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Factors Affecting IRS Audit Rate Probability: Empirical Evidence from RGV Region

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FACTORS AFFECTING IRS AUDIT RATE PROBABILITY – EMPIRICAL EVIDENCE
FROM THE RGV REGION

A Thesis

by

ISSACK GUYO

Submitted in Partial Fulfillment of the
Requirements for the Degree of
MASTER OF BUSINESS ADMINISTRATION

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December 2021

FACTORS AFFECTING IRS AUDIT RATE PROBABILITY – EMPIRICAL EVIDENCE

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December 2021

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ABSTRACT

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IRS tax audits are intended to curb tax evasion; however, they are costly to conduct and have negative impacts on taxpayers. The purpose of this study is to find out factors that lead to high IRS audit rate in a region from the perspective of the Rio Grande Valley (RGV). Relationship between IRS tax audit rate and determinants of tax evasion identified by Davis, Cebula, & Boylan (2020) among others are studied. A regression analysis is conducted on the regions scores on poverty rate, demography, unemployment rate and general level of education with the IRS audit rate. The results suggest that poverty, unemployment, and the level of education among taxpayers have a significant effect on the IRS audit rate of a region. However, demography was found to have an insignificant effect on the IRS audit rate. The study thus recommends that the local government and other stakeholders affected by the negative impacts of tax evasion and IRS audits, address these underlying factors by for instance, trying to alleviate poverty in the region, create more employment opportunities or increase general awareness through education. As this would help increase tax compliance and reduce IRS audits.

Keywords: Tax evasion; Tax avoidance; IRS audits; Earned Income Tax Credit; Poverty rate; Demography; General Education level

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CHAPTER I

INTRODUCTION

1.1 Background Information

As an MBA student in the Rio Grande Valley Region (RGV) for over 2 years, I have often heard of a high number of cases of IRS audits, tax evasion, and high poverty rate in the region. For instance, according to a study by Hampton (2019), the Rio Grande Valley have among the highest IRS audit rates at county level with an average of 10 per 1,000 filings, higher than the national audit rate average of 7.7 per 1000 filings. In contrast states like New Hampshire and Wisconsin have among lowest audit rates.

But why are there huge differences in IRS audit rates in different regions? And what factors are associated with high IRS audit rate in a region?

Typically, the IRS audits less than 1% of all tax returns filed in a fiscal year (Backman, 2019). For example, the IRS audited 0.6% of all individual tax returns filed in 2017 and 0.9% of corporate income tax returns. That is out of 196million tax returns received that year, it audited just 1 million within the following year (A, 2020). But does this mean that tax evasion is less than 1% among taxpayers? Given that IRS audits are intended to curb tax evasion practices such as underreporting income, false social security number, falsifying documents, and intentionally failing to pay taxes (O'brien, 2020) among others and save government from loss of revenue.

According to IRS Commissioner Charles Rettig in a post on Washington Reuters stated that the U.S. government loses some \$1 trillion in unpaid taxes every year (Lawder, 2021). Further the IRS newsroom (2019) estimated the average gross tax gap at \$441 billion per year based on data for years 2011, 2012 and 2013. With a net tax gap of \$381 billion after late payments and enforcement efforts are factored in, of which the non-filing tax gap was estimated at \$39 billion, underreporting tax gap at \$352 billion and the underpayment tax gap at \$50 billion (IRS, 2019). Sustaining and improving taxpayer compliance is thus paramount as declines in compliance cost the nation billions of dollars in lost revenue.

It is however evident that Tax audits and increasing penalties for tax evaders being measures implemented by regulatory authorities to curb tax evasion, have nonetheless not been that effective based on the increasing tax evasion statistics (De La Feria, 2020). The government continues to lose billions in revenues as a result and it is important to identify factors associated with IRS audits for effective intervention policies rather than the aggressive tax audits.

Various studies (Achek, 2015; Davis, Cebula, & Boylan, 2020; Cubela, 2019) of factors that may influence the degree of aggregate level of tax evasion in the U.S., have found compelling evidence that the level of tax evasion is positively impacted by factors such as unemployment, corruption, income and poverty, education among others. Bethencourt & Kunze (2020), further stated that tax evasion is a severe problem in low-income countries which is an indication that there is high relation between poverty and tax evasion. Regions with the aforementioned factors will thus have higher tax evasion practices and hence higher tax audits (Belnap, Hoopes, Maydew, & Turk, 2020).

1.2 Problem Statement

IRS audit rate in Rio Grande Valley has been high over the past ten years, in contrast to other regions of the country. According to Hampton (2019) the Rio Grande Valley region has an average of 10 audits per 1,000 filings, high than the national rate of audits at 7.7 per 1,000 filings, based on data of tax years 2012 through 2015. The Rio Grande Valley region counties are known to be the highest in poverty rate in the state of Texas, and in the country: averaging 30.7% according to the U.S Census bureau Census.gov. This is nearly three times higher than the national average of 10.5% as of 2019. Corruption rate is also high in the Rio Grande Valley, examples of Lupe Trevino, the Donna ISD scandal, Nora Longoria, and the Tax Assessor Office scandal (Huertas, 2019). Unemployment rate is high as well. Additionally, the general level of education among taxpayers in the region is low based on U.S Census bureau Census.gov. The Rio Grande Valley region has also a high population of taxpayers of Mexican heritage and a high population of immigrants based on its geographical location.

In contrast, New Hampshire, one of the states with the lowest audit rates and home to middle income, largely white population experiences a rate of 7.0 audits per 1,000 filings (Kiel & Fresques, 2019). According to census.gov its poverty rate is very low at 7.3%. This is a big difference with the Rio Grande Valley, Texas, and below the national average.

Nonetheless, IRS audits are expensive to conduct, the process is also tormenting to those taxpayers who unfortunately get to be audited by IRS, as they will have to go through a rigorous audit process, their tax refund withheld, and a possible loss of asset and jail term. However, IRS audits in its entirety is intended to curb tax evasion in order to save the government billions of dollars lost in revenue, which will eventually lead to better infrastructure and social amenities in

the region. Addressing this problem will thus have practical benefits for the Rio Grande Valley region and contribute to understanding of IRS audits.

The aim of this research is to find out factors associated with high IRS audit rate in the Rio Grande Valley. It identifies the most significant factors that relate to increased IRS audit rate in the region by analyzing known determinants of tax evasion in the region (Cebula, & Boylan, 2020) and how they relate to the IRS audit rate score of the region.

1.3 Research Questions

This study attempts to answer the following main questions:

1. What is the relationship between RGV's poverty rate and the IRS audit rate?
2. What is the relationship between RGV's demography and the IRS audit rate?
3. What is the relationship between RGV's unemployment rate and the IRS audit rate?
4. What is the relationship between education level of RGV's taxpayers and the IRS audit rate?

1.4 Objectives

This paper intends to find out factors associated with high IRS audit rate in the Rio Grande Valley (RGV) region. The paper analyzes data from the counties score on factors that influence the aggregate level of tax evasion such as poverty rate, unemployment rate, corruption rate among others from the U.S. Census Bureau QuickFacts website. It also analyses counties tax return data from IRS website. Scores on IRS audit rate average were determined to investigate the relation between IRS audit rate scores and scores on factors that influence level of tax evasion in a region, a regression analysis using IRS audit scores as the dependent variable and

the scores on factors that affect aggregate level of tax evasion in a region as the independent variables was run.

The main objectives of the study can be summarized as follows:

1. To examine the relationship between RGV's poverty rate and the IRS audit rate.
2. To examine the relationship between RGV's demography and the IRS audit rate.
3. To examine the relationship between RGV's unemployment rate and the IRS audit rate.
4. To examine the relationship between education level of RGV's taxpayers and the IRS audit rate.

1.5 Significance of the Study

1.5.1 Theoretical Significance

This study will be important and beneficial to researchers, standard setters, and student of accounting and other related disciplines. The current study of how Tax evasion variables relate to high IRS audit have not been tested in Rio Grande Valley in prior research related to tax evasion and tax audits. As far as this study is concerned, previous studies in RGV have not included how determinants of tax evasion such as poverty, demography, education level and unemployment rate relate to the high IRS audit in the region. Therefore, this research will provide an important contribution to the body of knowledge by testing these factors in RGV. This study will contribute to the literature of tax evasion and the possible factors that are associated with high IRS audit in a region.

1.5.2 Practical Significance

The current study concerns about determinants of tax evasion in RGV that are associated to the high IRS audit. Identifying these factors is important due to the negative impacts of tax evasion and IRS audits in the Rio Grande Valley. Therefore, when the problem is addressed, the revenue collected in the region will increase, cost of conducting IRS audits will reduce, as well as taxpayers will be free from their tax refund being withheld and going through a rigorous and tiresome tax audit process. And, eventually, the provision of social amenities and infrastructures will improve. However, if the problem persists and no relevant action taken, sooner or later it will lead to dilapidated infrastructure in the Valley, poor standards of living, failed systems among others.

This study finds that determinants of tax evasion namely: poverty, unemployment rate, and general education level among taxpayers in a region show a relationship with IRS audit rate. The statistical results show significant relationship between poverty, unemployment and level of education on IRS audit rate probability of a RGV region. Demography showing an insignificant relationship with the IRS audit rate.

1.6 Structure of the Thesis

This study examines the determinant of tax evasion that are associated with high IRS audit rate in the RGV. The thesis is divided into five chapters; chapter one contains an introduction under which the following is covered: background of the study, problem statement, research questions and objectives, and significance of the study. Chapter two features the relevant literature reviews in the area of tax evasion, and IRS audits. Chapter three presents the research method used, which contains the research design, population of the

study, sample size, sampling techniques, data sources, data gathering, data reliability and validity, and data analysis techniques of the study. Chapter four explains the data analysis, interpretation, discussion, and findings of the study. Chapter five comprises of the last part which includes the summary, conclusions, and recommendations as well as a suggestion for future studies.

CHAPTER II

LITERATURE REVIEW

2.1 Introduction

This chapter reviews the related literature concerning tax evasion and IRS audit rates. The chapter also develops to show the relationship between tax evasion and the identified variables that determine the evasion behavior among taxpayers across several literature. The literature explains the relevant theories and studies concerning the topic under discussion.

2.2. Tax Evasion

Tax evasion, cheating of the treasury has been in existence since the time of the Egyptian Pharaohs (Vijoen & Janel, 2017). Since then, several literatures have been written on the topic of tax evasion. It is generally defined by the IRS as willful and material submission of false statements or false documents in connection with an application or return (Fedor, 2020). Popescu (2018), describes it as an actual or potential behavior of the economic subject that can lead to the non-payment of legal obligations due to the State. While SK (2018) defines tax avoidance as legal minimization of tax liability, including deductions (prescribed by the legislation), tax credits, tax deferral plans among other. Tax evasion on the other hand, is the failure of a taxpayer to pay actual taxes that they owe to the authorities, by deceit, or by concealing the exact amount. While tax avoidance is generally a legal reorganization of a

business or individual so as to minimize their tax liability, while tax fraud is the illegal rearrangement for the same purpose.

2.2.1 Factors Influencing level of Tax Evasion Practices in a Region

There are various factors that influence the aggregate level of tax evasion in a region (Aчек, 2015). In my study I will be looking at:

Income Level and Poverty rate. Income level and poverty rate in a region have influence on the level of tax evasion practices. For example, Bethencourt & Kunze (2020), states that tax evasion is a severe problem in low-income countries which leads to low level of tax revenue in those countries. The reason tax evasion is a widespread problem in developing countries that show high levels of both labor and capital income tax evasion (Crivelli et al, 2015). Aчек (2015) also in an empirical study dealing with determinants of tax evasion, classified income level as a variable under the category of economic determinants that influence tax evasion.

Demography of a region. Bastani, Giebe, & Miao (2020), in their research Ethnicity and tax filing behaviors, analyzed the differences in tax filing between natives and immigrants. They found that newly arrived immigrants file substantially less than natives, immigrants with a longer stay behave more like natives, and immigrants with the longest stay file the most, even more than natives. Kemme, Parikh, & Steigner (2020) identified that low tax morale is associated with domestic tax evasion. Aчек (2015) documents that the high level of economic freedom, importance of equity markets and the effectiveness of competition laws are positively associated with tax compliance, while the high level of lawlessness reduces the level of tax compliance.

Unemployment rate in a region. The rate of unemployment among taxpayers in a region may influence tax evasion practices. For instance, Davis, Cebula, & Boylan (2020) in a study of factors that may influence the degree of aggregate federal personal income tax evasion in the U.S., found compelling evidence that magnitude of federal personal income tax evasion is positively impacted by the unemployment rate. Achek (2015) also in an empirical study dealing with determinants of tax evasion, classified unemployment rate under the category of economic determinants that influence tax evasion.

Cubela (2019), in a study of whether lower (higher) labor force participation rate implies greater (lower) income tax evasion? Found that the lower the labor force participation rate, the higher the degree of tax evasion and vice versa.

Education. Level of education has been observed to have effects on tax evasion practices, a region with a high percentage of taxpayers having gone to school tend to have lower cases of tax evasion practices as they are aware of its consequences (Achek, 2015). A study by Achek (2015) reviewed that high levels of general education, services income source, fairness and tax morale are negatively associated with tax evasion practices.

Level of Corruption. Magnitude of corruption in a region has influence on the level of tax evasion practices in the region. Achek (2015) in study of determinants of tax evasion classified corruption under Legal and institutional category, namely bureaucracy and corruption. Documenting that low level of corruption is positively associated with tax compliance, whereas the high level of bureaucracy and corruption increases tax evasion. Al-Hadi, Taylor, & Richardson (2020), examine whether state-level corruption and corporate tax evasion in the U.S. are related. Using a sample of 36,078 U.S. firm-year observations

from 1998 to 2014, they found that corruption is significantly positively related to tax evasion.

Cultural and behavioral. Achek (2015) in an empirical study dealing with determinants of tax evasion, identified culture and behavior of taxpayers in a region influence tax evasion practice. Achek explored the relationship between tax evasion and cultural dimensions (uncertainty avoidance, individualism, masculinity and power distance). Stating that uncertainty avoidance and power distance are positively associated with tax evasion meaning that regions with high uncertainty avoidance will avoid tax evasion to be on the safe side of the law, while regions with high individualism and masculinity are negatively associated with tax evasion.

2.2.2 Implication of Tax Evasion

Tax evasion practices such as underreporting income, false social security number, falsifying documents, and intentionally failing to pay taxes causes the government to lose billions in revenue, lag in infrastructure development among others. For instance, the US average gross tax gap is estimated at \$441 billion per year based on data for years 2011, 2012 and 2013. With a net tax gap of \$381 billion after late payments and enforcement efforts are factored in.

Looking further at its components, the non-filing tax gap was estimated at \$39 billion, underreporting tax gap at \$352 billion and the underpayment tax gap at \$50 billion. And for the various types of taxes, the estimated gross tax gap for individual income tax was estimated at \$314 billion, the tax gap for corporate income tax was \$42 billion, and the tax gap for employment tax \$81 billion. Further tax evasion contributes to poor infrastructural

development in developing countries which show high levels of both labor and capital income tax evasion (Crivelli et al, 2015).

2.3 IRS Tax Audits

Tax audits is not a new subject, collaboration between tax authorities and law enforcement agents to investigate charges and convict tax evaders in modern day society trace back to the tax evasion court case of Al Capone in 1931 (Vijoen & Janel, 2017). It is generally defined by the IRS as a review or examination of an organization's or individual's accounts and financial information to ensure information is reported correctly according to the tax laws and to verify the reported amount of tax is correct (IRS, 2021). Taxes (2020) defines it as the process of IRS examining one's tax return a little more closely to verify that income and deductions reported are accurate.

Typically, a tax return is chosen for audit when something entered on a return is out of the ordinary. There are three main types of IRS audits: the mail audit, the office audit and the field audit (Taxes, 2020). Auditors basically look for indicators of fraud such as, underreporting income, false social security number, falsifying documents, and intentionally failing to pay taxes (O'brien, 2020). They are thus a necessary component of the tax system that ensure taxpayers comply with the law and deter aggressive tax behaviors (Belnap, Hoopes, Maydew, & Turk, 2020).

2.3.1 IRS Tax Audit Probabilities

Different States, regions and counties have different audit rate probability scores. According to a study by Hampton (2019) the national rate of audits per 1,000 filings is 7.7; meaning that about 8 returns are audited out of every 1,000 tax returns filed. While looking at tax

years 2012 through 2015, the study estimated rates by using county tax return data on the IRS website in combination with audit coverage rates published in the IRS Data Book, which provides data on collecting the revenue, issuing refunds, enforcing the law, assisting the taxpayer, the budget, and workforce.

When focusing on the Rio Grande Valley area, with an average of 10 audits per 1,000 filings, it is known that these counties are highest in poverty rate in the state of Texas, and in the country: averaging 30.7% according to the U.S Census bureau Census.gov. This is nearly three times higher than the national average of 10.5% as of 2019. Corruption rate is also high in the Rio Grande Valley, examples of Lupe Trevino, the Donna ISD scandal, Nora Longoria, and the Tax Assessor Office scandal (Huertas, 2019). Additionally, according to ProPublica.org, claiming the Earned Income Tax Credit, which is designed to help boost low-income workers out of poverty, increases the chances of being audited by the IRS (Kiel & Fresques, 2019).

In contrast, New Hampshire, one of the states with the lowest audit rates and home to middle income, largely white population experiences a rate of 7.0 audits per 1,000 filings (Kiel & Fresques, 2019). According to census.gov its poverty rate is very low at 7.3%. This is a big difference with the Rio Grande Valley, Texas, and below the national average.

According to the IRS, of the millions of tax returns filed in 2018, a total of 2,886 investigations were initiated, and of those investigations 1,879 tax evasion cases were found. These investigations consisted of 1,099 tax crimes, such as questionable refunds, and 668 convictions, 1,064 illegal source financial crimes, such as money laundering, and 725 convictions, and 723 narcotics-related financial crimes with 486 convictions. According to an article from The New York Times by Eisinger & Kiel (2018), budget cuts influenced the number of tax fraud cases conducted. Along with the budget cuts, IRS had to reduce its criminal

investigation division, and close four of its 25 field offices. As further mentioned in the article, due to the budget cuts, agents are pushed to closing audits more quickly, so they make few requests for records and interviews when conducting their investigations. Across these studies, there is a consistent evidence that different regions have different scores in factors that influence tax evasion practices as well as different audit rate probability scores.

2.4 Hypothesis Tests

Following from the above discussion, it is hypothesized that:

H_a.1: There is relationship between RGV's poverty rate and the IRS audit rate.

H_a.2: There is relationship between RGV's demography and the IRS audit rate.

H_a.3: There is relationship between RGV's unemployment rate and the IRS audit rate.

H_a.4: There is relationship between education level of RGV's taxpayers and the IRS audit rate.

2.5 Literature Gap

Many recent studies (Davis, Cebula, & Boylan, 2020; Cubela, 2019; Achek, 2015) have been conducted on the tax evasion subject, from factors influencing the practice to its implication, as well as tax audits (Maji and Kumar, 2017; Collum, Journey, and Marshall, 2020) as a measure of curbing tax evasion and its' effectiveness. While there has been much research on Tax evasion and tax audits, few researchers have studied the relation between the factors that influence the level of tax evasion and the high IRS audit in the Rio Grande Valley region and best way to lower it.

2.6 Summary of the Chapter

In this chapter, discussions are made about tax evasion and the factors determining tax evasion such as poverty, demography, unemployment, corruption, education, and culture and behavior. The chapter also includes discussion on IRS tax audits, and the probabilities of IRS audits in different regions. Consequently, hypothesis tests are also stated, and literature gap discussed from the RGV point of view. This study will therefore help to understand the factors that lead to the high IRS audits in RGV region.

CHAPTER III

METHODOLOGY

3.1 Introduction

This chapter explains the methods and procedures that the study would use to derive its data. The chapter specifically consists of data sources, sampling methodology, variables, and quantitative methodology of the study.

3.2 Conceptual framework

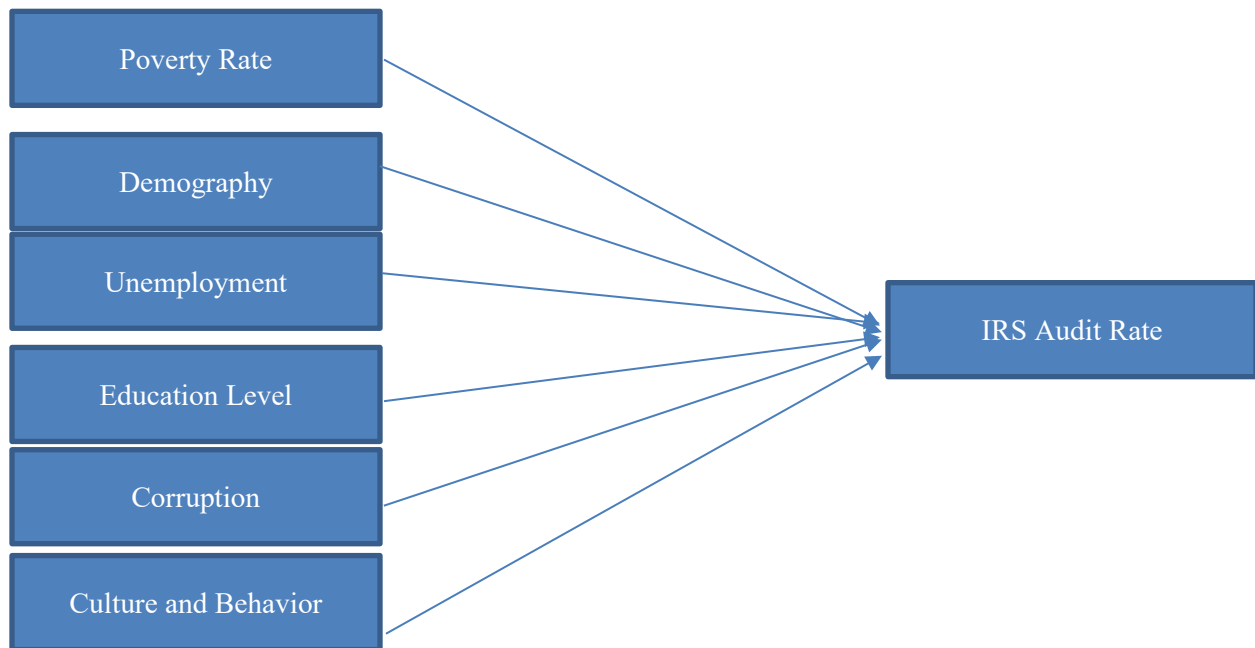


Figure 1: Research Framework for the Relationship between Variables

This study uses IRS audit rate as a dependent variable. The independent variables on the other side are poverty rate, demography, unemployment, education level, corruption, and culture

and behavior. This study has developed a model (as illustrated in figure 1) to demonstrate the relationship between the IRS audit rate and selected variables accordingly. The model assists in greater understanding of the independent variables which provides more value to the local government and stakeholders in addressing the IRS audits in the region.

3.3 Hypotheses development

3.3.1 Dependent variable

The dependent variable in this study is IRS audit rate. IRS audits probability differs widely among counties, regions, and states (Hampton, 2019). IRS audits refer to the review or examination of an organizations or individual's accounts and financial information to ensure information is reported correctly according to the tax laws and to verify the reported amount of tax is correct (IRS, 2021). Tax audits are intended to curb tax evasion, which would mean that a region that has a high IRS audits could have a high tax evasion practice by its taxpayers. However, tax evasion is influenced by different factors. Some of the factors that influence tax evasion, and which will be studied in this research are poverty rate, demography, unemployment, and education level.

3.3.2. Independent variables

3.3.2.1 Poverty rate

In this study, poverty rate is used as one of the independent variables. Achek (2015) demonstrated that poverty affects tax compliance among taxpayers and it's the main reason tax evasion is a widespread problem in developing countries. Achek (2015) also in an empirical study dealing with determinants of tax evasion, classified income level and poverty as a variable under the category of economic determinants that influence tax evasion.

Therefore, this study developed the following hypothesis:

H_a.1: There is relationship between RGV's poverty rate and the IRS audit rate.

3.3.2.2 Demography

In this study, Demography is used as the independent variables. Bastani, Giebe, & Miao (2020), in their research Ethnicity and tax filing behaviors, analyzed the differences in tax filing between natives and immigrants. They found that newly arrived immigrants file substantially less than natives, immigrants with a longer stay behave more like natives, and immigrants with the longest stay file the most, even more than natives. This shows that the demography of a region that is the population of immigrant's vs natives of the region affect the rate of tax compliance in the region. Demography of a region is thus among the determinant's variables in tax evasion among the taxpayers. Therefore, this study has developed the following hypothesis:

H_a.2: There is relationship between RGV's demography and the IRS audit rate.

3.3.2.3 Unemployment rate

Unemployment rate is also used as an independent variable in this study. Previous researchers studied this variable, and the findings indicate that unemployment rate is related to tax evasion. Davis, Cebula, & Boylan (2020) in a study of factors that may influence the degree of aggregate federal personal income tax evasion in the U.S., found compelling evidence that magnitude of federal personal income tax evasion is positively impacted by the unemployment rate. Therefore, this study developed the following hypothesis:

H_a.3: There is relationship between RGV's unemployment rate and the IRS audit rate.

3.3.2.4 Educational level

Education level is one of the independent variables in this study. Past studies demonstrated that tax knowledge is key to tax compliance among taxpayers and tax education is one of the successful apparatus to acquaint taxpayers from a non-compliance behavior (Acheck, 2015). A negative relationship between education and tax evasion has been found in studies by Acheck (2015), and Davis & Cubela & Boylan (2020). Therefore, this study has developed the following hypothesis:

H_a 4: There is relationship between education level of RGV's taxpayers and the IRS audit rate.

3.4 Data Sources

This research was based on utilization of public data set to find out factors that influence the aggregate level of tax evasion and their relationship with IRS audit rate. IRS audit scores of the was collected from ProPublica website. Scores on factors that influence tax evasion in a region such as income and poverty rate, corruption rate, unemployment rate, education, demography, and culture and behavior from U.S., was also collected from Census Bureau QuickFacts website of the same regions. A regression analysis was conducted on the data to determine if there was a relationship between IRS audit rate and factors that influence the level of tax evasion in a region.

ProPublica is a nonprofit newsroom that delivers investigative journalism with moral force (Kiel & Fresques, 2019). The source covers a range of topics including government, business, criminal justice, education, immigration, healthcare, and technology. Information

about nationwide cities is also provided by ProPublica and the IRS website. The IRS website not only gives information on how to file or pay for taxes, but it also provides criminal enforcement statistical data pertaining to tax evasion. For instance, under the criminal investigation section, there are reports of bankruptcy fraud, corporate fraud, financial institution fraud, and healthcare fraud. There is statistical data and examples of fraud investigations for each type of fraud. The U.S. Census Bureau QuickFacts website was also used for descriptive data on demography, economic situation, income, and poverty rate of the sample counties.

The Inter-American Center of Tax Administrations (CIAT) was another source used to discuss tax evasion. CIAT is a nonprofit organization that supports the efforts of national governments by advocating the social acceptance and institutional strengthening of tax administrators (Collosa, Feinschreiber, Tori, Falas, 2019). The organization's website offers meetings, training courses, publications, and a section with basic information about tax systems and tax administrations of CIAT member countries ("CIATData", 2020).

3.5 Sampling Methodology

The research design of the study being conducted was exploratory. Exploratory research was suitable for this study since it was attempting to determine the factors associated with high IRS audit rate in RGV, by studying the relation between its scores in poverty rate, demography, unemployment, and general level of education with the IRS audit rate of the region. Identifying this relation would give a better understanding of the problem. The data was collected from secondary sources, such as existing article, U.S. census bureau, major newsroom, and ProPublica to compare IRS audit averages.

The target sample was RGV counties and four sampled counties in New Hampshire. The study sampled four variables of factors the influence tax evasion namely, poverty rate, demography, unemployment rate, and general level of education together with IRS audit scores of the counties. The sample units consisted of IRS audit rates of my sampled regions calculated per 1,000 incometax filings, over the four tax years from 2012 to 2015 (Kiel & Fresques, 2019).

3.6 Variables

Table 1: Variables of the Study

Variable	Definition	Data Source
Dependent	Pertains to the national or a county's IRS audit average per 1,000 income tax filings.	ProPublica IRS audit averages
Independent	Factors Influencing Tax Evasion	U.S. Census Bureau

3.7 Quantitative Methodology

Regression analysis, which is a set of statistical methods used for the estimation of relationships between a dependent variable and one or more independent variables (Corporate Finance Institute, 2021) was used. As it was the best in assessing the strength of the relationship between IRS audit rate and scores on factors that influence tax evasion in a region and for better understanding of the relationship between factors influencing tax evasion and IRS audit rate. Regression analysis includes several variations, such as linear, multiple linear, and nonlinear. A linear regression was used to determine the relation of each independent variable and IRS audit rate (dependent variable) score of the region.

The mathematical representation of the linear regression is shown below.

$$\text{AUDITAV}_i = \alpha_0 + \beta_1 \text{POVERTY}_i + \beta_2 \text{DEMOG}_i + \beta_3 \text{UNEMP}_i + \beta_4 \text{EDUC}_i + \varepsilon_i$$

Where:

- AUDITAV_i is the tax audit rate score for county i
- POVERTY_i the poverty score for county i
- DEMOG_i the demography for county i
- UNEMP_i the unemployment score for county i
- EDUC_i the general education score for county i
- ε_i is the error term for county i

The data was first organized in a 5 x 8 (columns x rows) table. The columns contained IRS audit rate (dependent variable) and independent variables, while the rows contained the 8 sampled regions.

A regression analysis was conducted to determine if there is a significant relationship between poverty rate, demography, unemployment rate and general level of education with IRS audit rate in the region. A two-tailed test is applied to the dataset whereby the alternative hypothesis is accepted when the p-value is less than 0.05, and thus rejecting the null hypothesis.

3.8 Summary of the Chapter

This chapter discusses the research methodology used in the study. The research model and hypotheses developed are explained accordingly. Similarly, the method of data collection is explained clearly. The sources of data collection, population of the study and sample size,

sampling technique are also covered. In addition, the variable measurements of the study are also discussed. Finally, this chapter serves as a basis for the next chapters of the thesis.

CHAPTER IV

EMPIRICAL RESULTS AND ANALYSIS

4.1 Introduction

This chapter focuses on analyzing the data generated and the interpreting the result of the study. The result and research finding according to the research objectives and hypotheses in the study are also discussed. The section includes three main parts. The first of which is concerned with the descriptive tests for the study variables. In the second part a correlation analysis between variables is presented. The third one, represents testing the research hypotheses using two T-Test, that is if the p-value is < 0.5 from a regression analysis.

4.2 Descriptive statistics and correlations

A descriptive statistics method was used to find means and standard deviations of the dependent and independent variables from the collected data. The means and standard deviations used in this study for all the variables are stated below in Table 2 and Table 3.

Table 2: Result for Dependent Variable

Variable	N	Mean	Standard Deviation
IRS audit average	8	8.4250	1.7203

Table 2, The result indicates that the mean value for the IRS audit average is 8.4250 with a standard deviation (SD) of 1.7203. This indicates the IRS audit rate in RGV region.

Table 3: Results for Independent Variables

Variables	N	Mean	Standard Deviation
POVERTY	8	18.8500	12.0081
DEMOG	8	12.6125	9.9849
UNEMP	8	10.9533	2.1810
EDUC	8	24.6375	13.8312

In Table 3, the independent variables were examined. The findings show that poverty rate mean value was 18.8500 and SD was 12.0081, demography mean value was 12.6125 and SD was 9.9849. Unemployment mean value was 10.9533 and SD was 2.1810 and education mean value was 24.6375 and SD and 13.8312.

4.3 Correlation Analysis

Correlation shows the direction, significant and strength of the bivariate associations between the variables in the study. Table 4 shows the relationship between IRS audit rate average (dependent variable) and the four variables (independent variables).

Table 4: Correlation Matrix between Dependent and Independent Variables

	IRS Average	Poverty Rate	Demography	Unemployment Rate	Education
RS Average	1				
Poverty Rate	0.9902	1			
Demography	0.7738	0.7172	1		

Table 4, continued

Unemployment Rate	0.7855	0.8131	0.5500	1	
Education	-0.9670	-0.9912	-0.6384	-0.8440	1

From Table 4, the result shows that poverty rate, demography, and unemployment rate correlate significantly with IRS audit rate at 0.9902, 0.7738, and 0.7855 respectively at a level of 0.05. The finding shows that only education is negatively correlated with IRS audit rate at -0.9670 at 0.05 significance level. The findings are discussed further in the following sections. A two-tailed test was used in this study to weigh the relationship between the variables to confirm the hypotheses and the t-value was used to evaluate the significant level.

Moreover, a graphical presentation of the correlation analysis for this study’s dependent and independent variables are shown by Figure(s) bellow:

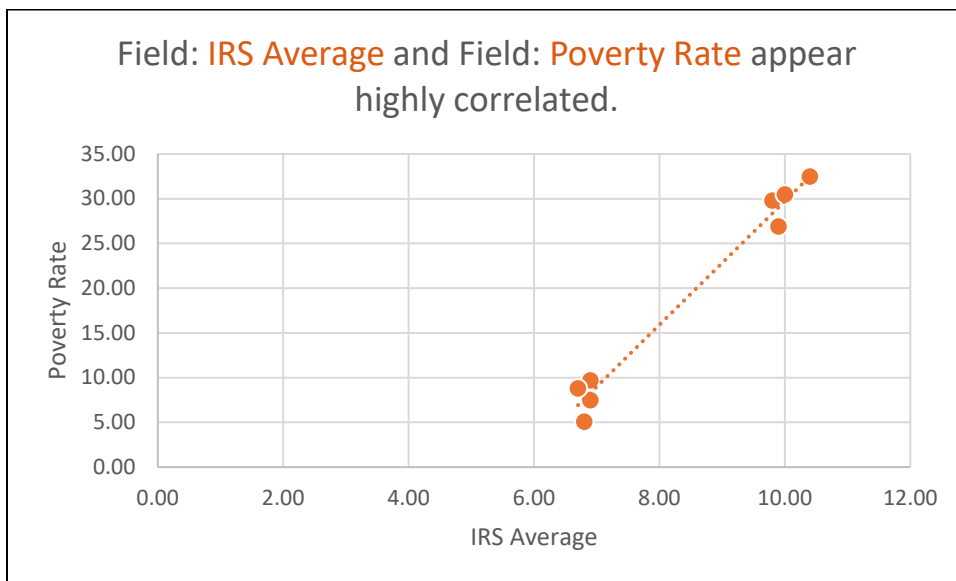


Figure 2: Correlation between IRS audit rate average and poverty

Figure 2 shows a correlation towards the same direction between IRS audit rate and poverty rate of the region at $r = 0.9902$.

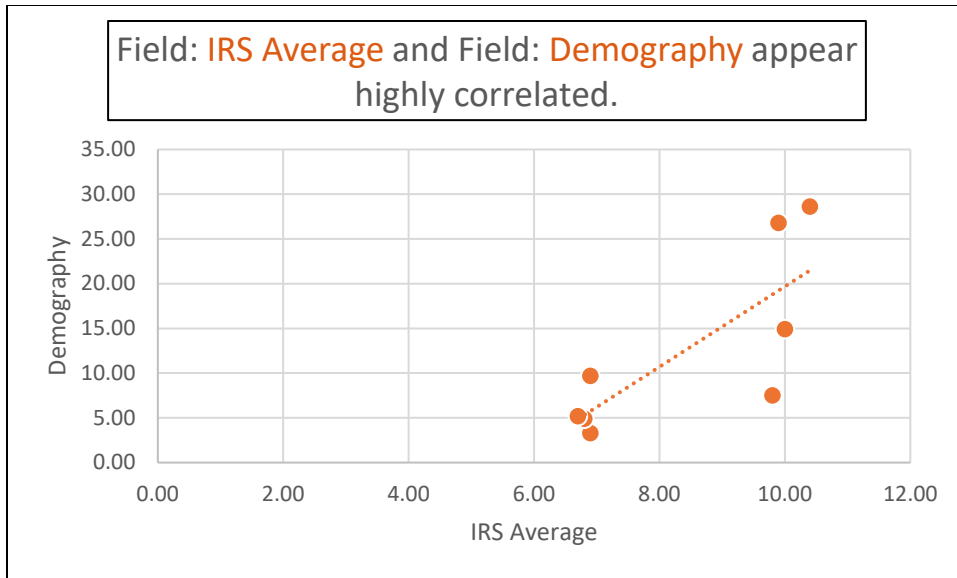


Figure 3: Correlation between IRS audit rate average and demography of a region

Figure 3 shows a correlation towards the same direction between IRS audit rate and demography of the region at $r = 0.7738$.

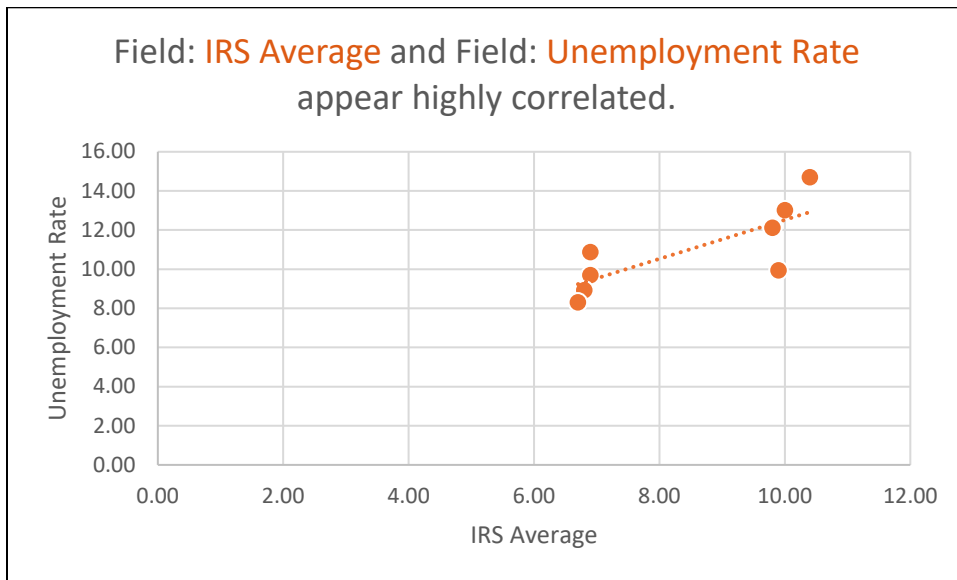


Figure 4: Correlation between IRS audit rate average and unemployment rate

Figure 4 shows a correlation towards the same direction between IRS audit rate and unemployment rate of the region at $r = 0.7855$.

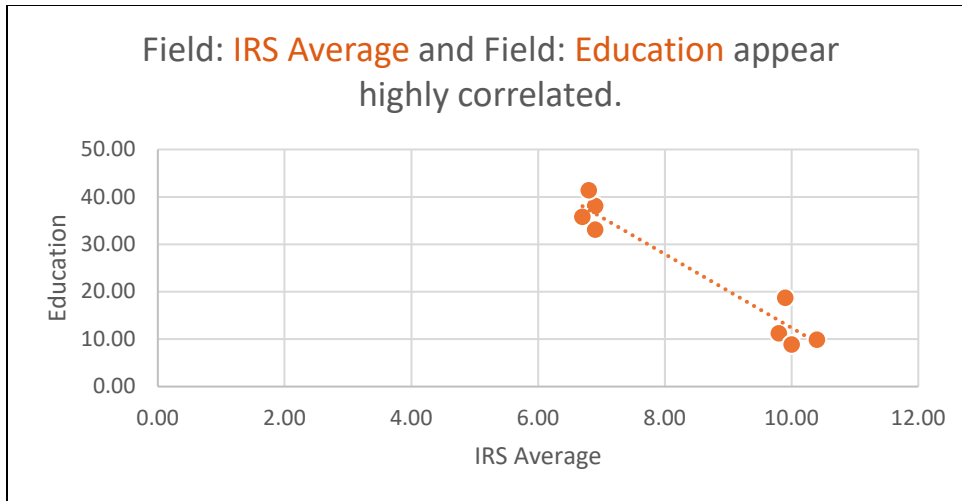


Figure 5: Correlation between IRS audit rate average and general education

Figure 5 shows a correlation towards the opposite direction between IRS audit rate and general level of education of taxpayers of the region at -0.9670 .

4.4 Multiple Regression Analysis

In this section, the discussions are more focus on the relationship between the dependent variable and the independent variables in this study by deploying multiple regression techniques. Multiple regression is the most common technique used in a situation whereby the research is aimed to predict a single continuous dependent variable by a given continuous or classified independent variables (Corporate Finance Institute, 2021). Thus, the result of multiple regressions analyses of the regression model is shown in Table 5.

Table 5: Summary of the Regression Model

Model	R	R Square	Adjusted R Square	St. Error of the Estimate
1	0.9964	0.9928	0.9834	0.2215

The results as measured by which indicate the effect of the independent variables over the dependent variable. This explains the independent variable value of 0.9834 variance in IRS

audit as depicted in Table 5. The adjusted of 98.34% indicates that the variables in this study contributed a high portion in determining their relationship with IRS audit. The result also describes the extent to which IRS audit is impacted by the independent variables.

Table 6 shows how the results from the hypothesis tested in this study are summarized.

Table 6: Hypothesis and Variables Findings

Hypothesis	Variables	R-value	p-value (0.05)	Findings
H _a 1	Poverty	0.9902	0.0440	Accepted
H _b 2	Demography	0.7738	0.2786	Rejected
H _c 3	Unemployment	0.7855	0.0228	Accepted
H _d 4	Education	-0.9670	0.0127	Accepted

First, Hypothesis 1 stated that there is relationship between RGV’s poverty rate and the IRS audit rate. As shown in Table 6, the results indicate that there is a positive and significant relationship between poverty rate and RGV’s audit rate, since the P-value 0.044034 is less than 0.05. Therefore, the hypotheses stated for the study is accepted and supported.

Secondly, Hypothesis 2 stated that there is relationship between RGV’s demography and the IRS audit rate. As shown in Table 6, the result shows a contrary finding with the hypothesis proposed, since the P-value 0.278617 is greater than 0.05. Which indicate there was no significant relationship between RGV’s demography and the IRS audit rate. Therefore, hypothesis 2 is rejected and cannot be supported.

Thirdly, Hypotheses 3 states that there is relationship between RGV’s unemployment rate and the IRS audit rate. As shown in table 6, the finding of the study shows a positive and significant relationship exist between RGV’s unemployment rate and IRS audit rate, since the P value of 0.022791 is less than 0.05. Therefore, hypothesis 3 is accepted and supported.

Fourthly, Hypotheses 4 stated that there is relationship between education level of RGV’s taxpayers and the IRS audit rate. As shown in Table 6, however, the result shows a negative but significant relationship between education level of RGV’s and IRS audit rate, since the P value of 0.012738 is less than 0.05. Hypothesis proposed in this study is therefore accepted and supported.

4.5 Summary of Findings

Having presented and discussed the results from the regression analyses and test of the significant levels Table 7 summarizes the findings of the 4 hypotheses tested.

Table 7: Summary Findings

Alternative Hypothesis	Statement	Findings
H _a .1	There is relationship between RGV’s poverty rate and the IRS audit rate.	Accepted
H _a .2	There is relationship between RGV’s demography and the IRS audit rate.	Rejected
H _a .3	There is relationship between RGV’s unemployment rate and the IRS audit rate.	Accepted
H _a .4	There is relationship between education level of RGV’s taxpayers and the IRS audit rate.	Accepted

Based on table 7 analysis, the research questions and objectives of this study which have been addressed by correlating the variables and conducting a regression analysis on the

variables, can be addressed as follows:

Research question 1: What is the relation between RGV's poverty rate and the IRS audit rate?

From the finding of the analysis, the result shows that there is a positive significant relationship between RGV's poverty rate and the IRS audit rate. Poverty rate in the RGV region was found to be high compared to the national poverty rate and the sampled counties in New Hampshire. This may suggest that the high poverty rate among RGV's taxpayers may have an influence on their tax compliance and hence a high IRS audit rate in the region.

Research question 2: What is the relation between RGV's demography and IRS audit rate?

The relationship between RGV's demography and the IRS audit rate was found positive but insignificant. Although from the data analyzed the population of immigrants and nonimmigrants was found to be high compared to counties in New Hampshire, no significant influence of the same was determined on the high IRS audit in the region.

Research question 3: What is the relationship between RGV's unemployment rate and IRS audit rate?

The relationship between RGV's unemployment rate and the IRS audit rate shows a positive and significant association. Which may suggest that the high unemployment rate among RGV's taxpayers compared to counties in New Hampshire may have led to tax noncompliance which consequently triggered the high IRS audit in the region.

Research question 4: What is the relationship between RGV's education level of taxpayers and IRS audit rate?

Finally, the relationship between RGV's education level of taxpayers and the IRS's audit rate tax was negative but significant. The level of general education among RGV's taxpayers is quite low compared to sampled counties in New Hampshire which also has a low IRS audit rate. This may suggest that the low general level of education among taxpayers in the region may have led to tax noncompliance and hence the high IRS audit rate.

Overall, from the above research questions objectives, the findings support the view that presence of these independent variables namely a high poverty rate, high unemployment rate, and low general level of education among taxpayers in a region may lead to high IRS audit a region. Creating measures that could curb the effects of these variables in a region would help address these underlying factors associated with high IRS audit rate in the region thus minimizing the negative impact of tax evasion and IRS audits to all parties affected.

4.6 Summary of the Chapter

In this chapter, the result of the study was analyzed and presented by using statistical tools to reach the findings. The chapter starts by testing and ensuring the reliability/normality of the data and ensure that the linearity assumption of multiple regression is achieved. This is to avoid the problem of multicollinearity when testing the data using regression analysis. Descriptive statistics were also analyzed to explain the means and standard deviations of the dependent and independent variables of the study. Pearson correlation was also tested to verify the relationship between the dependent and independent

variable and to finding out the significant level of correlation. The findings of the regression analysis were used to test the acceptability of the hypotheses. Discussion of the findings was provided and the research questions as well as objectives of the study were achieved.

CHAPTER V

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

This study investigates the relationships between poverty rate, demography, unemployment rate and general level of education with IRS audit rate of a region, to find out factors associated with IRS audit rate in RGV region. This chapter presents the summary of the empirical findings based on the research objectives and research questions of this study. Furthermore, the significance of the findings in terms of theory, practical and implication to policy makers and other stakeholders presented. Finally, the study provides conclusion and recommendations for future research.

5.2 Summary

This study examines the relationship between poverty rate, demography, unemployment rate, and general level of education of taxpayers (factors influencing tax evasion) with the IRS audit rate. In chapter four, the analyses of the data and research findings are presented. The finding shows that positive relationship exists between poverty rate and IRS audit rate. This indicates that poverty affects RGV's taxpayers with respect to tax compliance hence high IRS audit rate in the region. The second variable i.e., demography has a positive but insignificant relationship with IRS audit rate. The demography of taxpayers' which represented immigrants and nonimmigrant population showed no influence on the IRS audit of the region. Even though

the demography of the region depicts a high population of immigrant and nonimmigrant population mainly because of its geographical location. The data does not show a significant influence of the same on IRS audit rate.

The relationship between unemployment rate and IRS audit rate was found to be positive and significant. This indicates that the level of unemployment is affecting IRS audit rate. The high unemployment rate among RGV's taxpayers compared to sampled counties in New Hampshire is affecting tax compliance leading to a high IRS audit in the region. Finally, with regards to the relationship between the general level of education among RGV's taxpayers and the IRS audit rate, a negative but significant relationship was observed. This indicates that the low level of general education among RGV's taxpayers affects tax compliance and hence a high IRS audit. Which could be associated to the fact that the more the taxpayer is educated and informed on legalities involving tax evasion, IRS audits, and the benefits of paying taxes the more compliant they will be, thus low the probability of an IRS audit on them.

From the hypothetical point of view, three of the hypotheses proposed in this study are accepted, while one is rejected. Hypothesis 1 proposed a positive relationship between poverty rate and IRS audit rate. The result also indicates a positive association exists between the two variables. Thus, hypothesis 1 is accepted. Hypothesis 2 proposed that there is a positive relationship between demography and IRS audit rate. The result of the analysis however indicated an insignificant relationship existed between the variables. Therefore, the hypothesis is not supported and rejected. Hypothesis 3 proposed a positive relationship between unemployment rate and IRS audit. The outcome of the analysis show that a significant relationship exists between the variables. Therefore, the hypothesis is supported and accepted.

Finally, Hypothesis 4 proposed that a negative relationship exists between general level of education among taxpayers and IRS audit rate. The finding of the study indicates that there is significant relationship between the general level of education among taxpayers and IRS audit rate. Which means the lower the level of general education among taxpayers the higher the IRS audit rate probability. Therefore, hypothesis 4 is supported and accepted. Overall, the research findings indicate that hypotheses 1, 3 and 4 are supported and accepted, while hypothesis 2 is not supported and rejected.

The objective of this study is to find out factors associated with high IRS audit rate in the RGV region. The relationship between IRS audit and four identified determinant variables was then studied. This objective was achieved by empirical analysis and the findings of this study. Similarly, the research questions of the study have been the answered as the relationship between the variables were established and confirmed by the findings. The level of IRS audit was also measured and confirmed by the result as discussed in chapter four of this study. Therefore, both the research objectives and research questions have been addressed.

5.3 Theoretical Implication of the Study

The purpose of this study is to find out factors associated with high IRS audit in the RGV region. The relationship between determinants of tax evasion namely: poverty rate, demography, unemployment rate, and the general level of education among taxpayers with IRS audit rate was the analyzed. However, the outcome of the research indicates that the poverty rate, unemployment rate and the general level of education among taxpayers have significant relationships with the IRS audit rate. Demography was found to have insignificant relationship with IRS audit rate. Therefore, this study adds to the existing tax evasion literature from perspective of RGV taxpayers. The result shows that high poverty rate, unemployment rate and

low level of general education among taxpayers in RGV has led to the high IRS audit rate in the region. Whenever the region has a high poverty rate, high unemployment rate and low level of general education it will have high IRS audit rate. Assuming that other factors are held constant, these variables are contributing toward high IRS audit in the region.

From the above discussion, the findings of this study are highly significant to academic researchers, student, as well as tax stakeholders. For the academic researchers, the findings of the study provide evidence from RGV regarding the factors associated with high IRS audit particularly the poverty rate, unemployment rate and level of general education. The result also provides a new dimension in understanding the IRS audit and its determinants. For the student in taxation, the study provides additional knowledge regarding the variables tested and how they are related to the IRS audit. Overall, this study is paramount to all the stakeholders from local government, academic researchers as well as student in taxation.

5.4 Practical Implication of the Study

The findings of this study primarily have practical implications in explaining the relationship between the variables that are examined in this study. It is evident that tax evasion decreases and erode the revenue generated to support government function and IRS audits are costly and have negative consequences on taxpayers. Also, it is critical to note that taxpayers are rationally and mentally ready to comply with the tax authority, but other factors influence their behavior and changes their individual perception toward taxes and evasion. Besides, understanding the determinants of tax evasion associated with high IRS audits, the study also has practical implication to the local government in addressing the variable that affect IRS audit rate through effective tax laws and policies.

This study provides further evidence on exploring the relationship between IRS audit rate and poverty rate, demography, unemployment rate and the general level of education among RGV's taxpayers. The result indicates that RGV's taxpayers are affected with the factors analyzed in this study which in return has impact on IRS audits in the region. The results of the study are beneficial to the tax authorities as well as local government. Tax authorities and local government can use the findings to amend and formulate tax laws and policies by considering the implication and effect on tax evasion. Similarly, the result is also useful to tax practitioners and other stakeholders of tax administration. Finally, the study provides factors affecting IRS audits in the country according to the study of RGV region.

5.5 Limitation and Recommendation for Future Research

Several limitations exist in this study. Firstly, this study is limited to RGV counties and four sampled New Hampshire counties which represent 8 out of 3006 counties in U.S., which means that the findings may not be generalizable. Therefore, future study should consider a larger scope. Another limitation is data unavailability, variable such as corruption, and culture and behavior were not included in the analysis so the results might reflect omitted variable bias.

Lastly, this study only examines four independent variables in relation to IRS audits. This is due to the constraints faced by the author in terms of time limit as well as financial limit. Future research should consider other variables by increasing the number of independent variables to cover more aspect that have not been tested or have conflicting results. In addition, future research can include mediating variables to examine whether they have any influence on IRS audits.

5.6 Conclusion

The number of IRS audits in the U.S. has been on the rise every year leading to increased cost of conducting audits, more taxpayers subjected to rigorous and tiresome audit processes, tax refunds being withheld, and even convictions. Considering this problem, this study was carried out to find out the factors associated with high IRS audits from RGV region perspective. The result of the study provides substantial evidence about factors associated with high IRS audit rate in a region, from empirical evidence of RGV region. Apart from that, the research also suggest that the local government should address those factors associated with high IRS audits by, for instance, creating more employment opportunities, poverty eradication measures, as well as improving the general level of education among taxpayers to facilitate tax compliance and hence reduce IRS audits. A clear understanding of these phenomenon and effective address of these factors by developing appropriate policies to curb the practice will increase tax compliance and reduce IRS audits in a region. Therefore, local government and the entire stakeholders in tax administration and tax practitioners should take note of these factors that influence IRS audits rate and mitigate the problem.

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APPENDIX

APPENDIX

DEFINITION OF TAX EVASION AND TAX AVOIDANCE

Tax Evasion: Popescu (2020) defines the term tax evasion as an actual or potential behavior of the economic subject that can lead to the non-payment of legal obligations due to the State. It is the failure of a taxpayer to pay actual taxes that they owe to the authorities, by deceit, or by concealing the exact amount.

Tax Avoidance: Sk (2018) defines it as the legal minimization of tax liability, including deductions (prescribed by the legislation), tax credits, tax deferral plans among other.

BIOGRAPHICAL SKETCH

Issack Shama Guyo graduated December 2021 with as a Master of Business Administration at University of Texas Rio Grande Valley's Robert C. Vackar College of Business and Entrepreneurship. He is also a holder of a bachelor's degree in Economics and Statistics from Egerton University, Kenya.

He works as a Graduate Teaching Assistant with the Department of Information System at University of Texas RGV. Where is involved in teaching INFS 6391 Information Security and Risk Assessment Analysis – Finding Security Insights, Patterns, and Anomalies in Big Data using Anaconda platform for Spyder and R Studio. He was also involved in developing and teaching INFS 6305, a master's certificate program in UXUI Web Design using HTML, CSS, and JS. and teaching INFS 6309 an iOS Mobile App Development Program using SWIFT programming language. Worked as a Data Analyst with Faculty Success and Student Diversity at UTRGV. Where he was responsible in the collection, analyzation and interpretation of faculty and student data such as dropout rate using R-programming, python, tableau and excel.

He was also a Research Assistant with the Kenya National Bureau of Statistics. Where he was involved in data collection of different surveys such as Kenya Continuous Household Survey Programme (KCHSP).

Upon completion of his graduate studies, he plans to pursue a PhD to further his knowledge and progress toward a career as a researcher. His address is 1709 W Schunior St Apt 405, Edinburg, TX. Email address issack.guyo01@utrgv.edu / issacksharma@gmail.com .