Tax Burden and Investments:

A Firm-level Study Analyzing the Impact of Taxes on Investment Levels in Indian Manufacturing Firms

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DECLARATION BY STUDENT

I hereby declare that the data presented in the Dissertation report entitled, **"Tax Burden and Investments: A Firm-level Study Analyzing the Impact of Taxes on Investment Levels in Indian Manufacturing Firms"** is based on the results of investigations carried out by me in the Economics Discipline at the Goa Business School, Goa University under the Supervision of Ms Heena Subrai Gaude and the same has not been submitted elsewhere for the award of a degree or diploma by me. Further, I understand that Goa University or its authorities will not be responsible for the correctness of observations / experimental or other findings given the dissertation.

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COMPLETION CERTIFICATE

This is to certify that the dissertation report "Tax Burden and Investments: A Firm-level Study Analyzing the Impact of Taxes on Investment Levels in Indian Manufacturing Firms" is a bonafide work carried out by Mr Quiton Cinton Dias under the supervision in partial fulfilment of the requirements for the award of the degree of Masters of Arts in the Discipline of Economics at the Goa Business School, Goa University.

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ABSTRACT

Does taxes have an impact on investment decisions? This research ventures into unveiling the effects of direct and indirect tax burdens on investments of Indian manufacturing firms during the period 2015 to 2023. To ascertain the true impact of tax burden on investments; the investments are disaggregated into three classes: equipment investment, structural investment, and investment in other fixed assets. An empirical model was estimated to determine the impact of tax burden on different investment classes and further, the degree of impact based on the firm's size using firm-level data extracted from the Centre for Monitoring Indian Economy (CMIE) Prowess IQ database. The study found that the tax burden negatively affects the investments of Indian manufacturing firms. The direct tax is detrimental to equipment investment whereas the indirect taxes are harmful to all classes of investments. Additionally, the impact tax burden is more significant on the investments of the large and medium firms. The research suggests that the tax reforms introduced by the Government of India have efficiently contributed to improving investment levels in India's manufacturing sector.

Keywords: Direct tax burden, Indirect tax burden, Equipment investment, Structural investment, Other fixed assets investment, Tax reform, Indian manufacturing firms.

CHAPTER ONE

Introduction

1.1 Decoding the Linkages of Economic Growth

Economic growth is a major concern for all nations. Developed countries aim to maintain their growth rate, while underdeveloped and developing nations strive to achieve a high growth rate. Growth is crucial because it uplifts the standard of living and overall welfare of society. The value of the total number of goods produced and services generated in an economy is used to measure economic growth. The central macroeconomic objective of an economy is to optimally utilize its scarce resources and enhance its production capacities in a manner that maximizes output levels. This is crucial to ensure that sufficient quantities of goods are produced for consumption, which is directly associated with the living standards of the country's population.

Several factors affect an economy's growth; one significant contributor is investment. Growth depends on the economy's ability to mobilize its savings into investment. There is a fine line between savings and investment, where savings represent relinquished consumption today for future consumption, whereas investment employs the savings for a possible higher level of consumption in the future. Investment is the expenditure made in anticipation of achieving greater benefits in the future.

Two macroeconomic aggregates that are crucial to GDP growth over the long term are savings and investments. These variables have to do with how resources are distributed throughout time periods. Allocating current resources to raise the capital stock or output levels is achieved by setting aside a portion of current revenue to finance investment to grow—which is one way to increase future product productivity. On the other hand, there is agreement that increased

investment speeds up economic growth and evidence that capital accumulation boosts productivity. Raising the capital stock quickens GDP growth and boosts productivity.

Taxation has a significant negative impact on capital accumulation as a result the investment and output levels are affected (Bond & Xing, 2015). Since taxes eat out the profits it creates disutilities for entrepreneurial activities. As proposed by the economist Arthur Laffer, if tax rates are beyond the optimal levels the entrepreneur will be disincentivized to take up investments. Therefore, the tax structure of an economy will indirectly affect the growth, through its negative consequences on investments.

Academic and political discussions concerning the creation of social structures and public policies that can either positively or negatively affect a nation's economic performance have traditionally revolved around tax policy. As a way to balance the tension between social stability and individual economic liberties, taxes play a significant role in both individual and group decision-making within a community. Its main purpose is to provide the government with the necessary funds to finance public expenditures, but it also performs other functions such as income redistribution, meeting social needs, effective investment fund allocation, indirect control over production and consumption, and stabilizing the economy against outside shocks.

The most effective way to achieve economic growth while maintaining social progress is to implement a tax system that minimizes its negative impact and encourages expansion. Since taxes affect a country's economic performance through various channels such as income distribution and investment decisions, it is crucial to study the design of tax systems to understand its influence on the economy. Taxation can serve as a tool for regulation, social equity, or investment attraction, and can affect production and consumption in different ways. Regardless of

its purpose, taxation is a significant factor in shaping public policy and the economy's responsiveness.

Considering the detrimental effects of taxes on investment levels, governments worldwide use fiscal policy measures to alleviate the tax burden of business corporations. Tax incentives are frequently used by governments around the world to promote investment and stimulate growth. Such measures include reforms like corporate tax rate reduction, accelerated depreciation policy, reforms in indirect tax structure, etc.

For instance, the United States in the early 2000s, to encourage investments adopted a temporary bonus depreciation policy, and in 2014, China introduced an Accelerated Depreciation Policy for Fixed Assets. Several tax-cutting reforms have also been used to encourage and stimulate investments. For example, in Australia in 1988, the tax rate fell from 49 per cent to 39 per cent, in 1989 Austria's tax rate was reduced drastically by 22 per cent (from 61 per cent to 39 per cent), in Germany the rate fell from 50 per cent to 36 per cent in 2001. Such tax rate reductions are observed in several other developed and developing countries including India.

1.2 Aim and Objectives of the Research

The research aims to explore the impact of tax structure on investment levels in Indian manufacturing firms for the period 2015 to 2023.

The research proposes the following objectives:

1. To analyze the effect of tax burden (direct and indirect taxes) on the disaggregated classes of investments: equipment, structure, and other assets, of Indian manufacturing firms during the period 2015 to 2023.

2. To analyze the effect of the tax burden on disaggregated classes of investments based on the firm's size.

1.3 Hypotheses

H1: The tax burden negatively impacts each class of investments: equipment, structure, and other assets.

H2: The impact of the tax burden for each class of investment will be based on the size of the firm.

1.4 Scope of the Research

The scope of the research is to explore the relationship between tax burden and investment in Indian manufacturing firms. The study period considered is from 2015 to 2023. During this period, the Government of India introduced several tax reforms, and the study aims to determine the efficacy of these reforms. This study will focus on five key industries in the Indian manufacturing sector. The five industries include Food & Agro based products, Textile, Consumer goods, Construction materials, and Machinery. In this study, the net investment of firms is classified into three categories: equipment investment, structural investment, and other fixed asset investment. The tax burden being considered in the study includes both direct and indirect taxes. The study aims to analyze the impact of the tax burden on each class investment.

The remainder of the research is structured as follows: Chapter 2 presents a literature review of the related theoretical and empirical evidence on the topic; Chapter 3 explores the background of Indian tax structure; Chapter 4 provides information on the data and methodology

adopted; Chapter 5 presents the empirical results; and Chapter 6 presents the conclusions of the study.

CHAPTER TWO

Theoretical & Empirical Evidence on Research Study

2.1 Literature Review

The importance of investment in economic growth cannot be undermined especially in underdeveloped and developing economies. As specified by the Harrod-Domar model, investment is the key to economic growth. Investment springs out in the form of capital formation; there are efforts made to accumulate or arrange for financial resources that are crucial to start an economic activity. In broad terms, investment can be considered as all economic activities that employ economic resources like capital, land, labour, and technology to produce goods and services in expectation of receiving some anticipated benefits in the future. The amount of capital available in an economy determines the level of growth, thereby increasing the quantum of gross fixed capital formation levels which are nothing but capital accumulated for investments, tend to positively contribute to economic growth as found by Morina et al., (2023). Several other studies also confirm the causal positive relationship between investments and economic growth for example Pegkas, (2015) finds a positive relationship between foreign direct investment and economic growth.

There are two broad categories of investment viz-a-viz public and private investments. Public investments are those undertaken by the country's government whereas private investments are undertaken by the private players of the country. A study conducted by Khan & Reinhart, (1990) attempted to distinguish public and private investments and believed that both public and private investments would contribute to output growth in different proportions.

Using a simple growth model for a broad cross-section sample of 24 developing countries they found that public and private investments do have distinct direct effects on long-run economic growth. In comparison, they found that private investment has a stronger direct effect on growth while they couldn't find a statistically significant direct effect of public investment on growth, however, they believe the possibility that public investment can influence the rate and productivity of private capital formation thereby contributing to economic growth indirectly.

Milbourne et al., (2003) focused on public investment and using a transitional model they were able to find some evidence that supported the positive effect of public investment on economic growth in two sectors, i.e. transportation and communication, and education. The underlying idea is that both types of investments affect growth positively directly or indirectly, but the impact of private investment is larger in contrast to public investments and therefore the macroeconomic environment should be such that it encourages private investments.

Panning the focus to India, Jangili & Ramesh, (2011) investigated the causal relationship between savings, investments, and economic growth in India. They observed that since post-independence public and private savings have steadily increased over the years. Private savings and investments are divided into two categories: the household sector and the private corporate sector. The household sector has the highest share of savings, followed by the public sector and then private corporate sector. These dynamics changed post-economic reform in 1991, the public sector savings plummeted, while the private corporate sector started gaining momentum and grew rapidly. Before liberalisation, the public sector had the highest investment composition, and the private corporate sector had the lowest. However, over time, there has been a gradual decrease in the involvement of the public sector across various industries, resulting in the private sector assuming its position. Consequently, there has been a consistent growth in private corporate

investment, which has counterbalanced the decline observed in public sector investment. Furthermore, since 2006 private corporate investments have become the highest among the three sectors.

Their analysis, conducted for the period 1950-2008, revealed that savings and investment lead to economic growth in India. Additionally, they investigated whether savings and investments in each sector lead to economic growth. They found that the private corporate sector's savings do not independently lead to economic growth. Instead, when invested, they contribute to economic growth.

Tripathy et al., (2016) emphasises the importance of investments in India, particularly in infrastructure. They found a long-run relationship between economic growth, domestic investments and government revenue in India. Considering that gross capital formation encompasses expenditures on land improvements, plant, machinery, and equipment acquisitions, as well as the construction of infrastructure such as roads, railways, private residences, and commercial and industrial structures, it is crucial for India to invest heavily in building capital assets in order to enhance the pace of economic expansion.

They recommend that the government should reduce taxes and maintain constant control over spending, or maintain constant taxes and increase spending to stimulate growth, reduce unemployment, and promote the growth of domestic investment in the economy.

J. Bradford De Long & Lawrence H. Summers, (1991) Undertook a comprehensive study that included nearly 60 countries, India one of them. They emphasised the importance of investment in equipment which improves the productivity of growth. They identified that previous studies have only focused on capital accumulation as the factor that contributes to growth.

However, they suggest that to have a true picture of investment-induced growth, disaggregation of investment is necessary. They classify investments into equipment and non-equipment investments, investments in machinery, and structural investments.

They found strong evidence that machinery and equipment have a relatively strong association with growth due to their ability to improve productivity and raise the output level. In context to India, they observed that despite the high savings rate in India, it still exhibits poor growth performance implying that India does not make effective use of its resources. They pointed out that growth does not solely depend on the accumulation of capital but on employing the capital effectively in appropriate capital assets which contribute to growth.

A similar study conducted by Škare & Sinković, (2013) unleashes the link between the disaggregated level of investment and economic growth mainly because as per Solow's theory of growth, capital accumulation can increase the growth rate in the short run only due to diminishing returns to capital. Therefore, they emphasised the importance of equipment investment to encourage the deepening of capital which can lead to long-run growth.

They investigated the link between equipment, structure, and human capital and real GDP growth. Their findings are consistent with (J. Bradford De Long & Lawrence H. Summers, 1991) that equipment investment plays a special role in increasing the level of growth rate as a result of the positive externalities created through modern machines and technological progress. They suggest that the implementation of a comprehensive strategy for investing in equipment, especially in developing countries, has the potential to strengthen and maintain long-term economic expansion.

Investment decisions are shaped by a multitude of factors, extending beyond internal dynamics to encompass the broader economic landscape. While internal forces play a significant role, the ultimate outcomes of investments are profoundly influenced by the prevailing economic conditions at large. The growth rate of India was slow post-independence and the Gulf War in 1990-91 severely impacted the Indian economy. However, Liberalization in 1991 opened up the Indian economy in the global arena which not only brought foreign direct investments into the country but at the same time exposed domestic businesses to explore global avenues. The introduction of modern technology, the exchange of technical expertise, and the influx of foreign capital for investments were key outcomes of this liberalization.

Bhattacharyya, (2008) analysed the impact of liberalization on India's corporate investments. His study aimed to disentangle the role of financial variables such as internal liquidity, profitability, and firms' financial strength which affect capital investments. His analysis revealed that internal liquidity is one of the most important determinants of investment undertakings in the case of Indian manufacturing firms.

Profitability in the short run is insignificant in investment decisions. However, retained earnings provide adequate internal finance which drives the investments. It was also observed that the firms prefer to retain their earnings than to pay dividends. Finally, his study also revealed that access to external capital largely depends on the creditworthiness of the firm, if the financial structure is strong enough it is relatively easy to avail external sources.

V.R Prabhakaran Nair, (2010) in his study highlights the role played by finance in the determination of investment. The neoclassical theory of investment assumes the financial structure of the firm does not affect the investment decision. It implies that financial markets are perfect

because internal and external funds are perfect substitutes for each other and there are no additional transaction or information costs involved in the investment.

He points out that mostly in developing countries the financial markets are imperfect due to the presence of asymmetric information between the borrower and the supplier of the funds. Moreover, there exist additional costs of financing particularly in the case of external funds. In comparison, the internal financial resources are relatively cheaper than the external ones. Additionally, raising finance through issues of debt and equity tends to increase the transaction costs and may lower the gains from the potential investment. Financing investment becomes a huge hurdle, especially for financially constrained firms mainly because such firms are low on internal funds, and the arrangement of funds from other sources such as through bank loans or the security market becomes difficult.

With the presence of imperfections in the credit market, the investment decisions made by borrowers will exhibit a heightened level of sensitivity toward their current cash flow. The external finance premium, as well as credit rationing and other imperfections, indicate that investment is greatly influenced by its internal funds. However, there are other individual firms' characteristics such as size, age, demand for products, etc. that will determine the degree of firms' access to financial resources. Therefore, the retained earnings of the firm are expected to be positively associated with investments.

Investments are the cornerstones of a sustainable economic growth path as they provide for long-term consumption. However, it is essential to acknowledge that numerous internal and external factors can influence investment dynamics in different economies. The above literature discussed a few important internal or firm-level factors that affect investment. The following

section focuses on taxation one of the external factors that has the potential to affect investment levels.

A study conducted by Jens Matthias Arnold, (2008) investigated the relationship between tax structure and economic growth using a panel of 21 OECD countries for a period of 35 years from 1971-2004. Considering the neoclassical growth model framework, he emphasised the influence of tax and policy to affect long-run economic growth which the neoclassical model overlooks. The focus of the analysis was on the structure of taxes, and he tried to evaluate how each type of tax affects GDP per capita. He considered income tax, which includes both personal income tax and corporate income tax and consumption and property taxes. The property tax was further classified into recurring taxes on immovable property and other property taxes. The consumption tax considerably has a less negative effect on economic growth.

The findings of the study revealed that property taxes, especially recurring taxes on immovable property, display a positive effect on economic performance and appear to be less harmful. However, there is a negative relationship between income tax and economic growth, moreover, the negative effect is stronger for corporate income tax and is significantly more detrimental than personal income tax. A recent study by Menescal & Alves, (2024) confirms these results. Therefore this suggests that the tax structure impacts the growth rate of an economy through their impact on investment dynamics (José Alves, 2019).

Braunerhjelm & Eklund, (2014) suggest that taxes influence an entrepreneur's decision to enter the market. The main reason behind this is that taxes become a fixed operating cost for a firm and need to be complied with as it is a statutory requirement to operate. Taxes essentially lower the profits and increase the fixed costs of the firm and therefore it becomes a burden to the firm.

They suggest that the entry of new firms is affected by two components: tax administrative burden and the entry costs that are related to the general business environment.

They emphasise that corporate tax rates significantly affect entrepreneurial entry decisions because corporate taxes reduce after-tax profits. Therefore, they included total taxes as a share of profit in their model to examine the effects of tax burden.

In order to access the complexity of the tax system they included the number of tax payments made in a year and the time required to pay them. For their cross-country analysis, they found a negative effect of tax burden on market entry. The entry of new firms is significantly reduced because of the administrative burden that the tax system imposes on firms. Their findings suggest that the reduction in complexity of the tax system would result in high rates of market entry of new firms. Rin & Giacomo, (2010) also suggest that lower taxes would encourage the budding of small firms.

Bond & Xing, (2015) this paper examines a panel of 14 OECD countries during the period 1982 to 2007. They analysed the effects of corporate tax variations on fixed capital investments in the short run and their effect on capital accumulation in the long run for manufacturing firms. They tried to do this by empirically analysing the relationship between capital accumulation and tax incentives. The tax component includes the corporate income tax rates and the depreciation allowances provided in each class of assets, which determines the user cost of capital.

The analysis is based on a few assumptions. Firms' investment behaviour is to maximize their output, investments made in a particular time period will be added to the stock of productive capital in the same year, and investments are financed from the retained earnings of the firm. The total capital stock includes various classes of capital assets that contribute to output differently.

For this study, the researchers focused on two broad categories of capital assets, namely equipment and structure.

They observed the following trends in their data: the capital-output ratio in the case of equipment shows an upward rising trend, whereas the capital-output ratio for structure has been falling over the years. The related price of capital goods measures the price of investment goods related to the price of output. It is observed that the relative price of equipment has been gradually decreasing since the late 90s. On the contrary, the relative price of structure has been rising rapidly, especially since the 1990s and the effect of this is observed in the capital-output ratio as the capital-output ratio for structure has fallen significantly since this period.

The tax component of the user cost of capital includes varying tax rules and tax rates in different countries and over time. The variation in the tax component of the user cost of capital across countries reveals the effects of corporate tax on capital accumulation and incentives to invest. Since corporate tax raises the user cost of capital, they observed that, in most countries, the effect was greater for structure than for equipment mainly because the depreciation rates are higher for equipment than for structure. However, towards the end of the 90s, several tax-cutting reforms led to a rise in the equipment capital intensity due to a fall in the cost of capital.

Their analysis is based on the neoclassical model through which they tried to estimate how corporate taxation influences the capital-output ratio. Their main findings suggest that tax incentives significantly impact the evolution of capital stock. They found strong evidence of a significant long-run negative effect of taxes on capital-output ratios. Their estimates suggest that, in the long run, tax reforms, such as reductions in corporate tax rates, have the potential to increase the capital-output ratio by 3-7 per cent. Their findings are consistent with the basic neoclassical

investment model, particularly in equipment investments, and confirm that corporate taxation influences capital accumulation. However, they couldn't find similar results for structural investments.

The Chinese economy has been going through a slow economic growth phase. On account is this the government of China in order to develop and grow new dynamic energy and promote structural reform on the supply side, has introduced tax reduction policies by reducing taxes and fees for the benefit of enterprises. Lu et al., (2023) examined how investment efficiency is affected by the tax burden along with exploring the significance of tax avoidance and financing constraints faced by the firms. Using a fixed-effect model they analysed 1357 listed companies for the period 2015-2021. They suggest that investment efficiency is impacted by the tax burden in three main areas which are the policy regime, regulators and financing:

From a policy and systems standpoint, the objective of the tax reduction policy is to enhance market dynamism and alleviate the financial burdens on businesses. Government intervention in corporate operations primarily occurs through corporate taxation. The tax reduction policies are expected to have a prominent influence on corporate investment activities. By retaining more capital within enterprises, the tax reductions facilitate business growth, increase social aggregate demand, and mitigate the effects of subdued demand in times of economic recession. The savings from tax expenditures serve as an additional incentive for firms to invest, thereby enabling them to address under-investment stemming from capital shortages and subsequently enhancing investment efficacy.

Secondly, considering the viewpoint of the company's executives, the extra cash inflows produced by the reduced tax burden have the potential to inspire managers to effectively utilize

their skills in order to make logical investment decisions and enhance the efficiency of investments.

Thirdly, when considering corporate financing, a reduction in the corporate tax burden and a rise in corporate cash flows serve as favourable indicators for external investors. This, in turn, leads to an enhancement in investors' inclination to invest and a higher likelihood for companies to secure financing. Regarding the sources of financing, the tax reduction-induced increase in cash flow can effectively alleviate the internal financing constraints of enterprises, boost corporate profits, and enhance the liquidity position of businesses.

The findings of the research demonstrate that decreasing the tax burden can enhance the efficacy of corporate investment. This beneficial impact is evident in the mitigation of corporate under-investment by alleviating the financing constraints of enterprises and the prevention of over-investment. Furthermore, the non-state enterprises that face more financial constraints show a much more positive response to the effects of tax reduction. They found that the investment efficiency of private enterprises is improved due to alleviating the financing constraints of enterprises.

They suggest that the tax reduction policy can effectively increase social demand and promote economic recovery and development. Given that private enterprises play an important role in achieving economic progress, the implementation of tax reductions for these entities serves as a potent strategy to accelerate economic growth. The private firms must take advantage of such policies and build on expanding their capacities to sustain themselves in the long run.

An alternative fiscal way by which the government can alleviate the tax burden is through introducing policies like accelerated depreciation allowance policies. Such policies reduce the

firm's tax liability by allowing it to avail higher depreciation allowance expense on its fixed assets. This reduces the before-tax profit and as a result, the tax burden of the firm is lowered. One major advantage of such a policy is that it is designed in such a way that it increases the investment levels therefore leading to growth of investments and also the firm. Additional investments will enhance the productivity and increase the output levels. However, if a firm needs to take advantage of the additional depreciation allowance, then first it must invest in substantial capital assets.

Jackson et al., (2009) Their study finds that accelerated depreciation is associated with higher levels of capital investments, and the firms that do not opt for it are the ones whose capital investments are significantly smaller. Fan & Liu, (2020) also finds that accelerated depreciation policy significantly contributes to rises in investment in the short run but they found that financially constrained firms are likely to be less responsive to such policies.

The paper indicates that there are more financially constrained firms in developing nations, and such policies will be ineffective in increasing investment levels in developing nations. On the contrary, policies such as tax rate cuts will raise firms' savings. Countries worldwide have used tax reduction policies, even developed countries like the United States and China, considering their positive effect on growth. High tax rates disincentivise entrepreneurial investment decisions, and tax cuts can incentivise stakeholders and aid in promoting investment levels in the economy.

A recent study by Sankarganesh & Shanmugam, (2023) aimed to analyse the effects of corporate income tax on the investment level of Indian manufacturing firms for the period 2005 to 2019. This is the first study analysing the effect of corporate tax on investment in India during the pre and post-economic crisis of 2008. Using a standard static model they found a strong negative and significant impact of corporate income tax on the investment of the manufacturing firms. Their

results suggest that a one per cent increase in the effective tax rate will lead to a 0.078 - 0.084 per cent fall in investment. They suggest that a high tax burden increases the user cost of capital which results in affecting the investments negatively.

They further analyzed the impact on public, private, and foreign firms and found that taxes impact private firms the most compared to public firms. For their split sample analysis (economic crisis 2007-08), they found that the negative impact of taxes was higher during the economic crisis period and comparatively lower after the crisis. They suggest that the possible reason for a reduced impact is that the rise in depreciation rates has positively contributed to increased investment levels.

Their research finds that investment rates are higher in young firms than in older firms, and large firms tend to invest more than small firms. They recommend that the government give more policy support to private, old-aged, and large firms.

India's economic growth is hindered by the corporate sector's reluctance to invest in building novel capacities, which are essential for maintaining stained growth levels. Considering the slow economic growth, the Government of India came up with tax breaks for the corporate sector to address this issue. In 2023 Hussain tries to determine if developing countries use tax reduction measures to trigger investment levels. In his study, he examined the effect of the 2019-20 corporate tax cuts on the investment levels of Indian manufacturing firms.

He uses foreign firms that did not qualify for a tax cut and domestic firms for whom the tax cut was introduced. Using a difference-in-differences methodology, he found that a reduction in the tax rate significantly contributed to increasing the investment levels of the domestic firms compared to the foreign firms. Additionally, he finds that the magnitude of the effect is greater in

large domestic firms and relatively lower in smaller domestic firms. He concludes by stating that tax cuts trigger firms' investment levels and developing economies like India which has a substantial market size, have the potential to boost domestic investments by implementing tax reduction policies.

As revealed by the literature review, there are several micro- and macro-level factors that affect the investment decisions of entrepreneurs. At the macro level, one significant factor affecting investment decisions is tax burden and previous studies have found a negative relationship between taxes and aggregate investment levels.

Few studies also suggest that different classes of investment will be affected differently by taxes. Considering this, this study aims to unravel the relationships between the tax burden and disaggregated classes of investment in Indian manufacturing firms during the period 2015 to 2023, and also analyse the impacts of tax reforms on different classes of investments.

Additionally, the reviewed literature only focuses on the direct tax burden, which is the corporate income tax, and the effects of the indirect tax burden are unknown. Therefore, the study also incorporates indirect taxes to analyse the impact of the indirect tax burden on disaggregated classes of investment in Indian manufacturing firms for the period 2015 to 2023.

CHAPTER THREE

India's Tax Structure

3.1 Background of India's Tax Structure

James Wilson was the first Finance British member who introduced the taxation system in India in 1860 based on the English system of taxation. The Income Tax Department was established in the same year and is the oldest and most important department under the Ministry of Finance, Government of India, to this day. The Income Tax Act has gone through several extensive refinement processes to cater to the needs of the economy throughout the period. Post-independence finance became crucial for rebuilding the nation rapidly and with a balanced economic development, due to which Income tax in public finance gained importance. To make Income Tax an instrument of economic policy, the Income Tax Act was revised based on several in-depth studies and reports by enquiry committees. The new Income Tax Act, 1961 came into force in 1962, which holds the field till today.

The tax system in India was highly inefficient due to complicated laws, various types of taxes, and high confiscatory rates. The Indian tax system currently has a narrow tax base, leaving a wide range of businesses outside the purview of government taxation. While there is a need for regulation, it often discourages business undertakings. Therefore, the government of India has been cautious in implementing tax reforms. Over the years, the government has focused on enhancing tax revenue collection productivity while adhering to the principle of optimal taxation to minimize distortions. Since the 1991 reforms, efforts have been made to increase savings and channel them into investments.

3.2 Tax Revenues of the Government of India

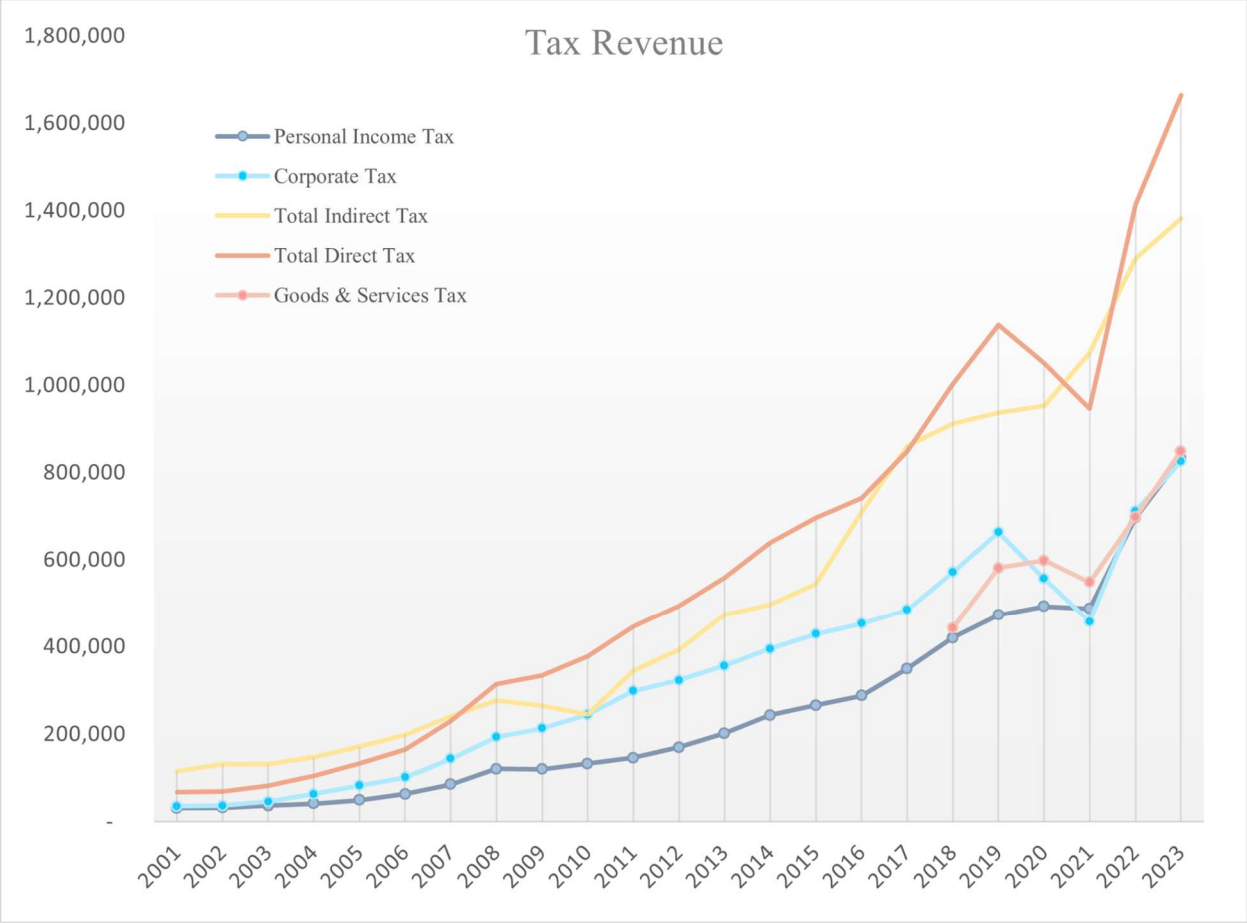
The Indian tax system has two main types of taxes: direct and indirect taxes. Direct taxes are levied on individuals or entities based on their income, profits, or assets, while indirect taxes are imposed on goods and services and are passed on to consumers through the purchase of products or services.

Direct taxes have two main categories: Income Tax which is levied on individuals, Hindu Undivided Families (HUFs), companies, firms, cooperative societies, and trusts based on their taxable income, and Corporation Tax which applies to companies registered in India under the Companies Act, 2013 on the income earned in a financial year.

Indirect taxes can be broadly classified into four categories: Sales Tax, Service Tax, Value Added Tax, and Goods and Services Tax. Sales Tax is a consumption tax imposed on the sale of goods and services, collected by the seller and remitted to the government. Service Tax is charged on services provided by companies and collected from individuals or firms providing the services. Value Added Tax (VAT) is imposed at all stages of the supply chain, excluding zero-rated items like food and essential drugs. In 2017, the Government of India introduced the Goods and Services Tax (GST), which is a comprehensive, multi-stage tax levied on every stage of value addition, from the manufacturer to the consumer. The goods and services tax replaces various indirect taxes like VAT, Service Tax, Excise Duty, and others.

Most of the broad-based and mobile taxes have been assigned to the central government, including both direct and indirect taxes. The major contributors to government revenue are the corporate and income taxes under direct taxes and goods and services tax under indirect taxes, which was introduced in July 2017 and subsumed various indirect taxes.

Figure 1: Tax Revenue Collection of Government of India

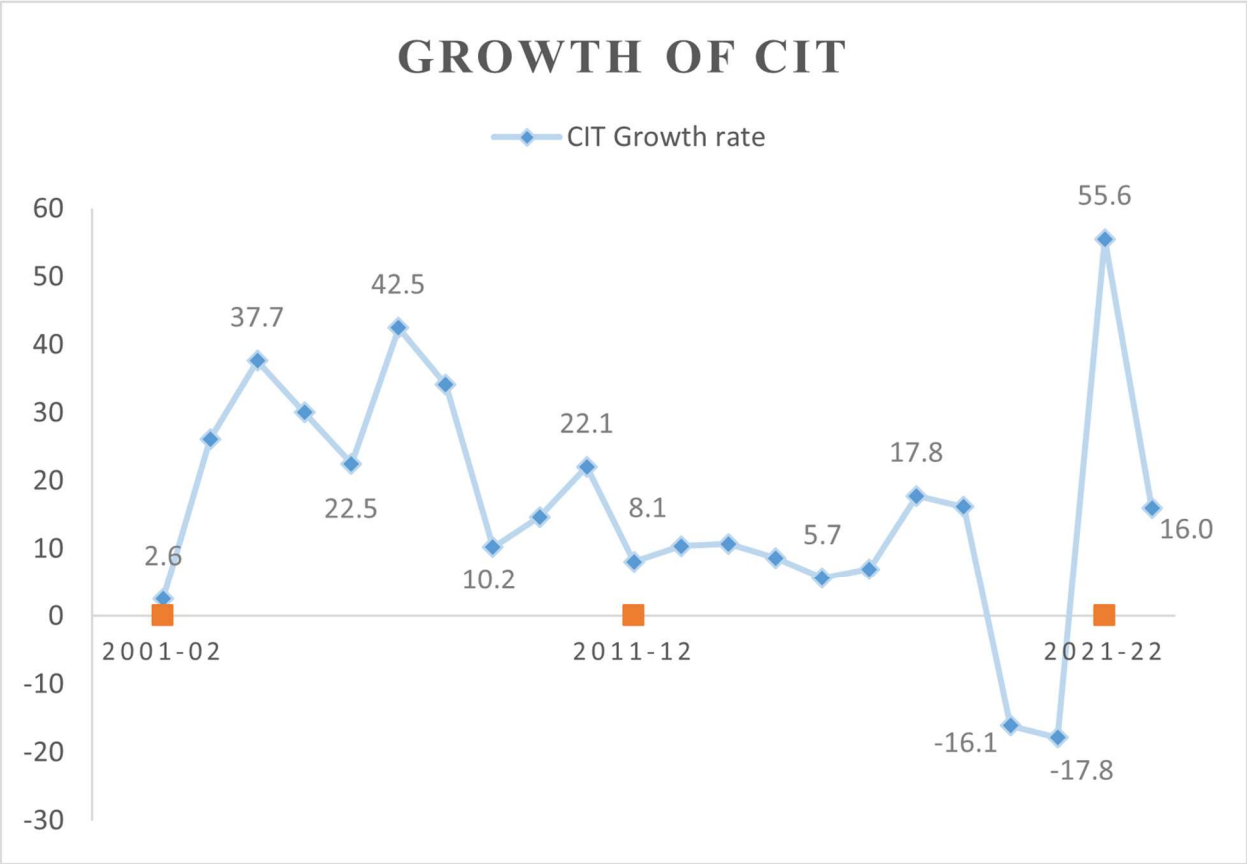


Source: Income Tax Department – Direct and Indirect Taxes, and Ministry of Finance: Department of Revenue - GST

Figure 1 shows that the share of direct taxes is mostly been higher than indirect taxes. Out of the three major sources of government revenue under direct and indirect taxes, corporate income tax has been a significant contributor under direct taxes, followed by the goods and services tax under indirect taxes. However, personal income tax has consistently underperformed and is characterized as narrow-based due to the prevalence of non-compliance and tax avoidance behaviour in the nation.

There have been some major transitions in tax revenue trends during the last seven years. Three major events took place during this period: the introduction of goods and service tax, corporate tax reform, which reduced the corporate tax rates for domestic companies, and the pandemic of 2019.

Figure 2: Growth Rate of Corporate Income Tax (CIT)



There is a drastic growth observed in the goods and service tax and the corporate tax during the year 2017-18. However, in the subsequent years due to corporate tax reforms and also because of the pandemic, the corporate tax revenue dropped drastically and fell even below the personal income tax revenue in the year 2020-21. Figure 2 displays the growth rate (YOY bases) in the corporate tax revenue. Since 2001-02 the average growth rate of corporate tax is about 12.7%. During 2020-21 the growth rate in CIT revenue becomes negative (-17.8%). This negative growth

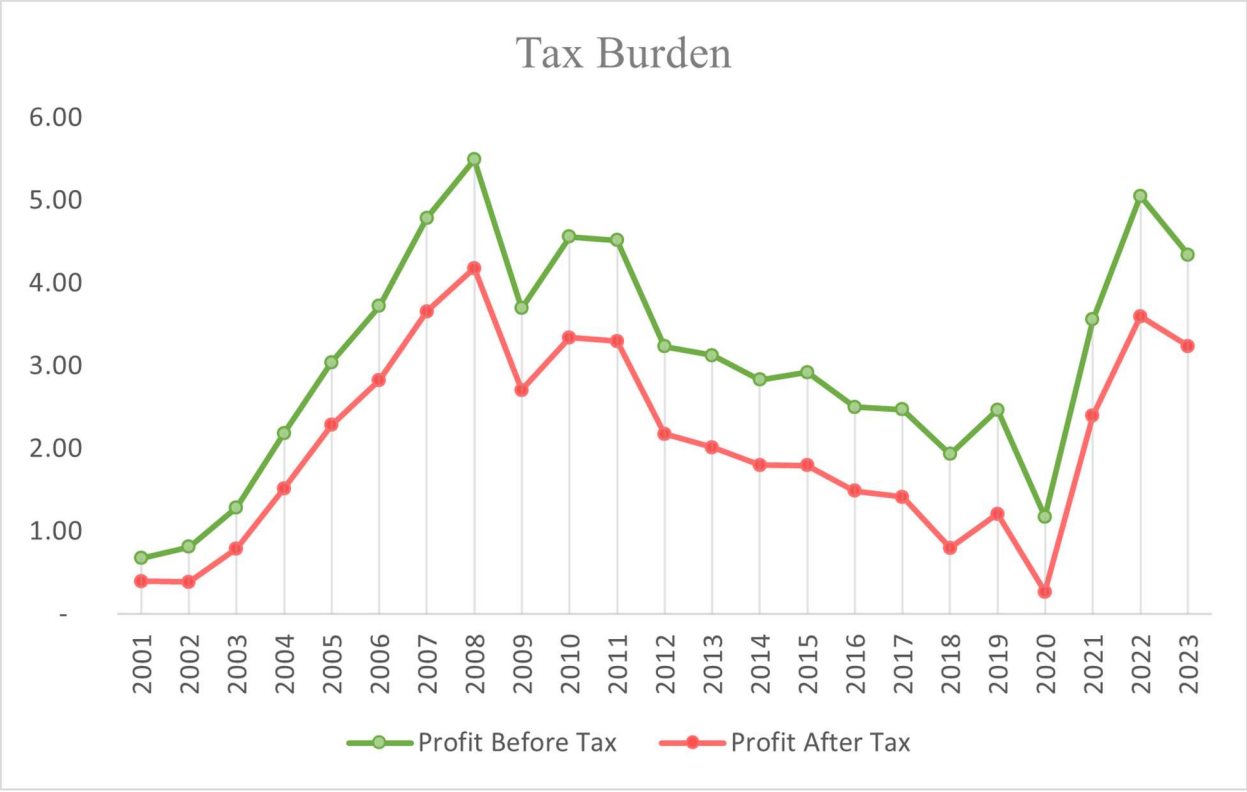
is largely associated with the pandemic and also due to the reform brought in by the government of India.

The corporate sector recovers quickly from the externalities and displays the highest growth rate of 55.6% in the CIT revenue. If we observe Figure. 1, from the period 2020-21 to 2022-23, the three main revenue sources firstly display similar growth trends and most importantly have become almost equal. This somewhat hints that there has been a redistribution of the tax burden.

3.3 Tax Burden on Domestic Companies and Growth

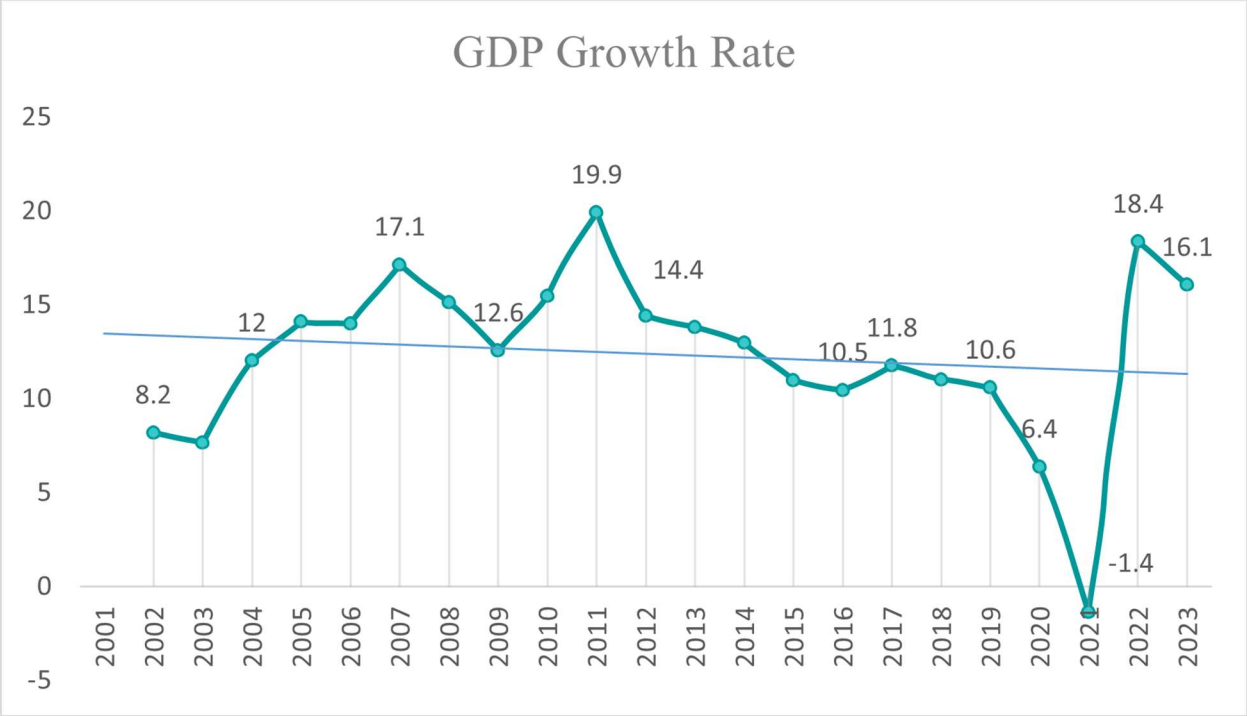
This section presents the overall tax burden faced by Indian domestic companies and GDP (current price) growth trends. Figure 3 displays the profit before tax and profit after tax of the companies. The gap between the profit before-tax curve and the profit after-tax curve represents the direct tax burden faced by the companies. Figure 4 displays the GDP growth rate.

Figure 3: Tax Burden of Domestic Firms



Source: Centre for Monitoring Indian Economy (CMIE)

Figure 4: GDP Growth Rate (Current Price)



Source: Centre for Monitoring Indian Economy (CMIE)

Analyzing the tax burden and GDP growth rate graph closely, we observe that during the period 2000-05, the gap between the Profit Before Tax (PBT) and Profit After Tax (PAT) is narrower; indicating a low tax burden on the firms. During this period, we observe a positive trend in the GDP growth rate, from 8% in 2002 to 13.9% in 2006. However, in 2006-08 the tax burden gap got wider and in the subsequent year, it was observed that the GDP growth rate fell from 17% in 2007 to 15% in 2008 and further fell to 13% in 2009 this was mainly due to financial crisis in 2008. But it is also possible that tax burden may affect the GDP growth rate with a lag. This becomes more apparent in the following year. In 2008-09 the tax burden gap became narrower and in the following year i.e., 2010-11, the GDP grew at a positive rate and attained the highest growth rate in 2011– 19.9%.

In the following decade i.e. 2010-20, the growth rate in GDP shows a downward trend. The tax burden gap is the widest and the growth rate in GDP is staggeringly falling during this period, it falls from 19.9% in 2011 to 6% in 2020 and further in 2021 becomes negative i.e. -1.36%. The negative growth rate in 2021 is understandable as the entire world economy faced the greatest pandemic of the twenty-first century. However, it is important to note that from 2010 onwards till 2017, the tax burden gap was the widest, which implies that the corporate sector had to operate with a huge taxation cost over its head. This may have potentially hampered growth in the sector as the tax cost is ultimately borne by the investors, workers, and customers in the form of low returns on investments, lower wages, and high prices; however, it is difficult to quantify and allocate the tax burden on each party. The poor performance of the GDP growth rate throughout the decade reveals that the tax burden may have significantly impacted the growth rate as it places a huge burden on the key players of the economy.

CHAPTER FOUR

Research Methodology

4.1 Development of the Empirical Model

The study employed an empirical approach to investigate the impact of tax burden on the investment decisions of manufacturing firms in India. The taxation expense the firm bears reflects the tax burden affiliated with the firm. It includes both the direct and indirect taxes paid by a firm during a financial year. The major tax burden under direct tax is the Corporate Income Tax, which a firm is liable to pay on its annual profits, and under indirect taxes, the major tax burden is the Goods and Service Tax which has largely subsumed various types of indirect taxes from July 2017 onwards. Apart from the Goods and Service tax, there are other indirect taxes, such as Value Added Tax, Service Tax, etc. Both direct and indirect taxes act as fixed operating costs for the firm, which can be a burden to operate and grow.

Investments play a crucial role in the growth and expansion of the firm. They help in building appropriate capacities for the sustenance of the firm in the short as well as in the long run. When it comes to building capacities, we generally refer to the investments made in fixed assets, which can include both investments in tangible and intangible assets. The fixed assets or the non-current assets can be broadly classified into three categories: structure, equipment, and other assets.

The structure represents the land, plant, building, and infrastructure which provides a place and a roof for physical and human capital to operate and conduct business activity. The equipment incorporates all the physical assets used in the operations. It includes plant & machinery, transportation equipment, vehicles, and communication equipment. Equipment assets facilitate the

smooth functioning of business operations like production, communications, and transportation. Lastly, other assets include aggregations of all the other assets not included in the structure and equipment along with the inclusion of intangible assets. Broadly, other assets include tangible assets like furniture & fixtures, electrical fittings, etc which are essential for efficient functioning. And intangible assets like software, patents & copying rights, goodwill, brand & trademark, technical knowledge, product design, and formula. These assets add long-term value and influence the firms' overall worth.

For the purpose of this study, net investments in fixed assets made by firms in a particular year are considered. In order to have a true picture of the effect of taxes on the investment decision of the firm, the net investments are disaggregated into three classes viz-a-viz net investment in equipment, net investment in structure, and net investment in other assets.

To analyze the impact of the tax burden on investment in manufacturing firms in India, the following empirical investment model is developed to estimate the effects of taxes on investments. The model also controls for micro-level or firm-level factors affecting the investment decisions of the firms.

$$Inv_{it} = \beta_0 + \beta_1 Dtaxb_{it} + \beta_2 Itaxb_{it} + \beta_3 Cl_{it-1} + \beta_4 C_{it} + u_{it}$$

where,

Inv_{it} : Net investment in Equipment, Structure, and Other Assets of *i* firm in the year *t*

$Dtaxb_{it}$: Direct tax burden which is the Corporate Income Tax paid by the firm *i* in the year *t*

$Itaxb_{it}$: Indirect tax burden which includes the total of all indirect taxes paid by the firm i in the year t

Cl_{it-1} : Res_{it-1} - Reserves of the firm i in the year $t-1$

Prof_{it-1} - Profit after tax of the firm i in the year $t-1$

C_{it} : Sales_{it} - Sales of the firm i in year t

Ltb_{it} - Long-term borrowings of the firm i in year t

Lev_{it} - Leverage ratio of the firm i in year t

u_{it} : Error term

The dependent variable is classified into three categories: investment in equipment, investment in structure, and investment in other assets. These are regressed individually to ascertain the individual effect of the tax burden on the investment decision.

Investment in equipment represents the firm's net investments in equipment assets. This includes the additions made to the equipment, on account of new equipment assets purchased and renovation made to the existing equipment assets during the year. Equipment investments are broadly classified into three categories: (i) Plant & Machinery, Computer, and electrical installations, (ii) Transportation equipment & Vehicle, and (iii) communication equipment.

Investment in structure represents the firm's net investments in structural assets. This includes the additions made to the structure on account of new structural assets bought and renovations made to the existing structural assets during the year. Structural investments are

broadly classified into two categories: (i) Land & Building, including bearer plants, and, (ii) Transportation and other infrastructure.

Investment in other assets represents the firm's net investments in other fixed assets. This includes the additions made to the other fixed assets, on account of new other fixed assets purchased and renovation made to the existing other fixed assets during the year. Other assets are broadly classified into two categories: other tangible assets, including Furniture and other assets, and intangible assets.

This study draws the idea of analyzing the tax burden from (Lu et al., 2023). The tax burden represents the firm’s tax liability for a financial year. It includes the direct tax which is corporate income tax and the total of indirect taxes which includes Excise duty, Sales tax, value-added tax, Goods and services tax, and other indirect taxes.

Considering the firm level of investment decision, the study controls for other important firm-level factors that may have an influence on the investment decision of the firms. The control variables included in the empirical model include the reserves and profits of the firm in the previous year, the sales, long-term borrowings, and the leverage ratio of the firm during the year.

Apart from analyzing the impact of the tax burden on disaggregated classes of investments, this study also ventures into uncovering the effects of the tax burden based on the size of the firm. To assess the impact of the tax burden on investment based on the firm's size, the firms are classified into four categories: Micro, Small, Medium, and Large, according to the MSMED Act 2006 by the Government of India. The manufacturing firms are classified into four categories based on their annual turnover as displayed in Table 1.

Table 1: Classification of Firms by Size

Size of the Firm	*Annual Turnover*
Micro	Not more than 50 million
Small	Not more than 500 million
Medium	Not more than 2500 million
*Large**	Greater than 2500 million

* *The MSMED Act does not define large firms, it is assumed that turnover greater than 2500 million are large firms.*

4.2 Data

This study uses secondary data from the Centre for Monitoring Indian Economy (CMIE) Prowess IQ database. Prowess IQ is a platform that collects and organizes data from various sources such as annual reports, financial statements, stock exchanges, and regulatory filings. The Prowess database provides firm-level panel data on financial and non-financial Indian companies. It provides detailed estimates of financial statements, enabling measurement of various components such as profit, income, expenses, assets & liabilities, etc.

For the purpose of this study, data was extracted for five industries in the manufacturing sector. The five manufacturing industries include Food & Agro based products, Textiles, Consumer goods, Construction materials, and Machinery. The first three manufacturing industries are directly linked to consumption. Considering the significant effect of consumption on

investment decisions, these three industries were selected. The subsequent two industries were selected due to the structural transition phase India has been going through during the last decade.

The dataset comprises 2131 firms and covers the period from 2015 to 2023. Due to the comprehensive nature of the data, there are certain complications in the data like nil values and missing values on account of the firm's entry/ exit, which is common in such type of analysis and taken care of by adopting appropriate methods. The total number of observations in the data set is 19,179. Table 2 provides the descriptive statistics of the studied variables.

Table 2: Descriptive Statistics of Data

Variable	*Obs*	*Mean*	*Std. Dev.*	*Min*	*Max*
Gross Total Assets	19179	368.03	4180.52	-24.9*	472950.00
Equipment	19179	201.94	1366.40	-43.2*	86280.00
Structure	19179	81.16	584.70	-66.8*	44140.20
Other Assets	19179	75.53	3309.94	-18.1*	448810.00
Direct Tax Burden	19179	198.65	1432.47	0.0	60196.90
Indirect Tax Burden	19179	424.43	5623.00	-673.2	214121.00
Profit	19179	476.82	4277.21	-182173.4	187533.09
Reserves	19179	1108.54	10451.67	-15285.4	393304.09
Long Term Borrowings	19179	641.45	5281.89	-127.2	277929.00
Sales	19179	8260.94	32013.62	0.0	974452.00
Leverage Ratio	17214	0.559.00	0.76	0.0	46.90

** Refer to Appendix I*

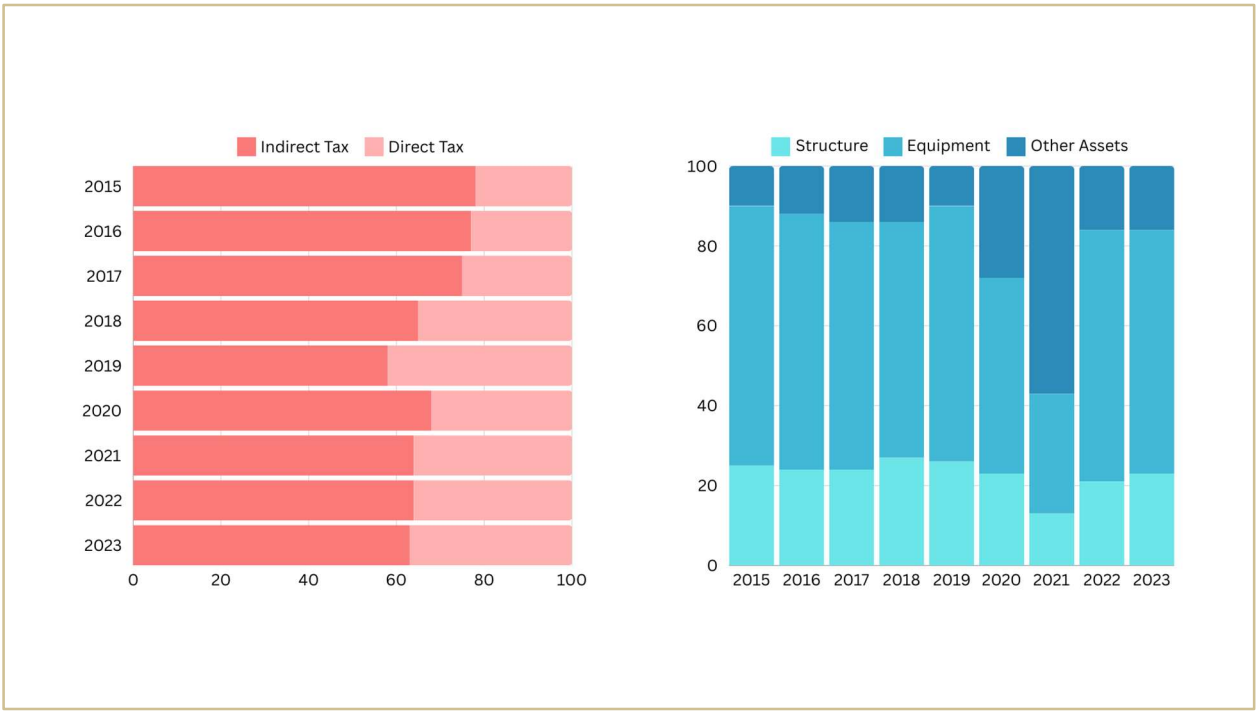
CHAPTER FIVE

Research Analysis and Results

5.1 Graphical Analysis of the Data

This section presents the aggregate data in a graphical format to observe the behavior and trends in the data over the study period.

Figure 5: Proportions in Tax Burden & Investments



The above figure displays the proportions within the taxes and investments. The first graph shows the proportions of direct and indirect taxes, in percentage. At first glance, it is evident that, in comparison, the proportion of indirect taxes was much greater than that of direct taxes

throughout the period. The indirect taxes on average have been above 60 percent. On the contrary, the proportion of the direct tax has fluctuated around 40 percent.

The second graph in figure 5 presents the proportion within the three classes of investments that is structure, equipment, and other fixed assets. It is observed that on average the investment in equipment has been the largest followed by structural investments and then the other fixed assets. However, it is vital to highlight the variation and patterns observed during the period.

The proportion of investment in equipment and structure was highest from 2015 to 2019 and has been increasing during this period. The investment in equipment was greater than 60 percent. In 2018 and 2019, structural investments rose. Meanwhile, the investment in other fixed assets was the lowest, around 10 percent on average, during the period 2015-19. However, the proportion of investment in other fixed assets drastically increased during the years 2020 and 2021, i.e., 29 and 57 percent respectively. The proportion of the three classes of investments came back to its average proportion in the subsequent years. The reasons for these variations will be discussed later.

Figure 6: Trends in the Micro-Level Control Variables

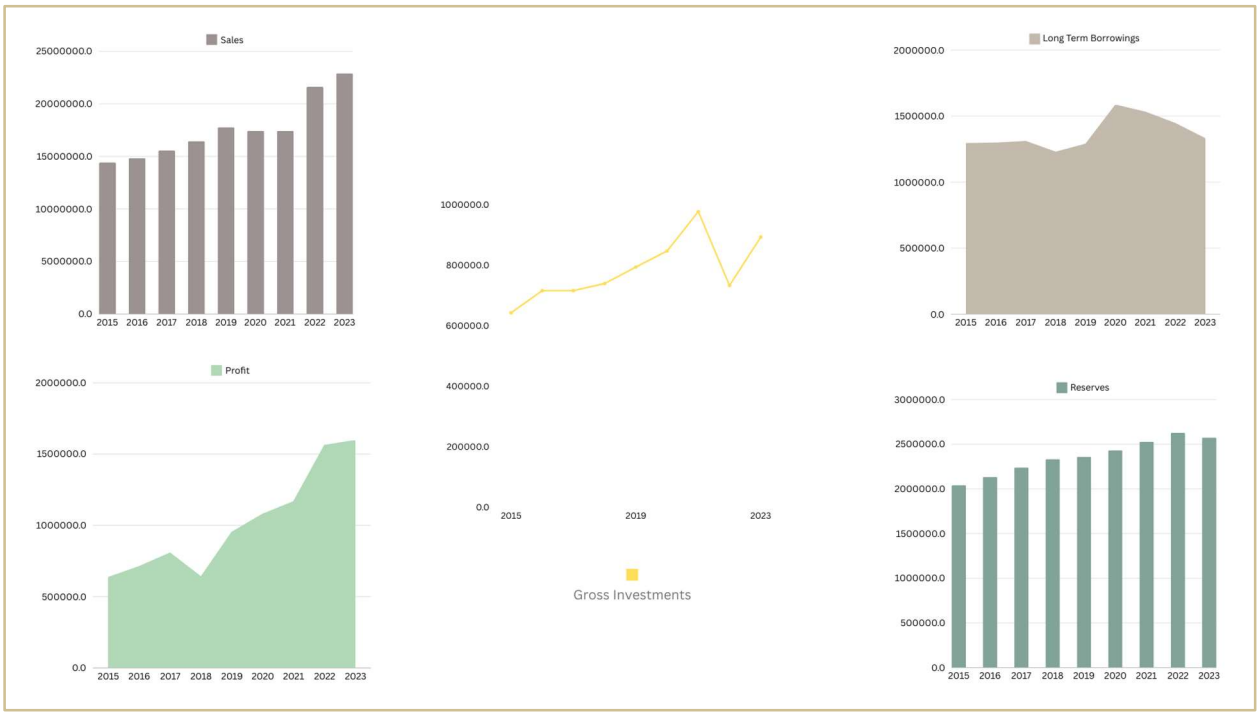


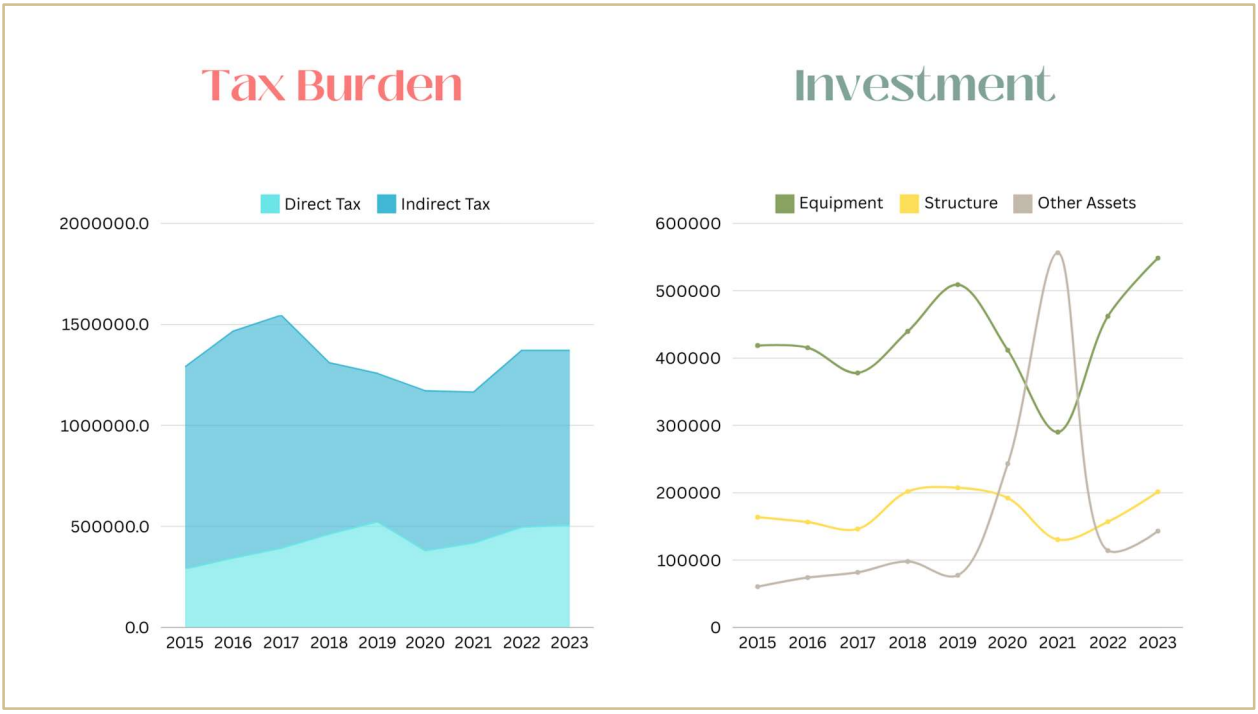
Figure 6 presents the trends in different micro-level control variables that have a tendency to influence investment decisions. The figure also includes a graph that displays the gross investment levels.

The four micro-level control variables displayed a positive trend except for long-term borrowings. The sales show a steady growth rate over the years except for 2020 and 2021, on account of the pandemic. The same applies to the profits; however, the growth rate of profits is much higher than that of sales. The long-term borrowings were the highest in 2020; thereafter, there is a decline in long-term borrowings. The reserves also display a steady growth rate over the period.

5.2 Simultaneous Graphical Analysis of the Dependent and Independent Variables

One of the most straightforward way to analyze if the tax burden influences the investment level is by simultaneously observing the patterns in both variables. This is displayed in the figure 7 below:

Figure 7: Tax Burden & Investment



In the above figure, the first graph shows the tax burden that the manufacturing firms faced during the study period, and the second graph presents the disaggregated levels of investments of the manufacturing firms during the study period.

From the tax burden graph, it is observed that manufacturing firms face a higher indirect tax burden than the direct tax burden. Since the beginning of the period, the indirect tax burden has shown a positive rise up to 2017 and was the highest in that year. However, the indirect tax

burden falls after 2017. This is because the Government of India introduced a new indirect tax on 1 July 2017, the Goods and Service tax, which subsumed several other indirect taxes that were primarily borne by the producers.

Similarly, in the case of direct taxes, the tax burden has been rising till 2019 and falls thereafter in subsequent years. The Government of India in the Union Budget 2016-17 announced a reduction in corporate tax rate for new manufacturing firms incorporated on or after 1st March 2016, as a measure to boost growth and employment. Several other efforts have been made by the Government of India to lower the direct tax burden and encourage business activities in the country. Furthermore, the Union Budget 2018-19 announced a corporate tax reduction to all domestic Indian companies from 30 percent to 25 percent.

Considering all the reforms brought in by the Government of India, the tax burden was significantly reduced. If we pan our focus on the investment graph, it is observed that the reforms aided in lowering the tax burden and increased the investment levels. For instance, from 2017 onwards the indirect tax burden started decreasing, on the contrary, it is observed that the investment levels in equipment started rising from 2017. Whereas, the reforms in direct taxes which were brought in to encourage the startup of new manufacturing firms also showed a positive response as the structural investments rose from 2017 onwards for nearly four years. During this period of four years, i.e., 2017 to 2020, there has been a significant rise in structural and equipment investment. However, the investment in other fixed assets was low during this period. This is understandable because investment in structure and equipment is primary as such investments build capacities and foster other types of investments. This is quite evident in the investment graph as once the investment in structure and equipment falls by 2020 there is a drastic rise in investment in other fixed assets in the subsequent years.

5.3 Regression Analysis Results

Regression analysis techniques were used to analyze the data to determine the impact of the tax burden on the three classes of investments: investment in equipment, investment in structure, and investment in other fixed assets, in Indian manufacturing firms for the period 2015 to 2023. Each class of investment was separately regressed on the two important independent variables, the direct tax burden and indirect tax burdens, along with the set of other firm-level control variables that can influence the investment decision.

First, the regression was run for the entire sample of manufacturing firms, and then separate regressions were run based on the size of the firms. Table 3 displays the regression results for the entire sample of manufacturing firms.

Table 3 presents the regression results for the impact of the tax burden on investment decisions of the five industries in the manufacturing sector in India for the period 2015 to 2023. Column 1 reports the results of investment in equipment, column 2 reports the results of investment in structure, and column 3 reports the results of investment in other fixed assets. The variables of interest are direct tax burden and indirect tax burden, which show anticipated results, particularly in the case of indirect tax burden. Overall, a negative relationship is observed between tax burden and investment.

In the case of investment in equipment, the results suggest both direct and indirect tax burdens negatively affect the investment decisions of Indian manufacturing firms. These results are statistically significant at a one per cent level of significance. Within the two classes of the tax burden, the direct tax burden is more detrimental than the indirect tax burden for investment in equipment. A one-unit increase in direct tax burden will result in a 0.072 unit fall in investment in

equipment. whereas, in the case of indirect tax burden, if the indirect tax burden increases by one unit the investment in equipment will fall by 0.0213 units.

Table 3: Fixed effect model estimation results of the investment equation

VARIABLES	*Equipment*	*Structure*	*Other Assets*
	(1)	**(2)**	**(3)**
Direct tax burden	-0.0720***	0.0193*	0.113
	(0.0233)	(0.0112)	(0.0903)
Indirect tax burden	-0.0213***	-0.0292***	-0.0927***
	(0.00403)	(0.00193)	(0.0156)
Reserves_lag1	0.00947**	-0.0499***	-0.179***
	(0.00462)	(0.00221)	(0.0179)
Profit_lag1	-0.0321***	-0.0124***	0.0378**
	(0.00400)	(0.00192)	(0.0155)
Sales	0.0107***	0.00274***	0.0206***
	(0.000870)	(0.000417)	(0.00337)
Long term borrowings	0.0733***	0.0251***	0.0189*
	(0.00290)	(0.00139)	(0.0112)
Leverage Ratio	-1.758	-2.752	-6.244
	(12.53)	(5.998)	(48.51)
Constant	104.2***	124.0***	101.6*
	(13.66)	(6.536)	(52.86)
Observations	15,346	15,346	15,346
R-squared	0.061	0.076	0.012
Number of id	2,125	2,125	2,125

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

With reference to the effects of tax burden on investment in structure, the results suggest that only indirect taxes have a negative relation with structural investment decisions in Indian manufacturing firms. A one-unit rise in indirect tax burden will lead to a 0.0292 unit fall in the structural investments, which is statistically significant at a one per cent level of significance. However, the results do not suggest a negative relationship between direct tax burden and investment in structure.

The results for investment in other fixed assets also suggest that the indirect tax burden negatively affects the investment decisions of manufacturing firms. A one-unit rise in the indirect tax burden will lead to a 0.0903 unit fall in investment in other fixed assets. This result is statistically significant at a one per cent level of significance. The direct tax burden estimate is insignificant for investment in other assets.

When comparing all three classes of investments — investment in equipment, investment in structure, and investment in other fixed assets for Indian manufacturing firms during the period 2015 to 2023, the equipment investment is most significantly affected by the tax burden, both direct as well as indirect tax burden. Investment in structure and other fixed assets is negatively affected by indirect tax burden alone. The effects of the direct tax burden are not strong enough to support the hypothesis at the aggregate level.

Based on the graphical analysis of the data, there was definitely a positive impact observed in investment levels when the Government of India introduced several tax reforms to encourage investments in India. The reforms substantially alleviated the direct and indirect tax burden faced by the manufacturing firms in India and improved their investment levels. This result is consistent with (Bond & Xing, 2015), they suggest that tax reforms have the potential to influence the

investment level, particularly for equipment investments. However, they also couldn't find similar results for structural investments.

5.4 Empirical Results Based on the Size of the Firm

The sample of manufacturing firms was divided into four classes: small, medium, and large, based on the firm's turnover, to capture the magnitudes of the impact of the tax burden on investment decisions based on the firm's size. Tables: 4, 5, 6, and 7 display the regression results for large, medium, small, and micro manufacturing firms respectively.

5.4.1 Large Firms Results

Table 4 presents the regression results for the impact of the tax burden on investment decisions of large firms in five industries of the manufacturing sector in India for the period 2015 to 2023. Large firms are defined as firms whose turnover is greater than 2500 million. Column 1 reports the results of investment in equipment, column 2 reports the results of investment in structure, and column 3 reports the results of investment in other fixed assets of large firms.

It is observed that there exists a negative relationship between tax burden and different classes of investment decisions of large firms in the Indian manufacturing sector. In the case of equipment investment, both direct and indirect tax burden negatively impacts the investment decisions of large firms. However, the degree of the direct tax burden is greater than the indirect tax burden. The estimate suggests that a one-unit increase in direct tax burden will result in a 0.0718 unit fall in equipment investment, which is statistically significant at a five per cent significance level. Meanwhile, in the case of indirect tax burden, a one-unit rise in indirect tax

burden will lead to a fall of 0.0216 units of investment in equipment by large firms. The indirect tax burden estimate is significant at a one per cent significance level.

Table 4: Fixed effect model estimation results of the investment equation for Large firms.

VARIABLES	*Equipment*	*Structure*	*Other Assets*
	(1)	**(2)**	**(3)**
Direct tax burden	-0.0718**	0.0202	0.113
	(0.0363)	(0.0173)	(0.141)
Indirect tax burden	-0.0216***	-0.0294***	-0.0931***
	(0.00626)	(0.00299)	(0.0243)
Reserves_lag1	0.00941	-0.0503***	-0.181***
	(0.00720)	(0.00344)	(0.0279)
Profit_lag1	-0.0337***	-0.0132***	0.0386
	(0.00635)	(0.00303)	(0.0246)
Sales	0.0109***	0.00281***	0.0210***
	(0.00137)	(0.000652)	(0.00530)
Long term borrowings	0.0744***	0.0256***	0.0189
	(0.00454)	(0.00217)	(0.0176)
Leverage Ratio	-0.508	-5.262	-17.23
	(33.10)	(15.81)	(128.5)
Constant	231.1***	271.6***	227.7
	(39.91)	(19.06)	(154.9)
Observations	6,555	6,555	6,555
R-squared	0.062	0.078	0.012
Number of id	1,086	1,086	1,086

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

The investment of large firms in structure and other fixed assets is negatively affected by indirect tax burden. A one-unit increase in indirect tax burden will lead the structural investment to fall by 0.0294 units and 0.0931 units in the case of other fixed assets. These estimates are significant at a one per cent significance level. However, the estimates for direct tax burden are statistically insignificant for large firms' structure and other fixed assets investments. One possible reason for this outcome is that, generally, large firms are well-established in terms of their capacity and structure. They mainly focus on investments that improve their efficiency and build capacities that archive them with large economies of scale. Therefore, their focus is largely on equipment investments.

5.4.2 Medium Firms Results

Table 5 presents the regression results for the impact of the tax burden on investment decisions of medium firms in five industries of the manufacturing sector in India for the period 2015 to 2023. Medium firms are defined as firms whose turnover is greater than 500 million and less than 2500 million. Column 1 reports the results of investment in equipment, column 2 reports the results of investment in structure, and column 3 reports the results of investment in other fixed assets of medium firms.

The overall results of the impact of the tax burden on investment decisions of medium-sized firms look under par, especially in the case of investment in equipment and other fixed assets, as the estimates for both direct and indirect tax burden are not statistically significant. However, there is a silver lining, the structural investment estimates show anticipated results.

Table 5: Fixed effect model estimation results of the investment equation for Medium firms.

VARIABLES	*Equipment*	*Structure*	*Other Assets*
	(1)	**(2)**	**(3)**
Direct tax burden	0.0101	-0.138***	0.0194
	(0.0634)	(0.0528)	(0.0347)
Indirect tax burden	-0.0266	-0.000912	-0.0102
	(0.0275)	(0.0229)	(0.0150)
Reserves_lag1	0.00398	-0.000507	0.00260
	(0.00506)	(0.00421)	(0.00277)
Profit_lag1	-0.00143	-0.000926	0.000897
	(0.00182)	(0.00152)	(0.000997)
Sales	0.0111***	0.00818**	0.00285
	(0.00415)	(0.00345)	(0.00227)
Long term borrowings	0.0129***	0.00212	0.00348**
	(0.00320)	(0.00266)	(0.00175)
Leverage Ratio	-7.236	-0.311	-1.063
	(10.76)	(8.956)	(5.884)
Constant	20.99***	9.955	3.903
	(7.844)	(6.526)	(4.288)
Observations	5,320	5,320	5,320
R-squared	0.007	0.002	0.002
Number of id	1,055	1,055	1,055

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The results of structural investment suggest that there is a strong and statistically significant negative relationship between the direct tax burden and the structural investment decisions of medium firms. It suggests that a one-unit increase in direct tax burden will lead to 0.138 units fall in structural investments by medium-sized manufacturing firms in India. This result is significant at a one per cent level.

This result shows that direct taxation is highly detrimental to structural investments of medium manufacturing firms. Medium-sized firms have growth potential. However, the tax burden, especially the direct tax, which deflates profit levels, can hamper their growth. This is also reflected in the results.

5.4.3 Small Firms Results

Table 6 presents the regression results for the impact of the tax burden on investment decisions of small firms in five industries of the manufacturing sector in India for the period 2015 to 2023. Small firms are defined as firms whose turnover is greater than 50 million and less than 500 million. Column 1 reports the results of investment in equipment, column 2 reports the results of investment in structure, and column 3 reports the results of investment in other fixed assets of small firms.

The results for small firms are highly insignificant and not worth drawing any conclusions. This is likely because there are fewer small firms in the reduced sample, which makes most of the variables insignificant. However, the results suggest that there is a positive relationship between the previous year's profits and investment in equipment. This indicates that if profits rise due to a reduced tax burden, then it may foster equipment investment levels of small firms. As the results

suggest, the structural investments of small firms depend on the firms' reserves and investment in other fixed assets by sales.

Table 6: Fixed effect model estimation results of the investment equation for Small firms.

VARIABLES	*Equipment*	*Structure*	*Other Assets*
	(1)	**(2)**	**(3)**
Direct tax burden	0.124	-0.0155	-0.0128
	(0.142)	(0.0944)	(0.0162)
Indirect tax burden	0.0122	0.0424	0.0105
	(0.0825)	(0.0547)	(0.00940)
Reserves lag1	0.00823	0.0225**	0.000863
	(0.0150)	(0.00993)	(0.00171)
Profit lag1	0.0126**	0.00563	-0.000313
	(0.00636)	(0.00422)	(0.000725)
Sales	-0.0102	-0.00386	0.00292**
	(0.0102)	(0.00675)	(0.00116)
Long term borrowings	-0.0744***	-0.0415***	-0.000796
	(0.0103)	(0.00680)	(0.00117)
Leverage Ratio	11.47***	6.836***	0.319
	(2.933)	(1.944)	(0.334)
Constant	8.062**	3.463	0.127
	(3.221)	(2.135)	(0.367)
Observations	2,858	2,858	2,858
R-squared	0.026	0.020	0.004
Number of id	630	630	630

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

5.4.4 Micro Firms Results

Table 7: Fixed effect model estimation results of the investment equation for Micro firms.

VARIABLES	*Equipment*	*Structure*	*Other Assets*
	(1)	**(2)**	**(3)**
Direct tax burden	0.103	0.948	-0.0540*
	(0.104)	(0.778)	(0.0280)
Indirect tax burden	-0.0397	-0.0864	0.000907
	(0.0490)	(0.367)	(0.0132)
Reserves_lag1	-0.0207**	-0.0151	-0.00153
	(0.0104)	(0.0778)	(0.00280)
Profit_lag1	0.000363	-0.000295	1.51e-05
	(0.00180)	(0.0135)	(0.000485)
Sales	0.0640***	0.290*	0.00131
	(0.0200)	(0.150)	(0.00539)
Long term borrowings	0.00124	0.136***	-0.00123
	(0.00566)	(0.0425)	(0.00153)
Leverage Ratio	0.00568	0.382	0.0179
	(0.229)	(1.716)	(0.0619)
Constant	-0.133	-15.02***	0.259
	(0.741)	(5.551)	(0.200)
Observations	496	496	496
R-squared	0.042	0.041	0.012
Number of id	147	147	147

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 7 presents the regression results for the impact of the tax burden on investment decisions of micro firms in five industries of the manufacturing sector in India for the period 2015 to 2023. Micro-firms are defined as firms whose turnover is not more than 50 million. Column 1 reports the results of investment in equipment, column 2 reports the results of investment in structure, and column 3 reports the results of investment in other fixed assets of micro firms.

The regression results suggest that for the direct tax burden has a negative relationship with investments in other assets of the micro manufacturing firms in India. The estimate suggests that a one-unit increase in direct tax will lead to a 0.054-unit fall in investment in other fixed assets of the micro firms. This result is significant at a ten percent level. The indirect tax burden estimates are insignificant for all three classes of investments. And direct tax burden estimates are insignificant for equipment and structural investments. This is mainly because of the more minor sample observations.

5.4.5 Overview of Firm Size-level Analysis Findings

From a broader perspective, considering all four classes of manufacturing firms: large, medium, small, and micro, the tax burden affects differently to each class of firm, as well as the type of investment: equipment, structure, and other fixed assets. The classified analysis revealed that large firms are the most affected by the tax burden in the case of all three types of investments. More specifically, the tax burden (direct and indirect) is most detrimental to the equipment investment of large firms. And indirect tax burden affects the large firms' structural and other fixed assets investments. In the case of medium firms, the direct tax burden proved to be most detrimental to their structural investments and other fixed assets of the micro firms.

From the firm size-level analysis, it becomes quite apparent that the tax burden influences large firms' investment levels. Large firms generally make higher profits than smaller ones, which means their tax liability is proportionately greater than that of smaller firms. Therefore, a reduction of even one per cent of the direct tax rate can save them a huge amount, which can be used to invest appropriately in fixed assets.

Indirect taxes affect the consumption levels and therefore they have the tendency to influence the aggregate demand. If the counter has higher indirect taxes, then the consumption would be low resulting in low investment levels by the producers. In order to foster growth, the aggregate demand can be stimulated by lowering the consumption taxes to stimulate demand and raise investment levels which positively contributes to the growth of the nation.

CHAPTER SIX

Conclusion and Recommendations

6.1 Conclusion of the Research

This research aims to explore the impact of direct and indirect tax burdens on disaggregated classes of investment in five industries of the manufacturing sector in India for the period 2015 to 2023. The study used firm-level panel data extracted from the Center for Monitoring Indian Economy (CMIE) Prowess IQ database. The data was analyzed using panel data regression techniques. An empirical model was estimated to determine the impact of tax burden on different investment classes and further, the degree of impact based on the firm's size.

The overall result suggests that the tax burden negatively impacts the investments of Indian manufacturing firms. The impact of tax burden varies in each class of investment; equipment, structure, and other fixed assets. Furthermore, the study analyzes the effect of direct and indirect tax burdens on disaggregated classes of investment and finds that each type of tax burden affects each class of investment differently. The indirect tax burden was found to be most detrimental to all classes of investments: equipment, structure, and other fixed assets. Whereas, the direct tax burden was most harmful for investment in equipment by the Indian manufacturing firms.

Based on the firm’s size analysis, it was found that the large-size firm's investment decision is negatively impacted by tax burden. The results suggest that the indirect tax burden affects all classes of investment of large firms. Whereas, the direct tax burden negatively impacts the equipment investments of large firms. In the case of medium firms, the direct tax burden has the strongest impact on their structural investments. Small and micro firms did not show any

significant results, except for micro firms, the direct tax burden suggested a negative impact on investment in other fixed assets.

The various direct and indirect tax reforms brought in by the government in the last few years are justifiable, considering the negative impact of the tax burden on investments. It was observed that the reforms were efficient in stimulating growth in the sector and also significantly improved the investment levels in the Indian manufacturing sector.

6.2 Policy Recommendation

The policy implications that emerged from this research are as follows:

1. Considering the low performance of the manufacturing sector in the Indian economy, the government should encourage and boost growth in this sector as it assures sustained long-run growth potential. The government should introduce tax incentive schemes that aim to alleviate firms' tax burdens, as they negatively impact investment.
2. The government has largely focused on small firms in the past. However, the study revealed that the impact of the tax burden is greater on large firms' investments. Considering the key role of large players in society, the government should also focus on and aid large manufacturing firms.

References

Bhattacharyya, S. (2008). Determinants of Corporate Investment: Post Liberalization Panel Data Evidence from Indian Firms. *MPRA*. https://mpra.ub.uni-muenchen.de/6702/

Bond, S., & Xing, J. (2015). Corporate taxation and capital accumulation: Evidence from sectoral panel data for 14 OECD countries. *Journal of Public Economics*, *130*, 15–31. https://doi.org/10.1016/j.jpubeco.2015.08.001

Braunerhjelm, P., & Eklund, J. E. (2014). Taxes, tax administrative burdens and new firm formation. *Kyklos*, *67*(1), 1–11. https://doi.org/10.1111/kykl.12040

Deepti, D. M. G. (2022). Evolution of Indian Tax System–Tax Policy, e-initiatives and administrative reforms. Specialusis Ugdymas, 2(43), 436-443.

Fan, Z., & Liu, Y. (2020). Tax Compliance and Investment Incentives: Firm Responses to Accelerated Depreciation in China. *Journal of Economic Behavior & Organization*, *176*, 1–17. https://doi.org/10.1016/j.jebo.2020.04.024

Hussain, A. (2023). Effect of Tax Cut on Investment: Evidence from Indian Manufacturing firms. *National Institute of Public Finance and Policy New Delhi*, *390*. https://ssrn.com/abstract=4381206

J. Bradford De Long, & Lawrence H. Summers. (1991). Equipment Investment and Economic Growth. *The Quarterly Journal of Economics*, *106*, 445–502.

Jackson, S. B., (Kelvin) Liu, X., & Cecchini, M. (2009). Economic consequences of firms' depreciation method choice: Evidence from capital investments. *Journal of Accounting and Economics*, *48*(1), 54–68. https://doi.org/10.1016/j.jacceco.2009.06.001

Jangili, & Ramesh. (2011). Causal Relationship between Saving, Investment and Economic Growth for India – What does the Relation Imply? *Reserve Bank of India Occasional Papers*, *32*(1), 25–39.

Jens Matthias Arnold. (2008). *Do Tax Structures Affect Aggregate Economic Growth?: Empirical Evidence from a Panel of OECD Countries* (OECD Economics Department Working Papers 643; OECD Economics Department Working Papers, Vol. 643). https://doi.org/10.1787/236001777843

Khan, M. S., & Reinhart, C. M. (1990). Private investment and economic growth in developing countries. *World Development*, *18*(1), 19–27. https://doi.org/10.1016/0305-750X(90)90100-C

Lu, Y., Liu, R., Cao, Y., & Li, Y. (2023). Tax Burden and Corporate Investment Efficiency. *Sustainability*, *15*(3), 1747. https://doi.org/10.3390/su15031747

Menescal, L., & Alves, J. (2024). Optimal threshold taxation: An empirical investigation for developing economies. *The Journal of Economic Asymmetries*, *29*, e00343. https://doi.org/10.1016/j.jeca.2023.e00343

Milbourne, R., Otto, G., & Voss, G. (2003). Public investment and economic growth. *Applied Economics*, *35*(5), 527–540. https://doi.org/10.1080/0003684022000015883

Morina, F., Misiri, V., & Gashi, F. (2023). Long-term relationship between investment and economic growth: A cointegration analysis of OECD countries. *European Journal of Government and Economics*, *12*(2), 175–195. https://doi.org/10.17979/ejge.2023.12.2.9909

Pegkas, P. (2015). The impact of FDI on economic growth in Eurozone countries. *The Journal of Economic Asymmetries*, *12*(2), 124–132. https://doi.org/10.1016/j.jeca.2015.05.001

Rin, M. D., & Giacomo, M. D. (2010). *CORPORATE TAXATION AND THE SIZE OF NEW FIRMS: EVIDENCE FROM EUROPE*.

Rao, M. G. (2005). Tax system reform in India: Achievements and challenges ahead. *Journal of Asian Economics*, *16*(6), 993–1011. https://doi.org/10.1016/j.asieco.2005.10.003

Sankarganesh, K., & Shanmugam, K. R. (2023). Effect of corporate income tax on investment decisions of Indian manufacturing firms. *Journal of the Asia Pacific Economy*, *28*(1), 156–175. https://doi.org/10.1080/13547860.2021.1873896

Škare, M., & Sinković, D. (2013). The role of equipment investments in economic growth: A cointegration analysis. *International Journal of Economic Policy in Emerging Economies*, *6*(1), 29. https://doi.org/10.1504/IJEPEE.2013.054471

Tripathy, N., Srikanth, M., & Aravalath, L. (2016). Infrastructure Investment and Economic Growth: Evidence from India. *Journal of International Business and Economy*, *17*(1), 90–111. https://doi.org/10.51240/jibe.2016.1.5

V.R Prabhakaran Nair. (2010). Financial Liberalization and Determinants of Investment: A Study of Indian Manufacturing Firms. *MIBES Transactions*, *5*. http://mtol.teilar.gr/vol5_issue1_2011/Prabhakaran.pdf