UNIVERSITI PUTRA MALAYSIA

IMPACT OF TRADE LIBERALIZATION ON TAX REVENUES AND TAX STRUCTURES IN DEVELOPING COUNTRIES

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By

MOHAMMAD KARIMI

Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in Fulfilment of the Requirements for the Degree of Doctor of Philosophy

June 2016

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DEDICATIONS

I dedicate this work to
My beloved wife Somayyeh,
My son Danial, and my daughter Nika.

I also dedicate this work to my beloved father and mother.

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Doctor of Philosophy

IMPACT OF TRADE LIBERALIZATION ON TAX REVENUES AND TAX STRUCTURES IN DEVELOPING COUNTRIES

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MOHAMMAD KARIMI

June 2016

Chairman : Shivee Ranjanee Kaliappan, PhD
Faculty : Economics and Management

Trade liberalization tends to be an intrinsic part of structural adjustment programs due to its presumed beneficial effects on growth. However, trade reform policies can have fiscal effects that hinder growth and development. This dissertation takes a critical look at the effect of trade liberalization on taxation in developing countries. The study intends to (a) investigate the impact of trade liberalization on international trade tax revenue in developing countries and examine whether this impact is conditioned by the level of trade liberalization; (b) explore the empirical nexus between trade liberalization and total tax revenues and examine whether this relationship is contingent on the level of trade liberalization and countries' characteristics (such as level of national income and countries' dependency on oil revenues) in developing countries; and (c) analyze the impact of trade liberalization on the tax structures in developing countries. For the first and second objectives, a dynamic panel threshold regression approach is utilized on panel data of 103 developing countries covering the period of 1993-2012. While for the third objective, a fixed effects regression framework is performed by using panel data for 97 developing countries over 1993-2012. The findings for the first objective suggest a non-linear relationship between tariff rate and international trade tax revenue and revealing an evidence of potential Laffer curve effect. Concerning the link between trade liberalization and total tax revenues (second objective), the results show a non-linear relationship, implying that the impact of trade liberalization on total tax revenues is negative initially, but when trade openness exceeds the detected threshold level of trade openness, this negative effect will be changed to a significant positive effect. The results further indicate that the relationship between trade liberalization and total tax revenues is contingent on level of national income and oil revenues. As for the third objective, the findings indicate that the impacts of trade liberalization on tax structures are sensitive to the different measures of trade liberalization. While trade openness does not have a significant impact on all kinds of tax shares in developing countries, reduction of tariff rates and WTO membership seems to contribute to the changes in the tax structures in these countries. In conclusion, trade liberalization seems to play an important role in determining the international trade tax revenue, total tax revenues, and tax structures in developing countries. The findings of this research provide important policy implications for trade liberalization and taxation strategies of developing countries. Generally, providing a favorable environment and infrastructure with a stable trade policy and

effective trade regulation is a significant task facing most of the developing countries.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

KESAN LIBERALISASI PERDAGANGAN KE ATAS HASIL CUKAI DAN STRUKTUR CUKAI DI NEGARA-NEGARA MEMBANGUN

Oleh

MOHAMMAD KARIMI

Jun 2016

Pengerusi : Shivee Ranjanee Kaliappan, PhD
Fakulti : Ekonomi dan Pengurusan

Liberalisasi perdagangan dilihat sebagai satu elemen penting dalam program penyesuaian struktur disebabkan kesannya ke atas pertumbuhan. Walau bagaimanapun, yang menjadi paradoks adalah, dasar-dasar reformasi perdagangan boleh menyebabkan kesan fiskal yang mungkin menghalang pertumbuhan dan pembangunan. Disertasi ini mengambil satu pandangan kritikal kesan liberalisasi perdagangan ke atas pencukaian di negara-negara membangun. Kajian ini bercadang untuk (a) menyiasat kesan liberalisasi perdagangan ke atas hasil cukai perdagangan antarabangsa dan mengkaji sama ada kesan ini bergantung kepada tahap liberalisasi perdagangan; (b) meneroka hubungan empirikal di antara liberalisasi perdagangan dan jumlah hasil cukai dan mengkaji sama ada hubungan ini bergantung kepada tahap liberalisasi perdagangan dan ciri-ciri seperti tingkat pendapatan dan hasil minyak negara-negara membangun; dan (c) analisis kesan liberalisasi perdagangan ke atas struktur cukai di negara membangun. Untuk objektif pertama dan kedua, kaedah regresi ambang panel dinamik (*dynamic panel threshold regression)* digunakan ke atas data panel melibatkan 103 buah negara membangun meliputi tempoh masa 1993-2012. Manakala untuk objektif ketiga, regresi kesan tetap (*fixed effects regression)* digunakan ke atas data panel untuk 97 buah negara membangun meliputi tempoh masa 1993-2012. Hasil kajian objektif pertama memaparkan perhubungan tidak linear di antara kadar tarif dan hasil cukai perdagangan antarabangsa dan membuktikan potensi kewujudan kesan keluk Laffer. Berkenaan hubungan di antara liberalisasi perdagangan dan jumlah hasil cukai (objektif kedua), hasil kajian menunjukkan perhubungan tidak linear membayangkan bahawa pada mulanya kesan liberalisasi perdagangan ke atas jumlah hasil cukai adalah negatif, akan tetapi, bila tahap keterbukaan perdagangan melebihi tahap ambang (*threshold*) keterbukaan perdagangan yang telah dikenalpasti, maka kesan negatif ini akan berubah kepada kesan positif yang signifikan. Hasil kajian seterusnya juga menunjukkan bahawa hubungan di antara liberalisasi perdagangan dan jumlah hasil cukai bergantung kepada tahap pendapatan negara dan hasil minyak. Bagi objektif ketiga, hasil kajian menunjukkan bahawa impak liberalisasi perdagangan ke atas struktur cukai adalah sensitif kepada ukuran liberalisasi perdagangan yang digunakan. Walaupun tahap keterbukaan perdagangan tidak mempunyai impak yang signifikan ke atas semua jenis cukai di negara-negara membangun, akan tetapi didapati pengurangan kadar tarif dan keahlian dalam WTO menyumbang kepada perubahan dalam struktur cukai di negara-negara ini. Sebagai kesimpulan, liberalisasi

perdagangan didapati memainkan peranan penting dalam mempengaruhi hasil cukai perdagangan antarabangsa, jumlah hasil cukai dan struktur cukai di negara membangun. Penemuan penyelidikan ini memberikan beberapa implikasi polisi penting untuk perdagangan dan strategi pencukaian untuk negara-negara membangun. Pada umumnya, penyediaan satu persekitaran dan infrastruktur yang kondusif dengan dasar perdagangan stabil dan peraturan perdagangan yang efektif merupakan satu tugas penting yang dihadapi oleh kebanyakan daripada negara-negara membangun.

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Above all, I would like to extend my utmost heartfelt appreciation to my wife, parents, brothers, sisters and all my family that have given me their unequivocal prayers and support throughout, as always, for which, my mere expression of thanks does not suffice.

I certify that a Thesis Examination Committee has met on 8 June 2016 to conduct the final examination of Mohammad Karimi on his thesis entitled "Impact of Trade Liberalization on Tax Revenues and Tax Structures in Developing Countries" in accordance with the Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1998. The Committee recommends that the student be awarded the Doctor of Philosophy.

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Signature:
Name of Member of Supervisory Committee: HANNY ZURINA HAMZAH

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LIST OF ABBREVIATIONS

ARDL	Autoregressive Distributed Lag
EP	Export Promotion
CARICOM	Caribbean Community
CET	Common External Tariff
CFA	Communauté Financière Africaine
CGE	Computable General Equilibrium
CPI	Corruption Perception Index
CU	Customs Union
ERP	Effective Rate of Protection
FE	Fixed Effect
FTA	Free Trade Agreement
GATT	General Agreement on Tariffs and Trade
GLS	Generalized Least Squares
GMM	Generalized Methods of Moments
GFS	Government Finance Statistic
GDP	Gross Domestic Product
IMF	International Monetary Fund
IS	Import substitution
MENA	Middle East and North Africa
OLS	Ordinary Least Squares
OECD	Organization for Economic Co-operation and Development
RE	Random Effect
RTAs	Regional Trading Arrangements
SMR	Southern Mediterranean Region
SSA	Sub-Saharan Africa
UNCTAD	United Nations Conference on Trade and Development
EU	European Union
VAT	Value Added Tax
WDI	World Development Indicators
WTO	World Trade Organization

CHAPTER 1

INTRODUCTION

1.1 An Overview

In the last three decades, there has been a considerable shift towards a more liberal trade regime by many developing countries as part of the recommended policy for lending programs by the World Trade Organization (WTO) and World Bank (Jones, Morrissey & Nelson, 2011). WTO programs are followed by diminution of tariffs and minimization of non-tariff barriers to facilitate international trade and exchange rate depreciation. Increasingly, many developing countries are also participating in the Regional Trading Arrangements (RTAs) with preferential tariffs. For most developing countries, trade liberalization has often been the main part of their economic growth strategy.

Theory of free trade shows the development of economy through trade liberalization. However, trade liberalization could reduce tariffs (trade tax) revenues. In fact, reducing these taxes could lead to fiscal instability because trade tax revenue plays a key role in developing countries (Khattry, 2003; Khattry & Rao, 2002; Peters, 2002; Blejer & Cheasty, 1990). In the case of potentially successful liberalization, the governments might pay much attention to the short run budgetary implications of trade liberalization for developing countries and particularly for poor nations. Despite the significant liberalization of their trade regime over the past decades, many less developed and developing countries persist to rely heavily on international trade taxes as one of the main source of government revenue. For instance, in Sub-Saharan Africa, trade taxes account for an average of 25 percent of the total government revenues. Meanwhile, in Asian and Pacific developing countries, trade taxes account for around 15 percent (Baunsgaard & Keen, 2010).

The evidence highlights that the reliance on international trade taxes in low and middle income countries such as African and Asian developing countries is much higher than that in developed countries[1]. The fear of the consequences of trade liberalization is quite considerable among poor and developing countries. While many studies have considered the positive effects of trade liberalization, a limited number of studies have paid attention to the concern from the reduction in tax revenues resulting from trade liberalization. This leads to the arguments on does liberalizing the trade is a possible cause of fiscal instability, particularly in countries which strongly depend on international trade tax revenue. It was also emphasized that the impact of trade liberalization on taxation varies within different developing countries. Its impact depends on kind of trade liberalization implemented in these countries, their tax structure, their features and, etc. Thus, this study intends to further explore these issues. The following sections will provide a detailed discussion on research background, problem statement, research objectives and significance of the study.

[1] For OECD countries, taxes on international trade as a percentage of total government revenues is less than 1 percent in 2011(WDI, 2011).

1.2 Background of the Study

1.2.1 Development Strategies in Developing Countries

Generally, international trade can stimulate economic growth through three channels, namely; an increase in the domestic demand, import substitution (IS), and export promotion (EP) strategies. An increase in the domestic demand is associated with the stimulation of expenditures inside the country, while import substitution and export promotion strategies are related to international trade effects. Most developing and less developed countries adopted import substitution strategy to stimulate their economy especially during the period of 1950s to 1980s. Import substitution is a strategy which reduces the country's foreign dependency and appreciates the domestic production by substituting the imported goods with the locally produced goods. In other words, IS were adopted by developing countries with the intention of producing development and self-sufficiency through the creation of an internal market. For this, the countries need to undertake various reformations such as state lead economic development through nationalization, subsidization of vital industries (including agriculture, power generation, etc.), increased taxation, and highly protectionist trade policies. Moreover, this strategy also aims to protect domestic industries (i.e. infant industries) until they become mature and more competitive globally. Nevertheless, the benefit from IS strategy very much depends on the size and extent of income and internal market of the respective countries. As it is widely known, most of the less developed and developing countries have smaller economies with lower per capita income. Therefore, these countries found that IS strategy was less successful in stimulating their growth. This has been true, especially in the case of Latin American countries in the 1970s. Import substitution strategy was gradually abandoned by developing countries in the 1980s and 1990s as these countries made structural reformation to incorporate policies or programs that are in line with global market-driven liberalization.

Therefore, many less developed and developing countries have shifted their policies from import substitution to export promotion strategy hoping that this strategy would stimulate growth more rapidly. On the other hand, an export promotion strategy, instead of promoting industries which produce import substituted goods and protect infant industries, particularly promotes the industries that have the potential for developing and competing with foreign rivals in the world market. Many scholars have argued that the direct effect of an export- oriented strategy on economic growth is positive, whereas the effect of import substitution is thought to be negative. Export orientation can be seen as an impulse for economic growth because it will spur the demand for the goods produced in a developing country (Hout, 1996). Krueger (1978) indicates that "both import substitution and export promotion, tend to increase capacity utilization, but such an effect under an export strategy is greater than that of an import substitution strategy".

In order to gain an access to a foreign market, liberalization policy is implemented to assist an export promotion strategy. Thus, over the past few decades, liberalizing the external trade regime has been one of the central and most visible elements of many less developed and developing countries to achieve accelerated exports, and

consequently economic growth. However, not all countries get benefits from liberalization trade because freer trade can have trade and fiscal effects and disturb the economic growth (Khattry & Rao, 2002). From a trade perspective, although trade liberalization generally increases the volume of imports, there is no guarantee that free trade increases exports. Furthermore, if export does not increase more than import, the trade balance would be worsening and result in the current account deficits. On the fiscal side, the tariff reduction from trade liberalization causes a considerable decline in international trade tax revenue. This fiscal problem is more serious for less developed and developing countries that are very dependent on international trade taxes. Thus, trade liberalization may lead countries to a profound problem of fiscal and trade deficit, at least in the transition period.

1.2.2 Trade Liberalization Scenario in Developing Countries

Trade liberalization has been key policy debate in development literature since the early 1970s. Trade liberalization policies are the policies that allow the unrestricted flow of goods and services between countries. Trade liberalization has been described by several definitions, and Henderson (1992) suggested moving to 'neutrality' of government intervention as between tradable and non-tradable sectors of the economy. On this connection 'getting prices right' by fixing up internal prices with world prices, as per tradable goods, was considered with the assumption that trade allows countries the freedom to be involved in international transactions without discrimination. Michaely, Choksi, and Papageorgiou (1991) have a comprehensive definition of trade liberalization that "trade liberalization implies any change which leads to a country's trade system towards neutrality in the sense of bringing its economy closer to the situation which would prevail if there were no government interference in the trade system. Put in other words, confers no discernible incentives to either the importable or the exportable activities of the economy."

However, one of the most serious problems faced by researchers today is that there is no exactness in what is meant by "trade liberalization" or "openness". Moreover Yanikkaya (2003) points out that the definition of "openness" suggests becoming equal to the definition of "trade liberalization" where a trade system is seen as a place where all trade deviations are eliminated. Beyond a general understanding that "openness" refers to trade barriers there is not a clear definition of the term. Empirical studies have described trade liberalization in many ways and authors have used varied approaches in the attempt to capture, via a summary measure, the multifaceted nature of trade policy. As a result, a large number of measures of trade liberalization have been created. Notable examples include Leamer (1988), Dollar (1992), and Sachs and Warner (1995).

David (2007) has surveyed the literature and collected data for 30 distinct measures of trade liberalization. Given the large number of measures of trade liberalization and policy available, he group and then compare them. By presenting a taxonomy (adapted from Rose (2004)) in which the measures are divided into logical groupings, David (2007) reviews the strengths and weaknesses of each category. Under this version measures of trade liberalization and policy are divided into six

groups: Trade ratios, Adjusted trade flows, Price-based, Tariffs, Non-tariff barriers and Composite Indices. The first three categories focus on outcomes while the last three focus on policies. The first three categories focus on outcomes while the last three focus on policies. Ideally, one would want to measure trade restrictions directly to determine the level of protection of a country. However, in general, it is easier to measure flows and prices than barriers. Flows are observable and quantifiable and for many countries data are available extending back several decades (at least back to 1970 for a large number of the developing countries). Conversely, data based on the observation of trade restrictions themselves is much harder to collect and work with. Gathering data on tariffs can be challenging. Countries do not report their weighted average tariff rate or even their simple average tariff rate every year, so the most recent data may be several years old. The data for tariffs are measured with error and there are frequently problems with missing data due to activities outside the formal market such as smuggling. Quantifying and aggregating non-tariff restrictions suffer from the same problems to a greater degree, as the researcher must calculate and combine the effects of what are frequently fundamentally different types of instruments as well as problems arising from the use of qualitative data.

After World War II in July, 1944, leaders from a group of nations gathered in Bretton Woods Conference. The main objective of this conference was to reconstruct the world economy through the development and prevention of a new world war. Since trade barriers (protectionism) were accused of being one of the main causes of the Second World War (WTO, 2013), an open multilateral trading was suggested as a main solution to address the problem. In Bretton Woods Conference, three institutions, namely International Bank of Reconstruction and Development (World Bank), International Monetary Fund (IMF), and International Trade Organization (the General Agreement on Tariffs and Trade – GATT)[2] were proposed to establish cooperation among countries by reducing trade barriers and promoting an unrestricted trade among countries (McMichael, 2011). All these institutions have created various policies based on the assumption that trade liberalization would positively affect the economic performances of the countries.

The idea that all countries would gain from free trade is based on the classical theory of comparative advantage introduced by David Ricardo in the 18th century (Feenstra, 2008; Moore, 2003).The comparative advantage theory posits that the more efficient nation should specialize in and export that goods which is relatively more efficient, whereas the less efficient nation should specialize in and import the goods which it is relatively less inefficient. Even if one country is more efficient in the production of all goods (absolute advantage) than other countries, both countries would benefit from the mutual trade. Differences in opportunity cost determine the comparative advantages. It is agreed that the entire world productivity is likely to be improved when the principle of comparative advantage is utilized by nations to determine which goods and services must be specialized in production and export.

In today's world of the rapid globalization, trade liberalization serves as one of the greatest policy concern for governments around the world for the economic growth.

[2] Later was known as World Trade Organization (WTO).

International trade enables countries to specialize in goods and services by promoting competition and fostering technological change based on the comparative and competitive advantages (Hoque & Yusop, 2010). In addition, consumers are able to use more goods with better quality and cheaper prices, which eventually would improve the society's welfare. Most developing countries have a significant historical link with the global markets, and hence trade has become one of the important factors in the development of these countries. To get these benefits, after Uruguay Round negotiations in 1990s and the establishment of the World Trade Organization (WTO), most developing countries decided to eliminate their trade barriers and open their economies to the global competition. Between the 1980s and 2000s, more than 100 developing countries have liberalized their trade regime (Greenaway, Morgan & Wright, 2002). On average, the share of trade (export and import) in GDP increased from 70 percent in 1986 to 94 percent in 2014 in developing countries (Figure 1.1).

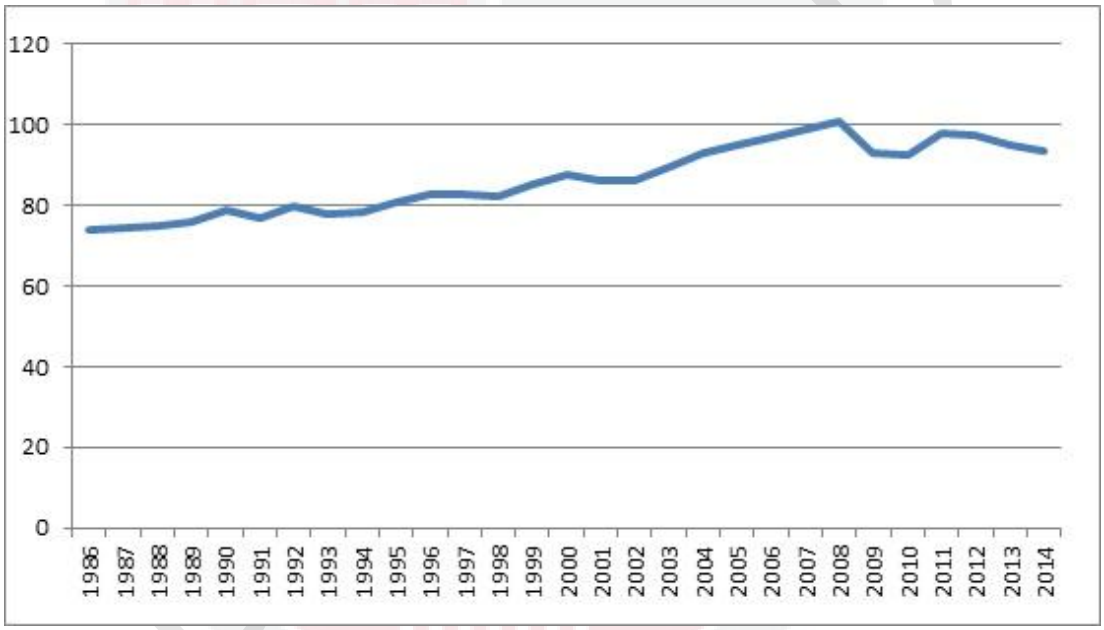

Figure 1.1: Export and Import as a Share of GDP (%) in Developing Countries, 1986-2014
(Source: World Development Indicator, 2015)

In this regard, many empirical studies support that trade liberalization would cause more rapid economic growth for the countries[3]. According to Collier and Dollar (2002), a large number of developing economies which decreased their average tariffs to 30 percentage points, experienced an increase in the trade share to GDP by more than 80 percent after 1980, and were associated with 4 percent increase in per capita income for every year in the 1980s, as well as 6 percent in every year in the 1990s. Those developing countries, which reduced their average tariffs lower, by only 10 percentages, were associated with much lower or even no increase in income per capita in the period after 1980. Figure 1.2 shows that the average tariffs rate in developing countries decreased more than a half over the past two decades. Mikic

[3] See, for example, Heitger (1987); Edwards (1989); Romer (1989); Michaely, Choksi, and Papageorgiou (1991); Dollar (1992); Savvides (1995); Onafowora and Owoye, (1998).

(2007) stated that this is a consequence of the combined effects of the multilateral trade liberalization and accession to WTO, preferential trade liberalization and unilateral trade liberalization efforts. The WTO (formerly the GATT) is the organization mandated with negotiating and implementing international trade policies, hence, GATT/WTO membership is viewed as a proxy for the implementation of trade liberalization policies.

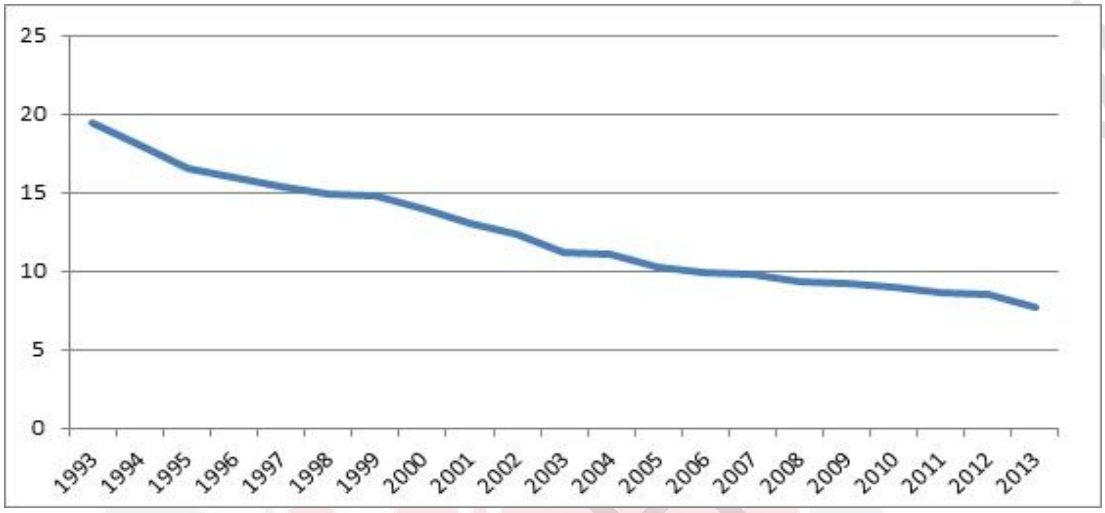

Figure 1.2: Trends in Average Applied Tariff Rates (unweighted in %) in Developing Countries, 1993-2013
(Source: UNCTAD, WTO & World Development Indicator, 2015)

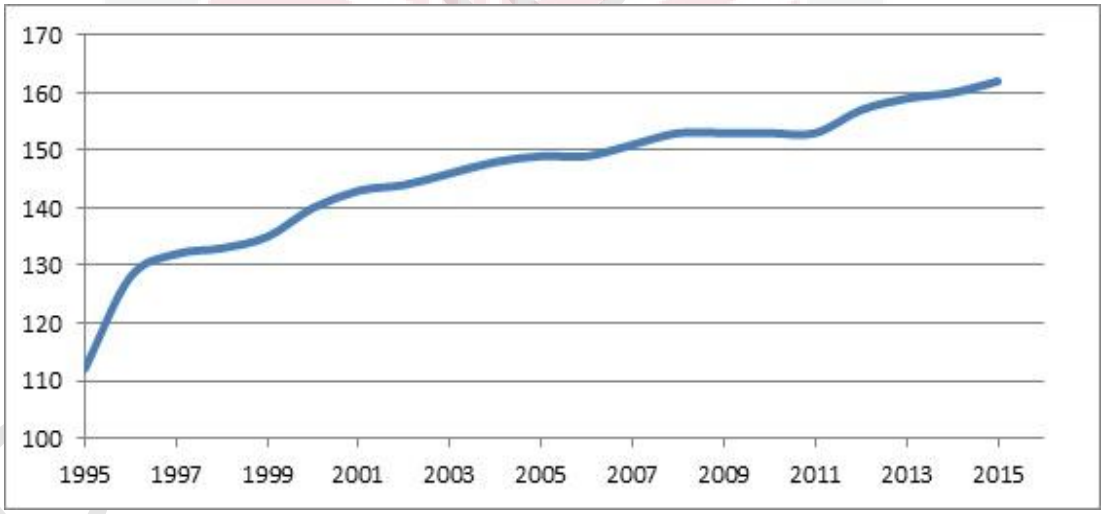

Figure 1.3: Trends in WTO membership, 1995-2015
(Source: WTO, 2016)

In 1947, the GATT was signed by 23 countries with the purpose of negotiating and decreasing trade barriers between countries. From 1947 to 1979, seven trade rounds were held and, during that time, membership in GATT increased from 23 to 102. The eighth round of trade negotiations, called the Uruguay Round (1986-1994), resulted in the transition of the GATT to the WTO with 123 signatories. After that the member countries have increased, the 162 countries are members of the WTO in 2015. Figure 1.3 shows the number of WTO members from 1995 to 2015. About two

thirds of the WTO's members are developing countries. They play an increasingly important and active role in the WTO because of their numbers, because they are becoming more important in the global economy, and because they increasingly look to trade as a vital tool in their development efforts.

1.2.3 The Link between Trade Liberalization and Tax Revenues (International Trade Tax and Total Tax)

The argument that trade liberalization improves the economic efficiency and promotes economic growth is now being accepted almost universally (Ebrill, Stotsky & Gropp, 1999). However, not all countries get benefits from liberalization trade because freer trade can have trade and fiscal effects and disturb the economic growth (Khattry & Rao, 2002). From a trade perspective, although trade liberalization generally increases the volume of imports, there is no guarantee that free trade increases exports. Furthermore, if export does not increase more than import, the trade balance would be worsening and result in the current account deficits. On the fiscal side, the tariff reduction from trade liberalization causes a considerable decline in international trade tax revenue. This fiscal problem is more serious for countries that are very dependent on international trade taxes. This view is supported by Younas (2008) that trade theory supports the superior economic development through trade liberalization, and the shift to free trade may be associated with a considerable adjustment cost regarding a decline in governments' revenues. Thus, trade liberalization may lead countries to a profound problem of fiscal and trade deficit, at least in the transition period.

In addition, the macroeconomic policies employed during the trade liberalization have different effects on tax revenues, and it is often uncertain (Baunsgaard & Keen, 2010; Blejer & Cheasty, 1990; Khattry & Rao, 2002; Tanzi, 1989). The process of trade liberalization involves the reduction of quantitative restrictions, the decrease and unification of tariffs, the devaluation of exchange rate, the export promotion and the reformation of domestic tax system (Agbeyegbe, Stotsky & WoldeMariam, 2006). Since some authors argued that trade liberalization may have a negative effect on tax revenues, developing countries must have more sensitivity to the tax changes due to trade liberalization (Tanzi, 1989, 2000). Tanzi (2000) used term "fiscal termites"[4] to describe how globalization and liberalization influence tax revenues and domestic tax systems. Since less developed and developing countries were heavily dependent on trade tax revenue, the reduction or elimination of this tax during trade liberalization has been a source of fiscal instability. Sequentially, this may squeeze the public spending. To overcome this fiscal obstacle, expenditure on physical capital which had minor political consequences compared to more politically sensitive expenditure such as defense and social spending, have been decreased (Khattry, 2003).

[4]Tanzi explains Fiscal termites as: "Like their biological counterparts, fiscal termites can weaken the foundations of the current tax systems making it progressively more difficult for countries to maintain high levels of taxation. These "termites" result from the interplay of globalization, tax competition and new technologies."

A reduction in public spending can be a significant loss for low income countries because public spending is generally targeted in social and beneficial programs such as health, schools, infrastructure (Younas, 2008). Thus, trade liberalization may trigger the problem of fiscal deficits, at least in their transition period. In the long-term, if the liberalization is successful, it is expected that these problems will be addressed by replacing increasing revenues from different domestic sources (i.e., sales taxes and income taxes). Trade tax revenue also will increase depending on the amount of aggregate import elasticities (Hisali, 2012; Pupongsak, 2010). When the initial tariff rate is high, a substantial decline in the tariff rate can lead to an increase in the quantity of imports and offset a decrease in the price of imports and result in a rise in trade tax, because price elasticities of supply and demand are not fixed over the whole range of prices. This impact could be explained by Laffer curve that is an inverted-U shape curve to show non-linear relationship between tax rates and the amount of tax revenue collected by governments. It illustrates the basic idea that change in tax rates have two different effects on tax revenues. In order to show the relationship between trade liberalization (tariff reduction) and international trade tax revenue, we used the scatter plot as shown in Figure 1.4.

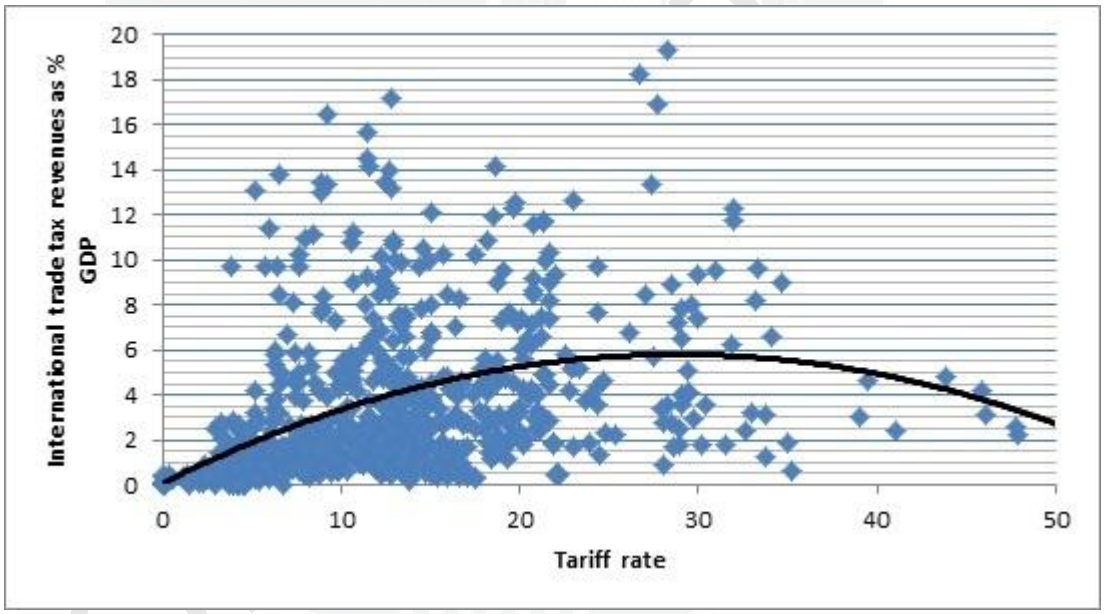

Figure 1.4: Scatter Plot: Relationship between Tariff Rates and International Trade Tax Revenues
(Source: author calculation, and the data from the GFS, UNCTAD, WTO & WDI)

Figure 1.4 shows that the line trend displays an inverted U shape indicating a nonlinear relationship between trade liberalization (measured by tariff rate) and international trade tax revenue. It is observed that at the initial stage, tariff rate is positively related to international trade tax (implying increasing tariff rate will increase international trade tax revenue), but after certain level or point, any increase in tariff rate is negatively related to international trade tax revenue. This preliminary observation supports the possibility of non-linear relationship between trade liberalization and international trade tax revenue or the existence of Laffer curve.

Theoretically, even in the short-term, revenue losses from trade liberalization might be replaced by other sources of revenue that may be less vulnerable. However, this requires an efficient domestic system of taxation and good governance. The evidence on this statement is not very encouraging. For instance, Khattry and Rao (2002) stated that low-income and middle-income countries have experienced decreasing tax revenues as a result of falling tariff or trade tax revenues. This happens for developing countries because their constraints (i.e. structural constraints, geographical constrain, institutional constraints, etc.) restrict their ability to make the change from trade to domestic taxes. They also concluded that revenue constraints remain even after a decade of trade liberalization, and "fiscally realistic development strategy" (pg. 1422) is emphasized in the post-liberalization period. Figure 1.5 shows the non-linear relationship between trade liberalization and total tax revenue. This non-linearity may come from level of trade liberalization or different characteristics (oil revenue and national income) of our sample developing countries. According to the World Bank classification, from 103 sample countries, 49 countries are low and lower-middle income and 54 countries are upper-middle and high income, while more than one-third of sample countries are high oil revenue dependent. In the review of relevant studies we can find some evidence of non-linearity in trade liberalization-total tax revenue nexus.

Some previous studies suggest that tax revenues might shrink in the first stage of trade liberalization. But, since free trade policies lead to a better economic performance and overall welfare, a high rate of trade liberalization results in a larger domestic tax base (Ebrill et al., 1999; Adam et al., 2001; Khattry & Rao, 2002; and Agbeyegbe et al., 2006). Other studies (e.g. Musgrave, 1969; Khattry and Rao, 2002; Agbeyegbe et al., 2006) has also pointed out that the lack of available tax handles constrain tax revenue collecting in countries with a low level of income but these constraints will be reduced once the country grows to be more developed. It implies that developing economies, especially low-income countries, have been constrained by the lack of tax instruments in the face of trade liberalization.

It suggested that developing countries that receive large revenue from fuel exports will reduce their domestic tax efforts. As argued by Lim (1988), Eltony (2002), and Bornhorst et al. (2009), this may be because most governments are likely to relax efforts to collect tax revenues as well as from other potential revenue sources while facing an easy inflow of revenue from the natural resource sector. Revenue from oil sector, therefore, may acts as a disincentive to develop the tax bases to collect additional revenues in the form of taxes (Suliman, 2005). Due to the weakness of their tax systems, these countries cannot replace revenue losses from trade liberalization.

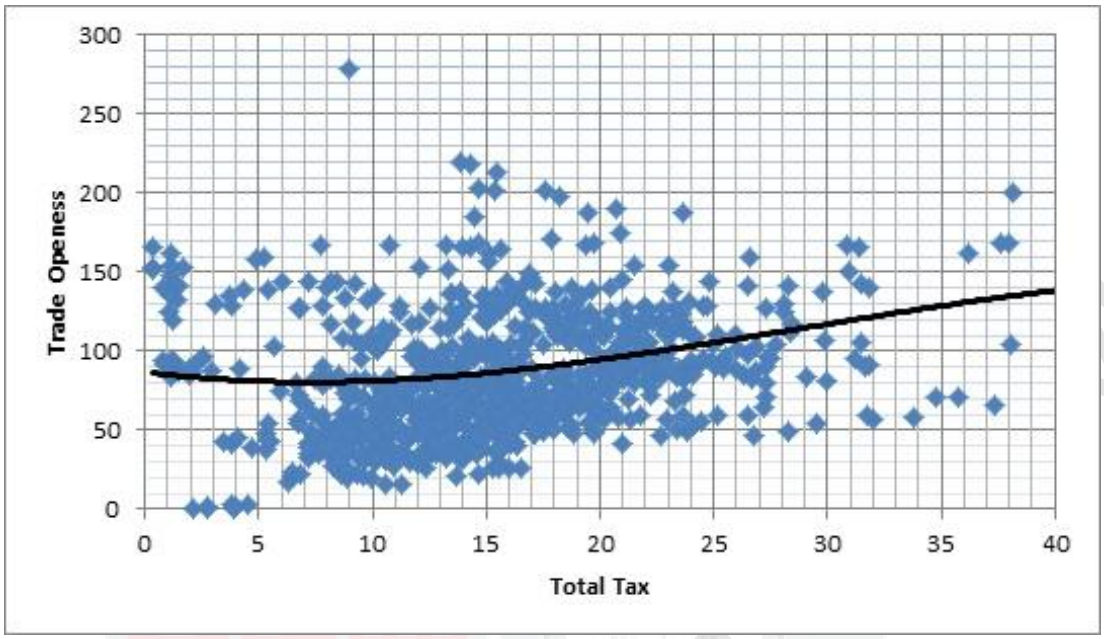

Figure 1.5: Scatter plot: Relationship between trade openness and total tax revenues
(Source: author calculation, and the data from the GFS & WDI)

Figures 1.6 to 1.9 show the relationship between trade liberalization and total tax revenues for different group of developing countries which are segregated based on income level (high and low income countries) and oil revenues (whether the countries are highly depending on oil revenues or not). Figure 1.6 shows that for group of developing countries with low level of national income the relationship between trade liberalization and total tax revenues is negative, while this relationship is positive in the case of developing countries with high level of national income (refer to Figure 1.7).

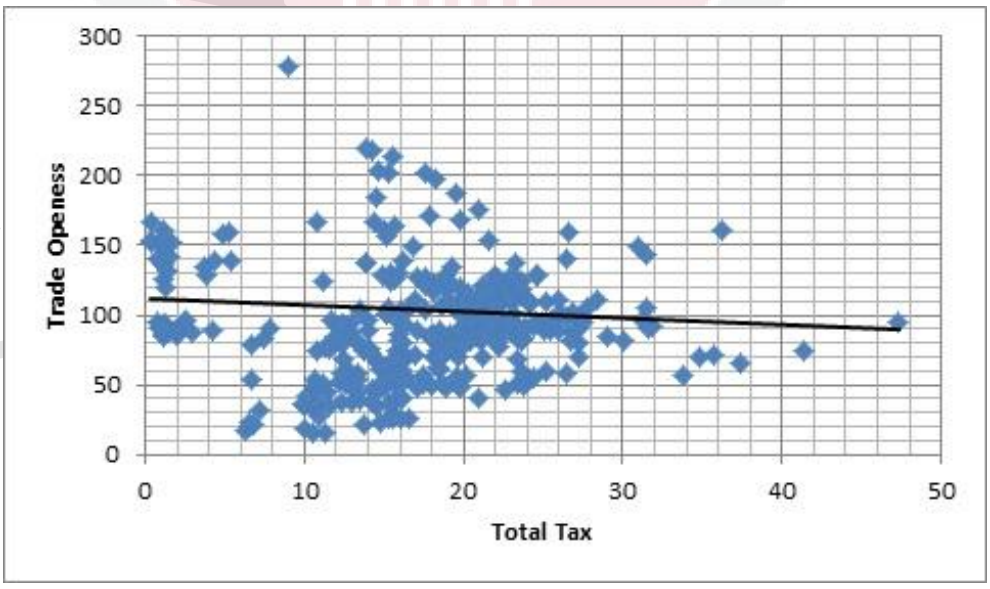

Figure 1.6: Scatter plot: Relationship between trade openness and total tax revenues in low income developing countries
(Source: author calculation, and the data from the GFS & WDI)

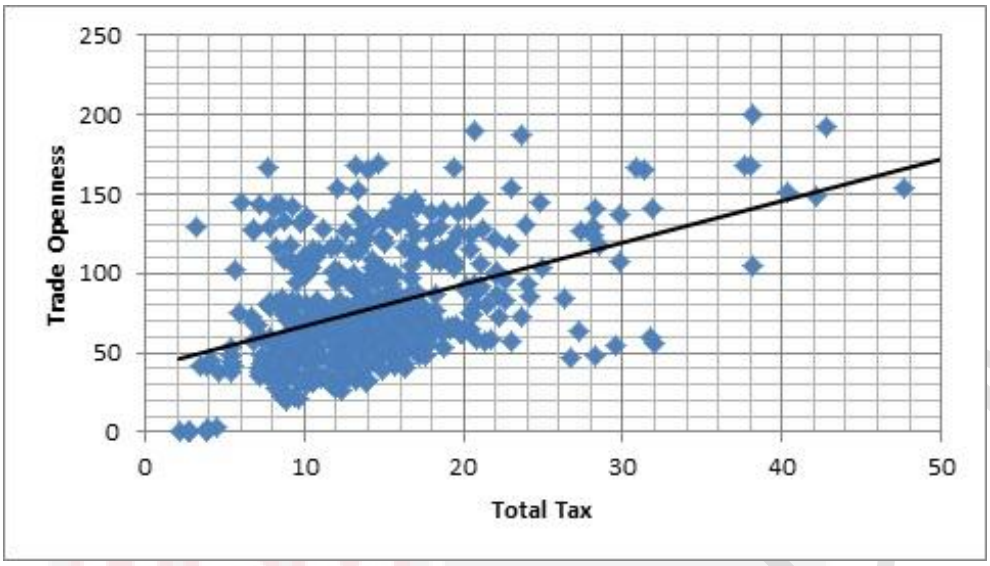

Figure 1.7: Scatter plot: Relationship between trade openness and total tax revenues in high income developing countries
(Source: author calculation, and the data from the GFS & WDI)

Baunsgaard and Keen (2010) argued that most low-income countries (especially in countries without VAT) have been unsuccessful to perform substantial tax reforms to offset the loss of trade tax revenue from other domestic sources. For middle income countries, it was found that these countries manage to recover 45-60 cents from other domestic tax sources for every $1 loss in trade tax revenue, whereas low income countries could replace less than 30 cents for every $1 loss. Although the international trade tax revenue has become less significant over the past two decades, it still is a main source of government revenue in many developing and less developed countries. Share of international trade tax of total tax revenues in OECD countries accounted for only 0.5 percent, but the share increased to about 16 percent for middle income countries. This share increased to 26 percent on average in low income countries (Pupongsak, 2010).

Figure 1.8 shows that in countries with low level of oil revenue the relationship between trade liberalization and tax revenue seems to be positive. However, oil-rich developing countries will tend to have weaker apparatus for tax collection capacity by focusing more on exploiting oil resource rents and higher trade liberalization tends to reduce total tax revenues (refer to Figure 1.9).

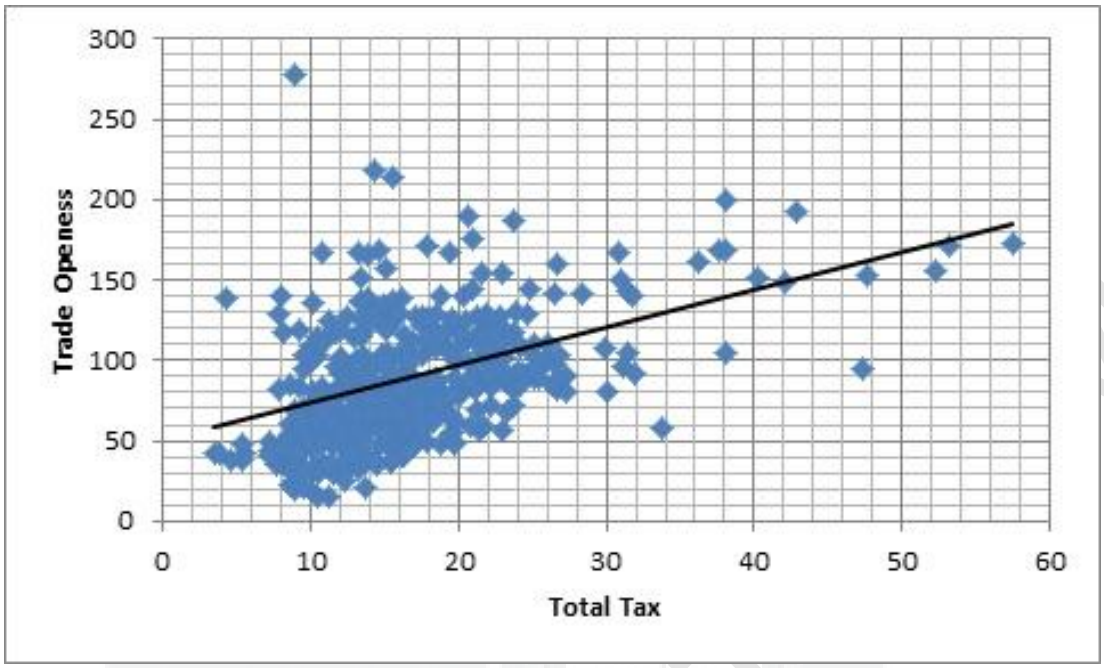

Figure 1.8: Scatter plot: Relationship between trade openness and total tax revenues in developing countries with low oil revenue
(Source: author calculation, and the data from the GFS & WDI)

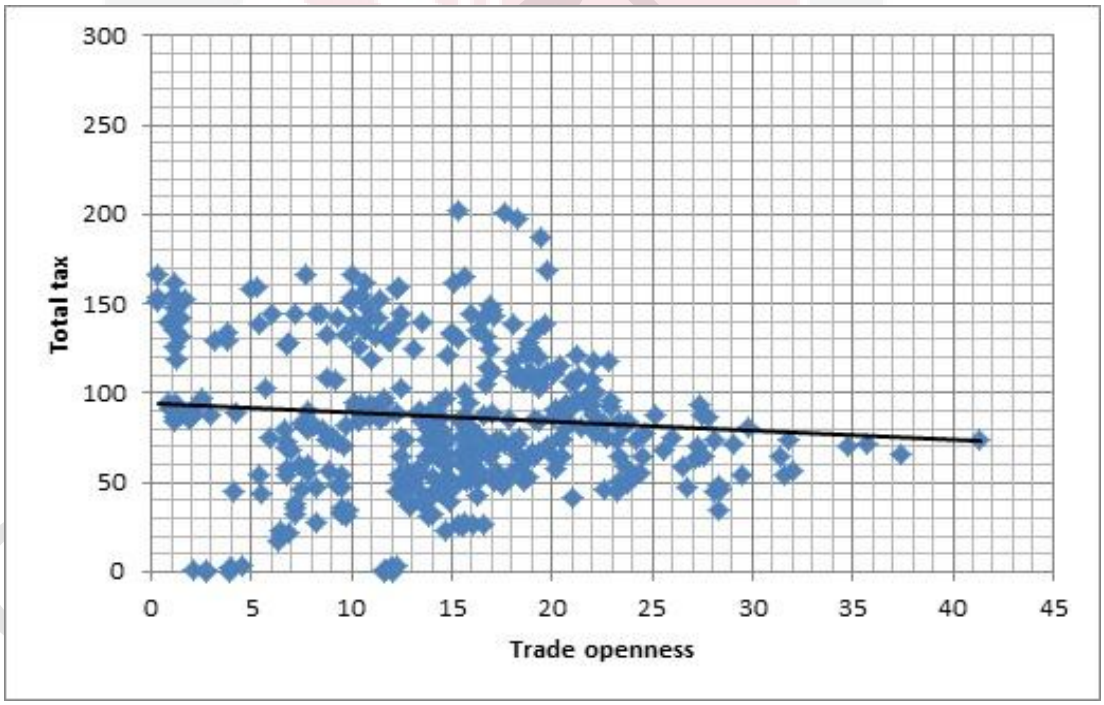

Figure 1.9: Scatter plot: Relationship between trade openness and total tax revenues in developing countries with high oil revenue
(Source: author calculation, and the data from the GFS & WDI)

1.2.4 Sources of Revenues on Developing Countries

As a rule, a reform in tax system is one of the components of trade liberalization. Generally, countries that adopt trade liberalization policies at the same time also pursue domestic tax reform in order to revise their tax systems or structures with the expectations that the reform will develop tax administration, decrease tax evasion and collection costs, and consequently expand tax revenue collections. Therefore, it is essential to examine tax revenue performance and evaluate the tax revenue implications of trade liberalization to understand what actually happens to total tax revenues during trade liberalization period.

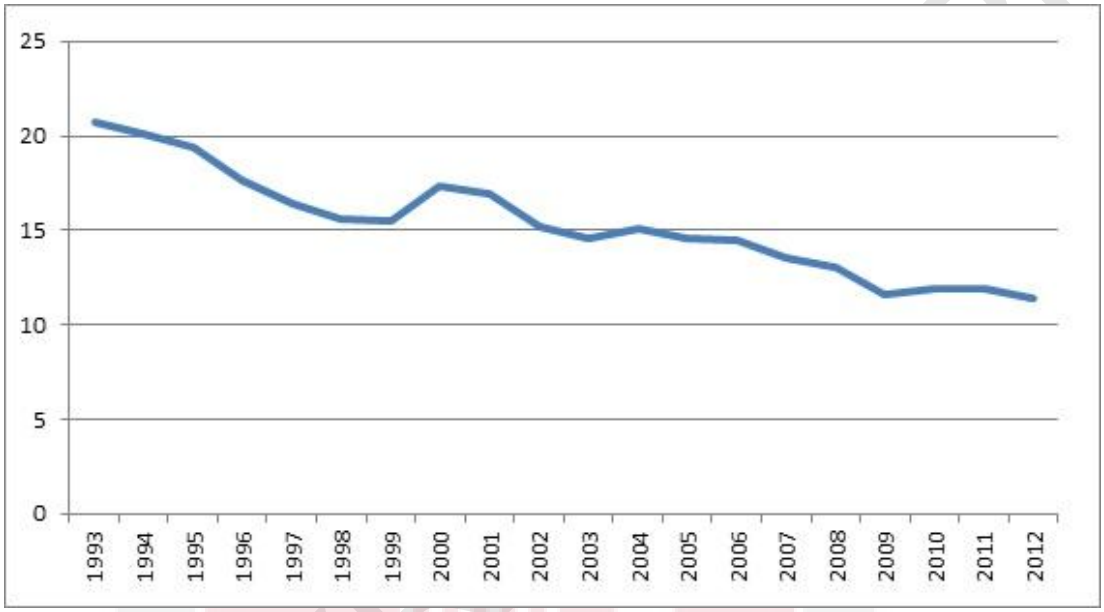

Figure 1.10: Trade tax as a percentage of total revenue in Developing Countries, 1993-2012
(Source: World Development Indicator, 2015)

Figure 1.10 illustrates the trend in international trade tax revenue in developing countries for the period of 1993 - 2012. It is obvious that the international trade tax revenue have been declining significantly in line with the trade liberalization process. Although the share of trade tax has been declining over the past two decades, trade taxes are still an important source of overall tax revenue in most developing countries. In 2012, more than 10 percent of total government revenue collected in these countries came from international trade taxes.

Despite the major reductions in trade tariffs in recent decades, the governments of low income countries still depended heavily on revenues from international trade taxes. International trade taxes as a share of GDP in developing countries accounted for approximately 5%, while this share is only 1% for developed countries in 2010 (Table 1.1). This would seem to interpret that the dependency of these countries on trade tax revenue was probably due to an inadequate administration set-up and lack of infrastructure. Kubota (2005) stated that when the infrastructure to collect taxes is not well developed, governments tend to gather tax revenue easily to collect sources, which generally contains the trade tax.

Table 1.1: Summary Statistics on Source of Government Revenue, By Country Category

Country category	Low income	Lower-middle income	Upper-middle Income	High income non-OECD*	High income OECD
a. Government revenue as a % of GDP	18	26	29	34	42
b. Government revenue, excluding grants, as a % of GDP	15	26	28	34	41
c. Government taxes as a % of GDP (i.e. excludes non-tax revenue)	13	18	21	16	35
d. Taxes as a % of total government revenue	71	67	73	46	85
e. Income taxes as a % of GDP	4	5	5	6	13
f. Corporate income taxes as a % of GDP	2	3	3	2	3
g. Personal income taxes as a % of GDP	2	2	2	3	10
h. International trade taxes as a % of GDP	4	5	5	3	1
i. Taxes on goods and services, including VAT, as a % of GDP	5	6	7	5	11

Source: IMF, 2011(extracted from Moore (2013). ICTD Working Paper).
Note: The numbers show the means within each category and relate to recent years. These are mainly countries with high levels of income from oil or mineral extraction.

As can be seen in Table 1.1, the ratio of total tax revenues to the country's GDP is different for all the countries. This ratio for developing countries is less than one half of developed countries. It also shows that the dependency on non-taxes revenues[5] in developing countries is much higher compared to developed countries. In the case of oil-rich countries, more than half of government revenues come from non-tax revenues. It is also confirmed by appendix 1 that the resource revenue as the percentage of total fiscal revenue is much high in the resource-dependent developing countries[6].

[5] The non-tax revenue of the government are for example: (i) interest receipts on government loans to people, enterprises, local governments, etc., (ii) dividends and profits on government owned production and services units and, revenues from sales of state assets (iii) disinvestment proceeds, recovery of loans, etc.,

[6] Countries those are highly dependent on revenues from oil and mineral.

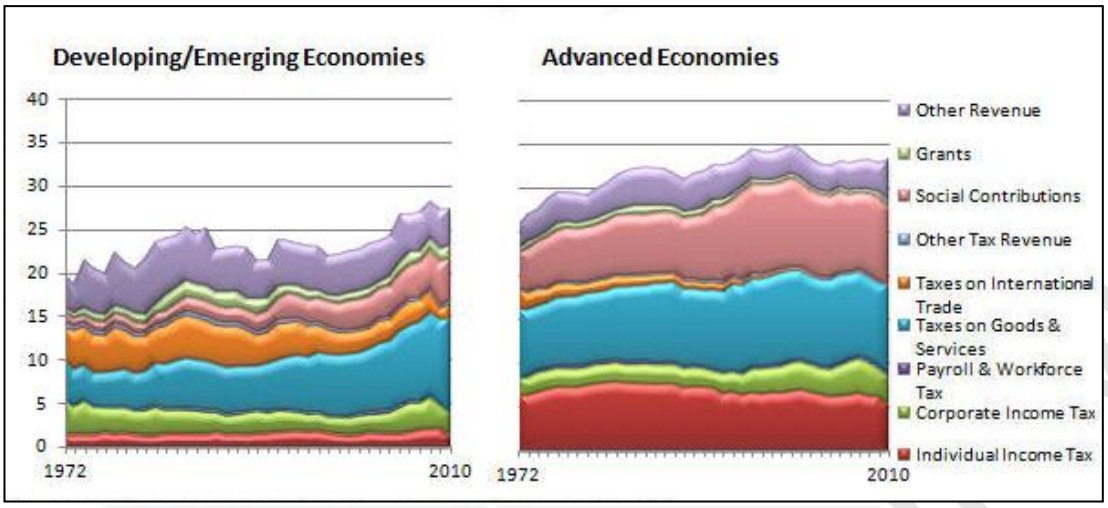

Figure 1.11: Government Revenue Composition as a Percentage of GDP.
(Source: IMF, Government Finance Statistic (GFS), 2012)

Considering the tax structure effects of trade liberalization, Figure 1.11 shows that trade liberalization in recent decades has been linked with a fairly noticeable decrease in revenue from international trade taxes for all countries. Although the trade tax share of total revenue in developing countries is decreasing, these countries have more dependency on international trade tax compared to developed countries. On the other hand, domestic tax revenues (including social contributions, tax on goods and services, payroll and workforce taxes, corporate income taxes, and individual income taxes) show an increasing trend over the period. The high share of non-tax revenues (other revenues) in developing countries could be due to the limited feature and weakness of tax administration in these countries. Although the share of other revenues in developing countries is decreasing, the dependency on these revenues is much higher compared to developed countries. Despite a significant trade liberalization and tariff reduction in recent years, many developing countries continue to rely on international trade taxes as a main source of government revenues. In conclusion, it seems that the composition of tax revenues and tax structure of developing countries has changed in recent years concurrent with the implementation of trade liberalization.

1.2.5 Problem Statement

It is widely acknowledged that there are substantial gains from trade that result from participation in a freer trading environment. However, when fiscal revenue is accounted for, it is unclear on what would be the net welfare effect of trade liberalization. For many developing countries, trade intervention serves two purposes: protection and revenue generation. Although the trade taxes share of total revenue in developing countries is decreasing, the dependency on international trade taxes is relatively high in developing and less developing countries (Table 1.1). The fear of revenue consequences of trade liberalization seems to be more substantial in developing countries because for most of them, the share of international trade tax in total tax revenue is high.

Theoretically, it is challenging to evaluate the effects of trade liberalization policies on international trade tax revenue. Many studies have investigated the advantages or impact of trade liberalization on various macroeconomics indicators, however, issues on the reduction of tax revenues due to trade liberalization has been less emphasized by researchers. It is believed that international trade tax will decrease when countries adopts trade liberalization, and the decrease in the revenue would possibly cause a significant problem for government budget constraint in some countries, especially for those that highly depend on trade tax revenue. Therefore, it is necessary or imperative to examine whether trade liberalization results in fiscal instability due to reduction in the international trade tax revenue.

Numerous studies have documented that the reduction in import tariffs related to trade liberalization, often results in a decrease in international trade tax revenue, particularly for developing economies where their tax revenue is very reliant on international trade (Devarajan, Go & Li, 1999; Peters, 2002). However, this does not imply that trade tax revenues will decrease by the value of the tariff reduction (Ebrill et al., 1999; Hisali, 2012). Some studies (e.g. Pritchett and Sethi, 1994; Ebrill et al., 1999; Khattry and Rao, 2002) even suggested that the relation between tariff rates and collected trade tax revenue is non-linear which could be demonstrated by a "Laffer curve". This implies that the relationship between tariff rate reduction (due to trade liberalization) and international trade tax revenue could be positive as well negative. This has been shown in Figure 1.4 (inverted U shaped) which supports the possible existence of Laffer curve effect. Thus, determining the precise and exact impact of trade liberalization on trade tax revenues is quite difficult because of the ambiguous effect of trade liberalization on trade tax revenue. The total effect of trade liberalization on international trade tax revenue is an empirical matter, and there is a need to re-evaluate the relationship between trade liberalization and trade tax revenue in the case of developing countries.

In addition to the impact on international trade tax, trade liberalization also tends to affect the other forms of domestic tax revenue and consequently the total tax revenue. The undesirable impact of trade liberalization on total tax revenue is an issue that should be considered when countries are liberalizing their trading regimes. Previous studies showed that trade liberalization and total tax revenues have a mixed (positive and negative) relationship (Baunsgaard & Keen, 2010; Khattry, 2002; Blejer & Cheasty, 1990; Tanzi, 1989). A positive fiscal impact might boost on condition that trade liberalization goes along with a great expansion in the international trade volume or economic growth that subsequently boosts the production and income level, leading to a larger base for tax revenues. Contrariwise, a negative fiscal impact might also occur in case trade liberalization goes along with decreasing the trade volumes and tariffs, job losses, and a decline in the corporate profit. The net impact of trade liberalization on total tax revenues depends on many factors such as the competitiveness of domestic firms, the structural characteristics of countries of the economy, their natural resource endowments, country's tax system and other factors. Generally, theoretical and empirical observations show that there is a mixed relationship between trade liberalization and total tax revenue. In some cases, the relationship is positive, but in other cases, we can see negative or even no relationship (refer to Figures 1.5-1.9). Our expectation is that a non-linear

relationship between trade liberalization and total tax revenue might be observed in the case of the developing countries, because there are differences among the developing countries in their level of trade liberalization, their national income and also the level of dependency on oil revenue.

The discussion above generally indicates that the relationship between trade liberalization and total tax revenue might be contingent, involving a number of thresholds. First, the effect of trade liberalization on total tax revenue might be conditional to the level or extent of trade liberalization. Second, this relationship could also be contingent on factors such as income level (GDP per capita) and the extent of dependency on oil revenue. Therefore, the current study aims to examine the impact of trade liberalization on total tax revenues in developing countries by highlighting the role of trade liberalization, income level and oil revenues.

In this regard, another related issue is that trade liberalization may possibly lead to changes in the tax structure. It might reduce the current trade tax revenue, but also lead to changes in the domestic tax structure. In most cases, making an effort to liberalize trade will result in revenue losses, except the liberalizing countries successfully offset the foregone revenue from the international trade by extracting revenue from domestic tax sources. Therefore, a domestic tax reform must be applied with trade liberalization in developing countries regarding the tax administration, and the design of tax structure. More importantly, it is necessary to observe whether there will be a change in the domestic tax structure when trade liberalization take place in the developing countries so that to provide the a desirable tax structure more practical in administrative and politically feasible.

From the issues highlighted above, it is crucial to investigate whether government tax revenues are affected by the trade liberalization. Using a panel of developing countries over the period of 1993-2012, the primary focus of the study is to determine whether liberalizing trade has any impact on international trade tax revenue, and also whether the impact is contingent on level of trade liberalization. The second issue of interest is to investigate heterogeneity in trade liberalization-total tax revenue relationship, specifically to examine whether the impact of trade liberalization on international trade tax revenue is conditioned by trade liberalization level and countries' characteristics (i.e., countries income level and the dependency on the oil revenues). And finally, the third issue is whether trade liberalization affects the domestic tax structure.

1.3 Research Objectives

The main objective of this study is to examine the impact of trade liberalization on international trade tax, total tax revenue, and tax structure in developing countries. The specific objectives of the study are as follows:

1. To investigate the impact of trade liberalization on international trade taxes revenue in developing countries and examine whether this impact is conditioned by level of trade liberalization.

2. To examine whether the relationship between trade liberalization and total tax revenue is contingent on the level of trade liberalization and countries' characteristics (i.e., level of national income and government dependency to oil revenues) in developing countries.
3. To analyze whether trade liberalization has any impact on the tax structure in developing countries.

1.4 Significance of the Study

This thesis will contribute the previous and existing literature in three aspects: First, the thesis examines whether there is an association between the trade liberalization and international trade tax revenue performance. Indeed, this research contributes to the rising literature by introducing other variables that determine the level of tax revenues in addition to considering tax revenue effects of trade liberalization. The share of services in GDP as a new control variable is introduced to measure the effect of trade liberalization on international trade and total tax revenues. Most relevant studies used the share of agricultural, a sector that is traditionally difficult to collect tax. For most countries in recent years, the share of services in GDP is increasing, while the share of agriculture is decreasing so that we use the share of services instead of agriculture known as a challenge to collect tax sector. In this research, in addition to level of trade openness, WTO membership and applied tariff rate were also included to examine the impact of structural reform on international trade tax and total tax revenues. Most previous studies in this area used only trade openness as a proxy of trade liberalization.

Second, the current study used a newly developed method of dynamic panel threshold, developed by Kremer, Bick, and Nautz (2013) that extends Hansen (1999) original static setup to endogenous regressors. The method provides empirical analysis of the trade and total tax revenue effects that the influence of trade liberalization may diverse when it is implemented on countries with various levels trade liberalization and development and also different government dependency to oil revenues. This method has not been used before in analyzing the non-linear relationship between trade liberalization and international trade tax and total tax revenue. The study provides deep insights into how trade liberalization impact on tax revenues using a sufficiently broad (unbalanced) panel dataset in 103 developing countries over the period 1993-2012.

Third, this study makes a distinction of why the tax revenues' performance affected by trade liberalization is different among different countries. The finding can be useful for predicting the effects of trade liberalization on taxes in countries that are not yet fully implemented trade liberalization. The findings have important implications for countries that have been hesitant to undertake trade liberalization because of fear of tax revenue consequences. Knowing the positive and negative consequences of trade liberalization are needed for implementation and monitoring of trade-related polices. This empirical study helps the policy makers to formulate the international trade policies.

1.5 Thesis Organization

Chapter one provides an overview of the study including the background of the study, problem statement, research objectives, significance of the study and the thesis organization. Chapter two provides a comprehensive theoretical and empirical review of literature on trade liberalization and tax revenues. Chapter three provides a detailed description of data and methodology used in this study. This chapter starts with the theoretical framework of a link between trade liberalization and tax revenues. This is followed by model specification, description of variables, empirical methodology, and data sources. Chapter four presents and provides a critical discussion of the findings. The final chapter of the dissertation draws a conclusion, makes policy recommendations, highlights the limitations of the study and makes some suggestions for future research.

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