econometric Society*, 52(5), pp. 1219–1240.

Heurlin, C. (2019) "Unemployment among land-losing farmers in China: Evidence from the 2010 census," *Journal of Contemporary China*, 28(117), pp. 434–452. Available at: https://doi.org/10.1080/10670564.2018.1542223.

Hoq, M.S. *et al.* (2022) "Determinants of households' livelihood diversification strategies to adapt to natural hazards: Evidence from ecologically vulnerable *haor* region of Bangladesh," *Natural Hazards*, 114(3), pp. 3255–3291. Available at: https://doi.org/10.1007/s11069-022-05514-5.

Huang, L. *et al.* (2022) "Factors influencing the livelihood strategy choices of rural households in tourist destinations," *Journal of*

Sustainable Tourism, 30(4), pp. 875–896. Available at: https://doi.org/10.1080/09669582.2021.1903015.

Huang, X. *et al.* (2017) "Assessment of livelihood vulnerability of land-lost farmers in urban fringes: A case study of Xi'an, China," *Habitat International*, 59, pp. 1–9. Available at: https://doi.org/10.1016/j.habitatint.2016.11.001.

Kassie, G.W. (2017) "The Nexus between livelihood diversification and farmland management strategies in rural Ethiopia," *Cogent Economics & Finance*, 5(1), 1275087. Available at: https://doi.org/10.1080/23322039.2016.1275087.

Li, C., Wang, M. and Song, Y. (2018) "Vulnerability and livelihood restoration of landless households after land acquisition: Evidence from peri-urban China," *Habitat International*, 79, pp. 109–115. Available at: https://doi.org/10.1016/j.habitatint.2018.08.003.

Liu, M. and Lo, K. (2022) "The territorial politics of urban expansion: Administrative annexation and land acquisition," *Cities*, 126, 103704. Available at: https://doi.org/10.1016/j.cities.2022.103704.

Luan, N.T. (2022) "Against corruption and promoting socio-economic development in Vietnam today through amending the law on state acquisition of land for socio-economic development for the national or public benefit," *Prolegómenos*, 25(50), pp. 81–93. Available at: https://doi.org/10.18359/prole.5937.

Mabe, F.N. *et al.* (2019) "The nexus between land acquisition and household livelihoods in the Northern region of Ghana," *Land Use Policy*, 85, pp. 357–367. Available at: https://doi.org/10.1016/j.landusepol.2019.03.043.

Mechiche-Alami, A., Yagoubi, J. and Nicholas, K.A. (2021) "Agricultural land acquisitions unlikely to address the food security needs of African countries," *World Development*, 141, 105384. Available at: https://doi.org/10.1016/j.worlddev.2020.105384.

Menon, N., Meulen Rodgers van der, Y. and Kennedy, A.R. (2017) "Land reform and welfare in Vietnam: Why gender of the land-rights holder matters," *Journal of International Development*, 29 (4), pp. 454–472. Available at: https://doi.org/10.1002/jid.3203.

Nanhthavong, V. *et al.* (2021) "Pathways to human well-being in the context of land acquisitions in Lao PDR," *Global Environmental Change*, 68, 102252. Available at: https://doi.org/10.1016/j.gloenvcha.2021.102252.

Nguyen, Q. and Kim, D.-C. (2020) "Reconsidering rural land use and livelihood transition under the pressure of urbanization in Vietnam: A case study of Hanoi," *Land Use Policy*, 99, 104896. Available at: https://doi.org/10.1016/j.landusepol.2020.104896.

Nguyen, T.H.T. *et al.* (2016) "Socio-economic effects of agricultural land conversion for urban development: Case study of Hanoi, Vietnam," *Land Use Policy*, 54, pp. 583–592. Available at: https://doi.org/10.1016/j.landusepol.2016.02.032.

Nguyen, T.H.T. *et al.* (2020) "Land consolidation at the household level in the red River Delta, Vietnam," *Land*, 9(6), 196. Available at: https://doi.org/10.3390/land9060196.

Nguyen, T.N.T. and Tsuji, K. (2019) "The factors affecting the livelihood choices of individuals after the land acquisition: The case of Di-Su commune in Vietnam," *The Agricultural Marketing Journal of Japan*, 28(1), pp. 56–62. Available at: https://doi.org/10.18921/amsj.28.1_56.

Nguyen, T.T., Hegedűs, G. and Nguyen, T.L. (2019) "Effect of land acquisition and compensation on the livelihoods of people in Quang-Ninh district, Quang-Binh province: Labor and income," *Land*, 8(6), 91. Available at: https://doi.org/10.3390/land8060091.

Nguyen-Van, P., Poiraud, C. and To-The, N. (2017) "Modeling farmers' decisions on tea varieties in Vietnam: A multinomial logit analysis," *Agricultural Economics*, 48(3), pp. 291–299. Available at: https://doi.org/10.1111/agec.12334.

Nhung, P.T., Kappas, M. and Faust, H. (2019) "Improving the socioeconomic status of rural women associated with agricultural land acquisition: A case study in Huong-Thuy town, Thua Thien Hue province, Vietnam," *Land*, 8(10), 151. Available at: https://doi.org/10.3390/land8100151.

Nhung, P.T., Kappas, M. and Faust, H. (2021) "Impacts of agricultural land acquisition for urbanization on agricultural activities of affected households: A case study in Huong-Thuy town, Thua Thien Hue province, Vietnam," *Sustainability*, 13(15), 8559. Available at: https://doi.org/10.3390/su13158559.

Nkansah-Dwamena, E. (2021) "Can large-scale land acquisition deals improve livelihoods and lift people out of poverty in sub-Saharan Africa? Empirical evidence from Tanzania," *Journal of Agriculture, Food Systems, and Community Development*, 10(3), pp. 243–264. Available at: https://doi.org/10.5304/jafscd.2021.103.013.

Şen, G., Güngör, E. and Şevik, H. (2018) "Defining the effects of urban expansion on land use/cover change: A case study in Kastamonu, Turkey," *Environmental Monitoring and Assessment*, 190, 454. Available at: https://doi.org/10.1007/s10661-018-6831-z.

Shackleton, R.T. (2020) "Loss of land and livelihoods from mining operations: A case in the Limpopo province, South Africa," *Land Use Policy*, 99, 104825. Available at: https://doi.org/10.1016/j.landusepol.2020.104825.

Shafi, A. *et al.* (2023) "A game theory approach to land acquisition conflicts in Pakistan," *Land Use Policy*, 132, 106802. Available at: https://doi.org/10.1016/j.landusepol.2023.106802.

Shiferaw, W. *et al.* (2020) "Relationship between *Prosopis juliflora* invasion and livelihood diversification in the South Afar region, Northeast Ethiopia," *Regional Sustainability*, 1(1), pp. 82–92. Available at: https://doi.org/10.1016/j.regsus.2020.09.002.

Sullivan, J. *et al.* (2022) "Impacts of large-scale land acquisitions on smallholder agriculture and livelihoods in Tanzania," *Environmental Research Letters*, 17(8), 084019. Available at: https://doi.org/10.1088/1748-9326/ac8067.

Tassie Wegedie, K. (2018) "Determinants of peri-urban households' livelihood strategy choices: An empirical study of Bahir Dar city, Ethiopia," *Cogent Social Sciences*, 4(1), 1562508. Available at: https://doi.org/10.1080/23311886.2018.1562508.

Thông, Đ.V. (2015) "Quản lý thị trường bất động sản ở nước ta hiện nay [Managing the real estate market in Vietnam at the current time]," *VNU Journal of Economics and Business*, 31(3). Available at: https://js.vnu.edu.vn/EAB/article/view/50.

Tuan, N.T. (2021a) "Shrinking agricultural land and changing livelihoods after land acquisition in Vietnam," *Bulletin of Geography. Socio-Economic Series*," (53), pp. 17–32. Available at: http://doi.org/10.2478/bog-2021-0020.

Tuan, N.T. (2021b) "The consequences of expropriation of agricultural land and loss of livelihoods on those households who lost land in Da Nang, Vietnam," *Environmental & Socio-Economic Studies*, 9(2), pp. 26–38. Available at: https://doi.org/10.2478/environ-2021-0008.

Tuan, N.T. (2022) "Urbanization and land use change: A study in Vietnam," *Environmental & Socio-Economic Studies*, 10(2), pp. 19–29. Available at: https://doi.org/10.2478/environ-2022-0008.

Tuan, N.T. (2023) "Land tenure and land acquisition enforcement in Vietnam," *SAGE Open*, 13(1), 21582440231163102. Available at: https://doi.org/10.1177/21582440231163102.

Tuyen, T.Q. and Tinh, D.T. (2011) "The effects of industrialization on economic and employment structure changes in Vietnam during economic transition," *VNU Journal of Economics and Business*, 27(2). Available at: https://js.vnu.edu.vn/EAB/article/view/813. (Accessed: May 10, 2024).

Ustaoglu, E. and Collier, M.J. (2018) "Farmland abandonment in Europe: An overview of drivers, consequences, and assessment of the sustainability implications," *Environmental Reviews*, 26(4), pp. 396–416. Available at: https://doi.org/10.1139/er-2018-0001.

Vellema, W. *et al.* (2015) "The effect of specialty coffee certification on household livelihood strategies and specialization," *Food Policy*, 57, pp. 13–25. Available at: https://doi.org/10.1016/j.foodpol.2015.07.003.

Wang, D., Qian, W. and Guo, X. (2019) "Gains and losses: Does farmland acquisition harm farmers' welfare?," *Land Use Policy*, 86, pp. 78–90. Available at: https://doi.org/10.1016/j.landusepol.2019.04.037.

Wang, P. *et al.* (2019) "Determinants of livelihood choice and implications for targeted poverty reduction policies: A case study in the YNL river region, Tibetan Plateau," *Ecological Indicators*, 101, pp. 1055–1063. Available at: https://doi.org/10.1016/j.ecolind.2019.02.007.

Whiting, S.H. (2022) "Land rights, industrialization, and urbanization: China in comparative context," *Journal of Chinese Political Science*, 27(2), pp. 399–414. Available at: https://doi.org/10.1007/s11366-022-09786-3.

Wubneh, M. (2018) "Policies and praxis of land acquisition, use, and development in Ethiopia," *Land Use Policy*, 73, pp. 170–183. Available at: https://doi.org/10.1016/j.landusepol.2018.01.017.

Yuya, B.A. and Daba, N.A. (2018) "Rural households livelihood strategies and its impact on livelihood outcomes: The case of eastern Oromia, Ethiopia," *Agris on-line Papers in Economics and Informatics*, 10(2), pp. 93–103. Available at: https://doi.org/10.22004/ag.econ.276124.