REGIONAL FEDERAL TAX PERFORMANCE: A SOCIO-ECONOMIC PERSPECTIVE

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CERTIFICATE

This is to certify that this thesis entitled: **"Regional Federal Tax Performance: A Socio-Economic Perspective"** submitted by **Ms. Sana Zafar** is accepted in its present form by the School of Economics, Pakistan Institute of Development Economics (PIDE), Islamabad as satisfying the requirements for partial fulfillment of the degree in Master of Philosophy in Economics.

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Author's Declaration

I firmly declare that I, Sana Zafar have profoundly completed the research work under the MPhil dissertation. I acknowledge that every bit of information is authorized by me. The information has been sorted and organized from the internet and the research papers are arranged with references and quotation marks. The reviews that have been mentioned in the thesis is referred to with original citation and reference source.

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Sana Zafar

Dedication

This work is completely dedicated to my parents. I'm thankful to my parents for supporting me through thick and thin. They truly deserve all the respect and dedication of my dissertation.

Acknowledgment

I owe my research work to Almighty Allah who helped me in every stage for the completion of my thesis. It was an honor to work under the supervision of Dr. Mahmood Khalid, who thoroughly guided me to accomplish the success of my dissertation. This research work is devoted to my parents, as it could not have happened without their blessings and prayers. Lastly, it was wonderful to study and outshine academically in this prestigious institution.

Abstract

The research aim of this study is to identify whether the socio-economic determinants affect federal tax performance or not and to evaluate federal tax revenue performance at a regional level. The qualitative and quantitative econometric method is applied in the study for these purposes. We use panel data and Stochastic Frontier Analysis to examine the efficiency of regions. The data for this study has been taken for the span of 2008-09,2010-11,2014-15 and 2019-20 on fifteen RTO'S. The study examines the tax performance of RTO from a socio-economic perspective. Education level proxy, Employment status proxy, Income per capita, and Social welfare services proxy show positive significant results.

The main findings of this study are:1) Tax revenue performance is determined by both socioeconomic factors and the efficiency of FBR staff in the tax collection process. 2) Tax revenue performance is affected by the existence of non-tax-sourced revenues.3) There exist a regional disparity among regions and the tax revenues are mismatched between some regions. Overall, it is deduced that tax revenue performance is affected by both the socio-economic factors and the efficiency of FBR in tax collection.

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List of Abbreviations

RTO	Regional Tax Office
Trev	Total Tax Revenue (per capita)
SFA	Stochastic Frontier Analysis
DEA	Data Envelopment Analysis
FBR	Federal Board of Revenue
PSLM	Pakistan Social & Living Standard Measurement
MLE	Maximum Likelihood Estimates
GDP	Gross Domestic Product
OLS	Ordinary Leas Square
FE	Fixed Effect
RE	Random Effect
β	Beta

CHAPTER 1

INTRODUCTION

Taxation plays a significant part in the process of revenue generation and to run numerous activities in an economy Amin, Nadeem et al. (2014). Tax assessment is considered a significant instrument for the upgrade of economic development in a country. It is an effective and robust channel to activate the internal assets of the country. The main purpose of the tax assessment framework is to decrease income inequality, finance public goods, and services in an economy, and support the effective designation of assets, and financial adjustment.

The level to which local authorities control their income and spending is a moral indicator of the idea of central-local government relations and the degree of local independence. State policymakers are concerned about raising revenue in ways that will limit disturbance to economic activity. Economists have since a long time ago comprehended that the bigger the behavioral response to a tax change, the bigger the subsequent proficiency cost.

Regional independence provides space for the individuals in the regions to form small autonomous jurisdictions. In this situation, the people form their government organization in harmony with the conditions of the local area. Each local government will make and implement policies based on the will of its people. Nevertheless, the state policy must not conflict with state legislation and must be following the field of authority submitted by the central government (Zhang, 2019). In regional autonomy, regional tax is a delegation from the central government to the regional government to collect regional taxes based on Law. However, for central taxes, regional collection performance also can be varied owing to differences in these regions.

Taxation is a major source of government revenue in Pakistan. Pakistan has an inefficient tax system with a narrow tax base. At present Government is not meeting its ever-increasing demand for revenue generation and the government is not collecting taxes according to its respective potential due to weak administration, outdated systems, and deprived tax policy. Taxation is a significant wellspring of income for any administration for administrating its capacities. The collection of revenues from various tax sources might support improving the speed of advancement for any country (Haque 2012). In any country, if a tax organization is not acting effectively, it shows that there is some uncertainty in the fiscal system.

In Pakistan, there are regional tax offices established by FBR. Regional tax offices are the tax collector offices, responsible for collecting taxes at the regional level. These RTO facilitate the taxpayers by single window access and adjusting all business processes to encourage a tax-obedient culture. But from the regional tax performance aspect, there is an unbalanced tax structure and there exists a gap between regional tax potential and their actual tax collection. The tax collection at the federal level is much below the real potential and how it is gathered makes questions.

The difference in tax collection at the RTO level can be related to the tax capacity of FBR offices as well as the socio-economic differences in the respective regions. Poor performance and less capacity of FBR in tax collection are also responsible for the large tax gap. Therefore, a good tax policy would incorporate these regional socio-economic differences in policy and administrative measures. Besides controlling these base differences revenue collection optimality can also be compared across the region. The Federal Board of Revenue keeps evidence on revenue collection at the regional level too, so enabling us to evaluate the regional tax performance.

This thesis studies the determinants of tax revenue, variation in tax performance at the RTO (regional tax offices) level, and tax revenue efficiency estimation and suggests ways to improve the tax revenue performance at the RTO level. The following study is based on both quantitative and qualitative analysis. Qualitative analysis is based on interviews with the FBR staff on the reasons for RTO level tax performance differences and the quantitative analysis is based on panel data analysis. This research aims to measure the efficiency by using Stochastic frontier regression analysis for Pakistan at the regional level for the period (2008-09,2010-11,2014-15 and 2019-20).

After going over the literature, we briefly describe the data then we introduce the empirical model for the efficiency estimation and discuss the econometric results. To end, we conclude and make some recommendations.

In this study, we incorporate socio-economic variables such as level of education, social welfare services, per capita income, and employment status. Our principal findings are that socio-economic factors such as level of education, per capita income, and employment status (non-agriculture) improve revenue performance.

We find that those regions where people are more educated and the regions where income per capita is high and the regions where most of the population belongs to the non-agriculture

sector and the regions where people are enjoying social welfare benefits provided by the government are paying more taxes as compared to the regions where people are less educated and have less income per capita and where the most of the population belongs to the agriculture sector. We also find out that the institutional factor is also responsible for the disparity in tax performance among regions. Such regions where the FBR staff is efficient those regions collect more tax as compared to the regions where there is a lack of efficiency in the tax collection process.

1.1 Problem Statement:

In Pakistan tax structure is unbalanced and the tax system is affecting the economy adversely. The regions are not collecting taxes respective to their potential. Weak administration, complicated laws, and poor tax policies by the government make the tax system weaker. There exists a difference in tax revenue performance among the regions.

1.2 Research Questions:

- What are the factors affecting the federal tax revenue performance at the regional level?
- Is there any difference between Region's tax performance?
- What policies can be proposed to enhance Pakistan's tax revenue performance?

1.3 Importance of the study:

This research is relevant to the overall tax policy improvement agenda of PIDE. This study analyzes the regional tax performance from a socio-economic perspective. The study presents an analysis of regional tax performance by using panel data. This study evaluates the tax performance from a socio-economic perspective at RTO (regional tax office) level. Comparison between the tax performance of different regions is a vital part of this study. There are substantial empirical studies on the evaluation of tax revenue performance.

This study is different from other studies on tax performance as this study is not envisioned to measure the tax performance of different economies instead it will measure the performance of different regions in Pakistan. The most micro-level tax performance analysis is measured in this research. This topic conforms with the PIDE *GROWTH INCLUSIVE TAX POLICY*. The study is based on both qualitative and quantitative analysis. For quantitative analysis, secondary data is collected from PSLM-survey, and FBR yearbooks besides qualitative analysis are based on interviews with FBR staff.

1.4 Objectives:

The following objectives are set out to achieve this aim:

- The overall goal of the study is to examine the regional federal tax performance from a socio-economic perspective in Pakistan by using a panel of RTO-level tax collection data.
- To identify the factors which are affecting the tax performance at a regional level, factors such as employment status, level of education, and social welfare services. Whether these factors are responsible for lower tax collection or this is due to the weak policies, narrow tax base, or outdated system of FBR. This study will measure the region's efficiency and make a comparison between them.

1.5 Organization of the study:

The remainder of this thesis is divided in the following way: Chapter 1 is allocated for the introduction of the study. Chapter 2 presents the previous literature related to this research. Furthermore, Chapter 3 discusses the methodology and techniques employed in the study to evaluate the stochastic frontier model, the nature of data and data sources with the description of variables, and the diagnostic tests for further analysis. Chapter 4 describes the results of the SFA model. Qualitative analysis, policy analysis, and interviews with relevant tax offices are presented in chapter 5. The conclusion and recommendations are presented in chapter 6.

CHAPTER 2

LITERATURE REVIEW

Introduction

The articulated purpose of this research is to measure the efficiency of regions in tax revenue performance and support the spirit of management and staff working under an innovative institutional framework of the Federal Board of Revenue. The research's premise is built on the idea of improving FBR's workforce performance through the implementation of administrative strategies. The current chapter explains the tax revenue performance across regions of different countries. It provides brief literature available for the methodology implied in this study and also provides literature for using the variables in this study.

Given the worldwide financial and economic disaster, the need to assess the performance of the public sector becomes an urgent issue. The discussion about an efficient and appropriate tax system has also acquired significance. Various measures are taken by governments for working on the performance of the public sector, enhancing the proficiency of public administration, and mitigating the impacts of the crisis on the economies of their countries.

Tax assessment has been a subject of conversation for quite a long time in the worldwide field. Moreover, there is some discussion on how government units are using the tax revenue potential to generate tax revenues, and how they use the tax revenue potential to support public services.

2.1 Theoretical Framework

Taxation, as the most established activity in humanity's set of experiences, has played a significant role in civilizations for centuries. (Gebreyesus 2020). Taxation can be characterized as a mandatory assessment imposed by tax departments on salary, expenditures, and wealth for which the individual citizen receives nothing explicitly as a result. (Morrissey, Von Haldenwang et al. 2016).

Though, tax returns are the major source of financing behind government spending; So, the proficiency of the tax system is of essential significance to the continuity and prosperity of any public sector activity. Higher tax revenue can be accomplished at gradually high marginal costs. Schuknecht, Tanzi et al. (2006). Research provides documentation showing that tax offices are dependent upon additional examination. Although the tax office assessment was limited, because of the overall non-exposure strategy of public substances Barros (2007), It

could be a valuable source of information confirming the possible commitment of current research. (Katharaki and Tsakas 2010)

As said by (Setnikar and Andoljšek 2005) and the OECD (2008), national governments are trying hard to acquire assets to meet the increasing demands for public services. Because of the inflexibility of public expenditure, tax agencies are forced to raise the amount of tax collection Barros (2005). To accomplish this, tax offices are required to work on their proficiency. Accordingly, various nations are now seeking to maximize income by optimizing the tax collection procedures and by changing the whole tax office framework (Budrytė 2005).

An extensive aspect of the literature recommends that the most ideal approach to enforce accountability is to give major tax control to local governments. Tax independence would encourage local decision-makers to use their assets much more efficiently than a pool of public assets(Shah (1999); Boetti, Piacenza et al. (2010)). Conversely, grant-funded decentralization schemes will assist the mismanagement of local government, unproductive growth of local spending, as well as fewer voters' liability [(Bahl and Linn 1992), (McLure Jr 1998)]. In this way, the local public sector is anticipated to be more modest when decentralization is supported by local taxes and nearly bigger when supported by inter-governmental funds.

Enabling local governments to rely heavily on central tax bases lessens the competition between government levels, shields local authorities from the obligation of altering their tax bases Zax (1988), and initiates many tax illusions, which often indicates that the impacts of central government taxation policy are not seen by residents locally McKenzie and Staaf (1978).Indeed, the fact that piggybacked taxes seem to grow with little political concern indicates that high dependence on these taxes for decentralization purposes should be approached with caution. (Bahl and Bird 2008).

Regional taxes are used for various aspects of regional development, therefore the potential of the region in increasing taxes needs to be carried out maximally (Keikha, Rahgozar et al. 2018). Alm and Leguizamon (2018) suggest that regional original income is a component that greatly determines the success or failure of the independence of the city government in the context of current regional autonomy. One component that is very much considered in determining the level of regional individuality in the context of regional sovereignty is the Regional Revenue sector.

Depending on whether the tax can be shifted to other people; According to (Mahmood and Chaudhary 2013)taxes are classified into two groups (direct and indirect taxes). Direct taxes

are levied on companies' earnings, income, and holdings of businesses, whereas indirect taxes are levied on value-added import taxes and sales taxes. This increase could be an increase in the annual growth rate or a one-time surge in the size of an economy which has no influence on future growth rates but tends to put the economy on a relatively high growth path. Direct taxes are levied on those who are proposed to incur them and cannot be transferred to others, while indirect taxes are levied on transactions rather than individuals Gruber (2011).

Tax revenues can be divided into local or central government tax revenues due to the different levels of centralization of local and national government units. (Gruber 2011). The authority granted for collection and expenditure is the primary distinction between central and local taxes. The central government is responsible for collecting and spending central taxes, while local governments are responsible for collecting and spending local taxes. (Gruber 2011).

In the words of Richard Briffault, "Democracy in major cities generally necessitates giving the regional electorate a claim in local decisions with regional ramifications. Metropolitan decision-making can only become truly democratic by broadening the scope of participation to include all those affected by local actions."

Perceiving that the economic validations for regionalism lay on inconclusive evidence, some supporters of regionalism contend that equity and fairness are the most compelling rationales. They note the prevalent and increasing gap between central city suburbs and the rich, homogeneous rural areas in all metropolitan areas, and they declare that local government boundaries have improperly allowed some privileged local government units to avoid participation in a regional redistribution of wealth and opportunities. They are troubled by the fiscal reality produced when local services are allocated based on property tax revenues, which of course depend upon the property wealth within the local government's jurisdiction.

A regional tax base, for example, would enhance equality by forcing all segments of the metropolitan region to contribute to regional welfare. Professor Georgette Chapman Phillips' call for a regional reallocation of the costs of poverty typically borne by focal urban communities and inner-ring suburbs, for instance, is one illustration of that ideological impetus. For the equity-driven regionalists, the imperative is not one of economics, but rather, in the words of one commentator that regional redistribution is "the right thing to do".

Strong disbelief about the prospect of voluntary action to eradicate regional disparity pervades the legal literature. Richard Briffault categorically states: "As long as cooperation is voluntary, no municipal government will cooperate with another unless it sees an advantage from doing

so." Similarly, Richard Thompson Ford contends that local governments will act opportunistically to protect their "insular enclaves. Regional special districts might seem to be the perfect solution. After all, they leave untouched the pre-existing local governments and seem to interfere little, if at all, with their independence.

2.2 Methodological Framework

Tax office assessments to date have been conducted mostly by using DEA-based strategies. Moesen (2002) analyzed the effectiveness of 289 Belgian regional tax offices using the Free Disposal Structure (FDH) and Data Envelopment Analysis (DEA), whereas González and Miles (2000)used a bootstrap technique to assess the efficiency of fifteen Spanish regional tax offices with the DEA for 1995.

Thirtle, Shankar et al. (2000) analyze the efficiency of Indian tax offices from 1980 to 1993 using Data Envelopment Analysis and Malmquist indices. Barros (2007) evaluated the practical and allocative competence of tax offices in Portugal, whereas Barros (2005) assess the tax office activity by using the stochastic evolution model and Data Envelopment Analysis method. Førsund, Kittelsen et al. (2005) applied the Data Envelopment Analysis and Malmquist productivity index to assess Norwegian tax office efficiency across three years.

Schuknecht, Tanzi et al. (2006)featured the significance behind the objective utilization of government sector resources and the requirement for great fiscal measures. Both factors are considered critical to economic development and sustainability, along with individual prosperity. Recently, different endeavors have been made to measure the degree of efficiency of public spending by quantitative analysis method, including composite indicators and non-parametric approaches.

Especially, (Tanzi and Schuknecht 2000) in their attempt to assess the total benefits associated with public spending in eighteen industrialized countries, used data on several socioeconomic variables accessible for groups of countries. (Schuknecht, Tanzi et al. 2006) refine this method and identify complex indicators of public sector performance. (Odeck 2005) demonstrated the worth of non-parametric techniques in investigating the reasons of public sector growth efficiency.

Badu and Li (1994) conducted a tax effort study of tri-cities in the Commonwealth of Virginia. They examined the correlation between local government fiscal stress and tax revenue performance. In this model seven explanatory variables are included: fiscal stress, family

income, annual taxable retail sales, state aid, per capita welfare expenditure, unemployment rate, and unemployment rate multiplied by per-capita welfare expenditure.

The results from Badu and Li's model were helpful, with most of the variables being significant. For instance, it shows that public expenditure activities were a determinant of tax revenue performance. Second, as the writer contends, broadening the tax base is not the only way to improve tax performance in local government. A lower unemployment rate and welfare programs could also lead to better tax collection execution.

In Indonesia, a study was conducted to explore the potential for local government tax revenue. Indonesia experienced a fiscal decentralization in 2001, and local governments were concerned about a lack of revenue because of the decentralization (Alfirman 2003). The author studied the tax potential of provincial-level government units in Indonesia before and after the 2001 fiscal decentralization. He developed a tax frontier approach to investigate maximum tax capacity rather than variation in tax effort differences. Two dependent variables emerged: the local tax ratio and the property tax ratio. Explanatory variables in the regression included level of education, level of openness, agricultural share of GDP, and labor force participation rate. Several dummy variables were also included, dummy variables indicate the geographical differences and relative richness and poverty of provinces.

Alfirman (2003) stated that none of Indonesia's local governments had reached their tax potential and argues that decentralization would result in a heavier local expenditure responsibility, even though this would theoretically increase the local tax effort. The author also stated some important government inefficiency-related factors which could have a negative impact on the tax effort, particularly corruption. However, no empirical evidence was provided in the study.

Another fiscal reform concerning the performance of provincial tax revenue was presented by(Wang, Shen et al. 2009). The research concentrates on tax capacity at the local government level, and also on how much capacity local governments have used. The authors analyzed the tax capacity and tax effort at the provincial level in China from (1986 to 2004) by using panel data. The research focused on fiscal reforms implemented in the 1980s and early 1990s. Explanatory variables in the study include GDP (per capita), industry share of GDP, agricultural share of GDP, total foreign trade share of GDP, and population density.

The tax effort index model developed by (Wang, Shen et al. 2009) captures strong positive relations between industry share and local tax capacity. This result is consistent with China's

fiscal structure which was heavily reliant on revenue, generated from industrial sectors (Wong 1992). The GDP (per capita) trended upward, but it was not statistically significant. This result was consistent with the literature, which stated that the role of per capita GDP in the tax ratio function in developing countries was ambiguous.

The agricultural sector variable and the openness level variable results were similar to earlier inter-country tax ratio studies, with the agricultural sector being adversely associated with the tax ratio and the openness level being significantly and positively related to the tax ratio. The population density, on the other hand, was insignificant in the function, despite a positive sign.

A novel methodology for evaluating tax capacity has emerged, based on the Stochastic Frontier Production possibilities proposed by Pessino and Fenochietto (2010),(Cyan, Martinez-Vazquez et al. 2014),(Rodríguez and Espinal 2011), and (Garg, Goyal et al. 2017), for regions, as well as the preliminary approach of (Medina Rivas 2012) for the Spanish regions; and the research of (Alfirman 2003) on local governments, have used this alternative to conventional econometric estimation by least squares. Maximum Likelihood Methods are used in this methodology to estimate a Stochastic Tax Frontier.

Thus, a jurisdiction's tax capacity will be defined as the maximum level of collection that it could achieve through the efficient use of tax bases and effective tax management systems. In statistical terms, this means that a regression model for the tax frontier must be specified, with two error terms, v and u, where v denotes the usual statistical noise and u denotes the inefficiency.

Moreover, u is also a function of explanatory variables that are related to municipal tax margin and can change with time. The tax effort index is calculated by comparing actual revenue to the estimated potential tax revenue, and it cannot exceed 100%. Because no economic agent can be located beyond the frontier, any deviation from it reflects each jurisdiction's margin to enhance its revenue to the "potential" maximum. Regional autonomy on the one hand gives extensive authority to local governments, yet then again gives greater accountability to the regional government to improve the welfare of the community (Huda 2015).

Some regions are known as lucky regions because they have potential revenue sources. The deterioration in economic activities in such regions can also cause a decline in PAD so that the regions will rely on balancing funds which will cause manifestations of fiscal stress (Setyawan and Adi 2008).

The government is likely to investigate the potential in its area so regional income can be used to finance regional expenditures, particularly those directly related to public services or improving infrastructure that supports regional economic growth acceleration. Setyawan and Adi (2008) explain that there is an indication that high fiscal stress is increasingly encouraging regions to increase their regional spending.

Regions are required to be able to maximize all potential and fiscal capacity to reduce reliance on the central government When fiscal stress is high, the government looks into the possibility of using tax revenues to boost regional revenues (Shamsub and Akoto 2004). Therefore, fiscal Stress conditions are associated with high rates of tax effort. The budget provided by the community for regional development must be well managed through the transparency of financial reports regarding funds managed by the regional government.

Muryawan and Sukarsa (2016)state that financial stress has an important impact on economic growth both directly and through regional financial performance. With good economic growth, there are indications that fiscal pressure is high, and regions tend to increase regional revenues as a means of regional financing for the development of a region. The transparency of budgets originating from regional revenues will drive the pace of the economy so that it impacts regional development.

Hussain and Rana (2009)illustrate how personal tax revenue can be used to anticipate regional economic trends. Krūzmētra (2006) and Svarinska (2004) use the tax and nontax revenues of municipalities as an indicator of regional expansion. Paiders (2008) stated that personal income tax revenue does not capture the informal economy.

There are several studies on tax efficiency estimation, which include the stochastic efficiency estimations by (Botlhole 2010) who used corruption and voice and accountability among the repressors of a sample of 46 countries in Sub-Sahara Africa, with data from 1990 to 2007; (Fenochietto and Pessino 2013)who included a measure of income inequality and public expenditure on education among the traditional variables, and (Langford and Ohlenburg 2015)added the Massachusetts Institute of Technology's economic complexity index, ethnic tension, and private sector credit as model variables.

Aigner, Lovell et al. (1977) pioneered the empirical study of the stochastic frontier. their early model was criticized for its flaws. Their model estimated the stochastic frontier using Maximum Likelihood Estimation (MLE) and cross-sectional data. (Waldman 1982)demonstrates that the use of Maximum Likelihood Estimation in the original *Aigner,*

Lovell, and Schmidt model for estimating the production frontier requires, crucially, that the third moment of the least square's residuals be negative. Else, the Maximum Likelihood Estimates are identical to the Ordinary Least Squares (OLS) estimates, inferring no efficiency in comparison to the frontier. As a result, stochastic frontier estimation is extremely sensitive to specification in exercise. Another critique leveled at *Aigner, Lovell, and Schmidt's* model is that it may work well with cross-sectional data but not with the panel- data.

(Schmidt and Sickles 1984) extend the model to account for the advantage of panel data by considering the firm effects but not time effects. They also demonstrate that the Stochastic Frontier can be estimated using two other techniques, the Ordinary Least Square (OLS) and the Generalized Least Squares (GLS).(Cornwell, Schmidt et al. 1990) suggest a Stochastic Frontier Estimation method that takes into account both firm and time effects. They accomplish this by adding a special function of parameterized time into the production function, which may differ between firms. They assume that the constant regression is $\alpha_{it} = \theta_{it} + \theta_{i^2}t + \theta_{i^3}t^2$ (i = firms, t = years), which is linear in θ. As a result, they simply add two dummy variables with linear and quadratic parameterized time functions for regression purposes.

Some conditions must be met for the stochastic frontier technique to work, for example, a negative third moment of the OLS residuals. In the case of a production function, the output is produced by certain inputs such as capital, labor, and other factors. In this problem, the output determinants are quite obvious. They are all inputs used in manufacturing. But when it comes to estimating the tax frontier the scenario would be less obvious.

 In this case, the output, tax ratio, is the consequence of some inputs, such as tax bases and tax rates. The local government's tax rates are generally consistent although tax bases change widely. The empirical research of tax ratios is thus confined to the analysis of tax bases, for which data are frequently unavailable, particularly in developing countries. The proxies that are often used for estimating tax bases are output or income, or some related economic indicators, such as education level or electricity consumption. As a result, the factors determining tax ratio are less obvious than those in a firm's production problem. As a result, to identify the tax frontier, the 'correct' combination of tax ratio indicators must be identified; else, the stochastic frontier technique would fail.

Another significant distinction is in the interpretation. In the study of the production frontier, the difference between current production and the frontier indicates the level of inefficiency, which the entity does not achieve despite having control over the factors. In the study of local

tax frontiers, the gap between the current tax ratio and tax frontier can only be taken as the amount of unused tax potential, rather than as a degree of inefficiency.

Literature in the context of Pakistan

Pakistan's tax base situation currently presents a rather dire situation. The tax base has remained below 1% of the nation's entire population over the past ten years. Numerous studies have been done at the organizational and individual levels, and numerous elements have been put up to define this depressing situation. First off, the major sector of Pakistan's economy, i.e., Agriculture which accounts for 22% of the country's GDP and employs over 50% of its population, the majority of whom reside in rural areas is exempt from the incidence of Income Tax. Second, the undocumented economy and the existence of a massive 'informal sector' that generates between 35- 55 percent of GDP but is not included in the tax system. Third, there is income inequality, which has led to an increase in the number of people who are below the taxation threshold. Thus, to improve the effectiveness of tax culture and organization related to tax collection, the government must address these myriad issues.

Wahid and Wallace (2015)Wahid and Wallace concentrate on the distribution and effective tax rate of all current major taxes in Pakistan to give a thorough study of the incidence of the tax burden by type of tax and recommend potential tax reform measures to address distortions. Michielse (2015)examines the Pakistani tax system's foreign component in depth, identifies opportunities for improvement, and suggests policy interventions.

Piracha and Moore (2016) stated that, in today's political economy analysis of taxation, the notion that states want to maximize their revenue collection has taken up a substantial amount of space and helped us comprehend the evolution of state formation. However, it is wildly in conflict with what tax policy and practice entail daily. Governments frequently sacrifice revenue: they fail to use the functioning; valid tax collection systems they have available to collect much revenue.

According to Ahmed and Rider (2008), the revenue effort in Pakistan's specific case is severely hindered by a lack of human resources, an inadequate skill set, logistical inadequacy, legal complexities, slack enforcement of penal and prosecutive regimes, an ineffective taxpayer identification system, and subpar tax collection by sub-national governments. A comprehensive reform program must look to address both policy and administrative side deficiencies.

Pasha (1995)believes what a country can attain by initiating a process of tax reforms is directly determined by its inclusive governance capacity. He expresses "governance" in context as "the capacity of the state to organize the tax system according to some basic and universal principles, and to enforce compliance with rules… (and) implies a minimum degree of autonomy from the pressure of special interests in the formulation of policy". (Alm and Khan 2015) survey Pakistan's tax policy effects on business incentives, estimate its corporate taxation, compare it with global trends in the taxation of corporates, and recommend ways and means to reform the system of business taxation in Pakistan.

Like many other developing countries, taxation is a major source of government income in Pakistan. Pakistan has an ineffective tax system with a narrow tax base, administrative faintness, and immense tax evasion. Because of insufficient enforcement and outdated systems, the government is currently not collecting taxes to the extent that it could. If agriculture income tax and other local and provincial taxes are collected efficiently in Pakistan, the total tax potential is around 12 trillion.

The current level of tax collection by the federal and provincial governments is woefully inadequate. The true potential at the federal level is not less than Rs. 8 trillion, but the FBR is not even collecting half of it, even with refunds blocked. The same can be said for provincial tax authorities, who have failed to realize Rs. 4 trillion tax potential. Total revenue as a percentage of GDP has averaged 14.9 percent over the last five years, up from 15.1 percent in FY2018, according to the 2019-20 budget document.

 In Pakistan, the cost of collecting taxes is also very high. The cost of collection (CoC) has risen dramatically over time. The cost of collecting taxes in Pakistan has risen from Rs. 16 billion in 2014 to Rs. 25 billion in 2018, indicating a 36% increase in cost over five years. Almost 80% of the cost of collection is distributed in the form of salaries to tax collectors. In a study conducted by the FBR, tax expenditures were estimated to be around 1.2 trillion rupees (Bukhari and Haq 2020). The purpose of this research is to create a tax frontier by using Stochastic frontier regression analysis for Pakistan at the regional level.

The Federal Board of Revenue (FBR) maintains statistics on revenue collection, enabling us to evaluate the regional tax performance. Devolution of financial powers necessitates local governments levying and collecting taxes to fulfill the desires of residents in the form of education, health care facilities, and social welfare services. Regions that operate solely based on self-governance can ensure that revenues are spent solely for the benefit of the public, rather

than the powerful segments of society. Despite the recent interest in tax performance estimation, no study focuses specifically on regional tax performance in the case of Pakistan. Tax collection at the federal level is far below its true potential, and how it is collected raises concerns. The difference in tax collection can be related to the tax capacity of FBR offices as well as the socio-economic differences in the respective regions. Poor performance and less capacity of FBR in tax collection are also responsible for the large tax gap. The collection figures are also not reliable. the real issue in Pakistan is that the rich and powerful do not pay taxes based on their actual incomes as they are granted amnesties on and off.

Therefore, a good tax policy would incorporate these regional socio-economic differences in policy and administrative measures. Besides controlling these base differences revenue collection optimality can also be compared across the region. This paper discusses the 'tax performance' mainly from a revenue-raising view. This paper studies the variation in tax performance at the RTO level and will suggest a way to improve tax revenue performance at the RTO level.

2.3 Summary of Literature Review

It is crucial to examine the tax performance that can be inferred from local governments by using the analysis of stochastic frontier regression. By using the frontier analysis approach this paper compares the tax performance and efficiency of different regions. Estimated efficiency might be useful information about regions, especially in terms of revenues. It will be convenient for regions with significant untapped tax engross to examine the large revenue required to sponsor new responsibilities through a decentralized system, where different regions used it in a minor amount not used as tax potential to survive.

The SFA is used to analyze the efficiency of RTO'S. The stochastic frontier approach appears to be famous and widely used in frontier construction and efficiency measurement. The following study differs from the others in that it compares the tax performance of different regions in Pakistan rather than the tax performance of different economies. Researchers have included several variables to evaluate tax performance such as per capita income, education, population size, and geographical conditions of regions. Per capita income is used as a proxy for economic development. Education is used as an indicator which shows that if the population is more educated, they contribute more to tax revenue.

The following study is intended to determine whether the revenue performance is affected by socioeconomic factors and whether the revenue performance is affected by the efficiency of

FBR staff who is responsible for the tax collection process. We use variables that capture the socio-economic factors which affect the federal tax revenue performance. These are obtained from Pakistan Social and Living Standard Measurement (PSLM). And the dataset for per capita tax revenue is obtained from the yearbooks of FBR. The stochastic frontier analysis is used to measure the efficiency of fifteen RTOS for the mentioned time. The findings are based on the estimation of technical efficiency by using maximum likelihood estimates.

CHAPTER 3

DATA AND METHODOLOGY

Introduction

This study is based on both qualitative and quantitative analysis. This study is policy-oriented and involves panel data analysis. This chapter will describe data and methodology by mentioning its time-period and regions. It also explains the variables and sources of the variables. Further, it explains the descriptive statistics and graphical analysis of the variables in this study.

3.1 Quantitative Analysis

Data for quantitative analysis is collected from the Year Books of FBR and PSLM district-level surveys. From PSLM surveys, and Year Books of FBR data is collected for 2008-09, 2010-11,2014-15, and 2019-20.

3.2 Qualitative Analysis

The qualitative analysis is based on interviews with the FBR staff on the reasons for RTO level tax performance differences. The qualitative analysis provides information about the efficiency and capacity of FBR staff and provides important information about decision-making and the process of data collection and the issues they faced while collecting data and the reasons behind the poor performance and tax gaps.

3.3 Districts

The tax performance of the following districts will be analyzed in this research:

Islamabad, Rawalpindi, Abbottabad, Faisalabad, Bahawalpur, Multan, Quetta, Peshawar, Karachi, Lahore, Gujranwala, Sukkur, Sargodha, Hyderabad, Sialkot.

3.4 Model:

Trev=f (EDU, INCOME per capita, SOCWF, Employment Status, WTH, TOD, POP) +$\mathcal{E}$

Whereas,

Trev= total tax revenue (per capita)

WTH=total withholding tax as a share of direct tax

TOD=total on-demand tax as a share of direct tax

POP=population of selected regions

EMP= employment status proxies

EDU=level of education proxies

INCOME=per capita income of households

SOCWF= social welfare services

$\mathcal{E}$=standard error term

3.5 Econometrics Methodology

3.5.1 Stochastic Frontier Regression Analysis

This paper analyzes the regional tax performance in Pakistan from a socio-economic perspective. This study focuses on developing a tax collection frontier by using Stochastic frontier regression analysis for Pakistan. SFA enables us to not only measure the extent of regional tax performance but to recognize the factors that determine the various aspects of regional tax performance. Aigner, Lovell, and Schmidt (1977) pioneered the empirical study of the stochastic frontier.

They propose that a production frontier be estimated using the standard regression model, with two distinct error terms. The first error term (v_{it}) represents the usual statistical noise, (something beyond the firm's control and assumed to be independently and identically distributed). The second error term(μ_{it}) represents the level of inefficiency, (that is the "failure" to produce the maximum amount given some input used, so it has to be no positive and is also assumed to be independently and identically distributed). SFA is a time-varying model, the True Random and Fixed Effect model, estimated by applying the maximum likelihood procedure. By using the SFA approach to estimate tax efficiency, it becomes possible to tell which RTO are performing efficiently. This could be represented using an output approach as follow:

$$lnTrev\_percapita_{it} = \beta_0 + \beta_1 ln(Edu\_matric)_{it} + \beta_2 ln(Edu\_abovematric)_{it} +$$
$$\beta_3 ln(Agri)_{it} + \beta_4 ln(Non\_agri)_{it} + \beta_5 ln(Income)_{it} + \beta_6 ln(Services)_{it} + \beta_7 ln(Satisfaction)_{it} +$$
$$v_{it} - \mu_{it} \qquad (1)$$

$$\mu_{it} = g(Wth\_tax, TOD\_tax) + \omega_{it} \qquad (2)$$

Where:

lnTrev_percapita = Regional per capita total tax revenue collection

i = number of regions (1, 2, …,15)

t = time

βk = corresponds to a vector of parameters to be estimated

β0 = common constant for all the regions in the time t.

vit = error term (indicates the statistical noise)

μit = second error term (describe the degree of inefficiencies)

ωit = error term

3.6 Description of Data

This paper examines the Regional Federal Tax Performance from a socioeconomic perspective of the RTOs of Pakistan. The data has been collected for the span of 2008-09, 2010-11, 2014-15, and 2019-2020. Furthermore, for analysis of the tax performance of RTOs of Pakistan, the stochastic frontier model is used to analyze the efficiency of tax performance of Pakistan by the inclusion of different variables such as income per capita, per capita tax revenue of regions, proxies for education level, proxies for employment status, proxies for social welfare benefits, withholding tax as a share of direct tax, total on-demand tax as a share of direct tax.

3.6.1 Description of Variables

The stochastic frontier analysis is used for the depiction of the analysis of tax performance of regions of Pakistan. The data is collected for 15 districts such as Islamabad, Rawalpindi, Peshawar, Quetta, Karachi, Lahore, Multan, Faisalabad, Hyderabad, Sukkur, Sialkot, Abbottabad, Bahawalpur, Sargodha, and Gujranwala. Several studies have used frontier models for the depiction of tax performance for different countries and regions. Two types of variables are used in the model, 1. Independent variable 2. Dependent variable. All variables are taken into a log form.

3.6.2 Dependent Variable

Total tax revenue (per capita) which is the sum of three major taxes which are income tax, sales tax, and FED is used as a dependent variable. The data for the total tax revenue is collected from the Year Books of FBR. Those variables frequently depend upon the independent variables and correlate with explanatory variables. Such variables are called dependent variables.

3.6.3 Independent Variables

The variables which do not depend on other variables are classified as independent variables. These variables neither alter nor demonstrate any change by alteration of other variables.

3.6.4 Income (per capita)

Data on per capita income is collected from Pakistan Social and Living Standard Survey. The income per capita is used as the annual frequency and it depicts the per capita income of a household in different regions in Pakistan. The income per capita is an important variable it will capture the income share in tax revenue of regions.

3.6.5 Education Level

Education is an important variable it will capture the impact of the level of education on tax revenue performance and whether the tax revenue of a region where the population is more educated is high as compared to a region where people are less educated. It will analyze whether education affects tax revenue performance. The data for education is collected with different proxies which affect the tax revenue performance at a regional level. Education level proxies are 1. Matric 2. Above matric. The data for education is also collected from PSLM District level survey data.

3.6.7 Employment Status

Employment status also plays a major role in tax share as more and more population is employed more tax can be collected. The data for employment is collected with two proxies which are Agriculture and Non-Agriculture. Employment status will analyze the tax performance of regions where people belong to the agriculture and non-agriculture sectors. The data is collected from the PSLM survey for the span of 2008-09,2010-11,2014-15,2019-20.

3.6.8 Social Welfare Services

This variable will capture the impact of social welfare services which include: health care services, roads, schools, transport, banks, police, and other beneficial services. The variable will measure whether these social welfare benefits are positively related to the tax revenue. This will analyze the tax performance of regions where these facilities are available. Two proxies are used to capture the results which are the use of services by the population of regions and their satisfaction level. The data for social welfare services are also collected from the PSLM District level survey.

3.6.9 Withholding Tax

Withholding tax is used as a share of direct tax. This variable measures the impact of the share of a direct tax on total tax revenue per capita. The data for withholding tax is collected from the Year Books of FBR.

3.6.10 Total on-Demand Tax

Total on-demand tax is also used as a share of direct tax. This variable is used to check whether the share of the total on-demand tax affects the total tax revenue per capita. The data for this variable is also collected from the Year Books of FBR.

3.6.11 Population

The population plays a significant role in examining tax revenue performance. In literature, it is stated that the most populated region has a large tax revenue. The population variable is used to find the per capita tax revenue of each region by dividing the total tax revenue of a region by the total population of that region. The data for the population is collected from the world city review website for the required period.

3.7 Description of Statistics for Data:

Table 3.1:Statistical Summary of Variables

Variables	Observations	Mean	Std. Dev
Trev_percapita	60	0.01	0.02
Edu_matric	60	1008.36	1034.75
Edu_abovematric	60	1161.1	1358.47
Agri	59	318.83	311.49
Non_agri	60	2181.26	2118.47
Services	60	8190.36	8458.64
Satisfaction	60	6117.21	7987.98
lnIncome	60	3.11	0.87
Wth_tax	60	81.71	22.44
Tod_tax	60	30.5	17.46
Where			
Trev_percapita =Total tax revenue (per capita)			
Edu_matric =population with matric level of education			
Edu_abovematric =population with above matric level of education			
Agri=population belongs to the agriculture sector			
Non_agri =household population employed in the non-agriculture sector			
Services=household population who avail the services facilities			
Satisfaction =satisfied household population from the use of services			
lnIncome =per capita income of households			
Wth_tax=Withholding tax as a share of direct tax			
Tod_tax=total on-demand tax as a share of direct tax			

3.7.1 Explanation of Descriptive Statistics

Descriptive statistics is important because it entails the deviation of the values in the data set. It determines the extreme values incorporated in the data set and identifies the deviation of the initial values for the specific variable from their mean (centered) value. Table 3.1 shows the mean, the number of observations, and the standard deviation for the following variables as Income per capita, Withholding tax as a share of direct tax, Total on-demand tax as a share of direct tax, Services, Satisfaction, proxies for education and proxies for employment status. All the variables consist of 60 observations whereas agriculture consists of 59 observations. The average per capita tax revenue of the regions is around 0.01% and the average population who has done matriculation is 1008.36 across all the regions. The average population got above the matriculation level of education for the selected regions is 1161.1. The average number of

individuals in the selected regions belonging to the agriculture sector comprises 318.83 and the average number of those who belong to the non-agriculture sector comprises 2181.26. The average number of people who use the services that are provided by the government is 8190.36and the average number of individuals who often and always avail of those services and are satisfied with them is 6117.21. The average per capita household income of individuals across the selected regions is 3.11. The average share of withholding tax and total on-demand tax in total tax revenue in the selected regions is 81.71 and 30.5.

Furthermore, to elaborate on the deviation of the specified variables from their mean value, the standard deviation is calculated. Tax revenue deviates from its mean value by 0.02and total on-demand tax by 17.46 and Withholding tax by 22.44. It means there is variability in the dataset of total tax revenue, total on-demand tax as a share of direct tax, and withholding tax as a share of direct tax because of differences in tax collection between different RTO'S. Similarly, the per capita income of households in selected regions deviates from its mean by 0.87 which shows that there is a lot of variation in per capita income between the selected regions. The proxies for employment status such as the number of individuals belonging to the agriculture sector and the number of individuals belonging to the non-agriculture sector in the selected regions, and social welfare services such as the number of individuals avail of the services provided by the government and the number of individuals who are satisfied with the use of services: all these proxies are concentrated nearby its mean value and do not show much variation.

3.8 Graphical Analysis of Tax Revenue of RTOs

The average value of total tax revenue (per capita) of RTOs is plotted below

3.8.1 Explanation of Analysis of Tax Revenue for 15 RTOs

Average values of tax revenue are plotted in bar graphs to depict the analysis of per capita tax revenue of selected RTOs for 2008-09, 2010-11, 2014-15, and 2019-20 based on annual frequency.

*Figure 3.1:*Analysis of Tax Revenue (per capita)

For 2008-09 the average value of per capita tax revenue of selected RTO is plotted in a bar graph. The graph depicts that during this time the per capita of tax revenue of Multan and Islamabad is high as compared to other regions. The performance of RTO Karachi, Lahore, Rawalpindi, and Abbottabad is almost the same. The per capita total tax revenue of Sialkot, Sukkur, Quetta, Peshawar, Faisalabad, and Gujranwala is also not very impressive. Hyderabad is the region that has the lowest per capita tax revenue during this span while Sargodha has zero contribution in tax revenue during this span.

Analysis of Total Tax Revenue(per capita)
(2010-11)

*Figure 3.2:*Analysis of Tax Revenue (per capita)

For 2010-11 the average value of per capita tax revenue of selected RTO is plotted in a bar graph. The graph depicts that during this time the per capita of tax revenue collection in Islamabad is high as compared to other regions. The tax revenue per capita collection of RTO Karachi, Rawalpindi, and Multan are almost the same but it is slightly improved as compared to the previous year's tax revenue collection. The per capita total tax revenue of Sargodha, Sukkur, Sialkot, Quetta, Peshawar, Faisalabad, and Gujranwala is also increased. The per capita tax revenue of the Abbottabad region is low during this period as compared to 2008-09. The tax revenue collection of the Hyderabad region remains the same, Hyderabad is the region that has the lowest per capita tax revenue during this span.
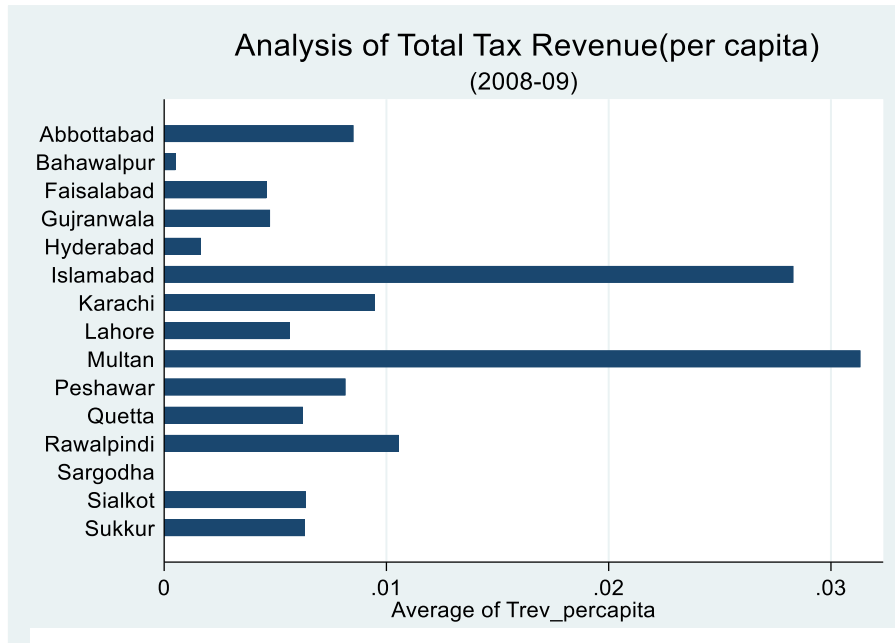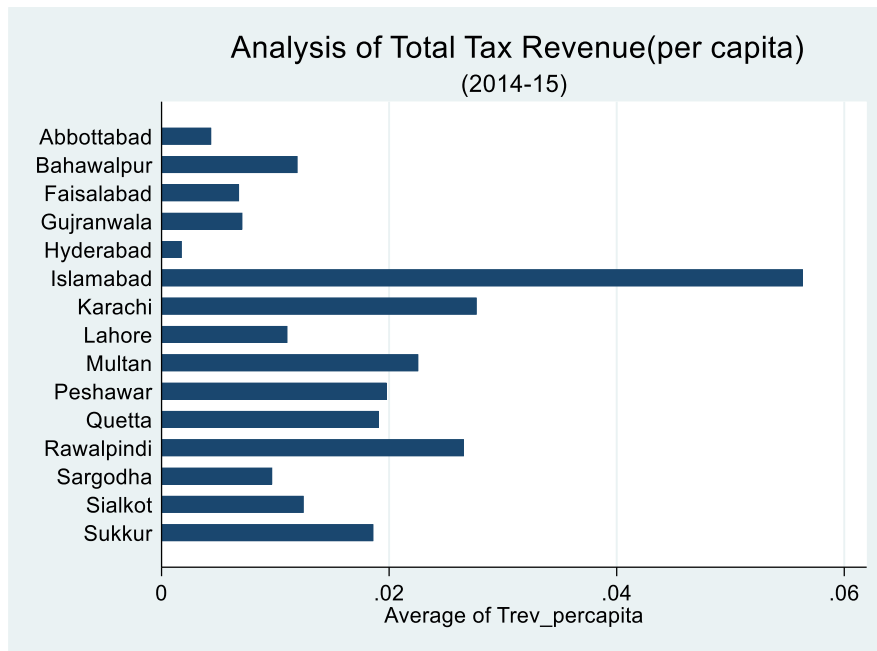
Figure 3.3: Analysis of Tax Revenue (per capita)

For 2014-15 the average value of per capita tax revenue of selected RTO is plotted in a bar graph. The graph depicts that during this time the per capita of tax revenue collection in Islamabad is high as compared to other regions. The tax revenue per capita collection of RTO Karachi, Rawalpindi, Peshawar Quetta, Sukkur, Sargodha, Sialkot, Gujranwala, Multan, and Bahawalpur is much better these regions have performed well during this year as compared to the previous year's tax revenue collection. The per capita tax revenue of the Abbottabad region increased during this period as compared to 2010-11. Hyderabad is the region that has the lowest per capita tax revenue during this span.
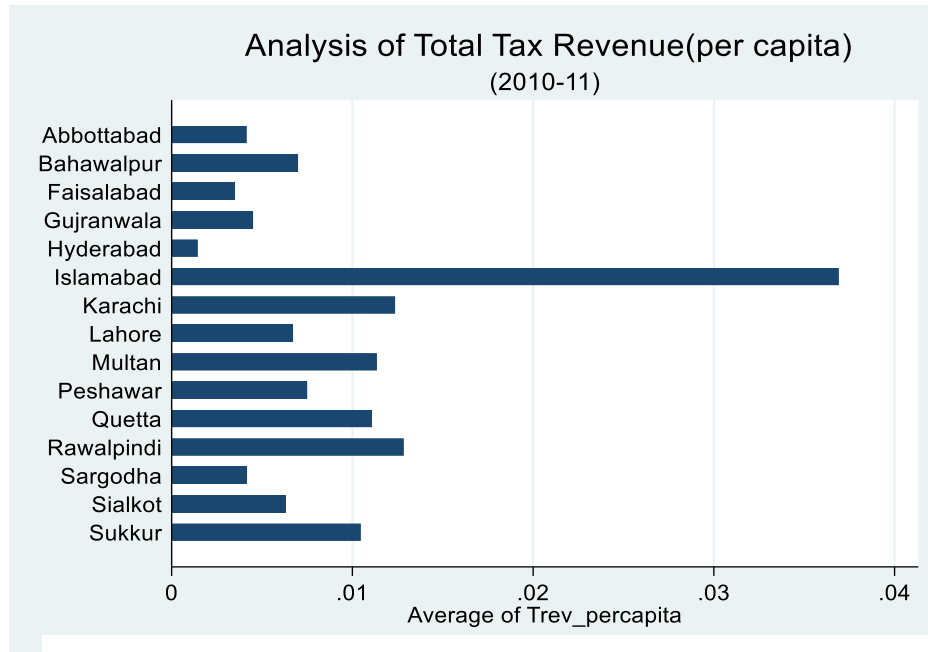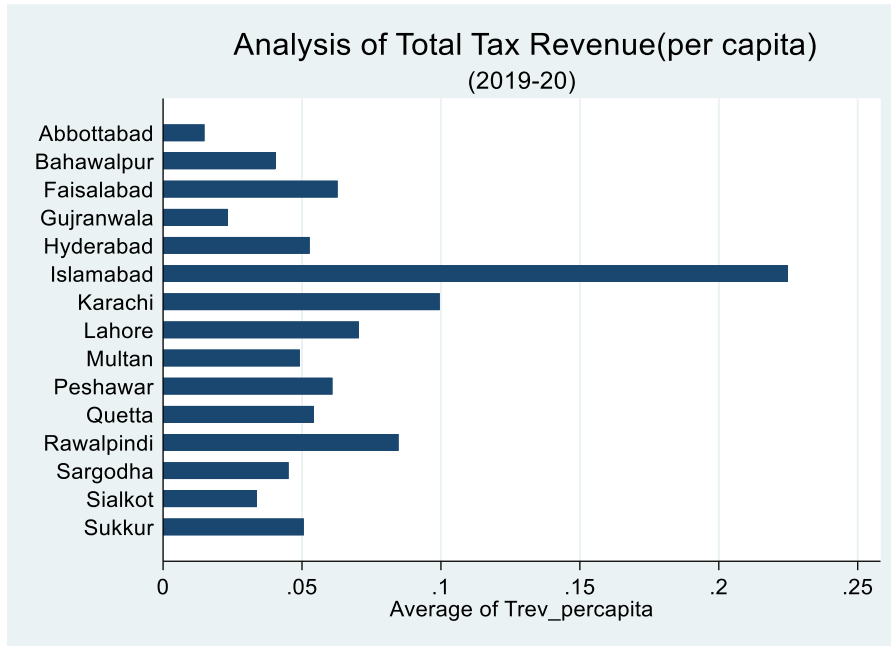
*Figure 3.4:*Analysis of Tax Revenue (per capita)

For 2019-20 the average value of per capita tax revenue of selected RTO is plotted in a bar graph. The graph depicts that during this time the per capita of tax revenue collection in Islamabad is high as compared to other regions. The tax revenue per capita collection of RTO Karachi, Peshawar Quetta, Sukkur, Sargodha, Gujranwala, Multan, and Bahawalpur is much better in these regions and has performed well during this year as compared to the previous year's tax revenue collection. The per capita tax revenue of the Hyderabad region increased during this period as compared to previous periods. The tax revenue of Rawalpindi and Sialkot has slightly decreased during this span while Abbottabad is the region that has the lowest per capita tax revenue during this span.

3.9 Diagnostic Tests

Diagnostic tests are performed to check the normality of panel data. The results of diagnostic tests such as multicollinearity, heteroskedasticity, and endogeneity are given bel

3.9.1 Multicollinearity Test

*Table 3.2:*The Multicollinearity test for independent variables

Variables	VIF
lnEdu_matric	7.02
lnEdu_abovematric	9.42
lnAgri	2.81
lnNon_agri	7.01
lnIncome	1.23
lnServices	8.90
lnSatisfaction	4.54
lnWth_tax	1.27
lnTod_tax	1.93
Mean VIF	44.13

From the table, the results show that VIF of all the independent variables is less than 10 which shows that there is no multicollinearity in the data.

3.9.2 heteroscedasticity Test

Table3.3: Heteroscedasticity Test

Source	Chi2	Df	p-value>0.05
Heteroskedasticity	54.73	54	0.44
Skewness	5.61	9	0.77
Kurtosis	1.80	1	0.18
Total	62.13	64	0.54
Prob> chi2 = 0.44			

Hypothesis:

H0: there is no heteroscedasticity

H1: There is a problem with heteroscedasticity

By applying White's test, we check the heteroscedasticity. The results show that there is no heteroscedasticity in our data as the p-value is greater than 0.0

3.9.3 Endogeneity Test

Table 3.4:Tests for Endogeneity

Endogeneity Test
Null Hypothesis H0: Variables are exogenous
Estimated Results of Endogeneity Test for Tax Revenue regression
Durbin (score) chi2(2) = 2.44 (p = 0.29)
Wu-Hausman F(2,34) =   1.00 (p = 0.37)
Sargan (score) chi2(1) = 3.11 (p = 0.07)
Basmann chi2(1) = 2.66 (p = 0.10)

From the above table, we concluded that there is no problem with endogeneity in the data as the value of Durbin (2.44) and Wu-Hausman (1.00) are greater than the p-value of 0.05. The results also depict that the value of the Sargan and Basmann tests (3.11) (2.66) is also greater than the p-value. So, we accept the null hypothesis which states that all the variables are exogenous.

3.10 The tactic of finding the most suitable regression model
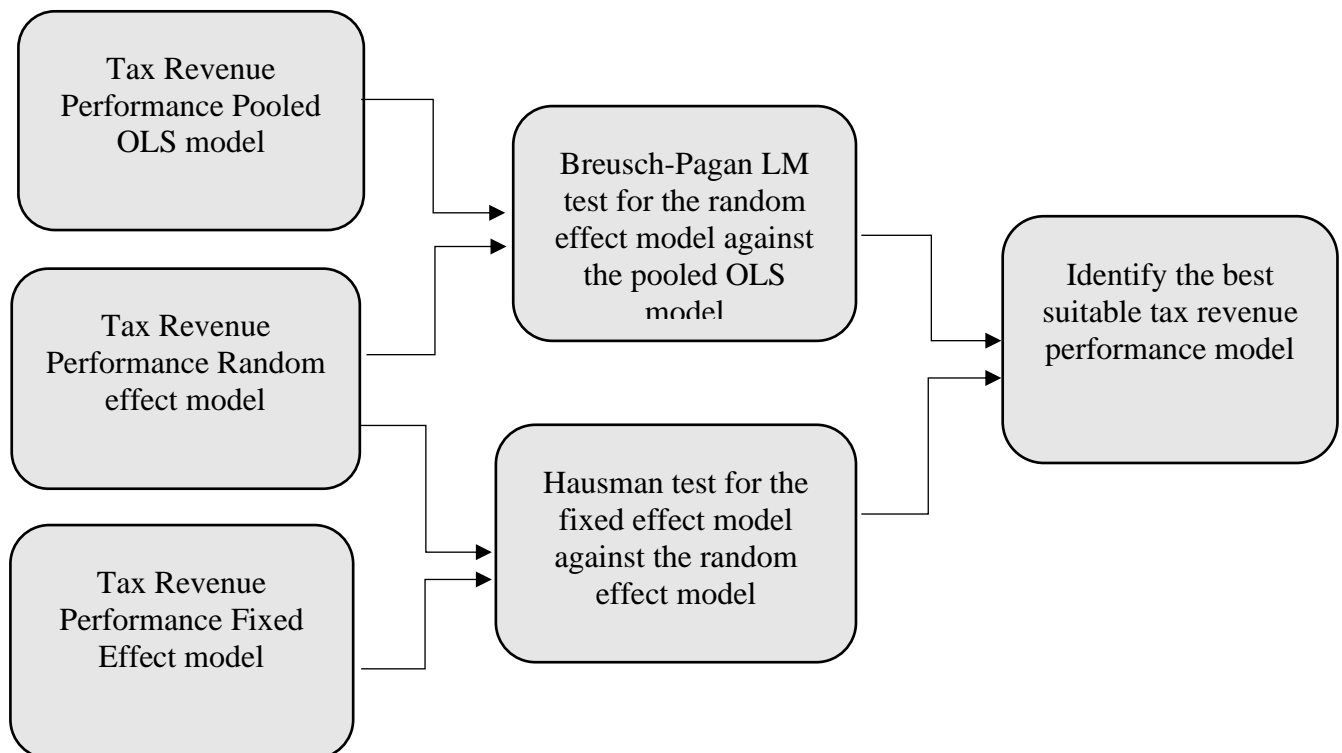
Regression Results

Table3.5:*Pooled OLS Regression Model*

Pooled OLS regression results for per capita tax revenue (lnTrev_percapita)				
Variables	**Coef.**	**Std. Err.**	**T**	**P>|t|**
lnWth_tax	0.27	0.13	2.09	0.04
lnEdu_matric	-1.77	0.48	-3.70	0.001
lnEdu_abovematric	1.35	0.55	2.45	0.01
lnAgri	-0.02	0.16	-0.13	0.89
lnNon_agri	1.14	0.55	2.07	0.04
lnIncome	0.30	0.12	2.43	0.01
lnServices	1.91	0.56	3.37	0.002
lnSatisfaction	-0.11	0.17	-0.65	0.51
lnTod_tax	0.03	0.16	0.18	0.86
Total Number of Observations=58				
Prob> F = 0.0000				
R-squared =0.522				
Adj R-squared = 0.432				
5% significance level				

Table 3.6 *Random effect GLS model*

Random effect GLS regression results for per capita tax revenue (lnTrev_percapita)				
Variables	**Coef.**	**Std. Err.**	**Z**	**P>|z|**
lnWth_tax	0.21	0.10	2.15	0.03
lnEdu_matric	-1.00	0.62	-1.62	0.10
lnEdu_abovematric	0.88	0.61	1.42	0.15
lnAgri	-0.06	0.18	-0.34	0.73
lnNon_agri	-0.43	0.64	0.68	0.49
lnIncome	0.14	0.09	1.46	0.14
lnServices	0.84	0.70	1.20	0.22
lnSatisfaction	-0.13	0.34	-0.40	0.69
lnTod_tax	0.10	0.14	0.70	0.48
Total Number of Observations=58				
Wald chi2(11) = 65.05				
Prob> chi2 = 0.00				
sigma_u = 0.42				
sigma_e =0.43				
5% significance level				

Table 3.7:*Breusch and Pagan Langrangian Multiplier test for Random effects*

Estimated results:	Var	sd = sqrt(Var)
lnTrev_percapita	0.98	0.99
E	0.19	0.43
U	0.17	0.42
chibar2(01) = 12.19		
Prob> chibar2 = 0.0002		

From table 3.5 and table 3.6, it is observed that the withholding tax, tax on-demand, per capita income, and the social welfare services (which are used by the individuals), above matric level of education and the individuals belonging to the non-agriculture sector has a positive and significant impact on total tax revenue (per capita). To choose the model between pooled OLS regression and the random effect model, Breusch and Pagan Langrangian Multiplier test is performed. The results show that the p-value is less than the significant level so we reject the pooled OLS and choose the random effect model.

Table3.8 *Fixed effect Regression Model*

Fixed effect GLS regression results for per capita tax revenue (lnTrev_percapita)				
Variables	**Coef.**	**Std. Err.**	**P**	**P>|t|**
lnWth_tax	0.16	0.09	1.78	0.08
lnEdu_matric	-0.04	0.89	-0.05	0.95
lnEdu_abovematric	-0.46	0.77	0.59	0.55
lnAgri	-0.15	0.20	-0.75	0.46
lnNon_agri	0.54	9272548	0.59	0.55
lnIncome	0.04	0.09	0.52	0.60
lnServices	0.97	0.64	1.51	0.14
lnSatisfaction	0.11	0.31	0.35	0.72
lnTod_tax	0.23	0.13	1.78	0.08
Total Number of Observations=58				
F(12,31) = 6.84				
Prob> F = 0.00				
sigma_u = 0.83				
sigma_e = 0.43				

Table 3.9:*Hausman Test for Fixed & Random Effect Model*

Null Hypothesis H0: The unique errors are not correlated with regressors (Preferred model is the Random Effect Model)
Estimated Results of Hausman Test for Tax Revenue lnTrev regression
chi2(12) = 24.19
Prob>chi2 = 0.01

From table 3.8 and table 3.9, to choose the best model between random effect and fixed-effect for further analysis, the fixed effect regression model is performed. Hausman test is performed to choose the best model between FE and RE. The results of the Hausman test show that the p-value is less than the significant level so we reject the null hypothesis and use the fixed-effect model for further analysis.

CHAPTER 4
RESULTS AND DISCUSSION

Introduction

This Chapter discusses the outcome of the results through Stochastic Frontier Analysis (SFA). It is estimated by using a fixed-effect model. Regression analysis is important for this study as it will depict the relationship between independent variables with dependent variables. The sign of the coefficient of an explained variable is important as it will show the relation between the variables.

The findings of this study are based on the estimation of the Cobb-Douglas function and the estimation of technical efficiencies of different regions by maximum likelihood procedure. This chapter comprises three sections. Section 1 consists of model estimation through SFA and the efficiency score of RTOs. Graphs of the efficiency of RTOs are presented in Section 2 and Section 3 presents the summary of results.

4.1 Results

As the stochastic model controls all variables and then measures the efficiency of regions in terms of collecting revenue. The maximum likelihood method is applied to measure the efficiencies of regions. This method is applied to find the performance of regions like that which RTO is performing well as compared to other RTO'S. The model is estimated through maximum likelihood estimates and the results are presented in Table 4.1. Table 4.1 infer the coefficient values for the level of education proxies: population with matriculation and population possessing the above matric level of education, employment proxies such as population belonging to the agriculture sector and the population belonging to the non-agriculture sector, per capita income of individuals. In the lower part of the table, technical inefficiency is measured. The dependent variable is technical inefficiency and the independent variables are withholding tax as a share of direct tax and total on-demand tax as a share of direct tax. The negative sign with the coefficients shows that the variable has a positive effect on technical efficiency The values of error terms (u and v) and lambda (depicting variability in output due to inefficiency) for the selected period. The likelihood ratio test gives the value of -26.96, -33.05, -21.04, and -8.17 for the year 2008-09,2010-11,2014-15, and 2019-20 respectively. All are statistically significant at a 5 percent level of significance which implies that the stochastic frontier is acceptable. So, the diagnostic for SFA is completely satisfied.

The level of education plays an important role in tax revenue performance. The more educated population contributes more to tax revenue. In the first row, the level of education proxy (number of individuals with matric level of education) has a negative and insignificant impact on the per capita tax revenue in 2008-09. Whereas it shows a negative but significant impact during the span of 2010-11,2014-15 and 2019-20. In the second row, the other proxy of level of education* (the number of individuals above matric level of education in the selected regions) clearly shows that there is a positive and significant impact of education on tax revenue performance. This clearly shows that the regions where the population is more educated have high tax revenues.

The third and fourth row shows the results of the employment status of the population in the respective regions. The third row shows the results of the impact of tax revenue per capita in regions where the population is employed in the agriculture sector. The coefficient signs are negative and are also showing an insignificant impact on tax revenue. This result may indicate that the individuals belonging to the agriculture sector do not pay taxes. The results of 2019-20 show that the agriculture sector has a negative but significant impact on tax revenue per capita. The fourth row shows the results of the contribution of individuals belonging to the non-agriculture sector in tax revenue per capita. The results indicate that during 2008-09 non-agriculture sector has a negative and insignificant impact on tax revenue but for 2010-11,2014-15 and 2019-20, it shows a positive and significant impact on tax revenue. The results indicate that the population belonging to a non-agriculture sector pays more tax as compared to the population belonging to the agriculture sector*.

The results of per capita income impact on tax revenue per capita are depicted in the fifth row. The results clearly show that there is a positive and significant relationship between the per capita income and tax revenue (per capita) *. In the regions where the per capita income of individuals is high that region contributes more to total tax revenue.

The results of proxies for social welfare services availed by the individuals are depicted in the sixth and seventh rows. The sixth row shows the use of services provided by the government to individuals. The results indicate that the social welfare services have a positive and significant impact on per capita tax revenue during 2010-11,2014-15 and 2019-20*. This indicates that regions, where these services are provided by the government, contribute more in tax revenue. The seventh row shows the satisfaction impact. This show the results of a satisfied population with the use of services provided by the government as the population is satisfied with the benefits provided by the government, they contribute more in tax revenue but

the results show a negative and insignificant relationship between the satisfaction of individual from services use and the per capita tax revenue. This may show that although services are provided to the population, are not provided efficiently, and maybe the people are not satisfied with the use of those services.

Table 4.1: **Maximum likelihood estimates of Stochastic Frontier Analysis of RTOs**

Variables	Coefficient for 2008-09	Coefficient for 2010-11	Coefficient for 2014-15	Coefficient for 2019-20
lnEdu_matric	-2.63 (0.84)	-2.52 (0.004) **	-2.64 (0.00) **	-2.73 (0.01) **
lnEdu_abovematric	2.06 (0.03) **	1.96 (0.04) **	2.01 (0.002) **	1.95 (0.00) **
lnAgri	-0.079 (0.95)	-0.123 (0.50)	-0.122 (0.34)	-0.14 (0.00) **
lnNon_agri	-1.64 (0.45)	1.48 (0.01) **	1.52 (0.02) **	1.66 (0.03) **
lnIncome	0.037 (0.95)	0.12 (0.01) **	0.041 (0.004) **	0.007 (0.00) **
lnServices	2.26 (0.14)	1.67 (0.12)	1.78 (0.00) **	2.05 (0.00) **
lnSatisfaction	-0.60 (0.34)	-0.16 (0.54)	-0.27 (0.58)	-0.321 (0.00) **
level of significance = p-value<0.05 shown by**				
Unexploited tax potential				
lnWth_tax	-2.03 (0.68)	0.607 (0.79)	-0.396 (0.34)	-6.99 (0.71)
lnTod_tax	-2.11 (0.26)	-10.89 (0.64)	-7.99 (0.05) **	-5.77 (0.35)
sigma_u	3.14	0.82	3.31	4.61
sigma_v	3.79	0.43	3.78	7.90
Lambda	8292249	1.90	8.75	5.84
Log likelihood ratio	-26.96	-33.05	-21.04	-8.17

Table 4-2:Efficiency Analysis of RTOs

RTO	Efficiency score for 2008-09	Efficiency score for 2010-11	Efficiency score for 2014-15	Efficiency score for 2019-20
Abbottabad	0.99	0.75	0.262	0.49
Bahawalpur	0.03	0.44	0.59	0.99
Faisalabad	0.68	0.50	0.50	0.50
Gujranwala	0.87	0.79	0.62	0.99
Hyderabad	0.72	0.99	0.66	0.28
Islamabad	0.16	0.40	0.49	0.99
Karachi	0.64	0.99	0.89	0.77
Lahore	0.80	0.97	0.97	0.99
Multan	0.99	0.59	0.52	0.79
Peshawar	0.68	0.65	0.52	0.99
Quetta	0.99	0.99	0.53	0.68
Rawalpindi	0.87	0.78	0.41	0.99
Sargodha	0	0.37	0.36	0.99
Sialkot	0.40	0.46	0.68	0.99
Sukkur	0.71	0.99	0.28	0.33

For the years 2008-09 the most efficient RTOs are Abbottabad, Quetta, Multan, Lahore, Gujranwala, and Rawalpindi whereas the less efficient are Islamabad and Bahawalpur. For 2010-11 the most efficient are Karachi, Hyderabad, Lahore, Sukkur, and Quetta whereas the efficiency of Rawalpindi, Islamabad, and Abbottabad decreased during this span. The remaining RTOs also did not perform well during this period. The efficiency results of RTOs during 2014-15 shows that Karachi and Lahore region are the most efficient region during this span. During 2019-20 Sialkot, Rawalpindi, Islamabad, Peshawar, Bahawalpur, Lahore, Gujranwala, and Sargodha are the most efficient regions while the less efficient regions are Sukkur, Hyderabad, and Abbottabad.

4.2 Graphical Analysis
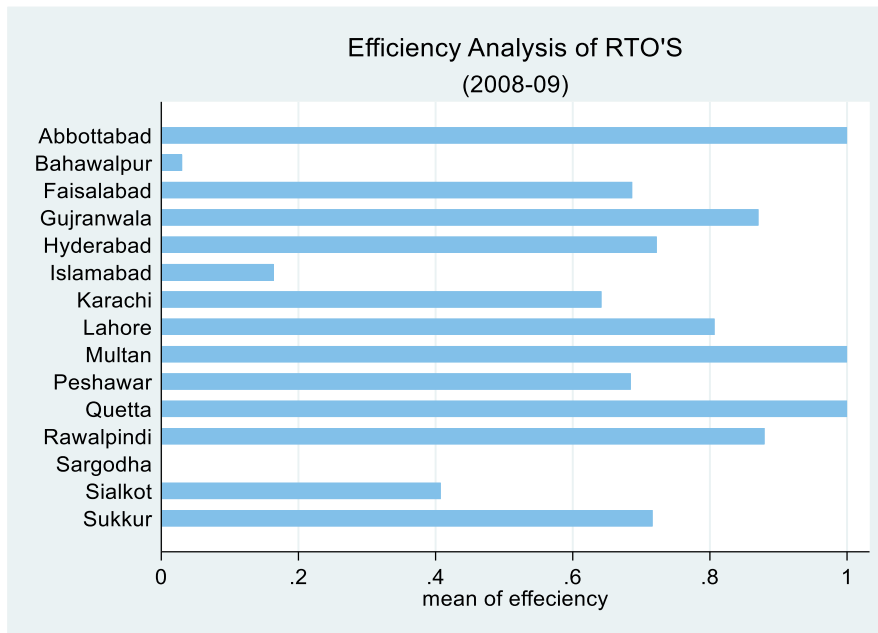

Efficiency Analysis of RTO'S
(2008-09)

Figure4. 1 Efficiency Analysis of RTO'S

The graph depicts that the most efficient regions are Abbottabad, Quetta, and Multan. The efficiency in per capita tax revenue in these regions may be due to the per capita income of these regions or the educated and employed population of these regions or the social welfare services provided to these regions. The less efficient region is Bahawalpur in this graph which shows that the Bahawalpur region does not perform well during this period. Whereas the Sargodha region has zero efficiency level this may be due to the unavailability of data on the Sargodha region during this period.
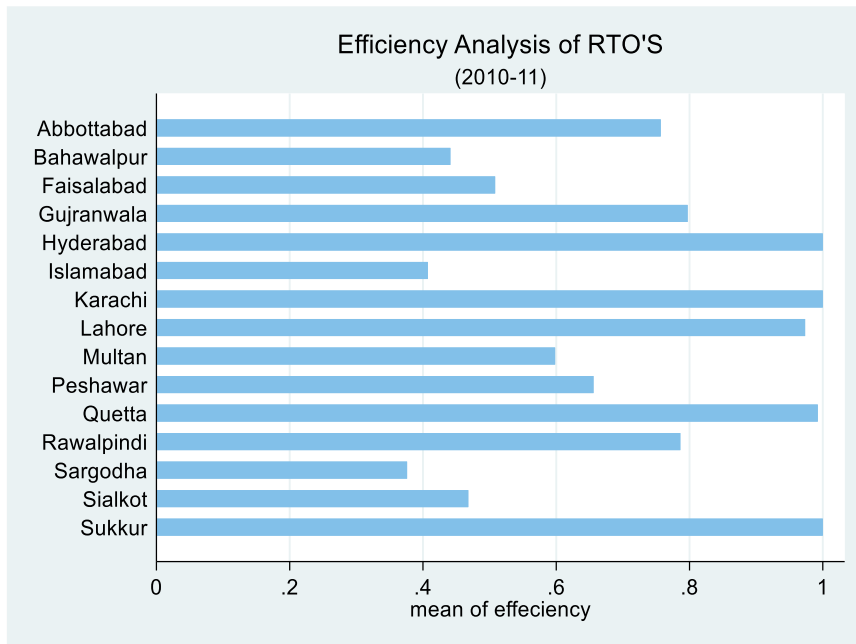
Efficiency Analysis of RTO'S
(2010-11)

Figure4. 2 Efficiency Analysis of RTO'S

The graph shows the increase in the efficiency of RTO which were less efficient during 2008-09. The level of efficiency is improved. The graph depicts that the most efficient RTO are Sukkur, Quetta, Karachi, and Hyderabad. While Rawalpindi, Lahore, Peshawar, and Abbottabad also performed well during this period.

Efficiency Analysis of RTO'S
(2014-15)
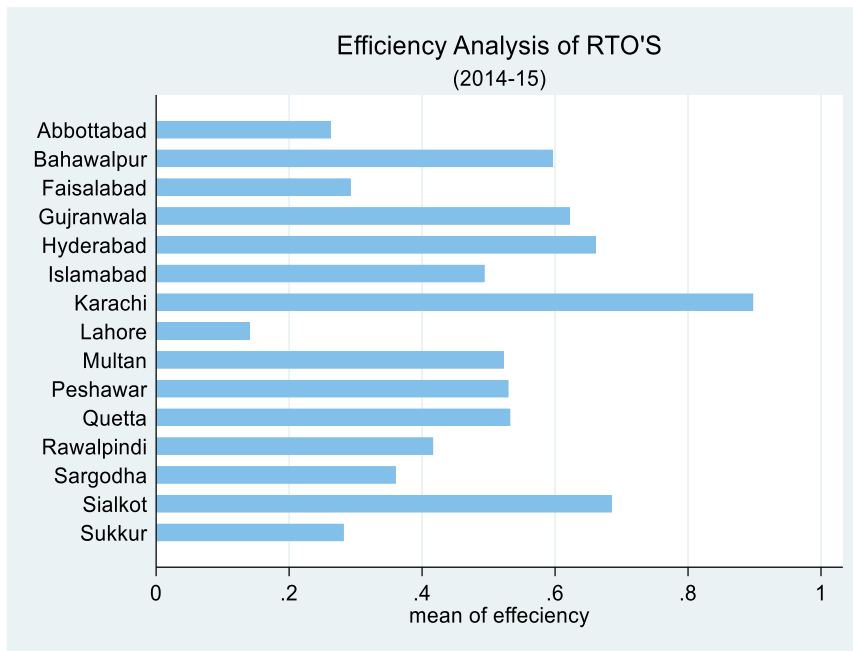
Figure4. 3 Efficiency Analysis of RTO'S

The above graph shows that Karachi is the most efficient region during this period. This may be due to the high per capita income of individuals, educated population, employment level, and the social welfare services provided to the population. While other regions also performed well. The performance of Lahore and Sukkur decreased during this period. This may be due to a decrease in per capita income, an increase in population, and may be due to an increase in unemployment.
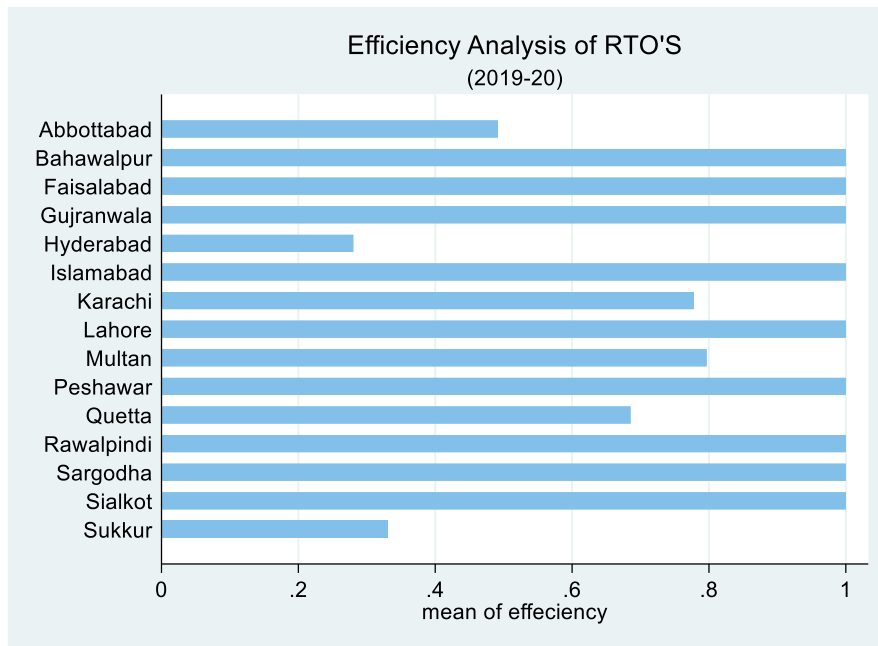
Figure4. 4 Efficiency Analysis of RTO'S

The above graph shows that the efficiency of all the RTO is increased. This may be due to socio-economic factors such as an increase in per capita income, employment status(people are employed), and provision of better social welfare services which urge the people to pay tax so they can enjoy better services provided by the government. One reason is the level of education, in the region where the population is more educated, the per capita income and employment status will be high in that region so the people of that region contribute more in tax revenue.

Comprehensive Review of Graphical Analysis:

A comprehensive review of all Figures 4.1- 4.4is presented as follows:

Figure4. 5 Comprehensive Review of Graphical Analysis
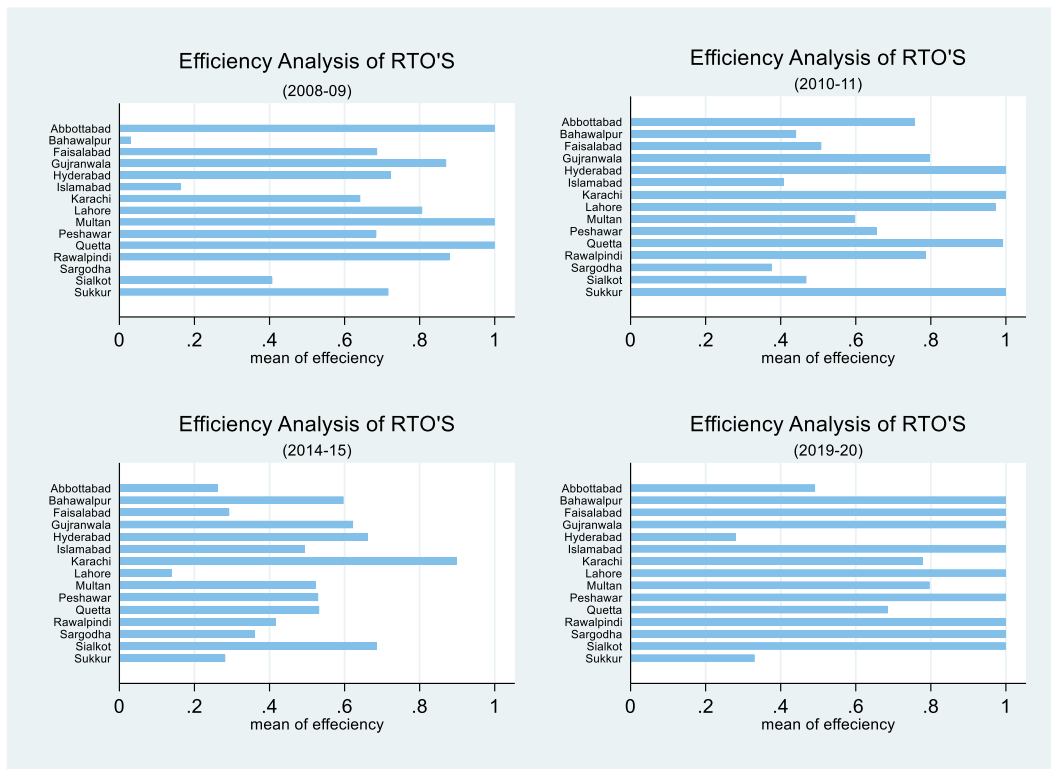
CHAPTER 5

QUALITATIVE ANALYSIS

Introduction

This chapter contains a qualitative analysis. The qualitative analysis includes interviews from two different regional tax offices that are Regional Tax Office Islamabad and Regional Tax Office Rawalpindi. Regional tax offices are responsible for tax collection at a regional level. The qualitative analysis is based on interviews with FBR staff members on the reasons for RTO level tax performance differences. We wanted to know about the efficiency of FBR staff, the information about decision-making, the process of tax collection, and the issues and challenges they face during the tax collection process. We also wanted to know the reasons for tax gaps between different regions.

FBR head office approves the amendment to the tax ordinance in Pakistan and is responsible for the formulation and administration of fiscal policies. levy, resolving tax-related disputes, and collecting taxes.

Direct taxes are typically regarded as an inclusive means to raise revenue for governments. Direct taxes help to make the system more progressive by reconciling income distribution and narrowing the inequality gap. Around 70% of direct taxes come from withholding taxes, which can become indirect when passed on to consumers. In Pakistan, such redistributive tools have been misused, and the taxation system has remained skewed toward regressive indirect taxes. It is directed to collect progressive taxation but most of the share of it is wasted on pensions, debt servicing, etc.

This section of the study also comprises the results extracted from the data which is collected through the interviews of the staff members of the two regional tax offices (RTO Islamabad and RTO Rawalpindi) in Pakistan, by applying the questionnaire to achieve the study objective. Interviews were conducted on 5 April 2022 and on 11th April 2022 and the Assistant Commissioner from RTO Rawalpindi, Deputy Commissioner from RTO Rawalpindi and the Inspectors from both RTO Islamabad and Rawalpindi were the respondent. RTO Islamabad is responsible for collecting Inland Revenues in the region of Islamabad while RTO Rawalpindi is responsible for collecting Inland Revenues in the Rawalpindi region. These RTO are taken

as a sample to measure the efficiency of FBR staff members and to identify the factors which affect the tax performance level.

5.1 Viewpoints of Esteemed Interviewees

Qualitative interviews were conducted with different members included: the Assistant Commissioner, Deputy Commissioner, and the inspectors of Regional Tax Offices on:1: Tax collection process 2: Target Achievement 3: Political Interference 4: Challenges experienced by the Revenue Authority in Implementing Staff Motivation Strategies 5: Policy Measures.

The viewpoints of the interviewees are as follows:

5.1.1 Comments on Tax Collection Process

Interviewees stated that they are involved in the tax collection process in their zones and their job description is to collect taxes and check whether the taxpayers have paid their taxes or not and then conduct audits and enforce those taxes.

Issues & Challenges

The comments from the interviewees on important issues and challenges they face during a tax collection process are:

FBR sets an annual revenue target and RTOs are required to collect revenue according to these limits. However, this also results in how the field staff at RTOs' efforts to meet the deadlines. One of the respondents stated, "the deadlines and pressure tactics force us to use all available measures which may not ideally be adopted". So, the pressure of deadlines forces the field staff to opt for coercive measures. The other respondent stated that "resistance by the taxpayers and non-compliance is also a major issue. People usually don't want to pay the tax they always try to avoid". One of the interviewees commented on the complexity of data and stated that "they face difficulty during a tax collection process because sometimes data is not interlinked with NADRA".

A respondent stated that "they don't have proper types of equipment that they can use during the tax collection process and the necessary facilities are also not provided to them by the government".

All of the interviewees stated that "there is a lack of resource issues at both RTO. Interviewees stated that they do not have vehicles. The interviewees illustrated that the biggest challenge they face is "Their job is a field job but they don't have vehicles for the survey and when they are out of the field they would be in our cars and their staff would be in their bikes or something

and that makes them avoid on a lot of levels". So, if field operations are not funded with adequate resources for mobility the efforts get compromised. Both from the coverage perspective and from financing these expenses by unfair sources.

Most of the respondents stated that" they have a shortage of staff members which is also a major issue because due to the shortage of staff members, they have to spend more time and they also have to do more effort in a field survey. Due to a shortage of staff, they have the extra burden of work which also affect their efficiency: One unit has 6-8 staff members which is very less, they need 2-3 inspectors but mostly they have only one inspector, and that one inspector too would be sometimes on additional charge in another unit". This point of view was stated at both RTO.

The other interviewee remarked that they face difficulty in the data collection process because the data is not centralized and sometimes it is also not accessible. Due to the non-accessibility of data, they face an issue of taxpayer compliance and they also face difficulty in tracing to figure out their actual sources. It becomes difficult for them to collect the actual amount of tax from the taxpayers.

Most of the respondents also stated that the issue they face during the tax collection process is the severity of taxpayers they stated that "People are not aware of the tax collection process they have less information about the tax systems and tax policies and sometimes people are less educated they don't know about the tax system and due to lack of awareness among people about taxation and due to poor tax environment and a weak tax culture people show rigidity they don't want to pay tax".

Budgetary Allocations

While commenting on budgetary allocation to meet the financial cost while making financial decisions or to achieve the FBR overall objectives one of the interviewees stated that they face budgetary allocation issues to meet the cost and stated that "As the targets are not set by consultation with the field staff. The targets are sometimes very unrealistic. But the staff members have to achieve the targets at any cost. Sometimes it becomes very difficult for them to achieve those targets as they are very high and on the other hand people are not willing to pay taxes so they have to do a lot of effort to meet those high targets that are given by the FBR".

The other interviewee stated that "We are not managing our budget we are collecting budget for the government, the targets are given to us, which are high and beyond our capacity and we

put in our best to achieve those targets and we achieve them too, which in the beginning looks so difficult to achieve but we had achieved the targets. Our office gets a budget and that is managed at the Chief Commissioner level".

Reasons behind poor tax collection

Interviewees illustrate that the main reasons behind the poor tax collections are: "lack of awareness", "narrow tax base", "unawareness among the taxpayers", "complex procedures", "taxpayers' facilitations is not up to the mark", "non-serious attitude of taxpayers, "lack of information given by the taxpayers", "gap between department and the taxpayers", "lack of education", "lack of political will", "low ratio of tax filers", "tax environment also the main reason of poor tax collection and there is no tax culture which motivates people to pay tax".

 One of the interviewees stated that "We are usually above our targets there is no poor tax collection. From the last 2-3 years FBR is meeting its targets". But we have a very low ratio of tax filers, we don't have documented economy and we are working on it. The interviewee stated as we don't have a tax culture so to meet the tax targets, we have to cut tax at sources such as withholding tax, and sometimes we have to pressurize the taxpayers.

Tax performance differences among regions

While commenting on the difference between the tax performance of different regions one of the interviewees remarked that "the difference in the performance of different regions is because of the nature of the businesses such as Karachi, Lahore, Faisalabad, Sialkot, where most of the businesses activities take place and where industries are located. Tax proportion is high where productive activities take place as compared to regions where there are no industries or few industries and small business chains".

The other defined it as "changing in practices too randomly and too often is also a reason for tax performance differences in different regions". One of the aspirants also stated that "the difference in performance is based on different jurisdictions".

An interviewee also quantified that this is due to "Non—compliance of taxpayers and the lack of awareness of knowhow to file the tax returns". One of the interviewees explains that" performance differences exist because of a business hub, industrial hub like the highest tax collection is from Karachi because they are selling each kind of thing so the performance depends on business activity, construction activity, development activities. And the budget is also allocated according to the potential of a region".

5.1.2 Comments on Target Achievement

Targets of revenue collection

Interviewees mentioned that FBR is achieving its targets for the last 2-3 years and now the FBR is collecting tax more than the target. Every year they boost their targeted value and they achieve that target successfully. FBR is collecting revenue more than it is targeted.

Communication gaps

Most of the interviewees commented that "There are no communication issues between the taxpayers and the FBR staff who are responsible for tax collection". One of the interviewees mentioned that "there is a lack of communication between the taxpayers and the FBR staff. The reason behind the lack of communication is they are not properly exercising the law that is provided by the authority.

Gaps between tax potential & actual tax collection

The interviewees mentioned that the main reasons behind the gap between the tax potential of tax offices and their actual tax collection are: "the lack of resources, shortage of staff, and sometimes the performance of staff is not much impressive". One of the interviewees illustrated that "Tax offices even don't know about their tax potential because there is no documented economy, we have a very low percentage of tax filers we can only check whether a person is a filer or not, we can only check his or her bank statement. But from 2 to 3 years, it has improved a lot and FBR is working on it. Now people tend to file while they are buying cars, property".

Trust issues & Tax avoidance

While remarking on avoidance of taxes, complications in the tax system, and trust issues i.e. Why people don't trust, why they avoid tax, and what allows them not to pay tax? Interviewees stated that this may be due to "the lack of knowledge, lack of education, lack of interest and lack of awareness schemes and people also show rigidity. People are rigid and mistrusted as they are not getting rewards for paying taxes in the form of social benefits, they tend to avoid taxes because they think that their money would be wasted if they pay the tax".

One of the interviewees commented that "People also avoid taxes because they are not getting the benefits of paying taxes. And due to deprived laws and regulations, people are satisfied they think that they would not be arrested. They think that they would not get caught and no serious actions can be taken against them for not paying taxes". If the government expenditures

are not matching their preferences in general then the taxpayers feel deprived of benefits and hence may avoid them.

One of the interviewees briefly describes it by saying that "People avoid paying tax because its hard to give money to someone, there is a very low percentage of tax filers. People avoid taxes because they are not getting the benefits of paying taxes but this is not the responsibility of FBR, this is the responsibility of the state to provide necessities to its nation, this is up to the government like how the government utilizes the tax revenue. Their job is just to meet the targets".

The other stated that "People are not willing to pay tax as their margins have already reduced. their margins have been squeezed due to inflation. Due to the increase in price levels, it becomes difficult for them to fulfill their needs. Complex tax procedures also do not allow them to pay taxes and the other reason is that the taxpayer facilitation is not up to the mark. Confidence of taxpayers has been reduced, there is a need to educate the people and there is also a need to make the system more user-friendly".

5.1.3 Comments on Political Interference

Political interference in decision making

Interviewees stated that "there is no political interference in decision-making at the regional level and there is no political and social factor that can create challenges in devising tax policies because policies are not made by RTO'S. RTO only follows the policy which is made by the policymakers who are involved in policymaking at the Head office of the Federal Board of Revenue".

Only one interviewee stated that "Yes, political and social factors play their role and devise tax policies a lot. Because the political party which is in power they try to facilitate their people. But it's also at the policy level not at operations".

5.1.4 Comments on Challenges experienced by Revenue Authority in Implementing Staff Motivation Strategies

Challenges in the implementation of motivational strategies

One of the interviewees stated that "there is no time for implementation of motivational strategies for staff "and the other commented that there is a shortage of staff due to which motivational strategies cannot be implemented. The other one stated that "We are not paying

attention to it and there are very less training sessions, very less experience gaining activities, no motivation talks, they don't visit different offices and training institutes".

Employees & growth process:

All the interviewees stated that this is not true and that "the employees at the regional level are not an integral part of the growth process of the institution and it is also not reducing the voice of employees in regional tax offices". But one of the interviewees illustrated that "Employees at the regional level are part of the growth process. But it is true that at the regional level the lower staff are not usually part of the decision-making process. There are a lot of decisions that are made for them without making them a part of the decision-making process. But employees which are in grade 17 and above, they are taken into confidence when a decision is made and when they are not taken into confidence, they usually protest about it".

Employee morale & level of efficiency

The interviewees commented on employee morale, six of them stated that "employee morale does not affect the performance and the level of efficiency". One of the interviewees stated that "to some extent, the employee morale affects the performance and the level of efficiency". The other stated that "Yes, low employee morale affects the level of efficiency and tax performance. For the last two to three years although our tax filing return ratio is increased, our morale becomes very low we were dishonored at so many levels we were called corrupt as well. Our staff is not corrupt.

There is a lot of importance to honesty and integrity that is given to the office. We tend to be honest. We are afraid of corruption. We take serious action against corruption cases and highlight them at a high level. Another reason for low employee morale is if you don't provide better facilities and incentives to the staff then it affects the level of efficiency. Our staff is demoralized at the financial level because they are not getting benefits. For the past 5 years, we have never given any incentive and we have never given a pay raise and sometimes we have to manage our visits at our own expense which also affects the employee morale".

Training to the staff for better skills & working conditions

While commenting on the provision of training to staff to improve the working conditions and enhance their skills most of the interviewees commented that "there is no appropriate training system for skills development". One of the interviewees stated that "they do not provide training opportunities to the worker to improve their efficiencies and they do not provide

incentives and modern working tools to increase their morale and their efficiency to work. The other commented that "they provide training opportunities but at a very low level".

Promotion criteria:

While discussing the promotion criteria one of the interviewees stated "that there is no policy of promotion which is based on staff merit like the promotion for those who deserve and that will encourage others to increase their effort in their workplace. But at the end of the year, there is a monetary reward and everybody works for that because that reward is provided by the government according to their work so that is a morale booster for employees". All other interviewees stated that "most of the promotions are seniority-based promotions".

5.1.5 Comments on Policy Measures

Policy implementation:

The interviewees stated that they are not involved in policy-making decisions and planning for future development they further stated that our policies are implemented in the right way.

One of the interviewees briefly explained that "Policies are implemented but our laws like income tax law and sales tax law these laws are very regressive, we can arrest a person but we don't do this. There is a common perspective among the people that FBR is very ruthless but this is not true we are working with curtailed powers. We are not politicized. We implement laws and rules in the right way except where our powers are already curtailed by the government".

Complications in documentations

While commenting on the complicated language of documents one of the interviewees stated that "our documentation language should be simple it should be clear so everybody can understand the language". The other state that "Our language of documentation is so complicated and is difficult to understand, people need a consultant to understand that language this is also a reason for tax avoidance like people have to hire a consultant to understand that language of the law so they can pay their tax accordingly".

One of the staff members of FBR also stated that "Policies are constantly changing and our documentation language is complicated because it is the law and we interpret the law in such a way which is helpful in more tax collection".

5.1.6 Recommendations from interviewees to improve tax performance

The interviewee's viewpoints on measures that should be taken by the government to improve tax performance at a regional level are as follow:

- The online tax payment system should be improved and normalized
- Policies must be clear
- The language of documentation must be simple
- Government should launch awareness programs and schemes to motivate people to pay taxes
- An efficient system of IRIS that should be monitored by the officers
- Provision of staff members
- Training should be provided to staff to improve their skills
- Government should take serious measures to make Non-filers Filers.
- Government should work on trust development
- Better allocation of tax
- High need for good working conditions
- We should provide proper vehicles for field survey
- Financially secure us
- Taxpayers should respect the department and the department must also do the same
- The system of FBR should be more friendly
- Trust of the general public in FBR must be built
- Government should make the filing of tax returns more friendly.
- Promotion should be based on performance
- Incentives should be provided for better performance

CHAPTER 6

CONCLUSION AND POLICY RECOMMENDATION

Conclusion

The main objective of this thesis is to examine the regional federal tax performance from a socio-economic perspective in Pakistan by using a panel of RTO-level tax collection data and to determine whether the tax revenue performance is affected by socio-economic factors or not. And to identify whether the inefficiency in the tax collection process or tax policies of FBR affect the tax revenue performance or not. And lastly, the thesis aims to measure the region's efficiency and make a comparison between them. FBR head office approves the amendment to the tax ordinance in Pakistan and is responsible for the formulation and administration of fiscal policies. levy, resolving tax-related disputes, and collecting taxes. Direct taxes are typically regarded as an inclusive means to raise revenue for governments. Direct taxes help to make the system more progressive by reconciling income distribution and narrowing the inequality gap. Around 70% of direct taxes come from withholding taxes, which can become indirect when passed on to consumers. In Pakistan, such redistributive tools have been misused, and the taxation system has remained skewed toward regressive indirect taxes. It is directed to collect progressive taxation but most of the share of it is wasted on pensions, debt servicing, etc.

In Pakistan, the main source of income tax is corporate and personal income tax. Although income tax increases due to the increase in active taxpayers but this increase are not sufficient. One reason is; that a large number of the population belongs to the agriculture sector which is exempted from tax. The agriculture sector contributes around 19% to the GDP but its share in tax revenue is negligible.

Furthermore, by quantitative analysis, it has been checked how the efficiency level of RTOs has changed over the years in Pakistan. For this purpose, the Maximum likelihood estimation technique has been used to estimate technical efficiency.

To achieve the objectives of the study, data for socio-economic variables such as level of education, employment status, income per capita, and social welfare services have been collected from the PSLM District level Survey, and data for withholding tax as a share of direct tax and total on-demand tax as a share of direct tax has been collected from the Year Books of FBR. Maximum likelihood estimates explored the positive impact of education level (population with above matric qualification), income per capita, services (population uses the

social welfare services), and employment status proxy(population belongs to the non-agriculture sector) on per capita tax revenue and this impact has been improved over the years. This may be due to the reason that the more educated population pays more taxes. And the population which is employed and has a high per capita income contributes more to the tax revenue collection of a region. Similarly, in the regions where people have more social welfare benefits, they pay more taxes to avail more services provided by the government.

This research also explored that efficiency has been increased in almost all regions but there is a mismatch between the performance of regions. Some regions are very efficient and they perform well, the efficiency of those regions increases over time and some are less efficient. This may be due to the socioeconomic factors in those regions or may be due to the inefficiency of RTOs in tax collection or may be due to geographical differences. Reforms in government tax policies, improvement in tax collection procedures, awareness among people, increase in per capita income, education, employment status, and the benefits provided by the government in some major regions are also causing efficiency increases.

The issues and challenges the FBR staff faced during the tax collection process, target achievements, political interference, and motivational strategies they provide to their staff for improvement in tax performance and to enhance their efficiency level and their policy measures have been observed by going over the FBR staff in detail during Q & A sessions with them. FBR staff that is involved in the tax collection process are doing their jobs properly. They stated that they are working on the achievement of the targets. But the government should provide them with better facilities in offices. Facilities should also be provided by the government during field surveys. And the government should provide incentives to motivate the staff so they can perform well and by which their level of efficiency also increases.

Recommendations

- There is a need for tax laws and policies which should be aiming to improve tax compliance across the existing sectors. Moreover, policies must be simple and understandable for everyone.

- The policies should be made to bring the informal sector into the tax net which can make the tax system more progressive.

- The tax reforms must be aimed at increasing tax bases, rather than imposing taxes on existing taxpayers and welfare benefits should be provided to the taxpayers which encourage others to pay taxes.

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APPENDIX A

Table7.1: **Correlation matrix of Independent Variables**

	Income	Edu_matric	Edu_above matric	Agri	Non-_agri	Services	Satisfaction	Wth_tax	Tod_tax
Income	1.0000								
Edu_matric	0.0508	1.0000							
Edu_above matric	0.0451	0.9723	1.0000						
Agri	-0.0867	0.0666	-0.0523	1.0000					
Non-agri	0.0482	0.9647	0.9590	0.1551	1.0000				
Services	0.0975	0.9057	0.8793	0.2280	0.9506	1.0000			
Satisfaction	0.1619	0.7980	0.7723	0.1840	0.8485	0.9553	1.0000		
Wth_tax	0.0035	-0.0410	-0.0109	-0.2264	-0.0891	-0.0951	-0.1131	1.0000	
Tod_tax	-0.2187	0.3032	0.3288	-0.2977	0.2740	0.2074	0.1950	0.2791	1.0000