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Impacts of Chinese Investments on Agricultural Exports
and Poverty Reduction: Oudomxay, Northern Lao PDR

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Agricultural Exports and Poverty
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December, 2012

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Abstract

Foreign Direct Investment (FDI) has played a crucial role in the socioeconomic development of Lao PDR. It significantly enhanced the standard of living of people in the rural areas and contributed in the reduction of poverty. Over the years, people in the Northern part of Lao PDR gained advantage from the foreign investment from China. This paper focuses on investigating the impact of Chinese investment on agricultural export and poverty reduction by using Nasavang Village and Mainatao Village, in Oudomxay as the case study conducted in 2009 and 2011. The findings of the paper indicate that investment inflow from China substantially contributes to the improvement of the socioeconomic development in the observed areas. The villagers could receive capital inflow and technological transfer in various plantations. It, thus, leads to empower the agricultural exports to Chinese market. Moreover, there was a significant increase in household income last 2010. The household income per capita in Nasavang and Mainatao increased by two and ten folds, respectively. More importantly, investment inflows from China reduced the number of poor households in the villages by almost half of the total number of households compared to 2008.

1. Introduction

China has been well known as one of the largest recipients of foreign direct investment (FDI) and a global manufacturing hub since the early 1990s. China, however, is not widely recognized as an important FDI exporting country until the discourse of its resource-seeking investment in Africa in recent years. In 2011, China's outward FDI net flows reached US\$ 65 billion. China's outward FDI stock reached US\$ 366 billion by the end of 2011, much over 13 times the US\$ 28 billion recorded in 2000 and far above the insignificant US\$ 4 billion of 1990 (UNCTAD, 2012). As a reflection of this surge, there are many papers written on China's outward FDI over the past decade, which may summarize into mainly three aspects. First, the literature on Transnational Corporations (TNCs) or Multinational Corporations (MNCs) has attempted to identify the motivations of Chinese firms in the line with the famous Dunning seminal works (Cai, 1999; Chen & Lin, 2008). Second, many scholars have discussed the evolution of the ideological and policy conditions that led to the dramatic growth of China's outward FDI (Cheng and Stough, 2008; Buckley et al. 2007; Rosen & Hanemann, 2009). Third, researcher attentions have focused on Chinese resource-seeking investment (oil, bauxite, etc.) as a leading source of FDI in Africa, which has risen sharply in recent years. Although recipient African nations have received investment inflows, they have negatively impacted local trade and commerce. Also, in some cases African labor has not benefited from Chinese investment (Brookes, 2007; Frynas & Paulo, 2007; and Adisu et al., 2010). However, these assessments are controversial for two reasons. First, China's outward FDI has become very important for a number of less developed countries. In Lao PDR, for example, China ranked as the top five investors over the past decade (Investment Promotion Department, 2010). Second, rigorous evidence from primary sources of the effects of Chinese outward FDI on host-country development is very scarce. Conclusions are often drawn from anecdotal and selective descriptive examples (Kubny & Voss, 2010).

The growing presence of Chinese outward FDI worldwide has sparked a continuing debate in recipient countries on the social and economic consequences, and the policy options for dealing with the rise of China. Despite the prominence given to this issue in public policy debate, there is a dearth of systematic research on the impact of emerging Chinese investment onto sustainable economic development of developing countries, especially in the terms of

trade, agricultural transformation and rural development. The paper aims to fill this knowledge gap through a case study of Lao PDR. Northern Lao PDR, in particular, is an interesting ‘laboratory’ for an in-depth study of the issue at hand, given its heavy dependence on Chinese investment in term of capital mobilization. The investment from Chinese merchants in a form of contract farming can contribute in income generation and poverty reduction, but there is also a growing concern that uneven development is a key obstacle for sustainable development of rural areas.

In this paper we focus specifically on the experience of Oudomxay, Northern Lao PDR. The core of the paper is an analysis of agricultural exports and poverty reduction using a field survey conducted in 2009 and 2011. The rest of the paper is organized as follows. Section II provides an overview of China’s FDI inflows and Oudomxay’s economic development. Section III states research objectives and research questions of the study. Section IV provides a brief related literature. Section V describes the specification of research areas. Section VI, which forms the core of the paper, undertakes an analysis of agriculture exports and poverty reduction through the case study of two villages. The paper ends in Section VII with some concluding remarks.

2. Investments from China and Oudomxay’s Economy

2.1 Overview of Oudomxay’s Economy

Oudomxay is located in the heart of Northern Lao PDR and shares borders with China. This province has 7 districts, 473 villages (60 village clusters or “*Kum Ban*”) and 276,960 inhabitants. During FY2005-FY2009, Oudomxay achieved high economic development with an average growth rate of 13%. Per capita income doubled from 323 USD to 651 USD. Over the same period, the agricultural sector contributed 56% of the provincial GDP, (5.4 percentage points decrease), whereas the industry and service sectors showed slight increase, 21.7% and 22.3%, respectively. In addition to large government expenditure and overseas assistance, recent development is fueled mainly by a huge FDI attraction. Over the past 5 years, FDI inflows to Oudomxay amount to over 87 million USD, which is dominated by domestic investments of 21 million USD. Major investments go to the industrial sector (e.g. processing, energy and mining, 57%) and to the agricultural sector (e.g. commercial crops, rubber, and industrial woods, 33%). Total exports have also increased significantly,

especially agricultural products (Investment and Planning Division, Oudomxay Provincial Office, 2010).

Focusing on the agricultural sector, Oudomxay province is undergoing an agricultural transformation. Figure 1 shows that the total planted rice areas (both wet and dry seasons) have decreased by 12.9% from 28,227 ha to 24,586 ha over 2005-2009. While the planted maize area has increased slightly, total planned areas of other crops have been expanded drastically by 222% from 25,837 ha to 57,327 ha over the same period. These include soybean, sesame, cabbage, garlic, and so on. Rubber is also an important plantation, covering 17,265 ha (accounting for 89% of the total industrial woods) (Agriculture and Forest Division, Oudomxay Provincial Office, 2010).

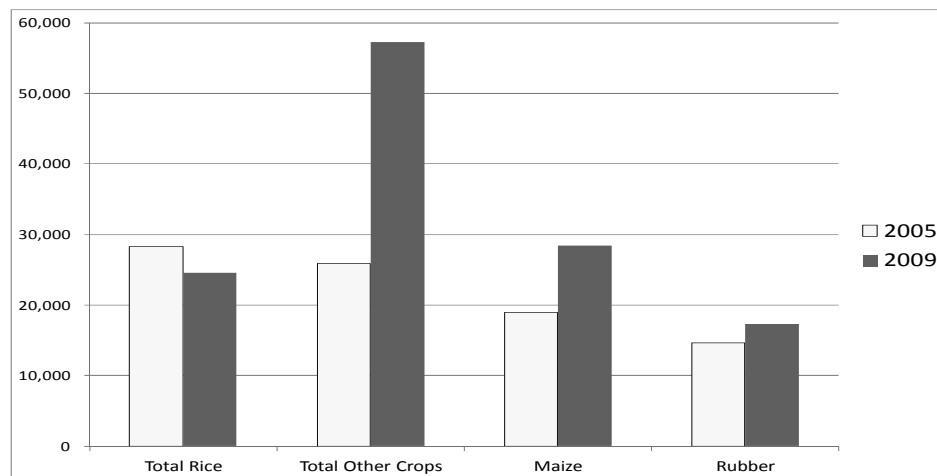


Figure 1. Agricultural Transformation in Oudomxay (Planted area, unit: ha)

2.2 Trends of Chinese Investments in Oudomxay

Lao PDR is a country where China's FDI has played a key role in economic development since early 2000. In the last decade, China continued to be in the top 5 foreign investors in Lao PDR (as shown in Table 1), whereas significant investment values should be concentrated on the mining sector.

China also dominates most of foreign investments in the Oudomxay. Within the agricultural sector, Chinese investors are interested in rubber, tea, banana, and tobacco. According to reports of Agriculture and Forest Division, provincial office 2010, the initial Chinese investment in rubber plantation was licensed in 2003 and implemented started in 2004. Since

then, a number of Chinese businessmen invested in rubber and other crop plantations. Currently, there are more than 28 companies operating in this sector (of which, 20 companies are 100% owned by China and the remainders are joint ventures with Lao investors). Most Chinese investors make contracts in form of “2+3” model, meaning that local farmers provide land and labor, while investors contribute on capital, techniques and market. Few investment contracts are signed the form of “1+4” model, which means local farmers only provide labor, whereas investors would get permits of land concession from the provincial or central government. Examples of “1+4” model are banana and tobacco plantations.

Table 1. Top 5 Foreign Investors in Lao PDR by year

Ranks	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
1	China	China	China	Australia	Thailand	Thailand	China	Thailand	Vietnam
2	France	France	Thailand	Vietnam	France	China	Vietnam	Norway	China
3	Korea	Sweden	Malaysia	Thailand	China	Japan	Thailand	Vietnam	Thailand
4	USA	Korea	Canada	Switzerland	Vietnam	India	Korea	China	Korea
5	Vietnam	USA	Singapore	China	Australia	Vietnam	Malaysia	Korea	UK

Source: Investment Promotion Department, Ministry of Planning and Investment.

Similar to many reports in other provinces, our interviewed surveys also found that Chinese investors initially contact the provincial and district officers to find available and suitable lands. The investors will have meetings with village heads (within *Kum Ban*) to explain about the projects. Then, village heads will hold meeting to their villagers whether to participate in the projects or not (voluntary basis). Once the contract is signed with the village head, Chinese investors would support the villagers who joined by sending their technicians to provide free or leased fertilizers, chemical inputs and other needed equipment. The costs are to be computed and deducted after harvest. A company may have contract farming in one or more types of agricultural products at the same time in varied locations.

3. Objectives and Research Questions

This paper aims:

- a) to overview the trends of Chinese investment in Oudomxay province; and

- b) to analyze the impacts of Chinese contract farming on rural livelihood in Oudomxay province.

The main research questions are:

- 1) What are the trends in Chinese investments in contract farming of horticulture produce in Oudomxay province? and
- 2) What are the effects of Chinese contract farming on agricultural exports and poverty reduction in Oudomxay province?

4. Literature Review

Agriculture development is a central issue of research interest for several decades. A number of research works have focused on agriculture products, technical efficiency, land use, food security, and impact of climate change and so on. In comparison with studies on FDI in manufacturing and services sectors, impact of FDI on agriculture sector receives little attention. For an example, Tang (2009) examines on foreign direct investment in agriculture in China. It describes the existing statement of foreign direct investment in agriculture in China, and analyzes some possible limiting factors about the shortage of FDI in agriculture in China. Furthermore, the increased role for agribusiness and larger scale production in China's agricultural system is limited by China's severe lack of arable land. Luo et al. (2011) showed that some Chinese companies have sought cheaper and often more accessible land in nearby regions, including Southeast Asia. While such investments have the potential to deliver benefits, including increased productivity, structural constraints such as weak land ownership and environmental laws, highly unequal distribution of land and underdevelopment of peasant organizations prevent many poorer farmers from benefiting from these investments.

In the Lao context, rural livelihoods of Northern villagers in Lao PDR have been changing rapidly in recent years, as a result of increases in external demand from China and domestic economic integration. Existing studies have focused on changes in land use (e.g. Sandewall et al. 2001; Alexander et al. 2006; and Thongmanivong & Fujita, 2006). These studies explored the changes to agricultural production and livelihoods in Northern provinces of Lao PDR. Farmers are responding to government policies to stabilize shifting cultivation and modifying their farming systems away from a dependency on upland rice cultivation. Farmers, however,

are unable to change to paddy rice cultivation and they continue upland rice cultivation with diminishing yields, resultant rice insufficiency, and struggle to cope with land degradation. Besides, farmers are interested in using technologies to change to a market-oriented livelihood strategy and require improved access to markets and traders, improved extension support and access to affordable credit.

Moreover, existing studies have been interested in changes in rural livelihoods caused by rubber plantation projects (Fujita, 2007; Manivong & Cramb, 2008; and Thongmanivong et al. 2009). These studies indicate that smallholders in Northern provinces are currently engaged in rubber planting and those that are likely to benefit are those farmers that are relatively well off, and have access to both land and capital. The lack of coordination and clear process to plant smallholder rubber development also has severe implications on natural resources and local people's livelihood options.

On the other hand, little attention has been paid on impacts of FDI from China, agricultural exports and poverty reduction in Lao PDR. For some extent, Thongmanivong and Vongvisouk (2006) examined the impacts of cash crops on rural livelihoods in Luang Namtha province, Northern Lao PDR. The study focuses on equity, particularly in terms of access to land and natural resources among local people after the introduction of cash crops. They examined issues of land tenure, the implications of transitioning from self-sufficient food production to market based production, outside influences on agricultural production and land use, and government policies on swidden cultivation, opium eradication, land allocation, and village consolidation. Onphanhdala and Suruga (2011) identified the agricultural transformation induced by Chinese investment in Oudomxay province, Northern Lao PDR. They suggest that there is evidence of a significant impact of Chinese investment on the widening of income gap in the surveyed areas.

Existing research works mentioned above have not yet captured the changes in terms of FDI impact on agricultural exports and poverty reduction over the time. Therefore, this paper aims to update the analysis the work done by Onphanhdala and Suruga (2011) using data obtained in 2009 with further survey conducted in 2011 from the same area.

5. Overview of the Field Survey

This section will show an overview of the field survey. Since this paper is an update study done by Onphanhdala and Suruga (2011), it is worth noting that they originally chose the survey area following to Yokoyama et al. (2008). It is of interesting since the surveyed villages have never applied any form of contract farming with domestic private and public company, and with other foreign company before Chinese merchants appear. The traditional production and land utilization have been transformed due to the growing existence of Chinese investment inflow in mid 2000s. To study these villages would contribute greatly in studies on the full effects of Chinese investment on socioeconomic development from its initial impact. Moreover, further study this issue by re-surveyed the same area would enable to compare the effect of Chinese investment on socioeconomic development in rural area over the time.

The authors conducted the survey in Nasavang and Mainatao villages located in Khuangkham village cluster. Nasavang village is located about 24 kilometers unpaved road away from North-South economic corridor along the 13th national road and then connect to international cross-border checkpoint at Luang Namtha province. However, it is just few kilometers to local cross-border checkpoint with China. The village is inhabited by the Yang ethnic group. According to the interview to village head, this village locates in this area for a long time and consists of 149 households. Agriculture land size is about 268 ha, of which half is upland. An average land size per household is relatively large with enough rainfall. Thus, rice production is high and enough for sale almost every year. Villagers here have been intensively applying contract farming with Chinese investor since 2006. Consequently, this significantly enhances the standard of living.

On the other hand, Mainatao is the village of the Khmu ethnic group that has migrated from upland area to settle long the road in 1977. This village is located next to Nasavang along the same unpaved road. According to the interview to the village head, this village is relatively small scale with only 43 households. Agriculture land size is limited to about 56 ha, of which most arable land is upland with insufficient rainfall. The villagers were not interested in contract farming at first. Witnessing the success of villagers in Nasavang, they later gradually apply contract farming with Chinese investors in recent years. From issue mentioned above,

it is interesting to examine the impact of foreign direct investment from China on rural development of these sample villages.

5.1 Model Specification

The main purpose of the model is to investigate the correlation between agricultural production and household income of people in Oudomxay by employing econometric technique. The model specification applied in this study is based on Onphandala and Suruga (2011).

$$Y = \alpha + \beta_1 \text{Rice} + \beta_2 \text{Other Crops} + \beta_3 \text{Maize} + \beta_4 X + \varepsilon$$

Where Y denotes total household income, which includes earnings from rice, other crops, maize, livestock's, NTFP (non timber forest products) and other sources, if any. Rice is a traditional and major earning source, which this dummy variable is equal to 1 if the household gains some income from rice output, and is equal to 0 if otherwise. Other crops is a dummy variable which is equal to 1 if the household gains income from other agricultural products (including tobacco, passion fruit, pumpkin, garlic and so on) and if otherwise is equal to 0. Since the villagers are only exposed to Chinese investment without any other impacts from private domestic investment and other foreign investment, this variable can directly reflect the influence of Chinese investment. Maize is another traditional and major earning source, which this dummy variable is equal to 1 if the household gains income from selling maize output, and is equal to 0 if otherwise. X is the controlled variables, which include the household's characteristics such as land size, number of labors, age (farm experience), education and others. β_1 to β_4 are the vectors of independent variable parameters. α is constant term and ε is random disturbance.

5.2 Methodology

In order to address the main objectives of this paper, descriptive and quantitative approaches are utilized. The early method is used to provide the overview on Oudomxay economy, the characteristics of surveyed villages with respect to agricultural exports, household income and poverty level. Quantitative approach along with the econometric method is applied to investigate the impact of Chinese investment on rural development (measured by the

coefficient β_2) in Oudomxay through the case study conducted in 2009 and 2011. The econometric equation will be estimated by the Ordinary Least Square (OLS) method.

The surveys were conducted in Nasavang and Mainatao villages, Oudomxay province. The household samples were randomly picked from the population by face to face in-depth interview to each household. The number of samples conducted in 2011 is smaller compared to the previous survey in 2009 because the villagers were busy with their production and heavy rain.

Table 2. Sample Selection

Village Name	Ethnic Group	Location	Number of Households Interviewed in 2009 (previous study)	Number of Households Interviewed in 2011 (this study)	Remarks
Mainatao	Khmu	20 km away from economic corridor	37 out of 37	26 out of 43	Self-sufficient production
Nasavang	Yang	24 km away from economic corridor	104 out of 144	81 out of 149	Market oriented production

6. Results and Discussions

6.1 Domestic and Foreign Investment in Oudomxay Province

Figure 2 shows that Oudomxay province has a high potential in economic development and this encourages more investors. The statistics of investment in the past 5 years shows that the domestic and foreign investments were 99 projects, which accounted for 114.77 million USD or 975.6 billion Kip. Direct domestic investments were 38 projects that accounted for 21.15 million USD and covered 18.14% of total investment of the province. Direct foreign investments were 54 projects that accounted for 86.98 million USD, and covered 75.79% of

the total investment. The joint venture between domestic and foreign investment were 7 projects, accounted for 6.64 million USD, and covered 5.79% of total investment. The foreign investment shares the highest proportion because the government promotes the foreign investment in Oudomxay province especially in agriculture sector and mining. The province has a location advantage to produce agriculture products such as maize, tobacco, passion fruit, and rubber.

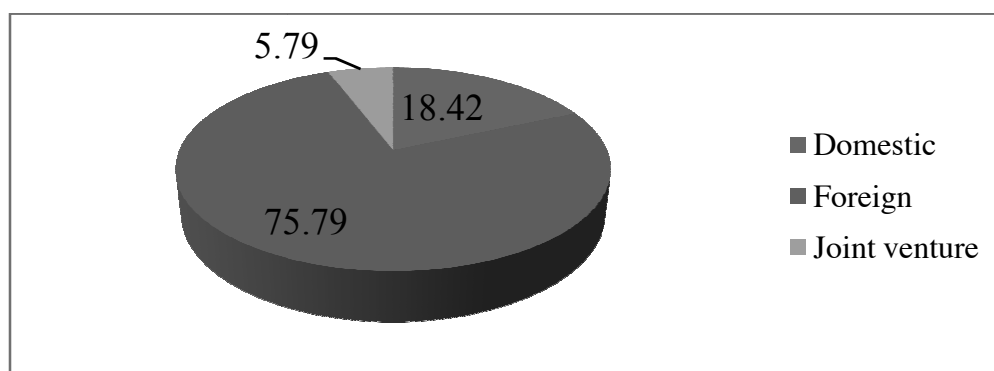


Figure 2. Source of Investment in Oudomxay Province

6.2 Agricultural Exports in Nasavang and Mainatao Villages

Of the surveyed 107 households (Nasavang 81 and Mainatao 26), Table 2 shows that a half of them sell rice product mainly to domestic market. Roughly one-third of them sell maize product mainly to domestic market as well. More than two-third of villagers sell various types of agricultural products. The primary destination of these products is exported to Chinese market. This becomes significant source of income generation for rural households in Northern Lao PDR.

Table 2. Production's Sales of Two Villages in 2010

	Rice	Maize	Other Crops
Export	3	9	65
Domestic	50	20	17
No response	1	0	3
Total	54	29	85

Source: Author's calculation, 2012

Compared to the previous survey, rice remains an important product for farmers, while maize turns to become less important product for them. By contrast, other crops have now become very significant and promising product. Because of limited agriculture land, it seems that villagers have shifted their production area from maize to other crops.

6.3 Income of the household in Nasavange village in 2008 and 2010

Table 3. Income of Household in Nasavang Village in 2008 and 2010

Year	2008		2010		2008 - 2010
	USD	Percentage	USD	Percentage	Difference (USD)
Source of income					
Rice	309.46	62.68	396.42	36.15	86.96
Maize	57.98	11.75	29.06	2.65	-28.92
Other crops	126.25	25.57	671.15	61.2	544.9
Total income	493.69	100	1096.63	100	602.94

Source: Author's calculation, 2012

Note: Exchange rate were 8,744 Kip/USD in 2008 and 8,259 Kip/USD in 2010

Table 3 indicates that the average annual income per household from rice in Nasavang village in 2008 was 309.46 USD, which accounted for 62.68% of total income. The average income from maize was 57.98 USD, which account for 11.75% of total income. The average income from other crops was 126.25 USD, which account for 25.57% of total income. In 2010, the average annual income per household from rice was 396.42 USD, which accounted for 36.15%. The average income from maize and other crops were 29.06 USD and 671.15 USD, which accounted for 2.65% and 61.20% of total income respectively. The average income from other crops of household that have contract with Chinese investor increased 544.9 USD. The average of total income increased 602.94 USD. Therefore, we can observe that the Chinese investments play a very important role to the development of income generation of households in Nasavang village.

6.4 Poverty Reduction in Nasavang and Mainatao Villages

There are 41 households or 39% having income lower than 1 USD per day. There are 27 households or 26% having income between 1-2 USD per day. There are 36 households or 35% having income more than 2 USD per day and this group their incomes are sufficient for daily consumption. In 2010, households having income lower than 1 USD per day reduced significantly to 22% and households having income between 1 USD and 2 USD per day decreased to 22%. The household having income more than 2 USD per day largely increased to 56%. From these figures income of household in Nasavang village has increased very much over the period of the study due to the cooperation with Chinese investors.

Table 4-1. Average Income Level of Household per day of Nasavang Village during 2008-2010

Income level	Status	2008		2010	
		Numbers	Percentage	Numbers	Percentage
Lower than 1 \$	Very poor	41	39.4	18	22.2
Between 1 – 2 \$	Poor	27	26.0	18	22.2
More than 2 \$	Non poor	36	34.6	45	55.6
Total		104	100	81	100

Source: Author's calculation, 2012

From table 4-2, there are 96 households or 92% having average monthly income lower than 180,000 Kip (which is the national criteria of poverty for rural areas) while there were 8 households or 8% having average monthly income lower than 180,000 Kip in 2008. In 2010, the share of household having average monthly income lower than 180,000 Kip reduced significantly to 64%. The share of household having average monthly income more than 180,000 Kip is jumped up to 36%. Similar to international standard, it is found that the households earn more income in 2010. In other word, the poverty level is largely reduced over the period 2008-2010.

Table 4-2. Average Monthly Income of Household in Nasavang Village during 2008-2010

Income level	Status	2008		2010	
		Numbers	Percentage	Numbers	Percentage
	Lao Standard				
Lower than 180,000 Kip	Poor	96	92.3	52	64.2
More than 180,000 Kip	Non poor	8	7.7	29	35.8
	Total	104	100	81	100

Source: Author's calculation, 2012

Table 5-1 indicates that 37 households or 100% have income lower than 1 USD per day in 2008; however, the share of very poor households in this group drops to 31% in 2010. The shares of households having income between 1 and 2 USD and more than 2 USD increase from 0% to 27% and 0% to 42%, respectively. Similar to Nasavang village, the income of household in Mainatao village has increased significantly and thus the poverty reduction is achieved.

Table 5-1. Average Daily Income of Household in Mainatao Village, 2008 and 2010

Income level	Status	2008		2010	
		Numbers	Percentage	Numbers	Percentage
	International standard				
Lower than 1 \$	Very poor	37	100	8	30.8
Between 1 – 2 \$	Poor	0	0	7	26.9
More than 2 \$	Non poor	0	0	11	42.3
	Total	37	100	26	100

Source: Author's calculation, 2012

Using Lao standard in poverty criteria as the measurement, Table 5-2 similarly shows that all 37 households having average monthly income lower than 180,000 Kip. This means all of them were categorized as poor households in 2008. In 2010, the share of household having

average monthly income lower than 180,000 Kip reduced dramatically to 23%. In other word, the share of non-poor household is jumped up to 77%.

Table 5-2. Average Monthly Income of Household in Mainatao Village, 2008 and 2010

Income level	Status	2008		2010		
		Lao standard	Numbers	Percentage	Numbers	Percentage
Lower than 180,000 Kip	Poor		37	100	6	23.1
More than 180,000 Kip	Non poor		0	0	20	76.9
	Total		37	1000	26	100

Source: Author's calculation, 2012

6.5 Comparison of the Factors Determining Income of Nasavang Village in 2008 and 2010

Table 6. The Different Variables in 2008 and 2010

Dependent variable: log (total annual income per household)				
Year	2008		2010	
Independent variables	Coefficient	Std	Coefficient	Std
D-Rice	0.9527***	0.2375	1.0976***	0.1624
D-Other Crops	0.5347***	0.1461	0.6715***	0.2690
D-Maize	0.3159**	0.1564	0.1556	0.2350
Labor	-0.0258	0.0405	0.0708	0.0740
Land Size	0.2455***	0.0884	0.2050***	0.0696

Sources: Onphanhdala and Suruga (2011) and Author's calculation, 2012

Note: **,*** denote the statistically significant level at 5% and 1%, respectively.

Table 6 shows that the most important incomes of household is from selling rice. The second source of income is from other crops. The coefficient of dummy other crops indicate that if the household sell other crops they earn more income than household do not sell other crops. If the households occupy more land, they tend to have more income. The number of labor here is not important factor in this model. The coefficients of dummy maize and labor are not significant, but they show correct sign. It also shows that income from selling rice in 2010 increased about 14.49% compare to income from selling rice in 2008. The income is from selling other crops increase about 13.68%. The coefficient of income from selling maize is not significant in 2010. The income of maize is not important to households because many households are shifting to produce other crops in order to supply their production to Chinese investors.

It can be said that the Chinese investors have changed the behavior of household. The households produce agriculture products for sale since they have market and contract with Chinese investors. The households earn more income and have better livelihood. They can buy motorcycle, television, refrigerator and the like to improve quality of their life. Furthermore, they have sufficient income to support their child for education. However, the Chinese investments also have indirect negative impacts to the households. For example, the households use chemical insecticide, which damages the health of households and livestock.

7. Conclusions and Recommendations

7.1 Conclusions

Oudomxay is a province in the Northern part of Lao PDR, which has high potential in socioeconomic development. With its richness in natural resources, this province can attract attention from both domestic and foreign investment. In accordance with the investment promotion policy in the past decades, a number of both domestic and foreign companies have invested in the mentioned province; there are currently 99 operating projects with approximately USD 115 million or approximately LAK 975.6 billion. Of which, there are 54 foreign projects with investment value USD 86.98 million accounted for 76 percent of total investment. Most foreign direct investments in this area are from China.

Nasavang and Mainatao villages are located in Namor district, Oudomxay province which they are used as a case study in this research. By the comparison of the latest and previous survey, there is a sharp increase in household income. This illustrates that rural people in these two villages can gain much benefits from Chinese investment. In addition, there is a significant reduction in number of poor households in the villages. In Nasavang village, the share of poor households with per capita income lower than LAK 180,000 (the criteria of Lao PDR for the classification of poor) decreased from 92% in 2008 to 64% in 2010. The share of poor households in Mainatao village with per capita income lower than LAK 180,000 decreased from 100% households in 2008 to 23% in 2010.

Based on the empirical result found in the current paper, it indicates that income sources from selling rice and other crops are significant determinants of total household income. Dummy variables representing households who gain income from selling rice and other crops are statistically significant at 1 percent level. This result is consistent with Onphandala and Suruga's finding (2011). However, dummy variable representing households with some income from selling maize is not significant as the previous finding implying that there is a transformation in agricultural production. Rural people can gain more income from other crops, under farming contract with Chinese investors while income from selling maize sharply declined comparing to the previous survey. As the result, it is found that the impact of Chinese investment is very significant for agricultural exports and poverty reduction in Northern Lao PDR.

7.2 Recommendations

- The government should encourage more foreign investors in order to increase employment and reduce poverty of household.
- The government should improve the road condition to facilitate the transportation of people and goods.
- Further studies of impact of Chinese investment on social, health and environment households are needed

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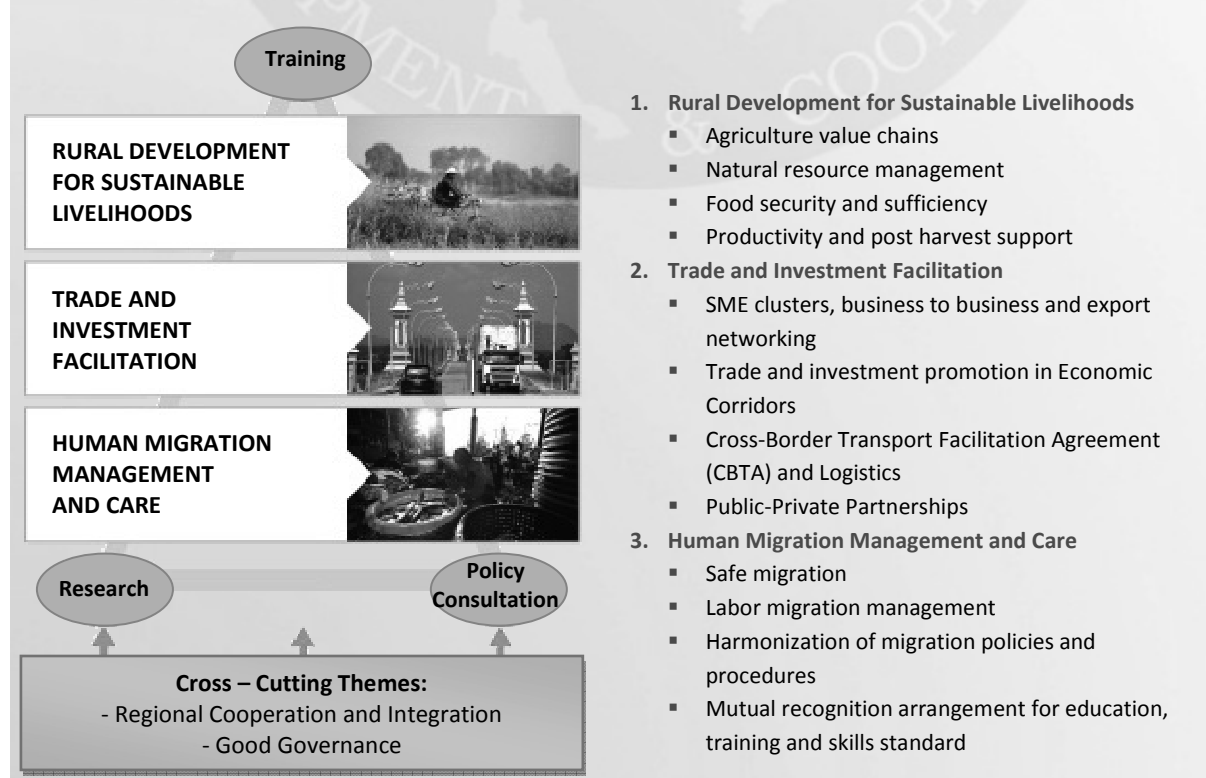
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