

Chapter 6

Vertical Specialization in Laos

- Laos' participations in global production network-

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Abstract

This paper made effort to examine development of vertical specialization in Laos. It first looked through definitions of vertical specializations, and selected rather narrow definitions of it by focusing only on cross countries vertical specialization. It found that vertical specialization in Laos, at present, exists mainly in garment sectors which take part in final stages of vertical production processes. Besides garment sector, this paper also found evidences of very few examples of vertical specialization in other sectors such as electronics, not at the final, but in the middle of vertical production processes. The operation of non-garment factories participating in cross border vertical production processes can not be observed at the macro level because they are still very small in terms of numbers. However micro level statistics have shown clearly their operations which were rivaling those of garment factories in terms of export values with relatively smaller number of workers.

Keywords: Foreign Direct Investment, Fragmentation, Laos, Production Network, Vertical Specialization

1. Introduction

It is a well known fact that increasing interconnectedness of production processes in vertical trading chains that stretches across many countries with each country specializing in particular stages of a good's production sequences is one of the most important changes of the nature of international trade in the last decades (David Hummel, Ishii and Yi [2001]). In other words trade of production inputs has been on the increasing trend and much of these input trades involve multinational firms locating input processing in their foreign affiliates (Hanson, Mataloni and Slaughter [2004]). In other words, more countries have entered into global production networks, mostly through opening up them self to foreign direct investments during the last decades.

Asian Newly Industrial Economies (Asian NIEs henceforth), namely, Hong Kong, Singapore, South Korea, Taiwan, founding members of Association of South East Asian Nations (ASEAN henceforth) such as Malaysia and Thailand began their participations in global production networks through establishments of local production bases by Japanese, American and European Multi-National Enterprises (MNEs henceforth). The same phenomenon is happening in newly joined ASEAN's member such as Vietnam¹ which also officially opened itself to FDI since the end of 1980s.

What about other newly member states of ASEAN such as Cambodia, Laos and Myanmar² who also joined ASEAN in the later half of 1990s. While Cambodia was the latest country in ASEAN to open to FDI after peace was finally achieved through international involvements in 1993 after decade long civil war, significant vertical specialization especially in garment sectors as the country has emerged as 9th and 18th to US and EU15 respectively in 2006 (Yamagata [2007]). For Myanmar, FDI has been up and down, both in terms of numbers and values, due to international embargo making it rather difficult to assess vertical specialization within the country. This paper would instead focus on Laos, the only land-locked and with smallest population in ASEAN besides city states of Brunei and Singapore.

Laos also opened its door to foreign direct investment in 1988 or 2 years after the official adoption of New Economic Mechanism, hoping to recover from economic turmoil by transforming the economy to market oriented one. The question is has any sort of specializations happened in Laos so far, if yes, in what degree and sectors. Up till now, there have been few or almost none studies on Laos from the view point of vertical specialization or participation in global production network.

This paper made a brief review of literatures on vertical specializations, and followed rather narrow version of the definition that limited them to those that were FDI related and involved cross border operations. It then categorized types of specialization and tried to reveal development of vertical specialization in Laos by examining macro and micro level trade statistics, especially for those in Vientiane Capital where most of vertical specializations have been happening in Laos.

2. Definition

Deardroff (1998) explained fragmentation as the splitting of a production process into two or more steps that can be undertaken in different locations but that lead to the same final product. Hummels, Ishi, and Yi (2001) discussed vertical specialization as production processes that involve a sequential, vertical trading chain stretching across many countries, with each country specializing in particular stages of a goods production process. Hanson, Mataloni and Slaughter (2003) defined vertical production networks as a form of “vertical FDI” through which multinationals spread, across different locations, the various activities they perform, such as R&D, input production, and input processing.

While some of above definitions put emphasis on FDI, it is however obvious that this is by no means necessary condition for vertical specialization. In a broader sense, vertical specialization can practically happen between local enterprises in the same territory. It seems nevertheless true that FDI’s involvements can be observed for many of vertical specialization in Asian countries.

This paper would follow the definition that put emphasis of FDI, and use the term “vertical specialization” in a rather narrower sense that restricts them to those directly or indirectly involving FDI and cross border operations. It does so in order to put emphasis on vertical specialization that involves FDI led participation in global production networks.

In terms of production stages, there are practically three stages where a factory may participate in a production process. The participation can be (1) at the beginning, (2) in the middle or (3) at the end of fragmented production processes. These coincide with process 1, 2 or 3 in figure 1. No external inputs are needed for process 1. Process 2 to 2n needs external inputs while their outputs become inputs for other factories. Process 3 also needs external inputs but its processed products would only be shipped to final consumers with out any further processing. As would be shown by this paper, vertical specialization by participating in stage 3 exists in Laos by a certain scale for garment industry³, and very few cases in stage 2 in electronic industry.

3. Vertical Specialization in Laos

By definition, in a narrower sense adopted for this paper, vertical specializations did not exist in Laos prior to its formal opening up to foreign direct investment in 1988, or about 2 years after the formal adoption of policy to transit the economy to a market oriented one. Though Laos received substantial foreign investment under French colonial rule from late 1800s to early 1900s (Stuart-Fox [1997]), this was long before the last wave of globalization, and is out of scope of this paper. The authority began opening process by

enacting a decree on foreign direct investment in 1988, which was then upgraded to Law in 1994, but setting up of local factories by MNEs had however been relatively limited, both in terms of numbers and sectors, when compared to neighboring countries.

Evidence of vertical specializations in Laos can be observed on macro trade statistics level for certain industry. In trade statistics published by either Ministry of Industry and Trade or National Statistical Center, a separate category is allocated for export of finished garment products produced from imported intermediate goods imported from abroad since late 1990s. Garment had been one of main export items of Laos, occupying between 14 to 30% during the period from fiscal 1998 to 2005. Total export amount increased from 80.5 million toward 2000 showed some declines towards 2003 before gaining increasing momentum again. Garment products export reached more than 126 million US dollars in fiscal 2005.

Besides garment factories, vertical specialization also exist, but in very small numbers, in other industries such as electronics. Though their contribution to export is not small as a single factory, even when compared to garment factory of similar employment scale, their export values are not visible in widely published macro trade statistic. Their operations can only be observed on micro level trade statistics. Though still very small in terms of numbers, these few vertical specialization factories in electronic sector seem to be important in many ways. They are proofs of potentiality of light manufacturing industries beside garment. Moreover, by linking or supplying to global prominent MNEs, mostly of higher valued chains, they are also showing relatively more promising prospects.

In order to get the picture of vertical specialization in Laos, this paper divided them to garment and non-garment industry and provided more detailed examinations on developments of vertical specializations including case studies of their operations.

3.1. Garment industry

Foreign direct investment in manufacturing since early 1990s had been concentrated on garment industry. One can safely say that most of foreign affiliated and local factories participating in cross national production networks in Laos by early 2008 are still garment factories. As of December 2006, only 5 out of 43 factories that employed more than 200 workers in Vientiane Capital were not garment, and most of them were foreign direct investments and were mainly from Thailand or related to Thailand in one or other ways. Many of them were said to have set up factories in Laos in order to (1) enjoy lower wage and/or (2) bypass export quota imposing on garment products.

As shown above, vertical specializations by foreign affiliated garment factories in Laos can be confirmed and are significant in macro level. Among manufacturing sectors in Laos, garment factories are by far the largest, in terms of (1) numbers, (2) employments and (3) value-added. It is obvious that garment factories in

Thailand were among the first that successfully made use of reduced transport cost between Laos and Thailand. Approvals of FDI in garment sector concentrates on the period from 1990 to 1995, in terms of time, and in Vientiane Capital in terms of location⁴. This almost coincided with the construction period of First Mekong Friendship Bridge between Vientiane Capital of Laos and Nongkhai province from October 1991 to April 1994, before which direct land transportation between economic centers in Laos and Thailand were not possible. While simple ferry transportation crossing Mekong river were available for both human and truck, any vertical specialization between the two were practically very difficult. The concentration of applications of foreign direct investments in Lao province that were building Mekong bridge was also observed in Savannakhet (Keola [2007]), where Second Mekong Friendship Bridge was officially opened in 20th December 2006. Judging from geographical distribution of foreign affiliated garment factories, timing of their applications and establishments, expectation and/or materialization of reduction of cross border transport cost by First Mekong Friendship Bridge in addition to higher population density in Vientiane Capital could hardly be denied.

As garment factories in Laos concentrated in Vientiane Capital, I will instead focus on the capital in examining vertical specialization in garment sector in Laos. In Vientiane Capital, there were 75 garment factories out of 390 factories and workshops registered with industry and trade department of Vientiane capital as of 31st December 2006. Only 5 out of 43 factories that employed more than 200 workers were not garment related ones. Garment industry is therefore the biggest in terms of numbers among light manufacturing industries in Laos.

In terms of employments, these 38 garment factories employed around 60% of 32,999 workers by 330 big and medium size factories⁵. As shown in Table 1, while prominent Joint Ventured State-Owned Enterprise (SOE henceforth) such as Lao Beer and Lao Tobacco employs only about 500 employees, 4 biggest garment factories from more than 1000 to nearly 2000 employees.

Export-oriented garment factories' contribution to export is obvious from figure 2. Re-exported garment after a certain processes in Laos reached 80 million US dollars in fiscal⁶ 1998, and increased to 126 million US dollars in fiscal 2005. Though local value-added in garment sector fluctuated from nearly 8% to slightly more than 36% of their export value, it had however certainly been the largest value-added generated by factories in Laos.

Besides Vientiane Capital, some garment factories exist in Savannakhet province, but the number is still far less than those in the Capital. Two facts may be offered as explanations for this. Firstly, while population of Savannakhet province is larger than that of Vientiane Capital, population density in Savannakhet is much smaller due to its much larger area. Secondly, Second Friendship Bridge linking Savannakhet province to Thai province of Mukdahan was not materialized until December 2006, or

13 years after Vientiane Capital was linked to Thailand through bridge. It is still remained to be seen if the Second Mekong Friendship Bridge would bring about drastic changes to Savannakhet as had been the case for Vientiane Capital. It is quite obvious that the flow of goods is faster through the bridge, and therefore reduces time cost associated with moving goods.

The vertical specialization model of export-oriented garment factories in Laos is shown in figure 5. They are in general in the form of inputting parts from country A and re-export finished products to country B. Vertical specializations in Laos by export oriented garment factories are therefore process 3 on stage 3 according to categorization by this paper . While most of finished products are actually export through Thailand, this is only because exporting through Thai ports is common among Lao exporters. It is different from returning or diverting processed garments to be further processed or inspected in Thailand before being shipped to final consumers. It is actually just a choice of cost and time, so Figure 5 was drawn in the way to reflect this fact, though finished garments are actually shipped to third countries through Thailand.

Lastly, as an example of scales and frequencies of operation by these garment factories, export values and times of a foreign affiliated garment factory is provided in figure 6. This factory is a joint venture between Thai and Lao investors employing 191 workers operating along national road no. 13 a few kilometers from First Mekong Friendship Bridge.

This factory exported a total of approximately 450,000 US dollars of Pullover and Cardigan to EU during the period from 1st January to 20 August 2004. Assuming monthly salary of its worker is 50 US dollars in average, wages paid to 191 workers would be equaled to about 17% of export values for the first 8 month of 2004. This is just a little higher than the ratio of value-added estimated for export oriented garment in Laos.

As shown in Table 1, there were 37 other garment factories, some of them employed thousands of workers. They were all categorized as wholly (or partly for a few of them) as export oriented and therefore were participated in global production network. We can see from their operation that vertical specialization in Laos, began in early 1990s and were mainly concentrated in garment industry.

3.2. Non-garment industry

As have been stated above, vertical specialization in electronic sector is very limited in Laos. It is not possible to observe them at macro level trade data. Examining micro level trade is necessary in order to get the picture of their operation. Micro statistics of trade through First Mekong Friendship Bridge have been used to examine a case of their operations.

A Non-Garment Factory:

This company supplies wire harness for world class Japanese car manufacturer in Thailand. It imported necessary semi-finished parts materials from Thailand and re-export semi-finished products after some intermediate process in Laos. This factory is not an FDI, in a strict sense, because the factory is wholly owned by a Lao national. However necessary fund for construction of factory, installing of equipments are indirectly financed by Japanese automaker in Thailand.

It employed 172 workers (December 2006) and the imported production inputs and export of processed outputs were carried out on land through First Mekong Friendship Bridge. The vertical specialization of this factory is therefore of type (2) where external inputs are necessary and processed outputs also needed to be re-exported for further processing in other country.

As shown in figure 7, the shipment averaged at about twice a month during the period from May to November 2004. The total export value from 6th May 2004 to 19th November 2004 exceeded 2 million US dollars and therefore rivaling much bigger garment factories with much smaller number of employees. The model of vertical specialization of this non-garment factory can be drawn as in Figure 8. A few other factories, processing labor intensive of relatively low technology such as assembling of trigger coils and electric resistances also existed (Suzuki and Keola [2005]).

4. Concluding Remarks

This paper has first looked thorough definitions of vertical specializations, and selected rather narrower definitions of it by focusing only on cross countries vertical specialization. It then categorized vertical specialization (1) at the beginning, (2) in the middle or (3) at the end of fragmented production processes.

After having examined macro and some micro trade statistics, it found that vertical specialization in Laos, at present, exists mainly in garment sectors which take part in processes in the stage 3 according to categorizations by this paper. These garment factories are for most of the cases those that imports necessary materials and process them into final garment products before exporting to consumers in final consumption countries mainly in European Union.

Besides garment sector, this paper also found evidences of very few examples of vertical specialization in other sectors such electronics. Their operation can not be observed at the macro level because of very small number of involving factories, but micro level statistics have shown clearly their operations which were rivaling those of garment factories in terms of export values with relatively smaller number of workers.

This paper also found that vertical specialization in Laos seems to have strong connections with FDI as almost all factories that are participating in vertical

specialization in Laos are direct or in-direct foreign owned ones. The vertical specialization seems to also have strong correlation with reduction of cross border transport cost between Laos and foreign countries. These factories concentrate in Lao provinces that have higher population densities with the combination of low cross border transport cost to Thailand.

Notes

1. Vietnam became full member of ASEAN on 28th July 1995.
2. Laos and Myanmar became full member of ASEAN on 23rd July 1997, and Cambodia on 30th April 1999.
3. Garment industry as is used in this report includes all apparel (cloths, shoes, socks, etc.) factories
4. 82 out of 92 approved foreign direct investment in garment sector from 25th January 1989 to 16th August 2004 were in Vientiane Capital.
5. A factory employs from 51 to 200 or more than 200 is considered medium or big size factory, respectively.
6. Lao fiscal year is from 1st October to 30th September.

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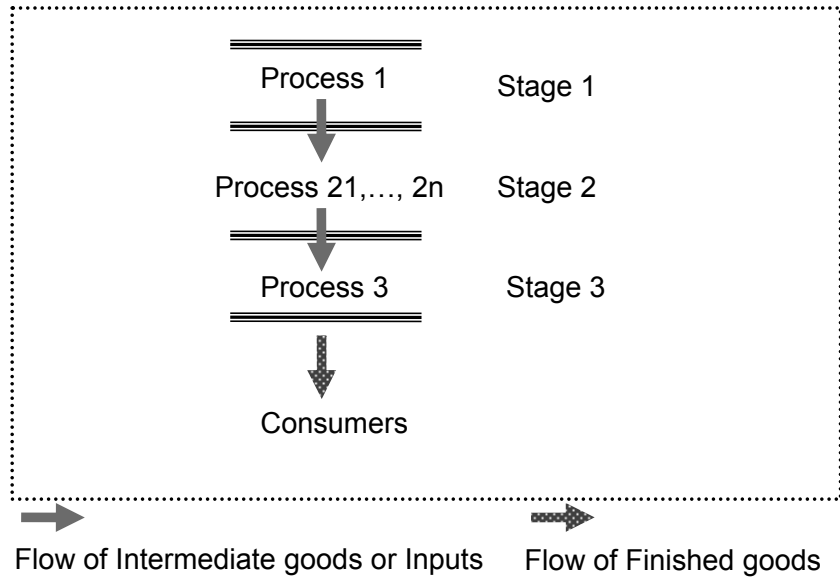
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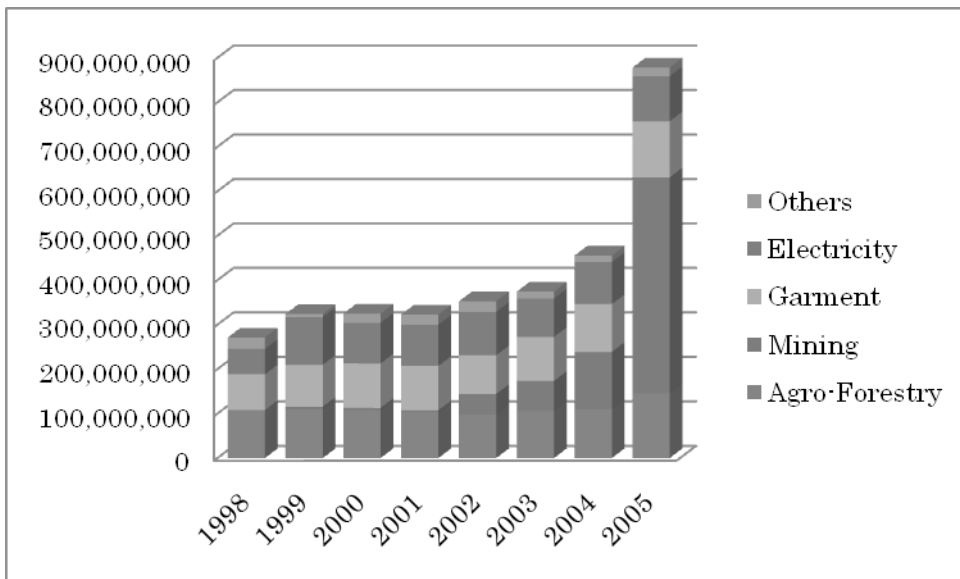
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Figure 1: Stages and Process in Vertical Specializations



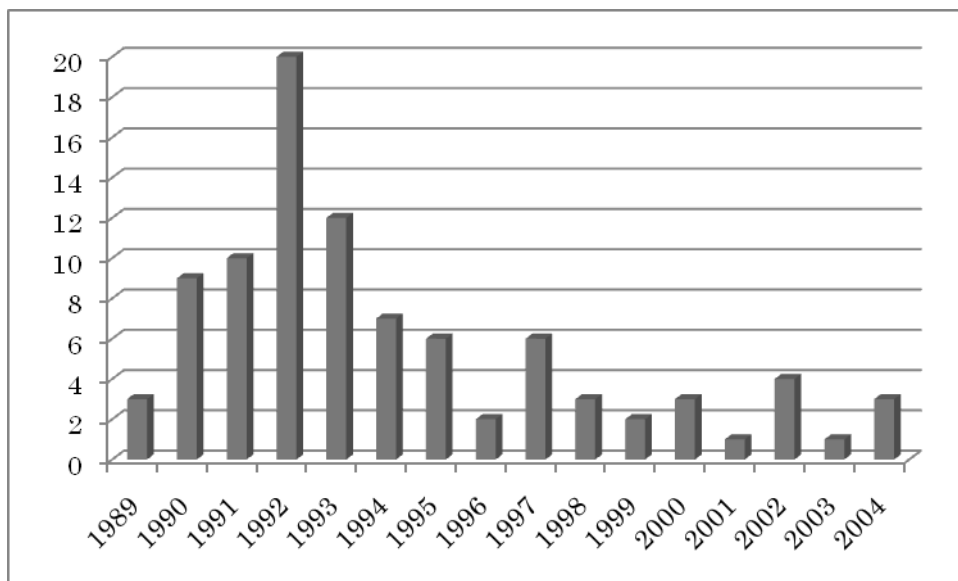
Source: Drawn by author

Figure 2: Compositions of Lao Export from fiscal 1998 to 2005 (US dollars)



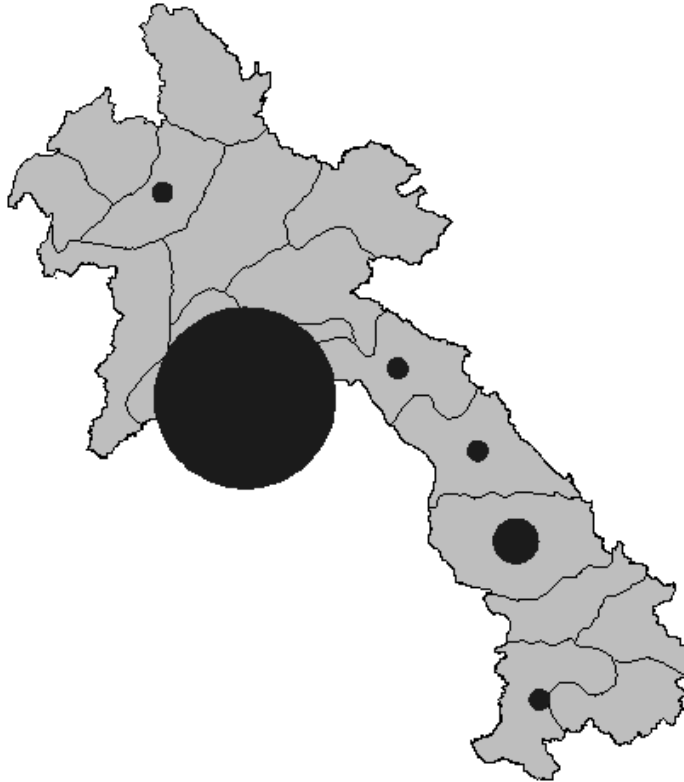
Source: Ministry of Industry and Trade's Web Site.

Figure 3: Number of Approved Foreign Investment in Garment Sector in Laos



Source: Department of Domestic and Foreign Investment, Ministry of Planning and Investment.

Figure 4: Geographical Distribution of Approved FDI in Garment Sector



Source: Drawn by author based on statistics provided by Department of Domestic and Foreign Investment, Ministry of Planning and Investment.

Table 1: Garment related Factories in Vientiane Capital

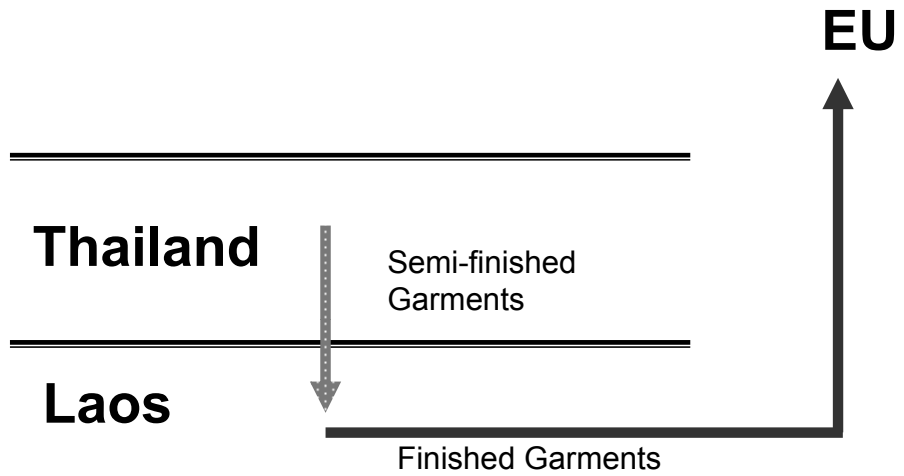
No.	CODE	Name*	Products	Employments
1	1553	Lao Beer	Beer, Mineral Water	458
2	1600	Lao Tobacco	Tobacco	534
3	1810	Trio Lao Export	Garment	1818
4	1810	Lao Garment	Garment	1696
5	1810	Lane Xang	Garment	1290
6	1810	Export Garment	Garment	1100
7	1810	Wonderful	Garment	910
8	1810	Great Lao	Garment	885
9	1810	VM Inter Lao	Garment	816
10	1810	Trimax	Garment	725
11	1810	Alpilao International	Garment	696
12	1810	Venture International	Garment	663
13	1810	PV Garment	Garment	650
14	1810	KMS	Garment	610
15	1810	Lao Beco Export	Garment	517
16	1810	Kianvilay Garment	Garment	503
17	1810	Eurasia	Garment	499
18	1810	Vision Manufacturing	Garment	460
19	1810	Bangkok Phaisarn	Garment	459
20	1810	VL	Garment	400
21	1810	Lao Enterprise	Garment	389
22	1810	Mega Lao	Garment	376
23	1810	Aporn Lao	Garment	365

24	1810	Fancy Garment	Garment	360
25	1810	Yakjin Lao	Garment	358
26	1810	Lao Universe	Garment	349
27	1810	Shinawatra	Garment	321
28	1810	Ast Lao Textile	Garment	298
29	1810	Sahashin	Garment	289
30	1810	Jenevove Garment?	Garment	271
31	1810	Riccado	Garment	268
32	1810	Inter Garment	Garment	262
33	1810	AP	Garment	260
34	1810	SP	Garment	255
35	1810	A1 Garment	Garment	250
36	1810	Done Garment	Garment	220
37	1810	Fair Vien Garment	Garment	209
38	1810	No. 2 Garment	Garment	205
39	1920	Anchin Lao Shoes	Shoe	598
40	1920	Lao Footwear	Shoe	300
41	2021	Leuang Fat Hong	Plywood	288
42	2211	Sirivattana International	Cartoon Book	300
43	3110	Tokyo Coil	Camera's parts	300

Source: "Statistics on issuing of permission to factories and handicraft workshops, 2006", Industry and Trade Department, Vientiane Capital.

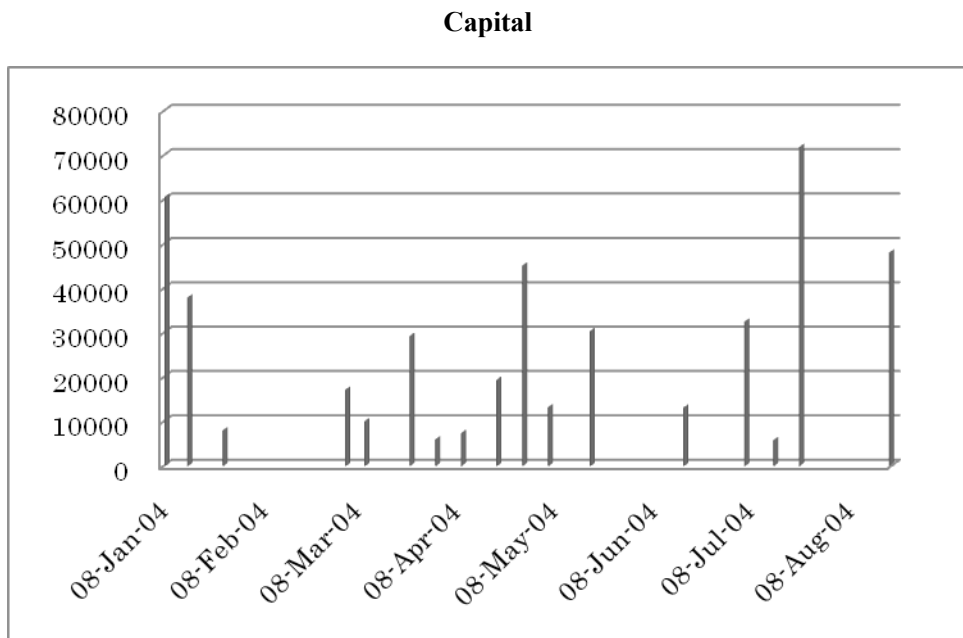
Note: * Names are translated from registered name in Lao by author and may not be accurate.

Figure 5: A Model of Vertical Specialization of Garment Factory in Laos



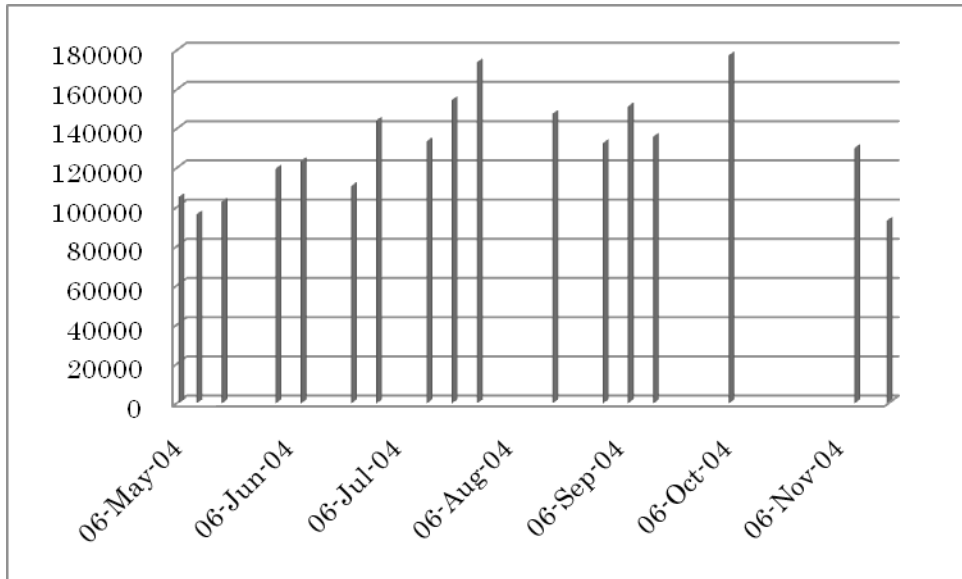
Source: Author based on statistics on export through First Mekong Friendship Bridge.

Figure 6: Operation of a Export Oriented FDI Garment Factory in Vientiane



Source: Trade Unit, First Mekong Friendship Bridge.

Figure 7: Export of Car's Wire Harness by Foreign related Factory (US dollars)



Source: Trade Unit, First Mekong Friendship Bridge.

Figure 8: A Model of Vertical Specialization of Non-Garment Factory in Laos

