

Doctoral Thesis

**The Effects of Export Promotion
Programs in Developing Countries:
Evidence from Country and Firm Level
Analyses**

(発展途上国における輸出促進プログラムの効果：
国および企業レベルの分析に基づくエビデンス)

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ABSTRACT

International trade has been recognized as one of the key factors of economic growth. Yet, many countries, less developed countries, in particular, face obstacles which constrain their involvement in international trade. In recognition of the importance of trade, governments in both developed countries and developing countries actively use various policy measures and programs to promote export. In this dissertation, **I examine the effects of export promotion programs in developing countries.** To better understand the how these programs work at different levels and suggest ways to improve the efficiency in the context of developing countries, I use econometric analysis to search for evidence **based on country-level data and firm-level data.**

At the country-level, one of the most significant types of export promotion that is also quantifiable and aggregated is aid for trade. Aid for trade is a type of official development assistance given by developed countries and international organizations to developing countries in need of external support to facilitate trade. **I evaluate the effect of aid for trade on export diversification** which is designated as the most desired policy outcome of aid for trade by developing countries. While exports of many developing countries are concentrated in a small range of items, there have not been many efforts to measure the effect of aid for trade on the export structure. Using the Herfindahl–Hirschman Index (HHI) to represent the degree of export concentration, **the findings suggest that, overall aid for trade has had no significant impact on recipient countries' export diversity in the short-run.** Only one portion of aid for trade which is on trade policy and regulations reduces the concentration as this type is the most explicitly linked to trade. **In the long-run, aid for trade does not contribute to lowering levels of export concentration.** Aid for building productive capacity, which is one of the three categories of aid for trade, is

weakly linked to lower concentration. This change is not caused by an increase in export diversity but by the redistribution of shares of existing products.

At the firm-level, theories predict that only productive firms can participate in the international market. However, other external factors such as market information and institutional support also determine the possibility of export. Thus, there are many export promotion programs which provide information and marketing services in developing countries. Moreover, there are several studies which econometrically evaluate such export promotion programs in developing countries. However, most of them do not fully account for self-selection bias which creates endogeneity. To illustrate this endogeneity problem, **this section explore how informational seminar on export can promote firms to change their perception, encourage them to prepare, and lead to engaging in export by carrying out a randomized field experiment in Vietnam. The results show that small and medium enterprises (SMEs) in the traditional apparel and textile clusters which participated in the seminar do not change their perception, behavior and export performance after the seminar.** However, the seminars encourage **firms with many sub-contractors and firms with prior export experience**, which possibly embody higher productivity and absorptive capacity, **to (re-)start exporting.**

In line with the previous firm-level analysis which proves the importance of information in export promotion among productive firms, **I further investigate the role of information as well as other types of supports from the government in increasing the chance of exporting.** This chapter focuses on the personal connection of firms' owner to government officials or politicians as the source of information using the same firm data from Vietnam. In developing countries where markets are not well developed, local government often plays a key role in regulating access to resources. Similarly, information asymmetry is a significant obstacle due to lack of related infrastructure and institution so that personal ties

can be an essential source of information. The regression results suggest that **politically connected firms have a higher chance of getting supports from the government. However, government supports do not lead to a higher probability of exports. Information from the government appears to be equally accessible to firms without personal connections. These firms with more information from the government, in turn, are more likely to export directly.**

To sum up, this dissertation finds that some export promotion programs work while others do not. **The effective programs are the ones that either improved productivity or ones that are allocated to productive firms.** Also, information whether through both formal classes and informal personal ties is effectively promoting the export of productive firms, **signifying the importance of information in developing countries.**

Keywords: export promotion, aid for trade, aid effectiveness, randomized controlled trials, impact evaluation, political connection

ACKNOWLEDGEMENTS

This dissertation would not have been possible without the support of numerous individuals. First of all, I would like to express my sincere gratitude and respect to my supervisor **Professor Yasuyuki Todo**. He has taught me not only what is necessary to obtain a Ph.D. degree but also how to become a responsible and ethical researcher. His trust for students has encouraged me to try new things and let me grow. My academic performances are based on many opportunities which he had provided including research grants for fieldwork, conference presentation, and research assistantship. His full support in all aspects has allowed me to balance between academia and other parts of my life. It was truly a great honor for me to become his student and his co-researcher.

I also am greatly indebted to my co-supervisor, **Professor Aya Suzuki**. She kindly and gently guided me over the years. I enjoyed attending her seminars and greatly benefited from discussions with her and her students. I was also inspired by her life as a development economist.

Also, my genuine appreciation goes to the members of my dissertation committee, **Professor Masahide Horita, Professor Eiji Yamaji, and Professor Kozo Kiyota**, for their constructive comments and suggestions.

My special thanks go to my colleagues and staffs at the Department of International Studies at the University of Tokyo and Department of Economics at Waseda University. Particularly, I thank my fellow Ph.D. students, Mr. Geunwoo Lee and Ms. Seong Yoon Choi for their academic help and friendship. My intellectual debt is to my co-authors, Dr. Daichi Shimamoto, and Professor Petr Matous. Mr. Jiangtao Fu, Dr. Lianming Zhu, and Ms. Yuzuka Kashiwagi gave insightful comments.

I received extraordinary support from Vietnamese collaborators, Professor Vu Hoang Nam and his students at the Foreign Trade University, and Ms. Do Thi Doan and her staffs at Vietnam Young Entrepreneurs Association who have made this research possible. I also thank all the participants of our social experiment who spared time for us to share invaluable information of their firms.

I am grateful to several institutions including Ministry of Education, Culture, Sports, Science and Technology (MEXT), Research Institute of Economy, Trade and Industry (RIETI), Japan Society for the Promotion of Science (JSPS) and Japan Student Service Organization (JASSO) for provision of financial support and teaching/research assistantship during my study at the University of Tokyo.

Finally, my deepest gratitude goes to my family for their love and patience. I thank my beloved husband, **Mr. Donggyu Kim** for his enormous efforts in enduring hard times. I also would like to express my love and respect for my mom, my mentor, and my role model **Dr. Haeran Park** from whom I always receive advice for everything. I also thank my only sister Ms. Juri Kim, my aunt Ms. Jaeran Park, my grandmothers Ms. Ok Ja Kim and Ms. Ok Re Lee, my parents-in-law, Mr. Wan Soo Kim and Ms. Yong Sin Kim for their support and care.

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LIST OF ABBREVIATIONS

| | |
|--------|--|
| AEC | ASEAN Economic Community |
| ATT | Average Treatment Effect on the Treated |
| CRS | Creditor Reporting System |
| DAC | Development Assistance Committee |
| ECI | Economic Complexity Index |
| EPA | Export Promotion Agency |
| FDI | Foreign Direct Investment |
| GDP | Gross Domestic Products |
| GDVC | General Department of Vietnam Customs |
| GMM | Generalized method of moments |
| HHI | Herfindahl-Hirschman Index |
| HS | Harmonized System |
| ICT | Information, Communication, and Technology |
| LATE | Local Average Treatment Effects |
| ODA | Official Development Assistance |
| OECD | Organisation for Economic Co-operation and Development |
| OLS | Ordinary Least Squares |
| OOF | Other Official Flows |
| PPP | Purchasing Power Parity |
| RCT | Randomized Controlled Trials |
| SITC | Standard International Trade Classification |
| SME | Small and Medium-sized Enterprise |
| UN | United Nations |
| UNCTAD | United Nations Conference on Trade and Development |
| USD | United States Dollar |
| VES | Vietnam Enterprise Survey |
| VNACCS | Vietnam Automated Cargo and Port Consolidated System |
| WTO | World Trade Organization |

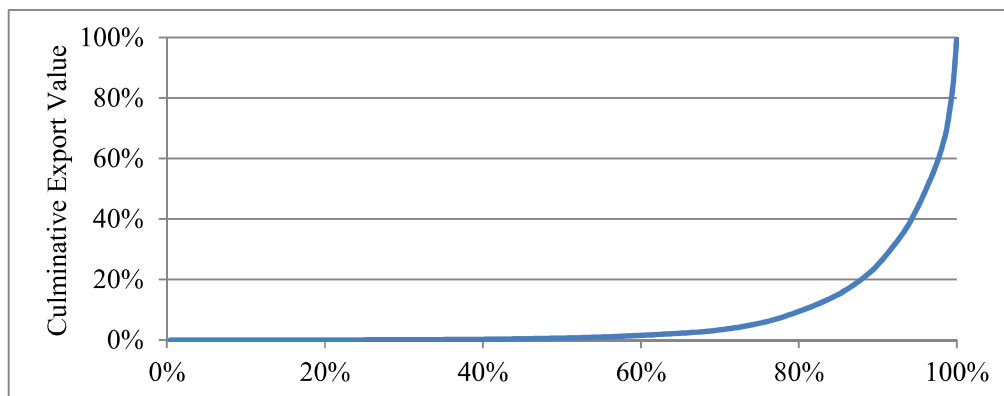
1. INTRODUCTION

1.1. Background

International trade has been recognized as one of the key factors of economic growth (Balassa, 1978; Feder, 1983). Hallaert (2006) summarizes the empirical findings from literature linking exports and economic growth. Despite different timeframes and sample countries, his summary points that there is sizable and robust evidence showing that exports growth is associated with economic growth.

Yet, many developing countries are suffering from various trade obstacles which hinder them from realizing the potential benefits of trade (Stiglitz and Charlton, 2006). Distribution of the world export among countries is highly skewed as illustrated in Figure 1. Top 1 decile (20 countries out of 231 countries which data are available) takes up more than 70% of the world trade volume in 2013.

Figure 1. Distribution of the World Export in 2013



Source: Author's calculation using data from UN COMTRADE

The leading exporting countries are mostly high-income countries. Export data of 2013 show that high-income countries export 64% of the total world export while upper middle-income countries take up 30%, lower middle-income countries 5%, and low-income countries 1%, respectively. Without China, the largest exporting country in 2013, the share of developing countries is only 20%.

The trade obstacles for developing countries are twofold. On one side, importers place trade barriers such as import tariffs and non-tariff barriers to protect their industries that are weak, in decline, politically significant or threatened by import competition (Lee and Swagel, 1997). On the

other hand, exporters cannot fully participate in the world market due to supply-side constraints and trade costs.

Since the launch of the General Agreement on Tariffs and Trade in 1947, the global trading system has entered the era of free trade. Under the World Trade Organization regime, the member nations have successfully lowered their average tariffs below 5 %, along with numerous preferential trade agreements (Baldwin, 2016). However, the triumph of the multilateralism and regionalism has a limit for two reasons. First, Doha Round, the latest trade-negotiation round of the World Trade Organization (WTO) has been stagnating since its beginning. Second, tariff rates are already low at 0 for most of the imports. Least-developed countries further enjoy “duty-free and quota-free” treatment or concessionary rates by Generalized System of Preferences (GSP). Therefore, the extent to which developing countries can increase exports from further liberalization from the importers’ side seems limited.

Instead, there is much more room for export growth coming from eliminating supply-side constraints and cutting trade costs. Low logistics performances and low international connectivity can be improved through investment in infrastructure, productive capacity, and institutions. Roads, railways, and ports as well as information and communication technology integrate regions to the global markets faster and cheaper. Infrastructure in energy and provision of inputs creates new productions. Research, innovation, and technology can upgrade the quality of products to the level that is accepted by the importers’ standard. Supports to trade-related departments facilitate the speed of the export process and sound institutions such as export insurance, and marketing agencies lower the risk. For this reason, many governments, donor agencies, and industry associations implement export promotion programs.

1.2. Objective and Research Questions

This dissertation aims to evaluate the impacts of export promotion programs. Given that developing countries are facing multiple trade-related constraints while resources are limited, we cannot afford to allocate time and money to inefficient programs. Thus, it is important to find evidence on what works, at which level, and to what extent and provide implications to policy makers accordingly. In addition,

conducting impact evaluation strengthens the accountability of implementing parties and fund providers.

The general framework of program impact evaluations includes identification of inputs and outputs. Inputs for export promotion programs in developing countries at the aggregated level are not available for all the countries. Also, definition and scope of export promotion programs may not be the same across all developing countries. For this reason, aid for trade which is standardized inputs and comparable across countries is selected as inputs for export promotion programs at the country-level in this dissertation. Aid for trade data is managed by the Organisation for Economic Co-operation and Development (OECD) by the donor countries and organizations so that the quality and the coverage of data are reliable. Also, aid for trade can be disaggregated by sector, by donor type, and by payment obligations, allowing a more detailed partial analysis. The impact of aid for trade on export concentration is measured based on econometrics technique called Generalized Method of Moments.

At the firm-level, information which the firms acquire through export seminars or the government officials is chosen as inputs of export promotion programs. How information affects firms' export performance is examined. As the data are collected from the top manager or the owners of firms through in-person interviews, this original dataset also includes subjective perceptions regarding export such as willingness to trade. Using perception variables as the outcome of the information dissemination allows distinguishing if the information has stimulated firms' decision-maker to be interested in export regardless of their productivity and other capacities.

Each chapter of the main analyses also pioneers new topics or relatively under-researched outcomes or adopts a new methodology for the impact evaluation of export promotion programs. In Chapter 2, the focus is given to export diversification rather than export volume as a program outcome. The analysis on export diversification sheds light to qualitative growth of export rather than quantitative growth. Chapter 3 adds a methodological contribution by introducing a randomization to take account of endogeneity. There are not many previous studies which measure the impact of export promotion programs based on randomized controlled trial so that this chapter serves as an extension to

further validate the previous literature based on voluntary participation. Chapter 4 deals with the issue of political connection and export performance. While there is a well-established thread of literature discussing the role of political connection on firm value or performance, it is not clear how politically connected firms benefit from the government supports and increase the chance of export.

1.3. Outline

The rest of this dissertation is structured as follows. Chapter 2 reviews previous studies on the effects of various export promotion programs at both country level and firm level. Based on the literature review, the importance and contributions of the dissertation are drawn. Chapter 3, 4 and Chapter 5 contain the main analyses of the thesis. Chapter 3 examines how aid for trade, which is one type of export promotion programs, affects the structure of export basket of aid-receiving countries. Here, the unit of analysis is country and industry. On the other hand, Chapter 4 and 5 focus on firm-level analyses within a narrower geographical context. Chapter 4 examines how small and medium sized firms in Vietnam change after the export promotion programs. Using the same data from Chapter 4, Chapter 5 investigates the relationship between political connections, access to information, and export performances. Finally, Chapter 6 concludes the dissertation with some policy implications.

2. THE EFFECTS OF AID FOR TRADE ON EXPORT DIVERSIFICATION AT THE COUNTRY-LEVEL

The importance of aid for trade as a tool for facilitating trade, economic growth, and social development has received attention since the concept was introduced in 2005. While one of the main targets of aid for trade is export diversification, reflecting the fact that the exports of many developing countries are concentrated in a small range of items, there have not been many efforts to measure the effect of aid for trade on the export structure. This study, therefore, attempts to trace the relationship between aid for trade and all 136 aid recipients' export structure between 1996 and 2013. Using the Herfindahl–Hirschman Index (HHI) to measure the degree of export concentration, the findings suggest that, aid for trade has had no significant impact on recipient countries' export diversity in the short-run and the long-run. One particular aid sector, aid for trade policy and regulations has been effective in reducing levels of export concentration in the short-run. It is the most direct form of aid for trade targeting to build administrative capacity of trade-related ministries. This change is not caused by an increase in the number of exported products but by the redistribution of shares of existing products of a similar sophistication level.

2.1. What is Aid for Trade¹

2.1.1. Definition of Aid for Trade

Since the foundation of the WTO in 1995, many developing countries have expressed their concerns over their capacities to implement the agreements and to undertake the necessary policy actions. Both developed countries and developing countries acknowledged the developing countries' needs of trade-related adjustments for a successful transition to the new trade regime. They also agreed on the importance of the link between trade and development. Consequently, voices for requesting external

¹ Some parts of this section are extracted from Section 2.1, 2.2 and 2.3 of author's master's thesis retrieved from an online database: Kim Y. (2012). The Effect of Aid for Trade on Export Diversification of the Recipient Countries. Retrieved from <http://dcollection.snu.ac.kr/>.

help from donors to developing countries in the form of official aid specially designated for trade became salient during the Doha Round.

The sixth WTO Ministerial Declaration endorsed the concept of Aid for Trade, mandated the establishment of a Task Force to operationalize the concept and mandated the Director General of the WTO to consult on financing for the initiative. At the Meeting, it was agreed that “Aid for Trade should aim to help developing countries, particularly least-developed countries to build the supply-side capacity and trade-related infrastructure that they need to assist them to implement and benefit from WTO Agreements and more broadly to expand their trade (Ministerial Declaration of the Sixth WTO Ministerial Conference, 13-18 December 2005 (WT/Min(05)/DEC, para. 57).” This process was labeled as the Aid for Trade Initiative. However, it does not mean that aid for trade did not exist before it received its name as aid for trade. Donors have provided foreign aid in trade-related sectors even before 2005.

In addition to WTO and OECD who took the joint stance to launch the Aid for Trade Initiative, various UN agencies including United Nations Conference on Trade and Development (UNCTAD) and regional commissions have been implementing various aid for trade programs according to the Aid for Trade Initiative.

Based on Commonwealth Secretariat in March 2006 (UNCTAD, 2006), the WTO Aid for Trade Task Force identified the following six policy areas for aid for trade assistance: trade policy and regulations; trade development; trade-related infrastructure; building productive capacity; trade-related adjustment; and other trade-related needs. The Task Force also recommended six objectives of aid for trade as below.

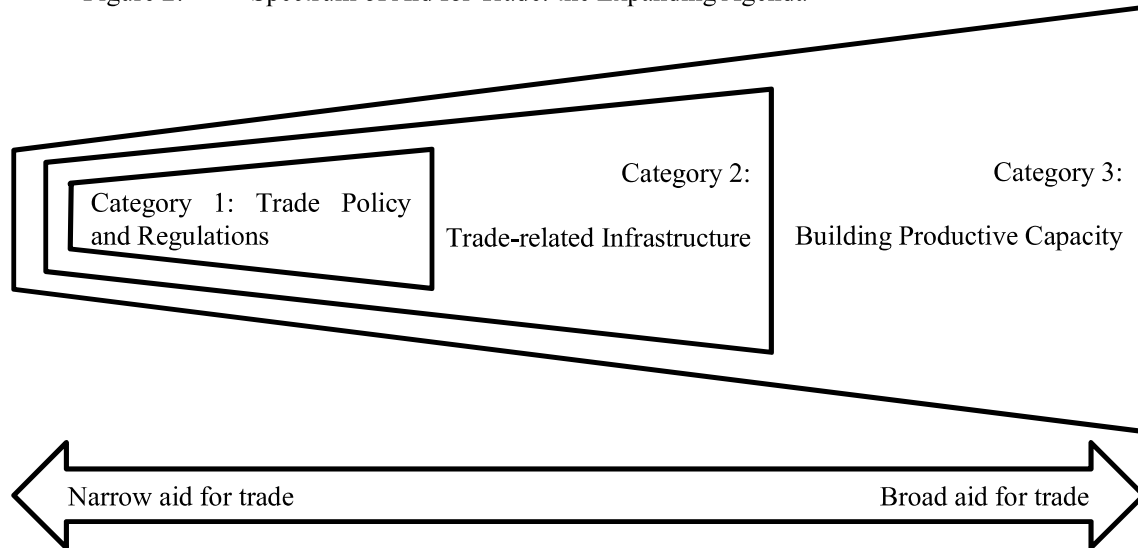
Box 1. Policy Objectives of Aid for Trade

- To enable developing countries, particularly LDCs, to use trade more effectively to promote growth, development and poverty reduction, and to achieve their development objectives, including the Millennium Development Goals (MDGs).
- To help developing countries, particularly LDCs, to build supply-side capacity and trade-related infrastructure in order to facilitate their access to markets and to export more.
- To help facilitate, implement, and adjust to trade reform and liberalization.
- To assist regional integration.
- To assist smooth integration into the world trading system.
- To assist in implementation of trade agreements.

Source: WTO (2006), Recommendations of the Task Force on Aid for Trade, WT/AID FOR TRADE/1

For the purpose of quantitative analysis, there must be a precise borderline specifying what qualifies as aid for trade. There are on-going discussions on what constitutes aid for trade. How boundary of aid for trade should be interpreted varies as shown in Figure 2 (OECD, 2006).

Figure 2. Spectrum of Aid for Trade: the Expanding Agenda



Source: OECD (2006) Aid for Trade: Making it Effective p.12

For example, aid for trade is technical assistance explicitly targeting trade at the narrowest scope. The next level of the spectrum includes aid for trade-related infrastructures such as transportation, storage, and energy. Although infrastructure is one of the key determinants of the feasibility of trade as high transportation cost is a common trade barrier, it is practically impossible to separate the domestic uses from trade-related activities. The last level of aid for trade includes aid for building productive capacities in the industries. Similarly, aid for boosting domestic productivity may result in more exporting and more importing, but the main target of such aid is not necessarily prioritizing trade. Rather trade is more of a byproduct. If a strict definition of aid for trade is applied, only aid for trade policy and regulations can qualify while broad aid for trade accepts aid for infrastructure and productive capacity building. In this section, the broader definition of aid for trade is applied while additional analysis using a narrow definition of aid for trade is also conducted.

For the extraction of aid for trade data, I use the purpose coding system of the Creditor Reporting System (CRS) which was jointly produced by OECD and the World Bank in 1967. It has been keeping records of all the aid activities of donor members of OECD and multilateral

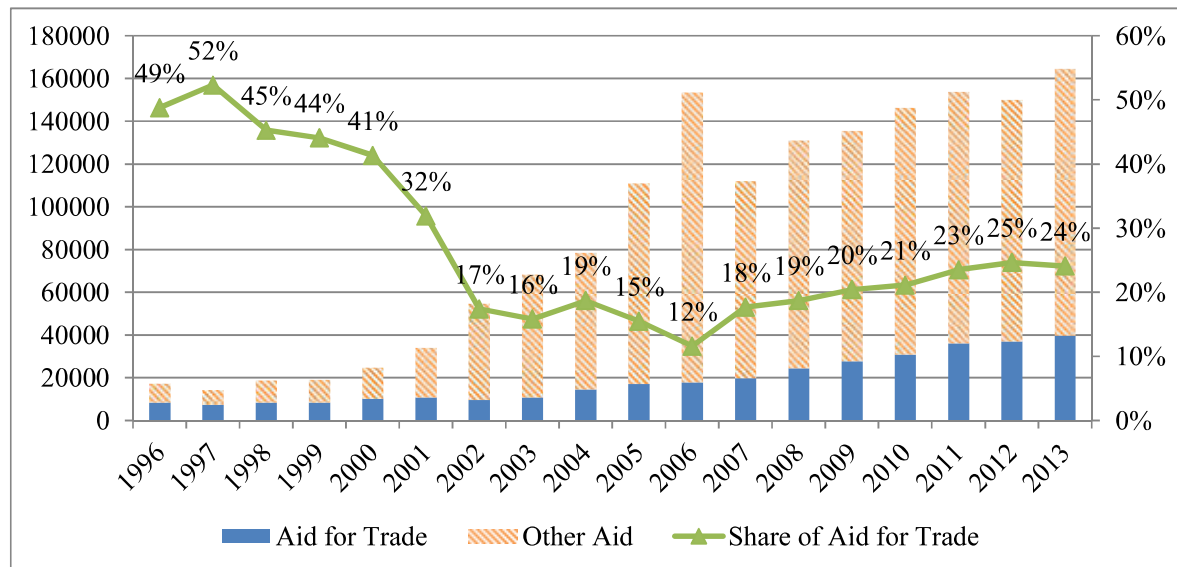
organizations to provide a constant flow of aid data. All capital transactions allocated as development aid are classified into 42 3-digit sector codes then are further divided into 197 5-digit purpose codes based on “which specific area of the recipient’s economic or social structure is the transfer intended to foster (OECD, “Purpose Codes: sector classification”).” Under this CRS purpose coding system, aid for trade is largely divided into three types: economic infrastructure, building productive capacity, and trade policy and regulations (See Appendix A. for a detailed list of CRS codes).

As already stated above, although the concept of aid for trade did not exist before 2005, development aid in these three sectors disbursed before 2005 also qualifies for aid for trade because its usages are to help facilitate the trade of recipient countries by building infrastructure, productive capacity, and administrative capacity.

2.1.2. Recent Trends of Aid for Trade

Aid for trade used to be a leading type of aid in the 1990s, representing about a half of total aid disbursed to developing countries (Figure 3).

Figure 3. Total Aid for Trade Flow as % of Total Aid (1996-2013)
(Unit: USD millions, current)



Source: Author’s calculation using data from OECD CRS

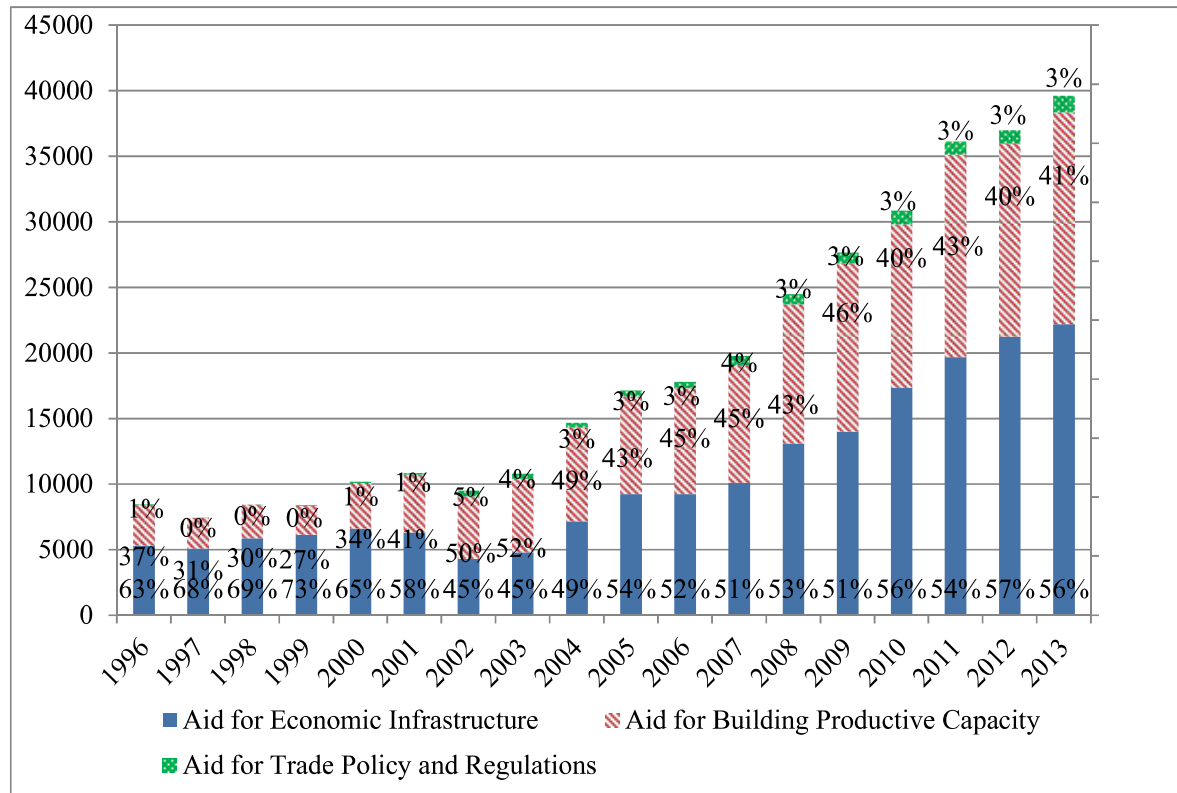
A high proportion of aid for trade was due to heavy investments in economic infrastructure which is one of the three sub-sectors of aid for trade. However, as other types of aid such as social aid,

environmental aid, and debt relief continued to increase rapidly while aid for trade only increased moderately, the share of aid for trade decreased in the 2000s. In 2013, aid for trade accounted for 25% of total development aid. It is interesting that although total aid showed a huge drop in 2007, aid for trade did not fall. It implies aid for trade is less elastic to external shocks and more consistent than aid given to other sectors.

The breakdown of aid for trade by sector is shown in Figure 4. Aid for trade has three sub-categories according to its usage. About more than 90% of aid for trade is directed to economic infrastructure and building productive capacity building. Only less than 5% is used for trade policy and regulations. This can be attributed to the nature of infrastructure and capacity building projects which require a larger sum of financial resources.

Figure 4. Aid for Trade Disbursed by Sector (1996-2013)

(Unit: USD millions, current)



Source: Author's calculation using data from OECD CRS

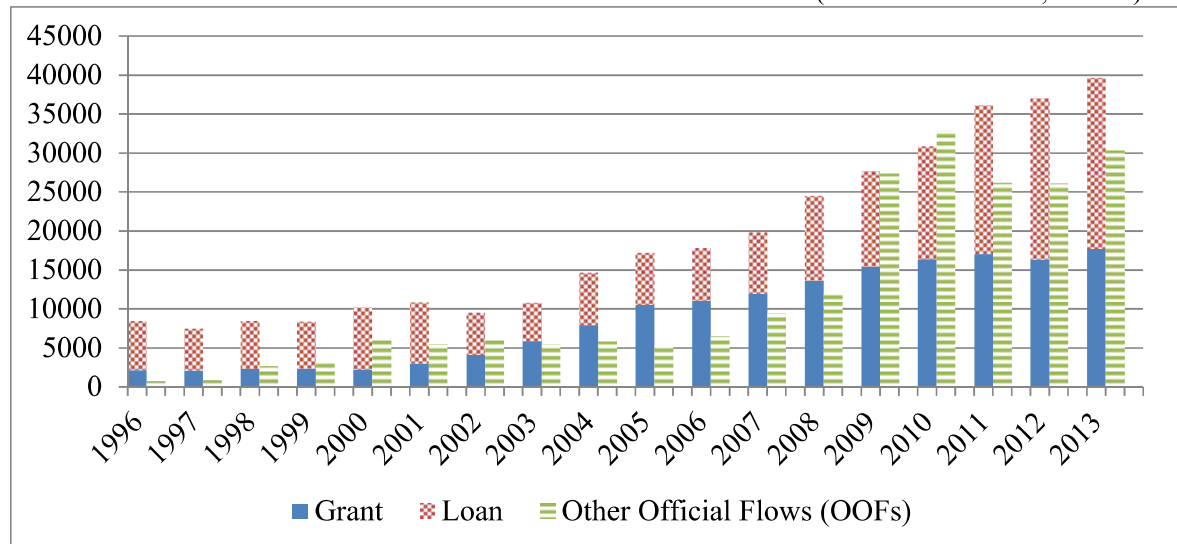
Aid for Trade can be classified not only by its purpose but also by type of flow. To qualify for official development assistance (ODA), it must be either in the form of grant or loan. If ODA does

not have any pay-back duty and does not incur any debt, it is qualified as grant. To be classified as ODA loan, it must have a grant element above 25%. Also, an ODA loan has to have interest rate below the prevailing market rate. Equity investment comprises direct financing of enterprises in a developing country which does not (as opposed to direct investment) imply a lasting interest in the company.

Other official flows (OOFs) are official sector transactions which do not meet the ODA criteria. Although OOF does not qualify for aid for trade in the narrow sense because they have a grant element of less than 25% (i.e. low concessional loans), “these flows can play a crucial role in financing trade related activities.” OOFs for trade significantly increased in the last few years as donors were experiencing financial pressure due to the economic crisis (OECD/WTO, 2011a, 49). Assuming that OOFs in the trade-related sectors have a similar impact as aid for trade except that it has a pay-back duty with higher interest rates, this paper considers OOF as a part of aid for trade for all calculations below unless stated otherwise.

Figure 5. Aid for Trade Disbursed by Type (1996-2013)

(Unit: USD millions, current)



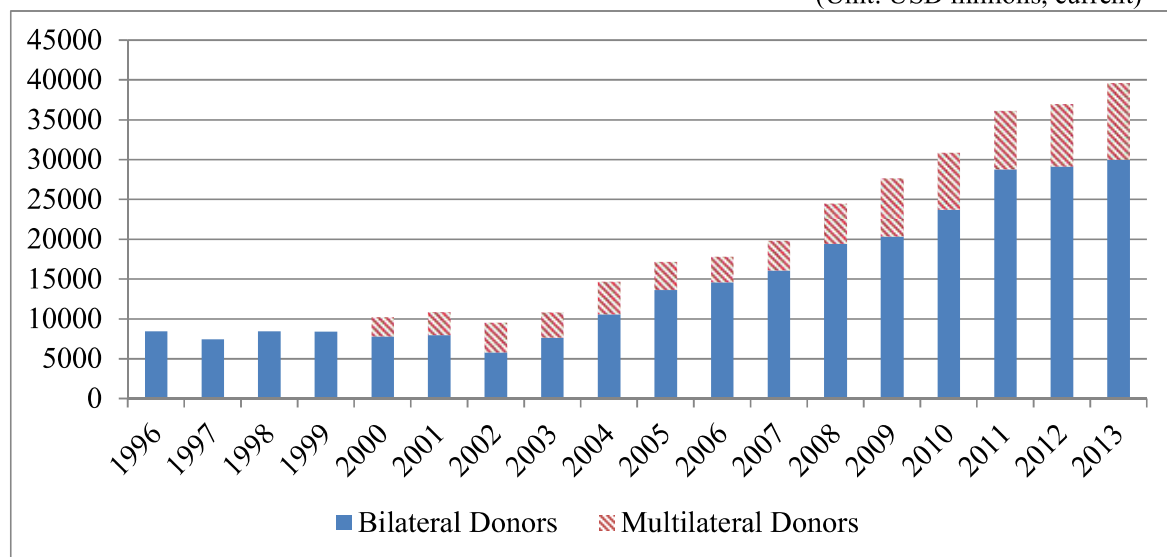
Source: Author's calculation using data from OECD CRS

As shown in Figure 5, loans dominated aid for trade until the 1990s. In the 2000s, the amount grants became as large as loans. In 2013, grants and loans were about the same in size. OOFs in the three trade-related sectors rapidly increased over the last years once surpassed the amount of

ODAs. In 2013, OOFs mounted more than 30 billion USD which is equivalent to 70% of total aid for trade. Total aid for trade amounts to USD 40 billion in 2013.

It is also important to understand characteristics of donors and recipients of aid for trade before looking at the effects of aid for trade. There are two types of aid for trade donors: governments and international organizations. If one government provides aid for trade to another government, it is considered as bilateral aid. However, as the data is from the OECD database which relies on self-reporting of its member donor countries, the bilateral aid amount used in this dissertation does not include emerging donors that are outside OECD. Figure 6 shows that bilateral aid dominates the total aid for trade.

Figure 6. Aid for Trade Disbursed by Donor Types (1996-2013)
(Unit: USD millions, current)



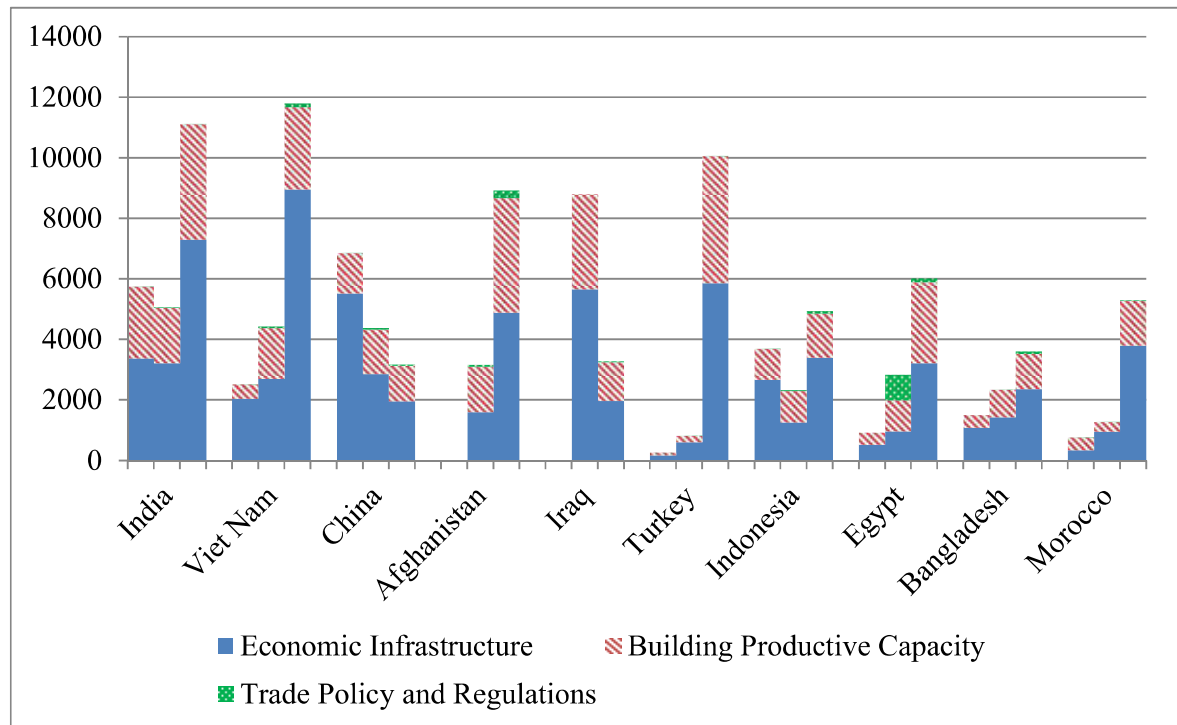
Source: Author's calculation using data from OECD CRS

Multilateral organizations also take an important role in implementing aid for trade. Leading multilateral donors in aid for trade are International Development Association, European Union Institutions, African Development Fund, and Arab Fund for Economic & Social Development, Asian Development Special Funds, Inter-American Development Bank Special Funds, Organization of the Petroleum Exporting Countries Fund for International Development, United Nations Development Programme, Global Environment Facility, and United Nations Economic Commission for Europe.

Aid for trade value from international organizations between 1996 and 1999 are missing. It may be due to incomplete coverage of the CRS data before 2002 because the annual coverage is below 60%. Later, it has improved to around and over 90% since 2002 and reached nearly 100% starting with 2007 flows. (OECD, *CRS User's Guide*).

The top 10 recipients by the sum of aid for trade between 1996 and 2013 are shown in Figure 7. The first bar represents aid for trade received between 1996 and 2001; the second is for 2002-2007, and the third is for 2008-2013. India was the largest recipient of aid for trade, followed by others large trading nations such as Vietnam, Indonesia, China, Turkey, and Egypt. Afghanistan and Iraq are ranked due to large reconstruction projects in the aftermath of wars. Except for few cases such as China and Iraq, most countries experienced increasing aid for trade inflows in the last six years.

Figure 7. Top 10 Recipients (1996-2001, 2002-2007 and 2008-2013)
(Unit: USD millions, current)



Source: Author's calculation using data from OECD CRS

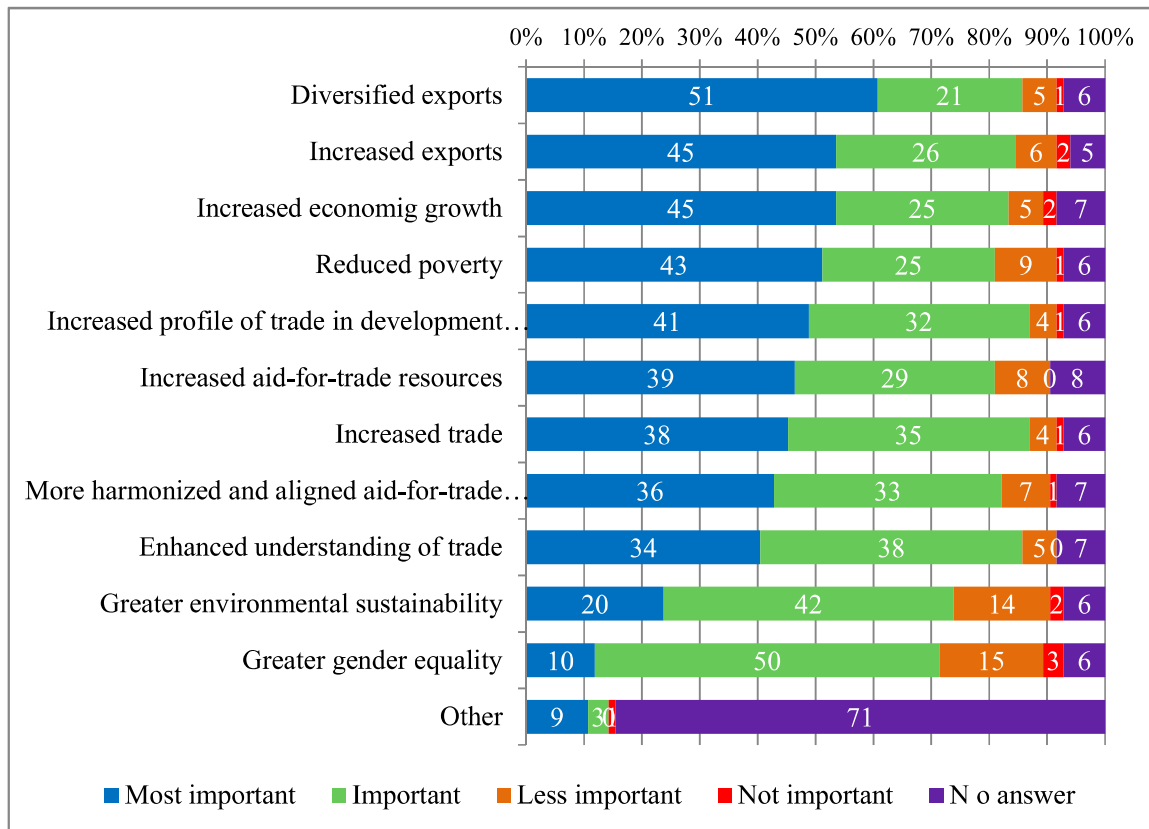
2.2. Why is Export Diversification Important

A key concept to improve the management of aid resources that has been receiving much attention is aid effectiveness. Aid effectiveness measures the extent to which an aid activity attains its goals and has been included as one of the key criteria for the evaluation of development assistance by the Development Assistance Committee (DAC) of the OECD since 2000. As a result, there is active empirical research on aid effectiveness at a macroeconomic level conducted both in academia and relevant institutions (Bourguignon and Sundberg, 2007; Rajan and Subramanian, 2008; and Hansen and Tarp, 2000).

By definition, the degree of aid effectiveness varies depending on what is chosen as the policy objectives of the aid program. For example, aid can be regarded as effective by donors while the recipients regard it as a failure if what they want to achieve with aid is different. In this respect, the OECD emphasizes the issue of “ownership” and “alignment” in recipient countries for finding an appropriate objective measure for aid effectiveness. Ownership refers to the extent to which a country’s leadership is fully committed to development and aid initiatives set by itself. Meanwhile, alignment refers to how much “the donors base their overall support on partner countries’ national development strategies, institutions, and procedures” (OECD, 2008, 3). Considering these two principles of aid effectiveness set by the OECD which is a forum covering a vast majority of most donors and recipients, it clear that both parties agree that it is more appropriate to give more weight to policy objectives set from the beneficiary’s perspective when assessing the effectiveness of aid for trade.

Against this background, the results of a survey conducted jointly by the WTO and the OECD in 2011 are instructive. While both donor and recipient countries all agreed that aid for trade should realize both trade and development objectives, what recipients picked as the most wanted outcome of aid for trade is export diversification. As shown in Figure 8, about 60% (51 out of 84 countries that responded) chose diversified exports more important than increased exports and increased trade (OECD/WTO, 2011b, 94). Also, only one country answered diversification is not important.

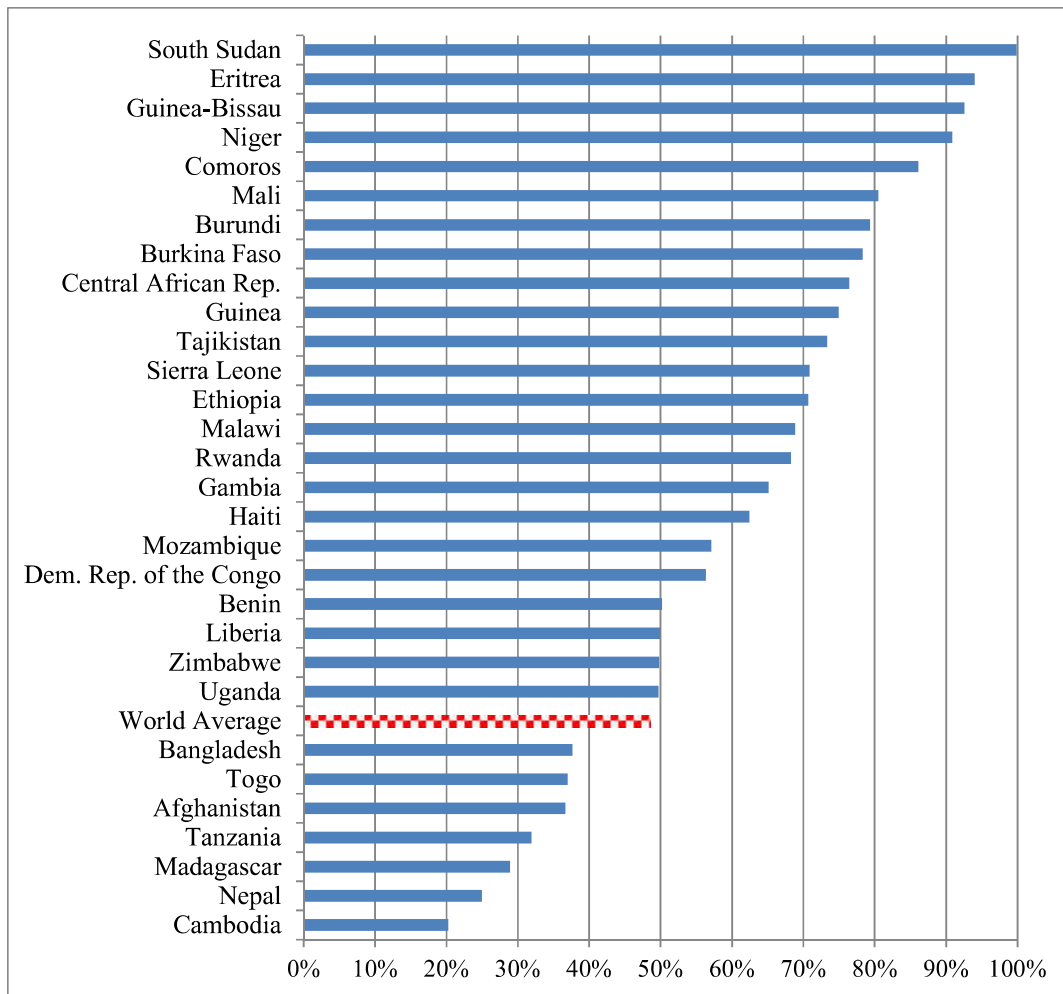
Figure 8. Main Goals Recipients Want to Achieve through Aid for Trade



Source: *Aid for Trade at a Glance 2011: Showing Results*, WTO/OECD, 2011, p. 94. The original question is: "How do you define the success of aid for trade in your country?"

One reason that developing countries value export diversification is that many of them face severe export concentration. As shown in Figure 9, in many low-income countries the top three commodities make up a major share of their total exports. While the world average is a little below 50%, the export structure of many low-income countries is highly concentrated. For some countries, the situation is so severe that the top three commodities make up more than 90% of their total exports. Even though many governments have put a high priority on diversifying exports, a substantial number of developing countries continue to rely on only a few export commodities (OECD/WTO, 2011a, 21). Given such relatively concentrated export structures, many developing countries face substantial risks such as a deterioration in their terms of trade and exchange rate shocks. Export diversification, therefore, is one of the most crucial components in measuring the effectiveness of aid for trade from the viewpoint of recipient countries.

Figure 9. Share of Top Three Exports in Total Exports, Low-Income Countries (2012)



Note: Shares are calculated using 6-digit HS 1992 mirror data. Low-income countries are countries with a per capita GDP of less than US\$1,000.

Export diversification, for which a diversification of production is a necessary condition, forms an essential part of economic development since it implies that productivity in a variety of industries is increasing (Feenstra and Kee, 2004). In other words, recipient countries regard export diversification as one of the most important objectives since it is linked to almost all other development goals such as increased exports, economic growth, and poverty reduction (Newfarmer et al., 2009; Hesse, 2008; Mejía, 2011; Cadot et al., 2011; Herzer and Nowak-Lehmann, 2004; Feenstra and Kee, 2008; Imbs and Wacziarg, 2003; Lall et al., 2006; Hummels and Klenow, 2005; Parteka and Tambari, 2013).

2.3. Literature Review

Foreign aid – not only aid for trade but also other types of aid – potentially enhances trade by raising recipient countries' income. Further, aid also potentially boosts trade by strengthening political and economic links between the donor and recipient countries and reducing transaction costs (Suwa-Eisenmann and Verdier, 2007). Aid for trade aims to stimulate trade in a similar manner, but possibly more efficiently, since it directly targets trade-related activities. Examples of aid for trade include aid for infrastructure investments or the reform of trade policy and regulations, which can lower the logistical and administrative costs of trade or aid to boost the productive capacity of industries to raise export competitiveness.

Numerous studies have sought to examine the effect of aid for trade on trade. As in the case of studies in many other areas of development aid, different econometric techniques and sets of data have attempted. Several studies, for example, find that aid for trade has a positive on export performance. Using a computational general equilibrium (CGE) model to calculate average trade costs between pairs of countries, Ivanic et al. (2006) find that aid for trade translates into reductions in bilateral trading costs that cumulatively add up to a 0.2 % reduction in global trading costs. This is about ten times larger than the trading cost reductions resulting from tariff cuts due to trade liberalization over the period 1995–2004. Meanwhile, Helble et al. (2012), using a gravity model, find that aid for trade is correlated with an increase in aid recipients' exports. Both studies, however, focus on bilateral trade flows and therefore capture only part of the impact of aid for trade, since they do not take aid for trade from multilateral donors into account and because they do not consider spillovers of aid for trade on the exports to countries other than the donor country.

This shortcoming is – at least partly – addressed in studies such as those by Cali and Te Velde (2011), Razzaque and Te Velde (2013), and Vijil and Wagner (2012), who investigate the impact of aid for trade on recipients' total export. These three studies also find a positive relationship between aid for trade and export amounts. Moreover, they divide aid for trade into three categories based on its purpose, namely, to support the building of trade-related infrastructure, to support productive capacity building, and to help with trade policy and regulations. This analysis by category

makes it possible to examine whether different uses yield different outcomes. All three papers find that support for trade-related infrastructure has a significant positive, while no significant impact is found in the case of support for building productive capacity.

In addition to considering the overall impact of aid for trade on total export by dividing aid for trade into sub-components, another contribution of these three studies is that they recognize the problem of endogeneity. As highlighted in the aid literature (see, e.g., Dalgaard et al., 2004), aid allocation is endogenous to the circumstances of recipient countries. To resolve this issue, which may lead to biased estimation results, studies adopt system generalized method of moments (system GMM) estimation and include a lagged dependent variable – the log of total exports in this case – as in conventional GMM estimation. The results show a high coefficient close to 1 for lagged total exports, which, as Roodman (2008) warns, is a sign that the design of the GMM model may be invalid. Thus, although these studies make efforts to tackle the endogeneity issue, the robustness of the results is questionable.

Meanwhile, other studies raise doubts whether aid for trade has a clear impact on export performance. For instance, employing difference-in-differences (DID) regression of country-sector exports on aid flows, Brenton and von Uexkull (2009) find a correlation between sectors receiving aid and sectors showing stronger performance. They argue, however, that this correlation may be the result of aid being allocated to sectors that are already performing well. Meanwhile, Hühne et al. (2014) examine the heterogeneous impact of aid for trade across countries in different income groups and find that aid for trade has a significant positive impact only among middle-income countries. Finally, reviewing the empirical literature on the impact of aid for trade, Cadot et al. (2014) conclude that aid spent on hard and soft infrastructure has at best a mixed impact on trade costs and time to export.

What most of these studies have in common is that they use the value of exports as the outcome variable. Aid for trade has many other policy objectives. One of these is export diversification, and to the best of the author's knowledge, there are no studies that explicitly examine the relationship between aid for trade and export diversification of recipient countries for all recipients

or at least a broad cross-section of recipient countries. The two studies that probably come closest to this topic consider the link between aid in general – that is, not only aid for trade – and export diversification. The first of these, by Osakwe (2007), focusing on a sample of 31 African countries, finds that aid has a negative impact on the real exchange rate, so that it leads to a further concentration in trade. He uses the share of manufactures in total exports as a diversification measure. However, his study only focuses on African countries, and his results may not be sufficiently robust due to too many instruments. The second study is that by Munemo (2011), which uses data in 69 countries and finds that there is no simple linear correlation between aid and export diversification. Rather, the important determinant is the amount of aid about GDP. As he notes, due to exchange rate appreciation through the massive influx of foreign capital, aid recipients' exports become more expensive in the world market. This anti-export bias associated with aid is also known as Dutch disease. Therefore, for countries heavily dependent on aid (i.e., where aid accounts for more than 20% of GDP), there is a negative correlation between aid and diversification, while for countries for which aid does not exceed 20% of GDP the correlation is positive. The two dependent variables he uses are the share of manufactures in total exports and the Herfindahl-Hirschman Index, which yield mutually consistent results.

2.4. Estimation Model

In contrast to these two studies, the present section focuses explicitly on aid for trade and its impact on export diversification. To be more precise, the study empirically investigates the link between aid for trade and measures related to export diversification. Specifically, the analysis of export diversification focuses on two aspects: the degree of trade concentration and the level of trade diversity. To gauge the degree of trade concentration level, the Herfindahl-Hirschman Index for exports is used, while the number of exported products is used as a proxy for export diversification. Alternative variables are used for robustness checks. Further, following the three studies on aid for trade mentioned above, the impact of aid for trade is measured separately for different subcategories. In addition to the division in terms of purpose (economic infrastructure, building productive capacity,

and trade policy and regulations), aid for trade can also be divided in various other ways. Here, it will be classified in terms of the type of flow (grant or loan) and donor type (bilateral or multilateral). The study includes the analysis all aid recipients for which data is available. Specifically, the dataset includes 136 countries which received aid for trade and covers the period from 1996 to 2003.

2.4.1. Determinants of a Nation's Export Diversification

This sub-section discusses factors that are linked to export diversification and builds the estimation model incorporating these factors. To start with, how is aid for trade, which is the main interest of this study, related to export diversification process? Aid for trade in any of the three areas considered here – trade-related infrastructure, building productive capacity, and policy and regulations – can help diversification of exports by tackling obstacles in both production and export processes. Aid spent on infrastructure allows faster movement of goods so that the overall costs of production as well as of exports can be reduced. For example, new storage facilities funded by aid may allow perishable goods to be added to a country by the export basket, while new transportation networks may connect previously isolated regions to the global market. As a result, a country may be able to export some new products to the world market. Aid spent on the productive capacity building may allow improvements in the quality of existing goods and result in new products for export through investment and innovation. Aid for trade targeting policies and regulations may help to expand administrative capabilities. For example, training of trade officials may help to improve their understanding of the general rules of trade and enable them to deal with trade issues such as non-tariff barriers or regional trade agreements. As a result of lower tariffs or the removal of non-tariff barriers, a country may be able to export more products.

Other than aid for trade, macroeconomic factors that account for export structure also need to be incorporated into the model. These are taken from previous studies on a nation's path to export diversification. First of all, GDP per capita is commonly regarded as a factor related to export diversification. For example, Imbs and Wacziarg (2003) find that as countries' per capita income increases, their production structure tends to become more diversified. Similarly, Cadot et al. (2011)

argue that the export concentration follows a U-shaped pattern. That is, countries first diversify and then specialize again at a certain point. Highlighted by Cadot et al. (2011), this turning point tends to come quite late in countries' development process measured by GDP per capita around 22,000 USD in PPP. Thus, for the purpose of this study, it is assumed that the export structure of both low and middle-income countries tends to diversify during their development and that income has a linear relation to export diversification.

Next, the size of the economy must be considered. Parteka and Tamberi (2008) suggest that larger economies may have a higher chance of export diversification. Thus, the population which is commonly used to measure the size of an economy is included in the model as one potential determinant of diversification.

Apart from the level of GDP, another factor that determines the degree of production diversity, and hence export diversity, is a country's natural endowments. If a nation is endowed with abundant natural resources, factors of production are likely to be concentrated in natural resources sectors. There is less incentive to develop manufacturing sectors so that dependency on a handful of natural resources continues and a country cannot change its highly concentrated export structure (Sachs and Warner, 1995). Many studies, including Habiyaemye and Ziesemer (2006), show that resource-rich countries tend to have more concentrated export structures. To take countries' natural resources dependency into account, the share of natural resources rents, consisting of the sum of oil rents, natural gas rents, coal rents, mineral rents, and forest rents, in total GDP are included in the empirical analysis below.

Following the paper by Burnside and Dollar (2000) which estimate a robust positive relationship between the interaction of aid and institutional quality with GDP growth rate, the model includes institutional quality. The better the governmental administration and legal settings are, the lower the cost and time it takes for trading for diverse industries. Therefore, institutional quality is expected to have positive relations to export diversification. Among various measures of institutional quality, government effectiveness from the World Governance Indicator is used. This index is based on "perceptions of the quality of public services, the quality of the civil service and the degree of its

independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. (World Bank, “Government Effectiveness”).”

Finally, the diversity of exported products is determined by the availability of capital which is a crucial production input. The amount of foreign direct investment inflow is included in the model as a control variable to incorporate the capital into the analysis. Inward FDI also serves as a measure of openness and is expected to be positively correlated with export diversity (Gourdon, 2010, Amighini and Sanfilippo, 2014).

Other essential macroeconomic variables that affect the export structure are inflation rate and trade openness. However, such data for developing countries is not always available, so that these two variables are used in the alternative specifications to maximize the coverage of countries.

In sum, the specification to estimate the role of aid for trade in export diversification while controlling for the variables just described is as follows:

$$\begin{aligned}
 (1) \quad & \ln Diversification_{jt} \\
 &= p \ln Diversification_{jt-1} + \beta_1 \ln GDPPC_{jt-1} \\
 &+ \beta_2 \ln Population_{jt-1} + \beta_3 \ln NaturalResources_{jt-1} \\
 &+ \beta_4 \ln GovernmentEffectiveness_{jt-1} + \beta_5 \ln FDI_{jt-1} \\
 &+ \beta_6 \ln AID_{jt-1} + \beta_7 Dummy(AID)_{jt-1} + \alpha_j + \alpha_t + \varepsilon_{jt}
 \end{aligned}$$

where subscript j denotes the country and t the time, and α_j and α_t are country and time fixed-effects, respectively. $\ln AID$ denotes the log of the total amount of aid for trade or the amount of trade received in a particular subcategory.

Following the estimation model of Cali and Te Velde (2011), a dummy variable for aid for trade is included to account for countries that did not receive aid for trade. It is because there are many countries which did not receive all types of aid for trade in a given year. Adding this dummy means that it is possible to retain all observations while estimating the elasticity of aid for trade and the constant term for no-aid recipient separately.

2.4.2. Identification Strategy

Several problems need to be addressed before the regression. As widely noted (see, e.g. Osei et al., 2004), the causality between aid flows and trade flows can run both ways. While this paper is concerned with the causal link from aid for trade to exports, it is also possible that trade affects the allocation of aid. To identify the correct direction, one-year lags of variables, including the one-year lag of the dependent variable, are used as explanatory variables. To further eliminate any potential endogeneity, generalized method of moment (GMM) estimation following Blundell and Bond (1998) is employed in addition to the benchmark ordinary least squares (OLS) model. Two-step system GMM is adopted in which the second lagged regressors are used as instruments for the first difference equations to avoid having too many instruments and weak instruments.

As highlighted by Roodman (2008), three things need to be kept in mind when using GMM to evaluate the impact of aid. The first is autocorrelation. Roodman notes that when tested with the Arellano-Bond estimator, the GMM results presented by many studies fail to pass the autocorrelation test. This is a crucial point because autocorrelation can cause endogeneity biases when lagged values are used as instruments.

The second issue is the validity of instruments. Under the system GMM, there is a risk of overfitting the endogenous variables, or instrument proliferation. If the number of instruments exceeds the number of total countries, this would be a sign of too many instruments. He suggests that the perfect Hansen J statistic is an indication of instrument proliferation and the number of instruments is too large. Although low Hansen J statistic is a sign of invalid instruments, high score close to 1 should also be a warning. As one method to keep the number of instruments below the number of countries, instrumental variables can be “collapsed.”

Lastly, many studies in the aid literature ignore the problem of multicollinearity by putting highly correlated variables together in the same equation. One example Roodman gives is the use of aid relative to GDP and its squared term together. He proposes to test the variables of interest individually. Consequently, the equation used in this study contains only one aid variable at a time.

2.5. Data

2.5.1. Data Sources

The present study relies on three databases for the construction of the panel used for the analysis, namely UN COMTRADE database containing trade data by product and country to calculate the dependent variable, OECD for the amount of aid by sub-category and recipient country, and the last, World Bank data for the control variables.

Specifically, the UN COMTRADE database is used to obtain trade data for the period 1996–2013 to construct the dependent variable on export diversification. Products are classified according to the 1992 Harmonized Commodity Description and Coding System (HS).² I use the import data of all trading partners also known as the mirror data since export data provided by developing countries often is less accurate and sometimes missing. Using import data provides higher accuracy and better coverage. The likelihood of missing export observation for a country is almost zero, since one country's data is accumulated from many countries' import data. At worst, export data collected using mirror data over-represent the weight of countries that report import data and do not account for countries which did not report its import data. In most cases, missing import data are from developing countries and their share in world trade is minuscule.

There are two reasons for using the HS nomenclature instead of other systems such as the Standard International Trade Classification (SITC). The first is that the HS system provides more detailed categories (the 6-digit HS system has 5,019 products, while the 5-digit SITC has 3,121 products) so that the HS system is a more sophisticated measure of capturing changes in product diversity. The second reason is that HS codes are more relevant for import data because the HS code is mainly for the tariffs and import restrictions.

Next, the aid data are from the OECD's Creditor Reporting System (CRS), in which all member donors in the Development Assistance Committee (DAC) report their aid activities at the project level. Table 1 contains the full list of all 136 countries which received development aid.

² Since the scope of the paper is from 1996, the HS 1992 edition is used for consistency. Some countries did not adopt the 1996 version immediately and the data is only available on the basis of the 1992 version throughout the period.

Table 1. Number of Observations by Country

| Country | Years | Country | Years | Country | Years |
|----------------------|-------|---------------|-------|--------------------------------|-------|
| Afghanistan | 12 | Gabon | 16 | Papua New Guinea | 16 |
| Albania | 16 | Gambia | 16 | Paraguay | 16 |
| Algeria | 16 | Georgia | 15 | Peru | 16 |
| Angola | 16 | Ghana | 16 | Philippines | 16 |
| Argentina | 16 | Guatemala | 16 | Rep. of Moldova | 15 |
| Armenia | 16 | Guinea | 16 | Rwanda | 16 |
| Azerbaijan | 15 | Guinea-Bissau | 16 | Saint Lucia | 15 |
| Bahrain | 7 | Guyana | 16 | St. Vincent and the Grenadines | 15 |
| Bangladesh | 16 | Haiti | 16 | Samoa | 16 |
| Barbados | 13 | Honduras | 16 | Sao Tome and Principe | 12 |
| Belarus | 7 | India | 16 | Saudi Arabia | 1 |
| Belize | 16 | Indonesia | 16 | Senegal | 16 |
| Benin | 16 | Iran | 16 | Serbia | 6 |
| Bhutan | 16 | Iraq | 9 | Seychelles | 16 |
| Bolivia | 16 | Jamaica | 16 | Sierra Leone | 16 |
| Bosnia Herzegovina | 16 | Jordan | 16 | Slovenia | 5 |
| Botswana | 12 | Kazakhstan | 16 | Solomon Islands | 15 |
| Brazil | 16 | Kenya | 16 | South Africa | 12 |
| Burkina Faso | 16 | Kiribati | 15 | Sri Lanka | 16 |
| Burundi | 16 | Kyrgyzstan | 16 | Sudan | 1 |
| Cabo Verde | 15 | Laos | 16 | Suriname | 16 |
| Cambodia | 16 | Lebanon | 16 | Swaziland | 12 |
| Cameroon | 16 | Lesotho | 12 | Syria | 11 |
| Central African Rep. | 16 | Liberia | 16 | Macedonia | 16 |
| Chad | 16 | Libya | 9 | Tajikistan | 15 |
| Chile | 16 | Madagascar | 16 | Thailand | 16 |
| China | 16 | Malawi | 16 | Timor-Leste | 2 |
| Colombia | 16 | Malaysia | 16 | Togo | 16 |
| Comoros | 16 | Maldives | 16 | Tonga | 15 |
| Congo | 16 | Mali | 16 | Trinidad and Tobago | 13 |
| Costa Rica | 16 | Mauritania | 16 | Tunisia | 16 |
| Croatia | 13 | Mauritius | 16 | Turkey | 16 |
| Cuba | 16 | Mexico | 16 | Turkmenistan | 6 |
| Cote d'Ivoire | 16 | Mongolia | 16 | Uganda | 16 |
| DR Congo | 16 | Montenegro | 6 | Ukraine | 7 |
| Djibouti | 16 | Morocco | 16 | United Rep. of Tanzania | 16 |
| Dominica | 16 | Mozambique | 16 | Uruguay | 16 |
| Dominican Rep. | 16 | Myanmar | 1 | Uzbekistan | 14 |
| Ecuador | 16 | Namibia | 12 | Vanuatu | 15 |
| Egypt | 16 | Nepal | 16 | Venezuela | 16 |
| El Salvador | 16 | Nicaragua | 16 | Viet Nam | 16 |
| Equatorial Guinea | 4 | Niger | 16 | Yemen | 16 |
| Eritrea | 15 | Nigeria | 16 | Zambia | 16 |
| Ethiopia | 16 | Oman | 13 | Zimbabwe | 16 |
| FS Micronesia | 15 | Pakistan | 16 | | |
| Fiji | 16 | Panama | 16 | | |

Note: The maximum number is 16, since the period from 1996 to 2013 spans 18 years and two-year lags are used as instrument (18-2).

While development funding from non-DAC member donors such as China is rapidly increasing, the lack of a reliable and universal database covering the period examined here does not allow including development funding from non-DAC countries in this study.

All the control variables, with the exception of government effectiveness, which is extracted from the Worldwide Governance Indicators, are from the World Development Indicators by the World Bank. All the control variables from the World Development Indicators are logged to adjust skewed distribution across the sample countries. However, there are negative values for inflow of FDI and inflation rate. Thus, the constant value k is added to these two variables and then logged so that the skewness of the new logged variable is zero. Government effectiveness is already provided by the World Governance Indicator database as a standardized index so that it ranges from -2.5 to 2.5.

2.5.2.Measuring the Degree of Export Diversification

Next, the measure of the degree of export diversification is presented. One of the most common indices used to measure the level of concentration – such as the degree of market concentration or, in this case, export concentration – is the Herfindahl–Hirschman Index (HHI). This shows the extent to which exports are concentrated using the sum of the squared shares of each commodity i . A country with only one export product will have an HHI of 1, while a country whose exports are equally divided across all the commodities it exports will result in a small number close to 0 (since the number of product categories in the HS 1992 is 5,019, the smallest possible value in the case here will be $1/5,019$). If aid for trade is effective in fostering diversity in recipient countries' exports, more aid for trade should be associated with a lower HHI. The HHI of country j is calculated using the following formula:

$$(2) \quad HHI_j = \sum_i \left(\frac{X_{ij}}{X_j} \right)^2$$

One problem with the HHI is that it cannot distinguish the two types of diversification – that is, diversification in terms of the number of products and diversification in terms of a more even

distribution of shares. For example, a country exporting more products but with a skewed share distribution can have same the HHI as a country exporting fewer products with an equal share distribution. Therefore, to capture both aspects of diversification, the effect of aid for trade on total value of exports, X_j , as well as the number of export products X_{ij} , must be additionally examined.

2.5.3. Construction of the Aid for Trade Variables

To define the scope of aid for trade in this paper, the purpose coding system of the Creditor Reporting System (CRS) jointly produced by the OECD and the World Bank in 1967 is utilized. Under this CRS purpose coding, aid for trade comprises three sectors: economic infrastructure, building productive capacity, and trade policy and regulations (see Appendix A1. for a complete list of OECD CRS purpose codes). Aid for economic infrastructure includes aid for communications, energy, transport and storage, while aid for building productive capacity covers aid for sectoral development in the fields of banking and financial services, business and other services, agriculture, forestry, fishing, mineral resources and mining, construction, and tourism. Finally, aid targeting trade policy and regulations refers to aid used for trade policy and administrative management, regional trade agreements (RTAs) and multilateral negotiations, and trade education/training. Since aid for trade targeting trade policy and regulations is explicitly related to trade, it is also called narrow aid for trade. On the other hand, not all aid for economic infrastructure and building productive capacity can be classified as aid for trade, since aid projects falling under these categories do not necessarily always affect trade and can be mostly for domestic purposes. However, since countries' infrastructure and production capacity potentially have a significant effect on trade, these aid categories are often included in aid for trade more broadly defined. It is this broad definition of aid for trade including all three sectors that will be employed in this study. Using this definition, aid for economic infrastructure and building productive capacity makes up more than 95% of aid for trade, while aid for trade policy and regulations makes up less than 5%. This can be attributed to the nature of infrastructure and capacity building projects, which require larger sums of financial resources

Besides the three sectors which fall under aid for trade using the OECD's CRS purpose code, aid for trade can be disaggregated in different ways other than by its purpose (Cassimon and Van Campenhout, 2007; Claessens et al., 2009; Gounder, 2001; Marchesi and Missale, 2013). For example, there are two types of official development assistance (ODA) flows. To be considered as ODA, financial flows from one government to another must be either in the form of a grant or a concessional loan. Grants are ODA that does not require any repayment, while concessional or "soft" loans are loans where the grant element must be at least 25%, and the interest rate must be below the prevailing market rate.

In addition to the two types of ODA flows, namely grants and loans, the third type of financial flows called Other Official Flows (OOFs) is examined in the regression. Strictly speaking, OOFs are not ODA, since they are neither grants nor concessional loans. However, OOFs often pursue similar goals as ODA and as such are reported in terms of their purpose, just like ODA. OOFs in trade-related sectors, therefore, are likely to have similar effects as aid for trade (OECD/WTO, 2011b, 49). Consequently, although OOFs are not included in the total aid for trade above, they are examined as a separate type of flow.

Finally, aid can be provided either by a single government or by an international organization, so that depending on the type of donor, it can be classified as bilateral or multilateral aid.

In sum, the following aid variables are used. In addition to the total value of aid for trade, seven subcategories of aid for trade are employed, of which three are by purpose (economic infrastructure, productive capacity building, and trade policy and regulations); two are by type of financial flow (grant or loan); and two are by donor type (bilateral or multilateral donors); finally, OOFs for trade, which do not fall under the banner of aid, are used for a comparison. Therefore, the estimation results examine the effect of nine variables.

Aid data are actual disbursements in current US dollars. Since there are many zeros for aid variables, I add one and then take a natural log. If the aid value is negative values even after adding one, because the net aid inflows are negative due to the repayment of ODA loans, values are logged without a negative sign, and then converted to a negative value.

2.5.4. Summary statistics

Summary statistics of the variables used in the regression analysis are presented in Table 2. It presents four sets of variables: control variables, aid for trade variables, no-aid dummy variables, and the export variables.

To start with the magnitude of each subsection of aid for trade, aid for economic infrastructure and building productive capacity are relatively larger than aid for trade policy and regulations. Regarding financial types, aid for trade in grant form is a little greater than loans. As mentioned above, a considerable amount of OOFs is disbursed to aid recipients. Although the average value is about 40% of total aid for trade, some countries received more OOFs than ODA in trade-related sectors. Bilateral donors spend two times more than multilateral donors on aid for trade.

Looking at the no aid for trade dummy, general trends of aid for trade distribution can be observed. Only 2% of country-year observation did not have any aid for trade, while 98% of countries did receive aid for trade in a specific year. Given that the three categories making up aid for trade account for about 30% of all aid, it is not surprising that almost all countries in the sample of aid-receiving countries received aid for trade. Also, most of the countries received aid for infrastructure (96%) and building productive capacity (97%). On the other hand, only about 70% of countries received aid for trade policy and regulations. Thus, aid for trade policy and regulations is comparatively small not only in terms of the amount but also in terms of the number of recipients.

Next, looking at the other dummies, only 2% of countries received no trade for aid in grant form, meaning that 98% did. While 98% of countries received aid for trade in the form of grants, only 74% received such aid in the form of loans. Meanwhile, only about 46% of aid-receiving countries received OOFs, which involve higher interest rates than ODA. Therefore, most of developing countries received grants regardless of its income level. ODA loans and OOFs which incur payment obligation as well as interest rates inhibited developing countries to apply. For countries in lower income groups, loans and OOFs may be too costly. Finally, 99% of countries received aid for trade from bilateral donors, and 60% received such aid from multilateral donors. This may be due to complicated political and diplomatic issues surrounding decision-making of multilateral institutions.

Table 2. Summary Statistics

| Variable | Description | Obs. | Mean | S.D. | Min. | Max. |
|---|---|------|-------|------|-------|-------|
| Control Variables | | | | | | |
| Log of GDP per capita | Log of GDP per capita in current U.S. dollars | 1970 | 7.38 | 1.19 | 4.62 | 10.06 |
| Log of population | Log of population | 1971 | 15.71 | 1.96 | 11.15 | 21.03 |
| Log of % of GDP from natural resources | Log of total natural resources rents GDP | 1964 | 1.41 | 1.94 | -6.29 | 4.42 |
| Government Effectiveness* | Government Effectiveness by World Governance Indicator, ranging from -2.5 to 2.5 | 1972 | -0.45 | 0.62 | -2.25 | 1.60 |
| Log of FDI | Log of net inflows of foreign direct investment (> 10% voting stock) | 1972 | 24.02 | 2.84 | 0.00 | 26.51 |
| Inflation | Log of Inflation, GDP deflator (annual %) | 1962 | 3.66 | 0.29 | 1.39 | 7.89 |
| Log of Trade Openness | Log of Trade (% of GDP) | 1895 | 4.30 | 0.46 | 2.80 | 6.02 |
| Aid for Trade Variables | | | | | | |
| Log of aid for trade | Log of the sum of official development aid disbursed for 200 and 300 of the CRS code | 1972 | 3.73 | 1.67 | 0.00 | 7.96 |
| Log of aid for economic infrastructure | Log of aid disbursed for Transport and Storage, Communications, Energy Generation and Supply | 1972 | 2.95 | 1.82 | -0.87 | 7.79 |
| Log of aid for building productive capacity | Log of aid disbursed for Banking and Financial Services, Business and Other Services, Agriculture, Forestry, Fishing, Industry, Mining, Construction, and Tourism | 1972 | 2.94 | 1.54 | 0.00 | 7.36 |
| Log of aid for trade policy and regulations | Log of aid disbursed for 331. Trade Policy and Regulations | 1972 | 0.60 | 0.84 | -0.06 | 5.80 |
| Log of aid for trade in grant form | Log of grants disbursed for 200 and 300 | 1972 | 3.10 | 1.45 | -0.01 | 7.93 |
| Log of aid for trade in loan form | Log of loans disbursed for 200 and 300 | 1972 | 2.53 | 2.05 | -1.11 | 7.91 |
| Log of other official flows for trade | Log of other official flows disbursed for 200 and 300 | 1972 | 1.78 | 2.27 | -0.50 | 8.42 |
| Log of aid for trade from bilateral donors | Log of aid disbursed for 200 and 300 by bilateral donors | 1970 | 3.44 | 1.60 | -0.01 | 7.96 |
| Log of aid for trade from multilateral donors | Log of aid disbursed for 200 and 300 by multilateral donors | 1970 | 1.81 | 1.92 | -0.87 | 6.83 |
| No Aid Dummies | | | | | | |
| No aid for trade | 1 if log of aid for trade=0, 0 if otherwise | 1972 | 0.00 | 0.05 | 0.00 | 1.00 |
| No aid for economic infrastructure | 1 if log of aid for economic infrastructure=0, 0 if otherwise | 1972 | 0.02 | 0.12 | 0.00 | 1.00 |
| No aid for building productive capacity | 1 if log of aid for building productive capacity=0, 0 if otherwise | 1972 | 0.01 | 0.08 | 0.00 | 1.00 |
| No aid for trade policy and regulations | 1 if log of aid for trade policy and regulations=0, 0 if otherwise | 1972 | 0.23 | 0.42 | 0.00 | 1.00 |
| No aid for trade in grant form | 1 if log of aid for trade in grant form=0, 0 if otherwise | 1972 | 0.00 | 0.05 | 0.00 | 1.00 |
| No aid for trade in loan form | 1 if log of aid for trade in loan form=0, 0 if otherwise | 1972 | 0.23 | 0.42 | 0.00 | 1.00 |
| No other official flows for trade | 1 if log of other official flows for trade=0, 0 if otherwise | 1972 | 0.49 | 0.50 | 0.00 | 1.00 |
| No aid for trade from bilateral donors | 1 if log of aid for trade from bilateral donors=0, 0 if otherwise | 1972 | 0.00 | 0.04 | 0.00 | 1.00 |
| No aid for trade from multilateral donors | 1 if log of aid for trade from multilateral donors=0, 0 if otherwise | 1972 | 0.32 | 0.47 | 0.00 | 1.00 |
| Trade Variables | | | | | | |
| Log of export as share of GDP | Log of (exports of goods and services divided by GDP) | 1895 | 21.98 | 2.13 | 15.97 | 28.49 |
| Log of number of export products | Log of number of export products based on HS 1992 | 1972 | 7.16 | 0.89 | 4.19 | 8.51 |
| Log of HHI | Log of HHI from mirror data based on HS 1992 | 1972 | -2.21 | 1.20 | -5.32 | -0.01 |
| Log of EXPY | | 1968 | 8.83 | 0.58 | 6.59 | 10.32 |

*Note: The Worldwide Governance Indicators were updated every two years between 1996 and 2002 and have been updated annually since. To increase the sample size, data for missing years (1997, 1999, and 2001) are obtained through linear interpolation.

2.6. Results

2.6.1. Short-run Results

Turning to the empirical analysis, the results of the benchmark OLS specification are presented Table 3. In the table, each column shows the results for the total aid for trade and its various subcategories, where these are classified in terms of their purpose, the type of flows, and whether aid is bilateral or multilateral, as described above. Starting with the results in column (1), the coefficient on the total aid for trade variable ($\ln AID_{t-1}$) is negative and significant (at the 5% level), taking a value of -0.025. This indicates that a 100% increase in aid for trade reduces export concentration as measured by the HHI by 2.5%. Meanwhile, the coefficient on *No-AidDummy*_{t-1} is -0.144 and not statistically significant. Thus, HHI of countries that did not receive aid for trade in the previous year and countries that did receive aid for trade did not differ statistically. Looking at the control variables – i.e., variables not related to aid – I did not find any significance.

Turning to the results in some of the other columns for different sub-categories, the most interesting results are found in column (3) focusing on aid for building productive capacity, column (5) for grant, and column (7) and (8) for bilateral aid and multilateral aid. In both cases, more aid in the previous year is associated with a significantly lower HHI. The size of coefficients is similar to that of total aid for trade. Other sub-components of aid for trade such as aid for economic infrastructure, trade policy and regulations, loan and OOFs did not have a significant impact on export diversification.

Finally, in all columns, the coefficient on the lagged dependent variable ($\ln DEP_{t-1}$) is large and highly significant, implying that export diversity greatly depends on past values, after country fixed effects are controlled for through the use of country dummies. Hence, it is highly likely that autocorrelation and endogeneity are present, meaning that the OLS results are not reliable.

Table 3. Impact of Aid for Trade and its Subcategories on the Log of the HHI, OLS

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|--|---|-------------------------------------|-----------------------------------|--|---|---------------------------------------|--|-----------------------------|
| Ln(<i>Total Aid for Trade</i>) | Ln(<i>Aid for Econ. Infrastructure</i>) | Ln(<i>Aid for Prod. Capacity</i>) | Ln(<i>Aid for Trade Policy</i>) | Aid Variables (ln <i>AID</i> _{<i>t-1</i>}) | Ln(<i>Aid for Trade in Loan Form</i>) | Ln(<i>Bi-lateral Aid for Trade</i>) | Ln(<i>Multi-lateral Aid for Trade</i>) | Ln(<i>QOFs for Trade</i>) |
| ln <i>AID</i> _{<i>t-1</i>} | -0.025** [0.010] | -0.026** [0.011] | -0.019 [0.013] | -0.020* [0.011] | -0.01 [0.008] | -0.023** [0.010] | -0.024** [0.008] | 0.008 [0.007] |
| <i>No-aidDummy</i> _{<i>t-1</i>} | -0.144 [0.090] | -0.057 [0.064] | -0.021 [0.021] | -0.135 [0.084] | 0.021 [0.027] | -0.142 [0.105] | -0.04 [0.026] | -0.004 [0.026] |
| ln <i>DependentVar</i> _{<i>t-1</i>} | 0.588*** [0.019] | 0.587*** [0.019] | 0.587*** [0.019] | 0.589*** [0.019] | 0.588*** [0.019] | 0.587*** [0.019] | 0.582*** [0.019] | 0.592*** [0.019] |
| ln <i>GDP</i> <i>PPC</i> _{<i>t-1</i>} | 0.006 [0.032] | 0.013 [0.032] | 0.016 [0.032] | 0.007 [0.032] | 0.016 [0.032] | 0.004 [0.032] | 0.016 [0.032] | 0.005 [0.032] |
| ln <i>Population</i> _{<i>t-1</i>} | 0.024 [0.146] | 0.042 [0.147] | -0.003 [0.145] | 0.003 [0.145] | 0.042 [0.147] | -0.016 [0.145] | 0.104 [0.152] | 0.03 [0.147] |
| ln <i>NaturalResources</i> _{<i>t-1</i>} | -0.005 [0.018] | -0.003 [0.018] | -0.001 [0.018] | -0.002 [0.018] | -0.006 [0.018] | -0.005 [0.018] | -0.004 [0.018] | -0.007 [0.018] |
| <i>Gov. Effective</i> _{<i>t-1</i>} | -0.051 [0.038] | -0.056 [0.038] | -0.065* [0.037] | -0.057 [0.038] | -0.056 [0.038] | -0.054 [0.038] | -0.063* [0.037] | -0.071* [0.037] |
| ln <i>FDI</i> _{<i>t-1</i>} | -0.002 [0.004] | -0.002 [0.004] | -0.002 [0.004] | -0.002 [0.004] | -0.002 [0.004] | -0.002 [0.004] | -0.002 [0.004] | -0.003 [0.004] |
| Constant | -1.247 [2.294] | -1.606 [2.310] | -0.955 [2.280] | -0.952 [2.286] | -1.653 [2.309] | -0.617 [2.288] | -2.598 [2.390] | -1.382 [2.309] |
| N | 1972 | 1972 | 1972 | 1972 | 1972 | 1965 | 1965 | 1972 |
| R Squared | 0.377 | 0.376 | 0.375 | 0.376 | 0.376 | 0.375 | 0.376 | 0.375 |
| Adj. R Squared | 0.322 | 0.322 | 0.321 | 0.321 | 0.321 | 0.320 | 0.321 | 0.320 |

Note: Robust standard errors are in square brackets. *, **, and *** denote statistical significance at the 10, 5, and 1% level, respectively. The variable at the top of each column represents the variable used for ln*AID*. ln*DependentVar* refers to the lag of the dependent variable. All regressions include country dummies and year dummies.

Table 4 shows the results obtained when using GMM estimation to address the potential autocorrelation and endogeneity. Again, the different columns show the results when different categories of aid for trade are used as the dependent variable. Starting with column (1), the table shows that the impact of overall aid for trade on export diversity is no longer significant. Moreover, as in the OLS estimation, the coefficient on the aid variable ($\ln AID_{t-1}$) is insignificant for other subcategories such as aid for productive capacity building and multilateral aid as well. Other official flows for trade sectors which are not included in aid for trade also continue to be insignificant in the GMM estimation (column (9)). The only exceptions are aid targeting trade policy and regulations (column (4)), aid for trade in grant form (column (5)), and bilateral aid for trade (column (7)), which are significant at 1%, 5% and 10%, respectively. A 100% increase in each of these categories is respectively associated with a reduction in the HHI by 7.5%, 6.9%, and 4.0%.

As in the OLS results in Table 3, the coefficients on the lagged dependent variable are high and significant, meaning that the HHI depends on past values even in the GMM specification. However, unlike the OLS estimation results, the GMM results can be checked for autocorrelation (AR2) using the Arellano-Bond test, which suggests that the null that errors are serially correlated can be safely rejected.

Next, to examine the impact of aid for trade on HHI found in columns (4), (5), and (8) in Table 4 in more detail, the share of exports in GDP and the log of the number of exported products are used as dependent variables instead of the HHI. The reason is that a lower concentration of exports can come about in two ways: a more equal distribution among existing products; and an increase in the number of products. Table 5 shows the results. Columns (1) and (4) indicate that aid for trade targeting trade policy and regulations had a significant impact neither on the share nor the number of exports. These results imply that the reduction in the HHI brought about by aid for trade targeting trade policy and regulations is the result of a redistribution of the shares of existing exports and does not reflect an increase in export volume or variety. The same observations apply to both aid for trade in grant form (columns (2) and (4)) and multilateral aid for trade (columns (3) and (6)).

Table 4. Impact of Aid for Trade and its Subcategories on the Log of the HHI Using the Annual Data, GMM

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|-------------------------------------|--|--------------------------------------|------------------------------------|---|--|--|---|------------------------------|
| $\ln(\text{Total Aid for Trade})$ | $\ln(\text{Aid for Econ. Infrastructure})$ | $\ln(\text{Aid for Prod. Capacity})$ | $\ln(\text{Aid for Trade Policy})$ | $\ln(\text{Aid for Trade in Grant Form})$ | $\ln(\text{Aid for Trade in Loan Form})$ | $\ln(\text{Bi-lateral Aid for Trade})$ | $\ln(\text{Multi-lateral Aid for Trade})$ | $\ln(\text{OOFs for Trade})$ |
| $\ln \text{AID}_{t-1}$ | -0.038 [0.024] | -0.009 [0.024] | -0.009 [0.029] | -0.069** [0.029] | -0.009 [0.020] | -0.040* [0.021] | -0.04 [0.029] | -0.023 [0.018] |
| No-aidDummy_{t-1} | -0.252 [0.164] | -0.039 [0.113] | -0.091 [0.052] | -0.185 [0.140] | -0.009 [0.051] | -0.289* [0.163] | -0.051 [0.050] | 0.039 [0.067] |
| $\ln \text{DependentVar}_{t-1}$ | 0.663*** [0.095] | 0.741*** [0.105] | 0.758*** [0.105] | 0.708*** [0.105] | 0.698*** [0.109] | 0.663*** [0.097] | 0.758*** [0.107] | 0.746*** [0.107] |
| $\ln \text{GDP} \text{PC}_{t-1}$ | -0.175 [0.112] | -0.085 [0.104] | -0.145 [0.128] | -0.096 [0.107] | -0.167 [0.115] | -0.186 [0.116] | -0.018 [0.096] | -0.079 [0.091] |
| $\ln \text{Population}_{t-1}$ | 0.236* [0.129] | 0.085 [0.105] | 0.219 [0.172] | 0.012 [0.097] | 0.136 [0.137] | 0.202 [0.130] | 0.143 [0.177] | 0.002 [0.074] |
| $\ln \text{NaturalResources}_{t-1}$ | -0.048 [0.060] | -0.017 [0.062] | -0.044 [0.070] | 0.011 [0.054] | -0.016 [0.061] | -0.045 [0.062] | -0.005 [0.055] | 0.032 [0.049] |
| $\text{Gov. Effective}_{t-1}$ | -0.044 [0.153] | -0.113 [0.173] | -0.022 [0.165] | -0.152 [0.180] | -0.067 [0.169] | -0.058 [0.153] | -0.088 [0.184] | -0.111 [0.164] |
| $\ln \text{FDI}_{t-1}$ | -0.010** [0.005] | -0.010* [0.006] | -0.009* [0.005] | -0.008 [0.005] | -0.008* [0.004] | -0.009* [0.005] | -0.010** [0.005] | -0.008 [0.005] |
| Constant | -2.608 [2.002] | -0.986 [1.717] | -2.566 [2.671] | 0.205 [1.809] | -1.009 [2.161] | -2.019 [2.087] | -2.317 [3.061] | 0.195 [1.251] |
| N | 1972 | 1972 | 1972 | 1972 | 1972 | 1965 | 1965 | 1972 |
| Instruments | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 |
| Hansen | 0.873 | 0.268 | 0.47 | 0.202 | 0.476 | 0.873 | 0.213 | 0.268 |
| AR2 | 0.406 | 0.4 | 0.396 | 0.447 | 0.412 | 0.414 | 0.412 | 0.352 |

Note: Robust standard errors are in square brackets. *, **, and *** denote statistical significance at the 10, 5, and 1% level, respectively. The variable at the top of each column represents the variable used for $\ln \text{AID}$. $\ln \text{DependentVar}$ refers to the lag of the dependent variable. All regressions include country dummies and year dummies.

Table 5. Impact of Aid for Trade and its Subcategories on the Log of Exports as a Share of GDP and the Number of Products Using the Annual Data, GMM

| Dependent Variables | Log of Exports as Share of GDP | | | Log of Number of Products | | |
|-----------------------------------|--------------------------------|--|--------------------------------|---------------------------|--|--------------------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| | Ln(Aid for Trade Policy) | Aid Variables (LnAID _{t-1}) Ln(Aid for Trade in Grant Form) | Ln(Multilateral Aid for Trade) | Ln(Aid for Trade Policy) | Aid Variables (LnAID _{t-1}) Ln(Aid for Trade in Grant Form) | Ln(Multilateral Aid for Trade) |
| lnAID _{t-1} | -0.005 [0.018] | 0.006 [0.014] | 0.01 [0.011] | -0.006 [0.010] | -0.005 [0.011] | -0.011 [0.009] |
| No-aidDummy _{t-1} | 0.006 [0.021] | 0.001 [0.071] | -0.027 [0.029] | -0.015 [0.025] | 0.005 [0.034] | 0.03 [0.023] |
| lnDependentVar _{t-1} | 0.975*** [0.088] | 0.975*** [0.089] | 1.004*** [0.076] | 0.714*** [0.059] | 0.763*** [0.061] | 0.733*** [0.061] |
| lnGDPPC _{t-1} | 0.015 [0.118] | 0.004 [0.117] | -0.035 [0.103] | 0.067 [0.043] | 0.081* [0.048] | 0.073* [0.038] |
| lnPopulation _{t-1} | 0.023 [0.087] | -0.024 [0.082] | -0.043 [0.121] | 0.167*** [0.041] | 0.153*** [0.049] | 0.170*** [0.043] |
| lnNaturalResources _{t-1} | 0.016 [0.033] | 0.029 [0.044] | 0.017 [0.030] | -0.061*** [0.020] | -0.056*** [0.022] | -0.057*** [0.019] |
| Gov. Effective _{t-1} | 0.042 [0.070] | 0.045 [0.065] | 0.039 [0.074] | 0.111* [0.063] | 0.077 [0.079] | 0.091 [0.071] |
| lnFDI _{t-1} | -0.016*** [0.006] | -0.016*** [0.006] | -0.015** [0.007] | 0.000 [0.006] | 0.001 [0.006] | 0.000 [0.006] |
| Constant | 0.486 [0.777] | 1.291 [1.320] | 1.218 [1.441] | -0.951 [0.620] | -1.219* [0.700] | -1.172* [0.604] |
| N | 1909 | 1909 | 1902 | 1972 | 1972 | 1965 |
| Instruments | 32 | 32 | 32 | 32 | 32 | 32 |
| Hansen | 0.433 | 0.627 | 0.345 | 0.228 | 0.321 | 0.369 |
| AR2 | 0.363 | 0.383 | 0.315 | 0.713 | 0.782 | 0.746 |

Note: Robust standard errors are in square brackets. *, **, and *** denote statistical significance at the 10, 5, and 1% level, respectively. The variable at the top of each column represents the variable used for lnAID. lnDependentVar refers to the lag of the dependent variable. All regressions include country dummies and year dummies.

2.6.2. Long-run Results

One shortcoming of the GMM results presented above is that they only capture the effect of aid for trade provided two years earlier since the instruments are lagged by two years. In the case of aid for economic infrastructure, however, some infrastructure projects may take more than two years from the initial disbursement to be completed so that their impact may not be clear using annual data. Similarly, productive capacity, which is a prerequisite for the improvement of developing countries' ability to export, also may be developed only in the medium to long run. Therefore, a lag of two years may not be sufficiently long to capture the effect of aid for trade. For this reason, the GMM results presented above may underestimate the effect of aid for trade, since they only capture the short-term effect of aid for trade, while the actual impact is likely to be visible only in the longer run.

To address this issue, the annual data are substituted with the average of three-year interval data of all the variables. Using the three-year interval data does not only allow observing the longer term patterns but also allows smoothing out short-term fluctuations in trade performance and aid flows. The annual data consist of 18 years from 1996 to 2013, so the three-year average data have six observations for each country. Consequently, the number of total observations is much smaller than the annual panel (only about a quarter). Taking two lags for the GMM estimation when using the three-year interval data is equivalent to measuring the effectiveness of aid for trade which was disbursed two three-year intervals earlier. This way, the model can trace the impact of aid for trade after four to eight years. The results using the three-year interval are displayed in Table 6.

Column (1) indicates that the coefficient on total aid for trade ($\ln AID_{t-1}$) is not significant even at the 10% level. Like the insignificant short-run results of the regression using annual data, the longer-run results suggest that receiving more aid for trade do not lead to more diversified exports. Moreover, as seen in column (4), the coefficient for aid for trade policy and regulations, is also insignificant. Thus, narrow aid for trade which is aid for trade policy and regulations loses its effectiveness in the long-run. Aid for productive capacity building in column (3) has a negative coefficient at the 15% confidence level. Other sub-components of aid for trade have no significant impact on export diversification.

Table 6. Impact of Aid for Trade and its Subcategories on the Log of the HHI Using the Three-Year Interval Data, GMM

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|-----------------------------------|-------------------------|----------------------------------|---|--------------------------|--|---|--|---------------------------------|---------------------|
| | Ln(Total Aid for Trade) | Ln(Aid for Econ. Infrastructure) | Aid for trade by category Ln(Aid for Prod. Capacity) | Ln(Aid for Trade Policy) | Aid Variables (lnAID _{t-1}) Ln(Aid for Trade in Grant Form) | Aid for trade by flow Ln(Aid for Trade in Loan Form) | Aid for trade by donor Ln(Bi-lateral Aid for Trade) | Ln(Multi-lateral Aid for Trade) | Ln(OOFs for Trade) |
| lnAID _{t-1} | -0.054 [0.050] | 0.007 [0.043] | -0.091 [0.060] | -0.039 [0.067] | -0.038 [0.051] | -0.003 [0.032] | -0.049 [0.046] | 0.008 [0.035] | -0.054 [0.050] |
| No-aidDummy _{t-1} | 0.08 [0.062] | 0.666 [1.092] | -0.135 [0.209] | 0.043 [0.070] | 0.086* [0.052] | 0.133 [0.090] | - | 0.04 [0.054] | 0.08 [0.062] |
| lnDependentVar _{t-1} | 0.028 [0.054] | -0.007 [0.086] | -0.023 [0.068] | 0.007 [0.064] | 0.028 [0.034] | 0.051 [0.071] | 0.016 [0.068] | 0.056 [0.064] | 0.028 [0.054] |
| lnGDPPC _{t-1} | 0.216 [0.166] | 0.173 [0.122] | 0.192 [0.280] | 0.021 [0.063] | -0.049 [0.099] | -0.069 [0.157] | 0.169 [0.136] | -0.047 [0.109] | 0.216 [0.166] |
| lnPopulation _{t-1} | -0.103 [0.098] | -0.106 [0.087] | -0.083 [0.136] | -0.034 [0.044] | 0.013 [0.061] | 0.034 [0.079] | -0.087 [0.089] | 0.024 [0.065] | -0.103 [0.098] |
| lnNaturalResources _{t-1} | -0.344* [0.195] | -0.366** [0.185] | -0.256 [0.181] | -0.267* [0.140] | -0.285** [0.118] | -0.272* [0.151] | -0.357** [0.149] | -0.280** [0.131] | -0.344* [0.195] |
| Gov. Effective _{t-1} | 0.008 [0.017] | 0.006 [0.016] | 0.008 [0.017] | 0.001 [0.012] | 0.001 [0.013] | 0 [0.011] | 0.008 [0.016] | -0.001 [0.011] | 0.008 [0.017] |
| lnFDI _{t-1} | 0.857*** [0.086] | 0.827*** [0.097] | 0.844*** [0.100] | 0.923*** [0.071] | 0.923*** [0.058] | 0.913*** [0.092] | 0.838*** [0.096] | 0.900*** [0.071] | 0.857*** [0.086] |
| Constant | -3.799 [2.736] | -3.123 [2.002] | -2.982 [4.365] | -0.508 [1.343] | 0.454 [1.476] | 0.389 [2.348] | -3.068 [2.345] | 0.034 [1.875] | -3.799 [2.736] |
| N | 493 | 493 | 493 | 493 | 493 | 493 | 491 | 491 | 493 |
| Instruments | 20 | 20 | 20 | 20 | 20 | 20 | 19 | 20 | 20 |
| Hansen | 0.969 | 0.871 | 0.948 | 0.767 | 0.913 | 0.841 | 0.97 | 0.793 | 0.969 |
| AR2 | 0.691 | 0.579 | 0.684 | 0.602 | 0.682 | 0.547 | 0.733 | 0.622 | 0.691 |

Note: Robust standard errors are in square brackets. *, **, and *** denote statistical significance at the 10, 5, and 1% level, respectively. The variable at the top of each column represents the variable used for lnAID. lnDependentVar refers to the lag of the dependent variable. All regressions include country dummies and year dummies.

2.6.3. Effects on Export Sophistication

In the earlier sections, the effect of aid for trade on export diversification was measured using the HHI and the count of products. The results using the HHI showed that the impact of aid for trade on export concentration is limited in that it redistributes the shares of existing products in the short run. Meanwhile, aid for trade contributes to export diversification by increasing the number of products as well as by evening out the share in the long-run. However, a shortcoming of these two indices is that they treat all commodities, from coffee to cars, identically. While it is important for countries to increase the variety of products they export and decrease export concentration in order to reduce the risks associated with depending on only a small number of export products and markets, many developing countries also seek to export more sophisticated products with higher value added.

To incorporate the value-added associated with changes in the export structure, four other trade indices are used as dependent variables. They are *EXPY* constructed by Hausmann et al. (2007), the economic complexity index (*ECI*) constructed by Hausmann et al. (2014), the share of manufactured goods in total exports, and the number of export destinations.

Starting with *EXPY*, which many previous studies, such as Jarreau and Poncet (2012), use to measure the export sophistication of an economy, it measures the weighted average of another measure invented by the authors called *PRODY* for country j , where the weights are the shares of the product i (X_{ij}) in the country's total exports (X_j). The formula is:

$$(3) \quad EXPY_j = \sum_i \frac{X_{ij}}{X_j} \times PRODY_i$$

where $PRODY_i$ is:

$$(4) \quad PRODY_i = \sum_j \left(\frac{X_{ij}/X_j}{(\sum_j X_{ij})/X} \times GDP \text{ per capita}_j \right)$$

PRODY of product i accounts for the income levels of countries ($GDP \text{ per capita}_j$) which export product i , so if a product has a high *PRODY*, it is exported mainly by high-income countries and vice versa. *PRODY* is calculated as a weighted average of the GDP per capita of the countries

exporting product i , where the weights are the revealed comparative advantage $(\frac{X_{ij}/X_j}{(\sum_j X_{ij})/X})$ of each country in that product. *PRODY* and *EXPY* are based on the premise that rich countries export products that tend to be exported by other rich countries and those products are likely to yield more income than those exported by poor countries. A higher *EXPY* means a country exports more goods that are exported by higher income countries, implying that it has a more sophisticated export basket requiring higher levels of productivity and technology.

The regression results in Table 7 using *EXPY* as the dependent variable show that aid for trade and all of its sub-components do not have any impact on export sophistication. The results further explain what kind of structural change receiving more aid for trade brings about. The short-run results using the annual data in Section 2.6.1 suggested that aid for trade in a few sub-categories only causes a restructuring of existing products without increasing the export diversity. Since there is no change in *EXPY* linked with aid for trade, the shifting of export shares occurs among products with a similar level of *PRODY* in the short run. The same result is obtained for the long-run effect using the three-year average data, showing that aid for trade has no effect on export sophistication measured by *EXPY* (Table 8). Thus, aid for trade does not lead to export sophistication either in the short-run or the long-run.

Table 7. Impact of Aid for Trade and its Subcategories on the Log of the EXPY Using the Annual Data, GMM

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|-----------------------------------|-------------------------|----------------------------------|----------------------------|---------------------------------------|---------------------------------|--------------------------------|------------------------------|---------------------------------|
| | Ln(Total Aid for Trade) | Aid for trade by category | | Aid Variables (lnAID _{t-1}) | | Aid for trade by flow | | Ln(OOFs for Trade) |
| | | Ln(Aid for Econ. Infrastructure) | Ln(Aid for Prod. Capacity) | Ln(Aid for Trade Policy) | Ln(Aid for Trade in Grant Form) | Ln(Aid for Trade in Loan Form) | Ln(Bi-lateral Aid for Trade) | Ln(Multi-lateral Aid for Trade) |
| lnAID _{t-1} | 0.000 [0.011] | 0.001 [0.009] | -0.005 [0.010] | 0.003 [0.014] | -0.004 [0.014] | -0.007 [0.008] | -0.005 [0.011] | 0.005 [0.008] |
| No-aidDummy _{t-1} | 0.092 [0.087] | 0.035 [0.035] | 0.131** [0.054] | -0.02 [0.027] | 0.042 [0.062] | -0.001 [0.032] | 0.104 [0.104] | 0.023 [0.028] |
| lnDependentVar _{t-1} | 0.519*** [0.103] | 0.518*** [0.104] | 0.520*** [0.103] | 0.530*** [0.097] | 0.512*** [0.104] | 0.502*** [0.097] | 0.514*** [0.102] | 0.492*** [0.096] |
| lnGDPPC _{t-1} | 0.174*** [0.061] | 0.180*** [0.050] | 0.179*** [0.054] | 0.192*** [0.057] | 0.205*** [0.055] | 0.181*** [0.056] | 0.173*** [0.064] | 0.186*** [0.058] |
| lnPopulation _{t-1} | 0.047 [0.078] | 0.033 [0.041] | 0.07 [0.071] | 0.039 [0.033] | 0.035 [0.046] | 0.044 [0.043] | 0.065 [0.074] | 0.032 [0.034] |
| lnNaturalResources _{t-1} | 0.025 [0.036] | 0.032 [0.026] | 0.023 [0.028] | 0.033 [0.023] | 0.034 [0.026] | 0.031 [0.029] | 0.019 [0.036] | 0.032 [0.029] |
| Gov. Effective _{t-1} | 0.04 [0.105] | 0.043 [0.078] | 0.058 [0.094] | 0.027 [0.081] | 0.005 [0.074] | 0.037 [0.088] | 0.042 [0.107] | 0.014 [0.074] |
| lnFDI _{t-1} | 0.004 [0.005] | 0.004 [0.005] | 0.005 [0.006] | 0.003 [0.006] | 0.003 [0.006] | 0.004 [0.006] | 0.004 [0.006] | 0.003 [0.006] |
| Constant | 2.189* [1.227] | 2.361** [0.934] | 1.789 [1.217] | 2.084** [0.876] | 2.205** [0.943] | 2.357*** [0.727] | 1.993* [1.110] | 2.563*** [0.777] |
| N | 1966 | 1966 | 1966 | 1966 | 1966 | 1966 | 1959 | 1966 |
| Instruments | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 |
| Hansen | 0.321 | 0.263 | 0.293 | 0.29 | 0.182 | 0.301 | 0.227 | 0.222 |
| AR2 | 0.296 | 0.292 | 0.295 | 0.295 | 0.304 | 0.302 | 0.297 | 0.32 |

Note: Robust standard errors are in square brackets. *, **, and *** denote statistical significance at the 10, 5, and 1% level, respectively. The variable at the top of each column represents the variable used for lnAID. lnDependentVar refers to the lag of the dependent variable. All regressions include country dummies and year dummies.

Table 8. Impact of Aid for Trade and its Subcategories on the Log of the EXPY Using the Three-Year Interval Data, GMM

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|-------------------------------------|--|--------------------------------------|------------------------------------|---|--|--|---|----------------------------------|
| $\ln(\text{Total Aid for Trade})$ | $\ln(\text{Aid for Econ. Infrastructure})$ | $\ln(\text{Aid for Prod. Capacity})$ | $\ln(\text{Aid for Trade Policy})$ | $\ln(\text{Aid for Trade in Grant Form})$ | $\ln(\text{Aid for Trade in Loan Form})$ | $\ln(\text{Bi-lateral Aid for Trade})$ | $\ln(\text{Multi-lateral Aid for Trade})$ | $\ln(\text{OOFs for Trade})$ |
| $\ln \text{AID}_{t-1}$ | 0.018 [0.032] | 0.003 [0.017] | 0.014 [0.035] | 0.02 [0.038] | -0.014 [0.030] | 0.019 [0.012] | -0.012 [0.014] | 0.035** [0.017] |
| No-aidDummy_{t-1} | -0.278 [1.210] | 0.108* [0.057] | -0.094** [0.038] | -0.036 [0.038] | -1.032 [1.736] | -0.012 [0.047] | -0.035 [0.035] | 0.046 [0.029] |
| $\ln \text{DependentVar}_{t-1}$ | 0.771** [0.355] | 0.721** [0.280] | 0.774** [0.215] | 0.671*** [0.175] | 0.621** [0.259] | 0.727*** [0.226] | 0.706*** [0.208] | 0.663*** [0.195] |
| $\ln \text{GDPPC}_{t-1}$ | 0.118 [0.137] | 0.158 [0.124] | 0.173* [0.098] | 0.208*** [0.078] | 0.207* [0.114] | 0.144 [0.102] | 0.186** [0.086] | 0.172** [0.082] |
| $\ln \text{Population}_{t-1}$ | -0.069 [0.077] | -0.057 [0.052] | 0.024 [0.085] | 0.035 [0.035] | 0.08 [0.072] | 0.022 [0.073] | 0.095 [0.069] | -0.021 [0.040] |
| $\ln \text{NaturalResources}_{t-1}$ | 0.069 [0.043] | 0.077** [0.033] | 0.029 [0.052] | 0.034 [0.025] | 0.007 [0.035] | 0.031 [0.043] | 0.065* [0.037] | 0.058*** [0.019] |
| $\text{Gov. Effective}_{t-1}$ | -0.074 [0.097] | -0.098 [0.086] | -0.217* [0.110] | -0.164** [0.081] | -0.154 [0.102] | -0.105 [0.104] | -0.163 [0.110] | -0.154** [0.078] |
| $\ln \text{FDI}_{t-1}$ | -0.004 [0.006] | -0.004 [0.006] | -0.001 [0.007] | -0.003 [0.007] | 0.001 [0.007] | 0.002 [0.007] | -0.001 [0.007] | -0.005 [0.006] |
| Constant | 2.22 [2.820] | 2.213 [1.826] | 0.265 [1.915] | 0.852 [1.169] | 0.622 [1.365] | 0.92 [1.819] | -0.2 [1.670] | 2.01 [1.248] |
| N | 486 | 486 | 486 | 486 | 486 | 486 | 484 | 486 |
| Instruments | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| Hansen | 0.04 | 0.103 | 0.179 | 0.143 | 0.208 | 0.015 | 0.143 | 0.335 |
| AR2 | 0.995 | 0.981 | 0.87 | 0.909 | 0.818 | 0.834 | 0.896 | 0.972 |

Note: Robust standard errors are in square brackets. *, **, and *** denote statistical significance at the 10, 5, and 1% level, respectively. The variable at the top of each column represents the variable used for $\ln \text{AID}$. $\ln \text{DependentVar}$ refers to the lag of the dependent variable. All regressions include country dummies and year dummies.

The only exception is OOFs in the long-run. 100% increase in the other official flows spent in trade-related sectors causes 3.5% increase in the export sophistication index. The reason that aid for trade is not significant but OOFs are, is that OOFs are mainly disbursed to vast and upper-middle income countries. While these countries received a large amount of OOFs, as shown in Table 9, the size of aid for trade of is relatively small. Investing the capital borrowed from other governments at a commercial interest rate, these countries were able to export more sophisticated products which are mainly exported by other high-income countries.

Table 9. Top 10 Recipients of Other Official Flows in Trade-related Sectors (1996-2013)
unit: million USD

| Ranking | Country | OOFs for Trade | Aid for Trade |
|---------|--------------|----------------|---------------|
| 1 | China | 27520 | 14428 |
| 2 | Turkey | 23733 | 11145 |
| 3 | India | 18709 | 21931 |
| 4 | Brazil | 13941 | 2918 |
| 5 | Mexico | 13067 | 1062 |
| 6 | Indonesia | 11435 | 10951 |
| 7 | Argentina | 6383 | 487 |
| 8 | Ukraine | 6176 | 2239 |
| 9 | South Africa | 5816 | 1199 |
| 10 | Kazakhstan | 5606 | 1015 |

Source: OECD CRS

Hausmann et al. (2014) further develop the *EXPY* index for measuring export sophistication and introduce an economic complexity index (*ECI*). The *ECI* consists of a scale that ranks countries according to their level of complexity. The scale has two components: diversity measured by the average diversity of countries which export those products, and ubiquity measured by the average ubiquity of countries which export those products. In other words, if a country exports products which are also produced by other countries with a diverse export basket, it is considered to have high diversity. If a country cannot export products which also cannot be exported by many other countries, it is considered to have high ubiquity. On the other hand, if a country cannot produce products which are exported by many countries, it is said to have low ubiquity and thus have low complexity. Using the *ECI* as the dependent variable yields similar results as the analysis using *EXPY*. Overall aid for trade and other sub-components do not have any significant impact on the *ECI*. Just as in the case of *HHI*, only aid for productive capacity building has a positive effect on the *ECI* of recipient countries

in the long run, meaning that aid recipient can produce either more products or products that not many other countries can export.

In addition to exporting more sophisticated products with higher profitability, many developing countries are also concerned with declining terms of trade as a result of relying on primary commodities (Bloch and Sapsford, 2000; Harvey et al., 2010; Prebisch, 1950). Inelasticity of supply curve of agricultural products leads to greater price fluctuation driven by demand. Thus, the last measure is the share of manufactured goods in total exports since many developing countries greatly depend on primary commodities, which are vulnerable to price shocks and therefore deteriorating terms of trade. Having a higher share of manufactured exports may signify that the country's exports are diversifying from agricultural based or resource based exports to manufacturing goods.

Using the share of manufactured goods in total exports as the dependent variable, the estimation results indicate that, in the short run, aid for trade does not lead to a diversification of exports from commodities to manufactured goods. Over the long term, aid for trade does not have any significant effect. Comparing these results with the regression results using the HHI, it can be concluded that aid for trade policy and regulations did not increase the exports of sophisticated goods or manufactured goods.

While this study is mostly concerned with the diversification of product variety, the importance of geographical diversification should also not be ignored, given that previous studies have found that the benefits of diversification depend on the export destination (Amurgo-Pacheco, 2008; Balamoune-Lutz, 2011). It has been argued when a country's productivity in making a product increases, it can start to export the product, and as productivity continues to grow, the product can be exported to a greater number of markets, increasing the intensive margin. Therefore, the final test here is to examine the impact of aid for trade on diversification measured in terms of the number of export destinations. The results indicate that the effect of aid for trade on market diversification is not significantly different from zero in the annual data. The result is plausible since market access is determined not by supply-side trade constraints, which aid for trade aims to tackle, but also by other factors such as diplomatic ties, tariff and non-tariff barriers, and physical and cultural distance.

2.7. Robustness Checks

2.7.1. Without Outliers

One thing to consider, on top of the short-run versus the long-run effect, is the existence of outliers. As shown in the summary statistics in Table 1, the maximum value for the log of aid for trade targeting policy and regulations is relatively large compared to the mean and the standard deviation. Based on the three-sigma rule, 109 out of the 2,448 observations in the annual panel and 30 out of the 798 observations in the three-year interval data can be regarded as outliers. After dropping these outliers in aid for trade policy and regulations, there remain 2,339 observations in the annual data and 768 observations in three-year interval data. The results for the GMM regressions without outliers are presented in Table 10.

The first three columns show the results from the annual data, while the latter two columns show the results from the three-year average data. Starting with the results in the first three columns showing the results using annual data, the first two sub-categories of aid for trade continue to have a significant effect even when outliers that received a large amount of aid for trade for trade policy and regulations are excluded. Thus, the results from the annual data are not affected much by outliers and suggest that small recipients also benefit from aid for trade policy and regulations, which is the smallest category of aid for trade. Nevertheless, the coefficients are also found to be of a smaller magnitude as those presented in columns (4) and (5) of Table 4. Thus, countries which received less aid for trade benefited less compared to large recipients. Bilateral aid for trade which used to be significant at 10% in column (7) of Table 4 loses significance in column (3) of Table 10. It implies that the weak correlation which existed between bilateral aid for trade and export diversification was driven by the outliers. For the long-term results using the three-year interval data, the aid for trade variables are still insignificant after outliers are excluded.

Table 10. Impact of Aid for Trade and its Subcategories on the Log of the HHI without Large Recipients, GMM

| Data Type | Three-year Interval Average Data | | | | |
|------------------------------|----------------------------------|---------------------------------|-----------------------------|--------------------------|----------------------------|
| | (1) | (2) | (3) | (4) | (5) |
| | Ln(Aid for Trade Policy) | Ln(Aid for Trade in Grant Form) | Ln(Bilateral Aid for Trade) | Ln(Total Aid for Trade) | Ln(Aid for Prod. Capacity) |
| $\ln AID_{t-1}$ | -0.063* [0.034] | -0.058** [0.028] | -0.023 [0.024] | -0.028 [0.048] | -0.023 [0.083] |
| $No-aidDummy_{t-1}$ | -0.03 [0.053] | -0.184 [0.137] | -0.294* [0.160] | 0.053 [0.057] | 0.017 [0.065] |
| $\ln DependentVar_{t-1}$ | 0.764*** [0.106] | 0.732*** [0.112] | 0.667*** [0.102] | 0.869*** [0.098] | 0.943*** [0.070] |
| $\ln GDP_{t-1}$ | -0.071 [0.106] | -0.116 [0.111] | -0.146 [0.122] | 0.026 [0.060] | 0.016 [0.064] |
| $\ln Population_{t-1}$ | -0.006 [0.094] | 0.051 [0.116] | 0.174 [0.142] | 0.178 [0.158] | 0.005 [0.071] |
| $\ln NaturalResources_{t-1}$ | 0.02 [0.059] | 0.013 [0.059] | -0.036 [0.072] | -0.087 [0.099] | -0.024 [0.051] |
| $Gov. Effective_{t-1}$ | -0.225 [0.200] | -0.18 [0.185] | -0.208 [0.179] | -0.355* [0.211] | -0.256* [0.147] |
| $\ln FDI_{t-1}$ | -0.009* [0.005] | -0.010** [0.005] | -0.011** [0.005] | 0.004 [0.014] | -0.003 [0.011] |
| Constant | 0.289 [1.651] | -0.107 [1.842] | -1.915 [2.303] | -3.195 [2.590] | -0.208 [1.412] |
| N | 1903 | 1903 | 1896 | 477 | 477 |
| Instruments | 32 | 32 | 32 | 20 | 20 |
| Hansen | 0.317 | 0.411 | 0.89 | 0.945 | 0.672 |
| AR2 | 0.539 | 0.499 | 0.528 | 0.672 | 0.634 |

Note: Robust standard errors are in square brackets. *, **, and *** denote statistical significance at the 10, 5, and 1% level, respectively. The variable at the top of each column represents the variable used for $\ln AID$. $\ln DependentVar$ refers to the lag of the dependent variable. All regressions include country dummies and year dummies.

Another type of outliers is war-experiencing countries. If a country is fighting in a war, the effects of aid for trade may be different from countries in a normal status. For example, a war may paralyze the government or industries so that aid program implementations or exporting may be disrupted. Then, the effects of aid for trade would be undermined. In addition, donor countries can allocate an unusually large amount of aid for trade, especially in the economic infrastructure sector during a war or right after the war for the nation-building purpose. This is a highly likely scenario when the top 10 recipient countries of aid for trade illustrated in Figure 7 in the subsection 2.1.2 are considered. The list includes countries such as Afghanistan and Iraq during the war periods. Thus, it is necessary to check the robustness of results without the countries having warfare.

Taking the war data from Gleditsch et al. (2002) and Melander et al. (2016), from the Uppsala Conflict Data Program website, I construct a war dummy and conduct the robustness checks without the countries in a state of war with more than 1,000 battle-related deaths in a given year. The results are presented in Table 11. Compared to the results of Table 4 with all the observations, the significant effects of aid for trade policy and regulations, aid for trade in a grant form, and bilateral aid for trade remain significant. In contrast, the total aid for trade in column (1) shows significance at 10% confidence level. Therefore, countries without war benefited from aid for trade in general and lowered the concentration of their export structure whereas war experiencing countries received aid for trade but could not generate a more balanced export structure.

The long-run results without war-experiencing countries are similar to the results presented in Table 6 with the full sample. The results suggest that while aid for trade in the short-run helped countries without a war to diversify their exports, the effects did not last long.

Table 11. Impact of Aid for Trade and its Subcategories on the Log of the HHI Using the Annual Data without Countries in a War, GMM

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|-----------------------------------|----------------------------------|----------------------------|----------------------------|---------------------------------------|--------------------------------|------------------------------|--|---------------------|
| Ln(Total Aid for Trade) | Ln(Aid for Econ. Infrastructure) | Ln(Aid for Prod. Capacity) | Ln(Aid for Trade Policy) | Aid Variables (lnAID _{t-1}) | Ln(Aid for Trade in Loan Form) | Ln(Bi-lateral Aid for Trade) | Aid for trade by donor Ln(Multi-lateral Aid for Trade) | Ln(OOFs for Trade) |
| -0.054* [0.030] | -0.018 [0.030] | -0.064 [0.041] | -0.073** [0.031] | -0.090*** [0.034] | -0.011 [0.023] | -0.046* [0.025] | -0.056 [0.035] | -0.014 [0.023] |
| -0.236 [0.169] | -0.052 [0.100] | -0.042 [0.113] | -0.024 [0.057] | -0.225 [0.141] | -0.018 [0.055] | -0.271 [0.169] | -0.023 [0.068] | 0.03 [0.072] |
| 0.663*** [0.119] | 0.759*** [0.116] | 0.689*** [0.121] | 0.769*** [0.125] | 0.702*** [0.122] | 0.713*** [0.130] | 0.659*** [0.120] | 0.749*** [0.121] | 0.747*** [0.129] |
| lnGDPPC _{t-1} | -0.101 [0.115] | -0.154 [0.147] | -0.11 [0.144] | -0.161 [0.143] | -0.177 [0.145] | -0.2 [0.142] | -0.007 [0.117] | -0.121 [0.115] |
| lnPopulation _{t-1} | 0.037 [0.120] | 0.267 [0.237] | 0.026 [0.130] | 0.165 [0.179] | 0.127 [0.158] | 0.172 [0.182] | 0.227 [0.252] | 0.007 [0.093] |
| lnNaturalResources _{t-1} | -0.011 [0.075] | -0.061 [0.096] | -0.011 [0.078] | -0.03 [0.084] | -0.047 [0.088] | -0.054 [0.086] | -0.029 [0.080] | 0.008 [0.061] |
| Gov. Effective _{t-1} | -0.099 [0.200] | 0.061 [0.204] | -0.097 [0.208] | -0.018 [0.195] | -0.031 [0.209] | -0.01 [0.200] | -0.04 [0.204] | -0.028 [0.190] |
| lnFDI _{t-1} | -0.004 [0.014] | -0.002 [0.014] | -0.002 [0.015] | -0.003 [0.014] | -0.002 [0.014] | -0.005 [0.013] | -0.006 [0.013] | -0.003 [0.014] |
| Constant | -1.975 [2.814] | -3.28 [3.640] | 0.043 [2.254] | -1.538 [2.903] | -1.083 [2.462] | -1.462 [2.917] | -3.772 [4.481] | 0.385 [1.645] |
| N | 1837 | 1837 | 1837 | 1837 | 1837 | 1830 | 1830 | 1837 |
| Instruments | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 |
| Hansen | 0.696 | 0.502 | 0.192 | 0.472 | 0.302 | 0.586 | 0.348 | 0.145 |
| AR2 | 0.553 | 0.541 | 0.607 | 0.51 | 0.557 | 0.56 | 0.584 | 0.512 |

Note: Robust standard errors are in square brackets. *, **, and *** denote statistical significance at the 10, 5, and 1% level, respectively. The variable at the top of each column represents the variable used for lnAID. lnDependentVar refers to the lag of the dependent variable. All regressions include country dummies and year dummies.

2.7.2.Using Different Level of Lags for Instruments

In the previous subsections, the results from the GMM are based on 2-year lagged levels as instrumental variables. For robustness checks, I apply different sets of instruments. I add 3-year lagged levels as additional instruments to 2-year lagged. The results for the annual data and the three-year interval data are presented in Table 12 and Table 13.

Using a deeper lag as additional instruments, the results in the short run do not change much. The only change is that the effect of aid for trade which used to be significant at 15% level in the column (1) of Table 4 becomes significant at 10%. Three sub-categories of aid for trade continue to be significantly reducing the concentration level of export. Thus, the total aid for trade may be weakly linked to export diversification due to three sub-categories despite its weak robustness.

Table 13 also displays the results using three-interval lags and two-interval lags in the three-year average panel. Likewise, the coefficient of aid for building productive capacity which had significant level of 15% is now significant at 5%. 100% increase in aid in specific industries yields 9% lower HHI.

These results using deeper lags lead to a larger number of instruments so that the results change. The results suggest that there could be a weak trend that aid for trade in the short-run and aid for productive capacity building works in the long-run.

2.7.3.Using Industry-Level Panel Data

As aid for productive capacity shows a weak sign of correlation to lower concentration measure in the long-run results in the previous sub-section, it may be beneficial to check further how the industrial aid for trade helps raise export of the corresponding industry. For this purpose, the country-year level panel data is further disaggregated into the industry-country-year panel. Among three sectors of aid for trade, the benefits from aid for infrastructure and aid for trade policy and regulations are shared by all the industries. So the aid in these two sectors cannot be matched by a specific industry. Aid for productive capacity building, on the contrary, is specifically assigned to improve the productivity of a certain industry.

Table 12. Impact of Aid for Trade and its Subcategories on the Log of the HHI Using the Annual Data (IV=t-3 and t-2), GMM

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|--------------------------------------|----------------------------------|---|-------------------------------------|-----------------------------------|--|---|---------------------------------------|--|-----------------------------|
| | Ln(<i>Total Aid for Trade</i>) | Ln(<i>Aid for Econ. Infrastructure</i>) | Ln(<i>Aid for Prod. Capacity</i>) | Ln(<i>Aid for Trade Policy</i>) | Ln(<i>Aid for Trade in Grant Form</i>) | Ln(<i>Aid for Trade in Loan Form</i>) | Ln(<i>Bi-lateral Aid for Trade</i>) | Ln(<i>Multi-lateral Aid for Trade</i>) | Ln(<i>OOFs for Trade</i>) |
| <i>lnAID</i> _{t-1} | -0.042* [0.023] | -0.021 [0.020] | -0.032 [0.027] | -0.061** [0.026] | -0.056** [0.027] | -0.022 [0.018] | -0.041** [0.020] | -0.046* [0.024] | -0.019 [0.016] |
| <i>No-aidDummy</i> _{t-1} | -0.129* [0.077] | -0.054 [0.043] | -0.037 [0.065] | -0.018 [0.042] | -0.157** [0.076] | -0.025 [0.045] | -0.106 [0.099] | -0.032 [0.047] | 0.042 [0.055] |
| <i>lnDependentVar</i> _{t-1} | 0.708*** [0.074] | 0.733*** [0.070] | 0.726*** [0.077] | 0.752*** [0.070] | 0.730*** [0.076] | 0.736*** [0.075] | 0.699*** [0.073] | 0.754*** [0.073] | 0.760*** [0.068] |
| Other country controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| N | 1972 | 1972 | 1972 | 1972 | 1972 | 1972 | 1965 | 1965 | 1972 |
| Instruments | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| Hansen | 0.63 | 0.562 | 0.364 | 0.382 | 0.558 | 0.522 | 0.595 | 0.572 | 0.477 |
| AR2 | 0.429 | 0.428 | 0.43 | 0.469 | 0.415 | 0.44 | 0.44 | 0.452 | 0.382 |

Table 13. Impact of Aid for Trade and its Subcategories on the Log of the HHI Using the Three-Year Interval Data (IV=t-3 and t-2), GMM

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|--------------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| | <i>lnAID</i> _{t-1} | <i>lnAID</i> _{t-1} | <i>lnAID</i> _{t-1} | <i>lnAID</i> _{t-1} | <i>lnAID</i> _{t-1} | <i>lnAID</i> _{t-1} | <i>lnAID</i> _{t-1} | <i>lnAID</i> _{t-1} | <i>lnAID</i> _{t-1} |
| <i>No-aidDummy</i> _{t-1} | -0.032 [0.042] | -0.005 [0.037] | -0.090** [0.039] | -0.067 [0.063] | -0.031 [0.036] | -0.005 [0.027] | -0.038 [0.043] | 0.006 [0.026] | -0.01 [0.031] |
| <i>lnDependentVar</i> _{t-1} | 0.551 [1.463] | 0.674 [1.186] | -0.122 [0.313] | -0.008 [0.059] | 0.073 [0.084] | 0.098 [0.081] | 0.781*** [0.086] | 0.05 [0.053] | -0.042 [0.058] |
| <i>lnDependentVar</i> _{t-1} | 0.831*** [0.078] | 0.816*** [0.076] | 0.840*** [0.085] | 0.881*** [0.079] | 0.906*** [0.051] | 0.884*** [0.084] | 0.005 [0.066] | 0.889*** [0.067] | 0.822*** [0.075] |
| Other country controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| N | 493 | 493 | 493 | 493 | 493 | 493 | 491 | 491 | 493 |
| Instruments | 28 | 28 | 28 | 28 | 28 | 28 | 27 | 28 | 28 |
| Hansen | 0.924 | 0.717 | 0.723 | 0.417 | 0.864 | 0.758 | 0.953 | 0.86 | 0.933 |
| AR2 | 0.683 | 0.585 | 0.667 | 0.689 | 0.695 | 0.591 | 0.759 | 0.634 | 0.691 |

Note: Robust standard errors are in square brackets. *, **, and *** denote statistical significance at the 10, 5, and 1% level, respectively. The variable at the top of each column represents the variable used for *lnAID*. *lnDependentVar* refers to the lag of the dependent variable. All regressions include country dummies and year dummies.

The detailed classification of such aid sectors can be seen in the Appendix A1. OECD CRS purpose code in three digits represents coarse industry such as 311 for Agriculture, 312 for Forestry, 313 for Fishing, 321 for Industry, and 322 for Mineral Resources and Mining. 323 Construction and 332 Tourism is excluded because the corresponding sectors are service industry which the trade data for goods is not covering. These five three-digit aid classifications are matched with trade data in 97 HS code in two-digit. The detailed matching chart is provided in the Appendix A2. As one country-year observation is divided into 5 sectors, the number of observations multiplies to 9,955 as shown in column (1) and (2) of Table 14. Aid purpose code can be divided into more detailed sector code which is comprised of 5 digits. Using the 5-digit matching, the number of observation increases as many as 32,568 using the annual data in column (3) and (4) of Table 14. In the case of long-run data using the three-year interval data, the 3-digit matching yields 2,485 observations while the 5-digit matching produces 8,109 observations. After such sector matching, I estimate the effect of sectoral aid on the export value and share of each industry.

In the short-run, none of the aid coefficients is significantly increasing either the value or the share of exports in the matched industry. However, in the long-run, aid for specific industries leads to increased exports in industries. The coefficients of column (5) and (7) suggest that 100% increase in the aid for one industry raises the export value of that industry by 39.4% in the 3-digit matching and 21.2% in the 5-digit matching.

This result is somehow in line with the findings in the previous sub-section that aid for productive capacity building is working in the long-run. Nonetheless, aid did not change the export share of the aid-receiving industry. This fact signifies that aid for each industry is uniformly disbursed so that the export value also increases equally. One thing to note is the low Hansen score for all specifications. The possible reason is that while the data is the industry-country-year panel, all the control variables are country-year level so that it does not have valid instrumenting powers. Therefore, the results point to the somewhat weak impact of aid for productive capacity building in the long-run with low robustness.

Table 14. Impact of Aid for Building Productive Capacity on the Sectoral Export

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|--------------------------|------------------|-----------|------------------|-----------|------------------|----------|------------------|----------|
| | Annual Data | | | | Three-Year Data | | | |
| | 3-digit matching | | 5-digit matching | | 3-digit matching | | 5-digit matching | |
| | Value | Share | Value | Share | Value | Share | Value | Share |
| $\ln AID_{t-1}$ | -0.007 | 0.002 | -0.033 | 0.001 | 0.394*** | -0.001 | 0.212* | 0.001 |
| | [0.045] | [0.001] | [0.045] | [0.001] | [0.111] | [0.003] | [0.111] | [0.002] |
| $No-aidDummy_{t-1}$ | 0.051 | 0 | -0.150*** | -0.001 | -0.165 | 0.002 | -0.212*** | -0.002 |
| | [0.083] | [0.002] | [0.041] | [0.001] | [0.138] | [0.006] | [0.066] | [0.002] |
| $\ln DependentVar_{t-1}$ | 0.686*** | 0.747*** | 0.400*** | 0.609*** | 0.558*** | 1.056*** | 0.726*** | 1.022*** |
| | [0.089] | [0.054] | [0.030] | [0.050] | [0.111] | [0.063] | [0.053] | [0.057] |
| $\ln GDPPC_{t-1}$ | 0.026 | -0.003 | 0.409*** | 0 | 0.399* | 0.001 | 0.302*** | 0.001 |
| | [0.158] | [0.006] | [0.107] | [0.002] | [0.238] | [0.005] | [0.081] | [0.001] |
| $\ln Population_{t-1}$ | 0.02 | -0.003 | 0.175** | -0.002 | 0.491** | 0.003 | 0.178*** | 0 |
| | [0.145] | [0.004] | [0.081] | [0.002] | [0.198] | [0.006] | [0.067] | [0.002] |
| $Gov. Effective_{t-1}$ | 0.216 | -0.002 | 0.568*** | -0.002 | 1.153** | 0.008 | 0.347* | -0.001 |
| | [0.271] | [0.008] | [0.158] | [0.004] | [0.494] | [0.010] | [0.177] | [0.003] |
| $\ln FDI_{t-1}$ | 1.697** | 0.017 | 2.330*** | 0.01 | -1.337 | -0.021 | 0.258 | -0.003 |
| | [0.742] | [0.022] | [0.460] | [0.009] | [1.177] | [0.045] | [0.526] | [0.012] |
| $No-tradeDummy_{t-1}$ | -3.023 | -0.030*** | -6.297*** | -0.020*** | -4.730* | 0.074 | -3.272* | 0 |
| | [1.944] | [0.009] | [1.344] | [0.007] | [2.814] | [0.056] | [1.717] | [0.017] |
| _cons | -35.929** | -0.311 | -52.244*** | -0.181 | 30.36 | 0.461 | -6.254 | 0.073 |
| | [15.869] | [0.473] | [9.943] | [0.185] | [25.016] | [0.975] | [11.582] | [0.262] |
| N | 9955 | 9955 | 32568 | 32568 | 2485 | 2485 | 8109 | 8109 |
| Instruments | 32 | 32 | 32 | 32 | 20 | 20 | 20 | 20 |
| Hansen | 0 | 0.5 | 0 | 0.005 | 0 | 0.19 | 0.001 | 0.157 |
| AR2 | 0.219 | 0.147 | 0.045 | 0.073 | 0.158 | 0.03 | 0.757 | 0.039 |

Note: Robust standard errors are in square brackets. *, **, and *** denote statistical significance at the 10, 5, and 1% level, respectively. The variable at the top of each column represents the variable used for $\ln AID$. $\ln DependentVar$ refers to the lag of the dependent variable. All regressions include country dummies and year dummies.

2.7.4. Heterogeneity Across Income Groups and Regions

As a final robustness check, I incorporated heterogeneity across different income groups and different regions. There may be a trend that countries in the certain income level or certain region use aid for trade effectively while countries in other groups cannot. To check for such potential differences, I added interaction terms between aid variables and income group dummy and region dummy. The results are exhibited in Appendix A3. The first table suggests that there is no such heterogeneity across income groups. In terms of regional heterogeneity, Sub-Saharan Africa and Eastern Europe and

Central Asia benefited from aid for trade and aid for productive capacity building though the significance of the interaction terms is only 10%.

2.8. Discussion

Taken together, the various results can be interpreted as follows. In the short run, total aid for trade and most of the aid for trade sub-categories do not significantly reduce export concentration or increase export diversity, as shown in the first column of Table 15, which provides a summary of the results. The analysis using the annual data showing the short-run effects of aid for trade suggests that along with grants and bilateral aid for trade, narrow aid for trade – i.e., aid targeting trade policy and regulations – significantly reduces export concentration. The likely reason is that this type of aid is directly aimed at promoting trade. It is less clear why grants are more effective than loans and multilateral aid for trade more effective than bilateral aid for trade in reducing export concentration in the short run.

Table 15. Results Summary

| Aid Variables | Dataset | |
|---|--|---|
| | Annual (short-term) | Three-year (long-term) |
| $\text{Ln}(\text{Total Aid for Trade})$ | May lower the concentration Robustness in question | X |
| $\text{Ln}(\text{Aid for Economic Infrastructure})$ | X | X |
| $\text{Ln}(\text{Aid for Prod. Capacity})$ | X | May lower the concentration Robustness in question |
| $\text{Ln}(\text{Aid for Trade Policy})$ | Lower the concentration (-0.075***) Robust without outliers | X |
| $\text{Ln}(\text{Aid for Trade in Grant Form})$ | Lower the concentration (-0.069**) Robust without outliers | X |
| $\text{Ln}(\text{Aid for Trade in Loan Form})$ | X | X |
| $\text{Ln}(\text{Bilateral Aid for Trade})$ | Lower the concentration (-0.040*) Not robust without outliers | X |
| $\text{Ln}(\text{Multilateral Aid for Trade})$ | X | X |
| $\text{Ln}(\text{OOFs for Trade})$ | X | X |

Meanwhile, the second column of Table 15 sums up the long-run effect of aid for trade on export diversification. In the analysis using three-year averages showing the long-run effects, aid for trade for productive capacity building are found to be somewhat related to lower concentration. The result is not robust across different specifications. The likely reason is that such aid helps to raise the international competitiveness of a country's industries, but such effects take some time to materialize.

Next, the additional analyses using the total export volume and the number of products indices suggest the following. The reduction in export concentration observed in the annual data as

measured by the HHI is not the result of an increase in export volume or the export of new products or exports to new markets, but changes in the structure of existing products – that is, a decrease in the share of main products and an increase in the share of minor products.

On the other hand, the fall in export concentration associated with aid for trade is a result of increased diversity in the longer run. The impact of aid for production capacity building is significant even among smaller recipients, that is, after excluding the major outliers, while aid for infrastructure and trade policy is not. This implies that aid given to industries such as agro-forestry, manufacturing, and mining, which falls under productive capacity building, helps to raise the quality of export products and lower production costs and thus contributes to generate new exports.

The present study attempted to investigate whether aid for trade helps countries to diversify their exports. Using GMM estimation to avoid endogeneity issues that have plagued much of the aid literature, the analysis found some evidence that aid for trade is associated with export diversification (measured using the HHI), although it did not seem to affect the amount or variety of countries' exports. Unlike previous studies, the present study considered the concept of aid effectiveness from the recipients' point of view and measures the effectiveness of aid for trade from the new perspective of export diversification. The reason for focusing on export diversification is that some of the indicators used in previous studies – such as changes in export volumes or trade costs – do not sufficiently capture the needs and policy goals of developing countries and do not necessarily contribute to economic development.

It should be noted that the data used for the analysis have some shortcomings. For instance, the OECD data on aid for trade used here is not complete in the sense that they do not cover some “newly emerging” donor countries such as China as well as some newly established multilateral agencies. Moreover, the OECD data does not have a good coverage of its members in the earlier years. According to the *CRS User's Guide* (OECD, n.d., “coverage ratio”), the coverage ratio varies over time and the guide recommends not to use disbursement flows before 2002 because the annual coverage is below 60%. Despite the low coverage, because there are no alternative sources of aid data classified by categories and in order to guarantee a sufficient number of year observations for the

estimation, especially with the three-year interval data, the study had to rely on the data from the OECD database. It would have been desirable to use data covering a longer time-span, which would have helped to measure the long-term impact of aid for trade more accurately. However, the coverage of the OECD's data on aid before the 1990s is even more limited so that the study focuses only on the period from 1996 onward.

Overall, the findings suggest that aid for trade only has limited effects in terms of trade diversification. This may cast doubt on whether spending limited ODA funds on aid for trade is the best use of such funds or whether they should be spent on other sectors such as social development. However, there are some reasons why the analysis here found only a limited impact. First, aid for trade may have been invested only in sectors that were already performing well. For instance, loans and OOFs continue to have no significant impact on diversification or concentration throughout all specifications. As these financial flows entail pay-back conditions, governments are more careful in using the money and only investing in promising sectors. Therefore, while implementing aid for trade projects financed by loans, investing in new industries is too risky. Thus, export diversification may have low priority. Second, aid for trade may take longer to have an effect than the analysis here allowed for. Due to data constraints, this study only looked at the impact of aid for trade after a few years. However, the effects of aid for trade may manifest themselves only after a longer period, as shown by the contrast between the results using annual data and those three-year interval data. Finally, aid for trade appears to have no or limited effect on export diversification due to lack of proper planning, implementing and monitoring mechanism. If aid for trade is directed to right sectors, carried out with good implementing institutions and followed by the responsible monitoring system, there may be room for improvement in terms of aid for trade effectiveness.

3. THE EFFECTS OF EXPORT PROMOTION SEMINARS ON EXPORT OF SMEs USING FIRM-LEVEL DATA³

3.1. Study Context

3.1.1. Why Vietnam as a Case Study of Export Promotion

Ever since the Doi Moi reform in 1986, Vietnam's trade volume has been skyrocketing. Naturally, the number of import and export declarations dramatically rose from 1.16 million cases in 2002 to 4.16 million cases in 2010. To ease the bottleneck pressure at the customs, General Department of Vietnam Customs (GDVC) adopted paperless internet-based e-customs in 13 out of 33 local customs office in 2010. Nonetheless, only about 10% of the total declaration was processed by e-customs. Also, due to insufficient capacity to control the system and vulnerable network, e-customs took double the time that traditional paper-based process took.

In addition to the limitations of the previous inefficient e-customs system, Vietnam was required to possess national single window system prior to the launch of the ASEAN Economic Community (AEC) at the end of 2015. In this situation, the GDVC established "the Plan of Reforms, Development and Modernization of Customs Sector during 2011 – 2015", aiming for "simplification and harmonization of customs clearance procedures, and the implementation of required legal and administrative reform and its human resource development (JICA, 2012)." Recognizing the technical advantage of Japanese customs system, the Vietnamese government requested the Japanese government to transfer knowledge and build infrastructure for modernized customs assimilating the Japanese customs system embracing local context. As a result, the Exchange of Note and the Grant Agreement of "Project for E-Customs and National Single Window for Customs Modernization" were signed on 22 March 2012. From the project level annual data of OECD aid database (Creditor Reporting System, CRS), this project marked the largest single project disbursed by the bilateral donor to the recipient government in Trade Policies & Regulations sector in the year of 2013. The

³ This chapter is modified based on a published discussion paper: "Are Seminars on Export Promotion Effective? Evidence from a Randomized Controlled Trial" (in collaboration with co-authors, Yasuyuki Todo, and Daichi Shimamoto) Discussion papers 16078, Research Institute of Economy, Trade and Industry (RIETI). August 2016, Pages 1-27. Retrieved from <http://www.rieti.go.jp/en/publications/summary/16080001.html>.

total grant provided by the Japanese government is 2.7 billion yen over the three years. In March 2014, two years after the project was agreed, the installation of the Vietnam Automated Cargo and Port Consolidated System (VNACCS) was completed, and the system has officially been put into operation from April 2014. During the first year of VNACCS, a total of 56,000 enterprises filed declaration using the system, and the total declaration number reached 6.74 million US dollars, with the total value of 271.5 billion representing 99% of customs declarations. This figure signifies smooth adaptation of the new customs system as of May 2015 (JICA, 2015).

At the firm-level, this massive aid for trade project which is composed of both technical assistance and necessary infrastructure is expected to lower the cost and time required for trade so that exporting firms would enjoy the benefits of increased trade and more profits. In fact, according to a survey jointly conducted at a customs office in Ho Chi Minh City by General Department of Vietnam Customs (GDVC) and Vietnam Chamber of Commerce and Industry (VCCI) in October 2014, average time for import and export clearance decreased by 18% and 58% respectively compared to the previous year before the VNACCS was implemented.

To help fight those supply-side trade-related constraints, the World Trade Organization (WTO) has launched “Aid for Trade” initiative. It calls for donors to mobilize resources to facilitate trade in developing countries so that international trade contributes to development and poverty reduction (OECD/WTO, 2008). In 2013, total aid for trade reached 42 billion US dollar, and this is about 30% of the total official development aid as described in the previous chapter.

Due to data availability, aid for trade conventionally follows the sector classification of OECD and is divided into three sectors accordingly. They are namely a) trade policy and regulations; b) economic infrastructure; and c) productive capacity building. Among these three sectors of aid for trade, this paper focuses on the trade policy and regulation sector. Although economic infrastructure and productive capacity building take up more than 95% of total aid for trade, their impact on trade is relatively indirect since not all the resources provided in these sectors go toward trade-related outputs. Trade policy and regulation sector, on the other hand, accounts for support to ministries and departments responsible for trade policy and export procedures and trade facilitation so that the

impact on trade is deemed to be more direct.

Previously, there have been some attempts to measure the effectiveness of aid for trade. International trade for one nation, just like economic growth, is determined by complex dynamics of various macroeconomic factors that are difficult to observe and control using econometrics. Thus, the impact of aid for trade on the export performance of developing countries is mixed. Also, using country-level panel data may not capture the true impact given the diverse range of circumstances which recipient countries face.

Even if the impact is measured to be positive and significant, the real impact could have been overestimated due to the nature of the definition of aid for trade. As explained above, the lion's share of aid for trade is economic infrastructure which is used for a proxy of trade-related infrastructure. Currently available official development assistance (ODA) data does not strictly distinguish economic infrastructure according a specific purpose. Infrastructure built by ODA fund may or may not be related to trade activities. The same logic can be applied to the second largest chunk which is building productive capacity. Supports given through ODA may not lead to export; rather, most of the projects in this sector do not target export as the main objectives but expect exports as one of the by-products of increased production capacity.

In this respect, the most direct way to measure the effect of aid for trade would be looking at how aid for trade in trade policy and regulation sector affect the actual beneficiaries of such projects. Vietnam is not only the largest recipient of the total aid for trade but also the biggest recipient of the aid for trade policy and regulations during 2008 and 2013 (Figure 7). Vietnam also was the recipient of the largest single project given by the bilateral donor to the recipient government in Trade Policies & Regulations sector in 2013. It is titled "the Project for E-Customs and National Single Window for Customs Modernization" which is funded by the Japanese government in Vietnam. Nonetheless, this project was uniformly implemented in the whole nation, leaving no opportunity for comparison between treated and controlled group. Since quasi-experiment is impossible in this case, we conducted up a randomized control trial (RCT) which we offer export promotion seminar to only randomly selected firms to examine under what conditions e-customs and information distribution are efficient

in enhancing exports of end users. The invited firms would receive information regarding this new e-customs system and two rounds of original survey data before and after the RCT are used for estimation of the impact of such export promotion scheme.

3.1.2. Vietnamese Firms in Traditional Village Clusters

The target of this study is SMEs in village industrial clusters serving the apparel and textile industry in the Red River Delta surrounding Hanoi, the capital city of Vietnam. We chose SMEs in the apparel and textile industry because they account for a modest yet non-negligible share of current exports, approximately 10 %. The textile and apparel industry is one of the most common exporting manufacturing industries in most developing countries. We assumed that larger companies have sufficient resources to invest in information-seeking activities on their own. For this reason, the general target of export promotion programs provided by governments is usually SMEs, and we thus focused on SMEs. We limited the location of our target firms to areas near Hanoi so that the invited firms could come to our seminars held in Hanoi.

Village industrial clusters are traditionally developed agglomerations of SMEs, including micro-enterprises, in a particular industry, such as apparel, wood furniture, and ceramics, within a village and can often be observed in Vietnam. We targeted village clusters such that we could identify the inter-firm networks within the villages through which firms exchange information.

To identify such village clusters, we utilized data from the Vietnam Enterprise Survey (VES) of 2010. The VES is conducted annually by the General Statistical Office of Vietnam (GSO) and covers all foreign-owned firms, all domestically-owned firms with 30 employees or more, and randomly selected domestically-owned firms with fewer employees. We selected villages or communes, the smallest administrative unit, with more than five registered firms in the textile and apparel industries (i.e., industry codes 13 and 14 of the Vietnamese System of Industry Classifications) in the 10 provinces in the Red River Delta in the VES data. Because not all firms are formally registered, and firms in the VES are randomly selected, villages with more than five firms in the apparel and textile industry are most likely to be industrial clusters. This process identified 19 villages

in six provinces. Then, we visited the selected villages and found that two villages among the 19 are not apparel and textile clusters in the sense that most manufacturing firms in the villages do not necessarily engage in apparel or textile production. We also omitted one village from our sample because it was found that the apparel and textile firms in the village had already received business management training through another RCT and had been surveyed several times for the impact evaluation (Higuchi et al., 2015). We assume that those firms in the village are already systematically different from other firms.

Figure 10. A Sample Village Cluster Specialized in Towel Production



Date: March 16, 2015

The remaining 16 apparel/textile village clusters in the Red River Delta are the targets of our study. For each of the 16 villages, we obtained the full list of registered firms from the municipal government. The number of registered firms for each village is summarized in Table 16; the total number of firms is 354. In December 2014 and January 2015, we requested face-to-face interviews with owners, managing directors, or highly ranked managers of the 354 firms and obtained responses

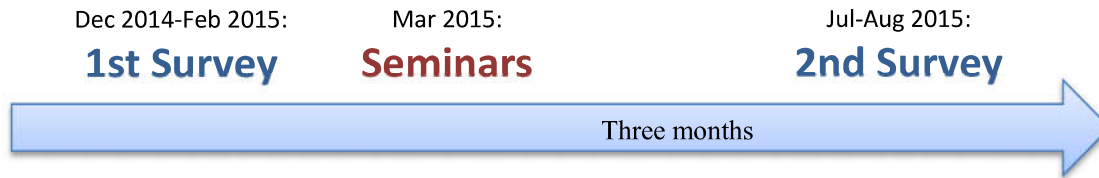
from 296, corresponding to a response rate of 84 %. The questionnaire consisted of standard firm characteristics, such as sales, the number of workers, main products, and ownership. In addition, we asked questions related to trade activities, such as experiences in exporting, knowledge of e-customs, and the perception of trade. Finally, we showed each firm the full list of registered firms in the village and asked them to note their information exchange partners in the list. Because we surveyed all registered firms within the village, we could identify the whole information-sharing network of registered firms within each village.

Table 16. Number of Observations by Village

| Village | Total register firms | Number of respondents | | Number of Invited | Number of Participants | | | |
|---------|----------------------|-----------------------|---------------|-------------------|------------------------|-------|-------|-------|
| | | First survey | Second survey | | Total | Day 1 | Day 2 | Day 3 |
| 1 | 14 | 13 | 13 | 7 | 2 | 0 | 0 | 2 |
| 2 | 19 | 13 | 13 | 7 | 3 | 1 | 0 | 2 |
| 3 | 17 | 13 | 13 | 7 | 5 | 0 | 5 | 0 |
| 4 | 72 | 64 | 64 | 32 | 4 | 1 | 3 | 0 |
| 5 | 74 | 60 | 58 | 30 | 4 | 1 | 0 | 3 |
| 6 | 19 | 18 | 18 | 9 | 6 | 2 | 4 | 0 |
| 7 | 41 | 37 | 37 | 18 | 9 | 2 | 3 | 4 |
| 8 | 29 | 25 | 21 | 13 | 1 | 1 | 0 | 0 |
| 9 | 2 | 2 | 2 | 1 | 0 | 0 | 0 | 0 |
| 10 | 4 | 2 | 2 | 1 | 0 | 0 | 0 | 0 |
| 11 | 15 | 11 | 10 | 5 | 1 | 0 | 0 | 1 |
| 12 | 18 | 17 | 14 | 9 | 1 | 0 | 0 | 1 |
| 13 | 9 | 4 | 3 | 2 | 0 | 0 | 0 | 0 |
| 14 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 |
| 15 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 16 | 19 | 15 | 14 | 8 | 1 | 1 | 0 | 0 |
| Total | 354 | 296 | 284 | 151 | 38 | 9 | 15 | 14 |

We also conducted the second survey of the 296 firms in July and August 2015, approximately three to four months after the seminars on export promotion explained in detail below. 284 firms, or 96 % of the sample from the previous round, responded to the second survey. Whereas five of the 12 attritions had been closed in the interim, seven firms refused to answer to the second survey. For the second-round survey, we added new questions regarding the information disseminated during the seminars, asking whether the firms know or practice what they had learned, in addition to the first questionnaire.

Figure 11. Timeline of Surveys and Seminars



3.2. Literature Review

Exports benefit the economy by expanding production and employment and by improving productivity through increasing returns to scale in addition to learning-by-exporting (Blalock and Gertler, 2004; Kimura and Kiyota, 2006). However, many countries, especially those that are less developed, suffer from various trade obstacles that hinder them from realizing the full benefits of trade (Stiglitz and Charlton, 2006).

Low productivity at the firm level is a major obstacle to exporting according to the heterogeneous-firm trade models developed by Melitz (2003) because low-productivity firms cannot be profitable in export markets owing to the initial costs of exporting. Apart from productivity, there may be other obstacles to exporting, such as informational and institutional barriers. From their study in Argentina, Artopoulos et al. (2013) concluded that knowledge of foreign markets is a more critical hindrance to consistent exports than knowledge of production technologies. Other studies have found that as the number of exporters in one region increases, other firms in the same region are more likely to engage in exporting (Bernard and Jensen, 2004; Okubo and Tomiura, 2015; Todo, 2011). The findings suggest that information spillovers from current exporters can drive non-exporters to begin exporting. Moreover, Nordås et al. (2006) and Itakura (2013) showed that the institutional setting, as quantified in terms of the time for customs procedures and logistics services, strongly affects the trade volume.

Various policy measures have been utilized to ease the supply-side constraints to exporting. The most direct measures are export subsidies and grants. In addition to lowering informational barriers, governments provide brochures, websites, and seminars that distribute information on foreign markets and export procedures. They also simplify customs procedures to introduce electronic customs (e-customs) so that most procedures can be completed online.

Several studies have conducted an econometric evaluation of policies and programs for export promotion. For example, Volpe Martincus and Carballo (2008, 2010) found a positive effect of export promotion agencies (EPAs) on exports using country-level data, whereas Lederman et al. (2010) obtained similar results from firm-level data for Peru. Other policy measures, such as the provision of informational materials (e.g., pamphlets about export in Turkey (Durmuşoğlu et al., 2012) and trade shows in the United States (Wilkinson and Brouthers, 2006)) were also found to improve firms' export performance. However, the effects of export promotion policies are not always positive. Using firm-level data from Ireland, Görg et al. (2008) found that export subsidies and grants promoted exporting firms to expand their exports but do not encourage non-exporters to begin exporting. Alvarez (2004) used firm-level data regarding Chilean small and medium enterprises (SMEs) and found that trade shows and trade missions did not improve firm performance, whereas exporter committees had a positive impact.

One drawback of existing studies is that they may not fully correct for possible biases in the estimated effect of export promotion programs due to self-selection of participants. To avoid such biases, impact evaluations of firm-level training programs, which is not restricted to programs for export promotion, have recently incorporated randomized controlled trials (RCTs) (Berge et al., 2014; Bloom et al., 2013; Higuchi et al., 2015; Mano et al., 2012; Nordås et al., 2006). RCTs were originally developed in medical science to evaluate the effects of medical treatments and have been widely used to evaluate poverty reduction programs in less developed countries since the late 1990s (Duflo et al., 2008). To the authors' best knowledge, however, impact evaluations of export promotion programs using RCTs have rarely been conducted. One exception is a study by Breinlich et al. (2016) that evaluated the impact of sending brochures made by the export promotion agency to randomly selected SMEs in the United Kingdom. A shortcoming of their study was its use of brochures, which may not have been an effective means of attracting the attention of firms and disseminating information about exporting. Indeed, among the respondents to their survey, only 16% had read the brochure.

To fill this research gap, the present study examines whether seminars on export promotion can encourage exports by conducting an RCT. In the RCT, we held one-day seminars to SMEs in

traditional industrial clusters in the apparel and textile industry in Vietnam. We provided information about export activities and conducted firm-level surveys before and three months after the seminars. Seminars are most likely a better measure for export promotion than sending brochures because they can enhance information dissemination through face-to-face communication.

To the best of our knowledge, there has been no paper which examines the impact of export promotion program focusing on information dissemination using firm-level data. Still, there are numerous papers on evaluating the impact of various export promotion devices in economics and business fields. On direct financial supports such as grants and subsidies, Arslan and Van Wijnbergen (1993) use macroeconomic approach to find out that Turkey's export subsidies partially account for the boom of Turkish export growth in the 1980s. Using survey data from the Ireland manufacturing firms, Görg et al. (2008) estimate that export grants (grants for capital, training, R&D, rent subsidies, employment, feasibility study, technology acquisition, loan guarantees and interest subsidies) help exporting firms to compete more effectively and achieve better export performances. But the amount of grants should be large enough to be effective. Also, grants do not stimulate non-exporter to start exporting.

For the impact evaluation of export promotion agencies (EPAs) using econometrics, two firm-level studies in developing countries confirm that those firms which received supports from EPAs increased their exports both in terms of volume and number of products and markets. The first paper by Volpe Martincus and Carballo (2008) uses Peruvian case and uses propensity score matching and difference-in-difference estimation to evaluate the export promotion. The second paper on EPA focuses on distributional effect, using quantile treatment effect estimation and shows that exporters with smaller export volume benefit more from the EPA services (Volpe Martincus and Carballo, 2010). However, neither paper distinguishes the type of services that firms received from the EPAs, but treat all the firms that received any support the same.

Some papers, on the other hand, regard the role of different state-sponsored export promotion schemes separately while concentrating on SMEs. Alvarez (2004) investigates heterogeneous effect among various services. Trade shows and trade missions do not contribute to higher probability of

exporting permanently whereas exporter committees have a positive and significant impact in the case of Chilean firm data. Using Turkish firm data, Durmuşoğlu et al. (2012) show that getting informational materials on export like brochures and pamphlets improve the relationship with firms' customers, suppliers, and officials in both the home and host countries. Other schemes did not have a significant effect. Wilkinson and Brouthers (2006) measures the impact of US export promotion activities on SMEs. Their simple OLS result using cross-section data suggests Trade shows and programs identifying agents and distributors affect SME satisfaction with export performance positively.

Unfortunately, not all firms can benefit from the state-sponsored export promotion services. Sometimes, it is due to lack of trust toward the government. According to Low (1982)'s qualitative study, export promotion in Kenya lost its credit due to delays and uncertainty surrounding subsidy disbursement procedures. In Malaysia, manufacturing firm-level data indicate overall awareness of export programs is not high so that the impact of such program on SMEs is inevitably low (Ahmed et al., 2002). Thus, available sources of information on export programs are an important factor for export promotion to be operational.

3.3. Experiment Setting: Informational Seminar on Export Promotion

3.3.1. Contents of the Seminar

According to Rosson and Seringhaus (1991), there are three types of export promotion focus based on firms' needs and stage of export: motivational, informational and operational. Operational include practical supports such as trade mission to meet buyers, export financing and export insurance. This type is only applicable to well-established expanding or continuing exporters. However, our samples include small and medium-sized firms consisting of mainly non-exporters and sporadic exporters. Therefore, we limit the scope of our intervention to be only motivational and informational. The outcome was measured only three months after the seminar so that we had to focus on immediate changes such as perception. For non-exporters, the seminar let them be aware of opportunities while for new exporters, we provide some practical information so that they can determine the feasibility of

exporting. Also, the seminar did not cover any buyers' information as it is not applicable to all firms and it may be endogenous.

On March 14-16, 2015, we conducted an RCT in which we held three one-day seminars. The main aim of the seminars was to motivate and provide information to the participating managers. Seminars designed to enhance exported quantities by existing exporters typically include an explanation of export financing and insurance (Rosson and Seringhaus, 1991). However, because our sample was SMEs in village clusters, we focused on the motivational and informational elements of export promotion.

The venue of the seminars was a three-star hotel located in the center of Hanoi that was selected to attract participants. It took a minimum of 30 minutes by motorbike to a maximum of 2 hours by bus to travel to the venue from the sample villages. For several villages located far from the hotel, we chartered buses for the participants' transportation. We reimbursed the actual cost to those who used their own means of transportation, such as public buses or motorbikes. No compensation was provided except for meals at the hotel. We did not collect any participation fees from the participants.

Each one-day seminar contained slightly different content so that we could distinguish the effects of each lecture, but the participants did not know the difference between the three types before their participation. March 14th of 2015 was Saturday, and March 16th was Monday. The number of participants for the three days was 9, 15 and 14 respectively so that we assume there was no weekday effect or content effect.

The seminar on the first day (March 14) consisted of four classes. First, a business school professor gave a lecture about international business, explaining the overall picture of the global economy in addition to the challenges and opportunities facing Vietnamese firms. He also briefly introduced some modules and methods for firm management. Second, an official from the Vietnam Export Promotion Agency, VIETRADE talked about basic steps to build a plan for exporting, how to prepare for exporting activity, how to access overseas markets, and how to meet business partners, customers, and buyers. Third, we invited two officials (one Vietnamese and one Japanese) from the

Hanoi office of Japan External Trade Organization (JETRO), a public institution of the Japanese government that promotes trade and investment with Japan. Japan was the second largest and third largest importer of Vietnamese apparel and textile industries in 2013, so that information about Japanese market was relevant to the participants. They explained how to penetrate the Japanese market and how to find Japanese buyers through their online system. Finally, current exporters in the same industry were invited to share their experiences, including useful tools for overcoming potential obstacles to exporting. They also illustrated how to work with foreign importers and how to gain trust from overseas markets by describing episodes from their personal experience. All the workshop materials were constructed in a way that it resembles other informational export promotion seminars.

In the seminar on the second day (March 15), we provided the same four classes and an additional class by an official from the General Department of Vietnam Customs to introduce e-customs to participants and explain steps to register online and procedures for using the website. E-customs were introduced to Vietnam in 2014 as a foreign aid project of Japan (JICA, 2015). On the last day (March 16), we provided the same five classes as on the second day and additionally a dinner after all five classes so that the participants could converse with each other and with the lecturers in a more informal setting. On each day, the seminar started at 8:45 AM and lasted until 4:00 or 4:30 PM. In most classes, the lecturers shared their contact information and related websites such that participants could ask for further information.

Figure 12. One-Day Export Promotion Seminars in Hanoi



Date: March 14, 2015

3.3.2. Selection and participation of firms

We randomly selected 50 or 51 firms for each day of seminars (151 firms in total) via a stratified sampling strategy using the village as a stratum. This sample size corresponds to approximately half the number of firms that we surveyed in the first survey. We then sent an enumerator of the firm-level survey to each firm for the face-to-face invitation to seminars in early March, giving a formal letter explaining the details of the seminar. In the letter, we noted that only the owner, managing director, or a highly ranked manager could participate in the seminars although the seminar participants and respondents to our surveys may be different. A few days before the seminars, we made phone calls with further invitations. If firms did not agree to participate at the time of the first phone call, we made another phone call a day before the seminar.

However, despite our efforts, only a small number of invited firms participated in our seminars. Among the 50 firms invited on the first day, only nine participated, whereas there were 15 out of 50 on the second day and 14 out of 51 on the last day. Note that the seminars were held on Saturday, Sunday, and Monday, but the number of participants did not vary significantly between weekends and weekdays. In total, out of 151 invited firms, 38 firms participated; thus, the participation rate was 25.2 %. It is often found that the rate of participation in social and business programs is low (Bertrand et al., 2004; Currie, 2004; McKenzie and Woodruff, 2013). For example, Bloom et al. (2013) provided free consulting on management practices to Indian firms, but only 26 % of the 66 targeted firms participated in the program. Thus, the low participation rate in our case is comparable to that Bloom et al. (2013). Table 16 shows the number of firms that were invited and participated by village and seminar date.

3.3.3. Quality and difficulty of the seminars

After each seminar, we asked participants to evaluate their motivation and its quality and difficulty. 93% of participants reported that they participated because they wanted information about exporting activity, and 86% attended because they wanted information about foreign buyers (Table 17). Thus,

participants were informed correctly about the seminar before and made the participation decision according to their interests.

Table 17. Motivations for participation

| | Day 1 | Day 2 | Day 3 | Total | Percentage |
|---|-------|-------|-------|-------|------------|
| Because I want to know Information about increasing export | 7 | 12 | 8 | 27 | 93% |
| Because I want to know Information about foreign buyers | 5 | 11 | 9 | 25 | 86% |
| Because I want to know Information regarding VNACCS | 2 | 5 | 4 | 11 | 38% |
| Because I want to know Information about management | 7 | 10 | 9 | 26 | 90% |
| Because I want to know Information about new technology | 5 | 8 | 5 | 18 | 62% |
| Because I want to know Information about improving the quality products | 3 | 8 | 6 | 17 | 59% |
| Because it did not cost any money | 1 | 7 | 1 | 9 | 31% |
| Because of short travelling time and distance to the hotel | 1 | 5 | 1 | 7 | 24% |
| Because other firms I knew participated | 2 | 6 | 1 | 9 | 31% |
| Number of survey collected | 8 | 12 | 9 | 29 | 100% |
| Number of participants | 9 | 15 | 14 | 38 | |

According to Table 18, 69% reported that they, in fact, learned information about exporting activity, and 62% stated that they learned about foreign buyers. Accordingly, 90% were satisfied with the quality of the seminars. The average score for the quality of the classes for export promotion was 4.4 out of 5. Therefore, it is most likely that the participants were highly motivated and that the quality of the seminars was sufficiently high (Table 19).

Table 18. What participants think they learned from the seminar

| | Day 1 | Day 2 | Day 3 | Total | Percentage |
|---|-------|-------|-------|-------|------------|
| Information about increasing export | 4 | 10 | 6 | 20 | 69% |
| Information about foreign buyers | 4 | 10 | 4 | 18 | 62% |
| Information about customs | 2 | 6 | 2 | 10 | 34% |
| Information about e-customs (VNACCS) | 1 | 6 | 1 | 8 | 28% |
| Information about management | 7 | 10 | 7 | 24 | 83% |
| Information about new technology | 4 | 7 | 3 | 14 | 48% |
| Information about improving the quality products | 4 | 8 | 3 | 15 | 52% |
| Information about other firms from the same village | 1 | 6 | 4 | 11 | 38% |
| Information about other firms from the other villages | 5 | 9 | 7 | 21 | 72% |

However, the participants had difficulty understanding the seminars to a certain extent. The average score for the difficulty of the classes for export promotion was 3.6, where one indicates “very

difficult” and five “very easy.” In other words, the class was not “very easy” or “easy” to many of the participants, although most of them evaluated the class as “good” or “very good.”

Table 19. Evaluation of seminars by participants

| | Firm management class | | Export promotion class | | E-customs class | | Overall satisfaction | | |
|---------|-----------------------|---------|------------------------|---------|-----------------|---------|----------------------|----|-----------|
| | Difficulty | Quality | Difficulty | Quality | Difficulty | Quality | Yes | No | No answer |
| Day 1 | 3.1 | 4.1 | 3.4 | 4.3 | N/A | | 7 | 0 | 1 |
| Day 2 | 4.1 | 4.8 | 3.9 | 4.6 | 4.3 | 4.7 | 11 | 0 | 1 |
| Day 3 | 3.3 | 4.1 | 3.4 | 4.1 | N/A | | 8 | 1 | 0 |
| Average | 3.6 | 4.4 | 3.6 | 4.4 | 4.3 | 4.7 | 90% | 3% | 7% |

Note: Difficulty ranges from 1(very difficult) to 5 (very easy) while quality varies from 1(very poor) to 5 (very good). On Day 3, we distributed the wrong version of survey and could not get evaluation for the e-customs class although the participants attended e-customs class.

3.4. Estimation Model

We hypothesize that when firms do not have access to information about exporting activity, such as administrative procedures for exporting, access to foreign markets, or preferences of foreign customers, even productive firms may not engage in exporting. If this is the case, seminars that provide such information can facilitate firms' exports.

In this paper's empirical analysis, we estimate the effect of the seminars on SMEs in the apparel and textile industry in Vietnam on the participants' propensity to export. In addition, because of the short period between seminars and data collection, we also examine effects on two aspects of preparatory stages, i.e., preparation for and perception of exporting activity.

Thus, our estimation is as follows:

$$(5) \quad Y_{it} = \beta_0 + \beta_1 P_{it} + \beta_X X_{it-1} + \delta_j + \varepsilon_{it},$$

where Y_{it} is an outcome variable that represents preparation for, perception of, or engagement in exporting activity of firm i at time t ; P_{it} is a vector of dummy variables for participation in different types of seminars on export promotion; X_{it-1} is a vector of control variables; and ε_{it} is the error term. Whenever possible, the outcome variable is replaced with its first difference, $Y_{it} - Y_{it-1}$, to control for the time-invariant characteristics of the firm.

In an alternative specification, we incorporate variables that represent the firm's information exchange partners in the village that participated in the seminars as an independent variable. Information exchange partners are the neighboring firms within the same cluster whose top managers or owners exchange business information with each other. By so doing, we can examine the effects of information spillovers through firm networks and avoid undervaluation of the direct effect of participation in the seminars in the presence of spillovers from peers.

Although we are primarily interested in the value of β_1 in equation (5), the coefficient of the participation dummy, its estimate is biased when participants of seminars are self-selected; thus, P is correlated with unobserved firm characteristics. Although we invited randomly selected firms to our seminars, only some of the invited firms participated. Therefore, we employ 2SLS estimations using the dummy for the random invitation as an instrument for the participation, following Angrist et al. (1996). This methodology estimates the LATE of seminars given the invited status, which can further be interpreted as the ATT because firms that were not invited were not allowed to participate in any seminar (Angrist and Pischke, 2008). Moreover, because the number of firm i 's information exchange partners who participated in the seminars may also be endogenous, it is instrumented by the number of firm i 's information exchange partners who were invited to the seminars.

3.5. Data

3.5.1. Construction of variables

The outcome variables can be classified into three categories: variables that measure how much firms prepare for exporting activity, how firms subjectively perceive difficulties in exporting activity, and whether firms export. Obviously, the most direct outcome measure is the amount of exports or whether firms engage in exporting activity. However, because the second survey was conducted only three months after the seminar, the time period may be too short for firms to start exporting. Therefore, this paper also examines how the seminars changed firms' preparation for and perception of exporting activity.

The variables for preparation for exporting activity are based on the following six questions posed to respondent firms: whether they had accessed any website for export exhibitions or trade fairs in the past three months; whether they hired export agencies; whether they made or improved their catalogues or websites to advertise the firm to overseas buyers in the past three months; whether they assigned any person in charge of trade activity; whether they had trade names or brand names to appeal to overseas buyers; and whether they had accessed the e-customs website. From the dummy variables that take a value of one if the answer is yes to the six questions, we construct two measures of preparation for exporting activity. One is a composite index that averages the dummy variables from the first five questions, whereas the other is a dummy variable for the last question regarding the e-customs website to examine the effects of the e-customs class in particular.

The second category of outcome variables measures perceptions of exporting activity and consists of one dummy variable and two categorical variables. The dummy variable indicates whether the firm is willing to export or, if the firm is already an exporter, whether it is willing to continue to export. The second variable is a composite index of perception and is based on five questions regarding perceptions about exporting activity taken from Breinlich et al. (2016), including how difficult it is to adapt products to make them suitable for exporting; to comply with legal and tax regulations and standards; to enforce contracts in trade; to identify whom to contact for exporting in the first instance; and to navigate foreign languages and cultures. Five answers, each of which ranges

from one (not difficult at all) to five (very difficult), are averaged and standardized such that the possible minimum and maximum are zero and one, respectively. The third perception variable measures the extent to which the top manager thinks customs is an obstacle to trade, ranging from one to five, as above. This variable, after standardization to a score from zero to one, is used to check whether the class about e-customs was effective. We use the first-difference of the variables for willingness to trade and the perception of customs as an obstacle for trade because we asked the same question in the two surveys.

The third category of outcome variables indicates whether firms export. More specifically, we distinguished between direct and indirect exports and constructed a dummy variable for engaging in each of the two types of export. We also take a first-difference for these two variables.

We estimated effects of two treatment dummies. The first dummy takes a value of one if the firm participated in the seminars on any of the three days. The second dummy accounts for participation in the seminar on either the second day or on the third day, i.e., if firms took the additional class on e-customs. The decision to participate in the seminars was made by invited firms. To avoid biases due to endogeneity, these treatment dummies are instrumented by two dummies for random invitation to corresponding treatments as explained in the previous section.

We also tested the effect of another treatment dummy for firms participating in the networking dinner on the third day. However, among the 14 participants in the seminar on the third day (Table 16), four did not participate in the dinner; thus, the number of participants in the dinner was only 10. Probably because of this small number, we found that the instruments, including the dummy for the invitation to the dinner, were substantially weak in the 2SLS estimation using the dummy for participation in the dinner as a key treatment variable. Therefore, we do not present the dummy for participation in the dinner in our estimation.

To eliminate the effects of other firm attributes that may affect export behaviors, we employed three types of control variables. The first set represents firm size to examine the role of the standard factor related to exporting decisions. There are three size variables: the number of workers, the number of subcontractors, and the dummy variable for firms with more than one establishment.

Because many firms refused to report their sales, we could not construct or incorporate any reliable productivity measure. The second set of controls is related to exporting activities, including the share of sales in the domestic market to total sales, an experience dummy variable that takes a value of one if the firm has ever exported, and a dummy representing the export status right before the seminar participation in the year 2014. The third set of independent variables corresponds to the personal characteristics of respondents, who are mostly owners, presidents, or highly ranked managers. A dummy for whether the respondent has lived outside the province in which he or she currently resides captures both external links and outward-oriented attitude. The education level controls the cognitive ability and knowledge level of the respondents. Finally, we asked how many business-related memberships the respondent holds to characterize social capital.

In an alternative specification, we incorporate the number of the firm's information exchange partners in the village that participated in the seminars as an independent variable. In the survey, each firm reported its information exchange partners from the list of all registered firms in the same village. Therefore, the information exchange partners for each firm can be identified. Because this variable is also endogenous, we instrumented it by the number of the firm's partners that were invited to the seminars.

3.5.2. Descriptive statistics

Table 20 presents summary statistics regarding the sample firms. The average value of the index that counts the number of activities in export preparation, which ranges from zero to one, is 0.117. This means most firms tried less than one export preparation activity out of the six activities surveyed. Similarly, the share of firms accessing the e-customs website was 9.7%, indicating that most firms did not conduct significant preparation activity related to e-customs. Most firms were interested in exporting activity in 2015, with 69% of firms exhibiting a willingness to export. However, the results indicate that many firms consider export procedures difficult because the average value of the index of perception of difficulties of export procedures from zero to one is 0.449.

Table 20. Descriptive Statistics

| Variable | N | Mean | S.D. | Min. | Max. |
|---|-----|--------|--------|--------|-------|
| <i>Treatment variables</i> | | | | | |
| Dummy for participation in any seminar | 248 | 0.137 | 0.345 | 0 | 1 |
| Dummy for participation in e-customs class | 248 | 0.109 | 0.312 | 0 | 1 |
| Dummy for invitation to any seminar | 248 | 0.520 | 0.501 | 0 | 1 |
| Dummy for invitation to e-customs class | 248 | 0.359 | 0.481 | 0 | 1 |
| <i>Outcome variables</i> | | | | | |
| Index for preparation for exporting activity (0 = least prepared, 1 = most prepared) | 248 | 0.117 | 0.199 | 0 | 0.800 |
| Dummy for accessing e-customs website | 248 | 0.097 | 0.296 | 0 | 1 |
| Dummy for willingness to export (2015) | 248 | 0.690 | 0.464 | 0 | 1 |
| (2014) | 248 | 0.464 | 0.500 | 0 | 1 |
| (1st differenced) | 248 | 0.226 | 0.634 | -1 | 1 |
| Index of perception of difficulties of export procedures (0 = least difficult, 1 = most difficult) | 152 | 0.449 | 0.158 | 0.200 | 1 |
| Index of perception of customs as obstacle (2015) | 176 | 0.206 | 0.294 | 0 | 1 |
| (2014) | 248 | 0.028 | 0.116 | 0 | 1 |
| (1st differenced) | 176 | 0.168 | 0.321 | -0.750 | 1 |
| Dummy for engaging in direct/indirect export (2015) | 248 | 0.210 | 0.408 | 0 | 1 |
| (2014) | 248 | 0.153 | 0.361 | 0 | 1 |
| Dummy for engaging in direct export (2015) | 248 | 0.121 | 0.327 | 0 | 1 |
| (2014) | 248 | 0.125 | 0.331 | 0 | 1 |
| (1st differenced) | 248 | 0.016 | 0.126 | 0 | 1 |
| Dummy for engaging in indirect export (2015) | 247 | 0.101 | 0.302 | 0 | 1 |
| (2014) | 248 | 0.060 | 0.239 | 0 | 1 |
| (1st differenced) | 248 | 0.077 | 0.267 | 0 | 1 |
| <i>Firm characteristics in 2014</i> | | | | | |
| Number of subcontractors | 248 | 19.899 | 52.615 | 0 | 450 |
| (log) | 248 | 1.383 | 1.584 | 0 | 6.109 |
| Number of workers | 248 | 35.827 | 81.550 | 1 | 1000 |
| (log) | 248 | 2.740 | 1.197 | 0 | 6.908 |
| Dummy for multi-establishments | 248 | 0.290 | 0.455 | 0 | 1 |
| Number of participating information exchange partners | 245 | 0.335 | 0.726 | 0 | 4 |
| Number of invited information exchange partners | 248 | 0.605 | 1.162 | 0 | 6 |
| Sales from domestic market (%) | 248 | 78.435 | 38.805 | 0 | 100 |
| Dummy for export experiences | 248 | 0.218 | 0.414 | 0 | 1 |
| <i>Manager characteristics in 2014</i> | | | | | |
| Dummy for top manager's living outside the current province | 248 | 0.415 | 0.494 | 0 | 1 |
| Top manager's education level (0 = no degree, 7 = graduate school) | 248 | 3.992 | 1.106 | 2 | 6 |
| Number of business-related memberships | 248 | 1.702 | 14.093 | 0 | 199 |

In 2014, before the seminars, 21.8% of firms had at least some export experience, and 15.3% were exporters. This evidence implies that one-fourth of past exporters exited export markets after their entries. This frequent turnover in export markets is often found in other countries (Eaton et al., 2007). In 2015, after the seminars, the share of exports increased to 21.0%. Among them, 12.5%

engaged in direct export, whereas 10.1% engaged in indirect export through intermediaries. The top destinations of exports from the sample firms are Japan, South Korea, China, Taiwan, and the United States.

The average number of workers is 35 while the median is 10 in 2015. Although the largest firm had 1,000 workers in 2014, 92% had fewer than 100. There was only one firm which had more than 300 workers (i.e. non-SMEs according to the definition in Vietnam) in both 2014 and 2015. Thus, the target firms are mostly SMEs. Because our target villages have traditionally been clusters of the garment and textile industry, some subcontractors, mostly unregistered micro-enterprises, are well developed and easily available to downstream firms (Nam et al., 2010a). Accordingly, some firms effectively utilize subcontractors and minimize the use of their own workers to maximize their profits. 34% of firms utilize subcontractors, and the average number of subcontractors is 20. We use the number of workers and the number of subcontractors as control variables that measure firm size. The average education level of top managers is a high school diploma.

3.6. Results

3.6.1. Benchmark results

We now examine the effects of the informational and motivational seminars on export promotion by 2SLS, using the dummies for the random invitation to the seminars and e-customs class as instruments for participation. Table 21 presents the results from the first stage of the 2SLS. Each invitation dummy has a positive and statistically significant effect on the participation of the corresponding seminar. The F statistics from the first stage regressions shown in the bottom row of Table 21 are greater than nine. Moreover, the Wald rk F statistic of (Kleibergen and Paap, 2006) is 16.71, which is higher than the critical value for the 10 % maximal size (Stock and Yogo, 2005), 16.38, indicating that the instruments are unlikely to be weak.

Table 21. Results of First-Stage Regressions

| Dependent variable | (1) | (2) |
|---|--|--|
| | Dummy for participation in any seminar | Dummy for participation in e-customs class |
| Dummy for invitation to any seminar | 0.2215*** (0.0593) | 0.0335 (0.0515) |
| Dummy for invitation to e-customs class | 0.0653 (0.0631) | 0.2568*** (0.0548) |
| Number of subcontractors (log) | 0.0035 (0.0151) | 0.0009 (0.0132) |
| Number of workers (log) | 0.0210 (0.0214) | 0.0266 (0.0186) |
| Dummy for multi-establishments | -0.0061 (0.0474) | -0.0352 (0.0412) |
| Dummy for top manager's living outside the current province | 0.0577 (0.0447) | 0.0483 (0.0388) |
| Top manager's education level (0 = no degree, 7 = graduate school) | -0.0171 (0.0193) | -0.0161 (0.0168) |
| Number of business-related memberships | 0.0000 (0.0014) | 0.0002 (0.0012) |
| Sales from domestic market in 2014 (%) | -0.0010 (0.0007) | -0.0009 (0.0007) |
| Dummy for export experiences | 0.0265 (0.0896) | 0.0509 (0.0779) |
| Dummy for export in 2014 | -0.1523 (0.1132) | -0.1659* (0.0984) |
| Number of observations | 248 | 248 |
| F statistics of excluded instruments | 9.53 | 9.05 |

Notes: Clustered robust standard errors by village are in brackets. *, **, and *** signify statistical significance at the 10-, 5-, and 1-% levels, respectively.

Table 22 presents the 2SLS results for effects of the seminar on the composite index of export preparation activities. In column (1), we simply estimate the effect of the dummy for participation in any seminar without incorporating the dummy for participation in the e-customs class, which we found insignificant. Furthermore, when we incorporate the e-customs dummy in column (2), we find that the effect of seminar participation is negative and insignificant, whereas the effect of the e-customs class is positive and significant. In this case, the Kleibergen-Paap Wald rk F statistic is 5.96, which is below the critical value for the 10-% maximal size but above that for the 15-% size. Therefore, the instruments are still not very weak in this estimation.

Table 22. Impacts of the Seminars on Preparation for Exporting Activity

| | (1) | (2) | (3) | (4) |
|--|--|------------------------|---------------------------------------|------------------------|
| Dependent variable | Index for preparation for exporting activity | | Dummy for accessing e-customs website | |
| Dummy for participation in any seminar | 0.0475 (0.0929) | -0.1723 (0.1173) | 0.0015 (0.1035) | -0.2651** (0.1233) |
| Dummy for participation in e-customs class | | 0.2777*** (0.0617) | | 0.3368** (0.1693) |
| Number of subcontractors (log) | 0.0033 (0.0088) | 0.0035 (0.0080) | -0.0118** (0.0050) | -0.0115*** (0.0037) |
| Number of workers (log) | 0.0297*** (0.0062) | 0.0298*** (0.0082) | 0.0561** (0.0270) | 0.0563** (0.0232) |
| Dummy for multi-establishments | 0.0363** (0.0166) | 0.0432** (0.0219) | -0.0225 (0.0309) | -0.0141 (0.0259) |
| Dummy for top manager's living outside the current province | 0.0024 (0.0179) | -0.0011 (0.0184) | 0.0051 (0.0268) | 0.0008 (0.0276) |
| Top manager's education level (0 = no degree, 7 = graduate school) | -0.0029 (0.0131) | -0.0037 (0.0129) | 0.0002 (0.0117) | -0.0008 (0.0118) |
| Number of business-related memberships | 0.0002 (0.0005) | 0.0001 (0.0005) | -0.0001 (0.0002) | -0.0001 (0.0002) |
| Sales from domestic market in 2014 (%) | -0.0012*** (0.0004) | -0.0011*** (0.0004) | -0.0011* (0.0007) | -0.0010 (0.0006) |
| Dummy for export experiences | 0.0652** (0.0310) | 0.0508 (0.0341) | 0.1271 (0.0971) | 0.1096 (0.0925) |
| Dummy for export in 2014 | 0.0309 (0.0538) | 0.0453 (0.0488) | 0.1154 (0.1753) | 0.1330 (0.1652) |
| Observations | 248 | 248 | 248 | 248 |
| R-squared | 0.190 | 0.217 | 0.187 | 0.201 |
| H0: total effect of participation in seminars with e-customs class = 0 (<i>p</i> value) | | 0.2146 | | 0.5565 |

Notes: This table presents results from 2SLS estimations. Clustered robust standard errors by villages are quoted in parentheses. *, **, and *** signify the statistical significance at the 10-, 5-, and 1-% levels, respectively.

Because the total effect of the seminars with the e-customs class (i.e., the seminars on the second and third day) is the sum of the two effects, we further test the null hypothesis that the total effect is zero using a Wald test. The *p*-value from the Wald test is shown in the bottom row, indicating that we cannot reject the null hypothesis. Thus, the effect of any seminar is found to be insignificant.

To examine the effects of the seminar on a more direct outcome that the seminar explicitly addressed, the dummy variable for accessing the website of e-customs is shown in columns (3) and (4) of Table 22. As for the result regarding the composite index, the overall effect of participation in one of the seminars on accessing the e-customs website is insignificant (column [3]). When the dummy for the e-customs class is incorporated, the effect of the participation dummy becomes negative and

significant, whereas the effect of the e-customs class is positive and significant. However, the total effect of the seminars with the e-customs class, or the sum of the two effects, is not significantly different from zero, according to the p -value from the Wald test shown in the bottom row. Thus, the seminar on the first day without the class on e-customs discouraged participants' access to the e-customs website, whereas the seminar on the second and third days with the e-customs class had no negative or positive effect.

In addition, the effects of the seminars on perceptions of exporting activities are mostly insignificant. Columns (1) and (2), (3) and (4), and (5) and (6) in Table 23, respectively, list the effects of the seminars on the dummy for willingness to trade, the composite index of perception of difficulties of export procedures, and the degree of perception of customs as an obstacle to export. Except for the weakly significant positive effect of the participation dummy in column (2), the effect of the participation dummy or the e-customs dummy is insignificant. In column (2), the effect of the dummy for the e-customs class is negative, and we cannot reject the null hypothesis that the sum of the effects of the two treatment dummies is zero.

Finally, we estimate the effects of the seminars on the actual export performance, finding them insignificant in any specification, regardless of whether we focus on direct (columns [1] and [2] of Table 24) or indirect export (columns [3] and [4]).

Table 23. Impacts of the Seminars on Perception of Export Activity

| Dependent variable | (1) Dummy for willingness to export (1st differenced) | (2) 0.5224* | (3) Index of perception of difficulties of export procedures | (4) 0.1287 | (5) Index for perception of customs as obstacle (1st differenced) | (6) -0.1024 |
|---|--|-----------------------|---|------------------------|--|-----------------------|
| Dummy for participation in any seminar | 0.1862 (0.3031) | 0.5224* (0.3030) | 0.0376 (0.0678) | 0.1287 (0.0821) | 0.0376 (0.1334) | -0.1024 (0.1697) |
| Dummy for participation in e-customs class | | -0.4248 (0.4154) | | -0.1172 (0.1234) | | 0.1842 (0.2318) |
| Number of subcontractors (log) | -0.0255 (0.0292) | -0.0258 (0.0273) | -0.0126*** (0.0041) | -0.0127*** (0.0045) | 0.0046 (0.0149) | 0.0037 (0.0148) |
| Number of workers (log) | 0.0300 (0.0332) | 0.0299 (0.0321) | -0.0030 (0.0090) | -0.0027 (0.0092) | -0.0092 (0.0214) | -0.0082 (0.0214) |
| Dummy for multi-establishments | 0.0077 (0.1055) | -0.0029 (0.1134) | -0.0458** (0.0216) | -0.0452** (0.0200) | -0.1061** (0.0511) | -0.1049** (0.0503) |
| Dummy for top manager's living outside the current province | -0.2298** (0.0909) | -0.2245** (0.0901) | -0.0099 (0.0256) | -0.0084 (0.0265) | 0.0816*** (0.0270) | 0.0789*** (0.0257) |
| Top manager's education level (0 = no degree, 7 = graduate school) | 0.0539* (0.0313) | 0.0551* (0.0312) | -0.0016 (0.0108) | -0.0010 (0.0106) | -0.0151 (0.0203) | -0.0167 (0.0198) |
| Number of business-related memberships | 0.0046*** (0.0008) | 0.0047*** (0.0009) | 0.0003 (0.0004) | 0.0003 (0.0004) | -0.0004 (0.0003) | -0.0004 (0.0003) |
| Sales from domestic market in 2014 (%) | -0.0018 (0.0018) | -0.0020 (0.0017) | 0.0006 (0.0005) | 0.0005 (0.0006) | 0.0018** (0.0009) | 0.0020** (0.0009) |
| Dummy for export experiences | -0.2065*** (0.0709) | -0.1844** (0.0806) | 0.0180 (0.0640) | 0.0214 (0.0603) | 0.0232 (0.0810) | 0.0167 (0.0869) |
| Dummy for export in 2014 | 0.2189 (0.2252) | 0.1968 (0.2335) | 0.0336 (0.0448) | 0.0327 (0.0446) | 0.0795 (0.0937) | 0.0896 (0.0983) |
| Observations | 248 | 248 | 152 | 152 | 176 | 176 |
| R-squared | 0.054 | 0.046 | 0.228 | 0.240 | 0.056 | 0.055 |
| H0: total effect of participation in seminars with e-customs class = 0 (p value) | | 0.7793 | | 0.8957 | | 0.6191 |

Notes: This table presents results from 2SLS estimations. Clustered robust standard errors by villages are quoted in parentheses. *, **, and *** signify statistical significance at the 10-, 5-, and 1-% levels, respectively. The number of observations is smaller in columns 3 through 7 because many of the firms have never tried exporting; thus, they chose "Don't know" for perception questions.

Table 24. Impacts of the Seminars on Engaging in Export Activity

| | (1) | (2) | (3) | (4) |
|--|---|------------------------|---|------------------------|
| Dependent variable | Dummy for engaging in direct export (1st differenced) | | Dummy for engaging in indirect export (1st differenced) | |
| Dummy for participation in any seminar | 0.0499 (0.0621) | 0.1044 (0.1003) | -0.0783 (0.0752) | -0.2060 (0.1868) |
| Dummy for participation in e-customs class | | -0.0688 (0.1104) | | 0.1614 (0.2226) |
| Number of subcontractors (log) | 0.0061* (0.0034) | 0.0061* (0.0033) | 0.0051 (0.0106) | 0.0053 (0.0099) |
| Number of workers (log) | 0.0093 (0.0078) | 0.0093 (0.0082) | 0.0249* (0.0132) | 0.0249* (0.0147) |
| Dummy for multi-establishments | 0.0057 (0.0206) | 0.0040 (0.0215) | 0.0170 (0.0392) | 0.0211 (0.0419) |
| Dummy for top manager's living outside the current province | -0.0266 (0.0193) | -0.0258 (0.0203) | -0.0029 (0.0233) | -0.0049 (0.0247) |
| Top manager's education level (0 = no degree, 7 = graduate school) | -0.0060 (0.0099) | -0.0058 (0.0098) | -0.0191 (0.0144) | -0.0196 (0.0150) |
| Number of business-related memberships | 0.0001 (0.0002) | 0.0001 (0.0002) | -0.0003** (0.0002) | -0.0003* (0.0002) |
| Sales from domestic market in 2014 (%) | -0.0008** (0.0004) | -0.0009** (0.0003) | -0.0035*** (0.0012) | -0.0035*** (0.0013) |
| Dummy for export experiences | 0.1499 (0.1103) | 0.1535 (0.1099) | 0.0138 (0.0499) | 0.0054 (0.0560) |
| Dummy for export in 2014 | -0.3191*** (0.1201) | -0.3226*** (0.1193) | -0.4735*** (0.1388) | -0.4652*** (0.1492) |
| Observations | 248 | 248 | 248 | 248 |
| R-squared | 0.205 | 0.194 | 0.235 | 0.213 |
| H0: total effect of participation in seminars with e-customs class = 0 (<i>p</i> value) | | 0.6014 | | 0.6264 |

Notes: This table presents results from 2SLS estimations. Clustered robust standard errors by villages in parentheses. *, **, and *** signify statistical significance at the 10-, 5-, and 1-% levels, respectively.

3.6.2. Robustness Checks with Peer Effects

The benchmark results indicate that the effects of the seminars on export promotion in this study were mostly insignificant. One possible reason for this finding is that the effects diffused to non-participants through firm networks. Because our empirical strategy compares participants and non-participants to estimate the effects of the seminars, we underestimate their effects in the presence of such information diffusion. Thus, to check whether this is the case, we incorporate the number of each firm's information exchange partners who participated in any of the three seminars. Because participation of partners is endogenous, we instrument this variable by the number of partner firms

that were invited to the seminars and the average number of workers of the invited partner firms. We experimented with several other variables for the average of partner firms' attributes, but because we found that they are not significantly correlated with the number of participating partners, we dropped them from the set of instruments.

The results from the incorporation of this new endogenous regressor are summarized in Table 25. It should be noted that instruments may be weak in these estimations because the F statistics of excluded instruments in the first-stage regressions are 7.78, 6.66, and 5.47, and the Kleibergen-Paap Wald rk F statistic is 1.30. Therefore, the results may be biased and should be viewed with caution. We find that although the number of participating partners has a significant effect on some of the outcome variables, the effect of the participation dummy and the e-customs class dummy does not change compared with the benchmark results in Tables 22-24. It is somewhat hard to interpret the results because they indicate that the seminars did not directly affect participants but affected non-participants indirectly through information diffusion. Because these inconsistent results may be due to weak instruments, we will not argue further whether information spilled over from participants to non-participants. Rather, we close this sub-section by emphasizing that our benchmark results remain even after incorporating the possibility of information spillovers.

Table 25. Estimation of Information Spillovers

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|--|--|--|--|---|---|--|--|
| | Index for preparation for exporting activity | Dummy for accessing e-customs website | Dummy for willingness to export (1st differenced) | Index of perception of difficulties of export procedures | Index for perception of customs as obstacle (1st differenced) | Dummy for engaging in direct export (1st differenced) | Dummy for engaging in indirect export (1st differenced) |
| Dummy for participation in any seminar | -0.2212*** (0.0776) | -0.2277*** (0.0659) | 0.3144 (0.3621) | 0.1288 (0.0979) | -0.1572 (0.1155) | 0.0930 (0.0833) | -0.1091 (0.1867) |
| Dummy for participation in e-customs class | 0.2717*** (0.0730) | 0.3135* (0.1724) | -0.4357 (0.4681) | -0.0583 (0.1607) | 0.2469 (0.2437) | -0.0192 (0.1229) | 0.2170 (0.2288) |
| Number of participating partners | -0.0238 (0.0363) | -0.0162 (0.0511) | -0.1004 (0.1684) | 0.0790*** (0.0223) | 0.0903 (0.1113) | 0.0463** (0.0232) | 0.0843* (0.0435) |
| Firm characteristics | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 245 | 245 | 245 | 149 | 173 | 245 | 245 |

Notes: This table presents results from 2SLS estimations. Clustered robust standard errors by villages are quoted in parentheses. *, **, and *** signify statistical significance at the 10-, 5-, and 1-% levels, respectively. The F statistics of excluded instruments from the first stage regression are 7.78, 6.66, and 5.47.

3.6.3.Heterogeneous Effects across Firm Size

We have so far estimated the average effect of the seminars. However, the effects of the seminars may be heterogeneous across firms, depending on firm characteristics. To check whether this is the case, we incorporate interaction terms between the dummy for participation in the seminars and a number of variables for firm characteristics prior to the seminars. We find that the interaction terms with two variables, the number of subcontractors (a measure of firm size) and the dummy for prior export experience, result in a significant effect on some outcome variables at the five-% level. We show the results with any statistical significance using the two variables in Table 26 but omit other results for brevity. In all specifications, the Kleibergen-Paap Wald rk F statistic is greater than its critical value for the 15-% maximal size, and thus the instruments are not weak.

Column (1) in Table 26 indicates that after incorporating the interaction term with the number of subcontractors in the regression of the index of preparation for export, the coefficient for the participation dummy or the interaction term is not significantly different from zero. We further test the null hypothesis that the total effect of participation is zero for a hypothetical firm of the average size and that of the top 10% firm in terms of the number of subcontractors. The average and the top 10% of the number of subcontractors is 20 and 50, respectively, whereas their logs are 2.99 and 3.91. There are two top-10% firms in our sample that utilize 50 subcontractors, and the number of workers of the two is seven and 22. Therefore, the top-10% firms are very large in our sample but not so in standard classifications. The p -values from Wald tests provided in the middle rows of Table 26 show that the effect of participation on the index of preparation for export for top-10% firms is significantly different from zero, whereas the effect for the average firm is insignificant.

Table 26. Heterogeneous Effects across Firms

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
|--|---|---------------------|---|--------------------|--|---------------------|---|----------------------|---|-----------------------|--|---------------------|
| | Index for preparation for exporting activity | | Dummy for willingness to export (1st differenced) | | Index for perception of customs as obstacle (1st differenced) | | Dummy for engaging in direct export (1st differenced) | | Dummy for engaging in indirect export (1st differenced) | | Dummy for preference for direct to indirect export | |
| Participation dummy | -0.0721 (0.1780) | 0.0958 (0.1439) | -0.1223 (0.4128) | 0.0971 (0.3776) | -0.1091 (0.1831) | 0.0440 (0.1671) | -0.0143 (0.0581) | -0.0301 (0.0615) | -0.2111* (0.1273) | -0.0273 (0.0802) | -0.3647 (0.3587) | -0.0801 (0.3210) |
| Participation dummy * number of subcontractors (log) | 0.0718 (0.0527) | | 0.1851* (0.1108) | | 0.0989* (0.0563) | | 0.0385** (0.0152) | | 0.0797 (0.0678) | | 0.3214*** (0.1206) | |
| Participation dummy * dummy for export experiences | | -0.1587 (0.2210) | | 0.2930 (0.4141) | | -0.0193 (0.1930) | | 0.2630** (0.1334) | | -0.1676** (0.0783) | | 0.8255* (0.4666) |
| Wald statistic (<i>p</i> value) | | | | | | | | | | | | |
| H0: Total effect for average firms is 0. | 0.826 | | 0.699 | | 0.856 | | 0.507 | | 0.127 | | 0.754 | |
| H0: Total effect for top 10% firms is 0. | 0.00147 | | 0.0746 | | 0.0529 | | 0.0597 | | 0.553 | | 1.28e-05 | |
| H0: Total effect for firms with export experience is 0. | | 0.667 | | 0.205 | | 0.870 | | 0.0334 | | 0.123 | | 0.000697 |
| Observations | 248 | 248 | 248 | 248 | 176 | 176 | 248 | 248 | 248 | 248 | 248 | 248 |
| R-squared | 0.157 | 0.160 | 0.052 | 0.058 | 0.017 | 0.056 | 0.190 | 0.122 | 0.231 | 0.215 | -0.021 | 0.047 |

Notes: This table presents results from 2SLS estimations. Clustered robust standard errors are quoted in parentheses. *, **, and *** signify the statistical significance at the 10-, 5-, and 1-% levels, respectively.

One concern may be why the number of subcontractors is effective in promoting the impact of the seminars, whereas the number of workers, another measure of firm size, is not. The subcontracting system has been historically developed in these traditional apparel clusters such that some firms effectively utilize subcontractors and minimize the use of their own workers to maximize their profits. Therefore, the number of subcontractors may be more closely correlated with what is required for exporting, e.g., the productivity level and absorptive capacity than the number of workers within the firm. In addition, this subcontracting system is a unique feature of Vietnamese village cluster in a sense that it brings mutual benefits to both parties. Against ample studies which suggest negative findings of the effects of informal subcontracting, Goto (2013) argues that such subcontracting ties between firms could have positive effects as observed in the domestic garment sector in Vietnam. The Vietnamese subcontracting system builds upon reciprocity. It allows original contractors secure profit through low processing fee payments and realize high returns and profit levels. In return, they provide informal capital such as loans and sewing machines to subcontractors, which are critical for smaller household enterprises or subcontractors.

Furthermore, as shown in columns (1) and (2) of Table 22, companies with a large pool of workers have the ability to prepare for export; thus, the effect of seminars is not significant. On the other hand, firms with a large number of subcontractors do not rely on their own workers for production and therefore lack human resources to gather information about overseas buyers and markets and prepare for exports. For this reason, the seminar appears to be more effective among firms with large numbers of subcontractors rather than large numbers of workers.

3.7. Discussion

Based on the empirical results above, we conclude that the seminars on export promotion did not affect most firms but rather affected only large firms and firms with prior export experience. Because the participants were mostly satisfied with the seminars and learned information about exporting activity (Section 3.3.3), it is less likely that the mostly insignificant effects are due to low quality of the seminars.

Why, then, were the seminars effective only for large or experienced firms? It should be emphasized that our target firms are mostly traditional SMEs in a less developed country. Therefore, most firms in our sample were underdeveloped and not ready for exporting. However, large or experienced firms were more likely to be characterized by high productivity, absorptive capacity, and product quality; thus, once they were provided necessary information, they could overcome informational barriers and (re-)enter export markets. Therefore, our results are consistent with Melitz (2003), who emphasizes the importance of the productivity level in engagement in exporting activity. Our results also suggest that information provision is helpful to productive firms. This is consistent with the recent empirical studies that found positive effects of information spillovers from neighbors (Bernard and Jensen, 2004; Okubo and Tomiura, 2015; Todo, 2011) and information provision by public institutions (Volpe Martincus and Carballo, 2008, 2010) on exporting activity. In summary, our findings suggest that improvements in productivity, managerial ability, and product quality are more important for underdeveloped firms, particularly in less-developed countries, to enter foreign markets, although information provision should be effective for more advanced firms.

Another implication from this study is that export procedures are too complicated for most firms. This conjecture is supported by some of our results showing negative effects of the seminars on export promotion in some specifications. For example, the seminar on the first day without the e-customs class decreased participants' propensity to access to the e-customs website (column [4] of Table 22), and large participant firms were more likely to perceive customs as an obstacle to exporting (column [5] of Table 26). Breinlich et al. (2016) also found that brochures regarding export promotion in the United Kingdom had an adverse effect on recipient firms' perceptions of exporting activity. Their results and ours suggest that when detailed information about exporting is provided, firms that did not know procedures for exporting realized their complications and difficulties and were discouraged from taking actions to start exporting. If export procedures are too complicated for most firms, utilization of intermediaries, such as trading firms, should encourage such firms' indirect export. Recent studies such as Ahn et al. (2011) and

Bernard et al. (2011) reveal the role of intermediaries in facilitating international trade. Our results imply that policy support to foster indirect export, such as matching producers with intermediaries, rather than giving direct support to producers, may be a more effective means of export promotion when the absorptive capacity of producers is too low.

An important policy implication of this study is that provision of information about exporting activity by public institutions works only when the productivity level and absorptive capacity of firms are sufficiently high to penetrate foreign markets. In contrast, for underdeveloped firms, policies for productivity improvement should be developed prior to obtaining informational support. Alternatively, policies should encourage intermediaries for international trade to increase the indirect exports of firms that perceive export procedures as too difficult and complicated.

The effect of the interaction term with the number of subcontractors on willingness to export is positive and significant at the 10-% level, whereas the effect of the participation dummy is negative and insignificant (column [3] of Table 26). According to the p values from the Wald tests, the effect of participation on willingness to trade is insignificant for average-sized firms but positive and significant for the largest 10 % of firms at the 10-% level. Similarly, the effect of participation for the largest 10 % of firms is positive and significant on the index for the perception of customs as an obstacle to trade and the dummy for direct export, although its effect for smaller firms is absent (columns [5] and [7]). These results suggest that our seminars stimulated large firms' preparation and willingness to export and promoted engagement in direct export, although they perceive greater difficulties in customs procedures. The effect of the interaction term between the participation dummy and the dummy for export experience on direct export is positive and significant (column [8] of Table 26), whereas its effect on indirect export is negative and significant (column [10]). We test whether the total effect of participation for experienced firms is zero using the Wald tests; we find that it is positive and significant on direct export but insignificant on indirect export. To be more precise, because we use first-differenced dummies for direct and indirect export, we examine effects of the seminars on the change in the export status. Therefore,

these results suggest that current non-exporters with prior export experience are encouraged to (re-)start direct exporting by participation in the seminars, possibly switching from indirect to direct export. To examine possible substitution from indirect to direct export, we run a similar 2SLS regression using the dummy variable for preference for direct rather than indirect export and show the result in column (12) of Table 26. The result clearly shows that by participating in the seminars, firms with export experience became more likely to prefer direct export.

4. THE EFFECTS OF INFORMATION FROM GOVERNMENT ON EXPORT OF SMEs USING FIMR-LEVEL DATA

4.1. Study Context: Information Accessibility in Vietnam

4.1.1. Government as a Source of Information

Since Vietnam officially announced its new national policy toward a "socialist-oriented market economy" in 1986, the private sector rapidly expanded its size and importance in the economy. The legal institution supporting private sector was also established. The cornerstone defining the legal jurisdiction of private entities is Enterprise Law in 2000. Before this law gave legal recognition to private companies, the private sector faced many restrictions and hostile attitudes from the bureaucrats. Furthermore, weak institutional setting with respect to protection of property rights and contracts enforcement through court system prevailed throughout the 1990s (Steer and Sen, 2010).

In addition to the lack of institutional framework due to a short history of the private sector recognition, private companies suffer from information asymmetry. Business service firms providing consulting or market information are at an early stage. Firms in Vietnam regard information searching activities as high costs and risks. While the market for business information is not actively developing in Vietnam, the Vietnamese government is also passive in terms of publicity of data and information.

According to Tran et al. (2009) who review various surveys targeting Vietnamese companies, a lack of market information was one of the most important constraints to firm growth. Entrepreneurs often complain the inability to find information on inputs, outputs, suppliers, buyers, price and price trend. Entrepreneurs search information via friends and relatives but regard this method time-consuming.

Then, to what extent, is the government providing information to the public in Vietnam? Open Data Barometer sponsored by Open Data for Development program publishes scores and ranking of open data initiatives of 93 governments in the world using the expert survey questions and secondary data (OpenDataBarometer, 2015). Vietnam ranked 57th out of 93 countries, and the score is 18.3 out of 100. There was almost no change from 2014 to 2015.

Individual scores which make up the Open Data Barometer offer a more detailed insight of the role of the Vietnamese government as information and data provider. For example, the first seven questions illustrate that the government's action and policy for making information public are insufficient, sometimes missing. Also, the next question tells that the entrepreneurs cannot create new business opportunities using the information provided by the government.

Table 27. Vietnam's Open Data Barometer Scores in 2015

| Criteria | Score |
|--|--------|
| To what extent is there a well-defined open data policy and/or strategy in the country? | 1/10 |
| To what extent is there a consistent (open) data management and publication approach? | 1/10 |
| To what extent is there a well-resourced open government data initiative in this country? | 1/10 |
| To what extent are city or regional governments running their own open data initiatives? | 0/10 |
| To what extent is training available for individuals or businesses wishing to increase their skills or build businesses to use open data? | 2/10 |
| To what extent is government directly supporting a culture of innovation with open data through competitions, grants or other support? | 2/10 |
| To what extent does the country have a functioning right-to-information law? | 1/10 |
| What extent are entrepreneurs successfully using open data to build new businesses in the country | 0/10 |
| (Secondary data): UN E-Government Survey, Government online services index (2014 edition) Entrepreneurs and businesses | 0.42/1 |
| A list of registered (limited liability) companies in the country including name, unique identifier and additional information such as address, registered activities. The data in this category does not need to include detailed financial data such as balance sheet etc. | 15/100 |

Source: Open Data Barometer (2015), retrieved from <http://opendatabarometer.org/3rdEdition/data/>

However, for business planning and investment, it is essential that the government provides necessary information which an individual firm cannot afford to get. Also, information regarding the business-related policy should be made public to ensure predictability and accountability. According to Malesky et al. (2015), public posting of planning documents is strongly associated with higher investment across a range of different specifications. Similarly, it is found that provision of market information has been positively improving firm performances in Vietnam (Tran et al., 2009).

4.1.2.Social capital and Informal Institution

As investigated in the previous sub-section, companies in Vietnam commonly face the problem of lack of information. Partially it is attributed to low capacity and lack of initiative of the government to make

information and data public for the private uses. Then how do Vietnamese firms gather necessary information for their businesses? One answer to this question is informal institutions.

Many studies discover evidence for the essential role played by informal institutions in facilitating the growth of private sectors. Informal institutions can provide loans to capital-deficient firms without access to formal loans. Goto (2013) observes that information institution is a major source of credit supply in a buyer and supplier network. However, these informal lines of credit based on personal ties are a rare case and also involve a high risk.

Other types of social capital, such as Women's Union and Farmer's Union also provide business opportunities. Based on the household survey in Vietnam, Kinghan and Newman (2015) finds that a membership at the Women's Union leads to a higher probability of operating micro-enterprise. If the household has a membership at Farmer's Union and runs a business, the firm yields higher profitability than those without membership. The effects of membership are bigger for lower income households. In addition to membership, family and friends ties are another strong source of social capital in Vietnam. Having a relative in a political or bureaucratic position increases the chance of running the business. However, those who have a relative in the government experience lower profitability. The authors explain that the negative impact of political connections may be a sign of hidden cost or market distortion. Political connection may have allowed those who are not productive enough to remain in the market based on political rents.

Another paper which investigates political connection as a social capital is Markussen and Tarp (2014). They estimate the effect of having a relative in a position of political power on household's investment in land improvements. The effect is positive and significant because such family ties strengthen land property rights and give more access to credit and transfers through gifts. Both land and capital are tightly controlled by the government in rural Vietnam where they conducted the survey and political ties increase chances of getting more resources.

Finally, Steer and Sen (2010) ask the sources of business partners' information to Vietnamese enterprises. The most famous source of trading partner search was informal institutions such as friends, family, and personal relations. While 67% of the respondents rely on personal ties for information, people who choose the government agency as a source of business partner information are only 4%. Thus, informal institutions are a crucial alternative source of information and other resources such as capital and land in Vietnam where the government does not provide much necessary business information to the public.

4.2. Estimation Model

As the previous sub-section 4.1 points out, information is expensive especially for the SMEs which do not have enough resources and cannot afford to bear the cost of information searching. Also, the market for business services and market research services is still small and underdeveloped in developing countries. Thus, SMEs must rely on publicly available information which is mostly provided by the government in case of developing countries. However, due to lack of capacity and political will, the Vietnamese government does not provide information for business usages. Based on these observations, the hypothesis of this chapter is that firms which have political connections and get information from the government are more likely to export as they can reduce cost from information asymmetry.

This study attempts to find the impact of receiving information from the government on the trade performances. In the estimation strategy, it is necessary to check if there is any correlation between personal ties to politicians or bureaucrats and chances of getting information from the government. The hypothesis is that firm i whose owner is personally connected with government officials and bureaucrats are more likely to receive information from the government at time t .

$$\begin{aligned}
(6) \quad & \text{Dummy}(\text{Information})_{it} \\
&= \beta_1 \text{Dummy}(\text{Political_connection})_{it} \\
&+ \beta_2 \ln \text{Subcontractors}_{it} + \beta_3 \ln \text{Workers}_{it} \\
&+ \beta_4 \text{Membership}_{it} + \beta_5 \text{Dummy}(\text{Other_membership})_{it} \\
&+ \beta_6 \text{Transportation}_{it} + \beta_7 \text{Dummy}(\text{Seminar})_{it} + \alpha_i + \alpha_t \\
&+ \varepsilon_{it}
\end{aligned}$$

Since the data is two-period panel, I estimate the β_1 using OLS. To eliminate any unobserved firm characteristics which may be endogenous to getting more information from the government, the firm fixed-effect α_i is included. Also, because of informational seminar which I introduced in the previous chapter may cause firms to seek information from the government, I control for the year fixed effect as well as seminar participation dummy. Other control variables include the number of subcontractors, the number of workers, the number of business-related association membership, the dummy for other types of membership, and the perception of transportation as a trade obstacle. The number of subcontractors and workers control for the size of firms as well as productive capacity. The number of business association membership and other types of membership control for the alternative source of personal ties and business information. Perception of transportation as an obstacle to trade is used as a proxy for cost of information as well as cost of trade.

In addition to measuring the impact of information, I also compare the impact of having political connections on getting any support from the government.

$$\begin{aligned}
(7) \quad & \text{Dummy}(\text{GovernmentSupport})_{it} \\
& = \beta_1 \text{Dummy}(\text{Political_connection})_{it} \\
& + \beta_2 \ln \text{Subcontractors}_{it} + \beta_3 \ln \text{Workers}_{it} \\
& + \beta_4 \text{Membership}_{it} + \beta_5 \text{Dummy}(\text{Other_membership})_{it} \\
& + \beta_6 \text{Transportation}_{it} + \beta_7 \text{Dummy}(\text{Seminar})_{it} + \alpha_i + \alpha_t \\
& + \varepsilon_{it}
\end{aligned}$$

Then, I distinguish the effect of information from the government from the effect of having political connections by putting them both variables as independent variables. I examine how political connection itself and getting information from the government affect the chances of engaging in direct export and indirect export using the following equation.

$$\begin{aligned}
(8) \quad & \text{Dummy}(\text{Export})_{it} \\
& = \beta_1 \text{Dummy}(\text{Political_connection})_{it} \\
& + \beta_2 \ln \text{Subcontractors}_{it} + \beta_3 \ln \text{Workers}_{it} \\
& + \beta_4 \text{Membership}_{it} + \beta_5 \text{Dummy}(\text{Other_membership})_{it} \\
& + \beta_6 \text{Transportation}_{it} + \beta_7 \text{Dummy}(\text{Seminar})_{it} \\
& + \beta_8 \text{Dummy}(\text{Information})_{it} + \alpha_i + \alpha_t + \varepsilon_{it}
\end{aligned}$$

4.3. Data

4.3.1. Sample Selection

The panel data are from 284 firms in 6 provinces of Vietnam, namely Hanoi, Bac Ninh, Hai Duong, Hung Yen, Ha Nam, and Thai Binh among 10 provinces in the Red River Delta (Figure 12). The firms are same as those who surveyed and experimented in the previous sector. To briefly revisit how the sample was

selected, I first identify all the village clusters using the Vietnam Enterprise Survey (VES) of 2010. This annual firm census collected by the General Statistical Office (GSO) allows me to spot 16 villages clusters where there are more than 5 registered firms in the apparel and textile industry (Figure 13).

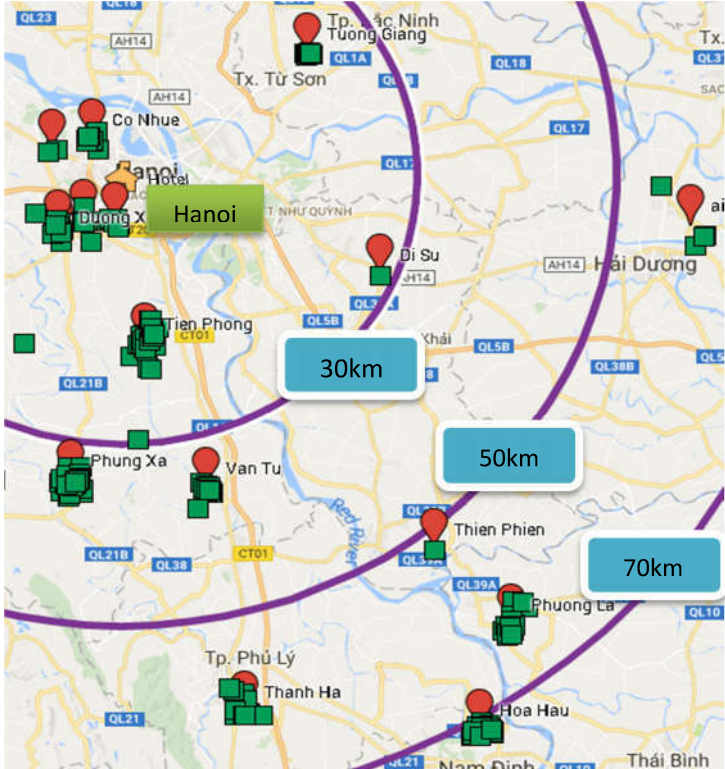
Although our sample is only consisting of formally registered firms with tax code since only registered firms can export directly, one village cluster is comprised of a large number of informal household enterprises. Although the number of firms varies from 1 firm to 74 firms, there is much larger number of informal firms which usually is connected to registered firms through the subcontracting system.

The reason for focusing on textile and apparel industries is that there is a high potential for the products of these villages such silk, towels, t-shirts, jackets, beddings, and sweaters to be exported. All these have at least one firm who had previously exported except for one village. 12 villages have at least one exporter in the last 6 years between 2010 and 2015 while 4 villages did not export in the same period.

Figure 13.



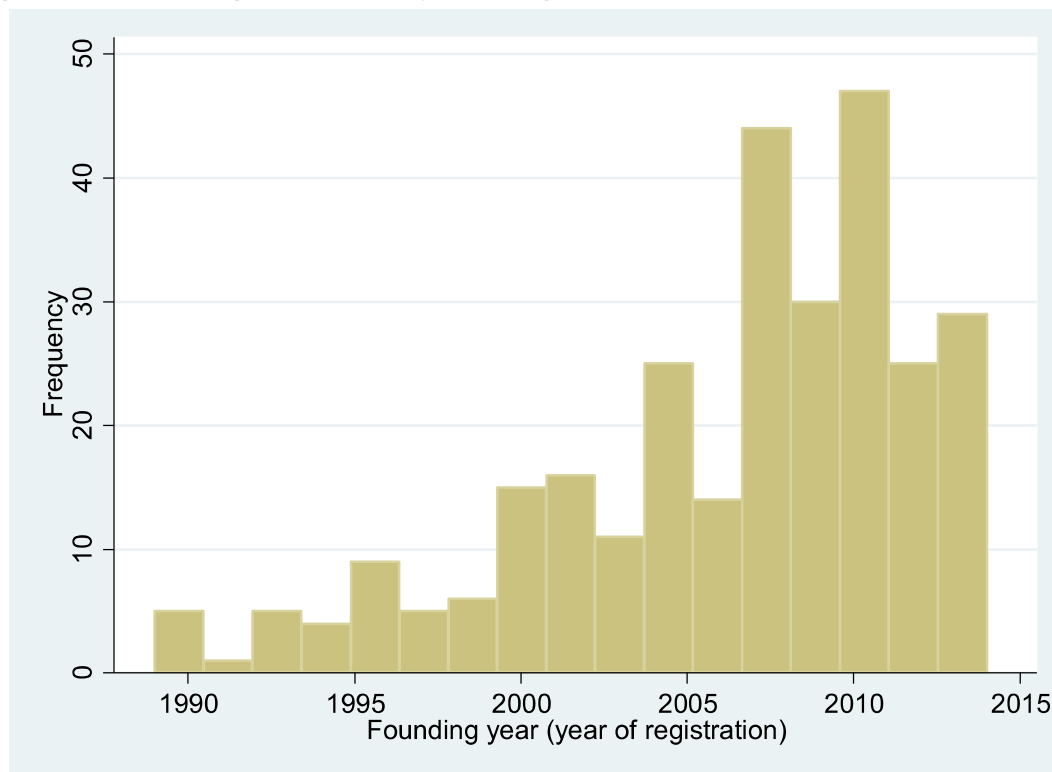
Figure 14.



4.3.2.Descriptive Statistics

This sub-section describes the general characteristics of firms in the analysis. First, the firms are relatively young. The average registration year was 2006. The oldest firm was registered in 1989, the year of Doi Moi when the private sector was first recognized by the country. The most of firms were registered after the Enterprise Law of 2000, the more concrete legal foundation for private entities entitling legal rights. However, the interviews with some firms suggest that they have been in the business longer as an informal enterprise.

Figure 15. Histogram of Firms by Founding Years



Descriptive statistics are shown in the table below. 19% of firms have a personal connection to the politicians or bureaucrats. The definition of a political connection is whether the respondent who is either top manager or the owner of the firm can contact a person in the government authority when he or she needs to. In Vietnam, there are three tiers of local governments: provincial, district and commune levels. The dummy does not distinguish the level of politicians or bureaucrats position. There are also two

ways to become a part of People's Committee which is the main government body of the communist party. The person either was elected from the local elections or was appointed from the higher authority. The person does not necessarily have to have the Party membership to be elected, but it is highly likely that the individual has the Party membership. Also, appointed personnel are from the Party. Since the country is a one-party state, no other party can be allowed in the government. Hence, the data does not distinguish party membership or whether the politicians are elected or appointed. There is another elected governmental body called People's Council which undertakes an oversight function vis-à-vis the People's Committee. Again, despite the different functions of the Committee and the Council, the data simply asks if the respondent can contact the person in any type of governmental apparatus. One reason for not specifying the level of type of government is because to make the respondent answer the question honestly. The dummy for political connection shows an increase between the two time periods. While 15% of firms have answered yes in 2014, 24% of firms have reported personal political ties.

Table 28. Share of Exporters and Share of Firms with Political Connection

| | 2014 | | | | | 2015 | | | | |
|---|------|-------|--------|-----|------|------|-------|-------|-----|------|
| | N | mean | sd | min | max | N | mean | sd | min | max |
| Dummy for political connection | 296 | 0.15 | 0.36 | 0 | 1 | 249 | 0.24 | 0.43 | 0 | 1 |
| Dummy for getting information from the government | 296 | 0.60 | 0.49 | 0 | 1 | 263 | 0.59 | 0.49 | 0 | 1 |
| Dummy for getting supports from the government | 296 | 0.19 | 0.39 | 0 | 1 | 263 | 0.20 | 0.40 | 0 | 1 |
| Number of subcontractors | 266 | 19.07 | 51.30 | 0 | 450 | 248 | 18.83 | 52.29 | 0 | 450 |
| Number of workers | 288 | 53.97 | 281.22 | 0 | 4596 | 263 | 35.89 | 94.19 | 0 | 1040 |
| Number of business-related memberships | 285 | 0.49 | 0.67 | 0 | 3 | 263 | 0.46 | 0.65 | 0 | 4 |
| Dummy for other types of membership | 296 | 0.13 | 0.33 | 0 | 1 | 262 | 0.16 | 0.37 | 0 | 1 |
| Perception of transportation as a trade obstacle | 292 | 1.75 | 1.19 | 1 | 5 | 199 | 1.35 | 0.88 | 1 | 5 |
| Dummy for the export seminar participation | 296 | 0.00 | 0.00 | 0 | 0 | 263 | 0.14 | 0.34 | 0 | 1 |

The share of firms which received information from the government is moderately high at 60%. This proportion did not change much between 2014 and 2015. The dummy for whether the firm has received any supports including tax holidays and land provision has a mean value of 20%. In 2014, the share was 19% while in 2015, the share slightly increased to 21%. Comparing the two dummies, it is

easier to get information than support because spreading information does not incur much fixed cost as well as the marginal cost for an additional firm compared to giving physical support such as land and capital.

The variance of the number of subcontractors and workers are large due to some big outliers. Thus, the natural logged variables are included in the estimation equation. Again, the sample firms are small and medium-sized as their mean value for the workers including both permanent and temporary workers are less than 50.

The respondents have 0.5 memberships at a business-related association in average. There are only 14% of respondents holding membership at non-business association such as sports club.

Perception of transportation as a trade obstacles ranges from 1 to 5. 1 means transportation is not an obstacle while 5 means it is a very severe obstacle to trade. This is a proxy for the infrastructure quality surrounding the firm. For this reason, this can also be a proxy for the cost of traveling, cost of getting information in person, and cost of export. The average firm owner feels transportation is either a no obstacle or a minor obstacle. Finally, the seminar participation dummy has a mean value of 6%.

The correlation matrix of all independent variables is presented in the table below. The correlation between political connection and getting information or support from the government is not too high at 0.1572 or 0.1337. Also, correlation between getting information and getting support from the government is 0.142. Other controls also seem to be not correlated to each other.

Table 29. Correlation Matrix of All Independent Variables

| | political connection | getting information from the government | getting supports from the government | Number of subcontractors | Number of workers | Number of business- related memberships | Dummy for other types of membership | Perception of transportation as a trade obstacle | Export seminar participat ion |
|---|-------------------------|---|--|--------------------------------|-------------------------|---|--|---|--|
| Dummy for political connection | 1 | | | | | | | | |
| Dummy for getting information from the government | 0.1572 | 1 | | | | | | | |
| Dummy for getting supports from the government | 0.1337 | 0.142 | 1 | | | | | | |
| Number of subcontractors | 0.0002 | 0.0348 | 0.0419 | 1 | | | | | |
| Number of workers | 0.1332 | 0.1116 | 0.138 | 0.1903 | 1 | | | | |
| Number of business-related memberships | -0.0365 | -0.0094 | -0.0332 | -0.0256 | 0.0198 | 1 | | | |
| Dummy for other types of membership | 0.1424 | 0.0552 | 0.0435 | -0.0871 | -0.0377 | -0.0229 | 1 | | |
| Perception of transportation as a trade obstacle | 0.0306 | -0.0384 | 0.0243 | -0.0264 | -0.0029 | 0.0444 | 0.06 | 1 | |
| Dummy for the export seminar participation | 0.103 | 0.0501 | 0.0529 | 0.0466 | -0.0088 | -0.0159 | 0.0759 | -0.0536 | 1 |

4.4. Results

4.4.1. Effects of Political Connection on Information

Using the two-year panel data of 264 firms, the results of OLS with firm fixed effects and year fixed effects are presented in Table 30. Columns (1) and (3) are based on fixed effects and columns (2) and (4) are random effects. The results suggest that if the firm has a political connection, the firm is more likely to receive some government supports. However, the politically connected firms do not necessarily have a higher chance of getting information from the government.

Table 30. The Effect of Political Connection to Getting the Government Support

| VARIABLES | (1) Support | (2) Support | (3) Information | (4) Information |
|-----------------------|-----------------------------------|-----------------------------------|----------------------------------|-----------------------------------|
| Political connection | 0.183** (0.0721) | 0.106** (0.0490) | 0.0919 (0.0981) | 0.142** (0.0583) |
| Subcontract | 0.0757 (0.0815) | -0.000533 (0.0135) | 0.0145 (0.111) | 0.00161 (0.0147) |
| Worker | 0.0454 (0.0462) | 0.0476*** (0.0177) | 0.0455 (0.0629) | 0.0687*** (0.0197) |
| Membership | 0.0961* (0.0507) | 0.0729** (0.0295) | 0.0247 (0.0691) | 0.0882*** (0.0342) |
| Other membership | 0.0707 (0.0796) | 0.00728 (0.0546) | -0.0313 (0.108) | 0.0266 (0.0653) |
| Transport as obstacle | -0.0246 (0.0241) | 0.00432 (0.0173) | -0.0107 (0.0328) | -0.0236 (0.0209) |
| Seminar participation | -0.00707 (0.111) | 0.0469 (0.0828) | 0.168 (0.152) | 0.0646 (0.1000) |
| 15.year | 0.0105 (0.0441) | 0.00678 (0.0383) | -0.0635 (0.0600) | -0.0205 (0.0496) |
| Constant | -0.0911 (0.196) | 0.00894 (0.0649) | 0.463* (0.267) | 0.376*** (0.0742) |
| Effects | Fixed | Random | Fixed | Random |
| Observations | 436 | 436 | 436 | 436 |
| R-squared | 0.086 | | 0.023 | |
| Number of id2 | 264 | 264 | 264 | 264 |
| Hausman p value | | 0.4859 | | 0.6242 |

Notes: Standard errors are quoted in parentheses. *, **, and *** signify the statistical significance at the 10-, 5-, and 1-% levels, respectively.

4.4.2. Effects of Information on Export

In this sub-section, the estimated results of the effect of information from the government as well as political connection and the government support on the export probability are presented. Column (1) to (4) of Table 31 use dummy for direct export as the dependent variable while column (5) to (8) use dummy for indirect export as the dependent variable.

Having political connections do not have any correlation to export opportunities in any specifications. Getting the government support also did not increase the chance of exporting either directly or indirectly.

If a firm has received information from the government, the firm may be in better position to export directly. The coefficient for getting information in column (4) shows a significant level at 5%. However, the significant is lost in the fixed effects model in column (3). Thus, it is unclear whether the information from the government has a consistent and robust positive effect in increasing export.

For indirect export, neither political connection nor supports from the government works. Also, even if the firm received information from the government, it does not affect the firm's indirect mode of export through trading companies. It is because firms exporting indirectly do not actively engage in marketing activities. The reason why these firms chose indirect mode over direct mode is to minimize the cost of searching as well as the risk of dealing with foreign buyers. Instead, these firms wait until the trading firms approach them. Thus, new information is not likely to affect the indirect export.

Finally, Table 32 shows the effect of political connection, government support, and information from the government on a willingness to trade. In line with the findings of Kinghan and Newman (2015), despite the actual productivity or export performances, politically connected firms are more willing to trade. This suggests that if politically connected firms have better access to resources and enjoy the high chance of getting government support so that they are ready to take more risks and more eager to expand their business.

Table 31. The Effect of Political Connection, Government Support, and Information from the Government on Export

| VARIABLES | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|-----------------------|----------------------|-----------------------|----------------------|-----------------------|---------------------|------------------------|---------------------|------------------------|
| | Direct Export | | | | Indirect Export | | | |
| Effects | Fixed | Random | Fixed | Random | Fixed | Random | Fixed | Random |
| Political connection | -0.0122 (0.0321) | -0.00894 (0.0283) | -0.0114 (0.0313) | -0.0111 (0.0280) | -0.0570 (0.0518) | -0.00447 (0.0320) | -0.0548 (0.0509) | -0.00393 (0.0321) |
| Government Support | 0.0236 (0.0336) | 0.0203 (0.0284) | | | 0.00675 (0.0534) | 0.00130 (0.0314) | | |
| Information | | | 0.0389 (0.0249) | 0.0419* (0.0223) | | | -0.0107 (0.0404) | -0.00295 (0.0265) |
| Subcontract | -0.0191 (0.0357) | 0.0565*** (0.0105) | -0.0179 (0.0353) | 0.0563*** (0.0105) | -0.0573 (0.0576) | 0.0302*** (0.00805) | -0.0566 (0.0574) | 0.0302*** (0.00805) |
| worker | -0.00920 (0.0202) | 0.0957*** (0.0124) | -0.00990 (0.0201) | 0.0938*** (0.0123) | 0.0563* (0.0327) | 0.0169 (0.0109) | 0.0571* (0.0326) | 0.0171 (0.0109) |
| Membership | 0.00170 (0.0224) | -0.0250 (0.0182) | 0.00300 (0.0220) | -0.0257 (0.0180) | -0.0116 (0.0361) | 0.00863 (0.0189) | -0.0107 (0.0358) | 0.00898 (0.0189) |
| Other membership | 0.0425 (0.0348) | 0.00612 (0.0310) | 0.0454 (0.0345) | 0.00731 (0.0308) | 0.00789 (0.0562) | -0.0523 (0.0357) | 0.00803 (0.0561) | -0.0522 (0.0357) |
| Transport as obstacle | 0.00881 (0.0105) | 0.00839 (0.00962) | 0.00864 (0.0104) | 0.00885 (0.00958) | 0.00730 (0.0170) | -0.000944 (0.0114) | 0.00702 (0.0170) | -0.00100 (0.0114) |
| Seminar participation | 0.0449 (0.0486) | 0.0758* (0.0453) | 0.0382 (0.0485) | 0.0708 (0.0452) | 0.0105 (0.0784) | 0.00344 (0.0547) | 0.0123 (0.0787) | 0.00371 (0.0547) |
| Dummy for 2015 | -0.00783 (0.0192) | 0.00904 (0.0189) | -0.00511 (0.0192) | 0.0112 (0.0188) | 0.0212 (0.0311) | 0.0412 (0.0271) | 0.0205 (0.0312) | 0.0412 (0.0271) |
| Constant | 0.174** (0.0855) | -0.233*** (0.0440) | 0.154* (0.0857) | -0.248*** (0.0448) | -0.00318 (0.138) | -0.0297 (0.0406) | 0.00115 (0.139) | -0.0286 (0.0418) |
| Observations | 436 | 436 | 436 | 436 | 436 | 436 | 436 | 436 |
| R-squared | 0.027 | | 0.038 | | 0.033 | | 0.034 | |
| Number of id2 | 264 | 264 | 264 | 264 | 264 | 264 | 264 | 264 |
| Hausman | 0.0000 | | 0.0000 | | 0.1822 | | 0.1816 | |

Notes: Standard errors are quoted in parentheses. *, **, and *** signify the statistical significance at the 10-, 5-, and 1-% levels, respectively.

Table 32. The Effect of Political Connection, Government Support, and Information from the Government on Willingness to Trade

| VARIABLES | (1) | (2) | (3) | (4) |
|-----------------------|----------------------|-----------------------|---------------------|-----------------------|
| | Willingness to trade | | | |
| Effects | Fixed | Random | Fixed | Random |
| Political connection | 0.161* (0.0921) | 0.0844 (0.0587) | 0.182** (0.0902) | 0.0961 (0.0588) |
| Government Support | 0.0677 (0.0979) | 0.0559 (0.0574) | | |
| Information | | | -0.0913 (0.0716) | -0.0428 (0.0480) |
| Subcontract | 0.102 (0.102) | 0.0261* (0.0154) | 0.108 (0.102) | 0.0263* (0.0154) |
| worker | 0.0144 (0.0581) | 0.0715*** (0.0206) | 0.0216 (0.0578) | 0.0770*** (0.0207) |
| Membership | 0.0993 (0.0643) | 0.0175 (0.0349) | 0.108* (0.0634) | 0.0252 (0.0350) |
| Other membership | 0.0223 (0.1000) | -0.0137 (0.0652) | 0.0242 (0.0994) | -0.0125 (0.0652) |
| Transport as obstacle | -0.0116 (0.0303) | 0.0168 (0.0208) | -0.0143 (0.0301) | 0.0162 (0.0208) |
| Seminar participation | 0.0809 (0.139) | 0.0970 (0.0994) | 0.0958 (0.140) | 0.103 (0.0995) |
| Dummy for 2015 | 0.130** (0.0553) | 0.183*** (0.0474) | 0.124** (0.0552) | 0.182*** (0.0474) |
| Constant | 0.220 (0.246) | 0.165** (0.0757) | 0.256 (0.247) | 0.181** (0.0779) |
| Observations | 436 | 436 | 436 | 436 |
| R-squared | 0.108 | | 0.114 | |
| Hausman | | 0.3170 | | 0.2386 |
| Number of id2 | 264 | 264 | 264 | 264 |

Notes: Standard errors are quoted in parentheses. *, **, and *** signify the statistical significance at the 10-, 5-, and 1-% levels, respectively.

4.5. Discussion

The Economic importance of informal connections where information is scarce and market for business information services did not fully develop is significant. Faster economic development may be possible if households without political connection can obtain the equal amount of information in addition to supports compared to those who are politically connected. To ensure such equal

distribution of information as well as support, stronger accountability by the officials required. Finally, increased amount of open information leads to the transparency of the government which is a critical factor in economic growth.

5. CONCLUSION

5.1. Summary

This dissertation combines empirical studies measuring the impact of export promotion programs at the country-level and firm-level. Although there are many important previous findings on this issue, the scope of export promotion programs may be different due to data availability. For example, for the country-level comparison, there must be aggregated data on export promotion programs for each country. To acquire the comparable input measures of export promotion programs, I use aid for trade for the country-level analysis. This includes all the development aid given from bilateral donors and international organizations for the purpose of trade development. So-called this aid for trade has been found that it is effective in lowering trade costs, and in turn, increasing the export value. However, the policy goal with the highest priority from the developing countries' perspective is export diversification. As many developing countries have highly concentrated export structure, relying on their national export and national income to a handful of commodities, trade ministries in developing countries urge to lower concentration with the help of aid for trade. However, this topic of export diversification is relatively overlooked. To fill this gap, I choose export diversification as an output of export promotion programs at the country level using aid for trade as an input.

The results of the country-level analysis can be summarized as follows. The system GMM estimation suggests that aid for trade as a whole does not appear to have a significant effect on export structure in the short-run. However, some categories, such as aid for trade targeting trade policy and regulations, aid provided as a grant, and aid from bilateral donors reduce the level of export concentration. These results are based on annual data, and to consider the longer-term effects, the same GMM regressions are performed using the new panel data which use the average of the three-year intervals of the annual panel. The results suggest that in this case, overall aid for trade does not have a significant positive impact on reducing export concentration. In contrast to the results using the annual data, this time, aid targeting trade policy and regulations loses its significance, and all the sub-components becomes ineffective.

Although this study does not find any significant relationship between aid for trade and export diversification, aid for trade may create various positive externalities that go beyond the specific areas of intervention such as technology transfers, networks among the major trade-related institutions, and disseminate best practices. Therefore, it can pose different lessons about development issues.

For the firm-level analysis, there also may be various types of export promotion programs. Most of the literature looking at the impact of export promotion services using firm-level data is government-sponsored programs. Examples of such programs include direct export subsidies and using services provided by export promotion agencies (EPAs). Nonetheless, the beneficiaries of such export promotion programs are not selected randomly so that it is not possible to measure the unbiased effects of the program. To avoid underestimation or overestimation caused by self-selection problems, I conducted a social experiment where the participants are randomly invited to the export promotion seminar. Export seminars are a common export promotion tool which disseminates information about export to firms.

To recall the results, the seminars on export promotion in our study had insignificant average effects on firms' preparation for, perception of, and engagement in exporting activity. However, we find that large firms and firms with prior experience in exporting were encouraged to (re-)start exporting by the seminars. Because larger or experienced firms are more likely to exhibit higher productivity and absorptive capacity, our results suggest that information provision is effective only when firms are equipped with sufficiently high productivity to compete in foreign markets. This is consistent with Melitz (2003), who emphasizes the importance of productivity in exporting decisions. Simultaneously, our results suggest that information barriers exist for firms with high productivity, which is consistent with the previous empirical studies. Therefore, our study implies that policies to encourage underdeveloped firms to export should focus on productivity improvement, whereas provision of information is effective for productive firms.

The second firm-level analysis investigates the role of government as a provider of information as well as support. First, I estimate whether government support or information from the

government is related to any personal connection of the firm owner or the top manager who responded the questionnaire. The results show that the firms with political ties have a better chance of getting government support. However, due to the weakness of the estimation model, the significance of the coefficient is a mere correlation at best.

Next, I also examine the role of information from the government on the actual export as well as indirect export and willingness to trade. Under the random-effect model, information from the government increases the probability of exporting directly by 5%. However, the effect is not consistent under the fixed-effects model.

While political connection, government support, and information from the government did not have any effect on indirect exporting, political connection increases the firms' willingness to trade. This is probably because politically connected firms have better access to resources and information so that the owners of such firm become more willing than those who do not have more access to additional resources. Nonetheless, more willing firms do not necessarily perform better in terms of actual exporting. Thus, politicians and the bureaucrats should be more accountable and transparent when choosing firms for government-sponsored export promotion programs. With regard to information provision, it does not entail a big variable cost to run the informational program, especially with the help of ICT (information, communication, and technology) development. Thus, to improve the efficiency of the export promotion programs, the government should improve the open data initiative and make the policy documents and data more available to the public.

5.2. Limitations

Although this dissertation attempts to measure the effects of various export promotion programs in developing countries by minimizing the possible endogeneity, there is still a possibility for biases due to both nature of data and methodologies. Regarding country-level data used in Chapter 2, aid for trade data does not cover the non-OECD members who now contribute a great deal of ODA to developing countries. This was because there is no data available which present the universal coverage of ODA by its purpose for donors outside OECD. Also, GMM results are sensitive to

specifications such as the number of lags, the number of instruments and a set of controls. In fact, some results did not pass some tests such as Hansen test regarding instrument variables.

For the firm-level analyses in Chapter 3 and 4, the data is collected from SMEs in several provinces in the Northern Vietnam. For this reason, the effect of information seminars or government supports to larger firms in the other parts of the world in other industries may be different. Still, the findings suggest that information provision is causing a higher chance of direct export is in line with many other previous studies. Also, the fact that this pattern was only visible among large and experienced firms hints that productivity is a prerequisite for export as firm heterogeneity model in trade dictates. Therefore, the external validity of policy implication holds in other settings. The estimation results do not explicitly measure the productivity such as output per labor or capital as the sales data or output data collected from the survey contain many missing and incorrect values. To assure that it is productivity which must precede information for successful export promotion, direct and correct productivity measure is necessary.

As for the methodology, RCT used in Chapter 3 takes advantage of random invitation status and use it as exogenous instrumental variables. However, due to low participation both in terms of absolute number and share, the F-stat of the first stage is lower than 10. So this method does not perfectly solve the problem of self-selection bias. Also, the large number of never-takers (those who were invited but refuse to participate) may be a reason behind insignificant seminar effect.

In case of Chapter 4, lack of valid external instruments to control for the endogeneity of political connection limits the interpretation to a mere correlation. To further develop this analysis into causality, there must be an exogenous variable which determines the political ties but not the firm performance independently. Such candidate may be family ties based on birth. Lastly, more detailed definition of political connection or government supports can provide more information about what works for export promotion.

5.3. Contribution

This dissertation is unique in a way that it provides a mix of macro-analysis and micro-analysis of export promotion programs based on empirical evidence. Looking at the country-level

panel data, the dissertation portrays a general trend of whether export promotion programs work or not. However, each country in developing countries is at the different development stage and has own country-specific problems (Hallaert et al., 2011). Thus, it is highly likely that there is a difference in the effectiveness of export promotion programs depending on country, type of aid, and industries. In such situation, macro-data by country cannot capture the difference across countries. As a complementary approach, the dissertation is followed by two micro-analyses based on firm-level data, accounting for country specificities.

REFERENCES

- Ahn, J., Khandelwal, A.K., Wei, S.-J., 2011. The Role of Intermediaries In Facilitating Trade. *Journal Of International Economics* 84, 73-85.
- Alvarez, R., 2004. Sources of Export Success In Small- And Medium-Sized Enterprises: The Impact Of Public Programs. *International Business Review* 13, 383-400.
- Amighini, A., Sanfilippo, M., 2014. Impact of South–South FDI and Trade On The Export Upgrading Of African Economies. *World Development* 64, 1-17.
- Amurgo-Pacheco, A., 2008. Patterns of Export Diversification in Developing Countries. World Bank. Policy Research Working Paper Series 4473, The World Bank.
- Angrist, J., Imbens, G., 1995. Identification and Estimation of Local Average Treatment Effects. National Bureau Of Economic Research Cambridge, Mass., USA.
- Angrist, J., Imbens, G., Rubin, D.B., 1996. Identification of Causal Effects Using Instrumental Variables. *Journal Of The American Statistical Association* 91, 444-455.
- Angrist, J., Pischke, J.-S., 2008. Mostly Harmless Econometrics: An Empiricist's Companion. Princeton University Press.
- Artopoulos, A., Friel, D., Hallak, J.C., 2013. Export Emergence of Differentiated Goods from Developing Countries: Export Pioneers and Business Practices in Argentina. *Journal of Development Economics* 105, 19-35.
- Balassa, B., 1978. Exports and Economic Growth. *Journal of Development Economics* 5, 181-189.
- Baldwin, R., 2016. The World Trade Organization and the Future of Multilateralism. *The Journal of Economic Perspectives* 30, 95-115.
- Baliamoune-Lutz, M., 2011. Growth By Destination (Where You Export Matters): Trade With China And Growth In African Countries. *African Development Review* 23, 202-218.
- Berge, L.I.O., Bjorvatn, K., Tungodden, B., 2014. Human and Financial Capital For Microenterprise Development: Evidence From A Field And Lab Experiment. *Management Science* 61, 707-722.
- Bernard, A.B., Grazi, M., Tomasi, C., 2011. Intermediaries In International Trade: Direct Versus Indirect Modes Of Export. NBER Working Paper No. 17711.
- Bernard, A.B., Jensen, J.B., 2004. Why Some Firms Export. *Review Of Economics And Statistics* 86, 561-569.
- Bertrand, M., Mullainathan, S., Shafir, E., 2004. A Behavioral-Economics View of Poverty. *The American Economic Review* 94, 419-423.
- Blalock, G., Gertler, P.J., 2004. Learning from Exporting Revisited in a Less Developed Setting. *Journal of Development Economics* 75, 397-416.
- Bloch, H., Sapsford, D., 2000. Whither The Terms of Trade? An Elaboration of the Prebisch-Singer Hypothesis. *Cambridge Journal of Economics* 24, 461-481.

- Bloom, N., Eifert, B., Mahajan, A., McKenzie, D., Roberts, J., 2013. Does Management Matter? Evidence from India. *The Quarterly Journal of Economics* 128, 1-51.
- Blundell, R., Bond, S., 1998. Initial Conditions and Moment Restrictions In Dynamic Panel Data Models. *Journal Of Econometrics* 87, 115-143.
- Bourguignon, F., Sundberg, M., 2007. Aid Effectiveness: Opening the Black Box. *The American Economic Review*, 316-321.
- Breinlich, H., Donaldson, D., Nolen, P.J., Wright, G.C., 2016. Information, Perceptions and Exporting-Evidence from A Randomized Controlled Trial. University of Essex Working Paper.
- Brenton, P., Von Uexkull, E., 2009. Product Specific Technical Assistance For Exports—Has It Been Effective? *The Journal of International Trade & Economic Development* 18, 235-254.
- Burnside, C., Dollar, D., 2000. Aid, Policies, and Growth. *The American Economic Review* 90, 847-868.
- Burnside, C., Dollar, D., 2004. Aid, Policies, and Growth: Reply. *The American Economic Review* 94, 781-784.
- Cadot, O., Carrère, C., Strauss-Kahn, V., 2011. Export Diversification: What's Behind The Hump? *Review Of Economics And Statistics* 93, 590-605.
- Cadot, O., Fernandes, A., Gourdon, J., Mattoo, A., Melo, J., 2014. Evaluating Aid for Trade: A Survey Of Recent Studies. *The World Economy* 37, 516-529.
- Cali, M., Te Velde, D.W., 2011. Does Aid For Trade Really Improve Trade Performance? *World Development* 39, 725-740.
- Cassimon, D., Van Campenhout, B., 2007. Aid Effectiveness, Debt Relief and Public Finance Response: Evidence from A Panel Of HIPC Countries. *Review of World Economics* 143, 742-763.
- Claessens, S., Cassimon, D., Van Campenhout, B., 2009. Evidence on Changes in Aid Allocation Criteria. *The World Bank Economic Review* 23, 185-208.
- Currie, J., 2004. The Take Up of Social Benefits. National Bureau of Economic Research.
- Dalgaard, C.-J., Hansen, H., Tarp, F., 2004. On The Empirics of Foreign Aid And Growth. *The Economic Journal* 114, 191-216.
- Duflo, E., Glennerster, R., Kremer, M., 2008. Using Randomization In Development Economics Research: A Toolkit, In: Schultz, T.W., Strauss, J. (Eds.), *Handbook Of Development Economics* 4. North Holland, Amsterdam, 3895–3962.
- Durmuşoğlu, S.S., Apfelthaler, G., Nayir, D.Z., Alvarez, R., Mughan, T., 2012. The Effect of Government-Designed Export Promotion Service Use On Small And Medium-Sized Enterprise Goal Achievement: A Multidimensional View Of Export Performance. *Industrial Marketing Management* 41, 680-691.
- Eaton, J., Eslava, M., Kugler, M., Tybout, J., 2007. Export Dynamics In Colombia: Firm-Level Evidence. National Bureau Of Economic Research.

- Faccio, M., 2006. Politically Connected Firms. *The American Economic Review* 96, 369-386.
- Feder, G., 1983. On Exports and Economic Growth. *Journal of Development Economics* 12, 59-73.
- Feenstra, R., Kee, H.L., 2004. On The Measurement of Product Variety in Trade. *American Economic Review*, 145-149.
- Feenstra, R., Kee, H.L., 2008. Export Variety and Country Productivity: Estimating The Monopolistic Competition Model With Endogenous Productivity. *Journal Of International Economics* 74, 500-518.
- Frankel, J.A., Romer, D., 1999. Does Trade Cause Growth? *American Economic Review* 89, 379-399.
- Gleditsch, N.P., Wallensteen, P., Eriksson, M., Sollenberg, M., Strand, H., 2002. Armed Conflict 1946-2001: A New Dataset. *Journal of Peace Research* 39, 615-637.
- Görg, H., Henry, M., Strobl, E., 2008. Grant Support and Exporting Activity. *The Review of Economics and Statistics* 90, 168-174.
- Goto, K., 2013. Social Networks, Informal Trade Credit and Its Effects on Business Growth: Evidence from The Local Garment Trade In Vietnam. *Journal of the Asia Pacific Economy* 18, 382-395.
- Goto, K., 2013. Starting Businesses Through Reciprocal Informal Subcontracting: Evidence From The Informal Garment Industry In Ho Chi Minh City. *Journal Of International Development* 25, 562-582.
- Gounder, R., 2001. Aid-Growth Nexus: Empirical Evidence from Fiji. *Applied Economics* 33, 1009-1019.
- Gourdon, J., 2010. FDI Flows And Export Diversification: Looking At Extensive And Intensive Margins, In: Lopez-Calix, J.R., Walkenhorst, P., Diop, N. (Eds.), *Trade Competitiveness Of The Middle East And North Africa: Policies For Export Diversification*. World Bank Publications, Washington, DC, Pp. 13-46.
- Habiyaremye, A., Ziesemer, T., 2006. Absorptive Capacity And Export Diversification In Sub-Saharan African Countries. UNU-MERIT, Maastricht.
- Hallaert, J., Cavazos Cepeda, R., Kang, G., 2011. Estimating the Constraints To Trade Of Developing Countries. *OECD Trade Policy Papers* 116.
- Hallaert, J.-J., 2006. A History Of Empirical Literature On The Relationship Between Trade And Growth. *Mondes En Développement*, 63-77.
- Hansen, H., Tarp, F., 2000. Aid Effectiveness Disputed, In: Tarp, F. (Ed.), *Foreign Aid And Development: Lessons Learnt And Directions For The Future*. Routledge, London, Pp. 78-99.
- Harvey, D.I., Kellard, N.M., Madsen, J.B., Wohar, M.E., 2010. The Prebisch-Singer Hypothesis: Four Centuries of Evidence. *Review of Economics And Statistics* 92, 367-377.
- Hausmann, R., Hidalgo, C.A., Bustos, S., Coscia, M., Simoes, A., Yildirim, M.A., 2014. *The Atlas of Economic Complexity: Mapping Paths to Prosperity*. MIT Press.

- Hausmann, R., Hwang, J., Rodrik, D., 2007. What You Export Matters. *Journal of Economic Growth* 12, 1-25.
- Herzer, D., Nowak-Lehmann, D., 2004. Export Diversification, Externalities and Growth. Discussion Papers/Universität Göttingen, Ibero-Amerika-Institut Für Wirtschaftsforschung.
- Hesse, H., 2008. Export Diversification And Economic Growth. World Bank, Washington, DC.
- Higuchi, Y., Nam, V.H., Sonobe, T., 2015. Sustained Impacts of Kaizen Training. *Journal of Economic Behavior & Organization* 120, 189-206.
- Hühne, P., Meyer, B., Nunnenkamp, P., 2014. Who Benefits From Aid For Trade? Comparing the Effects on Recipient versus Donor Exports. *Journal of Development Studies* 50, 9, 1-14.
- Hummels, D., Klenow, P.J., 2005. The Variety and Quality Of A Nation's Exports. *The American Economic Review* 95, 704-723.
- Imbs, J., Wacziarg, R., 2003. Stages of Diversification. *American Economic Review*, 9, 63-86.
- Itakura, K., 2013. Impact of Liberalization and Improved Connectivity and Facilitation in ASEAN for The ASEAN Economic Community. ERIA Discussion Paper 1.
- Ivanic, M., Mann, C., Wilson, J., 2006. Aid For Trade Facilitation. World Bank, Washington, DC (Draft).
- Jarreau, J., Poncet, S., 2012. Export Sophistication and Economic Growth: Evidence From China. *Journal of Development Economics* 97, 281-292.
- JICA, 2015. JICA Continues To Support E-Customs And Customs Modernization In Vietnam. JICA, Tokyo.
- Kim, Y., Todo, Y. Shimamoto, D. And Matous, P. "Are Seminars on Export Promotion Effective? Evidence From A Randomized Controlled Trial," RIETI Discussion Paper, No. 15-E-078, August 2016.
- Kimura, F., Kiyota, K., 2006. Exports, FDI, and Productivity: Dynamic Evidence From Japanese Firms. *Review of World Economics* 142, 695-719.
- Kinghan, C., Newman, C., 2015. Social Capital, Political Connections, And Household Enterprises: Evidence From Vietnam. WIDER Working Paper.
- Kleibergen, F., Paap, R., 2006. Generalized Reduced Rank Tests Using The Singular Value Decomposition. *Journal of Econometrics* 133, 97-126.
- Lall, S., Weiss, J., Zhang, J., 2006. The "Sophistication" Of Exports: A New Trade Measure. *World Development* 34, 222-237.
- Lederman, D., Olarreaga, M., Payton, L., 2010. Export Promotion Agencies: Do They Work? *Journal Of Development Economics* 91, 257-265.
- Lee, J.-W., Swagel, P., 1997. Trade Barriers and Trade Flows across Countries And Industries. *Review Of Economics And Statistics* 79, 372-382.

- Lloyd, T., Morrissey, O., Osei, R., 2001. Problems with Pooling In Panel Data Analysis for Developing Countries: The Case Of Aid And Trade Relationships, CREDIT Research Paper No.01/14. University Of Nottingham, Centre for Research in Economic Development and International Trade.
- Lu, Y., 2011. Political Connections And Trade Expansion. *Economics of Transition* 19, 231-254.
- Malesky, E., McCulloch, N., Nhat, N.D., 2015. The Impact of Governance and Transparency On Firm Investment In Vietnam. *Economics Of Transition* 23, 677-715.
- Mano, Y., Iddrisu, A., Yoshino, Y., Sonobe, T., 2012. How Can Micro And Small Enterprises In Sub-Saharan Africa Become More Productive? The Impacts Of Experimental Basic Managerial Training. *World Development* 40, 458-468.
- Marchesi, S., Missale, A., 2013. Did High Debts Distort Loan And Grant Allocation To IDA Countries? *World Development* 44, 44-62.
- Markussen, T., Tarp, F., 2014. Political Connections And Land-Related Investment In Rural Vietnam. *Journal Of Development Economics* 110, 291-302.
- Mckenzie, D., Woodruff, C., 2013. What Are We Learning From Business Training And Entrepreneurship Evaluations Around The Developing World? *The World Bank Research Observer*.
- Mejía, J.F., 2011. Export Diversification And Economic Growth: An Analysis of Colombia's Export Competitiveness In The European Union's Market. Springer, Heidelberg.
- Melander, E., Pettersson, T., Themnér, L., 2016. Organized Violence, 1989–2015. *Journal of Peace Research* 53, 727-742.
- Melitz, M.J., 2003. The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity. *Econometrica* 71, 1695-1725.
- Munemo, J., 2011. Foreign Aid and Export Diversification in Developing Countries. *The Journal of International Trade & Economic Development* 20, 339-355.
- Nam, V.H., Sonobe, T., Otsuka, K., 2010. An Inquiry into The Development Process Of Village Industries: The Case Of A Knitwear Cluster In Northern Vietnam. *Journal of Development Studies* 46, 312-330.
- Newfarmer, R., Shaw, W., Walkenhorst, P., 2009. *Breaking Into New Markets*. World Bank Publications, Washington, DC.
- Nguyen, T.V., Le, N.T.B., Bryant, S.E., 2013. Sub-National Institutions, Firm Strategies, and Firm Performance: A Multilevel Study Of Private Manufacturing Firms In Vietnam. *Journal of World Business* 48, 68-76.
- Nordås, H.K., Pinali, E., Grosso, M.G., 2006. Logistics and Time as a Trade Barrier. No 35, OECD Trade Policy Papers, OECD Publishing.
- " Aid-For-Trade Data: Creditor Reporting System - Explanatory Note" retrieved from <http://www.oecd.org/trade/aft/43234667.pdf> on December 12, 2016.

- OECD, Technical Guide To Terms And Data In The Creditor Reporting System (CRS) Aid Activities Database. Retrieved From <http://www.oecd.org/dac/stats/crsguide.htm> on December 12, 2016.
- OECD, 2006. The Development Dimension Aid For Trade: Making It Effective. OECD Publishing.
- OECD, 2008. The Paris Declaration On Aid Effectiveness And The Accra Agenda For Action. Retrieved From <http://www.oecd.org/dac/effectiveness/34428351.pdf> on December 12, 2016.
- OECD/WTO, 2011. Aid for Trade and LDCs: Starting to Show Results. OECD Publishing, Paris.
- OECD/WTO, 2011. Aid for Trade at A Glance 2011 Showing Results. OECD Publishing, Paris.
- Okubo, T., Tomiura, E., 2015. Regional Variations in Productivity Premium of Exporters: Evidence From Japanese Plant-Level Data. Discussion papers 13005, Research Institute of Economy, Trade and Industry (RIETI).
- Open Data Barometer, 2015. ODB Methodology V1.0 Retrieved From <http://opendatabarometer.org/3rdEdition/methodology> on December 12, 2016.
- Osakwe, P.N., 2007. Export Diversification and the Dilemma of African Development. *Applied Econometrics and International Development* 7, 143-154.
- Osei, R., Morrissey, O., Lloyd, T., 2004. The Nature of Aid and Trade Relationships. *The European Journal of Development Research* 16, 354-374.
- Parteka, A., Tamberi, M., 2013. What Determines Export Diversification In The Development Process? Empirical Assessment. *The World Economy* 36, 807-826.
- Prebisch, R., 1950. The Economic Development of Latin America, and its Principal Problems. United Nations Publication, New York.
- Rajan, R.G., Subramanian, A., 2008. Aid And Growth: What Does The Cross-Country Evidence Really Show? *The Review of Economics And Statistics* 90, 643-665.
- Razzaque, M.A., Te Velde, D.W., 2013. Assessing Aid for Trade: Effectiveness, Current Issues and Future Directions. Commonwealth Secretariat, London.
- Roodman, D., 2008. Through The Looking Glass, And What OLS Found There: On Growth, Foreign Aid, and Reverse Causality. Center for Global Development Working Paper.
- Rosson, P.J., Seringhaus, F., 1991. Export Promotion and Public Organizations: Present and Future Research, Export Development and Promotion: The Role of Public Organizations. Springer, 319-325.
- Steer, L., Sen, K., 2010. Formal and Informal Institutions In A Transition Economy: The Case Of Vietnam. *World Development* 38, 1603-1615.
- Stiglitz, J.E., Charlton, A., 2006. Aid for Trade. *International Journal of Development* 5(2), 1-41.
- Stock, J.H., Yogo, M., 2005. Testing For Weak Instruments in Linear IV Regression, In: Donald W. K. Andrews, J.H.S. (Ed.), *Identification and Inference For Econometric Models: Essays In Honor Of Thomas Rothenberg*. Cambridge University Press, 80-108.

- Suwa-Eisenmann, A., Verdier, T., 2007. Aid And Trade. *Oxford Review of Economic Policy* 23, 481-507.
- Todo, Y., 2011. Quantitative Evaluation of Determinants of Export and FDI: Firm-Level Evidence from Japan. *The World Economy* 34, 355-381.
- Tran, T.B., Grafton, R.Q., Kompas, T., 2009. Institutions Matter: The Case of Vietnam. *The Journal Of Socio-Economics* 38, 1-12.
- Vijil, M., Wagner, L., 2012. Does Aid For Trade Enhance Export Performance? Investigating the Infrastructure Channel. *The World Economy* 35, 838-868.
- Volpe Martincus, C., Carballo, J., 2008. Is Export Promotion Effective In Developing Countries? Firm-Level Evidence On The Intensive And The Extensive Margins Of Exports. *Journal of International Economics* 76, 89-106.
- Volpe Martincus, C., Carballo, J., 2010. Beyond The Average Effects: The Distributional Impacts Of Export Promotion Programs In Developing Countries. *Journal of Development Economics* 92, 201-214.
- Wilkinson, T., Brouthers, L.E., 2006. Trade Promotion and SME Export Performance. *International Business Review* 15, 233-252.
- World Bank. Government Effectiveness World Governance Indicators Description of Methodology. Retrieved From <http://info.worldbank.org/governance/wgi/index.aspx#home> on December 12, 2016
- WTO, 2005. Doha Work Programme Ministerial Declaration. Retrieved From https://www.wto.org/english/thewto_e/minist_e/min05_e/final_annex_e.htm on December 12, 2016.

Appendix A1. The List of OECD CRS Purpose Codes for Aid for Trade

a) Economic Infrastructure

| | | |
|--------------|---|---|
| 210 | TRANSPORT AND STORAGE | Note: Manufacturing of transport equipment should be included under code 32172. |
| 21010 | Transport policy and administrative management | Transport sector policy, planning and programmes; aid to transport ministries; institution capacity building and advice; unspecified transport; activities that combine road, rail, water and/or air transport. |
| 21020 | Road transport | Road infrastructure, road vehicles; passenger road transport, motor passenger cars. |
| 21030 | Rail transport | Rail infrastructure, rail equipment, locomotives, other rolling stock; including light rail (tram) and underground systems. |
| 21040 | Water transport | Harbours and docks, harbour guidance systems, ships and boats; river and other inland water transport, inland barges and vessels. |
| 21050 | Air transport | Airports, airport guidance systems, aeroplanes, aeroplane maintenance equipment. |
| 21061 | Storage | Whether or not related to transportation. |
| 21081 | Education and training in transport and storage | |
| 220 | COMMUNICATION | |
| 22010 | Communications policy and administrative management | Communications sector policy, planning and programmes; institution capacity building and advice; including postal services development; unspecified communications activities. |
| 22020 | Telecommunications | Telephone networks, telecommunication satellites, earth stations. |
| 22030 | Radio/television/print media | Radio and TV links, equipment; newspapers; printing and publishing. |
| 22040 | Information and communication technology (ICT) | Computer hardware and software; internet access; IT training. When sector cannot be specified. |
| 230 | ENERGY GENERATION AND SUPPLY | |
| 23010 | Energy policy and administrative management | Energy sector policy, planning and programmes; aid to energy ministries; institution capacity building and advice; unspecified energy activities including energy conservation. |
| 23020 | Power generation/non-renewable sources | Thermal power plants including when heat source cannot be determined; combined gas-coal power plants. |
| 23030 | Power generation/renewable sources | Including policy, planning, development programmes, surveys and incentives. Fuelwood/ charcoal production should be included under forestry (31261). |
| 23040 | Electrical transmission/distribution | Distribution from power source to end user; transmission lines. |
| 23050 | Gas distribution | Delivery for use by ultimate consumer. |
| 23061 | Oil-fired power plants | Including diesel power plants. |
| 23062 | Gas-fired power plants | |
| 23063 | Coal-fired power plants | |
| 23064 | Nuclear power plants | Including nuclear safety. |
| 23065 | Hydro-electric power plants | Including power-generating river barges. |
| 23066 | Geothermal energy | |
| 23067 | Solar energy | Including photo-voltaic cells, solar thermal applications and solar heating. |
| 23068 | Wind power | Wind energy for water lifting and electric power generation. |
| 23069 | Ocean power | Including ocean thermal energy conversion, tidal and wave power. |
| 23070 | Biomass | Densification technologies and use of biomass for direct power generation including biogas, gas obtained from sugar cane and other plant residues, anaerobic digesters. |
| 23081 | Energy education/training | Applies to all energy sub-sectors; all levels of training. |
| 23082 | Energy research | Including general inventories, surveys. |

b) Building Productive Capacity

| | | |
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| 240 | BANKING AND FINANCIAL SERVICES | |
| 24010 | Financial policy and administrative management | Finance sector policy, planning and programmes; institution capacity building and advice; financial markets and systems. |
| 24020 | Monetary institutions | Central banks. |
| 24030 | Formal sector financial intermediaries | All formal sector financial intermediaries; credit lines; insurance, leasing, venture capital, etc. (except when focused on only one sector). |
| 24040 | Informal/semi-formal financial intermediaries | Micro credit, savings and credit co-operatives etc. |
| 24081 | Education/training in banking and financial services | |
| 250 | BUSINESS AND OTHER SERVICES | |
| 25010 | Business support services and institutions | Support to trade and business associations, chambers of commerce; legal and regulatory reform aimed at improving business and investment climate; private sector institution capacity building and advice; trade information; public-private sector networking including trade fairs; e-commerce. Where sector cannot be specified: general support to private sector enterprises (in particular, use code 32130 for enterprises in the industrial sector). |
| 25020 | Privatisation | When sector cannot be specified. Including general state enterprise restructuring or demonopolisation programmes; planning, programming, advice. |
| 311 | AGRICULTURE | |
| 31110 | Agricultural policy and administrative management | Agricultural sector policy, planning and programmes; aid to agricultural ministries; institution capacity building and advice; unspecified agriculture. |
| 31120 | Agricultural development | Integrated projects; farm development. |
| 31130 | Agricultural land resources | Including soil degradation control; soil improvement; drainage of water logged areas; soil desalination; agricultural land surveys; land reclamation; erosion control, desertification control. |
| 31140 | Agricultural water resources | Irrigation, reservoirs, hydraulic structures, ground water exploitation for agricultural use. |
| | | |
| 31150 | Agricultural inputs | Supply of seeds, fertilizers, agricultural machinery/equipment. |
| 31161 | Food crop production | Including grains (wheat, rice, barley, maize, rye, oats, millet, sorghum); horticulture; vegetables; fruit and berries; other annual and perennial crops. [Use code 32161 for agro-industries.] |
| 31162 | Industrial crops/export crops | Including sugar; coffee, cocoa, tea; oil seeds, nuts, kernels; fibre crops; tobacco; rubber. [Use code 32161 for agro-industries.] |
| 31163 | Livestock | Animal husbandry; animal feed aid. |
| 31164 | Agrarian reform | Including agricultural sector adjustment. |
| 31165 | Agricultural alternative development | Projects to reduce illicit drug cultivation through other agricultural marketing and production opportunities (see code 43050 for non-agricultural alternative development). |
| 31166 | Agricultural extension | Non-formal training in agriculture. |
| 31181 | Agricultural education/training | |
| 31182 | Agricultural research | Plant breeding, physiology, genetic resources, ecology, taxonomy, disease control, agricultural bio-technology; including livestock research (animal health, breeding and genetics, nutrition, physiology). |
| 31191 | Agricultural services | Marketing policies & organisation; storage and transportation, creation of strategic reserves. |
| 31192 | Plant and post-harvest protection and pest control | Including integrated plant protection, biological plant protection activities, supply and management of agrochemicals, supply of pesticides, plant protection policy and legislation. |
| 31193 | Agricultural financial services | Financial intermediaries for the agricultural sector including credit schemes; crop insurance. |
| 31194 | Agricultural co-operatives | Including farmers' organisations. |
| 31195 | Livestock/veterinary services | Animal health and management, genetic resources, feed resources. |
| 312 | FORESTRY | |
| 31210 | Forestry policy and administrative management | Forestry sector policy, planning and programmes; institution capacity building and advice; forest surveys; unspecified forestry and agro-forestry |

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| | | activities. |
| 31220 | Forestry development | Afforestation for industrial and rural consumption; exploitation and utilisation; erosion control, desertification control; integrated forestry projects. |
| 31261 | Fuelwood/charcoal | Forestry development whose primary purpose is production of fuelwood and charcoal. |
| 31281 | Forestry education/training | |
| 31282 | Forestry research | Including artificial regeneration, genetic improvement, production methods, fertilizer, harvesting. |
| 31291 | Forestry services | |
| 313 | FISHING | |
| 31310 | Fishing policy and administrative management | Fishing sector policy, planning and programmes; institution capacity building and advice; ocean and coastal fishing; marine and freshwater fish surveys and prospecting; fishing boats/equipment; unspecified fishing activities. |
| 31320 | Fishery development | Exploitation and utilisation of fisheries; fish stock protection; aquaculture; integrated fishery projects. |
| 31381 | Fishery education/training | |
| 31382 | Fishery research | Pilot fish culture; marine/freshwater biological research. |
| 31391 | Fishery services | Fishing harbours; fish markets; fishery transport and cold storage. |
| 321 | INDUSTRY | |
| 32110 | Industrial policy and administrative management | Industrial sector policy, planning and programmes; institution capacity building and advice; unspecified industrial activities; manufacturing of goods not specified below. |
| 32120 | Industrial development | |
| 32130 | Small and medium-sized enterprises (SME) development | Direct support to the development of small and medium-sized enterprises in the industrial sector, including accounting, auditing and advisory services. |
| 32140 | Cottage industries and handicraft | |
| 32161 | Agro-industries | Staple food processing, dairy products, slaughter houses and equipment, meat and fish processing and preserving, oils/fats, sugar refineries, beverages/tobacco, animal feeds production. |
| 32162 | Forest industries | Wood production, pulp/paper production. |
| 32163 | Textiles, leather and substitutes | Including knitting factories. |
| 32164 | Chemicals | Industrial and non-industrial production facilities; includes pesticides production. |
| 32165 | Fertilizer plants | |
| 32166 | Cement/lime/plaster | |
| 32167 | Energy manufacturing | Including gas liquefaction; petroleum refineries. |
| 32168 | Pharmaceutical production | Medical equipment/supplies; drugs, medicines, vaccines; hygienic products. |
| 32169 | Basic metal industries | Iron and steel, structural metal production. |
| 32170 | Non-ferrous metal industries | |
| 32171 | Engineering | Manufacturing of electrical and non-electrical machinery, engines/turbines. |
| 32172 | Transport equipment industry | Shipbuilding, fishing boats building; railroad equipment; motor vehicles and motor passenger cars; aircraft; navigation/guidance systems. |
| 32182 | Technological research and development | Including industrial standards; quality management; metrology; testing; accreditation; certification. |
| 322 | MINERAL RESOURCES AND MINING | |
| 32210 | Mineral/mining policy and administrative management | Mineral and mining sector policy, planning and programmes; mining legislation, mining cadastre, mineral resources inventory, information systems, institution capacity building and advice; unspecified mineral resources exploitation. |
| 32220 | Mineral prospection and exploration | Geology, geophysics, geochemistry; excluding hydrogeology (14010) and environmental geology (41010), mineral extraction and processing, infrastructure, technology, economics, safety and environment management. |
| 32261 | Coal | Including lignite and peat. |
| 32262 | Oil and gas | Petroleum, natural gas, condensates, liquefied petroleum gas (LPG), liquefied natural gas (LNG); including drilling and production. |

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| 32263 | Ferrous metals | Iron and ferro-alloy metals. |
| 32264 | Nonferrous metals | Aluminium, copper, lead, nickel, tin, zinc. |
| 32265 | Precious metals/materials | Gold, silver, platinum, diamonds, gemstones. |
| 32266 | Industrial minerals | Baryte, limestone, feldspar, kaolin, sand, gypsum, gravel, ornamental stones. |
| 32267 | Fertilizer minerals | Phosphates, potash. |
| 32268 | Offshore minerals | Polymetallic nodules, phosphorites, marine placer deposits. |
| 323 | CONSTRUCTION | |
| 32310 | Construction policy and administrative management | Construction sector policy and planning; excluding construction activities within specific sectors (e.g., hospital or school construction). |
| 332 | TOURISM | |
| 33210 | Tourism policy and administrative management | |

c) Trade Policy and Regulations

| | | |
|--------------|--|--|
| 331 | TRADE POLICY AND REGULATIONS AND TRADE-RELATED ADJUSTMENT | |
| 33110 | Trade policy and administrative management | Trade policy and planning; support to ministries and departments responsible for trade policy; trade-related legislation and regulatory reforms; policy analysis and implementation of multilateral trade agreements e.g. technical barriers to trade and sanitary and phytosanitary measures (TBT/SPS) except at regional level (see 33130); mainstreaming trade in national development strategies (e.g. poverty reduction strategy papers); wholesale/retail trade; unspecified trade and trade promotion activities. |
| 33120 | Trade facilitation | Simplification and harmonisation of international import and export procedures (e.g. customs valuation, licensing procedures, transport formalities, payments, insurance); support to customs departments; tariff reforms. |
| 33130 | Regional trade agreements (RTAs) | Support to regional trade arrangements [e.g. Southern African Development Community (SADC), Association of Southeast Asian Nations (ASEAN), Free Trade Area of the Americas (FTAA), African Caribbean Pacific/European Union (ACP/EU)], including work on technical barriers to trade and sanitary and phytosanitary measures (TBT/SPS) at regional level; elaboration of rules of origin and introduction of special and differential treatment in RTAs. |
| 33140 | Multilateral trade negotiations | Support developing countries' effective participation in multilateral trade negotiations, including training of negotiators, assessing impacts of negotiations; accession to the World Trade Organisation (WTO) and other multilateral trade-related organisations. |
| 33150 | Trade-related adjustment | Contributions to the government budget to assist the implementation of recipients' own trade reforms and adjustments to trade policy measures by other countries; assistance to manage shortfalls in the balance of payments due to changes in the world trading environment. |
| 33181 | Trade education/training | Human resources development in trade not included under any of the above codes. Includes university programmes in trade. |

Source: OECD (n.d.) "Aid-For-Trade Data: Creditor Reporting System - Explanatory Note" retrieved from <http://www.oecd.org/trade/aft/43234667.pdf>

Appendix A2. Correspondence Table between HS Code and CRS Code

| HS code | Product Description | Aid by 3 digits | Aid by 5 digits | Aid Description |
|---------|---|-----------------|-----------------|------------------------------|
| 01 | Live animals. | 311 | 311 | AGRICULTURE |
| 02 | Meat and edible meat offal. | 311 | 311 | AGRICULTURE |
| 03 | Fish and crustaceans, molluscs and other aquatic invertebrates. | 313 | 313 | FISHING |
| 04 | Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified or included. | 311 | 311 | AGRICULTURE |
| 05 | Products of animal origin, not elsewhere specified or included. | 311 | 311 | AGRICULTURE |
| 06 | Live trees and other plants; bulbs, roots and the like; cut flowers and ornamental foliage. | 311 | 311 | AGRICULTURE |
| 07 | Edible vegetables and certain roots and tubers. | 311 | 311 | AGRICULTURE |
| 08 | Edible fruit and nuts; peel of citrus fruit or melons. | 311 | 311 | AGRICULTURE |
| 09 | Coffee, tea, mate and spices. | 311 | 311 | AGRICULTURE |
| 10 | Cereals. | 311 | 311 | AGRICULTURE |
| 11 | Products of the milling industry; malt; starches; inulin; wheat gluten. | 311 | 311 | AGRICULTURE |
| 12 | Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit; industrial or medicinal plants; straw and fodder. | 311 | 311 | AGRICULTURE |
| 13 | Lac; gums, resins and other vegetable saps and extracts. | 311 | 311 | AGRICULTURE |
| 14 | Vegetable plaiting materials; vegetable products not elsewhere specified or included. | 311 | 311 | AGRICULTURE |
| 15 | Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal or vegetable waxes. | 321 | 32161 | Agro-industries |
| 16 | Preparations of meat, of fish or of crustaceans, molluscs or other aquatic invertebrates. | 321 | 32161 | Agro-industries |
| 17 | Sugars and sugar confectionery. | 321 | 32161 | Agro-industries |
| 18 | Cocoa and cocoa preparations. | 321 | 32161 | Agro-industries |
| 19 | Preparations of cereals, flour, starch or milk; pastrycooks' products. | 321 | 32161 | Agro-industries |
| 20 | Preparations of vegetables, fruit, nuts or other parts of plants. | 321 | 32161 | Agro-industries |
| 21 | Miscellaneous edible preparations. | 321 | 32161 | Agro-industries |
| 22 | Beverages, spirits and vinegar. | 321 | 32161 | Agro-industries |
| 23 | Residues and waste from the food industries; prepared animal fodder. | 321 | 32161 | Agro-industries |
| 24 | Tobacco and manufactured tobacco substitutes. | 321 | 32161 | Agro-industries |
| 25 | Salt; sulphur; earths and stone; plastering materials, lime and cement. | 322 | 322 | MINERAL RESOURCES AND MINING |
| 26 | Ores, slag and ash. | 322 | 322 | MINERAL RESOURCES AND MINING |
| 27 | Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes. | 322 | 322 | MINERAL RESOURCES AND MINING |
| 28 | Inorganic chemicals; organic or inorganic compounds of precious metals, of rare-earth metals, of radioactive elements or of isotopes. | 321 | 32164 | Chemicals |
| 29 | Organic chemicals. | 321 | 32164 | Chemicals |
| 30 | Pharmaceutical products. | 321 | 32168 | Pharmaceutical production |

| | | | | |
|----|--|-----|-------|---|
| 31 | Fertilisers. | 321 | 32165 | Fertilizer plants |
| 32 | Tanning or dyeing extracts; tannins and their derivatives; dyes, pigments and other colouring matter; paints and varnishes; putty and other mastics; inks. | 321 | 32164 | Chemicals |
| 33 | Essential oils and resinoids; perfumery, cosmetic or toilet preparations. | 321 | 32164 | Chemicals |
| 34 | Soap, organic surface-active agents, washing preparations, lubricating preparations, artificial waxes, prepared waxes, polishing or scouring preparations, candles and similar articles, modelling pastes, "dental waxes" and dental preparations with a basis of plaster. | 321 | 32164 | Chemicals |
| 35 | Albuminoidal substances; modified starches; glues; enzymes. | 321 | 32164 | Chemicals |
| 36 | Explosives; pyrotechnic products; matches; pyrophoric alloys; certain combustible preparations. | 321 | 32164 | Chemicals |
| 37 | Photographic or cinematographic goods. | 321 | 32164 | Chemicals |
| 38 | Miscellaneous chemical products. | 321 | 32164 | Chemicals |
| 39 | Plastics and articles thereof | 321 | 32110 | Industrial policy and administrative management |
| 40 | Rubber and articles thereof | 321 | 32110 | Industrial policy and administrative management |
| 41 | Raw hides and skins (other than furskins) and leather. | 321 | 32163 | Textiles, leather and substitutes |
| 42 | Articles of leather; saddlery and harness; travel goods, handbags and similar containers; articles of animal gut (other than silk-worm gut). | 321 | 32163 | Textiles, leather and substitutes |
| 43 | Furskins and artificial fur; manufactures thereof. | 321 | 32163 | Textiles, leather and substitutes |
| 44 | Wood and articles of wood; wood charcoal, | 312 | 312 | FORESTRY |
| 45 | Cork and articles of cork. | 312 | 312 | FORESTRY |
| 46 | Manufactures of straw, of esparto or of other plaiting materials; basketware and wickerwork. | 312 | 312 | FORESTRY |
| 47 | Pulp of wood or of other fibrous cellulosic material; recovered (waste and scrap) paper or paperboard. | 312 | 312 | FORESTRY |
| 48 | Paper and paperboard; articles of paper pulp, of paper or of paperboard. | 312 | 312 | FORESTRY |
| 49 | Printed books, newspapers, pictures and other products of the printing industry; manuscripts, typescripts and plans. | 312 | 312 | FORESTRY |
| 50 | Silk. | 321 | 32163 | Textiles, leather and substitutes |
| 51 | Wool, fine or coarse animal hair; horsehair yarn and woven fabric. | 321 | 32163 | Textiles, leather and substitutes |
| 52 | Cotton, | 321 | 32163 | Textiles, leather and substitutes |
| 53 | Other vegetable textile fibres; paper yarn and woven fabrics of paper yarn. | 321 | 32163 | Textiles, leather and substitutes |
| 54 | Man-made filaments. | 321 | 32163 | Textiles, leather and substitutes |
| 55 | Man-made staple fibres. | 321 | 32163 | Textiles, leather and substitutes |
| 56 | Wadding, felt and nonwovens; special yarns; twine, cordage, ropes and cables and articles thereof | 321 | 32163 | Textiles, leather and substitutes |
| 57 | Carpets and other textile floor coverings. | 321 | 32163 | Textiles, leather and substitutes |
| 58 | Special woven fabrics; tufted textile fabrics; lace; tapestries; trimmings; embroidery. | 321 | 32163 | Textiles, leather and substitutes |
| 59 | Impregnated, coated, covered or laminated textile fabrics; textile articles of a | 321 | 32163 | Textiles, leather and |

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| | kind suitable for industrial use. | | | substitutes |
| 60 | Knitted or crocheted fabrics. | 321 | 32163 | Textiles, leather and substitutes |
| 61 | Articles of apparel and clothing accessories, knitted or crocheted. | 321 | 32163 | Textiles, leather and substitutes |
| 62 | Articles of apparel and clothing accessories, not knitted or crocheted. | 321 | 32163 | Textiles, leather and substitutes |
| 63 | Other made up textile articles; sets; worn clothing and worn textile articles; rags. | 321 | 32163 | Textiles, leather and substitutes |
| 64 | Footwear, gaiters and the like; parts of such articles, | 321 | 32163 | Textiles, leather and substitutes |
| 65 | Headgear and parts thereof | 321 | 32163 | Textiles, leather and substitutes |
| 66 | Umbrellas, sun umbrellas, walking-sticks, seat-sticks, whips, riding-crops and parts thereof | 321 | 32163 | Textiles, leather and substitutes |
| 67 | Prepared feathers and down and articles made of feathers or of down; artificial flowers; articles of human hair. | 321 | 32163 | Textiles, leather and substitutes |
| 68 | Articles of stone, plaster, cement, asbestos, mica or similar materials. | 321 | 32166 | Cement/lime/plaster |
| 69 | Ceramic products. | 321 | 32166 | Cement/lime/plaster |
| 70 | Glass and glassware. | 321 | 32166 | Cement/lime/plaster |
| 71 | Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal and articles thereof; imitation, jewellery; coin. | 321 | 32110 | Industrial policy and administrative management |
| 72 | Iron and steel. | 321 | 32169 | Basic metal industries |
| 73 | Articles of iron or steel. | 321 | 32169 | Basic metal industries |
| 74 | Copper and articles thereof | 321 | 32170 | Non-ferrous metal industries |
| 75 | Nickel and articles thereof. | 321 | 32170 | Non-ferrous metal industries |
| 76 | Aluminium and articles thereof | 321 | 32170 | Non-ferrous metal industries |
| 77 | (Reserved for possible future use in the Harmonized System) | 321 | 32170 | Non-ferrous metal industries |
| 78 | Lead and articles thereof | 321 | 32170 | Non-ferrous metal industries |
| 79 | Zinc and articles thereof. | 321 | 32170 | Non-ferrous metal industries |
| 80 | Tin and articles thereof. | 321 | 32170 | Non-ferrous metal industries |
| 81 | Other base metals; cermets; articles thereof. | 321 | 32170 | Non-ferrous metal industries |
| 82 | Tools, implements, cutlery, spoons and forks, of base metal; parts thereof of base metal. | 321 | 32169 | Basic metal industries |
| 83 | Miscellaneous articles of base metal. | 321 | 32169 | Basic metal industries |
| 84 | Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof | 321 | 32167 | Energy manufacturing |
| 85 | Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles, | 321 | 32171 | Engineering |
| 86 | Railway or tramway locomotives, rolling-stock and parts thereof; railway or tramway track fixtures and fittings and parts thereof; mechanical (including | 321 | 32172 | Transport equipment industry |

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| | electro-mechanical) traffic signalling equipment of all kinds. | | | |
| 87 | Vehicles other than railway or tramway rolling-stock, and parts and accessories thereof. | 321 | 32172 | Transport equipment industry |
| 88 | Aircraft, spacecraft, and parts thereof. | 321 | 32172 | Transport equipment industry |
| 89 | Ships, boats and floating structures. | 321 | 32172 | Transport equipment industry |
| 90 | Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus; parts and accessories thereof | 321 | 32110 | Industrial policy and administrative management |
| 91 | Clocks and watches and parts thereof. | 321 | 32110 | Industrial policy and administrative management |
| 92 | Musical instruments; parts and accessories of such articles. | 321 | 32110 | Industrial policy and administrative management |
| 93 | Arms and ammunition; parts and accessories thereof. | 321 | 32110 | Industrial policy and administrative management |
| 94 | Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; lamps and lighting fittings, not elsewhere specified or included; illuminated signs, illuminated nameplates and the like; prefabricated buildings. | 321 | 32110 | Industrial policy and administrative management |
| 95 | Toys, games and sports requisites; parts and accessories thereof | 321 | 32110 | Industrial policy and administrative management |
| 96 | Miscellaneous manufactured articles. | 321 | 32110 | Industrial policy and administrative management |
| 97 | Works of art, collectors' pieces and antiques. | 321 | 32110 | Industrial policy and administrative management |

Note: Matching by the description of the HS code and OECD CRS.

Appendix A3. Results for Heterogeneity across Income Groups and Regions

a) Impact of Aid for Trade and its Subcategories on the Log of the HHI Using the Annual Data by Income Groups, GMM

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|-------------------------|----------------------------------|----------------------------|--------------------------|---------------------------------------|--------------------------------|------------------------------|---------------------------------|----------------------|
| | Ln(Total Aid for Trade) | Ln(Aid for Econ. Infrastructure) | Ln(Aid for Prod. Capacity) | Ln(Aid for Trade Policy) | Aid Variables (lnAID _{t-1}) | Ln(Aid for Trade in Loan Form) | Ln(Bi-lateral Aid for Trade) | Ln(Multi-lateral Aid for Trade) | Ln(OOFs for Trade) |
| lnDependentVar _{t-1} | 0.695*** [0.093] | 0.675*** [0.097] | 0.725*** [0.087] | 0.749*** [0.094] | 0.712*** [0.091] | 0.676*** [0.099] | 0.697*** [0.095] | 0.715*** [0.122] | 0.752*** [0.093] |
| lnGDPPC _{t-1} | -0.031 [0.094] | -0.036 [0.099] | -0.023 [0.083] | -0.005 [0.099] | -0.028 [0.086] | -0.036 [0.096] | -0.058 [0.097] | 0.052 [0.092] | -0.008 [0.088] |
| lnPopulation _{t-1} | 0.194 [0.137] | 0.157 [0.139] | 0.127 [0.127] | 0.05 [0.093] | 0.151 [0.125] | 0.144 [0.131] | 0.152 [0.119] | 0.213 [0.207] | 0.027 [0.075] |
| lnNaturalResources _{t-1} | -0.032 [0.054] | -0.036 [0.058] | -0.017 [0.047] | -0.005 [0.058] | -0.018 [0.050] | -0.034 [0.063] | -0.024 [0.058] | -0.028 [0.063] | 0.004 [0.047] |
| Gov. Effective _{t-1} | -0.058 [0.159] | -0.087 [0.179] | -0.107 [0.159] | -0.111 [0.170] | -0.072 [0.163] | -0.119 [0.168] | -0.09 [0.159] | -0.079 [0.161] | -0.137 [0.151] |
| lnFDI _{t-1} | -0.012*** [0.004] | -0.012*** [0.004] | -0.014*** [0.005] | -0.011** [0.005] | -0.012*** [0.004] | -0.012*** [0.005] | -0.011** [0.005] | -0.013*** [0.006] | -0.013*** [0.004] |
| Low income dummy | 0.174 [0.231] | 0.175 [0.217] | 0.131 [0.201] | 0.26 [0.167] | 0.244 [0.196] | 0.266 [0.201] | 0.074 [0.303] | 0.203 [0.181] | 0.219 [0.150] |
| Lower-middle income dummy | -0.163 [0.149] | -0.152 [0.121] | -0.186 [0.147] | -0.037 [0.131] | -0.031 [0.144] | -0.106 [0.119] | -0.197 [0.189] | 0.022 [0.097] | -0.078 [0.114] |
| lnAID _{t-1} | -0.03 [0.039] | -0.013 [0.042] | -0.079 [0.051] | -0.021 [0.082] | -0.057 [0.038] | -0.046 [0.038] | -0.045 [0.041] | 0.029 [0.060] | -0.023 [0.035] |
| lnAID _{t-1} *Low income dummy | -0.009 [0.044] | -0.005 [0.044] | 0.034 [0.046] | -0.032 [0.090] | -0.017 [0.041] | -0.019 [0.036] | 0.015 [0.061] | -0.078 [0.051] | -0.012 [0.028] |
| lnAID _{t-1} *Lower-middle income dummy | 0.017 [0.040] | 0.021 [0.036] | 0.052 [0.043] | -0.049 [0.082] | -0.014 [0.038] | 0.017 [0.032] | 0.02 [0.047] | -0.06 [0.051] | 0.001 [0.024] |
| No-aidDummy _{t-1} | 0.112 [0.269] | -0.01 [0.249] | -0.181 [0.262] | 0.1 [0.144] | -0.21 [0.343] | -0.216 [0.153] | 0.21 [0.501] | -0.016 [0.126] | -0.009 [0.173] |
| Constant | -3.016 [2.109] | -2.545 [2.163] | -1.894 [1.873] | -1.096 [1.590] | -2.302 [1.817] | -2.262 [1.835] | -2.123 [1.811] | -4.097 [3.067] | -0.619 [1.258] |
| N | 1972 | 1972 | 1972 | 1972 | 1972 | 1972 | 1965 | 1965 | 1972 |
| Instruments | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| Hansen AR2 | 0.857 | 0.902 | 0.784 | 0.495 | 0.799 | 0.878 | 0.849 | 0.613 | 0.648 |
| | 0.346 | 0.37 | 0.362 | 0.38 | 0.328 | 0.354 | 0.326 | 0.368 | 0.318 |

Note: Standard errors are in square brackets. *, **, and *** denote statistical significance at the 10, 5, and 1% level, respectively. The variable at the top of each column represents the variable used for lnAID. lnDependentVar refers to the lag of the dependent variable. All regressions include country dummies and year dummies.

Appendix A4. Questionnaire in English

SCREEN1:Initiation

| | | |
|---|--------------|--|
| Initiation Label | | <i>Note to Enumerators: Please introduce yourself and explain that this is firm survey to be used as data for university research.</i> |
| Initiation Q.1 tabletId | basic | <i>Tablet ID</i> |
| Initiation Q.2 time1 | basic | <i>Start time</i> |
| Initiation Q.3 longitude | basic | <i>Longitude (105-106 in decimals)</i> |
| Initiation Q.4 latitude | basic | <i>Latitude (20-22 in decimals)</i> |
| Initiation Label | | <i>Please read the sentence starting with "E:" to the respondents.</i> |
| Initiation Label | | <i>E: I would like to ask some questions about basic information of your company.</i> |
| Initiation Q.5 village | basic | <i>village name</i> (1)Van Phuc,(2)Co Nhue,(3)Tuong Giang,(4)Phung Xa,(5)Tien Phong,(6)Van Tu,(7)Phuong La,(8)Hoa Hau,(9)Duong Xa,(10)Dong Ngac,(11)Xuan Dinh,(12)Me Tri,(13)Tan Trieu,(14)Duong Noi,(15)ai Quoc,(16)Di Su,(17)Thien Phien,(18)Thanh Ha |
| Initiation Q.6 firm_name | basic | <i>What is your company name?</i> |
| Initiation Q.7 manager15 | basic | <i>Did you answer this questionnaire last time?</i> (1)Yes,(2)No,(99)Don't know |
| Initiation Q.8 manager_change15 Enable if :current.manager15=2 | basic | <i>If you didn't answer this last time, why did the respondent change?</i> (1)The person still works for the company but not available now,(2)Manager/owner of the company has changed,(3)Other |
| Initiation Q.9 taxcode | basic | <i>What is company's tax code? (11digit: 9 digit company code and 2 digit branch code)</i> |

END SCREEN 1:Initiation

SCREEN2:HR

| | | |
|----------|--|---|
| HR Label | | <i>E: I would like to ask some questions about company ownership of your company.</i> |
|----------|--|---|

HR Q.1

shareholders_fmrgov14

basic

Among your company's shareholders, how many former or current government officials were there last year?

HR Q.2

shareholders_fmrgov15

basic

Among your company's shareholders, how many former or current government officials are there now?

HR Label

E: I would like to ask some questions about employees of your company. We consider three types of workers.
First type of workers is permanent worker, people who remain employed until they are fired or laid off or choose to quit.
Second type of workers is temporary worker, people who work for a specific length of time or until a specific project is completed.
Third type of workers is unpaid worker, people who work without any payment.

HR Label

E: Now, I am going to ask the same employment questions for this year.

START ROSTER 2.1:Workers in 2015

For unpaid workers, please put 0 for average salary

RosterContents :(1)Permanent,(2)Temporary,(3)Unpaid

Workers in 2015

For unpaid workers, please put 0 for average salary Q.3

workermale15

workers

Number of male

Workers in 2015

For unpaid workers, please put 0 for average salary Q.4

wokerfemale15

workers

Number of female

Workers in 2015

For unpaid workers, please put 0 for average salary Q.5

salary15

workers

Average monthly salary in million VND

END ROSTER 2.1:Workers in 2015

For unpaid workers, please put 0 for average salary

SCREEN2.2:HR development

HR development Label

E: Now, I will ask you some questions about how you train your workers in 2014 and 2015 until now.

HR development Label

I would like to ask about Human Resource Development of your company in 2014.

| | |
|---|--|
| HR development Q.1 training14 basic | <i>Did your workers ever participate in any training and workshop to improve workers' skill in 2014?</i> (1)Yes,(2)No,(99)Don't know |
| HR development Q.2 trainingin14 basic Enable if :current.training14 = 1 | <i>Did you do internal training and workshop to improve workers' skill in 2014?</i> (1)Yes,(2)No,(99)Don't know |
| HR development Q.3 trainingex14 basic Enable if :current.training14 = 1 | <i>Did you send your workers to external training and workshop to improve workers' skill in 2014?</i> (1)Yes,(2)No,(99)Don't know |
| HR development Label | <i>SHOW all the options on the tablet to the respondent and let them choose as many as they want from all possible options</i> |
| HR development Q.4 training_bywho14 basic Enable if :current.training14 = 1 | <i>If you sent your workers to external trainings, which institution hosted the training or workshop that your workers participated in 2014?</i> (11)Vietnamese central government,(12)Vietnamese local government,(2)foreign government or international organizations,(3)private association,(4)trade union/labor union,(5)others |
| HR development Q.5 training_freq14 basic Enable if :current.training14 = 1 | <i>How often did your workers participate in either internal or external training or workshop in 2014?</i> (1)less than 1 time per year,(2)1 time per year,(3)2-10 times per year,(4)1 time per month,(5)more than 1 time per month,(6)1 time per week,(7)almost everyday |
| HR development Q.6 training151 basic | <i>Have you conducted any training to improve your workers' skill in the last three months?</i> (1)Yes,(2)No,(99)Don't know |
| HR development Q.7 training_will152 basic | <i>Are you considering of conducting any training to improve workers' skill within this year?</i> (1)Yes,(2)No,(99)Don't know |

END SCREEN 2.2:HR development

END SCREEN 2:HR

SCREEN3:Innovation

Innovation Label

E: Now, I will ask you some questions about innovation. There are two types of innovation.

First type is Product Innovation.

It is the introduction of a good or service that is new or significantly improved respect to its characteristics or intended uses.

This includes significant improvements in technical specifications, components and materials, incorporated software, user friendliness or other functional characteristics.

| | | |
|--|--------------|---|
| Innovation Q.1 inno_prod14 | basic | <i>Has the company conducted any product innovation in 2014?</i> (1)Yes,(2)No,(99)Don't know |
| Innovation Q.2 inno_prod151 | basic | <i>Are you considering of doing any product innovation within 2015?</i> (1)Yes,(2)No,(99)Don't know |
| Innovation Q.3 newproducts15 | basic | <i>How many new types of products id you start to produce in 2015 compared to 2014? New products mean new design and new materials.</i> |

| | | |
|--|--------------|---|
| Innovation Label | | <i>The second type of innovation is Process innovation. It is the implementation of a new or significantly improved production or delivery method. This includes significant change in techniques, equipment and/or software.</i> |
| Innovation Q.4 inno_proc14 | basic | <i>Has the company conducted any process innovation during the period of 2014?</i> (1)Yes,(2)No,(99)Don't know |
| Innovation Q.5 inno_proc151 | basic | <i>Are you considering of doing any process innovation within 2015?</i> (1)Yes,(2)No,(99)Don't know |
| Innovation Q.6 inno_foreign14 | basic | <i>Has the company engaged in collaboration with or learning from other foreign-owned companies for product/process innovation in 2014?</i> (1)Yes,(2)No,(99)Don't know |
| Innovation Q.7 inno_foreign151 | basic | <i>Are you considering any collaboration with or learning from other foreign-owned companies for product/process innovation within 2015?</i> (1)Yes,(2)No,(99)Don't know |

END SCREEN 3:Innovation

SCREEN4:Sales

| | | |
|-----------------------------|--------------|---|
| Sales Label | | <i>E: Now, I will ask questions about sales of your company.</i> |
| Sales Label | | <i>E: Please tell me total sales in last year. If you did not record the total sales, could you tell me the amount of each product sold in last year and price of each product.</i> |
| Sales Label | | <i>Note for enumerators: If respondent cannot answer the total sales, please take a memo and calculate total sale by yourself.</i> |
| Sales Q.1 sales14 | basic | <i>Total sales in 2014 in million VND (price x quantity of all products)</i> |

| | | |
|--|--------------|---|
| Sales Label | | Q2+Q3+Q4+Q5 should equal to 100% |
| Sales Q.2 | | % of retail (sales to consumers) in Vietnam? |
| sales_b2c14 | basic | |
| Sales Q.3 | | % of sales to Vietnamese firms? |
| sales_b2b14 | basic | |
| Sales Label | | <p>Explain: Indirect exports are the amount the company sells to companies and customers located in foreign countries indirectly through trading companies.</p> <p>Indirect exports do NOT include sales of parts and components to assemblers in Vietnam which eventually export their final products to foreign countries</p> |
| Sales Q.4 | | % of direct export? |
| sales_diex14 | basic | |
| Sales Q.5 | | % of indirect export? |
| sales_inex14 | basic | |
| Sales Label | | <p>E: Now, I am going to ask top 5 products of your company.</p> <p>If there are more than 5 products, please pick top 5 in the order of sales.</p> |
| Sales Label | | <p>E: Now, I would like to ask you about the capital of your company in the last year and this year.</p> <p>If the respondent do not now, please put 99999</p> |
| SCREEN4.1:Top 5 Products | | |
| START ROSTER 4.1.1:Top 5 products in the order of sales (as many as 5) in 2014 | | |
| Top 5 products in the order of sales (as many as 5) in 2014 Q.1 | | What is the 2 digit HS2012? |
| hs214 | top5products | |
| Top 5 products in the order of sales (as many as 5) in 2014 Q.2 | | What is the 4 digit HS2012? |
| hs414 | top5products | |
| Top 5 products in the order of sales (as many as 5) in 2014 Q.3 | | What is the 6 digit HS2012? |
| hs614 | top5products | |
| Top 5 products in the order of sales (as many as 5) in 2014 Q.4 | | Share of sales (%) |
| shareproducts14 | top5products | |
| Top 5 products in the order of sales (as many as 5) in 2014 Q.5 | | Direct export? |
| export14 | top5products | (1)Yes,(2)No,(99)Don't know |
| Enable if :select sales_diex14 from basic >0 | | |

Top 5 products in the order of sales (as many as 5) in 2014 Q.6

indirectexport14

top5products

Enable if :select sales_inex14 from basic >0

Indirect export?

(1)Yes,(2)No,(99)Don't know

Top 5 products in the order of sales (as many as 5) in 2014 Q.7

import14

top5products

Using imported supply?

(1)Yes,(2)No,(99)Don't know

END ROSTER 4.1.1:Top 5 products in the order of sales (as many as 5) in 2014

END SCREEN 4.1:Top 5 Products

END SCREEN 4:Sales

SCREEN5:Cost

Cost Label

E: I will ask questions about cost in last fiscal year.

Cost Q.1

cost14

basic

Total value of purchases of materials, parts and components during the period of 2014 (million VND)

Cost Q.2

cost_invest14

basic

Total value of purchases of machineries and equipments in 2014 (million VND)

Cost Q.3

suppliersshare_dom14

basic

Share of domestic suppliers in total purchase of materials in 2014 (%)

Cost Q.4

suppliersshare_imp14

basic

Share of foreign suppliers (importers) in total purchase of materials in 2014 (%)

END SCREEN 5:Cost

SCREEN6:Finance

Finance Label

E: I am going to ask about finance of your company in 2014

Finance Q.1

bank14

basic

Did the company have an account in any formal bank in 2014?

(1)Yes,(2)No,(99)Don't know

Finance Q.2

fin_apply14

basic

Did you apply for any loans at any banks or non-bank financial institutions in 2014?

(1)Yes,(2)No,(99)Don't know

| | |
|--|---|
| Finance Q.3 loan14 basic Enable if :current.fin_apply14=1 | How much loan were you able to get in 2014 (million VND)? |
| Finance Q.4 loanwish14 basic Enable if :current.fin_apply14=1 | How much did you wish to borrow in 2014 (millino VND)? |
| Finance Q.5 fin_apply_why14 basic Enable if :current.fin_apply14=2 | Why did you not apply for any loans at any banks or non-bank institutions in 2014? (Write in English) (1)No need for a loan - establishment had sufficient capital,(2)Application procedures were complex,(3)Interest rates were too high,(4)Collateral requirements were too high,(5)Size of loan and maturity were insufficient,(6)Did not think it would be approved,(7)Other,(8)Don't know |
| Finance Q.6 debt14 basic | What is the total debt of your firm at the end of 2014 (million VND)? |
| Finance Q.7 sav14 basic | How much did you finance from your saving in 2014? |
| Finance Q.8 fin_n_com14 basic | Number of total commercial/private banks you got loans from? |
| Finance Q.9 fin_n_gov14 basic | Number of total government/state banks you got loans from? |
| Finance Q.10 fin_n_nonbank14 basic | Number of total non-bank institutions you got loans from? |

START ROSTER 6.1:Share of your debt from each financial source

RosterContents :(2)loan from commercial banks,(3)loan from state banks,(4)loan from microfinance and non-banks,(5)credit and advanced from customers,(6)loan from moneylenders, friends, relatives

| | |
|--|-------|
| Share of your debt from each financial source Q.11 fin_share financialshare | Share |
|--|-------|

END ROSTER 6.1:Share of your debt from each financial source

| | |
|---------------|--|
| Finance Label | Sum should be 100: [select SUM(fin_share) from financialshare] |
|---------------|--|

SCREEN6.2:Largest loan in 2014 from formal institutes

Enable if :current.loan14=1

| | |
|---|--|
| Largest loan in 2014 from formal institutes Label | Now, we will ask about the largest loan you have from formal financial institutions such as banks, microcredit, and unions. |
| Largest loan in 2014 from formal institutes Q.1 fin_ffname14 basic | What is the name of bank that your firm currently has the largest amount of single line of credit or loan? |
| Largest loan in 2014 from formal institutes Q.2 fin_ftype14 basic | What is the type of formal financial institution? (1)private banks,(3)government owned agency or banks,(4)other,(2)private non-banks (including microfinance) |

| | |
|---|---|
| Largest loan in 2014 from formal institutes Q.3 fin_famount14 basic | <i>What is the largest amount of single line of credit or loan from that bank? (million VND)</i> |
| Largest loan in 2014 from formal institutes Q.4 fin_fir14 basic | <i>What is the annual interest rate of this loan? (0 if no interest required)</i> |
| Largest loan in 2014 from formal institutes Q.5 fin_fmat14 basic | <i>What is the maturity of this loan? (in months)</i> |
| Largest loan in 2014 from formal institutes Q.6 fin_fcol14 basic | <i>What is the collateral for this loan?</i> (1)physical collateral,(2)3rd party guarantee,(3)no collateral required,(99)Others |
| Largest loan in 2014 from formal institutes Q.7 fin_fpurpose14 basic | <i>What was the purpose of this loan?</i> (1)Shortage of liquidity funds,(2)Expand production capacity,(3)Start new business lines,(4)Repay borrowing from banks,(5)Repay borrowing from microcredit/family/friend,(6)Personal Consumption,(99)Other reasons |

END SCREEN 6.2:Largest loan in 2014 from formal institutes

SCREEN6.3:Largest loan in 2014 from informal institutes

Enable if :(select fin_share from financialshare where id=6)>0

| | |
|---|---|
| Largest loan in 2014 from informal institutes Label | <i>Now, we will ask about the largest loan you have from informal financial institutions such as private moneylenders and acquaintances.</i> |
| Largest loan in 2014 from informal institutes Q.1 fin_itype14 basic | <i>What is the type of informal financial institution?</i> (1)moneylenders,(2)friends and families,(3)ROSCA,(99)others |
| Largest loan in 2014 from informal institutes Q.2 fin_iamount14 basic | <i>What is the largest amount of informal loan? (million VND)</i> |
| Largest loan in 2014 from informal institutes Q.3 fin_iir14 basic | <i>What is the annual interest rate of this informal loan? (0 if no interest required)</i> |
| Largest loan in 2014 from informal institutes Q.4 fin_imat14 basic | <i>What is the maturity of this informal loan? (in months)</i> |
| Largest loan in 2014 from informal institutes Q.5 fin_icol14 basic | <i>What is the collateral for this informal loan?</i> |
| Largest loan in 2014 from informal institutes Q.6 fin_ipurpose14 basic | <i>What was the purpose of this loan?</i> (1)Shortage of liquidity funds,(2)Expand production capacity,(3)Start new business lines,(4)Repay borrowing from banks,(5)Repay borrowing from microcredit/family/friend,(6)Personal Consumption,(99)Other reasons |

END SCREEN 6.3:Largest loan in 2014 from informal institutes

END SCREEN 6:Finance

SCREEN7:International Trade

SCREEN7.1:Perception on trade

Perception on trade Label

E: I will ask questions about international trade. Here, export refers to both indirect export through trading companies and direct export.

Perception on trade Q.1

trade_will15

basic

Does your company want to trade internationally (or continue to trade in the future)?

(1)Yes,(2)No,(99)Don't know

Perception on trade Label

E: I would like to ask how do you feel about internatoinal trade environment faced by Vietnamese firms. So could you tell me what kind of obstacles your company is faced with?

Perception on trade Label

SHOW all the options on the tablet to the respondent and let them choose as many as they want from all possible options

Perception on trade Q.2

trade_obstacle15

basic

What are obstacles of trade?

(1)Foreign markets are too competitive,(2)Weak customs facilities in Vietnam,(3)Weak transportation facilities in Vietnam,(4)This establishment is too small to export,(5)Regulatory barriers faced by this establishment in Vietnam,(6)Financial constraints faced by this establishment,(7)Domestic market is sufficient for this establishment,(8)Other,(9)None

Perception on trade Label

Please give a score from 1 to 5, 1 if no obstacle, 2 if a minor obstacle, 3 if a moderate obstacle, 4 if a major obstacle, 5 if a very severe obstacle.

Perception on trade Q.3

obstacle_transport15

basic

Is transport No Obstacle, a Minor Obstacle, a Moderate Obstacle, a Major Obstacle, or a Very Severe Obstacle to the current operations of this establishment?

(1)No obstacle,(2)Minor obstacle,(3)Moderate obstacle,(4)Major obstacle,(5)Very severe obstacle,(99)Don;t know

Perception on trade Q.4

obstacle_customs15

basic

Is customs and trade regulations No Obstacle, a Minor Obstacle, a Moderate Obstacle, a Major Obstacle, or a Very Severe Obstacle to the current operations of this establishment?

(1)No obstacle,(2)Minor obstacle,(3)Moderate obstacle,(4)Major obstacle,(5)Very severe obstacle,(99)Don;t know

Perception on trade Label

Please give a score from 1 to 5, 1 if not difficult at all, 2 little difficult, 3 somewhat difficult, 4 difficult, and 5 if very difficult.

Perception on trade Q.5

diff_adaptgoods

basic

Is adapting your products to be suitable for exporting difficult?

(1)Not difficult at all,(2)little difficult,(3)somewhat difficult,(4)difficult,(5)very difficult,(99)Don't know

| | |
|--|--|
| Perception on trade Q.6 diff_taxreg basic | <i>Is ealing with legal or tax regulations and standards difficult?</i> (1)Not difficult at all,(2)little difficult,(3)somewhat difficult,(4)difficult,(5)very difficult,(99)Don't know |
| Perception on trade Q.7 diff_enforcecontracts basic | <i>Is ensuring you get paid and enforcing contracts difficult?</i> (1)Not difficult at all,(2)little difficult,(3)somewhat difficult,(4)difficult,(5)very difficult,(99)Don't know |
| Perception on trade Q.8 diff_time basic | <i>Is finding the necessary management time to do business difficult?</i> (1)Not difficult at all,(2)little difficult,(3)somewhat difficult,(4)difficult,(5)very difficult,(99)Don't know |
| Perception on trade Q.9 diff_contact basic | <i>Is identifying whom to make contact with in the first instance?</i> (1)Not difficult at all,(2)little difficult,(3)somewhat difficult,(4)difficult,(5)very difficult,(99)Don't know |
| Perception on trade Q.10 diff_langcul basic | <i>Is dealing with the language and culture of the foreign market(s)?</i> (1)Not difficult at all,(2)little difficult,(3)somewhat difficult,(4)difficult,(5)very difficult,(99)Don't know |

END SCREEN 7.1:Perception on trade

SCREEN7.2:Efforts to trade

| | |
|---|--|
| Efforts to trade Q.1 try_exhibit basic | <i>Have you accessed the online database for export exhibitions in the last three months?</i> (1)Yes,(2)No,(99)Don't know |
| Efforts to trade Q.2 try_catalog basic | <i>Did you make catalog or website to advertise about your companies to overseas buyers in the last three months?</i> (1)Yes,(2)No,(99)Don't know |
| Efforts to trade Q.3 try_hr basic | <i>Did you identify and assign the person in charge of trade activities in the last three months?</i> (1)Yes,(2)No,(99)Don't know |
| Efforts to trade Q.4 try_name basic | <i>Do you have trade names or brand names to appeal to overseas buyers in the last three months?</i> (1)Yes,(2)No,(99)Don't know |
| Efforts to trade Q.5 try_website basic | <i>Have you accessed customs.gov.vn to try registering for the e-customs in the last three months?</i> (1)Yes,(2)No,(99)Don't know |
| Efforts to trade Q.6 try_reg basic Enable if :current.try_website=1 | <i>If you accessed customs.gov.vn, was the registration successful?</i> (1)Yes,(2)No,(99)Don't know |

Efforts to trade Q.7

try_agent

basic

Have you consider hiring or have hired trading service firm/freight firm/export agents to process export in the last three months?

(1)Yes,(2)No,(99)Don't know

END SCREEN 7.2:Efforts to trade

SCREEN7.3:VNACCS (ecustoms)

VNACCS (ecustoms) Label

E: We are now asking about the export declaration services made using internet.

VNACCS (ecustoms) Q.1

vnaccs_know15

basic

Do you know that customs process is now done using computer and internet in Vietnam?

(1)Yes,(2)No,(99)No answer

SCREEN7.3.1:Know VNACCS (ecustoms)

Enable if :current.vnaccs_know15=1

Know VNACCS (ecustoms) Label

*Read out all the options on the tablet to the respondent and let them choose as many as they want from all possible options.
For the participants only, read the last option "our training in March"
DO NOT MENTION ABOUT OUR TRAINING TO NON-PARTICIPANTS*

Know VNACCS (ecustoms) Q.1

vnaccs_distributionchannel15

basic

Where did you hear or learn about VNACCS? (multiple possible)

(1)From Ministry of Trade,(2)From customs,(3)From industry association,(4)Internet,(5)Newspaper,radio and TV,(6)Trading company,(7)Other companies,(8)Others,(9)Our training in March

Know VNACCS (ecustoms) Q.2

vnaccs_learn15

basic

Do you want to learn more about VNACCS?

(1)Yes,(2)No,(99)Don't know

Know VNACCS (ecustoms) Label

SHOW all the options on the tablet to the respondent and let them choose as many as they want from all possible options

Know VNACCS (ecustoms) Q.3

vnaccs_learnwhere15

basic

Enable if :current.vnaccs_learn15=1

Where do you want to learn about VNACCS? (multiple possible)

(1)Class by Ministry of trade,(2)Class by Customs,(3)Class by industry association,(4)Class by program developers,(5)Class by Japanese government,(6)Class by online,(7)Class by trading company,(8)Others

END SCREEN 7.3.1:Know VNACCS (ecustoms)

SCREEN7.3.2:Do not know VNACCS (ecustoms)

Enable if :current.vnaccs_know15=2

Do not know VNACCS (ecustoms) Q.1

ecustoms_learn15

basic

Do you want to learn about automated electronic customs clearance procedure (e-customs) that uses computer for customs process?

(1)Yes,(2)No,(99)Don't know

Do not know VNACCS (ecustoms) Label

SHOW all the options on the tablet to the respondent and let them choose as many as they want from all possible options

Do not know VNACCS (ecustoms) Q.2

ecustoms_learnwhere15 **basic**

Enable if :current.ecustoms_learn15=1

Where do you want to learn such e-customs?

(1)Class by Ministry of trade,(2)Class by Customs,(3)Class by industry association,(4)Class by program developers,(5)Class by Japanese government,(6)Class by online,(7)Class by trading company,(8)Others

END SCREEN 7.3.2:Do not know VNACCS (ecustoms)

END SCREEN 7.3:VNACCS (ecustoms)

SCREEN7.4:Export Activities January-June 2015

Export Activities January-June 2015 Label

E: I want to ask about your export activities in more detail.

Export Activities January-June 2015 Label

Explain: Indirect exports are the amount the company sells to companies and customers located in foreign countries indirectly through trading companies.

Indirect exports do NOT include sales of parts and components to assemblers in Vietnam which eventually export their final products to foreign countries

Export Activities January-June 2015 Q.1

export_preference15 **basic**

Do you prefer direct export over indirect export?

(1)Yes,(2)No,(99)Don't know

Export Activities January-June 2015 Q.2

export_indirectwhy **basic**

Enable if :current.export_preference15=2

Why do you want to export through trading companies?
(multiple possible)

(1)Fast market Access,(2)Focus on production,(3)Trading company covers most expenses associated with international sales,(4)No direct handle of export processes,(5)No knowledge about trade process,(6)Others

Export Activities January-June 2015 Q.3

export151 **basic**

Enable if :current.export_preference15=1

Did you export directly in January-June 2015?

(1)Yes,(2)No,(99)Don't know

Export Activities January-June 2015 Q.4

inexport151 **basic**

Did you export indirectly in January-June 2015?

(1)Yes,(2)No,(99)Don't know

SCREEN7.4.1:Directly exported in 2015

Enable if :current.export151=1

Directly exported in 2015 Q.1

export_time15 **basic**

In 2015, when this establishment exported, how many days did it take on average from the time these goods arrived to their point of entry (e.g. port, airport) in Vietnam until the time these goods could be claimed from customs?

| | |
|---|---|
| Directly exported in 2015 Q.2 export_timemax15 basic | <i>In 2015, when this establishment exported, what was the longest number of days from the time these goods arrived to their point of entry (e.g. port, airport) in Vietnam until the time these goods could be claimed from customs?</i> |
| Directly exported in 2015 Q.3 export_producths615 basic | <i>How many products did you directly export (HS 6 digit) this year?</i> |
| Directly exported in 2015 Q.4 export_new15 basic | <i>In 2015, did you start to export any new product according to the HS classification?</i> (1)Yes,(2)No,(99)Don't know |
| Directly exported in 2015 Q.5 export_em15 basic Enable if :current.export_new15=1 | <i>In 2015, how many new products did your establishment directly export?</i> |
| Directly exported in 2015 Q.6 export_country15 basic | <i>How many countries do you directly export this year?</i> |
| Directly exported in 2015 Q.7 export_maincountry15 basic | <i>What is your main importing country?</i> |
| Directly exported in 2015 Q.8 export_firms15 basic | <i>How many companies do you directly export this year?</i> |
| Directly exported in 2015 Q.9 vnaccs_use15 basic | <i>Do you use VNACCS?</i> (1)Yes,(2)No,(99)Don't know |

START ROSTER 7.4.1.1:Please tell me the top 5 export products in the order of sales

| | |
|---|---|
| Please tell me the top 5 export products in the order of sales Q.10 exporths215 top5exports | <i>What is the 2 digit HS2012?</i> |
| Please tell me the top 5 export products in the order of sales Q.11 exporths415 top5exports | <i>What is the 4 digit HS2012?</i> |
| Please tell me the top 5 export products in the order of sales Q.12 exporths615 top5exports | <i>What is the 6 digit HS2012?</i> |
| Please tell me the top 5 export products in the order of sales Q.13 exportshareproduct15 top5exports | <i>Share of value of this product out of the total export %</i> |
| Please tell me the top 5 export products in the order of sales Q.14 exportyearproduct15 top5exports | <i>First year to export</i> |

Please tell me the top 5 export products in the order of sales Q.15

exportcountrydestination15 **top5exports**

how many countries?

Please tell me the top 5 export products in the order of sales Q.16

exportfirmsproduct15 **top5exports**

how many companies?

Please tell me the top 5 export products in the order of sales Q.17

vnaccs_reduce timetotal15 **top5exports**

How many days does VNACCS reduce the time of export process on average? (if it reduced days, put minus sign and if it increased days, put numbers)

Enable if :select vnaccs_use15 from basic =1

Please tell me the top 5 export products in the order of sales Q.18

vnaccs_reducecosttotal **top5exports**

How much does VNACCS reduce the cost of export process on average in million VND? (if it reduced cost, put minus sign and if it increased cost, put numbers)

Enable if :select vnaccs_use15 from basic =1

END ROSTER 7.4.1.1:Please tell me the top 5 export products in the order of sales

END SCREEN 7.4.1:Directly exported in 2015

SCREEN7.4.2:Indirectly exported in 2015

Enable if :current.inexport15=1

Indirectly exported in 2015 Q.1

indirect_export_product15 **basic**

How many products did you indirectly export this year?

Indirectly exported in 2015 Q.2

indirect_export_producths615 **basic**

How many products did you indirectly export (HS 6 digit) this year?

Indirectly exported in 2015 Q.3

indirect_export_new15 **basic**

In 2015, did you start to indirectly export any new product?

(1)Yes,(2)No,(99)Don't know

Indirectly exported in 2015 Q.4

indirect_export_em15 **basic**

In 2015, how many new products did your establishment indirectly export?

Enable if :current.indirect_export_new15=1

Indirectly exported in 2015 Q.5

indirect_export_country15 **basic**

How many countries do you indirectly export this year?

Indirectly exported in 2015 Q.6

indirect_export_firms15 **basic***How many companies do you indirectly export this year?*

START ROSTER 7.4.2.1:Please tell me the top 5 indirect export products in the order of sales

Please tell me the top 5 indirect export products in the order of sales Q.7

indirect_exporths215 **top5inexports***What is the 2 digit HS2012?*

Please tell me the top 5 indirect export products in the order of sales Q.8

indirect_exporths415 **top5inexports***What is the 4 digit HS2012?*

Please tell me the top 5 indirect export products in the order of sales Q.9

indirect_exporths615 **top5inexports***What is the 6 digit HS2012?*

Please tell me the top 5 indirect export products in the order of sales Q.10

indirect_exportshareproduct15 **top5inexports***Share of value of this product out of the total export %*

Please tell me the top 5 indirect export products in the order of sales Q.11

indirect_exportyearproduct15 **top5inexports***First year to export*

END ROSTER 7.4.2.1:Please tell me the top 5 indirect export products in the order of sales

END SCREEN 7.4.2:Indirectly exported in 2015

END SCREEN 7.4:Export Activities January-June 2015

SCREEN7.5:Import Activities January-June 2015

Import Activities January-June 2015 Label

E: I would like to ask about import activities in detail.

Import Activities January-June 2015 Q.1

import151 **basic***Did you import in January-June 2015?*

(1)Yes,(2)No,(99)Don't know

Import Activities January-June 2015 Q.2

import_maincountry **basic***Which country do you import the most from?*

Enable if :current.import151=1

Import Activities January-June 2015 Q.3

import_time15 **basic**

Enable if :current.import151=1

In 2015, when this establishment imported material inputs or supplies, how many days did it take on average from the time these goods arrived to their point of entry (e.g. port, airport) until the time these goods could be claimed from customs?

Import Activities January-June 2015 Q.4

import_timemax15 **basic**

Enable if :current.import151=1

In 2015, when this establishment imported material inputs or supplies, what was the longest number of days from the time these goods arrived to their point of entry (e.g. port, airport) until the time these goods could be claimed from customs?

Import Activities January-June 2015 Q.5

import_em15 **basic**

Enable if :current.import151=1

In 2015, how many new products did your establishment import according to HS classification? (0 if no new products)

Import Activities January-June 2015 Q.6

import_im15 **basic**

Enable if :current.import151=1

If you compare import volume between 2014 and 2015, how much does import volume increase in 2015? (0 if no change, minus percent if decreased, plus percent if increased. e.g)100 if doubled)

END SCREEN 7.5:Import Activities January-June 2015

END SCREEN 7:International Trade

SCREEN8:Top Manager of the current establishment

Top Manager of the current establishment Q.1

manager_position **basic**

What is your position at this company?

(1)Owner,(4)Family/relative of owner,(2)CEO,(3)Manager of a department/branch,(99)Others

SCREEN8.1:Network

Network Label

*Note to enumerators: Get the total list of Firm ID/Firm name first for each table.
The number of rows can be as many as they pick.
If the total number exceed five, ask them to pick five firms in the order of importance.
Answer the rest of questions for only those five firms.
We only want the name of the total firms but for detailed information, we only need five to reduce the time.*

Network Label

*Insider means any firms from the provided list with the ID number.
Outsider means any firms that is not on the list.
Therefore, retailers and traders of the same village are considered to be outsiders, although they are located in the same village, we will not designate them with id number and thus will not be considered as insiders.
You should add these firms as outsider (meaning outside of our list but not geograogically) with their names.*

SCREEN8.1.1:Information sharing

Information sharing Label

Note to Enumerators: Show the list to the respondent. Insert all the Firm ID numbers from the list first then answer the rest of question for top 5 if more than 5.

Information sharing Label

*E: We now ask about your information sharing partners within this cluster. Please indicate names of firms within this list with which your firm regularly exchange business information.
after inserting all the ID
E: Please pick 5 partners from here which the information exchange is most valuable to your firm.*

START ROSTER 8.1.1.1:Information sharing with insiders

Information sharing with insiders Q.1

net_info15**infoshare**

Firm id which you regularly exchange business information with this firm?

Information sharing with insiders Q.2

net_type15**infoshare**

Family or relative?

(1)Yes,(2)No,(99)Don't know

END ROSTER 8.1.1.1:Information sharing with insiders

Information sharing Label

*E: We now ask about your information sharing partners with firms that are not on the list. Please indicate names of firms with which your firm regularly exchange business information.
after inserting all the ID
E: Please pick 5 partners from here which the information exchange is most valuable to your firm. Please answer the next questions for these 5 firms.*

START ROSTER 8.1.1.2:Information sharing with outsiders

Information sharing with outsiders Q.3

outnet_info15**inforshare_out**

Name of firm which you regularly exchange business information with?

Information sharing with outsiders Q.4

outnet_location15**inforshare_out**

Location?

(2)same cluster (not on the list),(3)same province,(4)other province,(5)foreign country outside Vietnam

Information sharing with outsiders Q.5

outnet_type15**inforshare_out**

Family or relative?

(1)Yes,(2)No,(99)Don't know

Information sharing with outsiders Q.6

outnet_howmet15**inforshare_out**

How did you get to know each other?

(1)personal contact,(2)contact from them first,(3)website/media,(4)other companies introduction,(5)business meetings/exhibition,(6)government agencies introduction,(7)Our training in March

END ROSTER 8.1.1.2:Information sharing with outsiders**END SCREEN 8.1.1:Information sharing**

SCREEN8.1.2:Suppliers

Suppliers Label

Insert all the Firm ID numbers first then answer the rest.

Suppliers Label

*E: We now ask about your supplier within this cluster. Please indicate names of firms within this list which your firm regularly buys from.
after inserting all the ID
E: Please pick 5 partners from here which the amount of purchase is the largest*

START ROSTER 8.1.2.1:Supplier chain of insiders

Supplier chain of insiders Q.1

Firm id which your firm bought products this year

net_buy15

suppliers

Supplier chain of insiders Q.2

Family or relative?

net_buy_fam15

suppliers

Supplier chain of insiders Q.3

How big is the purchase in 2015? million VND

net_buy_amount15

suppliers

END ROSTER 8.1.2.1:Supplier chain of insiders

Suppliers Q.4

In total, how many suppliers on the list did you have before Tet (Feb, 2015)?

net_buy_reg14

basic

Suppliers Q.5

In total, how many suppliers not on the list but in the same village cluster before Tet (Feb, 2015)?

net_buy_unreg14

basic

Suppliers Q.6

In total, how many suppliers on the list do you have currently?

net_buy_reg151

basic

Suppliers Q.7

In total, how many suppliers not on the list but in the same village cluster do you have currently?

net_buy_unreg151

basic

Suppliers Label

*E: We now ask about your supplier that are not on the list. Please indicate names of firms which your firm regularly buys from.
after inserting all the ID
E: Please pick 5 partners from here which the amount of purchase is the largest*

START ROSTER 8.1.2.2:Supplier chain of outsiders

Supplier chain of outsiders Q.8

Firm name that are not on the list which your firm bought products this year

outnet_buy15

suppliers_out

Supplier chain of outsiders Q.9

Location?

outnet_buy_location15

suppliers_out

(2)same cluster (not on the list),(3)same province,(4)other province,(5)foreign country outside Vietnam

Supplier chain of outsiders Q.10

outnet_buy_fam15

suppliers_out

Family or relative?

(1)Yes,(2)No,(99)Don't know

Supplier chain of outsiders Q.11

outnet_buy_howmet15

suppliers_out

How did you get to know each other?

(1)personal contact,(2)contact from them first,(3)website/media,(4)other companies introduction,(5)business meetings/exhibition,(6)government agencies introduction,(7)Our training in March

END ROSTER 8.1.2.2:Supplier chain of outsiders

Suppliers Q.12

outnet_buy_nv14

basic

In total, how many suppliers in Northern Vietnam before Tet (Feb, 2015)?

Suppliers Q.13

outnet_buy_nv151

basic

In total, how many suppliers in Northern Vietnam now?

Suppliers Q.14

outnet_buy_v14

basic

In total, how many suppliers in other regions in Vietnam before Tet (Feb, 2015)?

Suppliers Q.15

outnet_buy_v151

basic

In total, how many suppliers in other regions in Vietnam now?

Suppliers Q.16

outnet_buy_f14

basic

In total, how many suppliers overseas before Tet (Feb, 2015)?

Enable if :current.suppliersshare_imp14>0

Suppliers Q.17

outnet_buy_f151

basic

In total, how many suppliers overseas now?

END SCREEN 8.1.2:Suppliers

SCREEN8.1.3:Subcontracting

Subcontracting Label

E: Now, I'm going to ask about subcontracting activities of your firm. Subcontracting is when you order parts and finished products from other firms while providing them with necessary materials, finance, and technical know-how.

Subcontracting Q.1

subcontractcost14

basic

How much did you pay to the subcontracted firms in 2014? (million VND)

Subcontracting Q.2

subcontract14

basic

How many firms/households have you given sub-contracted works before Tet (Feb, 2015)?

Subcontracting Q.3

subcontract151

basic

How many firms/households have you given sub-contracted works now?

END SCREEN 8.1.3:Subcontracting

SCREEN8.1.4:Buyers from outside

Buyers from outside Label

Insert all the Firm ID numbers first then answer the rest.

Buyers from outside Label

E: We now ask about your buyers that are not on the list. Please indicate names of firms which your firm regularly sell to.

after inserting all the ID

E: Please pick 5 partners from here which the amount of sales is the largest

START ROSTER 8.1.4.1:Buyers from outside

Buyers from outside Q.1

outnet_sell15**buyers_out***Firm name that are not on the list which your firm bought products this year*

Buyers from outside Q.2

outnet_sell_location15**buyers_out***Location?**(2)same cluster (not on the list),(3)same province,(4)other province,(5)foreign country outside Vietnam*

Buyers from outside Q.3

outnet_sell_fam15**buyers_out***Family or relative?**(1)Yes,(2)No,(99)Don't know*

Buyers from outside Q.4

outnet_sell_howmet15**buyers_out***How did you get to know each other?**(1)personal contact,(2)contact from them first,(3)website/media,(4)other companies introduction,(5)business meetings/exhibition,(6)government agencies introduction,(7)Our training in March***END ROSTER 8.1.4.1:Buyers from outside****END SCREEN 8.1.4:Buyers from outside****END SCREEN 8.1:Network****SCREEN8.2:Business experience**

Business experience Label

E: I will ask questions about your business experience and membership.

Business experience Q.1

top_member15**basic**

How many memberships do you hold for any professional union/association, such as chambers of commerce and industry and industry associations?

START ROSTER 8.2.1:Association Membership

Association Membership Q.2

top_asso15**topSasso***Write association name which the manager has a membership*

END ROSTER 8.2.1:Association Membership

Business experience Q.3

top_memberother15

basic

Are you a member of any other union/association, such as sports club, religious and community associations?

(1)Yes,(2)No,(99)Don't know

Business experience Q.4

top_groupother15

basic

Enable if :current.top_memberother15=1

Name of such non-business related group you are most actively involved in?

END SCREEN 8.2:Business experience

SCREEN8.3:Preference

Preference Label

E: I would like to ask questions about your preference.

SCREEN8.3.1:Government

Government Q.1

top_govresp15

basic

It is the government's responsibility to take care of those who cannot take care of themselves financially

(1)Strongly agree,(2)Somewhat agree,(3)Somewhat disagree,(4)Strongly disagree,(5)Don't know

Government Q.2

top_foreignownership15

basic

In general, the government should limit foreign ownership of domestic companies.

(1)Strongly agree,(2)Somewhat agree,(3)Somewhat disagree,(4)Strongly disagree,(5)Don't know

Government Q.3

top_govconnection15

basic

Political connections are important for small and medium-sized companies to reap profits from their own businesses in Vietnam.

(1)Strongly agree,(2)Somewhat agree,(3)Somewhat disagree,(4)Strongly disagree,(5)Don't know

END SCREEN 8.3.1:Government

SCREEN8.3.2:Openness

Openness Q.1

top_buysameprov15

basic

Imagine that you are buying a product from the same village. Then you find out that another company from a different village in the same province sells better product at the same price. Are you willing to switch your supplier?

(1)Strongly agree,(2)Somewhat agree,(3)Somewhat disagree,(4)Strongly disagree,(5)Don't know

Openness Q.2

top_buydiffprov15

basic

Imagine that you are buying a product from the same province. Then you find out that another company from a different province sells better product at the same price. Are you willing to switch your supplier?

(1)Strongly agree,(2)Somewhat agree,(3)Somewhat disagree,(4)Strongly disagree,(5)Don't know

| | | |
|--|--------------|--|
| Openness Q.3 top_buyforeign15 | basic | <i>Imagine that you are buying a product from Vietnam. Then you find out that another company from a foreign country sells better product at the same price. Are you willing to switch your supplier?</i> (1)Strongly agree,(2)Somewhat agree,(3)Somewhat disagree,(4)Strongly disagree,(5)Don't know |
| Openness Q.4 top_marryprovince15 | basic | <i>Would you agree if your daughter or one of your female relatives wants to marry a person from different province?</i> (1)Strongly agree,(2)Somewhat agree,(3)Somewhat disagree,(4)Strongly disagree,(5)Don't know |
| Openness Q.5 top_marryfore15 | basic | <i>Would you agree if your daughter or one of your female relatives wants marry a foreigner?</i> (1)Strongly agree,(2)Somewhat agree,(3)Somewhat disagree,(4)Strongly disagree,(5)Don't know |
| Openness Q.6 top_marryreli15 | basic | <i>Would you agree if your daughter or one of your female relatives wants marry a person with different religion?</i> (1)Strongly agree,(2)Somewhat agree,(3)Somewhat disagree,(4)Strongly disagree,(5)Don't know |
| Openness Q.7 top_ftasme15 | basic | <i>In general, free trade brings significant benefits to small and medium-sized companies in Vietnam</i> (1)Strongly agree,(2)Somewhat agree,(3)Somewhat disagree,(4)Strongly disagree,(5)Don't know |

END SCREEN 8.3.2:Openness

SCREEN8.3.3:Ideas

| | | |
|--|--------------|---|
| Ideas Q.1 top_infothrupoli15 | basic | <i>Connecting with people who are in positions of authority is a good way to access quality information.</i> (1)Strongly agree,(2)Somewhat agree,(3)Somewhat disagree,(4)Strongly disagree,(5)Don't know |
| Ideas Q.2 top_respectpoli15 | basic | <i>You must always show respect to people who are in positions of authority.</i> (1)Strongly agree,(2)Somewhat agree,(3)Somewhat disagree,(4)Strongly disagree,(5)Don't know |
| Ideas Q.3 top_outsider15 | basic | <i>Connecting with outsiders is a good way to access new information.</i> (1)Strongly agree,(2)Somewhat agree,(3)Somewhat disagree,(4)Strongly disagree,(5)Don't know |
| Ideas Q.4 top_prepare15 | basic | <i>You prepare perfectly before what will happen</i> (1)Strongly agree,(2)Somewhat agree,(3)Somewhat disagree,(4)Strongly disagree,(5)Don't know |
| Ideas Q.5 top_risk15 | basic | <i>It is necessary to take risks for success in business.</i> (1)Strongly agree,(2)Somewhat agree,(3)Somewhat disagree,(4)Strongly disagree,(5)Don't know |

Ideas Q.6

top_patient15**basic***You are patient*

(1)Strongly agree,(2)Somewhat agree,(3)Somewhat disagree,(4)Strongly disagree,(5)Don't know

END SCREEN 8.3.3:Ideas

END SCREEN 8.3:Preference

Top Manager of the current establishment Label

E: We are getting some personal information and private relationship information because we are interested in their relationship between the personal characteristics of the owner/top manager and the firm performance. Your private information will be used only for research purpose. You are only identified as a ID number.

SCREEN8.4:Relationship

Relationship Q.1

top_foreignf15**basic***Do you have a family or friend living in another country?*

(1)Yes,(2)No,(99)Don't know

Relationship Q.2

top_fbbusiness15**basic***Are you using Facebook for business?*

(1)Yes,(2)No,(99)Don't know

Relationship Q.3

top_snsbusiness161**basic***Do you use any other SNS (like twitter, Weibo, Wechat and etc) for your business?*

(1)Yes,(2)No,(99)Don't know

Relationship Q.4

top_polirel15**basic***Do you know any politicians that you can call when you need to?*

(1)Yes,(2)No,(99)No answer

Relationship Q.5

top_info15**basic***Can you obtain valuable and important information from the government?*

(1)Yes,(2)No,(99)No answer

Relationship Q.6

top_govinfo15**basic***Do you think it is harder for you than other companies to obtain valuable information from the government?*

(1)Strongly agree,(2)Somewhat agree,(3)Somewhat disagree,(4)Strongly disagree,(5)Don't know

Relationship Q.7

top_govsupport15**basic***Do you receive any financial subsidies (including tax holiday) from the government?*

(1)Yes,(2)No,(99)No answer

END SCREEN 8.4:Relationship

END SCREEN 8:Top Manager of the current establishment

SCREEN9:Closing

Closing Q.1

cooperative**basic**

*How cooperative was the respondent?
(scale 0 for not cooperative 10 for fully cooperative)*

Closing Q.2

time2**basic**

End time

Closing Q.3

validate**basic**

Press File-Validate entire interview and check for error

END SCREEN 9:Closing

Validation rules

supplier share

*Share of suppliers in domestic and
foreign market must add up to 100*

`current.suppliersshare_imp14+current.suppliersshare_dom14 <> 100`