THE DETERMINANTS OF MALAYSIA'S REVENUE: THE ROLE OF E-FILING, TAX ADMINISTRATION AND TAX COMPLIANCE

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THE DETERMINANTS OF MALAYSIA'S REVENUE: THE ROLE OF E-FILING, TAX ADMINISTRATION AND TAX COMPLIANCE

By

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ABSTRACT

THE DETERMINANTS OF MALAYSIA'S REVENUE: THE ROLE OF E-FILING, TAX ADMINISTRATION AND TAX COMPLIANCE

Liew Su Yee

An over RM1 trillion of country's national debt in Malaysia since year 2018 has brought the people's attention to the government's efforts especially the government revenue collection in the payback of the national debt. Tax revenue which is expected to be influenced by the effectiveness of tax administration mediated by tax compliance is the main concern due to its importance and biggest contribution to the government revenue. Due to the importance of tax revenue, the Inland Revenue Board of Malaysia (IRBM) has been established to administer, assess, collect and enforce payment of taxes by the taxpayers. In year 2004, IRBM took initiative to launch the electronic system for tax filing (e-filing) and it is expected to affect the effectiveness of tax administration and, therefore, the tax revenue. In line with this, this research aims to investigate the impact of e-filing (including a comparison manual filing and e-filing) and the effectiveness of tax administration on tax revenue which is important for the government and the nation applying Principal-Agent Approach (Agency Theory) supported by Technology Acceptance Model (TAM) and Theory of Planned Behaviour (TPB). Questionnaires is designed and distributed to the respondents in meeting the research aim. Respondents of this research are formed by all the taxpayers in Malaysia. The data collected is analysed using Partial Least Square Structural Equation Modeling (PLS-SEM). The finding of this research has proven the significant relationships between effectiveness of e-

filing, effectiveness of tax administration, tax audit rule, tax administration costs, tax evasion and avoidance, tax compliance and tax revenue. Other than that, present research has proven that tax compliance acts as a full mediator towards the association among effectiveness of tax administration and tax revenue. Tax authority and government will be benefited from the understanding of importance and connection between the constructs established in the research framework in the effort of raising Malaysia tax revenue.

APPROVAL SHEET

This dissertation/thesis entitled "**THE DETERMINANTS OF MALAYSIA'S REVENUE: THE ROLE OF E-FILING, TAX ADMINISTRATION AND TAX COMPLIANCE"** was prepared by LIEW SU YEE and submitted as partial fulfillment of the requirements for the degree of Doctor of Philosophy in Faculty of Business and Finance at Universiti Tunku Abdul Rahman.

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SUBMISSION OF THESIS

It is hereby certified that Liew Su Yee (ID No: 17ABD05512) has completed this final year thesis entitled "THE EFFECTS OF TAX ADMINISTRATION AND TAX COMPLIANCE ON MALAYSIA'S TAX REVENUE" under the supervision of Professor Dr. Choong Chee Keong (Supervisor) from the Department of Economics, Faculty of Business and Finance, and Associate Professor Dr. Lau Lin Sea (Co-Supervisor) from the Department of Economics, Faculty of Business and Finance.

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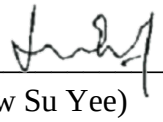

(Liew Su Yee)

DECLARATION

I hereby declare that the dissertation is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at UTAR or other institutions.

Name _____Liew Su Yee_____

Date _____30th August 2022_____

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CHAPTER 1

INTRODUCTION

1.1 Background of this Research

The Malaysia's Minister of Finance reported that Malaysia's total debt has hit RM1.087 trillion on the government's balance sheet, which has included an actual long-term debt of RM885.9 billion in year 2017 (Ministry of Finance [MoF], 2018c). At the end of 2017, the actual debt in Malaysia has translated to a debt per GDP ratio of about 65.5%. This reflects that Malaysia needs to spend 65.5 years in order to payback all its debt with the use of all its GDP to debt repayment only. The federal government total debt has further increased to RM1.169 trillion in year 2019 and estimated to reach RM1.257 trillion by end of September 2020 (MoF, 2020a). Based on MoF (2021), the allocation of federal government total expenditure has raised to RM314.7 billion from the initial budget of RM297 billion. The report further emphasized that the expansionary fiscal policy was implemented by the government due to the prolonged COVID-19 crisis which brought negative impacts on economy (MoF, 2021). In line with this, Malaysia's government revenue has become one of the major concerns as the country needs to have stable and big funding in order to ensure the ability to payback its debts. Takumah (2014) proved that the revenue and spending are interdependent. The government uses its revenue to implement numerous government policies to improve the people's well-being and develop the country (Mohamad, Zakaria & Hamid, 2016). Therefore, the government revenue is not only important to support government spending but it is also important for debt payment.

The Malaysia government is getting its government revenue through two sources, the tax revenue and non-tax revenue. The collection of non-tax revenue involves revenue collected from the licenses and permits issuance fees, fees collected from specific services provided, gains from the sales and rentals of government properties and assets, returns from bank interest and government investments fines and forfeitures (Ullah, 2016). On the other hand, the collection of tax revenue involves collecting taxes directly and indirectly from various sources. This relies on Royal Customs and Excise Department and Inland Revenue Board of Malaysia (IRBM).

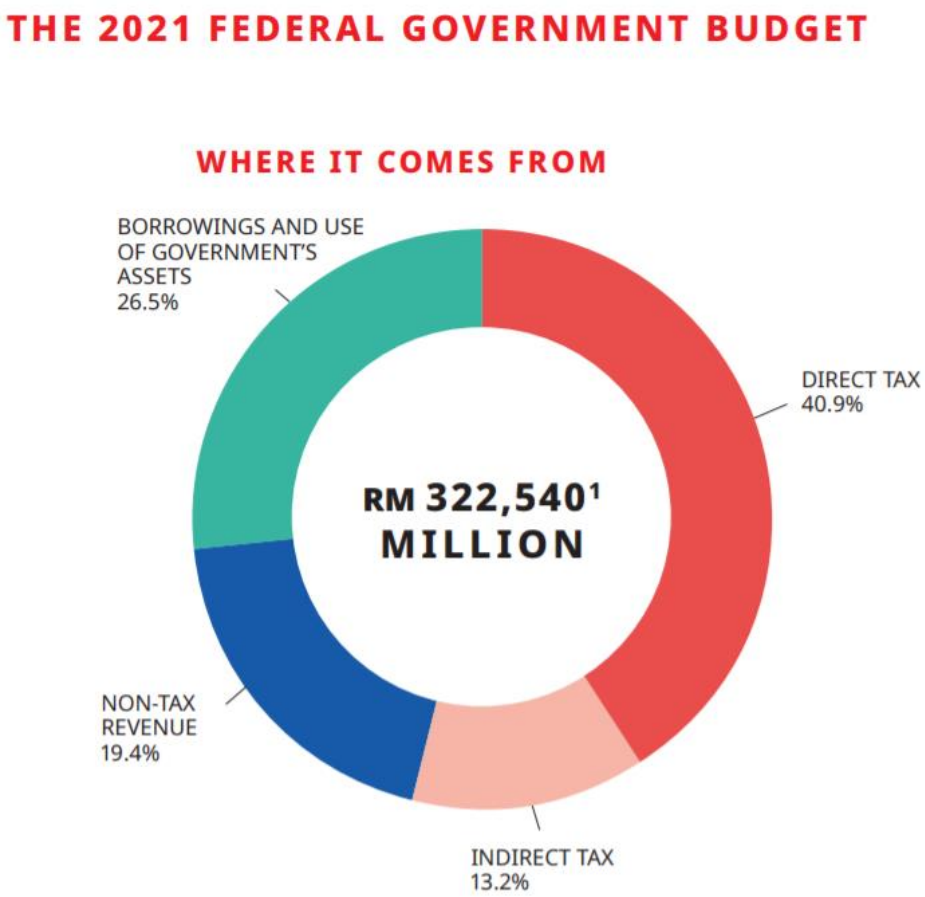


Figure 1.1: Estimated Source of Government Revenue in Year 2021
Source: Ministry of Finance, 2020b

Figure 1.1 represents the estimated source of government revenue in year 2021. The total government revenue is formed by a combination of revenue and

borrowings which is estimated to be RM322,540 million. Approximately 54.1% or RM174,494.14 million of the estimated government revenues comes from the collection of direct tax and indirect tax. The government is estimated to receive 19.4% which is equivalent to RM62,572.76 million of its revenue from non-tax sources and 26.5% or RM85,473.10 million from government assets and borrowings. These statistics further prove that more than half of the government revenue relies on tax collection.

Osundina and Olanrewaju (2013) stated that taxation is an important element in the world as it provides a chance for the government to collect funds that are needed for its crucial obligations. Tax revenue is used for government expenditure such as investing in the society for development, provide public services, build infrastructure for long term growth and many more (OECD, 2010b). Mohamad, Zakaria and Hamid (2016) emphasized that the total tax revenue always contributes the most to Malaysia's government revenue. It is a fact that the direct taxes collected by IRBM devote majority of the government revenue (Mohamad, Zakaria & Hamid, 2016). The tax revenue in Malaysia has been, and still remain as an important source of government revenue (Tabandeh, Jusoh, Nor & Zaidi, 2012). Due to the dependency of Malaysia on the collection of tax as the main source of government funding, IRBM has been established on 1 March 1996 in accordance to the Inland Revenue Board of Malaysia Act 1995. IRBM has become one of the main collecting agencies of the Ministry of Finance and it is responsible for the improvement of quality and the effectiveness of tax administration in Malaysia.

According to Das-Gupta, Estrada and Park (2016), the effectiveness of tax administration brings significant impact to tax revenues. Hence, tax

administration has become very important since the government relies so much on tax revenue as the major contributor to the government revenue. IRBM takes responsibility for the overall administration of direct taxes under "Income Tax Act 1967, Petroleum (Income Tax) Act 1967, Real Property Gains Tax Act 1976, Promotion of Investments Act 1986, Stamp Act 1949 and Labuan Business Activity Tax Act 1990". IRBM is the agent of the government in taking a few tax responsibilities such as tax services administration, tax assessment, tax collection and enforcement (Inland Revenue Board of Malaysia [IRBM], 2019a). Therefore, IRBM plays a crucial role in Malaysia tax administration.

An effective tax administration is ought to ensure high compliance by taxpayers (Center for Tax Policy and Administration [CTPA], 2018). Due to this, tax compliance becomes the major concern in tax administration. High compliance will generate high tax revenue and national revenue (IRBM, 2016). Mohamad, Zakaria and Hamid (2016) stated that many people avoid paying tax when the taxation system is ineffective. In another word, when tax administration is ineffective, tax evasion will become common. High compliance also implies low tax evasion and tax avoidance.

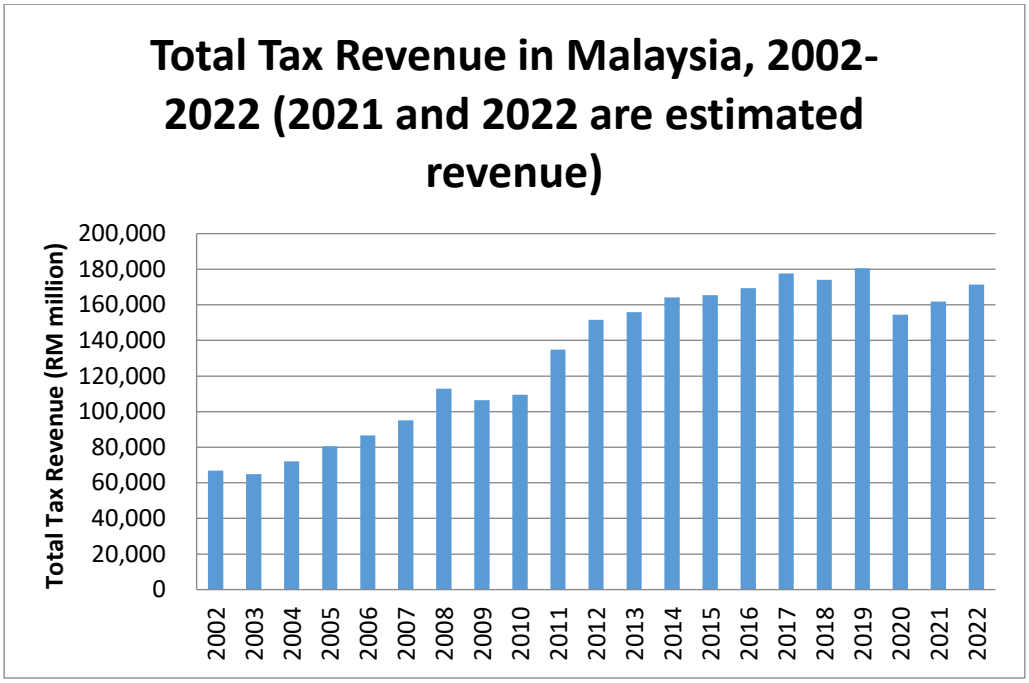


Figure 1.2: Total Tax Revenue in Malaysia, Year 2002 – 2022 (2021 and 2022 are estimated revenue)
Source: Ministry of Finance Malaysia, 2022a

Figure 1.2 shows the Malaysia's total tax revenue from year 2002 to 2022 taking that the tax revenue in year 2021 and 2022 are estimated number. The total tax revenue in Malaysia is increasing gradually from year 2003 until 2017 except for 2009. It is then followed by a slight decrease in year 2018 and an increase in year 2019. The total tax revenue dropped in year 2020 but it is estimated to increase in year 2021 and 2022. From the whole Figure 1.2, the lowest tax revenue was marked in year 2003 (RM 64,891 million) while the highest tax revenue was achieved in year 2019 at RM 180,566 million.

IRBM took the initiative to launch a system for tax filing which does not involve paper or manual filing in year 2004. This system is then called e-filing. E-filing system shortens the time used for tax filing transactions, allows tax officers to issue refunds and assessments faster and improves the accuracy of information. In general, e-filing system cuts down the cost and time used for

handling returns which in turn allows the resources to be allocated to perform other tasks. These benefits match the main aims of IRBM in implementing e-filing. On top of that, IRBM aims to create a good reputation with taxpayers and to allow taxpayers to be able to comply with tax obligations more easily (World Bank, 2013). E-filing can be said as an effort done by IRBM to increase the taxpayers' compliance and tax revenue. Referring to Figure 1.2, Malaysia total tax revenue was decreasing from year 2002 to 2003 right before the implementation of e-filing system. It was then increased rapidly from year 2004 onwards (except for year 2009, 2018 and 2020) upon the introduction of e-filing system.

This study concentrates on tax administration and tax collection of direct tax while ignoring indirect tax. Referring to Figure 1.1, it is shown that direct tax contributes approximately RM131,918.86 million (40.9%) of total federal government budget in Malaysia for year 2021. This makes direct tax to be the biggest contributor of Malaysia's federal government budget in year 2021. Besides that, the implementation of e-filing is introduced for direct tax taxpayers only. Henceforth, it is appropriate to focus on direct tax for present research in the investigation of e-filing, tax administration, tax compliance and tax revenue.

1.2 Problem Statement

Acting as the main revenue source of Malaysia revenue, tax revenue has always been placed at the highest concern of the people and government. Unfortunately, the total tax revenue has decreased from year 2017 to year 2018 (MoF, 2019b). This situation marks the importance of looking into the factors

that lead to low tax revenue in which one of it is tax compliance as tax compliance has been proven to be influencing tax revenue (IRBM, 2016). Besides, the effectiveness of tax administration is important to be assessed as it is another major factor that influence the people willingness to pay tax (Mohamad, Zakaria & Hamid, 2016).

As an effort in improving the effectiveness of tax administration, the government has implemented many strategies to encourage tax filing by the taxpayers. One of those strategies is the implementation of electronic based tax filing system (e-filing). World Bank (2013) reported that during the initial stage of the implementation of e-filing system in Malaysia, Malaysian taxpayers were not ready and reluctant in using it as taxpayers and tax authorities tend to take time in adapting and adopting to the changes in tax systems. IRBM expanded its promotion efforts in year 2008 to encourage the utilization of e-filing system. The use of e-filing has picked up dramatically in year 2012 and this has benefited the tax authority (World Bank, 2013). The rise of e-filing utilization is believed to have brought positive impacts to tax authority and taxpayers in terms of tax administration such as more convenient, lower costs, time saving and etc. Meanwhile, this has also challenged the tax authority by the taxpayers' tax compliance behaviour, in which the taxpayers need to self-assess and take initiative to file tax online. Hence, the effectiveness of e-filing is questionable due to the advantages and disadvantages identified.

According to the president of Chartered Tax Institute of Malaysia, Malaysian tax system has not been reviewed for a long time (Malaysian Investment Development Authority [MIDA], 2018). Therefore, the Tax Reform Committee (TRC) has been established in year 2018 aiming to reduce tax

leakage and tax evasion since it is an inevitable problem. TRC carries the objectives of reducing the tax gap, addressing tax leakage, searching for new sources of revenue, studying the taxation of the digital economy and reviewing the effectiveness of various tax incentives as provided by the law (MIDA, 2018; IRBM, 2019a). It will assess Malaysia taxation system with the objective of making it more efficient, neutral, and progressive without burdening the people, as well as promoting long-term economy productivity (MoF, 2018a). TRC will also study measures to stop the drop in tax revenue by keeping the tax leakages and tax evasion to minimum (MoF, 2018a). In year 2019, the Malaysia's Prime Minister addressed that the TRC was in the final process of finalizing the proposal pertaining to tax revenue enhancement. The proposal from TRC will determine measures to reduce tax leakages, how to access the underground economy, improving tax administration, and finding new sources of revenue (Prime Minister's Office of Malaysia [PMO], 2019).

Based on the objectives and tasks given to TRC, it shows that the effectiveness of tax administration is highly concerned in the effort of improving the economy. However, ways to make tax administration more effective have not been identified seeing the importance of tax administration towards tax revenue. Other than this, taking the issue of tax evasion and avoidance as inevitable issue to the country, the factors that lead to this issue and solutions need to be addressed too.

The importance of tax revenue to the country economy has been highlighted by Tabandeh, Jusoh, Nor and Zaidi (2012) and again by Mohamad, Zakaria and Hamid (2016). MoF (2022b) indicated the significance of ensuring a stable revenue in a country to support expenditure needs and meeting its

objectives. This is proven through fiscal reform activities done via the formation of Tax Reform Committee (TRC) in 2018 to review current tax system and propose new tax measures. Malaysia government shows very huge concern in modernizing Malaysia's tax system and administration via the formulation of the latest revenue framework, namely the Medium-Term Revenue Strategy (MTRS). The MTRS is implemented to ensure sustainable revenue generation in line with GDP growth; to assure better compliance through efficient and effective tax administration; and to intensify the legal framework in strengthening the tax system and policy formulation. MRTS is a timely approach implemented to address current issues relating to government revenue, for example, a narrow tax base, ineffective tax incentives, tax evasion and avoidance as well as untapped informal sectors. A high dependence on direct tax in Malaysia makes an effective and sustainable revenue collection to be crucial in ensuring adequate financing of total expenditures (MoF, 2022b). World Bank (2013) emphasized that tax administration is a function that leads to a successful state. Taxation forms the accountability relationship between government and citizens (OECD, 2008, as cited in Knack, 2009; World Bank, 2013). Therefore, governments need to make sure that the budget decisions are transparent and easy to access when the governments spend taxpayers' money (World Bank, 2013). The establishment of TRC and MTRS has shown the government's high attention in the tax revenue collection that acts as one of the main factors in affecting the economy growth. Therefore, it is essential to study the effectiveness of tax administration and ways to improve it.

1.3 Research Questions

This research aims to identify the effects of the effectiveness of Malaysian tax administration on tax revenue. Since e-filing is part of tax administrations in Malaysia, the present research aims to investigate the effectiveness of e-filing as an effort in improving the effectiveness of Malaysian tax administration and thereafter, the tax revenue. The general questions of this research are:

1. What is the relationship between electronic based tax filing (e-filing) and tax administration?
2. What are the effects of tax administration on tax revenue?
3. What is the connection between tax administration, tax compliance and tax revenue?

These research questions are then divided into eight detailed sub-questions as follows:

1. Does electronic based tax filing (e-filing) increase the effectiveness of tax administration?
2. Does tax compliance mediate the connection between Malaysian tax administration and tax revenue?
3. What are the influences of the effectiveness of tax administration on tax revenue?
4. Is e-filing more preferred than manual filing?
5. What is the relationship between tax audit rule and the effectiveness of tax administration?
6. Do the tax administration costs influence the effectiveness of tax administration?

7. What is the effect of tax evasion and avoidance on tax compliance?
8. What are the influences of compliance costs on tax compliance?

1.4 Research Objectives

Based on the background and discussion set forth, three general research objectives to be addressed in this research are:

1. To determine the association between electronic based tax filing (e-filing) and tax administration.
2. To examine the effects of tax administration on tax revenue.
3. To analyse the connection among tax administration, tax compliance and tax revenue.

Therefore, the below eight specific objectives can be formed:

1. To determine the connection between electronic based tax filing (e-filing) and the effectiveness of tax administration.
2. To investigate the role of tax compliance mediating between effectiveness of tax administration and tax revenue.
3. To analyse the impact of the effectiveness of tax administration on tax revenue.
4. To examine whether e-filing is more preferred than manual filing.
5. To investigate the association between tax audit rule and the effectiveness of tax administration.
6. To determine tax administration costs as the factor influencing the effectiveness of tax administration.

7. To confirm the effect of tax evasion and avoidance on tax compliance.
8. To examine the influence of compliance costs on tax compliance.

1.5 Definition of Terms

1.5.1 Tax

A tax is an amount of money that the taxpayers pay to the government for public services. It is also defined as a charge, toll, tariff, excise, contribution, impost etc. (Collins, 1984). When an individual or a company is taxed, they have to give a portion of their income or profits to the government; when a good is taxed, a percentage of the price has to be paid to the government.

The taxes in Malaysia can be categorised into two main categories, namely the direct tax and indirect tax. Direct tax revenue means tax collected directly from taxpayers who have been levied taxes such as individual income tax, tax on companies, and tax on other persons. Other than that, other examples of direct taxes are petroleum, stamp duty, estate duty and real property gains. The IRBM is responsible to collect direct taxes (Ullah, 2016).

Apart from this, indirect tax revenue is the tax collected not directly levied on the taxpayers such as import duties, export duties, sales tax, excise duties and service tax. The Royal Customs and Excise Department will collect the indirect taxes (Ullah, 2016).

Tax rates are different for all types of taxations as decided and announced by the Minister of Finance during Budget announcement in the fourth quarter of every year, then stated in the website.

1.5.2 Tax Revenue

Malaysia gets its revenue from tax and non-tax revenue sources (Mohamad, Zakaria & Hamid, 2016; Ullah, 2016; MoF, 2020a). The tax revenue is the revenue of tax collection from direct taxes and indirect taxes. Taxes in Malaysia are the important source and the most dependable source of government revenue.

Direct taxes remain as the largest and the most important contributor to the government's tax revenue (MoF, 2019a). The Finance Minister reported that the IRBM has achieved the highest direct tax collection of RM137.035 billion in year 2018. This number has rose by 11.13 percent from year 2017 and it has also broken the highest tax collection record of RM133.70 billion marked in year 2014 (MoF, 2019a).

The revenue collected are spent for current expenditure and development expenditure to provide a variety of facilities and benefits to the public (Taha and & Loganathan, 2008). This shows the importance of maintaining government revenue which mostly depending on tax collection in the development of country.

1.5.3 Taxpayer

Collins (1984) defined taxpayer as the people who pay partial of their income to the government as tax. In the Britain and the United States, taxpayer includes people or organisation that is subject or liable to taxation as taxpayers too (Collins, 1984).

The employed employees, the consumers and the business owners form the taxpayers. Therefore, taxpayers refer to the people who consume, pay income tax and business tax. According to IRBM (2019c), with effect from year 2015, individuals with RM34,000 annual employment income after deduction of Employee Provident Fund (EPF) need to register for tax filing. All individuals, regardless of resident or non-resident, are taxable on all income accruing in or derived from Malaysia.

On top of this, business owners are deemed as taxpayers too. According to IRBM (2019c), the gains or profits from businesses are liable to tax. IRBM defines businesses as sole proprietorship, partnership, individuals, two companies, individual and company, and individual and trustee. Among businesses, Small and Medium Enterprises (SMEs) are the backbone of Malaysia's economy as it stands 98.5% of all the business establishments in Malaysia (SME Corporation Malaysia [SME Corp. Malaysia], 2019). Based on the definition of SMEs shown in SME Corp. Malaysia (2019), SMEs hold the characteristics of firms with sales turnover below RM50 million or having lesser or equal to 200 full-time employees in manufacturing sector. For services and other sectors, SMEs refer to firms with sales turnover below RM20 million or having lesser or equal to 75 full-time employees.

1.5.4 Tax Administration

Tax administration is often related to tax policy (Slemrod & Yitzhaki, 1999). Taxpayers have opportunities to reduce their tax payments by altering their consumption baskets that involve a private cost. This may increase the

probability of detection for evasion behavior. The government policies implementation and the guidelines of the tax administration are usually costly (Slemrod & Yitzhaki, 1999).

In Malaysia, IRBM has been established on 1 March 1996 to help the government in various taxation activities including administering tax. Tax administration tasks that need to be performed by IRBM include processing taxpayers' returns and information, entering tax return data into database, checking and matching returns and filing requirements, processing and matching tax payments against assessments, and issuing assessments and refunds (World Bank, 2013). The Malaysian Tax Academy (MTA) is set up in year 1994 under IRBM in Selangor, Malaysia to plan and implement training programmes to produce efficient and good quality officers in IRBM as an effort of administering tax professionally. Besides that, MTA offers courses that are suitable for tax officers from IRBM and countries surrounding ASEAN as well as Ministry of Finance Malaysia (MoF). The objectives of the academy are to train IRBM officers in taxation and tax administration, strengthen the knowledge and professionalism of IRBM officers to fulfill the needs of the dynamic taxation system as well as widening the perspectives and knowledge of IRBM officers through individual trainings and organisational trainings in and out of Malaysia.

1.5.5 Tax Compliance

Tax compliance refers to completely following the tax obligations. It also refers to reporting income and tax correctly, paying tax by the due date (Atawodi

& Ojeka, 2012). A taxpayer who fulfills all the above stated requirements is considered as complying with tax.

Compliance is very important since it is an important component in determining the national total revenue. High compliance will generate high tax revenue and national revenue while low compliance will lead to low national revenue (IRBM, 2016). In line with this, IRBM has put its effort in improving the voluntary tax compliance that is maximized with a set of measurement inclusive of the taxpayer compliance attitude. IRBM uses risk management approaches to plan and target compliance activities. This means IRBM takes causes and consequences of not complying with tax into consideration during the planning and targeting of compliance activities. Besides that, IRBM uses effective and strategic promotion and publicity activities to increase tax compliance among the general public. As an effort to increase awareness and voluntary compliance among taxpayers, IRBM introduced 'Hasil Friendly Visits' to enforce activities at the taxpayers' business premise. IRBM (2016) emphasized that the past experience of tax audit positively affected the tax compliance behaviour. It is proven that an increase in the total additional tax and penalties collected was observed upon the audit performed to selected industries (IRBM, 2016).

As an effort in increasing tax compliance rates, the Finance Minister mentioned that the government has created a Special Voluntary Declaration Programme (PKPS) from 3 November 2018 until 30 September 2019 to encourage taxpayers to report the unreported taxes by offering a very low penalty rates of 10 percent and 15 percent. The government urged the taxpayers to take

this advantage in clearing their tax compliance issues to avoid paying a higher penalty at 80 percent to 300 percent when the programme ends (MoF, 2019b).

1.5.6 Tax Evasion and Tax Avoidance

Tax evasion exists everywhere in the world. Some firms are willing to join in informal sector to avoid from paying taxes while some others reduce their tax burden by evading taxes through the help from accountants, lawyers, briberies, or other forms of corruption (López, 2017).

Same goes to Malaysia, Malaysia is not exceptional from tax evasion issues as well. IRBM has a platform for the people to report tax evasion cases in Malaysia. On the other hand, there is no platform for the people to report tax avoidance cases as tax avoidance is referring to avoiding from tax in a legal way.

According to Kay (1980), the characteristic to differentiate evasion from avoidance is illegality. However, there is a lot of unclearness in differentiating evasion from avoidance. In line with this, the real substitution responses could serve as a reference in distinguishing evasion and avoidance. Slemrod and Yitzhaki (1999) defined avoidance as reducing someone's tax liability with a fixed consumption basket. There are conceptual and empirical problems in ascertaining evasion. Even though legality acts as the dividing line among evasion and avoidance, but it is often blur due to the law itself is vague, the law is clear but not known to the taxpayers, and the law is clear but the administration is unclear (Slemrod & Yitzhaki, 1999).

1.5.7 Electronic Based Tax Filing (E-filing)

Electronic based tax filing system (e-filing) is a system that allows the taxpayers to do tax filing and submit income tax statement form (Borang Nyata Cukai Pendapatan, BNCP) online (IRBM, 2019b). In line with the launching of Multimedia Super Corridor (MSC) in year 1996 that facilitate Malaysia towards Information Age, the government agencies have taken initiatives to introduce online services to the people (Santhanamery & Ramayah, 2012). This includes IRBM that has introduced e-filing system to the taxpayers for filing and paying taxes through electronic, paperless method in year 2004. Upon the introduction of e-filing, taxpayers can file tax online and this brings convenience to the taxpayers. Apart from the benefits gained by taxpayers, World Bank (2013) stated that e-filing system helps tax officers to complete transactions faster with minimum errors. It cuts costs and time in processing tax filing, checking and matching, and returning. Based on World Bank (2013), IRBM faced a few challenges during the beginning of the implementation of e-filing. One of the main challenges faced was the lack of enthusiasm in using e-filing system during the initial stage.

1.6 Significance of Research

In the effort of complying with Malaysian tax system, the taxpayers need to do tax filing every year manually or via Internet (e-filing). There is an increasing trend in the use of e-filing service by the taxpayers upon the initiatives taken by IRBM since the launching of e-filing service in year 2004 (World Bank, 2013). Cotton and Dark (2017) mentioned that the introduction of a new

technology system will bring impacts to the stakeholders inclusive of taxpayers and government. Due to the benefits enjoyed by the taxpayers who file taxes via internet such as time saving, the effect of e-filing on the effectiveness of tax administration is important to the tax authority as a reference in improving tax administration.

The Finance Minister reported that the national debt has hit RM1.087 trillion in year 2017 (MoF, 2018b). According to MoF (2020b), the federal government total debt has further increased to RM1.169 trillion in year 2019 and estimated to reach RM1.257 trillion by end of September 2020. As such, the government revenue acting as the main source of debt payment is at high concern. Tax revenue is amongst the utmost source of the government revenue (Tabandeh et al., 2012; Mohamad, Zakaria & Hamid, 2016). Therefore, an effective tax administration is crucial to ensure high tax revenue. It is significant to find out what is the impact of tax administration on taxpayers' compliance since higher tax compliance leads to higher tax revenue. This information is important to the government as a whole as the tax revenue collection will directly affect the government revenue, which will then affect the government's activity.

Many researches were carried out to determine the tax compliance of taxpayers. Researchers emphasized on taxpayers' compliance but none of the researchers integrated tax compliance into the context of tax administration or incorporated tax administration in tax compliance. According to Slemrod and Yitzhaki (2002) (as cited in Wahab, 2013), authority always want to integrate tax administration and tax compliance. However, this has not been done as administrative costs are harder to be hypothesized due to the discontinuity and parallel directions with tax rates. Therefore, this research is significant as it will

fill the gap academically through the determination of how tax administration influences taxpayers' compliance. On top of that, this research will incorporate three theories in relating the effectiveness of e-filing, effectiveness of tax administration, tax compliance, and tax revenue. The theories involved are Technology Acceptance Model (TAM), Principal-Agent Approach (Agency Theory) and Theory of Planned Behaviour (TPB). As there is no previous research incorporating these three theories in the study of taxation, this research will furnish the existing literature.

One of the main roles of Malaysian tax administrator, IRBM, is tasked to manage and improve tax compliance. In the effort of improving tax compliance, IRBM has formed anti-avoidance provisions to reduce tax avoidance and tax evasion (Wahab, 2013). Wahab (2013) added that the challenge faced in improving tax compliance is a global tax administration issue that happens in countries like Australian, New Zealand, United Kingdom and Croatia. Tax evasion and avoidance is crucial in influencing tax compliance that affects national revenue. This issue is critical to be solved as non-tax compliance affects tax revenue and government revenue (Wahab, 2013). Evidence shows that large number of successful tax evasion caused large amount of loss in tax revenue (Slemrod, 2004). Hence, this research is significant to government and tax authority in realizing the ways to improve tax compliance through its connection with tax administration which will then increase tax revenue.

IRBM has put in a lot of effort to improve taxpayers' tax compliance in the past decade but the issue of tax evasion is still inevitable. As tax evasion that measures tax compliance influences Malaysian tax administration, the mediating effect of tax compliance towards the effectiveness of tax administration and tax

revenue is questionable. Despite that, no researchers have done any study to find out how does tax compliance mediate between effectiveness of tax administration and tax revenue. This research will investigate the mediating effect of tax compliance between the effectiveness of tax administration and tax revenue. Hence, the results obtained from this research will furnish the existing literature.

The introduction of e-filing has helped the government to cut costs and time in tax assessment, tax returns and many other tax activities (World Bank, 2013). Besides that, in line with the implementation of e-filing, the tax revenue and tax compliance have increased too (World Bank, 2013). These proved that the implementation of e-filing system has achieved the objectives of its implementation and it is an effective system. However, there's no contrast within e-filing and manual filing addressed by the previous researchers. It is believed that e-filing has a different level of effectiveness from manual filing since e-filing brings convenience to taxpayers in tax filing process and ease tax filing related processes conducted by tax officers (World Bank, 2013). Hence, the present research will fill the gap by showing the comparison between manual filing and e-filing through the effectiveness of e-filing. The results obtained will most likely help the tax administrator to improve the tax administration in terms of e-filing.

1.7 Organisation of this Study

The thesis consists of five chapters in which Chapter One introduces this research by overviewing the background of research, research problems,

research objectives and research questions. It also includes the proposed methodology and the meaning of the terms used in this research. The significance of research is included before the presentation of the organisation of this research and the chapter conclusion were drawn.

The subsequent chapter, Chapter Two includes a thorough review of previous research covering the background and theories of the related research. This chapter also presents the literature of the constructs chosen for this research followed by proposing the research framework. The detailed explanation of all the constructs and research hypotheses are included in this chapter too.

The methodologies used are discussed in Chapter Three. This chapter focuses on research paradigm, sampling design, methodology, and data collection procedures and data analysis.

Chapter Four reports the empirical results gained from this research and survey. It covers the statistical analysis for this research. The results displayed inclusive of reliability and validity of this research. Furthermore, the relationship between constructs are shown too. Mediation effect of the mediator and chapter conclusion are included before this chapter ends.

Chapter Five discusses the conclusions drawn from present research. The interpretation of all analyses, the presentation of the contributions and limitations concluded for present research are discussed before the recommendations and directions for future research are being presented.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Literature review is a step-by-step process that discuss, evaluate and document released and unreleased works from secondary data sources in relation to the topic of interest. A review of literature would help the researchers to prevent from wasting resources in reinventing the wheel and gather information from previous studies. In short, a good literature review helps in framing a good research framework for further investigation. Besides that, it also helps to provide the foundation to build a comprehensive theoretical framework and hypotheses (Sekaran & Bougie, 2016).

The whole Chapter 2 is separated into thirteen sections. This section serves as the first section showing an introduction continued with the discussion of the literatures concerning tax administration and its underpinning theory in second and third section. The fourth section of this chapter conceptualises tax compliance with subsections covering tax evasion and avoidance as well as compliance costs followed by the underpinning theory of tax compliance in the fifth section. This chapter continues with the review of literature on the effectiveness of e-filing in the sixth section and its underpinning theory in the seventh section. A summary of tax revenue and its related past studies have been included in the eighth section. The application of the Principal-Agent Approach supported by Theory of Planned Behaviour and Technology Acceptance Model is discussed in the ninth section while the research framework and the summary on the exogenous variables, endogenous variables and mediator are being

included in the tenth and eleventh section respectively. The twelfth section of this chapter discusses the research hypotheses formed according to the detailed literature review discussed in the preceded sections. This chapter is concluded after the hypotheses development.

2.2 Conceptualising Tax Administration

Tax administration refers to the administration, management, conduct, direction, and supervision of the execution and application of the internal revenue laws and regulations to the country. It includes assessment, collection, enforcement, litigation, publication, and statistical gathering functions under the revenue laws (Kowalski, 2008). One of the major developments in Malaysia's tax administration is the introduction of self-assessment in year 2001 and 2004 for corporate taxpayers and all other taxpayers respectively (Loo, Evans & McKerchar, 2012). It has the primary role of investigating and deterring criminal behaviour through managing tax compliance and assist taxpayers executing tax obligations with simplest and least burdening compliance by offering service and education to taxpayers (Khwaja, Awasthi & Loeprick, 2011). Taxes are usually administered by taxpayers' registration and filing under a well-established tax system. Tax authority will act as the party to ensure the tax compliance via verification based on a few methods: auditing taxpayers' account books, conducting physical control, and tax stamps (World Health Organization [WHO], 2010). Many governments used tax administrative measures such as fines, penalties, rates and tax audits in ensuring tax enforcement (Chebusit, Namusonge, Oteki & Kipkoech, 2014; Kariuki & Zachary, 2019). Tax

administration is seen as a producer which engaged in the production of outputs combining different types of inputs (Afonso, Schuknecht & Tanzi, 2010; as cited in Nguyen, Prior & Van Hemmen, 2020). Nguyen, Prior and Van Hemmen (2020) highlighted the importance of examining the efficiency of different tax administration organisations in measuring public sector efficiency. The higher efficiency of tax administration organisations holds the same concept as producing more outputs with the same inputs or producing the same outputs using fewer inputs.

Alm and Beck (1993) stressed a strong law enforcement and tax administration will increase tax compliance upon the implementation of tax amnesty. In the effort of ensuring high compliance by the taxpayers, the tax administrative agency needs to have strategies ready to ensure minimum non-compliance (CTPA, 2018). Besides that, administrations also need to have the competencies of dealing with increasing number of taxpayers and the amount of information to manage the complexities of tax (Cotton & Dark, 2017). Other than these, the administrative agency needs to evaluate the current and potential tax policy with the consideration of rule of laws on necessary amendments of tax policy to deal with the tax avoidance issues (CTPA, 2018).

According to Antonakas, Giokas and Konstantopoulos (2013); Rahman (2009) (as cited in Antonakas, Seimenis & Konstantopoulos, 2014; Antonakas, Konstantopoulos & Seimenis, 2014), except for improving total government revenue, a good tax administration is also important for the entrepreneurship as some businesses will bear heavier tax obligations. Besides that, Rahman (2009) (as cited in Antonakas, Seimenis & Konstantopoulos, 2014; Antonakas, Konstantopoulos & Seimenis, 2014) emphasized that the promotion of formal

business activities, investment and economic growth are affected by a tax administration too. The government revenue will face loss if the businesspersons bribe for lower tax assessment. As such, Cotton and Dark (2017) raised that the tax administration needs to be more transparent, more efficient and responsive to cater the needs of both taxpayers and the government.

Knack (2009) used survey question titled "Efficiency of Revenue Mobilization" (ERM) from the World Bank's "Country Policy and Institutional Assessments" (CPIAs) as the data for the study. Tax administration is part of the ERM criteria which include tax collection, costs incurred on tax collection, tax compliance, compliance costs, complication of tax laws, dishonesty of tax officers, and availability of appeal mechanisms. This study applied OLS regressions estimation to test the data.

Das-Gupta, Estrada and Park (2016) conducted research to measure the effectiveness of tax administration and its impact on tax revenue. This study mentioned that tax administration related online and offline supporting documents such as forms, the procedural manuals and rules of tax administration as well as other relevant documents should be easily accessible to both tax administrators and taxpayers. It found that external audit reports could reveal the effectiveness of tax administration and uncover the loss of tax revenue.

Tax administration has ensured compliance with the tax laws (Alm, 1999). It is believed that considering tax avoidance, tax evasion and tax administration is crucial in taxation analysis (Slemrod & Yitzhaki, 1999). This has raised the eagerness of the governments of developing countries to work on modern tax

systems as weak tax administrations harm the economy (Berhan & Jenkins, 2005).

2.2.1 Effectiveness of Tax Administration

The effectiveness of tax administration is an important concern as it is recognized as a potential significant determinant of tax revenue (Das-Gupta, Estrada & Park, 2016). An effective tax administration should ensure high compliance by the taxpayers and maintain lower administrative costs as compared to tax revenue collected (WHO, 2010). There are five areas contributing to the effectiveness of tax administration inclusive of tax administration powers and procedures, inputs, input allocation, quantity of outputs and quality of outputs (Das-Gupta, Estrada & Park, 2016). The researchers constructed a measurement for tax administration, tax administration measure of effectiveness (TAME) to compare and contrast the level of effectiveness of a few tax administrations. Antonakas, Giokas and Konstantopoulos (2013) realized that the effectiveness of tax administration will reduce with the existence of corruption in tax administration which decreases the tax revenue receive by the government.

The importance of an effective tax administration can be seen from the outcome of tax amnesty programs implemented in Indonesia. Tax revenue in Indonesia was successfully raised from tax amnesty program implemented in 2016-2017 whereas similar tax amnesty programs held in year 1964 and 1984 were unsuccessful (Hajawiyah, Suryarini & Tarmudji, 2021). Huda and Hernoko (2017) found that a lack of effective tax administration system had caused the

unsuccessful tax amnesty program in 1964 and 1984 which had then been improved during the same program in 2016-2017 that led to a success raise of tax revenue.

With an effective tax administration, tax revenue will increase. This is also proven by Das-Gupta, Estrada and Park (2016) that the revenue gained from an effective tax administration is approximately 60% of the revenue collected in Andhra Pradesh. Meghalaya could have collected 148% of its collected tax revenue if its effectiveness of tax administration was similar to Andhra Pradesh. The effectiveness of tax administration plays an important role in developing countries in terms of its tax collection. In short, the returns from the improvement of tax administration are high and this can be seen more significantly in countries that are less developed in terms of its tax administration (Das-Gupta, Estrada & Park, 2016). Makori, Alala, Owola, Musiega, Gogo and Kipchumba (2013) found that Kenya had a hard time to ensure an efficient and effective tax administration and tax compliance which will raise more revenue.

Keen and Slemrod (2017) mentioned that the traditional way to calculate the effectiveness or the performance of tax administration is just a simple comparison of cost-revenue ratios. Besides the comparison of cost-revenue ratios, the performance of tax administration can be assessed based on the concept of the ‘compliance gap’ which means the gap between tax legally due and actual tax collected.

Alm (1999) used audit selection, discovery of tax evasion, tax amnesties, and social norms to assess the effectiveness of tax administration. Silvani and Baer (1997) stressed that the effectiveness of tax administration relies on the

effectiveness of tax audit. Zandi and Elwahi (2016) concluded that an effective administration of tax audit by IRBM will improve taxpayers' compliance which will pull down tax evasion in Malaysia.

2.2.2 Tax Audit Rule/ Outcome

Tax audit refers to the assessment of records, returns and other documents preserved by the registered tax auditor to examine the accuracy of turnover declared, taxes paid, refund claimed and to determine tax compliance (Goel, 2018). Silvani and Baer (1997) outlined the significance of tax audit in forming an effective tax administration. Yusof, Ling and Wah (2014) investigated that tax audit managed to uncover concealed income in Malaysia. It is further confirmed that Malaysia has a widespread of tax non-compliance which leads to high lost in tax revenue. Tax audit plans guide the management of functional area that stands for the largest proportion of a tax administration's resources which plays the most crucial role in compliance management (Biber, 2010). Based on Silvani and Baer (1997), the example of several countries that have successfully improved in tax collection process with effective tax audit programs on taxpayers has been used to explain the importance of tax audit on taxpayers in the measurement of the effectiveness of tax administration. These countries were found to have improved in its compliance and collection during the first few years upon the improvement of tax collection process. However, this situation did not sustain due to the tax audit programs were weak. Besides that, the compliance rate in Denmark marked one of the highest in the world due to its strong and sophisticated audit program. Benkraiem, Uyar, Kilic and

Schneider (2021) concluded that the impacts from ethical behaviour and audit regulations are more prominent in high income countries compared to middle income countries. According to Biber (2010), an audit programme carried out in a modern tax administration should include more than just verifying taxpayers' reported taxes and detecting the discrepancies between taxpayers' declaration and supporting documentation but it should result in an increase of tax revenue. Tax audit allows tax administration to educate taxpayers on tax obligations which improves compliance (Khwaja, Awasthi & Loeprick, 2011). Auditing and accountability will increase tax transparency and encourage voluntary compliance among the taxpayers (Peprah, Abdulai & Agyemang-Duah, 2020). Apart from this, it also enables tax administration to collect information pertaining to the health of tax system and tax evasion techniques (Khwaja, Awasthi & Loeprick, 2011). An effective tax audit programme will improve the tax administration significantly (Belay, 2017). In short, auditing is necessary to detect evasion or underreporting of taxes as part of tax administration. Expanding tax audit program could improve the effectiveness of tax administration.

According to Khwaja, Awasthi and Loeprick (2011), aspects like training and incentive programmes designed for tax personnel, the technological advancement, and sufficiency of the legal framework for audits are important in forming an efficient and effective tax audit strategy. Santoro (2017) suggested that an optimal audit rule should be set and stuck with. Although the original Allingham and Sandmo model (AS model) assumed random audits but the Revenue Agencies usually adopt non-random audits. Revenue Agencies usually use different thresholds in different forms without enclosing it to the public. This

study concluded that with a publicly announced audit rule, the taxpayers could respond rationally by grabbing the opportunities to evade.

There are various ways to decide individual returns for tax audit. Belay (2017) pointed three main methods used in selecting taxpayers which are manual screening that serves as one of the oldest audit selection methods used when tax administration was limited before the integration of information technology, random selection and risk-based audit selection focusing on taxpayer noncompliance risks. Alm (1999) emphasized that the easiest and most popularly studied audit selection method is random audit rule. Belay (2017) further emphasized that stratified sampling is a more commonly in used kind of random selection for audit. Based on Alm (1999), the taxpayers face a fixed, predetermined probability of audit in this method. However, many audit selections are highly depending on the taxpayers' tax returns. As a prove to this finding, the tax agency or government usually uses information from the tax returns in deciding who to be audited. Therefore, it can be explained that the probability of audit is depending on the behaviour of the taxpayer and the tax authority. The principal-agent approach applied in this study confirmed that many tax authorities tend to follow an audit selection rule that is close to a cutoff rule which the agencies have high probability in auditing taxpayers' low reports and not auditing high reports at all (Alm, 1999). Risk-based audit selection is the most preferred audit strategy implemented in many developed countries' tax administrations which work based on certain attributes or knowledge acquired during former audit activities. Nevertheless, this strategy involves costs related to information technology systems (Belay, 2017).

2.2.3 Tax Administration Costs

Yitzhaki (1979) explained that tax administrative costs refer to the costs incurred in the taxation administration. Administration of tax is needed to handle the assessment and the collection of taxes. An administrative cost is assumed with each taxed commodity. Slemrod and Yitzhaki (2002) (as cited in Wahab, 2013) found that the authority always wants to integrate tax administration and compliance. However, administrative costs are harder to be theorised despite of both administration and compliance incur significant costs. Silvani and Baer (1997) explained administrative costs as tax compliance costs.

The Allingham-Sandmo-Yitzhaki model is applied into the study done by Slemrod and Yitzhaki (1999) in determining the tax evasion behavior of taxpayers. A cost will incur on tax collection agency in observing the taxpayers' payment behavior. The probability of an individual to evade tax will reduce if there is a probability to detect an understatement of tax and involve a penalty that is higher than the initial tax liability. The more risk-averse individuals will deter from tax evasion, *ceteris paribus* (Slemrod & Yitzhaki, 1999).

Alt (1983) found that collecting taxes from organized business is easier than from households. The adoption of VAT imposes compliance costs while administrative costs remain the same. This study emphasized the role of administrative and costs of compliance in the evolution of tax structures.

Turner, Smith and Gurd (1998) defined administration costs as the costs to the government in the effort of collecting taxes. These costs include the salaries and wages paid to the staff in relevant to tax collection agency such as accommodation costs, postage, travel expenses etc. According to Knack (2009),

the cost of administration will rise when the tax revenue rises. However, Langenmayr (2017) confirmed that when more individuals pay tax, the costs of administration would be lesser.

The government set maximum fine for tax evasion when it faced positive marginal costs of auditing (Kolm, 1973). Frey (2003) described that tax administration true costs inclusive of auditing and its related costs as well as the cost of making sure the taxpayers to pay taxes.

Wahab (2013) used staff cost to represent authority's administrative cost in the study. The study proved that administration cost positively connected to tax revenue. The Bavarian finance ministry reported that a skillful tax examiner hired for tax inspection increased the government costs by about 10 Euros per hour as compared to the other employees working with the tax authority (Langenmayr, 2017).

Sokolovskyi (2018) listed the tax inspection costs based on the Allingham and Sandmo model found in year 1972. The author confirmed that checking declarations involves cost, namely the inspector's salary that is depending on the inspector's frequency of checking of declarations, resource cost that used by the inspector for controlling, and the cost of training for inspector. Therefore, it is significant to consider the cost of inspections from the perspective of taxpayer and tax inspector (tax administrator).

Yitzhaki (1979) noted that the administrative cost of taxation is one of the major factors that prevent from an increase in the number of taxed commodities. The study concluded that the administrative cost rises when the government expenditure rises and defined the marginal cost of administration as the

additional expenses needed in raising an additional dollar of tax revenue. In another word, tax administration cost will increase as an effort in increasing tax revenue. Bolodeoku (2008) stated that the costs of collection and the transition costs incurred due to legal reformation are considered as part of tax administration costs. Recommendation to collect tax from the micro, small and medium enterprises using group or association taxation method is proposed to reduce the cost incurred from tax collection as the tax authorities can connect with the taxpayers through associations easily (Peprah, Abdulai & Agyemang-Duah, 2020).

In short, tax administration costs are the costs incurred due to the assessment and collection of tax. Tax administration costs consist of costs to observe the taxpayers' payment behaviour, salaries and wages paid to the staff in relevant to tax collection agency, auditing costs and costs incurred in ensuring the taxpayers to be willing to pay, tax inspection costs, costs of collection and transition costs.

2.3 Theory Underpinning Tax Administration

Isaac and Kazungu (2016) connected the central government, local authority, tax administration system and taxpayers in the context of tax revenue collection. This study employs the principal-agent theory to understand the relationships between the key elements in tax revenue collections. This theory also helps to understand the connection between various administrative levels within authority and the relationship between citizen and political leaders. Das-Gupta, Estrada and Park (2016) found that external audit reports could be used

to examine the effectiveness of tax administration. Other than this, the reports are useful to identify the loss of tax revenue due to an ineffective tax administration. With reference to this, several theoretical frameworks used in past studies have been identified. Agency theory was used as a general model of tax administration (Klitgaard, 1988; Kiser, 1999; Rose-Ackerman, 2013). The same theory has been used to evaluate the success and the effectiveness of the new patrimonial administration in terms of tax administration (Kiser & Sacks, 2011).

The principal-agent approach or agency theory has led the discussion of tax administration in the context of assessment – audit (Alm, 1999; Alm, 2011; Kleven, Kreiner & Saez, 2016). This theory concentrated on the taxpayers' compliance behaviour as a reaction of the tax agencies' audit rules (Alm, 1999; Alm, 2011) and criteria and how audit information makes tax enforcement to be successful (Kleven, Kreiner & Saez, 2016). Bloomquist (2011, 2012) used agent-based approach to examine how does the audit strategy influencing tax compliance behaviour. Besides, the principal-agent approach was frequently in use in the phenomenon of corruption as well (Micah, Ebere & Umobong, 2012). This research explained that the principal in this approach usually refers to a person or organisation whose behalf the agent who will make decision to reduce compliance or increase corruption.

Based on Alm (1999), an appropriate and correct selection of audit rule will raise the tax revenue at least as much as the revenue raised under random audit policy. According to Das-Gupta, Estrada and Park (2016) and CTPA (2018), a higher tax revenue collection depicts an effective tax administration;

therefore, setting an appropriate and correct audit rule represents an effective tax administration.

2.3.1 The Principal-Agent Approach (Agency Theory)

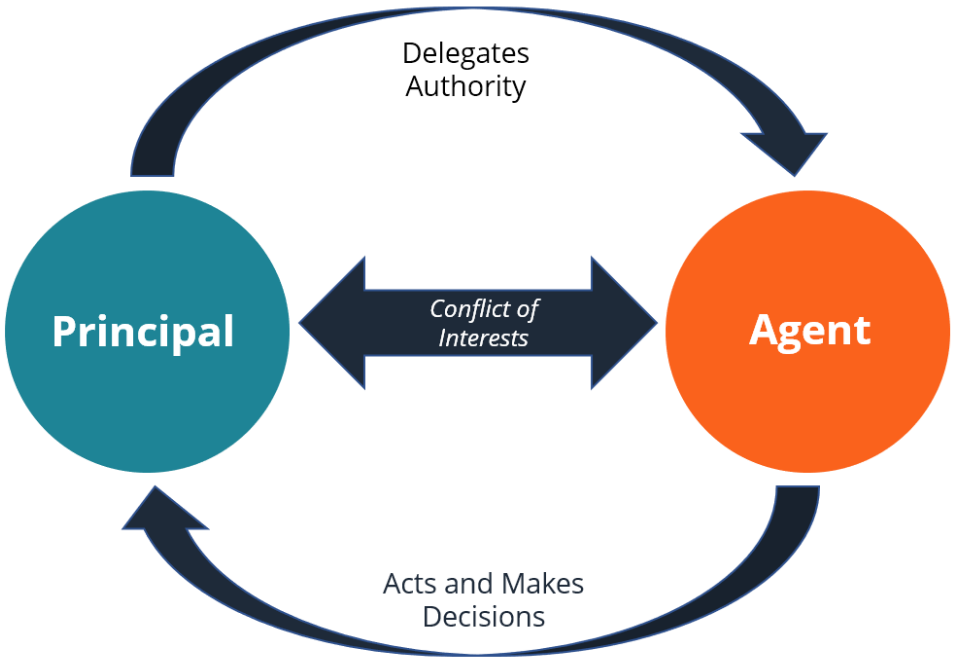


Figure 2.1: Principal-Agent Approach (Agency Theory)

Figure 2.1 shows principal-agent approach (agency theory) that studies the separation issue between owners and managements and reduction of this problem in business. This theory helped in implementing various actions in the effort of solving the separation issue between principal and agent by controlling the agents' action (Panda & Leepsa, 2017). Agency issues presence in various academic fields inclusive of accounting, finance, economics, political science, sociology, organizational behaviour, and marketing. Due to the wide spread of agency issues, agency theory has become one of the most important theories in the finance and economic literature (Panda & Leepsa, 2017).

Adam Smith (1776) is one of the pioneering researchers to discuss the agency issue. Then, many economists started to cultivate the aspects of agency theory. According to Smith (1776), if an organisation is run by the non-owner(s), then there is a possibility that they do not work for the benefit of the real owners.

Ross (1973) was one of the researchers that studied agency theory in the aspect of economics (Panda & Leepsa, 2017). Ross (1973) viewed agency problem as a problem of incentives. Ross (1973) then viewed that the principal-agent problem was resulted from compensation decision not only appeared in the firm, but also existed in the society. Panda and Leepsa (2017) reviewed that Eisenhardt (1989) categorized the agency theory into positivist agency model and principal-agent model. Bloomquist (2011) emphasized that the ability of collecting large amount of data from heterogeneous agents in which an 'agent' is referring to the owners of small businesses is important.

Ross (1973) and Eisenhardt (1989) views of agency problem are parallel with Alm (1999) which viewed that the audit selection rule, the cutoff rule will influence the taxpayers to be compliant to tax payments. The tax agency will set a cutoff level and audit the taxpayers who report less than the cutoff level. In other words, the audit will not be applied on the taxpayers who pay tax above the cutoff level. Hence, this group of taxpayers just need to pay the reported tax liability (Alm, 1999). Therefore, the taxpayers who report less than the cutoff level will be the taxpayers who truthfully subject to lower tax liability while the taxpayers who are subject to tax liability above the cutoff level will report a higher tax. Based on Alm (1999), the tax agency will select the best cutoff level of income in its effort of administering tax to maximize its revenues if it does not have budget constraint while carries the aim of maximizing its revenues.

Agency theory is used as a general model that provides understanding for tax administration. Kiser and Sacks (2011) modeled tax collection systems as agency relations considering the ruler as principal while state officials who carry out delegated policies are regarded as agents. With reference to this, present research considers government (ruler) as principal while IRBM (tax official) which perform tax related matters on behalf of government as agent in agency theory.

According to Rose-Ackerman (2013), the tax collectors (agents) may involve in corruption by exempting individuals or firms from taxes which would lead to a loss in tax revenue. Corrupt tax collectors will not perform tax administration effectively based on the government's (principal) desirability. In relevance to this, the corrupt tax official is having conflict of interest with the government in administering taxes.

2.4 Conceptualising Tax Compliance

Tax compliance refers to a voluntary behaviour that the taxpayers report all income earned (Yew, Milanov & McGee, 2015). It is found to be influenced by various factors such as the taxpayers' perceptions on how fair is the tax, the importance of social norms, and the chances of being detected and penalized (Franzoni, 1999; as cited in Yew, Milanov & McGee, 2015). The reinforcement of tax compliance is greatly prioritized in many economies since an improvement of compliance can increase revenue and build strong trusted institutions (Keen, Toro, Baer, Perry, Norregaard, Ueda, Brondolo, Cleary, Hutton, Luca, Rojas, Thackray & Wingender, 2015). Money saved from tax

noncompliance could be spent for worthy government projects or spread it to the compliant taxpayers through a cut of tax rate (Slemrod, 2019).

Webley, Adams and Elffers (2002) conducted qualitative research to find out the factors that influence Value Added Tax (VAT) compliance in the United Kingdom. The experimental study has not provided the causal evidence that they were looking for. However, the study confirms that mental accounting, equity, tax compliance, penalizations, personality and satisfaction with the tax authorities are the factors that influence VAT compliance. Two models are relevant to this study, namely Australian Taxation Office (ATO) Compliance Model by Braithwaite (2002) and the Willing-Being-Able-Daring model (WBAD) by Elffers (1991). The WBAD describes broad categories of taxpayers but does not show the way of people converting to be willing to evade. The ATO model considers the way of understanding and improving taxpayer compliance whilst concentrates on tax authorities. This study combines the two models and produces a hierarchical model that looks at the characteristics of the taxpayers and tax authorities and suggests the strategy to be employed depending on people willingness, ability and daringness. Other than this, the model includes the concept that people can change their behaviour towards evasion. Che Rosli, Ming Ling and Embi (2018) concluded that the high net-worth individuals in Malaysia would not take the risk of their images due to the need to pay a higher tax.

Ethics, norms and legitimacy were found to affect tax compliance. The taxpayers' identities, the way the taxpayers place themselves socially were said to be the influences of tax compliance too. The notion of identity is the key to responsive regulation (Wenzel, 2007). Taxpayer compliance behaviour may be

influenced by the attitudes toward tax authority while some taxpayers comply to tax due to the sense of civic duty (Slemrod, 2019). Wenzel (2007) further discussed that taxpayers may categorize themselves in various categories. Based on self-categorisation theory, the taxpayers' goals and values, their commitment to interests and norms, as well as their perceptions about ethics and legitimacy towards tax will be affected referring to the way they categorize themselves in the tax system. Taylor (2002) focused on an approach to understanding the motivations underlying taxpaying behaviour. Theory of self-categorisation argues that self can be unique and different from the others. A psychological transformation from 'me' to 'we' and 'him' to 'them' will change a person's perception and behaviour. Tax compliance will then be influenced. According to Austin, Bobek and Jackson (2021), the negative feelings arisen in taxpayers who face loss will determine the level of moral disengagement and affect tax compliance behaviour. The expansion of prospect theory in this research concluded that negative feelings induce moral disengagement which acts as the main determinant of one's risky and unethical decisions such as tax noncompliance. OECD (2004a), OECD (2004b) and OECD (2004c) identified individual factors, perceived fairness of the taxation system and coordination problem as the significant determinants of tax compliance. Individual factors refer to demographic characteristics, perceived fairness of the taxation system is the taxpayers' fairness assessment based on the level of taxes to pay, the fairness of treatment received by the taxpayers compared to other taxpayers and the use of funds by the government whereas the coordination problem is referring to the environmental influence such as peer influence.

IRBM increases compliance and fight tax evasion among businesses in order to protect the country's future (Wahab, 2013). Che Rosli, Ming Ling and Embi (2018) suggested that IRBM should administer tax audits more regularly to combat tax evasion which can improve tax compliance through an increase of tax audits on high net-worth individuals in Malaysia. According to Mohdali, Isa and Yusoff (2014), threat of punishment does not bring impact to the Malaysian taxpayers who are tax compliance yet it triggers the taxpayers' intention to be less compliant by avoiding taxes under the threat from tax audits and penalties. Tax authorities are given advice to reward taxpayers who comply to tax laws instead of punishing taxpayers as an effort in increasing tax compliance among Malaysia's taxpayers (Yunus, Ramli & Abu Hassan, 2017).

As the previous analyses of tax compliance had relied on the Becker's economics of crime approach originated in year 1968, Alm (1999) explained that this approach concluded that an individual pays taxes just because of the fear of being detected and punished. In line with this, it means the tax compliance can be improved with a rise in the penalty and audit rates. Other than the economics of crime approach, the past studies relied on the expected utility theory as well. This study further extended the theory by concentrating on why people pay taxes but not why people evade taxes in the understanding of tax compliance behaviour (Alm, 1999).

According to Huseynov and Klamm (2012), the first theoretical tax avoidance study linked tax avoidance to a principal-agent framework. It suggested that people will structure incentives and ensure that the firm value or benefit will increase upon the tax avoidance activity taken.

Giombini, Teobaldelli and Schneider (2018) did the study based on ordinary least square (OLS) and Probit specification. The authors concentrated on the firms' self-reported tax compliance based on the data randomly selected from *Voices of the Firms 2000*, by World Business Environment Survey (WBES). One of the disadvantages of the linear probability model is that it may produce the estimated coefficients outside the range of zero (0) and one (1) interval. Hence, 2-stage least squares estimation is used by Giombini et al. (2018) to estimate a linear probability model.

The source of tax information used by Slemrod and Yitzhaki (1999) was from the Internal Revenue Service (IRS)'s Taxpayer Compliance Measurement Programme (TCMP). The IRS conducted TCMP once in every three years from 1965 until 1988 which involves comprehensive audits based on a stratified random sampling of tax returns. The result was then developed into a formulae for selection of returns for audit. The TCMP data helps IRS in estimating tax gap by providing information about the patterns of noncompliance based on the taxpayers' demographic factors. However, the shortcoming of TCMP data is the missing of certain kind of noncompliance, such as income generated by underground economy. Clotfelter (1983) used the TCMP data to study the response of noncompliance towards the environment changes. This study used tobit model in the research and concluded that the noncompliance gets higher when the marginal tax rate is higher. This result contradicts with the study done by Feinstein (1991) which was being conducted by using a pooled cross-section analysis. Klepper and Nagin (1989) investigated the features of evasion by using cross-sectional analysis.

Nkundabanyanga, Mvura, Nyamuyonjo, Opiso and Nakabuye (2017) conducted research that form the association between the factors of tax compliance and tax compliance behaviours by using a correlational and cross-sectional survey. Two hundred and five data collected via questionnaire were analysed using Statistical Package for Social Sciences (SPSS) and structural equation model (SEM). Tax compliance has been influenced by tax administration significantly, in which the tax administration is assessed based on the effectiveness of government, transparency of tax system and so on. In Uganda, tax compliance is affected by the people's perception on the worthiness of public expenditure and its distribution, tax level and tax evasion (Nkundabanyanga et al., 2017) and inequalities in the tax system (Silvani & Baer, 1997; Nkundabanyanga et al., 2017). Other than these, Silvani and Baer (1997) listed that the factors that cause low tax compliance include low levels of integrity and professionalism of the tax administration's staff, weak audit programs and many more. This study also emphasized that the perceptions of the taxpayers on the probability of being audited affects their degree of compliance significantly.

Carrillo, Castro and Scartascini (2021) explored positive inducements and rewards as one of the most popular tax administration and tax compliance tools. This study realized that tax compliance is positively influenced by the offering of rewards in the form of durable and visible public good. Such result has shown an influence of tax administration on tax compliance. Since 1978, Greece has offered 11 voluntary tax programmes inclusive of tax amnesties and forgiveness programmes to raise tax compliance in the country (Al-Karablieh, Koumanakos & Stantcheva, 2021). Same goes to the government of Republic of Indonesia

who implemented a successful tax amnesty in year 2016 and 2017 which brought a positive effect on tax revenue, tax base and tax compliance (Hajawiyah, Suryarini & Tarmudji, 2021). Conversely, Saraçoğlu and Caskurlu (2011) discovered that the repeated amnesty program in Turkey reduced tax compliance as it made the public lost trust in its tax laws.

On the other hand, Bloomquist (2011) realized that the taxpayers are more compliance in the past two decades. The economic models based on expected utility theory founded by Allingham and Sandmo in 1972 predicted that rational taxpayers should underreport some or all tax liability due to the low probability of audit in most of the countries. The finding of this research concluded that the taxpayers learnt from the repeated process of audit and become more confident in underreporting tax liability while not getting caught as the chances of being audited are not as high as what they anticipated initially. Bloomquist (2011) summarized that the taxpayers are risk-averse since they overweight the probability of being audited. Therefore, the taxpayers' compliance is high.

2.4.1 Tax Evasion and Avoidance

As nobody likes paying taxes, people take a lot of different actions to reduce the tax liability such as tax evasion and avoidance (Alm, 1999). Tax evasion and avoidance have different meanings (Alm, 1999; Hudson & Teera, 2005; Mohamad, Zakaria & Hamid, 2016). Avoiding taxes is a legal way of avoiding from tax by taking advantage of flaws in the law while evading taxes is an illegal way of running away from tax (Alm, 1999; Hudson & Teera, 2005; Slemrod, 2019). Chan, Moorthy and Choo (2017) indicated that all Malaysian

has right to avoid tax whereas tax evasion is unacceptable as it is illegal with the involvement of intentional non-compliance to tax law. Hanlon and Heitzman (2010) (as cited in Huseynov & Klamm, 2012) defined tax avoidance as the reduction of explicit taxes. According to Akhtar, Akhtar, John and Wong (2017), tax avoidance is an effort to reduce the tax amount that needs to be paid and ensures staying within the limits defined by the tax law. Under tax avoidance, the taxpayers would disclose all the material information to the tax authorities. Taxpayers avoid from tax liability legally by splitting income, postponing taxes and so on (Alm, 1999). Any actions taken in order to reduce tax liability such as reducing labour supply, re-grouping an activity as tax-preferred research and development and postponing an asset disposal to a lower tax rate year are the examples of tax avoidance (Slemrod & Yitzhaki, 2002). On the other hand, tax evasion is total opposite of tax avoidance, which is the non-payment of tax through illegal means. Tax evasion usually involves the concealment of the actual affairs to reduce the tax liability (Akhtar, Akhtar, John & Wong, 2017). Tax evasion is always done intentionally and illegally by understating income, overstating deductions or exemptions, or by failing to file tax (Alm, 1999).

Individuals and businesses evade or avoid tax considering the costs and benefits of evading tax (Slemrod, 2019). Businesses believe that taxpayers are not allowed to evade tax but can avoid tax. Therefore, the tendency to avoid tax will increase when the levied tax is more than the tolerable minimum tax (Rabbi and Almutairi, 2021). Apart from this, Liang, Li, Lu and Shan (2021) found that firms imitate the tax avoidance behaviour from the firm leaders in the same industry and province. Such peer effect is driven by information learning and the eagerness to safeguard a competitive position. It is proven that firms imitating

peers tax avoidance behaviour turn out to have higher future investments, perform better and pay higher dividends. Such outcome will lead to higher tax avoidance among firms. García-Meca, Ramón-Llorens and Martínez-Ferrero (2021) added that firms managed by highly narcissistic CEOs are more likely to undertake tax avoidance constrained by the audit committee. However, this contradicts with the research conducted by Wang, Wilson, Zhang and Zou (2021) who examined the tax avoidance level in sin industries which produce alcohol, tobacco, gambling and firearms. This study confirmed that the tendency of sin firms to avoid tax is less than non-sin firms. Such conclusion was made due to the risk of the sin firms being subject to additional taxes and regulations is higher as compared to non-sin firms since the products and services produced and traded by sin firms are inconsistent with social norms and bring negative externalities to the society.

Based on the research done by WHO (2010), differential tax system imposed according to product characteristics creates chances to manufacturers to change their pricing or production decisions in order to run away from tax and high tax payments. For instance, the tax agencies in Turkey introduced a differential excise system and imposed tax rates based on brands, by quick response, companies involved changed the content of their products to avoid from higher tax. The tax revenue was below the expectation due to the alteration done by the taxpayers. The problems of asymmetrical information between borrowers and lenders become more serious when firms try to evade taxes as it is inevitable for firms to manipulate financial information in tax evasion (WHO, 2010). An increase in tax avoidance eliminates the possibility of pure compliance function from corporations (Desai & Dharmapala, 2009). Firm that

evades taxes might restrict the disclosure of information openly in order to minimize the chances of being audited (Giombini et al., 2018). This study hypothesized that the probability of a firm to get finance is limited when the tax evasion is high and the marginal effect of tax evasion is lower with a less efficient legal system. A firm that chooses to evade taxes need to monitor and manage its information more intensively. The firm is required to reveal little information to finance or banking institutions to reduce the probability of auditing from relevant administrators or regulators (Giombini et al., 2018). Based on the empirical findings done by Schneider and Neck (1993) (as cited in Giombini et al., 2018); Johnson, et al. (1997); Johnson et al. (1998), the reasons for firms to evade taxes are due to the tax system is complex, the regulation burdens the taxpayers and the application of the tax system by the government is ineffective.

Tax revenue collections has been reduced due to the existence of tax evasion (Alm, 1999; Yew, Milanov & McGee, 2015). Therefore, IRBM comes out with anti-avoidance provisions to deal with tax evasion issues. It collects information on tax avoidance or evasion by rewarding the authority who provides accurate and reliable information (Wahab, 2013). Besides that, tax evasion also creates the feelings of unfairness (Alm, 1999; Yew, Milanov & McGee, 2015), disrespect the law (Alm, 1999), change income distribution, and affect public services for citizens (Yew, Milanov & McGee, 2015). In short, it is impossible to know the true impact of taxation due to the presence of tax evasion (Alm, 1999).

Allingham and Sandmo were the first to formulate tax evasion problem in 1972 by proposing a simple basic model in explaining the relationship between

the taxpayer and tax controller (Sokolovskyi, 2018). Many literatures focused on taxpayers' risk aversion because of Allingham and Sandmo addressing tax evasion as a gamble. In line with this, it creates obscuration in other important perspectives of the issue, such as avoidance and tax avoidance technology (Slemrod & Yitzhaki, 1999). According to Sokolovskyi (2018), many previous researches were done in investigating the relationship between tax evasion prevention, and the probability of detecting tax evasion and the size of penalties. Other than this, some other instruments were being used for the detection of tax evasion such as tax rates, the possibility of being audited and many more.

Tax evasion is hard to be measured as people have incentives to cover their cheating. Despite a variety of methods used to investigate tax evasion, it appears to be an inevitable problem in the world such as the United States, Argentina, the Netherlands, Philippines, Jamaica and Spain (Alm, 1999). Taxpayers evade taxes through several methods such as under-reporting, declaring inappropriate deductions, over-report expenses, credits or exemptions. Che Rosli, Ming Ling and Embi (2018) found that the high net-worth individuals in Malaysia usually underreport their income to evade tax. This group of taxpayers is most likely to evade from tax because they have resources and ability to engage tax advisor in the effort of evading tax.

Langenmayr (2017) confirmed that the data pertaining to tax evasion is insufficient and its survey used the U.S. residents' deposits in offshore banking centers as the proxy in determining tax evasion. Besides, tax evasion can be measured based on the audit information provided by the tax authority. However, this method is inefficient as the data provided have serious shortcomings such

as the audits did not detect all the underreported income and honest errors were not identified. Therefore, survey method was used to measure tax evasion.

Andreoni (1992) introduced a temporal nature toward the tax evasion decisions. Based on this study, the taxpayers' income and shadow price of income fluctuates due to uncertainties. Evasion can be considered as a type of "borrowing" from the tax authority. Taxpayers tend to evade or "borrow" from tax authority during bad times to smooth their income streams. Besides that, a type of uncertainty happens when the taxpayers are unable to define the correct tax liability clearly. The understatement of income due to such uncertainty becomes problematic as the taxpayers are unsure whether the income declarations are correct or not.

López (2017) has proposed a simple theory, which predicts the bigger size and the more productive a firm is, the more resources the firm will spend to avoid and evade tax activities for a lower tax burden. Kleven, Kreiner and Saez (2016) and López (2017) found that tax evading activities are not costless. In fact, tax evasion incurs very huge costs especially for large firms (Santoro, 2017). Santoro (2017) further explained that adopting correct business records is very important for productivity especially for a large and complex firm. Besides that, manipulating the huge business records is very risky as the probability of being discovered increased. Based on the study conducted by Cross and Shaw (1982), tax avoidance and evasion involve expenditures for the taxpayers to learn about and to document these activities. One of the expenditures is on tax avoidance and tax evasion that decreases the marginal tax rate in a progressive tax system which later reduce the return on engaging in the others. Other than that, the investment in tax evasion may sometimes help to uncover the legal tax shelter

(tax avoidance) and vice versa without extra usage of time and costs (Cross & Shaw, 1982). However, it is realized that the rate of return earned by tax evaders is more than the penalty rate charged for tax evasion while the government faces loss in tax revenue. The firms have incentives to engage in tax evasion by involving in informal sector as long as the informal rate of return is higher than the formal rate of return (Marjit, Mishra & Mitra, 2021).

The high net value individuals in Malaysia are more likely to involve in tax evasion and avoidance due to the chances of being audited is only once in every five years which is relatively low (Che Rosli, Ming Ling & Embi, 2018). Ameur and Tkiouat (2012) revealed that there are a few factors in leading to tax fraud such as tax system and practices, social and cultural norms, ethical considerations, and tax administration.

Santoro (2017) summarized that evasion by small business can be done using a few approaches such as increasing the chances of audit. Another approach suggested is to adopt a more rigor accounting standards for small businesses. But, both of these methods involved higher compliance costs while the first approach also involved higher administration costs.

Tax evasion is hard to measure as simply asking does not work. Slemrod and Yitzhaki (1999) attempted a few different approaches in collecting data. An approach relying on the estimation of the level in noncompliance from data on quantifiable quantities was used. The assumptions applied were ‘cash was used in most of the unreported economy activities’ and ‘the size of the underground economy was small’ (Slemrod & Yitzhaki, 1999). Most of the research measured tax evasion based on simple indices such as the percentage of tax evaders, the

percentage of unpaid taxes, and the percentage of income unreported (Rizzi, 2017). Being different from the other research, this research formed tax evasion index that included the measurement of poverty.

2.4.2 Compliance Costs

Compliance costs are defined as the costs incurred by taxpayers and business in administering the tax affairs in order to fulfill regulatory or tax obligations (McGregor-Lowndes & Conroy, 2002; Hudson & Teera, 2005; McKerchar, Hodgson & Walpole, 2009). For example, Walpole (1999, p. 8) defines compliance costs as "…include taxpayers' own labour, the unpaid assistance and internal staff costs, costs of external advisors, and incidental or overhead costs (postage, stationery, or computer costs)."

Besides, Turner, Smith and Gurd (1998) defined compliance costs as the expenses incurred by taxpayers in the progress of making tax payments. Most of the studies mentioned that compliance costs could be categorized in a few categories such as start-up expenses (Pope & Rametse, 2002), implementation expenses and on-going expenses (Breen, Bergin-Seers, Roberts & Sims, 2002).

On the other hand, McGregor-Lowndes and Conroy (2002) highlighted that compliance costs are different from administrative costs. Compliance costs are categorized as costs to be paid to the labour hired by the taxpayer, internal staff, incidental or overhead costs (Turner, Smith & Gurd, 1998; McGregor-Lowndes & Conroy, 2002), tax agent fees (Turner, Smith & Gurd, 1998), costs of external advisors, psychic costs and social welfare costs – the costs that result from the distortion in taxpayers' behavior (McGregor-Lowndes &

Conroy, 2002). McGregor-Lowndes and Conroy (2002) posited that there are three types of compliance costs that have to be borne by the businesses.

In the broader literature, compliance costs are viewed as a combination of both economic and non-economic costs. The economic costs mentioned comprises the value of time costs and joint costs, including overhead costs, while non-economic cost is hard to measure as it includes psychological costs (Pope & Rametse, 2002). In United Kingdom, a number of studies on compliance costs had been conducted. Besides that, the compliance costs of New Zealand's Goods and Services Tax (GST) as well as Wholesale Sales Tax (WST) and Australian taxes at the University of New South Wales in Australia had been investigated. The results indicated that there is an adverse relationship between business size and compliance costs for the period of 1994-1995 (Pope & Rametse, 2002).

Past studies highlighted that one of the main factors that cause GST to be unfavourable is the increase in compliance costs (Palil, Ramli, Mustapha & Hassan, 2013; Pope & Rametse, 2002). Das-Gupta, Estrada and Park (2016) studied the effectiveness of tax administration and hypothesized that taxpayer compliance relied on the taxpayer compliance attitude. The findings from Zachary, Kariuki and Mwangi (2017) showed that tax compliance costs are positively related to tax compliance by SMEs in Embu Country of Kenya.

Dubin, Graetz and Wilde (1990) investigated tax compliance based on audit rates and tax rates using the time series cross-section data available.

2.5 Theory Underpinning Tax Compliance

Yew, Milanov and McGee (2015) defined tax compliance as taxpayers' voluntary behaviour in reporting all income earned. Wenzel (2007) further proved that taxpayers' attitude plays a crucial role in the attitude of tax compliance. In line with this, a few theoretical frameworks had been used in past investigations to assess tax compliance. Theory of Planned Behaviour (TPB) is one of the most popular theories used to determine tax compliance (Bobek & Hatfield, 2003; Trivedi, Shehata & Mestelman, 2005; Jones, 2009; Langham, Paulsen & Hartel, 2012; Smart, 2013; Azrina Mohd Yusof & Ling Lai, 2014; Mohamed, 2016). Jones (2009) showed that there are correlations between salient beliefs with an individual's attitude. Langham, Paulsen and Hartel (2012) and Mohamed (2016) concluded that TPB is a good framework in providing robustness and validity findings in tax compliance. Normative expectations of compliance and penalty magnitude are found to have the most significant effects on tax compliance intentions when TPB was used to extend tax research from tax compliance perspective (Benk, Cakmak & Budak, 2011).

Additionally, Azrina Mohd Yusof and Ling Lai (2014) found that fraud diamond factors, organisational factors and individual cognitive factors are the reasons for managers to commit corporate tax fraud by using three theories which include TPB as well. Nashwan, Abdul Jabbar and Romle (2016) employed TPB to examine the factors influencing business enterprises' compliance towards Zakah (alms tax obliged for all Muslims). A focus of the factors affecting and ways to improve tax compliance behaviour among small business owners in Pakistan was done based on Slippery Slope framework and TPB (Malik & Younus 2019).

According to Damayanti (2012), tax compliance is influenced by intention to comply which is affected by the attitude towards tax compliance, subjective norms and perceived behavioural control. In general, the taxpayers' tax compliance intention can be examined by looking at the taxpayers' attitude of tax compliance, subjective norms and perceived behavioural control. Tax morale, tax fairness and tax complexity built on the three components of TPB are confirmed to have significant influence on tax compliance intention (Taing & Chang, 2021). Efebera, Hayes, Hunton and O'Neil (2004) examined the compliance intentions of low-income individual taxpayers based on the elements of TPB.

2.5.1 Theory of Planned Behaviour

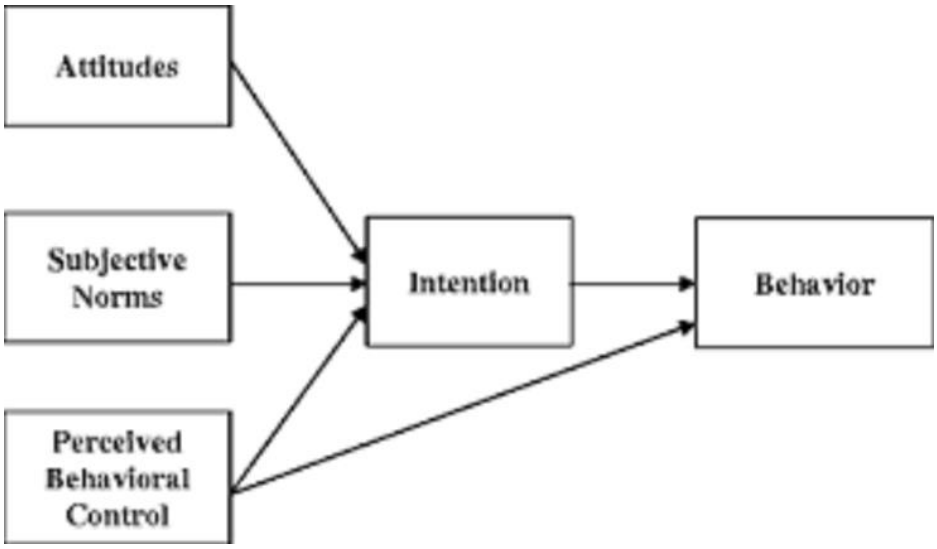


Figure 2.2: Theory of Planned Behaviour

Since the development of Theory of Planned Behaviour (TPB) by Ajzen (1991), the model has been widely used in explaining behavioural intention (Ajzen & Fishbein, 2005; Lee, Cerreto & Lee, 2010; Ajzen, 2012). TPB

postulates that act or action of a person is highly influenced by the person's intention to perform the behaviour itself, namely "the greater the intention to perform the behaviour, the more likely a person will actually engage in the target behaviour." (Taylor & Todd, 1995; Jones, 2009). Referring to Figure 2.2, the behavioural intention is mainly determined by three key determinants which are attitude towards behaviour, subjective norm, as well as perceived behavioural control as confirmed by Ajzen (1991). Among the three key factors, attitude refers to the factors that influence the behaviour of interest, subjective norm is how a person is influenced by the society or foresee others want them to perform certain behaviour, while perceived behavioural control refers to a person's belief on how controllable a person over an action or capability of carrying out the behaviour (Ajzen, 1991; Jones, 2009). Antecedents of the attitude towards the behaviour will also help researchers to understand how the factors influence the behaviour (Jones, 2009).

Damayanti, Subekti and Baridwan (2015) examined the taxpayers' behavior from the aspect of tax compliance. This study added trust and uncertainty orientation into TPB. The study found that the attitude of tax compliance, subjective norms and perceived behavioural control affect the tax compliance intentions. In other words, there is a positive linkage between trust and tax compliance, which implying that taxpayer is more to comply with tax regulations and systems if taxpayer has high level of trust on the government. On the other hand, the uncertainty orientation is not moderating the attitude of tax compliance, subjective norms and perceived behavioural control with tax compliance in this study (Damayanti, Subekti & Baridwan, 2015).

Studies connecting social norms and tax avoidance were done by Wang et al. (2021) in the investigation of tax avoidance behaviour among the sin firms which produce alcohol, tobacco, gambling and firearms. It is believed that social norms influence the productions in sin firms which will raise the possibility of additional regulation as an effort to protect public health and safety. In line with this, the sin firms are willing to forgo tax avoidance to stay away from further regulatory inspection. Besides, Hasan, Hoi, Wu and Zhang (2017) concluded that corporates' tax avoidance behaviours vary depending on the strength of social norms in the base county of a firm's headquarters.

Attitude plays a crucial role in explaining a person's behaviour which is also affected by other factors such as stimulus, motivation, individual background and personality status (Mustikasari, 2007). Tax evasion and tax avoidance in present study explains the element of attitude in TPB since tax evasion and tax avoidance are the case in attitude that encourage taxpayers to have or not to have an intention to comply.

Bobek and Hatfield (2003) interpreted perceived behavioural control as an individual's degree of control when the individual perceived a mandatory need to perform a particular behaviour. According to Tan and Laswad (2006), perceived behavioural control is a non-motivational factor. Damayanti (2012) referred perceived behavioural control as the difficulties face by taxpayers to comply to tax payment based on the taxpayers' past experience while Bobek and Hatfield (2003) posited perceived behavioural control as taxpayers' degree of control in performing a behaviour such as expenses reduction, reporting a lower income and other tax non-compliance behaviour. Therefore, compliance costs is

a type of perceived behavioural control in the frame of tax compliance according to past literatures.

Subjective norm is not being explained and tested in present study as the idea of how a person is expected or influenced by the society is not being examined in this research. This research assesses tax compliance with the influence of tax evasion and avoidance behaviour and tax compliance costs which are not influenced by the society. Hence, societal influence is being omitted from present study.

Ajzen and Driver (1992) described intentions as an indication of the willingness of a person to perform a behaviour. In this study, intention can be explained by tax compliance as it refers to the willingness of a person to comply to tax payment. TPB explains that a person's behaviour is influenced by the intention, ability and perceived behaviour control (Damayanti, 2012).

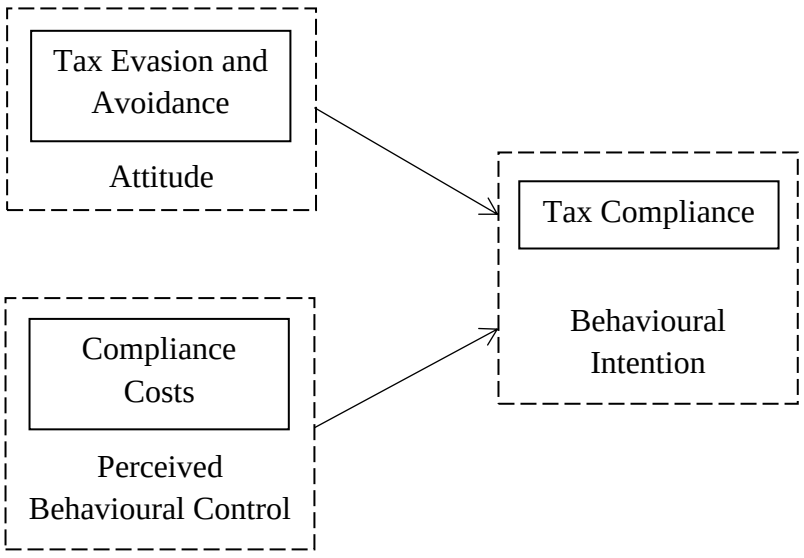


Figure 2.3: The Integration of TPB in Tax Compliance

Figure 2.3 shows that construct tax evasion and avoidance is proposed based on the element of attitude from TPB. The items for tax evasion and

avoidance are set to understand the taxpayers' attitude on tax compliance. The element of perceived behavioural control from TPB is connected to construct compliance costs as it is a non-motivational factor to tax compliance which is a difficulty face by taxpayers to comply to tax payments. Lastly, construct tax compliance is linked to behavioural intention as it assesses the willingness of a person to comply to tax payment. In conclusion, present research connects tax evasion and avoidance (attitude) and compliance costs (perceived behavioural control) as well as tax compliance (behavioural intention) with the omission of subjective norm from the research model. Hence, TPB is being integrated to investigate tax compliance and support the research model of this research.

2.6 Conceptualising Electronic Based Tax Filing System (E-filing)

The incorporation of information technology into tax administration was seen as an 'impossible' mission in the past. Due to the global technology advancement, technology plays an important role in the efficiency, accuracy, comprehensive and interactive capability dealing with the whole revenue system of a country (Cotton & Dark, 2017). Computerization acts as an essential element for tax administration modernization (Silvani & Baer, 1997). Information technology remains significant and acts as a necessity in the administration of taxation systems despite the use of it varies distinctly across countries (Cotton & Dark, 2017). The changes of technology used in tax administration may shift the reliability of tax revenue from collecting progressive income taxes to broad-based consumption taxes like good and service tax (GST), or "dual income tax" system (Hinrichs, 1966; Musgrave,

1969). Information technology has enabled tax administrators to modernize their ways of administering the tax system and interacting with taxpayers. Tax administrations are moving from face-to-face and paper-based interactions to a modern way of interaction with the taxpayers through online administration such as e-registration, e-filing, e-payment, e-invoicing, e-accounting, and many more (Cotton & Dark, 2017).

Night and Bananuka (2019) examined the relationship between the implementation of electronic tax system and the attitude towards it by collecting data from closed-ended questionnaires. It has found a partial mediating effect between the two variables. This study further concluded that the implementation of electronic tax system and the attitude towards it are highly linked to tax compliance. Nkwe (2013) adopted the Theory of Reasoned Action (TRA) to examine the taxpayers' attitude towards tax compliance behaviour. People's negative attitude towards electronic tax system is a barrier for tax compliance. This contradicts with Belay (2017) who recommended the implementation of e-tax involving pay, report and code all tax documents electronically on all taxpayers as this will increase the auditors' performance which will improve the audit coverage, tax audit revenue and tax compliance.

As an effort in the improvements of the accuracy and timeliness of information, Silvani and Baer (1997) suggested to introduce electronic filing. E-filing has helped to reduce tax administration cost as the cost incurred for e-filing is just 10% of the costs to process hardcopies. The study strongly recommended e-filing due to its timeliness and accuracy of information as well as the reduction in tax administration costs. Arendsen, Van Engers and TeVelde (2006) conducted research to determine the effectiveness of electronic data filing by

examining the administrative burden upon the introduction of eGovernment applications. The online tax filing system is expected to be more effective and efficient and it is introduced to replace the complicated and time-consuming manual tax payment system (Rahman & Mayasari, 2015). It is believed that the adoption of e-filing will benefit taxpayers and improve administrative commitment in terms of efficiency and quality of tax service (Islam, Yusuf, Yusoff & Johari, 2012). Rahman, Othman and Amrin (2018) furnished the same conclusion which agrees that the success of e-filing relies on the e-service quality and the satisfaction brought to its users. Mohdali, Isa and Yusoff (2014) discovered that the voluntary tax compliance within individual taxpayers in Malaysia is high in which the employment of e-filing acts as one of the main contributors to such achievement as it provides easy and economical transaction to taxpayers.

Kiringa, Jagongo, Kiio, Njuguna, Muguongo, Nganyi, Karani-Gichimu, Macharia, Mwangi and Qiao (2017) stated that online tax filing has improved tax compliance levels as the taxpayers perceived that it is easy to file, simple to file and secure to use the system. Nkundabanyanga et al. (2017) found that the lack of tax compliance happened due to the short of accountability, the ineffectiveness of the government and a closed tax system. This suggests that if the tax system is transparent and expecting the government to use the taxes wisely, then the taxpayers' compliance will be high. The study further explained that the government must provide something to the taxpayers in the exchange of tax collection. Bananuka, Nkundabanyanga, Nalukenge and Kaawaase (2018) viewed that the government must make the government expenditure to be tangible such as building schools, roads and hospitals. Muturi and Kiarie (2015)

found positive outcome in the application of electronic tax system within Kenyan taxpayers. This helps the government to increase revenues upon the adoption of electronic tax system by the taxpayers.

E-filing manages to minimize the workload and costs inclusive of processing cost, storing cost and cost incurred on the handling of tax returns that fall on tax authority since the submission of tax returns is done paperless (Azmi & Kamarulzaman, 2010). Koong, Bai, Tejinder and Morris (2019) mentioned that e-filing has substantially reduced the submission processing costs of Internal Revenue Service (IRS). Apart from creating benefits to the tax administrator, e-filing has even helped to reduce the burden on taxpayers by lowering the error rate on e-filing returns. The issue of adopting electronic tax filing is of important because the usage is an important measure to assess the successfulness of an implemented technology system. Several theories relating to the acceptance of technology as well as planned behavior could explain the underpinnings of usage behaviour.

Perceived ease of tax system usage, user satisfaction and the level of behaviour intensity will determine the implementation of electronic tax system. This translates that the taxpayers must feel happy, motivated and find it pleasant to use and interact with the electronic based tax system. Besides, the electronic tax system must carry high ease of use too (Khaddafi, Aspan, Heikal, Wahyuddin, Falahuddin & ZatinHumaira, 2018). Azmi and Ng (2010) added that increasing taxpayers' perceived ease of use, usefulness and reducing perceived risk will raise taxpayers' acceptance of e-filing system and adoption rate towards the system. Guriting and Oly Ndubisi (2006) highlighted that the implementation of an electronic based tax system is essential in decreasing costs, making tax more

convenient to the taxpayers and improve tax compliance. A study found that taxpayers feel that one of the main benefits of using e-filing is that the system can be used at anytime and anywhere (Wibisono & Toly, 2014). Rana, Williams, Dwivedi and Williams (2012) stated that theories that are normally used to investigate the early usage and continuation are Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT) and Theory of Planned Behaviour (TPB). Fu, Farn and Chao (2006) emphasized that it is important to understand and influence citizens' acceptance of e-government services as the investment in technology is aiming for cost saving. Understanding these will help to extend knowledge in the area of taxpayers' decision making and to plan and implement e-government services better.

2.7 Theory Underpinning Effectiveness of E-filing

The Technology Acceptance Model (TAM) has proven to be a powerful framework to understand about the adoption and implementation of information technology and its success in organisations (Shajari & Ismail, 2010). In line with this, Chuttur (2009) studied the belief and attitude of small business enterprises in using electronic tax system which affects the tax compliance behaviour using TAM. Wang (2003) used TAM and added "perceived credibility" as a new factor to find out the factors affecting the adoption of electronic tax-filing system. TAM model containing perceived ease of use, perceived usefulness and perceived risk is adopted in the investigation of the acceptance of the e-filing system by Malaysian taxpayers (Azmi & Ng, 2010). The same TAM model is used in various studies to assess the adoption of electronic tax filing system (Carter &

Belanger, 2004; Carter & Bélanger, 2005). Kamarulzaman and Azmi (2010) examined the adoption of e-filing in Malaysia which serves as a guideline to accelerate e-government services and enhance the performance of e-filing system using TAM.

Fu, Farn and Chao (2006) used TAM and Theory of Planned Behaviour (TPB) to discuss the factors affecting the taxpayers' adoption of tax-filing system in Taiwan whereas Rakhmawati and Rusydi (2020) connected e-filing and tax compliance using TAM and the Unified Theory of Acceptance and Use of Technology (UTAUT). The determinants affecting Taiwanese taxpayers' online tax filing was conducted with the integration of TPB and TAM (Lu & Ting, 2013). According to Rana, Williams, Dwivedi and Williams (2012), one of the main theories that normally used to investigate the initial use and continuance is TAM.

The effect of computer self-efficacy level has been examined as perceived usefulness and perceived ease of use in assessing the factors of e-government service adoption (Wang, Doong & Lin, 2007).

2.7.1 Technology Acceptance Model

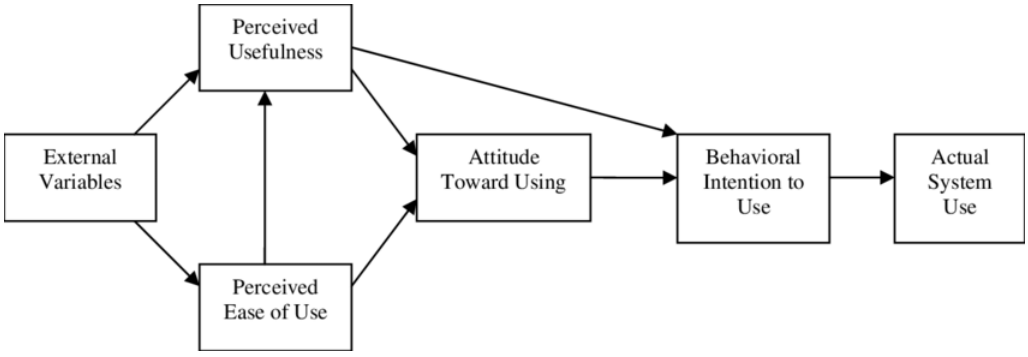


Figure 2.4: Technology Acceptance Model

The Technology Acceptance Model (TAM) was developed by Davis (1985) with two purposes: (1) to explain the process of user acceptance level; (2) to provide a theoretical basis in forming a method or framework to develop and assess new systems prior to their implementation. The study emphasized that the testing formed based on TAM is able to provide relevant information to examine the success rate of proposed systems. Davis (1989) suggested that based on TAM, the taxpayer adoption behaviour or taxpayers' attitude is measured by the willingness to use a particular system. There are three main components in TAM, namely the perceived usefulness, perceived ease of use, and attitudes toward technology (Scherer, Siddiq & Tondeur, 2019). This is shown in Figure 2.3. Perceived ease of use is conceptualized as the level of a person's belief that the use of technology is not involving with much effort for the learning process. Perceived usefulness can be understood as the extent of a person believing that his or her performance or productivity level is able to increase with the usage of technology (Davis, 1989). Attitudes toward technology is defined as an evaluation of technology resulting from the use of the technology (Zhang, Aikman & Sun, 2008).

Adeyeye (2019) conducted research with the adoption of TAM as one of the underpinning theories to find the improvement of tax administration through technology innovation in Nigeria. The study added to the knowledge in the area of the linkage between taxpayers' behavioural intention and use of technology. This will then improve tax compliance and subsequently stimulates tax revenue.

Lu, Huang and Lo (2010) emphasized that TAM is widely in used for information technology related research. The paper integrates TPB and TAM to examine the taxpayers' tax filing intention with reference to the empirical results

showing perceived usefulness as a factor influencing online tax filing intention obtained from past studies. The effectiveness of tax filing is being tested under perceived usefulness in the study conducted by Lu, Huang and Lo (2010). Al-Hujran, Al-Debei, Chatfield and Migdadi (2015) confirmed attitude as a significant factor in explaining the adoption of e-government service in which attitude is explained by perceived public value and perceived ease of use. A useful and easy to use e-filing system is proven to improve user satisfaction level and behavioural intention (Gupta, Zaidi, Udo & Bagchi, 2015). Other than that, taxpayers' satisfaction is also proven to influence taxpayers' behavioural intentions in the adoption of e-filing. Wang (2003) emphasized the importance of taxpayers' perceived usefulness and perceived ease of use of electronic government services in the enhancement of effective electronic government services. Moorthy, Samsuri, Hussin, Othman and Chelliah (2014) investigated the intention and behaviour of adopting e-filing tax system in Malaysia when the Malaysia's citizens are given the option to choose to file tax manually or using e-filing method. The research tested the effectiveness of using e-filing for tax filing purpose under the element of perceived usefulness extracted from TAM.

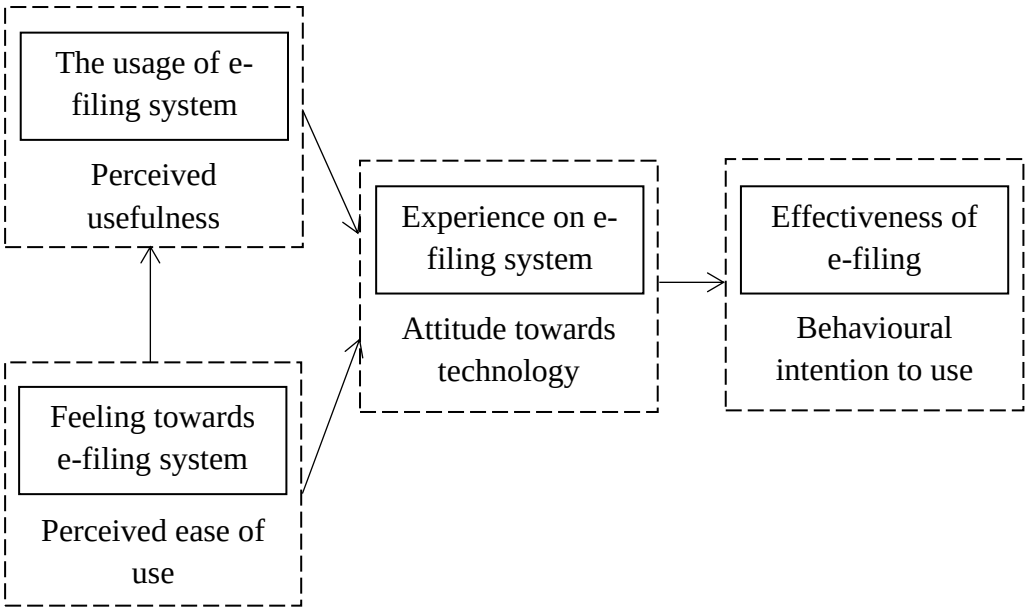


Figure 2.5: The Integration of TAM in Effectiveness of e-Filing

Based on the integration of TAM in e-filing studies conducted by previous researchers as indicated in the previous paragraphs, TAM is suitable to be applied in present study. In line with the previous research, TAM is suitable to be used in examining the preference of using e-filing in comparison to manual filing as TAM is used to assess the adoption of e-filing due to its effectiveness based on perceived ease of use, perceived usefulness and attitude. The questions set in the questionnaire for construct effectiveness of e-filing are divided into the taxpayers' feeling towards e-filing system inclusive of the ease of use of e-filing system, usage of e-filing system, taxpayers' experience on e-filing system in accordance with elements perceived ease of use, perceived usefulness, attitude towards technology as stated in TAM. All the questions lead to the understanding of effectiveness of e-filing in accordance with element behavioural intention to use.

Figure 2.5 shows that the perceived ease of use and feeling towards e-filing system will affect the perceived usefulness of the system. Perceived ease of use

and perceived usefulness of e-filing system influence the taxpayers' attitude towards using it based on the experience on e-filing system which will then have an effect on the effectiveness of e-filing in view of the intention to use e-filing system. Perceived usefulness, perceived ease of use and attitude are being tested through questions set in questionnaire designed for present research. The questions are set with the aim of investigating the preference of using e-filing due to its effectiveness which acts as part of the research framework in this study.

2.8 Tax Revenue

Tax revenue is one of the important components in the consumption basket as well as GDP of a nation (Ibrahim, Musah & Abdul-Hanan, 2015). It helps to sustain the economic and support infrastructure investment (Ibrahim, Musah & Abdul-Hanan, 2015; Isaac & Kazungu, 2016). Tax revenue is defined as the amount received by tax office for the tax payments from taxpayers (Hajawiyah, Suryarini & Tarmudji, 2021). It is used to provide public goods and services as well as to maintain the economic machine. It also supports government services used to manage the economy and financial markets (Yew, Milanov & McGee, 2015), infrastructure development and social programs which will benefit the society (Hajawiyah, Suryarini & Tarmudji, 2021). According to Tabandeh et al. (2012), the government collects revenue from tax and non-tax revenue sources. Tax revenue is the revenue of tax collection from direct taxes and indirect taxes. Taxes in Malaysia are the important source and the most dependable source of government revenue. Che Rosli, Ming Ling and Embi (2018) concluded that the high net-worth individuals in Malaysia were more emphasize of the way of

spending money and the outcomes of paying taxes. In other words, the taxpayers are more concerned with how will the government spend the tax revenue.

Yew, Milanov and McGee (2015) proved that a lack of experience in tax administration would lead to tax crimes and policing, and corruption, which would generate low tax revenue; while higher tax compliance would result in greater tax revenues for the country. Tax avoidance and evasion have created great loss to the government's revenue (Wahab, 2013). Ibrahim, Musah and Abdul-Hanan (2015) recognized that Ghana undertook a series of tax reforms in ensuring higher tax compliance and reducing tax evasion to increase the tax revenue of the country. Taxpayers who show greater trust to the government will be more willing to comply to tax as compared to those who do not pay trust to the government. In accordance to this, research proposed to the government to reveal the usage of tax revenue to the taxpayers in order to quash the negative attitude of people in terms of tax payment (Peprah, Abdulai & Agyemang-Duah, 2020). Tahar, Riyadh, Sofyani and Purnomo (2020) found that the number of taxpayers and tax revenue of the Republic of Indonesia has increased upon the implementation of the policy and tax amnesty programme. This forces the government to improve the tax administration as an effort in further increasing revenue from tax collection.

Tax evasion and avoidance have caused low level of tax revenue (Hajawiyah, Suryarini & Tarmudji, 2021). Fuest and Riedel (2009) studied on the loss of tax revenue due to tax evasion and tax avoidance caused by domestic shadow economy and corporates' profit shifting and offshore holdings of financial assets by individuals. The application of voluntary disclosure program carried different outcomes in tax revenues. With the existence of voluntary

disclosure, more individuals will pay tax if the detection probability is high (Langenmayr, 2017). Besides, tax amnesties and forgiveness programs were implemented in several countries such as Greece (Al-Karablieh, Koumanakos & Stantcheva, 2021) and Indonesia (Hajawiyah, Suryarini & Tarmudji, 2021) as an effort in raising tax compliance and tax revenue (Al-Karablieh, Koumanakos & Stantcheva, 2021; Hajawiyah, Suryarini & Tarmudji, 2021).

Based on Haque and Sahay (1996), it is believed that bribery and corruption have caused an approximate 20% - 30% of lost in Nepal's tax revenue. A former Thailand prime minister was cited in this study mentioning that tax revenue would be raised by 50% under a corruption free environment. It is found that the government revenue reduces when the auditors accept bribes under a corrupted tax administration especially when the tax rate increases (Chander & Wilde, 1992). Alm, Martinez-Vazquez and McClellan (2016) found that a corrupted tax administration will cause a shortfall in tax through an increase in tax evasion whereas an honest tax administration will reduce tax evasion and remit all tax revenue to the government. Braşoveanu and Obreja Brasoveanu (2009) concluded an adverse relationship between corruption and fiscal revenues with the reference of a reduction of tax base or level of the economic activity leading to a decrease in budgetary revenues due to corruption.

2.9 The Principal-Agent Approach, Theory of Planned Behaviour and Technology Acceptance Model

Principal-agent approach is used as the main theory for present research in explaining tax administration and tax revenue by connecting the tax agent and

government acting as the agent and principal respectively. Khaile, Davids and Khaile (2021) found limitations of the principal-agent theory in explaining the compliance issue in South African Municipalities. Although the principal-agent approach is widely used as the theoretical framework in explaining the accountability and oversight issues in public administration, but it is inadequate to explain the non-compliance issue irritating municipalities in South Africa (Khaile, Davids & Khaile, 2021). Henceforth, Theory of Planned Behaviour is being used in explaining tax compliance contributing to the complete research framework constructed based on the principal-agent approach in present research.

The introduction and implementation of e-filing has brought benefits to the tax administrators and the taxpayers (Silvani & Baer, 1997; Guriting & Oly Ndubisi, 2006; Kamarulzaman, 2010; Cotton & Dark, 2017; Khaddafi et al., 2018; Azmi & Koong et al., 2019). Other that that, the implementation of e-filing has also been linked to a better compliance behaviour (Mohdali, Isa & Yusoff, 2014; Belay, 2017; Kiringa et al., 2017; Night & Bananuka, 2019) which then led to an increase in revenues (Muturi & Kiarie, 2015). Past literature shows that e-filing has helped tax administrator to cut down administration costs (Silvani & Baer, 1997; Koong et al, 2019) and improve the accuracy and timeliness of information (Silvani & Baer, 1997), the hassle of filing tax manually (Cotton & Dark, 2017) as well as enhancing the efficiency and quality of tax service (Islam et al., 2012). Apart from that, Aliah (2020) stressed and suggested the government to continue developing the e-filing application due to its importance in raising tax compliance. Thus, the effectiveness of e-filing is examined according to the Technology Acceptance Model in this study whilst supporting

principal-agent approach in the connection with tax administration, tax compliance and tax revenue acting as the main variables in present research.

2.10 Proposed Research Framework

Based on the review of past literatures presented in previous sections done on effectiveness of e-filing, tax compliance, tax administration, and tax revenue, the literature review shows that there is a shortfall in research examining the effectiveness of e-filing on tax administration and tax revenue. Hence, it is deemed timely to investigate the effectiveness of e-filing towards the effectiveness of tax administration and how it affects the Malaysia's tax revenue through tax compliance. This research intends to produce a thorough model by considering a few theories. The Technology Acceptance Model (TAM) is employed in this study to explain the effectiveness of e-filing while the Principal-Agent Approach (Agency Theory) is used to explain the effectiveness of tax administration based on the taxpayers' behaviour towards the decisions made by the tax agency. The Theory of Planned Behaviour is adopted in this study to study on the taxpayers' compliance and evasion behaviour which in turn affecting Malaysia's tax revenue. The application of Principal-Agent Approach is accompanied with the integration of Technology Acceptance Model and Theory of Planned Behaviour in explaining the whole conceptual framework which is shown in Figure 2.6.

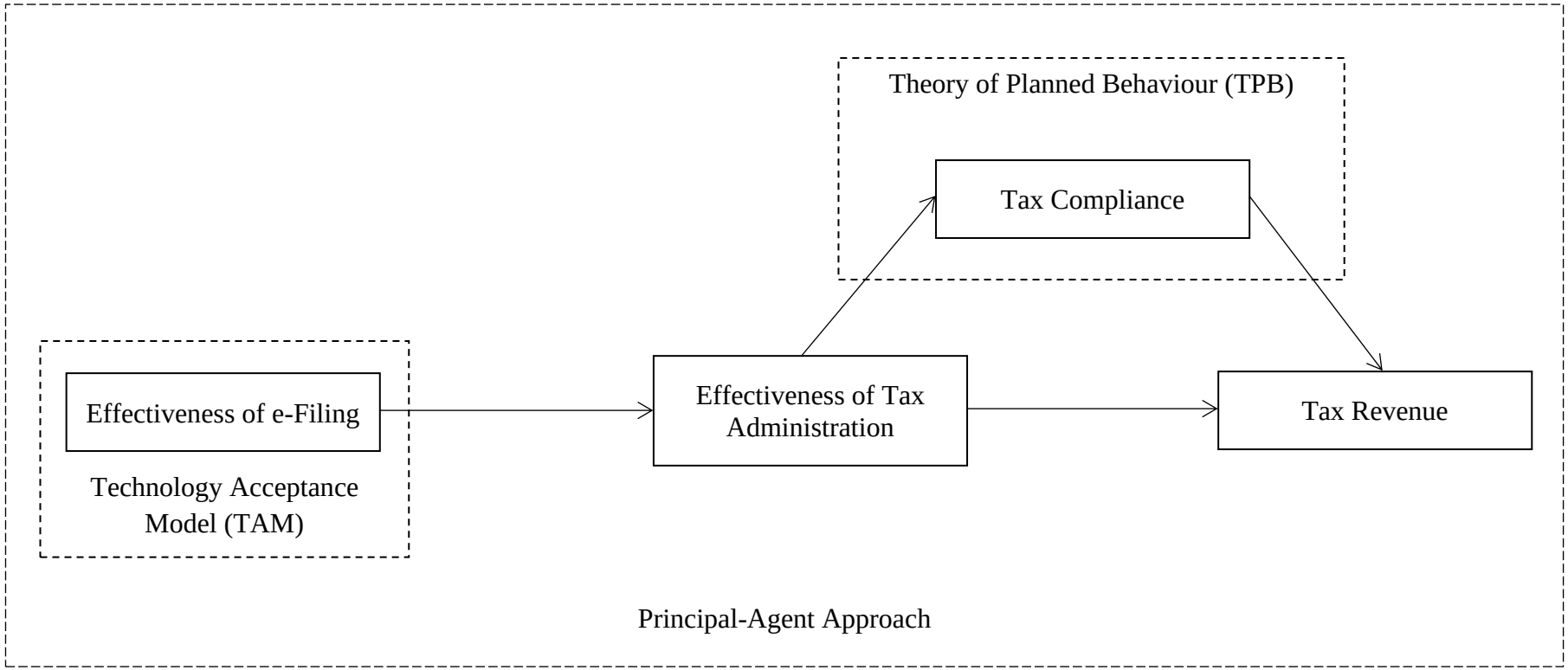


Figure 2.6: Conceptual Framework

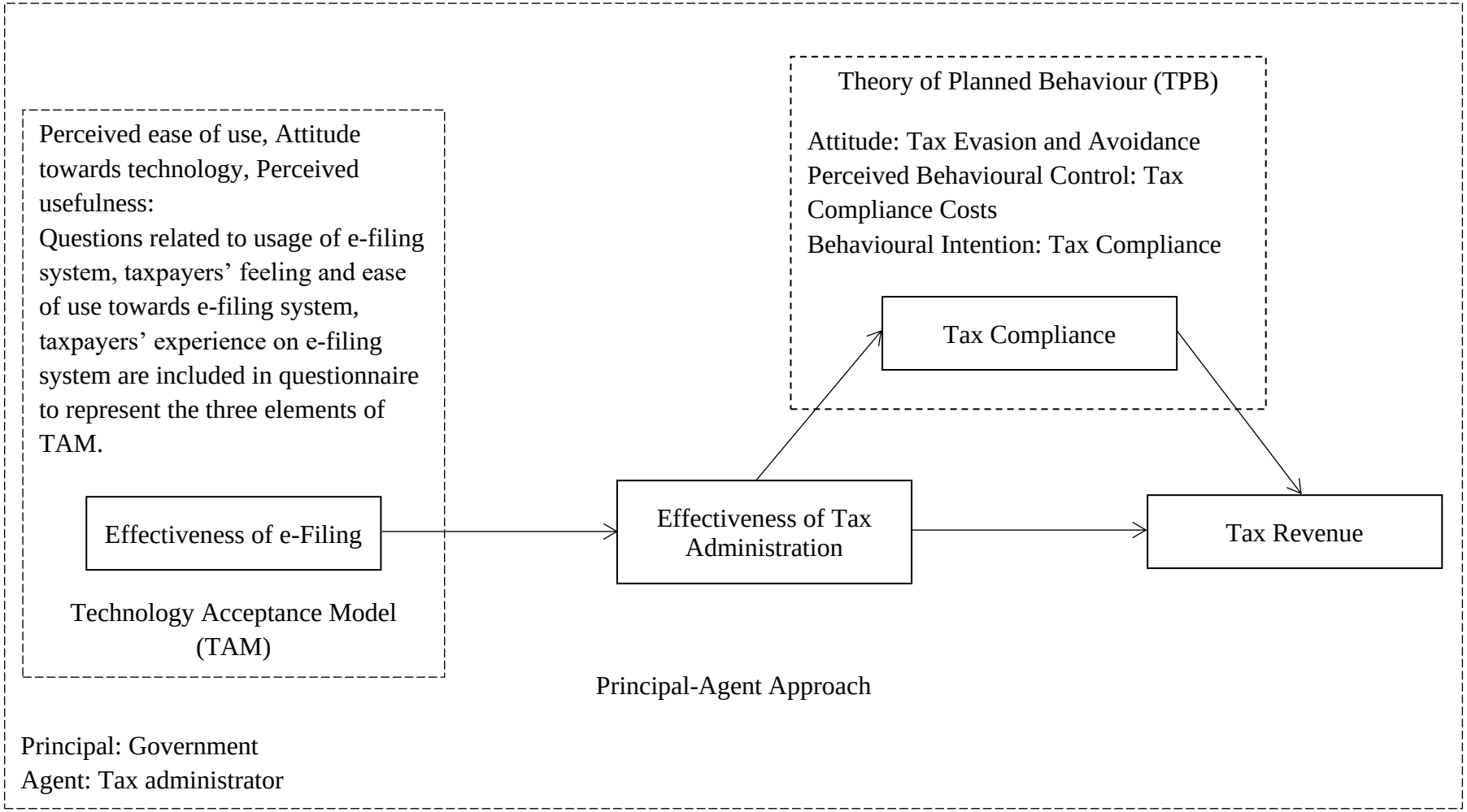


Figure 2.7: Conceptual Framework (Elements of Theories)

IRBM (2019b) defined the electronic based tax filing system (e-filing) as a platform that offers the taxpayers to file tax and present income tax statement form via online method. From the perspective of taxpayers, it is found that e-filing has increased the tax compliance among taxpayers (Kiringa et al., 2017) with the criteria that the government uses the taxes wisely (Nkundabanyanga et al., 2017; Bananuka et al., 2018). E-filing has helped to ease the burden of tax officers or tax agencies from the aspect of minimizing errors and cuts down the time in administering taxation (Silvani & Baer, 1997; World Bank, 2013; Koong et al., 2019). In line with this, the effectiveness of tax administration is the main concern with the implementation of e-filing system. Adopting Kowalski (2008) definition of tax administration, it is the assessment, collection, enforcement, litigation, publication, and statistical gathering functions under the revenue laws. The effectiveness of tax administration is deemed as affecting the tax revenue of a country. By employing the concept raised in CTPA (2018), an effective tax administration should be able to ensure high compliance by taxpayers and maintain low tax administrative costs for high tax revenue collection.

The discussion of the effectiveness of e-filing and effectiveness of tax administration are based on the Technology Acceptance Model (TAM) based on the taxpayers' acceptance of e-filing comparing to manual filing and the willingness to file tax online. The association among effectiveness of tax administration and tax revenue is formed in accordance to Principal-Agent Approach in the context of audit which carries the idea that the taxpayers (agent) will react towards the audit selection rule set by the tax agencies (principal). Alm (1999) confirmed that the audit selection rule will also affect the tax revenue. Besides that, tax compliance is examined in accordance to the Theory of Planned

Behaviour (TPB) from the aspects of tax evasion and avoidance and tax compliance costs.

Figure 2.6 uses the constructs and the mediating variable to design the conceptual framework and research framework of this research. There are a few paths moving synchronously to explain the exogenous and endogenous latent variables. The research framework is then used to discuss the hypotheses set for this research.

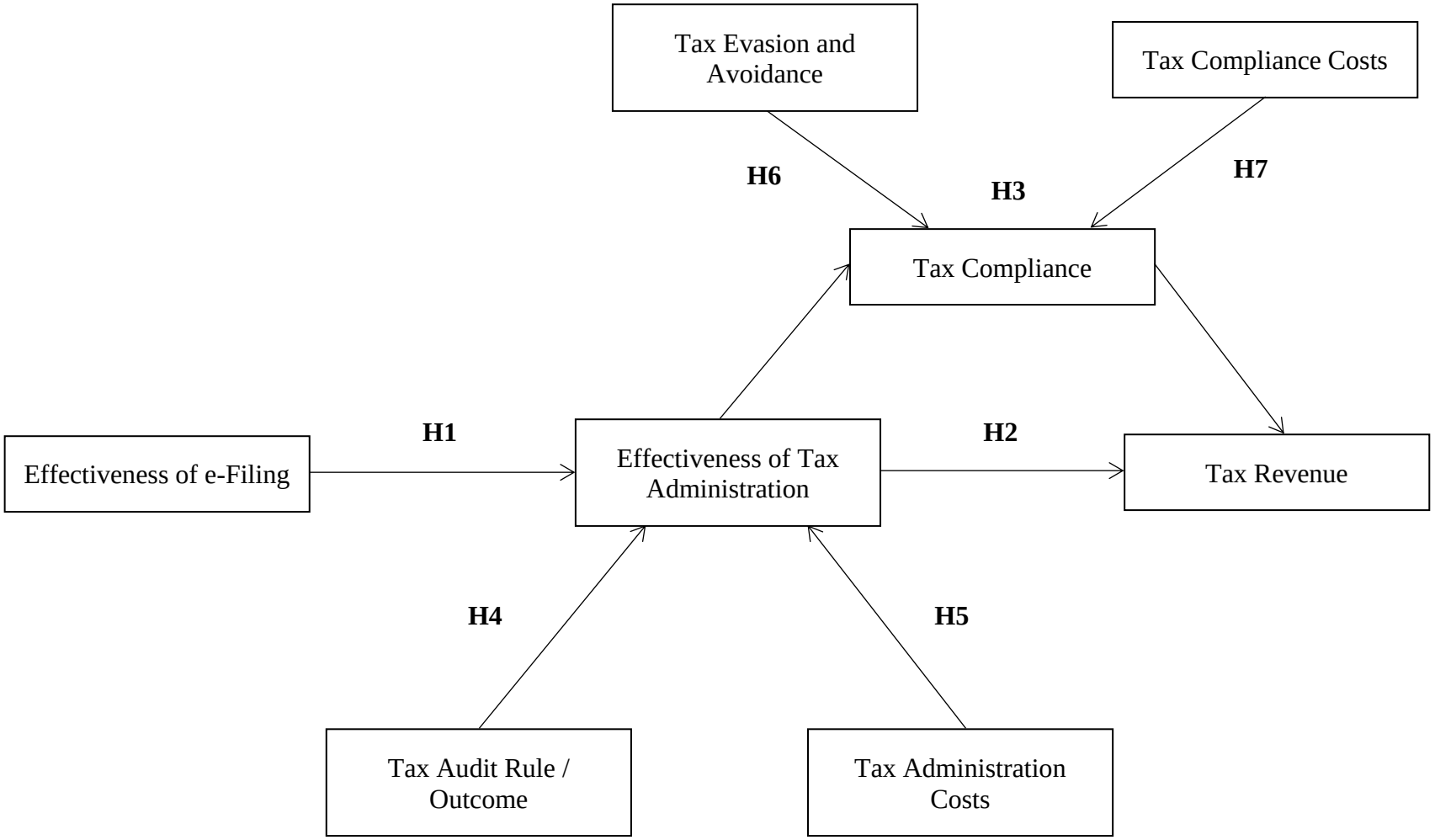


Figure 2.8: Proposed Research Framework

Endogenous latent variables are the latent variables that act as dependent as well as independent variables (Hair, Hult, Ringle & Sarstedt, 2014). Therefore, the effectiveness of tax administration (ETA) is the endogenous variable where its arrows pointing into (effectiveness of e-filing (EEF) to ETA) and out from it (ETA to tax revenue (TR)).

There is a mediator variable hypothesized in the proposed research framework, namely the tax compliance (TC). TC is presumed to mediate the connection between ETA and TR. The interest of this research is to investigate how the taxpayers' tax compliance behaviour could affect the relationship between ETA and TR.

The independent variables, exogenous variables in the proposed research framework are effectiveness of e-filing (EEF), tax audit rule / outcome (TAR), tax administration costs (TAC), tax evasion and avoidance (TEA) and tax compliance costs (CC). EF acts as the exogenous variable for ETA that is measured by two other exogenous variables, which are TAR and TAC. On the other hand, TC is measured by two exogenous variables, namely TEA and CC.

The study, therefore, is aimed to examine the relationships between the effectiveness of e-filing and tax administration measured by tax audit rule/ outcome and tax administration costs, tax revenue. The proposed research framework captures the mediating effect of tax compliance measured by tax evasion and avoidance and tax compliance costs among taxpayers of Malaysia.

2.11 Exogenous Variables, Endogenous Variables and Mediator

The exogenous variable (IV) is the variable that precedes and affects the endogenous (IV) is the variable that precedes and affects the dependent variable (DV) (Babbie, 2010). Hair, Anderson, Babin and Black (2010) defined mediator as a third variable that brings influence between two other variables. Baron and Kenny (1986) explained that mediator variable is the variable influencing the relationship between IV and DV. Table 2.1 displays the wraparound of variables/ constructs with its source.

Table 2.1: The Summary of Exogenous and Endogenous Constructs

Construct	**Type of Variables**	**Source**	**Remarks**
Effectiveness of e-filing	Independent variable of effectiveness of tax administration; Exogenous variable	Cotton and Dark, 2017	Information technology remains significant and acts as a necessity in the administration of taxation systems.
		Silvani and Baer, 1997	Computerization acts as an essential element for tax administration modernization.
			E-filing has helped to reduce tax administration cost as the cost incurred for e-filing is just 10% of the costs to process hardcopies.
		Arendsen, Van Engers, TeVelde, 2006	The effectiveness of electronic data filing is determined in this study by examining

	the administrative burden upon the introduction of eGovernment applications.
Guriting and Oly Ndubisi, 2006	The implementation of an electronic tax system helps to reduce costs, making tax more convenient to the taxpayers.
Rahman and Mayasari, 2015	The online tax filing system is estimated to be more effective and efficient than the manual tax payment system.
Islam, Yusuf, Yusoff and Johari, 2012; Rahman, Othman and Amrin, 2018	The adoption of e-filing will improve administrative commitment through quality of tax service.
Azmi and Kamarulzaman, 2010	E-filing manages to reduce workload and costs fall on tax authority.
Koong, Bai, Tejinder and Morris, 2019	E-filing has substantially reduced the submission processing costs of Internal Revenue Service (IRS).
Fu, Farn and Chao, 2006	The investment in technology is important for cost saving.

Effectiveness of tax administration	Independent variable of tax revenue; Exogenous variable	Das-Gupta, Estrada and Park, 2016	With an effective tax administration, tax revenue will increase. The effectiveness of tax administration is an important concern as it is recognized as a potential significant determinant of tax revenue.
		Huda and Hernoko, 2017; Hajawiyah, Suryarini and Tarmudji, 2021	An effective tax administration successfully raised tax revenue through tax amnesty programs.
		Ibrahim, Musah and Abdul-Hanan, 2015	Tax revenue is a share of the gross domestic product (GDP) that helps to sustain the economic development and support infrastructure investment.
		Yew, Milanov and McGee, 2015	Tax revenue is used to provide public goods and services and to maintain the economic machine. It also supports administrative and policy-making services used to manage the economy and financial markets.

	Tabandeh, Jusoh, Nor and Zaidi, 2012	Tax revenue is the revenue of tax collection from direct taxes and indirect taxes.
	WHO, 2010	An effective tax administration should ensure high compliance, keep tax administration costs lower than tax revenue.
Dependent variable of tax audit rule/ outcome; Endogenous variable	Chebusit, Namusonge, Oteki and Kipkoech, 2014; Kariuki and Zachary, 2019	Tax administrative measures include fines, penalties, rates and tax audits.
	Das-Gupta, Estrada and Park, 2016	This study found that external audit reports could uncover the effectiveness of tax administration.
	Alm, 1999	This study used audit selection, detection of tax evasion, tax amnesties, and social norms to assess the effectiveness of tax administration.
		Many tax authorities tend to follow an audit selection rule that is close to a cutoff rule.
	Silvani and Baer, 1997	The importance of tax audit in forming an effective tax administration is

		outlined in this paper.
	Khwaja, Awasthi and Loeprick, 2011	Tax audit allows tax administration to educate taxpayers on tax obligations.
	Belay, 2017	An effective tax audit programme will improve tax administration significantly.
		Risk-based audit selection is the most preferred type of audit strategy implemented in many developed countries' tax administrations.
	Santoro, 2017	Suggested that an optimal audit rules should be set and stuck with.
Dependent variable of tax administration costs; Endogenous variable	Yitzhaki, 1979	Administrative cost is assumed with each taxed commodity.
	Alt, 1983	The role of administrative and compliance costs in the evolution of tax structures is stressed in this paper.
	Das-Gupta, Estrada and Park, 2016	There are five areas determining the

	effectiveness of tax administration.
Turner, Smith and Gurd, 1998	Administration costs was defined as the costs incurred due to the collection of taxes.
CTPA, 2018	Low administrative cost is one of the measures of an effective tax administration.
Frey, 2003	Tax administration true costs inclusive of auditing and its related costs as well as the cost to make sure the taxpayers pay taxes.
Wahab, 2013	Cost incurred on the skillful tax examiner hired for tax inspection was used to represent authority's administrative cost in this study.
Sokolovskyi, 2018	This study confirmed that checking declarations involves cost, namely the inspector's salary that is depending on the inspector's frequency of checking of declarations, resource cost that

			used by the inspector for controlling, and the cost of training for inspector.
Tax compliance	Mediator between effectiveness of tax administration and tax revenue	Alm and Beck, 1993	Tax compliance will be increased under a strong law enforcement and tax administration with the existence of tax amnesty.
		CTPA, 2018	High compliance by taxpayers is one of the measures of an effective tax administration.
		Knack, 2009	Tax administration includes tax compliance.
		Alm, 1999	Tax administration ensures compliance with tax laws.
		Antonakas, Giokas and Konstantopoulos, 2013	The effectiveness of tax administration will reduce with the existence of corruption in tax administration which decreases the tax revenue.
		Nkundabanyanga, Mvura, Nyamuyonjo, Opiso and Nakabuye, 2017	Governmental effectiveness, transparent tax system, and voice and accountability, are found to affect tax compliance significantly.

	Silvani and Baer, 1997	The factors causing low tax compliance include low levels of integrity and professionalism of the tax administration's staff, weak audit programs and many more.
	Yew, Milanov and McGee, 2015	A lack of experience in tax administration would generate low tax revenue.
	Makori, Alala, Owola, Musiega, Gogo and Kipchumba, 2013	An efficient and effective tax administration will raise tax compliance and tax revenue.
Dependent variable of tax evasion and tax avoidance; Endogenous variable	Wahab, 2013	IRBM increases compliance and fight tax evasion among businesses in order to protect the country's future.
	Che Rosli, Ming Ling and Embi, 2018	IRBM is suggested to administer tax audits more regularly to combat tax evasion in the effort of increasing tax compliance.
	Desai and Dharmapala, 2009	An increase in tax avoidance eliminates the possibility of pure compliance function from corporations.

	Nkundabanyanga, Mvura, Nyamuyonjo, Opiso and Nakabuye, 2017	In Uganda, tax compliance is influenced by a few determinants, for instance, the perceived worth and distribution of government expenses, taxation level, disparity in the tax system and evasion.
	Alm, 1999; Hudson and Teera, 2005; Mohamad, Zakaria and Hamid, 2016	Tax evasion and avoidance have different meanings. Tax evasion is an illegal way of running away from tax. Tax avoidance is a legal way of avoiding tax by taking advantage of loopholes in law.
	Giombini et al., 2018	Firms that evade tax would reveal only little information, not all income earned to finance institutions to reduce the probability to be audited.
	Alm, 1999	Tax evaders have incentives to conceal their cheating.
Dependent variable of tax compliance costs; Endogenous variable	Turner, Smith and Gurd, 1998	Examples of tax compliance costs are the cost of keeping records, preparing tax returns, dealing with tax auditors etc.

Pope and Rametse, 2002; Breen, Bergin-Seers, Roberts and Sims, 2002; McGregor-Lowndes and Conroy, 2002	Compliance costs could be categorized into start-up costs, implementation costs and on-going costs.
Zachary, Kariuki and Mwangi, 2017	Tax compliance costs are positively related to tax compliance by SMEs in Embu Country of Kenya.

2.12 Hypotheses Development

There are a few hypotheses developed with reference to the research framework designed for this research. The research framework and research hypotheses will explain the relationships between variables involved.

The effectiveness of e-filing is regarded as the modernization of tax administration from face-to-face and paper-based interactions to online administration. The implementation of electronic based tax filing (e-filing) has brought some advantages to the tax administrator (Silvani & Baer, 1997; World Bank, 2013; Koong et al., 2019) such as maximizing the tax revenue and minimizing tax administration costs (Silvani & Baer, 1997; Azmi & Kamarulzaman, 2010). Therefore, the concerns of the taxpayers' willingness and acceptance level of e-filing is important as the usage is a critical criterion to assess the success (Koong et al., 2019) and effectiveness of e-filing. Cotton and Dark (2017) mentioned that the tax administration needs to be more transparent,

more efficient and responsive to cater the needs of taxpayers and government. This is supported by Das-Gupta, Estrada and Park (2016), raising that tax administration related online and offline supporting documents should be easily accessible by taxpayers and tax administrators. The adoption of e-filing will improve administrative commitment through quality of tax service (Islam et al., 2012; Rahman, Othman & Amrin, 2018). Perceived usefulness, perceived ease of use and attitude towards technology from Technology Acceptance Model are tested through questions in questionnaire to investigate the effectiveness of e-filing in present study. Hence, the first hypothesis is suggested as follow:

Hypothesis 1: The more effective the e-filing, the more effective the tax administration.

Past studies and review of literatures have highlighted the positive association between the effectiveness of tax administration and tax revenue. According to Antonakas, Giokas and Konstantopoulos (2013); Rahman (2009) (as cited in Antonakas, Seimenis&Konstantopoulos, 2014; Antonakas, Konstantopoulos & Seimenis, 2014) and Das-Gupta, Estrada and Park (2016), a good tax administration will raise the tax revenue and then, the government revenue. Hajawiyah, Suryarini and Tarmudji (2021) and Huda and Hernoko (2017) concluded that an effective tax administration can raise tax revenue successfully through tax amnesty programs. An effective tax administration should be able to ensure high compliance, keep tax administration costs lower than tax revenue (WHO, 2010). From the perspective of agency theory, the effectiveness of tax administration which relies on IRBM (agent) carries influences to government (principal) in terms of tax revenue. The present research aims to inference the connection between effectiveness of tax

administration and tax revenue with the measurements of tax audit rule/ outcome and tax administration costs as proposed in the proposed research framework. Therefore, the second hypothesis is developed:

Hypothesis 2: A more effective tax administration will increase tax revenue.

According to Yew, Milanov and McGee (2015), tax compliance is a voluntary behaviour of taxpayers in reporting all income earned. The existence of tax administration ensures compliance with the tax laws (Alm & Beck, 1993; Alm, 1999). According to Alm (1999), an improvement of tax compliance can be done with an effective tax administration by increasing the audit and penalty rates. Che Rosli, Ming Ling and Embi (2018) suggested IRBM to administer tax audits more often to raise the taxpayers' tax compliance. Silvani and Baer (1997) found that the factors causing low tax compliance are low levels of integrity and professionalism of the tax administration's staff, weak audit programs and many more. Nkundabanyanga et al. (2017) added that the tax compliance are influenced by the effectiveness of the government, the transparency of the tax system, and accountability. These once again proved that the tax compliance is affected by the effectiveness of tax administration. Yew, Milanov and McGee (2015) stated that a lack of experience in tax administration would cause problems in tax which in turn will lower the tax revenue. In other words, higher tax compliance would help to generate higher tax revenues for the country. Ibrahim, Musah and Abdul-Hanan (2015) indicated that Ghana has undertaken a series of tax reforms to increase the tax compliance, decrease tax evasion and increase the tax revenue of the country. An efficient and effective tax administration will raise tax compliance and tax revenue (Makori et al., 2013). Hence, the following hypothesis is suggested:

Hypothesis 3: Tax compliance mediates the relationship between effectiveness of tax administration and tax revenue.

Tax administrative measures include fines, penalties, rates and tax audits (Chebusit et al., 2014; Kariuki & Zachary, 2019). Tax audit is very important in forming an effective tax administration (Silvani & Baer, 1997). It is necessary to detect tax evasion or underreporting of taxes as part of tax administration as Das-Gupta, Estrada and Park (2016) found that external audit reports could uncover the effectiveness of tax administration. The past studies showed that selecting correct or optimal tax audit rule/ outcome will improve the effectiveness of tax administration (Alm, 1999; Santoro, 2017). An optimally set tax audit rule is essential as Silvani and Baer (1997) found that a country did not sustain its tax revenue collection with weak tax audit programs. According to Alm (1999) and Belay (2017), a raise of tax audit and penalty rates can lead to an effective tax administration. Therefore, the effectiveness of tax administration is usually related to the tax audit rule set. In line with this, the fourth hypothesis is formed as follow:

Hypothesis 4: Tax audit rule has relationship with the effectiveness of tax administration.

Knack (2009) emphasized that tax administration includes tax collection, costs of collection, tax compliance, compliance costs and many more. In other words, Yitzhaki (1979) explained tax administrative costs as the costs incurred due to the administration of taxation while Turner, Smith and Gurd (1998) defined it as the costs incurred on government in the effort of collecting taxes. Tax administration costs are formed by auditing and its related costs (Frey, 2003),

cost incurred on the hiring of skilled tax examiner or inspector (Wahab, 2013; Sokolovskyi, 2018). Low administrative cost is one of the measures of an effective tax administration (CTPA, 2018). It is summarized that the tax administration cost will rise when the tax revenue rises (Yitzhaki, 1979; Knack, 2009; Wahab, 2013). However, the rise in tax administration cost should be lower than the rise in tax revenue to ensure the effectiveness of tax administration (WHO, 2010). In short, hypothesis as below is recommended:

Hypothesis 5: Tax administration costs is negatively related to the effectiveness of tax administration.

Tax evasion and avoidance are deemed as non-tax compliant actions that aim to reduce tax liability by the taxpayers. Tax evasion involves the dodge of the actual affairs to reduce the tax liability while tax avoidance is a legal way of avoiding from paying tax (Akhtar et al., 2017) by taking advantage of loopholes in law (Alm, 1999; Hudson & Teera, 2005; Mohamad, Zakaria & Hamid, 2016). Taxpayers that avoid from tax would disclose all the material information to the tax authorities (Akhtar et al, 2017). Tax compliance is referred as a voluntary behaviour of taxpayers in reporting all income earned (Yew, Milanov & McGee, 2015). Based on the review of previous literatures as discussed, tax evasion is the exact opposite of tax compliance, same goes to tax avoidance. This can be proven by Giombini et al. (2018) stating that the firms that evade tax would reveal only little information, not all income earned to finance institutions to reduce the probability to be audited. It is believed that fighting tax evasion could increase tax compliance (Wahab, 2013; Che Rosli, Ming Ling & Embi, 2018) while an increase in tax avoidance could eliminate the possibility of pure compliance (Desai & Dharmapala, 2009). Alm (1999) indicated that the tax

evaders have incentives to conceal their cheating. From the perspective of Theory of Planned Behaviour, tax evasion and avoidance is regarded as taxpayers' attitude which influences tax compliance that is regarded as behavioural intention. In short, regardless of tax evasion or tax avoidance, both of these refer to the non-tax compliance of the taxpayers. The opposite meaning of tax compliance and tax evasion and avoidance denotes the negative relationship between both of the variables. Henceforth, hypothesis 6 is recommended as follow:

Hypothesis 6: The lower the tax evasion and avoidance, the better the tax compliance.

Hudson and Teera (2005) explained tax compliance costs as the costs incurred by taxpayers in administering the tax affairs. This is a cost that incurred by taxpayers in the effort of fulfilling tax obligations (McGregor-Lowndes & Conroy, 2002; McKerchar, Hodgson & Walpole, 2009). For business taxpayers, the compliance costs that are most likely to incur are labour costs, external advisors' costs (Turner, Smith & Gurd, 1998; McGregor-Lowndes & Conroy, 2002; McKerchar, Hodgson &Walpole, 2009), tax agent fees, cost of keeping records, preparing tax returns, dealing with tax auditors etc. (Turner, Smith & Gurd, 1998). The costs incurred in the compliance of taxation are pulling taxpayers back to non-tax compliance. This is further supported by past studies which highlighted that one of the main reasons that make GST unfavourable is the rise in compliance costs (Pope & Rametse, 2002; Palil, Ramli, Mustapha & Hassan, 2013). Based on Theory of Planned Behaviour, perceived behavioural control influences behavioural intention in which it shows an influence of

compliance costs to tax compliance which are linked to the aforementioned elements respectively. The last hypothesis is formed as below:

Hypothesis 7: Tax compliance costs is negatively related to tax compliance.

2.13 Chapter Conclusion

This chapter is written to review the past literatures thoroughly. This chapter helps to prevent from the problem 'reinventing the wheel'. Based on the review of literatures, the researcher designed and proposed the theoretical framework based on various theories used in past studies. Besides that, the researcher drew up the research framework and hypotheses for this research in this chapter too. Abstract of definition and constructs were presented in this chapter with the justification on the adaptation of the constructs included.

CHAPTER 3

METHODOLOGY AND DATA SOURCES

3.1 Introduction

Chapter 2 reviewed the past literatures in the relevant fields in detailed. The conceptual framework, research framework and research hypotheses for this research have been proposed. This chapter continues by explaining the research paradigm and research philosophy, research design, and the research methodology used in this study. This chapter ends with data analysis, pre-test and pilot study for present research.

3.2 Research Paradigm

Kuhn (1962) used the word paradigm to define a philosophical way of thinking. Paradigm also carries the meaning of "pattern" in Greek. Kuhn (1962) defines research paradigm as a set of beliefs and agreements shared commonly between researchers regarding how problems should be understood and addressed. Mackenzie & Knipe (2006) used the term paradigm in educational research to describe a researcher's 'worldview'. According to Lather (1986), research paradigm is the researcher's views of the world that a person lives in, or would like to live in while Guba and Lincoln (1994) defined a paradigm as a primary set of beliefs or worldwide view that guides research action or an investigation. Paradigm is very important as it provides beliefs and dictates, which will influence a researcher in deciding what should be studied, how should it be studied, and how should the results be interpreted. A paradigm interprets a

researcher's philosophical orientation that will bring significant impacts for every decision made in the research process (Kivunja & Kuyini, 2017). Lincoln and Guba (1985) concluded a paradigm comprises of epistemology, ontology, methodology and axiology. These elements consist the assumptions, beliefs, values and norms of each of the paradigm. Research philosophy is illustrated as the belief on the data that should be collected, examined and used (Holden & Lynch, 2004). Thus, research paradigm and research philosophy play an important role in the research methodology process.

Kivunja and Kuyini (2017) defined epistemology as knowledge in Greek. It describes how are the people being informed of something, the truth or the reality. Cooksey and McDonald (2011) interpreted epistemology as knowledge within the world. It is a study of the nature of knowledge and justification (Schwandt, 1997). Guba (1990) illustrated epistemology as "how do you know something?". Epistemology is important in helping the researcher to establish the belief in data. It will affect the disclosure of knowledge in the context that will be investigated (Kivunja & Kuyini, 2017). In short, the epistemological paradigm represents the philosophical basis of research knowledge.

Slavin (1984) drew four main sources of knowledge to answer doubts like how are the people being informed of the truth and what is considered as knowledge. The knowledge is categorised into intuitive knowledge, authoritative knowledge, logical knowledge and empirical knowledge. Intuitive knowledge is formed when the knowledge is drawn from beliefs, faith, and intuition. If the data gathered relying on people, books, leaders, then the epistemological basis of the research is based on authoritative knowledge. If the reason is the main concern, then this approach is called logical knowledge while empirical

epistemology means research that emphasizes on the understanding of knowledge deriving from objective facts and sense experiences.

Ontology is a part of philosophy that deals with assumptions we make in order to believe that something is real (Scotland, 2012). Scott and Usher (2010) outlined the importance of ontology as it aids in the contribution of understanding the things that shape the world. It helps to conceptualise the nature of reality and its belief. It is important to understand the assumptions of reality in the effort of understanding how a researcher make the data gathered meaningful (Kivunja & Kuyini, 2017). The assumptions, concepts or propositions will aid in the thought pertaining to the problem of the research, significance of the research, how to approach the answer of the research question, looking for solutions of a problem.

Keeves (1997) explained methodology as a terminology that reflects the research design, research methods, procedures and approaches involved in research. Methodology covers data collection, respondents, instruments used, and analysis of data. In the consideration of methodology for research, a researcher needs to think how shall the researcher go about to obtain the data needed, information that will answer the research question and contribute to knowledge.

Axiology means the ethical issues that need to be taken into consideration during the planning of a research. According to Finnis (2011), axiology considers the philosophical approach in making right decisions. The decisions involve defining, evaluation and understating concepts of right and wrong behaviour of research.

Guba and Lincoln (1994) explained that both positivism and postpositivism are aiming for explanation especially enabling the prediction and control of phenomena. The criteria for these paradigms are rigor, internal validity, external validity, reliability and objectivity. These criteria rely on the realist ontological position (Guba & Lincoln, 1994). On the other hand, constructivism refers to the knowledge that consists of those constructions about which there is relative consensus among those competent to interpret the substance of the construction (Guba & Lincoln, 1994).

This research is conducted based all the four elements in a research paradigm, namely, epistemology, ontology, methodology and axiology. The effectiveness of e-filing, effectiveness of tax administration, tax compliance, and tax revenue are deemed the knowledge within the world and it follows the authoritative knowledge, logical knowledge and empirical knowledge. From the perspective of ontology, the researcher makes assumptions (hypotheses) to believe that something is real. The methodology of this research inclusive of data gathering, samples, instruments used and data analysis will be explained in the next section. Other than these, the planning of this research proposal is done ethically, therefore, the axiology element is discussed too. The present research will employ the positivism paradigm which refers to the social reality is singular and objective, and it will not be affected by the act of investigating it. Research conducted under positivism paradigm involves a deductive process that provides explanatory theories to understand the social phenomena. Positivism is related to quantitative methods of analysis based on the statistical analysis of quantitative research data (Collis and Hussey, 2013). With the research problems and research objectives set, this research will determine the perceptions of the

taxpayers on Malaysian tax administration and e-filing system according to the positivism paradigm.

3.3 The Design of Research

Research design is interpreted as a recommendation to conduct research that involves philosophy, strategies of inquiry and methods (Creswell, 2009). Creswell (2009) explained research design in the form of qualitative, quantitative and mixed methods approaches. The approaches of research will translate into the design processes of research such as questions design, data collection, data analysis, validation and etc.

Based on the previous section, this research is conducted to analyse the impact of the effectiveness of tax administration on tax revenue taking the effectiveness of e-filing and tax compliance into consideration based on positivism paradigm, therefore, this research will employ the quantitative research method.

According to Sekaran and Bougie (2016), there are six aspects in research design. The six main aspects in research design are the purpose of study, types of investigation, researcher interference level, study setting, unit of analysis and time horizon of the study.

Based on the explanation provided by Sekaran and Bougie (2016), the conclusion can be drawn as: this research is a causal study that is conducted based on an exploratory setting under a non-contrived setting with minimum

researcher interference. The data will be gathered individually and the gathering process will be done in a point of time.

3.4 Quantitative Research Methodology

This research will employ quantitative analysis approach. Quantitative approach is deductive in nature and it is based on questions or hypotheses of existing theory and knowledge. In a quantitative research, theories are being tested, methods are rigid, and the researcher maintains an objective distance from the research itself (Coyle & Tickoo, 2007). The following subsections will provide the overview of quantitative analysis from the population, sampling method, sample size, unit of analysis, data collection, questionnaire design aspects.

3.4.1 Population

A population is a complete group of people or items under consideration for a research purpose (Zikmund, 2003). Based on Fiscal Outlook 2020 published by Ministry of Finance Malaysia (MoF) (2019a), total number of taxpayers is just 16.5% of 15 million workforce in Malaysia while Department of Statistics Malaysia (DOSM) has reported that the total number of employed labour is 15,089,800 as of April 2019. This number excludes the unemployed and those outside labour forces such as housewives, students, retirees and those not interested to work (Department of Statistics Malaysia [DOSM], 2019a).

Based on the statistics provided, the population of taxpayers is approximately 2,570,964 individuals.

Besides that, there are 907,065 establishments of SMEs in Malaysia as of 2016 (SME Corp. Malaysia, 2019). As this research aims to understand the influence of the effectiveness of tax administration on taxpayers' compliance and tax revenue, taking the consideration that taxpayers are the one who are employed and SME owners (sole proprietorships), hence, the number of employed labours and SME owners in Malaysia are considered as the population of this research. Individual taxpayers are taken as the population of present study as it is the main contributors to income tax revenue while SME owners are included in the population of this research since more than 90% of total business establishments in Malaysia are formed by SMEs (SME Corp. Malaysia, 2021b) due to its huge contribution to the nation tax revenue.

3.4.2 Sampling Method

Sampling is needed as involving every single element into research is unattainable (Sekaran & Bougie, 2016). Besides that, sample is said to be sufficient to represent the whole population and it saves time in data collection. Hence, sampling is carried out to answer, prove the hypotheses set forth and enable researcher to conclude the whole population by choosing several elements in a population.

Sekaran and Bougie (2016) suggested two main categories of sampling methods namely probability and non-probability sampling. Probability sampling is described as a sampling method to be employed when elements in the

population have a known chance of being chosen as subjects in the sample. It suggests that a research sampling should be based on probability sampling when the data is known, i.e., a list of employees is available for research that involves only the employees of a company as the target respondents. On the other hand, non-probability sampling method is used when the elements in the population do not have any probabilities attached to them being chosen as sample subjects (Sekaran & Bougie, 2016). Based on the definition drawn by Sekaran and Bougie (2016) on the types of sampling methods, it is decided that this research will employ non-probability sampling method as only taxpayers and SME owners are the target respondents of this research. Apart from that, the employment of non-probability sampling method through purposive sampling and convenience sampling methods in present research is decided upon the unavailability of SME establishments and taxpayers' listing during the study. The application of convenience sampling method allows the researcher to collect data from the respondents surrounded while purposive sampling method is applied to make sure that the respondents selected are registered taxpayers.

Table 3.1 is statistics extracted from Department of Statistics, Malaysia with respect to distribution of employed labours by state in year 2019.

Table 3.1: Distribution of Employed Labours by State in Year 2019

State	Number of employed
Johor	1,805,700
Kedah	950,000
Kelantan	710,500
Melaka	432,900
Negeri Sembilan	497,800
Pahang	741,000
Pulau Pinang	852,300

Perak	1,080,300
Perlis	112,200
Selangor	3,592,900
Terengganu	488,200
Sabah	2,025,700
Sarawak	1,346,800
W.P. Kuala Lumpur	863,400
W.P. Labuan	43,300
W.P. Putrajaya	38,600
Total employed	15,581,600

Source: Labour Force Survey (LFS) Time Series Statistics by State, 1982-2019, Department of Statistics, Malaysia, 2019b

The number of employed labours by state in year 2019 is presented in Table 3.1. It shows that Selangor has 3,592,900 employed labours, recorded as the state with the highest number of employed labours. The rank of highest number of employed labours by state follows with Sabah, Johor, Sarawak, Perak which mark more than 1,000,000 employed labours in year 2019. The total number of employed labours in year 2019 hits 15,581,600 individuals.

Based on Fiscal Outlook 2020 published by Ministry of Finance Malaysia (MoF) (2019a), total number of taxpayers is just 16.5% of 15 million workforce in Malaysia. Therefore, number of taxpayers is approximately 2,570,964 individuals.

Table 3.2: Number of SME Establishments by State during the Period 2018/19

State	Total SMEs	Percentage (%)
Johor	98,190	10.8
Kedah	48,894	5.4
Kelantan	46,618	5.1
Melaka	31,361	3.5
Negeri Sembilan	32,721	3.6
Pahang	37,573	4.1

Pulau Pinang	66,921	7.4
Perak	75,140	8.3
Perlis	6,808	0.8
Selangor	179,271	19.8
Terengganu	29,324	3.2
Sabah	55,702	6.2
Sarawak	61,036	6.7
W.P. Kuala Lumpur	133,703	14.7
W.P. Labuan	2,567	0.3
W.P. Putrajaya	1,236	0.1
Total SMEs	907,065	100.0

Source: SME Annual Report 2018/19, SME Corporation Malaysia, 2020b

Table 3.2 shows number of SME establishments by state during the period 2018/19 extracted from SME Corporation Malaysia sourcing from Economic Census 2016 provided by Department of Statistics, Malaysia. Based on the table, Selangor shows the highest number of SME establishments at 179,271 establishments followed by Wilayah Persekutuan Kuala Lumpur at 133,703 establishments. Johor, Perak and Pulau Pinang are ranked as the third until the fifth state with the highest number of SME establishments at 98,190, 75,140 and 66,921 respectively.

Damayanti, Subekti and Baridwan (2015) applied multi-stage sampling inclusive of stratified random sampling and convenience sampling to examine the taxpayers' behaviour towards tax compliance. City or country in Central Java was selected using stratified random sampling while selection of town as sample location was done using simple random sampling. Convenience sampling was employed during respondents selection phase. Ser (2013) applied non-probability sampling to determine the extent of taxpayers' non-compliance behaviour due to the absence of list of taxpayers and the respondents' availability.

Convenience sampling, snowball sampling and purposive sampling method were used in the study because of convenience as well as the selection of respondents was based on the fulfillment of characteristics set by the researcher (Ser, 2013).

3.4.3 Sample Size

The target respondents are selected according to the research objectives set at the beginning of this research. Hence, the target respondents for this research are Malaysian taxpayers and business taxpayers (specifically SME owners). Collins (1984) defined taxpayer as the people who pay partial of their income to the government as tax. Therefore, the respondents of this research are taxpayers who will need to go through a self-administered questionnaire survey. The taxpayers will be checked on their perceptions towards the tax administration and how do tax administration and e-filing system influence them.

Based on Damayanti, Subekti and Baridwan (2015), a total of 220 questionnaires were distributed and returned in complete manner. On the other hand, Ser (2013) collected 247 usable questionnaires to examine the extent of taxpayers' non-compliance behaviour.

The sample size is calculated according to the formulae introduced by Krejcie and Morgan (1970). The formulae is stated as follows:

$$n = \frac{c^2 \times N \times P(1-P)}{[ME \times (N-1)] + [c^2 \times P(1-P)]}$$

where

n = sample size

c^2 = chi-square

N = size of the population

P = proportion of population (0.50)

ME = desired margin of error (= 0.05)

$$n\ is\ \frac{3.841 \times (2{,}570{,}964+907{,}065) \times 0.50(1-0.50)}{[0.05^2 \times (2{,}570{,}964+907{,}065-1)]+[3.841 \times 0.50(1-0.50)]}$$

$$= \frac{3{,}339{,}777.35}{8{,}696.03} = 384.0577$$

Based on the calculation, the sample size is 384 respondents for targeted respondents of 2,570,964 taxpayers and 907,065 establishments of SMEs.

3.4.4 Sample Location

The sample of this study was taken from the five states of Malaysia which have the highest growth and share of GDP in year 2018 taking constant price of year 2015. The states that contributed the highest growth and share of GDP are Selangor (6.8%), Wilayah Persekutuan Kuala Lumpur (6.7%), Johor (5.6%), Perak (5.3%) and Pulau Pinang (5.1%) (DOSM, 2019c). The sixth state that hit the highest growth and share of GDP is Negeri Sembilan which marks 4.2% of growth in GDP. However, Negeri Sembilan is not taken into sampling of this study as its growth does not hit 5% although it ranks sixth among all the other states in Malaysia.

3.4.5 Unit of Analysis

The term unit of analysis refers to the entity to be analyzed in scientific research (Dolma, 2010). According to Sekaran and Bougie (2016), the unit of analysis is determined based on research question set. The present research clearly shows the intention to find the influence of effectiveness of e-filing and effectiveness of tax administration along with the mediating effect of tax compliance on tax revenue. In reference to the research question, present research targeted taxpayers as respondents and it is confirmed that the unit of analysis selected is individual.

3.4.6 Data Collection

Collecting data using questionnaire serves as a dominant method for academic research, research for public institutions and business organisations (Agrawal, 2010). Agrawal (2010) defined questionnaire as a list of predesigned questions distributed to respondents for data collection purpose. In addition to this, Andreoni (1998) highlighted the need of using survey data in tax compliance related studies due to the difficulties in measuring tax evasion.

In this study, data was collected through questionnaire survey from taxpayers in Malaysia. The researcher collected data by sending online questionnaires to the respondents through messages and emails. Apart from this, the researcher will also collect data by sending questionnaire via email to the respondents who are staying out of Malaysia but originated from the selected sample location. The questionnaire was designed in English.

The researcher went through three steps of data collection processes consisting of contacting respondents, distributing online questionnaires and following up with respondents. Some individuals from Selangor, Wilayah Persekutuan Kuala Lumpur, Johor, Perak and Pulau Pinang as selected and presented in subsection 3.4.4 sample location were contacted as a preparation of questionnaire distribution. At the meantime, the researcher contacted some organisations from the selected locations to request for permission to collect data from the employees through online platforms. Upon the completion of contacting respondents, the researcher distributed online questionnaires to the public from the selected sample location and organisations that agreed to participate. The online questionnaires were sent to the target respondents using messages and emails. Physical distribution of questionnaires to the target respondents was not carried out due to the Movement Control Order (MCO) implemented in Malaysia which has restricted the researcher from travelling and meeting respondents physically. In line with the non-probability sampling method applied in present research, the researcher applied convenience sampling method by sharing the online questionnaires with friends and family. The researcher followed up with the organisations and individual respondents after a week from the distribution date to obtain the data collection status from the target respondents. The steps applied in this research is displayes in Table 3.3. The whole data collection process was completed in six months, from 1st June 2020 until 5th November 2020.

Table 3.3: Data Collection Process Applied for Present Research

Step 1: Contact respondents	• Contact some individuals from the selected sample location as preparation for questionnaire distribution. • Request for permission from some organisations to send questionnaire to the employees.

Step 2: Distribute online questionnaires	• Distribute online questionnaire to public from the selected sample location. • Send online questionnaire to the organisations for questionnaire sharing in the organisations.
Step 3: Follow up	• Researcher followed up with organisations and individual respondents.

3.4.7 Questionnaire Design

The present research aims at investigating the effectiveness of e-filing on the effectiveness of tax administration and the impact of the effectiveness of tax administration on tax revenue taking the mediating effect of tax compliance. As this research is conducted by using quantitative method, the data was collected by distributing self-administered questionnaire survey to taxpayers in Malaysia. The questionnaire of this research was adapted from a few literatures as shown in Section 2.11. According to Farrington (2009), about 3 items to 8 items are suitable in examining something that has rarely investigated in the past.

Table 3.4: Sources of Questions Adapted for Questionnaire

Sections	Sources
Effectiveness of e-filing	Davis (1985); Night and Bananuka (2019); Ser (2013)
Effectiveness of tax administration	Ser (2013)
Tax audit rule/ outcome	Ser (2013); Mamun, Entebang, Mansor, Yasser and Nathan (2014); Night and Bananuka (2019)
Tax administration cost	Ser (2013); Wahab (2013); Binglar and Oyadonghan (2019)
Tax compliance	Ser (2013); Night and Bananuka (2019)
Tax evasion and avoidance	Ser (2013); Mamun, Entebang, Mansor, Yasser and Nathan (2014)
Compliance costs	Ser (2013)
Tax revenue	Ser (2013); Mamun, Entebang, Mansor, Yasser and Nathan (2014)

Table 3.4 shows the sources of questions adapted for the formation of questionnaire set for present research. All the questions in the questionnaires were being adapted from the four sources as listed in the table.

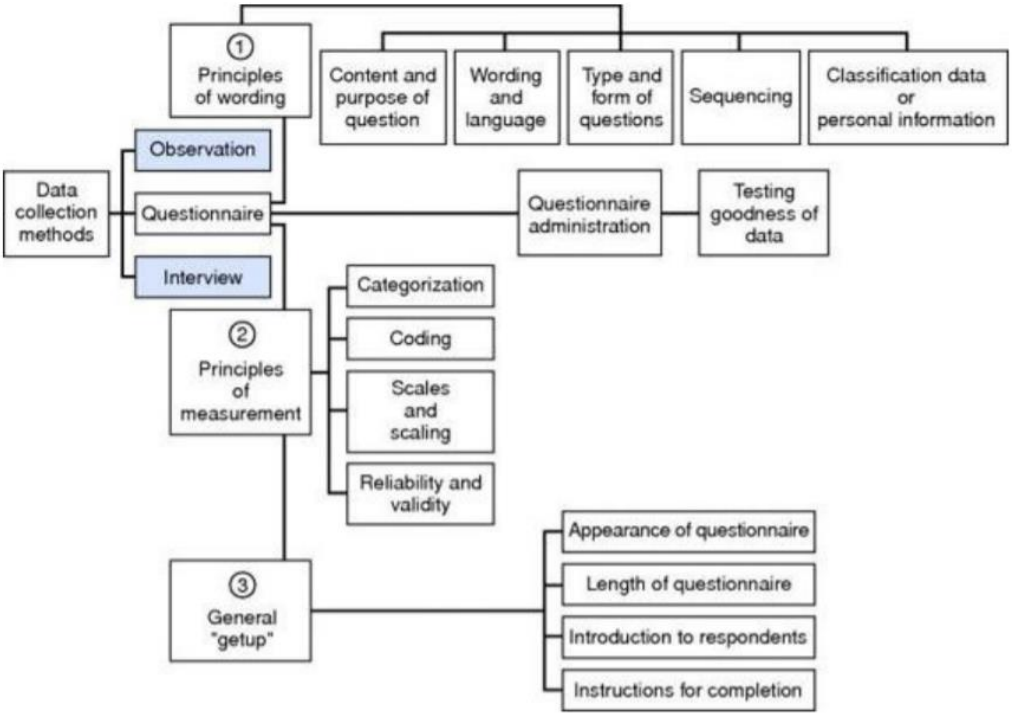


Figure 3.1: Principles of Questionnaire Design
Source: Sekaran and Bougie, 2016

Based on Figure 3.1, Sekaran and Bougie (2016) proposed that questionnaire design needs to fulfill three principles of questionnaire design namely principles of wording, principles of measurement and general "getup".

Principles of wording inclusive of content and purpose of question, wording and language, type and form of questions, sequencing and classification data or personal information. Principles of measurement concentrates on categorization, coding, scales and scaling and reliability and validity. The last principle of questionnaire, general "getup" involves appearance of questionnaire,

length of questionnaire, introduction to respondents and instructions for completion.

The content and purpose of questions is emphasized to make sure the appropriateness of the content of the questions. Questions asked are designed based on the nature of the variable in terms of subjective feelings or objective facts. The purpose of each question will determine the adequacy of variables measurement. In questionnaire designed for present research, all questions are appropriate since each of the question was carefully designed based on the variables proposed.

The factor of language and wording of the questionnaire under the principles of wording refers to how each question is worded in the questionnaire with proper language applied in the question design. The language and words used in question designing should depend on the level of understanding of the respondents (Sekaran & Bougie, 2016). The questionnaire writer must ensure that the respondents can understand the questions with no challenging, threatening and intimidating feeling exposed to the respondents (Brace, 2018). Failure in applying appropriate words and language during questions setting will lead the respondents to provide wrong answers. Appropriate words and language are used for all the questions created in the questionnaire designed for present study. Proper procedure to check and confirm each of the question was done during the pre-test and pilot test process.

The type of question refers to open-ended or closed-ended questions while the form of question refers to positively or negatively worded question. Open-ended questions are questions designed to allow respondents answer freely using

any preferred way and language whereas closed-ended questions are questions created together with choices provided to the respondents to select. Other than this, it is proposed that double-barreled questions, ambiguous questions, recall-dependent questions, leading questions, loaded questions and questions involving social desirability need to be avoided as these questions will lead to bias data collected from respondents (Sekaran & Bougie, 2016). Questionnaire designed for this research applied closed-ended questions and all the negatively worded questions were amended to positively worded questions during pre-test and pilot study processes to reduce confusion created on respondents. Apart from this, all the questions were examined to ensure its quality which carry assurance not to cause bias data collection.

In terms of sequencing of question, it is recommended that questions arranged in a questionnaire should follow funnel approach (Festinger & Katz, 1953) which flows from general questions to specific questions. Demographic related questions such as respondents' gender, age, residential state, education level and income level are included in the first section of the questionnaire for present research. More specific questions inclusive of questions related to variables are arranged in the second, third and fourth sections of the questionnaire.

Under classification data or personal information, Sekaran and Bougie (2016) suggested not to request for respondents' name in questionnaire unless it is necessary. Henceforth, the name of respondents was not requested during data collection of present research.

Apart from the principles of wording, principles of measurement are important to ensure the data collected are appropriate to test hypotheses developed. The principles of measurement comprise of categorization, coding, scales and scaling and reliability and validity. The available scales of questions are nominal, ordinal, interval and ratio. Appropriate scales need to be used to form questions based on the type of data involved. Reliability and validity of data obtained can be assessed through analyses to check on the goodness of data. Questions designed in the questionnaire prepared for present research applied nominal and ordinal scale in demographic questions. Questions such as gender and state of residence were designed using nominal scale while age, education level and income level applied ordinal scale. All the variable related questions were designed using interval scale by applying seven-point Likert scale taking 1 as “Strongly disagree”, 2 as “Moderately disagree”, 3 as “Slightly disagree”, 4 as “Neutral”, 5 as “Slightly agree”, 6 as “Moderately agree” and 7 as “Strongly agree”.

Finally, the general appearance or “getup” of the questionnaire is rather significant other than the principles of wording and principles of measurement. Sekaran and Bougie (2016) highlighted that a neat questionnaire will make the respondents easier to understand and answer. An attractive and neat questionnaire should be designed with appropriate introduction of research, proper instructions set and well-arrayed questions and response alternatives. The general appearance of the questionnaire designed for present research is satisfactory with a short introduction and purpose of the study to kick start the survey followed by demographic questions arranged neatly and ended with variable related questions grouped properly.

3.5 Data Preparation

Pyle (1999) categorized data preparation in the context of data exploration where the problems need to be solved rather than putting technology of paramount importance. A minimal data preparation has to be done for all types of modelling tool with the objective of making the content information enfolded in the data set more accessible through raw data manipulation and transformation (Pyle, 1999) as data preparation is an essential stage of data analysis (Zhang, Zhang & Yang, 2003). Researcher able to obtain an intense understanding of the data set collected through the initial stage of data examination. A data preparation includes data coding and data entry process. Data will be verified upon the completion of data entry process.

3.6 Data Analysis

The normality of data collected is examined to determine the data distribution of present research (Hair, Black, Babin, Anderson & Tatham, 2014). It is crucial to assess normality of a data to prevent from unreliable and invalid interpretation and inferences of data (Razali & Wah, 2011). Kurtosis is used to examine how peak of flat is a distribution while skewness provides idea on the balance of a distribution (Hair, Black et al., 2014; Hair, Hult et al., 2014).

SEM is used in this research seeing that this research comprises of a number of latent variables and numerous relationships among predictors. Data

collected was analysed using SmartPLS 3 software to find out the results. The subsequent subsections will briefly explain PLS-SEM.

3.6.1 PLS-SEM

Since the early 1990s, second-generation methods have expanded rapidly in social science research (Hair, Hult et al., 2014). The statistical methods often used by social scientists before the introduction of second-generation methods are called the first-generation techniques. However, many researchers have been turning to second-generation technique which is referred as structural equation modeling (SEM). This enables researchers to incorporate unobservable variables (latent variables) measured indirectly by indicator variables. Hair, Hult et al. (2014) raised the elements that need to be taken care of in selecting first or second-generation multivariate analysis methods. The important elements involved are the variate, measurement, measurement scales, coding and data distributions.

Partial Least Square Structural Equation Modeling (PLS-SEM) is a nonparametric statistical method that is used to analyse the relationships among the exogenous and endogenous variables and mediating effects of tax compliance towards effectiveness of tax administration and tax revenue. A nonparametric statistical method refers to a method which does not require the data to be normally distributed. However, the data should not be too far away from normal distribution. PLS-SEM employed in this research follows two-step procedure by Sarstedt, Ringle, Smith, Reams and Hair (2014) adopted from Anderson and Gerbing's (1988).

In the measurement of latent variables, reflective measurement model is used based on classical test theory. This measurement reflects the causality from a construct to the indicator variables (items). In this measurement model, all the indicator items are affected or caused by one single construct; therefore, the indicators should be highly correlated with each other. This also reflects that the indicator variables (individual items) should be interchangeable and any of the items can be removed or left out without altering the meaning of the construct provided the reliability of the construct is sufficient.

Formative measurement model which acts as the opposite of reflective measurement model is another type of measurement used to measure latent variables. Based on formative measurement model, the indicator variables caused or affected the constructs. Therefore, each indicator variable measures different aspects of the construct. This leads to the impossibility of interchange between the formative indicators as the indicators are independent causes of the construct. In line with this, removing an indicator will change the meaning of the construct.

Hair, Hult et al. (2014) has compiled the guidelines for choosing correct measurement model from several references. Formative measurement model should be used if the causal relationship between the indicator and the construct is going from the indicators to the construct, the construct is a combination of the indicators, the indicators represent the causes of the construct, indicators will not change even if the assessment of the trait changes and the indicators are not interchangeable. On the other hand, researcher should apply reflective measurement model if all of the above characteristics are met in an opposite manner.

Based on the guidelines mentioned above, the researcher of this study has decided to employ reflective measurement model to search for the relationship between the effectiveness of e-filing, effectiveness of tax administration, tax audit rule/outcomes, tax administration costs, tax compliance, tax evasion and avoidance, compliance costs and tax revenue.

The estimation of PLS-SEM models inclusive of two phases. The estimation of the measurement model is done before structural model. The estimation of the outer loadings, the structural model's path coefficients are examined in the first stage followed by the construct scores and the R^2 values of the endogenous latent variables. In general, the evaluation of the structural and measurement model are done using bootstrapping and blindfolding (Hair, Hult et al., 2014).

3.6.2 The Use of PLS-SEM

This research uses PLS-SEM since the research goal, model set-up and data characteristics are in line with the research settings highlighted in Sarstedt, et al. (2014). PLS-SEM is used for the ease of reflective latent variables measurement. It is more preferred in the estimation of this research as it applies minimal requirement and smaller sample size as compared to covariance-based structural equation modeling (CB-SEM) (Hair, Hult et al., 2014). Besides that, PLS-SEM allows the researcher to evaluate the structural model (inner model) which displays the relationships between the constructs and measurement model (outer model) which displays the relationships between the constructs and the indicator variables simultaneously. According to Henseler, Ringle and Sinkovics

(2009), PLS path modeling is suitable to be used in the early stage of theoretical development in testing exploratory models. As such, the nature of this study matches with the aforementioned idea in which exploratory model is suitable to be applied in this study.

This research has the goal of estimating the key target constructs, namely, the effectiveness of e-filing, effectiveness of tax administration, tax audit rule/outcomes, tax administration costs, tax compliance, tax evasion and avoidance, compliance costs and tax revenue. Other than this, this research is exploratory in nature, which makes it suitable to employ PLS-SEM as the statistical analysis tool. There are six constructs and one mediator which create few paths in the research framework. Other than this, this research requires a minimum of 384 samples in reference to the formulae developed by Krejcie and Morgan (1970). Nevertheless, according to Sarstedt et al. (2014), the reliability and robustness of PLS-SEM estimations are significantly influenced by the size of respondents.

3.6.3 Understanding the Measurement Model Assessment

Constructs and measures are needed to be rationalized before the assessment of measurement model. Indicators are considered as observable and quantifiable items obtained from several data collection method such as interview, questionnaire distribution, observation and many more. According to Ramayah, Cheah, Chuah, Ting and Memon (2018), indicators are also named as observed variables or manifest variables that are used to measure the unobserved variables which is also called latent variables or factors.

There are two types of measurement models namely reflective model and formative model. These models are differed by the determination at the outer model based on the reflective or causal relationship between indicators and latent variables or constructs (Ramayah et al., 2018).

A reflective model appears if the causal arrows point from the latent variable to the indicators where the indicators serve as the representative of the latent variable. Haenlain and Kaplan (2004) and Hulland (1999) indicated that the indicators are highly correlated and interchangeable in which a removal of any of the indicators will not influence the meaning of the latent variable in a reflective model.

Conversely, a formative model shows arrows pointing from the indicators or items to the latent variable. Indicators in a formative model cause or form the measurement of the latent variable and are not interchangeable among one another. Removal of any of the indicators will cause consequential effect on the validity of the latent variable.

Referring to the guidelines shown in Appendix B and the review of past studies presented in Chapter 2, Table 3.5 summarizes the measurement models applied in this research.

Table 3.5: Summary of Measurement Model Applied for this Research

Constructs	Measurement Model
Effectiveness of E-Filing	Reflective
Effectiveness of Tax Administration	Reflective
Tax Audit Rule/Outcome	Reflective
Tax Administration Costs	Reflective
Tax Compliance	Reflective
Tax Evasion and Avoidance	Reflective

Compliance Costs	Reflective
Tax Revenue	Reflective

In reference to Table 3.5, all constructs for present research are measured using reflective measurement.

3.6.4 Processes of PLS-SEM

There are three steps in the assessment of the empirical PLS-SEM results of reflective measurement model. First of all, the internal consistency reliability needs to be determined. It is employed to examine the results consistency covering indicators using the same test as it checks correlations between indicators (Hair, Hult et al., 2014). Cronbach's alpha value, composite reliability and outer loadings are the appropriate measurement in the determination of internal consistency reliability of present research.

Next, convergent validity is investigated as a measurement in assessing the extent to which two measures under the same concept are interrelated. Average Variance Extracted (AVE) is used to measure convergent validity due to its common application criterion (Fornell & Larcker, 1981; Hair, Hult et al., 2014).

Thirdly, the reflective model of present research is tested for its discriminant validity upon the establishment of reliability and convergent validity. The discriminant validity discovers the extent of a construct distinct from other constructs (Hair, Black et al., 2014; Hair, Hult et al., 2014; Sarstedt, Ringle & Hair, 2017). Fornell-Larcker criterion and Heterotrait-Monotrait (HTMT) ratio of correlations are used as the measurement of discriminant validity.

The structural model analysis will be conducted upon the completion of the measurement model evaluation. It is used to examine the independent relationships between the constructs proposed in the research framework of present research.

There are five steps involved in the analysis of structural model using PLS-SEM containing structural model assessment which assesses collinearity issues, the significance and relevance of the structural model relationships, the level of R^2, the effect sizes f^2 and the predictive relevance Q^2. Such process is shown in Appendix C.

Lateral collinearity issue is crucial in the first step of assessing a structural model. This step helps to uncover the strong causal effect in a model even when it has met the criteria of discriminant validity. Collinearity issues can be examined using Variance Inflation Factor (VIF). The rule of thumb shows that a VIF value of 5 or higher (Hair, Ringle & Sarstedt, 2011) or VIF value of 3.3 or higher (Diamantopoulos & Siguaw, 2006) indicate potential collinearity problem.

Second step of a structural model analysis is to examine the significance and relevance of the structural model relationships which is also equivalent to the path coefficients. It also represents the hypothesized relationships that link the constructs. Path coefficient values are standardized on a range from -1 to +1 representing strong negative and strong positive relationships respectively (Ramayah et al., 2018).

The value of R^2 is then assessed in step 3. This step assesses the coefficient of determination which evaluates the model's predictive accuracy that displays

the combined effect of exogenous variables on endogenous variables (Ramayah et al., 2018). The amount of variance in the endogenous variables explained by all the exogenous variables linked to it follow a few rules of thumb in the decision making of an acceptable R^2. The rules of thumb will be presented in subsection 4.11.3.

In step 4, effect size f^2 is measured to assess the relative impact of a predictor construct on an endogenous construct (Cohen, 1988). Ramayah et al. (2018) explain f^2 as how strong the contribution of one exogenous construct in explaining an endogenous construct in terms of R^2. The calculation of f^2 and acceptable f^2 value will be presented in subsection 4.11.4.

The final step of a structural model analysis concentrates on the assessment of predictive relevance Q^2. The blindfolding procedure will be used in such assessment. Ramayah et al. (2018) explain blindfolding procedure as a resampling method that deletes and predicts all data of the indicators reflecting measurement model of an endogenous construct. The rule of thumb of Q^2 measurement will be presented in subsection 4.11.5.

The mediation effect of tax compliance towards the association between effectiveness of tax administration and tax revenue is assessed before confirming the results of hypotheses testing using *t* value and *p* value as well as β value.

Finally, the importance and performance matrix analysis (IPMA) are considered for the performance and importance of each construct.

3.7 Pre-test

According to Converse and Presser (1986), pre-test is defined as an important phase to detect problem areas, minimize error of measurement and burden put on respondents as well as to assure the respondents' understanding on the questions designed. Other than that, pre-test can also make sure that the order of questions is correct and does not influence the way a respondent answer. In short, pre-test is an examination of the survey which helps to identify whether a survey can be a valid and reliable social science research tool (Converse & Presser, 1986). Sheatsley (1983) suggested researchers to try out questionnaire through pretest with family, colleagues and strangers to design the best questionnaire.

Pre-test for this study was conducted by sending the drafted questionnaire to an academician who had conducted research on Malaysia's tax system, two academicians with strong research background, and an experienced tax consultant for questionnaire review. All the experts were very supportive and helpful in giving valuable comments on the questions designed.

Referring to the feedback given by the experts involved in pre-test, the respondents' annual personal income has been amended to commence with RM42,000 as individuals with annual personal income of RM42,000 and above are liable to tax payment while individuals with annual personal income below RM42,000 are needed to file tax but not liable to tax payment. The subsequent choices are formed with the interval of RM10,000 each category since the number of people with high annual personal income is smaller than those with low- or middle-income level in Malaysia. Besides, the question 'I always receive

a notice of assessment from Inland Revenue Board of Malaysia' has been deleted from questionnaire with the reason of the notice of assessment is no longer sent to the taxpayers under self-assessment system. Question 'I think the transition costs incurred due to legal reformation is high' has been deleted from the questionnaire due to the mismatch of question and variable proposed.

It is recommended to target the data collection from individual taxpayers only seeing that employees, sole proprietors and partnerships are also individual taxpayers. This recommendation leads to a suggestion to remove the gathering of data for annual business income from respondents. However, this suggestion has not been taken into consideration due to the agreement to retain the question of annual business income obtained from the other experts with additional options such as 'Not relevant to me, I am not running a business' and 'Not relevant to me because of other reasons' designed for the respondents. A suggestion to add two questions 'A high tax rate leads to tax evasion' and 'A high tax rate leads to tax avoidance' is provided by the pre-test panelist too.

Some opinions to rephrase the questions have been proposed by the pre-test panelists. Amongst the recommendations given, the questions have been rephrased and presented in Table 3.6.

Table 3.6: Questions Before and After Pre-test

Questions before pre-test	Questions after pre-test
I use e-filing system to file tax effectively.	I use e-filing system to file tax due to its effectiveness.
I am quite knowledgeable about how to use e-filing.	I am quite knowledgeable about how to use e-filing.
I have positive feelings for e-tax system.	I have positive feelings for e-filing system.
I feel happy interacting with e-filing system.	I feel satisfy to file tax via e-filing system.

The e-filing system is flexible to interact with.	The e-filing system is flexible to use.
My interaction with e-filing system is clear and understandable.	E-filing system is clear and understandable.
There is shortage of experienced and highly motivated personnel for tax assessment and tax collection.	There is a shortage of experienced personnel for tax assessment.
Overall, the system of tax administration in Malaysia is efficient and effective.	Overall, the system of tax administration in Malaysia is efficient.
Overall, the system of tax administration in Malaysia is efficient and effective.	Overall, the system of tax administration in Malaysia is effective.
Inland Revenue Board of Malaysia officials always come to me to demand tax due.	Inland Revenue Board of Malaysia officials always come to me to verify tax documents.
It is all right to occasionally understate certain income or claim a disallowable expense.	It is alright to occasionally understate certain income.
It is all right to occasionally understate certain income or claim a disallowable expense.	It is alright to occasionally claim a disallowable expense.
Taxes are so heavy that tax non-compliance is an economic necessity for many to survive.	People evaded tax due to economy slowdown situation.

The drafted questionnaire was amended and sent to respondents for pilot study.

3.8 Pilot Study

Pilot study is defined as a mini study of a proposed project. Pilot study furnishes researchers with information of the research project whether the project is feasible, reliable and valid for the population. Besides, it also determines whether the research project has an accessible and available population (Brink, 1988). It is added that a pilot study is a helpful in the planning

and modification of a study (Arnold, Burns, Adhikari, Kho, Meade & Cook, 2009; Thabane, Ma, Chu, Cheng, Ismaila, Rios, Robson, Thabane, Giangregorio & Goldsmith, 2010). In (2017) highlighted one of the reasons to conduct a pilot study is to get the preliminary data for the primary outcome. Brink (1988) also emphasized the importance of pilot study for research that does not have a data collection instrument identical to the one suggested by previous authors. Upon the collection of data for pilot study, researcher needs to test reliability and validity of the result collected and ensure that it matches the results obtained by previous researchers.

Pilot studies were carried out in this research with the objective to determine the effects of tax administration and tax compliance on Malaysia's tax revenue. The first and second pilot studies were conducted on 33 and 31 taxpayers during end of year 2019 and beginning of year 2020 respectively from Selangor, Wilayah Persekutuan Kuala Lumpur, Johor, Perak and Pulau Pinang who have experience in e-filing. The respondents were politely asked to answer the questionnaire sent to them in the form of hardcopies as well as online questionnaire.

There were two pilot studies being conducted for this study. The second pilot study was conducted upon insignificant indicators found from the result obtained in the first pilot study. The questionnaire was amended before it was sent out for the conduction of second pilot study. Questions amended are listed in Table 3.7.

Table 3.7: Questions Amended from First Pilot Study

Questions included in first pilot study	Questions amended for second pilot study
Overall, current tax law in Malaysia is not complex.	Overall, current tax law in Malaysia is straight forward.
I am quite knowledgeable about how to use e-filing.	I am quite knowledgeable in using e-filing.
I feel satisfy to file tax via e-filing system.	I feel satisfied filing tax via e-filing system.
E-filing system is clear and understandable.	E-filing system is clear.
E-filing system is clear and understandable.	E-filing system is understandable.
I think the tax authority would not be able to find out even I failed to declare some earnings from commission.	I think I am safe from tax audit even I fail to declare some earnings from commission.
I pay actual tax assessed to Inland Revenue Board of Malaysia.	I pay tax in full to the Inland Revenue Board of Malaysia.
It is not wrong to understate some income since it does not really hurt other taxpayers.	It is alright to understate some income since other taxpayers is indifferent about it.
Tax evader cannot be blamed for not complying to tax since everybody is doing the same.	Tax evader can be forgiven since everybody is doing the same.
A high tax rate leads to tax non-compliance.	A high tax rate leads to tax evasion.
A high tax rate leads to tax non-compliance.	A high tax rate leads to tax avoidance.
I think the government is using the revenue wisely.	I think the government is using the tax revenue wisely.
It is not so wrong to declare less on taxable income since the government spends too much on extravagant projects.	It is alright to declare less on taxable income since the government spends too much on extravagant projects.
I think people are not enlightened on how tax revenues are being utilized by government.	I think people are in the dark on how tax revenues are being utilized by government.
I do not feel like paying taxes as long as the government cannot be trusted.	I refuse to pay taxes as long as I think the government is unreliable.

After the second pilot study on 31 respondents, the data collected were used to assess the construct reliability and validity using PLS-SEM assessment.

The main criteria referred from the assessment are outer loadings, composite reliability, convergent validity and discriminant validity. Upon the data analysis conducted on pilot study, the composite reliability obtained for all constructs are above 0.70 while all AVE values are above 0.50 proving the pilot study meets both composite reliability and convergent validity. Besides, Cronbach's alpha coefficient for all constructs in the pilot study are above 0.70 except for construct tax evasion and avoidance recorded a value of 0.665 which is above 0.50. Such result assures the reliability of the questionnaire. On top of that, all indicators are retained for actual data collection as the outer loadings for all indicators are above 0.50. In terms of discriminant validity, Fornell-Larcker criterion and Heterotrait-Monotrait (HTMT) ratio of correlations are considered. Based on the results of Fornell-Larcker criterion obtained from the pilot study, all the square root of AVEs on the diagonal are the highest in every single column except for construct effectiveness of tax administration which marks the highest *t* value when it crosses with construct tax compliance. On the other hand, results obtained from the HTMT approach for all constructs are below 0.90 except for the relationship between effectiveness of tax administration and tax compliance as well as relationship between effectiveness of tax administration and tax evasion and avoidance. However, these constructs are retained for larger sample size to test the mediating effect of tax compliance between effectiveness of tax administration and tax revenue.

3.9 Chapter Conclusion

Chapter 3 discussed the adoption of the positivism paradigm. The research design employed in this research are exploratory in nature, causal under a contrived setting with minimum researcher interference level. The data will be collected one-shot and the respondents are analysed individually. The sample will be selected from the employed labours acting as the proxy for Malaysia taxpayers and SME establishments in Malaysia. The sample size targeted for present research is 384 individuals from Selangor, Wilayah Persekutuan Kuala Lumpur, Johor, Perak and Pulau Pinang, Malaysia. Questionnaire will be designed for data collection purpose to draw conclusion for the research objectives and questions set forth. The questionnaire design is discussed in this chapter too. PLS-SEM will be employed in this research where reflective measurement model is decided to be used in the analysis. Upon the completion of measurement model assessment, present research will conduct structural model assessment with the procedures of PLS-SEM presented. The last part of this chapter provided an overview of pre-test and pilot study for present study.

CHAPTER 4

RESULTS AND INTERPRETATION

4.1 Introduction

Chapter 3 outlined the research methodology adopted in this study in detail. This chapter carries on with the discussion of research ethics, response rate, nonresponse bias, data preparation and data verification. Besides that, the descriptive statistics will also be included followed by the approach used for statistical analyses with the assistance of PLS-SEM. This section commences with reflective measurement model assessment inclusive of internal consistency reliability, convergent validity and discriminant validity. Then, the structural model evaluation consisting collinearity assessment, path coefficients, coefficients of determination (R^2), effect size (f^2) and predictive relevance (Q^2) will be appended. The statistical analysis of mediating effect is included after the assessment of structural model. This chapter then presents the Importance Performance Matrix Analysis (IPMA) prior to a short conclusion made at the end.

4.2 Research Ethics

Research ethics is crucial in conducting research project as it promotes knowledge and truth of a research. Besides that, adherence to research ethics will help to avoid from error. It is specifically important if a research project involves human or animal subjects, human issues, or personal data (UTAR Research Portal, 2021). The researcher had obtained approval from Universiti Tunku

Abdul Rahman (UTAR) Scientific and Ethical Review Committee to collect data using questionnaire before the actual distribution. The researcher enusre that this study is executed complying to UTAR researcher ethics related policies and guidelines. The finalized questionnaire has been sent to the UTAR Scientific and Ethical Review Committee for vetting and approval. During the data collection through distributing web-based or online questionnaire, the researcher ensured that the questionnaire commenced with a cover page emphasizing all the information provided will remain confidential and it will not be disclosed to any other parties. Apart from this, all respondents remain anonymous in this study. None of the individual respondent and companies name is required during the participation of research. It has also mentioned that all the participation are in voluntary basis which means no participant was forced to answer the questionnaire. Other than this, the cover page highlighted that the researcher will keep the respondents' inputs privately and confidentially for academic use only. The details and objective of the research have also been stated in the cover page so that the respondents are clear with the aim of this research before commencing their participation on this study.

4.3 Response Rate

Social science research is a kind of research that illustrates human behaviour. As such, the findings of social science research are based on the answers collected from target respondents. However, inconsistent questions asked on different respondents may cause ambiguous answers that lead to ineffective, inaccurate and bias outcome of the research (Acharya, 2010). In line

with this, questionnaire becomes an important instrument in behavioural studies (Baruch, 1999) as it can provide insight into individual perceptions and attitudes as well as organisational policies and practices (Baruch & Holtom, 2008). As such, the construction of questionnaire is of important as it will affect the analyses, outcomes and conclusions of the research. Besides, constructing a good questionnaire will keep the interests of the researcher and respondents (Agrawal, 2010). According to Rogelberg and Stanton (2007), 100% response rate rarely achieved unless the target respondents are forced to participate in the questionnaire survey. Baruch and Holtom (2008) concluded that the average response rate for studies on individual respondents and organisations are 52.7% and 35.7% respectively. The response rate for this study has not achieved 100% and this is in line with the response rate proven by Rogelbergh and Stanton (2007) and Baruch and Holtom (2008).

Evans and Mathur (2018) presented a work that provide insights to researchers on different levels of online survey experience. Numerous strengths of online surveys such as flexibility, speed and timeliness, technological innovations, convenience, low administration cost, ease of data entry and analysis, ease of follow-up, large sample easy to obtain and many more have been highlighted in the paper. However, some weaknesses of conducting online surveys such as technological variations, unclear answering instructions, privacy issues, low response rate to name a few have been listed too. Low response rate has been an important issue for online researchers although it is possible to obtain large samples with low costs involved (Evans & Mathur, 2018). Manfreda, Bosnjak, Berzelak, Haas and Vehovar (2008) concluded that the average response rate for online surveys is 11% and it dropped further since then.

A total of 2,000 sets of online questionnaires has been distributed by electronic mail and text messages to the target respondents consisting of individual taxpayers and SMEs in Selangor, Wilayah Persekutuan Kuala Lumpur, Johor, Perak and Pulau Pinang, Malaysia from 1st June 2020 until 5th November 2020. The data collection has been done solely online due to the government implementation of Movement Control Order (MCO) in the country and restriction of states crossing as an effort in curbing the spread of COVID-19. In short, there is no data collected through paper questionnaires. Therefore, the researcher has set all the questions in the online questionnaires as mandatory to avoid from incomplete participation from the respondents. This has led to 395 sets of complete and usable questionnaires returned to the researcher. The response rate of this research is 19.75% which is higher than the 11% response rate proposed by Manfreda et. al. (2008).

4.4 Non-response Bias

Non-response is a significant concern for every researcher because it may lead to bias in the estimates (Lynn, Leeuw, Hox & Dillman, 2008). It is explained as the expected error in population characteristics estimation (Berg, 2005) while Pont (2007) defined it as the bias occurs when the respondents selected for questionnaire participation refuse to participate in the survey. In other words, nonresponse bias arises when some of the target respondents unwilling or unable to participate or complete the questionnaire.

Response rate is considered as a near universal data quality measurement (Biemer & Lyberg, 2003) but a number of studies has proven the unnecessary

direct link between non-response rate and non-response bias (Wagner, 2012). Hendra and Hill (2019) found that the relationship between response rate and survey non-response bias is scant. Samples with high response rate were concluded with a similar non-response bias as samples with low response rate. Besides, lower response rate can be obtained more timely and less expensive without jeopardising validity of the results. Therefore, worthiness of the suggested 80% of response rate should be reconsidered by researchers as there is no evidence to prove its optimality. In line with this, researchers are advised to reduce the research expenditure for the increase of response rate as a high response rate may bring little or no reduction in non-response bias whereas researchers should invest in research methods and techniques in order to reduce the non-response bias (Hendra & Hill, 2019). Biemer (2001) suggested the researchers to put more focus on the interview mode, the design of data collection process, and other features of a survey design in data quality judgement. Researchers should not judge the data quality solely based on response rate. Groves (2006) shares the same opinion as Hendra and Hill (2019) by confirming that nonresponse rate can only justify about 11% of the non-response bias. The study further supported that the nonresponse rate does not serve as a good predictor of bias magnitudes. Other than that, Groves and Peytcheva (2008) carried out 59 methodological studies in the effort of estimating non-response bias and found that the significant correlation between response rate and non-response bias does not exist. Several studies have added to the literature of low response rates do not necessarily lead to high non-response bias (Keeter, Miller, Kohut, Groves & Presser, 2000; Curtin, Presser & Singer, 2000; Keeter, Kennedy, Dimock, Best & Craighill, 2006). These

arguments have led to suspicion of high response rate being crucial in non-response bias estimation and also created doubtfulness of guaranteed good data quality with the presence of high response rate.

One of the approaches to identify non-response bias is to carry out an intensive follow-up of non-respondents and compare it with respondents using standard survey procedures (Wild, Cunningham & Adlaf, 2001). A subjective approach to deal with the potential problem of non-response bias is by involving the perception of a panel of experts in identifying the survey items that are subject to non-response and state the direction of the bias (Lambert & Harrington, 1990). Biemer (2001) depended on telephone follow up survey on the face-to-face survey non-respondents to estimate the non-response bias. Dillman (2000) recommended to give a token of appreciation to respondents as an effort in increasing the response rate of a self-administered questionnaire. Non-response bias measured through a data comparison between respondents and non-respondents is estimated to be higher in an older or more general population when it comes to health-related survey (Martikainen, Laaksonen, Piha & Lallukka, 2007). Other than this, Kontto, Tolonen and Salonen (2020) found that some demographic factors were associated with low response rate and non-response which could under estimate the results obtained from the surveys carried out and limit the reliable comparisons between population sub-groups which might eventually lead to non-response bias. Kontto, Tolonen and Salonen (2020) suggested an implementation of more sophisticated methods such as multiple imputation to control the potential bias caused by non-response. Bhattacharya, Rao and Glynn (1995) suggested to compare characteristics and

demographic factors of respondents as an estimation of potential discrepancies between respondents and non-respondents.

The findings found from survey conducted by Kypri, Samaranayaka, Connor, Langley & Maclennan (2011) suggested that non-response bias occurs in telephone, postal, and face-to-face surveys can also be seen in web-based surveys. Present research did not adopt the above suggestions to handle non-response bias for four reasons. First and foremost, non-response bias has very scant correlation with response rate (Keeter, et al., 2000; Curtin, Presser & Singer, 2000; Groves, 2006; Keeter, et al., 2006; Groves and Peytcheva, 2008; Wagner, 2012; Hendra & Hill, 2019). Secondly, comparison between non-respondents and respondents upon an intensive follow-up of non-respondents suggested by Wild, Cunningham and Adlaf (2001) is impossible due to the promise of confidentiality made to all respondents. It is impossible to trace the identities of non-respondents as all the respondents participated in this survey anonymously. Thirdly, giving token of appreciation to target respondents in order to increase the response rate as recommended by Dillman (2000) could not be done in this study as all the data were collected online and the researcher did not have chance to meet with the respondents. Lastly, Kypri, et al. (2011) concluded that non-response occurs in all types of surveys and this is seen as a normal scenario.

4.5 Data Verification

The process of data verification is important to make sure that the data is usable, valid and complete in higher level statistical analysis. Tabachnick, Fidell

and Ullman (2007) arranged the data screening prior to analysis from the identification of missing data, analysis of outliers case, data normality testing, to common method variance testing.

4.5.1 Missing Data

Missing data arises when the respondents miss answering one or more questions intentionally or unintentionally. This problem is pervasive in social science (Allison, 2001), behavioural, and medical science research (Enders, 2010). However, this problem does not exist in present research as all the data collected were complete.

The researcher collected data using web-based system. As such, the questionnaire has been converted into a web-based questionnaire and entered into the system mentioned above. The researcher has made all questions as mandatory in the web-based system in which the respondents will not be able to proceed to answer next section without completing all the questions set in the precedent sections. This action has brought the chances of receiving incomplete questionnaires to zero. Despite the convenience brought by web-based data collection, the added advantage of reducing the chances of missing data has made it to be even more popular and commonly in used. Altogether, web-based questionnaires will help to generate complete responses from the respondents.

As aforementioned, present research does not suffer from the problem of missing data, therefore, it translates to 0% of missing data issue. All the responses received are complete and accepted for data analysis.

4.5.2 Outliers

Outlier is defined as an observation that diverges a lot from the other observations which leads to suspicions (Aggarwal, 2015). According to Hodge and Austin (2004), outliers emerge as a result of mechanical faults, changes in system or fraudulent behaviour, human or instrument error or just natural deviations found in populations. The detection of outliers can recognize faults and fraud before it contaminates the data set and causes catastrophic consequences (Hodge & Austin, 2004). There are a lot of methods in outlier identification including the use of IBM SPSS Statistics 23 software package which is being utilized in this research. The results from the software package show that there are only mild outliers detected and they do not need to be eliminated from the data set since it could not be significantly proven to impurify the sample or the normality of the population (Dawson, 2011).

4.5.3 Data Normality

Normality test is vital in economic and financial data as it affects many estimations, inferences, and forecasting methods (Alejo, Bera, Montes-Rojas Galvao & Xiao, 2016). It is said to be an elementary assumption in multivariate analysis which shows the shape of the data distribution and its correlation to the normal distribution (Hair, Black, Babin, Anderson & Tatham, 2014). Hair, Black et al. (2014) and Hair, Hult et al. (2014) indicated that the shape of a data distribution can be described by kurtosis and skewness in which kurtosis refers to how peak or how flat is a distribution while skewness describes the balance

of a distribution. According to Hair, Black et al. (2014), PLS-SEM does not require the data to be normally distributed since it is a nonparametric statistical method. Nevertheless, normality test is still important for PLS-SEM to make sure that the data are not too far from normal to avoid from problems occurred in the assessment of parameters' significance caused by severe non-normal data (Hair, Black et al., 2014).

Skewness determines a variable distribution's symmetricity. A distribution is defined as skewed when the distribution stretched to either the left or right tail instead of being symmetrical. In general, a distribution is confirmed to be substantially skewed if the number is greater than +1 or lower than -1. Similarly, a distribution is said to be too peaked if the number of kurtosis is greater than +1 whereas it is too flat if the kurtosis number is less than -1. Skewness and kurtosis can be measured in all statistical programs where most of the programs indicate that the values of skewness and kurtosis are close to zero under a normal distribution. In other words, normality is not achieved when the values of skewness and kurtosis are not equal to zero (Hair, Black et al., 2014). The results of present research show that the skewness and kurtosis of all the variables are between -1 and +1. Thus, present research has a normally distributed data.

In addition, Hair, Black et al. (2014) concluded that large sample sizes of 200 or more may help to neglect the effects caused by non-normality seen from small sample sizes of 50 or fewer observations. Thus, the researcher can put less concern about non-normality as the sample sizes become large. Hair, Hult et al. (2014) emphasized that although Kolmogorov-Smirnov test and Shapiro-Wilks test are designed to test normality, but these tests provide only limited guidance

in deciding whether the data are far from normally distribution as the bootstrapping can still perform fairly when data are non-normal.

Based on the incorporation of the arguments and results shown above, the data normality distribution is met in present research.

4.5.4 Common Method Bias

Common method bias which is also named as common method variance acts as a serious and problematic issue that happens when the relationships among constructs are distorted which might threaten the validity of the research findings (Rodríguez-Ardura & Meseguer-Artola, 2020). According to Podsakoff, MacKenzie and Podsakoff (2012), the altered values of the observed correlations or relevant indicators caused by common method variance will generate incorrect estimates of reliability, convergent validity, parameter estimates related to the magnitude and the significance of the relationships among constructs in the study.

Rodríguez-Ardura and Meseguer-Artola (2020) emphasized that common method variance most frequently seen in studies that collect data using questionnaire instruments over a specific timeframe which contain self-report scales to measure explanatory and dependent constructs. A long questionnaire used in cross sectional study has higher possibility to suffer from common method variance as respondents might feel fatigue towards the end of the long questionnaire and become less truthful in responses (Krosnick, 1999). Besides that, respondents might also give responses that are more consistent with within-

scale measures or across-scale measures (Viswanathan & Kayande, 2012) and this will also lead to common method bias.

Harman's single-factor test or Harman's one-factor test is commonly used to determine common method bias (Podsakoff & Organ, 1986; Fuller, Simmering, Atinc, Atinc & Babin, 2016; Aguirre-Urreta & Hu, 2019). However, it is not accurate enough to reveal small to moderate levels of common method bias (Craighead, Ketchen, Dunn & Hult, 2011) and it is unable to quantify common method bias too (Malhotra, Schaller & Patil, 2017). Despite the drawbacks of Harman's one-factor test, it is still highly demanded in showing problematic common method bias when only one factor results from factor analysis or a first factor account for more than 50% of the variance among variables (Podsakoff & Organ, 1986). Present research displays 26.51% of the variance among variables for the first factor account. This proves that present research does not involve serious common method bias concern.

4.6 Descriptive Analysis (Respondents)

Malaysian individual taxpayers and business taxpayers from Selangor, Wilayah Persekutuan Kuala Lumpur, Johor, Perak as well as Pulau Pinang were chosen for the sampling of present research.

Table 4.1 shows the respondents' profile based on gender. It shows that female respondents are 13% higher than the male respondents. There are a total of 395 individual and business taxpayers participated in this research formed by 223 female respondents and 172 male respondents.

Table 4.1: Respondents' Profile (Gender)

	Frequency	Percent
Male	172	43.5
Female	223	56.5
Total	395	100

The respondents' age group is presented in Table 4.2 below. It is observed that a total of 167 respondents (42.3%) are aged between 31 and 40 forming the largest proportion of respondents in present research. The next biggest group of respondents are aged from 21 to 30 totalling to 92 respondents (23.3%) followed by respondents aged between 41 and 50 totalling to 80 respondents (20.3%). A total of 38 respondents (9.6%) are between age 51 and 60 while another 17 of the respondents (4.3%) are aged above 60. There is only 1 respondent aged 20 or less (0.3%) participated in present research.

Table 4.2: Respondents' Profile (Age Group)

	Frequency	Percent
20 or less	1	0.3
21 – 30	92	23.3
31 – 40	167	42.3
41 – 50	80	20.3
51 – 60	38	9.6
Above 60	17	4.3
Total	395	100

Table below (Table 4.3) displays the profile of the respondents based on marital status. Majority of the taxpayers (50.6%) which is equivalent to 200 respondents participated in present research are married. A total of 184 respondents (46.6%) are single while 11 respondents (2.8%) are divorced or widowed.

Table 4.3: Respondents' Profile (Marital Status)

	Frequency	Percent
Single	184	46.6
Married	200	50.6
Divorced / Widowed	11	2.8
Total	395	100

The profile of respondents based on location is presented in Table 4.4. There are a total of 164 respondents (41.5%) from Pulau Pinang participated in present research while 81 respondents (20.5%) are from Perak. A total of 74 respondents (18.7%) are from Selangor whereas Wilayah Persekutuan Kuala Lumpur and Johor share 76 respondents (19.2%) of present research equally.

Table 4.4: Respondents' Profile (Location)

	Frequency	Percent
Selangor	74	18.7
Wilayah Persekutuan Kuala Lumpur	38	9.6
Johor	38	9.6
Perak	81	20.5
Pulau Pinang	164	41.5
Total	395	100

The table below (Table 4.5) displays the respondents' profile based on education qualification. The biggest group of respondents totalling to 147 respondents (37.2%) participated in present research hold Master/ Professional qualification followed by 135 respondents (34.2%) with Undergraduate/ Bachelor's Degree qualification. A total of 52 respondents (13.2%) holds Doctorate (PhD)/ Post Doctorate qualification. Another 61 respondents have completed either Diploma/ Vocational course, STPM/ Certificate/ Matriculation/ Pre-University or SPM qualification.

Table 4.5: Respondents' Profile (Education Qualification)

	Frequency	Percent
SPM	20	5.1
STPM / Certificate / Matriculation / Pre-U	10	2.5
Diploma / Vocational course	31	7.8
Undergraduate / Bachelor's Degree	135	34.2
Master / Professional qualification	147	37.2
Doctorate (PhD) / Post Doctorate	52	13.2
Total	395	100

The profile of respondents based on personal income level is displayed in Table 4.6. Most of the taxpayers participated in this research earn below or equal to RM42,000 per annum (22.8%) and RM42,001 – RM52,000 per annum (20.5%). There are 60 respondents (15.2%) in present research with annual income between RM52,001 and RM62,000 while 36 respondents (9.1%) with annual income above RM122,000. The respondents with annual income ranging RM62,001 – RM72,000, RM72,001 – RM82,000 and RM82,001 – RM92,000 are 33 (8.4%) 30 (7.6%) and 25 (6.3%) respectively. A total of 24 respondents (6.1%) who participated in present research earn RM92,001 – RM102,000 per annum while 10 respondents (2.5%) earn RM102,001 – RM112,000 per annum. The smallest group of respondents (6 respondents) in present research earn RM112,001 – RM122,000 per annum.

Table 4.6: Respondents' Profile (Personal Income)

	Frequency	Percent
≤ RM42,000	90	22.8
RM42,001 – RM52,000	81	20.5
RM52,001 – RM62,000	60	15.2

RM62,001 – RM72,000	33	8.4
RM72,001 – RM82,000	30	7.6
RM82,001 – RM92,000	25	6.3
RM92,001 – RM102,000	24	6.1
RM102,001 – RM112,000	10	2.5
RM112,001 – RM122,000	6	1.5
Above RM122,000	36	9.1
Total	395	100

The table below (Table 4.7) presents the respondents' profile based on business income. From the statistics shown, it is obvious that 88.5% of the respondents (351 respondents) are not running a business and do not generate business income. Therefore, they are free from paying business tax. There are a total of 44 businessmen participated in present research with 31 of them (7.8%) earning less than RM100,000 per annum followed by 8 respondents (2%) earning RM100,001 – RM200,000 annually from businesses. There are only 2 respondents (0.5%) earning RM200,001 – RM300,000 per annum. A total of 3 respondents (0.8%) who participated in present research earn above RM500,000 per annum. None of the respondents in present research earn between RM300,001 to RM500,000 per annum.

Table 4.7: Respondents' Profile (Business Income)

	Frequency	Percent
≤ RM100,000	31	7.8
RM100,001 – RM200,000	8	2.0
RM200,001 – RM300,000	2	0.5
RM300,001 – RM400,000	0	0
RM400,001 – RM500,000	0	0
Above RM500,000	3	0.8

Not relevant to me, I am not running a business	341	86.3
Not relevant to me because of other reasons	10	2.5
Total	395	100

4.7 Descriptive Analysis (Main Constructs)

The eight constructs of this study, which are effectiveness of e-filing (EEF), effectiveness of tax administration (ETA), tax audit rule (TAR), tax administration costs (TAC), tax compliance (TC), tax evasion and avoidance (TEA), compliance costs (CC) and tax revenue (TR) have been arranged for descriptive analysis. Mean, mode, median, skewness, kurtosis and standard deviation generated for the main constructs are displayed in Table 4.8.

Table 4.8: Mean, Mode, Median, Skewness, Kurtosis and Standard Deviation

Constructs	Mean	Mode	Median	Standard Deviation	Kurtosis	Skewness
EEF	5.5841	6.00	5.8571	1.01964	0.784	-0.938
ETA	5.1873	5.71	5.2857	0.81249	-0.144	-0.307
TAR	3.8613	4.00	3.8000	1.04098	0.077	0.227
TAC	4.8385	4.00	4.8000	0.85777	-0.075	0.276
TC	5.7504	7.00	6.0000	0.96432	-0.017	-0.733
TEA	4.1525	4.00	4.0000	1.03989	-0.163	0.277
CC	3.1094	1.60	2.8000	1.41098	-0.252	0.715
TR	4.1544	4.00	4.0000	0.98072	0.156	0.316

A total of 14 indicators have been used to estimate the construct effectiveness of e-filing (EEF). The results reveal that EEF has a mean, median and mode of 5.5841, 5.8571 and 6.00 respectively. The kurtosis for EEF is 0.784 which means the distribution is normal since it is within +1 and -1 while the

skewness for EEF is -0.938 which shows a left tail skewed distribution for this construct.

A total of 7 indicators have been taken to measure the construct effectiveness of tax administration (ETA). It has a mean of 5.1873, median of 5.2857, mode 5.71 and standard deviation of 0.81249. Table 4.8 clearly indicates that the kurtosis for ETA is -0.144 (-1 < kurtosis < +1) which means the distribution is not too narrow nor too flat. On top of this, the skewness for construct ETA is -0.307 which represents non-symmetrical distribution with slight skew towards the left tail.

The construct tax audit rule (TAR) has been measured in present research using 5 indicators. The findings display the values of 3.8613, 3.8000 and 4.00 for the mean, median and mode respectively obtained by construct TAR. Meanwhile, the standard deviation for TAR is 1.04098. The kurtosis result for construct TAR, 0.077 (-1 < kurtosis < +1), shows that the distribution is not too narrow nor too flat. The distribution of TAR is not symmetrical and skewed towards the right tail as the skewness result for TAR shown in Table 4.8 is 0.227.

Tax administration costs (TAC) in present research is measured by 5 indicators which generates a 4.8385 mean value. TAC has a median value of 4.8000 and mode 4.00. The kurtosis and skewness of TAC are -0.075 and 0.276 respectively. The kurtosis results indicate that TAC does not have an extreme narrow distribution since it falls in between the value of -1 and +1. TAC has a non-symmetrical distribution which skewed towards the right tail by referring to the results generated and displayed in Table 4.8.

A total of 5 indicators used to estimate the construct tax compliance (TC) in present research. The mean, median and mode for TC are 5.7504, 6.0000 and 7.00 respectively with a standard deviation of 0.96432. TC hits -0.017 in kurtosis which represents a not too narrow distribution as it falls within -1 to +1. The skewness of TC is -0.733 which indicates that the distribution is not symmetrical and skewed to the left tail.

A total of 8 indicators have been used to measure the construct tax evasion and avoidance (TEA). It generates a mode of 4.1525, median of 4.0000 and mode 4.00. The standard deviation, kurtosis and skewness of TEA are 1.03989, -0.163 and 0.277 respectively. The distribution of TEA is not too narrow as the kurtosis results generated falls between the range of -1 and +1. The distribution of TEA is not symmetrical as the skewness results show that it is skewed to the right tail.

The construct compliance costs (CC) has been measured by 5 indicators in present research and it reveals a mean of 3.1094. The median for CC is 2.8000 while the mode is 1.60. The kurtosis results for CC in Table 4.8 shows that it does not have an extreme narrow distribution as the result is -0.252 which falls within the range of -1 to +1. The skewness of 0.715 shows that CC does not have a symmetrical distribution and it is skewed to the right tail.

Tax revenue (TR) is measured by 4 indicators in present research. The mean, median and mode for TR are 4.1544, 4.0000 and 4.00 respectively. The standard deviation for TR is 0.98072. TR does not have a too narrow distribution as the kurtosis results shown in Table 4.8 is 0.156 which is in between the range of -1 and +1. Besides that, TR has a non-symmetrical distribution as its Skewness

results is 0.316 which indicate that the distribution is skewed towards the right tail.

4.8 Discussion of Findings: Descriptive Statistics

Chapter 2 has identified eight main constructs which forms the research model and hypotheses of present research. Based on Table 4.8, mean, mode, median, skewness, kurtosis and standard deviation have been presented as the statistics obtained for descriptive analysis carried out for the eight main constructs. The subsequent subsections present the results captured for the eight constructs.

4.8.1 Effectiveness of E-Filing

Effectiveness of e-filing obtains a mean value of 5.5841 with the median and mode marked at 5.5871 and 6 respectively. The standard deviation for effectiveness of e-filing is achieved at 1.01964. The results explain that majority of the respondents moderately agree and perceive e-filing as an effective tool in tax filing.

The results show that most of the respondents involved in this research perceive that current tax law in Malaysia is straight forward. The e-filing service powered by IRBM has included all tax related matters such as eligible tax deductions in it to make the tax law more straight forward and transparent to the taxpayers. The respondents show positive feelings for e-filing system since the respondents prefer more of e-filing as compared to manual tax filing. The

satisfaction level towards e-filing system is rather good since it is preferred to be used due to its effectiveness, flexibility to use and ease of use. Respondents show good knowledge in the use of e-filing as e-filing system is perceived as a clear and understandable system which improves taxpayers' effectiveness on tax filing by speeding up the tax filing process.

In short, the view expressed by the respondents from the perspective of effectiveness of e-filing is affirmative. The mode marked at 6 in a seven-point Likert scale further verifies the positive perception of respondents formed by Malaysian taxpayers towards the e-filing system in Malaysia.

4.8.2 Effectiveness of Tax Administration

Construct effectiveness of tax administration obtains 5.1873 for the mean value under descriptive analysis. The median value obtained is 5.2857 while the mode is 5.71. Besides that, this construct marks 0.81249 as the standard deviation. According to the respondents, tax officers and government play important roles to ensure an effective tax administration.

Respondents of present research generally agree that the personnel involved in Malaysia tax assessment is rather inexperienced. Credible and knowledgeable tax officers are crucial in combatting tax evasion issue. Government should understand taxpayers' behaviour and conduct more tax education programmes as an effort in improving the effectiveness of tax system. However, the respondents still perceive current tax administration in Malaysia as efficient and effective. The mean, median and mode obtained by effectiveness of tax administration are all more than half of a seven-point Likert scale which

show that the respondents feel that there is room for improvement in Malaysia's tax administration.

4.8.3 Tax Audit Rule

Construct tax audit rule has been tested for its mean, median and mode with the values of 3.8613, 3.8000 and 4 captured respectively. The result shown in Table 4.8 marks the standard deviation for Tax Audit Rule as 1.04098. This shows that majority of the respondents slightly disagree with understating taxable income as it is quite unlikely to be detected.

The results display that majority of the respondents do not favour in understating taxable income even if the probability of being audited and being detected is low. Although the respondents feel that IRBM seldom verify tax documents, but it is still fearful to be audited. Therefore, tax audit is essential as an effort in increasing tax enforcement. A strict tax audit rule is expected to prevent taxpayers from understating the declaration of income which will then increase the tax revenue.

4.8.4 Tax Administration Costs

Referring to Table 4.8, construct tax administration costs obtains mean value at 4.8385, median value at 4.8000 and mode as 4. The standard deviation for this construct is marked as 0.85777. The results display slight agreement of the respondents towards the tax administration costs level.

Tax administration cost is defined as the staff cost and infrastructure incurred in administering tax as explained in subsection 2.2.3. The mean, mode, median and standard deviation values obtained show that the respondents slightly agree that the tax administration costs involving the cost of handling tax assessment, cost of collecting taxes, cost incurred due to researching taxpayers' payment behaviour and tax audit or inspection are relatively high. Despite the high administration costs, respondents agree that the government needs to spend training cost on the tax auditors or inspectors.

4.8.5 Tax Compliance

Construct tax compliance obtains 5.7504 for the mean value under descriptive analysis. The median value obtained is 6.0000 while the mode is 7.00. Besides that, this construct marks 0.96432 as the standard deviation. Based on the results obtained, the respondents show good compliance in the payment of tax.

The respondents of present research pay tax in full by the deadline set and declare tax assessment based on IRBM's tax guidelines. However, the respondents feel that training is still needed for taxpayers to increase the rate of tax compliance although the current tax system motivates them to comply with tax payment. In conclusion, the respondents participated in present research show good tax compliance behaviour and hope to see all the taxpayers are well trained in tax filing.

4.8.6 Tax Evasion and Avoidance

Based on the descriptive statistics shown in Table 4.8, the standard deviation captured by construct tax evasion and avoidance is 1.03989 while the mean, median and mode for this construct are 4.1525, 4 and 4 respectively. This shows that the respondents are indifference in terms of tax evasion and avoidance.

Tax avoidance refers to avoiding from tax in a legal way while tax evasion is defined as evading tax in an illegal way (Alm, 1999; Hudson & Teera, 2005). Majority of the respondents participated in present research show indifference view when it comes to whether high tax rate will lead to tax evasion and avoidance. The respondents are unaware if tax evasion happens due to an economy slowdown situation and feel insignificant on government's effort in organising anti-corruption related campaigns as an effort in combatting tax evasion.

4.8.7 Compliance Costs

Construct compliance costs shows mean, median and mode values as 3.1094, 2.8000 and 1.6 as displayed in Table 4.8. This construct obtains 1.41098 as the standard deviation in the descriptive statistics. Respondents are more favour in filing tax own self.

Most of the tax filing processes have not involved accountants, employees nor accounting firms amongst the respondents of present research. The respondents show good knowledge in tax filing and the consultation from tax

professionals is not needed to complete the tax filing process. Therefore, the cost of compliance involved is rather low since taxpayers do not need the assistance from tax professionals to file tax. There is a mixture of individual taxpayers and taxpayers from SMEs participated in present research. The unneeded assistance from the accountants, employees and accounting firms in tax filing process could be due to the ratio of respondents as individual taxpayers is higher than the respondents as taxpayers from SMEs. Individual taxpayers usually manage to file tax without much assistance needed from the professionals as compared to taxpayers from businesses.

4.8.8 Tax Revenue

Tax revenue shows its median at 4, mean value at 4.1544, mode at 4 and standard deviation at 0.98072. These results show that most of the respondents who participated in present research are indifference in Malaysia tax revenue.

The respondents of present research do not tend to under declare or underpay taxes regardless of government expenditure. Respondents do not show much understanding whether the government spends too much on extravagant projects nor feeling the government is unreliable. Therefore, the respondents do not react much towards Malaysia tax revenue.

4.9 Models Evaluation

There are two sub-models in a PLS-SEM model which are named as structural model (inner model) and measurement model (outer model). A

measurement model shows how the latent variables or constructs affect or being affected by the indicators or items related to it. It allows the researchers to acknowledge the pattern of each indicator or item assigned to a latent variable or construct. The values to show the relationships between indicators and construct are known as weights if the model is formative while the same values are named as loadings under a reflective model. On the other hand, a structural model measures the relationship between the latent variables or constructs. It specifies how do the exogeneous variables influence the endogenous variables in a model. The relationship between latent variables or constructs is known as path coefficient and this is where the hypotheses of the study are being tested (Ramayah et al., 2018).

According to Hair, Black et al. (2014), bootstrapping and blindfolding functions are employed to assess the measurement model (outer model) and structural model (inner model) in PLS-SEM referring to nonparametric assessment criteria. The PLS-SEM algorithm focuses on a prediction modelling perspective which focuses to maximize the amount of explained variance of the endogenous latent variables (Sarstedt, Ringle & Hair, 2017). The superior predictive capabilities of PLS-SEM have been further supported by Evermann and Tate (2016) and Becker, Rai and Rigdon (2013). Hence, the researcher employed PLS-SEM in judging the quality of the model with the help of measures that demonstrate the model's predictive capabilities.

In present research, the reliability and validity measures of constructs will be carried out prior to other analyses since these measures are able to test quality of constructs in the model. The structural model evaluation will then be conducted upon the establishment of quality constructs is proven by the output

generated from reliability and validity measures. The structural model evaluation includes collinearity assessment through VIF values and checking of the relevance and significance of the structural model connections through path coefficients analysis. Apart from that, the coefficient of determination score which is equivalent to value of R^2 will be used to evaluate the model's predictive accuracy. Then, the relative impact of a predictor construct on an endogenous construct will be analysed through the effect size (f^2). Lastly, an assessment of predictive relevance (Q^2) of the path model will be calculated using blindfolding procedure.

The next subsections discuss reflective measurement model assessment and structural model assessment for present research.

4.10 Assessing Reflective Measurement Model

Four assessment criteria namely internal consistency reliability, indicator reliability, convergent validity and discriminant validity are needed to be conducted in the assessment of reflective measurement model. The details of each of these assessment criteria for this research are shown in the succeeding subsections.

4.10.1 Internal Consistency Reliability

A reliability test examining the consistency among indicators on the same test is referred as internal consistency reliability. It checks the similarity of the indicators assigned to a construct. In other words, internal consistency reliability

checks correlations between indicators (Hair, Hult et al., 2014). Cronbach's alpha value that indicates the similarity in range and meaning are usually referred for the measurement of the data internal consistency. Nevertheless, there are still some shortfalls in the application of Cronbach's alpha value in the measurement of internal consistency reliability (Ramayah et al., 2018) as the assumption of all indicators are equally reliable (Hair, Hult et al., 2014). Such assumption is inappropriate in SEM as every indicator is not supposed to yield the same loadings. Besides that, SEM is sensitive to the number of indicators in a construct in which an underestimation of internal consistency reliability could be shown by a Cronbach's alpha value (Hair, Hult et al., 2014). Therefore, in a reflective measurement model, composite reliability (CR) is the most appropriate kind of measurement to be applied.

According to Hair, Hult et al. (2014), composite reliability (ρ_c) takes the different outer loadings of the indicator variables into calculation. Sarstedt, Ringle and Hair (2017) uses the following formulae to explain composite reliability:

$$\rho_c = \frac{\left(\sum_{k=1}^{K} l_k\right)^2}{\left(\sum_{k=1}^{K} l_k\right)^2 + \sum_{k=1}^{K} var(e_k)}$$

where l_k symbolizes the standardized outer loading of the indicator variable k of a specific construct measured with K indicators, e_k refers to the measurement error of indicator variable k, and var(e_k) is the variance of the measurement error.

Composite reliability has the value ranging from 0 to 1, with the indication of higher levels of reliability when the composite reliability values are higher. The acceptable composite reliability values are different between exploratory

research and other types of research. Values from 0.60 until 0.70 are considered as allowable in exploratory research while values from 0.70 until 0.90 are regarded as satisfactory in more advanced stages of research (Nunnally & Bernstein, 1994).

Apart from composite reliability, another most commonly in used method applied for internal consistency reliability evaluation is Cronbach's alpha (Hinton, McMurray & Brownlow, 2014). Nunnally (1967) has suggested that Cronbach's alpha value as low as 0.50 is appropriate to explain reliability of constructs in exploratory research. Hinton, McMurray and Brownlow (2014) developed a rule of thumb that shows Cronbach's alpha 0.90 and above represents excellent reliability; 0.70 to 0.90 represents high reliability; 0.50 to 0.70 represents moderate reliability while 0.50 and below represents low reliability. Nunnally (1967) suggested that construct with Cronbach's alpha value of 0.50 and above is considered reliable too.

Referring to the results shown in Table 4.9, the composite reliability (CR) for all the constructs except for tax audit rule (TAR) fall within the acceptable range as suggested in Nunnally and Bernstein (1994). The CR value for construct effectiveness of e-filing (EEF) is the highest (0.9701), followed by CR value of 0.9514 obtained by construct compliance costs (CC). The constructs tax compliance (TC), tax revenue (TR), effectiveness of tax administration (ETA) obtained CR values of 0.8869, 0.8830 and 0.8713 respectively. The value of CR for tax administration costs (TAC) is 0.8595 and compliance costs (CC) is 0.8147. On the other hand, the CR value of construct TAR is not presented as this construct is explained by one indicator only. Apart from CR, all the

constructs except for TAR have Cronbach's alpha values above 0.70 which further prove that all the constructs are highly reliable.

Other than the assessment of composite reliability, outer loadings are of primary interest in the reflective measurement models evaluation (Hair, Hult et al., 2014) which are also being assessed to check on the indicator reliability (Ramayah et al., 2018) of present research. Outer loadings refer to the correlation of each indicator variable on its corresponding latent constructs (Hair, Hult et al., 2014; Ramayah et al., 2018). Hair, Hult et al. (2014) suggested that outer loadings above 0.70 is considered close enough to 0.708 to be acceptable and explainable to at least 50% of each indicator's variance. This has been further supported by Sarstedt, Ringle and Hair (2017) by explaining that loadings above 0.70 demonstrates a satisfactory degree of reliability carried by the indicator. Researchers are recommended to eliminate indicators with outer loadings below 0.70 only if the deletion of indicator leads to an increase in the composite reliability and AVE above the suggested threshold value. Otherwise, indicators with outer loadings within 0.40 and 0.70 should be retained (Hair, Hult et al., 2014). Hair, Black et al. (2014) proposed a guideline for the identification of significant factor loadings by referring to sample size. The guideline shows that factor loadings of 0.75 is required in a sample of 50 respondents, factor loadings of 0.55 and above are significant in a sample of 100 respondents. The factor loadings required for significance drop as the sample size needed for significance increases. When the sample size is 350 or greater, factor loadings of 0.30 are denoted as practical significance. However, the general rules of thumb emphasized that factor loadings greater than 0.50 are generally considered necessary for practical significance (Hair, Black et al., 2014).

Based on the results shown in Table 4.9, the outer loadings of all indicators are above 0.50. This means with a sample size greater than 350 respondents, all indicators are reliable in this research according to the rules of thumb that considered an indicator to be practically significant when the factor loadings are greater than 0.50 as proposed by Hair, Black et al. (2014). The factor loading for indicator TAR5 is 1.0000 as it is the only indicator explaining construct TAR in this model.

Construct TAR was explained using five indicators during the beginning of present study. However, indicators TAR1, TAR2, TAR3 and TAR4 are insignificant based on internal consistency reliability, indicator reliability (outer loadings) and convergent validity. According to Hair, Hult et al. (2014), researchers are recommended to delete indicators with outer loadings below 0.70 only if an increase of composite reliability and AVE can be seen upon the removal of the affected indicator. Researchers are not advised to delete the constructs but to retain indicators with outer loadings within 0.40 to 0.70 if the above suggestion is not met (Hair, Hult et al., 2014). Therefore, the four mentioned indicators have been deleted and only indicator TAR5 is retained in this research. The deletion of the aforementioned four indicators for construct TAR has improved the model, convergent validity and discriminant validity of present research which will be presented in the below subsections.

4.10.2 Convergent Validity

Urbach and Ahlemann (2010) defined convergent validity as the degree to which individual indicators reflect a construct converging in comparison to

indicators measuring different constructs. Besides, Hair, Black et al. (2014) explained convergent validity as a measurement that assesses the extent to which two measures of the same concept are correlated.

A high correlation demonstrates that the scale is measuring its intended concept. A general rule of thumb emphasized that factor loadings should be greater than 0.50 to be considered for practical significance (Hair, Black et al., 2014).

Fornell and Larcker (1981) and Hair, Hult et al. (2014) proposed average variance extracted (AVE) in the measurement of convergent validity due to its common application criterion. The convergent validity of a construct is assessed using outer loadings (Hair, Hult et al., 2014) and AVE across all indicators linking to a specific construct (Hair, Hult et al., 2014; Sarstedt, Ringle & Hair, 2017).

Based on Hair, Hult et al. (2014), AVE is a grand mean value of the squared loadings of all indicators associated with the construct which is equivalent to the communality of a construct. AVE value of 0.50 and above indicates that the construct averagely explains more than half of the variance of its indicators whereas AVE of less than 0.50 refers to more error remain in the indicators than what the variance explained by the construct (Hair, Hult et al., 2014). The same suggestion can be seen from Fornell & Larcker (1981) and Bagozzi and Yi (1988) which suggested each construct should achieve at least 50% of the assigned indicators' variance (AVE $\geq$ 0.50) in order to achieve adequate convergent validity.

Referring to the findings shown in Table 4.9, all constructs are having AVE values greater than 0.50 as recommended by Fornell and Larcker (1981), Bagozzi and Yi (1988) and Hair, Hult et al. (2014). Results from the table show that the construct compliance costs obtained 0.8308 as the largest AVE among all constructs. Next, the AVE values for construct tax revenue are 0.7905, continued with effectiveness of e-filing at 0.7013, tax compliance at 0.6145, tax administration costs at 0.5515, effectiveness of tax administration at 0.5311 and the lowest by tax evasion and avoidance at 0.5257. Construct tax audit rule does not have AVE value as it is explained by one indicator only.

Table 4.9: Reflective Measurement Model Results

Construct	Items/ Indicators	Loadings	AVE	CR	Cronbach's alpha
Effectiveness of e-filing	EEF1	0.5798	0.7013	0.9701	0.9658
	EEF2	0.7680			
	EEF3	0.7009			
	EEF4	0.7124			
	EEF5	0.9120			
	EEF6	0.8997			
	EEF7	0.8508			
	EEF8	0.8936			
	EEF9	0.8847			
	EEF10	0.8999			
	EEF11	0.8691			
	EEF12	0.8556			
	EEF13	0.9121			
	EEF14	0.9044			
Effectiveness of tax administration					
	ETA2	0.7650	0.5311	0.8713	0.8221
	ETA3	0.7712			
	ETA4	0.7281			
	ETA5	0.7640			
	ETA6	0.6847			
	ETA7	0.6510			
Tax audit rule	TAR5	1.0000			
Tax administration costs	TAC1	0.6836	0.5515	0.8595	0.8073
	TAC2	0.6919			

	TAC3	0.8000			
	TAC4	0.8100			
	TAC5	0.7179			
Tax compliance	TC1	0.7643	0.6145	0.8869	0.8372
	TC2	0.8902			
	TC3	0.8850			
	TC4	0.7147			
	TC5	0.6339			
Tax evasion and avoidance	TEA5	0.7795	0.5257	0.8147	0.7215
	TEA6	0.7699			
	TEA7	0.6096			
	TEA8	0.7287			
Compliance costs	CC2	0.9447	0.8308	0.9514	0.9315
	CC3	0.9379			
	CC4	0.9361			
	CC5	0.8215			
Tax revenue	TR2	0.8725	0.7905	0.8830	0.7363
	TR4	0.9055			

4.10.3 Discriminant Validity

Upon the establishment of reliability and convergent validity of reflective measured constructs, the discriminant validity of constructs is assessed (Sarstedt, Ringle & Hair, 2017). Discriminant validity refers to the extent to which a construct is absolutely distinct from other constructs in terms of how much it correlates with other constructs and how distinctly the variables represent only a single construct (Hair, Black et al., 2014; Hair, Hult et al., 2014; Sarstedt, Ringle & Hair, 2017). Discriminant validity finds the distinction of measure or constructs by examining the correlations between the measures of potential overlapping (Ramayah et al., 2018). On top of the distinctiveness between constructs, discriminant validity also carries the meaning that individual measured indicators should represent one latent construct only (Hair, Black et al., 2014).

Hair, Black et al. (2014) suggested Fornell-Larcker criterion as an approach in examining discriminant validity. This approach compares the square root of AVE with the latent construct correlations. The concept of this approach is that, in relative, a construct shares more variance with its indicators compared to other constructs. Hence, the square root of the AVE of each construct should be higher than its highest correlation with other constructs. When the result of a Fornell-Larcker criterion is presented in a table, the square root of AVE on the diagonal should be higher than the off-diagonal square root of AVE. Results from Table 4.10 shows the discriminant validity obtained from present research. The results reveal that the square root of AVEs on the diagonal are the highest for all constructs as compared to the correlation on the off-diagonal row and column displayed in Table 4.10. An exceptional case is seen on construct tax audit rule as it is a construct with single item. As such, discriminant validity is achieved in present research.

Table 4.10: Discriminant Validity Analysis (Fornell-Larcker Criterion)

	Compliance costs	Effectiveness of e-filing	Effectiveness of tax administration	Tax administration costs	Tax audit rule	Tax compliance	Tax evasion and avoidance	Tax revenue
Compliance costs	**0.9115**							
Effectiveness of e-filing	-0.2438	**0.8374**						
Effectiveness of tax administration	-0.1112	0.5531	**0.7287**					
Tax administration costs	0.1419	0.2039	0.4365	**0.7426**				
Tax audit rule	-0.0462	0.3243	0.4850	0.3574	Single item			
Tax compliance	-0.2321	0.6294	0.6146	0.3214	0.3169	**0.7839**		
Tax evasion and avoidance	-0.0163	0.3180	0.4624	0.3747	0.3212	0.4437	**0.7251**	
Tax revenue	0.4139	-0.1857	-0.0566	0.1550	-0.0390	-0.2003	0.1088	**0.8891**

Ramayah et al. (2018) highlighted that there is a disapproval on the usage of Fornell-Larcker's criterion for discriminant validity examination. Such consequence has led discriminant validity assessment in PLS-SEM to involve the analysis of Heterotrait-Monotrait (HTMT) ratio of correlations by Henseler, Ringle and Sarstedt (2015). HTMT is the ratio of correlations or connections within the constructs to correlations or connections between constructs. It is an approach that checks the association among two constructs if the two constructs are perfectly measured (Ramayah et al., 2018).

The assessment of discriminant validity using HTMT approach can be done in two ways. Firstly, when HTMT approach is used as a criterion, the HTMT value must be lower than 0.85 ($HTMT_{.85}$) (Kline, 2015) or lower than 0.90 ($HTMT_{.90}$) (Gold, Malhotra & Segars, 2001) in order to prove the attainment of discriminant validity. Secondly, when HTMT approach is used as a statistical test, the objective is to find the HTMT inference (Henseler, Ringle & Sarstedt, 2015). The confidence interval of HTMT values for the structural paths will be referred to determine the existence of discriminant validity. When the confidence interval of HTMT includes the value of 1, it shows that the existence of discriminant validity is insufficient. On the other hand, the two constructs are considered as empirically distinct if the interval range does not contain the value of 1. Ramayah et al. (2018) concluded that discriminant validity is achieved when the 90% bootstrap confidence interval of HTMT does not include the value of 1.

Table 4.11 shows the results of HTMT approach obtained for present research. All the values obtained are lower than 0.85 ($HTMT_{.85}$) as suggested by Kline (2015) and lower than 0.90 ($HTMT_{.90}$) as suggested by Gold, Malhotra

and Segars (2001). Therefore, discriminant validity is attained in present research when HTMT approach is used as a criterion. Besides that, all confidence interval of HTMT values for the structural paths shown in Table 4.11 does not include the value of 1. Henceforth, present research has established discriminant validity at 90% bootstrap confidence interval of HTMT.

Table 4.11: Discriminant Validity Analysis (Heterotrait-Monotrait (HTMT) Ratio)

	Compliance costs	Effectiveness of e-filing	Effectiveness of tax administration	Tax administration costs	Tax audit rule	Tax compliance	Tax evasion and avoidance	Tax revenue
Compliance costs								
Effectiveness of e-filing	0.2589 $CI_{.90}$ (0.1736, 0.3486)							
Effectiveness of tax administration	0.1256 $CI_{.90}$ (0.0635, 0.2137)	0.6204 $CI_{.90}$ (0.5407, 0.6883)						
Tax administration costs	0.1617 $CI_{.90}$ (0.0790, 0.2441)	0.1970 $CI_{.90}$ (0.1355, 0.2679)	0.4834 $CI_{.90}$ (0.3839, 0.5676)					
Tax audit rule	0.0451 $CI_{.90}$ (0.0146, 0.1069)	0.3285 $CI_{.90}$ (0.2592, 0.4016)	0.5335 $CI_{.90}$ (0.4493, 0.6077)	0.3392 $CI_{.90}$ (0.2404, 0.4323)				
Tax compliance	0.2576 $CI_{.90}$ (0.1828, 0.3542)	0.7006 $CI_{.90}$ (0.6337, 0.7681)	0.7371 $CI_{.90}$ (0.6698, 0.7999)	0.3442 $CI_{.90}$ (0.2694, 0.4253)	0.3476 $CI_{.90}$ (0.2612, 0.4129)			
Tax evasion and avoidance	0.1365 $CI_{.90}$ (0.0753, 0.1919)	0.3603 $CI_{.90}$ (0.2746 0.4513)	0.5521 $CI_{.90}$ (0.4354, 0.6486)	0.4807 $CI_{.90}$ (0.3771, 0.5744)	0.3353 $CI_{.90}$ (0.2306, 0.4271)	0.5061 $CI_{.90}$ (0.4072, 0.5906)		
Tax revenue	0.4950 $CI_{.90}$ (0.3988, 0.5845)	0.2213 $CI_{.90}$ (0.1219, 0.3215)	0.0732 $CI_{.90}$ (0.0400, 0.0888)	0.2456 $CI_{.90}$ (0.1373, 0.3455)	0.0449 $CI_{.90}$ (0.0086, 0.1209)	0.2530 $CI_{.90}$ (0.1419, 0.3382)	0.2673 $CI_{.90}$ (0.1580, 0.3795)	

4.10.4 Summary of Reflective Measurement Model Evaluation

Based on the results obtained from the reflective measurement model as shown in the preceded subsections, this research has achieved the internal consistency reliability (composite reliability), convergent validity and discriminant validity. Present research show that all the constructs obtained satisfactory composite reliability with values above 0.800 for composite reliability except for TAR. Other than construct TAR, the Cronbach's alpha values for all the other constructs are above the 0.70 threshold too. The indicator reliability of present research has been assessed by referring to outer loadings of all indicators and the results of indicator reliability are satisfactory. Other than TAR, all other constructs mark AVEs from 0.5257 to 0.8308 which are above the threshold of 0.50. Referring to the results of discriminant validity attained from Fornell-Larcker criterion, the square root of AVEs on the diagonal are the highest for all constructs as compared to the correlation on the off-diagonal with an exception to TAR since it is a construct with single item. Furthermore, discriminant validity has also been achieved in present research with the employment of Heterotrait-Monotrait (HTMT) ratio. The results show that all the values meet the criteria of $HTMT_{.85}$ (Kline, 2015) and $HTMT_{.90}$ (Gold, Malhotra & Segars, 2001) as well as the HTMT inference through the assessment of confidence interval with no value of 1 appearing in any constructs. Therefore, the discriminant validity is found in present research.

As for measurement model, the results obtained from internal consistency reliability, convergent validity and discriminant validity under the reflective measurement model done for present research are adequate.

4.11 Structural Model Evaluation

A structural model is a path model concept that enables researcher to evaluate how supportive an empirical data in the explanation of the concepts designed in the research model. This means the estimation of structural model assesses the predictive competencies of a model and the correlations among constructs. Upon the reliability and validity confirmation on the measurement model constructs, structural model evaluation will take place. Based on the findings and analyses carried out in Section 4.10, it is proven that this study has reliable and valid constructs in its measurement model. Section 4.11 continues with the structural model assessment beginning with the collinearity assessment, structural model path coefficients, followed by coefficients of determination (R^2), effect size (f^2) as well as predictive relevance (Q^2). The discussions of results obtained from the aforementioned assessments will be discussed in the following subsections.

4.11.1 Collinearity Assessment

Hair, Hult et al. (2014) indicated that the purpose of examining structural model collinearity is due to the integration of OLS regressions in the path coefficients estimation done on the constructs in accordance to its predecessor constructs involved in a single structural model (Hair, Hult et al., 2014). This is supported by Sarstedt, Ringle and Hair (2017) who concluded the absence of collinearity issues must be confirmed before all other regression analyses as the estimation of the path coefficients tying the constructs is based on a series of regression analyses. The consequence of an involvement of significant levels of

collinearity among the predictor constructs is a possibility in the occurrence of biased path coefficients (Hair, Hult et al., 2014). Therefore, the assessment of collinearity issues is of important.

Each set of predictor constructs needs to be assessed separately for each subset of the structural model. The Variance Inflation Factor (VIF) is used in a structural model for the determination of collinearity issues absenteeism. Based on the rule of thumb proposed in past studies, a VIF value of 5 or higher (Hair, Ringle & Sarstedt, 2011), or a more stringent criteria by Diamantopoulos and Siguaw (2006) that VIF value of more than or equal to 3.3 or higher represents a possible collinearity problem.

The VIF values generated for all the constructs involved in the structural model of present research are presented in Table 4.12. The lowest and highest VIF values obtained are 1.0141 and 1.6071 respectively. These values are below the threshold of 5.0 and 3.3. Hence, the collinearity issue does not exist in the research model of present research.

Table 4.12: Variance Inflation Factor (VIF) for Structural Model

	Compliance costs	Effectiveness of e-filing	Effectiveness of tax administration	Tax administration costs	Tax audit rule	Tax compliance	Tax evasion and avoidance	Tax revenue
Compliance costs						1.0141		
Effectiveness of e-filing			1.1287					
Effectiveness of tax administration						1.2897		1.6071
Tax administration costs			1.1579					
Tax audit rule			1.2402					
Tax compliance								1.6071
Tax evasion and avoidance						1.2740		
Tax revenue								

4.11.2 Structural Model Path Coefficients

The maximization of the explained variance among the endogenous latent variables will allow researcher to best estimate the parameter. Hence, the significance of the path coefficients, R^2 values, f^2 effect size and predictive relevance (Q^2) are the main point of references in the assessment of structural model in PLS-SEM (Hair, Hult et al., 2014).

The strength and significance of the path coefficients are assessed to find the relationships (structural paths) hypothesized among the constructs (Sarstedt, Ringle & Hair, 2017). The path coefficients usually fall within -1 to +1, with estimated path coefficients close to +1 representing strong positive relationships while those close to -1 representing strong negative relationships (Hair, Hult et al., 2014; Sarstedt, Ringle & Hair, 2017) that are almost always statistically significant. On the other hand, the closer the estimated path coefficients to 0, the weaker the relationships (Hair, Hult et al., 2014).

Hair, Hult et al. (2014) explained two ways in significance assessment built on bootstrapping, the comparison between empirical *t* value and critical value and by referring to *p* value in the evaluation of the significance of path coefficient connecting two constructs. A coefficient is considered as significant when the empirical *t* value is larger than the critical value in which the critical values for two-tailed tests are 1.65 (significance level = 10%), 1.96 (Significance level = 5%), and 2.57 (significance level = 1%). Researchers usually assume a significance level of 10% when a study is an exploratory study and the significance level can differ depending on its research objectives and field of study. On the other hand, researchers can also refer to the *p* values in determining

the significance of the path coefficient linking two constructs. Since bootstrapping provides standard error which shows the significance of a coefficient, a bootstrapping analysis is performed in present research to determine the significance of the path coefficients in a statistical way.

Referring to Table 4.13, the path coefficients (β) and the significance obtained by all latent variables or constructs of this research are presented. The table illustrates the *t* values for all the direct relationships are above 1.65 and significant at $p < 0.05$ (95% confidence interval) or $p < 0.10$ (90% confidence interval) which represents the establishment of significant direct relationships except for the direct relationship between effectiveness of tax administration and tax revenue. Results show that effectiveness of e-filing contributes positively to effectiveness of tax administration with $\beta = 0.4169$ at $p < 0.05$. Construct effectiveness of tax administration displays an effect on tax compliance with $\beta = 0.4980$ ($p < 0.05$) and tax compliance contributes to tax revenue with $\beta = -0.2661$ at $p < 0.05$. Besides that, tax audit rule displays an effect on effectiveness of tax administration with $\beta = 0.2570$ at $p < 0.05$. Tax administration costs contributes negatively to effectiveness of tax administration with $\beta = 0.2597$ at $p < 0.05$ while tax evasion and avoidance also displays a negative connection with tax compliance where β is 0.2105 when p is less than 0.05. Compliance costs demonstrates a negative effect on tax compliance with $\beta = -0.1733$ ($p < 0.05$). On the other hand, effectiveness of tax administration is not significant to tax revenue with $\beta = 0.1070$ at $p = 0.1320$ with 90% confidence interval.

Table 4.13: Significance and Path Coefficients

Relationship	Beta	Standard Error	*t* value	*p* value
Compliance costs -> Tax compliance	-0.1733	0.0369	4.7001	0.0000
Effectiveness of e-filing -> Effectiveness of tax administration	0.4169	0.0426	9.7896	0.0000
Effectiveness of tax administration -> Tax compliance	0.4980	0.0441	11.2915	0.0000
Effectiveness of tax administration -> Tax revenue	0.1070	0.0709	1.5089	0.1320
Tax administration costs -> Effectiveness of tax administration	0.2597	0.0426	6.0988	0.0000
Tax audit rule -> Effectiveness of tax administration	0.2570	0.0488	5.2628	0.0000
Tax compliance -> Tax revenue	-0.2661	0.0580	4.5866	0.0000
Tax evasion and avoidance -> Tax compliance	0.2105	0.0446	4.7247	0.0000

4.11.3 Coefficients of Determination, R^2

Coefficient of determination (R^2 value) is a most commonly used measure in the evaluation of the structural model. It is used to evaluate the model's predictive accuracy and calculated as the squared correlation between the actual and predicted values of a specific endogenous construct (Hair, Hult et al., 2014). In other words, R^2 presents the variance explained in each of the endogenous constructs by all of the exogenous constructs linked to it. The R^2 value ranges from 0 to 1, with a higher value indicating more predictive accuracy and vice versa. As it is difficult to provide rules of thumb for acceptable R^2 values due to the reliance towards the model complexity and the research discipline, a rough rule of thumb has been proposed instead (Hair, Hult et al., 2014; Sarstedt, Ringle

& Hair, 2017). A total of three rough rules of thumbs for acceptable R^2 values are discovered, where 0.26 shows substantial level of predictive accuracy while 0.13 is considered as moderate and 0.02 represents weak predictive accuracy (Cohen, 1988); whereas Chin (1998) indicated that 0.67 represents substatntial, 0.33 shoes moderate and 0.19 is considered as weak level of predictive accuracy. Hair, Ringle and Sarstedt (2011) and Henseler, Ringle and Sinkovics (2009) proposed 0.75 as substantial predictive accuracy, 0.50 and 0.25 represent moderate and weak levels of predictive accuracy respectively. In short, researchers should always interpret the R^2 values based on the research discipline.

Table 4.14 displays the R^2 values between the endogenous constructs and its linked exogenous constructs. The findings of present research displays that the effectiveness of tax administration has 0.4686 for its R^2 value which denotes 46.86% of the variance in effectiveness of tax administration can be explained by effectiveness of e-filing, tax audit rule and tax administration costs. Meanwhile, the R^2 value for tax compliance is marked at 0.4397 explaining that 43.97% of the variance in tax compliance can be interpreted by effectiveness of tax administration, tax evasion and avoidance and compliance costs. Lastly, R^2 value for tax revenue is 0.0472 proposing that 4.72% of the variance in tax revenue can be explained by effectiveness of tax administration and tax compliance.

Table 4.14: Coefficient of Determination, R^2

Relationship	R^2
Effectiveness of tax administration	0.4686

Tax compliance	0.4397
Tax revenue	0.0472

4.11.4 Effect Size, f^2

An omission of exogenous construct from a model will alter the R^2 value. Henceforth, the effect size (f^2) measurement will be able to evaluate the impacts on the endogenous construct caused by the omitted exogenous construct linked to it. The calculation of effect is:

$$f^2 = \frac{{R^2}_{included} - {R^2}_{excluded}}{1 - {R^2}_{included}}$$

where ${R^2}_{included}$ and ${R^2}_{excluded}$ refer to the R^2 values of the endogenous construct when a specific exogenous construct is included in or excluded from the model (Hair, Hult et al., 2014; Sarstedt, Ringle & Hair, 2017).

According to the guidelines proposed by Cohen (1988), f^2 values of 0.02, 0.15, and 0.35 represent small, medium, and large effect sizes respectively. Effect size values of less than 0.02 indicate that there is no effect. A high f^2 will happen when R^2 included and R^2 excluded differs substantially. Such scenario occurs under the condition of substantial contribution of exogenous construct in explaining an endogenous construct.

Table 4.15 reveals the effect sizes connecting the endogenous constructs led by its exogenous constructs. Results show that the connection of effectiveness of tax administration to tax compliance has a medium f^2 effect size of 0.3432. Meanwhile, the effect size of effectiveness of e-filing on

effectiveness of tax administration is medium at 0.2897 which is between 0.15 and 0.35. However, the effect size of tax administration costs and tax audit rule on effectiveness of tax administration are small which mark f^2 at 0.1096 and 0.1002 respectively. Both compliance costs and tax evasion and avoidance contribute to small f^2 effect sizes in the explanation of tax compliance. The f^2 for the association among compliance costs and tax compliance is 0.0529 while the f^2 for the connection between tax evasion and avoidance and tax compliance is 0.0621. Construct tax compliance shows small effect size in explaining tax revenue as it recorded f^2 at 0.0462 which is between 0.02 and 0.15. On the other hand, effectiveness of tax administration has no effect in explaining tax revenue as the f^2 effect size is less than 0.02 (0.0075).

Table 4.15: Effect Size, f^2

Path	f^2	Effect size
Compliance costs -> Tax compliance	0.0529	small
Effectiveness of e-filing -> Effectiveness of tax administration	0.2897	medium
Effectiveness of tax administration -> Tax compliance	0.3432	medium
Effectiveness of tax administration -> Tax revenue	0.0075	no effect
Tax administration costs -> Effectiveness of tax administration	0.1096	small
Tax audit rule -> Effectiveness of tax administration	0.1002	small
Tax compliance -> Tax revenue	0.0462	small
Tax evasion and avoidance -> Tax compliance	0.0621	small

4.11.5 Predictive Relevance, Q^2

Geisser (1975) and Stone (1974) suggested another mean to evaluate the model's predictive accuracy other than the magnitude of R^2 values and effect size, f^2 as Stone-Geisser's Q^2 values. Q^2 value is an indicator of the model's predictive relevance which accurately predicts the data points of indicators in reflective measurement models of endogenous constructs when PLS-SEM exhibits predictive relevance (Hair, Hult et al., 2014). The Q^2 values are built on the blindfolding procedure which omit single points in the data matrix, impute the omitted elements and estimate the model parameters. The same process will continue until the model is re-estimated upon the omission of all data point. Blindfolding is used in PLS-SEM to measure Q^2 values the omission distance (D). A greater Q^2 criterion represents greater predictive accuracy and relevance in the model. This can be achieved when the variance among the estimated values and the original values gets smaller. A rule of thumb suggests a greater than zero endogenous construct's Q^2 value represents the existence of predictive relevance in the exogenous constructs towards endogenous constructs (Sarstedt, Ringle & Hair, 2017).

Table 4.16 presents the Q^2 values measured using blindfolding with a setting of omission distance (D) at 7. Results show that larger than zero Q^2 values are obtained for effectiveness of tax administration, tax compliance and tax revenue. This implies excellent predictive relevance in the research model of present research.

Table 4.16: Predictive Relevance, Q^2

Relationship	Q^2
Effectiveness of tax administration	0.2426
Tax compliance	0.2620
Tax revenue	0.0321

4.12 Testing the Mediating Effect

A third variable or construct intervening the relationship between another two related constructs will bring mediating effect. The evaluation of mediating effect is important as a significant mediator may to some extent absorb a cause-effect relationship. Theoretically, mediation is commonly used to clarify or explain the correlation between a dependent and an independent construct construct (Hair, Hult et al., 2014). According to Hayes (2017), researchers should estimate the indirect effect of a mediation model. In line with this, Zhao, Lynch and Chen (2010) suggested the employment of bootstrapping, a nonparametric resampling procedure, which has been recognised as one of the most rigorous and powerful methods in testing mediating effects. Hair, Hult, Ringle and Sarstedt (2017) suggested the implementation of bootstrapping for analysing mediation effect through the indirect effect sampling distribution that acts towards multiple as well as simple mediator models. Besides that, the use of bootstrapping to test mediation effect is suitable for PLS-SEM as it does not make assumption about the shape of the distribution of variables nor the sampling distribution of the statistics.

Bootstrapping method provides direct and indirect effects obtained by a path model that reveal its mediating effects. A single arrow connecting two

constructs shows direct effects of the two constructs whereas relationships with at least one intervening construct involved is called indirect effects. With this, indirect effect can be explained as a sequence of two or more direct effects that are presented using multiple arrows. Therefore, indirect effect is used to determine the mediating effect (Hair, Hult et al., 2014). Referring to Figure 4.1, Hair et al. (2017) concluded that the significance test for indirect effect needs to be obtained before testing the significance of the direct effect. If the indirect effect is significant, the researchers need to analyse the significance of direct effect. During the circumstances that both the indirect effect and direct effect are significant, it depicts a partial mediation whereas if the direct effect is not significant, then it shows a full mediation. Conversely, if the indirect effect is not significant, then the mediation effect does not exist. Model with full mediation or competitive partial mediation does not need to undergo the examination of the variance accounted for (VAF) which is usually utilized to find the portion of indirect effect in its total effect. VAF is only needed if a model shows complementary partial mediation (Hair et al, 2017). Bootstrapping method is applied in this research to examine tax compliance as the mediator for effectiveness of tax administration and tax revenue as hypothesized in Chapter 2. The result of the mediation effect is presented in the next subsection.

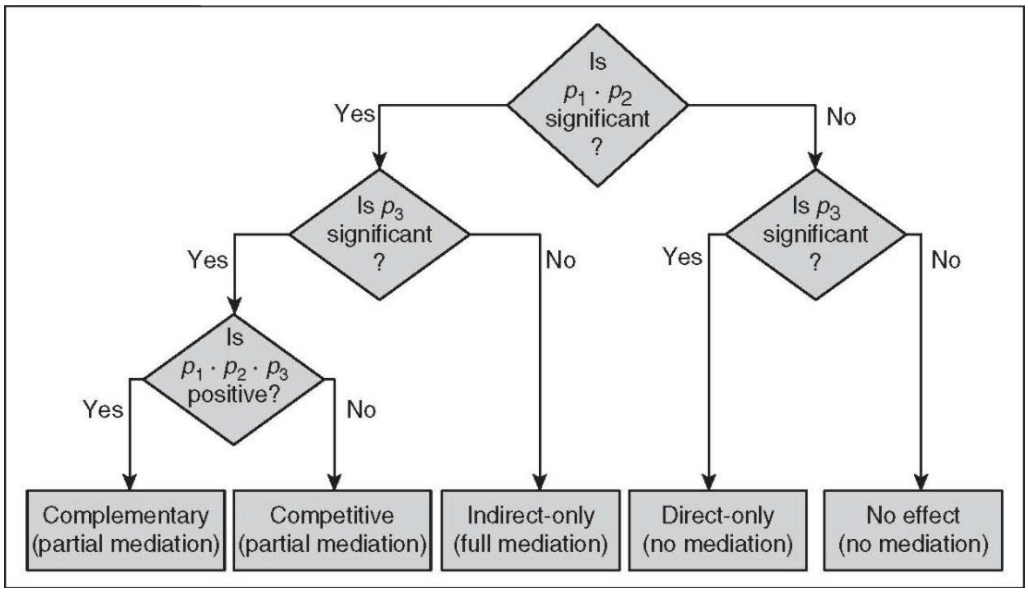


Figure 4.1: Mediation Analysis Procedure
Source: Hair, Hult, Ringle and Sarstedt, 2017

4.12.1 Mediating Effect of Tax Compliance

In this research, tax compliance is hypothesized to mediate the relationship among effectiveness of tax administration and tax revenue. The indirect effect of tax compliance obtained from bootstrapping is shown in Table 4.17. Results of $\beta = -0.1325$ and *t* value of 4.0170 with $p < 0.05$ have proven that tax compliance has significant indirect effect. According to Hair et al. (2017), a mediator with insignificant direct effect and significant indirect effect shows that the mediator fully mediates the relationship between the two constructs connected to it.

Based on the path coefficients analysis presented in subsection 4.11.2, the direct effect between effectiveness of tax administration and tax revenue is insignificant since the *p* value is more than 0.05 (following 5% significance level) and 0.10 (following 10% significance level). However, the indirect effect of tax

compliance shown in Table 4.17 is significant as *p* value is below 0.05. Hence, the mediator tax compliance is fully mediating the relationship between effectiveness of tax administration and tax revenue.

Table 4.17: Indirect Effect of Tax Compliance

Relationship	Standard Beta	Standard Error	*t* value	*p* value
Tax compliance mediates the relationship between effectiveness of tax administration and tax revenue	-0.1325	0.0330	4.0170	0.0001

4.13 Results of Hypotheses Testing

Hair, Hult et al. (2014) confirmed that the results obtained from PLS-SEM enable researchers to statistically test the proposed hypotheses which can empirically prove the presence of the proposed path relationships. The verification of path coefficients carried out among latent variables or constructs in a structural model is called hypothesis testing. In accordance to this, beta coefficients (β) of OLS regressions are used for the estimation of individual path coefficients in PLS-SEM. Hair, Hult et al. (2014) illustrated that bootstrapping procedure could evaluate the quality of the measurement models and the structural models through the determination of indicators' loadings and path coefficient's significance. Hence, the bootstrapping procedure was performed in present research to test the proposed hypotheses.

Significant paths show the hypothesized direction empirically support the proposed hypotheses while insignificant paths do not support the proposed hypotheses. The calculations of *t* value and *p* value are proposed as the two ways

in the significance assessment (Hair, Hult et al., 2014). A larger empirical *t* value as compared to critical value and less than 0.05 *p* value at 5% significance level or less than 0.10 *p* value at 10% significance level can prove significant coefficient. Based on Hair, Hult et al. (2014) and Sarstedt, Ringle and Hair (2017), path coefficients always flow in between -1 and +1 which represent strong negative and strong positive relationships respectively. Hair, Hult et al. (2014) further emphasized that the relationship becomes weaker as the path coefficient gets closer to 0.

The results of path coefficients, observed *t*-statistics, significance level (*p* value) for all the constructs and R^2 for the proposed hypotheses are disclosed in Table 4.18. The results demonstrate that other than the path coefficient relating effectiveness of tax administration and tax revenue, all the other direct path coefficients show β value from -0.2661 to 0.4980 with 5% significance level ($p < 0.05$). This has proven that all path coefficients are significant except for the relationship between effectiveness of tax administration and tax revenue.

Table 4.18: Path Coefficients, Observed T-Statistics, Significance Level, R^2 Values

Exogenous construct	Endogenous construct	Path Coefficient (β)	Observed *t*-statistics	Significance Level, *p* value	R^2
Effectiveness of e-filing	Effectiveness of tax administration	0.4169	9.7896	0.0000	0.4686
Tax administration costs		0.2597	6.0988	0.0000	
Tax audit rule		0.2570	5.2628	0.0000	
Compliance costs	Tax compliance	-0.1733	4.7001	0.0000	0.4397

Effectiveness of tax administration		0.4980	11.2915	0.0000	
Tax evasion and avoidance		0.2105	4.7247	0.0000	
Effectiveness of tax administration	Tax revenue	0.1070	1.5089	0.1320	0.0472
Tax compliance		-0.2661	4.5866	0.0000	

In reference to Table 4.18, it proves that the effectiveness of e-filing is significantly affecting the effectiveness of tax administration at a smaller than 0.05 *p* value. Therefore, Hypothesis 1 which hypothesized the more effective the e-filing, the more effective the tax administration is supported. The results show that the taxpayers perceived that the tax administration will be more effective as long as the e-filing is effective. The R^2 value of 0.4686 explains 46.86% of the variance in effectiveness of tax administration are explained by effectiveness of e-filing, tax administration costs and tax audit rule.

Besides that, tax administration costs is proven to significantly affecting effectiveness of tax administration as the *t* value is above 1.96 (5% significance level) and *p* value is less than 0.05. Henceforth, Hypothesis 5 can be supported. These results conclude that tax administration costs is negatively correlated with the effectiveness of tax administration.

Moreover, the results shown in Table 4.18 shows that the connection among tax audit rule and effectiveness of tax administration is significant. This is concluded as the *t* value presented is above 1.96 and *p* value is below 0.05 at 5% significance level. In line with this, tax audit rule is proven to have relationship with effectiveness of tax administration which further supported Hypothesis 4 proposed in subsection 2.12.

Results shown in Table 4.18 prove the association among compliance costs and tax compliance is significant as its *t* value is larger than 1.96 while its *p* value is smaller than 0.05. Therefore, the proposed Hypothesis 7 can be supported. It is confirmed that tax compliance costs is negatively related to tax compliance. The R^2 value marked by tax compliance explained by compliance costs, effectiveness of tax administration and tax evasion and avoidance is 0.4397.

The *t* value and *p* value obtained for the association among tax evasion and avoidance and tax compliance are 4.7247 (above 1.96) and 0.0000 (less than 0.05) respectively which denote the significant relationship between the two constructs. With this, Hypothesis 6 stating the lower the tax evasion and avoidance, the better the tax compliance is supported.

The *t* value obtained between effectiveness of tax administration and tax compliance is above 1.96 at 5% significance level and the *p* value is below 0.05. This substantiates that the two constructs are significantly related. Furthermore, the direct effect between tax compliance and tax revenue is significant since the *t* value shown in Table 4.18 is 4.5866 which is above 1.96 at 5% significance level. At the same time, its *p* value is below 0.05 which further proven the significance direct effect between the two constructs. However, the direct effect between effectiveness of tax administration and tax revenue does not exist as the *t* value is below 1.96 (1.5089) and the *p* value is above 0.10 (10% significance level). Therefore, Hypothesis 2 is not supported as the significance relationship between effectiveness of tax administration and tax revenue is not shown in the results obtained for this study. Even though the direct relationships from effectiveness of tax administration to tax compliance and tax compliance to tax revenue are not hypothesized in this research, but the analysis of mediating effect

can still be conducted. The mediation analysis and interpretation are presented in subsection 4.12.1. The indirect effect of tax compliance obtained from the bootstrapping procedure has confirmed that tax compliance has a full mediation effect on the connection between effectiveness of tax administration and tax revenue. Henceforth, Hypothesis 3 is being supported.

A recap of the results for the hypotheses developed for inner model (structural model) is presented in Table 4.19 in accordance to the final outcomes concluded and displayed in Table 4.18. In short, other than Hypothesis 2, all other hypotheses developed for present research are supported at 5% significance level.

Table 4.19: Summary of Hypotheses Results

Hypotheses	Result
H1: The more effective the e-filing, the more effective the tax administration.	Supported
H2: A more effective tax administration will increase tax revenue.	Not Supported
H3: Tax compliance mediates the relationship between effectiveness of tax administration and tax revenue.	Supported
H4: Tax audit rule has relationship with the effectiveness of tax administration.	Supported
H5: Tax administration costs is negatively related to the effectiveness of tax administration.	Supported
H6: The lower the tax evasion and avoidance, the better the tax compliance.	Supported
H7: Tax compliance costs is negatively related to tax compliance.	Supported

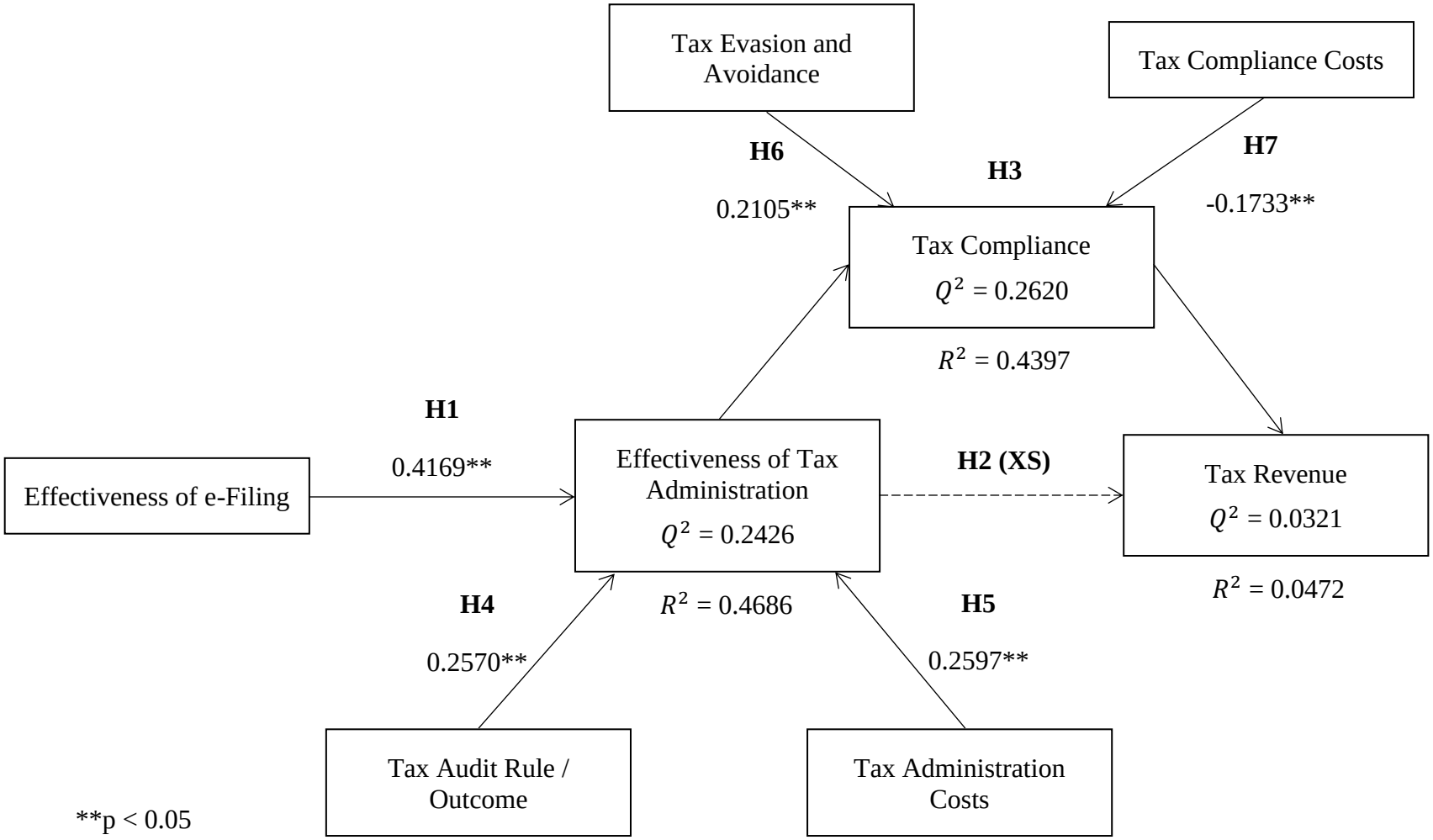
4.14 Summary of Research Model

Figure 4.2 finalizes the research model by presenting the path coefficients with its hypotheses, coefficient determinants (R^2) and predictive relevance (Q^2). Significance and relevance of the structural model can be shown through path coefficients and coefficient determinants (R^2) whereas predictive relevance (Q^2) estimates the indicators of measurement model in terms of its data points.

The dotted line (--------→) in H2 was attempted to show the direct relationship between effectiveness of tax administration and tax revenue. However, an insignificant relationship is found from the results generated in the analyses presented in the previous sections. On the other hand, full lines (——→) signify significant relationship between constructs.

Figure 4.2 shows that 46.86% of the variance in effectiveness of tax administration are explained by effectiveness of e-filing, tax audit rule and tax administration costs. 43.97% of the variance in the mediator, tax compliance are explained by effectiveness of tax administration, tax evasion and avoidance and compliance costs. As effectiveness of tax administration is not significantly affecting tax revenue, only 4.72% of the variance in tax revenue are explained by the mediating effect of tax compliance. Nevertheless, all the Q^2 values shown in the structural model are larger than zero signifying that the research model has good predictive relevance.

The structural model is then analysed to check the importance and performance matrix (IPMA) as presented in Section 4.16.



**p < 0.05

XS = Not significant

Figure 4.2: Structural Model Results

4.15 Discussion of Findings: Inferential Statistics and Hypotheses

The discussion of results for each hypothesis will show the rationale for present research outcomes that reflects the reasons for the results obtained in previous subsections. The data collection of present research has been carried out from 1st June 2020 until 5th November 2020 subsequent to the first Movement Control Order (MCO) implemented in Malaysia which has brought huge impact to the economy. The coronavirus disease (COVID-19) that first discovered in late 2019 and developed to a global pandemic declared by the World Health Organisation (WHO) in March 2020 has led to lockdowns in many countries over the world which then brings a lot of impacts to the global economy. Therefore, the results obtained for present research is believed to be highly influenced by the impacts brought to Malaysia's economy due to the COVID-19 pandemic which is expected to change the taxpayers' behaviour. The change of taxpayers' behaviour and the effect of pandemic have pulled down government tax revenue. The discussions of the findings together with the results made for the hypotheses developed for present research are included in the following subsections.

4.15.1 Effectiveness of E-Filing and Effectiveness of Tax Administration

It was seen as an impossible mission to involve information technology into tax administration in the past. However, the introduction of electronic tax filing (e-filing) has been strongly recommended in order to improve the effectiveness of tax administration (Silvani & Baer, 1997; Koong et al., 2019).

Present study hypothesized that the effectiveness of e-filing positively influencing the effectiveness of tax administration as stated in Hypothesis 1.

H1: The more effective the e-filing, the more effective the tax administration.

The positive significant relationship between effectiveness of e-filing and effectiveness of tax administration is confirmed as the *t* value is 9.7896 (more than critical value) and a smaller than 0.05 *p* value obtained with path coefficient (β) at 0.4169. Hence, Hypothesis 1 proposing a positive association among effectiveness of e-filing and effectiveness of tax administration is being supported in this research. Digital transformation is believed to be able to help tax administration to support better accountability in which it could help to promote effectiveness, timeliness, and anti-corruption in the delivery of public services (Asian Development Bank [ADB], 2020). Contact-less processes and procedures in tax related matters such as e-filing, tax returns collections, and more have been strongly promoted during the COVID-19 outbreak as an effort to increase self-assessment of taxes and minimizing physical contact. The improvement of tax self-assessment has shown that an effective e-filing will lead to an effective tax administration (IMF, 2020d). OECD (2017) concluded that the development of information and communication technology (ICT) in electronic tax filing has improved the efficiency and the quality of services provided to taxpayers. Other than that, e-filing has reduced government administration costs and enhanced tax enforcement. OECD (2010a) highlighted that a use of poorly-designed online services will add to the burden of tax administration. In other words, an ineffective tax e-filing will lead to ineffective tax administration. E-filing improves tax administration through the

improvement of the quality and quantity of tax information provided to tax officers, the saving of time in the issuance of assessments and refunds, the cut of administrative costs in handling returns as well as the reduction in filing error rates (World Bank, 2013). As concluded in the results obtained from present research and supported in past studies aforementioned, it is proven that the promotion of e-filing service in Malaysia has improved the effectiveness of tax administration in Malaysia. The introduction of e-filing service was done in year 2008 and it picked up dramatically in year 2012 which has benefited the tax authority (World Bank, 2013) in terms of making tax filing more convenient, leading to lower tax administration costs, time saving and many more. In line with this, the tax administration in Malaysia becomes more effective with the increase of effectiveness of e-filing.

4.15.2 Effectiveness of Tax Administration and Tax Revenue

Based on past literatures, it is shown that an effective tax administration leads to a higher tax collection and increase the tax revenue (Das-Gupta, Estrada & Park, 2016). Hence, effectiveness of tax administration was proposed to influence tax revenue positively. In line with this, Hypothesis 2 was formed to investigate the direct effect of effectiveness of tax administration on tax revenue.

H2: A more effective tax administration will increase tax revenue.

Referring to Table 4.19 and Figure 4.2, an insignificant direct relationship between effectiveness of tax administration and tax revenue as the *p* value is 0.1320 (*p* value > 0.05) is shown. Henceforth, it is concluded that Hypothesis 2

is not supported. This result contradicts with the study conducted by Das-Gupta, Estrada and Park (2016) which recognized the effectiveness of tax administration as a potential significant determinant of tax revenue. OECD (2020) summarized a discussion held pertaining to tax policy and tax administration responses to COVID-19 in the Asia-Pacific region and concluded that tax administrations across the world played a vital role during the time of crisis by assisting to reduce difficulties in cash flow, lowering the compliance burdens and offering assistance to businesses and people. In line with the COVID-19 pandemic, the tax revenue in most countries is impacted due to the direct effects brought by the economic slowdown and indirect effects from tax policy and tax administration measures taken in response (International Monetary Fund [IMF], 2020a). It is further explained that the decline in tax revenue is caused by the disruption of economic activity brought by the new normal practices inclusive of social distancing that brings distinct effects on the tax base, tax administration, and tax compliance. Besides that, the change in tax revenue is very different during the economy downturn caused by COVID-19 pandemic especially in the aviation, construction, energy, telecommunications and retail trading. For example, the sales tax revenue will reduce due to the closure of airports and the negative impacts brought to the hospitality industry (IMF, 2020a). The tax revenue declined due to reasons unrelated to the effectiveness of tax administration.

In the context of Malaysia, the tax revenue was not influenced by the effectiveness of tax administration but it was affected by tax collection (MoF, 2020a). It is announced that the Federal Government's revenue in Malaysia decreased by 14% (RM37.1 billion) from RM264.4 billion in year 2019 to

RM227.3 billion in year 2020 due to lower tax collection brought by the impact of COVID-19 (MoF, 2020a). Moreover, the items set for construct effectiveness of tax administration and tax revenue in the questionnaire designed for present research showed significant relationship among effectiveness of tax administration and tax revenue during the two times of pilot studies conducted before COVID-19 by the end of year 2019 and beginning of year 2020 respectively. However, the same questions in the questionnaire have led to insignificant result during the actual data collection carried out from 1st June 2020 until 5th November 2020 when the impact of MCO due to COVID-19 seriously affecting Malaysians. The significant result obtained during pre-COVID-19 and insignificant result obtained during post COVID-19 have further proven that the drop of tax revenue is caused by COVID-19 but not effectiveness of tax administration. Other than that, MoF (2020a) announced the drop in tax revenue for year 2020 was due to lower estimated average crude oil price of USD40 per barrel. Such scenario has further confirmed that tax revenue was not influenced by the effectiveness of tax administration in Malaysia in year 2020 (MoF, 2020a).

4.15.3 The Mediating Effect of Tax Compliance Between Effectiveness of Tax Administration and Tax Revenue

Past literatures showed that effective tax administration such as conducting tax audit more regular (Che Rosli, Ming Ling & Embi, 2018) will retain tax revenue (Wahab, 2013). According to the researcher's investigation, there is a lack of research conducted taking tax compliance as a mediator between

effectiveness of tax administration and tax revenue. Therefore, tax compliance has been proposed to mediate the relationship between effectiveness of tax administration and tax revenue in present research.

H3: Tax compliance mediates the relationship between effectiveness of tax administration and tax revenue.

Referring to subsection 4.12.1, it is concluded that tax compliance is fully mediating the relationship between effectiveness of tax administration and tax revenue. Hence, Hypothesis 3 has been supported as presented in Table 4.19 as well as Figure 4.2. The current global economic due to the worldwide outbreak of COVID-19 might enlarge the informal economy or informal sector which will bring negative impacts on tax compliance since this could trigger tax fraud. The COVID-19 crisis will hinder the ability of administrations of tax collection which will then affect the tax compliance (IMF, 2020a). IMF (2020a) further illustrated the effects of tax collection and tax compliance caused by the crisis. The taxpayers' compliance tends to decline during the economic downturn and tax revenue will certainly be affected since many countries delay tax filing or payment dates as part of the tax administration measures taken during the crisis. However, the decline in taxpayers' compliance is not a persistent change in taxpayers' behaviour but a cash-based compliance which is believed to recover quickly after the crisis. IMF (2020d) emphasized that tax compliance will likely decline due to the difficult survival of businesses during the crisis. According to SME Corporation Malaysia (2020a), 81% of SME owners could not survive for more than 3 months while only 1% of SME owners managed to sustain for more than 1 year if the implementation of MCO in Malaysia prolonged. This scenario

is worsened in year 2021 as more than 90% of SME entrepreneurs are at risk of closing down under a prolonged implementation of MCO in Malaysia (SME Corporation Malaysia, 2021a). As such, tax compliance behaviour among business taxpayers will change and eventually affects tax revenue collection. Brondolo (2009) concluded that the tax administration is heavily challenged by the global financial and economic crisis as the taxpayers' compliance is proven to be worsened during an economic downturn. Moreover, noncompliance could have been entrenched within the taxpayer and eventually causes a long-term decline in tax revenue. Tax agencies are urged to contain noncompliance issues by working on the tax administration services in order to sustain the tax revenue. Upon the recovery of the COVID-19 pandemic, the recovery of economy is expected through some temporary management arrangements such as revenue administrations which should prioritize the safety and health of all parties as well as safeguarding the availability of taxpayer services to secure taxpayers' compliance (IMF, 2020b). The effectiveness of tax administration is of importance in recovering taxpayers' compliance which eventually brings the tax revenue back to pre-crisis level and ready for further improving. The crisis might have deteriorated tax filing, declaration and payment compliance due to the extended deadlines and limited tax agencies' staff availability which causes significant risk to the tax revenue (IMF, 2020b). Rosley (2020) stated that a good tax administration will raise tax compliance which will then bring confidence in the taxation system and increase tax revenue. The same concept is applicable to Malaysia context.

Based on the aforementioned discussions from past studies, it is seen that the effectiveness of tax administration influences the taxpayers' tax compliance

behaviour during COVID-19 crisis (IMF, 2020a), change in tax filing or payment dates (IMF, 2020a), unsustainable business due to MCO (SME Corporation Malaysia, 2021a) and global financial and economic crisis (Brondolo, 2009). The change in tax compliance has then affected tax revenue (IMF, 2020a) in which tax revenue will be declining in long term if the noncompliance entrenches (Brondolo, 2009). However, this can be corrected if tax compliance can be raised through an effective tax administration (Rosley, 2020).

4.15.4 Tax Audit Rule and Effectiveness of Tax Administration

Tax audit is significant to form an effective tax administration (Silvani & Baer, 1997). Present research hypothesized that there is a relationship between tax audit rule and effectiveness of tax administration as stated in Hypothesis 4.

H4: Tax audit rule has relationship with the effectiveness of tax administration.

The results obtained and presented in Table 4.19 show that tax audit rule is significantly affecting the effectiveness of tax administration with path coefficient (β) marked at 0.2570 with *t* value 5.2628 (p value < 0.05). Hence, the effectiveness of tax administration and tax audit rule are confirmed to be correlated where Hypothesis 4 is being supported. One of the efforts in tax administration during the COVID-19 crisis shows that IRBM has supported taxpayers through a few aspects including changing tax audit policy (OECD, 2020). Tax audits have been carried out remotely as part of the tax administration

(OECD, 2020) during the COVID-19 pandemic. Sen (2021) briefed on the tax stimuli actions taken by nations in the Asia and Pacific region in coping with the COVID-19 pandemic which caused lockdowns and other restrictions that led to bad economy. This brief has connected tax audit as one of the tax administrations measures. It is suggested to curtail or postpone the tax audits as one of the tax administrations actions to reduce the compliance burden of taxpayers during this global economic crisis. The tax audit rule can be changed to risk-based systems which audits only the most questionable claims, post-refund audits for lower-risk claims and pre-refund audits for higher-risk claims as an effort in improving the refund management under the effectiveness of tax administration (Brondolo, 2009). It is believed that a delay in the payment of tax refunds without appropriate reason shows poor tax administrative processes. Kleven, Kreiner and Saez (2016) assumed that whistle-blower is a useful approach in tax audit. The information obtained from consumer monitoring could augment the effectiveness of tax audit which then improve the effectiveness of tax administration even without a change in the tax audit rates.

A good and effective tax audit and tax audit rule will be able to make tax administration more effective as it helps to save time, costs incurred from the tax administration process and many more during the execution of tax audit. KPMG (2018) highlighted the change of Malaysia tax audit framework in year 2019 and urged taxpayers to enhance the quality of documentation and accounting records to get ready for tax audit at any time. In regards to the enhancement of the quality of documentation and accounting records from the taxpayers, the tax administration process will be carried out in an easier and time saving manner.

As such, the change of tax audit framework or tax audit rule will affect the effectiveness of tax administration.

4.15.5 Tax Administration Costs and Effectiveness of Tax Administration

Tax administration costs is concluded as the costs incurred due to the assessment and collection of tax such as costs to observe taxpayers' payment behaviour, auditing costs and so on. It is estimated that when tax administration costs decrease, tax administration will be more effective. Hence, Hypothesis 5 is proposed.

H5: Tax administration costs is negatively related to the effectiveness of tax administration.

In reference to the findings shown in Table 4.19, the connection within tax administration costs and effectiveness of tax administration is significant with path coefficient (β) of 0.2597 when the *t* value is 6.0988 and *p* value less than 0.05. Therefore, the hypothesized negative relationship among tax administration costs and effectiveness of tax administration as stated in Hypothesis 5 has been supported. It is important to include the costs incurred from tax policy implementation and tax administration in relevance to the COVID-19 crisis during the forecasting of tax revenue (IMF, 2020a). A reduction of tax administration cost allows the administrative resources to be reallocated more efficiently (World Bank, 2013). Hajah Mustafa (1996) conducted research pertaining to Malaysia tax administrative system based on tax administration costs seeing that efficient and productive tax administration

costs will maximise tax collection and other revenue collections. This study found that the effectiveness or productiveness of Malaysia tax administration started to decline while the tax administration costs were rising. The result of present study has again proven the negative relationship between tax administration costs and effectiveness of tax administration.

4.15.6 Tax Evasion and Avoidance and Tax Compliance

Referring to subsection 2.4.1, past literatures show that taxpayers tend to evade or avoid tax in order to reduce the tax liability (Alm, 1999). Taxpayers are considered as non-complying to tax when there is an involvement in tax evasion or avoidance. Hypothesis 6 hypothesized an inverse connection among tax evasion and avoidance and tax compliance.

H6: The lower the tax evasion and avoidance, the better the tax compliance.

Based on Table 4.19, tax evasion and avoidance is significantly affecting tax compliance with path coefficient (β) of 0.2105 when the *t* value is 4.7247 and *p* value less than 0.05. Hypothesis 6 has been supported in present study which shows that when the tax compliance will be higher when tax evasion and avoidance are lower. According to Brondolo (2009), taxpayers affected by credit-constrained will tend to evade tax as an alternative to finance for own operations when the credit is tight or unavailable. This happens due to the taxpayers perceive the downside risks of tax evasion to be very little compared to the potential upside gains from tax evasion during severe economic stress. Besides that, the tax evasion will become more popular during a recession if the

taxpayers perceive that the tax agencies are less rigid in tax laws enforcement or it is less risky to evade tax when other people are evading taxes even more. Slemrod (2019) used the terms evasion and noncompliance interchangeably to show the inverse association among tax evasion and tax compliance. It also mentioned that the poor evade taxes while the rich avoid taxes since there are sufficient legal ways for the rich to reduce tax obligations. Mohamad, Zakaria and Hamid (2016) have tied tax evasion with non-compliance during the investigation of tax evasion amongst SMEs in Malaysia. This means when tax evasion in Malaysia increases, tax compliance amongst Malaysian taxpayers will decrease and vice versa.

4.15.7 Compliance Costs and Tax Compliance

Compliance costs are costs incurred by taxpayers and businesses in complying to tax obligations. It is believed that taxpayers and businesses will tend to reduce tax compliance when the compliance costs are higher. Hence, Hypothesis 7 was developed to investigate whether tax compliance costs is negatively influencing tax compliance.

H7: Tax compliance costs is negatively related to tax compliance.

Results presented in Table 4.19 show that compliance costs is significantly and negatively influencing tax compliance at path coefficient (β) of -0.1733 when the *t* value is 4.7001 and *p* value smaller than 0.05. This hypothesis has been supported based on the results obtained in previous analyses. IMF (2020c) provided guidance on how revenue agencies can assist governments in

responding to the unprecedented challenges brought by the COVID-19 crisis. Tax agencies are recommended to help businesses and individuals that are directly affected by the crisis to deal with the effects brought by the crisis either financially or non-financially. The main focus is to reduce compliance costs in order to ensure large taxpayers' compliance. Gokalp, Lee and Peng (2017) found that when the compliance costs increase, firms will reduce tax compliance in order to stay competitive. Firms will not be able to fully comply to tax reporting when the compliance cost is higher and the competition from other aspects such as price competition is stronger. This research highlighted that the firm's degree of compliance depends on the compliance costs incurred. The results obtained from present research which show an inverse connection among tax compliance costs and tax compliance is consistent with Hassan, Palil, Ramli and Maelah (2021) that suggested Malaysia government to spend more in tax expenditure, specifically tax compliance in order to improve tax compliance. In other words, an effort in reducing tax compliance costs will lead to higher tax compliance in Malaysia.

4.16 Importance and Performance Matrix Analysis (IPMA)

Importance and performance matrix analysis (IPMA) extends the results of PLS-SEM by considering the performance of each construct on top of identifying the importance of constructs. IPMA contrasts the importance, which is measured by the structural model total effects and the performance measured by the average values of the latent variable scores. This will stress significant areas that need to be considered for improvement of management activities (or

related to the model) (Hair, Hult et al., 2014). Ramayah et al. (2018) summarized that IPMA is useful in helping researchers to explain and discuss the findings for managerial implications.

Martilla and James (1977) originated the partition of IPMA by dividing Importance-Performance Analysis (IPA) grid into four quadrants consisting importance measure represented by a vertical axis while the performance measure constitutes the horizontal axis of a two-dimensional graph. Abalo, Varela and Manzano (2007) mentioned that the IPA grid has then been modified with an upward diagonal line highlighting the difference between importance and performance ratings. The area above the diagonal line shows that the importance is equal to performance. This means any attribute with an importance rating greater than its performance rating is needed to consider for an improvement (Ramayah et al., 2018).

Figure 4.3 shows the IPMA for present research. Importance of constructs is represented in horizontal dimension while performance of constructs is represented in vertical dimension. Construct tax revenue has been selected as the target construct in IPMA. The importance and performance of each construct is represented in different colour and shapes in the matrix.

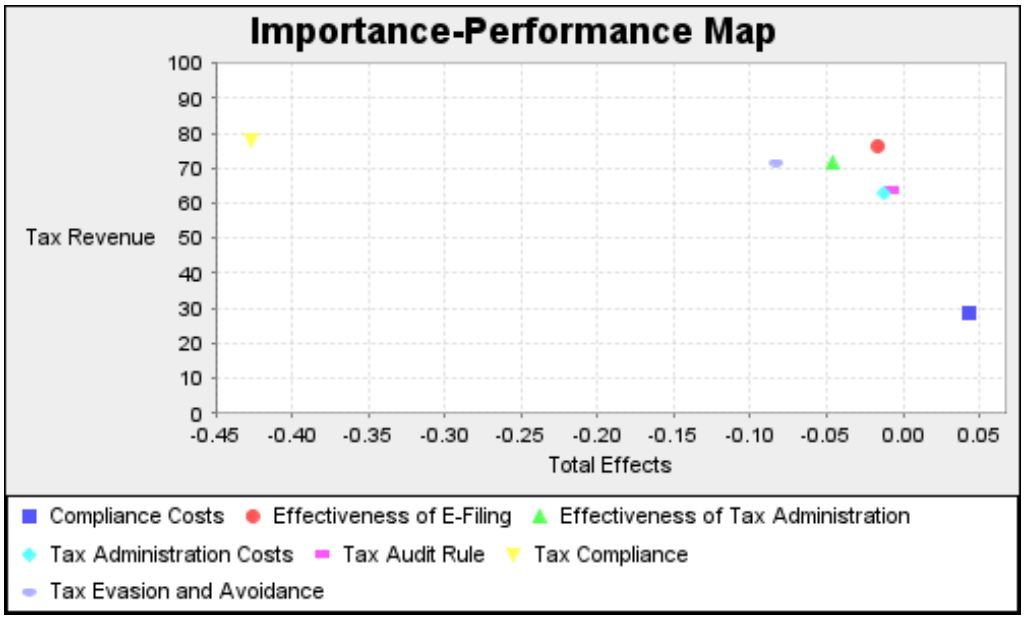


Figure 4.3: Importance and Performance Matrix Analysis (IPMA) Results

Table 4.20 demonstrates the results of IPMA. Based on Table 4.20, other than compliance costs, the rest of the constructs show negative results under total effect (importance of constructs). Despite the positive or negative importance of the latent variables, the most important latent variable is tax compliance (-0.4266), followed by tax evasion and avoidance (-0.0830), effectiveness of tax administration (-0.0465), compliance costs (0.0431), effectiveness of e-filing (-0.0162) and tax administration costs (-0.0121), while the least important latent variable is tax audit rule (-0.0076).

In terms of performance, tax compliance has shown the best performance at 78.1877 among all the other constructs. This is then followed by effectiveness of e-filing showing performance index as 76.3662. Tax evasion and avoidance and effectiveness of tax administration are showing relatively high performance marked at 71.6125 and 71.3976 respectively. The performance index for tax audit rule and tax administration costs are displayed as 63.8397 and 62.8578

individually. Compliance costs has shown the lowest performance index among all the constructs listed in the model at 28.4771.

From the IPMA results generated, it is clearly seen that tax compliance is categorized in the 'keep up the good work' quadrant. Tax evasion and avoidance and effectiveness of tax administration are both considered as relatively important and performing well in this model too. The effectiveness of e-filing and tax administration costs are believed to be somewhat important in this model in which the performances are good. Latent variable compliance costs has shown relatively high importance than some other constructs but the performance shown is too low. Hence, this construct is classified under 'concentrate here' quadrant and higher concentration should be given to this construct. Tax audit rule is categorized in the 'Possible overskill' quadrant as it has high performance but low importance.

Table 4.20: IPMA Results Full Data Set

Latent Variable	Tax revenue	
	Total Effect (Importance)	Index Value (Performance)
Effectiveness of e-filing	-0.0162	76.3662
Tax administration costs	-0.0121	62.8578
Tax audit rule	-0.0076	63.8397
Compliance costs	0.0431	28.4771
Effectiveness of tax administration	-0.0465	71.3976
Tax evasion and avoidance	-0.0830	71.6125
Tax compliance	-0.4266	78.1877

4.17 Chapter Conclusion

This chapter commences with the report of research ethics applied in present research. Then, the explanation of response rate, non-response bias and data preparation are presented. Besides, the present chapter reports data verification prior to descriptive analysis. The profiles of the respondents have been discussed in present chapter. Other than this, the eight constructs adapted in present research have also been studied and discussed from the perspectives of mean, mode, median, standard deviation, kurtosis and skewness. Current chapter has also summarized the statistical analyses using PLS-SEM. The hypotheses results are obtained and explained in present chapter too. PLS-SEM is also used to determine the statistical significance of the latent variables hypothesised in the research model. The reflective measurement model is assessed based on internal consistency reliability, indicator reliability, convergent validity and discriminant validity. All the results obtained for the four assessments of reflective measurement model are satisfactory. This chapter then evaluated the structural model through the assessment of collinearity issues, significance and relevance of the structural model relationships, coefficients of determination (R^2), effect size (f^2) and predictive relevance (Q^2). The mediating effect of tax compliance has been tested and confirmed to be a full mediator that mediates the relationship between effectiveness of tax administration and tax revenue. The summary of the hypotheses results showed that all the hypotheses are being supported except for Hypothesis 2. Discussions of findings and rational of outcomes have been included after the result of hypotheses are confirmed. This chapter ended with the assessment of the Importance and Performance Matrix Analysis (IPMA) for present research.

Chapter 5 presents and discusses the main results of the constructs involved in this thesis together with limitations and implications of present research. At the end of Chapter 5, recommendations for future research will be included.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This research was carried out to investigate the effects of tax administration and tax compliance on Malaysia's tax revenue. The research examined how does effectiveness of e-filing influence the effectiveness of tax administration which is also expected to be affected by the tax audit rule and tax administration costs. Besides that, the impact of effectiveness of tax administration on tax revenue is investigated with mediation effect of tax compliance which lies on the change of tax evasion and avoidance and compliance costs.

Chapter 5 will cover the contribution of this research from the theoretical, methodological, managerial and policy-making perspective. Policy-making contribution will include the proposal to IRBM in the effort of increasing Malaysia's tax revenue. The second section of this chapter will discuss the limitations found from this research whereas the third section includes recommendations for future research in the context of tax administration, tax compliance and tax revenue.

5.2 Research Conclusion

This section provides conclusion for present research based on the research questions, research objectives and hypotheses set in previous chapters. Table 5.1 presents the research questions and research objectives proposed for present research which then led to the development of hypotheses. The

subsequent paragraphs will also show that all research questions are answered, research objectives are achieved.

Table 5.1: Research Questions, Research Objectives, Hypotheses Developed and Findings

Research Questions	Research Objectives	Hypotheses Developed and Findings
1. Does electronic based tax filing (e-filing) increase the effectiveness of tax administration?	**1.** To determine the connection between electronic based tax filing (e-filing) and the effectiveness of tax administration.	Hypothesis 1: The more effective the e-filing, the more effective the tax administration. Hypothesis 1 is supported.
2. Does tax compliance mediate the connection between Malaysian tax administration and tax revenue?	**2.** To investigate the role of tax compliance mediating between the effectiveness of tax administration and tax revenue.	Hypothesis 3: Tax compliance mediates the relationship between effectiveness of tax administration and tax revenue. Hypothesis 3 is supported.
3. What are the influences of the effectiveness of tax administration on tax revenue?	**3.** To analyse the impact of the effectiveness of tax administration on tax revenue.	Hypothesis 2: A more effective tax administration will increase tax revenue. Hypothesis 2 is not supported.
4. Is e-filing more preferred than manual filing?	**4.** To examine whether e-filing is more preferred than manual filing.	Supported in descriptive statistics.
5. What is the relationship between tax audit rule and the effectiveness of tax administration?	**5.** To investigate the association between tax audit rule and the effectiveness of tax administration.	Hypothesis 4: Tax audit rule has relationship with the effectiveness of tax administration. Hypothesis 4 is supported.
6. Do the tax administration costs influence the effectiveness of tax administration?	**6.** To determine tax administration costs as the factor influencing the effectiveness of tax administration.	Hypothesis 5: Tax administration costs is negatively related to the effectiveness of tax administration.

		Hypothesis 5 is supported.
7. What is the effect of tax evasion and avoidance on tax compliance?	**7.** To confirm the effect of tax evasion and avoidance on tax compliance.	Hypothesis 6: The lower the tax evasion and avoidance, the better the tax compliance. Hypothesis 6 is supported.
8. What are the influences of compliance costs on tax compliance?	**8.** To examine the influence of compliance costs on tax compliance.	Hypothesis 7: Tax compliance costs is negatively related to tax compliance. Hypothesis 7 is supported.

Several conclusions are drawn from this research. The first conclusion of present research is one of the general objectives proposed whereby there is a positive relationship between effectiveness of e-filing and effectiveness of tax administration. Hypothesis 1 is developed in correspond to the first research question and research objective proposed in present research. The results obtained from this research adds to the existing literature by further proving that effectiveness of e-filing brings positive effect to the effectiveness of tax administration. The findings show that individual taxpayers and business taxpayers perceive e-filing as an effective tool in tax filing process which is significant in the administration of taxation system. Digitalisation of tax filing process leads to an increase in contactless processes and procedures in tax related matters which then improves the effectiveness of tax administration by saving time spent for issuance of assessments and refunds, reducing administration costs and reducing filing error rates. In short, the convenience and effectiveness brought by the utilization of e-filing benefit both taxpayers and tax agents in terms of tax filing and tax administration.

The second conclusion drawn from this research is derived from the research objective aiming to investigate the role of tax compliance mediating between the effectiveness of tax administration and tax revenue. This had been hypothesized as tax compliance mediating the connection among effectiveness of tax administration and tax revenue under Hypothesis 3. The findings obtained in present research supports Hypothesis 3 and confirms that tax compliance has a full mediation effect on the association among effectiveness of tax administration and tax revenue. From the research done by the researcher, several past researchers had carried out research to find the connection among effectiveness of tax administration and tax compliance while some past studies concentrated on the relationship between tax compliance and tax revenue as well as the relationship between effectiveness of tax administration and tax revenue. However, none of the past studies has examined the mediating effect of tax compliance towards the connection among effectiveness of tax administration and tax revenue. Hence, this conclusion is one of the major achievements of present research as it develops a new concept of tax compliance in relation to tax administration and tax revenue. The effect of tax compliance mediating effectiveness of tax administration and tax revenue is prominent especially when the economy is under a crisis that weakens taxpayers' compliance caused by the challenging tax administration which eventually pulls down the tax revenue (Brondolo, 2009; IMF, 2020a; IMF, 2020b; IMF, 2020d; Rosley, 2020). In other words, an effective tax administration will build confidence in taxpayers, improving tax compliance in an economy and finally increases tax revenue in the country.

The third conclusion concerns about the influence of the effectiveness of tax administration towards tax revenue. Both of the variables are hypothesized as positively related under Hypothesis 2 in this research. However, the hypothesis is not supported which means the estimated positive relationship between the effectiveness of tax administration and tax revenue is not confirmed based on the findings obtained from present research. Tax revenue is strongly affected by many reasons such as economic downturn, negative impacts brought by unforeseen global issues, disruption of economic activity and so on. It is indirectly affected by tax policy and tax administration (IMF, 2020a). Such finding is more distinct in this research as the data collection was carried out during the global economic downturn due to the lockdowns in most countries affected by COVID-19 pandemic. Therefore, the direct effect of the effectiveness of tax administration on tax revenue is not supported in present research.

The fourth conclusion is made based on the research question 'Is e-filing more preferred than manual filing?'. This is able to be answered based on the data collected from respondents through questionnaire survey. As discussed in Chapter 4, subsection 4.8.1, the respondents show positive feelings for e-filing system which led to a preference on e-filing comparing to manual tax filing. Respondents of present research perceive e-filing as an effective, clear, understandable, flexible, easy to use and satisfactory system in tax filing. Apart from these, e-filing system is deemed to be useful in the tax filing process too. Hence, it is concluded that e-filing is more preferred than manual filing and the research objective set to compare the preference between e-filing and manual filing is fulfilled.

The fifth conclusion derived is relating to one of the objectives of present research that investigate the association between tax audit rule and the effectiveness of tax administration. This has been hypothesized as Hypothesis 4 of this research stating that tax audit rule has relationship with the effectiveness of tax administration. Referring to the results obtained from present research, Hypothesis 4 is supported and tax audit rule is confirmed to be correlated with the effectiveness of tax administration. According to OECD (2020), IRBM has put some efforts in tax administration during economic crisis caused by a global based issue such as COVID-19 pandemic to support the taxpayers. One of the efforts done in tax administration is through a change in tax audit rule to reduce the compliance burden of taxpayers. In short, it is certain that tax audit rule influences the effectiveness of tax administration since it acts as one of the tax administration measures.

The sixth conclusion made from present research established from the connection among tax administration costs and effectiveness of tax administration. This research has hypothesized that there is a negative relationship between tax administration costs and effectiveness of tax administration as stated under Hypothesis 5. The present research supports Hypothesis 5 which shows that tax administration is more effective when tax administration costs decrease. Tax administration costs refer to costs involved in administering tax such as staff cost, infrastructure, tax audit costs and many more. Past literatures have proven that the allocation of tax administration is more efficient during a reduction of its cost. In relevance to tax policy implementation due to economic issue, tax administration costs incurred acts as one of the important components in the determination of tax administration effectiveness.

Thus, it is concluded that tax administration costs influence the effectiveness of tax administration negatively.

The seventh conclusion extracted from present research corresponds with the research question proposed to confirm the impact of tax evasion and avoidance towards tax compliance. In accordance to this, Hypothesis 6 indicating the lower the tax evasion and avoidance, the better the tax compliance has been developed. Findings from this research supports the negative association between the two variables. Tax evasion and tax avoidance are both referring to efforts to run away from tax. However, both of these are distinguished by the legality of carrying out the action of reducing tax amount. The respondents participated in present research show good tax compliance and low tax evasion and avoidance intention. This conclusion adds to the past literatures which used the terms evasion and noncompliance interchangeably to demonstrate the adverse relationship between tax evasion and avoidance and tax compliance.

The last conclusion obtained from this research is that tax compliance costs are negatively associated with tax compliance. This is proposed as the last research objective and hypothesized as Hypothesis 7 in present research. The expenses incurred and borne by the taxpayers during the progress of making tax payments are called compliance costs. Past studies proved that tax compliance will reduce when compliance costs are high. Such statement is more obviously seen on business taxpayers. Hence, this research found that the compliance costs are negatively related to tax compliance.

5.3 Research Contribution

Several contributions can be made with reference to the results obtained from present research. The contributions can be categorized based on theoretical contributions, methodological contributions, managerial contributions and policy-making contributions. The research contributions are discussed in the subsequent parts.

5.3.1 Theoretical Contribution

Present study has added to the knowledge of connecting tax administration, tax compliance and tax revenue using Principal-Agent Approach. In relation to the Principal-Agent Approach, present research has shown a significant connection between effectiveness of tax administration and tax revenue with the presence of mediating effect from tax compliance. Besides that, compliance costs and tax evasion and avoidance are proven to be significantly affecting tax compliance in this research. This research has added to the literature of applying Theory of Planned Behaviour in the assessment of tax compliance by connecting tax evasion and avoidance to attitude, compliance costs to perceived behavioural control and tax compliance to behavioural intention with the omission of subjective norm from the research model. On top of this, the use of Technology Acceptance Model to study the acceptance and adoption of e-filing system in influencing the effectiveness of e-filing is further contributing to the literature of e-filing.

The assessment of effectiveness of tax administration relying on the effect of tax audit rule and tax administration costs simultaneously contributes

significantly to the existing tax administration literature. Despite the availability of past literatures assessing effectiveness of tax administration based on a few perspectives, none of the studies had shown the influence of tax audit rule and tax administration costs towards effectiveness of tax administration in a single framework. The results concluded in this research contribute to the understanding of tax audit rule and tax administration costs have impact on effectiveness of tax administration. Both of the exogenous variables serve as crucial factors in administering tax more effectively.

Another important contribution made from this research is tax compliance being a full mediator of effectiveness of tax administration and tax revenue. The full mediation effect of tax compliance adds new knowledge by showing that an effective tax administration increases the taxpayers' tax compliance which eventually increase the tax revenue. On the other hand, the tax revenue will decrease if the taxpayers perceive the tax administration as ineffective and reduce tax compliance.

Past literatures showed direct effect of effectiveness of tax administration on tax revenue which has been rejected in this research due to the insignificant result obtained. In line with this, the rejection of the direct effect between effectiveness of tax administration and tax revenue contributes to the literature of such area.

5.3.2 Methodological Contribution

The application of partial least square structural equation model (PLS-SEM) in e-filing, tax administration and tax compliance context has significantly

contributed to the area of tax studies. According to Ramayah et al. (2018), there are two variations of SEM analysis, known as covariance-based SEM (CB-SEM) and PLS-SEM. The decision to use PLS-SEM rather than CB-SEM in this research is due to its exploratory based research nature and the complexity of its structural model with eight constructs and many indicators involved in the research model. The use of structural equation model (SEM) in tax related studies is very limited. Hence, current research adds to the diversity of statistical methodology employed in e-filing, tax administration and tax compliance studies.

5.3.3 Managerial Contribution

Present research provides recommendations to Malaysian tax administrator, IRBM, by showing the importance of an effective tax administration in driving up the tax revenue via the mediating effect of tax compliance. The results obtained from present research confirm the significance of tax administration in assuring the taxpayers' compliance which could assist IRBM in curbing tax evasion and tax avoidance issues. Tax audit and tax administration costs act as significant variables in influencing the effectiveness of tax administration. An appropriate set of tax audit rule allows the tax administrator to administer tax more effectively through a change in taxpayers' behaviour while low tax administration costs enable a reallocation of fund which will lead to a more effective tax administration. In line with this, effective tax administration will increase taxpayers' compliance and eventually drives up the tax revenue.

An assurance is given to IRBM on the incorporation of technology into the assessment, collection and enforcement payment of taxes through e-filing system which was not accepted by the taxpayers during the initial launching stage. The results from present research shows positive view on the use of e-filing for all tax related matters and it is more preferable as compared to manual filing. Additionally, the implementation of e-filing helps IRBM to administer tax more effectively. In reference to the results obtained in this research, IRBM is recommended to continue with the application of e-filing in tax matters. IRBM may also improve the system through further simplification in the system to encourage the taxpayers to replace manual filing with e-filing.

5.3.4 Policy-Making Contribution

Tax revenue is confirmed to be the utmost important source of income for a nation. This research has connected effectiveness of e-filing, effectiveness of tax administration and tax compliance with tax revenue which could bring an insight to the tax policy maker in the effort of improving Malaysia tax revenue.

The government and tax administrator have to administer tax effectively through tax activities such as the processing of taxpayers' returns and information, checking and matching the returns and filing requirements, processing and matching tax payments against assessments, issuing assessments and refunds and setting an effective tax audit rule to retain or gain taxpayers' confidence and trust to keep the tax compliance high. This is due to tax administration is one of the crucial factors in influencing tax compliance which will decide the nation tax revenue.

The application of e-filing is found to be effective in influencing the tax administration which affects tax compliance and tax revenue. This information managerially contributed to IRBM in the pushing of e-filing amongst taxpayers. In accordance to this, the government may take the benefits gained from an effective e-filing in the context of tax revenue into the consideration during policy making process. Henceforth, the implementation of e-filing will be widened and making the tax administration more effective which will eventually raise tax revenue.

This research proves that an appropriate tax audit rule will improve the effectiveness of tax administration. Hence, a strategic tax audit rule should be set so that the taxpayers who have intention to evade or avoid tax will pay tax up to the minimum level of the tax audit threshold set. Such move will reduce the tax evasion and tax avoidance cases attempted by some of the taxpayers or increase tax compliance, thus, the tax revenue can be raised.

Present research concludes that tax compliance costs is a significant factor that affects tax compliance and tax revenue. This result adds to the solutions planned by Malaysia's government in the reduction of inevitable tax evasion and tax avoidance issues. Referring to the data collected from the respondents who are also taxpayers in this research, low compliance costs will improve the willingness and ability to comply to tax and vice versa. Henceforth, the government and tax authority can reduce or control the compliance costs in order to increase the taxpayers' willingness and ability to comply to tax (tax compliance).

5.4 Research Limitation

This research serves as a foundation for future research that links e-filing, tax administration, and tax revenue with the mediation effect of tax compliance between the effectiveness of tax administration and tax revenue in a single framework. Nevertheless, some limitations below need to be considered in future research.

Limitations are unpreventable in all research. First of all, Malaysia has implemented Movement Control Order (MCO) from March 2020 as an effort to curb COVID-19 pandemic. This has restricted the researcher to collect data from the respondents physically. Hence, the researcher has converted the data collection process to online basis by sending questionnaires to the target respondents through emails and text messages. Such scenario means that all the respondents participated in present research are formed by technologically literate people. Hence, it is believed that the respondents do not face major problem in using e-filing for all tax related matters which cause the results to be less representative.

Secondly, the execution of Special Voluntary Declaration Programme from 3rd November 2018 until 30th September 2019 together with the extension of tax filing for assessment year 2020 for individual taxpayers not owing business to 30th June 2020 and taxpayers owning business to 31st August 2020 to increase tax revenue are believed to have changed the taxpayers' behaviour. This research collected data from 1st June 2020 until 5th November 2020 which is during the post execution of the Special Voluntary Declaration Programme

and during the tax filing extension period. Therefore, a percept-percept bias might occur in this research.

Thirdly, this research adopts quantitative method only. The application of sole quantitative method might lead to percept-percept bias as the reliability and replicability of present research is doubtful.

Fourthly, generalizability absents from this research due to the adoption of non-probability sampling method. The present research applied convenience sampling and purposive sampling method due to convenience and based on past research. However, as commented by Sharma (2017), purposive sampling can be difficult to defend the representativeness of the sample and it is hard to make generalizations from sample to population. According to Etikan, Musa and Alkassim (2016), convenience sampling faces the generalization issue too. Thus, generalization does not presence in this research.

Based on the results obtained from present research, one of the limitations is that this research is unable to establish a direct relationship between effectiveness of tax administration and tax revenue with the presence of tax compliance being the mediator. Based on the research framework proposed for this research, a direct relationship between effectiveness of tax administration and tax revenue is expected. However, the results do not show the direct relationship between the said constructs. It only proves the full mediating relationship of tax compliance towards effectiveness of tax administration and tax revenue.

From past literatures review, tax audit brought significant impacts to tax evasion and tax compliance. However, tax audit is only made as exogenous

variable to effectiveness of tax administration which acts as an exogenous variable to tax compliance in present research. In relevance to these connections, it is inappropriate to make tax audit as independent variable affecting tax evasion or tax compliance. Henceforth, the association among tax audit and tax compliance or tax evasion have not been proposed and established in present research. This shows a shortfall in the research scope.

This research did not investigate the factors leading taxpayers to involve in tax evasion and avoidance. This serves as a limitation to present research as the government or tax authorities could take actions in curbing or minimizing the chances for taxpayers to evade and avoid taxes if the factors are known. The minimization of tax evasion and avoidance will then lead to higher tax compliance and tax revenue.

The indicators set for latent variable tax administration costs might not be appropriate to be applied to tax administration scenario during post pandemic. This is because all the tax administration tasks were conducted online during the pandemic due to the national lockdown and it is believed that there is a change in the tax administration costs. Therefore, the effects of tax administration costs on the effectiveness of tax administration need to be investigated under online tax administration scenario in the future.

Despite the limitations mentioned above, this research has devoted to the empirical knowledge in the discipline of e-filing, tax administration and tax revenue with the mediation effect from tax compliance. It opens up the connection of the variables mentioned above especially tax compliance being

the mediator of effectiveness of tax administration and tax revenue in Malaysia context.

5.5 Recommendations for Future Research

Future research should consider several recommendations given below built from the limitations and findings from this research. First of all, future research can improve the generalizability of such study by collecting data offline to reach a wider group of respondents inclusive of those who are unfamiliar with technology. This is because offline data collection allows the illiterate people to stand an equal chance to be selected to participate in the research.

Similar research study should be conducted under a normal tax assessment year avoiding special programmes introduced by the tax authorities or government in raising tax revenue considering that the effects could possibly create percept-percept bias. Alternatively, the future researcher can shorten the data collection period to reduce the risk of falling into the period of special programmes implementation by the government and tax authorities.

The application of combined quantitative and qualitative research may be applied to check on the difference arisen from quantitative research and combination research. Triangulation can also be employed to reduce the problem of percept-percept bias which will improve the reliability and replicability of the research.

Future research is recommended to concentrate on a specific group of respondents such as narrowing down the scope of study to SME owners only.

Alternatively, future researcher can seek for assistance from IRBM to gather aggregate data without knowing the identities of the taxpayers. The involvement of IRBM providing invaluable information to researcher and narrowed scope of study will allow researcher to collect data using probability sampling method such as simple random sampling method, stratified sampling method or systematic sampling method instead of non-probability sampling method applied in present research. It is suggested that the researcher may obtain a list of the target respondents to allow the application of probability sampling method for similar research in the future. With the application of probability sampling method, it is believed that the generalizability can be achieved.

The establishment of direct relationship between effectiveness of tax administration and tax revenue can be examined by taking tax compliance as a mediator through incorporation of different measurements over time. Alternatively, the future researcher may include the constructs related questions from different aspects into the questionnaire in order to create different indicators for the latent variables. In relevance to this, the examination of direct relationship between effectiveness of tax administration and tax revenue is more objective.

Tax audit is impactful to firms in making decision whether to evade tax. According to Al-Karablieh, Koumanakos and Stantcheva (2021), firms with significant unreported profits will report the shortfall profits until it reaches the criteria allowing the firm to avoid audits. Firms engaging with tax evasion and misreporting will be more likely to avoid audits and this causes a lack of tax compliance. This is supported with the evidence reported by Naritomi (2019) which concluded that tax audit conducted through whistle-blowers formed by

consumers will affect the evasion decision by firms. In line with the connection among tax audit and tax evasion or tax compliance mentioned above, future research may further expand the study by incorporating the connection between tax audit and tax evasion or tax compliance.

Since tax evasion and tax avoidance are inevitable and are significant in influencing tax compliance and tax revenue, future research may study the reasons for taxpayers to evade and avoid tax payment. Thereafter, the ways to reduce tax evasion and tax avoidance can be suggested. Alternatively, future research may investigate the factors that influence tax compliance or voluntary tax compliance with the hope of increasing tax revenue since a reduction of tax evasion and tax avoidance or a rise in tax compliance will lead to a higher tax revenue as per findings obtained from present research.

Last but not least, future researcher may also find out the change in tax administration costs during post pandemic and upon the lifting of the national lockdown. Tax administration costs is believed to have changed seeing that all tax administration tasks were conducted online during the lockdown period. This is particularly emphasized as present research concluded that tax administration cost is significantly and negatively influencing the effectiveness of tax administration which will then indirectly affecting the tax revenue.

5.6 Chapter Conclusion

This chapter represents the conclusion of present research. The conclusions derived from this research are presented. Research contributions broken down into theoretical contribution, methodological contribution,

managerial contribution and policy-making contribution are included in this chapter too. Several limitations discovered from this research have been presented along with its correspondence recommendations.

This research found that the effectiveness of e-filing plays a vital role in influencing the effectiveness of tax administration which will then lead to a change in tax revenue mediated by taxpayers' tax compliance. The tax audit rule and tax administration costs could affect the effectiveness of tax administration while tax evasion and avoidance and compliance costs could change the tax compliance behaviour. In opposition, the effectiveness of tax administration does not show a direct effect towards tax revenue in present research.

The findings of present research allow the government and the tax authority to increase the nation tax revenue through the utilization of e-filing and effective tax administration. An increase in tax revenue will eventually solve Malaysia national debt problem since tax revenue is a main contribution to the government revenue.

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APPENDIX A

QUESTIONNAIRE

UNIVERSITI TUNKU ABDUL RAHMAN (UTAR)

FACULTY OF BUSINESS AND FINANCE (FBF)

Dear Respondent,

My name is Liew Su Yee. I am a PhD candidate from Universiti Tunku Abdul Rahman (UTAR). I would like to investigate the effects of tax administration and tax compliance on Malaysia's tax revenue. My research focuses on Malaysian taxpayers regardless of the type of tax paid. As you are one of the Malaysian taxpayers, you are invited to participate in this research study by completing the attached questionnaire.

This set of questionnaire will require approximately 15 minutes to complete. There is no compensation for responding nor is there any known risk. In order to ensure that all information will remain confidential, you are not required to reveal your name. copies of this research project will be provided to my University for academic purpose. If you choose to participate in this project, please answer all of the questions as honestly as possible and return the completed questionnaire promptly. Your participation in this survey is strictly on a voluntary basis. Your inputs will be kept privately and confidentially for academic purpose only. Your data will not be disclosed to any other parties.

Thank you for spending your time to assist me in my academic research endeavours. The data collected will provide useful information pertaining to Malaysia's tax revenue. If you require information or have questions, please feel free to contact me at liewsy609@1utar.my.

Yours faithfully,

Liew Su Yee
17ABD05512

Section A: Demographic Information

Please tick (√) at the appropriate box or fill in the blank for each of the following questions.

Gender: ☐ Male ☐ Female

Age: ☐ 20 or less ☐ 21 – 30 ☐ 31 – 40
☐ 41 – 50 ☐ 51 – 60 ☐ Above 60

Which state are you from? _____

Where are you staying / living now? _____

Marital status: ☐ Single ☐ Married
☐ Divorced / Widowed

Highest education level: ☐ SPM
☐ STPM / Certificate / Matriculation / Pre-U
☐ Diploma / Vocational course
☐ Undergraduate / Bachelor's degree
☐ Master / Professional qualification
☐ Doctorate (PhD) / Post Doctorate

Annual personal income: ☐ ≤ RM42,000
☐ RM42,001 – RM52,000
☐ RM52,001 – RM62,000
☐ RM62,001 – RM72,000
☐ RM72,001 – RM82,000
☐ RM82,001 – RM92,000
☐ RM92,001 – RM102,000
☐ RM102,001 – RM112,000
☐ RM112,001 – RM122,000
☐ Above RM122,000

Annual business income: ☐ ≤ RM100,000
☐ RM100,001 – RM200,000
☐ RM200,001 – RM300,000
☐ RM300,001 – RM400,000
☐ RM400,001 – RM500,000
☐ Above RM500,000
☐ Not relevant to me, I am not running a business
☐ Not relevant to me because of other reasons

Are you an existing taxpayer? ☐ Yes
☐ No

Do you file tax online? ☐ Yes
☐ No

Section B: The Effectiveness of E-filing

Please circle the number that represents your opinion the most on each of the statement given below.

The scale is as below:

Strongly disagree	Moderately disagree	Slightly disagree	Neutral	Slightly agree	Moderately agree	Strongly agree
1	2	3	4	5	6	7

Effectiveness of E-filing

The usage of e-filing system

1. Overall, current tax law in Malaysia is straight forward.	1	2	3	4	5	6	7
2. I use e-filing system to file tax due to its effectiveness.	1	2	3	4	5	6	7
3. I am quite knowledgeable in using e-filing.	1	2	3	4	5	6	7
4. I prefer e-filing than manual tax filing.	1	2	3	4	5	6	7

Feeling towards e-filing system

1. I have positive feelings for e-filing system.	1	2	3	4	5	6	7
2. I feel satisfied filing tax via e-filing system.	1	2	3	4	5	6	7
3. The e-filing system is flexible to use.	1	2	3	4	5	6	7
4. Overall, I find the e-filing system easy to use.	1	2	3	4	5	6	7

Experience on e-filing system

1. E-filing enables me to file my tax quickly.	1	2	3	4	5	6	7
2. Using e-filing improves my tax filing experience.	1	2	3	4	5	6	7
3. E-filing system is clear.	1	2	3	4	5	6	7
4. E-filing system is understandable.	1	2	3	4	5	6	7
5. E-filing improves my effectiveness on tax filing.	1	2	3	4	5	6	7

6. Overall, I find the e-filing system useful in tax filing. 1 2 3 4 5 6 7

Section C: The Effectiveness of Tax Administration

Please circle the number that best represents your opinion on each of the statement given below.

The scale is as below:

Strongly disagree	Moderately disagree	Slightly disagree	Neutral	Slightly agree	Moderately agree	Strongly agree
1	2	3	4	5	6	7

Effectiveness of tax administration

1. There is a shortage of experienced personnel for tax assessment. 1 2 3 4 5 6 7
2. I think having more credible tax officers is an effective way to combat tax evasion. 1 2 3 4 5 6 7
3. I think having more knowledgeable tax officers is an effective way to combat tax evasion. 1 2 3 4 5 6 7
4. I think more studies should be done on understanding taxpayers' behaviour, so that tax authority can design a more effective tax system. 1 2 3 4 5 6 7
5. I think Inland Revenue Board of Malaysia should conduct more tax education programmes like workshops to interpret tax laws to the taxpayers. 1 2 3 4 5 6 7
6. Overall, the system of tax administration in Malaysia is efficient. 1 2 3 4 5 6 7
7. Overall, the system of tax administration in Malaysia is effective. 1 2 3 4 5 6 7

Taxpayers will be selected for tax audit based on the rule set by the tax authority. This is called tax audit framework.

Tax audit rule/ outcome

1. Inland Revenue Board of Malaysia officials always come to me to verify tax documents. 1 2 3 4 5 6 7

2. The probability of being audited is so low that it is acceptable to understate my taxable income.	1	2	3	4	5	6	7
3. I think I am safe from tax audit even I fail to declare some earnings from commission.	1	2	3	4	5	6	7
4. I think the likelihood of being detected understating my income is low even I am being audited.	1	2	3	4	5	6	7
5. I think that increasing tax enforcement such as tax audit is essential.	1	2	3	4	5	6	7

Tax administration cost is defined as the staff cost and infrastructure incurred in administering tax.

Tax administration cost

1. I think the cost of handling tax assessment by Inland Revenue Board of Malaysia is high.	1	2	3	4	5	6	7
2. I think the cost of collecting taxes is high. (Examples for cost of collecting taxes: salaries and wages paid to the related staff, the staff's travel expenses etc.)	1	2	3	4	5	6	7
3. I think there is a cost incurred by Inland Revenue Board of Malaysia in researching taxpayers' payment behaviour.	1	2	3	4	5	6	7
4. I think tax audit / inspection involves high costs.	1	2	3	4	5	6	7
5. I think the government needs to spend on tax auditors' / inspectors' training cost.	1	2	3	4	5	6	7

Section D: Tax Compliance

Please circle the number that best represents your opinion on each of the statement given below.

The scale is as below:

Strongly disagree	Moderately disagree	Slightly disagree	Neutral	Slightly agree	Moderately agree	Strongly agree
1	2	3	4	5	6	7

Tax compliance

1. I pay tax by the deadline set.	1	2	3	4	5	6	7
2. I declare my tax assessment based on Inland Revenue Board of Malaysia's tax guidelines.	1	2	3	4	5	6	7
3. I pay tax in full to the Inland Revenue Board of Malaysia.	1	2	3	4	5	6	7
4. I think training is needed for taxpayers to increase the rate of tax compliance.	1	2	3	4	5	6	7
5. Overall, current tax system motivates me to comply.	1	2	3	4	5	6	7

Tax evasion is defined as evading tax illegally through the help from informal sector. Tax avoidance refers to avoiding from tax in a legal way.

Tax evasion and avoidance

1. It is alright to occasionally understate certain income.	1	2	3	4	5	6	7
2. It is alright to occasionally claim a disallowable expense.	1	2	3	4	5	6	7
3. It is alright to understate some income since other taxpayers is indifferent about it.	1	2	3	4	5	6	7
4. Tax evader can be forgiven since everybody is doing the same.	1	2	3	4	5	6	7
5. A high tax rate leads to tax evasion.	1	2	3	4	5	6	7
6. A high tax rate leads to tax avoidance.	1	2	3	4	5	6	7
7. People evaded tax due to economy slowdown situation.	1	2	3	4	5	6	7
8. I think government should put more effort in anti-corruption campaigns to combat tax evasion.	1	2	3	4	5	6	7

Please specify the factors of tax evasion and avoidance:

_____

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Compliance costs

1. I think tax compliance involves very high cost.	1	2	3	4	5	6	7
2. I hire accountant(s) for tax filing.	1	2	3	4	5	6	7

3. I hire employee(s) for tax filing.	1	2	3	4	5	6	7
4. I hire accounting firm for tax filing.	1	2	3	4	5	6	7
5. I need to consult tax professionals in completing my tax forms.	1	2	3	4	5	6	7

Tax revenue

1. I think the government spends the tax revenue collected carefully.	1	2	3	4	5	6	7
2. It is alright to declare less on taxable income since the government spends too much on extravagant projects.	1	2	3	4	5	6	7
3. I think Malaysians are unsure on how the government utilizes its tax revenue.	1	2	3	4	5	6	7
4. I refuse to pay taxes as long as I think the government is unreliable.	1	2	3	4	5	6	7

END OF QUESTIONNAIRE

THANK YOU FOR YOUR PARTICIPATION.

ALL RESPONSES WILL BE KEPT PRIVATE AND CONFIDENTIAL.

APPENDIX B

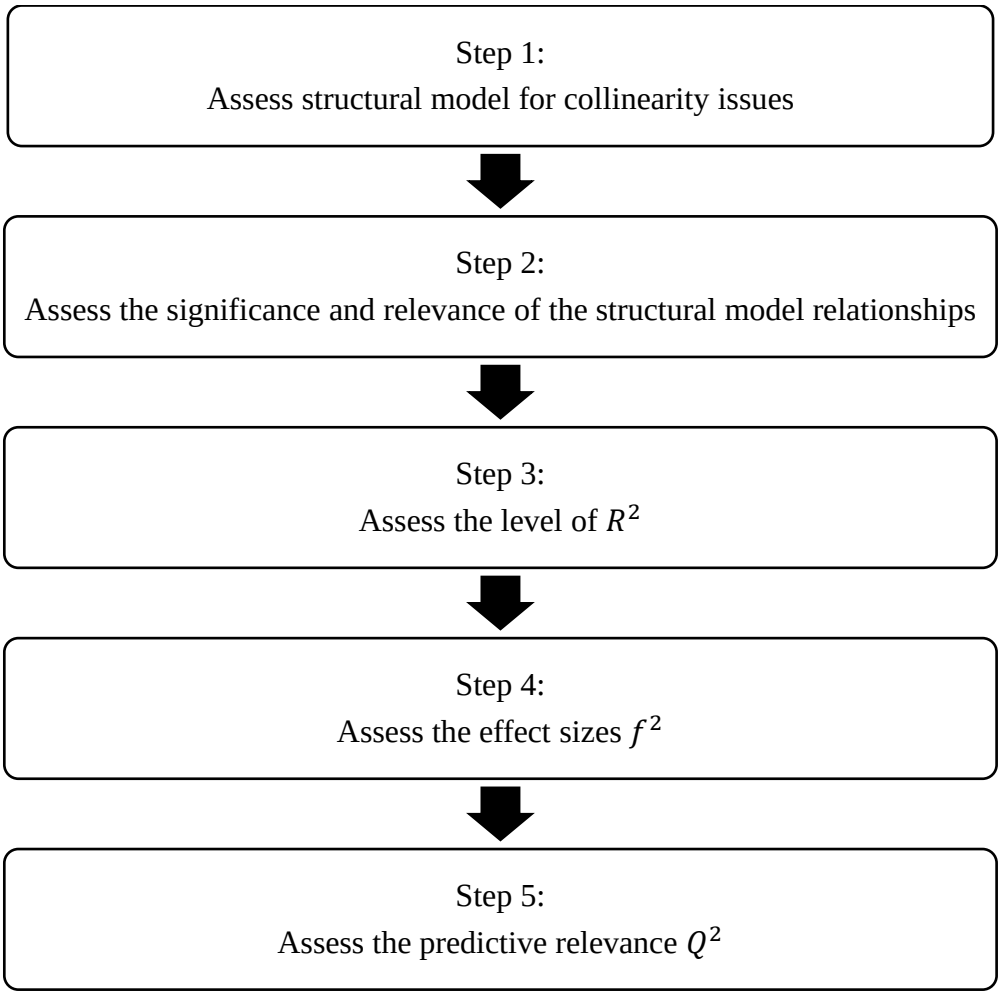
GUIDELINES FOR CHOOSING THE MEASUREMENT MODEL MODE

Criteria	Decision	Reference
Causal priority between the indicator and the construct	• From the construct to the indicators: reflective • From the indicators to the construct: formative	Diamantopoulos and Winklhofer (2001)
Is the construct a trait, explaining the indicators or rather a combination of the indicators?	• If trait: reflective • If combination: formative	Fornell and Bookstein (1982)
Do the indicators represent consequences or causes of the construct?	• If consequences: reflective • If causes: formative	Rossiter (2002)
Is it necessarily true that if the assessment of the trait changes, all items will change in a similar manner (assuming they are equally coded)?	• If yes: reflective • If no: formative	Chin (1998)
Are the items mutually interchangeable?	• If yes: reflective • If no: formative	Jarvis et al. (2003)

Source: Adapted from Hair Jr, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2014). *A primer on partial least squares structural equation modeling (PLS-SEM).* Sage publications.

APPENDIX C

FIVE STEPS FOR ASSESSING THE STRUCTURAL MODEL USING PLS-SEM



Source: Adapted from Hair Jr, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2014). *A primer on partial least squares structural equation modeling (PLS-SEM).* Sage publications.