

Chapter 2

The Export-Oriented Agriculture and New Internal Migration Patterns in Lao PDR

*Souknilanh Keola*¹

Abstract

This chapter examined internal migration in Lao PDR with remotely sensed high-resolution population data (Landsat). In addition to widely documented migration towards the capital city and surrounding areas, it found evidences of increasing internal migration towards the emerging clusters of export-oriented plantations in the North. Such migration is different from the conventional internal flow of people in two ways. First, it is a migration towards remote and mountainous regions from which people mostly left in the past. Second, it is led by agriculture, instead of industry or services, the two main drivers of internal migration since the 1990s. The result is based on remote sensing data that provides insights complementary to studies based on data collected on the field, which is, by definition, spatially incomplete and temporally infrequent.

Key Words: Export-Oriented Agriculture, Internal Migration, Lao PDR

1. Introduction

Apart from internal migration related to post-war relocation of displaced population, civil servants, police, and military staffs after the establishment of Lao PDR in 1975, several waves of internal migration happened afterward could be characterized as the outflow from mountainous and/or agriculture. Beginning in 1975 and continued well into the 1980s, there were continued campaigns by the authority to relocate people to lowland areas to reduce the environmental impact of slash-and-burn farming and to increase productivity (Kenney-Lazar, 2013). Since the 1990s, foreign direct investment (FDI) in the light manufacturing industry, mostly garment factories, hotels, and restaurants, generated a big wave of emigration of agricultural labor in rural areas towards the capital

¹ Associate Senior Research Fellow, Institute of Developing Economies, Japan External Trade Organization (IDE-JETRO).

city and surrounding regions. Such internal migration continues to present days and constitutes a major factor contributing to the declining of the share of agriculture in total GDP from about 46% in 1990 to 15% in 2018 (World Development Indicator).

However, started at the beginning of the 2000s, the export of agricultural and forest products (excluding coffee and wood), mainly to China, grew to nearly USD 500 million in 2018, or more than twice that of garments products. Such a sharp increase has created an unprecedented demand for labor in the Northern part of Lao PDR. The purpose is to examine whether a different pattern of internal migration can be observed as a result of increasing agricultural labor demand in Northern provinces using remote sensing data. The rest of this chapter is structured as follows. Section 1 traces quantitatively and qualitatively the expansion of export of agricultural products in Lao PDR. Section 2 examines migration in several Northern provinces using high-resolution (approx. 1 km by 1 km at the equator) remotely sensed population data. Section 3 discusses the findings and concludes.

2. Rapid Expansion of Export of Agricultural Products

This section describes a brief history of the export of agricultural products in Lao PDR. Although agriculture accounts for nearly half of the GDP at the beginning of the 1990s, only wood products, i.e., timber, lumber, plywood, and coffee, were reported as major export items in the annual report of the national statistical center, until a few years into the 21st century. It began to appear as other agricultural and forest products, in addition to wood, coffee, garments, electricity, and mining as major export items in the annual report by the Bank of Lao PDR in 2002 (Table 2-1).

Export of other agricultural and forest products amounted to approximately USD 9 million in 2002, about the same as coffee, but was much less than wood, garments and electricity, USD 74, 96 and 104 million USD respectively. Nonetheless, the export of other agricultural and forest products grew rapidly to almost half a billion USD in 2018. It was number three export after only mining and electricity, which amounted to about USD 1.4 and 1.3 billion in the same year. The rapid increase is a result of the emergence of large-scale plantations, mostly by Chinese investors, that started to appear since the year 2000 whose produces were exported to China (Thongmanivong et al., 2009; Baird and Vue, 2017; Nolintha, 2018).

Garments are not only a major export item but also the largest industry by

employment in Lao PDR. The impact of the garment industry on internal migration in Lao PDR has been well documented in many studies (Bourdet, 1996; Rigg, 2007; Phouxay and Tollefsen, 2011). It is therefore difficult to think that such rapid expansion of output and export of agricultural products would have a significant impact on labor and, thus, migration, although concentrated demand for labor in agriculture is not comparable to those in the manufacturing industry.

Table 2-1. Major Export Items of Lao PDR (2002-2018, USD million)

	Wood	Coffee	Other Agri./For. Products	Garments	Electricity	Mining
2002	73.50	9.10	9.90	95.60	103.60	
2003	63.90	9.50	10.30	90.90	91.00	58.70
2004	68.52	7.01	15.84	106.11	97.01	49.98
2005	78.13	7.44	20.20	110.83	98.48	216.59
2006	97.80	9.80	22.20	127.50	101.20	498.75
2007	89.57	28.90	16.58	126.29	84.24	553.09
2008	65.70	18.49	52.66	256.04	107.99	561.68
2009	41.74	21.74	91.41	127.09	100.62	446.58
2010	37.40	26.69	169.02	171.07	113.18	625.39
2011	81.66	67.78	152.16	219.91	327.16	1,241.58
2012	131.11	114.94	220.83	183.90	502.20	946.87
2013	145.64	19.81	236.64	156.92	589.81	972.60
2014	136.53	70.05	168.48	391.30	570.25	1,286.64
2015	111.43	58.72	273.75	353.11	518.15	1,318.18
2016	36.65	67.00	524.29	249.60	1,041.87	1,251.84
2017	49.51	98.10	524.29	178.67	1,283.19	1,409.06
2018	79.36	96.70	483.52	189.69	1,309.31	1,463.53

Source: Bank of Lao PDR.

3. Examining Internal Migration with Remote Sensing Data

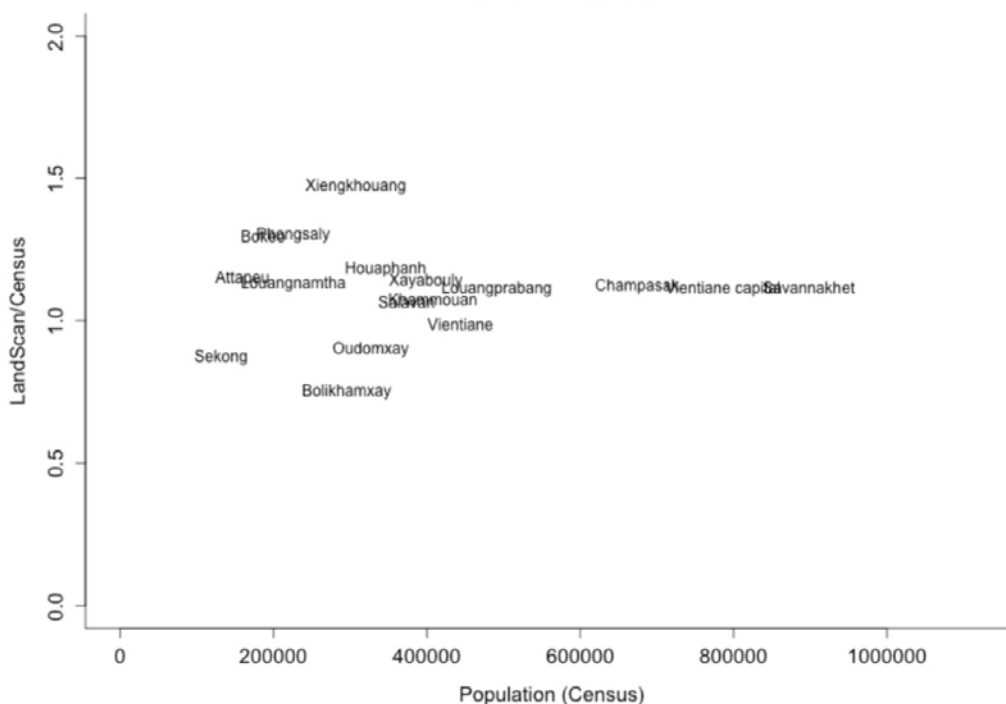
This section aims to examine whether the flow of people to regions, particularly the major production sites of agricultural products to be exported to China, can be observed from remotely sensed population data. The remote sensing data used in this study is Landscan. LandScan was developed and made available, for a fee, by Oak Ridge National Laboratory. Annual data is available continually from 2000 onwards. The spatial

resolution of LandScan is 30" or approximately 1 km at the equator. It represents ambient, or daytime, average population. LandScan uses a multi-variable dasymetric modeling approach to disaggregate census counts within an administrative boundary (Bhaduri et al. 2007). This approach, also known as smart interpolation, uses high definition satellite imageries, including those with a sub-meter resolution, to distribute official population figures over national boundaries. National population figures aggregated from LandScan often correspond with population censuses, because the latter are, whenever possible, used to construct the former. Nevertheless, this is not often the case at the sub-national level.

Landscan data is compared with population census data for the year 2005, when the two overlap (Figure 2-1). Population census in Lao PDR is said to be carried out by questioning the heads of the villages, so they often represent reported registered inhabitants. On the other hand, LandScan estimates the average day time population, with several high-resolution remote sensing data, including sub-meter satellite imageries. It is not a surprise for both figures to not entirely correspond. In fact, both should be considered as complementary, as they capture different aspects of population mobility. As is generally the case for survey data, population census has more in-depth information, but lower spatio-temporal coverage than remote sensing data.

I observe larger differences for less populated, and smaller differences for more populated provinces. For example, Landscan reports a smaller number of people in Oudomxay, Sekong, Oudomxay, and Bolikhamxay province (Refer to the map in the appendix for location and boundary of provinces in Lao PDR). On the contrary, it reports a higher number of people in Xiangkhouang, Phongsaly, Bokeo, Attapeu, Louangnamtha, etc. For major cities such as the capital city, Savannakhet and Champasak, the number of people is also higher by Landscan than by population census. The higher number of people, according to Landscan, in major cities, is expected with the presence of immigrant works. The lower number of people, by Landscan, in remote provinces can also be explained by emigrant workers. It is nevertheless, not clear why Landscan reports more people than population census in quite several small provinces.

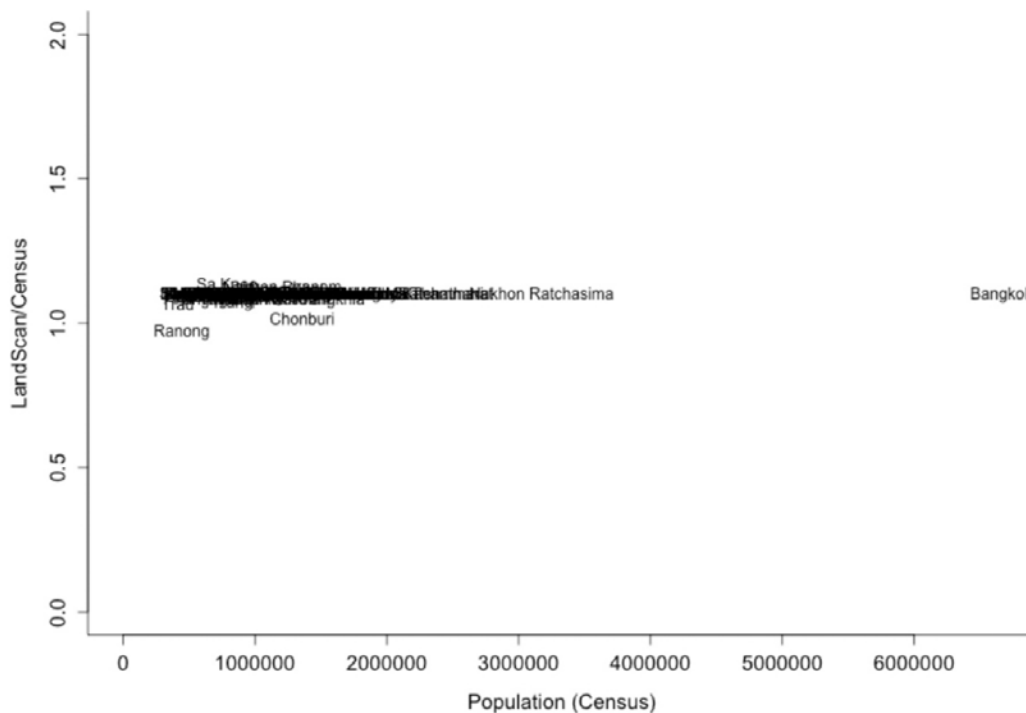
Figure 2-1: Difference between LandScan and Census in Lao PDR



Source: Computed from LandScan and GAUL. Population Census 2005 is based on National Statistical Center.

I compare Landscan with population census in Thailand, where the quality of the population census is believed to be better than in Lao PDR in order to justify the use of Landscan in Figure 2-2. Differences between the ground-based and Landscan population data are smaller for Thailand, whereas Landscan reports more number of people for all provinces except Ranong. Given the presence of millions of migrant workers in Thailand, I decide to use Landscan to examine internal mobility in this chapter.

Figure 2-2: Difference between LandScan and Census (Thailand)



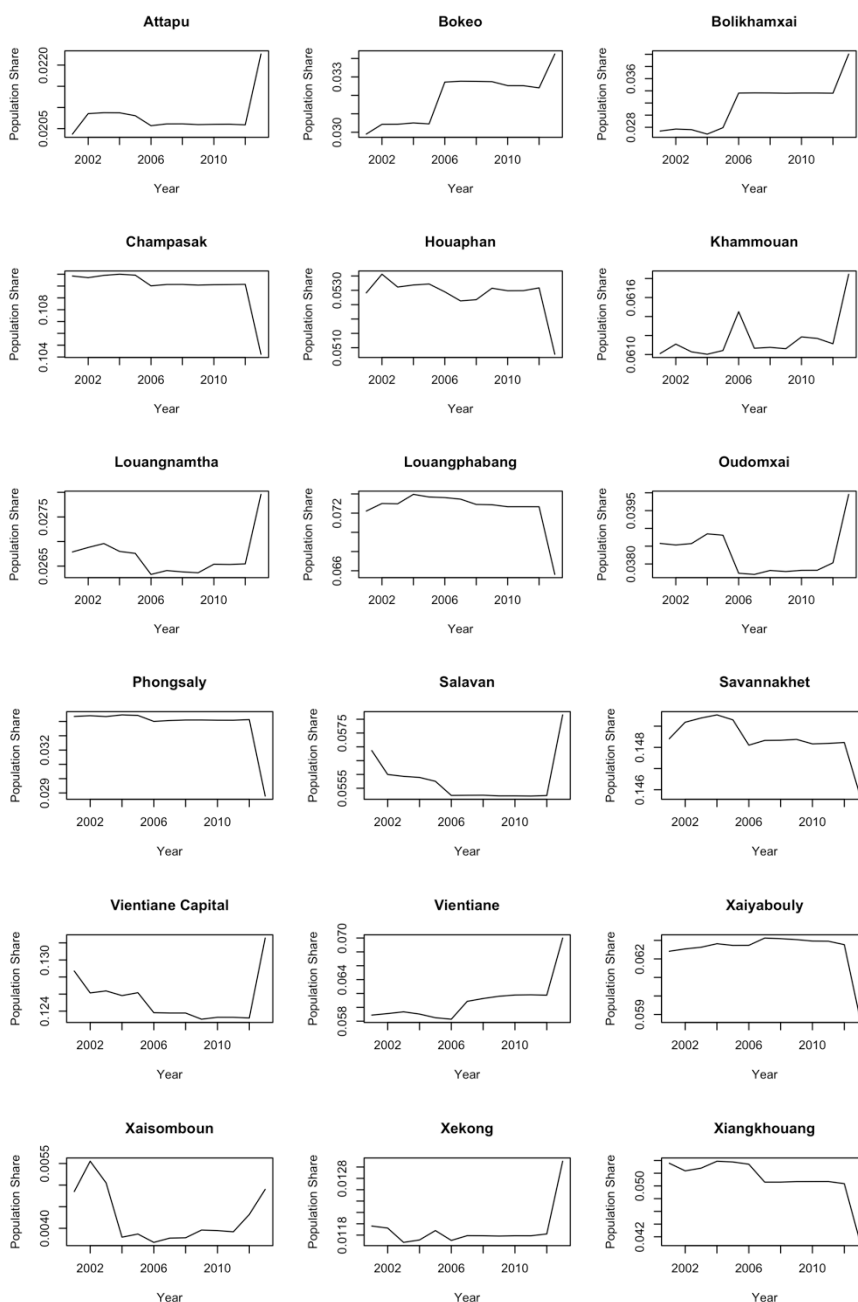
Source: Computed from LandScan and GAUL. Census is from National Statistical Center.

Next is the results. First, Figure 2-3 shows the national population share by provinces between 2001 and 2013. I used the change of national population share instead of the change of absolute population size in order to reduce the impact arising from international migration, based on an assumption that the likeliness of international outward migration is similar among regions in Lao PDR. Vientiane Capital share declined towards 2012 but bounced up to sharply to make a net gain during the study period. The decline up to 2012 was likely the result of outward international migration rather than internal migration. The economic opportunity in Vientiane capital within Lao PDR, up to present, is still rather far better than the rest, and sizable outward migration from the capital to other parts of the country is still very unlikely. Nonetheless, it is also not entirely clear if the sharp increase in 2103 comes from internal migration. Foreign population in the capital cities continues to increase in recent years, so it is likely to be a result of both inward internal and international migration.

On the other hand, Vientiane province, adjacent to the capital city, shows a steady

increase in population share. Bolikhamxai, another province adjacent to the capital city, also shows an increasing trend throughout the examined period. Although the increase in Bolikhamxai arises partly from the repatriation of the refugee from Thailand, it is safe to say that internal migration to the capital regions persisted in the studied period.

Figure 2-3: National Population Share Change by Provinces

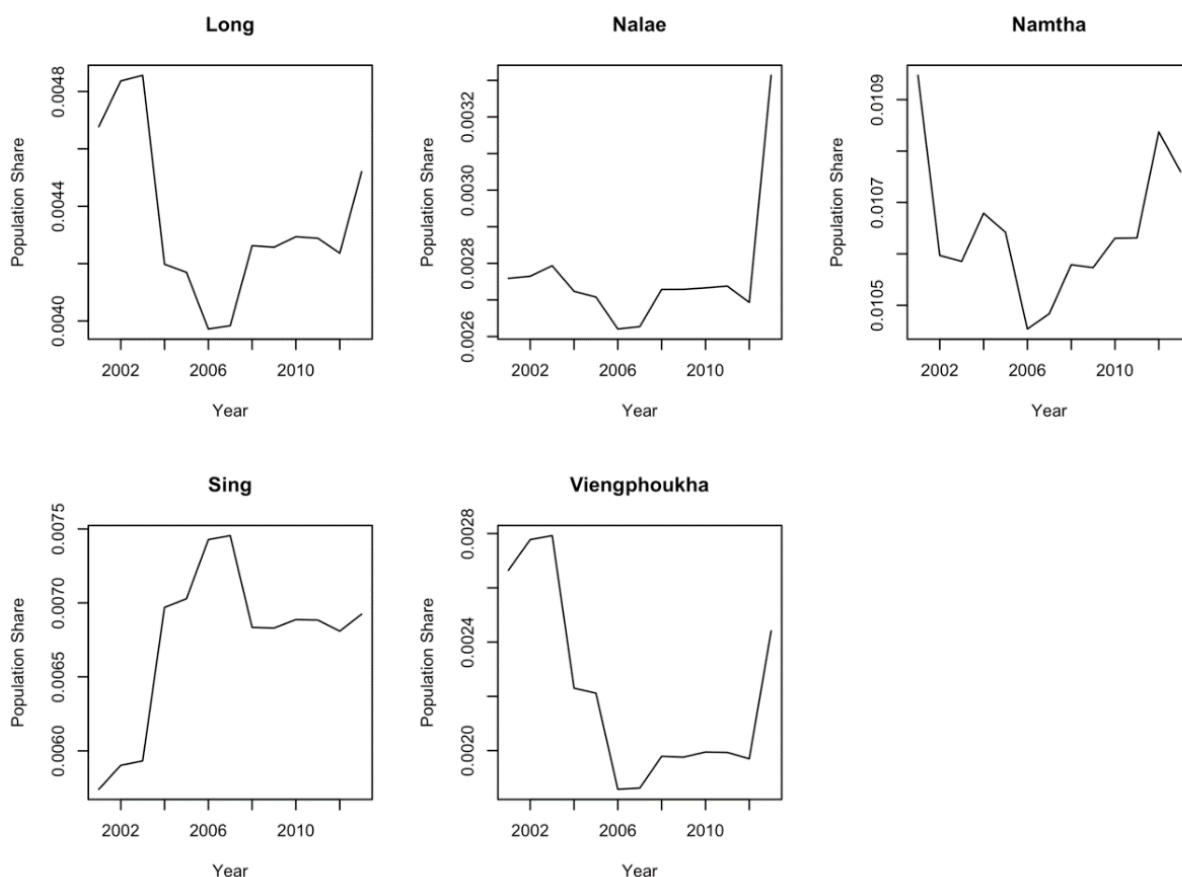


Source: Author based on Landsan.

In addition to continuing increasing migration to the capital regions, the increasing trend of national share of provinces with large scale plantations is also observed. The population share in Luangnamtha and Oudomxai sharply increased since 2012, while the increase in Bokeo province started before 2006. At the same time, population share in provinces surrounding these provinces, i.e., Phongsaly, Houaphan, Louangphabang and Xaiyabouly decreased.

Xaiyabouly on the Western bank of Mekong river, major Southern provinces such as Savannakhet and Champasak and Northeastern provinces show a net loss of national population share between 2001 and 2013. Besides Northeastern provinces, these are major sources of migrant workers to Thailand, so the decline of national population share should be considered as the result of both internal and international migration.

Figure 2-4: National Population Share Change by Districts in Louangnamtha Province

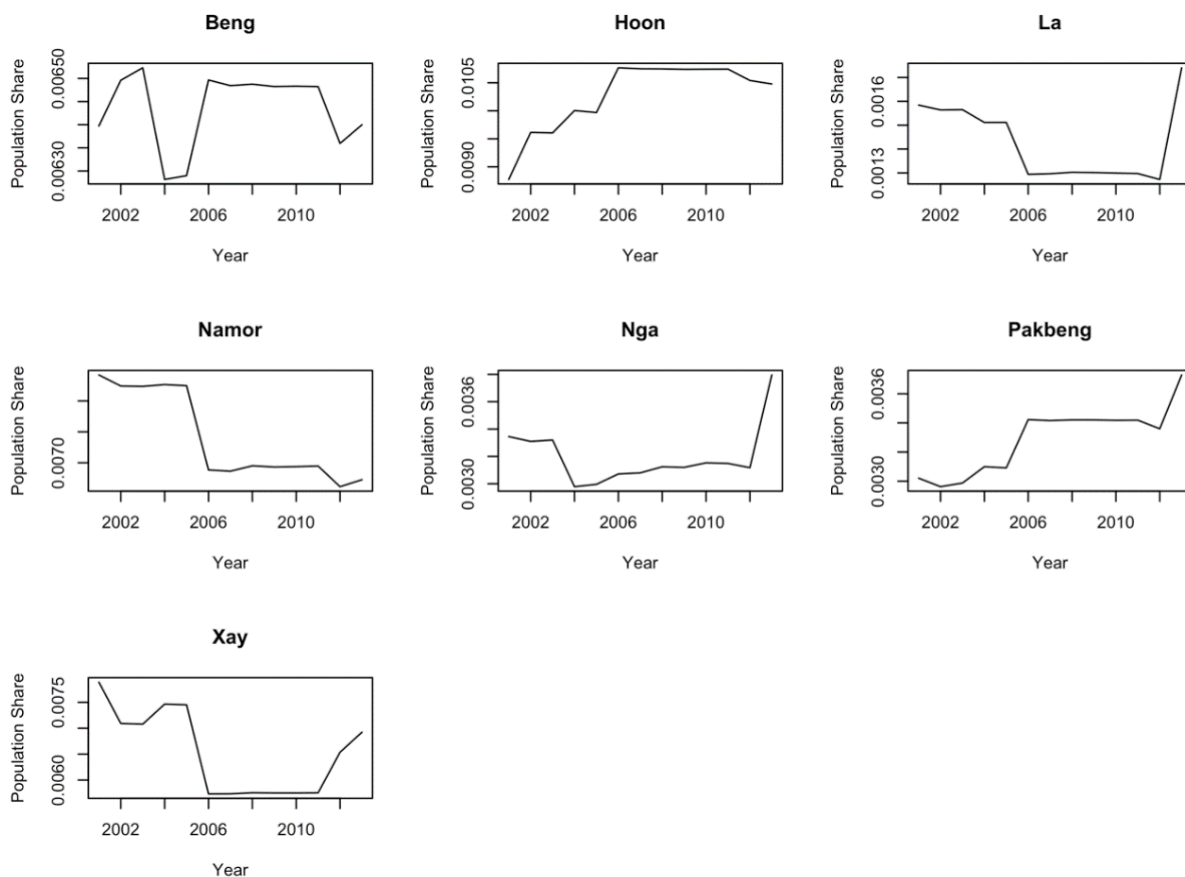


Source: Author based on Landscan.

Next, I look at Louangnamtha, the province with the largest clusters of Chinese-bound agricultural product plantations, the main interest of this chapter (Figure 2-4). Sing (commonly known as Meuang Sing), a relatively flat area along the road, attracted migration in the early period of Chinese plantation (Thongmanivong et al., 2009). As one of the earliest adopters of Chinese plantation, Meuang Sing shows an increasing trend for the show studied period, although with some adjustment in after 2006. The national population share reversed to an increasing trend afterward. The trend is most significant in Nalae district, one of the major sites of rubber plantation. Chinese plantation began around 2000. Rubber requires many more workers 4 or 5 years after the trees were planted. Broader trend of increase after 2006 could have captured this aspect. Although remote sensing data provide better spatio-temporal coverage than population censuses, the biggest limitation is it does not have information on origin and destination of migration. The increase of national share in a district may result from both inter and intra-provincial migration.

Figure 2-5 shows the national population share change by the district in Oudomxai province another major site of Chinese plantations. Hoon district, a major banana plantation site, shows an increasing trend throughout the studied period. Further ground surveys are necessary to establish the causality between plantation in increasing population share, which are shown so far present fragmented evidence towards this direction.

Figure 2-5: National Population Share Change by Districts
in Oudomxai Province



Source: Author based on Landscan.

4. Discussion and Conclusions

This paper has shown, with both data collected on the ground and observed from space, that after decades of stagnancy and struggling with limited local demand and challenging landscape, export-oriented agriculture in Lao PDR finally began to gain momentum to grow. It started with coffee export to Western Europe and Japan and is expanding even faster, both in quantity and variety in recent years, with very great demand immediately across the border to the North. The growth of export-oriented agriculture was a result of external demand and cross-border resource utilization. The impact has been big that it has changed the pattern of internal migration in Lao PDR in some of these plantation sites. Further studies are necessary to verify causality between plantation and migration. These

include ground-based but also additional use of remote sensing data that make it possible to consider spatial and temporal aspect more explicitly.

It also needs to be said that rapid change has not happened without problems. Many studies have found significant environmental and health impacts from large scale plantations. The authority has also taken actions such as stopping the renewal of licenses of projects with substantial negative consequences. These problems need to be recognized and addressed, but if the industry is to continue expanding sustainably. Nonetheless, the current expansion of export-oriented agriculture does provide insights on what options remote areas of a land-locked country may take to catch up with the rest of the country.

References

- Baird, I. G. and P. Vue. 2017. "The ties that bind: The role of Hmong social networks in developing small-scale rubber cultivation in Laos," *Mobilities*, 12(1), 136-154.
- Bhaduri, B., Bright, E., Coleman, P., & Urban, M. L. (2007). LandScan USA: a high-resolution geospatial and temporal modeling approach for population distribution and dynamics. *GeoJournal*, 69 (1-2), 103-117.
- Bourdet, Y. 1998. "The dynamics of regional disparities in Laos: The poor and the rich," *Asian Survey*, 38(7), 629-652.
- Kenney-Lazar, M. 2013. "Shifting cultivation in Laos: Transitions in policy and perspective," *Sector Working Group-Agriculture and Rural Development (SWG-ARD)*.
- Nolintha, V. 2018. "Lao PDR's fruit production for export- a case study of watermelon in Luangnamtha Province" in Kubo, K and S. Sakata ed. *Impact of China's Increasing Demand for Agro Produce on Agricultural Production in the Mekong Region*, BRC Research Report Bangkok Research Center, JETRO Bangkok/IDE-JETRO.
- Phouxay, K. and A. Tollefsen. 2011. "Rural-urban migration, economic transition, and status of female industrial workers in Lao PDR," *Population, Space and Place*, 17(5), 421-434.
- Rigg, J. 2007. "Moving lives: migration and livelihoods in the Lao PDR," *Population, space and place*, 13(3), 163-178.
- Thongmanivong, S., Y. Fujita, K. Phanvilay, and T. Vongvisouk. 2009. "Agrarian Land Use Transformation in Northern Laos: from Swidden to Rubber" (< Special Issue >

Sakata, Shozo ed. 2020. *Structural Changes of Agriculture in the CLMTV Countries and their Socio-Economic Impacts*, BRC Research Report, Bangkok Research Center, JETRO Bangkok / IDE-JETRO.

Land Use Changes in the Uplands of Southeast Asia: Proximate and Distant Causes).

(Online Data Bases)

Bank of Lao PDR,

<https://www.bol.gov.la/en/index>

GADM (The Database of Global Administrative Areas),

<https://gadm.org/>

GLOBAL ADMINISTRATIVE UNIT LAYERS (GAUL),

<http://www.fao.org/geonetwork/srv/en/metadata.show%3Fid%3D12691>

Population Census 2005, National Statistical Center,

<https://laosis.lsb.gov.la/tblInfo/TblInfoList.do?rootId=2101000&menuId=210110>

[1](#)

World Bank, World Development Indicators,

<https://databank.worldbank.org/source/world-development-indicators>

Appendix

Provinces in Lao PDR based on GADM (The Database of Global Administrative Areas)



Source: The Database of Global Administrative Areas