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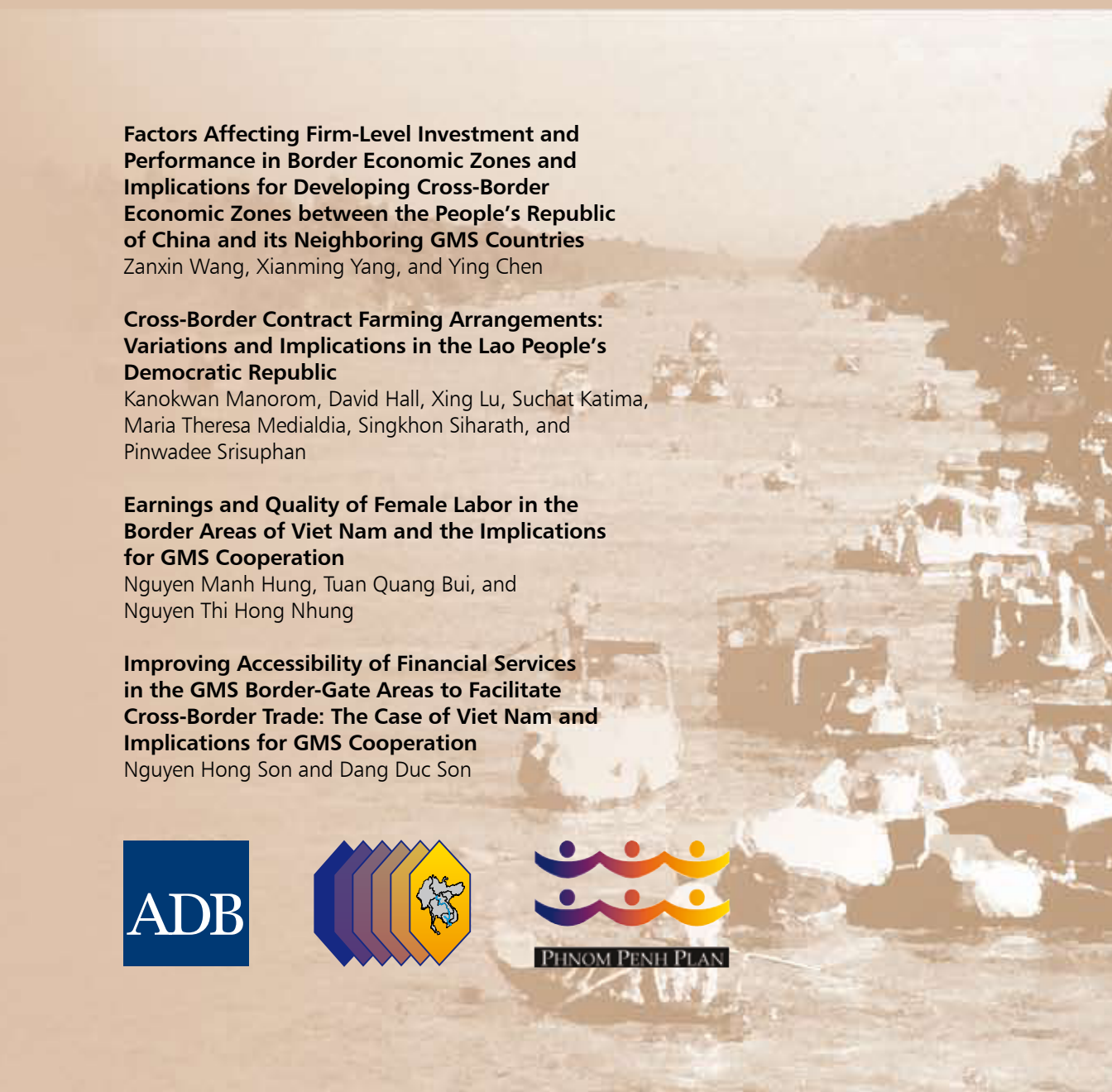

Journal of Greater Mekong Subregion Development Studies

The *Journal of GMS Development Studies* is a multidisciplinary peer-reviewed publication that seeks to promote a better understanding of a broad range of development issues of the Greater Mekong Subregion (GMS). One volume is published each year by the Asian Development Bank (ADB) under the framework of the Phnom Penh Plan for Development Management (PPP), a region-wide capacity building program that supports knowledge products and services. The Journal is directed at GMS planners, policy makers, academics, and researchers who, in their unique capacities, continue to search for solutions to the many complex challenges of the subregion. By disseminating knowledge about the GMS, the Journal hopes to stimulate further thinking and debate on GMS issues, thus contributing to informed policy choices, responsive advocacy, and meticulous scholarship.

The Journal complements other components of the PPP. The PPP, which was initiated by the GMS countries in 2002 during the First GMS Summit in Phnom Penh, delivers several learning programs each year for senior- and middle-level development practitioners in the GMS. In 2009, the PPP initiated a Research Program to enhance capacity among GMS research institutions in developing knowledge base for policy choices. As a repository of scholarly works on the GMS, the Journal serves as a valuable resource for the PPP learning programs. It also serves as a platform for publishing research works by GMS research institutions, universities, and think tanks that are recipients of grants under the recently launched PPP research program. Other activities of the PPP include fellowship awards, learning resource centers, and institutional networking and development. The program is funded by ADB and the governments of the People's Republic of China, France, the Republic of Korea, and New Zealand.

The PPP was initiated under the framework of the GMS Program, wherein six countries that share the Mekong River—Cambodia, the People's Republic of China, the Lao People's Democratic Republic, Myanmar, Thailand, and Viet Nam—started a program of regional cooperation in 1992. The areas of cooperation under the program include agriculture, energy, environment, investment, telecommunications, tourism, trade, transport, and human resources development.

The Journal invites original contributions from scholars, researchers, and practitioners dealing with GMS issues. The articles should have a strong emphasis on the policy implications flowing from the analysis. Analytical book reviews will also be considered for publication. Articles submitted for publication will be peer-reviewed.

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Foreword

This issue of the *Greater Mekong Subregion (GMS) Journal of Development Studies* features the outputs of four research projects funded by grants under the Research Program of the Phnom Penh Plan for Development Management (PPP). These research outputs represent the successful culmination of the PPP's pilot initiative to expand its outreach to research institutions as part of its capacity development mandate. The past 7 years of the PPP have focused on the delivery of learning programs, consistent with the program's vision of building a core of highly capable civil servants who would play a key role in shaping policy choices. But as GMS countries continued to face increasingly complex economic development challenges, the knowledge base required to inform policy choices has become increasingly important. Learning courses provided the tools but not the empirical basis for designing policy. Moreover, the differential impacts of policies among various groups needed to be better understood to assess the appropriate trade-offs. This policy–knowledge gap is more apparent in the less developed GMS countries where research institutions have limited capacities and resources to conduct policy-based research. Recognizing this, and in an effort to bring its capacity-building goal onto a higher plane, the PPP Research Program was launched in March 2009 to help promote a more effective link between knowledge generation and policy formulation.

The four articles in this volume investigate in-depth four issues that have emerged in the GMS border areas as a result of increased connectivity and economic interaction in the subregion. These issues deal with (i) the implications of contract farming arrangements on the benefits received by the farmers, (ii) the design of incentive policies for cross-border economic zones, (iii) the impact of border economic zones (BEZs) on the quality of female labor, and (iv) the role of financial services in trade facilitation.

The research team led by Kanokwan Manorom from Ubon Ratchatani University studied the implications of contract farming arrangements in terms of the benefits accruing to the farmers. Through case studies of three crops—cabbage, maize, and sugarcane—in the Lao People's Democratic Republic, the study observed that the benefits of contract farming vary according to the contract farming arrangements or models, and therefore, no single model can work best in all situations. Contract farming models arise to address certain production and marketing limitations that prevent the efficient functioning of industries and markets. The case studies were written by Singkhon Siharath of Champasak Agriculture and Forestry College, Lao People's Democratic Republic; Xing Lu of Yunnan University, People's Republic of China (PRC); Suchat Katima and Maria Theresa Medialdia of the Mekong Institute, Khon Kean University, Thailand; and David Hall of Ubon Ratchathani University.

The establishment of cross-border economic zones (CBEZ) in the border areas of the PRC and its neighboring GMS countries has recently emerged as a strategy for further promoting trade and investments in the subregion. While no CBEZ exists in the GMS, the establishment of this type of zone has recently been discussed for Hekou–Lao Cai along the North–South Economic Corridor border involving Yunnan Province in the PRC, and Lao Cai Province in Viet Nam. The design of incentive packages to be implemented in the CBEZ is thus a major challenge for policy makers. Xianming Yang and Zanxin Wang from Yunnan University led a team of researchers in determining the elements that should be considered in the design of

CBEZ incentives by looking at the effect of (i) the factors that attract investments to the zones, and (ii) the effects of investment incentive policies on the performance of industries locating in these zones.

In another study of BEZs, Nguyen Manh Hung and Nguyen Thi Hong Nhung of the Institute of World Economics and Politics, and Tuan Quang Bui of the Vietnam Institute of Economics, investigated the factors that influence the earnings of female labor in Mong Cai, Cau Treo, and Moc Bai in Viet Nam. The study concluded that BEZs have successfully provided greater job opportunities, and the associated increase in earnings for female labor in the BEZs, as well as to inner provinces through the channel of migration. However, there are many constraints in converting the increase of female labor income into the improvement of female labor quality. These constraints include the complex and interrelated factors of investment in human capital, the pace of social progress, access to education, the structure of the labor market, and gender equality.

The fourth article featured in this journal is on the role of financial services in cross-border trade facilitation. While the focus on GMS trade facilitation has been on simplification and harmonization of customs, quarantine and immigration procedures, transport facilitation, and mobility of business people, the important role of financial services has been so far overlooked. Nguyen Hong Son and Dang Duc Son of the Viet Nam National University address this gap by (i) investigating how users and providers of financial services in the border-gate areas perceive the role of financial services in promoting trade, (ii) evaluating the different dimensions of financial service accessibility, and (iii) looking into the accessibility dimensions that affect customers' decisions to use financial services in the border-gate areas.

We hope that this issue of the GMS Journal is able to shed light on the multifaceted issues confronting policy makers in striking a balance between the opportunities and challenges brought about by greater economic integration. The PPP Research Program has made a modest contribution to this end.

Alfredo Perdiguero
Editor

Factors Affecting Firm-Level Investment and Performance in Border Economic Zones and Implications for Developing Cross-Border Economic Zones between the People's Republic of China and its Neighboring GMS Countries

*Zanxin Wang, Xianming Yang, and Ying Chen**

Abstract

The establishment of cross-border economic zones (CBEZ) in the border areas of the People's Republic of China (PRC) and its neighboring Greater Mekong Subregion countries has recently emerged as a strategy for further promoting trade and investments in the subregion. Unlike a border economic zone (BEZ), which is confined within the national territory, a CBEZ is an economic zone traversing a transnational area and requiring a unified set of policies and incentives in such areas as finance, taxation, investment, trade, and customs regulation. While no CBEZ currently exists in the GMS, the establishment of this type of zone has recently been initiated for Hekou–Lao Cai along the North–South Economic Corridor border involving Yunnan province in the PRC, and Lao Cai province in Viet Nam. The design of incentive packages to be implemented in the CBEZ is thus a major challenge for policy makers. To help inform the design of incentive policies in CBEZs, this research studied BEZs in selected border areas in Yunnan province, and in Lao Cai province, with the objective of assessing (i) the factors that attract investments to the

* Xianming Yang is dean, Zanxin Wang is associate professor, and Ying Chen is also an associate professor, all from the School of Development Studies, Yunnan University, Kunming, People's Republic of China (PRC). Other research team members include Fan Yuan, Jie Zhou, and Meijuan Lou from Yunnan University, PRC; Kyophilavong Phouphet and Bounmy Inthakesone from the Faculty of Economics and Business Management, National University of Lao People's Democratic Republic; Nuyen Minhen from the Department of Rural Development, Hanoi University of Agriculture, Viet Nam; Chai Yu from the Regional Cooperation Department, Chinese Academy of Social Sciences, PRC; and Aksornsri Phanishsarn and Pawat Tangtrongjita from the Economic Research and Training Center, Thammasat University, Thailand.

zones, and (ii) the effects of investment incentive policies on the performance of firms locating in these zones. Using three types of investment motives (market-seeking, resource-seeking, and efficiency-seeking) as dependent variables, and applying parametric and nonparametric analysis, the study identified significant variables that affect the firms' locational decisions and investment performance. The implications of these variables on the design of incentive policies were subsequently analyzed.

Background

Despite its vast land area, the western region of the People's Republic of China (PRC)[1] is economically underdeveloped, far behind its eastern region in terms of gross domestic product (GDP) and income per capita. To narrow the gap between the eastern and western regions of the PRC, the central government adopted policy measures in 2000 for the development of western PRC, which was consistent with the overarching national goal of promoting equity and the well-being of the Chinese people across the country. Although significant improvements have been made since the implementation of the program, the economic gaps between eastern and western PRC are still large. The per capita income of eastern PRC in 2008 was 36,958 yuan, more than twice that of western PRC in the same year.

Over the past 10 years, the PRC government continued to adopt policies to further promote the development of western PRC. Development priorities included the opening of border areas, increasing border trade, and encouraging economic and technical cooperation with neighboring countries. The PRC's participation in regional initiatives, such as the Greater Mekong Subregion (GMS) Program and the ASEAN+3[2] initiative, supported these priorities. The landmark Association of Southeast Asian Nations (ASEAN)–China Free Trade Area (ACFTA) agreement that came into force in January 2010 gave a further boost in intensifying trade between the PRC and the dynamic economies of ASEAN.

Investments from both local and foreign sources were encouraged in border areas to exploit local resources, promote industrial processing, generate jobs, and increase local revenue. Various forms of border economic zones (BEZ) were established as a means of increasing economic exchanges with neighboring countries. The government undertook improvements in infrastructure and adopted effective investment policies to attract domestic and foreign direct investments in the BEZs in order to develop the manufacturing sector and increase trade.

This research studied BEZs in selected border areas in Yunnan province—one of the most underdeveloped provinces in western PRC—with the objective of assessing (i) the factors that attract investments to the zones, and (ii) the effects of investment incentive policies on the performance of industries locating in these zones. The results of the study are to be used as basis for the design of investment incentives for cross-border economic zones (CBEZs), which Yunnan province has been planning to develop with neighboring countries. The establishment of CBEZs is a potential strategy that could be adopted for transnational regions such as the GMS.

A CBEZ is a transnational economic zone in a border area, supported by preferential policies in such areas as finance, taxation, investment, trade, customs regulation, and industrial

[1] In this study, the eastern region of the PRC refers to Beijing, Tianjin, Hebei, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, Guangdong, and Hainan while the western region includes Guangxi, Yunnan, Guanzhou, Sichuan, Chongqing, Tibet, Xinjiang, Qinghai, Gansu, Inner Mongolia, Shănxi, and Shānxi.

[2] ASEAN+3 is a grouping that includes the 10 ASEAN member countries plus the PRC, Japan, and the Republic of Korea.

development, and where there is unrestricted flow of goods, capital, and technology. CBEZs can be an effective growth strategy of transnational regions, with the objective of exploiting the locational advantage of border areas to boost trade. CBEZs derive their competitive advantage from complementary factor endowments, cross-border infrastructure services, and reduced border barriers that could attract investments from both home and abroad (Li 2009). While a BEZ would be confined in the border area of a country, a CBEZ would encompass a border area between two countries with a unified set of policies being implemented within the zone. CBEZ can be especially beneficial for industries that are operating in a vertical supply chain.

The idea to set up CBEZs in the GMS was one of the key recommendations of the North−South Economic Corridor Strategy and Action Plan discussed at the 15th GMS Ministerial Meeting held in Cha-Am, Thailand in June 2009. CBEZs were proposed to be set up along the North–South Economic Corridor to facilitate trade between pairs of countries traversed by the corridor. In June 2010, the Yunnan provincial government signed a framework agreement with Viet Nam on the construction of Hekou–Lao Cai CBEZ. This was a significant step toward establishing CBEZs. Apart from Lao Cai in Viet Nam, Yunnan province had planned to set up CBEZs in the PRC–Myanmar border at Ruili–Muse, and in the PRC–Lao People's Democratic Republic (Lao PDR) border at Mohan–Moding. The second step is to expand the three CBEZs through cooperation of special economic zones (SEZs) within Yunnan province with those in the border provinces of Viet Nam, Lao PDR, and Myanmar. Although Yunnan province has plans to set up CBEZs in borders with neighboring GMS countries based on its existing BEZs, no CBEZ has been established to date.

This study covers BEZs in the PRC–Viet Nam border (Honghe and Lao Cai), the PRC–Lao PDR border (Xishuangbanna and Boten), and the PRC–Myanmar border (Dehong and Muse). Since there are no BEZs on the border sides of Lao PDR and Myanmar, surveys were conducted in Honghe, Xishuangbanna, and Dehong on the PRC side, and Lao Cai on the Viet Nam side.

Literature Review and Formulation of Hypothesis

A firm's decision to invest in a foreign country is affected by three key factors: ownership advantages, locational advantages, and internalization advantages. The first two factors are firm-specific while the third is host country-related. The study focuses on the locational aspects since this has important implications in the design of policies for attracting foreign direct investment (FDI) flows to the host country (Dunning 2001).

Several studies have tried to investigate the factors affecting the location decisions of firms. The relative importance of the different location-specific determinants were discussed on four aspects of investment (Dunning 1993; UNCTAD 1998), namely (i) the motive (resource-seeking or market-seeking), (ii) the type of investment (greenfield or sequential FDI), (iii) the sector of investment (services or manufacturing), and (iv) the size of the investment. Other studies (Dunning 1993, Amiramahdi and Wu 1994, de Mello 1997, Kening 1997) have identified important location-specific determinants of FDI that include political stability, market size and growth, macroeconomic conditions, infrastructure, government policy, investment incentives, natural resources, cheap and skilled labor, and an appropriate institutional framework. In studies on firms with investments in the PRC (Cheng and Kwan 2000, Wei and Liu 2001, Fu 2000, Ng and Tuan 2002), important FDI determinants include market size, economic development, labor market conditions, infrastructure, and preferential taxes.

The PRC recognizes the important role of SEZs in attracting FDI, and promoting trade, infrastructure development, employment creation, foreign exchange generation, export competitiveness, and technology transfer (Lakshmanan 2009). Although the SEZs' pattern of development has been uneven, the SEZ policy in the PRC was considered a significant endeavor in the 1980s (Delfs 1985). Aimed at attracting foreign investments, SEZs provide flexible and innovative incentive packages that usually include duty-free privileges; concessionary tax rates, tax breaks, and exemptions; preferential fees for land or facility use; favorable arrangements with respect to project duration, size, sector invested, location, and type of ownership; and flexible treatment regarding business management, employment, and wage schemes, among others (Ge 1999).

The failure or success of an SEZ is linked to the country's investment policy and incentive framework, where it is located, and how it is developed and managed. Incentives alone cannot ensure the good performance of a SEZ, especially if these are not sufficient to offset the disadvantages of poor location and inadequate facilities. Besides incentive policies, other factors that could contribute to the success of SEZs include the availability of land to support the desired level of economic activity; strategic location and multimodal connectivity with major trading destinations; government participation in developing zone infrastructure; efficient and effective governance; availability of transport, trade, and investment facilitation; the availability of skilled and cost-effective labor force; and resource availability (Lakshmanan 2009). The overall investment climate is thus important for a firms' decision to invest in an SEZ or a region.

Drawing from investment theory and the findings of previous studies, this research tested the following four hypotheses. It must be noted that in this study, the term BEZ is used to refer to special economic zones located at the border with a neighboring country.

Hypothesis 1: Incentive Policies Play a Positive Role in Attracting Investments to BEZs

Investment incentives can be categorized into fiscal (those related to taxes), and non-fiscal (those relating to financial policy support and investment facilitation). The motivation for a firm's decision to invest—whether this is market-seeking, resources-seeking, or efficiency-seeking—is an important consideration in determining the role of incentives. The role of incentives can also differ based on the firms' characteristics and stage of development. Firms at an early stage of development may find those incentives that reduce the costs of investment expenditures more relevant, while firms at an expansion stage may benefit more from incentives associated with profit and taxes. Compared with service firms, manufacturing firms attach greater importance to incentives related to asset depreciation, because large-scale investments are required for fixed assets. Investors without access to local investment resources would be attracted by start-up grants or financial support from local governments rather than tax holidays. Different incentives will affect a firm's decision to invest differently.

Hypothesis 2: Investment Climate Can Affect a Firm's Decision to Invest

The investment climate is the totality of the economic, social, political, and legal systems that constitute a firm's environment. A favorable investment climate can facilitate a firm's ability to accumulate capital and increase output. According to the literature, such as Hall and Jones (1999), the difference in capital accumulation is, in essence, the difference in the investment climate between countries, which in turn, affects firms' efficiency by influencing transaction costs.

Hypothesis 3: Incentives Have a Positive Impact on a Firm's Performance

Incentives can contribute to the effective use of resources, while at the same time offsetting locational disadvantages, thus affecting performance. Similar to Hypothesis 1, the effects of incentive policies on performance can vary depending on the firm's stage of development and the type of industry. This suggests that the design of incentive policies may have to be customized.

Hypothesis 4: A Good Investment Climate Has a Positive Impact on the Performance of Firms

Investment climate includes transport facilities, logistics systems, and related infrastructure that are linked with the firms' production and operations. It also encompasses good governance and a stable political and legal environment that can reduce the transaction cost of production and operation. In the short run, location, resource availability, and market potential can contribute to a firm's stability but can affect a firm's performance significantly once they are changed.

Methodology

Data to quantify the variables were collected through field questionnaires and focus group discussions. The research hypotheses were tested using nonparametric and parametric methods.

Nonparametric analysis was conducted to identify important factors and to test the effects of variables. Based on 5-point scale data, important factors were identified using an assessment index/score (I_{ij}) of variable, while the effects of variables were tested through cross-tabulation and chi-square statistics.

An assessment score of the variable is constructed as follows:

$$I_{ij} = 10 \times \frac{1}{n} \sum_{i=1}^{n} \frac{V_{ij} - V_{\min}}{V_{\max} - V_{\min}} \quad (1)$$

where I_{ij} is the assessment score of firm i to item j; n is the number of firms answering item j; $V_{\min}$ and $V_{\max}$ are the minimum and maximum points of item j in a Likert scale. The multiplication of 10 is to enhance the scale of the index. The higher the index value, the better the assessment.

The parametric analysis used the multinominal logit and the ordered logit models to assess the different incentives on the firm's decision to invest. Explanatory variables were identified based on survey data for the assessment of the effects of incentive policies on the firm's performance. Incentive policies that were studied include preferential tax policy, land use policy, finical service policy, labor use policy, and investment facilitation. Their values were generated from the recorded scale data using the principal component method and the scoring method. The basic statistics and correlation coefficient matrix of explanatory variables were analyzed. The results show that the collinearity of explanatory variables is not statistically significant.

Results

Nonparametric analysis

General profile of firms surveyed. In the border areas covered by the study, most investments are from domestic firms and very few are foreign-invested companies. Investments from non-state-owned firms account for 83.6% and state-owned firms account for 10.4%. Only 3.7% of total investment comes from multinational enterprises. A large number of firms surveyed is resource-based or resource–oriented (48.1%), followed by service-oriented firms (23.0%). The three largest groups in the sample are in wood processing and furniture making, basic metals processing, and the primary agricultural products processing. It is evident that the industries that located in the BEZ are natural resource-intensive, while capital- and technology-intensive industries are few.

Trade. Some 41.5% of surveyed firms are exporters in raw materials (14%), machinery parts (4%), final products (67%), and other products (12%). More than half (54%) are exported to mainland PRC, Lao PDR, Myanmar, and Viet Nam, while the rest are exported to non-GMS countries. About 49% of surveyed firms have import activities, mostly in agricultural products. About two-thirds of imports are sourced from mainland PRC, Lao PDR, Myanmar, and Viet Nam. As the number of exporters and importers is less than 50% of the sample size, the firms covered by the study have no distinct export orientation. Imports are mainly raw materials, and exports are final products.

Economic linkages. The economic linkages among firms indicate that products are mainly exported to meet the needs of foreign consumers while imported products are mainly raw materials from foreign producers (Table 1). Most firms have stronger linkages with the domestic market than with foreign markets. Business relations among firms mainly concern purchases of raw materials and sales of final products. Owing to the relatively few transactions of intermediate products, the linkages among firms are weak and the industrial chain is undeveloped. Thus, the level of industrial development is relatively low and the industrial chain is short and weak. In essence, foreign trade is the main cross-border economic activity.

Investment motives. Seven motives of investment were tested through regional cross-tabulations (Table 2). As chi-square tests reveal, responses to the motives of "Securing/maintaining a regional production base mainly to serve nearby foreign markets" and "Securing/maintaining raw materials, parts, components for selling in the regional markets" were not statistically independent

Table 1 Firms' Linkage with Domestic and Foreign Markets

Export Activities	% of Exporters	Import Activities	% of Importers
Export to foreign producer	14.9	Import materials from foreign producer	37.0
Export to foreign consumer	26.9	Import product from foreign producer	17.0
Sale to domestic producer	32.1	Buy materials from domestic producer	41.8
Sale to domestic consumer	55.2	Buy product from domestic producer	19.4

Source: Authors.

Table 2 Motives—Regional Cross-Tabulation

	Securing/Maintaining Raw Materials, Parts, Components for Production at Home Country		
Region	**Yes**	**No**	**Total**
PRC–Xishuangbanna	1	16	17
PRC–Honghe	4	47	51
PRC–Dehong	3	32	35
Viet Nam–Lao Cai	10	21	31
Total	**18**	**116**	**134**
Statistical significance	$\chi^2 = 12.363$	$\chi^2_{(0.05,3)} = 7.815$	
	Securing Low-Cost Production Base for Home Markets		
PRC–Xishuangbanna	1	16	17
PRC–Honghe	3	48	51
PRC–Dehong	2	33	35
Viet Nam–Lao Cai	23	8	31
Total	**29**	**105**	**134**
Statistical significance	$\chi^2 = 65.679$	$\chi^2_{(0.05,3)} = 7.815$	

PRC = People's Republic of China.

Source: Authors.

among the study areas. Their calculated chi-square tests for the two motives are 6.874 and 4.218, respectively, which are less than the critical chi-square, $\chi^2_{(0.05,3)}$ of 7.815. However, the reverse was observed in the firms' responses to the motive of "Securing/maintaining raw materials, parts, components for production at home country" and "Securing low-cost production base for home markets." The $\chi^2_{(0.05,3)}$ for the two motives are 12.363 and 65.679, respectively.

Similar analyses were conducted to test two other motives. The calculated chi-square tests are 9.292, 69.254, and 16.359, respectively, for the motives of "Securing/maintaining raw materials, parts, components for selling in other markets," "Securing low-cost production base for regional markets" and "Capitalizing on know-how." They are greater than the critical chi-square tests, $\chi^2(0.05, 3)$, which is 7.815, indicating that these motives were closely associated with regions where the firms invested.

According to the frequencies for each motive, firms in Lao Cai are more prone to secure and/or maintain raw materials, parts, and components for production in their home country, and secure a low-cost production base for export to regional markets; while firms in Honghe tend to secure and/or maintain raw materials, parts, and components to be sold in other markets. Capitalizing on know-how is not a major motive for investment in the study area.

Locational advantages. Assessment indices calculated from pooled data indicate that firms are optimistic about the economic growth potential in the region and attach great importance to the availability of local natural resources (Table 3). In general, incentive policies, social stability, real estate cost, and market potential are not considered as important as the previous two factors. The least importance is attached to labor. The low importance attached to labor and incentive policies indicate that these are not considered essential factors in attracting investments. Furthermore, low labor costs do not necessarily enhance comparative advantage;

Table 3 The Importance of Factors Affecting Investment Decisions

	Assessment Score							
		By Region				By Industry		
Factors	Pooled	PRC–Honghe	PRC–Xi-shuangbanna	PRC–Dehong	Viet Nam–Lao Cai	Resource-Based Industry	Other Industries	Services
F1	6.16	6.48	6.07	5.00	6.94	5.95	6.50	5.91
F2	5.89	5.77	5.69	5.40	6.70	6.65	5.27	5.34
F3	3.91	3.98	4.60	4.13	4.56	4.40	3.10	4.29
F4	4.48	2.81	5.58	4.69	6.45	5.05	3.85	4.52
F5	4.50	3.24	6.39	5.04	5.93	4.66	4.30	6.07
F6	4.70	4.41	6.35	5.27	5.24	5.27	4.18	4.40
F7	4.96	5.41	5.50	4.32	6.21	4.68	5.60	4.20

F1 = Economic growth potential, F2 = Resource availability, F3 = Labor, F4 = Incentive policy, F5 = Political and legal stability, F6 = Real estate costs, F7 = Market potential, PRC = People's Republic of China.

Source: Authors.

rather, comparative advantage in labor is a combination of labor quality, skills, and wage productivity.

Across the BEZs covered by the study, investment incentives rated high in Lao Cai while incentive policy and political and legal stability rated low in Honghe. Across industries, resource availability expectedly rated high among resource-based firms, political and legal stability rated high among service-oriented firms, and economic growth potential rated high in other industries.

Table 4 shows the effect of various dimensions of location advantages on investment decisions. Based on pooled data the highest importance was attached to geographic location of the BEZ in relation to shipping and trade routes. This indicates that the BEZs located in the terrestrial junctions of Yunnan province and other GMS countries offer a prominent location advantage in terms of trade routes.

Scores from disaggregated data by region and industry were relatively higher than those calculated from pooled data. Location advantages vary from region to region, with Honghe obtaining the highest score on the presence of industrial clusters, consistent with its status as a relatively developed industrial area in Yunnan province. As a popular tourist destination, Xishuangbanna rated high in terms of good living conditions; and so did Dehong which lies in an important route to South Asia. Given its relatively good transport system, Lao Cai scored high in terms of traffic conditions.

Ratings of locational factors by resource-based industries and other industries did not reveal significant differences. For service industries, the most important locational factors include the strategic location of the zone on shipping and trade routes, higher standard of living, and lower cost of living.

The perceived benefits of locating in BEZs compared to other regions are reflected in Table 5. The most important benefits include geographical proximity to the investor's own country, connectivity to important export markets, government incentives, availability of cross-border raw materials, and the assistance provided by the government during the establishment of the firm. This suggests that the appeal of BEZs comes basically from government incentives and assistance. The comparison across regions indicates that BEZs in Honghe are less attractive than in other regions.

Table 4 The Importance of Location Features in Investment Decisions

	Assessment Score							
		By Region				By Industry		
Factors	Pooled	PRC–Honghe	PRC–Xi-shuangbanna	PRC–Dehong	Viet Nam–Lao Cai	Resource-Based Industry	Other Industries	Services
F1	3.79	1.11	4.72	3.87	6.25	3.86	3.04	3.68
F2	5.80	3.18	5.74	6.88	7.33	5.15	5.00	7.33
F3	3.89	2.14	2.71	3.33	9.00	2.08	2.93	5.00
F4	4.57	0.87	5.28	4.62	7.22	5.27	4.38	4.38
F5	4.43	1.25	6.11	6.17	4.56	3.70	2.71	6.50
F6	4.67	5.00	5.00	3.67	4.67	4.68	4.95	4.70
F7	3.62	0.91	6.67	4.24	2.99	2.71	2.97	4.85
F8	3.63	3.40	4.62	5.00	2.76	3.40	2.91	3.33
F9	3.18	3.95	4.38	3.84	2.93	2.29	1.90	2.95
F10	3.76	4.79	3.64	3.96	3.21	2.55	3.19	5.00

F1 = Proximity to big city, F2 = Geographic location of the zone on shipping and trade routes, F3 = Distance from the nearest airport, F4 = Distance from the railway station, F5 = Higher standard of living, F6 = Presence of industrial clusters, F7 = High rate of literacy, F8 = Recreation facilities, F9 = Education facilities, F10 = Lower cost of living, PRC = People's Republic of China.

Source: Authors.

Table 5 Perceived Benefits from Border Economic Zones

	Assessment Score							
		By Region				By Industry		
Benefits	Pooled	PRC–Honghe	PRC–Xi-shuangbanna	PRC–Dehong	Viet Nam–Lao Cai	Resource-Based Industry	Other Industries	Services
Q1	5.63	4.01	7.17	5.59	7.42	6.03	5.36	6.96
Q2	5.52	5.14	7.94	5.83	6.33	6.03	4.79	5.80
Q3	4.15	3.70	5.94	6.87	7.42	5.49	3.70	6.97
Q4	4.86	3.59	7.66	6.47	7.20	4.82	4.80	5.11
Q5	5.47	5.87	5.96	5.63	5.33	5.71	5.54	5.95
Q6	4.13	2.45	7.86	6.36	6.99	4.17	5.24	5.94
Q7	3.61	3.05	7.56	4.29	5.40	3.73	4.35	5.45
Q8	3.11	4.36	5.58	5.15	2.90	2.43	3.96	5.30
Q9	6.07	5.94	5.89	6.46	7.00	6.01	6.33	5.38
Q10	6.28	6.84	5.25	8.33	7.89	5.75	6.90	7.67

PRC = People's Republic of China, Q1 = Better government incentives, Q2 = Assistance provided by the government during establishment, Q3 = Better infrastructure facilities, Q4 = Easier government rules, Q5 = Easy availability of cross-border raw materials, Q6 = Better law and order, Q7 = Less stringent environmental regulations, Q8 = Less stringent labor laws, Q9 = Better connectivity to important export markets, Q10 = Geographical proximity to investor's home country.

Source: Authors.

Generally speaking, the benefits of BEZs are confirmed by the surveyed firms.

Investment incentives. Although location, resource availability, and economic growth potential exert important impacts on investment decisions, investment incentives are one of the most crucial factors affecting the inflow of investment. This is particularly true for BEZs. This section analyzes the effects of incentive policies in general, and then analyzes the impact of each type.

Cross-tabulations were constructed to test whether there are regional differences in the importance of policies. As Table 6 shows, the chi-square test indicated that the importance of "investment service" is not statistically independent among regions.

The importance of incentive policies vary significantly across regions as indicated by the chi- square tests. The incentive policies that are statistically significant include tax policies, financial support, land use policy, and labor use policy. "Investment service" is not statistically significant across regions. Based on frequency scores, firms in Xishuangbanna attach relatively equal importance to all policies; those in Honghe consider investment service to be important, while firms in Dehong attach least importance to labor use policy. Firms in Lao Cai attach importance to all policies.

Tax policies. Table 7 reflects the relative importance of the different types of tax policies across the BEZs. In general, the importance of tax policy is relatively significant. Among the specific type of tax policies, customs duty, value-added tax, and turnover tax are considered the most important. Among the three regions in the PRC, there is no apparent difference since they implement similar tax policies. Across industries, customs duty and export tax rebate were rated high since corporations engaged in import and export activities account for a relatively large percentage of the sample.

Table 6 Policy–Regional Cross-Tabulation

	Investment Service						
Region	**1**	**2**	**3**	**4**	**5**	**9**	**Total**
PRC–Xishuangbanna	0	0	7	7	0	3	17
PRC–Honghe	3	6	31	7	0	4	51
PRC–Dehong	0	5	17	9	1	3	35
Viet Nam–Lao Cai	0	1	24	5	0	1	31
Total	**3**	**12**	**79**	**28**	**1**	**11**	**134**
Statistical significance	$\chi^2 = 23.308$		$\chi^2_{(15,0.05)} = 24.996$			$\alpha = 0.078$	
	Tax Policy						
PRC–Xishuangbanna	0	1	9	3	1	3	17
PRC–Honghe	5	6	18	3	2	17	51
PRC–Dehong	0	9	11	10	1	4	35
Viet Nam–Lao Cai	1	3	15	9	2	1	31
Total	**6**	**19**	**53**	**25**	**6**	**25**	**134**
Statistical significance	$\chi^2 = 32.153$		$\chi^2_{(15,0.05)} = 24.996$				

PRC = People's Republic of China.

Notes: 1 = Not important at all, 2 = Not important, 3 = Important, 4 = Very important, 5 = Most important, and 9 = Not applicable.

Source: Authors.

Table 7 Importance of Tax Policy

	Assessment Score							
		By Region				By Industry		
Tax Policy	Pooled	PRC–Honghe	PRC–Xi-Shuangbanna	PRC–Dehong	Viet Nam–Lao Cai	Resource-Based Industry	Other Industries	Services
P1	6.52	7.23	4.75	6.61	6.21	6.01	7.18	8.18
P2	5.99	5.53	7.17	6.85	6.67	5.82	5.93	6.58
P3	5.95	6.13	6.91	6.52	5.93	6.09	5.92	5.63
P4	5.22	4.70	5.89	4.73	6.05	5.25	6.29	6.19
P5	5.78	5.49	6.25	5.58	6.13	6.10	5.28	6.02
P6	6.23	6.76	6.35	5.75	7.85	5.80	6.91	5.71
P7	6.56	7.39	7.05	5.69	8.00	6.09	7.39	5.75
P8	6.01	7.20	5.00	7.08	4.92	5.38	6.71	7.41
P9	6.36	6.39	7.73	6.60	5.60	6.25	6.56	6.25

PRC = Peolple's Republic of China, P1 = Custom duty, P2 = Value-added tax, P3 = Turnover tax, P4 = Land use tax, P5 = Enterprise income tax, P6 = Tax rate, P7 = Tax preferential regulation, P8 = Export tax rebate, P9 = Tax exempt.

Source: Authors.

Land use policy. The rate of land use, the stability of land use policy, and the duration of land use (or tenure) are the most important factors affecting firms' decisions (Table 8). Land use approval process ranks second in importance. Results indicate that land cost and land tenure are firms' biggest concerns. There are no significant differences across regions or industries in terms of how land use policy affects investment decisions. However, it was observed that informal "gifts" or payments made during land use approval process play a role in Xishuangbanna and Lao Cai, indicating that some form of rent-seeking occurs during the process of policy implementation.

Investment services. As far as the investment service is concerned, efficiency is what firms value most. In general, the scores for various policies pertaining to investment services

Table 8 Importance of Land Use Policy

	Assessment Score							
		By Region				By Industry		
Land Use Policy	Pooled	PRC–Honghe	PRC–Xi-shuangbanna	PRC–Dehong	Viet Nam–Lao Cai	Resource-Based Industry	Other Industries	Services
Q1	7.07	8.99	6.47	7.58	7.31	6.75	7.84	6.25
Q2	6.64	7.50	7.06	6.67	8.28	6.51	7.33	7.19
Q3	6.77	7.34	7.35	6.97	6.69	6.70	7.33	7.67
Q4	5.86	5.81	8.44	6.02	7.42	5.78	5.94	7.83
Q5	3.77	3.41	6.15	3.30	6.34	4.90	3.72	4.13

PRC = People's Republic of China, Q1 = Land use rate, Q2 = Land use life, Q3 = Land use policy stability, Q4 = Land use approval process, Q5 = Informal gift or payment expected or requested during application.

Source: Authors.

Table 9 Importance of Investment Services

	Assessment Score							
		By Region				By Industry		
Investment Service	Pooled	PRC–Honghe	PRC–Xi-shuangbanna	PRC–Dehong	Viet Nam–Lao Cai	Resource-Based Industry	Other Industries	Services
Q1	5.69	5.58	6.04	6.10	6.99	5.75	8.00	6.67
Q2	5.67	5.63	6.59	5.91	6.88	6.18	7.17	6.67
Q3	5.41	4.76	6.14	5.66	5.73	5.75	5.30	4.78
Q4	5.99	7.50	5.91	6.59	7.85	6.25	7.35	6.30
Q5	5.21	7.78	5.91	6.67	5.32	5.24	4.83	5.87
Q6	5.86	5.76	6.56	6.83	5.32	6.10	6.04	5.76
Q7	4.31	4.58	6.07	6.94	5.78	5.68	4.08	6.49
Q8	5.26	5.41	6.39	7.14	6.24	5.42	5.06	7.04
Q9	4.55	5.14	7.62	6.67	5.33	4.57	4.57	5.93
Q10	5.29	6.13	7.22	7.35	8.50	5.06	5.59	6.94
Q11	5.38	5.97	7.05	6.56	4.84	5.34	5.30	5.65

PRC = People's Republic of China, Q1 = Complexities of rules and procedures, Q2 = Convenience in following rules and procedures, Q3 = Transparency in the implementation of rules, Q4 = Delays in administrator decisions, Q5 = Attitude of government officials, Q6 = Effectiveness of the zonal authorities in providing customs-related facilities and facilitating export procedures, Q7 = Effectiveness of the border economic zone authorities in dealing with labor-related problems, Q8 = Effectiveness of the authorities in providing single-window clearances, Q9 = Pre-entry services, Q10 = Effectiveness of the authorities in providing single-window clearances at the time of entry, Q11 = Post-establishment support services by the zonal authorities.

Source: Authors.

are high although there is no significant variance in terms of overall scores (Table 9). Some salient factors were observed in regional comparisons: delays in administrator decisions and a bad attitude of government officials were remarkably salient in Honghe; pre-entry services, effectiveness of the authorities in providing single-window clearances at the time of entry, and post-establishment support services by the zonal authorities were significant in Xishuangbanna; effectiveness of the authorities in providing single-window clearances, and effectiveness of the authorities in providing single-window clearances at the time of entry were salient in Dehong; and delays in administrator decisions and effectiveness of the authorities in providing single-window clearances were significant in Lao Cai. No significant discrepancy exists among different industries in terms of the opinion on investment services, and there is no pattern, either, both of which suggest a link to some specific problem in the investment service that firms encounter.

Financial services. In general, the overall score of financial services is relatively low, although domestic financial regulation and easier finance approval process were considered relatively important (Table 10). Across regions, finance approval process is the predominant factor, indicating the expectation that locating in BEZs can facilitate loan processing. No significant differences were observed across the different industries.

Labor use policy. Most firms do not consider labor use policy to be important, and the labor use policy in the regions covered was not restrictive. The quality of labor is a much more

Table 10 Importance of Finance Support Services

Finance Support Services	Assessment Score							
		By Region				By Industry		
	All	PRC–Honghe	PRC–Xi-shuangbanna	PRC–Dehong	Viet Nam–Lao Cai	Resource-Based Industry	Other Industries	Services
Q1	5.44	6.83	5.19	6.11	6.77	5.77	5.30	6.50
Q2	5.51	7.30	6.15	7.63	6.77	7.32	5.68	5.23
Q3	3.28	2.75	5.21	6.25	6.77	3.42	4.19	4.29
Q4	4.79	8.33	6.25	5.13	5.86	5.28	4.35	4.63
Q5	2.67	3.75	6.50	4.62	3.88	2.67	3.33	4.04

PRC = People's Republic of China, Q1 = Finance regulation of the host country, Q2 = Easier finance approval process, Q3 = Finance institutions in surrounding region, Q4 = Facilitation of border economic zone administrator, Q5 = Informal gift or payment expected or requested during application.

Source: Authors.

important concern, considering that the government does not provide adequate support for the training of the workforce.

Infrastructure. The chi-square scores in Table 11 indicate that responses to the availability of infrastructure were statistically related to the regions for electricity, warehousing facilities, banking facilities, high-quality telecommunication facilities, residential complex, and social utilities; the availability of water and gas and transport facilities were not statistically independent for the regions. Based on the frequency scores for each type of infrastructure,

Table 11 Infrastructure–Regional Cross-Tabulation

	Water or Gas						
Region	**1**	**2**	**3**	**4**	**5**	**9**	**Total**
PRC–Xishuangbanna	0	0	8	7	2	0	17
PRC–Honghe	3	11	25	7	2	3	51
PRC–Dehong	2	5	14	8	2	4	35
Viet Nam–Lao Cai	2	4	16	7	1	1	31
Total	**7**	**20**	**63**	**29**	**7**	**8**	**134**
Statistical significance	$\chi^2 = 15.853$			$\chi^2_{(0.05,15)} = 24.996$			
	Transport Facilities						
PRC–Xishuangbanna	0	0	5	8	2	2	17
PRC–Honghe	1	2	16	28	2	2	51
PRC–Dehong	0	2	20	12	1	0	35
Viet Nam–Lao Cai	0	1	17	12	1	0	31
Total	**1**	**5**	**58**	**60**	**6**	**6**	**134**
Statistical significance	$\chi^2 = 15.908$			$\chi^2_{(0.05,15)} = 24.996$			

PRC = People's Republic of China.

Notes: 1 = Not important at all, 2 = Not important, 3 = Important, 4 = Very important, 5 = Most important, and 9 = Don't know, can't say, not applicable.

Source: Authors.

Table 12 Infrastructure Assessment of Border Economic Zones

	Assessment score							
		By Region				By Industry		
Investment Service	Pooled	PRC–Honghe	PRC–Xi-shuangbanna	PRC-Dehong	Viet Nam-Lao Cai	Resource-based Industry	Other Industry	Services
Q1	8.11	9.20	7.50	7.33	6.77	7.73	8.90	7.27
Q2	7.17	9.00	8.54	7.42	3.06	6.13	9.15	5.95
Q3	5.92	6.35	10.00	6.36	4.63	5.57	6.49	5.59
Q4	6.17	5.52	9.00	6.30	6.94	5.89	6.75	5.56
Q5	5.57	5.41	8.23	5.91	5.32	5.00	6.83	4.55
Q6	5.94	5.00	10.00	6.85	6.45	5.74	6.15	6.00
Q7	6.06	7.14	6.76	5.37	5.16	6.04	6.38	5.50
Q8	6.25	6.94	0.00	6.11	5.32	5.63	7.13	6.00
Q9	6.71	7.14	7.56	6.92	1.29	6.15	7.32	3.68
Q10	6.57	6.73	6.73	7.04	1.61	6.43	6.88	6.32
Q11	6.26	6.63	7.56	8.33	3.55	5.59	6.75	7.00
Q12	8.36	6.73	6.73	8.59	8.06	8.27	8.38	8.57
Q13	8.17	8.37	9.00	8.23	7.74	7.69	8.63	8.50

PRC = People's Republic of China, Q1 = Water facilities, Q2 = Electricity, Q3 = Warehouse capacities, Q4 = Container-handling facilities at the warehouse, Q5 = Transport facilities, Q6 = Logistics, Q7 = Recreation facilities, Q8 = Health care, Q9 = Hotel and restaurant, Q10 = Housing, Q11 = Environmental quality, Q12= Internet connectivity, Q13 = Telephone connectivity.

Source: Authors.

most firms placed high value on the availability of water or gas and transport facilities; firms in Xishuangbanna placed high value on all infrastructures except for residential complex facilities; firms in Honghe attached great importance to warehousing and banking facilities; while firms in Dehong gave higher importance to electricity and water or gas. Firms in Lao Cai placed a high value on all infrastructure except social utilities.

As indicated in Table 12, most firms were satisfied with infrastructure conditions at the BEZs, in particular, the availability of water facilities, electricity, and internet and telephone connectivity, while transport facilities and logistics received lower satisfaction ratings. Scores for three BEZs in the PRC are similar, but firms in Lao Cai indicated a low level of satisfaction with electricity, warehouse facilities, hotels and restaurants, housing, and environmental quality.

General assessment of BEZs. Cross-tabulations were conducted to compare the general assessment of BEZs in Honghe, Dehong, Xishuangbanna, and Lao Cai. The assessment consisting of five elements (incentive policy, governance, infrastructure, availability of production factors, and market potential) were done using a 5-point Likert scale. Results show that the general assessment of BEZs varied across the regions for each element. Firms in Xishuangbanna gave the highest value to infrastructure and the lowest value to market potential; firms in Honghe gave a high value to all elements; firms in Dehong gave low values to the availability of production factors and infrastructure, and high values to other elements; and firms in Lao Cai gave a high value to all elements except infrastructure.

Parametric Analysis

Using parametric analysis, the section analyzed the factors affecting investment and firms' performance in terms of the incentive policy and investment climate. The four hypotheses (refer to Section 2: Literature Review and Formulation of Hypothesis) were tested using the multinominal logit (MNL) method. The variables and their measures are as shown in Appendix 1. The results provide important evidence and bases for formulating policies on the establishment of BEZs in the PRC.

Impact of incentive policies on firms' investment motives. The first hypothesis (H1)—incentive policies play a positive role in attracting investments in BEZs—was tested by using investment motives as the explained (dependent) variable. Using the motive of market-seeking as a reference group, the MNL method was applied using four control groups: Model 1 is estimated without controlling for the differences in regions and in industries, Model 2 controls for differences in industries, Model 3 controls for differences in regions, and Model 4 controls for differences in both regions and industries. The results in Table 13 indicate that the estimated coefficients of the regional variables are statistically significant in the firms' decision to invest, while the estimated coefficients for the industry variable are not.

The marginal effects of each model are estimated using the market-seeking motive as reference (Appendix 2, Table A2.1). The estimated coefficient for preferential tax policy is positive and significant, which means that the more generous the tax preferences given by the government, the more benefit firms can obtain and the higher is the probability for firms to seek resources or efficiency gains, other things being equal. Estimates of the marginal effects (Appendix 2, Table A2.1) show that the coefficients of the variables "market-seeking" (M) and "resource-seeking" (R) are negative and significant, while that of the variable "efficiency-seeking" (E) is positive and significant. Other variables being held constant, this means that the more preferential tax types are available, the higher the probability that firms would seek efficiency gains, and the lower the probability that they would seek market and resource advantages.

As shown in Table 13, the coefficients for *lower land price* and *financial support* are positive and statistically significant for efficiency-seeking motives in Model 1, but they become insignificant as the variable of "region" is included. For the resource-seeking motive, the coefficients of the two policy variables are also insignificant. Thus, other variables being constant, *lower land price* and *financial support* tend to increase the probability that efficiency-seeking firms will invest in the study areas. However, the effects of two policies tend to diminish as the investment region is specified.

The significance of the regional dummy variables suggests that greater attention should be given to regional differences of BEZs in the PRC–GMS border areas. As shown in Table 13, with reference to Lao Cai province in Viet Nam, the coefficients of the three regional dummy variables are significant and negative, which means, other variables being held constant, there is a higher probability that market-seeking firms will invest in the study areas. As reflected in the estimates of marginal effects in Appendix 2, Table A2.1, the signs of coefficients of the three regional variables are the same. The sign of the coefficient for *market-seeking* (M) is significant and positive, while those of the other two motives are significant and negative. The results indicate that, compared to Lao Cai in Yunnan province, the probability of market-seeking investment is higher, while that of resource- and efficiency-seeking investments is lower.

In summary, the estimated results partially support hypothesis H1, which states that incentive policies have positive effects on investment decisions in the study areas. Among the

Table 13 Estimation Results of the Impacts of Incentive Policies on Investment Decisions

	Model 1		Model 2		Model 3		Model 4	
	R	E	R	E	R	E	R	E
Variables	**Coefficient (Reference: Investment Motivation is to Expand Market)**							
Tax type	1.370[a]	2.420[a]	1.435[a]	2.566[a]	1.476[a]	2.479[a]	1.453[a]	2.589[a]
	0.468	*0.672*	*0.473*	*0.698*	*0.513*	*0.758*	*0.514*	*0.770*
Land price: constant	Reference							
Land price: cheaper	0.172	1.356[b]	0.150	1.225[b]	0.0112	0.452	0.025	0.281
	0.466	*0.584*	*0.483*	*0.607*	*0.580*	*0.694*	*0.604*	*0.729*
Land price: expensive	0.420	(35.24)	0.661	(42.90)	1.375	(39.72)	1.295	(58.50)
	0.960	*3.432e+07*	*1.007*	*9.979e+08*	*1.207*	*2.621e+08*	*1.210*	*2.032e+08*
Finance service	0.108	0.911[c]	0.149	0.894[c]	(0.088)	(0.769)	(0.105)	(0.903)
	0.390	*0.500*	*0.393*	*0.512*	*0.548*	*0.667*	*0.560*	*0.726*
Lao Cai	Reference							
Xishuangbanna					(24.91)[a]	(23.07)[a]	(37.02)[a]	(35.06)[a]
					3.090	*2.789*	*3.648*	*3.247*
Dehong					(21.35)[a]	(24.72)[a]	(33.52)[a]	(36.89[a]
					2.844	*2.668*	*3.431*	*3.051*
Honghe					(23.14)[a]	(23.81)[a]	(35.30)[a]	(36.28)[a]
					2.914	*2.655*	*3.483*	*3.088*
Constant	(3.872)[b]	(10.25)[a]	(5.518)[b]	(9.138)[a]	18.29[a]	16.59	12.17	30.60
	1.524	*2.391*	*2.206*	*2.657*	*2.882*	*0*	*4.428*	*0*
Industry dummy	No		Yes		No		Yes	
Log Lik	(120.4)		(115.7)		(91.49)		(86.87)	
LR	43.56		52.91		101.3		110.5	
Pseudo-R^2	0.153		0.186		0.356		0.389	
Observations	134							

( ) = negative, E = Investment motivation is to mprove firm's efficiency, R = Investment motivation is to obtain resources.

[a] Coefficient is significantly different from 0 at the 1% level.
[b] Coefficient is significantly different from 0 at the 5% level.
[c] Coefficient is significantly different from 0 at the 10% level.

Note: Standard deviations are in italics. Results of the control variables, such as firm's nature, firm's age, and industry dummy variables, are not reported in the table.

Source: Authors.

incentives, *preferential tax policy* is the most important factor in attracting investments to the BEZs at present.

Impacts of investment climate on firm's investment motives. To test the second hypothesis (H2)—investment climate can affect a firm's decision to invest—a model with a similar structure to that used in testing H1 was constructed. The explained variables on motives are the same as those used in testing H1. The explanatory variables and the controlled variables are different. The explanatory variables include *location*, *availability of resource*, *market potential*, *political and legal stability*, *governance*, and *infrastructure. Location*, *availability of resource*, *governance*, and *infrastructure* were quantified using the principal component analysis method, while *market potential and political and legal stability* were quantified using the assessment scores in the nonparametric analysis. The control variables include the firm's *ownership (whether it is privately owned; YES is 1, NO is 0)*, *age*, *size*, *industry type*, and *geographic location*. The test of the correlation matrix between the explanatory variables and the explained (dependent) variables indicated that the collinearity of the explanatory variables is not statistically significant.

Four models (Models 1'–4') were estimated applying the MNL method. Model 1' is estimated without controlling for the differences in regions and industries, Model 2' controls for the differences in industries, Model 3' controls for the differences in regions, and Model 4' controls for the differences in both regions and industries. The results of model estimation are shown in Table 14.

The coefficient of *resource availability* is positive and significant, implying that there is a high probability that resource-seeking investments will locate in the study areas. The variable *resource availability* is an assessment indicator of locally available natural resources (such as minerals and wood), cheap labor on both sides of the border, availability of skilled labor, and lower land price. The richer the natural resources and the lower the labor cost, the higher the probability that firms seeking resource or efficiency advantages will invest in the study areas, other things being equal. As revealed by the analysis of the marginal effects of investment climate on investment motives (Appendix 2, Table A2.2), the coefficient of the variables *market-seeking* and *efficiency-seeking* are negative and significant, while that of the variable *resource-seeking* is significant and positive. This means that the more resources are available, the higher the probability that resource-seeking investments will locate in the BEZs, and the lower the probability that market-seeking and efficiency-seeking investments will locate there.

For resource-seeking and efficiency-seeking motives, the coefficients of *market potential* are positive and highly significant, indicating that the probability of these two types of investments locating in the BEZs tend to be higher, compared with market-seeking investment. *Market potential* is indicative of the growth prospects of the local economy and the importance of local market share. This varies across regions and industries. Based on the analysis of marginal effects, *market potential* has a significantly positive impact on the probability of efficiency-seeking investments. The reverse holds true for market-seeking and resource-seeking investment. The results imply that market potential will attract business investments to raise efficiency, integrating available resources and market opportunities, and integrating geographically scattered production units so as to achieve economies of scale.

The estimated coefficients for *political and legal stability* are all significantly negative (Table 14), implying that a sound political and legal system is positive for market-seeking investment. Appendix 2, Table A2.2 shows that *political and legal stability* have a positive correlation with the probability that market-seeking and resource-seeking investment will locate in the study area, and a negative correlation with efficiency-seeking investment. Since

Table 14 Estimation Results of the Impacts of Investment Climate on Investment Decisions

	Model 1'		Model 2'		Model 3'		Model 4'	
	R	E	R	E	R	E	R	E
Variables	**Coefficient (Reference: Investment Motive is Market Seeking)**							
Resource availability	1.081[a]	0.349	1.085[a]	0.285	1.002[b]	0.458	1.117[b]	0.444
	0.393	*0.546*	*0.396*	*0.567*	*0.492*	*0.622*	*0.528*	*0.655*
Market potential	2.285[a]	3.261[a]	2.334[a]	3.365[a]	2.863[a]	3.648[a]	2.875[a]	3.730[a]
	0.651	*0.960*	*0.660*	*1.009*	*0.873*	*1.107*	*0.887*	*1.159*
Geographic location	(0.0875)	0.878[c]	(0.113)	0.863	(0.529)	0.677	(0.620)	0.795
	0.298	*0.515*	*0.305*	*0.528*	*0.363*	*0.581*	*0.387*	*0.595*
Political and legal stability	(0.847)[a]	(0.606)	(0.826)[a]	(0.653)	(0.884)[b]	(0.864)[c]	(0.909)[b]	(0.952)[c]
	0.299	*0.401*	*0.300*	*0.417*	*0.376*	*0.505*	*0.379*	*0.528*
Governance	0.335	(0.135)	0.346	(0.370)	2.072[c]	0.298	2.085[c]	0.349
	0.770	*1.082*	*0.775*	*1.138*	*1.118*	*1.260*	*1.134*	*1.344*
Firm nature	1.041	(1.190)	1.100	(1.409)	(0.0529)	(1.469)	0.149	(1.634)
	0.915	*0.929*	*0.916*	*0.950*	*1.124*	*0.971*	*1.152*	*1.003*
Infrastructure	(0.290)	4.206[a]	(0.241)	4.028[a]	(0.668)	4.231[b]	(0.483)	4.537[b]
	1.037	*1.451*	*1.052*	*1.488*	*1.373*	*1.838*	*1.399*	*1.874*
Firm size	(0.558)	(1.397)[c]	(0.577)	(1.431)[c]	(1.025)	(1.599)	(0.917)	(1.512)
	0.580	*0.781*	*0.588*	*0.838*	*0.778*	*0.981*	*0.794*	*1.012*
Lao Cai	Reference							
Xishuangbanna					(25.31)[a]	(21.54)[a]	(25.95)[a]	(21.47)[a]
					4.681	*4.374*	*5.257*	*4.954*
Dehong					(1.73)[a]	(21.59)[a]	(22.29)[a]	(21.48)[a]
					4.445	*3.950*	*4.975*	*4.497*
Honghe					(23.65)[a]	(21.27)[a]	(24.23)[a]	(21.74)[a]
					4.610	*4.263*	*5.144*	*4.823*
Constant	(2.860)	(9.716)[a]	(4.220)	(7.255)[c]	(18.56)[a]	12.06	15.86[a]	12.35
	2.216	*3.515*	*2.722*	*3.942*	*4.389*	*0*	*4.612*	*0*
Industry dummy	No		Yes		No		Yes	
Log Likelihood	(86.12)	(86.12)	(83.69)	(83.69)	(68.71)	(68.71)	(65.67)	(65.67)
LR	108.9	108.9	113.7	113.7	143.7	143.7	149.8	149.8
Pseudo-R^2	0.387	0.387	0.405	0.405	0.511	0.511	0.533	0.533
Observations	133							

( ) = negative, E = Investment motivation is efficiency seeking, R = Investment motivation is resources seeking.

[a] Coefficient is significantly different from 0 at the 1% level.
[b] Coefficient is significantly different from 0 at the 5% level.
[c] Coefficient is significantly different from 0 at the 10% level.

Note: Standard deviations are in italics. The result of control variables, such as firm's nature, firm's age, and industry dummy variables, is not reported in the table.

Source: Authors.

politics is stable and a legal framework is in place in the surveyed areas, firms will invest for market-seeking motives but the probability is relatively small.

According to some literature, infrastructure is an important factor affecting investments. In this analysis, the estimated coefficient of *infrastructure* for resource-seeking investments is negative, and that for efficiency-seeking investment is positive. However, the former is not significant while the latter is significant. The results of the marginal effects of investment climate on investment motives (Appendix 2, Table A2.2) show that infrastructure has a significant and positive correlation with the probability of efficiency-seeking investments, and a negative correlation with market-seeking and resource-seeking investments. That is, the better the infrastructure, the higher the probability that efficiency-seeking investments will locate in the study areas.

Regional differences have significant impacts on investment motives. The estimated coefficients of the dummy variable of *region* are negative and significant, indicating that regional differences favor market-seeking investments. The marginal effects analysis reveals that the study regions in Yunnan province are more favorable for market-seeking investments, while that in Lao Cai has a higher probability of resource-seeking investments.

Other aspects of the investment climate were also analyzed, including distance from the adjacent city, distance to railway stations and airports, and linkages with import and export markets. However, the estimated coefficients for all these variables were not significant and were therefore are not reflected in Table 14 and Appendix 2, Table A2.2.

In summary, the estimated results of the models mostly support H2. The key findings are (i) aspects of the investment climate that have a significant effect on investment motives are *the availability of resources*, *market potential*, *political and legal stability*, and *infrastructure*; (ii) various aspects of the investment climate have different effects as investment motives change; and (iii) differences in investment climate in the regions studied are associated with different investment motives.

Impacts of incentive package on a firm's performance. To test the third hypothesis (H3)—incentives have a positive impact on a firm's performance—four models were constructed using the ordered logit method (Table 15). Model I is estimated without including the dummy variables of *industry* and *region*, Model II is estimated by controlling for differences in industry, Model III is estimated by controlling for differences across regions, and Model IV is estimated by controlling for differences in both regions and industries. The explained (dependent) variables are *improved performance*, *unchanged performance*, and *worsened performance.* Results show that the estimated coefficients of the industry dummy are insignificant while that of the region dummy are very significant. Thus, Models 1 and 4 are discussed in further detail.

In Model I, *financial support service* is the dominant explanatory variable affecting firms' performance. This means that the more financial support services are extended to the firm, the higher the probability that the firm's performance will improve. Another dominant variable is *land use policy*, indicating that the more preferential the land use policy, the higher the probability that the firms' performance will improve. On the analysis of the marginal effects of incentive policies on firms' performance (Appendix 2, Table A2.3), results indicate that the higher the importance attached to land use policy and/or financial services, the greater the probability of improved performance; as a corollary, the probability of a worsened or unchanged performance will be lower. Given these results, hypothesis H3 is accepted as valid.

The results of Model IV show that, after the inclusion of dummy variables for *region and industry*, the estimated coefficients of policy variables are not statistically significant. The coefficient for the region dummy of Honghe is negative and significant. This implies that

Table 15 Estimation Results of Effect of Incentive Policies on Firms' Performance

Variables	Model I Coefficient	Model II Coefficient	Model III Coefficient	Model IV Coefficient
Tax policy importance	0.213	0.404	(0.0147)	0.302
	0.309	*0.309*	*0.391*	*0.401*
Land policy importance	0.628[c]	0.740[b]	0.113	0.0114
	0.367	*0.375*	*0.424*	*0.457*
Finance service degree	1.889[b]	1.854[b]	1.357	1.428
	0.919	*0.897*	*0.976*	*0.921*
Investment service degree	(0.282)	(0.718)	0.529	0.260
	1.262	*1.314*	*1.440*	*1.551*
Labor policy satisfactory	0.213	0.404	(0.0147)	0.302
	0.309	*0.309*	*0.391*	*0.401*
Lao Cai			Reference	
Banna			(1.136)	(0.645)
			0.762	*0.895*
Dehong			0.0139	0.450
			0.822	*0.928*
Honghe			(2.033)[a]	(2.443)[a]
			0.736	*0.839*
Cut 1	1.322	2.005	(1.690)	(1.187)
	1.419	*1.813*	*1.822*	*2.106*
Cut 2	3.004[b]	3.757[b]	0.182	0.846
	1.438	*1.813*	*1.777*	*2.047*
Industry dummy	No	Yes	No	Yes
Log Lik	(129.5)	(126.5)	(120.4)	(113.6)
LR	14.30	22.32	26.86	38.16
Pseudo-R^2	0.0547	0.0766	0.121	0.171
Observations			134	

( ) = negative.

[a] Coefficient is significantly different from 0 at the 1% level.
[b] Coefficient is significantly different from 0 at the 5% level.
[c] Coefficient is significantly different from 0 at the 10% level.

Note: Standard deviation are in italics.

Source: Authors' estimates.

compared with the reference, Lao Cai, the probability of worsened or unchanged performance of firms in Honghe is greater. According to the marginal effect analysis, the probability of worsened and unchanged performance of firms in Honghe is 37.7% compared to Lao Cai's 13.7%, while the probability of improved performance of firms in Lao Cai is reduced by 51.4%. Thus, when the region dummy is included, hypothesis H3 is rejected.

In addition, the estimated cutoff points are very significant, indicating that the ordered logit model with four different letter grades is highly appropriate.

Impacts of investment climate on a firm's performance. To test the fourth hypothesis (H4)—a good investment climate has a positive impact on the performance of firms—a model with a similar structure to that used for H3 was constructed using the same explained (dependent) variables: worsened performance, unchanged performance, and improved performance. The differences lie in the explanatory variables. Explanatory variables are elements of the investment climate that include *resource availability*, *market potential*, *geographical location*, *political and legal stability*, *governance*, *infrastructure*, and *logistics*.

The first four explanatory variables were created using the same testing methods as in H2. The value of *governance* was based on the recorded data from the survey question "*how do you evaluate governance efficiency after your firm located in the BEZ*?" In the questionnaire, governance is evaluated in terms of *satisfaction about the procedure of administrative review and approval*, *time taken for the review and approval*, and *minimum fund requirement for entry.* The survey data was aggregated to generate an index of *governance*. Using the principal component method, the value of infrastructure was generated from answers to the survey question "*Have the following infrastructure changed for the past five years*?" with reference to *water supply*, *electricity supply*, *warehousing*, *cargo handling facilities*, *road facilities*, and *public utilities.*

The value for *public utilities* was based on recorded data for the question "*Has your firm experienced interruption of the following services; if yes, please evaluate its impact on your firm.*" The impacts were assessed using a 3-point Likert scale: great loss, small loss, and no loss. The value of the variable was generated by computing a comprehensive index. The impact of corruption on firms' performance—a main concern in the developing countries—was represented in the study by the concept of *irregular payment*. Irregular payments may be required in dealing with the administrative processes, such as review and approval, issuance of licenses, customs clearance, labor supervision, environment monitoring, and taxation. It was assessed with a 4-point Likert scale: 1 = Never, 2 = Occasionally, 3 = Sometimes, 4 = Often/regularly. The value of *irregular payment* is the mean of the assessment score for each source of irregular payment. Other control variables are same as in H3. The collinearity of explanatory variables were found to be statistically insignificant.

Four models are constructed using the ordered logit method (Table 16). Model I' is estimated without including the dummy variables of industry and region; Model II' is estimated by controlling for differences in industries; Model III' is estimated by controlling for differences in regions; and Model IV' controls for differences in both regions and industries. Results show that the estimated coefficients of the industry dummy are insignificant while that of the region dummy was very significant. Thus, Models I, III, and IV are discussed in further detail.

The coefficients of *resource availability* in the three models are significant at the level of 1%. In particular, the effect of resource availability in Model IV was investigated. As shown in Table 16 and Appendix 2, Table A2.4, the greater the resource availability, the higher the probability that the firms' performance can be improved. The results of Model I show that *better infrastructure and transport*, *logistics system*, and *electricity supply* will lower a firm's production cost, and thus improve the firm's performance. In Model III, the coefficient of *geographical location* is significant at the level of 10%. The survey data shows that the highest score was given to trade routes, while scores for other dimensions of geographical location were not as high. In essence, the effect of *location* on the improvement of firms' performance is limited. In Model III, the coefficient of *governance* is significant at the level of 5%, indicating that the simpler the administrative procedures, the lower the administrative cost and time involved in doing business. In other words, the higher the efficiency of governance, the lower the transaction cost of production and operation. The role of governance is similar in Models III

Table 16 Estimation Results of the Impacts of Investment Climate on Firms' Performance

Variables	Model I' Coefficient	Model II' Coefficient	Model III' Coefficient	Model IV' Coefficient
Resource availability	0.785[a]	0.714[a]	0.833[a]	0.714[a]
	0.239	*0.239*	*0.242*	*0.259*
Marketing	0.385	0.405	0.214	0.169
	0.383	*0.409*	*0.368*	*0.386*
Location	(0.189)	(0.101)	(0.406)[c]	(0.303)
	0.210	*0.212*	*0.223*	*0.221*
Political	(0.188)	(0.224)	0.256	0.275
	0.197	*0.189*	*0.220*	*0.232*
Governance	0.583	0.530	0.884[b]	0.800[b]
	0.356	*0.375*	*0.381*	*0.398*
Infrastructure change	0.378[a]	0.444[a]	0.164	0.210
	0.123	*0.122*	*0.147*	*0.144*
Loss from public utility interruption	0.0655	0.190	0.101	0.312
	0.182	*0.195*	*0.288*	*0.295*
Irregular payment	0.147	0.118	(0.0404)	(0.138)
Firm size	0.531	0.439	0.964[b]	1.013[b]
	0.424	*0.450*	*0.434*	*0.462*
Primary industry			Reference	
Second industry		0.147		0.111
		0.855		*0.799*
Third industry		(0.796)		(1.574)[c]
		0.924		*0.919*
Lao Cai			Reference	
Xishuangbanna			(2.304)	(2.357)
			1.422	*1.461*
Dehong			(0.348)	(0.327)
			1.223	*1.266*
Honghe			(2.744)[b]	(3.517)[a]
			1.199	*1.240*
Cut 1	4.039[b]	4.433[b]	3.107	3.052
	1.878	*1.906*	*2.320*	*2.306*
Cut 2	5.924[a]	6.382[a]	5.172[b]	5.282[b]
	1.877	*1.906*	*2.324*	*2.323*
Log Likelihood	(118.2)	(115.7)	(110.0)	(103.9)
LR	35.79	41.68	47.76	63.14
Pseudo-R^2	0.133	0.151	0.193	0.237
Observations			133	

( ) = negative.

[a] Coefficient is significantly different from 0 at the 1% level.
[b] Coefficient is significantly different from 0 at the 5% level.
[c] Coefficient is significantly different from 0 at the 10% level.

Note: Standard deviations are in italics.

Source: Authors.

and IV. The *coefficients of market potential*, *political and legal stability*, *logistics*, *interruption loss*, and *irregular payment* are not statistically significant in relation to the probability of improved firm performance.

In addition, when the dummy variable *region* is introduced, only the coefficient for Honghe is significant, indicating that, compared with Lao Cai, the probability of worsened or unchanged performance is higher in Honghe.

To sum up, the estimation results partly support H4.

Conclusion and policy implications

Drawing from the theory of FDI, the study assessed the impacts of incentive policy and investment climate on the investment motives and performance of firms located in the border economic zones of Yunnan province of the PRC and Lao Cai province of Viet Nam. The findings are as follows:

- Among the set of incentives, *preferential tax policy* plays a highly significant role in affecting a firm's investment decisions. Two other significant factors are *financial support policy* and *land use policy*, although their effects become insignificant when regional differences are considered.
- A firm's investment decision is also affected by some elements of the investment climate, namely, *resource availability*, *market potential*, *political and legal stability*, as well as *infrastructure*. The probability of resource-seeking investments has a positive relation with *preferential tax type*, *resource availability*, *market potential*, and *governance*. Investments in Lao Cai have a high propensity to seek resource or efficiency advantages, while those in the border areas of Yunnan province tend to be more market-seeking.
- *Financial support policy* has a positive relation with the probability of improved firm performance. However, its effect on firm performance becomes insignificant when regional differences are considered. As shown by the results of nonparametric analysis, *financial support policy* is associated with regional attributes.
- Firms' performance is affected by certain elements in the investment climate, namely *resource availability*, *infrastructure*, *transport*, *governance*, *logistics system*, *electricity supply*, and *geographical location*. However, these elements are region-specific. Firms' performance is not significantly affected by other elements of the investment climate, including *market potential*, *political and legal stability*, *logistics interruption loss*, and *irregular payment*. In terms of the effects of investment climate on firms' performance, firms in Lao Cai have a greater probability of improving their performance compared with those in Honghe.

Policy Implications

The results of the study indicate that regional differences in terms of incentive policies and investment climate have important effects on firms' investment decisions and performance. The following policy implications can be drawn from the study:

Improvements in incentive policies and investment climate can play positive roles in attracting investments in BEZs, given the abundant natural resources in the border areas of

the PRC and other GMS countries. However, most firms located in these BEZs are involved in the production of primary products and the industrial chains are short. In particular, few FDI is attracted to the study areas. To promote the development of CBEZs, improved incentive packages and a favorable investment climate are indispensable.

Preferential tax policy is closely related to the probability of firms investing in the BEZs on account of resource availability. However, with the exception of a few firms in Honghe, most firms in the study areas are relatively young. Since tax policy is usually not flexible, long-term effects should be considered in designing tax policy.

A high percentage of firms in the study areas indicated difficulty with financing or obtaining a loan. Better financing support policies and services could therefore facilitate the development of industries, especially small and medium-sized enterprises. To promote the development of BEZs, financing support policy should be designed according to region-specific situations and should be accompanied by corresponding financial services.

In terms of the investment climate, it is essential to maintain resource availability, build market potential, and improve governance, but major efforts should also be made to improve infrastructure, including transport and public utilities. In particular, the logistics system should be given priority because it affects directly a firm's production and operating cost.

In Yunnan province, the investment policies for BEZs are the same as the policies for the development of the rest of western PRC. There is no specific policy for the border areas of Yunnan province; thus in terms of incentives, the border areas have no advantage over the rest of western PRC. Because economic development in Yunnan province is lagging, investment flows to the border areas are even less than those in the many other parts of western PRC. Thus, incentive policies should be designed to highlight the unique advantages of specific border areas to attract investments.

In establishing CBEZs in the GMS, it is important to design policies that are consistent and mutually beneficial for the countries involved. Although there are great similarities in the incentive policies of the PRC, Lao PDR, Myanmar, and Viet Nam, careful attention should be given to the differences in policies to ensure that these do not contradict each other and lead to unintended results. Thus while basic policy principles may be the same for countries sharing borders, it may be necessary to differentiate policies that are applicable to CBEZs that may be set up in the borders of the PRC–Viet Nam, the PRC–Lao PDR, and the PRC–Myanmar. Although it may not be possible to design a well-functioning policy package at one time, it may be possible to initiate small-scale, tentative efforts on a pilot basis based on mutual agreement. These pilot schemes can be improved gradually and subsequently expanded until a unified policy is realized.

CBEZs can provide the great advantage of simple, convenient, and efficient movement of commodities, labor, and other production factors across borders. As revealed in the field surveys, firms encounter difficulties in the customs transit of products and raw materials. Since problems related to customs transit are associated with national customs policies, it is advisable that policies for CBEZs are designed with special features that can reduce the transaction cost of cross-border economic activities.

The quality of labor is an issue considered important by many local firms. In addition to broad policies on the development of human resources, it may be necessary to also promote policies to enhance local human capital; otherwise, the lack of quality labor could become a bottleneck in the development of CBEZs. In addition to government programs, it may be desirable to engage professional training agencies, as well as the business firms themselves, in conducting education and training programs that could be entitled to special incentives. Moreover, although significant progress has been made with respect to the construction of

cross-border roads, the corresponding traffic and logistics infrastructure still needs further improvement. Special incentives could be made available to firms that are willing to invest in these improvements.

A majority of the firms surveyed in 2010 use their own funds to invest in the BEZs and very few receive support from the local financial agencies because the finance industry has been slow to develop. Moreover, there is lack of currency-clearing institutions, although several informal channels are involved in cross-border trade. The construction of CBEZs will require improved fiscal and financial services. Financial institutions specialized in providing financing, insurance, and currency-clearing services exclusively to CBEZs should therefore be encouraged.

The results of this study have shown that the general performance of firms in BEZs is not high, and that it has been difficult to attract well-performing manufacturing firms to locate in BEZs. In the long-run, however, the viability of these firms is indispensable if the region is to become a production base for export businesses located at the junction between the PRC and the ASEAN countries to take advantage of the opportunities under the China–ASEAN Free Trade Area.[3] The local industrial structure is currently dominated by resource-based firms. As industrial policies shift to higher value-added activities, and as regional supply chains develop, the development of CBEZs will be imperative both for the PRC and its neighboring countries.

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Appendix 1

List of Variables and Measures

Variables	Measurement
Dependent Variable	
The motive of firm's investment	Three motives, including market-seeking (M), resource-seeking (R), and efficiency-seeking (E).
	Detailed motives cover access to local and surrounding market, resources, application of technologies, and others. The responses are coded as 0 = No and 1 = Yes. The original data were further grouped into three groups 1 = M, 2 = R, 3 = E, using the cluster analysis method.
Firm's performance	It includes revenue, production efficiency, technology, import and export, product quality, production scale, and others in the past 3 years.
	It is assessed using a 3-point Likert scale.
Main Independent Variables	
Investment Policy	
Tax type	The importance of tax types, including customs duty, value-added tax, turnover tax, land use tax, and enterprise income tax. They are assessed using a 5-point Likert scale. The data was changed to be continuous using normalized indices.
Land price	The effect of lower land price.
	The assessment of land price is coded as 1 = Cheaper in SEZ; 2 = No difference; and 3 = More expensive in SEZ. Using the "no difference" group as a reference, the other two were used as dummy variables in the model.

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Appendix 1: List of Variables and Measures *continued*

Variables	Measurement
Financial service	The importance of financial service in SEZ. It is assessed using a 5-point Likert scale. The coded data were than changed to be continuous using normalized indices.
Investment Environment	
Resource availability	The importance of ease of access to local resources (natural resources, labor, and financial resources). It was assessed using a 5-point Likert scale. The coded data were than changed to be continuous using normalized indices.
Market potential	The importance of market potential. The market potential covers local demand, resource, market sizes, and market linkage. It was assessed using a 5-point Likert scale. The coded data were than changed to be continuous using normalized indices.
Geographic location	The importance of geographic locational advantage. Locational advantage is assessed in terms of proximity to a large city, transport convenience, industrial cluster, and prices of goods. It was assessed using a 5-point Likert scale. The coded data were than changed to be continuous using normalized indices.
Political and legal stability	The importance of political and legal stability. It was assessed using a 5-point Likert scale. The coded data were than changed to be continuous using normalized indices.
Governance	The importance of SEZ's administration. The administration efficiency was assessed in terms of ease, convenience, transparency, punctuality and efficiency. It was assessed using a 5-point Likert scale. The coded data were than changed to be continuous using normalized indices.
Tax policy importance	The importance of preferential tax policy on firms' performance. It was assessed using a 5-point Likert scale. The coded data were than changed to be continuous using a normalized index.
Land policy importance	The importance of preferential land policy on firms' performance. It was assessed using a 5-point Likert scale. The coded data were than changed to be continuous using a normalized index.
Finance service degree	The degree of financial services that firm can access. Financial services include financial agencies' service, SEZ's facilitation, preferential tax rate, and irregular payment in financing. It was assessed using a 5-point Likert scale. The coded data were than changed to be continuous using a normalized index.
Investment service degree	The degree of investment facilitation service provided to firms. It covers easiness, transparency, administration efficiency, custom service, and others. It was assessed using a 5-point Likert scale. The coded data were than changed to be continuous using a normalized index.

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Appendix 1: List of Variables and Measures *continued*

Variables	Measurement
Satisfaction with labor policy	The effect of labor policy on firms' performance. Whether there are wage floor, available skilled labor, insurance payment, working time limit, restriction on firing employment, training, and others. They are coded as 0 = Satisfied or 1 = Unsatisfied.
Infrastructure change	Infrastructure covers utility, logistics, road, internet, hotel, education, recreation, and others. They are assessed using a 3-point Likert scale where: 1 = Worse, 2 = No change, and 3 = Improved. The coded data were then changed to be continuous using a normalized index.
Governance	Governance covers the ease and length of time for review and approval, and others. They are assessed using a 3-point Likert scale. The coded data were then changed to be continuous using a normalized index.
Loss from public utility interruption	Loss from interruptions of public utilities. They are assessed using a 3-point Likert scale where: 1 = No loss, 2 = Small loss, and 3 = Huge loss. The coded data were then changed to be continuous using a normalized index.
Irregular payment	Payments other than those as officially required. It is assessed using a 3-point Likert scale where: 1 = Worse, 2 = No change, and 3 = Improved. The coded data were then changed to be continuous using a normalized index.
Other Control Variables in the Whole Analysis	
Firm size	0 = small and large firms, with an annual revenue less than CNY5 million; 1 = large size firms, with an annual revenue greater than CNY5 million.
Firm's age	Number of years since firm's location in SEZ.
Industry dummy	26 specified industries were grouped into primary, secondary, and tertiary industries, using the former as a reference and the latter two as dummies.
Region dummy	The four regions as mentioned. Lao Cai is used as a reference, while other regions as dummies.

CNY = yuan, SEZ = special economic zone.

Source: Authors.

Appendix 2

Table A2.1 Marginal Effects of Investment Incentive Policies on Investment Motives

Item	M	R	E	M	R	E
		Model 1'			**Model 2'**	
Tax type	(0.355)[a]	0.303[a]	0.0515[a]	(0.368)[a]	0.334[a]	0.0338[a]
Land price: constant		Reference			Reference	
Land price: cheaper	(0.0627)	0.0162	0.0465[b]	(0.0487)	0.0233	0.0254
Land price: expensive	(0.0207)	0.192	(0.171)	(0.0821)	0.238	(0.156)
Finance service	(0.0382)	0.0122	0.026[c]	(0.0438)	0.0287	0.0151
		Model 3'			**Model 4'**	
Tax type	(0.0127)[a]	(0.0293)[a]	0.042[a]	(0.00192)[a]	(0.0371)[a]	0.039[a]
Land price: constant		Reference			Reference	
Land price: cheaper	(0.00026)	(0.019)	0.0192	(4.45E-05)	(0.009)	0.00904
Land price: expensive	(0.00441)	0.283	(0.279)	(0.00039)	0.456	(0.456)
Finance service	0.000982	0.0272	(0.0282)	0.000172	0.0272	(0.0274)
Lao Cai		Reference			Reference	
Xishuangbanna	1[a]	(0.965)[a]	(0.0348)[a]	1[a]	(0.972)[a]	(0.028)[a]
Dehong	1[a]	(0.859)[a]	(0.141)[a]	1[a]	(0.883)[a]	(0.117)[a]
Honghe	1[a]	(0.948)[a]	(0.0515)[a]	1[a]	(0.955)[a]	(0.0454)[a]

( ) = negative, E = Investment motivation is to improve firm's efficiency, M = Investment motivation is to expand market, R = Investment motivation is to obtain resources.

[a] Coefficients is significantly different from 0 at the 1% level.
[b] Coefficients is significantly different from 0 at the 5% level.
[c] Coefficients is significantly different from 0 at the 10% level.

Note: The results of the control variables, such as firm's nature, firm's age, and industry dummy variables, are not reported in the table.

Source: Authors.

Table A2.2 Marginal Effects of Investment Climate on Investment Motives

Item	M	R	E	M	R	E
		Model 1'			**Model 2'**	
Resource availability	(0.222)	0.25	(0.0276)	(0.223)	0.255	(0.0324)
Market potential	(0.579)	0.381	0.198	(0.594)	0.397	0.197
Geographic location	(0.0211)	(0.0731)	0.0942	(0.014)	(0.076)	0.0899
Political and legal stability	0.188	(0.176)	(0.0121)	0.188	(0.17)	(0.0176)
Governance	(0.0583)	0.0916	(0.0333)	(0.0518)	0.107	(0.055)
Infrastructure	(0.126)	(0.318)	0.444	(0.121)	(0.283)	0.404
		Model 3'			**Model 4'**	
Resource availability	(0.006)	0.0898	(0.0838)	(0.00627)	0.108	(0.102)
Market potential	(0.0202)	(0.107)	0.127	(0.0193)	(0.115)	0.134
Geographic location	0.00196	(0.19)	0.188	0.00222	(0.218)	0.216
Political and legal stability	0.0059	(0.00797)	0.00207	0.00581	0.00185	(0.00766)
Governance	(0.0116)	0.287	(0.275)	(0.0111)	0.275	(0.263)
Infrastructure	(0.00195)	(0.765)	0.767	(0.00299)	(0.765)	0.768
Lao Cai		Reference			Reference	
Xishuangbanna	1	(0.869)	(0.131)	1	(0.883)	(0.117)
Dehong	1	(0.812)	(0.187)	1	(0.853)	(0.147)
Honghe	1	(0.885)	(0.115)	1	(0.891)	(0.109)

( ) = negative, E = Investment motivation is to improve firm's efficiency, M = Investment motivation is to expand market, R = Investment motivation is to obtain resources.

Note: The results of the control variables, such as firm's nature, firm's age, and industry dummy variables, are not reported in the table.

Source: Authors.

Table A2.3 Marginal Effects of Incentive Policies on Firms' Performance

	Tax Policy Importance	Land Policy Satisfactory	Finance Service Degree	Investment Service Degree	Labor Policy
Model I: No control industry and region difference					
Worse	(0.0282)	(0.0832)[c]	(0.25)[b]	0.0373	0.0144
No change	(0.025)	(0.0738)[c]	(0.222)[b]	0.0331	0.0128
Improvement	0.0531	(0.157)[c]	(0.472)[a]	(0.0704)	(0.0271)
Model IV: Control industry and region difference					
Worse	(0.0307)	(0.00116)	(0.145)	(0.0264)	0.00192
No change	(0.0448)	(0.00169)	(0.212)	(0.0386)	0.0028
Improvement	0.0755	0.00285	0.357	0.0651	(0.00472)

( ) = negative.

[a] Coefficient is significantly different from 0 at the 1% level.
[b] Coefficient is significantly different from 0 at the 5% level.
[c] Coefficient is significantly different from 0 at the 10% level.

Note: Probabilities are calculated while evaluating all other variables at their average values. Other control variables, such as firm's age, industry dummy, and regional dummy, are omitted from this table.

Source: Authors.

Table A2.4 Marginal Effects of Investment Climate on Firms' Performance

Item	Resource Available	Marketing	Location	Political Stability	Governance	Infrastructure	Logistic Interruption Loss	Irregular Payment
Model I': No control of industry and region difference								
Worse	(0.0887)[a]	(0.0435)	0.0213	0.0213	(0.0659)	(0.0428)[a]	(0.0074)	(0.0166)
No change	(0.1070)[a]	(0.0527)	0.0258	0.0258	(0.0798)	(0.0518)[a]	(0.0090)	(0.0201)
Improvement	(0.1960)[a]	0.0962	(0.0471)	(0.0470)	0.1460	0.0946[a]	0.0164	0.0366
Model III': Region difference controlled								
Worse	(0.0802)[a]	(0.0206)	0.0391[a]	(0.0246)	(0.0851)[b]	(0.0158)	(0.0098)	0.0039
No change	(0.1280)[a]	(0.0329)	0.0623[a]	(0.0393)	(0.1360)[b]	(0.0252)	(0.0155)	0.0062
Improvement	0.2080[a]	0.0536	(0.1010)[a]	0.0639	0.2210[b]	0.0410	0.0253	(0.0101)
Model IV': Industry and region difference controlled								
Worse	(0.0605)[a]	(0.0143)	0.0257	(0.0233)	(0.0678)[b]	(0.0178)	(0.0265)	0.0117
No change	(0.1180)[a]	(0.0279)	0.0501	(0.0453)	(0.1320)[b]	(0.0347)	(0.0516)	0.0228
Improvement	0.1780[a]	0.0422	(0.0758)	0.0686	0.2000[b]	0.0525	0.0781	(0.0345)

( ) = negative.

[a] Coefficient is significantly different from 0 at the 1% level.
[b] Coefficient is significantly different from 0 at the 5% level.
[c] Coefficient is significantly different from 0 at the 10% level.

Note: Probabilities are calculated while evaluating all other variables at their average values. Other control variables, such as firm's age, industry dummy, and regional dummy, are omitted from this table.

Source: Authors.

Cross-Border Contract Farming Arrangements: Variations and Implications in the Lao People's Democratic Republic

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Abstract

This paper presents the variations and implications of contract farming arrangements in three case studies—cabbage, maize, and sugarcane—in the Lao People's Democratic Republic (Lao PDR). The variations in contract farming resulted in varying implications in terms of agreement types, degree of flexibility, extent of material support, and strength of relationships between the contract farming and the firm. Overall, contract farming has resulted in beneficial material and non-material outcomes for the Lao PDR farmers as observed in the three case studies. The extent of the benefits varies according to the contract farming arrangement. The results of the case studies strongly suggest that there is no single contract farming model that can work best in all situations, and that contract farming models are crafted to address certain production and marketing limitations that prevent efficient functioning of industries and markets. However, considering the higher levels of access to services of contract farmers and the high levels of overall satisfaction with contract farming, it would appear that engaging in contract farming is a valuable way to enter into commercial, cross-border agriculture. The policies promoting cross-border trade and small-scale contract farming appear to be generating positive results and should be maintained and enhanced.

Introduction

Economic reforms since 1988 have accelerated the integration of the rural areas of the Lao People's Democratic Republic (Lao PDR) into the wider regional and global economy, facilitated by regional trade agreements and infrastructure improvements in transport and communications.

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This integration has created unprecedented conditions under which subsistent farmers can organize new production systems that enable them to tap the potentials of the regional and global markets. The lack of access to markets, inputs, and technology have prevented farmers from harnessing the potential of agricultural production. Contract farming was thus promoted to help farmers overcome these obstacles. The Government of the Lao PDR has been vigorously promoting contract farming through collaboration with firms from the People's Republic of China (PRC), Thailand, and Viet Nam (Setboonsarng, Leung, and Stefan 2008) over the past 5 years (LEAP 2007).

Contract farming, as defined by FAO (2001 cited in LEAP 2007:1), refers to "an arrangement between farmers and processing and/or marketing firms, for the production and supply of agricultural products under forward agreements, frequently at predetermined prices. The arrangement also invariably involves the purchaser in providing a degree of production support through, for example, the supply of inputs and the provision of technical advice." Scholars are very interested in the wide use of contract farming practices in developing countries. Many studies examine the usefulness of contract farming to small-scale farmers and in poverty alleviation, and conclude with both the pros and cons of contract farming. Other studies also identify the potential of contract farming and the factors that make it successful.

A key argument in favor of contract farming is that it has the potential to incorporate low-income growers into the modern sector through private-sector-driven innovations. Patrick (2004) reports that agro-industry is frequently put forward as a mechanism that can assist smallholders to shift from subsistence agriculture to the production of export-orientated, high-value products. Sautier et al. (2006) point to the success of contract farming for all types of farmers, as concluded through a study of agri-processing and contract agriculture in Kenya. Eaton and Shepherd (2001) list the specific advantages of contract farming for farmers, which include the provision of credit, inputs, and production services by firms; access to newly introduced technology and skills; reduced risk because of agreed prices in advance; and linkage to new markets.

Several authors have examined the various types of contract farming arrangements and the factors that make contract farming successful. Eaton and Shepherd (2001) further identified five contract farming models, which include the centralized model, nucleus estate model, multipartite model, informal model, and intermediary model. Vermeulen and Cotula (2010) discuss the role of government and note that "at the very minimum, making contract farming work requires an enabling legal framework, including appropriate laws of contract, and legal/institutional mechanisms for local groups to get organised and be recognised as a legal entity." Setboonsarng (2008:2) claims that "to facilitate transactions in environments where spot markets fail to address information and institutional failure, contract farming and vertical integration are increasingly being adopted as a supply chain governance strategy." Sriboonchitta and Wiboonpoongse (2008) describe the environment conducive to contract farming, in terms of infrastructure, technology, and farmer's skills and incentives. contract farming is particularly effective for highly perishable, labor-intensive crops, for which there is no alternative market other than the contractor (Rottger 2004). Fullbrook (2007) argues that contracts tend to favor crops that are in limited supply because they typically require intensive farming and are of high value.

For investors, contract farming provides a more politically acceptable form of agriculture for consumers than large concessions or estates, and a way to overcome land acquisition constraints. The investors' risks are reduced by not being responsible for production, and a more consistent quality can be obtained than if purchases were made on the open market. Through contracts, the buyers provide significant inputs, such as credit, information, reliable markets, and services. In this way, smallholders are supported and enabled to cultivate lucrative, nontraditional crops. Proponents

of contract farming argue that this brings positive multiplier effects for employment, infrastructure, and market development in the local economy (Key and Rusten 1999; Sautier 2006). Studies of rice contract farming in neighboring Cambodia by Cai (2008), and Setboonsarng, Leung, and Stephan (2008) found that contract farmers, in comparison to noncontract farmers, had greater opportunities to obtain stable markets, access to credit, extension services, infrastructure, and other benefits.

Some studies take a more pessimistic view of contract farming, emphasizing a wide range of problems. Little and Watts (1994) argue that, in general, contract farming favors the larger and more capitalized smallholders. It largely neglects the poorest segments of the population. Watts (1994) criticizes contract farming for favoring agro-industrial firms and generating unequal power relationships between growers and companies. Certain types of contract farming require relatively high levels of farm managerial skills, which farmers often lack. As a result, they are often at risk of breaking contractual agreements or of taking on the full risk of crop failure due to seasonal factors such as drought or floods (Rosset and Altieri 1997; Rosset, Rice, and Watts 1999; Coulter et al. 1999; Guo, Jolly, and Zhu 2005). Contracts are often broken when potential buyers who were not party to the original agreement offer farmers prices that are more competitive. Delforge (2007) is also critical of the impact of contract farming on the small-scale farmer. Although farmers are motivated to join contract farming in order to get secure income, inputs, and a certain market, small farmers are exploited and highly controlled. Several studies also observe that contract farming may increase food insecurity because contract farmers substitute staple food crops with cash crops.

In the theory of institutional economics, contract farming is an institutional arrangement chosen to reduce transaction costs by a buyer and a farmer under certain constraints. However, only a few studies assess the constraints under which a farmer and a buyer decide to make a contract. Setboonsarng (2008) recognizes the importance of "environments" or constraints where a contract can replace a spot market, but does not explain further although it is crucial to understand the constraints that influence the choice made by a buyer and a farmer. On the other hand, contract farming is a commitment under which a buyer and a farmer exchange property rights to maximize their benefits. Empirical observations show that the type of contract farming and the relationship between a farmer and a buyer varies according to the local setting. It is thus essential to understand the relationships within a contract farming arrangement.

This paper aims to explain the variations in contract arrangements with regard to production, supply and access to material services, and the variation in relationships between the buyer and the farmer and its implications, as well as provide policy recommendations.

Methodology

Case Study Contexts

Three research sites, with agribusiness and cross-border contracts between the Lao PDR and its neighboring countries, were chosen for the study. These are (i) the sugarcane area in Luangnamtha Province in northern Lao PDR; (ii) the maize area in Xayabouly Province in northwestern Lao PDR; and (iii) the cabbage area in Pakxong town, Champasak Province in southern Lao PDR (Figure 1).

In Luangnamtha Province, most of the investments are in agricultural products, notably sugarcane—which is the predominant crop—rubber, corn, rice, melon, and banana. Many villagers are engaged in contract farming, marketing their products via local or PRC traders to the PRC. Constraints faced by the farmers in this area include the high costs of cross-border

Figure 1 Map of Case Study Sites

Source: ADB.

trading; fluctuating prices; limited access to technology, market information, and credit; and weak negotiating positions with traders on prices.

Contract arrangements differ across crops. Sugarcane and rubber are often contracted from a centralized estate. Some firms directly contract farmers to manage the crops, providing technical support, seeds, fertilizers, and the market. In the case of rice and corn, firms initially took a centralized approach but are now increasingly purchasing directly from farmers through

informal agreements as farmers acquire the necessary production skills. Watermelon and banana are usually produced through partially formal or informal contract farming agreements.

Sugarcane was selected as the product to be studied in Luangnamtha Province because it can provide many insights into the complexities of contract farming. Sugarcane contract farming has been practiced for more than 10 years and has the longest, continuous form of contract farming; hence, it has the most well developed contract arrangement implemented. Both the farmers and the company have gained experience from its implementation. Local Lao PDR officials recognize that it is a typical "2+3" model, where farmers provide land and labor (2) while the company takes care of capital, production technology, and market (3).

Farmers in Xayabouly Province grow maize, mainly for the export market in Loei Province in Thailand. Middlemen normally work with village heads, or *Taseang*, to encourage them to promote the growing of hybrid maize. Most middlemen offer inputs such as credit to farmers; however, the farmers have to go through the *Taseang* or head of the Contract Farmers' Group who act as guarantors. A key problem that farmers face is the lack of relevant information. As a result, they sell at unfair, low prices to middlemen. They also have no idea about how much is required by the processing factories in Thailand and so they are not in a position to plan wisely. This lack of knowledge of market requirements also means that farmers are not able to work toward better prices, for example, by decreasing the moisture content, or by grading and undertaking preliminary processing.

Pakxong, with a population of 60,480 people (2009), is a district of Champasak Province that mostly grows cabbage and coffee. There are bilateral projects between the Lao PDR and Thailand, especially agricultural cooperation through the Sister Cities project under the Ayeyawady–Chao Phraya–Mekong Economic Cooperation Strategy (ACMECS). Contract farming is expanding for the Lao PDR farmers, enabling them to access cross-border markets with Thai business groups and to cooperate with local partners growing cabbage, banana, tamarind, macadamia nuts, and horticultural crops, such as asparagus. Investment is estimated at around B600–B700 million. The main contractors are both companies and middlemen from Thailand. Farmers have responded to contract farming opportunities with the encouragement of local authorities by producing banana, cabbage, tamarind, coffee, melon, and other crops. Most products are exported to Thailand and Viet Nam. The government provides support to farmers through training and the provision of infrastructure, such as warehouses. The companies, on the other hand, generally provide credit and inputs. The contracts practiced are mostly verbal.

Methods of Data Collection

Data presented in this paper were collected through a household survey, key informant interviews, focus group discussions (FGDs), and from secondary sources. Details of each source are presented below.

Household survey. A highly structured, common questionnaire was used to obtain quantitative data from farmers. A total of 619 households were sampled in three districts, including 299 contract farmers and 320 noncontract farmers.

Key informant interviews. These were open-ended interviews with companies and district officials from both sides of the border.

Focus group discussions. FGDs in the different case study areas were generally of four different types, with 7–10 villagers in each group: (i) contract farmer males, (ii) non-contract farmer males, (iii) contract farmer females, and (iv) non-contract farmer females. The participants joining the FGDs were selected by the village leaders, in consultation with the researchers and the local government officers.

Secondary data collection. Data were collected from various government policies on investment and social welfare, while trade data were obtained from study reports on contract farming at the national and provincial levels.

Variables

To measure the contractual structure of contract farming, the study used four independent variables (ID): the type of agreement (ID1), extent of flexibility (ID2), extent of material support from buyers (ID3), and strength of relationship (ID4) (Table 1).

The stand-alone, independent variables listed above were then used to examine the implications of contract farming variation, using the dependent (D) variables listed in Table 2.

Results and Discussion

Table 1 Composition of Independent Variables

Independent Variables	Scoring
ID1. Type of agreement	
Shown something in writing	No = 0, Yes = 1
With signed agreement	No = 0, Yes = 1
ID2. Extent of flexibility	
Never or rarely negotiate prices	Never or rarely = 1, Quite often or always = 0[a]
Do not sell produce to others	Does not sell to others = 1, Sells to others = 0
	The above was recoded to flexible (score = 0) or inflexible (score = 1)
ID3. Extent of material support from buyers	
Receiving seed on credit	Weighting of 2 points
Receiving fertilizer on credit	1 point weighting
Receiving assistance with transport	1 point weighting
Receiving herbicide on credit	1 point weighting
Receiving insecticide on credit	1 point weighting
Receiving equipment on loan	1 point weighting
Receiving cash loans	1 point weighting
	The above weights were used to derive an overall mean
ID4. Strength of relationship	
Buyers are well-trusted	Not at all or little = 0, Well enough or very well = 1
Satisfied with the way the agreement was set up	Not at all or little = 0, Well enough or very well = 1
Have been selling to current buyer for more than 2 years	1 point

ID = independent variable.

[a] Scores are intentionally reversed here, as "Never or rarely negotiate prices" or "Do not sell produce to others" reflects a higher level of contractual commitment.

Source: Survey results.

Table 2 List of Dependent Variables

D1. Access to information and advice (in the last 3 years)
% of those who accessed market information
% of those who accessed training
% of those who accessed advice on forming production groups
D2. Farm profit from contract farming crops
Mean profit on cabbage
Mean profit on maize
Mean profit on sugar
D3. Expenditure on assets
Mean number of new items purchased using contract farming income
% of those purchasing TV sets using contract farming income
% of those purchasing mobile phones using contract farming income
% of those purchasing rice using contract farming income
% of those making further investments using contract farming income
D4. Perceptions on profit, financial status, and benefits
% of those who say their financial situation is better since contract farming
% of those who recommend contract farming because market is guaranteed
% of those who recommend contract farming for quick and/or regular income
% of those who recommend contract farming for better income
D5. Overall view of the outcomes of contract farming
% of those who are "very pleased" with the outcomes of contract farming

D = dependent variables.
Source: Survey results.

Background of the Farmers

In the three study areas, 619 farmers answered the questionnaire, with the respondents almost equally divided between those with contract farming and those without contract farming arrangements (Table 3).

Education

Education level varies among the three case study sites. Household heads had an average of 4.8 years of education. Those in sugarcane areas had the lowest education level, while those in maize areas had the highest education level (Table 4).

Main Occupation

The main occupation of household members (excluding children under 6 years of age) in all areas is crop farming, using their own land (Table 5).

The single, most common secondary occupation or livelihood activity was cattle raising with 220 of 578 respondents engaged in cattle raising, mostly in the sugarcane-growing areas.

Table 3 Farming Status of Respondents, by Case Study Area

Status	Cabbage Area	Maize Area	Sugarcane Area	Total
Contract farming	101	100	98	299
	46%	50%	49%	48%
Non-contract farming	119	100	101	320
	54%	50%	51%	52%
Total	**220**	**200**	199	619
	100%	**100%**	**100%**	**100%**

Source: Survey results.

Table 4 Mean Years of Education of Household Head, by Case Study Area

Case Study Area	Mean Years of Education	Number of Cases
Cabbage area	5.4	220
Maize area	6.1	200
Sugarcane area	2.7	201
Total	**4.8**	**621**

Source: Survey results.

Table 5 Main Occupation of Household Members, by Case Study Area

Main Occupation		Cabbage Area	Maize Area	Sugarcane Area	Total
Student[a]	No.	351	226	235	812
	%	32.4	27.5	26.4	29.0
Crop farming using own land	No.	675	559	611	1,845
	%	62.2	68.1	68.7	66.0
Others	No.	59	36	44	139
	%	5.4	6.4	4.9	5.0
Total		**1,085**	**821**	**890**	**2,796**

[a] Refers to household members who are currently enrolled in school, regardless of level.

Source: Survey results.

Variations in Contract Farming Arrangements

Contract farming arrangements vary widely across the three crops (Table 6). This table has been coded in gray scale to facilitate interpretation: the darker the shade, the more structured or rigorous the contract farming conditions are (i.e., closer to the standard international definitions made by FAO described on the introduction section. The gradation in shade is based on the quartile where the results fall under, with the highest figure in the range determining the upper limit (i.e., if the highest percentage is 80%, it is divided into four quartiles, with the quartiles being 0%–20%, 21%–40%, 41%–60%, and 61%–80%).

Table 6 Variations in Independent Variables, by Crop

Independent Variables (Contract Farmers)	Cabbage	Maize	Sugarcane
ID1. Type of agreement			
With written agreement (%)	20	7	61
With signed agreement (%)	24	5	47
ID2. Extent of flexibility			
Never or rarely negotiate prices (%)	41	51	94
Do not sell produce to others (%)	31	97	94
ID3. Extent of material support from buyers			
Receiving seeds on credit (%)	39	78	92
Receiving fertilizer on credit (%)	26	2	93
Receiving assistance with transport (%)	11	26	73
Receiving herbicide on credit (%)	3	22	66
Receiving insecticide on credit (%)	4	2	91
Receiving equipment on loan (%)	2	15	24
Receiving cash loans (%)	10	9	5
ID4. Strength of relationship			
Trust buyers well (%)	47	81	82
Satisfied with the way the agreement was set up (%)	47	72	92
Selling to current buyer for more than 2 years (%)	54	51	71
Number of times in weakest quartile	**4**	**4**	**0**
Number of times in middle quartiles	**8**	**5**	**1**
Number of times in the strongest quartile	**2**	**5**	**13**

ID = independent variable.
Source: Survey results.

Table 6 clearly shows that the situation of sugarcane growers is much closer to the classic definition of contract farming than the case of cabbage or maize growers. For sugarcane, the majority of farmers have written contracts, and nearly half have signed ones. Further, the contracts allow virtually no flexibility, with the farmers indicating, almost universally, that they could not negotiate prices or sell to others. In terms of material support, credit is available on all the necessary inputs for the majority of farmers, except for cash loans. The contract farming arrangements for sugarcane result in high levels of trust, satisfaction with the way the contracts were set up, and enduring relationships with the buyer. The results of the sugarcane study indicate that 13 of 14 independent variables fall in the upper quartile.

The situation for maize growers is very different. Here, an insignificant number of growers (5%) have written contracts, and only one-third recalled having the contract clearly explained to them, although most clearly understood what was required. There is a degree of flexibility as farmers are able to negotiate prices. However, they rarely sell to others, only to the contractor as this would put them in a difficult situation during repayment of credits. In the case of maize, seed credit is the key factor that determine contract farming arrangements. Provision of other

inputs by buyers is much less common than in the case of sugarcane, with support for transport being the most frequently mentioned.

The economic integration of the Mekong region has created an atmosphere of economic cooperation (such as the ACMECS) that provides policy support to the establishment of cross-border trade of contract farming between the Lao PDR and its neighboring countries. Because of this, the provincial authorities of Champasak and Ubon Rachathani encourage and facilitate cross-border trade to open opportunities for local farmers to access the cross-border market, trade facilities, zero tax, and customs facilitation services. For example, they selected some crops for cross-border trading. They also set up the minimum price for certain selected crops (e.g., cabbage). There is also an agreement on when to buy and sell cabbage between the two countries. Due to these efforts, the establishment of cross-border trade demonstrates some aspects of contract farming.

In the case of maize, seeds provided on credit and an assured market were the major incentives to get into contract farming agreements. Lack of capital and technical knowledge on hybrid maize production and market uncertainty leave farmers with no choice but to work under contract arrangements. Maize was introduced in Xayabouly Province to enhance cross-border trade between the Lao PDR and Thailand, but it was primarily initiated by Thai traders to support the feed milling industry in Thailand. As such, hybrid maize is considered a differentiated product grown for a specific purpose. In a case like this, farmers will find it difficult to look for alternative markets, especially because the Lao PDR feed milling industry has a limited capacity and processing plants are located far from Xayabouly Province. With the province's poor infrastructure and road networks, inadequate storage facilities, and unreliable transport, its proximity to the Thai–Lao PDR border makes contract farming the most viable form of production arrangement that reduces transaction costs for both parties involved in the contract.

In the case of sugarcane, timely processing and limited daily milling capacity are the key constraints as processing would be costly without a contract arrangement. Sugarcane is a high-volume produce and needs milling within 24 hours after harvest in order to retain quality. Yingmao Sugarcane Miller (YSM) has a daily milling capacity of 1,000 tons. On the other hand, sugarcane maturity in the field varies according to the planting date, variety, location, and cultivation skills of the contract farmers. YSM needed to understand fully the various situations in the villages to develop an efficient and effective management system and to update information in time. Limited milling capacity was another factor that led YSM to centralize its management system.

YSM has developed and tested its centralized management system in the PRC for more than 30 years. The system integrates harvest, transport, and milling work very well. Part of the system is to offer a simple and standard contract scheme to contract farmers, and to rely on frontline staff and liaison persons for communication with the contract farmers' milling house. They update information on a timely basis and deal with daily management tasks. Both contract farmers and YSM are happy with this system. However, promotion and grievance need to be addressed in the future as mentioned by YSM staff during the interview.

Implications of the Contract Farming Agreement Type

This section looks at how contract farming outcomes vary according to the first independent variable—the type of agreement (ID1). This analysis of key variables cuts across the three case studies, as the objective is to identify outcomes influenced by contract farming variations, as opposed to location or crop. However, it should be kept in mind that agreement type is heavily

Table 7 Access to Information and Advice, by Agreement Type (%)

Dependent Variable	Agreement Type		
D1. Access to information and advice (in the last 3 years)	**Verbal**	**Written**	**Signed**
% of those who accessed market information	39	70	71
% of those who accessed training	37	54	59
% of those who accessed advice on forming production groups	27	42	54

D = dependent variable.

Source: Survey results.

influenced by crop type, with only 9% of maize farmers having a written or signed contract, compared to 34% of cabbage farmers, and 64% of sugarcane farmers. Where there are insufficient cases, this is shown as "NA" (not applicable).

Variations in access to information and advice (D1) in relation to agreement type are shown in Table 7.

Clearly, those with written or written and signed contracts are significantly more likely to have accessed information on all three subcategories of this composite variable, with the pattern being clearest for the last, "advice on forming production groups."

In the cabbage-growing area, the FGDs and interview data support this hypothesis. The FGDs revealed how relatively difficult it is to get real information on market prices in the Thai market. Farmers obtain information on prices, places of sale, delivery of produce, and the amount likely to be sold from many sources. First, farmers communicate directly with the Thai buyers or with the Lao PDR middlemen by telephone. For example, they call the buyers to check on the price and the amount of cabbage needed before they harvest. Communication between the buyer and the middleman via telephone is considered the most efficient way to get reliable and straightforward information about market prices. After checking the market price and the needs of the middlemen or buyers, they harvest accordingly. Another way to obtain market information is through the Appointed Marketing Officer working at the wholesale market in Pakxong town. The Lao PDR middleman, who buys the cabbage from the Lao PDR farmers under contract with the Thai buyers, gets accurate information on the market price through telephone calls from the Thai buyers or by observing at the Thai market in Bangkok and Ubon Ratchathani. Access to prices in Thai markets is very limited for the Lao PDR farmers, officers, and middlemen. As Thai middlemen also do not always have accurate information, the Lao PDR middlemen themselves travel to Thailand and visit the Thai market to check prices.

Market information is not relevant in the case of sugarcane since the company works closely with farmers via the liaison persons. Farmers are informed about the sale through the representatives of the YSM.

In the maize area, both contract farmers and non-contract farmers obtain market information although more non-contract farmers than contract farmers are able to obtain market-related information. This suggests that information on the market, including prices and outlets, has been satisfactorily provided by the contractors and/or middlemen. Both contract farmers and non-contract farmers experience the same marketing problems, foremost of which are price uncertainty and low prices of maize at harvest time.

To explore the second dependent variable, mean profit (D2), the two subcategories of written agreements (written agreement and/or signed written agreement) were combined as the number of cases is limited when the analysis is carried out by crop type.

Table 8 Mean Profit on Contract Farming Crop, by Agreement Type

Dependent Variable	Agreement Type	
D2. Mean profit on contract farming crops	**Verbal**	**Written/Signed**
Mean profit on cabbage ($)	721	344
Number of cases	49	26
Mean profit on maize ($)	1,533	820
Number of cases	90	9
Mean profit on sugar ($)	1,083	963
Number of cases	31	46

D = dependent variable.

Source: Survey results.

Despite data limitations (the low number of cases), a clear pattern emerges: farmers with verbal contracts are making better profits than those with written and/or signed contracts, with the greatest difference observed in maize, followed by cabbage. While written agreements may give a degree of clarity and certainty to farmers and—as noted in all crop cases—are appreciated for this reason, they do not guarantee better profits.

Not surprisingly, expenditure patterns mirror the profit pattern: the number of new items purchased is highest for those with verbal agreements and lowest for those with signed agreements. Interestingly, looking at the details of selected items in which there were high levels of purchases (using contract farming income), both TV sets and mobile phones are found in all categories, but are somewhat lower for those with signed contracts (mostly in the sugarcane area). The inverse is true for rice purchases. Results also showed that the lack of written contracts does not act as a deterrent to further investments: the majority of those reporting the use of contract farming income for this purpose had verbal contracts.

The next test focuses on perception variables. The first row of Table 10 shows that the type of agreement makes no difference to people's perceptions of how their financial situation has changed since engaging in contract farming. The perception of "household financial situation is better-off since doing contract farming" is the same throughout. By contrast, those with verbal agreements (mostly in the cabbage and maize areas) were the most likely to recommend contract farming for its guaranteed markets, and quick income (from regular sales), while those with signed agreements were the most likely to mention better income (from overall sales). Finally, despite lower profits, those with written agreements, and especially those with signed

Table 9 Expenditure on Assets, by Agreement Type

Dependent Variable	Agreement Type		
D3. Expenditure on assets	**Verbal**	**Written**	**Signed**
Mean number of new items purchased using CF income	**6.2**	**5.1**	**4.3**
% of those purchasing TV sets using CF income	43	40	32
% of those purchasing mobile phones using CF incomes	40	40	36
% of those purchasing rice using CF incomes	61	67	75
% of those making further investments using CF incomes	31	5	10

CF = contract farming, D = dependent variable.

Source: Survey results.

Table 10 Perceptions of Benefits from Contract Farming, by Agreement Type

Dependent Variables	Agreement Type		
D4. Perceptions of profit, financial status, and benefits	**Verbal**	**Written**	**Signed**
% of those who say their financial situation is better since doing CF	87	88	87
% of those who recommend CF because market is guaranteed	35	28	9
% of those who recommend CF for quick and/or regular income	37	13	2
% of those who recommend CF for better income	54	62	82
D5. Overall view of the outcomes of CF			
% of those who are "very pleased" with the outcomes of CF	49	56	73

CF = contract farming, D = dependent variable.

Source: Survey results.

agreements, were significantly more likely to be "very pleased" overall with contract farming outcomes.

Implications of Contract Farming Flexibility (ID2)

As noted earlier, the second independent variable, the extent of flexibility, is based on whether or not farmers can negotiate prices with the buyers. The variations across the study sites are shown in Table 11.

Most farmers in the cabbage area have a high degree of flexibility as they are generally able to negotiate prices and can sell to more than one buyer. The inverse is true for sugarcane growers, where 88% described inflexible agreements. In the middle are the maize farmers, split almost 50/50 between flexible and inflexible conditions. Because of the strong pattern that exists with regard to flexibility across the case studies, the analysis of outcomes focuses on the difference within the key crops.

Analysis of profit by degree of flexibility within crop categories suggests that in all cases, growers of a particular crop who are in more flexible relations are more likely to make a higher profit than those who are in more inflexible relations.

Table 11 Contract Farming Outcome: Extent of Flexibility, by Case Study Area

Flexibility	Cabbage Area	Maize Area	Sugarcane Area	Total
Number of cases	89	49	12	150
Flexible	86%	49%	12%	50%
Number of cases	14	51	86	151
Inflexible	14%	51%	88%	50%
Total	**103**	**100**	**98**	**301**
	100%	**100%**	**100%**	**100%**

Source: Survey results.

Table 12 Contract Farming Outcomes: Mean Crop Profits and Value of Goods Bought, by Case Study Area

Extent of Flexibility		Crop			Total Value of Goods Bought Fully or Partly with Contract Farming Income (in $)
		Cabbage Area	Maize Area	Sugarcane Area	
Flexible	Mean profits ($)	796	1,500	1,382	1,470
	No. of cases	77	49	11	150
Inflexible	Mean profits ($)	114	1,415	950	524
	No. of cases	13	51	66	151
Total	**Mean profits ($)**	**698**	**1,456**	**1,012**	**996**
	No. of cases	**90**	**100**	**77**	**301**

No. = number.

Source: Survey results.

Table 13 Contract Farming Outcomes: Crop Profits and Mean Number of Inputs (ID3)

Profit from Last Crop	Mean Number of Inputs
Less than $500	5.7
$501 to $1,000	5.3
More than $1,000	5.2

Source: Survey results.

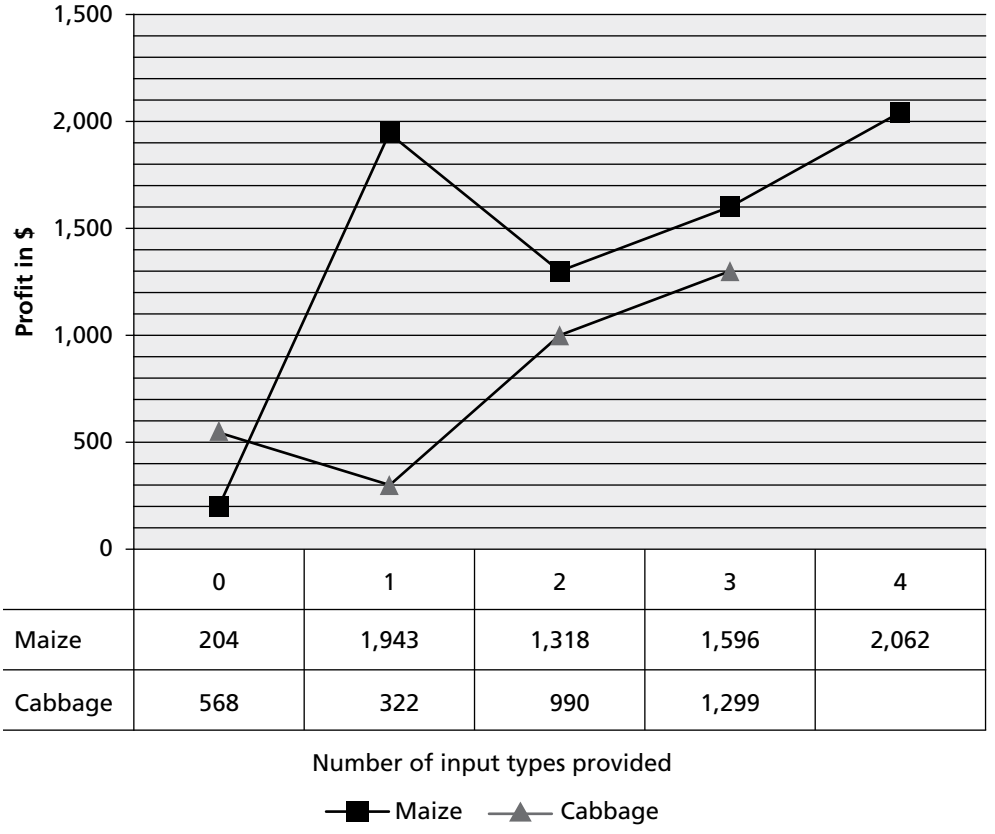
The most significant difference lies between the relatively few cabbage contract farmers (13) who report growing crops under inflexible conditions. Based on the evidence available, this would appear to work to their detriment. There is also a significant gap between the few sugarcane growers who report more flexible conditions, although the numbers here have to be treated with caution given that there are only 11 cases. Flexibility gives the maize growers a slight overall advantage, but the gap is not very significant. However, overall, when it comes to expenditure of contract farming earnings, the farmers in flexible situations appear to be acquiring goods valued three times higher than those in inflexible situations. Taken as a whole, these results would seem to indicate that it is to the farmer's advantage not to commit to relationships that allow little or no flexibility.

Implications of Material Support (ID3)

The third independent variable is based on the inputs provided by buyers to farmers under varying conditions. It is apparent that the sugarcane growers receive considerably more inputs than growers of either cabbage or maize, making the analysis across the groups problematic. However, the advantages of the provision of inputs (often at high levels of interest and rigorous payback conditions) can be seen in terms of farming outcomes. This section looks at certain key outcome variables to see how they vary in terms of scores based on inputs.

The first observation to make is that, with regard to inputs, the situation in the cabbage and maize areas (where the number of inputs provided is low) is clearly distinct from that of sugarcane (where the number is high). There is some evidence that the provision of a large number of inputs to

Figure 2 Relationship between Inputs Provided and Mean Profit for Maize and Cabbage Contract Growing



Source: Survey results.

sugarcane contract growers actually reduces profitability, probably because of an increase in what the farmer then owes the company. This is evident from a comparison of profit categories on the last harvest in relation to the mean number of inputs provided under the contract by the company.

This inverse relationship between inputs and profit in the case of sugarcane does not appear to hold in the case of maize and cabbage. Figure 2 suggests that for these two crops more support is generally associated with more profit.

The pattern shown by the above graph may not be perfect, but the general direction is clear: increased support from buyers in terms of inputs seems to correlate strongly with an increase in mean profits, affirming the hypothesis.

Implication of Relationship (ID4)

The last independent variable is a composite variable based on three factors: the percentage of contract farmers who (i) really trust the buyers, (ii) are satisfied with the way the agreement was set up, and (iii) have been selling to the current buyer for more than 2 years. From these variables, a score for ID4 was established with 1 being the weakest and 3 the strongest. The pattern for ID4 across the case studies is shown in Table 14.

The results are highly significant from a statistical point of view with a chi-square of .000.

Table 14 Strength of Relationship, by Case Study Area
(number of cases and %)

Strength of Relationship Score	Cabbage Area	Maize Area	Sugarcane Area	All Areas
1	48	22	3	73
	47%	22%	3%	25%
2	27	38	31	96
	26%	38%	34%	33%
3	27	40	57	124
	26%	40%	63%	42%
Total	**102**	**100**	**91**	**293**
	100%	**100%**	**100%**	**100%**

Source: Survey results.

Table 15 Contract Farming Outcomes by Strength of Relationships (ID4): Access to Information and Advice in the Last 3 Years (%)

Dependent Variable	Score			
Access to information and advice in the last 3 years	1	2	3	Overall
Received market advice	43	52	56	51
Received training	47	52	39	45
Received advice on production groups	37	41	30	35

Source: Survey results.

Access to Information and Advice in the Last 3 Years (D1)

Strong relationships have advantages for contract farmers, particularly with regard to market advice, as seen in Table 15. However, training and advice on production groups decline in time, as would be expected once farmers have gained experience.

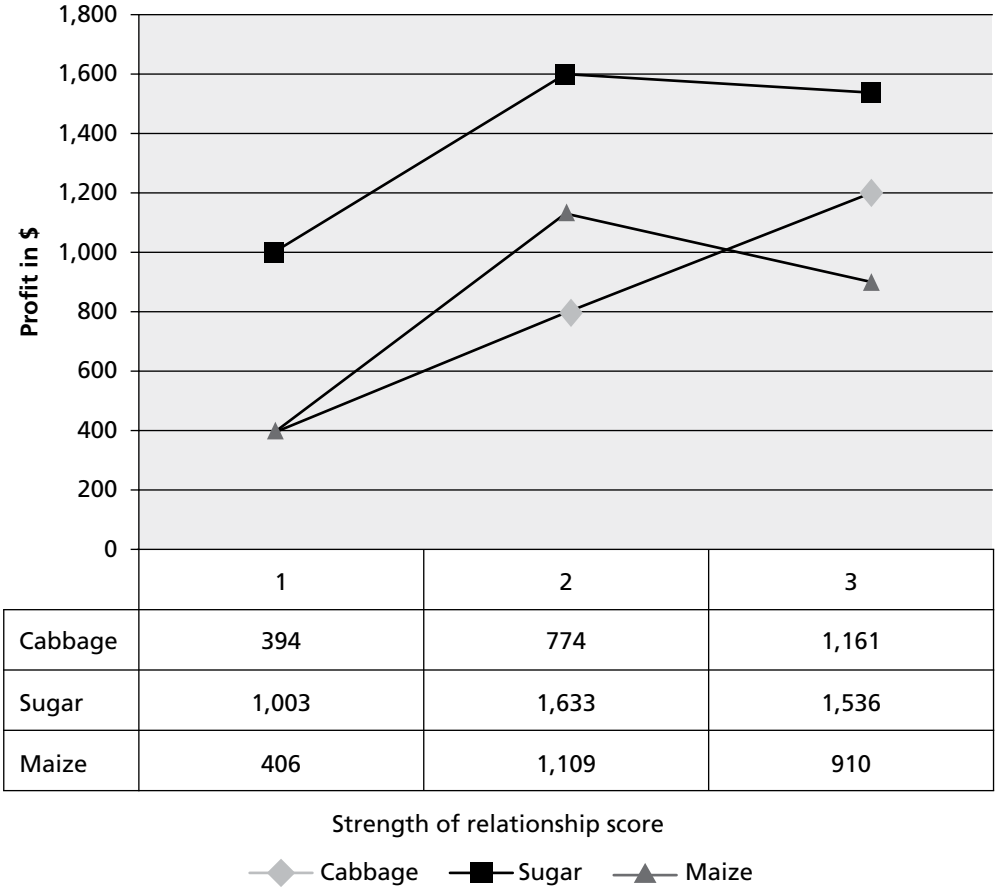
Mean Profit on Contract Farming Crops (D2)

How does the strength of the relationship influence profit? In all areas, there is a very significant difference between the lowest score (a weak relationship) and the next score. In the case of cabbage, this trajectory is maintained; however, in sugarcane and maize, it is not, indicating that once a certain level of relationship is achieved, it is adequate to maintain profits. The key finding is that in the area where verbal agreements predominate and where flexibility of contracts is highest (i.e., in the cabbage area), the strength of relationships has an important influence on profits (Figure 3).

Overall Satisfaction with the Outcome of Contract Farming (D5)

Overall, strong relationships appear to be critical in terms of generating satisfaction with contract farming, as shown in Table 16.

Figure 3 Mean Profit by Strength of Relationship Score



	1	2	3
Cabbage	394	774	1,161
Sugar	1,003	1,633	1,536
Maize	406	1,109	910

Source: Survey results.

Table 16 Perception on Satisfaction with Contract Farming

	Score			
Variable	**1**	**2**	**3**	**Total**
% of respondents who feel they have "really benefited" from contract farming and would recommend it to others	38	52	66	55

Source: Survey results.

Conclusions and Policy Implications

Various contract farming modalities were observed in three locations. Differences arise due to the nature of the crops, the purpose for which they are grown, the characteristics of product markets, the resource endowments of producers, and the conditions in specific locations. Despite the differences in contract arrangements, the results of the study revealed that, overall, contract farmers have benefited from this kind of production arrangement. About 80% of the respondents confirmed that they are financially better-off after engagement in contract farming. These results strongly suggest that there is no single contract farming model that can work best

in all situations, and that contract farming models are crafted to address certain production and marketing limitations that prevent the efficient functioning of industries and markets.

Contract Farming is a Choice

Contract farming is an institutional arrangement chosen by farmers and traders under specific constraints. In the case of cabbage, it serves to reduce farmers' and buyers' costs of seeking market information. Otherwise, both parties will bear the high costs of seeking market information. In the case of maize, market assurance and access to credit in the form of seeds and other production inputs were the greatest incentives to engage in a contract farming agreement. In the case of sugarcane, the requirement for timely processing and limited daily milling capacity are the determinant factors that would be costly without a contract arrangement.

Deciding to take or agree to a particular form of contract farming by smallholders and buyers chiefly depends on market specification contracts, resource-providing contracts, and production management contracts (Bijman 2008). In applying what Bijman discusses, cabbage farmers tend to agree mostly to market specification contracts, which usually specify quality, price, and timing with minimal or non-provision of inputs. Producers are in charge of most of the decisions made in production. As a result, farmers bear most of the risk. However, this kind of contract brings good benefits for both contracting parties by allowing market information flows between them. The maize case is very similar to the cabbage case except that it combines a small part of the resource-providing contracts.

In contrast, production management contracts seem to suit the sugarcane case well. Buyers provide inputs and extension services at various stages of production to producers, and the contract gives a certain degree of decision-making power to each party at different stages. Farmers reduce the risk of coordination because inputs, credit, and extension services are provided. The buyer makes decisions over production, harvest, and profits from lower selling prices, and reliable supplies of required quality and quantity at the right time.

Variations in Contract Farming and their Implications

As noted earlier, the research results revealed variations in contract farming arrangements in the three cases. These variations resulted in varying implications with reference to agreement types, degree of flexibility, extent of material support, and strength of relationships. The following conclusions were derived:

Type of Agreement

- Having a written, signed contract does not provide any financial advantage for contract farmers, although it is associated with higher levels of access to market information, training, and advice on production groups, as well as to higher levels of overall satisfaction with contract farming outcomes.

Degree of Flexibility

- In all cases, growers of a crop who are in more flexible relations are more likely to make a higher profit than those who are in inflexible relations.

Extent of Material Support

- In areas with more flexible relationships (mostly cabbage and maize), increased support from buyers in terms of inputs correlates strongly with an increase in mean profits.

- In areas with more inflexible relationships (mostly sugar), an increasing number of inputs is associated with decreasing profits.

Strength of Relationships

- Contract farmers in stronger relationships are more likely to receive market advice, training, and advice on production groups. Training and advice on production groups, however, will decline after a certain strength in relationship is reached.
- In areas with the greatest flexibility (maize), the stronger the relationship with the buyers, the greater the profits.

Policy Implications and Concerns

The overall results of contract farming returns—financial and nonfinancial—clearly imply that the Government of the Lao PDR and its development partners should continue to support contract farming, especially for smallholders in remote areas. The government can promote contract farming as a vehicle for rural development and encourage farmers to enter into cross-border cash cropping.

As the study was conducted in three border areas to promote cross-border contract farming, it is strongly suggested that the government focuses its efforts on the following policies:

- **Stabilization of Border-Trade Policy**

It is clear that current border-trade policies encourage cross-border contract farming. As far as possible, the government is advised to create a stable trade environment by keeping existing viable policies in force for an extended period. Where changes in policies are imminent, it is crucial that both buyers and farmers are well informed in advance. Public and private dialogues are encouraged to allow feedback from the private sector to be reflected in public policy making.

In the long run, it is suggested that the Government of the Lao PDR integrate the existing bilateral investment and trade frameworks and formulate a unified national policy on cross-border contract farming. The process could start with negotiations with neighboring countries to integrate with ACMECS, the Northern Lao Border Trade Policy, and the PRC's Opium Substitution Program. During this process, making reference to multilateral trade and investment initiatives, such as the ASEAN free trade agreement and the ongoing World Trade Organization negotiation, may prove a viable step toward the goal.

- **Protection of Farmers' and Investors' Rights**

Contract farming is an institutional choice made under constraints. The "invisible hand" of the market plays its own role. Government should not attempt to impose fixed models on this dynamic and evolving arrangement but should ensure that farmers and investors can enter and exit contract farming freely as far as the contractual agreement allows.

The Government of the Lao PDR should promote policies that will both (i) protect contract farmers from exploitation, and (ii) promote the growth of contract farming in a manner that will be beneficial to emerging small-scale farmers. It is especially important to enhance competition among buyers, which generates better prices for small farmers and increases their cropping choices.

- **Enhancement of Services and Infrastructure**

The government, both at the central and provincial levels, should play a role of encouraging other actors (buyers, microfinance providers, banks, etc.) to make credit available to farmers, particularly those without a proven track record of buyer's support.

As far as possible, investment in the construction of feeder roads should be prioritized in areas where contract farming is being developed. It is also important to maintain the rural road network in contract farming areas. Wholesale market facilities are useful and necessary in areas where mature and open markets exist.

Other Key Concerns

The government should not attempt to impose fixed models on this dynamic situation, but rather work on policies that will both (i) protect contract farmers from any exploitation and (ii) promote the growth of contract farming in a manner that will be beneficial to emerging small-scale farmers. To achieve this, the provincial government should encourage farmers to retain their diverse livelihood activities. Organic farming and the cultivation of crops such as coffee, vegetables, or fruits can be complementary to the growing of contract farming crops. Local authorities should work with farmers in order to avoid financial losses from simply growing contract farming crops.

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Earnings and Quality of Female Labor in the Border Areas of Viet Nam and the Implications for GMS Cooperation

*Nguyen Manh Hung, Tuan Quang Bui, and Nguyen Thi Hong Nhung**

Abstract

Border-gate economic zones (BEZs) are symbols of the increased cross-border exchange and the development initiative of the border areas in the Greater Mekong Subregion (GMS). Over the past decade, BEZs have been able to attract a great number of women workers seeking for new job opportunities. Using survey data collected at the BEZs of Mong Cai, Cau Treo, and Moc Bai in Viet Nam and from the Vietnam Household Living Standard Survey (VHLSS) to examine the factors that influence earnings in the BEZs and in the border provinces that host the BEZs and those where no BEZs are present, the research finds that the BEZs and cross-border integration increase the earnings of female labor. However, there seems to be a missing link between the establishment of the BEZs and cross-border integration and the improvement of female labor quality. Poor labor quality, and the predominance of the exploitative factors exaggerated by the unsustainable structure of the border-gate economy, are likely to make BEZs vulnerable areas of the GMS labor market where women's rights are easily violated and female workers have little awareness and self-estimation of their working status.

Introduction

Border-gate economic zones (BEZs)—a kind of special economic zone in the border-gate areas—are the symbols of the increased cross-border exchange and the development initiative of the border areas of the Greater Mekong Subregion (GMS). Over the past decade, the BEZs in the GMS quickly attracted a great number of women laborers seeking new job opportunities.

There is an abundance of literature on special economic zones (SEZs) and other economic zones, such as export processing zones (EPZs) and industrial zones, in countries such as Bangladesh, the People's Republic of China (PRC), India, Malaysia, the Philippines, Sri Lanka,

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Thailand, and in Africa and Latin America. Assessments and observations on the role and impact of the SEZs are varied, ranging from positive to negative in almost all aspects, including economic growth, trade, investment, labor, productivity, environment, and social impacts (Aggarwal 2007, ILO 1998 and 2003, Heron 2004).

With only a few exceptions, the existing literature tends to concur on the positive employment-generation effect of the SEZs (ILO 1998). It is theoretically assumed that SEZs can contribute positively to human capital formation (Aggarwal 2007, Kusago and Tzannatos 1998, Johansson 1994). At the individual level, it is believed that if people have jobs and more income, they will invest more in education and training. At the firm level, workers can be provided with training and learn on the job. In addition, skill formation for the unskilled workers occurs through assimilation of industrial discipline. The presence of the SEZs is expected to lead to the upgrading of facilities to raise human capital, such as schools and hospitals that cater to the needs of the zones.

In contrast, a number of researches have proved that additional job opportunities in the SEZs are not necessarily associated with increased income, human capital, and labor skills. Empirical studies indicate that in reality, the impact of the SEZs on labor wages is ambiguous. Wage gaps between SEZs and non-SEZs vary across zones in the same country and across sectors in the same zone, and these depend on specific countries (Kusago and Tzannatos 1998; Aggarwal 2007). There is also a large body of literature that criticizes the working conditions of labor in SEZs—referring to the violation of workers' rights, compulsory overtime, job insecurity, lack of safety, use of pressure tactics to meet deadlines, and sexual harassment of female workers (ILO 1998 and 2003). The reasons for these are many. For instance, the SEZs may be target-oriented workplaces where facilities for raising human capital, such as schools, training centers, hospitals, and clinics, are ignored. Even where those facilities are adequately present, it is observed that workers may not want or are not able to participate in training programs to improve their skills. In many cases, the presence of SEZs only creates more opportunities for low-paying jobs that do not contribute to raising labor income. Moreover, labor laws may not be extended to the zone firms; and where these laws are applicable, they are not strictly enforced (Aggarwal 2007). Thus, the increase of earnings and improvement of labor skills in the SEZs depend more on other characteristics of the local labor market and local conditions than on incomes and job opportunities.

Looking at the local context, the above critical line of argument may theoretically presuppose that the quality of female labor in the BEZs of Cambodia, the Lao People's Democratic Republic (Lao PDR), Viet Nam, and Yunnan province of the PRC (CLVY) is low. This is caused by a number of factors pertinent to the BEZs, such as being located in the poor, remote, and mountainous border areas. For example, women have limited access to education and training because of extreme poverty, poor infrastructure, poor educational and health care facilities, and the prevailing social and cultural customs of indigenous communities that are biased against women. Migration also affects female labor quality in the sense that most of the female migrants come from less developed places, where they already constituted a portion of the poor and unskilled labor group. Because of their unsettled life and temporary employment, migrants pay little attention to the benefits of education and health care. In addition, because of the migrants' temporary labor status, employers and local authorities care less about the issue of labor quality.

While existing literature can enrich understanding of the female labor situation in the SEZs within a broad international context, it does not help explain the specific situation of female labor in the BEZs of the GMS because BEZs have different characteristics to the SEZs.

First, the BEZs are not strictly target-oriented zones with specific purposes, such as experimenting with a new policy (e.g., open-door policies, a case of PRC SEZs in the late 1970s and early 1980s) or exporting (e.g., EPZs in other developing countries), which may subsequently sacrifice working conditions and human development opportunities as some studies have indicated.

Second, the BEZs do not always have an advantageous location (e.g., along the coastal line or close to big cities). Instead, the BEZs are often situated within a poor and less developed border region, where traditional agricultural activities are predominant. They serve not only as the source of economic growth but also as the development hub of the surrounding areas by providing crucial facilities, such as schools, training centers, hospitals, and clinics, to raise human capital.

Third, the special status, in terms of free trade and investment, accorded to the BEZs is intended to serve the aim of development and poverty reduction in the border areas. The establishment of the BEZs should bring about the integration of the border economy, not only to create jobs and generate incomes, but also to help improve labor skills in the less-developed border areas to shift labor away from traditional agriculture into services and industries, and to encourage women to work outside the home.

Because BEZs represent the level of cross-border integration, to a larger extent, the impact of cross-border integration on earnings and quality of female labor in the border areas also needs to be examined with evidence. In this regard, this research aims to answer two questions: How do the BEZs and cross-border integration affect the earnings and quality of female labor in the border economy? What lessons can Viet Nam offer to GMS cooperation regarding the effects of BEZs and cross-border integration on earnings and quality of female labor in the border areas?

The second section of this paper will present the overview of female labor market in Viet Nam and in the BEZs of Viet Nam. It highlights the role of the BEZs in promoting subregional integration of Viet Nam's remote border provinces. The third section will present the overview of the study sites. The fourth section will discuss the Mincerian method to examine the earnings of female labor and the factors that influence earnings. This is followed by the presentation of the research findings. The last section will discuss the policy implications for Viet Nam and GMS cooperation.

Financial Services in Cross-Border Trade of Viet Nam

Viet Nam's Labor Market for Women

Women account for 48.6% of the total labor force in Viet Nam. According to the Mid-Term Review Report of the implementation of the Five-Year (2006–2010) Socio-Economic Development Plan, the labor force participation rate of women in 2007 was 65.4% compared with 74% of men. The gender development index was 0.732, ranking 91st out of 157 listed countries. However, this is a fall compared with 2003 when Viet Nam ranked 83rd out of 177 countries.

At first glance, the quality of the female labor force in Viet Nam can be assessed in terms of employment distribution. Around 70%–80% of women work in the informal sector of the economy, 60% are in the agriculture sector, and 20% are in the non-agricultural sectors, which are affiliated mostly with micro production and service units (Linh 2008). In the formal sector, most female employees are working in the labor-intensive enterprises, such as production of food and beverages, wearing apparel, and luggage; tanning and dyeing of fur; trade; and

construction. Only a small proportion of women work in the high value-added and high-skill enterprises in such fields as science and technologies and education (Table 1). In 2007, the earnings of a female worker was only 74.5% of a male worker in the same job, 81.5% of a male's earnings for those who possess middle-ranged skills, 90.1% of a male's earnings for those with vocational trainings, and 86% of a male's earnings for those who graduated from a university (GSO 2007).

The reasons of the low quality of female labor in Viet Nam are many. They include

(i) limited access to education and training;
(ii) gender discrimination in families, communities, and workplaces that creates barriers for women to increase their education and skills to have better jobs and to work in better conditions;
(iii) poor implementation or absence of regulations and laws that protect the rights and opportunities of female labor; and
(iv) conformance of women to their situation, regions, and areas (urban and rural).

The *Human Development Report 2007/2008* shows that the literacy rate of women aged 15 and above was 86.9% in 2005, or 0.93 of the male rate. Only 13.0% of women enter tertiary education, compared with 18.4% of men. In the labor market, the ratio of trained female and male workers is approximately one-third, and the hourly wage of female workers is just 80% that of male on average (Linh 2008). Within the social and domestic environment, the family survey in 2006 showed that 3.4% of husbands fight with their wives, 15.1% of husbands abuse their wives, and 7.2% of husbands coerce their wives. Family violence is caused by

Table 1 Percentage of Female Employees in Enterprises (as of December 2008)

Enterprises by Sectors	Percentage (Total = 100%)
Agriculture and forestry	3.17
Fishery	0.17
Mining and quarrying	1.09
Manufacturing	66.12
Electricity, gas, and water supply	0.75
Construction	4.84
Trade, repair of motor vehicles and household goods	10.78
Hotel and restaurant	2.43
Transport, storage, and communications	2.95
Financial intermediation	2.91
Science and technology activities	0.02
Activities related to real estate and consultancy	3.12
Education and training	0.31
Health and social work	0.24
Cultural and sport activities	0.35
Personal and public services	0.74
Private households with employed persons	0.00

Source: Authors' calculation based on the data of the General Statistics Office. 2010. *Statistical Yearbook 2009*. Ha Noi: Statistical Publishing House.

drunkenness, differences in business opinion, economic difficulties, conflict in bringing up children, addiction, and gambling. There is discrimination between sons and daughters and the work of husband and wife within the family. Girls from the minority ethnic groups have extremely low education attainment due to economic barriers, the need to work, and parents' and girls' perceptions of the value of education (Ministry of Planning and Investment 2009).

Over the past decade, the treatment and quality of female labor have been improved in many respects. This is due to the promulgation of the Labor Codes, the Law on Gender Equality, the National Plan of Action for the Advancement of Women 2006–2010, and other policies on gender and family, together with efforts to achieve the Millennium Development Goals to promote gender equality and womens' empowerment. For example, the Labor Code and the Law on Gender Equality are applied to ensure gender and wage equality in work. Laws also guarantee gender equality in access to production resources, credit, employment, property, and inheritance. Nonetheless, the speed of women's advancement is still slow. In reality, laws are lacking in sub-law guidance, some policies to provide priority to women appear unfeasible, and laws and policies are poorly implemented, especially in remote and backward areas.

Border-gate Economic Zones in Viet Nam

The development of border-gate economy is vital for the socioeconomic development of the border areas that lag behind other regions. Such development is tied closely to the dynamics of cross-border economic transactions between Viet Nam and other countries in the GMS (i.e., Cambodia, Yunnan province and Guangxi Zhuang Autonomous Region of the PRC, and Lao PDR). For this reason, Viet Nam has, over the past decade, established 26 BEZs in the borderlines with Cambodia, the PRC, and Lao PDR, and plans to establish 4 more by 2020 (Table 2). The BEZ, as defined in Decree 29/2008/ND-CP in 2008 by the Government of Viet Nam, is an economic zone located in the land border of the region, where there is an international or main checkpoint or more, and encompassing not only the border gate(s) but also the contiguous administrative areas, which are spatially inseparable. The geographic area of each BEZ is specifically defined in its establishment decision by the Prime Minister or the government. The BEZs are granted special administrative and regulatory status suited to the local conditions to ensure their rapid socioeconomic development, which has strong spillover effects in the surrounding areas.

Since the establishment of the first BEZ in 1996, the BEZs have made a significant contribution to the socioeconomic development in the border areas of Viet Nam as well as to the economic relations between Viet Nam and its neighboring countries. In general, the border economy is most dynamic and is growing fastest in the north, followed by the south and the center. The BEZs in the northern frontier, such as Lao Cai, Mong Cai, and Lang Son, serve as bridges for the economic exchanges between Viet Nam and the PRC. Most cross-border economic activities in the BEZs along the border with Lao PDR concentrate in Lao Bao (Quang Tri province), Cau Treo (Ha Tinh province), and Bo Y (Kontum province), which are strategically located along major roads. In the southern provinces, cross-border economic activities are most active in the BEZs of Moc Bai (Tay Ninh province) and An Giang (An Giang province).[1] BEZs have become the vehicles for subregional and cross-border integration of the border provinces of Viet Nam.

[1] As of 2006, eight BEZs in the northern provinces contributed 85.4% of the government budget, 80% of tariff revenue, and 59.8% ($2.1 billion) of cross-border trade turnover of all BEZs. These BEZs also attracted 86.8% (D4.9 billion

Table 2 List of 26 Border-Gate Economic Zones of Viet Nam

No.	BEZs	Province	Border with	Established by Decision
1	Dong Dang–Lang Son*	Lang Son	PRC	138/2008/QD-TTg and 1055/2010/QD-TTg
2	Chi Ma	Lang Son	PRC	185/2001/QD-TTg
3	Lao Cai*	Lao Cai	PRC	44/2008/QD-TTg
4	Mong Cai*	Quang Ninh	PRC	675/1996/QD-TTg
5	North Phong Sinh	Quang Ninh	PRC	115/2002/QD-TTg
6	Hoanh Mo–Dong Van	Quang Ninh	PRC	115/2002/QD-TTg
7	Thanh Thuy	Ha Giang	PRC	136/2009/QD-TTg
8	Ma Lu Thang	Lai Chau	PRC	187/2001/QD-TTg
9	Ta Lung	Cao Bang	PRC	171/1998/QD-TTg
10	Tra Linh	Cao Bang	PRC	171/1998/QD-TTg
11	Soc Giang	Cao Bang	PRC	171/1998/QD-TTg
12	Cau Treo*	Ha Tinh	Lao PDR	177/1998/QD-TTg
13	Cha Lo	Quang Binh	Lao PDR	137/2002/QD-TTg
14	Nam Giang	Quang Nam	Lao PDR	211/2006/QD-TTg
15	Bo Y*	KonTum	Lao PDR	217/2005/QD-TTg
16	Lao Bao*	Quang Tri	Lao PDR	219/1998/QD-TTg
17	A Dot	Hue	Lao PDR	64/2008/QD-TTg
18	Na Meo	Thanh Hoa	Lao PDR	138/2008/QD-TTg
19	Road 19	Gia Lai	Cambodia	139/2001/QD-TTg
20	Bonue	Binh Phuoc	Cambodia	3/2005/QD-TTg
21	Moc Bai*	Tay Ninh	Cambodia	210/1998/QD-TTg
22	Xa Mat	Tay Ninh	Cambodia	186/2003/QD-TTg
23	Dong Thap*	Dong Thap	Cambodia	166/2008/QD-TTg
24	An Giang (Tinh Bien, Vinh Xuong, and Khanh Binh BEZs)*	An Giang	Cambodia	65/2007/QD-TTg
25	Ha Tien	Kien Giang	Cambodia	32/2000/QD-TTg
26	Long An	Long An	Cambodia	7/2010/QD-TTg

BEZ = border-gate economic zone, PRC = People's Republic of China, Lao PDR = Lao People's Democratic Republic, No. = number.

* Priority BEZ.

Sources: Decision 52/2008/QD-TTg, and Decision 64/2008/QD-TTg by the Government of Viet Nam.

or $308 million) of total investment into all BEZs. To a lesser degree, economic activities also grow fast along the border with Lao PDR in the presence of BEZs. In 2006, the BEZs in the central provinces of Viet Nam contributed 8.6% (D466 billion or $29.1 million) of the total contribution by all BEZs to the government budget. Cross-border trade turnover reached $204 million or 5.8% of total cross-border trade volume of all BEZs and the export turnover was $70 million. The BEZs in the border with Cambodia contributed 34.4% ($1.2 billion) of the total cross-border trade turnover, 6% of the budget (D326 billion or $20.4 million), and 10.2% tariff revenue of all BEZs in 2006 (Hue 2009).

The dynamic economic activities, especially those linked to cross-border trade, of the BEZs in Viet Nam and other GMS countries have made them attractive places for employment. Women now have more job opportunities in the booming local service sector and newly established factories of the industrial zones. Yet, the BEZs are also likely to host a large number of unskilled female workers due to the socioeconomic conditions of the zones' location.

First, the BEZs are often located within the less developed surrounding regions where poor infrastructure facilities, such as schools and hospitals, have adversely affected the quality of the labor supply.

Second, poverty, and in many circumstances the customs of the indigenous communities in the border areas, leads to a high school dropout rate among female children who join the labor force early, and hinder adequate participation of female adults in skills training.

Third, the BEZs require diverse economic activities, especially low-paying simple services, that suit and attract unskilled female workers. A large number of female workers are working in the informal sector, such as money changers in the black market, transporters of smuggled goods across the border, or in karaoke bars and massage parlors, where they are even more easily exploited and sexually abused. If the informal sectors of the border-gate economy are likely to provide more job opportunities for unskilled women, they destroy the incentive to improve the quality of female labor; and, more importantly, they are likely to become the source of social disruption and violation of women's rights in the border-gate areas.

Overview of Study Sites

This research conducted a survey in three major BEZs of Viet Nam: Mong Cai, Cau Treo, and Moc Bai. These are among the nine major BEZs where international border gates are located, and which are accorded priority by the Government of Viet Nam in terms of infrastructure development, managerial mechanisms, and administrative status. These BEZs represent not only diverse geographic locations (in the north and bordering the PRC, in the center and bordering Lao PDR, and in the south and bordering Cambodia), but they also encompass a variety of factors that influence the quality of female labor force, such as the level of economic development, variation of economic activities, dynamics of cross-border transaction, local social and communal environment, and migration pattern.

The sample structure is provided in Table 3.

Mong Cai

Mong Cai BEZ is located in the border between Quang Ninh province of Viet Nam and Guangxi province of the PRC. It was established by the Prime Minister in 1996 as the first BEZ of Viet Nam under decision 675/1996/QD-TTg. The BEZ include Mong Cai town and several villages in the northeast of Quang Ninh province (i.e., Hai Xuan, Hai Hoa, Binh Ngoc, Tra Co, Ninh Duong, Van Ninh, Hai Yen, Hai Dong, Hai Tien, Vinh Trung, and Vinh Thuc), covering an area of approximately 51,900 hectares with a population of around 106,000 in 2010.

Mong Cai is an important border gate in the northern part of Viet Nam owing to its strategic location in two economic corridors and one economic belt (Lao Cai–Ha Noi–Quang Ninh–Kunming and Ha Noi–Hai Phong–Quang Ninh–Lang Son–Nanning economic corridors, and the Tokin Economic Belt). The BEZ is important in promoting trade between Viet Nam and the southern provinces of the PRC. In particular, it borders DongXinh town, an open-door economic zone in Guangxi Zhuang Autonomous Region, which was built to become a large and

Table 3 Summary Distribution of the Sample

Category	Female	Male	Total
Labor that participates in the economic activities of the BEZ	121	120	241
Mong Cai	41	40	81
Cau Treo	40	40	80
Moc Bai	40	40	80
Labor that does not participate in the economic activities of the BEZ	123	116	239
Mong Cai	41	39	80
Cau Treo	41	39	80
Moc Bai	41	38	79
Total	**244**	**236**	**480**

BEZ = border-gate economic zone.

Source: Survey data.

modern city and a gateway for the PRC to enter the Southeast Asian market. Mong Cai also has a convenient network of land and sea routes. Along its coastline, small ports (including tourist and commercial ports) are being developed in Dan Tien, Mui Ngoc, and Tho Xuan communes. In particular, Van Gia port is a destination for import–export goods not only for Quang Ninh province and DongXinh town but also for other inner provinces of Viet Nam and economic centers of the PRC.

Mong Cai has changed dramatically since the opening of the border gate. It has become one of the largest trade centers of Quang Ninh province. Mong Cai is the first city in Viet Nam to apply preferential policies for the BEZ according to Decision 675/1996/QD-g, and Decision 53/2001/QD-TTg by the Prime Minister, and Resolution 54/2005/NQ-TW of the Politburo. Mong Cai also benefits from two national strategic development programs,[2] Decision 120 of the Prime Minister, and other favorable policies of Quang Ninh province.

Between 2000 and 2009, the average annual economic growth rate of Mong Cai was over 16%—twice the national average. The per capita income of the city increased more than 2.5 times during the period 2000–2008, from $565 in 2000 to $1,420 in 2008. The economic structure has shifted rapidly toward services. In 2008, tourism contributed to 65% of the city's gross domestic product with more than 2 million tourists, while its trade volume reached $4 billion compared to $0.136 billion in 2000. Mong Cai operates as a large commercial center, providing goods, particularly PRC goods to all other provinces. In Mong Cai, the PRC Rong Ji Trade Center and a trade center of the Dong Sheng Group are adjacent to the border gate. In addition, there are the Togi Trade Centre and Mong Cai City's central market. Some 6,000 household shops operate in these commercial centers, of which around 1,000 are owned by foreigners, mostly from the PRC.

Besides the service sector, the industry in Mong Cai has gained momentum. Mong Cai has established four industrial clusters, one of which (Hai Yen) is one of the five largest industrial

[2] These are Program 134—Program for Providing Assistance of Production Land, Residential Land, Housing and Clean Water to Poverty Stricken Ethnic Minority Communities with Special Difficulty, and Program 135—Socio-economic Development Program for Extremely Difficult Communes in Ethnic Minority and Mountainous Areas.

clusters in Quang Ninh province. In 2010, Mong Cai had 23 foreign direct investment projects with a registered capital of $235 million. Not only Mong Cai as a whole, but also villages that belong to the Mong Cai BEZ have benefited from its opening. Hai Hoa, Hai Xuan, Ninh Duong, and Van Ninh used to be considered backward areas. Now, with the presence of the BEZ, local habitants of various ethnicities, such as Kinh, Muong, Tay, Nung, San Diu, Hoa, and Dao, have made a significant improvement in their living standards. In each village, a number of cultural houses serve as venues for community activities such as meetings and other events. All the children go to school, and medical services have been delivered to all people in villages who need medical attention. The number of poor households had been reduced, and in some villages, such as Ninh Duong and Binh Ngoc, they account for less than 5% of households.

Mong Cai BEZ has a higher level of development than its surrounding areas and other BEZs around the country. The economic activities in Mong Cai are diverse, ranging from trade, tourism, manufacturing, and seaport services to entertainment and handicraft industries. The BEZ is considered the economic nucleus of the belt of northern coastal provinces and a growth locomotive and labor hub of the northeastern region. Over the past few years, the central government and the provincial authority have spent a large amount of money on infrastructure development in this area, including health care facilities, schools, canals, lakes, dams, ports, water supply, and waste and water treatment plants.

Cau Treo

Cau Treo BEZ is located in the border area between Huong Son District, Ha Tinh province of Viet Nam and Kham Cot District, Bolykhamxay province of Lao PDR, which is just 56 kilometers (km) away. It was established in 1998 under Decision 177/1998/QD-TTg of the Prime Minister. The BEZ covers an area of around 57,000 hectares, including the villages of Son Kim 1, Son Kim 2, and Tay Son town with more than 21,000 habitants. In October 2007, the Prime Minister issued Decision 162/2007/QD-TTg to accord Cau Treo the status of international BEZ replacing Decision 177/1998/QD-TTg, which only provided the BEZ with experimental status.

Cau Treo has a strategic role in boosting economic exchange between neighboring countries due to its location in the national road 8A, which offers the shortest route to the Eastern Sea, particularly the deep-sea port of Vung Ang–Son Duong, 140 km away, for central Lao PDR and northeast Thailand. The distance between Cau Treo and Vientiane, the capital city of Lao PDR, is around 300 km, making the BEZ a convenient transport node for Viet Nam, Lao PDR, and northeastern Thailand. Cau Treo has an ecosystem of natural forests, which cover almost 80% of the total area of the BEZ. Natural forests, mineral water, and tin are the main resources of Cau Treo BEZ. Therefore, ecotourism, mining, and trade are considered the core economic activities of the BEZ.

Cau Treo BEZ has enjoyed preferential policies. On 9 February 2009, the Prime Minister issued Decision 155/2009/QD-TTg, adopting the development master plan of Cau Treo International BEZ by 2025 with the aim of turning it into

(i) a multifunctional economic zone, combining the development of industrial and service facilities including for trade, tourism, agriculture, forestry, and urban residential areas;
(ii) an important international commercial and transport gate in the East–West Economic Corridor; and
(iii) a cultural, service, and tourist center of Ha Tinh province.

However, the economic activities in Cau Treo BEZ are still limited because of its low level of economic development. There is also a low level of economic development on the Lao PDR side. The total import–export turnover through the gate reached $86.2 million in 2007, $56.4 million in 2008, and $96.9 million in 2009. Goods that are imported and exported through Cau Treo gate are petroleum, oil and gas, construction materials, electronic goods, electrical appliances, rice, beverage, wood, and fertilizer. By 2010, only nine investment projects for the BEZ that have been granted license with total registered capital of D2 trillion ($105 million), and more than 120 local companies have been established, together with a few hundred household business. In September 2009, a project for assembling electric vehicles with a capital of D385 billion ($20.3 million) was started. Nonetheless, several important projects have been under way in Cau Treo, for instance, Dai Kim Industrial Zone, Da Mong Multifunctional Economic Zone, and the expansion of connectivity between Cau Treo gate and Nam Phao gate (also in Ha Tinh province).

Compared to the other two BEZs, Cau Treo is relatively less developed because of its relatively disadvantageous geographic location, the low level of economic development on the Lao PDR side of the border, and widespread poverty in its surrounding areas. The economic activities in Cau Treo have been so far limited to trade and cross-border transport of goods and people. Whereas Mong Cai and Moc Bai can attract a large number of workers from neighboring provinces, most of the labor force in Cau Treo is from the contiguous communes.

Moc Bai

Moc Bai BEZ belongs to Tay Ninh province, 70 km from Ho Chi Minh City. The BEZ is situated on the border with Svay Rieng province of Cambodia 170 km from Phnom Penh. The BEZ was established in 1998 under Decision 210/1998/QD-TTg of the Prime Minister. It is considered a propulsive node for the development of the border areas of Viet Nam and Cambodia due to its strategic location in the Trans-Asia Highway, which connects Cambodia, Lao PDR, Myanmar, Thailand, and Viet Nam. Moc Bai BEZ has an area of around 21,200 ha, including 7 villages: Long Thuan, Tien Thuan, Loi Thuan, An Thanh of Ben Cau District, Phuoc Luu, Binh Thanh, and Phuoc Chi of Trang Bang District. In 2010, the total population of Moc Bai was around 66,500.

Decision 114/2004/QD-TTg by the Prime Minister granted Moc Bai BEZ preferential status. Accordingly, enterprises operating in the commercial center and industrial zones are exempted from import–export and value-added tax. Over the past years, the trading volume in Moc Bai has increased dramatically. However, in 2009, due to the impact of the economic slowdown nationwide, the total of export–import turnover of Moc Bai BEZ and through the border gate fell to $90 million from almost $120 million in 2008. The attractiveness of Moc Bai is in its chain of duty-free supermarkets, which are visited by nearly 10,000 people each day. The number of visitors to Moc Bai duty-free zone had more than doubled by 2009 from around 1.3 million people in 2006.

The number of people who crossed through the border gate in Moc Bai increased from around 0.4 million in 2004 to 2.2 million in 2009 (*Tay-Ninh Online Journal* 17 April 2010). The number of transport vehicles that passed through the gate also increased steadily. Goods exported from Viet Nam to Cambodia are mainly consumer goods, construction materials, and household appliances, which account for about 40%–50% of trading business in Cambodia. In 2010, Moc Bai BEZ had 34 investors with 47 projects with a total registered investment capital of D5.5 trillion ($275 million). Among these projects, 29 are in commerce and services, industrial infrastructure, and urban development; one is in ecotourism; and one is a golf project.

Although the economic activities in Moc Bai are still sparse, they are expected to grow in the coming years because the economies on both sides of the border are developing fast. Essential infrastructure and facilities, such as duty-free supermarkets, mini supermarkets, shopping malls, and restaurants, are already open, modern housing complexes are being built, new roads are constructed, and industrial projects have been allocated land plots. During this expansion and transition process, demand for labor to work in simple, low-paid positions is increasing. At the same time, many unskilled laborers employed previously as porters are now looking for opportunities to increase their earnings by becoming sellers.

Methods to Examine Earnings

Basic Mincerian Function

The basic earning model developed by Jacop Mincer (1974) can be regarded as a cornerstone of empirical labor economics. The model captures the influence of education (i.e., years of schooling) and on-the-job training (i.e., learning from experience) on earnings of labor. Moreover, Mincer (1974) developed the rationale for the standard quadratic form for the experience variable. The function could be expressed as

$$\ln Yi = \alpha + \beta_1 S_i + \beta_2 EXP_i + \beta 3\ EXP_i^2 + \varepsilon_i$$

where:

lnYi	: logarithm of hour wage of labor of individual i,
S_i	: number of years of schooling by individual i,
EXP_i	: years of experience of individual i, and
EXP_i^2	: square of year of experience of individual i.

In this function, the coefficient of years of schooling (β_1) can be interpreted as the average private rate of return to one additional year of schooling, regardless of the level of schooling.

Extended Mincerian Function

The Basic Mincerian Function can also be developed to incorporate and quantify the effect of any potential factor on labor productivity. This improved function could be expressed as

$$\ln Yi = \alpha + \beta_1 X_{i1} + \beta_2 X_{i2} + \beta_3 X_{i3} + ... + \beta_n X_{in} + \varepsilon_i$$

in which X_i are the potential determinants of labor productivity in the regression. X_i can be variables such as *Years of education, Potential experiences, Region, Area, Migrant, Ethnicity, Marital status, or Occupation.*

By assessing the statistic significance of those variables in the regression, it is possible to compare and point out which factors would play an important role in determining labor earnings. Based on the extended Mincerian Earning Function, we developed the econometric models to examine the factors that can have impact on the earnings of female labor, using primary survey data and data from the Vietnam Household Living Standard Survey (VHLSS) in 2008. Table 4 lists the variables used in the earning functions.

Table 4 Variables in Extended Mincerian Earning Functions

Variable	Explanations
Earning	Total earning of individual per month
L_Earning	Log form of Earning
BEZ	Dummy variable, for the survey data: equal to 0 for an individual who does not participate in the economic activities associated with the BEZ; and 1 for an individual who participates in the economic activities associated with the BEZ.
Integration	Dummy variable, for the VHLSS data: equal to 0 for an individual in provinces that do not host the BEZs and 1 for an individual in provinces that host the BEZs
Gender	Dummy variable, equal to 0 for male and 1 for female
Age	Age of individual
YoEdu	Number of years of schooling for an individual. YoEdu is converted from levels of education by: primary to 5, secondary to 9, high school to 12, vocational to 14, university to 16, masteral to 18, doctoral to 22.
EduExp	Education expenditure of individual
Exper	Years of experience is calculated from age and education as follows: Exper = age – years of schooling – age of starting school. In Viet Nam, since by law, school starts at the age of 6, Exper = age – year of schooling – 6
$Exper^2$	Square of Exper
Area	Dummy variable, equal to 0 for rural and 1 for urban
Skill	Dummy variable, equal to 0 for unskilled workers (who work in sectors or jobs that need only low, simple skills) and 1 for skilled workers (who work in sectors or jobs that require more sophisticated skills)

BEZ = border-gate economic zone, VHLSS = Vietnam Household Living Standard Survey.

Source: Authors.

Findings and Discussions

Examination of the BEZ Survey Data

Overview of Labor Market Conditions

The survey data shows that there is a clear difference in labor income, after taking inflation into account, before and after the establishment of the BEZs in all three sites. Except in Moc Bai, the average income of female labor has fallen behind that of male labor after the establishment of the BEZs (Table 5). Therefore, BEZs may increase labor income but to the disadvantage of women.

Those who participate in the economic activities associated with the BEZs tend to have higher income except for male labor in Moc Bai (Table 6). However, the difference between the mean income of male labor participants and non-participants in Moc Bai is not significant. One can still note that in Moc Bai, the development of the services sector, mostly trade, may favor female workers more than male. In other words, the BEZ economic activities associated with the services sector are advantageous to female labor.

Table 5 Monthly Earnings of Labor Before and After the Establishment of the Border-Gate Economic Zones (D '000)

	Mong Cai		Cau Treo		Moc Bai	
Item	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**
Before establishment of BEZs	1,314	1,513	2,205	2,468	1,439	1,572
After establishment of BEZs	4,540	4,360	5,542	3,995	2,007	2,282

BEZs = border-gate economic zone, D = dong.

Source: Survey data.

Table 6 Monthly Earnings of Labor That Participate and Do Not Participate in the Economic Activities Associated with the Border-Gate Economic Zones (D '000)

	Mong Cai		Cau Treo		Moc Bai	
Type of Participation	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**
Non-participant	3,300	2,841	3,026	2,030	2,039	2,235
Participant	6,035	5,958	7,854	6,166	1,975	2,330

D = dong.

Source: Survey data.

Data show that those engaged in BEZ economic activities, either in formal or informal jobs, cite the BEZ as their main source of income. More than 80% of those who earned their income from the BEZ said that the BEZ economic activities provided more than 50% of their total household income.

Around 75% of those involved in the economic activities of the BEZ said it was not difficult for women to find a job there. More important, there is an asymmetric information problem in the labor market since almost 20% of respondents said that they did not know the job opportunities in the BEZs.

Table 7 indicates that women who participate in BEZ economic activities tend to be engaged in higher-skilled jobs. In contrast, more than 50% of female labor who are not involved in BEZ economic activities are unskilled workers. This is consistent with the female workers' educational level, which is clearly lower for those who do not participate in the economic activities of the BEZs (Table 8). Thus, BEZs can help provide skilled jobs to the labor market.

Table 7 Skills of Female Labor Who Participate and Do Not Participate in the Economic Activities Associated with the Border-Gate Economic Zones (%)

	Female Labor by Level of Skill			Total
Type of Participation	**Highly Skilled**	**Skilled**	**Unskilled**	(% and number)
Participant	44.6	37.2	18.2	100 (121)
Non-participant	36.6	11.4	52.0	100 (123)

Note: The skill level is evaluated according to sectors and nature of jobs.

Source: Survey data.

Table 8 Educational Level of Female Labor (%)

Type of Participation	Primary School	Lower Secondary School	Upper Secondary School	Professional Training School	College and Higher	Total (% and number)
Participant	4.2	23.3	65.0	3.3	4.2	100 (120)
Non-participant	22.0	47.2	19.5	4.1	7.3	100 (123)

Note: Percentages may not total 100% because of rounding.
Source: Survey data.

Nonetheless, the quality of working conditions may be a big concern in the BEZs as almost 60% of respondents said they had no employment contract and 70% said they were not paid social insurance.

The analysis of the survey data in Mong Cai, Cau Treo, and Moc Bai shows that the establishment of the BEZs helped increase the job opportunities, earnings, and skills of female labor. However, much still needs to be done to improve the quality of working conditions and gender equality.

Basic Earning Function

The basic earning function was developed to quantify the impacts of educational attainment and work experience on an individual's earnings. It is expressed as

$$L\_Earning_i = \alpha + \beta_1 YoEdu_i + \beta_2 Exper_i + \beta_3 Exper_i^2 + \varepsilon_i$$

Table 9 presents the results of the regressed basic earning function. It shows that, except *Exper*^{2} in the regression for female labor, all coefficients are statistically significant at 1% and their signs are as expected. The positive signs on *YoEdu* and *Exper* coefficients reflect that as education and experience increase, the earning of an individual would be higher. The negative sign on *Exper*^{2}, the squared term, reflects the downward trend in the contribution of experience to earning. Compared by gender, one more year of schooling increases the earning of male labor by 13.85% and one more year of work experience increases it by 10.39%. However, for female labor, the figures are lower at 9.03% and 4.16%. It could be said that in the BEZ area, male labor benefits more from education achievement and work experience than female labor.

Extended Earning Function

In the extended earning function, we incorporate variables *BEZ, Area, and Skill* into the regressions as shown below:

$$L\_Earning_i = \alpha + \beta_1 YoEdu_i + \beta_2 Exper_i + \beta_3 Exper_i^2 + \beta_4 Aera_i + \beta_5 Skill_i + \beta_6 BEZ_i + \varepsilon_i$$

The inclusion of *Area*, *Skill*, and *BEZ* into *Extended Earning Function* makes variable *YoEdu* become insignificant (and the sign also becomes negative) (Table 10). However, it is quite noticeable that, compared to other variables, education does not have a big influence on earnings. The explanation might come from the fact that it does not require a high level of education to perform jobs associated with the BEZs.

Table 9 Estimation Results of Basic Earning Function

Variable	Overall	Male	Female
Constant	6.22[a] *0.000*	5.49[a] *0.000*	6.67[a] *0.000*
YoEdu	0.111[a] *0.000*	0.138[a] *0.000*	0.090[a] *0.000*
Exper	0.062[a] *0.000*	0.103[a] *0.000*	0.041[b] *0.026*
$Exper^2$	(0.001)[a] *0.002*	(0.002)[a] *0.001*	(0.001) *0.166*
Adjusted R-squared	0.16	0.23	0.10
Number of observations	400	194	205

( ) = negative.

[a] Statistically significant at 1%.
[b] Statistically significant at 5%.

Note: P-value in italics.

Source: Authors.

Table 10 Estimation Results of Extended Earning Function

Variable	Overall	Male	Female
Constant	6.557[a] *0.000*	6.319[a] *0.000*	6.859[a] *0.000*
YoEdu	0.005 *0.730*	0.008 *0.728*	(0.003)[a] *0.861*
Exper	0.082[a] *0.000*	0.092[a] *0.000*	0.066[a] *0.000*
$Exper^2$	(0.002)[a] *0.000*	(0.002)[a] *0.001*	(0.001)[a] *0.001*
Area	0.527[a] *0.000*	0.474[a] *0.000*	0.596[a] *0.000*
Skill	0.522[a] *0.000*	0.627[a] *0.000*	0.423[a] *0.000*
BEZ	0.263[a] *0.000*	0.337[a] *0.000*	0.222[b] *0.010*
Adjusted R-squared	0.44	0.23	0.42
Number of observations	400	194	205

( ) = negative, BEZS = border-gate economic zones.

[a] Statistically significant at 1%.
[b] Statistically significant at 5%.

Note: P-value in italics.

Source: Authors.

The BEZ is an important variable that affects earnings. For both male and female labor, other things being equal, participation in economic activities associated with the BEZ (*BEZ* variable) helps increase earnings by 26.3%. By gender, *BEZ* increases male labor's earnings by 33.7% compared to those not involved with the BEZ economic activities, and by 22.2% for female earnings. Skill is an important factor because it helps to increase earnings by 52.2% compared to unskilled labor. The importance of the skill variable is also underlined by the fact that most of the jobs associated with the BEZ require skills training rather than basic education.

Another important factor is the area of workers' residence. The earnings of female workers are 59.6% higher if they reside in urban areas. The figure for male workers is 47.4%. The fact that living in the urban areas seems advantageous to the workers is quite understandable because the road system in the BEZ region has not yet been developed enough to help people shorten their commute to their workplace.

Gender Inequality

To examine the income gap between male and female labor in the BEZ, we control for variable *BEZ* and incorporate variable *Gender* to see its importance in the following regression function:

$$L\_Earning_i = \alpha + \beta_1 YoEdu_i + \beta_2 Exper_i + \beta_3 Exper_i^2 + \beta_4 Aera_i + \beta_5 Skill_i + \beta_6 BEZ_i + \varepsilon_i$$

The result shows that for non-participants in the economic activities associated with the BEZ, *Gender* is not a significant variable in the regression (Table 11). It may imply that there is no crucial earning gap between male and female labor for those who do not participate in the BEZ economic activities. However, the regression for labor among those involved in BEZ economic activities shows that gender inequality exists. Other things being equal, the earnings of male workers are 19.45% higher on average than the earnings of female workers.

Examination of Vietnam Household Living Standard Survey Data

The VHLSS data show that the average earnings of female labor in the provinces that host BEZs was higher in 2002 and 2004 when the economic activities BEZs had just become active. However, after 2006, earnings began to fall below the earnings of workers in provinces without BEZs. The gap widened in 2008 due to the impact of the economic slowdown, which was more severe for more economically open provinces (Table 12). Cross-border integration thus may raise female labor income to some extent but this link is not certain.

Table 13 shows a clear difference in terms of labor market structure between the border provinces that host the BEZs and those that do not. Provinces with BEZs also have a higher share of female and male labor participating in the industry and service sectors. This may hypothetically suggest that higher-skilled labor concentrates in the provinces with BEZs. However, the structural transformation from agriculture to industry and services is unclear for female labor in these provinces. This process appears to have reversed under the impact of the economic slowdown in 2008, when the share of female workers in the agricultural sector increased.

The educational level of female labor is slightly higher for provinces with BEZs, and has been slowly improving. The share of female labor with secondary school education and below fell from 77% in 2002 to only 74% in 2008 for provinces hosting BEZs. However, this share dropped more quickly in provinces without BEZs—from 80% in 2002 to 75% in 2008. In this regard, cross-border integration may not stimulate a rapid improvement of education for female labor.

Table 11 Estimation Results of Extended Earning Function for Gender

Variable	Inside BEZ	Outside BEZ
Constant	7.006[a] *0.000*	6.777[a] *0.000*
YoEdu	(0.012) *0.541*	0.027 *0.167*
Exper	0.060[a] *0.000*	0.070[a] *0.007*
$Exper^2$	(0.001)[a] *0.017*	(0.002)[a] *0.004*
Area	0.613[a] *0.000*	0.364[a] *0.005*
Skill	0.750[a] *0.000*	0.293[b] *0.014*
BEZ	(0.195)[a] *0.009*	0.003 *0.970*
Adjusted R-squared	0.55	0.24
Number of observations	227	172

( ) = negative, BEZS = border-gate economic zones.

[a] Statistically significant at 1%.
[b] Statistically significant at 5%.

Note: P-value in italics.

Source: Authors.

Table 12 Earning Per Hour for Persons with Salary and/or Wage (D '000)

Year	2002			2004			2006			2008		
Area	**Female**	**Male**	**Both**	**Female**	**Male**	**Both**	**Female**	**Male**	**Both**	**Female**	**Male**	**Both**
Border provinces with BEZs	4.35	3.57	3.89	5.14	6.19	5.81	6.24	6.85	6.62	9.33	9.88	9.67
Border provinces without BEZs	2.63	3.03	2.86	4.73	5.27	5.08	7.10	6.32	6.61	11.45	10.35	10.80

BEZs = border-gate economic zones, Both = average for both male and female, D = dong.

Note: Figures are averages for provinces that host BEZs and provinces that do not host BEZs.

Sources: Calculated from the Vietnam Household Living Standard Survey: 2002, 2004, 2006, and 2008.

Table 13 Employment Composition (%)

Year	2002			2004			2006			2008		
Provinces with BEZs												
Sector	**Female**	**Male**	**Both**	**Female**	**Male**	**Both**	**Female**	**Male**	**Both**	**Female**	**Male**	**Both**
Agriculture	68.3	66.3	67.3	66.1	61.0	65.7	66.2	61.4	63.7	73.1	67.2	70.0
Industry	9.7	14.7	12.0	8.9	17.0	12.2	9.7	16.9	13.4	11.4	19.6	16.0
Service	22.0	19.1	20.6	25.0	22.4	22.1	24.1	21.7	22.9	15.4	13.2	14.0
Provinces without BEZs												
Agriculture	71.8	68.6	70.3	70.2	65.5	71.0	69.8	68.1	69.0	78.0	71.0	74.5
Industry	7.8	13.0	10.3	8.0	15.5	10.5	6.8	12.7	9.8	9.1	16.5	12.8
Service	20.3	18.3	19.4	21.8	19.1	18.5	23.5	19.1	21.2	13.0	12.0	12.7

BEZs = border-gate economic zones, Both = average for both male and female.

Note: Figures are averages for provinces that host BEZs and provinces that do not host BEZs.

Sources: Calculated from the Vietnam Household Living Standard Survey: 2002, 2004, 2006, and 2008.

Table 14 Educational Level of Female Labor in Provinces With and Without BEZs (%)

Education Level	2002	2004	2006	2008
Province with BEZs				
Primary school	44.60	33.05	39.36	35.29
Secondary school	32.43	34.88	35.03	38.50
High school	10.01	15.54	11.36	10.85
Vocational training school	11.27	12.36	9.74	10.00
College and higher	1.69	4.16	4.51	5.36
Provinces without BEZs				
Primary school	45.82	36.60	38.03	38.88
Secondary school	35.15	36.79	38.50	36.00
High school	10.31	15.77	9.86	10.79
Vocational training school	6.96	7.12	10.56	8.79
College and higher	1.76	3.72	3.05	5.73

BEZs = border-gate economic zones.

Note: Figures are averages for provinces that host BEZs and provinces that do not host BEZs.

Sources: Calculated from the Vietnam Household Living Standard Survey: 2002, 2004, 2006, and 2008.

Basic Earning Function

We developed the basic earning function to measure the impacts of educational attainment and work experience on earnings, as follows:

$$L\_Earning_i = \alpha + \beta_1 YoEdu_i + \beta_2 Exper_i + \beta_3 Exper_i^2 + \varepsilon_i$$

The empirical results show that years of education and experience have positive effects on earning and all coefficients are significant at 5% level for overall sample as well as male and female labor function (Table 15). This means that when the number of years of education

Table 15 Estimation Results of Basic Earning Function for VHLSS 2008 Data

Variable	Overall	Male	Female
Constant	8.05[a] *0.000*	8.34[a] *0.000*	7.64[a] *0.000*
YoEdu	0.096[a] *0.000*	0.085[a] *0.000*	0.111[a] *0.000*
Exper	0.068[a] *0.000*	0.052[a] *0.000*	0.086[a] *0.000*
$Exper^2$	(0.001)[a] *0.000*	(0.001)[a] *0.000*	(0.002)[a] *0.000*
Adjusted R-squared	0.333	0.278	0.414
Number of observations	1803	1072	731

( ) = negative, VHLSS = Vietnam Household Living Standard Survery.

[a] Statistically significant at 1%.

Note: P-value in italics.

Source: Authors.

and experience increase, earnings of labor will rise. However, the difference in the effect of education and experience on the earnings among male and female labor is substantial. One more year of schooling increases the income of female labor by 11.05% compared to only 8.47% for male labor. The effect of experience on earnings is 8.56% for female labor and 5.23% for male labor.

Thus, at the provincial level, education and experience are more important for increasing the earnings of female labor than male labor, but the magnitude of their effect on earnings is still modest.

Extended Earning Function

We add into the Basic Earning Function a set of independent variables including *Integration*, *Skill*, and *Area* variables to develop an *Extended Earning Function* as follows:

$$L\_Earning_i = \alpha + \beta_1 YoEdu_i + \beta_2 Exper_i + \beta_3 Exper_i^2 + \beta_4 Aera + \beta_5 Skill + \beta_6 Integration + \varepsilon_i$$

Table 16 shows that, except for the estimated coefficient of the variable *Integration* in the regression equation for female labor (which is statistically significant at the 10% significance level), all other estimated coefficients are significantly different from zero at the 1% significance level, and the adjusted R-square in the extended earning function is higher than the one in the basic function for all regression equations. This implies that the set of variables in the extended function explains the earnings of labor better than the one in the basic earning function.

For female labor, the first important factor for earning is skill. Other things being equal, skilled labor gets 45.6% higher earning than unskilled labor. Education and experience also have positive effect on the earnings of female labor but it is still minor since education is able to raise earnings only by 7.79% and experience by just 8.29%.

For male labor, *Area* seems to be the most important factor that affects earnings. Other things being equal, the gap between the earnings of those who reside in the urban area and those in the rural area is 25.8%. The second important factor is skill. Earnings of skilled labor are 23.86% higher than unskilled labor.

Table 16 Estimation Results of Extended Earning Function for VHLSS 2008 Data

Variable	Overall	Male	Female
Constant	7.984[a]	8.272[a]	7.577[a]
	0.000	*0.000*	*0.000*
YoEdu	0.070[a]	0.062[a]	0.078[a]
	0.000	*0.000*	*0.000*
Exper	0.065[a]	0.051[a]	0.083[a]
	0.000	*0.000*	*0.000*
$Exper^2$	(0.001)[a]	(0.001)[a]	(0.002)[a]
	0.000	*0.000*	*0.000*
Area	0.203[a]	0.258[a]	0.142[a]
	0.000	*0.000*	*0.000*
Skill	0.315[a]	0.239[a]	0.456[a]
	0.000	*0.000*	*0.000*
Integration	0.121[a]	0.128[a]	0.098[b]
	0.000	*0.005*	*0.088*
Adjusted R-squared	0.3640	0.3106	0.4542
Number of observations	1,765	1,034	731

( ) = negative, VHLSS = Vietnam Household Living Standard Survey.

[a] Statistically significant at 1%.
[b] Statistically significant at 10%.

Note: P-value in italics.

Source: Authors.

Integration substantially improves the earnings of both male and female labor. Other things being equal, the earnings are higher by 9.8% for female labor and 12.7% higher for male labor for those who work the provinces that have the BEZs.

For both provinces that host BEZs and those that do not, the effect of education on earnings is important compared to other factors in the model. However, the effect of education on earnings in provinces without BEZs is more substantial than in provinces with BEZs. Other things being equal, it helps to increase earnings by 10.7% in provinces without BEZs compared to 6.6% in provinces with BEZs. The effect of work experience seems greater for labor working in provinces with BEZs (Table17).

Gender Inequality Issue

To examine the income gap between male and female labor in the provinces that host the BEZs and those that do not, we control for variable *Integration* and incorporate variable *Gender* to derive the following function:

$$L\_Earning_i = \alpha + \beta_1 YoEdu_i + \beta_2 Exper_i + \beta_3 Exper_i^2 + \beta_4 Aera + \beta_5 Skill + \beta_6 Gender + \varepsilon_i$$

All estimated coefficients of the model for provinces with BEZs are statistically significant at the 5% level. However, in the model for provinces without BEZs, *Area and Gender* are not statistically significant. Thus, we do not have enough evidence to conclude that gender inequality exists in provinces that do not host the BEZs. In contrast, the negative coefficient

Table 17 Estimation Results of Provinces With and Without BEZs

Variable	With BEZs	Without BEZs
Constant	8.139[a]	7.626[a]
	0.000	*0.000*
YoEdu	0.066[a]	0.107[a]
	0.000	*0.000*
Exper	0.085[a]	0.078[a]
	0.000	*0.000*
$Exper^2$	(0.002)[a]	(0.002)[a]
	0.000	*0.000*
Area	0.195[a]	0.008
	0.000	*0.942*
Skill	0.569[a]	0.172
	0.000	*0.206*
Adjusted R-squared	0.477	0.423
Number of observations	527	204

( ) negative, BEZs = border-gate economic zones.

[a] Statistically significant at 1%.

Note: P-value in italics.

Source: Authors.

of *Gender* in the model for provinces with BEZs implies that there is a significant income gap between female and male labor in those provinces (Table 18).

Policy Implications and Conclusions

The Effects of BEZs and Cross-Border Integration on Earnings and Quality of Female Labor

Viet Nam's BEZs have successfully provided greater job opportunities for female labor with a large-scale effect, which is not limited to local and surrounding areas, including cross-border areas, but extends further to inner provinces through the channel of migration. This study confirms the hypothesis that in Viet Nam, as well as increasing job opportunities, the presence of BEZs can increase the income of female labor.

It can further be said that cross-border integration, demonstrated by the presence of BEZs, helps increase female labor income in the border provinces. Cross-border integration brings in more investment and trade opportunities to the border areas where there were virtually none before, bringing job opportunities in the process.

Yet, the development course of the labor market associated with BEZs has not been sustained. Data show that earnings in the BEZs remain lower than expected.[3] Although it is not

[3] Around 55% of respondents said that they did not want to participate in the economic activities of the BEZs because of low income.

Table 18 Estimation Results of Extended Earning Function for Gender for VHLSS 2008 Data

Variable	With BEZs	Without BEZs
Constant	8.213[a]	7.812[a]
	0.000	*0.000*
YoEdu	0.065[a]	0.087[a]
	0.000	*0.000*
Exper	0.062[a]	0.081[a]
	0.000	*0.000*
$Exper^2$	(0.001)[a]	0.070[a]
	0.000	*0.000*
Area	0.258[a]	(0.002)
	0.000	*0.141*
Skill	0.343[a]	0.100[a]
	0.000	*0.003*
Gender	(0.199)[a]	0.229
	0.000	*0.138*
Adjusted R-squared	0.387	0.349
Number of observations	1,295	470

( ) = negative, BEZs = border-gate economic zones, VHLSS = Vietnam Household Living Standard Survey.

[a] Statistically significant at 1%.

Note: P-value in italics.

Source: Authors.

difficult for women to find a decent job in the BEZs, the number of high-paying jobs and the demand for skilled labor is still limited. Instability of income is another barrier to employment associated with the BEZs.

There are many constraints to translating the increase in female labor income into improved female labor quality, or various intertwined aspects of human capital and social progress, such as educational level, skill, job type, and gender equality. The gap between human capital development or labor quality and job opportunities for female workers in the border-gate areas is likely to make BEZs exploitative corners of the job market.

Moreover, although the BEZ and cross-border integration have created more jobs in the border areas, access to employment has been denied to a number of people, especially the more vulnerable and disadvantaged groups of women (e.g., ethnic minority groups, habitants in the remote areas, people with a lower educational level, and people who are traditionally engaged in agricultural work).[4] In general, the predominant reasons for women's low rates of participation in the economic activities of BEZs are lack of adequate skills, physical limitations, low incomes, insufficient capital to start business, and family care responsibilities.

[4] According to the survey, 52% of the unskilled female workers, 47.2% of females with lower secondary education, and 22% of females with primary education still do not participate in the BEZ's economic activities.

Increasing Communication between Demand and Supply of Labor

Although more jobs have been created in the BEZs, the employment opportunities are not equally shared. Self-exclusion from the economic activities of the BEZ is common among the more disadvantaged groups of women due to asymmetric information. This is the case when women do not know that demand for labor exist, or they do not apply for jobs in the belief that they are not qualified for the positions.

Local governments, the BEZ authorities, employers, labor unions, training centers, and different kinds of civil society organizations, such as women's unions, youth organizations, and even informal labor networks, should play a more active role in overcoming the problem of asymmetric information. For instance, they can cooperate to organize regular job fairs and create career orientation centers. One very useful practice that is still missing in many BEZs is the posting of job advertisements in public areas.

Equally important is the need for strong interventions (e.g., awareness-raising programs by civil society organizations and local authorities) to help indigenous people to overcome the chronic satisfaction with the subsistence economy and become interested in participating in the economic activities of the BEZs to increase their income.

Creating Sustainable Structural Transformation of the BEZ Labor Market

The association of skill, or job type, with earnings reflects the demand side in the labor market for women. The presence of BEZs provides a favorable environment for local areas to host higher-skilled jobs that provide higher pay. Yet, the gains are mainly due to the service sector. It should be noted that the service sector in BEZs may be classified as simple with little added value, and mostly relating to cross-border trade. This explains why jobs in BEZs only require training for the needed skills and, therefore, cross-border integration may not bring about rapid human development for female labor.

To ensure sustainable development and structural transformation of their labor markets, the BEZs need to encourage more business activities in the production sector. More incentives should be provided to investors in production enterprises or in the labor-intensive manufacturing sectors, that are higher in the skill chain and cultivate higher human capital in the labor market by requiring more sophisticated skills, applying technology, and implementing industrial and organizational disciplines.

To integrate unskilled rural poor and ethnic women into the job market of the BEZs, and to encourage previously hired labor to start and run their own business sustainably, there is a need to increase their access to capital (e.g., credit and micro credit) as well as to improve their small-business management skills (e.g., through trainings).

Vocational Training and Skills Enhancement for Female Labor

Vocational trainings and skills enhancement are particularly important for female labor associated with the economic activities of the BEZs. The survey showed that participation in the economic activities of the BEZs does not require a high level of basic education. In fact, most jobs associated with the BEZ currently require only short- and medium-term training to equip labor with necessary skills, even though at the provincial level the effect of basic education on earnings is more important.

This may imply the need to set up more vocational training centers and encourage on-job-trainings in BEZ areas, while formal schools are needed in the border provinces that host the BEZs. Training should put greater emphasis on specific skills rather than on general skills so that learners can quickly begin to work.

As basic education always plays an important role, in the longer run and for a larger scale of development, development policies and programs should look at linking basic education and vocational training to high-skill enhancement in the BEZ areas.

At the same time, local officials and civil society organizations should run campaigns to convince those who are currently working that participating in those training courses will not deprive them of the opportunities to increase their income. Rather, they should emphasize that this is a prerequisite to moving up from low-paying employment and/or to be able to open a business.

Improving Working Conditions for Female Labors to Facilitate Investment on Human Capital

The quality of working conditions and/or job security needs to be improved. Working illicitly or without an employment contract and social insurance in the informal sector makes women vulnerable to exploitation, especially when individual employees do not have enough bargaining power with their employers.

A good working environment is one factor that ensures the development of the human capital of female labor because it creates a sense of security (i.e., free from the fear of being exploited and of losing their job), and a desire to invest in human capital development (e.g., education and training) for long-term interests.

In contrast to the formal sector, where intervention from local authorities can be effective in improving the quality of working conditions for female labor, the informal sector in BEZs requires the active involvement of the local women's unions and civil society organizations. For example, these organizations can (i) propagate, publicize, and monitor the application of labor standards in the BEZs; (ii) support the establishment of women's groups, networks, and clubs of female workers and entrepreneurs to promote and protect women's rights; and (iii) serve as the channel to bring the voice of labor to the authorities.

Ensuring Gender Equality

Gender equity is a big concern in the BEZs. The BEZs may increase labor income but they do so to the disadvantage of women. The earnings gap between male and female labor in favor of the former is notable but the gap does not exist for those not involved in BEZ economic activities. This is also true between provinces that host the BEZs and those that do not. Moreover, the VHLSS data show that at the provincial level, male labor benefits more from educational achievement and work experience than female labor. Although the BEZ economic activities associated with the services sector are currently benefiting female labor, this may be a short-term effect because of limited labor absorption capability of the trading sector that currently prevails in the BEZs.

The key policy recommendation focuses on promoting the role of civil society organizations in various aspects of the protection of women's rights. For instance, civil society organizations can (i) conduct awareness-raising programs on gender in the workplaces; (ii) conduct awareness-raising intervention in the communities to encourage women to work outside the home; and (iii) prepare people who intend to migrate to the BEZs with basic skills and awareness of their rights in different economic and cultural contexts.

Policy Implication for Greater Mekong Subregion Cooperation

The BEZs are the propulsive vehicles of cross-border economic integration and important nodes in the economic corridors of the GMS. The presence of BEZs in the border areas will encourage cross-border trade and investment and at the same time facilitate structural change of the border economy. Based on the case of Viet Nam, this study proposes the following recommendations to GMS cooperation on increasing female labor quality:

First, create BEZs to generate employment and reduce poverty in the backward border areas. To ensure that this employment generation effect can be extended to the neighboring countries, the GMS governments should promote freer cross-border movement of labor. The latter can be implemented first within the areas of the paired BEZs on either side of the border.

Second, in line with the employment generation impact, the governments and local authorities in the border areas should pay greater attention to the quality of female labor in the BEZs, rather than focusing merely on earnings. In this regard, the BEZs in particular and cross-border integration in general need a mechanism that turns the policy impact from output to outcome orientation, or to turn the policy that has been able to increase the number of jobs and improve the quantity of labor supply into a policy that will increase the quality of jobs and quality of labor supply.

Third, at the current stage, the informal sector makes a large contribution to employment generation in most BEZs. Although the informal sector has the advantage of flexibility, it does not have sufficient incentives to encourage the sustainable development of human capital. Thus, this study particularly recommends a more active role of the civil society organizations. They can cooperate closely with local authorities and the business sector to make a significant contribution to

(i) increasing cross-border communication between demand and supply of labor (by organizing regular job fairs and creating career orientation centers to introduce the opportunities of cross-border employment);
(ii) improving working conditions for female labor abroad (by propagating, publicizing, and monitoring the application of labor standards in the BEZs of the neighboring countries, and supporting the establishment of women's groups and networks, especially among migrant and seasonal workers); and
(iii) ensuring gender equality in the BEZs and the border areas (by conducting awareness-raising programs on gender in the workplaces and in the communities to encourage women to work outside the home, to cross the border to seek new job opportunities, and to prepare people who intend to migrate to the BEZs outside the country with basic skills and an awareness of their rights).

Local authorities should work closely with civil society to achieve the same aims. The government can support civil society organizations by providing them with direct funding for campaigns and programs, and providing facilities by implementing public projects (e.g., setting up training centers, clinics, and other public venues for group activities).

The GMS governments can look forward to harmonizing their labor regulations and establishing a joint mechanism to monitor labor standards. This can be done first in the BEZ areas. More importantly, at this nascent stage of cooperation in labor policy and integrated labor markets, the national and local governments in the GMS should avoid "beggar-thy-neighbor" policy and "race-to-the-bottom" policies to push or pull the labor force.

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Improving Accessibility of Financial Services in the Border-Gate Areas to Facilitate Cross-Border Trade: The Case of Viet Nam and Implications for GMS Cooperation

*Nguyen Hong Son and Dang Duc Son**

Abstract

Over the years, cross-border trade has expanded rapidly among countries in the Greater Mekong Subregion (GMS). Among the factors that contributed to this phenomenon is the application of a number of cross-border trade facilitation measures. However, the current emphasis of cross-border trade facilitation in the GMS is on customs procedures, inspection and quarantine measures, trade logistics, transport, and mobility of business people, while the important role of financial service has been, so far, overlooked. Using the case study of Viet Nam to draw implications for GMS cooperation, this paper investigates how users and providers of financial services in the border-gate areas see financial services as a factor of cross-border trade facilitation. It also examines how users and providers of financial services perceive the different dimensions of financial services accessibility and how accessibility affects customers' decisions to use financial services in the border-gate areas.

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Introduction

Over the years, cross-border trade has expanded rapidly among countries in the Greater Mekong Subregion (GMS). Among other factors, the increase in cross-border trade has been enhanced by the application of a number of trade facilitation measures.

Facilitating cross-border trade is one of the five strategic thrusts of the GMS 10-Year Strategic Framework endorsed in 2002 by the First GMS Summit. Its blueprint for action was set in the Strategic Framework for Action on Trade Facilitation and Investment (SFA-TFI), which was approved by the Second GMS Summit in 2005. To support transport and trade facilitation, the GMS countries have also implemented since 1999 the Cross-border Transport Agreement. Nevertheless, the important role of financial services as a cross-border trade facilitation factor has been so far overlooked in GMS cooperation. Although the SFA-TFI does not exclude financial services; at present it emphasizes custom procedures, inspection and quarantine measures, trade logistics, and mobility of business people as the four priority cross-border trade facilitating measures. Other trade facilitation measures, such as those incorporated in the Cross-Border Transport Agreement, have dealt merely with such border-crossing formalities and procedures as single-window and single-stop custom inspection; facilitation of the movement of goods, people, and vehicles; and phyto-sanitary and veterinary inspection, and they have ignored the financial aspect of cross-border trade.

At the same time, inaccessibility is a major constraint to the use of financial service in the border areas of the GMS. The slow rate of expansion of financial services in the border-gates areas is out of step with the rapid growth of cross-border trade in the GMS. The dynamic border economy provides major opportunities for the growth of financial services in the border areas, but banks are slow to tap this potential. As of 2010, only a few bank branches are established in the border areas, and only a small proportion of border trade in the GMS is financed through commercial banks; the rest is through barter or cash. For example, settlement through banks accounts for a mere 10% of total cross-border trade volume between Viet Nam and the People's Republic of China (PRC). In 2008, the value of Viet Nam–Cambodia trade was $1.7 billion (total border trade value was $1 billion) and only $7 million (or 0.4%) of the cash was deposited into bank accounts by traders (MOIT 2009).

Even where banks are present in the border-gate areas, their services are still inaccessible to a large number of businesses. Banking services often require restrictive criteria (e.g., a minimum deposit and evidence of good credit history) that disqualify small and informal businesses. Barriers include excessive paperwork and fees that make getting a loan cumbersome and too costly for many borrowers who simply need small amounts. Banks may demand collateral, and pose other nonpecuniary challenges, such as requiring greater literacy, which poor borrowers lack (Claessens 2005: 12). Other bank offices may have an inconvenient location in the border-gate area or unsuitable working hours. The capability of banks to provide the services needed by local businesses may also be limited. In such cases, individuals, households, and firms have to rely on informal forms of financial service and this seems to be a viable option for the less-developed border areas.

In the most important border-gate areas of the GMS (e.g., Moc Bai, Bavet, Lao Bao, Densavan, Mong Cai, Dongxing, Lao Cai, and Hekou), black market money exchange points exist with hundreds of money exchangers eagerly searching for clients. Compared to the banks, these informal financial service providers are more flexible and offer less time-consuming

services. Nevertheless, informal services may be unreliable because of higher risks (e.g., exchange rate volatility, default risk, or transaction error) and they easily become facilitators of illegal activities (e.g., tax evasion and/or money laundering). In addition, customers of informal service are easily subjected by service providers to unsympathetic behaviors, such as abuse and harassment. For most cross-border traders in the GMS, default on payment constitutes a big risk in the absence of payment guarantee services from banks (Nguyen and Cu, 2005). Although informal financial services are advantageous for a large number of providers because of their flexibility with the existing conditions, concerns about reliability, assurance, and empathy may adversely affect customers' decisions to use them in the border-gate areas.

The inadequate policy attention to financial service development does not mean there is little demand for financial services in the border-gate areas. Rather, this may reveal the mismatch between policy priority and the needs of the local business community and local residents. Using the case study of Viet Nam to draw the implications for GMS cooperation, this paper investigates how users and providers of financial services in the border-gate areas see financial services as a factor of cross-border trade facilitation. It also examines how users and providers of financial services evaluate different dimensions of financial service accessibility and how these dimensions of accessibility affect customers' decisions to use financial services in the border-gate areas.

Financial Services in Viet Nam's Cross-Border Trade

Cross-border trade among Cambodia, the PRC, Lao People's Democratic Republic (Lao PDR), and Viet Nam has grown rapidly over the past years (Table 1). During the period 2002–2008, border trade turnover of Viet Nam's seven border provinces with the PRC grew at an annual rate of 46.3%. Viet Nam has a large trade deficit with the PRC but it had a border trade surplus of $1,056 million in 2007 and $639.15 million in 2008. Viet Nam has a border trade deficit with Lao PDR of $103.5 million in 2007 and $123.3 million in 2008. Border trade turnover between Viet Nam and Cambodia was $1.1 billion in 2008, which increased by 39.5% compared with 2007, and accounts for 65.7% of Viet Nam–Cambodia total bilateral trade. Viet Nam has border trade surplus of $252.7 million with Cambodia in 2007 and $415.1 million in 2008 (MOIT 2009).

Table 1 Cross-border Trade among Cambodia, People's Republic of China, Lao People's Democratic Republic, and Viet Nam ($ million)

	2007		2008	
Countries	Trade Turnover	Change (%) Compared to 2006	Trade Turnover	Change (%)
PRC	5,467.9	103.2	6,507.81	19.02
Lao PDR	312	20.1	423	35.6
Cambodia	772.06	12.1	1,077.15	39.5
Total	**6,551.96**	**80.1**	**8,007.96**	**22.2**

PRC = People's Republic of China, Lao PDR = Lao People's Democratic Republic.

Source: Department of Trade Statistics, Ministry of Industries and Trade of Viet Nam (MOIT), 2009.

Along the border of Viet Nam, cross-border trade is concentrated in 26 border-gate economic zones (BEZs) where major border gates are located.[1] Out of 26 BEZs, 9 major BEZs were accorded priority in the development policy of the Government of Viet Nam. These are Mong Cai, Lao Cai, and Lang Son (in the north); Cau Treo, Bo Y, and Lao Bao (in the center); and Moc Bai, Dong Thap, and An Giang (in the south). These are the areas where cross-border trade is most active.

It is difficult to provide an adequate assessment of the financial services in the border areas of Viet Nam. There is a lack of data due to the low accessibility of border traders to formal financial services, and data on informal financial providers is virtually nonexistent.

Over the past few years, some attempts have been made to address the undersupply of formal financial services in the border areas of Viet Nam. The State Bank of Vietnam (SBV) has signed the bilateral settlement agreements with the Central Bank of China (1993), the Bank of Lao PDR (1998), and the National Bank of Cambodia (2005). These agreements allow the commercial banks to have their own settlement arrangements with an aim of exploiting the potential of the border financial market. This includes the agreements between the Bank for Industry and Trade (VietinBank), the Bank for Agriculture and Rural Development (Agribank), and the Technological and Commercial Bank (Techcombank) of Viet Nam with the Industry and Commercial Bank of China (ICBC), the Agricultural Bank of China (ABC), China Construction Bank (CCB), Bank of China, and some banks in Cambodia and Lao PDR.

Despite these efforts, it is not difficult to observe the current problems of financial services as evidenced by the scarcity of commercial banks and other formal financial institutions in the border-gate areas. Some major banks have opened more branches and improved their services in the border-gate areas. For example, Techcombank and the Mekong Housing Bank (MHB) reached an agreement with ICBC in Guangxi Zhuang Autonomous Region to provide border settlement services at their branches in Lang Son (Tan Thanh and Huu Nghi border gates) and Quang Ninh (Mong Cai border gate) for Vietnamese in Pingxiang and Dongxing, respectively, and for PRC customers in Guangxi Zhuang Autonomous Region. Similarly, Agribank reached a deal with Phongsavanh Bank of Lao PDR in Savannakhet to offer services in Lao Bao (Quang Tri province of Viet Nam) and Densavan (Savannakhet province of Lao PDR). Agribank also planned to provide similar services in other major border checkpoints of Thanh Hoa, Nghe An, Ha Tinh, Quang Binh, and Kon Tum provinces of Viet Nam. Thus far, five state-owned commercial banks (Vietcombank, MHB, Agribank, Bank for Investment and Development of Viet Nam, and VietinBank), and two joint-stock commercial banks (Techcombank and Sacombank) of Viet Nam have provided border trade settlement and a few trade finance services. However, banking density in the border areas is still very low. In major international border gates, such as Lao Bao and Moc Bai in Viet Nam, there is only one branch of Agribank for each border. There is only one branch of Phongsavanh Bank in Densavan (the paired border gate of Lao Bao in Lao PDR territory) and of ACLEDA Bank in Bavet (the paired border gate of Moc Bai in Cambodian territory).

For informal financial services, the current literature—mostly in the form of short, investigative articles—concentrates on several common issues of border money markets, such as their rationale, impact, and operation. According to Nguyen Dai Lai (2006), the border

[1] A BEZ is defined in the Decree 29/2008/ND-CP in 2008 by the government as an economic zone locating in the land border region where there is an international or main checkpoint or more, and encompassing not only the border gate(s) but also the contiguous administrative areas that are spatially inseparable. The BEZs are granted with special administrative and regulatory status suited to the local conditions to ensure their rapid socioeconomic development, which has strong spillover effects on the surrounding areas.

money markets grew naturally in response to the demands of the traders in the border areas. Those markets facilitate the exchange of local currencies and this service appeared prior to the establishment of formal financial institutions by the governments. However, a number of researches have pointed out the inherent risk in border money markets because of default problems; cheating; robbery; and abuse of small, independent providers in the network; along with harassment of customers by providers (Hoat and Ha 2010, Vinh 2003).

Informal trade creates the demand for informal financial services; habit is another. Traders, including individuals and microenterprises, in the border market are accustomed to the use of cash and credit based on trust (Nguyen and Cu 2005) and few of them have bank accounts. Furthermore, many traders do not want to use bank services because of high service fees relative to their small trading value; but mostly it is for reasons of tax evasion. In some border-gate areas (e.g., Lao Bao and Moc Bai), the informal money market exists to serve the visitors and cross-border tourists in duty-free supermarkets. There is also a demand for foreign currency in casinos located along the border (Long 2005, Nam 2010, Vinh 2003). The dollarization of border trade is another factor that undermines the popularity of banking services. In most border black money markets, one can get a variety of hard currencies—from euro, United States (US) dollar, Japanese yen to Singaporean dollar—at a unified and up-to-date exchange rate, and this is convenient for the conduct of cross-border trade for which payment in hard currencies is preferred. For example, it is estimated that major transactions settled in dong and yen account for only around 10%–15% of total cross-border trade turnover between Viet Nam and the PRC (MOIT 2009).

From the supply side, money market services are said to be easily accessible because of the numerous providers, convenience, and less time-consuming procedures. For example, the *People's Police Newspaper* (2010) estimates that there are as many as 300 people working as money dealers in Lao Cai and they can be easily found around streets leading to the gate. In Lao Bao, the Agribank office is located in a favorable location next to the border gate, but is matched by hundreds of money dealers or "mobile banks" in the area. These money dealers are visible everywhere and accessible at all times of day around the gate. Most can speak different languages such as Lao, Thai, and English. Their services are fast and free of time-consuming bureaucratic banking procedures. In Tan Thanh, border gate of Lang Son province, almost all cross-border trade is facilitated through the money market. Informal money dealers are confident that they can compete with banks even in terms of technology and outreach (e.g., through availability of "branch" on both sides of the border) (Long 2005, Vinh 2003). The dynamic presence of money dealers is likely to make local bank branches redundant in cross-border trade.

Access Dimensions of Financial Services

There is no unanimous definition of access to financial services as financial services can have various dimensions (Claessens 2005: 6). A comprehensive review of the literature by Stijn Claessens (2005: 6) showed that access to financial services typically involves the question of availability, costs, types, and quality of financial services offered. These dimensions can also be categorized as reliability (Is financial service available when needed?), convenience (How easily can financial service be accessed?), continuity (Can financial service be accessed repeatedly?), and flexibility (Is financial product tailored to the needs of the users?) (Claessens 2005: 6, Morduch 1999).

Numerous studies have proved that dealing with access to financial services is often concerned with the exclusion of consumers, either voluntary or involuntary (Claessens 2005; Kumar 2005; Morduch 1999; Beck, Demirgüç-Kunt, Laeven, and Maksimovic 2005; Hawkins 2010). Individuals, households, and firms can be involuntarily excluded from financial services because they are not qualified or do not meet providers' criteria. However, survey results in developing economies show that groups often voluntarily exclude themselves from the use of formal financial services. For example, in Brazil, one-third of the people expressed their lack of interest in having a bank account, and almost two-thirds of survey respondents in India did not feel a need for a bank account (Kumar 2005: 6). Claesens (2005: 12) notes that the demand for financial services may not exist if individuals, households, and firms may not want to use it even if financial services are easily available and accessible. Kempson et al. (2000) distinguish between five types of exclusion in financial services: (i) access exclusion (customer fails to meet provider's requirement through risk screening), (ii) condition exclusion (product design is inappropriate for the needs of some customers), (iii) price exclusion (financial products are too costly), (iv) marketing exclusion (some groups are effectively excluded by target market and sales), and (v) self-exclusion (some groups are not applying for services in the belief that they would be refused).

Following Kumar's (2005: 9) classification approach, we look at the degrees of access to financial services through three dimensions: (i) the functional dimension, (ii) the user-friendly dimension, and (iii) the institutional dimension.

For the *functional dimension*, the focus is on whether a user has access to a specific type of financial service. Lack of access may arise if there is a mismatch between the provision and use of a service when potential users restrain their demand because the right types of financial service are not provided (Claessens 2005: 12). Further, financial service providers may not wish to give all customers access to some products if they believe that it is not profitable or sustainable to do so.

The range of financial products is vast and can be categorized in many ways. However, not all services are used in international trade and even fewer types of services are used in cross-border trade. We look at a few popular financial products that act as lubricant to trade, rather than the trade of financial services themselves across country borders, including bank draft, documentary credit, regular credits to buyers and sellers, money transfer, export credit, insurance, foreign exchange, and open account.

For the *user-friendly dimension*, the attempt to measure accessibility goes beyond the mere presence or absence of a service, and focuses on whether the service is accessible in a user-friendly manner (Kumar 2005: 10). From this perspective, service accessibility can be associated with service quality and the user's perception on what constitutes a user-friendly service can affect the decision to avail of the service. To evaluate this accessibility dimension of financial services, based on the SERVQUAL model,[2] we develop six factors:

- *Reliability:* The ability to perform the service as needed, prompt service provision, trust in provider to solve any problem that may occur, and the ability to complete service at the right time, and free of errors.

[2] In its original form, the SERVQUAL model contains 22 pairs of statements across the 5 dimensions (Reliability, Responsiveness, Assurance, Empathy, and Tangibility). Half of the statements are intended to measure consumers' expected level of service for a particular industry (i.e., *expectations*). The other 22 matching statements are intended to measure consumers' perceived level of service provided by a particular organization (i.e., *perceptions*). The statements are presented in a seven-point Likert scale, representing the choice from "strongly agree" to "strongly disagree." Service quality is measured in terms of the gap between expectation scores and corresponding perception scores (Babakus and Mangold, 1992: 771).

- *Responsiveness:* The state of being informed when service is done, provider's response to the requests, and employees serving customers without delay or hesitation.
- *Assurance:* Trust in the employees' services, confidence on the completeness and safety of transactions, politeness of employees, and knowledge of employees.
- *Empathy:* Employees' caring attitude; advice, guidance, and understanding of customers' needs.
- *Tangibility:* Modern equipment, cleanliness of the premises, and attire of employees.
- *Convenience:* Suitable location of the service provider, working hours, and convenient arrangement of facilities.

For the *institutional dimension*, there is a distinction between formal and informal financial services. Each form of service allows for different levels of accessibility along with "hard" or legal criteria, such as minimum deposit, evidence of good credit history, collateral, administrative procedure, and fees (Claessens, 2005; Kempson et al., 2000; Kumar, 2005). The above criteria may also serve as barriers to the access to formal financial services, causing customers to shift their choice to informal financial service. However, it is neither easy nor appropriate to lower these barriers to make formal financial service more accessible because formal financial services must follow the legal provisions on standard terms, conditions, procedure, and surveillance and not complying with these legal provisions can make the transaction fraudulent, risky, and contingent.

Access to informal financial services in the border-gate areas can also be reduced by customers' concern over the risky, illegal, and abusive behavior of informal financial service providers (e.g., exchange rate volatility, default, and cheating). However, a strict application of the "hard" or legal criteria is not immediately a viable option.

The study examines how six "soft" factors of the user-friendly dimension of accessibility (i.e., *Reliability*, *Responsiveness*, *Assurance*, *Empathy*, *Tangibility*, and *Convenience*) influence the access to formal and informal financial services by affecting customers' decisions to choose each form of service.

From this perspective, the concern over risky, illegal, and abusive behaviors associated with informal financial services can be alleviated by improving such factors as *reliability* (strengthening the ability to complete the service and reducing error); *assurance* (building customers' trust and confidence in service providers); and *empathy* (improving the caring attitude of service providers). For formal financial services, barriers to access can be overcome by improving factors that are often seen as lagging behind informal financial services. These are *responsiveness*, *empathy*, and *convenience* (placing the service facility in suitable locations and having appropriate working hours). Thus, while formal and informal financial services may not immediately share the "hard" criteria with regard to conditions, procedure, guarantee mechanisms, and surveillance, they can share the "soft" criteria with regard to the user-friendly dimension of accessibility.

The framework to measure the accessibility dimension is provided in Table 2.

Study Sites

This study uses a survey questionnaire to examine the perception of traders and providers of financial services with regard to accessibility of financial services in the border-gate areas. The survey was conducted in five BEZs in Viet Nam (Lao Cai, Lao Bao, and Moc Bai), the PRC (Hekou), and Cambodia (Bavet). There are two pairs of BEZs: Lao Cai and Hekou, and Moc Bai and Bavet.

Table 2 Framework to Assess Accessibility of Financial Services

Accessibility Dimension	Functional Dimension	User-Friendly Dimension	Institutional Dimension
Assumptions	Whether a user has access to a specific type of financial service	Service is accessible in a user-friendly manner	Service, whether formal or informal, is more accessible in a user-friendly dimension
Propositions	Mismatch between provision and use of service because the right types of financial services are not provided	A user-friendly service can favorably influence customers' decisions to use the service	More accessible service favorably affects customers' decisions to use the service

Source: Authors.

Lao Cai BEZ is located in Lao Cai city and Muong Khuong district, with four priority economic zones: Lao Cai international border-gate zone, North Duyen Hai Industrial Zone, East Pho Moi Industrial Cluster, and Kim Thanh Commercial Center. The Governments of the PRC and Viet Nam have constructed the Kim Thanh bridge to connect the Kim Thanh Commercial Center in Viet Nam and Hekou Border Economic Cooperation Zone in the PRC.

Hekou Border Economic Cooperation Zone is located opposite the Lao Cai BEZ in Hekou Yao Autonomous County, Yunnan province. Hekou County is one of the province's major borderland port cities. Its major export products include locomotives, electrical power, and mechanical equipment, while key import goods include hardware, chemical products, steel, iron, and various minerals. Trading in agricultural products is also an important cross-border activity of the zone. The majority of trading partners come from Viet Nam.

At the Lao Cai border gate, a cooperation program facilitates trade between Lao Cai and the PRC's Yunnan province, particularly in transport. The two provinces opened new overland routes, allowing about 100 to 150 trucks and cars to travel through the Lao Cai border gate each day. Goods can also be transported by railway to Lao Cai and Hekou stations. Since 2009, a certificate of origin can be issued in Lao Cai to help expedite cross-border trade.

Major Vietnamese banks, such as Agribank, Techcombank, VietinBank, Vietcombank, and MHB have opened their branches in Lao Cai. In Hekou, ICBC, BOC, CCB, and ABC formed a partnership with Vietnamese banks to provide financial settlement services to border trade. However, the number of services provided by banks is still limited. For instance, the cross-border trade payment services offered by Agribank in partnership with four PRC banks are foreign exchange, bank draft, documentary credit, telegraphic transfer, and the so-called cross-border trade payment voucher. Telegraphic transfer, collection, and foreign exchange are the main services provided by VietinBank, one of the most active banks in the northern border areas of Viet Nam.

Besides the bank branches and offices, there are also numerous money dealers or exchangers. They work in a demarcated section within the immigration office or in nearby streets. According to the regulations, money exchangers can only purchase and sell yen, and are free to determine the exchange rates. They are required to open a record book, pay tax, and report to their banks every quarter, and they are subject to the bank's supervision. Although most of these money

changers have work permits, they have informal ways of doing business such as speculating on the exchange rates, facilitating tax evasion, and placing transactions outside the record book.

As elsewhere, working in the border black money market is not only a profitable but also an extremely risky business. The money changers in Lao Cai are subject to a variety of risks, such as robbery and clients' default. A number of default cases by money changers themselves have also been recorded in Lao Cai with people borrowing money then lending to others with higher interest rates. Because of the impact of the economic recession, cross-border trade between Lao Cai and Hekou dropped dramatically in 2008 and 2009 to almost half the 2007 level. The decline in trade is said to affect severely the business of money changers. According to the *People's Police Newspaper* (2010), their revenues fell as much as from 80% to 30% and many of them were forced to find other jobs.

Lao Bao BEZ—also known as Lao Bao Special Economic Trade Zone (STZ) or Lao Bao free-trade zone—was established in 1998. Its special status was upgraded in 2002. Lao Bao STZ is situated in Huong Hoa district of the central province of Quang Tri, 60 kilometers (km) from Dong Ha provincial capital, 72 km from Cua-Viet port, 150 km from Hue city, and on the East–West Economic Corridor and Route 9. Border trade in Lao Bao STZ has grown very fast over the past years and this includes a large proportion of trade between Lao Bao and Densavan. Opposite Lao Bao in Lao PDR territory is the Densavan Border Trading Commercial Zone.

Most of the border trade activities with Lao PDR in the center of Viet Nam concentrate in the Lao Bao–Densavan border gates because of the relatively higher level of development and better infrastructure. More importantly, because of their special status as a free-trade zone, the production and consumption of goods and services and the import of goods and services into Lao Bao and Densavan are not subjected to tax. Domestic visitors to Lao Bao free-trade zone are allowed to purchase tax-free goods up to D500,000 ($25) and foreigners can buy tax-free up to $300. Lao Bao is known as the "Kingdom of Smuggling" as smuggled goods are transported throughout the country. The most popular goods include electronics, cosmetics, medicine, and cloth, which are brought from Thailand through Lao PDR territory to Viet Nam.

Unlike other places, the economy of Lao Bao was not affected by the economic recession in 2008. Its cross-border trade volume continued to increase, especially business activities in Lao Bao Free-Trade Zone where total trade volume increased more than 2.5 times in 2009 compared to 2008.

The Agribank of Viet Nam and the Phongsavanh Bank of Lao PDR have recently opened their border settlement services in Lao Bao–Densavan, making these checkpoints the only site on the border between Viet Nam and Lao PDR where banking border settlement services are available. However, just as in other border-gate areas, there is a limited number of service that these two banks can provide. Although the Agribank transaction office is located in a very advantageous place, next to the border gate, it fails to compete with hundreds of money dealers—the mobile banks or *con xoong* in local dialect—for their very convenient services.

These money dealers are visible everywhere and all the time during the day around the gate to search for their clients, who can be business people, such as timber and plaster traders, but most are tourists. Their peak season is summer when more tourists visit the free-trade zones or cross the border and need Viet Nam dong or Lao PDR kip. However, in Lao Bao black money market, one can get a variety of currencies, from Lao PDR kip, Thai baht, US dollar, to Singaporean dollar. Most money changers are unregistered and can speak different languages such as Lao, Thai, and English. They work and respect a few "unwritten rules" such as not taking the clients of others, and following unified exchange rates that are set by chief dealers in Karol market (in Sepon district of Lao PDR) early in the day. The majority of traders in Karol are Vietnamese.

Moc Bai BEZ is located in Trang Bang district and Ben Cau district in Tay Ninh province. It is situated on the Trans-Asian highway, 70 km from Ho Chi Minh City and 170 km from Pnom Penh. The zone has three border-crossing points: Moc Bai, Phuoc Chi, and Long Thuan. The zone has a number of trade facilities such as duty-free supermarkets, mini supermarkets, shopping malls, and restaurants. New roads have also been built and a few industrial projects have acquired land for construction.

Next to Moc Bai in the Cambodian territory is the Bavet special economic zone (SEZ) located in Bavet commune, Chantrea district, Svay Rieng province. Besides the advantage of geography that connects it with Viet Nam, the zone has a preferential trade policy that grants fiscal privileges, such as exemption from income tax for 5 years and no import tax for equipment, parts, and construction materials. Moreover, the zone enjoys special preferential conditions, including no transaction value-added tax, and single window for export and import procedures. Bavet area is quite developed in terms of services and tourism. However, much of the commerce through Bavet checkpoint comes from Viet Nam. Cambodian exports are few and small in scale.

Trading through the Moc Bai–Bavet border gates accounts for a large share of border trade between Viet Nam and Cambodia. In 2009, because of the impact of the economic crisis, cross-border trade in Moc Bai, especially through Moc Bai gate, decreased considerably compared to 2008. The issuance of Decision 33/2009/QD-TTg by the Prime Minister, which allowed only immigrants to buy duty-free goods, almost led to a temporary business suspension of Moc Bai's duty-free supermarkets in early July 2009. A new regulation allows domestic visitors to Moc Bai duty-free zone to buy up to D500,000 of duty-free goods until 2012.

In 2006, Agribank and the Cambodian ACLEDA bank agreed to provide border trade financial settlement services in border-gate areas of the two countries, including Moc Bai and Bavet. The Bank for Investment and Development of Viet Nam also opened its office in Moc Bai, mostly to provide foreign exchange services. The black money exchange market is quite developed in Moc Bai. Although the US dollar is more favored on both sides of the border, Vietnamese dong can also be used in the Cambodian border areas. Another popular service in Moc Bai and Bavet is the transaction of casino chips or *phỉnh* in local language by the private dealers. Each day, particularly during weekends, thousands of people cross the border to visit the casinos in Bavet. The majority of them come from Ho Chi Minh city. It is reported that they also bring with them hundreds of thousands of US dollars.

Sample Profile

The survey was conducted with two main groups of respondents: (i) financial service providers (i.e., banks and nonbank providers, including individual money dealers); and (ii) the customers of financial services, including registered companies, and household and individual traders. The survey was conducted in Lao Cai, Hekou, Moc Bai, Bavet, and Lao Bao with a total of 380 users and/or customers and 106 providers of financial services (Table 3).

Table 4 describes the profile of the formal and informal financial service providers in five border-gate areas. At the time of the survey, the formal financial service providers in Bavet had been in business for an average of 4.3 months and the informal providers had been in business for 3.9 months. In Moc Bai, the formal financial service providers had been in business for an average of 16 months while the informal providers had been in business for 30 months (Table 4).

On average, formal financial service providers are located closer to the border gate than informal financial service providers. This brings an added advantage to the formal financial service

Table 3 Sample of Financial Service Providers and Users

	Study Sites					
	Lao Cai	**Lao Bao**	**Moc Bai**	**Bavet**	**Hekou**	**Total**
Financial service providers	20	20	20	16	30	106
Formal providers (banks and registered money exchangers)	10	10	10	7	5	42
Informal providers (informal nonbank organizations and unregistered money exchangers)	10	10	10	9	25	64
Financial service users	80	80	80	70	70	380
Registered companies	30	30	40	4	57	161
Household and individual traders	50	50	40	66	13	219

Note: The sample of formal financial service providers was randomly selected from the list of banks and registered money changers provided by the local statistics offices. The sample of informal financial service providers was randomly selected from the list of nonbank organizations, such as jewelry shops and companies that were not registered as financial service providers but also provide financial service, as provided by the local statistics offices, and among unregistered money changers found in the field. The sample of financial service users and/or customers was randomly selected from the list of registered companies provided by the local statistics offices, and among household and individual traders found in the field.

Source: Survey data.

providers in facilitating cross-border trade compared to informal providers at the border gate. However, in certain sites such as Lao Bao, the distance from the premises of formal and informal financial service providers to the border gate is still quite substantial, averaging over 5 km.

The financial service providers in Bavet and Hekou are relatively new to the business, compared to other sites where the informal financial service providers have began their business quite some time before the formal providers arrived. Similarly, the users of financial services, such as household and individual traders, established their (informal) business activities earlier than the registered companies. Their length of establishment explains why informal financial services are more familiar to the local business community.

In general, users of financial services are located close to the border gates of the study sites, except in Bavet where household and individual users of financial service tend to locate their premises far away from the gate (22.5 km on average) because most of them are living near the border gates. The case of Bavet demonstrates the geographical difficulty of households and individuals in accessing financial services in the border-gate areas.

Both users and providers of financial services in the five study sites have businesses that range from small to medium-sized. The total annual revenues of financial service providers in 2009 were less than D15 billion on average. Some providers of financial services are temporary and therefore very small, with a total annual revenue of less than D100 million. Nonetheless, both providers and users of financial services have a relatively positive expectation about their future business propects.

The survey data show that, for the formal financial service providers, the share of revenues from cross-border business to total revenue is very small (i.e., 12.5% in Lao Cai, 8.7% in Lao Bao, 5.6% in Moc Bai, 28% in Bavet, and 6% in Hekou). This share is much lower than that of the registered companies, and household and individual traders, as users of financial

Table 4 Profile of Formal and Informal Financial Service Providers

Item	Types of Providers	Study Sites				
		Lao Cai	Lao Bao	Moc Bai	Bavet	Hekou
Duration of business in current location (months)	Formal	9.4	13.0	16.2	4.3	9.2
	Informal	26.0	19.9	30.7	3.9	5.3
Distance of premises to the border gate (kilometers)	Formal	3.5	5.7	2.9	2.2	1.5
	Informal	4.4	6.7	4.0	5.4	1.7
Average annual revenue in 2009[a]	Formal	4.9	5.2	5.1	3.0	1.0
	Informal	1.0	4.0	…	4.9	1.7
Evaluation of future business (1–2 years)[b]	Formal	1.2	1.0	1.0	1.6	1.8
	Informal	…	1.0	…	2.9	2.8
Revenue from financial services provided to cross-border trade (% of total revenue)	Formal	12.5	8.7	5.6	28.0	6.0
	Informal	…	2.3	…	93.0	45.0

… = data not available.

[a] 1 = 0–100 million dong (D); 2 = D100 million–D500 million; 3 = D500 million–D3,000 million; 4 = D3,000 million–D10,000 million; 5 = D10,000 million–D15,000 million dong (D); 6 = greater than D15,000 million (providers in Hekou and Bavet converted their revenue into dong).

[b] 1 = rapid growth (greater than 6%); 2 = gradual growth (0%–5%); 3 = unchanged (0%); 4 = decline (–5% to less than 0%); 5 = sharp decline (less than –6%)

Source: Survey data.

services. Table 5 shows that revenue from cross-border trade accounts for 75.0% of total revenue of registered companies in Lao Cai, 51.0% in Lao Bao, 71.4% in Moc Bai, and 66.2% in Hekou. For the household and individual traders, these shares are 72.4% in Lao Cai, 51.7% in Lao Bao, 75.8% in Bavet, and 38.0% in Hekou. Because there were few formal providers (e.g., banks) at that time in the border market, and the informal providers are limited in their financial capability, the above figures indicate a large unexploited market for financial service providers in the border-gate areas.

Table 5 Profile of Users of Financial Services

Item	Users	Study Sites				
		Lao Cai	Lao Bao	Moc Bai	Bavet	Hekou
Duration of business in current location (mean number of months)	Registered companies	5.10	4.40	5.55	3.25	6.40
	Household and individual traders	7.96	6.68	7.12	7.23	7.80
Distance of premises to the border gate (kilometers)	Registered companies	2.20	2.70	1.90	3.70	2.70
	Household and individual traders	4.10	1.00	5.70	22.50	5.50
Average annual revenue in 2009[a]	Registered companies	4.76	3.90	4.95	5.50	2.75
	Household and individual traders	1.87	2.22	2.90	2.00	3.15
Evaluation of future business (1–2 years)[b]	Registered companies	2.50	2.37	2.35	1.75	2.57
	Household and individual traders	2.78	2.10	3.00	2.17	2.7
Revenue from cross-border trade (% total revenue)	Registered companies	75.00	51.00	71.40	…	66.20
	Household and individual traders	72.40	51.70	75.80	16.13	38.00

… = data not available.

[a] 1 = 0–100 million dong (D); 2 = D100 million–D500 million; 3 = D500 million–D3,000 million; 4 = D3,000 million–D10,000 million; 5 = D10,000 million–D15,000 million dong (D); 6 = greater than D15,000 million (providers in Hekou and Bavet converted their revenue into dong).

[b] 1 = rapid growth (greater than 6%); 2 = gradual growth (0%–5%); 3 = unchanged (0%); 4 = decline (–5% to less than 0%); 5 = sharp decline (less than –6%).

Source: Survey data.

Discussions of Findings

Importance of Financial Services Compared to Other Factors of Cross-Border Trade Facilitation

To see how providers and users of financial services evaluate the role of financial services in cross-border trade facilitation, the research team asked them to rank financial services together with six other factors (i.e., customs, regulations, trade documentation, transport, movement of people, and information technology [IT]) according to how they viewed the role of these factors in facilitating cross-border trade. Thus, the factor viewed as having the most important role in cross-border trade facilitation was ranked first. The factor viewed as having the least important role in cross-border trade facilitation, compared to the others, was ranked seventh.

The result shows that providers and users of financial services in the border-gate areas saw financial services as an important factor for cross-border trade facilitation. Compared to customs, regulations, trade documentation, transport, movement of people, and IT, more than 25% of financial service providers (30.9% of formal providers, and 25.4% of informal providers) reported financial services among the three most important factors for cross-border trade facilitation. Traders, including registered companies, households, and individuals, reported a greater appreciation for the role of financial services in cross-border trade facilitation, with more than half of them ranking financial services among the three most important factors (Table 6).

The results also show that 17% of formal financial service providers and 41% of informal financial service providers reported financial services as the least important factor for cross-border trade facilitation, compared to customs, regulations, trade documentation, transport, movement of people, and IT. This is in contrast to the small proportion of users who shared the same views: more than 3.5% of registered companies and almost 3% of households and individuals reported financial services as the least important cross-border trade facilitation factor.

Table 6 Rank of Financial Services among Cross-Border Trade Facilitation Factors (%)

		Rank							
Respondent	**Type**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Total**
Providers	Formal	16.7	4.7	9.5	23.8	16.7	11.9	16.7	100
	Informal	9.5	6.4	9.5	11.1	12.7	9.5	41.3	100
	Total	**12.4**	**5.7**	**9.4**	**16.0**	**14.3**	**10.5**	**31.4**	**100**
Users	Registered companies	31.8	13.8	13.8	14.4	10.0	12.5	3.8	100
	Household and individual traders	21.3	22.2		13.9	16.3	8.9	2.97	100
	Total	**26.0**	**18.5**	**14.1**	**14.1**	**13.5**	**10.5**	**3.3**	**100**

Notes:
Financial services were ranked together with six other trade facilitation factors: customs, regulations, trade documentation, transport, movement of people, and the role of information technology (IT).
A ranking of one indicates financial service as the most important among the seven factors; and a ranking of seven indicates financial service as the least important among the seven factors.

Source: Survey data.

Functional Dimension of Financial Service Accessibility

To examine the perception of the functional dimension of accessibility of financial services, the research team asked providers what types of financial services they provided, and asked users what types of financial services were accessible to them. Inherently, if there is no constraint between the supply and demand, all financial services provided should be accessible to users. In fact, many users may not meet certain criteria required by providers to apply for some financial products. The mismatch between the responses by providers and users thus presents a less robust picture of the overall situation of the accessibility of financial services in the border-gate areas. It is also important to note that this perception gap may indicate a state of self-exclusion, as qualified users may think that certain types of financial services are not accessible, either because they believe that their application would be refused, or simply because they do not have enough information.

Table 7 shows a relatively big gap between the perception of providers and users of financial services with regard to the functional dimension of accessibility. For example, around three-quarters of formal financial service providers reported that they were able to provide bank draft and documentary credit services,[3] whereas less than half of users (both registered companies and household and individual traders) said that those services were accessible to them.

There are different levels of accessibility for different users, especially the more popular financial services and/or products, such as foreign exchange, money transfer, and bank accounts. The data shows that around 90% of registered companies said they had access to money transfer services compared to 69% of household and individual traders. A similar gap existed in banking account services, with 63% of registered companies saying that they had access, compared to 32% of household and individual traders. However, the share of household and individual traders who said they had access to foreign exchange services was twice as high as the share of registered companies who said they had access to foreign exchange services (87.2% compared

Table 7 Accessibility to Financial Service Products (%)

		1	2	3	4	5	6	7
Respondent		Bank Draft	Documentary Credit	Credits to Buyers and Sellers	Money Transfer	Export Credit Insurance	Foreign Exchange	Bank Accounts
Providers[a]	Formal	76.0	74.0	57.0	93.0	45.0	81.0	93.0
Users[b]	Registered companies	47.8	42.2	51.6	90.1	9.3	42.9	63.4
	Household and individual traders	40.6	38.8	66.2	68.9	8.7	87.2	32.0

[a] Percentage of providers that said they provided financial service products. For the registered money exchangers, this could mean that they are able to connect the customers to the banks for these services.
[b] Percentage of users that said that financial service products were accessible to them.

Source: Survey data.

[3] For the registered money exchangers, this may mean that they are able to connect the customers to the banks for these services.

Table 8 Sources of Information for Financial Service Users (%)

Proportion of respondents who said they knew the availability of financial service by	%
Receiving advertisements from local financial service providers	71.3
Receiving advice from financial experts	38.5
Retrieving information from databases and/or information centers	28.7
Looking for information on the internet	41.5
Approaching informal and indirect sources of information (e.g., tips, information from business partners, etc.)	62.0

Source: Survey data.

to 42.9%). This may be explained by the fact that household and individual traders may face greater constraints compared to registered companies in accessing certain types of financial products only provided by formal institutions (e.g., bank accounts). However, they may have wider access to services provided by both formal and informal providers than registered companies (e.g., foreign exchange) because they had greater flexibility in approaching the informal service providers (Table 7).

Inaccessibility to financial services can result from the problem of asymmetric information or because potential users do not have enough information on the provision of services. The survey shows that the proportion of users with access to the information about the financial services from informal and indirect sources (e.g., tips and information from business partners) was still high (62%). In addition, the marketing and advertising activities of financial service providers were not very effective as they were only able to reach around 71% of users in the border-gate areas (Table 8).

User-Friendly Dimension of Financial Service Accessibility resume here

From the user-friendly perspective, providers of financial services reported that *Reliability*, *Responsiveness*, *Assurance*, *Empathy*, *Tangibility*, and *Convenience* were six factors that influenced customers' decision to use their service. Users of financial services also reported that these six factors influenced their decision to use the service of a particular provider (Table 9).

For financial service providers, the score of a factor (e.g., *Reliability*) indicates the level of influence, as perceived by the provider, on customers' decisions to use the service. For financial service users, the score of a factor indicates the level of influence, as perceived by the user, on his or her decision to use the service of a particular provider. The score of each factor was calculated by averaging the scores of its operational indicators as shown below:

(i) *Reliability.* The score was calculated by taking the average of scores (from 1 to 5) of five specific indicators:
   - **ability to perform the service as needed,**
   - **prompt service provision,**
   - **trust on provider to solve any problem if ever it occurred,**
   - **ability to complete service at the right time, and**
   - **free of errors.**

(ii) *Responsiveness.* The score of was calculated by taking the average of scores (from 1 to 5) of three specific indicators:

Table 9 Six Factors of User-Friendly Dimensions

Respondent		1 Reliability	2 Responsiveness	3 Assurance	4 Empathy	5 Tangibility	6 Convenience
Providers	Formal	3.96 (0.53)	3.89 (0.68)	4.12 (0.52)	4.0 (0.66)	3.99 (0.63)	3.96 (0.67)
	Informal	3.06 (0.76)	3.1 (0.64)	3.31 (0.37)	3.33 (0.5)	3.36 (0.43)	3.29 (0.41)
Users	Registered companies	3.35 (0.7)	3.3 (0.73)	3.46 (0.7)	3.45 (0.74)	3.5 (0.66)	3.38 (0.67)
	Household and individual traders	3.36 (0.6)	3.33 (0.69)	3.54 (0.59)	3.52 (0.66)	3.54 (0.62)	3.45 (0.61)

Notes:
Standard deviations are reported in parentheses.
Scores are ranked from 1 to 5, where: 1 = unimportant, 2 = rather important, 3 = important, 4 = very important, and 5 = extremely important.

Source: Survey data.

- **state of being informed when service is done,**
- **provider's response to the request, and**
- **speed of transaction.**

(iii) *Assurance.* The score was calculated by taking the average of scores (from 1 to 5) of four specific indicators:
- **trust in the employees who serve,**
- **confidence in the completeness and safety of transactions,**
- **politeness of employees, and**
- **knowledge of employees.**

(iv) *Empathy.* The score was calculated by taking the average of scores (from 1 to 5) of two specific indicators:
- **employees' caring attitude, and**
- **advice and understanding of the customers' needs.**

(v) *Tangibility*. The score was calculated by taking the average of scores (from 1 to 5) of three specific indicators:
- **modern equipment,**
- **cleanliness of the premises, and**
- **dress of employees.**

(vi) *Convenience*. The score was calculated by taking the average of scores (from 1 to 5) of five specific indicators:
- **availability of the employees,**
- **ample seating,**
- **suitable location,**
- **convenience of premises, and**
- **suitable working hours.**

The financial service providers seem to give more weight to the factors of *Assurance*, *Empathy*, and *Convenience* than the users with regard to how those factors affect their decisions to use financial services. The result shows a statistically significant difference in the mean scores of those factors between the providers and users of financial services. However, the difference

Table 10 Comparison Between Users and Providers of the Six Factors of the User-Friendly Dimension of Service Accessibility

Factor	**Users** (mean)	**Providers** (mean)	T	p-value
Reliability	3.35	3.44	(0.98)	0.33
Responsiveness	3.32	3.42	(1.19)	0.23
Assurance	3.51	3.65	(2.17)	0.03[a]
Empathy	3.49	3.63	(1.95)	0.05[b]
Tangibility	3.53	3.63	(1.55)	0.12
Convenience	3.40	3.57	(2.28)	0.02[a]

( ) = Negative.

[a] Statistically significant at 5%.
[b] Statistically significant at 10%.

Source: Survey data.

in the mean score of *Reliability*, *Responsiveness*, and *Tangibility* is not statistically significant between providers and users. This means that users and providers may share the same view on the level of influence of *Reliability*, *Responsiveness*, and *Tangibility* on users' decisions to use financial services (Table 10).

Institutional Dimension of Financial Service Accessibility and User Choice

It is expected that users may have different evaluations regarding the accessibility of financial services supplied by formal and informal service providers from the user-friendly perspective. Users who place greater emphasis on certain factors of the user-friendly dimension will likely choose based on whether they perceive those factors as better in formal or informal financial services. Thus, the choice of users—between formal and informal financial services—also *indirectly* reflected their evaluation of the current state of the user-friendly factors in those two types of services. For example, if *Reliability* positively affects the user to choose a formal financial service, it is more likely that this user thinks the formal financial service is more reliable than the informal financial service.

To test how users' views of the user-friendly dimension of financial service accessibility affected their choice between formal and informal financial services, the research uses two logistic models:

Model 1:

$$\textbf{Logit (choice}_i\textbf{)} = \alpha + \beta_1 \textbf{Reliability}_i + \beta_2 \textbf{Responsiveness}_i + \beta_3 \textbf{Assurance}_i + \beta_4 \textbf{Empathy}_i + \beta_5 \textbf{Tangibility}_i + \beta_6 \textbf{Convenience}_i + \varepsilon_i$$

Model 2:

$$\textbf{Logit (choice}_i\textbf{)} = \alpha + \beta_1 \textbf{Reliability}_i + \beta_2 \textbf{Responsiveness}_i + \beta_3 \textbf{Assurance}_i + \beta_4 \textbf{Empathy}_i + \beta_5 \textbf{Tangibility}_i + \beta_6 \textbf{Convenience}_i + \beta_7 \textbf{North}_i + \beta_8 \textbf{South}_i + \varepsilon_i$$

of which:

- Choice = where users preferred formal financial service, 0 otherwise.
- Reliability, Responsiveness, Assurance, Empathy, Tangibility, and Convenience are six factors of user-friendly dimension of service accessibility. The score of a variable indicates how much influence the factor has on the user's decision to use the financial service of a particular provider.

– North = if respondents are located in Lao Cai or Hekou, 0 otherwise.
– South = if respondents are located in Moc Bai or Bavet, 0 otherwise.

In Model 1, the likelihood ratio is 12.08, the p-value is 6%, and pseudo R2 is 0.04. Model 2 includes two additional explanatory variables—*North and South*. Model 2 has a better goodness of fit than Model 1. In Model 2, the likelihood ratio is 16.62, the p-value is 3%, and pseudo R2 is 0.06. The goodness of fit test results show that these are relatively good models.

In both models, the logit regression results show that an increase in the value of *Reliability*, *Assurance*, and *Convenience* tends to reduce the likelihood of users' choice of formal financial services because the coefficients of these variables have a negative sign. In other words, if factors such as *Reliability*, *Assurance*, and *Convenience* have greater influence on the users' decision to use the services of a financial service provider, the less likely it is that they will choose a formal financial service (or the more likely it is that they will choose an informal financial service). This also reveals that users may think informal financial services are better than formal services in terms of *Reliability*, *Assurance*, and *Convenience*.

In contrast, an increase in the value of *Empathy* and *Tangibility* tends to increase the likelihood of users' choosing a formal financial service because the coefficients of these variables have a positive sign. In other words, if factors such as *Empathy* and *Tangibility* have greater influence on the users' willingness to use the services of a financial service provider (or the higher the value of *Empathy* and *Tangibility*), the more likely it is that they will choose formal financial service. This also indicates that the users may think formal financial services are better than informal service in terms of *Empathy* and *Tangibility*.

Table 11 Logistic Regression Results

	Model 1		Model 2	
Variable	**Coefficients**	**p-value**	**Coefficients**	**p-value**
Intercept	(0.10)	0.88	0.44	0.56
Reliability	(0.29)	0.28	(0.32)	0.24
Responsiveness	0.05	0.83	(0.06)	0.80
Assurance	(0.56)	0.06[b]	(0.64)	0.04[a]
Empathy	0.63	0.01[a]	0.70	0.01[a]
Tangibility	0.42	0.09[a]	0.49	0.05[b]
Convenience	(0.19)	0.47	(0.16)	0.54
North			(0.26)	0.37
South			(0.62)	0.04[a]
Model LR	12.08		16.62	
p-value	0.06		0.03	
Pseudo R^2	0.04		0.06	
Frequencies of responses	0:172	1:208	0:172	1:208

( ) = Negative.

[a] Significant at 5% level.
[b] Significant at 10% level.

Source: Survey data.

Responsiveness is the only variable that shows the opposite sign in the two models. However, because the coefficient *Responsiveness* is small in absolute values (0.05 in Model 1 and 0.06 in Model 2) and not statistically significant (the p-values are 0.83 in Model 1 and 0.8 in Model 2), it implies that the impact of *Responsiveness* on the choice of financial services is negligible.

Similarly, looking at the level of statistical significance of each variable, the logit regression results of both models show that *Reliability* and *Convenience* may not affect the likelihood of users' choice between formal and informal services because their coefficients are not statistically significant at the 10% level.

Assurance, *Empathy*, and *Tangibility* seem to be relatively good explanatory variables for the logit model. The sign of these three coefficients is unchanged, with *Assurance* bearing a negative sign and *Empathy* and *Tangibility* showing positive signs in both models.

In Model 1, the coefficients *Assurance* and *Tangibility* are –0.56 and 0.42 respectively, and they are statistically significant at the 10% level. It means that, other things being equal, as the value of *Assurance* increases by 1 unit[4] (e.g., a user thinks *Assurance* has "very important" influence rather than an "important" influence on his decision to use the services of a financial service provider[5]), the log of the odds in favor of choosing a formal service will decrease by 56% (i.e., the odds in favor of choosing a formal service will decrease by 43%). Similarly, other things equal, a 1 unit increase in the value of *Tangibility* will lead to the increase in the log of the odds in favor of choosing a formal service by 42% (i.e., the odds in favor of choosing a formal service will increase by 52%).

In Model 2, the coefficient *Assurance* is –0.64 and statistically significant at the 5% level, whereas *Tangibility* is 0.49 and statistically significant at the 10% level. It means that, other things being equal, as the value of *Assurance* increases by 1 unit, the log of the odds in favor of choosing a formal service will decrease by 64% (i.e., the odds in favor of choosing a formal service will decrease by 47%). Similarly, other things being equal, a 1 unit increase in the value of *Tangibility* will lead to the increase in the log of the odds in favor of choosing formal financial service by 49% (i.e., the odds in favor of choosing a formal financial service will increase by 63%).

Empathy proves to be the most influential explanatory variable in both models. It has the largest coefficients (0.63 in Model 1, and 0.7 in Model 2), which are statistically significant at the 5% level. It follows that, other things being equal, in Model 1, as the value of *Empathy* increases by 1 unit,[6] the odds in favor of choosing a formal financial service will increase by 88%, whereas in Model 2, a 1 unit increase in the value of *Empathy* will produce an increase in the odds in favor of choosing a formal financial service of more than 100%.

The regression results provide the evidence to support the study's preliminary observation that, the greater influence the users think *Assurance* has on their willingness to use the services of a financial services provider, the less likely it is that they will choose a formal financial service. In contrast, the greater influence the users think *Tangibility* and *Empathy* have on their willingness to use the services of a financial service provider, the more likely it is that they

[4] That is, the mean score of the four specific indicators: trust in the employees who serve, confidence in the completeness and safety of transactions, politeness of employees, and knowledge of employees, increases by 1 unit.

[5] Overall, elements including trust in the employees who serve, confidence in the completeness and safety of transactions, politeness of employees, and knowledge of employees, have a "very important" influence rather than an "important" influence on users' decisions to use the services of a financial service provider.

[6] The mean score of the two specific indicators: employees' caring attitude, and advice and understanding of the users' needs, increases by 1 unit.

will choose a formal financial service. It follows that, overall, users may think formal financial services are better in terms of *Empathy* and *Tangibility*, whereas informal financial services are better in terms of *Assurance*.

The regression result in Model 2 shows that users in the northern and southern border-gate areas (i.e., Lao Cai, Hekou, Moc Bai, and Bavet) appear less likely to choose a formal service provider than those in the central border-gate area (i.e., Lao Bao) holding other variables constant, because the coefficients *North* and *South* have negative signs.

However, looking at the level of statistical significance of the *North* and *South* variables, there is evidence to say that users in the northern and central border-gate areas (i.e., Lao Cai, Hekou, and Lao Bao) may not differ in their choice of formal financial service (holding other variables constant) because the coefficient *North* is not statistically significant at the 5% level. The coefficient *South* is –0.62 and it is statistically significant at the 5% level. This means, holding other variables constant, that the odds in favor of choosing a formal financial service by users in the southern border-gate areas (Moc Bai and Bavet) is 46% smaller than the odds in favor of choosing a formal financial service by users in the central border-gate area (Lao Bao).

Policy Recommendations

Financial Services as an Important Policy Initiative for Cross-Border Trade Facilitation

Financial services have so far been overlooked in GMS cooperation on cross-border trade facilitation. This paper, however, shows that for the local business community, financial services are an important factor for cross-border trade facilitation, and they should be given adequate attention in GMS cooperation policy.

With the increased number of companies and people participating in cross-border trade and the increasing value of transactions, the demand for financial services in the border-gate areas of the GMS has become an important issue. This also leads to the rejection of a very popular proposition that small and informal businesses in the border-gate areas do not require a developed financial service sector to meet their demand. The GMS border economy is now so integrated and has reached such a dynamic development level that financial services are a crucial part of it.

However, inaccessibility prevents financial service's from making a greater contribution to facilitating border trade.

First, there is an inadequate presence and low level with familiarity with banks in the border-gate areas. As a result, only a small proportion of the cross-border trade in the GMS is financed through the commercial banking system, and the rest is in the form of barter or is paid in cash.

Second, not only have restrictive criteria (e.g., minimum deposit, collateral, administrative burden, and fees) reduced access to financial services, especially banking services, the user-unfriendly features (e.g., unresponsiveness and apathy of employees, unreliable service, inconvenient location, and unsuitable office working hours) have also adversely affected the customers' willingness to use financial service.

Third, informal financial services dominate formal financial services in terms of familiarity and accessibility by the users. Despite their flexibility and large number, accessibility to informal financial services can be constrained by customers' concern over the high risks associated with their user-unfriendly features.

Increasing the Presence of Financial Organizations in the Border-Gate Areas

Increasing the presence of financial organizations is the first important step toward increasing access to financial services while reducing the risky transactions often experienced with informal financial service providers—mostly unregistered money exchangers—in the border-gate areas. In the GMS, especially in Viet Nam, major banks have already recognized the potential of financial development in the border-gate areas but they have been slow to tap this market because of the huge unexploited inland market. In addition, formal financial service providers are concerned about the higher business risks (e.g., default of customers) in the border areas.

Although banks are important, they are not the only choice of financial organizations in the border areas. Other forms of financial service providers, such as credit cooperatives and local funds, can also be effective given their greater flexibility and simplicity (in terms of easier business registration, smaller capital requirement, and fewer requirements for infrastructure development). These organizations handle transactions of smaller value and collect lower service fees. They also tailor their products to low-income customers while possessing better connections and information channels in the local areas to assess the financial risks (e.g., by recruiting local people as their agents and credit evaluators).

For many years, people's credit organizations—a form of credit cooperative—have been very popular in the rural areas of Viet Nam. This study recommends that more low-cost financial service providers, such as people's credit organizations, be established in the border areas with expanded functions to provide better financial services to cross-border trade.

Overcoming Problems of Asymmetric Information

Although financial service providers deny financial services to most traders because they were not qualified, overcoming the problem of asymmetric information is crucial to removing the self-exclusion phenomenon. Increasing access to formal financial services may require an increase in communication between financial service providers and traders.

Greater efforts, however, must come from the supply side by making financial service providers and their products visible and accessible to traders. Establishing their business premises in the border-gate areas is only a first step to meeting the demands of traders. The next step should be familiarizing financial service providers with the local business community.

Financial providers, such as banks, should do better in terms of marketing and advertising their products and services to the local community by providing printouts, brochures, and pamphlets to the local people and constructing and upgrading their websites.

Help desks with information on available financial services in the local area should be set up (e.g., in the general information centers at the border gates). The general information center can also provide printouts, brochures, and pamphlets of financial providers, and other related information on financial services.

Making Financial Services More Friendly to Users

Making a service friendly to users is important to increase people's willingness to use it. This study linked the characteristics of a user-friendly financial service to six factors: *Reliability*, *Responsiveness*, *Assurance*, *Empathy*, *Tangibility*, and *Convenience*. It found that all these factors are seen as having important influence on traders' decisions to use the services of a financial service provider, and on providers' decisions to make their services more attractive to customers.

The study also shows that these factors can influence the choice of users between formal and informal financial services. There is evidence to conclude that the greater the influence the users think *Assurance* has on their decision to use the service of a financial service provider, the less likely it is that they will choose a formal financial service. In contrast, the greater the influence the users think *Empathy* and *Tangibility* have on their decision to use the services of a financial service provider, the more likely it is that they will choose a formal financial service. In other words, users may think that, overall, a formal financial service is better in terms of *Empathy* and *Tangibility*, and an informal financial service is better in terms of *Assurance*. However, users may think that there is not a significant difference between formal and informal financial services in terms of *Reliability*, *Responsiveness*, and *Convenience*, or at least this difference, if any, does not affect users' choice between the two forms of financial service.

For providers of financial services, the focus on six factors of user-friendly dimension means the following:

1. To have a more reliable service: increase the ability to perform the service as needed, provide the service promptly, solve problems, complete the service at the right time, and reduce errors.
2. To have a more responsive service: increase the ability to keep customers informed, respond effectively and in a timely manner to the request, and increase the speed of transaction.
3. To have a service with higher degree of assurance: build customers' trust in the employees (e.g., through the latter's behaviors), and customers' confidence in the completeness and safety of transactions; and increase politeness and knowledge of employees.
4. To have a more empathic service: develop employees' caring attitude, and increase the ability to provide advice and understand the needs of customers.
5. To have a more tangible service: invest in modern equipment, ensure the cleanliness of the premises, and pay greater attention to appearance (e.g., dress) of employees.
6. To have a more convenient service: ensure the availability of the employees to serve the customers, have a suitable location and working hours, and have a convenient arrangement of facilities within the business premises.

Providing Skills Trainings to Providers and Users of Financial Service

Providers of financial services should be provided with skills training to be able to improve their services, for instance, in the above six factors of the user-friendly dimension. Skills training is necessary for informal financial service providers, such as individual money changers in the black market, not only to help them provide more user-friendly services but also to have more secure business transactions.

Users and potential users of financial services, such as individuals, households, and companies, also need the skills to be able to use different kinds of service effectively and properly. Misuse of financial services in business transactions may lead to higher costs in time and money than non-use of these services.

Local business associations (e.g., banks and other credit organizations) can cooperate to organize training with the help of local organizations, such as women's unions, youth unions, and the informal networks of traders and money changers. Dissemination of printouts of tips and guidance in providing financial services can be an effective way of transmitting knowledge to informal financial service providers.

Formalize the Informal Service Providers

Formalizing or registering informal service providers can be the next step following skills training. Service providers who have undergone the training can be granted a working license and become registered. This process requires close cooperation rather than competition between the banks and informal financial service providers.

There is a need to enlarge the access of informal providers to the registration process. This can be done by reducing training and registration fees, as well as other follow-up costs such as tax on registered businesses.

Bridge the Gap between Formal and Informal Financial Service Providers Through User-Friendly Features

While users may think that there is no significant difference between formal and informal financial services in terms of *Reliability*, *Responsiveness*, and *Convenience,* in the overall analysis, formal financial services are better in terms of *Empathy* and *Tangibility*, while informal financial services are better in terms of *Assurance*. This means that while financial service providers should try to improve all six factors of the user-friendly dimension, formal service providers should pay greater attention to *Assurance*, whereas informal financial service providers should pay special attention to *Empathy* and *Tangibility*.

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