

8. Conclusions and Contributions

This dissertation has dealt with different aspects of market integration and the spatial structure of freight transport costs in Lao PDR. The main objective of the present dissertation has been to examine the interplay between domestic market integration, transport costs and market structure of the freight transport sector. In the preceding chapters, the dissertation has reported findings on the spatial structure and the cost structure of the freight transport market, discussed the degree of market integration in Lao PDR based on prices for a domestically produced retail product, and explored the relations between the northern and southern parts of Lao PDR and China – in all cases, the analysis has highlighted the importance of transport infrastructure for market integration.

To accomplish the objective of the dissertation, a theoretical framework had to be developed in order to build a suitable empirical framework to study the process of market integration in Lao PDR. The empirical setting was explored in Chapter 4 with the purpose to provide an understanding the special characteristics of the studied context.

This chapter summarizes the analysis undertaken in this dissertation. A number of theoretical reflections are discussed and a number of policy implications and future research directions are suggested. The main conclusions are discussed in next the sections and are arranged in three parts. Part one concerns the empirical part of the dissertation where the nature of market integration is discussed using results from all empirical chapters. The second part relates the empirical results to some theoretical considerations. Finally, the third part discusses implications for the ongoing domestic and regional processes of integration currently taking place in Lao PDR and the Greater Mekong Subregion. It touches upon some possible effects of the processes and discusses some general issues regarding challenges to continued development.

8.1 The Nature of Market Integration in Lao PDR

The broad background interest of the study has been related to the notion of the parallel trends of regional integration in the world economy, the process of decreasing institutional barriers within regional integration programs, and the theoretical connection with the process of domestic market integration. The economic development policies of Lao PDR focused on the introduction of market oriented economic reforms during the late 1980s, which removed most institutional barriers to trade. These reforms together with a large expansion in investments in transport infrastructure during the 1990s contributed to a development of trade between different parts of the country and an emerging market for freight transport services at a national level. However, results in Chapter 4 indicate that regional economic development between 1992/93 and 2002/03 were still spatially diverse with parts of the country lagging behind the overall national development. Changes in poverty rates have also varied across provinces. The most remarkable observation is probably the very rapid reduction in poverty experienced in the northernmost provinces; Huaphan with poverty rates decreasing from 71.3 percent in 1992/93 to 51.5 percent in 2002/03 and Phongsaly with 72.0 percent in 1992/93 to 50.8 percent in 2002/03. Although the overall growth performance of the South was stronger, the average impact on poverty incidence was substantially weaker than in the far North. Where Champasack experienced an impressive 19.0 percent decrease in the poverty rate from 1997/98 to 2002/03. The spatially fragmented development of Lao PDR which was analyzed in Chapter 4 provided useful knowledge for the empirical explorations of the national freight transport system.

The emerging national freight transport system was described and analyzed in Chapter 5. The first part of the chapter described and surveyed the expansion of the freight transport sector since the introduction of the NEM. Within the context of domestic integration and transport infrastructure in Lao PDR, four important elements were seen to influence the transport and logistics system: 1) landlockedness, which creates a dependency on transit traffic through neighboring countries; (2) a geographically

scattered population; (3) weak transport infrastructure that impedes the integration of scattered local and provincial markets; and (4) high dependence on subsistence agriculture.

The first element, the landlocked location, creates a dependency on transit routes to access seaports in the neighboring countries. The results indicate that the freight transport systems are fairly well integrated on routes that connect major border crossing to neighboring countries with the urban center in Lao PDR. The investments carried out by the government to upgrade the national road system have been focused on the national roads system and oriented towards linking Lao PDR with the neighboring countries. The country's national road system is spatially oriented in both north – south as well as east – west directions providing good access to the neighbors to which Lao PDR have most economic interaction, namely China, Thailand and Vietnam. The government's guiding policy to become land-linked rather than landlocked is very clear when analyzing the development of the national road system with strong emphasize on promotion of the logistics internationally linked operations. These heavy investments in the road system also have an impact also on the spatial patterns of freight rates.

The results from the study of the national freight rates shows relatively harmonized freight transport costs terms of Kip per ton-kilometer between Vientiane and the provincial centers accessible on paved roads. Especially provinces located in the central and southern parts of the country exhibit rather harmonized freight rates. However, the results show that the provinces located in the north where elevation is higher and road quality is lower experience higher freight rates. It is worth to note that Oudomxay is an exception as the freight rates on the route from Vientiane to the provincial center in Oudomxay are at same levels as most provinces in the south and central parts of the country. The province's strategic location in the middle of the northern part of Lao PDR where all national roads in the north meet is a factor influencing this exception.

Moreover, the second element identified as a factor influencing the domestic market integration and transport system; the geographically scattered population is especially cumbersome for areas located far from the provincial centers. Generally, the quantitative results in Chapter 5 provided little insights about the freight transport to areas located far from the provincial centers. However, the qualitative parts showed that firms located in districts or villages serve these locations. This market structure reflects the administrative levels in Lao PDR, where each actor serves their own administrative area with little competition from outsiders: firms located in Vientiane can be found to operate at national levels, while actors located in the provincial centers are mainly providing service within their own province (even though there are operators providing services from the provincial center to the capital Vientiane). Freight transport operators are found on all administrative levels from province to district and village levels. Reasons to this could be explained by the local actor's unwillingness to allow competition within their market areas. This is also connected to possible lack of knowledge about local roads and their conditions. A finding from the survey of the market for national freight services indicated that larger operators located in the Vientiane Municipality often subcontract or share shipments with local actors on province or district levels when they receive larger shipments destined for remote locations. Here the local actors benefit from the geographical constraints which serve as natural barriers to competition.

A regression analysis was conducted to test how a set of variables influence freight rates. The results indicate similar results as discussed above, namely, that road quality and elevation complements distance as main determinants of freight rates on the national market. However competition was a third factor which was identified as a determinant of freight rates between Vientiane and the provincial centers. The variable used as proxy for competition within the province of destination was based on the number of businesses registered in the province. These results can also bring some light to the fourth element identified as a determinant of the weak efficiency of the transport and logistics system of Lao PDR: a high dependency on self-sufficient agricultural. A

province with many businesses registered provides a larger market for freight services than a province solely dependent on self-sufficient agricultural.

The results in Chapter 5 were obtained using qualitative and quantitative research methods. The methods use to analyzing the freight transport service sector followed the directions given by Casavant *et al.* (1995) stressing three distinctive aspects of difficulties to collect data for a study of freight transport services. First, the identification of the operator who actually makes commodity shipping and service decisions is not always straight forward. In order to identify the actors within the freight transport service sector, interviews with not only transport service operators but also with regulators working within the national and provincial governments were conducted. Secondly, Casavant *et al.* (1995) identify problems with identification of the most relevant variables used to describe goods movements. The quantitative part of the analysis focused on freight rates and their determinants; distance, fuel consumption, travel time together with a proxy for competition and market development were used. The lack of data on weight/volumes on the freight shipments between different locations in Lao PDR highlights one of the limitations of the study. Ideally, if weight/volumes on freight transport flows between Vientiane and the provincial centers had been available, this variable could have told us more about the influence of scale economies on the freight transport rates. Finally, different service provider's knowledge and perceptions about the characteristics and attributes of various transport modes may be significantly different from objective measures of the level of service properties. The collection process was therefore divided into several phases and was based on interviews with key stakeholders and actors within the Lao freight transport sector.

Chapter 6 focused on combining the results from the analysis of the freight transport sector conducted in Chapter 5 with a study of retail prices of beer observed at the village level. The empirical framework of this analysis followed the theoretical framework developed in Chapter 2 and highlighted the theoretical triangulation which was discussed in Chapter 3. An important conclusion of the theoretical framework

combining theories about regional integration with transport studies is that transportation costs can be used to reflect barriers to market integration at a domestic spatial level as illustrated in Figure 2.1. Integration of a domestic market is rarely hindered by customs duties or other regulatory barriers to the movement of goods, which shifts attention to transport costs as a barrier to entry. The theoretical discussion about transport costs and its determinants hold a crucial importance for domestic market integration. The empirical analysis focused on the spatial pattern of the retail price for the locally produced Beer Lao. The rationale behind using a manufactured retail product as the study object is that the production of the good is not dependent on the local context where it is consumed. The pricing of locally produced agricultural goods sold in local markets is dependent on various local factors such as fertility of land, climate, access to irrigation, usage of pesticides and fertilizers, and the quality of products rather than factors associated with transport costs and market variables such as structure, scale and size of the local market. Focusing on a homogenous manufactured retail product manufactured in one location allowed us to abstract from many of these local determinants and concentrate on the impact of transactions costs and market conditions.

The results from the first part of the analysis indicated that the distance between producer and consumer is not a perfect predictor of the retail price of consumer goods. This conclusion follows the results from Chapter 5 where distance was only one among several variables having an impact on the freight rates. A very rough price comparison between the retail price in the provincial centers suggests that it is necessary to account for differences in transport costs emanating from uneven road quality, as well as differences related to the degree of competition (or the number of traders) in each location. This results also follow studies conducted on spatial price patterns and market integration in former Zaire and Madagascar (Minten and Kyle 1999 and Minten 1999). The analysis of beer retail prices indicates that transport costs in Lao PDR are not only determined by distance. Road access and the presence of markets are additional important determinants of retail prices at the village level. The results show high average prices and large price variations between villages without access to a road which are interpreted to

reflect a high variation in transportation costs and competition on the local market where the beer was sold. The prices are high not only because it is expensive to transport Beer Lao to villages lacking road access, but also because there is not likely to be much competition between retailers on village markets.

Market size can also be assumed to influence the price pattern. Large villages should exhibit lower prices, since they should attract a larger number of sellers. Villages were divided into large villages, with more than 50 households; and small villages, with fewer than 50 households. The expected pattern, with a lower price in large villages, holds for urban and rural villages with road access, but not for rural villages without road access. This is very interesting, and suggests that the entry barriers for traders acting in villages without road access are quite high. The result that larger villages without road access record higher prices indicates that they do not attract more sellers: instead, it is likely that the incumbent seller just meets more demand which allows him or her to raise prices. In these cases, improved road access would not only result in lower prices because of the reduction in transport costs, but also because of the reduction in entry barriers and the market power of traders.

The spatial price patterns were analyzed in two steps; firstly by analyzing the descriptive statistics, and secondly by estimating the determinants of beer retail prices using an ordinary least squares regression framework. The results from the regression models confirm the patterns and conclusions from the descriptive analysis of the beer retail prices. It is not surprisingly that the transport related variables, distance to provincial center and travel time to provincial center, have a positive impact on the retail price. Moreover, the amount of agricultural land in the village used as a proxy for the economic size of the local economy shows a positive effect on the retail price and can be interpreted to mean that traders in a wealthy village set the prices to reflect what their customers are willing or able to pay. Customers in a wealthy village tend to be willing to pay higher prices. Also the population confirms the pattern showed in the descriptive analysis that in villages with a large population and with access to road has a negative

impact on prices. Travel time to provincial center was used as proxy for freight rates based on its high correlation with the estimated freight rates used in Chapter 5. Its not surprising that increasing travel time provides higher retail prices and that the variable is the strongest determinant for beer prices.

The dissertation's empirical parts have examined the market integration process by surveying the spatial price patterns for one bottle of Beer Lao and its pricing's relationship to various market characteristics. Moreover, the results have confirmed the importance of an efficient freight sector in order to develop a successful integration of the local economy into regional and international market.

The last empirical chapter has taken a different perspective of integration. Whereas Chapter 5 and 6 entirely focused on the domestic aspect of market integration and the internal factors influencing the degree of market integration Chapter 7 took a somewhat different perspective. By using the results from Chapter 4, which highlighted the fragmented and uneven distribution of growth at the national level, this chapter focused on some regional north – south patterns in growth and development.

The particular features of the domestic Lao market mean that the experiences of Lao PDR can be used to illustrate two kinds of trade relations with China. The northern part of the country has had ample opportunities to engage in border trade in a wide variety of products, thanks to relatively low entry barriers in terms of transport and transactions costs. Southern Lao PDR, by contrast, has faced higher costs in its trade with China, which has limited the range of products that can be exported and imported. If the first of these cases is described as “integration”, the second one illustrates “internationalization” and its impact on “domestic integration”.

8.3 Theoretical Contributions

One of the main purposes of this dissertation was to tie the empirical analysis of domestic market integration in Lao PDR closely with a theoretical framework. The main advantage of this research process may be to secure that the formulation of theories

moves in a direction consistent with the empirical data. The weak theoretical understanding of how regionalization and integration play out in developing countries is explained by the fact that most successful regional integration programs are implemented between developed countries. One purpose of this dissertation was to examine and make use of alternative approaches to market integration. The theoretical analyses are thus concerned with the relationship between trade costs, spatial market integration, transport and the market for freight transport services and seek to bridge the conceptual distance between the theories of regional integration. Most traditional theories of regional integration deal with interactions between countries, whereas the focus area of this dissertation concerns interactions between regions in one country. The main theoretical contribution of the research conducted has been to establish a theoretical discussion on linkages between the importance of trade costs for economic growth and development and identification of the expected effects of reduced trade costs within one country. The changes in trade costs (including transport costs) are in traditional regional integration theory treated as exogenous events or policy variables, and little is said about why and how transport costs vary between locations or change over time. Therefore the empirical parts of the dissertation benefited from a more thorough understanding of the role of transport costs, which required a careful analysis of the market for transport services before analyzing the spatial patterns of domestic integration.

8.4 Implications for the Ongoing Domestic and Regional Processes of Integration

Based on the results from the analysis conducted in the dissertation a selection of implications for the ongoing domestic and regional processes of integration can be drawn. These implications are of special importance for policymakers as the ongoing process of regional integration need to be evaluated based on Lao PDR's experiences.

The Lao government's strategy to facilitate the development and construction of physical transport infrastructure and establish a strategy focusing on the country's strategic geographical location as land-link seems to have been successful. The national roads linking Lao PDR with China, Thailand and Vietnam have been upgraded with

support from international donors. This physical side of the regional integration program currently undertaken with the Greater Mekong Subregion Program seem to be well ahead with a North-South Economic Corridor constructed in the north linking Thailand with China via the northern parts of Lao PDR and second economic corridor called the East – West Economic Corridor in the central parts of Lao PDR linking Thailand with Vietnam via Savannakhet province in Lao PDR.

However, the qualitative analysis of the structure of the Lao freight transport sector indicates challenges and risks with the institutional side of the regional integration programs. Lao PDR signed the GMS Cross Border Transport Agreement (CBTA) in 2007. The agreement facilitates the movement of people, freight and vehicles within the GMS. In the agreement there are provisions related to exchange of traffic rights and the number of designated transit licenses per country. The Lao transport and logistics industry is faced with numerous challenges as the market will be liberalized by 2013 under ASEAN, and the Lao government has acceded to some controversial ASEAN protocols such as the one limiting the number of transit trucks to 60 per member country while the CBTA permits up to 500 designated transit vehicles. The local transport and logistics industry which emerged after the introduction of NEM may disappear even before it is strong enough to survive in the expanding market.

There are reasons to be conscious about the implications of these agreements. The proliferation of such agreements is a large challenge for Lao PDR. The Lao government is involved in bilateral, trilateral and multilateral agreements covering international and transit trade, which have different operational modalities according to their respective aims: these are very complicated issues for the government to monitor and implement on the local freight and logistics markets. The implications of deeper regional integration on the Lao freight and logistics sector differ between the northern and southern parts of the country. In the north, local markets are becoming increasingly integrated with the Chinese market even though results in Chapter 6 confirm the effect of formal trade barriers at least for beer produced and imported from China. The close location to China

provides low transaction costs for trade with China giving effects that are widely dispersed across the regional economy in the north. In the southern parts of Lao PDR, China is considered a distant trade partner that is mainly of interest for some sectors where Lao PDR holds strong comparative advantages. While the experiences of northern Lao PDR are probably hard to replicate elsewhere (except perhaps in some of the other weakly developed countries bordering on China), the situation in southern Lao PDR may be similar to that in many other developing countries. China is an important potential market for some commodities, but substantial investment is required to realize this potential and the benefits will not be distributed equally across the population.

A notable similarity between northern and southern Lao PDR is that both parts of the country are influenced in a similar way by imports from China. There is a risk for the abundant supply of cheap consumer and capital goods from Chinese producers will hold back the development of a domestic manufacturing industry: it will be difficult for Lao producers to compete with Chinese firms that can build their competitiveness on a large domestic market where both human capital and cheap unskilled labor are plentiful. The changes in the Lao coffee sector, where local firms have gradually been able to upgrade their production and move up the value chain, illustrate a feasible development path also for other resource based industries in Lao PDR.

8.5 Limitations

It is appropriate to highlight some limitations connected to the present research results and the research design. There are limitations related to the research design as one single product in one single country was selected. There are obvious limitations when studying one single product using a single context. The reason for using one single product, more specifically Beer Lao, is related to the characteristics of the national market for freight. The firm producing Beer Lao has developed the country's largest distribution system and is therefore an interesting product providing insights about the freight transport service sector and the degree of market integration in Lao PDR. The explorative nature of the research and the implications of choosing Lao PDR as the

studied context also highlight the limitations when drawing more implications for other countries.

The sample size of 378 villages utilized in Chapter 6 are too small to conduct an regression analysis based on a stratification of villages, i.e. urban areas, rural villages with road access, or rural villages without wet season road access. The regression analysis would benefit from an analysis using the above stratification would provide a better understanding of how the rural and urban villages differs in terms of market integration. Further collection of data in order to better incorporate a more detailed analysis of how road access and market variables such as competition can influence the domestic market integration.

8.6 Future Research

Although the empirical results are satisfactory, there is undoubtedly a need to improve and deepen the empirical testing by further research. Most econometrical tests of market integration and its determinants have relatively low efficiency. This suggests a need for a more detailed analysis of the unexplained variance in the dependent variable. It would furthermore be useful to construct theoretical models where the implications could be directly related to the empirical analysis. There is obviously room for improvement in evaluating the quality of data and the appropriateness of the proxy variables used in the empirical analysis. Future research should focus on collecting better on freight flows in the country, also between provincial centers and districts. To be specific, the lack of data on freight volumes between Vientiane and provincial centers make up a major constraint as our theoretical model on transport demand and pricing of freight rates highlights the effects of economies of scale on the studied freight route.

Moreover, findings highlight the constraints shaped by the low levels efficiency and competition on the domestic market for freight transportation. The Lao government has together with external donors invested in upgrading and expanding the national road system but has unfortunately not been as successful in facilitating the development of an

efficient and well functioning transportation sector. Based on these results it would be interesting to explore the process of how competition on local villages markets and socio-economic patterns change when getting access to physical infrastructure and what role the institutional infrastructure play in this process using time series data by comparing matching pairs among the studied villages in order to compare the socio-economic development between villages.