

Impact of Globalization on Fiscal Instability in South Asian Developing Countries



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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

In the Name of Allāh, the Most Gracious, the Most Merciful

Declaration

Except where otherwise indicated, this thesis is my own original work.

Romina Maryum

Dedication

This thesis is dedicated to my father (for always making me believe that I can achieve everything) and to my mother and grandmother for their endless support, prayers and love.

Acknowledgement

In the name of Allah, the Most Merciful, the Most Compassionate, all praise is to Allah, the Lord of the worlds; and prayers and peace be upon Muhammad, His servant and messenger.

I am thrilled to fill in this page. This is personally the most valuable page out of this thesis. Without people mentioned in this page, this dissertation work would not have been possible. I am privileged to take this opportunity to express my appreciation for their efforts, considerations, respect, and unfailing trust.

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Abstract

This dissertation seeks to determine the impact of globalization on the tax bases of developing countries both theoretically and empirically at different stages of development for the South Asian developing countries over the period of 1990-2015. Globalization is taken as a process that encourage greater trade and financial openness. Theoretically, it is found that following globalization the revenue sources are shifted from “easy to collect” taxes (international trade taxes and seigniorage) to “hard to collect” taxes (income tax and VAT) sources. The panel data set is estimated using the system GMM and then based on the coefficient estimates of the system GMM, one standard deviation change is calculated. Empirical estimates showed that following the one standard deviation increase, the globalization factors decrease the revenue collection from “easy to collect” taxes by 7.95 per cent while increases the revenue collection from “hard to collect” taxes by 4.67 per cent, The overall results confirm that globalization has negative relation with “easy to collect” taxes and positive with “hard to collect” taxes and there is an overall decline in the tax revenues that leads to the problem of fiscal instability in the developing countries. But for this problem we can’t blame the globalization solely because the “hard to tax” taxes needs the better institutions, political stability and other structural factors to perform well, but these developing countries are constraint by these factors, which contributed significantly to the fiscal instability of these countries.

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List of Acronyms

LDCs	Less Developed Countries
IMF	International Monetary Fund
VAT	Value Added Tax
GATT	General Agreement on Tariffs and Trade
WTO	World Trade Organization
SAFTA	South Asian Free Trade Area
ICRG	International Country Risk Guide
GMM	Generalized Method of Moments
GDP	Gross Domestic Product

Chapter 1

INTRODUCTION

“Taxes not only help to create the state, they helped to form it” (Schumpeter, 1918). Taxes are the monetary levies imposed by governments or other authorities and taxpayers are legally bound to pay taxes without expecting any specific return.¹ Saltar (2010) defined it more precisely as “this is an exercise that involves, amongst other things, selecting from a plethora of taxes and duties, those taxes and duties which, when combined, will contribute in an equitable manner as between taxpayers towards the revenue required to meet the costs of those purposes that are seen as the responsibility of government (broadly, public purposes)”. Why do we have taxes? The simple answer is that, until someone comes up with a better idea, taxation is the only practical mean of raising revenue to finance government spending on the goods and services that most of us demands.²

Taxes are the most important source of government revenues. Tax revenues has a potential to determine what a country can do, i.e. how efficiently it can allocate its resources to set its goals and how effectively it can adopt its policies at the domestic and international level, determined by political and economic considerations. A quick look confirms that rare moments of fiscal comfort are found out, but there is nothing unusual as it is a normal state of affairs in public finance (Genschel, 2005). Nevertheless, what differs with time is the question that from where this financial pressure is coming from? During the 1990s a lot of the blame went to globalization,

¹ Taxes matter. We all know we need them to pay for public services.

² For details see Tanzi, V., and Zee, H. H. (2001).

harmful tax competition and some other major constraints, i.e. widespread institutional corruption and political instability especially in developing countries.

There is no single template for the tax system (Saltar, 2010). So in the absence of the worldwide unitary tax system, every country designs its own tax policy keeping in view its resources and requirements, depending on its economic and political considerations. However, in this era of globalization in which the interdependence among countries increases because of increasing economic integration causing the relaxation of capital controls and trade barriers, the decision of designing the tax system is not independent especially in the case of LDCs. The external fiscal relations of these countries with IMF and World Bank etc., which plays a vital role in the economic development of these LDCs also effect the tax designs of its member countries significantly. Regardless of the level of development, it will be true for every country as argued by the Bird (1995) “no taxing jurisdiction is an island unto itself; each is a part of the global whole and especially of its own immediate region, and hence its freedom of fiscal action is to some extent inevitably constrained”. It means that the globalization has important fiscal policy implications. By opening up the border for the free trade, many developing countries faced the problem of low tax revenues or say the fiscal instability (low tax revenues) as argued by Ebeke and Ehrhart (2011), Epaphra (2014) because of the reduction in trade taxes that can be termed as the fiscal shock for developing countries (Moore and Zanardi, 2010).

Globalization and tax system are entwined (Egger et al., 2016). Globalization refers to an increasingly integrated global economy with less trade barriers, unrestricted capital mobility, economical labor and laissez-faire economy which implies less government intervention, hence, globalization can be measured in terms of trade openness (Meraj, 2013). Aizenman and Noy (2003) argued that financial liberalization is linked with trade liberalization, trade liberalization

represses the efficacy of restrictions on capital controls, so for countries engaging in trade liberalization, financial liberalization is not a question of if but of when and in what ways. That's why following Aizenman and Jinjark (2009), trade openness and financial openness are used as an exogenous factor to measure globalization in this study.

Globalization exerts the downward pressure on the tax revenues (Tanzi, 2004). There could be the possible explanations for it. Firstly, the increasing economic integration and interdependence requires the opening of the domestic borders which requires the reduction in the important and the traditional source of the revenue generation especially for the developing countries i.e. the international trade taxes. Secondly, the increase in financial capital mobility makes it difficult for the countries to impose high taxes to generate revenues from this important tax base. To prevent the problems of fiscal instability created by globalization, these countries should first try to increase the tax revenues by eliminating the inefficiencies of the tax system or the unnecessary public spending but if these steps are not necessary to fill the gap between revenue and expenditures then they should introduce the modern tax reforms which consists mostly on the two “work horses” that carry much of the burden of the modern taxes i.e. the income tax and the VAT.³

International trade taxes and revenues from capital controls (i.e. revenue from seigniorage and financial repression) are the traditional and attractive sources of government revenue for developing countries not only because of its ease of collection and scarce administrative capabilities but of some other institutional, political and technological constraints. If these “easy to collect” taxes are reduced, developed countries can cover this revenue loss by increasing

³ For details see Tanzi (2004).

domestic direct and indirect taxes or “hard to collect” taxes, e.g. Value added tax (VAT), income tax etc. These “hard to collect” taxes, unlike tariff administered at centralized locations (seaports, airports, etc.) and implicit taxation by means of seigniorage, need significant investment in tax collection infrastructure, and spending resources on monitoring and enforcement. However, the imposition of these two taxes is also a good option with the policy makers of the developing countries as both of these taxes can serve the objective of generating the significant revenue.

But even then, each step towards globalization can create serious problems for developing countries. Due to a reduction in tariffs, trade volume is increased, but as a consequence of tariff reduction, will be insufficient to outweigh the revenue-dampening effect of tariff rate reduction. Moreover, it serves as the erosion of a taxpayer for any nation because it becomes problematic to tax labor and capital more than other countries as they have a tendency to move easily from high to low tax areas hence reduces the ability of government to generate revenues through taxes.

However, the picture is not all negative, positive fiscal effects can arise from the elimination of trade-related subsidies and tariff exemptions. On the one hand, lower tariffs imply lower tax rates and hence smaller revenues and on the other hand, the volume of imports tends to expand when tariffs are reduced, and hence the tax base will grow. One strategy is to combine tariff cuts with a point-for-point increase in domestic taxes (Keen and Lighthart, 1999). Under certain conditions this can lead to an increase in social welfare as well as public revenues. Which of the two effects is larger will depend on the extent to which import demand increases and the increase in indirect and direct taxes (which is possible by strengthening the tax collection system and eliminating tax holidays and other exemptions) when tariffs are cut. If the increase is sufficiently high, then revenues will rise. Budgetary data indicate that revenues from domestic

taxation on goods and services (including VAT) have grown as trade tax revenues have fallen. So the effect of cutting tariffs is ambiguous.

Setting up an efficient and fair tax system is, however, far from reality, particularly for LDCs that want to become integrated with international economy. This study used the panel of South Asian low middle countries to analyze the impact of globalization on tax revenue instability. South Asian countries⁴ have implemented different measures to reduce trade and financial restrictions. With the global trend, they participated in many international forums such as the Uruguay Round of GATT, IMF, WTO and SAFTA to strengthen the competitiveness of domestic industries and to compete with world economies. The trade and financial restrictions are restructured, and many laws have been implemented in accordance with the commitments to these agreements and most of the goods and services sectors are then going through the process of liberalization with the hope to achieve the benefit of attaining economic prosperity. Trade and financial openness increases remarkably which confirms that globalization trends are indeed global (as shown by Figure 1.1 and 1.2 in Appendix A.1).

However, the impact of trade and financial liberalization seems to be ambiguous in these countries as they are highly dependent on international trade taxes and seigniorage and these countries have long used these taxes as a source of increasing revenue for the public sector. Developing countries face formidable challenge with the increasing economic integration, as they possess some common characteristics which are the important constraints in implementation of the policies in low middle income countries. These constraints can be divided into two group i.e. structural constraints and institutional and political constraints.

⁴ South Asian countries classified as low middle income countries by World Bank are selected i.e. Bangladesh, Bhutan, India, Pakistan and Sri Lanka. However, Bhutan is excluded from the analysis due to non-availability of data.

➤ **Structural Constraints**

Lewis (1954) shows that nation becomes more urbanized as its economy grows by constructing a two sector model. Musgrave (1969) argues that with the development of the economies, the capacity to tax grows with the growth of gross domestic product. Tanzi (1983) supported the work of Lewis (1954) by observing the relationship between economic development and tax levels and he found that economies are becoming more urbanized with increasing level of growth. With urbanization the country's capacity to tax and government revenue increases as it increases the demand for public goods on the demand side and hence incentive for governments to impose more taxes, to increase its revenues to meet these increasing demands. On the supply side, it increases the capacity of the government to tax by increasing tax collections through large tax bases and development in the public sector.

But unlike developed economies, lower middle income countries are more rural. Rural economies produce primary products with the small scale and dispersed firms which are informal in their nature, hence it is difficult to tax these rural economic activities. That's why government of these economies depends highly on trade taxes and seinorage etc. because it is much easier than the efforts to evaluate the incomes of rural economic activities. These constraints bound the opportunities of substitution among different tax revenue sources which are needed after liberalization in these lower middle income countries.

➤ **Institutional and Political Constraints**

Institutional quality directly affects the collection of country's tax revenue. Developing countries are characterized by poor management, tax administration, corruption and high tax evasion which results in lower tax revenues. The empirical work of Bird (2008) showed that

approximately 50% of the tax revenues were uncollected due to corruption. That's why; low middle income countries highly depend on trade taxes and seigniorage because of its ease of access and collection and have a lower level of tax evasion than other consumption and income taxes.

The channels through which corruption lowers tax revenues are multiple: it corrodes the tax morality of taxpayers, which in turn damages the possibility of establishing good tax governance, it distorts the tax structure, by introducing tax regulations that are favorable to industries with entrenched powers; it increases the size of the shadow economy by encouraging economic agents to go underground; and it reduces economic growth by reducing public sector investment.⁵

In lower middle income countries, there is also political instability which limits the domestic tax base expansions. Moreover, some sectors, especially agriculture sector is exempted from taxation because of some powerful lobby's influence as suggested by Ndikumana (2001). In addition, Aizeman and Jinjark (2008) argued that political instability and low level of institutional quality negatively influence the collection of goods and services taxes.

Thus, it can be concluded that by excluding globalization from the frame, structural and institutional and political constraints are major reasons of low tax revenues and also the major constraints in reforming and expanding domestic tax bases of low middle income countries.

⁵ For details see Dreher and Herzfeld 2005 and Bird (2008).

1.1. Significance of the Study

Impact of globalization on economic growth, wage and income inequality, employment and tax competition has long been studied in the literature. But rare attention is paid to study the impact of globalization on tax revenues specifically for South Asian countries. Tax revenues from trade and financial controls are major sources of revenue for these countries. Trade taxes contribute to 26% of total revenues in LDC's. The significance of this study is to unfold the effect of globalization on tax revenues of these countries, specifically, we want to explore the degree to which globalization has contributed to the fiscal instability of these countries by shifting the revenue from "easy to collect" to "hard to collect" taxes. This research intends that what they really gain from globalization. The impact of institutional quality, political instability and other structural factors on tax revenues of these countries is also analyzed, as it is argued that tax revenues can be increased by an alternative indirect tax (e.g. VAT and other consumption taxes) and direct taxes (e.g. Income tax) but they are constrained by complicated tax structure, poor technology, institutional quality and political instability.

This thesis provides a comprehensive analysis of the impact of globalization on the tax revenue productivity of South Asian countries. The contribution to the literature can be judged on the basis of the fact that there is no empirical study available to check the impact of globalization on the degree to which South Asian low middle income countries managed to switch from the "easy to collect" to "hard to collect" taxes and the extent to which globalization causes the fiscal instability in these countries. It also provides the comprehensive analysis on the effect of structural, institutional and political constraints on the fiscal instability.

1.2. Objectives of the Study

The main objective of the study is to analyze the degree to which globalization has contributed to the fiscal instability of South Asian low middle income countries. The specific objectives are:

- i. To give an overview of the present scenario of globalization and tax revenue collection from “easy to collect” and “hard to collect” taxes.
- ii. To examine the impact of structural, institutional and political constraints on the “easy to collect” and “hard to collect” taxes.
- iii. To recommend a policy guideline through which fiscal instability of these countries can be decreased.

1.3. Research Questions

Globalization along with institutional and political factors is expected to affect the tax revenues of South Asian Countries. It will raise the following research questions.

- i. Does globalization cause the fiscal instability in South Asian developing countries?
- ii. If it does, then how globalization effects the “easy to collect” and “hard to collect” taxes?
- iii. Do structural, institutional and political constraints affect the tax revenues of South Asian countries?
- iv. If it does, then how it effects the “easy to collect” taxes and “hard to collect” taxes?

1.4. Structure of the Thesis

The thesis consists of six chapters. The first chapter introduces the topic. The theoretical literature is presented in the second chapter. The third chapter details the conceptual framework of

the study and the empirical model methodology. The fourth chapter provides the econometric specification, variables definitions, expected results of the study and estimation methodology. Chapter five comprises of the results of descriptive statistics, correlation matrix, model estimation and results. Chapter six deals with the conclusion, policy implications and with the limitations of the study.

Chapter 2

Literature Review

Tax revenue instability is intensively research area in economic literature and there is a large body of literature available which investigate the reasons of the fiscal instability for developing countries. Now a day, globalization is of primary concern to the tax revenues as it shifts the revenue from “easy to collect” to “hard to collect” taxes. In this chapter we review the literature survey starts with some notable works pointing the effect of globalization on the fiscal instability and the domestic tax reforms that are taken to cover the revenue loss because of the reduction in “easy to collect” taxes in developing countries while they are in the process of globalization. Then, some related studies are reviewed to highlight the effect of some economic, institutional and political factors that may affect the tax revenues.

2.1. Globalization and Fiscal Instability

Bleanay et al. (1995) argued that the tax revenue instability is more in more open and poor and high inflationary economies while analyzing the sources and consequences of tax revenue instability in LDCs. By using the cross section data, they also found that the fiscal instability is associated with government expenditure instability. Khattry and Rao (2002) used the panel dataset of 80 countries over the period of 1970-1998 and found a negative relationship between trade liberalization and tax revenues in developing countries which is associated with the “reduced state capacity” to use fiscal policy for the development programs.

Baunsgaard and Keen (2005) focused on the problem that whether countries can cover the revenue loss imposed by the reduction in trade taxes because of trade liberalization by using the

panel data of 111 countries over the period of 1975-2000. They found that the fiscal pressure arising out of trade liberalization is a fact at least for low income countries as after trade liberalization they can cover only the 30 cents on the dollars of decrease revenues as their revenue recovery is extremely low from other domestic direct and indirect taxes. However, it is not the case for developed countries as they recover the revenue loss from past episodes of trade liberalization by using other taxes. Aizenman and Jinjark (2009) analyzed the effect of globalization on the tax revenue instability by using a large panel data set of developing countries. their empirical results showed that with globalization the revenue collection from “easy to collect” taxes are decreased by 8% while the increase in revenue is only 3% from “hard to collect” taxes, so developing countries face the overall decline in the revenue following globalization.

Longoni (2009) examined the impact of trade liberalization on export and import taxes by using the panel dataset of 53 African countries over the period of 1970-2000. After controlling for macroeconomic environment and the political constraints, greater trade-off between the trade liberalization and tax revenues collected from import and export taxation is found. A non-linear relationship between trade liberalization and revenue generation through export is found and findings showed that these countries are on the increasing portion of Laffer curve which means that if the domestic tax reforms were not introduced which includes the administrative capabilities import taxes which justify the existence of inverse U-shaped Laffer curve among these countries. to increase the revenue from domestic direct taxes and VAT their revenue collection from trade taxes decrease further if they move towards more trade openness which would ultimately decrease the total tax revenue and hence worsen the fiscal deficit of these countries which results in the reduction of government spending on many important goals.

Moore and Zanardi (2010) estimated the impact of trade liberalization on the tax revenues for 51 developing countries over the period of 1990-2005. They argued that trade liberalization is a fiscal shock for the developing countries especially if they have low ability of raising revenues from other sources as a result their government spending are effected in the most important areas like health, education etc. Ebeke and Ehrhart (2011) used the panel dataset of 39 countries over the period of 1980-2005 to address the sources and consequences of fiscal instability in Sub-Saharan African countries. Their results are three fold i.e. they found that instability of public and government spending instability is associated with tax revenue instability and they also found that the foreign aid inflow and more reliance on indirect taxation can be viewed as the effective mechanism of for the tax revenues stabilization.

Ebeke and Ehrhart (2011) analyzed the impact of VAT on the stabilization of tax revenues using a panel of 103 of LDCs and found that the VAT is an effective of reducing the instability of tax revenues. The empirical estimates showed that the fiscal instability is almost 40% to 50% less in the countries with system of VAT but these effects reduced with trade liberalization and economic development. Epaphra (2014) analyzed the impact of trade liberalization on Tanzania revenue performance from 1961 to 2011 and concluded that trade openness is a source of fiscal instability in Tanzania as their economy heavily depends on trade taxes which declines rapidly because of the reduction in import duty and creates many fiscal issue for the economy as their domestic consumption tax system and the income tax system is not improved with trade liberalization. Ahmed (2007) estimated the impact of macroeconomic instability i.e. inflation on the fiscal deficit of Pakistan's economy. Empirical estimates showed that the fiscal deficits are financed through external borrowing and debt but only in the short run. However, fiscal deficit is largely if not completely are financed by seigniorage revenue in the long run.

2.2. Globalization and Tradeoff between “Easy to Collect” Taxes and “Hard to Collect” Taxes

A salient feature of the last twenty years has been the phenomenal increase in trade and financial integration of developing countries which induces the globalized economies to reduce trade and financial restrictions which effects the tax system of the globalized economies. This section provides the detailed literature that how globalization effects the tax revenues of the developing countries and how they respond to it.

Abbas and Mahmood (1994) estimated the important fiscal effects of monetary policy on Pakistan’s economy. Their empirical estimates show that through seigniorage (printing of new money), government impose an implicit tax on the consumers which contributes to 13% to total tax revenues and it also reduces the disposable income and so the private consumption, hence it can play an important role in the analysis of estimating and determining the government expenditure. Extending the work of Phelps (1973) Giovannini and Melo (1991) analyzed the empirical effects of financial repression on optimal tax policies of LDC’s and also estimated the amount of revenues obtained from financial repression.⁶ They found financial repression as an inefficient policy tool (except if income distribution is government’s objective or there is an administration cost associated with different types of taxes) for government used different sources of taxation without any constraint. Empirical results showed that financial liberalization causes many budgetary problems for LDC’s and this revenue loss can be covered through different fiscal reforms.

⁶ Financial repression is a term used for imposing restrictions on international capital mobility and on financial institutions.

Gordan and Nielsen (1996) analyzed the amount of tax evasion between VAT and income tax as economies become more open. They found that the ways of tax evasion between both are different. VAT can be avoided through cross border shopping while income tax can be avoided by shifting the income abroad. Empirical results for Denmark showed a very small of tax evasion i.e. 0.77% and 1.14% in the case of VAT and income tax respectively. They also estimated the model for the choice of an appropriate tax that would reduce the burden of revenue loss because of tax evasion. Results showed that for the situation prevailed in Denmark in 1992⁷, this revenue loss because of tax evasion can be avoided by reducing the VAT rates compared to income tax rates because it is harder to avoid.

Fox and Murray (2004) analyzed the hard to tax problem by particularly analyzing the sales tax in a global economy of trade liberalization with increasing taxes and market competition. A primary conclusion is that avoidance and evasion because of limited taxation of services, ease of cross border shopping because of technological changes and frequently legislated exemptions continuously narrowing the tax base and hence worsen its revenue productivity. Pereira (2003) analyzed the impact of increasing globalization on the tax system of Brazilian's economy and found that the growing mobility of capital and skilled labor tax leads to a regressive tax system, but because of tax competition and destruction of domestic tax base tax revenues decreases. So, it is suggested that to boost the tax system productivity government should avoid harmful tax competition, offer better services to taxpayers by employing advanced technology, equipment and electronic tax system.

⁷ One of the highest VAT rates in world reported in Denmark in 1992.

Hines Jr and Desai (2002) studied the impact of value added tax on international trade and found a negative relationship between VAT and international trade for countries using VAT over 1950 to 2000. Gupta and Ziramba (2008) analyzed the numerical impact financial repression and seigniorage in an economy in which high enforcement cost is associated with tax collection by using an overlapping generation production model. Their main empirical findings from a threshold subjected policy are that however there is a non-monotonic relationship between financial repression and tax enforcement but for the welfare maximization, financial repression is a result if cost of tax enforcement is positive beyond a threshold value and if the threshold level crosses the limit then they only rely on seigniorage.

Baunsgaard and Keen (2010) firstly examined the impact of trade liberalization on the fiscal cost and they found that only in the case of low middle income countries, the loss in total tax revenue because of reduction in trade taxes is not recovered through domestic taxes but according to Keen and Mansour (2010) the reduction in revenues because of trade taxes have been largely offset by the domestic taxes in African region. Jin and Krever (2010) investigated the impact of globalization on china's economic system. They found the transformation of the economic system from public to private sector affecting tax administration, design of tax law and tax base which shifts the revenues from profit distribution to a more modern tax structure especially to growth taxes and particularly to VAT. They also found that political and globalization pressures increase the power of central governments at the cost of provincial governments.

Marking (2010) examined the impact of the revenue reforms introduced in Cape Verde as a result of trade liberalization and found an increase in tax revenue as percentage of GDP from 19.9% in 2000 to 28.8% and according to her the increase is observed mainly because of income and VAT (introduced in 2004) after the reduction in trade taxes. Moore and Zanardi (2010)

estimated the impact of trade liberalization on the tax revenues for 51 developing countries over the period of 1990-2005. They argued that trade liberalization is a fiscal shock for the developing countries especially if they have low ability of raising revenues from other sources as a result their government spending are effected in the most important areas like health, education etc.

Aizenman *et al.* (2011) analyzed the link between trade and financial liberalization. He found that trade liberalization erodes the effectiveness of the financial system and hence leads to financial liberalization. He argued that the subsequent financial liberalization requires deep fiscal rearrangement otherwise it will increase the cost of refinancing public debt persuading the crisis and at the end the feeble fiscal system use inflation and financial repression as default taxes as in the case of Argentina. Rao (2011) estimated the impact of seigniorage on Pakistan's economy and concluded that Pakistan's economy extensively relies on the seigniorage revenue to finance the mismatch between government revenues and expenditure as it faces the problems of external financing due to poor credit ratings.

Many countries experienced the reduction in governments revenue after trade liberalization. Cage and Gadenne (2012) examined the problem that after trade liberalization LDCs are capable to recover the revenue loss by other taxes by identifying 110 episodes of tariff revenue reduction in the panel data set of 103 LDCs from 1945-2006. They found that decrease in trade taxes is almost four GDP points on average and half of countries are able to recover the loss through alternative taxes. They also found that in the long run, it increases welfare by increasing the tax system efficiency but for LDCs trapped in low tax system efficiency the net impact will always be negative. In short they concluded that fiscal cost is associated with trade liberalization. Nwosa et al. (2012) examined the impact of different factors on international trade taxes for Nigerian economy. They argued that trade liberalization is the most important factor that influence

the international trade taxes and they found the positive relationship between them. They suggest that the revenue from trade taxes can be increased further by avoiding the tax evasions and through proper administrations.

Urama et al. (2012) estimated the impact of trade liberalization on Nigerian's economy. They argued that the gains of trade openness depend on the fact that up to what extent the LDCs can recover the tariff revenue by restructuring its domestic tax system by analyzing the tax system buoyancy and elasticity using singer approach. Results show that the tax system of Nigerian economy is buoyant but not elastic showing that Nigerian government should improve the tax administration and restructure the domestic tax system by widening the tax base before engaging in trade liberalization. Saeed *et al.* (2012) analyzed that whether VAT can be treated as an effective source of taxation for developing countries are not. They found that GDP to tax revenue ratio is improved in countries adopted VAT. Empirical estimates confirmed the results of Rodrik (1998) that revenue collection from VAT is low in agricultural countries and higher in high income countries and in countries having more open economies.

Immurana et al. (2013) examined the fiscal impacts of trade liberalization for Ghana's economy. Their empirical results showed that following trade liberalization the import demand elasticity is increased which positively effects the total tax revenues in both short run and long run. Arikboga (2015) examined the fiscal impacts of financial liberalization in case of Turkey and found that financial globalization affects the composition of tax revenue i.e. the share of income taxes is decreased and the share of corporate taxes remain constant. However, following financial liberalization the share of indirect taxes particularly goods and services taxes is increased in total tax revenues. Gaalya (2015) estimated the determinants of tax revenue performance for Uganda's economy and found that with trade liberalization the volume of imports increases and hence it will

positively affect the tax revenue performance. They also found a negative relationship between tax revenue performance and agriculture sector share to GDP while the relation is positive for industrial sector. Jaffri et al. (2015) empirically analyzed the impact of trade liberalization on tax revenues of Pakistan and found that a positive relation between tax revenues and trade liberalization. They argued that this positive relationship is because two reasons i.e. because of the low tax evasion as the revenues are collected at a centralized location and due to the high import duty rates in Pakistan as compared to other developing countries.

2.3. Effect of Structural, Institutional and Political Constraints on Tax Revenue Collection

Developing countries are no different from others: ideas, interests, and institutions determine tax policy. Tax policy everywhere is shaped not only by ideas and vested interests but also by changing economic conditions, administrative constraints and technological possibilities, and, especially, the political institutions within which these factors are at play.

According to Chelliah *et al.* (1975) the countries more open to trade brings more import duties and having small agriculture and large manufacturing sector have more taxable capacity. According to Riezman and Slemrod (1987) and Aizenman (1987) the countries rely more on “easy to collect” taxes such as trade taxes because of collection costs associated with it. The empirical findings of Cukierman (1989) showed that there is an inefficient tax system in the countries with having more political instability and hence they rely more on seigniorage revenue. Roubini and Sachs (1995) showed that the countries having inefficient tax system and high tax evasions choose to increase seigniorage by repressing the financial sector and increasing the inflation rates. Karagoz (2013) expects that financial openness can boost the tax revenues because government

can pay its due balances and finance its expenditures through tax revenues. Aizenman and Noy (2004) endogenously determines the link between trade and financial openness and they found that the greater the economy open to trade, the greater will be the financial openness as their results indicate a two-way causality between trade and financial openness. The main issue with trade liberalization is the fiscal instability imposed by the decrease in trade taxes and hence, in a way financial liberalization has also the strong fiscal dimensions that needs advanced preparation.

Bohn (2004) analyzed the impact of political instability on seigniorage revenue and the results are opposite to that of Cukierman (1992) i.e. they found that the unstable political system reduces the reliance on seigniorage. Aisen and Veiga (2005) estimated the impact of economic, political and institutional factors on seigniorage and their empirical estimates shows that the countries with lower real GDP per capita, less open to trade, lower growth of real GDP per capita and having more political instability and less democratic countries rely more heavily on seigniorage. Adenutsi (2007) showed that there is negative relationship between seigniorage revenue and economic openness. Gupta (2008) showed a negative relationship between inflation and seigniorage. Gupta (2007) estimated the impact of corruption on the seigniorage revenue and found that the share of seigniorage revenue increases in the total tax revenue with the increasing degree of corruption. Aizenman and Jinjark (2008) explained the structural and political factors that effects the VAT collection efficiency. He found that the one standard deviation increase in trade liberalization increases the VAT collection efficiency by 3.9% while the political stability and urbanization increase the VAT collection efficiency by 3.1% and 12.7% respectively. They also found that the VAT collection efficiency decreases by 4.8% in the countries with greater agriculture share in their GDP.

Baunsgaard and Keen (2010) firstly examined the impact of trade liberalization on the fiscal cost and they found that only in the case of low middle income countries, the loss in total tax revenue because of reduction in trade taxes is not recovered through domestic taxes but according to Keen and Mansour (2010) the reduction in revenues because of trade taxes have been largely offset by the domestic taxes in African region. Minea and Villieu (2010) used an endogenous growth model with collection costs to analyzed that why the growth maximizing governments differ in financing their expenditures. They argued that collection costs are associated with the structural environment (institutional quality and financial development) of an economy that's why developing countries choose high seigniorage instead of high tax rate to finance their expenditures because they are constraint by low institutional quality and hence high tax collection costs. According to Minea and Villieu (2008) the efficiency of the tax system as compared to seigniorage is increased with financial development and with lower cost of institutional reform. They also argued that central banks are induced by the financial development to reduce the inflation also.

Empirical results of Amin et al. (2014) showed that corruption, inflation and political instability negatively effects the tax revenue collection while the real per capita income and trade liberalization increases the tax revenue collection in case of Pakistan. Fortuny (2015) showed that the weak institution causing a tax revenues leakage argued by Huang and Wei (2006) and high level of corruption which obstruct the economic performance “eaten up” the tax revenues of the LDCs hence they rely more on seigniorage revenue to finance their expenditures. Trade liberalization has the important revenue implications especially for developing countries. With trade liberalization the international trade taxes will decrease because of the tariff reduction which may decrease the total tax revenue. The total tax revenues can be increased if the trade volume is

increased. So, the impact of trade liberalization is ambiguous on total tax revenues. Studies of Agbeyegbe et al. (2004), Aizenman et al. (2015) and Gaalya (2015) showed that the impact of trade liberalization on tax revenue is positive while the empirical results of Karagoz (2013) showed an insignificant of trade openness on the total tax revenues. Khattry and Rao (2002) found a negative relationship between trade liberalization and tax revenues for developing countries.

Agriculture sector is considered as the backbone for the economies of South Asian countries as it contributes significantly to GDP. It contributes 18.64%, 25%, 20% and 17.90% to GDP in Bangladesh, India, Pakistan and Sri Lanka. But despite of such a larger contribution to GDP this sector is hardest to tax among all other sectors because of political issues, small scale activities and also this sector is subjected to large tax evasions and exemptions. It is believed that sectoral composition of output also matters because certain sectors of the economy are easier to tax than others. It may be expected that agriculture sector does not generate large tax revenues and may be difficult to tax, especially if it is dominated by a large number of subsistence farmers (Gupta, 2007). Previous studies showed the mix effects of agriculture sector on the tax revenues of developing countries. Studies of Leuthold (1991), Stotsky and WoldeMariam (1997), Gupta (2007), Karagoz (2013) and Gaalya (2015) showed that the agriculture sector negatively effects the tax revenues whereas the empirical estimates of Agbeyegbe et al. (2004) shows that the positive impact and the study of Blejer and Cheasty (1990), Mahdavi (2008) and Muhammad and Ahmad (2010) showed that the effect of agriculture sector on tax revenues is insignificant.

Monetization of the economy is closely related to sectoral composition of the economy. Development of industrial sector is important for productivity enhancement, increasing income level and to implement the monetization of the economy whereas tax capacity is low in agriculture sector in which self-consumption is quite high (Karagoz, 2013). It is easy to tax the manufacturing

sector because of its large size. According to Gupta (2007), a vibrant manufacturing sector dominated by a few large firms can generate large taxable surpluses. Empirical estimates of Agbeyegbe et al. (2004), Muhammad and Ahmad (2010) and Karagoz (2013) showed that the effect of manufacturing sector is positive on tax revenues. However, in developing countries there is the possibility that the manufacturing sector is composed of small scale firms and hence it is easy for them to avoid the taxes. So, the results of Stotsky (1991) and Aizenman et al. (2015) showed that the impact of industrial sector on tax revenues is negative.

Services sector is the most important and the largest sector for both the developed and developing economies as it directly contributes to GDP and employment. Its share is 73% in total GDP for developed economies and almost 47% and 53% for the low and middle income countries respectively. Empirical estimates of Rath and Raj (2006) showed that the growth of services sector positively contributes to the economic growth. They also argued that services sector growth widens the tax base and hence can generate more revenues. Empirical estimates of Blejer and Cheasty (1990) also show positive and significant effect of services sector of on tax revenues.

Developing countries faced the problem of tax evasion and high corruption that benefits the few at the cost of many. These are serious problems in tax administrations so the collection of the tax system can be improved only by reducing the corruption as it negatively effects the tax revenue collections as argued by Gupta (2007), Bird (2008), Ajaz and Ahmad (2010) and Imam and Jacobs (2014). Eltony (2002) and Bird (2008) showed empirically that due to corruption 50% of tax revenues were not collected. Imam and Jacobs (2014) also argued that the institutional corruption depends on the country's highest authority political commitments which can be reduced through better and modernized tax administration with highly skilled and professionally trained staff.

With inflation the purchasing power of consumer increases due to increase in an illusion of the increase in disposable income due to which the demand for goods and services increases which increases the incentive for governments to tax more and collect more revenues that's why according to Gaalya (2015) inflation boosts the tax revenues. Negative impact of inflation Agbeyegbe et al. (2004), Mahdavi (2008), Enhart (2012) and Gaalya (2015). It can be justified from the economic theory that with increase in prices the demand for goods and services decreases due to which the ability of the government to tax also decreases and hence the total tax revenues.

Urbanization is important for its social, political, and cultural, as well as economic implications. Urbanization per se brings new needs and demand for public services. On the other hand, government's ability to collect taxes is enhanced by structural changes, which are concomitant with urbanization (Al-Hakami, 2008). According to Addison and Levein (2011), urbanization can increase the both the need to tax and the capacity to tax. On the demand side it can increase the demand for public goods and hence paves the way for government to tax more. On the supply side, urbanization leads to larger taxable bases as economic activity tends to be concentrated in urban areas (Khattry and Rao, 2002). Studies of Rajan (1996), Mahdavi (2008), Enhart (2012), Mushtaq *et al.* (2012) and Karagoz (2013) showed that urbanization positively effects the tax revenues however empirical results of Addison and Levein (2011) and Aizenman et al. (2015) show that the impact of urbanization is insignificant on the tax revenues. Urbanization is also associated with the large informal sector and underground economy so it can also negatively affect the tax revenues Aizenman and Jinjark (2009).

2.4. Conclusion

This chapter provides an overview of the theoretical literature on the effect of globalization on tax revenue instability of developing countries along with the effect of structural, institutional and political factors. From the preceding literature we can conclude that the fiscal instability (tax revenue instability) can be more in the developing countries following globalization. However, this is not the problem in developed countries, as they not only the loss from “easy to collect” taxes but also generates a surplus of revenues. These conflicting results for developing and developed countries has one more important implication i.e. it is not the globalization alone that creates the fiscal instability, the structural and economic factors are also important. Literature showed that the developing countries are constraint by many economic and structural factors i.e. they are generally trapped in the low efficiency tax system that effects their tax revenue generation from “hard to collect” taxes which requires high level of investment in tax capacity, better institutions etc. to avoid the tax evasions. So, these structural and economic factors are also important in determining the fiscal instability.

Chapter 3

CONCEPTUAL FRAMEWORK

This chapter provides the details of the conceptual framework used for the empirical analysis in the study.

3.1. Theoretical Model

Our benchmark model is adopted from Cukierman *et al.* (1989). They explained the difficulties faced by the developing countries characterized by political instability in reforming their tax system. According to them the fiscal revenues can be raised through the inflation taxes having zero collection cost and through income taxes with which collection cost is associated. Moreover, they also assumed that the present policy makers influence the efficiency and revenue collection of the future tax system by assuming the implementation lags and hence concluded that the countries having unstable political system can choose an efficient tax system for the future governments and constrained their revenue collection.

Aizenman and Jinjark (2009) extended the model adopted by Cukierman *et al.* (1989) by adding the endogenous tax evasions and then they modeled the optimal enforcement of taxes with which collection cost is associated. Following Aizenman and Jinjark (2009), we model the tax revenue collection of “easy to collect” and “hard to collect” taxes as given below:

Let the economy at time t consists of the two budget constraint agents i.e. the budget constraint government and the budget constraint private individual represented by equation 1 and 2 respectively.

$$a_t + b_t + \pi_t \leq \phi_t + \bar{\tau}_t \quad 3.1$$

$$C_t \leq 1 - \bar{\tau}_t - \phi_t - \gamma(\dot{\tau}_t) - \omega(\phi_t) \quad 3.2$$

Assume that each individual in the economy is endowed with one unit of output. In the above equations, the terms a_t and b_t represents the public goods consumed say e.g. apple and butter in per capita terms. π_t represents the investment in the tax capacity. The term ϕ_t represents the amount of tax revenues collected from “easy to collect” i.e. from international trade taxes and seigniorage having no collection and an amount $\bar{\tau}_t$ in the form of “hard to collect” taxes with which heavy enforcement and collection cost is associated. The term C_t represents the private consumption. $\dot{\tau}_t$ represents the “hard to collect” taxes statutory tax rate. Both types of taxes i.e. “easy to collect” and “hard to collect” taxes imposed the convex deadweight loss represented by $\gamma(\dot{\tau}_t)$ and $\omega(\phi_t)$.⁸

3.2. The Agent’s Problem

Underpayment of taxes is costly i.e. each agent is audited and if he/she is found paying $\hat{\tau}_t$ below $\dot{\tau}_t$ (the statutory tax rate), then they are subjected to the penalty denoted by the quadratic penalty of $0.5\beta(\dot{\tau}_t - \hat{\tau}_t)$ with probability P_t . The representative agent would submit the tax payment denoted by $\hat{\tau}_t$ maximizing her expected utility given by:

$$MAX [U(C_{t,ad}) + U(C_{t,nad})] \quad 3.3$$

$U(C_t)$ represent the utility at time t. Where as $U(C_{t,ad})$ and $U(C_{t,nad})$ represents the agent private consumption if he/she is audited or not audited with the probability P_t and $1 - P_t$ respectively and:

⁸ We use the term convex deadweight loss because $\gamma(\dot{\tau}_t)$ and $\omega(\phi_t)$ satisfying the conditions $\dot{\gamma} > 0$, $\dot{\omega} > 0$, $\dot{\omega} > 0$, $\dot{\omega} > 0$.

$$C_{t,ad} = \left[\left[1 - \left\{ \dot{\tau}_t + 0.5\beta \left(\dot{\tau}_t - \hat{\tau}_t \right)^2 \right\} - \phi_t - \gamma(\dot{\tau}_t) - \omega(\phi_t) \right] \right] \quad 3.4a$$

$$C_{t,nad} = \left[1 - \dot{\tau}_t - \phi_t - \gamma(\bar{\tau}_t) - \omega(\phi_t) \right] \quad 3.4b$$

By substituting equation 3.4a and 3.4b into equation 3.3, we get:

$$\underset{\dot{\tau}_t}{MAX} = \left[\begin{array}{l} P_t U \left[\left[1 - \left\{ \dot{\tau}_t + 0.5\beta \left(\dot{\tau}_t - \hat{\tau}_t \right)^2 \right\} - \phi_t - \gamma(\dot{\tau}_t) - \omega(\phi_t) \right] \right] + \\ (1-P_t) U \left[1 - \dot{\tau}_t - \phi_t - \gamma(\bar{\tau}_t) - \omega(\phi_t) \right] \end{array} \right] \quad 3.5$$

By optimizing equation (4), the optimal submitted tax, denoted by τ_t^r is given by:

$$\tau_t^r = \dot{\tau}_t - \frac{(1-P_t)}{P_t \beta_t} (1-\mu) \quad 3.6$$

Where, μ is the risk premium adjustment, this risk term can be defined as the percentage gap between the marginal utilities of audit and no audit case and can be represented $\mu = \frac{\dot{U}(C_{t,a}) - \dot{U}(C_{t,nad})}{\dot{U}(C_{t,a})} \geq 0$, while $\dot{U}(C_{t,a})$ and $\dot{U}(C_{t,nad})$ are the marginal utilities in audit and no audit case. Resultant expected tax payment is denoted by:

$$E(\hat{\tau}_t) = \dot{\tau}_t - 0.5 \frac{(1-P_t)^2}{P_t \beta_t} (1-\mu_t^2) \quad 3.7$$

The expected tax payment increases with the probability of an audit, and with the penalty rate associated with underpayment. It also increases with the degree of risk aversion – higher risk aversion increases the utility cost associated with being audited. In practice, the risk adjustment term, λ , is of second order magnitude in circumstances where the tax gap between the increases in

tax payment associated with audit, is small relative to total consumption. Thus, for simplicity, we henceforth ignore this risk adjustment term, assuming $\mu \cong 0$ ⁹.

The economy is populated with the large number of agents. Hence from the point of view of authorities, idiosyncratic risk (risk which is specific to an asset or small group of asset) associated with tax evasion is diversified away, and in the macro budget constrain agents (1) -(2), the actual tax revenue $\bar{\tau}_t$, is the expected tax payment of the individual represented by:

$$\bar{\tau}_t = \tau_t - 0.5 \frac{(1-P_t)^2}{P_t \beta_t} (1-\mu_t^2) \cong \tau_t - \frac{(1-P_t)}{P_t \beta_t} (1-\mu_t) \quad 3.8$$

3.3. The Policy Maker Problem

There are two possible types of policy makers, represented by A and B, who randomly alternate in office. Policy maker of type $i = A$ and B maximizes welfare:

$$W_m^i = E_t \left\{ \sum_{i=0}^{\infty} \alpha^i \left[U(C_{t+i}) + H^i(a_{t+i}, b_{t+i}) \right] \right\}; H^i(a, b) = \begin{cases} \frac{\min[\delta a, (1-\delta)b]}{\delta(1-\delta)} & i = A \\ \frac{\min[\delta a, (1-\delta)b]}{\delta(1-\delta)} & i = B \end{cases} \quad 3.9$$

Where E_t and U represents the expectation operator and concave utility function respectively. $H^i(a, b)$ represents the utility associated with the public good, as evaluated by policy maker type i . Assume that $0 < \alpha < 1$ and $0 < \delta < 1$. The political system is described as Markov process with transition probabilities λ and $1-\lambda$. The government at office at time t has a fixed probability $(1-\lambda)$

⁹ "It is easy to verify that $\mu = \frac{C_{t,ad} - C_{t,nad}}{C_{t,ad}} - \frac{U''(C_{t,ad})}{U'(C_{t,ad})}$. Hence, μ is negligible when $\frac{C_{t,ad} - C_{t,nad}}{C_{t,ad}}$ is small. Note that audit risk is idiosyncratic, and may be diversified away by distributing it across agents. The risk adjustment would be zero in the presence of such insurance".

of being reappointed next period and with the probability λ that it is thrown out of office and the other policy maker type is appointed.

Let $y = a + b$ represents the government spending. For concreteness, assume $\alpha = 0.5$ ¹⁰. While the private agent views the probability of an audit, and the penalty rate at time t , as exogenous, these variables are pre-determined by the policy maker at time $t - 1$. The efficiency of the tax system is determined by the probability of an audit, and by the penalty associated with tax evasion, p and β respectively. We assume that both p and β are determined by the investment in tax capacity π . To capture the greater inertia in reforming the tax system than in changing fiscal policy, assume the investment in tax efficiency π along with p and β but not the other policy variables $(\tau_t, \phi_t, a_t, b_t)$ must be chosen one period in advance. Thus, π_{t-1} was chosen at time $t-1$ but exerts an influence on the efficiency of the tax system only at time t . Where:

$$p_t = p_t(\pi_{t-1}; SF, Globalization): \quad p' > 0, \quad p'' < 0 \quad 3.10a$$

$$\beta_t = \beta_t(\pi_{t-1}; SF, Globalization): \quad \beta' > 0, \quad \beta'' > 0 \quad 3.10b$$

Where, SF is the vector of structural factors impacting the cost of tax collection. Specifically, high urbanization rate, lower share of agriculture, stable macroeconomic environment, high level institution quality and globalization associated with higher trade and financial openness, that may reduce the effective cost of monitoring and collecting information, implying greater efficiency of the collection system.

¹⁰ The two policymakers differ only in the desired composition of the public good. For simplicity, their disagreement is parameterized by α . The more distant is α from 0.5, the more they disagree. By construction, the overall weight given to private versus public consumption does not depend on α .

3.4. Conclusion

The main results of the model are summarized by the following proposition:

1. If the current government is certain of being reappointed, or if there is no polarization ($\lambda=0$ or $\alpha = 0.5$), then it brings about the most efficient tax system.
2. But if they perceive a low probability of being re-elected then they are less inclined to reform the tax system. Also if there is greater political instability, low institutional quality, low urbanization rate, greater agriculture sector shares and low trade and financial openness, the more inefficient is the tax system left as a legacy to the future administration. This inefficiency of the tax system is revealed in lower efficiency of the tax system, low penalty, high tax evasions and low auditing. So, we can conclude that the structural factors that increase the ease of tax evasion reduce the equilibrium tax collection, increases the share of the “international trade taxes and seigniorage” taxes. Following globalization, the share of “hard to collect” taxes is increased in the tax revenues and the revenue collection from these taxes required an efficient tax system. But the inefficiencies in the tax system because of the structural factors causes the overall decline in the revenue collection of developing countries. This revenue loss because of the reduction in “easy to collect” can be covered through the domestic tax system with which high collection costs are associated.

3.5. Empirical Model Based on Conceptual Framework

The model described in previous chapter emphasizes on the role of globalization on the revenue collection of South Asian developing countries. The model also described other structural factors that influence the revenue collection from “easy to collect” and “hard to collect” taxes. The theoretical chapter presented in the previous chapter discussed that how the optimal enforcement

of tax collection is associated with the tax evasion and inefficiency of the tax system with which collection cost is associated. The model assumed that collection cost is mainly associated with the taxes imposed after globalization i.e. VAT and income tax while international trade taxes and seigniorage carries no administration cost. The efficiency of the tax system is determined by the investment in the tax system and as stated by Cage and Gadenne (2012), countries in a low tax capacity trap recover none of the loss trade tax revenues from domestic taxation but countries in an investment equilibrium can recover some of the revenue, thanks to the positive investment in tax capacity.

Many previous studies also show the effect of these structural factors on the efficiency of the tax system. Alesina and Drazen (1991) argued that the countries having weak governments are not sufficiently strong or able to improve the tax system efficiency. Cukierman *et al.* (1989) found that the countries having an unstable governments and have large agriculture sector share then the share of manufacturing and mining sector in GDP often exhibit highly inefficient fiscal system in which it is difficult to raise the revenues from the standard taxes like an income taxes and hence they rely more on seigniorage revenue (“easy to collect”). They also argued that the degree of openness and high urbanization rate also have the significant effects on the seigniorage revenue. Roubini and Sachs (1995) showed that the countries having inefficient tax system and high tax evasions choose to increase seigniorage by repressing the financial sector and increasing the inflation rates.

The efficiency of the tax system can be increased with financial development and lower institutional cost (Minea and Villieu, 2005). Aisen and Veiga (2005) argued that economies with weaker institutions might be unable to build efficient tax systems leading them to use seigniorage more frequently as a source of revenue. Aizenman and Jinkark (2009) showed that trade

liberalization increases the collection efficiency of the VAT (hard to tax). They also argued that the structural factors like urbanization, political instability and agriculture share also effect the collection efficiency of the VAT. Unlike Aizenman and Jinjark (2009), Cage and Gadenne (2012) argued that the developing countries are trapped in the low tax system efficiency and hence they argued that the fiscal cost is associated with the trade liberalization.

Equation 3.10a and 3.10b discussed previously finally suggests that the gains from trade liberalization can be obtained by investing in tax capacity. Building more efficient tax administrations in developing countries may lead them to open up to trade as they will no longer need to levy tariffs to raise revenue, though other protectionist motives for raising tariffs may be at play. So the model hypothesizes that with globalization tax revenues can be increased but as the increase in revenue also depends on the other structural, institutional and political factors so the result of globalization is different for developed and developing countries.

Chapter 4

DATA AND EMPIRICAL METHODOLOGY

4.1. Econometric Specification Based on Conceptual Framework

In the light of the conceptual framework the following econometric model is proposed, describing the effect of globalization along with structural factors on revenue collection by shifting the revenues from “easy to collect” taxes to “hard to collect” taxes as a function of number of variables. The model is given by:

Easy to Collect Taxes (% of GDP) = f (Globalization, Structural, Institutions, Political, Macroeconomic Environment)

Hard to Collect Taxes (% of GDP) = f (Globalization, Structural, Institutions, Political, Macroeconomic Environment)

Most specifically the model takes the following form:

4.1.1. Easy to collect taxes models are

$$TR_{it} = \alpha_0 + \alpha_1 TO_{it} + \alpha_2 FO_{it} + \alpha_3 AGR_{it} + \alpha_4 MANF_{it} + \alpha_5 SER_{it} + \alpha_6 GDPPC_{it} + \alpha_7 INF_{it} + \alpha_8 INS_{it} + \alpha_9 POL_{it} + \alpha_{10} TO_{it} * AGR_{it} + \alpha_{11} TO_{it} * URB_{it} + \alpha_{12} TO_{it} * INS_{it} + \alpha_{13} TO_{it} * POL_{it} + \alpha_{10} FO_{it} * AGR_{it} + \alpha_{11} FO_{it} * URB_{it} + \alpha_{12} FO_{it} * INS_{it} + \alpha_{13} FO_{it} * POL_{it} + \mu_{it} \dots \dots \dots (4.1)$$

$$SEI_{it} = \beta_0 + \beta_1 TO_{it} + \beta_2 FO_{it} + \beta_3 AGR_{it} + \beta_4 MANF_{it} + \beta_5 SER_{it} + \beta_6 GDPPC_{it} + \beta_7 INF_{it} + \beta_8 INS_{it} + \beta_9 POL_{it} + \beta_{10} TO_{it} * AGR_{it} + \beta_{11} TO_{it} * URB_{it} + \beta_{12} TO_{it} * INS_{it} + \beta_{13} TO_{it} * POL_{it} + \beta_{10} FO_{it} * AGR_{it} + \beta_{11} FO_{it} * URB_{it} + \beta_{12} FO_{it} * INS_{it} + \beta_{13} FO_{it} * POL_{it} + \mu_{it} \dots \dots \dots (4.2)$$

4.1.2. Hard to Collected taxes models are:

$$\begin{aligned}
 INC_{it} = & \gamma_0 + \gamma_1 TO_{it} + \gamma_2 FO_{it} + \gamma_3 AGR_{it} + \gamma_4 MANF_{it} + \gamma_5 SER_{it} + \gamma_6 GDPPC_{it} + \gamma_7 INF_{it} + \gamma_8 INS_{it} + \gamma_9 POL_{it} + \\
 & \gamma_{10} TO_{it} * AGR_{it} + \gamma_{11} TO_{it} * URB_{it} + \gamma_{12} TO_{it} * INS_{it} + \gamma_{13} TO_{it} * POL_{it} + \gamma_{10} FO_{it} * AGR_{it} + \gamma_{11} FO_{it} * URB_{it} + \\
 & \gamma_{12} FO_{it} * INS_{it} + \gamma_{13} FO_{it} * POL_{it} + \mu_{it} \dots \dots \dots (4.3)
 \end{aligned}$$

$$\begin{aligned}
 VAT_{it} = & \delta_0 + \delta_1 TO_{it} + \delta_2 FO_{it} + \delta_3 AGR_{it} + \delta_4 MANF_{it} + \delta_5 SER_{it} + \delta_6 GDPPC_{it} + \delta_7 INF_{it} + \delta_8 INS_{it} + \delta_9 POL_{it} + \\
 & \delta_{10} TO_{it} * AGR_{it} + \delta_{11} TO_{it} * URB_{it} + \delta_{12} TO_{it} * INS_{it} + \delta_{13} TO_{it} * POL_{it} + \delta_{10} FO_{it} * AGR_{it} + \delta_{11} FO_{it} * URB_{it} + \\
 & \delta_{12} FO_{it} * INS_{it} + \delta_{13} FO_{it} * POL_{it} + \mu_{it} \dots \dots \dots (4.4)
 \end{aligned}$$

In above equations 4.1, 4.2, 4.3 and 4.4:

TR= International trade taxes

SEI= Seigniorage

INC= Income tax

VAT= Value Added Tax

TO= Trade openness measured

FO= Financial openness

AGR= Agriculture sector share as percentage of GDP

MANF= Manufacturing sector share as percentage of GDP

SER= Services sector share as percentage of GDP

GDPPC= GDP per capita

INF= Inflation

INS= It is the level of corruption within the legal and political system with minimum score 0 and maximum score 6. It is used as a proxy of institutional quality.

POL= Government stability with minimum score 0 and maximum score 12. It is used as a proxy for political instability.

URB= urbanization

TO*AGR= Interaction between trade openness and agriculture sector share as percentage of GDP.

TO*URB= Interaction between trade openness and urbanization.

TO*INS= Interaction between trade openness and institutional quality.

TO*POL= Interaction between trade openness and political instability.

FO*AGR= Interaction between financial openness and agriculture sector share as % of GDP.

FO*URB= Interaction between financial openness and urbanization.

FO*INS= Interaction between financial openness and institutional quality.

FO*POL= Interaction between financial openness and political instability.

μ_{it} = Error term.

t = Time period 1991, 1992,, 2015.

i = countries 1,2,3,4

Whereas α , β , γ and δ are the coefficients of the variable in equation 4.1, 4.2, 4.3 and 4.4 respectively.

4.2. Data and Variables

This thesis uses the data of south Asian Low Middle income countries which includes Afghanistan, Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka. However, Afghanistan, Bhutan and Nepal are excluded from the analysis because of the data unavailability. After excluding these countries, this study is based on the analysis of only four countries i.e. Bangladesh, India, Pakistan and Sri Lanka, classified as the developing countries by the World Bank because their gross national income per capita is more than \$1045 but less than \$12736 based on the year 2015 analytical revised classification of GNI per capita for the previous year of 2014. Moreover, this study uses the data up to 2015 because for most of the variables the data for the most recent year (2016) was not available.

This study is based on the panel data set of South Asian low middle countries from 1991-2015. The advantage of using panel data is that it takes into account both cross section and time specific effects and moreover as there are large number of observations hence it accounts for additional degree of freedom as well as control the problem of heterogeneity. The definitions of the variables and their data sources are presented in table 4.1.

Table 4.1: Summary of Variables and Data Sources				
Sr. NO	Variables Explanation		Notation	Data Sources
1	International Trade Taxes	It represents taxes that become payable when goods cross the national or custom border of the nation". Data is in percentage of GDP.	TO	IMF, World Longitudinal Data

2	Seigniorage	It represents an increase in reserve money divided by inflation. Data is in percentage of GDP. (as % of GDP)".	SEI	Calculated
3	Income Tax	"It represents taxes assessed on the actual or presumed incomes of institutional units". Data is in percentage of GDP.	INC	IMF, World Longitudinal Data
4	Value Added Tax	"Represent taxes on goods or services collected in stages by enterprises but that are ultimately charged in full to the final purchasers". Data is in percentage of GDP.	VAT	IMF, World Longitudinal Data
5	Trade Openness	"It represents the ratio of sum of exports and imports to GDP". Data is in percentage of GDP.	TO	Calculated
6	Financial Openness	"It represents the total FDI inflows to GDP". Data is in percentage of GDP.	FO	Calculated
7	Agriculture Sector	"Represents agriculture sector share as percentage GDP".	SER	World Development Indicators
8	Manufacturing Sector	"Represents share of the manufacturing sector as percentage GDP".	MANF	World Development Indicators
9	GDP Per Capita	"It represents the gross domestic product divided by the midyear population".	GDPPC	World Development Indicators

10	Inflation	It represents the percentage change in consumer price index.	INF	World Development Indicators
11	Institutional Quality	Corruption is used as a proxy for institutional quality. It measures the extent of corruption by assigning the numerical values ranges from 1 (means high corruption) to 6 (means low corruption).	INS	International Country Risk Guide
12	Political Instability	Government stability is used as a proxy for political instability. The index of government stability measures the ability of government to carry out its declared programs and its ability to stay in office, the index ranges from 0 (no government stability) to 12 (governments are highly stable)”	POL	International Country Risk Guide
13	Urbanization	“Urbanization refers to the percentage of total population living in areas defined as urban areas”.	URB	World Development Indicators

4.3. Data Construction

The idea of seigniorage is very close to the concept of government taking loan from the central bank of an economy to finance its current expenditure or what commonly known as printing of new money. Cagan (1956), Friedman (1971), Fischer (1982) etc. made an important contribution in the theoretical and empirical literature on seigniorage in their writings. Different authors provide different measure of seigniorage, however, following Buiter (2007) we use the concept of monetary seigniorage.

Following Buitier (2007) data on seigniorage is calculated as:

$$\text{Seigniorage} = \frac{\Delta M_t - \Delta M_{t-1}}{P_t Y_t} = \frac{\Delta M_t}{P_t Y_t}$$

Where ΔM_t shows the change in reserve money and P_t and Y_t shows the inflation and the GDP respectively. Data on reserve money is collected from the economic surveys of the respective countries, which is either in crore, millions or billions of rupees. Firstly, the data is converted into millions and then into millions of dollars because the data of all other variables are also in millions of dollars. The main reason behind using this measure is that the data on all the variables are easily available for all countries used in the study.

The data on trade openness is constructed as the sum of exports and imports as a percentage of GDP. The data of exports, imports and GDP are in millions of current US\$.

Following Lane and Ferretti (2006) and Hanh (2010) financial openness is measured as the ratio of FDI inflows to GDP. This measure of financial openness can also be justified on the ground that the Chinese economy experienced financial liberalization after it joined WTO in 2001 but the economy is more liberalized when the Eastern region was first opened to the outside world and gained experiences of attracting inward FDI, so then the financial and goods markets there are more liberalized.

4.4. Expected results of the Study

This section highlights the direction in which different variables affects the “easy to collect” and “hard to collect” taxes. Structural variables are divided into following categories:

The sectoral composition of an economy (i.e. shares of agriculture, manufacturing and services sector as percentage of GDP) as it effects the ability to tax. The countries having greater agriculture share in GDP relies more on “Easy to collect” especially in the case of developing low income countries where it is politically infeasible to tax the agriculture sector and where agriculture activities take place on the small scale and dominated by the large number of subsistence farmers, hence these problems make it difficult to tax the agriculture sector. Moreover, the farmers typically employed in agriculture sector or in small informal enterprises are often paid in cash, “off the books”. The base for an income tax is therefore hard to calculate. Nor do workers in these countries spend their earnings in large stores that keeps accurate record of sales and inventories. As a result, modern means of raising revenues such as income and consumption taxes, play a diminishing role in these economies, and the possibility that the government will achieve high tax levels is virtually excluded.¹¹ However, the impact could be positive in the countries in which agriculture exports dominates (Karagoz, 2013). Moreover, the agriculture is exempted from income taxes and it is also subjected to the large amount of tax evasion (Gaalya, 2015). “The collection of income and VAT is challenged by the widespread distribution of production among geographically diffused farmers” (Aizenman and Jinjark, 2009).

It is “easy to collect” the manufacturing sector because of its large size and it can generate more taxable income than the other sectors but in developing countries, the share of manufacturing sector is small so it is also possible for small firms to avoid the taxes by evading the official detections or if the size of the firms is significantly large they can get more benefits by overpowering the system. Services sector is quite appropriate for the VAT and other consumption taxes because the expansion of this sector can increase in the revenue from “hard to collect” taxes

¹¹ For details see Tanzi, V., & Zee, H. H. (2001).

would be more than the increase in real per capita income. So the revenue generation through this sector could be high in the countries where this sector is well developed (Muhammad and Ahmad, 2010 and Kargoz, 2013).

It is expected that more urbanized countries depend more heavily on “hard to collect” taxes because the increasing rate of urbanization can play a major role in expanding the tax base especially in terms of income tax (Karagoz, 2013) but there is the possibility of underground economy in more urbanized economies, inducing the use of “easy to collect” taxes.

Trade openness is measured as a ratio of exports plus imports to GDP (all measured in dollars). Following Lane and Ferretti (2006) and Hanh (2010) financial openness is measured as the ratio of FDI inflows to GDP. Aizenman and Jinjark (2009) found a negative impact of globalization on tax revenues of developing countries whereas Addison and Levin (2011) and Karagoz (2013) found that overall tax revenues are higher in more globalized economies.

Macroeconomic variables i.e. GDP per Capita, which deals with the development of the economy. The sign of GDP per capita is ambiguous. It takes the positive sign because the demand for public goods increases with increase in economic development hence it paves the ways for government to impose and collect more taxes (Chelliah, 1971, Javid and Arif, 2012 and Gaalya, 2015). Moreover, in the economically developed countries the tax system is progressive and they also have better tax administrations which improves the performance of the tax system. It can also take negative sign because with the increasing level of income and development although new taxes were imposed but the enforcement and collection of new taxes needs better administration and high level of technologies but the developing countries are generally constraint by low level of technology and poor administration for enforcing and collecting the taxes (Cukierman *et al.*, 1989).

The institutional and political constraints are expected to affect the revenue. Recently some studies have attempted to capture the effect of institutional quality on tax revenue performance. It captures the various aspects of governance but we use the proxy of corruption for institutional quality. The corruption index measures the extent of corruption by assigning the numerical values ranges from 1 (means high corruption) to 6 (means low corruption). It is expected that the better institutional quality positively effects the tax revenue collection (Javaid and Arif, 2012).

Government stability is used as a proxy for political instability. “The index of government stability measures the ability of government to carry out its declared programs and its ability to stay in office, the index ranges from 0 (no government stability) to 12 (governments are highly stable)” (ICRG). It is expected that political instability takes negative sign because the greater the political instability the greater will be the chance that the current government will leave an inefficient tax system for future governments (Cukierman *et al.*, 1989). So it can be concluded that the countries with better institutional quality and stable political system collects more from “hard to collect” taxes.

The purpose of the study is that if the revenue from traditional “easy to collect” taxes decreases with globalization; the countries should set in line the collection from the “hard to collect” taxes so we expect that with globalization the revenue from “easy to collect” taxes (i.e. seigniorage and international trade taxes but the last result would hold if the adverse revenue effect of lower international trade taxes dominates the increase in revenue from international trade taxes due to the growth of imports) decreases while revenue from “hard to collect” taxes increases.

The dependent variables are international trade taxes, seigniorage, Income tax and VAT. All variables are in percentage of GDP.

4.5. Estimation Methodology

In order to estimate the impact of globalization on “easy to collect” and “hard to collect” taxes, this study employ a panel of 4 countries from 1991 to 2015. Panel data is considered as an efficient and effective technique because of its certain advantages, which includes: i) It gives better estimation results because of increased sample size; ii) it controls the variables that can’t be measured directly or observable; iii) it takes into account the problem of heterogeneity; iv) it deals with the problem of omitted variable bias. For the analysis of panel data two techniques i.e. the fixed effect and random effect methods are used. The fixed model is the most widely used technique used for the estimation of linear models and assumed that the intercept of each cross section unit is time variant. While random effect assumes that intercept of each cross section is random not fixed. The selection of the best suitable model among the fixed effect and random effect can be described by using the Hausman test.

But this study does not employ these models because it might beset by model uncertainty e.g. omitted variable bias which can be arise if we cannot fully and correctly specify the model and secondly because of inconsistent estimates e.g. endogeneity problem which can be arise if the independent variables are assumed to be endogenous but they are in fact exogenous. Moreover, previous studies of Baunsgaard and Keen (2005), Gupta (2007), Ebeke and Enhart (2011), Imam and Jacobs (2014), Aghion et al. (2016) confirms the existence of endogeneity.

To address these problems of omitted variable bias, measurement errors and endogeneity, the prominent econometric technique is Generalized Method of Moment. It is an extension instrumental variable technique. The main advantage of GMM estimation is that the model need not to be homoscedastic and serially independent (Blundell and Bond, 1998). Another advantage

is that it finds the parameters estimates by maximizing the objective function which includes the moment restriction that the correlation between the error term and lagged regressors' is zero. Moreover, Binder et al. (2005) showed that system GMM does not break down in the presence of a unit root while the standard GMM breaks down when the data is not stationary. In essence, the GMM takes into account the time series dimension of the data, non-observable country specific effects, inclusion of lagged dependent variables among the explanatory variables and the possibility that all explanatory variables are endogenous (see e.g. Caselli *et al.*, 1996; Bond *et al.*, 2001). Thus GMM produce consistent and efficient estimates even in the presence of heteroscedasticity (Perera and Lee 2013).

Anderson and Hsaio (1982) propose a strategy to choose instruments to solve the endogeneity. They suggest transforming the model to first differences to eliminate the time-invariant fixed effects and applying IV with lagged difference or level as instruments. The estimator obtained is an example of simple IV estimation, in which there is one instrument for each endogenous variable. A simple generalization of this estimator is the GMM in which the number of instruments is permitted to exceed the number of endogenous variables. Arellano and Bond (1991) suggest using all valid lags of all the regressors as instruments.

The efficiency of GMM estimation is generally increasing in the number of valid and effective moment conditions Therefore, Arellano and Bond (1991) estimator should be superior to Anderson and Hsaio (1982) estimator. However, this superiority might be minimal if the panel has a shorter time span. To solve this problem, Arellano and Bover (1995) and Blundell and Bond (1998), assuming stationarity justify additional zero-moment restrictions that can be applied to a model in levels, instrumented with lagged differences. These additional moment restrictions can be combined with those in Arellano and Bond (1991) to provide a “system-GMM” estimator in

which GMM is applied to a system of two equations: an equation in difference form instrumented by lagged levels, and an equation in levels instrumented by lagged difference.

System GMM is the augmented version of the difference GMM estimator. Initially it was developed to improve the difference GMM estimators as lagged levels were often poor instruments for first differenced variables. Arellano and Bover (1995) and Blundell and Bond (1998) modified the difference GMM estimator by adding the original level equation to the system. The instruments for the variables in levels are their own lagged first differences.

Furthermore, the efficiency of GMM estimation depends upon the valid instruments used. A valid instrument must be strictly correlated with endogenous variable and orthogonal to error term. A large number of valid instruments increase accuracy of GMM estimates asymptotically. Another important point in this debate is testing the consistency of GMM estimator. This is determined by validity of instruments. Sargan (1958, 1975, and 1988) developed a test, known as Sargan J stat, which tests the overall validity of instruments. The test assumes the null hypothesis that “instruments are exogenous” and a larger p-value is required to accept the null of endogeneity of instruments.

In order to avoid problem of endogeneity and reverse causality, this study prefers to use system GMM technique. Because System GMM deals the problem of reverse causality, autocorrelation and also handle non stationary process in the data. Moreover, it also takes into accounts the possibility of the time dimensions of the data, non-observable country specific effects and inclusion of lagged dependent variable among the explanatory variables and the problem of endogeneity among all the explanatory variables.

4.6. Quantifying Economic Significance of Globalization

To get the further insight, by interacting the globalization factors with agricultural, urbanization, institutional and political factors. Essentially, we can then understand that whether economic integration effects the countries characterized by political instability etc. compared to the countries having stable political system etc. Many previous studies, quantify the economic significance in the cross country estimates by the use of standard deviation.

Aizenman and Jinjark (2008) calculated the effect of economic and structural factors on the VAT collection efficiency by calculating the standard deviation change of each structural and economic factor. By using the fixed effect estimations including year dummies, they found the estimated coefficients and then they multiply each coefficient with their respective standard deviation to calculate the standard deviation effect of each economic and structural factors on the collection efficiency of VAT. Ebeke and Eherhart (2011) used the standard deviation to measure the fiscal instability. They measure the effect of the VAT adoption on the instability of government revenues by calculating the standard deviation change of each variable over five year non overlapping sub periods.

Aizenman et al. (2011) calculated the effect of international capital flows and their interaction with other control variables on economic growth. They estimated their model using OLS and then based on the estimates of OLS they calculated the standard deviation in the dependent variable by multiplying each of the coefficient with their respective standard deviation to calculate the economic significance of each variable. Aizenman and Jinjark (2009) estimated the effect of globalization on the tax revenues of developing counties. They estimated the model using SUR model and then to quantifying the economic significance of the globalization factors and their interaction with other economic and structural variables, they calculate the standard deviation change of each variable by multiplying the coefficient of each variable obtained with their respective standard deviation and by

adding the individual and interaction effects they found the total impact of globalization on the revenue collection from “easy to collect” and “hard to collect” taxes.

In order to calculate the total globalization, we will follow the methodology used by Aizenman and Jinjark (2009). By calculating the one standard deviation change in the dependent variable because of globalization factors along with its interaction with economic and structural factors and then the total globalization impact on the tax revenues of developing countries is calculated.

4.7. Conclusion

In this chapter we have described our empirical model based on the conceptual framework of the previous chapter. We discuss in detail that how globalization and other structural and economic factors effects the tax revenue collection from different sources. Secondly, we explained the estimation methodology and conclude that system GMM approach is to be used for the estimation of each equation as it efficiently handles the problem of endogeneity. Then we discussed the procedure of calculating the one standard deviation change in each of the variable to estimate the total globalization impact on “easy to collect” and “hard to collect” taxes.

CHAPTER 5

EMPIRICAL RESULTS AND DISCUSSION

In this chapter, we discussed the empirical results of the impact of globalization and the structural variables on “easy to collect” and “hard to collect” taxes. Before going on to the further analysis, we first analyze the descriptive statistics and to check the issue of multicollinearity we find the correlation matrix among variables we use the correlation matrix. In the presence of multicollinearity, variables can be correlated with the error term and with the other variables of the model and hence results in the large standard errors. The results of descriptive statistics are presented in table 1 whereas table 2 shows the results of correlation matrix.

5.1. Descriptive Statistics

In this section, the results of the statistics are presented. Which gives the information about the two measures of central tendency i.e. mean and median, the maximum and minimum of the data and about the standard deviation representing the range of the data dispersion. The results of the descriptive statistics are presented in table 5.1 in appendix A.2.

5.2. Correlation Matrix

Before proceeding to further analysis, it is necessary to check the correlation among the variables as there is the possibility of the correlation among the variables included in the model and with the error term which may give rise to the problem of multicollinearity, in the presence of which the standard errors are increased and hence the results are inconsistent. To check the

correlation among the variables, we used the correlation matrix. The results of the correlation matrix are presented in the table 5.2 in appendix A.2.

5.3. Estimation Results of Regression Models

In this section, we will discuss the regression results of the models based on the methodology discussed in previous section in details. For each of the tax equation we estimated the impact of globalization and other structural factors an “easy to collect” and “hard to collect” taxes for the panel of 4 South Asian low middle income countries using the system GMM and the results are reported in Table 3. For the adequacy of the model we used the J-statistics. The high value of J-Stats indicate that the instruments are valid.

5.4. Estimation Results of “Easy to Collect” Taxes Analysis

“Easy to collect” taxes consist of the tax revenues collected from the international trade taxes and from the seigniorage. As a group “easy to collect” means the revenue collection from international trade taxes and seigniorage as a percentage of GDP. At last, to get further insights we also included the interaction terms of trade and financial openness with agriculture sector share because in our sample we take the developing countries which are mainly an agriculture based economies. The interaction terms with urbanization is also included because a vast literature is available on the effect of urbanization on tax revenues (Rajan,1996, Mahdavi 2008, Enhart, 2012, Mushtaq *et al.* 2012, and Karagoz, 2013). Similarly, many studies are available on how political instability and institutional quality effects the “easy to collect” and “hard to collect” taxes (Eltony, 2002, Aisen and Veiga, 2005, Ajaz and Ahmad, 2007, Gupta, 2007, Bird, 2008, Amin et al., 2014, and Imam and Jacobs, 2014). We discuss the results of these tax equations one by one.

5.1.1 International trade taxes (TR)

We found that the globalization factors i.e. trade and financial openness negatively effects the revenue collection from international trade taxes as the coefficient of both is negative and significant at 1% significance level. These results are consistent with the findings of Aizenman and Jinjark (2009). Among the sectoral composition in GDP, the coefficient of agriculture sector is positive and significant at 5% significant level which is supported by the theory that the countries having greater agriculture share in their GDP relies more on international trade taxes and also in the developing countries, agriculture activities take place on the small scale and it is politically infeasible to tax the agriculture sector. These results are consistent with the findings of Aizenman and Jinjark (2009) and Gaalya (2015). However, the countries having larger share of manufacturing and services sector share in GDP relies less on the international trade taxes because it is easy to tax the manufacturing sector than the other sectors and hence it will decrease the reliance on international trade taxes.

The coefficient of GDP per capita which deals with the economic development is negative but insignificant in case of international taxes unlike Charlie (1971), (Cukierman *et al.*, 1989), Gaalya (2015), and Javaid and Arif, 2012. The impact of macroeconomic instability captured through inflation is also negative but insignificant unlike Agbeyegbe et al. (2004), Mahdavi (2008), Enhart (2012) and Gaalya (2015). The coefficient of institutional quality is negative and significant at 1% significance level which means that the countries having better institutional quality relies less on the international trade taxes. This result is consistent with study of Amin et al. (2014). However, the coefficient of political instability is positive but insignificant. The coefficient of urbanization is negative and significant at 1% significant level showing the possibility of an underground economy with increasing urbanization which induced the use of

international trade taxes to generate revenues. This result is compatible with the study of Aizenman et al. (2015).

Following Aizenman and Jinjark (2009) we also include the interaction terms to get the further understandings. TR responds negatively as a result to trade openness in the countries having high agriculture sector share in their GDP. With trade openness international trade taxes decrease in the countries having high level of urbanization. The coefficient of the interaction term of trade openness with institutional quality is positive which means that with trade openness the countries having strong institutions can collect more from the international trade taxes. the effect of political instability on international trade taxes in response to trade openness is insignificant. The countries having high level of agriculture share in their GDP can collect more from TR as financial openness increases. High level of urbanization can be associated with the underground economy and hence it decreases the TR as response to financial openness. The effect of institutional quality on international trade taxes in response to financial openness is insignificant. As response to financial openness the TR also decreases in the countries characterized by high level of political instability.

Table 5.4: Results of System GMM						
Variables	Easy to Collect Taxes	Hard to Collect Taxes	Easy to Collect Taxes		Hard to Collect Taxes	
			TR	SEI	VAT	INC
TO	-0.0978*** (0.0205)	0.0512*** (0.0099)	-0.0533*** (0.0194)	-0.0830** (0.0375)	0.0431*** (0.0052)	0.0140** (0.0059)
FO	-4.5251*** (1.0240)	7.5401*** (2.7257)	-2.0460*** (0.1522)	-4.7798** (2.3766)	17.4654*** (2.9542)	3.9053*** (1.1842)
AGR	0.2521*** (0.0611)	-3.0595*** (0.2041)	0.2234** (0.0877)	1.9817** (0.9115)	-2.8104*** (0.2388)	-0.7649*** (0.0731)
MANF	-1.8918*** (0.1651)	0.0628* (0.0342)	-0.2204*** (0.0532)	-0.6967*** (0.0740)	-2.2761*** (0.0991)	-0.8502*** (0.0299)
SER	0.0218 (0.0147)	-2.2293*** (0.0761)	0.0929** (0.0293)	-0.4130*** (0.0396)	-2.2831*** (0.0627)	-0.5269*** (0.0155)
GDPPC	-0.1716 (0.1855)	4.6581*** (0.6102)	-0.2819 (0.1803)	-0.3277 (0.2519)	3.2570*** (0.6015)	-0.3553** (0.1527)
INF	0.0538*** (0.0111)	-0.0868* (0.0510)	-0.0135 (0.0102)	0.0415*** (0.0137)	-0.0193 (0.0153)	0.0199*** (0.0045)
INS	-1.0557*** (0.2690)	1.0053*** (1.0053)	-1.5810*** (0.3572)	-0.2645** (0.1090)	3.6049*** (1.1380)	0.1062*** (0.0262)
POL	-1.0080** (0.4785)	2.1536*** (0.4376)	0.0086 (0.1265)	-0.6353*** (0.2274)	3.2209*** (0.3639)	0.1744*** (0.0461)
URB	0.1098** (0.0537)	-0.4220** (0.1782)	-0.3385*** (0.0700)	0.1881* (0.0978)	0.6201** (0.2395)	0.5717*** (0.0778)
TO*AGR	-0.0071*** (0.0022)	0.0449*** (0.0060)	-0.0061** (0.0029)	8.37E-05 (0.0022)	0.0374*** (0.0063)	-0.0067*** (0.0018)
TO*URB	-0.0042** (0.0016)	0.0143** (0.0057)	-0.0068*** (0.0022)	-0.0033 (0.0028)	0.0140** (0.0059)	-0.0105*** (0.0022)
TO*INS	0.0130 (0.0110)	-0.0491 (0.0437)	0.0494*** (0.0127)	-0.0659*** (0.0169)	-0.0597** (0.0294)	0.0412*** (0.0061)
TO*POL	-0.0120*** (0.0032)	-0.0601*** (0.0168)	0.0020 (0.0049)	-0.0016 (0.0054)	-0.0591*** (0.0105)	0.0076*** (0.0016)
FO*AGR	0.0864*** (0.0176)	-0.1267* (0.0655)	0.1596*** (0.0392)	0.3310*** (0.0836)	-0.0639 (0.0775)	-0.0499** (0.0189)
FO*URB	0.0471*** (0.0137)	-0.2647*** (0.0640)	-0.1537*** (0.0317)	-0.0226 (0.0516)	-0.0839* (0.0473)	-0.0255** (0.0118)
FO*INS	0.4429** (0.1671)	-1.9585 (0.6041)	-0.2601 (0.2232)	0.4563 (0.3849)	-2.3526*** (0.4255)	-0.5674*** (0.1603)
FO*POL	0.0582 (0.0436)	-0.2737 (0.1956)	-0.1224* (0.0700)	-0.0337 (0.0943)	-1.0436*** (0.1305)	-0.0766** (0.0331)
J-Stats	0.25	0.26	0.16	0.23	0.26	0.25

Source: Author's own Calculation.
Note: Standard errors are in parenthesis. ***, **, * denotes 1%, 5% and 10% level of significance respectively.

5.1.2 Seigniorage (SEI)

Results of the seigniorage revenue equation estimated through system GMM showed that seigniorage is negatively affected by the globalization factors as the coefficient of trade and financial openness is negative and significant at 5% significance level. These results are consistent with the theory that with increasing globalization the countries the reliance on seigniorage revenue decreases. These results are compatible with the finding of Adenutsi (2007), who showed that there is negative relationship between seigniorage revenue and economic openness. Among the sectoral composition of GDP, the coefficient of agriculture sector is positive and significant at 5% significance level which is consistent with the theory that the countries having large agriculture share relies more on the revenue from seigniorage. While the share of both manufacturing and services sector is negative and significant at 1% significance level as expected that the larger manufacturing and services sector share decrease the reliance on seigniorage revenue as discussed before.

The coefficient of GDP per capita is positive but insignificant unlike Aisen and Veiga (2005) which showed that the countries with low level of development relies more on seigniorage revenue. The coefficient of inflation is positive and significant at 1% level of significance. These results are consistent with the findings of Roubini and Sachs (1995) who argued that the countries having high tax evasions choose to increase seigniorage by repressing the financial sector and increasing the inflation rates. Dogru (2013) also found a positive relationship between seigniorage and inflation. The coefficient of institutional quality is negative and significant at 5% significant level. It is consistent with the theory that the weak institutions cause the revenue leakage and hence rely more on seigniorage as argued by Huang (2006), Gupta (2007) and Fortuny (2015). The coefficient of political instability is also negative and significant at 1% significance level. The

negative association is due to the fact that countries characterized by high political instability have low level of tax revenue collection and hence rely more heavily on seigniorage revenue as argued by Cukierman *et al.* (1989). The coefficient of urbanization is positive and significant at 10% significance level. The higher the urbanization, the more it is difficult to administer the tax revenues collection so they rely more heavily on seigniorage revenue.

Now we will discuss the effects of those interaction term which are statistically significant. With trade openness revenue collection from seigniorage respond negatively to the institutional quality which means that the countries having weak institutions found the fiscal adjustment more difficult and hence ends with low revenues (Aizenman and Jinjark, 2009). The effect of agriculture shares, urbanization and political instability in response to trade openness is insignificant. In the countries having greater agriculture share in GDP, financial openness has positive impact on the seigniorage revenue. However, the effect of urbanization, institutional quality and political instability are insignificant in response to financial openness on seigniorage.

5.4.1. Easy to collect taxes

As a group “easy to collect” taxes respond negatively to globalization factors as the coefficient of trade and financial openness are negative and significant at 1% significance level. These results are in accordance with the prediction of the theory that with increase in the globalization the revenue collection from the traditional sources i.e. international trade taxes and seigniorage decreases and as group we call them “easy to collect” taxes.

Among the sectoral composition the coefficient of agriculture sector is positive and significant while the coefficient of manufacturing sector is negative and of services sector is positive but insignificant. It confirms the findings of Chelliah (1971), Aizenman and Jinjarak

(2009) and Gaalya (2015) who argue that the countries with greater agriculture share and large manufacturing share relies more on “easy to collect” taxes because of their low taxable capacities.

As a group of “easy to collect” taxes, the coefficient of GDP per capita is negative and significant unlike the coefficient of international trade taxes and seigniorage and it confirms the findings of Cukierman *et al.* (1989) who argued that with increasing level of development although new taxes were imposed but the enforcement and collection of new taxes needs better administration and high level of technologies but the developing countries are generally constraint by low level of technology and poor administration for enforcing and collecting the taxes and these constraints forces these countries to use the “easy to collect” taxes to finance their expenditures. The coefficient of inflation is positive and significant at 1% significance level. As inflation is used as a measure of macroeconomic instability so it can be justified as that the countries having greater macroeconomic instability, have low revenue collection and hence they use the “easy to collect” taxes to finance their government expenditures. The coefficient of institutional quality and political instability are negative and significant at 1% and 5% significance level respectively and is in line with the theoretical prediction that countries with low institutional quality and less stable political system collects more from “easy to collect” taxes. The results states that the coefficient of urbanization is positive and significant at 5% significant level. This may be due to the fact that in the developing countries the higher urbanization is associated with the large informal sector inducing the governments of these countries to rely on “easy to collect” taxes to finance their expenditures.

Now we will explain the effects of the interaction terms. Countries with high agriculture share in GDP, more urbanization and more political instability scale down the revenue collection from “easy to collect” taxes as response to trade openness. The effect of institutional quality in

response to trade openness is insignificant on “easy to collect” taxes. However, with financial openness the revenue collection from “easy to collect” taxes increase in the countries having high level of agriculture share in GDP, more urbanization and high level of institutional quality. The effect of political instability in response to financial openness on “easy to collect” taxes is insignificant.

5.5. Estimation Results of “Hard to Collect” Taxes Analysis

“Hard to collect” taxes consist of the tax revenues collected from the value added tax and from the income tax. As a group “hard to collect” taxes means the revenue collection from value added tax and income tax as a percentage of GDP. We discuss the results of these tax equations one by one.

5.5.1. Value added tax (VAT)

The globalization factors i.e. trade openness and financial openness respond positively to the revenue collection from value added taxes and confirms the theoretical prediction that with increasing globalization the revenue collection through modern means of taxation increases. It also confirms the result of Hines Jr and Desai (2002) who found the negative association between international trade taxes and VAT. The coefficient of trade openness is positive and significant at 1% significance level. It confirms the findings of Jinjark (2008) and Marking (2010) whose empirical estimates showed the increased in tax revenues from the VAT after trade liberalization. Similarly, the coefficient of financial openness is also positive and significant at 1% significance level. Among the sectoral composition, the coefficient of all the sectors is negative and significant. The negative and significant coefficient of agriculture sector is in line with the prediction of Ebrill *et al.* (2001) and Aizenman and Jinjark (2008) that the large agriculture share decreases the

collection efficiency of the VAT. The coefficient of manufacturing sector is also negative and significant at 10% level of significant unlike the results of Chelliah (1971), Agbeyegbe *et al.* (2004), Muhammad and Ahmad (2010) and Karagoz (2013). But in the developing countries the manufacturing sector share is small enough to evade the taxes and in many countries the small scale manufacturing sectors are also exempted from the VAT or if it is large they can benefit by overpowering the system as argued by Aizenman and Jinjark (2009). According to Muhammad and Ahmad, (2010) and Kargoz, (2013) services sector is quite appropriate for the VAT and other consumption taxes but in our estimation results the coefficient of services sector is also negative and significant at 1% level unlike the findings of and hence we can say that in these the services sector is not well developed that's why it is unable to increase the VAT revenues as in countries with the developed services sector.

The coefficient of GDP per capita is positive and significant at 1% level. GDP per capita deals with the development, the positive sign shows that with the increasing level of development the demand for public goods increases hence it paves the ways for government to impose and collect more taxes The results regarding this variable confirms the findings of Charlie, (1971), Gaalya (2015) and Javaid and Arif (2012) and Amin et al. (2014). The coefficient of inflation is positive but insignificant which shows the irrelevance of this variable in this case. Institutional quality variables take the positive sign and it is significant at 1% level of significant. It is consistent with the findings of Bird (2008) and Yesegat (2008) who argued that for the better performance of VAT the proper institutional set up is necessary. Similarly, the coefficient of political instability is positive as in line with the findings of Aizenaman and Jinjark (2008) that the political stability increases the revenue collection efficiency from VAT by 3.1%. the findings of Gupta (2007) and Amin et al. (2014) also showed that the political stability strongly effects the revenue performance

of any country. The coefficient of urbanization is positive and statically significant at 5% level. Results for urbanization is same as the findings of Aizenman and Jinjark (2008) who found that the urbanization increases the VAT collection efficiency by 12.7%. It also confirms the findings of Rajan (1996), Mahdavi (2008), Enhart (2012), Mushtaq *et al.* (2012) and Karagoz (2013) who found that urbanization increases the tax revenue collection.

Now, the effects of those interaction term which are statistically significant are discussed. VAT respond positively to the trade openness in the countries having agriculture share in their GDP and more urbanization. While it responds negatively to trade openness in the countries having low level of institutional quality and more political instability. VAT responds negatively to financial openness in the countries with low level of urbanization, low institutional quality and more political instability. While the effect of agriculture share on VAT is insignificant as response to financial openness.

5.5.2. Income taxes (INC)

Empirical results of an income tax equation show that the globalization factors respond positively to the revenue collection from income taxes as expected. The coefficient of trade and financial openness are positive and satirically significant at 5% and 1% level of significance. These results are consistent with the findings of Aizenman and Jinjark (2009) that revenue collection from income taxes increases with globalization. Among the sectoral composition, the coefficient of agriculture sector is negative and significant at 1% level. This result confirms the finding of Aizenman and Jinjark (2009) that the countries with large agriculture share collects less revenue from income taxes because in these countries the agriculture sector are generally exempted from the income taxes. Similar to the findings in the case of VAT, the coefficient of manufacturing

sector is also negative representing the fact that in developing countries due to small scale manufacturing sector the revenue generation performance of this sector is not satisfactory as stated by Aizenamn and Jinjark (2009). The findings of Blejer and Cheasty (1990) showed that services sector positively effects the tax revenues but the underdeveloped services sector in developing countries effects the revenue collection negatively as argued by Muhammad and Ahmad, (2010) and Kargoz, (2013) and this result is consistent with our result because in our findings the coefficient of services sector is also negative and significant at 1% level.

The sign of GDP per capita which represents the economic development takes the negative sign and it is significant at 5% level representing the findings of Cukierman *et al.* (1989) discussed above. The coefficient of inflation is positive and significant at 1% level which means that inflation boosts the revenue collection as argued by Gaalya (2015). It can be justified as that with inflation the purchasing power of consumer increases due to which they increase the demand for goods and services which increases the incentive for governments to tax more and collect more revenues. The sign of institutional quality, political instability and urbanization are positive and significant at 1% level which showed that the countries with better institutional quality, having more stable political system and more urbanized can collect more from taxes as discussed above.

Now, the effects of those interaction term which are statistically significant are discussed. Income taxes respond negatively to trade openness in the countries having high agriculture share in GDP and low urbanization. While it responds positively to trade openness in the countries having high level of institutional quality and more political stability. To financial openness it responds negatively in countries having large agriculture sector in GDP, more urbanization and to level of institutional quality and politically unstable economies.

5.5.3. Hard to collect taxes

As it is discussed before that with globalization the revenue collection from the traditional “easy to collect” taxes decreases and both developed and developing nations try to cover this revenue loss through the alternative “hard to collect” taxes. Our result confirms this as the globalization factors i.e. trade openness and financial openness are positive and significant at 1% level. So as a group revenue collection from “hard to collect” taxes increases with globalization and these results are consistent with the theoretical predictions of Aizenman and Jinjark (2009). The coefficient of agriculture sector is negative and significant representing the fact that the countries with larger share of agriculture sector in their GDP relies more heavily on “easy to collect” taxes because of political and social issues related to the taxation of agriculture sector as discussed above. However, unlike the results of the equations of VAT and income tax revenue as percentage of GDP, the coefficient of manufacturing sector is positive and significant at 10% level and it is in line with the theoretical prediction that it is easy to tax the manufacturing sector because of its large size and it has the capacity to generate more taxable income than the other sectors of the economy (Chelliah, 1971). As a group of “hard to collect” taxes the coefficient of services sector share is negative and significant like that of the VAT and income tax equation.

The coefficient of GDP per capita is positive and significant at 1% level, which means that as a group of “hard to collect” taxes increases with increasing level of development. The coefficient of inflation is also negative and statistically significant at 10% and it confirms the findings of Agbeyegbe et al. (2004), Mahdavi (2008), Enhart (2012) and Gaalya (2015) and can be justified from the economic theory that with increase in prices the demand for goods and services decreases due to which the ability of the government to tax also decreases and hence the total tax revenues. The coefficient of institutional quality and political instability are also positive and significant at

1% level. It means that the countries with better institutional quality and more stable political system have more capacity to collect more from the “hard to collect” taxes. But the coefficient of urbanization is negative representing the fact that the urbanization can be associated to the large underground economy and hence decreases the taxable capacity of the governments (Aizenman and Jinjark, 2009). Now we will discuss the interaction terms results. As a group “hard to collect” taxes respond positively to trade openness in the countries with high urbanization rate and more agriculture sector share in GDP while it responds negatively to trade openness in the countries characterized by political instability. “Hard to collect” taxes respond negatively to financial openness in the countries having higher agriculture shares in GDP and more urbanization. While the effect of institutional quality and political instability in response to financial openness on “hard to collect” taxes are insignificant.

5.6. Economic Significance of the Globalization Factors

In table 5.4, following Aizenman and Jinjark (2009), we quantify the economic significance of the variables by calculating the one standard deviation change of the coefficients. However, for this analysis we will only include the individual and interaction effects of trade and financial openness because of the data limitations. To approximate the effect of one standard deviation change on the globalization factors, we multiply the estimated coefficient by its corresponding sample standard deviation. Consider the estimated coefficient of trade openness in “easy to collect” taxes equation in table 5.3 which is -0.0978 and it is statistically significant at 1% level. The standard deviation of trade openness is reported in table 5.1 in appendix. Multiplying the coefficient of trade openness by its standard deviation yields the economic significance of $-0.0978 * 18.66 = -1.83$. this result is reported in table 5.4 in the individual effect of “easy to collect” taxes column and can be interpreted as by increasing the trade openness by one standard deviation,

decreases the “easy to collect” taxes revenues by 1.83 percentage points. Similarly, the coefficient of financial openness is -4.5251 and it is statistically significant and from table 4.1, its corresponding standard deviation is 0.76 and in the same way its economic significance can be calculated as $-4.5251 \times 0.76 = -3.43$. This indicates the individual effect of financial openness on the “easy to collect” taxes and this result is reported in table 3 in the “easy to collect” taxes column. This can be interpreted as that a one standard deviation increase in the financial openness decreases the revenue collection from “easy to collect” taxes by 3.43 percentage points. In the same way we calculated the individual effects for each equation and these results are reported in table 3 in the corresponding columns of each equation.

Now turning to the interaction effects, we calculate the economic significance of the interaction effects in the same way as we calculated the individual effects. Considering the “easy to collect” taxes equation, from table 2, the coefficient of the interaction term of trade openness and agriculture share in GDP (TO*AGR) is -0.0071 and it is statistically significant. The corresponding standard deviation of (TO*AGR) is reported in table 1 which is 338.12. Multiplying the estimated coefficient of (TO*AGR) by its corresponding standard deviation yields the economic significance of $-0.0071 \times 338.12 = -2.40$, i.e. the one standard deviation increases in (TO*AGR) decreases the revenue collection from “easy to collect” taxes by 2.40 percentage points. In the same way we calculate the one standard deviation change in other interaction terms. But the effect of interaction term of (TO*INS) and (FO*INS) are positive but statistically insignificant. So as the effect of these are irrelevant so we do not calculate its standard deviation change and report it as zero in the table. We follow the same methodology to calculate the one standard deviation change for all other interaction terms of the other equations and the corresponding results are reported in table 5.4.

Table 5.4: Quantifying Economic Significance of Globalization

Globalization Factors	Easy to Collect Taxes	Hard to Collect Taxes	Easy to Collect Taxes		Hard to Collect Taxes	
			TR	SEI	VAT	INC
Trade Openness^a	-7.85	11.04	-1.83	-6.58	3.86	0.94
Individual Effects:	-1.83	0.96	-1.00	-1.55	0.81	0.26
Interaction Effects, of which:^b	-6.03	10.08	-0.83	-5.03	3.06	0.67
• <i>Agriculture Share</i>	-2.40	15.19	-2.09	0.00	12.65	2.58
• <i>Urbanization</i>	-1.56	5.25	-2.51	0.00	5.14	-3.89
• <i>Institutional Quality</i>	0.00	0.00	3.77	-5.03	-4.56	3.15
• <i>Political Instability</i>	-2.07	-10.36	0.00	0.00	-10.17	-1.17
Financial Openness	-0.10	-6.36	-1.81	1.61	-0.02	0.00
Individual Effects:	-3.43	5.72	-1.55	-3.62	13.24	2.96
Interaction Effects, of which:	3.33	-12.08	-0.25	5.24	-13.26	-2.96
• <i>Agriculture Share</i>	1.37	-2.01	2.53	5.24	0.00	-0.79
• <i>Urbanization</i>	1.15	-6.47	-3.76	0.00	-2.05	-0.63
• <i>Institutional Quality</i>	0.81	-3.60	-0.48	0.00	-4.33	-1.04
• <i>Political Instability</i>	0.00	0.00	0.00	0.00	-6.88	-0.51
Total Globalization Impact (%)^c	-7.95	4.67	-3.63	-4.97	3.85	0.93

Source: Author's own calculations.

Note: a: The effect of trade openness is calculated by summing the individual and interaction effects. In the same way we calculate the effect of financial openness.

b: The interaction effects of trade openness are calculated by summing all of the interaction terms, interacting with trade openness. In the same way we calculate the interaction effects of financial openness.

c: Total globalization impact is calculated by summing the effects of trade and financial openness.

Concluding the results by summing up the individual and interaction effects, we found that in response to trade and financial openness revenue from “easy to collect” taxes decreases by -7.85 percentage points and -0.10 percentage points respectively and the increase in “hard to collect” taxes by 11.04 percentage points but we found a decrease in “hard to collect” taxes by -6.36 percentage points in response to financial openness (Aizenman). In response to trade and financial openness TR decreases by -1.83 percentage points and -1.81 percentage points respectively. However, revenue collection from seigniorage decreases by -6.58 percentage points as response to trade openness but it will increase by 1.61 as a result of financial openness. VAT also respond positively to trade openness as we found the increase of 3.86 percentage points but we found a decrease of -0.02 percentage points in VAT as a result of financial openness. In case of income taxes all of the effect comes from the trade openness i.e. we found an increase of 0.93 percentage points as a result of trade openness while financial openness has no effect on income taxes (this results are opposite to the findings of Aizenman and Jinjark, 2009). In total, following the one standard deviation increase, the globalization factors decrease the revenue collection from “easy to collect” taxes by 7.95 per cent while increases the revenue collection from “hard to collect” taxes by 4.67 per cent. Similarly, following the one standard deviation change in the globalization factors, the revenue collection from international trade taxes and seigniorage drops by 3.63 per cent and 4.95 per cent respectively while the revenue collection from VAT and income tax increases by 3.85 per cent and 0.93 per cent respectively.

Chapter 6

CONCLUSION AND POLICY RECOMMENDATION

6.1. Conclusion

Of all the complex forces driving the world's economies today, globalization is surely the one. Since World War II, economies that are autarkic and closed have experienced a rapid integration of domestic and international economies. But it became the most striking and prominent feature of the last 20th century, increasing an economic and financial integration. Present tax system evolved when each country designed its tax policies keeping in view its domestic requirements and resources. When tax treaties, agreements and conventions among nations were negotiated, they were within the framework of national sovereignty in tax policy. The globalization process has changed this, particularly with respect to the level of taxation, mix of taxes, design of particular taxes, and the manner of their administration and compliance. Tanzi (2000) has used the term "fiscal termites" to depict how globalization and technological changes will impact the national tax system.

With the rapid pace of globalization, most of the developing countries experienced trade and financial liberalization. These are the potential source of fiscal instability in the developing countries as argued by Bleanay et al. (1995), Baunsgaard and Keen (2005), Ebeke (2011) and Epaphra (2014) because these countries are highly dependent on trade taxes and seigniorage. For South Asian countries it becomes more challenging because of an inefficient tax system which makes it difficult to cover the revenue loss from "easy to collect" taxes through "hard to collect" taxes because of the collection costs associated with it.

But we cannot blame globalization solely for the fiscal problem of these countries because the countries with better administration, institutional quality, political stability, high urbanization, sound macroeconomic maintenance, low agriculture and high manufacturing and services sector and high level of economic development not only recover the revenue loss from “easy to collect” taxes, they also generate the surplus from the “hard to collect” taxes. That’s why we also take into account the effect of these political, institutional and structural factors on the tax revenues of these countries as these factors effects the efficiency of the tax system.

The system GMM technique is employed and then based on the coefficient estimates of system GMM we calculated the one standard deviation change. Empirical estimates showed that globalization has imposed new fiscal changes on developing countries, which force them to drop down the revenues from the traditional “easy to collect” taxes. The countries with better administration and efficient tax system could manage the revenue loss by shifting the tax revenues to “hard to collect” taxes. Results showed that in response to globalization revenues from “easy to collect” taxes are declines by 7.95% while the increase in revenues from “hard to collect” taxes is 4.67%. So based on these results we can finally conclude that there is an overall decline in the tax revenues of these countries which causes the fiscal instability in these countries. This decline is also because of institutional, political and structural factors (as we add the interaction terms and then calculated the total globalization effect).

6.2. Policy Recommendation

No matter what any country may want to do with its tax system, or what anyone might think it should do from one perspective or another (ethical, political, or developmental), what it does do is always constrained by what it can do. Economic structure, political institutions,

administrative capacity and some other important structural factors (discussed before), all limits the choice of tax policy options. However, in such a constraining situations some options are almost always available. The consent of most of the fiscal experts, seems to be that the best way for LDCs to retort to the tax challenges they face, in the current jargon are:

1. The decrease in “easy to collect” revenues can be matched with the increase in “hard to collect” taxes by:
 - i. Broadening the tax bases especially for consumption taxes.
 - ii. Reducing the tax rates for income taxes.
 - iii. Improving the tax administrations to increase the efficiency of the tax system.
2. The macroeconomic environment heavily affects the fiscal deficit. By achieving a sound macroeconomic stance (e.g. low and predictable inflation, high GDP growth), countries can progress toward fiscal stability even during fast liberalization. Careful management of the spending side of the budget is required, to avoid sharp rises in government consumption.
3. The fiscal instability is also effected by institutional quality and political instability. Effective reforms should be taken to ensure political stability and better institutions, which can play an important role in decreasing the fiscal instability.

6.3. Limitations and Future Work of the Study

There are various avenues on which future research can be conducted to further explore the reasons of fiscal instability in developing countries. Further research can be done on other countries because fiscal instability is not the problem of some specific area rather it is a global phenomenon. Moreover, a more dynamic set of variables can be considered, which can affect the

tax revenues. And this research can be extended by taking a larger time period span which will allow to include the further interaction term with globalization factors to calculate the total globalization impact. Moreover, this study can also be extended to check the impact of globalization on the government expenditure instability.

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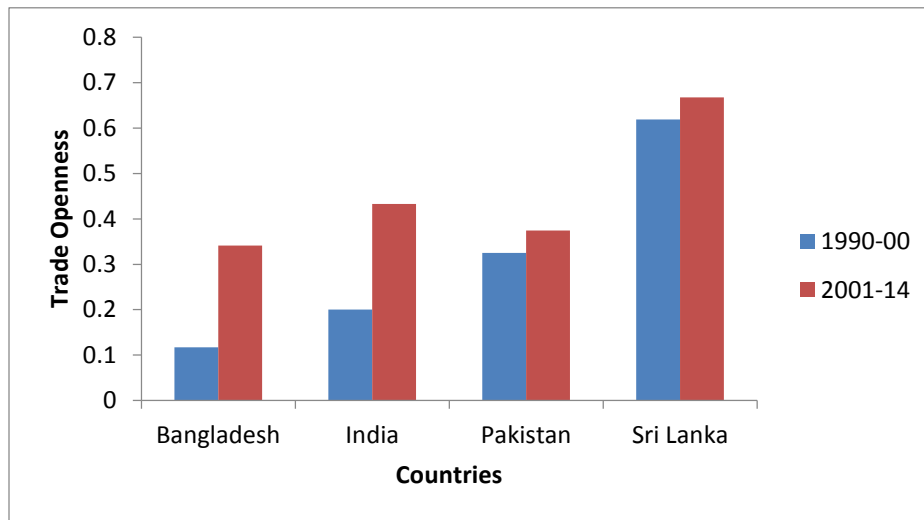
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APPENDIX

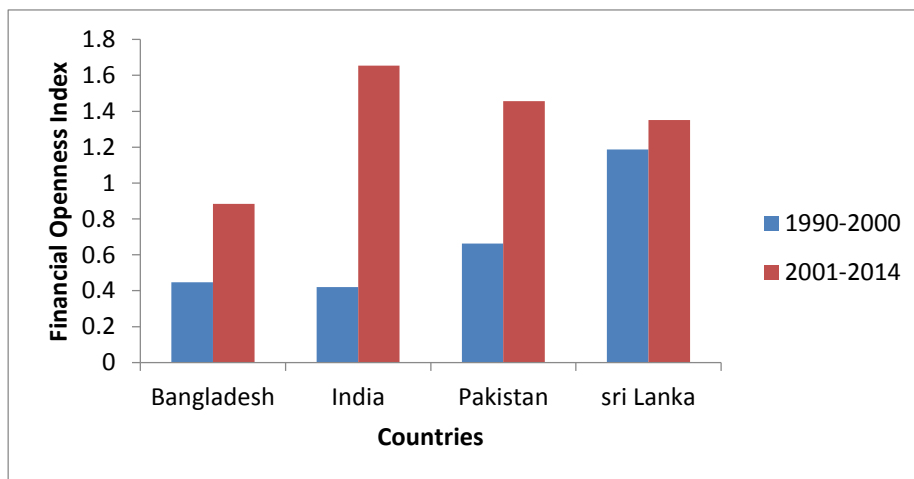
Appendix A.1

Figure 3. 1: Trade Openness



Source: Author's calculation

Figure 3. 2: Financial Openness



Source: Author's calculation

Appendix A.2

Table 5.1: Descriptive Statistics					
Variables/Statistics	Mean	Median	Maximum	Minimum	Std. Dev.
TR	2.39	2.41	5.13	0.95	0.79
SEI	2.29	2.29	3.12	0.58	0.47
VAT	4.87	3.47	21.91	1.27	4.15
INC	2.77	2.55	6.25	0.91	1.18
TO	42.88	37.13	86.04	16.05	18.66
FO	1.05	0.97	3.67	0.00	0.76
AGR	21.30	22.96	30.37	7.99	5.28
MANF	16.14	15.85	20.86	13.39	1.59
SER	52.66	52.73	61.66	45.21	3.78
GDPPC	866.86	657.00	3478.00	308.31	627.27
INF	8.18	7.59	22,56	2.01	3.82
INS	2.36	2.50	4,00	0.08	0.72
POL	7.13	7.71	11.08	1.83	2.37
URB	26.78	27.49	38.30	18.30	6.25
TO*AGR	854.25	789.82	1779.19	450.98	338.12
TO*URB	1090.78	1104.06	1758.91	351.22	366.62
TO*INS	109.23	74.40	346.55	1.55	76.30
TO*POL	311.63	292.36	751.52	34.77	172.08
FO*AGR	20.87	17.12	84.59	0.13	15.82
FO*URB	28.99	22.90	130.01	0.09	24.45
FO*INS	2.55	2.29	8.86	0.00	1.84
FO*POL	8.01	7.38	34.08	0.01	6.59

Source: Author's own calculation.

Table 5.2: Correlation Matrix																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	TO	1.00																	
2	FO	0.42	1.00																
3	AGR	-0.61	-0.39	1.00															
4	MANF	0.50	0.19	-0.76	1.00														
5	SER	0.49	0.37	-0.87	0.48	1.00													
6	GDPPC	0.62	0.53	-0.79	0.59	0.70	1.00												
7	INF	0.30	0.32	0.02	0.10	-0.03	0.20	1.00											
8	INS	0.61	0.13	-0.29	0.36	0.11	0.27	0.11	1.00										
0	POL	0.13	0.29	-0.46	0.22	0.53	0.23	-0.28	0.10	1.00									
10	URB	-0.50	0.17	0.33	-0.38	-0.13	-0.06	0.02	-0.35	0.14	1.00								
11	TO*AGR	0.74	0.28	0.04	-0.05	-0.06	0.15	0.35	0.49	-0.13	-0.26	1.00							
12	TO*URB	0.73	0.63	-0.47	0.28	0.47	0.68	0.34	0.37	0.24	0.20	0.60	1.00						
13	TO*INS	0.94	0.29	-0.49	0.45	0.34	0.47	0.23	0.80	0.11	-0.54	0.74	0.61	1.00					
14	TO*POL	0.81	0.43	-0.73	0.55	0.66	0.59	0.07	0.51	0.63	-0.34	0.41	0.64	0.78	1.00				
15	FO*AGR	0.26	0.93	-0.06	-0.08	0.12	0.28	0.32	0.04	0.20	0.33	0.36	0.54	0.15	0.23	1.00			
16	FO*URB	0.17	0.94	-0.20	0.00	0.26	0.40	0.26	-0.06	0.28	0.45	0.14	0.57	0.04	0.24	0.94	1.00		
17	FO*INS	0.65	0.89	-0.48	0.32	0.36	0.57	0.28	0.49	0.23	-0.08	0.45	0.67	0.60	0.58	0.77	0.72	1.00	
18	FO*POL	0.33	0.94	-0.42	0.19	0.44	0.48	0.18	0.06	0.52	0.21	0.13	0.54	0.21	0.52	0.86	0.92	0.78	1.00

Source: Author's own calculation.