



**DRAFT FOR COMMENTS & DISCUSSION – NOT FOR QUOTATION**

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**Impact Assessment of Business Association Membership on Small and Medium  
Enterprises' Growth Performance: Evidence from Enterprise Survey of  
Cambodia**

*Drafted report*

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## ABBREVIATIONS AND ACRONYMS

ATT	Average Treatment on the Treated
BA	Business Association
CAMFEBA	Cambodian Federation of Employers and Business Associations
CDC	Council for the Development of Cambodia
CEFP	Committee for Economic and Financial Policy
CoC	Chamber of Commerce
DID	Difference-in-Difference
FASMEC	Federation of Association of Small and Medium Enterprises of Cambodia
GDP	Gross Domestic Product
GSO	General Statistics Office
ICS	Investment Climate Assessment
LE	Large Enterprise
MIME	Ministry of Industry, Mines, and Energy
MoC	Ministry of Commerce
MoP	Ministry of Planning
MSME	Micro, Small and Medium Enterprise
NGO	Non-Governmental Organisation
NIS	National Institute of Statistics
NNM	Nearest Neighbour Matching
NSDP	National Strategic Development Plan
OLS	Ordinary Least Square
OSMEP	Office of Small and Medium Enterprises Promotion
PBES	Provincial Business Environment Scorecard
PSM	Propensity Score Matching
SEZ	Special Economic Zone
SME	Small and Medium Enterprise
UNIDO	United Nations Industrial Development Organisation

## EXECUTIVE SUMMARY

Arguments that small and medium enterprises (SMEs) need direct and indirect support are ubiquitous. In Cambodia, SMEs are believed to be vulnerable to competition and less advantageous due to growth constraints: small size, informal status, low bargaining power, difficulty obtaining long-term finance, and low competitiveness due partly to high cost of administrative compliance. This study investigates how firms, in general, and SMEs, in particular, can benefit from an intermediary support programme such as a Business Association (BA) or Chamber of Commerce (CoC). Two strands of thought—the pluralists and the public choice theorists—dominate the debate on the pros and cons of such associative organisations. The former argues for the existence of such collective bodies, while the latter argues against it.

Within the framework of pluralist theory and using propensity score matching (PSM) and PSM and ordinary least squares (OLS) regression with firm-level cross-sectional data in 2007, we examine characteristics of firms currently participating in BAs or CoCs and evaluate average treatment effects on the treated (ATT) of membership on a number of firms' performance indicators: production, turnover, labour productivity, cost of labour, labour cost per worker, and other costs of production. PSM is used to minimise selection bias and the fact that other advanced approaches to address the issue of omitted variable bias—difference-in-differences (DID) or instrumental variables (IVs)—are not compatible with the existing dataset.

Logistic regression of the pooled sample suggests that large firms (with 99 plus employees), foreign and joint venture firms, manufacturing establishments, firms with large national marketshare, firms where majority of workers are union members, firms that have more foreign competitors, firms that have term loans with financial institutions, firms aware of special economic zones (SEZ), and firms faced with complicated administrative compliance required by government such as licences, permits, and registration have a high probability of participating in a BA or CoC. Regression on the SME sub-sample also indicates similar firm characteristics as mentioned above. Lobbying government (96 percent), resolving disputes with officials, workers or other firms (68.4 percent), and getting information on government regulations (81.3 percent) are three services BA members perceive as important.

With pooled and SME sub-samples, our ATT models using nearest neighbour (NN) and kernel matching methods indicate that membership in BA or CoC has positive impacts on a firm's performance, though statistical significance could not be achieved in all outcome variables. In other words, the benefits of membership in BAs or CoCs become evident in a firm's sales, production, costs of labour and other costs of production. Nonetheless, membership has very little and statistically insignificant impact on labour productivity and expenses per worker. Sensitivity analysis of the findings reveals similar results. Participating firms could gain more information on local and foreign markets through membership; however, given the insignificant enhancement of labour productivity they were unable to improve their longer-term competitiveness simply through becoming a member. Using membership to build "social capital" (trust and collective work) is still an area for further improvement.

The study argues that strong government efforts and commitment are required to: (1) enact concrete policies and strategies for exports to assist exporting firms in the process of learning and acquiring new ideas to improve productivity and profitability, (2) initiate policies and procedures to assist informal enterprises, especially micro, small and medium enterprises (MSMEs), to operate in a much more formal status, (3) continue reducing regulatory and

administrative burden to enhance firms' competitiveness and growth, and (4) continue to facilitate the financial market to help MSMEs access long-term loans and to reduce the high demand for collateral from financial institutions.

Given that the issues facing SME growth and respective support programmes are multi-faceted demanding committed and continuous attention from all involved stakeholders, future studies can examine the following aspects: rigorous and empirical study of the benefits of various BA services that members are entitled to; the role and benefits a recently established Federation of Association of SMEs (FASMEC) provides to its members; roles and benefits of industrial clusters; and the impact of SME training programmes on firms' performance.

DO NOT QUOTE

## 1. INTRODUCTION

Growing attention in academic circles as well as in the policy arena has been paid to the significance of small and medium enterprises (SMEs) in the last couple of years. It is widely argued that SMEs play a vital role in enhancing economic growth and competitiveness and help reduce poverty in both developing and industrialised economies. The effects are particularly profound in developing countries where SMEs represent a substantially large portion of domestic production and employment (Ayyagari *et al.* 2011).

In 2008, for instance, SMEs employed 9.7 million people, or 30.5 percent of the total workforce in the UK, and had a combined turnover of approximately GBP1200 million, or 44.0 percent of UK private sector enterprises' total turnover of GBP2800 million (Williams & Cowling 2009). In the US, micro, small and medium enterprises (MSMEs) [with employment ranging from 0<sup>1</sup> to less than 500] accounted for 99.7 percent, or 5.9 million of the total enterprise establishments in 2008, and made up almost half (49.4 percent) of total employment. MSMEs paid approximately USD2.2 trillion or 43.4 percent of the annual payroll (Statistics of US Businesses 2008). In Vietnam, SMEs represent on average 96 percent per year of new enterprises established between 2000 and 2008. In 2008, by employee size, out of 205,689 enterprises—state-owned, non-state-owned and foreign-invested—there were 201,580 SMEs compared to 4109 non-SMEs (GSO 2010). From 2004 to 2006, SMEs in Thailand contributed on average about 39 percent of overall GDP, providing about 76 percent of all employment. In the same period, SMEs accounted for about 30 percent of exports and 33 percent of imports (SME White Paper 2006 cited in OSMEP 2010).

It is often propounded, however, that SMEs face a number of constraints to growth: small size, relatively low bargaining power, difficulty obtaining investment loans, vulnerability to idiosyncratic risks resultant of vertical and horizontal competing forces, high costs of administrative compliance and weak legal enforcement (see, for example, Sukiassyan & Nugent 2008; Beck *et al.* 2008; Stephanou & Rodriguez 2008; Aterido *et al.* 2009).

To tackle these problems wholly or partly, there is widespread belief that SMEs need specific direct and indirect assistance from all involved stakeholders to make them more competitive and to ensure high survival rate. Support programmes from training, advice, subsidies to SME-tailored policy have been availed for SME owner-managers to take advantage of (Wren & Storey 2002; Batra & Mahmood 2003; Bennett 2008; Zecchini & Ventura 2009; Han & Benson 2010; Czarnitzki & Hottenrott 2011; World Bank 2010; Chheang *et al.* 2011). In addition to programmes designed to fit the needs of individual SMEs, more concentrated and associative forms of programmes have also been implemented to mobilise collective efforts and pooled resources to address common constraints. Examples of such associative networks include business and trade associations, professional and employer associations, federations, networks, and clusters.

Associative organisations are numerous and vary greatly in dynamism and diversity in almost all countries. They span enterprise networks at regional, national, local and sectoral levels aiming to undertake advocacy works and represent the interests of their members with external parties to help members be more competitive and involved in overall business activity. Mr. Thomas R. Kuhn, president of Edison Electric Institute, for instance, once said “it’s a powerful benefit to have the entire business community under one roof. This is why Edison Electric

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<sup>1</sup> An establishment with zero employment is one that reports no paid employees in the mid-March pay period, but paid employees at some time during the year.

Institute is a US Chamber member. It's an absolute must."<sup>2</sup> Considerable literature has argued that business associations (BAs) provide more benefits to SMEs than to large firms whose economy of scale and scope enable them to overcome size constraint and stay competitive even without assistance (Bennett 1998; Bennett & Ramsden 2007; Perry 2007). Yet, there are theoretical and empirical variations to this claim.

In Cambodia, SMEs have contributed significantly to overall macro-economic growth, job creation, innovation and technology adoption. The policy agenda and support programmes are not very much different from those commonly observed in other economies. SMEs<sup>3</sup>, particularly manufacturing establishments, are important to economic growth and business competitiveness. Cambodian manufacturing SMEs have gradually grown in number: 33,195 manufacturing establishments in 2007 made up 98.3 percent of the total number of SMEs, with large enterprises (LEs) accounting for just 1.7 percent (NIS 2008). Recently released preliminary results of the 2011 economic census conducted by the NIS report that MSMEs account for 502,372 (99.9 percent) of the total 503,008 establishments across the country with most firms being concentrated in Phnom Penh and in major economically active provinces such as Kampong Cham, Siem Reap, Battambang, Kandal and Takeo<sup>4</sup>.

The number of SMEs has risen at an annual rate of about 3.5 percent since 1998, reaching 32,619 establishments operating across the country in 2007 (Annex Table 2). Of the total establishments in 2007, SMEs involved in food, beverages and tobacco comprised the largest proportion (80.9 percent), followed by those dealing in fabricated metal products (8.8 percent) and textiles, wearing apparel and leather goods (4.5 percent). In the same year, the number of SME employees increased by 9.0 percent compared to a year earlier, from 87,072 workers to 94,835. This represents an 18.9 percent share of total employment (Annex Table 3). The total volume of production generated by SMEs also constantly went up at an annual growth rate of 30.2 percent between 1998 and 2007, reaching USD 636.2 million in 2007. Food, beverages, and tobacco continued to comprise the biggest proportion of total generated value (Annex Table 4).

Cambodian SMEs, however, are still in their initial stages of development even with the completion of the first five-year SME Development Framework (2005-10). Initiatives in the previous plan were designed to tackle issues and challenges SMEs face; yet, rigorous implementation has been lacking and unsatisfactory. Also, as far as SME policymaking is concerned, there is obviously a need to systematically study and evaluate whether the proposed policies and other related interventions are having positive impacts on SMEs' operation and competitiveness. This is what Cambodia has lacked.

A variety of constraints hinder SME development in Cambodia; nonetheless, they cannot be scrutinised in just one study. Although there are a considerable number of public sponsored or privately financed BAs and growing efforts from both government and development partners to enhance inter-firm collaboration, systematic studies on whether this initiation is or will be having positive impacts on participating firms are still limited. This study, thus, aims to examine potential impacts that SME membership in BAs or CoC would have on firms' medium and long term outcomes. The study contributes to the limited but growing body of systematic and

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<sup>2</sup> See <http://www.uschamber.com/associations> (accessed September 2011)

<sup>3</sup> Please refer to Annex Table 1 for the classifications of enterprises in Cambodia

<sup>4</sup> Please refer to Annex Figures 1 and 2 for more information on the number of enterprises in cities and provinces in 2011



academic literature<sup>5</sup> on SME development in Cambodia and serves as a point for the utilisation of evidence-based impact evaluation for decision-making of stakeholders.

The rest of the paper is organised as follows: Section 2 briefly describes the evolving support activities that the government, development partners, and local and international NGOs have undertaken to promote SMEs in Cambodia. Section 3 reviews and discusses academic studies on the roles of BAs and industrial clusters and the benefits they might provide to participating firms. It also highlights theoretical and analytical bases for empirical analysis. Section 4 specifies econometric models and variables measurement to estimate the impacts of BA membership on intermediate outcomes and long term growth performance of firms in general and SMEs, in particular. Section 5 provides a brief descriptive analysis. Section 6 discusses main findings of the study and highlights sensitivity analysis. Section 7 concludes the paper and recommends a few areas that subsequent studies could examine.

## **2. SMES SUPPORT ACTIVITIES IN CAMBODIA**

SME development has been and will continue to be one of the strategic priorities of the Cambodian government and other involved stakeholders. Its significance has been repeatedly identified in a series of government strategic plans, including the 2004 Rectangular Strategy, the updated National Strategic Development Plan 2009-13, the SME Development Framework 2005-10 approved in 2004, and the 2010-15 draft paper on industrial development by the General Department of Energy.

Thirteen (13) strategic policies are outlined in the government's Rectangular Strategy (2004: 16), which is the basis for the design and implementation of the SME development framework. Some of these policies aim to (1) improve the provision of medium and long-term finance to SMEs, (2) reduce red-tape and regulation compliance, (3) encourage export-import activities by simplifying government-related procedures, (4) promote linkages between SMEs and LEs, (5) support newly-established SMEs for an appropriate period, and (6) promote vocational/skill training.

Drawing on the Rectangular Strategy and the lessons learnt, the Cambodian government adopted the SME Development Framework 2005-10 in 2004 and established the Sub-committee on SMEs, chaired by the minister of the Ministry of Industry, Mines, and Energy (MIME), to carry out and implement planned activities. The framework outlined a number of key initiatives – from rules, regulations and legal framework to SME financing. Its overall vision is “to develop a conducive business environment which will lead to a competitive SME sector and will contribute to the creation of quality employment and improve the range of goods and services available to the people of Cambodia” (CDC 2005: 1).

Government has been implementing support activities and projects that have direct and indirect effects on SME development in conjunction with a number of development partners such as the International Financial Cooperation (IFC), Asian Development Bank, United Nations Development Programme, United States Agency for International Development (USAID), and Japan International Cooperation Agency. The IFC has supported the Government-Private Sector Forum where the sub-committee on SMEs and manufacturing has the opportunity to report progress and problems concerning SMEs directly to the prime minister. It has also been active in assisting the government to improve overall business climate to create a more

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<sup>5</sup>Some of the qualitative and quantitative studies on Cambodian SMEs are: Harner 2003; Meas 2006; Peter 2007; Shariff & Chea 2008; Harvie *et al.* 2010; Chheang *et al.* 2011.

inclusive, fair and competitive environment, which is believed to significantly raise SMEs' competitiveness. The USAID Cambodia Micro, Small and Medium Enterprises (MSME) Project is another recognised project that assists MSME owners in a number of specialised areas covering value chains, business climate, communications, saving, financing, technology and monitoring and evaluation. The project coverage spans wide range of sectors from agriculture, manufacturing, and services to biodiversity.

In addition to projects supported by development partners, private business associations and chambers of commerce from national to provincial levels have been active in making sure that their representation improves information sharing and other collective benefits to SMEs. Two associations, Phnom Penh Small and Medium Industries Association and Chamber of Professionals and Micro-Enterprises Cambodia, are working to promote SMEs in cooperation with line ministries including MIME and commerce and development partners such as the German Agency for International Cooperation (GIZ) and the United Nations Industrial Development Organisation. One of their activities is to organise workshops, seminars and forums in which SMEs can share experiences and collectively solve problems. The former is an association of companies specialising in food, beverages, garments and manufacturing. The latter was established by sub-decree in 2005 to provide national and provincial training and business development support services to professional handicraft artisans and micro-enterprises at both national and provincial/local levels. Business development services include access to finance, human resources development, training in management practices and product quality management.

The Federation of Association of Small and Medium Enterprises of Cambodia (FASMEC) was established in 2010 aiming to wholly or partly assist the activities of SMEs. It operates nationwide and includes a wide range of services such as facilitating dialogue between business partners and government, coordinating linkages between member SMEs, mediating conflicts, and organising short-term vocational and skills training. Both associations and individual enterprises can join the Federation's membership; they are obliged to pay annual membership fees for its services.

Although different associations exist to assist SMEs, building robust and sustained associations is still a demanding and challenging task because of financial and human resource limitations. Even with the existing frameworks, limited efforts and resources have been made available to allow SMEs in related sectors to thrive and meet prevailing business challenges. In Cambodia, a few weaknesses—weak legal framework, high administrative costs, difficult access to finance, and insufficient SME support activities—are of high concern to both international organisations and SME owners. Lack of systematic and effective coordination among line ministries, as many believe, has contributed to the long and costly regulatory compliances companies are required to fulfil. This is more likely to induce firms that have resources and networks to operate rather informally in ways that can distort market prices, further jeopardising the already-insufficient government tax revenue.

It may be a bit premature to put all the blame on government because, in order to make support services more effective, service provision should be met with sufficient strong and effective demand from SME owner-managers. SMEs' low demand for and low awareness of the availability of both public and private business support services is just another problem to be addressed. It should be noted that majority of enterprises in Cambodia are MSMEs which are run by family members who might not have adequate managerial skills. They have not yet seen the benefits of seeking formal consultation with professional private organisations and often fail to cooperate or attend training programmes provided by MIME. The high level of informal

businesses, especially among MSMEs, is another contributing factor to the low participation rate.

### 3. LITERATURE REVIEW AND THEORETICAL ASPECTS

There is an array of literature on the links between business association (BA) memberships and industrial clusters and firms' growth performance; however, this section does not aim to review all studies, but simply deals with some of the most relevant ones. We first review studies on linkages between BAs or Chambers of Commerce (CoC) and firms' performance, particularly SMEs, in both developed and developing economies. We then highlight conceptual and empirical evidence of the relations between clusters and firms' outcome indicators.

Two theoretical perspectives can be used to examine and explain the applicability of BAs or other kinds of collective bodies, the existence of which is believed to either contribute to members' growth performance or jeopardise socially optimal benefits. They are pluralism and the public choice theory (see, for example, Becker 1985; Moore & Hamalai 1993; Goldsmith 2000: 40-41). The pluralist theory of interest groups gives importance to BAs and other formally organised groups in which members can collectively increase political and economic bargaining power and influence public policy to improve the overall business environment. Public choice theorists see such associations as counterproductive and discriminatory due to their rent-seeking behaviour which benefits special interest groups at the expense of the majority.

The pluralists argue that, in order to create a business climate conducive to firms' growth, government-private sector collaboration is inevitable to reduce transaction costs of acquiring information on updates and progress of public policies and to ensure a more symmetric flow of information on rules and regulations believed to impact on firms' business operations. This does not happen of its own accord; the private sector needs to ask for it. The pluralists further point to the inability and ineffectiveness of individual firms in influencing government policy. This claim is much more relevant to micro firms and, to a large extent, SMEs whose small size may not give sufficient voice when each firm acts alone. Insufficient number of staff and resources can also prevent individual SMEs from voicing concerns effectively with government. Another benefit of BAs or associative organisations that pluralists put forth is the expansion and depth of social capital that can be achieved through inter-firm collaboration and networks.

On the other hand, the public choice theory, in principle, studies the decision making of politicians and government officials who are seen as the most self-interested agents, and their interactions within the public system. This theory is sometimes categorised as the subset of positive political theory that emphasises the predominant role of material interests. Public choice theorists explicitly criticise special interest groups and lobbyists because their rent-seeking behaviour potentially generates socially-not-optimal results. Organised special interest groups can benefit from additional economic rents<sup>6</sup> resulting from policy lobby to favour their specific agendas. Thus, in the view of public choice theorists, BAs and other collective organisations obstruct fair and just business competition because the representation role of BAs elicits government to fulfil certain business needs that are more likely to favour members than society at large. The rent-seeking behaviour might also leave room for bribery and corruption.

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<sup>6</sup>Goldsmith (2000) defined economic rents as "policy-induced gains that would not exist in a competitive market."

In this respect, one needs to be careful in allowing the establishment of associations or special interest groups. However, the enormous number of BAs and other associative organisations—labour unions, industrial clusters, and federations—in both developing and developed economies supports the pluralists' claim that such organisations tend to provide more advantages to members than disadvantages. Even if BAs might generate negative effects under specific circumstances, the impacts might not be socially completely disruptive to overall business activity. Also, members of BAs can avail a wide variety of strategic services and activities, not solely policy lobbying.

Empirically, the benefits of BA membership have been well documented with considerable literature arguing that intended services of BAs are necessary to help member firms resolve collective or individual problems (Levitsky 1992; Bennett 1995, 1998; Nadvi 1999; Doner & Schneider 2000, 1999; Luna & Tirado 2008; Goldsmith 2000). Political and economic benefits of BAs have also been documented in the case of the United States where BAs are comparatively small, unorganised and fragmented (McCormick *et al.* 2008). The benefits of BAs are even more profound for the smallest firms and SMEs (Wilts & Meyer 2005).

Building on case studies of developed economies where BAs play important roles in assisting SMEs, Levitsky (1992) proposed that the roles of BAs should be increased in developing countries and that various players—government, private sector and international organisations—should further enhance the efficacy and effectiveness of BAs. By examining empirical case studies, Doner and Schneider (1999) argued that, rather than impeding market competition and economic growth resulting from collective bargaining power which is more likely to benefit members than non-members, BAs could provide a wide range of services from lowering information and transaction costs to upgrading skills and technology. The collective actions of BAs are particularly more significant for SMEs than for large firms whose ability to achieve economies of scale allows them to overcome size constraint (Wilts & Meyer 2005; Bennett 1998). Nonetheless, varying arguments still persist on the different characteristics of BAs in terms of service quality, size, efficacy and effectiveness, institutional arrangements, forms of and motives for membership (Bennett & Ramsden 2007).

Although there is considerable evidence asserting the benefits of BA membership, the questions about its existence do not end here. Of course, the issues of associative organisations are multifaceted. One might answer a number of sometimes simple but more often complex and challenging inquiries to ensure that the establishment of a BA has added value to its members' growth performance and, of course, to make sure that its operation is sustainable. Moore and Hamalai (1993) defined "business association" as a collection of formal membership organisations of individual business people or firms. Managerial modalities of BAs are diverse and encompass a huge variation of strategic services and activities. BAs can be big or small; local, provincial, national, regional or global; encompass all firms or are sector-specific; publicly, privately or quasi-publicly owned; independent, government-sponsored or donor-backed; have voluntary or obligatory memberships; are wealthy or penniless; are of discriminatory membership or are widely open to all; offer professional services tailored to meet the needs of individual members which demand more investment in human resources or provide more services for collective purposes which might give room for members to free-ride (see, for example, Moore & Hamalai 1993).

Potential services of BAs include, but are not limited to, dissemination of market information, government lobby, information on import and export markets, access to finance, updates on laws and regulations, collective procurement and sales, and experience sharing in management practices, production methods, financial reporting, and short-term vocational and technical

training. Majority of associations undertake advocacy work. The availability of various services to members is as significant as the effectiveness of service delivery. This is because certain services might be more essential and in higher demand from members than others.

The first question to be answered is what defines a firm's decision to participate in a BA. The theory of associative organisations has differentiated two forces that have potential to drive association membership: "the logic of collective influence" and "the logic of services" (Olson 1965; Bennett 1998, 2000; Perry 2007). The logic of collective influence stresses collective activity in favour of all or, at least, the majority of members with third parties. This service can be to external bodies that are thought to have a sway on members' interests; government agencies have been identified as one of the significant external parties for policy lobbying. The extent and effectiveness of a BA's influence on government, which has the rule and regulatory authority to set the stage for businesses to participate in economic activity, would have strong implications for its membership density and resource mobilisation. The logic of services emphasises service provision to meet specific needs in which a BA's secretariat responds to members' requests and enquiries, allowing the BA to assist members in raising and enhancing competitiveness in "niche" markets in which members specialise (Bennett 1998).

Although the two theoretical claims rationalise firms' membership decision in and existence of BAs, those assertions are not without demerits that possibly impede BAs from functioning properly and to full capacity (Bennett 1998; Perry 2007). First, the administrative and managerial structure of BAs needs to be organised in a way that can exert strong bargaining power with government agencies. This institutional arrangement would come at a cost which is less likely to be dependent on membership fees. Thus, how BAs resource collective activity on behalf of members has implications for the extent to which they can function. Second, the logic of collective influence might leave room for members or, more severely, non-members to "free-ride" in activities that have wider implications and effects on the whole industry or niche markets (Perry 2007). This may induce BAs to stay fragmented, providing limited services to members and self-financed based on fees for specific services demanded by individual members. Third, the logic of service indicates that BAs become more specialised in service provision to members, in other words, become service-oriented organisations. In this respect, BAs would bear considerable staff and other administrative costs and the decision whether to outsource demanded services to professional suppliers or to provide them internally.

Membership decision is also influenced by external forces such as public rules and regulations and overall business environment. Using bivariate and multivariate probit regression models to address endogeneity of selection, Sukiassyan and Nugent (2008) examined factors determining small firms' decision to register with government agencies or private associations (BAs, NGOs and CoC) or both. One of the findings is that if small firms perceive the costs of administrative law and regulation compliance to be high and the commercial court system to be weak in enforcing contracts, they tend to register with private NGOs rather than with government authorities. The study also shows that registration with NGOs should be seen as an alternative approach to registration with government authority because small firms could benefit and collectively overcome their common constraints. However, the study is unclear about whether officially unregistered small firms could form associations or be members of private associations or NGOs. In other words, registration with government authorities should be a prerequisite for subsequent registration with those alternative associations.

The second question concerning associative organisations is the institutional arrangement of BAs that might come in three forms: public, quasi-public and private. The distinctive features of these arrangements are resources, size, effectiveness, service coverage, quality, membership

and membership fees. These differences have implications for the scope and coverage of BAs' services, social, political and economic powers and resources. Levitsky (1992) postulated that publicly financed and centralised institutions which are staffed and managed by "government appointees" are less effective in providing intended services and training to SMEs. These institutions, as he pointed out, often lack human resource capacity and require budgetary resources to properly fulfil their mandates. He proposed that, in developing countries, attention should be paid to examining the roles of private sector organisations that can address more effectively the needs of SMEs. Although variation exists across countries, publicly resourced and managed institutions and associations to support SMEs are less popular in free market economies.

There are reasons to believe that privately financed and managed BAs would be more operationally effective than publicly financed and managed ones. The differences could lie in the fact that privately managed associations tend to staff their institutions with highly qualified personnel rather than relying on "government appointees" (Levitsky 1992: 22) as publicly managed BAs do. Also, privately managed BAs thrive to represent their members in return for membership fees and other liabilities that BAs have. Yet, such a business model could face resource constraints if BAs are mainly dependent on membership fees<sup>7</sup>, preventing them from functioning properly and fulfilling their potential. In examining the potential role of BAs to enhance private sector competitiveness in developing countries that are gearing up for economic liberalisation and political pluralism, Moore and Hamalai (1993) argued that the importance of BAs might not be as great as initially expected. As far as financing models and business effectiveness of associations are concerned, they contend that effective BAs are those that are less likely to rely on membership fees to fulfil their mandates. They tend to imply that BAs should be privately managed but financially dependent on external sources which might include government.

Third, it is often observed that membership in most CoCs or BAs are voluntary, but this varies across countries. Germany, France, Austria, the Netherlands and Italy, for instance, require businesses to register with the CoC (Bennett 1995). In Germany, the Chamber of Industry and Commerce (CIC) and the Chamber of Crafts represent business operators in specific local areas, providing a wide range of services from technical services to government lobbying (Germany Trade & Invest 2012:34). These associative organisations are supported by public law status and are publicly financed. Japan uses a mixed structure of voluntary and compulsory membership. However, given strong social ties and pressure, almost all SMEs (95 percent) are members of associations (Levitsky 1992). Most associative organisations in the US and UK are privately operated with voluntary memberships. Voluntary or statutory membership could have implications for BAs' service provision and financing sources. Bennett (1995) shows that, given voluntary membership, the UK CoC tends to provide specific services demanded by members rather than collective services that other members might use.

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<sup>7</sup>According to its constitution, the Federation of Association of Small and Medium Enterprises of Cambodia (FASMEC) relies on a number of financing sources, including contributions from board members, annual membership fees, assistance from development partners, enterprises, other associations, national and international non-governmental organisations, government, and fees from other commissioned works (FASMEC 2010: 6-7). This indicates that membership fees alone could not fulfil resource requirement for proper and effective representation of FASMEC on behalf of its members. Membership fees are usually relatively low. For instance, ordinary and associate members of the Cambodian Federation of Employers and Business Associations (CAMFEBA) pay about USD300 for a year's subscription. Association members with 1-19 companies would pay a flat rate of USD300, those with 20-199 members pay USD15 per company and those with over 200 companies pay USD12 per member. It should be noted that association members are not required to pay membership fees if the entity is already an ordinary member (CAMFEBA 2011). Revenue from membership fees might be even lower if a BA's membership density is low.

The logic of services is more relevant when membership in BAs is voluntary to guard against free-riding among both members and non-members. However, BAs might face financing constraints as a result of this voluntary membership since they rely mainly on membership fees.

Fourth, achieving high membership density is another challenge most associations, especially in developing countries, face. Even with the understanding that associations are to do advocacy work by lobbying and influencing government policy, most studies found that 10 percent, or even less, of all SMEs are members of associations. The low number of members can reflect the frequently observed characteristics of SMEs, in particular family-based proprietorship, and the belief of SME owner-managers that they would have little to gain from an association's collective or specific activities.

Another equally important and related concept that has attracted growing attention, specifically in developing countries, is the development of industrial clusters. A cluster is a form of associative organisation; it is a more specialised and concentrated form of inter-firm connection. The commonly cited definitions of clusters and concepts are provided by Ceglie and Dini (1999) and Porter (2000).

Ceglie and Dini (1999) offer working definitions for the concepts of “networks”, “clusters”, and “networking”. The term “networks” refers to a condition where a group of firms jointly operate development projects in order to complement and specialise in their respective production to deal with common problems, achieve collective efficiency, and take advantage of markets beyond their individual capacity. “Clusters” mean the sectoral and geographical agglomeration of firms who produce complementary products, while “networking” indicates action aiming to establish either networks or clusters. A widely-accepted definition of clusters is provided by Porter (2000: 15) illustrating that clusters are “geographical concentrations of interconnected companies, specialised suppliers, service providers, firms in related industries, and associated institutions such as universities, standards agencies, trade associations in a particular field that compete but also cooperate”.

The potential benefits of industrial networking on firms' operations have been well documented (Taylor & Wood 1973; Tambunan 2005; Rogers 2004; Park *et al.* 2010; Porter 2000; Ceglie & Dini 1999). One of the advantages firms can take from clusters is the ability to overcome size constraint since firms can collectively deal with the common issues they are facing (Tambunan 2005). Networks or clusters are also closely linked to high probability of new ideas and innovations (Almeida & Kogut, 1997; Love & Roper 1999; MacPherson 1997). Huggins and Johnston (2009) point out that knowledge networks are positively related to SMEs' growth in Yorkshire and Humberside in the UK. Porter (2000) also highlights the three benefits that clusters can provide their constituents: (1) increased productivity, (2) possibility for more productivity growth and innovation, and (3) stimulated new business formation.

Various forms of clusters exist in both developed and developing countries where concentration spans districts, cities and regions. However, given sophisticated and complex interactions between participants who share commonalities and complementarities in their respective industrial sectors, creating and sustaining successful clusters has proved to be challenging and may heavily depend on personal relations and interactive communication between relevant clustered individuals and institutions. As Porter (2000) points out, although networks or clusters are more likely to enable positive interaction between different actors, relations do not come as needed.

We have seen that the issues facing the existence and operation of BAs and industrial clusters are multifaceted and need to be continually addressed to create a business environment that is more inclusive and fosters fair competitive opportunities for all. Nonetheless, this study cannot accommodate all of the issues given financial and time limitations. Again, this study simply attempts to take a first step to quantify the benefits of private BA membership on firms' outcome indicators in the Cambodian context, leaving the institutional and financial arrangements of BAs for subsequent studies.

## 4. ECONOMETRIC SPECIFICATIONS AND VARIABLES MEASUREMENT

### 4.1. Econometric Specifications

The solution to acquire highly reliable and unbiased results of any impact evaluation study is to use a randomised approach with experimental data where observations are randomly assigned to treatment and control groups (Khandker *et al.* 2010). However, obtaining such data is costly and time-consuming and many studies instead resort to quasi-experimental and, more commonly, non-experimental data with advanced econometric methods.

The study adopts a non-experimental approach and uses a variety of econometric methods to measure average treatment effects of membership in BAs or CoCs on a number of firms' intermediate outcomes and long-term growth performance. They include: propensity score matching (PSM) and PSM with ordinary least squares (OLS) regression. The purpose of using different but interrelated approaches to estimation in lieu of one, is to address inconsistency and bias of coefficients that might arise from the use of non-experimental data and self-selection or programme placement attributes. It also attempts to address some of the shortcomings of each method. We start with the basic approach and consider extensions. It is also necessary to distinguish between before-and-after study and with-or-without enquiry. This study uses the latter.

Propensity score matching has been for the last decade commonly used to estimate the impacts of policy and programme interventions (see, for example, Rosenbaum & Rubin 1983; Motohashi 2002; Aert & Czarnitzki 2004; Criscuolo *et al.* 2007; Caliendo & Kopeining 2008; Mole *et al.* 2008). Consider the outcome equation below:

$$Y_i = \beta_0 + \sum_k \pi_k X_{ik} + \gamma BAM_i + \varepsilon_i \quad (1)$$

$$i = 1, 2, 3, \dots, n; k = 1, 2, 3, \dots, m$$

where  $Y_i$  is a set of outcome variables of firms  $i$ ;  $X_i$  is a set of observed firm characteristics influencing their medium and long term growth performance;  $BAM_i$  represents dummy membership of firms in business associations, where 1 denotes membership and 0 otherwise;  $\varepsilon_i$  is the randomly distributed error term indicating, in part, the unobservable factors affecting the outcome variable with zero conditional mean  $E(\varepsilon_i | X_i, M_i) = 0$ ;  $\pi_k$  and  $\gamma$  are parameters to be estimated.

PSM estimates average treatment effects on the treated (ATT) policy or programme impacts between matched treatment and control groups in the region of common support by using



matching methods such as nearest neighbour (NN) and others<sup>8</sup>. Treatment and control groups are matched based on the probability of participation or propensity score of participation estimated from their observed characteristics (Khandker *et al.* 2010; Gertler *et al.* 2011b). Thus, if the independence assumption holds or  $E(\epsilon_i | X_i, BAM_i) = 0$  and if there is a significant overlap of participants and non-participants in the region of common support, the average treatment on the treated can be written as<sup>9</sup>:

$$ATT_{PSM} = \frac{1}{N_M} \left[ \sum_{i \in M} Y_i^M - \sum_{i \in N} \phi(L_i) Y_i^N \right] \quad (2)$$

where  $N_M$  is the number of firms  $i$  participating in BAs and  $\phi(L_i)$  is the weight used to aggregate outcomes for the matched non-participating firms. However, if zero conditional mean error assumption is violated or  $E(\epsilon_i | X_i, BAM_i) \neq 0$  and the overlapping region of common support is significantly small, PSM would produce inconsistent and biased coefficients (Caliendo & Kopeining 2008; Khandker *et al.* 2010; Gertler *et al.* 2011a). We use kernel and nearest neighbour matching methods to estimate the impacts of BA membership on firms' performance (Oh *et al.* 2009).

To obtain reliable, consistent, and unbiased coefficients using PSM, important assumptions have to be met: (1) the un-confoundedness assumption where potential outcomes are independent of treatment assignment given observed covariate, and (2) significant overlapping assumption of common support between participants and non-participants.

While the violation of the latter assumption is less severe, that of the former, so-called selection or programme placement bias would be problematic and is technically and practically difficult to address. Selectivity could occur when participating firms have unobserved characteristics affecting outcome variables that are more likely to induce firms to participate in BAs. Some of the attributes for which data may not be available are productivity growth, firm owner-manager ability, and firms that are advanced in terms of managerial, administrative and financial structure. Results of this violation likely overstate the benefits of participating in BAs. The opposite is the case when participating firms are those with low productivity or low owner-manager ability. This would understate the benefits of business BAs. Additionally, since baseline characteristics of firms are not available, it is quite risky to estimate the impacts of BAs on firms' final outcome variables using PSM. These ex-post characteristics of firms might, to a certain extent, be influenced by the membership of the association (Gertler *et al.* 2011b: 115).

To tackle selectivity or programme placement or biases of ex-post characteristics, other advanced approaches such as difference-in-differences (DID) or instrumental variables can be used. DID would produce consistent and unbiased coefficients of impacts only if we control for observable characteristics of firms  $X_i$  and the randomly distributed error terms that are not dependent on unobservable attributes. The validity of DID holds if and only if unobservable attributes affecting outcome variables are assumed to be constant over time, which, in practice, might change. If the error term in DID equation is time-variant, coefficients produced would still be biased and inconsistent. To address selection bias resulting from time-variant

<sup>8</sup>Other matching methods include Caliper or radius matching, stratification or interval matching, and Kernel and local linear matching (Khandker *et al.* 2010).

<sup>9</sup>The formula was adapted from Khandker *et al.* 2010: 57

observable attributes, one can employ the “Instrumental Variables” technique or the two-stage procedure described by Heckman (1979).

Although it is probably better to employ DID and IV methods to tackle the selectivity problem, having panel dataset or finding appropriate instrumental variables is one of the most challenging tasks. Thus, we resort to using PSM given limited time, resources, and the quality of the existing dataset.

## 4.2. Variables Measurement

It is necessary to note that the choice of variables to be included in subsequent equations is based on economic theory and previous empirical works. Where there is no economic theory to support variable choice, we try to use formal statistical tests to justify its validity. Those tests are, but not limited to, hit-or-miss method, statistical significance and leave-one-out cross validation (see, for example, Heckman *et al.* 1998; Black & Smith 2004; Caliendo & Kopeining 2008).

Annex Table 6 outlines outcome variables and observable characteristics determining firms’ participation in BAs or CoC. One of the survey questions asked is “Is your establishment/firm a member of a business association or chamber of commerce?” The study uses this as the main binary explanatory variable with “1” representing membership and “0” otherwise. We apply logarithmic form to our final continuous outcome variables and some indicator variables to make distributions approximately normal (see, for example, Roper & Hewitt-Dundas 2001; World Bank 2010; Mole *et al.* 2008; Motohashi 2002; Harvie *et al.* 2010). Logarithmic form would help normalise outliers, if any, so that we could incorporate those observations into the analysis in lieu of discarding them. It is also a functional form that allows for a ready and intuitive interpretation of the estimated coefficients<sup>10</sup>. The definition of firms is based on the government’s definition (Annex Table 1), and the determining factor of firm categories is the number of regular employees firms had in April 2006.

Firm age covers the year that surveyed firms started their operations in the country till 2006—before April 2006. Previous studies argue that firm age is positively related to firms’ high participation probability in some kind of associative cooperation or production network because older firms would have more experience in production and understand the benefits they can take from this kind of collective bargaining, unlike younger ones who might still be doubtful about the benefits. The study agrees with the previous finding and hypothesises that firm age is statistically positively correlated with high probability of participation. We also introduce square of firm age to examine diminishing returns of the participation probability.

Firm size is found to be positively related with the decision to participate in BAs, however, there are varying arguments about whether small firms are more likely to rely on intermediary support than larger ones (Salisbury 1984; World Bank 2010). Salisbury (1984:74) argues that a sector with small firms is more likely to be attracted to associative bodies where individual small firms can take advantage of collective services than large firms. This is because small firms alone cannot bear the fees if they tender private consultancy or professional services. He also contends that large firms with their ability to overcome size constraint and take advantage

<sup>10</sup>A one unit increase in a continuous indicator variable (measured in original form) implies one percentage point increase in dependent variable; that is, 100 multiplied by the coefficient. However, to avoid having inaccurate magnitude of coefficients when the change is big, the formula  $\% \Delta \hat{y}_i = 100 \times (e^{\beta_i} - 1)$ , where  $i = 1, 2, 3, \dots$  is the number of dependent variables;  $\beta_i$ ,  $i = 1, 2, 3, \dots$ , is the number of coefficients of indicator variables, is used.

of economies of scale are more likely to afford private representations and specialised services. Thus, small firms should have high participation probability and motivation to become members of BAs. Mitchell (1990:627-628) shows that large firms tend to have direct contact with government rather than rely on business or professional associations for representation. The survey results used in his study indicate that some 68 percent of large firms always or often have direct contact with government, 46 percent always or often rely on business or trade associations for representation and some 24 percent always or often utilise the service of a “peak” organisation. Bennett (1999:256) also shows that large firms in Brussels are more likely to influence government decision directly rather than rely on the representation of associative bodies. Bennett (1995:261) shows that the smallest firms are more likely to become CoC members than larger ones. Bennett (2000) is able to partly verify Salisbury’s (1984) argument that the demand for collective services is greater for small firms.

Analysing the impacts of government supported training programmes in Chile, Mexico, Colombia and Peru, the World Bank (2010) shows that, common across countries, larger firms are more likely to be attracted to support programmes compared to smaller ones. These different arguments lead us to empirically test the relation between firm size and participation probability. We hypothesise that small firms are more likely to be attracted to BAs or CoC.

The World Bank (2010) also indicates that more manufacturing SMEs tend to participate in programmes compared to services and trade sector SMEs. Bennett (1995:269) shows that manufacturing firms are between four or eight times likely to be CoC members than non-manufacturing firms. In this study, the surveyed firms are categorised into four sectors: manufacturing, trade, tourism and other (construction, transport, IT and other). We use a sectoral dummy where “1” represents the manufacturing group and “0” denotes firms in trade, tourism and other sectors. We hypothesise that manufacturing firms in general and SMEs in particular would be more likely to participate in BAs or CoC. The study also hypothesises that 100 percent foreign-owned and joint-venture firms and SMEs have high participation probability of BA membership than 100 percent domestically-owned firms. This is because foreign-owned ones may have more understanding of the benefits they can obtain from the collective services of BAs. We use two dummy variables to represent this hypothetical characteristic. The first dummy takes the value of “1” if firms are 100 percent foreign-owned and “0” if otherwise; the second dummy takes the value of “1” if firms are joint-venture and “0” if otherwise. The 100 percent domestically-owned firms are base groups.

Previous studies have found significant positive relations between exporting firms and SMEs and the decision to participate in production networks or other kinds of associative bodies. This study hypothesises that firms’ decision to become a BA member is high among exporting firms and SMEs compared to their non-exporting counterparts.

Earlier studies also hypothesise and argue that firms in general and SMEs in particular with better access to finance are more likely to participate in BAs or production networks (Harvie *et al.* 2010). Possible credit rationing of financial institutions resulting from information imperfection in credit market prevents SMEs from being qualified for term loans or credit line (Stiglitz & Weiss 1981). Harvie *et al.* (2010) indicate that easier access to finance or high financial leverage increases the probability of SMEs’ participation in production networks. However, this study hypothesises that SMEs with difficult access to finance because of size constraint and inability to provide required collateral to banks are more likely to participate in BAs so that they can use membership as some sort of guarantee when they approach banks for term loans or credit line. We use two survey questions, namely “Do you have a term loan (more than 6 months) from a bank or financial institution?” and “Did the financing require collateral

or a deposit?” as proxies for difficult access to finance. The first question is converted to a dummy variable taking the value “1” if a firm has a term loan (more than 6 months) from a bank or financial institution and “0” if otherwise. The second one is also a dummy variable with “1” representing the fact that financing requires collateral or a deposit and “0” if otherwise.

## **5. DATA SOURCE AND DESCRIPTIVE STATISTICS**

### **5.1. Data Source**

The study uses the 2007 World Bank Enterprise Surveys of Cambodia. A simple random sample from a combined sampling frame (World Bank 2007) was employed to select the required observations from each strata defined by four sectors (manufacturing, tourism, trade, and others) as well as three firm sizes. The summary of the sample sizes is in Annex Table 5. With the termination of surveyed firms that had less than five regular employees in April 2006, the total sample size is 502,204 of which have between 5 and 19 workers, 146 have between 20 and 99 workers, and 152 have 99 plus workers. Given firm categories defined by the government (Annex Table 1), SMEs account for 350 establishments or 69.7 percent of the total sampled firms while large enterprises consist of 152 or 30.3 percent.

The survey takes into account firms that only started operating before April 2006 in a number of sub-sectors ranging from textiles, garments, wholesale (including export services) to hotels and restaurants. Surveyed firms are categorised into four sectors: manufacturing, trade, tourism and other (including construction, transport and IT). The survey considers only private-for-profit firms, not government-owned or community-owned establishments. Also, firms who do not keep their own accounts are terminated. The survey took place in four main areas: Battambang, Siem Reap, Phnom Penh and Kampong Cham. Most surveyed firms (401 or 80 percent of total sample firms) are located in Phnom Penh and its outskirts which may officially consist of firms in Kandal province. The remaining firms are in Battambang (9 or 2 percent), Siem Reap (66 or 13.0 percent), Kampong Cham (6 or 1.0 percent) and “others” (20 or 4 percent).

Of the total sampled firms, 139 (27.7 percent) are members of a BA or CoC, while 363 firms are not. Of the 350 SMEs, only 43 are members of a BA while 307 are not; 96 large firms report membership while 56 do not. The data shows that only 14 percent of SMEs are members of a BA or CoC which are less than 63 percent of large firms, reflecting high participation probability among large firms.

### **5.2. Descriptive Statistics**

Annex Table 8 reports the mean values of a number of firms’ outcome indicators (in natural logarithms) and other characteristics. It also presents the mean differences of those variables between firms who are members of BAs and those who are not. Mean values of outcome indicators such as annual total sales, production, cost of labour, cost of intermediate goods, other costs, labour productivity, and cost per worker of firms participating in BAs or CoC are higher compared to firms who do not participate in associative organisations. Independent t-tests show that almost all of these differences are statistically positively significant at 1 percent level. The results serve as a preliminary indication that BA membership has positive impacts on participating firms compared to their non-participating counterparts.

However, the results are quite counterintuitive when comparing the percentage of the workforce by educational level. With the exception that participating firms have a higher percentage of

employees who obtained primary school education and the difference is statistically positively significant at 1 percent level, percentage differences of workforce obtaining lower, upper and university levels between participating and non-participating firms are statistically negatively significant at 1 percent level, implying that majority of participating firms' employees are low educated. Possible explanations to this are that firms with low unobserved characteristics are more likely to be attracted to associative organisations and their membership improves the firms' performance.

Also, firms with a high-educated workforce tend to be able to self-operate and improve their performance without assistance from BAs. Evaluating SME support programmes in Chile by comparing results of 2004 cross-sectional and 1992-2006 panel data, the World Bank (2010) found mixed results on mean differences of programme participation in 2004. It points out that this could indicate that programmes are more attractive to poorly performing firms and that participation improves their performance relative to what it might have been if they had not participated. Although these might rationalise the finding, it should be subject to a much more rigorous regression analysis since t-test does not control for other contributing factors.

The statistically positive significance (1 percent level) of mean differences of major outcome indicators still holds for the sub-sample of SMEs (Annex Table 9). Participating SMEs appear to benefit from the services of BAs or CoC given their high mean values of outcome indicators compared to non-participating SMEs.

Approximately 74.85 percent of surveyed firms are non-exporters while only 25.15 percent are exporting firms. The Chi-square test of independence between exporters and non-exporters and firms' decision to become BA member indicates that 63.5 percent of exporting firms are members of BAs or CoC while 36.5 percent are not. Of the non-exporters, 15.5 percent are reportedly BA members while 84.5 percent are not. The difference is statistically significant at 1 percent level, signifying that exporting firms have higher probability of participation in BAs than non-exporting ones.

Tabulation results also show that more manufacturing firms (62.7 percent) are reportedly members of BAs compared to firms in the trading sector (7.6 percent), tourism sector (16.8 percent) and other sectors (19.3 percent). The Chi square test of independence between row and column is again statistically significant at 1 percent level. A large percentage of firms in Phnom Penh (31.2 percent) are reportedly members of BAs compared to Siem Reap (16.7 percent), Kampong Cham (16.7 percent) and others (2 percent), reflecting partly that associative organisations are more concentrated in Phnom Penh. As far as equity stakes of firms are concerned, a high percentage of firms that are 100 percent foreign-owned (52.1 percent) and joint venture (52.1 percent) are BA members. Only 13.8 percent of 100 percent domestically-owned firms are members.

## **6. REGRESSION RESULTS AND DISCUSSION**

### **6.1. Participation Likelihood**

Annex Table 12 presents results of logistic regression predicting the likelihood of firms' participation in Business Association or Chamber of Commerce given their observed covariates. Regression results are estimated for both pooled sample (participating and non-participating firms in general) and sub-sample (participating and non-participating MSMEs). Regression estimates are done on six different model specifications, partly to test robustness of

results when specification changes. Results reveal that most of the covariates have expected effects on participation probability, yet with varying statistical significance.

For pooled sample, first the variable “years in operation” is statistically positively correlated with high probability of participation, indicating that older firms tend to participate in BA or CoC more than younger ones. Second, large firms (in this case, with 99 plus employees) are more likely to register membership than MSMEs. The finding contrasts with our hypothesis predicting that small firms would have high participation likelihood because they can use membership as a bargaining tool for business survival and growth. However, the result is consistent with that of previous studies (World Bank 2010; Harvie *et al.* 2010). This also confirms the descriptive statistics where only 14 percent of MSMEs are members compared to 63 percent of large firms.

Non-exporting firms account for 74.8 percent of the total sample size compared to 25.2 percent of exporting firms; yet, exporters, which also tend to be 100 percent foreign-owned or joint venture, are more likely to participate than non-exporting ones (Annex Table 6). This reflects a growing demand from exporting firms for business information on foreign markets and advice and support services from BA or CoC in order for the firms to be successful and competitive abroad because getting enough information prior to business undertaking is a pre-condition (Spence 2003). It should be emphasised that more needs to be done to encourage domestic producers to be exporters since 78.4 percent of 100 percent domestically-owned firms are non-exporters compared to 19.0 percent of exports as domestically-owned firms. The proportion of total sales that are sold domestically constitute 92.3 percent compared to 6.2 percent that are exported directly and 1.5 percent that are exported indirectly (World Bank 2007).

The large number of non-exporting domestic firms indicates several possible constraints to exporting: (1) long and complicated administrative compliance, (2) limited access to information on foreign markets, (3) products are low quality and do not meet internationally required standards, and (4) limited staff capacity to go international. These challenges which need to be continually addressed in promoting exports are concerns for all stakeholders. Challenges—lengthy and costly export procedures, informal fees, giving gifts to officials, high cost per export container—reported by exporting firms in the survey five years ago persist today. Cambodia is ranked 138 out of 183 economies evaluated in how easily business can be conducted (World Bank 2012: 6).

More needs to be done in terms of reducing regulatory and administrative compliance and cost when it comes to exports. As shown, almost all firms in Cambodia are MSMEs where production capacity is still low and vulnerable to competition from imports. High costs of doing business also force them to stay small and informal, further jeopardising their expansion and productivity. Business management structure is predominantly conventional, with individual and/or family as the largest shareholder or owner. The data show that 49.8 percent of firms reported having an individual as the largest shareholder or owner and 32.4 percent having family as the largest shareholder. One of the risks of family-based firms dominating the business environment is that they are resistant to changes in management style and reluctant to adopt new technologies.

There are merits to pushing domestic producers to eye foreign markets in the current globally and regionally integrated economy. Previous studies have also documented the importance of domestic firms upgrading their production chain and the potential benefits of exploring opportunities outside home markets. Using Colombian panel data on manufacturing firms, Isgut (2001) found that exporters tend to be larger, more productive, pay higher wages, more

capital intensive, and have higher labour productivity than non-exporters. Biesebroeck(2003) showed that exporting manufacturing firms in Sub-Saharan African countries tend to be more productive than non-exporters because exporting firms can take productivity advantage after the entry. He argued that scale economies are one of the determining factors. Bernard and Jensen (1997) also found that exporting manufacturing firms contributed significantly to the demand for skilled labour and wage increases in US manufacturing plants during the 1980s.

Thus, encouraging domestic producers to export means helping them get out of their comfort zone and start exploring productivity and profitability opportunities beyond domestic markets. This is relevant to Cambodian producers more than ever before given the intensity of regional and global economic integration Cambodia is taking part in. The effects of the Asian Free Trade Agreement, specifically Asean Economic Community, demand further changes in current production practices, management and innovation among domestic producers to become competitive and to stay afloat when domestic markets are opened to an influx of foreign goods and, at a later stage, services. Government's current commitment to achieve exports of one million tonnes of milled rice by 2015 is a starting point to improve production capacity and productivity of domestic producers (CEFP 2011). But, entry into exporting industry is simply not enough to enhance productivity since competitiveness depends on a number of interdependent factors in the whole value chain. Long-term strategy is clearly needed to improve infrastructure, logistic systems, information flow and market access, banking systems, government regulations and procedures and human capital. Additionally, support and initiatives should not be confined to the rice sector since sectoral diversification is a major contributing factor to fast and sustained economic growth.

Manufacturing firms have higher participation probability than firms in trade, tourism and other sectors. This provides an early indication that further efforts should be extended to cultivate the idea of forming a more concentrated and specialised form of associative body such as industrial clusters among manufacturers to gain higher advantages rather than mere business information. The higher its product share of the national market, the more likely it is that a firm will participate, indicating that firms would use membership to better understand market potential and further expand their market share.

We hypothesised that firms who have difficulties in obtaining term loans from financial institutions are more likely to participate in BA or CoC as opposed to previous studies arguing that firms with access to financial services have higher participation probability than those who do not have access. Nonetheless, our logistic regression estimate of the six specifications reveals that firms with term loans have a higher likelihood of participating than those who do not and it is statistically significant at 1 percent level. This could imply a number of scenarios. First, becoming a member of an associative organisation is simply not enough to secure term loans from financial institutions. In other words, financial institutions need hard and valuable collateral to guard against risk of default. Second and technically, this can reflect the fact that BA members are well-established firms that have a large number of employees, a big share of domestic markets, and high productivity. The latter case raises the endogeneity issue as potentially biasing the estimation results.

The finding, however, is consistent with that of previous studies (Harvie *et al.* 2010; Harner 2003; Dinh *et al.* 2010; Ayyagari *et al.* 2008). Recent literature points to the lack of access to financial services or insufficient functioning of the banking system as one of the major constraints to growth of both large and small firms. In the Cambodian context, where regulatory and law enforcement is weak and overall public trust has yet to be attained,

achieving sufficient access to formal financing has been and will continue to be a challenging and an unfinished development agenda that needs committed and continuous efforts from both public and private stakeholders.

According to the data, only 21.7 percent of surveyed firms reported having term loans (more than 6 months) with financial institutions. This reflects a relatively low utilisation of formal financing and the financing gap left unfilled. From the demand side, firms would request financial institutions to increase loan amounts, extend maturity date of term loans and importantly reduce interest rates on loans. From the supply side, banks and other financial institutions usually raise the issue of protecting depositors by screening and targeting the best borrowers applying strict requirements to fulfil bank procedures. They also raise the issue of the informal nature of the business undertakings of most MSMEs which do not have appropriate financial statements or proper accounting systems. Harner (2003) found that although the demand for medium and long-term loans is high among SMEs in Cambodia, banks are reluctant to bridge the gap because of (1) the understanding that current contract and law enforcement is weak, (2) high interest rate on deposits, (3) banks' limited access to long-term capital, (4) unavailability and difficulty gathering information on borrowers to conduct credit worthiness analysis, (5) high liquidity ratios required by the National Bank of Cambodia, and (6) limited staff capacity. This highlights the remaining tasks for the government so that access to long-term loans can be removed from the list of binding constraints to firms' growth.

Firms where majority of employees are members of a workers union tend to participate more than firms with fewer employees belonging to the union, reflecting the fact that associations can act collectively to efficiently bargain and meet union demands. Recently, there have been protests and strikes by union member workers especially in the garment and footwear industries, demanding better wage increases, respect for labour law and good working conditions. But solutions have not been mutual or peaceful. Relations between employers, the union and the Garment Manufacturers Association of Cambodia have soured and deteriorated. Although the right to form associative bodies like a workers' union is an integral part of Cambodia's law, reflecting freedom of expression, there are complaints about the large number of unions in Cambodia. Thus, a mechanism to assess and monitor the rights-based acts of unions is needed to ensure that they are member-oriented rather than profit-oriented. The study also found that the number of licenses, permits and regulations that firms are supposed to meet is highly positively correlated with high probability of participation and is significant at 1 percent level or better. BAs or CoC should continue to disseminate information through conventional and modern media about the benefits members can get from participating. This is because the study found that firms who reported knowing about the existence and functioning of special economic zones (SEZs) are more likely to be members.

For the sub-sample of MSMEs, estimation results revealed largely consistent signs and statistical significance as for the pooled sample. Although significant levels change from one specification to another, estimation signs of firm type are consistent, meaning that 100 percent domestically-owned MSMEs have lower participation probability than 100 percent foreign-owned or joint venture ones. The data show that majority of MSMEs (80.6 percent) are 100 percent domestically-owned compared to 14.0 percent of 100 percent foreign-owned and 5.1 percent joint venture. Manufacturing MSMEs are more likely to participate compared to MSMEs in trade, tourism and other sectors (Annex Table 7). Majority of MSMEs (92 percent) are non-exporters. MSMEs where majority of employees are union members, that have term loan and which need to deal with a large number of permits and regulations required by government have high participation probability.



## 6.2. Average Treatment Effects on the Treated (ATT)

Once we estimate propensity score using logistic regression, we employ two commonly used matching methods—nearest neighbour and kernel—to estimate ATT of programme participation. Matching methods are done using the estimated propensity score of each specification. The nearest neighbour (NN) matching estimates the effects of membership participation by comparing participating firms in the treatment group with non-participating firms in the control group that have similar propensity score. NN matching is often used with small sample size (World Bank 2010). Nonetheless, one of the weaknesses of NN matching is that matching quality can be affected if many firms in the treatment group have high propensity score while only a few firms in the control group have high propensity score. This shortcoming was addressed by using the kernel matching method. It should also be noted that the comparison is performed on firms in treatment and control groups who fall in the region of common support. All of our specifications satisfy the balancing property (see Annex Table 12). We estimate ATT for both pooled sample of all firms and sub-sample of MSMEs.

Annex Table 13 reports the ATT estimates for pooled sample. It shows that participating firms have higher mean values of final outcomes although statistical significance of mean differences can only be achieved for some outcome variables and the signs are a bit mixed. Relative to their matched control group, firms in treatment groups statistically significantly tend to achieve higher turnover and productivity, and expend more on production and other related costs. However, membership has little and statistically insignificant impact on firms' productivity and cost per worker. The finding could explain two possible scenarios: (1) BA still has limited capacity to enhance productivity of members through quality training and (2) since large firms have high participation probability and since their purpose is mainly to use collective power of association to lobby government, resolve disputes with workers and other employers and acquire market information and updates on government regulations rather than to improve capacity through training services provided by association, little impact on productivity is expected.

For the sub-sample of MSMEs, ATT estimates indicate largely consistent results as the pooled sample though statistically significant could only be achieved for some outcome variables (Annex Table 14). In other words, participating MSMEs tend to have higher mean differences than non-participating ones in a number of firms' outcome variables, namely the volume of sales, production, cost of labour, total number of workers, and other costs of production. Again, membership does not guarantee higher productivity and cost per worker. Matching results also reveal that impacts of membership on the MSME sub-sample are higher compared to those on the pooled sample, reflecting the fact that MSMEs benefit more from participation than large firms.

It should be emphasised that the positive association between membership participation and firms' final outcomes for both pooled and sub-samples does not imply causality between participation and high performance. This is because we do not have baseline survey information on the level of outcome variables prior to participating. However, the overall positive trends are largely consistent with findings of most previous studies as shown in the literature review section. This positive impact of participation is also in line with the pluralists' view that a business association as a collective body promoting efficiency of members' businesses is not merely a rent-seeking and special interest group as claimed by public choice theorists. It also indicates that firms in general and MSMEs in particular can harness collective benefits such as government lobby; dispute resolution with officials, workers or other firms; access to information or contacts on domestic products and input markets; accreditation for

product quality and standards; and information on government administrative and regulatory requirements. MSMEs can also take advantage of economies of scale in the sense that they can gain access to more market information and improve the overall supply chain.

## **7. CONCLUSION AND AREAS FOR FUTURE RESEARCH**

### **7.1. Conclusion**

This study investigates how a business association or a chamber of commerce in Cambodia can assist its members to improve productivity and enhance firms' performance. A growing number of such bodies have been established with a view to promoting members' collective voice and bargaining power. But, this has also left open the question of whether these associative organisations are member-oriented and help improve socially optimal outcomes or are just rent-seeking and interest groups who benefit members at the expense of the majority. The pluralists argue that such collective bodies are necessary to promote public-private partnership by aggregating member interests and presenting them to policymakers. On the other hand, public choice theorists contend that these organisations are rent-seeking and special interest groups.

Using propensity score matching, ordinary least squares and a combination of PSM and OLS methods with firm-level cross-sectional data surveyed by the World Bank in 2007, the study found evidence that participation in business association is positively associated with high performance of members compared to non-participating firms, though statistical significance can only be achieved on a few outcome variables. The impacts are even more profound for participating micro, small and medium enterprises, suggesting that business associations are important for smaller firms who often do not have enough capacity to independently take advantage of scale economies. However, regression results reveal that membership has little and statistically insignificant positive impacts on firms' productivity and payment per worker reflecting that participation by itself does not spur a firm to change its managerial and organisational structure to improve long-term performance.

In line with the above theoretical and empirical findings, the existence of associative organisations, specifically business associations and industrial clusters, is more relevant in Cambodia than ever before given the springing up of large enterprises and, especially, MSMEs in large numbers and their dynamism in both domestic and international markets. The intensity of global and regional integration further necessitates systematic ways and processes in supporting enterprises to be competitive so as to handle growing competition both in and outside home markets. However, BAs are still fragmented and membership awareness is still relatively low. Firms are more inclined to operate independently because they are still sceptical when it comes to collective acts. Also, such associations face challenges in terms of resources, size, cost effectiveness, human capital and scope and coverage of services.

The withdrawal of government control over many economic aspects indicates that most associations are privately operated with limited resources, making the logic of BAs' services less applicable. In fact, the tasks of newly established Federations of Association of Small and Medium Enterprises of Cambodia are mainly to coordinate and facilitate dialogue with government and other external parties involved. Vocational and technical training of FASMEC are rather short-term (FASMEC 2010). In addition, the increasing number of professional business service providers like consulting firms is a competing force that BAs or CoC should consider in their decision whether to pursue the logic of service. It is less likely that BAs will receive much budgetary support from government given its already stretched budget allocation.

Thus, financing help to fill the resource gap that might arise from insufficient contributions from board members and membership fees could be sought from national and international NGOs and development partners.

The study suggests a number of policy implications. First, there is an urgent need for government to continue simplifying and reducing regulatory requirements and burden on firms especially MSMEs to boost their competitiveness. Second, the pervasive informality of MSMEs can potentially jeopardise their willingness to grow, competitiveness and technological innovation. The results provide an early indication that firms do benefit from collective bodies where they can take advantage of market information, knowledge sharing and updates on government administrative and regulatory requirements. Thus, government needs to put in place initiatives and procedures to help MSMEs operate in a much more formal status. Third, government and stakeholders continue to disseminate and organise public seminars on the importance of collective organisation such as business associations, industrial clusters, and special economic zones. One of the main audiences should be the owner-managers of MSMEs. There is also a need for government to facilitate the financial market to allow MSMEs to better access long-term loans at reasonable interest rates and to reduce high collateral requirements by financial institutions which firms can hardly meet. A credit guarantee scheme could be an option worth considering. Assessment and monitoring of firms' progress necessitate the need to compile comprehensive firm-level data, preferably longitudinal ones. Hence, government and development partners with active cooperation from firms' owners/managers need to put in place regular firm survey information which can help improve a firm's performance and inform policymaking to further promote operational efficiency.

## **7.2. Areas for Future Research**

Given financial and time limitations and the fact that constraints facing SME development in Cambodia cannot be dealt with in just one study, it is recommended that subsequent studies on SMEs be extended in several directions as detailed below.

- a) Since data on different services provided by business associations or Chambers of Commerce is not good quality, rigorous and empirical studies on the benefits of various services that members are entitled to should be undertaken. A policy implication of the results could be to adjust or stop providing services that are inefficient and do not give members the highest possible benefits, and continue providing the efficient ones that members need.
- b) Although the 2007 World Bank Enterprise Survey used in the study is one of the most comprehensive firm-level cross-sectional datasets in Cambodia, it is still relatively old given the dynamism of Cambodia's SMEs. Also, in the last four years, the government together with development partners has assisted SME owner-managers through training programmes, information sharing, and field visits to SMEs both locally and abroad to learn and exchange experience. There may have been changes in terms of financial, managerial and administrative compliance leading to improvements in firms' performance. Thus, a subsequent study with current survey data could augment generalisation.
- c) As mentioned, FASMEC is a recently established federation of SME associations as well as individual SMEs. The existence of FASMEC might reflect the often observed benefits of such kind of business associations to its members. However,

whether FASMEC could achieve what it has set out to achieve is subject to empirical study at a later stage.

- d) The study, to some extent, uses the observed benefits of business association membership to provide some indicative implications for clusters. However, empirical inferences of this study are relatively weak given that clusters are more specific in terms of their activities and services and also in how participating firms interact. Subsequent studies could examine the validity and applicability of industrial clusters in the Cambodian context.
- e) Future studies could also empirically investigate the benefits of various SME training programmes or subsidy schemes, if any, provided by either government or development partners on SMEs' growth performance. Although there are currently few programmes with comprehensive data and which have not been widely available or easily accessible, an impact evaluation of these programmes would have big economic implications for government policy in general and SME development in particular.
- f) Although the main purpose of associations or clusters is to help members collectively overcome common constraints to growth, one of the economic negative externalities associative organisations might pose is price distortion that affects non-member firms. The collective bargaining power of associations or clusters to lobby government or influence policy in a way that is most likely to benefit its members is another negative externality for non-members. Thus, a subsequent study could also look at the costs and benefits of associations or clusters especially on non-members and answer questions such as whether membership should be voluntary or obligatory or a mixture of both.

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## Annex

**Table 1: Classification of Enterprises in Cambodia**

Types	Employees (persons)	Start-up capital (USD)
Micro-enterprises	Fewer than 10	Less than 50,000
Small	Between 11 and 50	Between 50,000 and 250,000
Medium	Between 51 and 100	Between 250,000 and 500,000
Large	100 or more	500,000 or more

Source: RGC 2005: p. 13

**Table 2: Number of Small and Medium Enterprises Establishments 1998-2007**

Establishments	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Food, beverages, and tobacco	18,590	19,147	20,150	21,871	21,568	20,869	22,712	23,343	25,455	26,379
Textile, wearing apparel and leather	310	396	366	1,382	1,417	1,406	1,672	1,662	1,689	1,474
Wood products, including furniture	895	814	869	141	13	13	16	-	-	-
Paper products, printing and publishing	26	23	24	23	15	21	25	31	33	39
Chemicals, petroleum, coal, rubber and plastic	55	67	297	277	275	96	120	153	159	177
Non-metallic mineral products	811	777	666	721	757	681	680	718	797	813
Manufacture of basic metals	-	-	-	-	-	-	-	-	-	-
Fabricated metal products	1,375	1,647	1,824	1,454	1,899	1,850	2,239	2,222	2,380	2,882
Others	2035	1356	1208	1286	976	1049	667	618	636	855
Total	24,097	24,227	25,406	27,155	26,920	25,985	28,131	28,747	31,149	32,619

Source: NIS (2008)

**Table 3: Number of workers in SMEs and LEs 1998-2007**

Establishments	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Small and Medium Enterprises	58,035	590,29	69,340	69,788	76,368	71,358	79,780	79,447	87,072	94,835
Large Enterprises	98,721	127,054	151,151	204,688	240,550	260,061	303,460	331,023	334,973	408,166
Total	156,756	186,083	220,491	274,476	316,918	331,419	38,3240	410,470	422,045	50,3001
Annual Growth Rate										
Small and Medium Enterprises	-	1.7	17.5	0.6	9.4	-6.6	11.8	-0.4	9.6	8.9
Large Enterprises	-	28.7	19.0	35.4	17.5	8.1	16.7	9.1	1.2	21.9
Total	-	18.7	18.5	24.5	15.5	4.6	15.6	7.1	2.8	19.2

Source: NIS (2008)

**Table 4: Volume of Production of Small and Medium Enterprises 1998-2007**

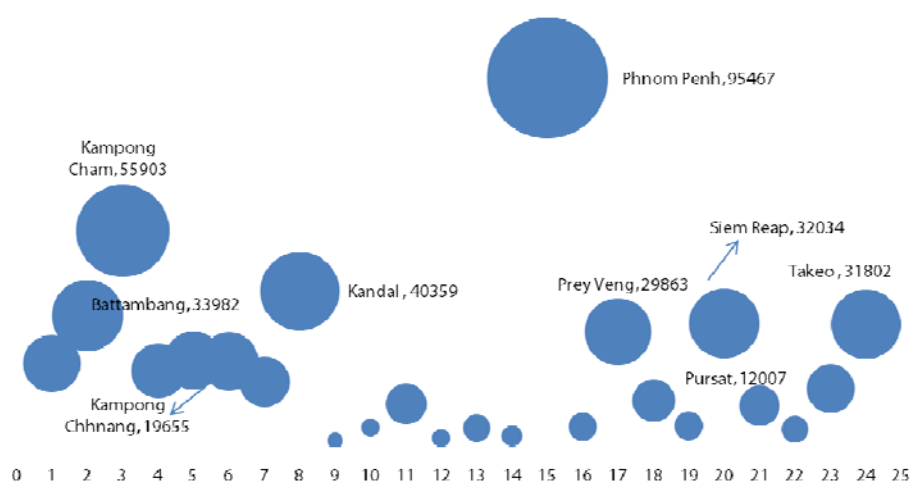
Establishments	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Food, beverages, and tobacco	44.5	76.0	98.6	171.9	178.2	165.1	444.8	470.8	598.9	558.2
Textile, wearing apparel & leather	0.4	0.8	1.8	1.0	13.5	2.3	3.0	60.6	3.1	3.4
Wood products, including furniture	3.2	3.6	4.3	9.8	0.04	0.04	0.2	-	-	-
Paper products, printing and publishing	0.2	0.2	0.1	0.4	0.5	0.4	0.4	0.6	0.6	0.9
Chemicals, petroleum, coal, rubber and plastic	0.8	1.0	1.5	1.5	4.4	1.7	4.8	8.8	5.9	5.7
Non-metallic mineral products	5.2	6.2	3.3	4.5	8.6	8.2	8.0	29.7	9.3	29.9
Manufacture of basic metals	-	-	-	-	-	-	-	-	-	-
Fabricated metal products	2.8	4.7	8.9	10.7	5.7	7.3	7.5	9.4	9.3	22.2
Others	2.0	3.1	5.9	3.4	2.6	5.9	7.5	5.0	5.3	15.9
Total	59.1	95.5	124.3	203.1	213.5	191.0	476.2	585.0	632.4	636.2

Source: NIS (2008)

**Table 5: Sample size**

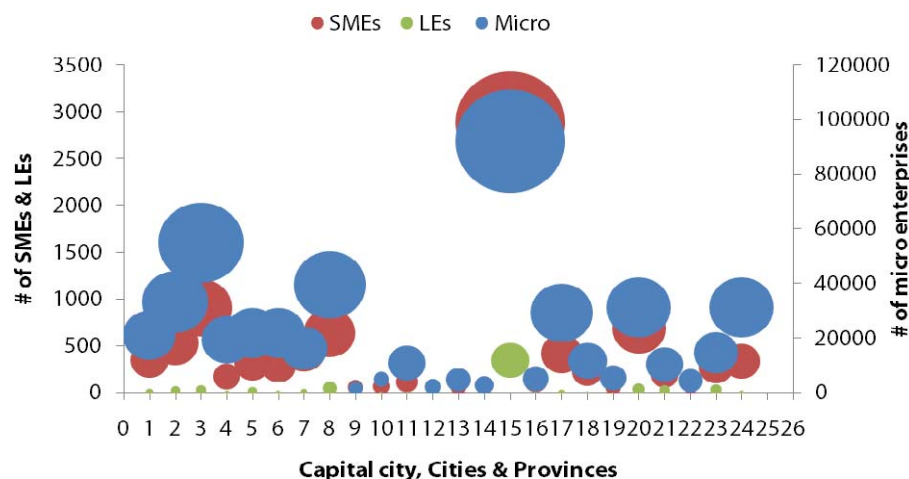
Sector/Size	Small (5-19 employees)	Medium (20-99 employees)	Large (100+ employees)	Total
Manufacturing	≥30	≥30	≥30	≥125
Tourism	≥30	≥30	≥30	≥125
Trade	≥30	≥30	≥30	≥125
Others	≥30	≥30	≥30	≥125
Total	≥120	≥120	≥120	≥500

Source: World Bank(2007)

**Figure 1: Number of Establishments as share of Total Establishments, 2011**

Note: numbers on the horizontal axis (1-24) indicate the 24 municipalities and provinces in Cambodia in the following order: (1) Banteay Meanchey, (2) Battambang, (3) Kampong Cham, (4) Kampong Chhnang, (5) Kampong Speu, (6) Kampong Thom, (7) Kampot, (8) Kandal, (9) Kep, (10) Koh Kong, (11) Kratie, (12) Mondul Kiri, (13) Oddar Meanchey, (14) Pailin, (15) Phnom Penh, (16) Preah Vihear, (17) Prey Veng, (18) Pursat, (19) Ratanak Kiri, (20) Siem Reap, (21) Sihanoukville, (22) Stung Treng, (23) Svay Rieng, and (24) Takeo. This order also applies to the order in annex Figure 2.

Source: Author's calculation using data from 2011 Economic Census of Cambodia

**Figure 2: Number of Micro, Small and Medium and Large Enterprises as share of Total Establishments by Number of Persons Engaged, Province 2011**

Source: Author's calculation using data from 2011 Economic Census of Cambodia

**Table 6: Number of Establishments as Exporter**

Establishment Sector	Micro	Small and Medium	Large	Total
Exporter	15 (11.90)	13 (10.32)	98 (77.78)	126 (100.00)
Non-exporter	188 (50.13)	133 (35.74)	54 (14.40)	375 (100.00)
Total	203 (40.52)	146 (29.14)	152 (30.34)	501 (100.00)

Figures in parentheses are percentage of the total.

Source: author's calculation using the dataset.

**Table 7: Number of Establishments by Sector**

Establishment Sector	Micro	Small and Medium	Large	Total
Manufacturing	10 (7.46)	19 (14.18)	105 (78.36)	134 (100.00)
Trade	68 (64.76)	31 (29.52)	6 (5.71)	105 (100.00)
Tourism	69 (47.92%)	57 (39.58)	18 (12.50)	144 (100.00)
Other	57 (47.90)	39 (32.77%)	23 (19.33%)	119 (100.00%)
Total	204 (40364)	146 (29.08)	152 (30.28)	502 (100.00)

Figures in parentheses are in percentage of the total.

Source: author's calculation using the data set.

**Table 8: Final Outcome Variables of Firms and Participation Determinants**

Level	Final outcome variables	Participation determinants
<i>All firm level</i>		<b>Firm characteristics</b>
SMEs and LEs		Firm age
		Investment prospect
		Perception on legal system or conflict resolution
		Number of customers (log)
	log(sales), log(cost of labour), log(labour cost per worker), log(production), log(labour productivity),	Efficiency of government services delivery
<i>Within firm level</i>	log(employment), log(costs of intermediate goods), log(other costs)	Senior management time (in dealing with government requirement)
Participating and non- participating SMEs		Government lobby
		Term loans with financial institutions
		Term loans with collateral
		Formal training to permanent employee
		Percent of total permanent skilled employees received training
		<b>Educational levels of employees</b>
		Primary school (below grade 6)
		Up to lower secondary (grade 7-9)
		Up to upper secondary (grade 10-12)
		Up to universities and institutions
		<b>Sector</b>
		Manufacturing
		Trade
		Tourism
		Other

**Firm size**

Small and medium enterprises  
Large firms

**Location**

Battambang  
Siem Reap  
Phnom Penh  
Kampong Cham

**Exports**

Non-exporters  
Exporters

**Equity stakes of firms**

Domestically-owned (100%)  
Foreign-owned (100%)  
Joint venture

Note: cost of labour includes wages, salaries, bonuses, and social payments for the 2006 fiscal year. Cost of intermediate goods would encompass intermediate goods used in production and those used for re-sale. Rental costs are land, building, equipment and furniture.

**Table 9: Variables and Descriptive Statistics**

Indicator variables	N	Mean	S.D
Firm age	488	6.06	4.26
Sales (log)			
2005	450	12.93	2.40
2006	486	13.07	2.36
Production (log)			
2005	429	12.47	2.30
2006	466	12.59	2.23
Cost of labour (log)			
2005	454	10.85	2.08
2006	494	10.92	2.07
Cost of intermediate goods (log)			
2005	458	11.44	2.58
2006	496	11.62	2.54
Productivity (production/labour) (log)			
2005	413	8.65	1.15
2006	449	8.64	1.12
Number of permanent workers (log)			
2005	477	3.66	1.81
2006	502	3.80	1.82
Number of customers (log)			
Training offered to permanent workers	502	0.51	0.50
Total permanent skilled employees received training (%)	257	65.09	38.94
Total permanent unskilled employees received training (%)	256	41.80	45.86
Senior management time (in dealing with government requirement) (%)			
2006	498	10.02	21.44
2004	413	9.74	21.29
Term loans with financial institutions	502	0.22	0.41
Value of collateral (as % of total loan value)	66	256.16	385.54

Annual rate of interest on loans	77	9.51	7.93
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**Educational levels of employees (%)**

Primary school (below grade 6)	499	24.10	31.66
Up to Lower Secondary (grade 7-9)	499	24.79	27.39
Up to Upper Secondary (grade 10-12)	490	24.13	25.18
Up to Universities & institutions	499	25.62	33.62
	502	0.25	0.43

**Exporters** (1 = export 0 otherwise)

Business association membership	502	0.27	0.45
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Notes:

- Other costs of production include costs of electricity, fuel, water, communication services, transportation, rents, and repairs and maintenance. Mean differences are the differences between outcome indicators of firms who were members of BAs or CoC and those of firms who were non-members.
- Values of total sales, production and productivity in 2005 were inflated using Consumer Price Index calculated by the National Institute of Statistics, Cambodia. In 2005, annual average CPI was 115.20 and 120.63 in 2006. July-December 2000 was the base year.

**Table 10: Descriptive Statistics of Main Outcome and Indicator Variables for all Firms<sup>a</sup>**

Indicator variables	Non-participating firms		Participating firms		Mean difference	T-statistics
	N	Mean	N	Mean	Diff	t
Firm age	363	6.57	139	6.47	-0.01	-0.21
Sales (log)						
2005	325	12.13	124	15.03	2.90	13.57***
2006	350	12.29	136	15.09	2.81	13.92***
Production (log) <sup>b</sup>						
2005	309	11.72	116	14.42	2.70	12.76***
2006	334	11.84	129	14.46	2.62	13.65***
Cost of labour (log)						
2005	326	10.15	125	12.68	2.53	13.99***
2006	355	10.92	137	12.77	2.58	14.99***
Cost of intermediate goods (log)						
2005	331	10.67	126	13.54	2.89	12.35***
2006	358	10.86	138	13.60	2.74	12.31***
Other costs (log) <sup>c</sup>						
2005	329	9.68	123	11.96	2.28	14.07***
2006	354	9.84	134	12.08	2.24	15.89***
Productivity (production/labour) (log)						
2005	304	8.59	118	9.11	0.52	3.64***
2006	332	8.66	128	8.91	0.25	1.94***
Labour cost per worker (log)						
2005	325	7.11	124	7.22	0.11	1.20
2006	347	7.09	132	7.27	0.17	2.21**
Number of permanent workers (log)						
2005	344	2.97	130	5.39	2.41	14.51***
2006	359	3.09	139	5.52	2.43	15.26***
Total permanent skilled employees received training (%)	171	67.48	86	60.34	-7.15	-1.39
Foreign nationals of the total	355	0.75	137	8.71	7.97	7.35***
Number of customers (log)	249	1.77	58	1.89	.12	1.59
Senior management time (in dealing with government requirement) (%)						

2004	297	8.81	116	12.11	3.29	1.50
2006	359	8.79	139	13.20	4.41	2.18***
<b>Educational levels of employees</b>						
Primary school (below grade 6) (%)	346	15.61	139	37.46	21.76	7.27***
Up to Lower Secondary (grade 7-9) (%)	360	25.67	136	21.15	-4.53	-2.13***
Up to Upper Secondary (grade 10-12) (%)	359	27.42	135	18.77	-8.65	-4.01***
Up to Universities & institutions (%)	360	28.053	139	19.316	-8.74	-2.85***
<p>a. Independent t-tests were used to test the mean differences of a number of outcome variables (in logarithms), other characteristics of member firms in BAs and those of non-member firms. Bartlett's test of the null hypothesis of equal variance was calculated.</p> <p>b. Other costs of production include costs of electricity, fuel, water, communication services, transportation, rents, and repairs and maintenance. Mean differences are the differences between outcome indicators of firms who were members of BAs or Chamber of Commerce and those of firms who were non-members.</p> <p>c. Values of total sales, production and productivity in 2005 were inflated using Consumer Price Index calculate by the National Institute of Statistics, Cambodia. In 2005, annual average CPI was 115.20 and 120.63 in 2006. July-December 2000 was based year.</p> <p>d. *** indicates that the mean differences were significant at 1% level, ** at 5% level and * 10% level.</p>						

**Table 11: Descriptive Statistics of Main Outcome and Indicator Variables for SMEs**

Indicator variables	Non-participating firms		Participating firms		Mean difference	T-statistics
	N	Mean	N	Mean	Diff	t
Firm age	307	6.73	43	7.37	0.64	0.87
Sales (log)						
2005	260	11.61	39	13.23	1.62	5.97***
2006	295	11.75	41	13.20	1.44	5.46***
Production (log)						
2005	260	11.20	39	12.79	1.59	5.88***
2006	280	11.38	40	12.76	1.38	5.12***
Cost of labour (log)						
2005	277	9.65	40	10.74	1.16	4.84***
2006	299	9.69	43	10.81	1.11	5.26***
Cost of intermediate goods (log)						
2005	279	10.14	41	11.85	1.71	5.55***
2006	299	10.34	43	11.87	1.54	5.03***
Other costs (log)						
2005	279	9.28	40	10.68	1.39	6.50***
2006	300	9.46	42	10.80	1.34	6.58***
Productivity (production/labour) (log)						
2005	255	8.54	39	9.40	0.86	3.41***
2006	272	8.57	40	9.33	0.76	3.24***
Labour cost per worker (log)						
2005	266	7.06	40	7.35	0.28	1.60
2006	292	7.07	43	7.37	0.31	1.87*
Number of permanent workers (log)						
2005	296	2.57	42	3.23	0.65	4.73***
2006	307	2.67	41	3.36	0.68	5.13***
Total permanent skilled employees received training (%)	142	66.88	29	63.48	-3.40	-0.44
Total permanent unskilled employees received training (%)	142	41.69	28	31.89	-9.79	-1.03
Foreign nationals of the total (%)						
Number of customers (log)	223	1.75	34	1.98	0.22	2.52***
<b>Educational levels of employees</b>						

Primary school (below grade 6)	304	16.62	43	14.65	-1.97	-0.50
Up to Lower Secondary (grade 7-9)	304	26.12	43	17.34	-8.77	-2.57***
Up to Upper Secondary (grade 10-12)	304	27.73	43	32.41	4.68	0.99
Up to Universities & institutions	304	29.51	43	35.58	6.06	1.04

Notes:

- a. Other costs of production include costs of electricity, fuel, water, communication services, transportation, rents, and repairs and maintenance. Mean differences are the differences between outcome indicators of SMEs who were members of BAs or CoC and those of SMEs who were non-members.
- b. Values of total sales, production and productivity in 2005 were inflated using Consumer Price Index calculate by the National Institute of Statistics, Cambodia. In 2005, annual average CPI was 115.20 and 120.63 in 2006.
- c. \*\*\* indicates that the mean differences were significant at 1% level, \*\* at 5% level and \* 10% level.



**Table 12: Logit Regression to Estimate Propensity Score of Membership Participation Conditional on Observed and Selected Covariates**

Covariates	(1)		(2)		(3)		(4)		(5)		(6)	
	Pooled	MSME	Pooled	MSME	Pooled	MSME	Pooled	MSME	Pooled	MSME	Pooled	MSME
<b>Dependent variable:</b> participation in business association or chambers of commerce (1=participate)												
<b>Independent variables</b>												
<b>Firm's characteristics</b>												
Firms in operation (years)							.065*	.089*	.082**	.078	.053*	.069*
							(0.063)	(0.067)	(0.048)	(0.180)	(0.075)	(0.081)
Firms in operation (squared years)												
Firm size (1 = MSMEs)	-1.231***		-1.028***		-1.345***		-.945**		-.746		-	
	(0.000)		(0.003)		(0.000)		(0.028)		(0.137)		1.002***	
											(0.004)	
Firm type (1 = domestic)	-.732**	-.610	-.737**	-.509							-.867**	-1.085**
	(0.019)	(0.149)	(0.032)	(0.275)							(0.011)	(0.031)
Location (1 = Phnom Penh)	.157	.022	.157	-.023	.273	.175	-.067	-.672	-.298	-.827		
	(0.677)	(0.963)	(0.693)	(0.964)	(0.510)	(0.745)	(0.887)	(0.341)	(0.585)	(0.292)		
Sector (1 = manufacturing)	.913**	.953*	1.195***	1.098*								
	(0.023)	(0.084)	(0.002)	(0.098)								
Principal also manager (1 = yes)							.963*	.100	2.101***	.154	1.058*	.829
							(0.098)	(0.933)	(0.008)	(0.806)	(0.062)	(0.410)
Largest shareholder is family (1= family)							-.211	.032	.008	.154		
							(0.553)	(0.956)	(0.983)	(0.806)		
Exporting firms (export = 1)	.678*	.367										
	(0.081)	(0.482)										
Product as share of national market (%)							.030**	.057***	.026*	.048**	.026**	.031*
							(0.025)	(0.007)	(0.103)	(0.050)	(0.026)	(0.059)
Total female permanent workers (%)							.015**	-.003	.016**	-.005		
							(0.026)	(0.762)	(0.054)	(0.688)		
Product as share of local market (%)							-.035***	-.047**	-.034**	-.045**	.031***	-.031
							(0.004)	(0.013)	(0.017)	(0.031)	(0.003)	(0.039)
Own or share generator (1 = yes)							.634*	.839	.509	.709		
							(0.079)	(0.131)	(0.214)	(0.243)		
Mobile phone use in business (1 = yes)							-.826	.265	-.666	1.078		
							(0.298)	(0.849)	(0.471)	(0.541)		
Workforce use computer (%)							.006	.007	.006	.005		
							(0.242)	(0.369)	(0.307)	(0.546)		
Email use in business (1 = yes)							.798	.390	.534	.130		
							(0.206)	(0.615)	(0.438)	(0.874)		
Workforce belong to union (%)			.022***	0.037**	.022***	.019	.013*	.031*	.003	.021	0.018**	.027*
			(0.001)	(0.019)	(0.003)	(0.301)	(0.079)	(0.102)	(0.682)	(0.394)	(0.012)	(0.059)
<b>Information on firms' competitors, suppliers and customers</b>												
# domestic competitors (1= less than 5)			1.131***	1.643***	1.287***	1.65***	.977**	1.295**	.807	1.316*	.788**	.791
			(0.001)	(0.001)	(0.000)	(0.003)	(0.014)	(0.046)	(0.084)	(0.070)	(0.016)	(0.114)
	(1)		(2)		(3)		(4)		(5)		(6)	

Variables	Pooled	MSME	Pooled	MSME	Pooled	MSME	Pooled	MSME	Pooled	MSME	Pooled	MSME
# foreign competitors (1= less than 5)			-.747** (0.015)	-1.054** (0.018)	-.987*** (0.003)	-1.20** (0.014)	-.148 (0.681)	-.296 (0.608)	-.412 (0.322)	-.237 (0.709)		
# domestic suppliers (1= less than 5)			-.745** (0.019)	-1.174*** (0.006)	-.395 (0.227)	-1.10** (0.016)	-.360 (0.348)	-1.171** (0.039)	-.345 (0.433)	-1.32** (0.033)		
# foreign suppliers (1= less than 5)							-.054 (0.898)	-.169 (0.788)	-.068 (0.889)	-.433 (0.517)		
# domestic customers (1= less than 5)							-.171 (0.671)	.051 (0.929)	-.413 (0.354)	-.113 (0.853)		
Firms' sales sold domestically (%)										.003 (0.791)		
Firms' sales exported directly (%)							.002 (0.633)	-.001 (0.967)	.006 (0.228)			
<b>Firms' financial information</b>												
Financial statement reviewed (1 = yes)							.278 (0.400)	.357 (0.500)	.288 (0.436)	.039 (0.947)		
Firms' term loans (1 = yes)	.830*** (0.006)	.955** (0.015)	1.105*** (0.000)	1.178*** (0.005)	.858*** (0.008)	1.12*** (0.010)	.840** (0.024)	1.111*** (0.035)	1.171*** (0.007)	1.342** (0.022)	.771** (0.023)	1.089** (0.022)
<b>Information and perceptions on government services delivery and others</b>												
Investment prospects (1 = optimistic)							.282 (0.553)	.611 (0.449)	.555 (0.321)	.602 (0.533)		
Legal system (1=major obstacle)							.243 (0.496)	.857 (0.112)	.345 (0.392)	.859 (0.147)		
View on gov. services (1=efficient)							-.451 (0.271)	-.805 (0.235)	-.475 (0.291)	-.537 (0.429)		
Information on SEZ (1 = yes)	1.119*** (0.000)	1.501*** (0.000)	.953*** (0.001)	1.518*** (0.000)	.876*** (0.003)	1.384*** (0.002)	.581* (0.073)	1.285** (0.016)	.751** (0.042)	1.458** (0.012)	.780*** (0.008)	1.267*** (0.004)
# licenses, permits, registrations							.204*** (0.000)	.357*** (0.002)	.261*** (0.000)	.367*** (0.004)	.250*** (0.000)	.427*** (0.000)
Senior management time dealing with government requirement (%)							.002 (0.790)	-.013 (0.268)	-.002 (0.823)	-.016 (0.187)		
Firms' disputes over payments solved by court (%)							-.026 (0.573)	.022 (0.628)	.021 (0.696)	.081 (0.332)		
Firms seek to lobby government (1=yes)							.077 (0.839)	.276 (0.641)	.182 (0.681)	.559 (0.398)		
Inspection and meeting with gov. officials (1=yes)							.509 (0.141)	.272 (0.605)	.569 (0.128)	.257 (0.637)		
<b>Physical capital</b>												
Hypothetical values of assets (machinery, vehicles, equipment, land if owned, and buildings if owned (US\$)							.261*** (0.000)	.281*** (0.005)	.160* (0.082)	.078 (0.554)		
Owned land (1=yes)			-.055	0.110	-.845**	-.627			-1.019**	-.586		

			(0.861)	(0.796)	(0.016)	(0.196)			(0.030)	(0.390)		
<b>Education</b>												
Firms' formal beyond-the-job training (1=yes)	.512**	.719**	.614**	.789**	.508*	.959**			.517	1.091*		
	(0.050)	(0.053)	(0.030)	(0.049)	(0.082)	(0.023)			(0.159)	(0.064)		
Employees with university/institution level of education (%)									-.009	-.005		
									(0.187)	(0.596)		
_Cons	-1.573***	-3.159***	-1.371***	-	-	-	-	-	-	-8.56**	-	-
	(0.002)	(0.000)	(0.010)	2.848***	4.19***	6.187***	4.967***	6.186***	8.119***	(0.013)	3.239***	5.280***
				(0.000)	(0.000)	(0.000)	(0.001)	(0.010)	(0.000)		(0.000)	(0.000)
LR Chi2	197.870	38.26	218.73	61.34	196.48	61.76	225.20	97.68	224.12	90.43	208.40	81.72
Prob>Chi	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	0.0000
Pseudo R2	0.3340	0.1467	0.3754	0.2395	0.3759	0.2651	0.4347	0.4141	0.4807	0.4228	0.3979	0.3385
Obs.	502	350	496	347	448	319	447	315	406	291	453	321
Balancing Property Satisfied	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

a. Figures in the brackets are p-values.

b. \*\*\* indicates that the coefficients are significant at 1% level, \*\* at 5% level and \* at 10% level.

**Table 13: PSM Estimation Results of Memberships in Business Associations or Chambers of Commerce (Pooled)**

	(1)		(2)		(3)		(4)		(5)		(6)	
Outcome variables	NN	Kernel	NN	Kernel	NN	Kernel	NN	Kernel	NN	Kernel	NN	Kernel
Total sales (log)	0.25	0.33*	0.32	0.39	0.62	0.39***	0.44	-0.03	0.83	-0.02	0.13	-0.01
	(0.69)	(1.72)	(0.74)	(1.54)	(1.29)	(2.47)	(0.85)	(-0.08)	(1.42)	(-0.05)	(0.28)	(-0.02)
Total production (log)	0.34	0.43*	0.39	0.45***	0.70*	0.42***	0.59	0.03	0.79	0.11	0.20	0.07
	(1.01)	(1.86)	(0.99)	(2.23)	(1.67)	(2.09)	(1.26)	(0.10)	(1.47)	(0.34)	(0.49)	(0.23)
Labour productivity (log)	0.07	-0.02	0.14	0.08	0.08	0.07	0.11	-0.05	0.04	0.18	-0.13	-0.04
	(0.31)	(-0.09)	(0.58)	(0.37)	(0.31)	(0.43)	(0.42)	(-0.17)	(0.14)	(0.71)	(-0.51)	(-0.18)
Cost of labour (log)	0.43	0.48***	0.24	0.41***	0.60	0.39*	0.50	0.10	0.70	-0.02	0.33	0.09
	(1.45)	(2.88)	(0.67)	(2.22)	(1.56)	(1.67)	(1.15)	(0.50)	(1.44)	(-0.08)	(0.89)	(0.40)
Total number of workers (log)	0.32	0.52***	0.28	0.43***	0.63*	0.43*	0.50	0.10	0.76*	-0.06	0.37	0.14
	(1.25)	(3.37)	(0.82)	(2.12)	(1.76)	(1.90)	(1.30)	(0.39)	(1.81)	(-0.27)	(1.14)	(0.61)
Labour cost per worker (log)	0.11	-0.01	-0.03	-0.01	-0.03	-0.03	0.01	0.01	-0.06	0.05	-0.04	-0.04
	(0.79)	(-0.09)	(-0.17)	(-0.05)	(0.20)	(-0.23)	(0.04)	(0.03)	(-0.28)	(0.28)	(-0.27)	(-0.27)
Other cost of production (log)	1.44	2.66***	1.79	2.28*	3.48*	1.66*	0.50	-0.69	-0.14	-1.75	0.22	-0.32
	(0.92)	(2.43)	(1.01)	(1.79)	(1.78)	(1.71)	(0.23)	(-0.46)	(-0.05)	(-0.87)	(0.12)	(-0.25)

a. Figures in brackets are t-statistics.

b. \*\*\* indicates that coefficients are significant at 1% level, \*\* at 5% level and \* at 10% level.

**Table 14: PSM Estimation Results of Memberships in Business Associations or Chambers of Commerce (SMEs)**

	(1)		(2)		(3)		(4)		(5)		(6)	
Outcome variables	NN	Kernel	NN	Kernel	NN	Kernel	NN	Kernel	NN	Kernel	NN	Kernel
Total sales (log)	0.70*** (2.39)	1.00*** (4.69)	0.97*** (2.36)	1.00*** (2.84)	0.76 (1.46)	0.81*** (2.58)	0.78 (1.21)	1.12*** (2.93)	0.54 (0.96)	0.95*** (2.63)	0.20 (0.37)	0.92** (2.13)
Total production (log)	0.46* (1.73)	0.82*** (3.24)	0.97*** (2.59)	0.87*** (2.66)	0.46 (1.32)	0.73*** (2.60)	0.58 (1.08)	0.89*** (2.22)	0.48 (0.90)	0.79* (1.98)	0.17 (0.32)	0.78** (2.38)
Labour productivity (log)	0.22 (1.19)	0.20 (0.77)	0.65*** (2.75)	0.34 (1.25)	0.83*** (2.98)	0.61* (1.91)	0.20 (0.58)	0.32 (0.79)	0.57* (1.85)	0.37 (0.96)	0.01 (0.02)	0.20 (0.55)
Cost of labour (log)	0.68*** (2.70)	0.82*** (3.09)	0.43 (1.21)	0.64*** (2.68)	0.09 (0.21)	0.35 (1.16)	0.53 (0.97)	0.47* (1.70)	-0.32 (-0.65)	0.36 (1.06)	0.29 (0.64)	0.63** (2.36)
Total number of workers (log)	0.42*** (2.07)	0.66*** (3.89)	0.34 (1.08)	0.56*** (2.82)	-0.13 (-0.33)	0.17 (0.88)	0.42 (0.93)	0.60*** (2.66)	0.001 (0.01)	0.46** (2.11)	0.21 (0.51)	0.61** (2.18)
Labour cost per worker (log)	0.21 (1.67)	0.17 (1.11)	0.04 (0.28)	0.11 (0.57)	0.16 (0.84)	0.19 (1.25)	0.06 (0.28)	-0.13 (-0.71)	-0.26 (-1.21)	-0.10 (-0.49)	0.12 (0.62)	0.02 (0.10)
Other cost of production (log)	4.46*** (3.41)	5.27*** (5.45)	1.87 (1.13)	4.46*** (2.68)	-0.11 (-0.05)	2.54** (2.14)	2.52 (0.96)	2.35 (1.23)	0.98 (0.38)	2.99* (1.91)	0.86 (0.35)	2.49 (1.07)

a. Figures in brackets are t-statistics.

b. \*\*\* indicates that coefficients are significant at 1% level, \*\* at 5% level and \* at 10% level.

**Table 15: OLS Estimation Results of Memberships in Business Associations or Chambers of Commerce**

	(1)		(2)		(3)		(4)		(5)		(6)	
Outcome variables	Pooled	SME	Pooled	SME	Pooled	SME	Pooled	SME	Pooled	SME	Pooled	SME
Total sales (log)	0.53*** (2.83)	0.91*** (3.43)	0.49*** (2.59)	0.74*** (2.70)	0.46*** (2.40)	0.45* (1.67)	0.36* (1.83)	0.49* (1.78)	0.23 (1.15)	0.29 (1.04)	0.42** (2.06)	0.65** (2.26)
Total production (log)	0.54*** (2.82)	0.73*** (2.70)	0.51*** (2.62)	0.64*** (2.31)	0.49*** (2.53)	0.47* (1.72)	0.31 (1.55)	0.31 (1.08)	0.22 (1.05)	0.19 (0.68)	0.43** (2.11)	0.58** (1.98)
Labour productivity (log)	0.13 (0.82)	0.16 (0.72)	0.18 (1.08)	0.24 (1.03)	0.14 (0.40)	0.26 (1.08)	0.06 (0.33)	0.12 (0.49)	0.09 (0.49)	0.11 (0.44)	0.09 (0.57)	0.23 (0.93)
Cost of labour (log)	0.53*** (3.54)	0.73*** (3.39)	0.40*** (2.64)	0.48** (2.21)	0.34** (2.15)	0.24 (1.08)	0.278* (1.72)	0.09 (0.42)	0.19 (1.12)	-0.04 (-0.18)	0.37** (2.30)	0.39* (1.65)
Total number of workers (log)	0.46*** (4.50)	0.63*** (4.46)	0.37*** (3.58)	0.45*** (3.17)	0.38*** (3.53)	0.25* (1.80)	0.30*** (2.74)	0.25* (1.68)	0.18 (1.58)	0.14 (1.00)	0.38*** (3.29)	0.42*** (2.66)
Labour cost per worker (log)	0.07 (0.77)	0.12 (0.84)	0.05 (0.43)	0.05 (0.36)	-0.04 (-0.32)	0.004 (0.03)	-0.02 (-0.21)	-0.15 (-0.98)	0.01 (0.12)	-0.18 (-1.13)	0.005 (0.05)	-0.02 (-0.14)
Other cost of production (log)	3.32*** (3.53)	4.86*** (3.61)	3.08*** (3.58)	4.28*** (3.46)	2.29*** (2.70)	2.95*** (2.47)	1.91* (1.84)	1.66 (1.11)	1.00 (1.14)	1.68 (1.36)	2.31** (2.23)	2.68* (1.81)

a. Figures in brackets are t-statistics.

b. \*\*\* indicates that coefficients are significant at 1% level, \*\* at 5% level and \* at 10% level.

**Table 16: PSM & OLS Estimation Results of Memberships in Business Associations or Chambers of Commerce**

	(1)		(2)		(3)		(4)		(5)		(6)	
Outcome variables	Pooled	SME	Pooled	SME	Pooled	SME	Pooled	SME	Pooled	SME	Pooled	SME
Total sales (log)	0.52*** (2.72)	0.86*** (3.18)	0.48** (2.48)	0.72*** (2.68)	0.51*** (2.67)	0.43* (1.59)	0.39** (1.95)	0.63** (2.11)	0.30 (1.39)	0.41 (1.36)	0.44** (2.12)	0.71** (2.34)
Total production (log)	0.51*** (2.64)	0.67** (2.45)	0.46** (2.42)	0.60** (2.26)	0.52 (2.62)	0.45* (1.63)	0.36* (1.83)	0.42 (1.42)	0.31 (1.40)	0.39 (1.29)	0.44** (2.16)	0.65** (2.15)
Labour productivity (log)	0.12 (0.73)	0.10 (0.44)	0.17 (0.99)	0.20 (0.88)	0.16 (0.95)	0.23 (0.99)	0.07 (0.43)	0.23 (0.94)	0.12 (0.61)	0.25 (0.93)	0.09 (0.49)	0.21 (0.83)
Cost of labour (log)	0.56*** (3.70)	0.71*** (3.30)	0.39** (2.54)	0.46** (2.10)	0.35** (2.16)	0.19 (0.85)	0.34** (2.18)	0.15 (0.57)	0.24 (1.33)	0.09 (0.03)	0.43*** (2.71)	0.52** (2.17)
Total number of workers (log)	0.45*** (4.30)	0.63*** (4.48)	0.34*** (3.29)	0.45 (3.06)	0.39*** (3.43)	0.24* (1.69)	0.32*** (2.74)	0.21 (1.30)	0.21* (1.78)	0.16 (1.02)	0.40*** (3.42)	0.48*** (3.04)
Labour cost per worker (log)	0.13 (1.20)	0.10 (0.71)	0.06 (0.56)	0.03 (0.25)	-0.02 (-0.23)	-0.33 (-0.22)	0.02 (0.23)	-0.07 (-0.43)	0.02 (0.16)	-0.16 (-0.82)	0.05 (0.39)	0.04 (0.21)
Other cost of production (log)	3.25*** (3.49)	4.94*** (3.59)	2.87*** (3.32)	4.24*** (3.50)	2.19** (2.48)	2.84** (2.27)	2.04* (1.89)	2.03 (1.24)	0.87 (0.91)	1.53 (1.15)	2.19** (2.10)	2.64* (1.68)
Region of common support	<b>[0.0329- 0.9333]</b>	<b>[0.0230- 0.5096]</b>	<b>[0.0222- 0.9878]</b>	<b>[0.0131- 0.9885]</b>	<b>[0.0244- 0.9774]</b>	<b>[0.0116- 0.9326]</b>	<b>[0.0609- 1.0000]</b>	<b>[0.0251- 1.000]</b>	<b>[0.0273- 1.000]</b>	<b>[0.0206- 1.000]</b>	<b>[0.0425- 1.000]</b>	<b>[0.0193- 1.000]</b>

a. Figures in brackets are t-statistics.

b. \*\*\* indicates that coefficients are significant at 1% level, \*\* at 5% level and \* at 10% level.

**Table 17: Variable Definitions**

Variable	Definition
<b>Outcome variables</b>	
Sales	Firms' annual sales in USD for fiscal years 2006 and 2005.
Production	Firms' annual production in USD for fiscal years 2006 and 2005
Cost of labour	Firms' annual cost of labour in USD for fiscal years 2006 and 2005. The costs include wages, salaries, bonuses, social payments, and others.
Labour cost per worker	Firm's cost per workers in USD for fiscal years 2006 and 2005. This variable is the division between total labour cost in each fiscal year and the total permanent workers firms had as of April 2006. Permanent workers include management, professionals, skilled production workers, unskilled production workers, and non-production/service workers.
Cost of intermediate goods	Firms' annual cost of raw materials and intermediate goods used in production and goods and materials purchased for re-sale in US\$ for fiscal years 2006 and 2005.
Other costs	Firms' other costs of production in USD for fiscal years 2006 and 2005 include costs of electricity, fuel, water, communication services, transportation, rents, and repairs and maintenance.
Productivity	Production per worker in USD for fiscal years 2006 and 2005.
Employment	Total number of permanent workers in fiscal years 2006 and 2005.
Number of customers	This is defined as total number of customers within the main product line in domestic market. Customers include domestic private firms, Cambodian state-owned firms, foreign owned firms, NGOs, and others.
Business Association membership	A 0/1 dummy variable with "1" representing firms' membership in business association or chamber of commerce and "0" otherwise.
<b>Firm characteristics</b>	
Firm age	The number of years that firms had been in operation from establishment to April 2006. Firms which started operation after April 2006 were terminated.
Investment prospect of firms	This was taken from a question "what is your [firms] prospect for investment in the next 3 years?" The variable takes the value of "1" if firms are optimistic and "0" otherwise.
Perceptions on legal system or conflict resolution	A categorical variable having three groups: 1 "no obstacle" 2 "minor obstacle" and 3 "more obstacle".
Efficiency of government service delivery	A categorical variable having three groups: 1 "Inefficient" 2 "Somewhat efficient" and 3 "Efficient".
Senior management time in dealing with government requirements	This is defined, in a typical week, as % of senior management's time spent in dealing with government requirements (e.g. taxes, customs, labour regulations, licensing and registration) which includes dealing with officials and completing forms.
Government lobby	A 0/1 dummy variable that takes value "1" if firms seek

Term loans with financial institution	to lobby government or influence content of laws or regulations affecting firms and “0” otherwise. A 0/1 dummy variable taking value “1” if firms has term loan (more than 6 months) from a bank or financial institution and “0” otherwise.
Term loans with collateral	A 0/1 dummy variable with “1” representing that the financing requires collateral or a deposit and 0 otherwise.
Value of collateral	This variable is defined as the approximate value of collateral required as a % of the total loan value.
Annual rate of interest	Annual interest rate per annum.
Formal training to permanent employees	A 0/1 dummy variable having value “1” if firms offer formal beyond the job training to permanent employees and “0” otherwise.
Permanent skilled employees received Training	This is defined as the percentage of permanent skilled staff who received formal training in 2006.
Permanent unskilled employees received training	This is defined as the percentage of permanent unskilled staff who received formal training in 2006.
Number of foreign nationals to total employees	Number of skilled workers who were foreign nationals in 2006.
Information on Special Economic Zones	A 0/1 dummy variable taking value “1” if firms have heard of and “0” otherwise.
Educational levels of employees	The overall percentage of the workforce in the firms who have the following educational levels: Primary school (below grade 6), Up to Lower Secondary (grade 7-9), Up to Upper Secondary (grade 10-12), Up to University and Institutions.
Sector	This variable contains four sectors: Manufacturing (food, textiles, garments, chemicals, plastics & rubber, basic metals and fabricated metal products, machinery and equipment, electronics, and others), Trade (wholesale including export services, retail) , Tourism(hotels and restaurants, travel agencies, tour operators, etc.), and Other (construction, transport, IT, etc.).
Firm size	This variable defines two groups of firms: Small and Medium Enterprises and Large Enterprises. The number of regular employees firms have in April 2006 and the definition of firms given by the government are used to derive these categories. This variable assumes binary value with “1” representing SMEs and “0” LEs.
Location	Battambang, Siem Reap, Phnom Penh, and Kampong Cham
Exporting indicators	Exporters and non-exporters
Equity stakes of firms	Domestically-owned (100%), foreign-owned (100%), and joint-venture