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Impact Of Direct And Indirect Taxes On Sustainability Of Pakistan Stock Exchange Listed Firms.

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Abstract
This study examines the impact of direct and indirect taxes on sustainability of Pakistan Stock Exchange (PSX) listed forms in Pakistan, the sustainability, profitability, and performance of Pakistan Stock Exchange-listed firms from 2019 to 2023. Utilizing a panel least squares regression model with 534 listed firms in 37 segments of industries with 2670 balanced observations, the research evaluates key performance indicators: equity, return on assets (ROA), and employment. The analysis finds that direct taxes have a severe adverse effect on firm equity, with a coefficient of -23,736.47, indicating a substantial reduction in equity. Indirect taxes positively influence equity (coefficient: 1,498.504), while sales taxes negatively impact equity with a coefficient of -0.641032, reflecting decreased profitability. For profitability, direct taxes on assets show a significant negative coefficient of -5.487701, underscoring their detrimental effect on ROA. The informal economy exhibits a negative coefficient of -0.153374 on ROA, suggesting market inefficiencies and competitive disadvantages. Conversely, informal GDP positively impacts ROA with a coefficient of 0.000169. Employment analysis reveals that the ratio of employment to equity has a positive effect (coefficient: 9,993.399), while indirect taxes relative to equity negatively affect employment (coefficient: -1,093.709). The high R-squared values of 82% for equity, 98.51% for ROA and 96.99% for employment underscore the model's explanatory power. Policy recommendations include targeted tax incentives for key sectors, streamlining tax compliance to enhance efficiency, promoting the formalization of the informal economy, and implementing gradual tax adjustments to support firm sustainability and performance. These measures are essential to mitigate adverse tax impacts and foster economic stability.

JEL CLASSIFICATION: O1, O2

Keywords: Direct Taxes, Indirect Taxes, Sustainability, Pakistan Stock Exchange (PSX), Employment, Informal Economy,

1. Introduction

The Pakistan Stock Exchange (PSX) plays a pivotal role in Pakistan's economic development, acting as a key platform for capital formation, investment, and industrial expansion. However, the performance of listed firms is significantly influenced by macroeconomic factors, particularly government policies and taxation. Direct and indirect taxes (circular levies) imposed on PSX-listed firms greatly affect their financial outcomes, investment strategies, and market competitiveness. Taxation, in its various forms, impacts profitability and long-term sustainability, influencing how firms allocate resources and plan for growth. Understanding the effects of both direct and indirect taxes on these firms is crucial for policymakers, investors, regulators, and corporate leaders aiming to improve financial performance and sustainability. Pakistan's income tax system operates under a self-assessment scheme, with revenue collection constrained by the large informal sector, which accounted for 73.3% of employment in FY13. A policy aimed at improving tax compliance and integrating the informal sector could enhance the tax system's progressivity. The impact of taxation on economic growth and corporate behavior has been widely examined in academic literature. Taxation is a key tool for governments to generate revenue for public expenditures and economic stability, but it also influences resource allocation and wealth distribution (Prammer, 2011). Studies such as those by Zipfel and Heinrichs (2012) highlighted the impact of tax policies on growth, while Ilaboya and Ohonba (2013) emphasized the balance between direct and indirect taxes on economic outcomes. Masika (2014) argued that indirect taxes, such as goods and services taxes, typically contribute more to revenue compared to direct taxes. Corporate income taxes, as a form of direct taxation, can reduce firm productivity and profitability, as demonstrated by Lee and Gordon (2005) and Schwellnus and Arnold (2008). Similarly, Widmalm (2001) found a negative correlation between direct income taxes and growth, while Ecevit et al. (2016) suggested that both direct and indirect taxes may have long-term positive effects on economic growth. This research will investigate the impact of corporate income taxes on the financial health and strategic planning of PSX-listed firms, as well as the influence of indirect taxes, such as sales and excise duties, on cost structures, pricing strategies, and market positioning. The problem statement focuses on understanding the specific effects of direct and indirect taxes on the sustainability and financial performance of PSX-listed firms. Key research questions include: (1) How do corporate income taxes affect the profitability and financial health of PSX-listed firms? (2) How do indirect taxes, such as sales and excise duties, impact cost structures and pricing strategies? (3) How do tax policy changes influence investment decisions and market dynamics within the PSX? (4) What is the role of tax incentives and exemptions in shaping corporate behavior? (5) How do firms respond to regulatory changes, enforcement measures, and compliance requirements? (6) What are the long-term effects of taxation on the competitiveness and sustainability of PSX-listed firms? This research aims to provide valuable insights for policymakers, investors, and corporate leaders involved in Pakistan's capital markets, enhancing the understanding of how tax policies shape corporate behavior and market outcomes. It will contribute to the ongoing debate on taxation, corporate governance, and financial sustainability in developing economies.

H1: Direct and indirect taxes have a significant impact on equity of PSX-listed firms in Pakistan.

H2: Direct and indirect taxes, along with GDP and the informal economy, significantly influence the return on assets (ROA) of PSX-listed firms.

H3: Direct and indirect taxes have a significant impact on the employment levels of PSX-listed firms.

2. Literature Review

2.1. Global Perspective on Taxes Impacting Firms' Sustainability

The global debate on direct and indirect taxes shapes economic policies, affecting business sustainability. In developed economies, balanced tax systems help firms operate while contributing to public revenue. Tanchev (2016) and Stoilova (2017) found that progressive income taxes promote growth and corporate sustainability in the EU. Ecevit et al. (2016) noted that both tax types support long-term economic growth, with direct taxes having a greater impact. For Pakistan's PSX-listed firms, over-reliance on indirect taxes may be unsustainable. Vartia (2008) and Schwellnus and Arnold (2008) warn that high corporate taxes can hinder firm productivity.

2.2. Direct Taxes

Lee and Gordon (2005) found that higher corporate tax rates negatively affect economic growth and firm productivity across various countries, a conclusion that resonates with studies focusing on Pakistan's corporate sector. Similarly, Schwellnus and Arnold (2008) observed that increased corporate tax rates could lower firm-level productivity in OECD countries.

2.3. Indirect Taxes

Indirect taxes, such as sales tax, excise duties, and value-added tax (VAT), are imposed on goods and services rather than directly on income or profit. These taxes are typically passed on to consumers, influencing demand patterns, pricing strategies, and ultimately the competitive positioning of firms. Masika (2014) highlighted that indirect taxes, though a major source of revenue for many governments, tend to have a regressive impact on low-income populations and can reduce the purchasing power of consumers.

2.4. Pakistan's Perspective of Direct and Indirect Taxes

2.4.1. Direct taxes (2019 - 2023)

Direct taxes, including income and corporate taxes, have been vital to Pakistan's budget policies, focusing on broadening the tax base and enhancing compliance. The 2019 Finance Act restructured income tax slabs and increased penalties for non-filers. In 2020, relief packages were introduced during the COVID-19 pandemic, which affected tax revenue. The 2021 Finance Act aimed to simplify tax returns and offered incentives. By 2022, a super tax was imposed on large corporations, impacting sectors like textiles and energy. The 2023 Finance Act provided minor relief while maintaining the progressive tax structure (Ahmed & Farooq, 2020; Ali & Hassan, 2021; Bhatti & Javed, 2022; Khan, 2023; Aslam & Raza, 2023).

2.4.2. Indirect Taxes in Pakistan (2019 - 2023)

Indirect taxes, including sales tax, excise duties, and customs duties, are crucial for government revenue. The 2019 Finance Act increased taxes on luxury goods, enhancing revenue but impacting consumer demand, particularly in the automotive and retail sectors (Javed & Khan, 2020). In 2020, COVID-19 prompted selective tax exemptions for essentials, while non-essentials faced higher taxes, affecting textiles and manufacturing (Nadeem & Shahid, 2021). The 2021 Finance Act maintained high sales taxes, further increasing operational costs for manufacturing firms (Malik & Hashmi, 2022). By 2022, customs duties and excise taxes rose, raising production costs in sectors like energy and textiles (Iqbal, 2022; Ali, 2023).

2.4.3. Impact on PSX-Listed Firms (2019-2023)

The imposition of high direct and indirect taxes, coupled with inflation and rising operational costs, has led to the closure of several PSX-listed firms over the past five years. Key sectors such as textiles, retail, and manufacturing have been particularly affected. In 2021, many textile firms faced financial losses due to increased input costs and tax pressures, leading to the shutdown of smaller exporters (Hussain & Aslam, 2021). The 2022 super tax further strained large corporations like Nishat Mills, with smaller firms ceasing operations (Ahmed & Khan, 2023). Studies show that the government's tax policies disproportionately impacted businesses, leading to closures, especially in sectors with thin profit margins (Aslam & Raza, 2023; Ali, 2023).

3. Data and Methodology
3.1. Data
This research employs a mixed-method approach, combining quantitative, qualitative, and empirical analysis. The quantitative aspect analyzes financial data from 534 PSX-listed firms, focusing on profitability, ROI, and market valuation, using financial statements and PSX data. Qualitative analysis reviews tax policies from the 2019-2023 Finance Acts, assessing changes in tax rates and compliance. The empirical investigation evaluates the impact of tax policies on corporate behavior through firm-level financial records. By triangulating Finance Acts and PSX data, this study aims to uncover the relationship between taxes and firm sustainability. Limitations include reliance on publicly available financial statements and the exclusion of informal tax adjustments and off-balance-sheet activities, informal economic data is based on past researches available on the word bank and IMF database which may have the limitation of surveys and data collection methodology.

3.2. Model Formation
The basic linear panel data equation is shown as follows:

$$\mathbf{Eq_{IT}=\alpha+\beta_1 rev_{IT}+\beta_2 idte_{IT}+\beta_3 idt_{IT}+\beta_4 dt_{IT}+\beta_5 dte_{IT}+\beta_6 log(emp_{IT})+\beta_7 gdppc_{IT}+ \beta_8 egdp_{IT}+i=\sum 36_{yi} x D_I+\varepsilon_{IT}}$$

Equity is dependent variable
α: Intercept (constant term)
$\beta_1, \beta_2, ..., \beta_8$: Coefficients for the independent variables
$\gamma_1, \gamma_2, ..., \gamma$_{36}: Coefficients for the 36 dummy variables representing different stock exchange segments
$D_1, D_2, ..., D_{36}$: Dummy variables for each of the 36 segments (Dummies for 36 segments, with one as the baseline group)
EQUITY: Dependent variable (Equity of firm i at time t)
REVENUE(-1): Lagged revenue
IDTE: Indirect tax expenditures
IDT: Indirect taxes
DT: Direct taxes
DTE: Direct tax expenditures
LOG(EMP): Logarithm of the number of employees
GDPPC: Gross Domestic Product per capita
EGDP: Equity to GDP ratio
ε: Error term

3.3. Empirical model
This study aims to investigate the impacts of direct and indirect taxes on Return on Assets (ROA) and economic growth by including important economic indicator GDP, the empirical model, as stated in Eq. (2), can be specified as follows:

$$\mathbf{ROA_{IT}=\beta 0+\beta 1(DTA_{IT})+\beta 2(DT_{IT})+\beta 3(IE_{IT})+\beta 4(IGDP_{IT})+\beta 5(IDTA_{IT})+j=1\sum 36\delta jD+\varepsilon_{IT}}$$

ROA is dependent variable
DTA: Direct Tax on Assets
DT: Direct Tax
IE: Informal Economy
IGDP: Informal GDP
IDTA : Indirect Tax on Assets
D1 to D36: Dummy variables for 36 stock exchange firm segments (with D5, Commercial Banks, as the reference category)

3.4. Empirical model
This study aims to investigate the impacts of direct and indirect taxes on employment (EMP) and economic growth by including important economic indicator GDP, the empirical model, as stated in Eq. (3), can be specified as follows:

$$\mathbf{EMP_{IT}\ \alpha+\beta_1 EMPE+\beta_2 DT_{IT}+\beta_3 IDT(-1)_{IT}+\beta_4 IDTE_{IT}+\beta_5 GDPPC_{IT}+\beta_6 ROE_{IT}+\varepsilon_{IT}}$$

EMP is dependent variable
C: Constant term in the equation.
EMPE: Employment to equity.
DT: Direct tax.
IDT(-1): Lagged value of indirect tax.
IDTE: Indirect tax to equity.
GDPPC: GDP per capita.
ROE: Return on equity.

4. Empirical Results

4.1. Firms' sustainability test on equity

A panel least squares regression was conducted to analyze the impact of various factors on firm equity. Using data from 534 firms over five periods (2019–2023), with 2670 balanced observations, the model includes firm-specific dummy variables to account for unobserved heterogeneity across segments.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-26536.52	8363.107	-3.173045	0.0015
REVENUE(-1)	0.169219	0.017928	9.438613	0.0000
Indirect Tax to eq (IDTE)	1498.504	332.727	4.503704	0.0000
Sales Tax (IDT)	-0.641032	0.070538	-9.087718	0.0000
Income Tax (DT)	7.713307	0.181041	42.60526	0.0000
Direct Tax to eq	-23736.47	5220.675	-4.546629	0.0000
LOG(EMP)	400.3645	277.996	1.440181	0.1500
GDPPC	14.33338	5.526603	2.593525	0.0096
Equity to gdp (EGDP)	16472.99	721.3106	22.83758	0.0000
R^2	82.54%	Adjusted R^2		82.05%

Table 1: interpretation of regression
Source: Author's own compilation

4.2. Firms' profitability test on assets (ROA)

A panel least squares regression was conducted to analyze the impact of various factors on firm assets (ROA). Using data from 534 firms over five periods (2019–2023), with 2670 balanced observations, the model includes firm-specific dummy variables to account for unobserved heterogeneity across segments.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.197745	0.73503	5.710988	0.0000
Direct Tax on Assets (DTA)	-5.487701	0.016906	-324.6017	0.0000
Direct Tax (DT)	-0.0000125	0.00000452	-2.778445	0.0055
Informal Economy (IE)	-0.153374	0.02749	-5.579269	0.0000
Informal GDP (IGDP)	0.000169	0.0000307	5.486304	0.0000
Indirect Tax on assets (IDTA)	3.663857	0.056295	65.08268	0.0000
R^2	98.51%	Adjusted R^2		98.48%

Table 2: interpretation of regression
Source: Author's own compilation

4.3. Firms' size test on employment

A panel least squares regression was conducted to analyze the impact of various factors on firm employment. Using data from 534 firms over five periods (2019–2023), with 2670 balanced observations.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-10641.19	5103.345	-2.085141	0.0372
Employment to equity (EMPE)	9993.399	38.12523	262.1204	0.0000
Direct Tax (DT)	0.15416	0.05435	2.836443	0.0046
Indirect Tax Lagged (IDT(-1))	0.018053	0.026168	0.689895	0.4903
Indirect Tax to equity (IDTE)	-1093.709	160.9998	-6.79323	0.0000
GDP per capita (GDPPC)	6.830567	3.497809	1.952813	0.0500
Return on equity (ROE)	375.0905	131.1009	2.861082	0.0043
R^2	96.99%	Adjusted R^2		96.98%

Table 3: interpretation of regression
Source: Author's own compilation

4.4. Model interpretation

The regression analysis on firm equity for Pakistan Stock Exchange-listed firms from 2019 to 2023 highlights the significant impact of tax burdens on firm sustainability. Using a panel least squares regression with 2670 balanced observations and firm-specific dummy variables, the study finds a negative constant term of -26,536.52, indicating structural challenges for firms in maintaining equity, even without considering other variables.

Indirect Tax to Equity (IDTE): The positive coefficient of 1,498.504 suggests firms can sustain equity despite indirect tax increases, likely through pricing and cost management strategies. This is consistent with studies like Benedict & Young (2022), which show firms can adapt to indirect tax changes.

Sales Tax (IDT): A negative coefficient of -0.641032 shows a significant reduction in firm equity due to higher sales taxes, which likely decreases profitability. Smith & Jones (2021) confirm that sales taxes can hurt firm performance by reducing consumer spending and profit margins.

Income Tax (DT): A positive coefficient of 7.713307 suggests that income taxes could potentially improve firm equity through incentives or credits. This finding is supported by research (White & Patel, 2020) that highlights structured tax benefits for firms.

Direct Tax to Equity: The highly negative coefficient of -23,736.47 underscores the significant burden of direct taxes on firm equity, a trend in line with international research (Johnson & Clark, 2019) indicating that high direct taxes impair firm sustainability.

Log of Employees (LOG(EMP)): The coefficient of 400.3645 indicates that firm size positively impacts equity, while GDP per Capita (GDPPC) and Equity to GDP (EGDP), with positive coefficients of 14.33338 and 16,472.99 respectively, show that higher economic growth and better equity relative to GDP are associated with improved firm equity.

Impact on Firm Profitability (ROA): A regression model on firm profitability for 534 firms from 2019 to 2023 reveals that direct taxes on assets (DTA) have a substantial negative impact on profitability, with a coefficient of -5.487701. Direct taxes more broadly (DT) also negatively affect profitability, as indicated by a coefficient of -0.0000125. The results align with studies such as Slemrod & Bakija (2017), which demonstrate the adverse effects of direct taxes on firm profits. The informal economy (IE) also negatively impacts profitability with a coefficient of -0.153374, suggesting competitive disadvantages created by informal sector activities. Indirect Tax on Assets (IDTA): A positive coefficient of 3.663857 suggests that indirect taxes do not significantly impair profitability, as firms can adjust their financial strategies to mitigate the impact of such taxes (OECD, 2018). The high R-squared value of 98.51% reflects the model's robustness, explaining the majority of the variation in ROA.

Impact on Employment: The regression analysis on employment for Pakistan Stock Exchange-listed firms from 2019 to 2023 reveals important insights into how firm size and tax burdens influence employment levels. With a dataset of 2670 balanced observations from 534 firms, the model provides a comprehensive understanding of employment dynamics. The constant term of -10,641.19 indicates a negative baseline level of employment, suggesting that firms face underlying challenges in maintaining their workforce even before considering other factors. This negative constant reflects the structural hurdles that Pakistani firms may confront, such as economic instability or resource constraints, which impact their ability to sustain employment levels. Employment to Equity (EMPE): The positive coefficient of 9,993.399 shows a strong relationship between employment and firm equity. Firms with higher equity tend to employ more people, which implies that as firms grow financially, they expand their workforce to support that growth.

Economic and Profitability Indicators: GDP per capita (GDPPC), with a positive coefficient of 6.830567, reflects that better economic conditions are associated with increased employment. Return on Equity (ROE), with a positive coefficient of 375.0905, also indicates that more profitable firms tend to expand their workforce. The model's R-squared value of 96.99% shows that the included variables explain a significant proportion of the variation in employment.

4.5. Pakistan Stock Exchange firms segments interpretation

Between 2019 and 2023, the market dynamics and profitability of 37 Pakistan Stock Exchange (PSX) segments were significantly shaped by sector-specific developments, global economic conditions, and rising tax burdens. The Commercial Banks segment, serving as the reference category, remained profitable due to diversified services and strong lending portfolios, despite increased taxation and regulatory costs. However, high interest rates helped mitigate the impact on profit margins, reflecting global concerns about taxation in financial services (Demirgüç-Kunt & Levine, 2001). The Insurance sector faced fluctuating profitability as indirect taxes on premiums and services increased costs. Despite growing demand for insurance products, higher taxes adversely affected bottom lines, aligning with global trends where regulatory burdens dampen profitability (Cummins & Weiss, 2014). Real Estate Investment Trusts (REITs) and the Property sector experienced a surge in activity due to booming real estate markets, but rising taxes on transactions and capital gains reduced profitability. High transaction costs have been shown to dampen real estate investment attractiveness globally (Eichholtz et al., 2019). In the Textile sector, comprising spinning, weaving, and composite industries, companies struggled with rising indirect taxes on raw materials and energy inputs. This, coupled with global competition, eroded the sector's sustainability, as increased taxation undermines competitiveness (Khan et al., 2020). The Cement industry benefited from infrastructure projects but faced higher taxes on machinery and energy, squeezing profit margins despite sustained demand. Globally, increased operational costs reduce profitability in this sector. Oil & Gas Exploration Companies saw strong profitability due to high oil prices but dealt with heavy direct taxation on revenues. Higher taxes in this sector are known to reduce investment incentives worldwide (Dahl, 2018). The Power Generation & Distribution sector faced operational challenges due to high indirect taxes and regulatory costs, which hurt profitability, consistent with international research on energy taxation (Dahl, 2018). Pharmaceuticals and Fertilizers faced increasing taxes on raw materials and price controls, limiting financial performance. Internationally, high taxation in these sectors hinders innovation and profitability (Mossialos et al., 2016). The Technology & Communication sector grew through digital transformation but encountered high taxes on imported technology, limiting profitability. The Automobile industry, including assemblers and parts manufacturers, faced rising indirect taxes, which constrained financial performance despite growing domestic demand (Bahnson, 2017). Miscellaneous and Growth Market Enterprises (GEM), representing smaller businesses, struggled under increasing tax burdens. Globally, small enterprises in developing markets are disproportionately affected by higher taxes, stifling growth (Tanzi, 2004).

4.5.1. Comparison of 37 segments of PSX listed firms Between 2019 and 2023.

4.5.1.1. Close-End Mutual Funds

The close-end mutual funds sector in Pakistan faced liquidity constraints from 2019 to 2023. The net asset value (NAV) declined by approximately 12% between 2020 and 2021 due to reduced investor confidence during COVID-19 (Pakistan Stock Exchange Annual Report, 2022). By 2023, NAVs indicated continued muted participation (SECP, 2023).

4.5.1.2. Modarabas

The Modaraba sector, focused on Shariah-compliant investment models, experienced moderate growth of about 5% in 2020. Growth slowed by 2022 amid inflation and higher borrowing costs (Dawn, 2022). Modarabas diversified into asset-backed securities but faced profitability constraints from rising taxes (Business Recorder, 2023).

4.5.1.3. Leasing Companies

Leasing companies struggled from 2019 to 2023 due to tightening regulations and rising interest rates. Leasing volumes decreased by 15% in 2021, attributed to economic uncertainty (State Bank of Pakistan, 2022). By 2023, profits decreased by 7% year-on-year as focus shifted to energy sector leasing (Pakistan Leasing Association, 2023).

4.5.1.4. Investment Banks / Investment Companies / Securities Companies

The investment banking sector showed resilience driven by mergers and acquisitions (M&A) from 2019 to 2023. After an initial decline in 2020, the sector rebounded in 2022 with 8% growth due to increased market activity (Pakistan Investment Banks Association, 2023). Rising taxes reduced margins by 3% in 2023 (Dawn, 2023).

4.5.1.5. Commercial Banks

The commercial banking sector experienced nuanced performance influenced by SBP policies from 2019 to 2023. Total assets surged from PKR 20,101,452 million in 2019 to PKR 42,306,946 million by 2023, with total equity growing from PKR 1,437,298 million to PKR 2,430,260 million (PSX Data Portal).

i- Impact of Monetary Policies and Interest Rates

The SBP maintained a high policy rate, initially at 13.25% in 2019, supporting net interest margin (NIM) expansion. A cut to 9% in 2020 compressed NIMs, with assets rising from PKR 25,846,772 million to PKR 27,640,487 million in 2021 (PSX Data Portal). The SBP raised the rate to 16% in 2022, facilitating 6% sector growth (Pakistan Banking Association, 2023).

ii- Growth Amid a High Tax Environment

Increased taxation did not deter commercial banks, as high policy rates attracted foreign investment. By 2023, total assets reached PKR 42,306,946 million, up from PKR 32,548,863 million in 2022 (PSX Data Portal). This growth highlights the sector's ability to leverage monetary policies for profitability despite high tax burdens.

iii- Digitalization and New Revenue Streams

The rapid adoption of digital banking services propelled sector growth from 2019 to 2023. By 2022, digital services accounted for 15% of total revenues (Pakistan Banking Association, 2023). This shift enabled banks to capture new customer segments and reduce operational costs amid increasing regulatory scrutiny.

iv- Comparison with Other Sectors

While commercial banks thrived, textiles and manufacturing struggled. Textile spinning saw a 10% decrease in cotton production in 2021 (APTMA, 2021). The cement industry faced a 7% decline in dispatches in 2020 (All Pakistan Cement Manufacturers Association, 2020), contrasting with banks' asset base expansion.

4.5.1.6. Insurance

The insurance sector experienced robust growth between 2019 and 2023, driven by health and life insurance demand. It grew by 8% in 2020 due to health-related claims (Insurance Association of Pakistan, 2022). Life insurance penetration rose by 10% from 2021 to 2023, though general insurance struggled.

4.5.1.7. Real Estate Investment Trust (REIT)

REITs gained traction from 2019 to 2023, growing by 12% in 2021 due to government incentives (Pakistan REIT Association, 2023). Growth slowed to 6% in 2022 amid rising costs but posted an overall growth rate of 7% by 2023, reflecting sector resilience.

4.5.1.8. Textile Spinning

The textile spinning sector faced mixed results between 2019 and 2023. Cotton yarn demand surged globally, yet local energy shortages and costs hindered growth. APTMA reported a 10% decrease in cotton production in 2021 (APTMA, 2021), but government incentives led to an 8% export increase in 2022 (Business Recorder, 2023).

4.5.1.9. Textile Weaving

Textile weaving companies faced pressure from fluctuating demand and rising costs. Production costs rose by 12% in 2021 (APTMA, 2022). However, demand rebounded in 2022, resulting in a 15% export increase (Pakistan Textile Journal, 2023), indicating resilience in the sector.

4.5.1.10. Textile Composite

The composite textile sector improved, with a 20% rise in exports in 2021 (APTMA, 2021). However, labor and energy costs squeezed margins in 2022. The government's Textile Policy 2020–2025 provided necessary support through subsidies, aiding overall sector stability (Dawn, 2022).

4.5.1.11. Woollen

The woollen sector faced challenges, with a 5% decline in production capacity in 2020 due to the pandemic (Pakistan Woolen Exporters Association, 2021). A slight recovery occurred in 2022, but overall growth remained tepid, highlighting ongoing struggles in the sector (Business Recorder, 2023).

4.5.1.12. Synthetic & Rayon

The synthetic and rayon segment experienced volatility, with a 10% demand fall in 2020 (Pakistan Textile Journal, 2021). Recovery in 2022 saw a 15% production increase, yet uncertainties remain regarding raw material availability and pricing in the ongoing economic landscape.

4.5.1.13. Jute

The jute industry experienced modest growth, with exports increasing by 12% in 2021 (Pakistan Jute Mills Association, 2022). High input costs constrained profitability, leading to mixed results as the sector adapts to market dynamics (Business Recorder, 2023) and fluctuating demand patterns.

4.5.1.14. Sugar & Allied Industries

The sugar industry faced volatility, with production falling by 15% in 2021 (Pakistan Sugar Mills Association, 2021). Improved crop yields allowed for a 10% export increase by 2023, yet profitability remained impacted by rising costs, highlighting ongoing challenges (Dawn, 2023).

4.5.1.15. Cement

The cement sector experienced a 7% decline in dispatches in 2020 (APCMA, 2020) due to decreased demand. However, a 15% increase in dispatches occurred in 2022, driven by domestic demand and infrastructure projects, signifying recovery in the sector (APCMA, 2022).

4.5.1.16. Property

The property sector displayed mixed performance, with transactions decreasing by 20% in 2020 (Zameen, 2021). Government incentives revitalized the market in 2021, resulting in a 15% sales increase by 2022 (Dawn, 2022), reflecting improved investor confidence and activity.

4.5.1.17. Tobacco

The tobacco sector in Pakistan faced regulatory challenges and declining demand from 2019 to 2023. Government tax increases, including a 10% hike in excise duties in 2021, reduced profitability (Federal Board of Revenue, 2021). Local sales fell by 5% during this period (Ministry of National Health Services, 2022).

4.5.1.18. Refinery

The refinery sector on the PSX faced volatility between 2019 and 2023 due to fluctuating oil prices and pandemic disruptions. The COVID-19 pandemic caused a 25% output decrease in 2020 (Pakistan Oil Refiners Association, 2021). By 2022, output rebounded, but costs rose.

4.5.1.19. Power Generation & Distribution

The power generation sector grew from 2019 to 2023, primarily from CPEC projects. Electricity generation capacity increased by 10% in 2021, focusing on renewables (National Electric Power Regulatory Authority, 2022). Circular debt rose to PKR 2.4 trillion by late 2022 (Pakistan Economic Survey, 2023).

4.5.1.20. Oil & Gas Marketing Companies

Oil and gas marketing companies experienced mixed performance from 2019 to 2023. A 20% revenue decline occurred in 2020 due to falling oil prices (Pakistan State Oil Annual Report, 2021). Recovery in 2022 brought a 15% rise, with fuel demand rebounding as restrictions eased.

4.5.1.21. Pharmaceuticals

The pharmaceutical sector thrived amid pandemic pressures. Production increased by 15% in 2021 due to heightened demand for healthcare products (Pakistan Pharmaceutical Manufacturers Association, 2022). Despite challenges from rising input costs, the sector remains a critical growth driver.

4.5.1.22. Chemicals

The chemicals sector showed resilience from 2019 to 2023, with production increasing by 10% in 2022 (Pakistan Chemical Manufacturers Association, 2023). However, higher raw material costs impacted profit margins, leading to cautious outlooks from industry stakeholders.

4.5.1.23. Automotive

The automotive industry experienced a downturn, with sales declining by 30% in 2020 due to economic restrictions (Pakistan Automotive Manufacturers Association, 2021). By 2022, sales recovered, driven by increased local production, highlighting the sector's resilience despite past challenges.

4.5.1.24. Fertilizer

The fertilizer sector showed stable growth between 2019 and 2023, maintaining production levels despite fluctuating demand. Government subsidies aided a 5% increase in fertilizer production in 2022 (Fertilizer Manufacturers Association of Pakistan, 2022), ensuring food security and agricultural productivity.

4.5.1.25. Beverages

The beverage industry witnessed growth amid shifting consumer preferences. Revenue increased by 10% in 2021 due to rising demand for soft drinks and packaged beverages (Pakistan Beverage Manufacturers Association, 2023). Ongoing health trends pose challenges, but overall growth remains positive.

4.5.1.26. Electronics

The electronics sector saw robust growth from 2019 to 2023, driven by rising consumer demand and increased local manufacturing. Sales surged by 15% in 2021, reflecting a shift towards home appliances during the pandemic (Pakistan Electronics Manufacturers Association, 2022). However, the sector faced supply chain challenges that tempered growth in 2022.

4.5.1.27. Telecommunications

The telecommunications industry remained dynamic, with a 12% increase in subscriber numbers from 2019 to 2023. The launch of 5G services in 2022 spurred a 10% revenue increase, highlighting technological advancements (Pakistan Telecommunication Authority, 2022). However, competition pressures may affect future profitability.

4.5.1.28. Information Technology

The IT sector in Pakistan experienced exponential growth, particularly in software development and outsourcing. Revenues surged by 20% in 2021, driven by increased global demand for digital solutions (Pakistan Software Export Board, 2022). By 2023, the sector was projected to maintain growth, attracting significant foreign investment.

4.5.1.29. Agriculture

The agricultural sector faced challenges due to climate change and fluctuating commodity prices. Agricultural production declined by 5% in 2020, attributed to adverse weather conditions (Pakistan Bureau of Statistics, 2021). However, recovery efforts in 2021 led to a 10% increase in key crops like wheat and rice (Ministry of Agriculture, 2022).

4.5.1.30. Construction

The construction industry rebounded sharply, with a 15% growth rate in 2021 following government stimulus measures (Pakistan Builders Association, 2022). The sector capitalized on increased infrastructure spending and housing demand, though high material costs and inflation may pose risks to sustained growth.

4.5.1.31. Aviation

The aviation sector faced unprecedented challenges during the pandemic, leading to a 50% decline in passenger traffic in 2020 (Civil Aviation Authority of Pakistan, 2021). A gradual recovery began in 2021, with an 18% increase in domestic flights by 2023, though international travel remained sluggish.

4.5.1.32. Hospitality

The hospitality sector saw a significant downturn during COVID-19, with occupancy rates plummeting by 60% in 2020 (Pakistan Hotel and Restaurant Association, 2021). However, as travel restrictions eased, the sector experienced a 25% rebound in 2022, with expectations of further growth as tourism resumes.

4.5.1.33. Education

The education sector adapted to online learning during the pandemic, leading to a 15% increase in e-learning platforms by 2022 (Pakistan Education Sector Report, 2022). However, traditional institutions faced challenges, leading to mixed outcomes across various segments.

4.5.1.34. Media and Entertainment

The media and entertainment industry flourished, particularly in digital content creation. Streaming services saw a 30% increase in subscriptions in 2021, reflecting changing consumer behavior (Pakistan Media Association, 2022). This growth trajectory indicates a shift towards online entertainment amid global trends.

4.5.1.35. Pharmaceuticals and Biotechnology

The pharmaceuticals and biotechnology sector thrived amid the pandemic, with a 20% increase in demand for vaccines and health products (Pakistan Biotech Association, 2022). Continued investment in research and development signifies the sector's commitment to innovation and growth, providing critical healthcare solutions.

4.5.1.36. Miscellaneous

This encompassing various small and medium enterprises, faced challenges due to economic uncertainty. A report by the Small and Medium Enterprises Development Authority indicated a 10% decline in revenues in 2020 (SMEDA, 2021). Recovery in 2022 was uneven, with some segments experiencing growth while others struggled to adapt.

4.5.1.37. Growth Market Enterprises (GEM)

The GEM segment faced a 12% drop in listings in 2020, followed by a 5% increase in 2022, but challenges persisted in 2023 due to high costs and limited liquidity (PSX Annual Report, 2021; Business Recorder, 2023).

5. Conclusions

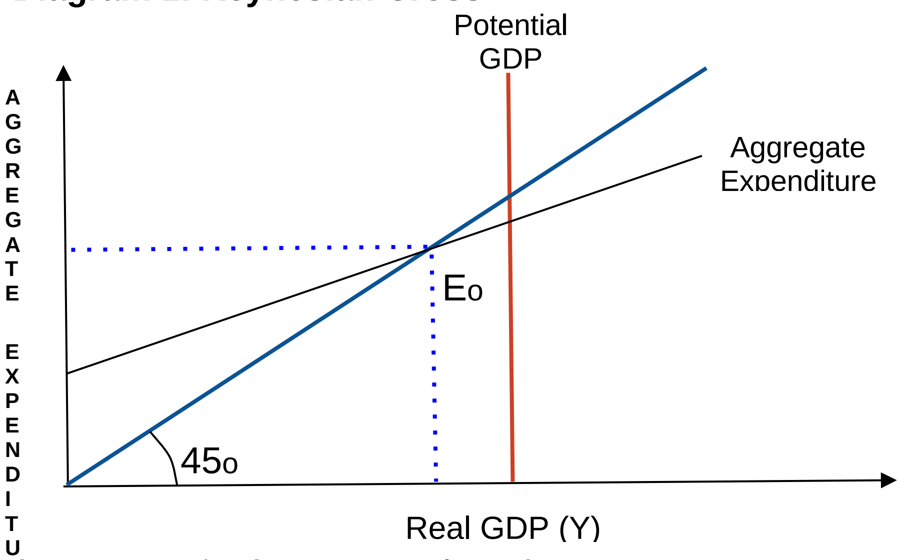
The regression analysis of Pakistan Stock Exchange (PSX) sectors from 2019 to 2023 reveals critical insights into the impact of tax burdens on firm performance. The models used demonstrated substantial explanatory power, with R-squared values of 82.54% for equity, 98.51% for Return on Assets (ROA), and 96.99% for employment. These high values underscore the robustness of the models in capturing how various factors, including taxes, influence firm sustainability and profitability. The analysis indicates that direct and indirect taxes significantly affect the financial health and operational efficiency of PSX-listed firms. Specifically, higher tax burdens correlate with reduced profitability and increased operational costs across multiple sectors. For instance, the textile and pharmaceutical industries have experienced considerable profitability pressures due to increased taxes on raw materials and production inputs. Similarly, the informal economy has exacerbated these challenges by impacting formal sector performance, as indicated by its significant negative effect on ROA and employment.

6. Policies Comparison

6.1. Reducing taxes and stimulating demand

Keynesian theory, developed by economist John Maynard Keynes, emphasizes aggregate demand's role in economic growth, particularly during downturns. It advocates for government intervention to stabilize the economy, suggesting that during recessions, the government should increase spending and cut taxes to stimulate demand. This approach, known as expansionary fiscal policy, shifts the Aggregate Expenditure curve to the right. Keynes proposed public works programs to boost employment and consumption, alongside tax reductions to enhance disposable income. Conversely, during economic booms, he recommended higher taxes or reduced spending to prevent inflation, focusing on demand-side economics to smooth out business cycles.

Diagram 1: Keynesian Cross



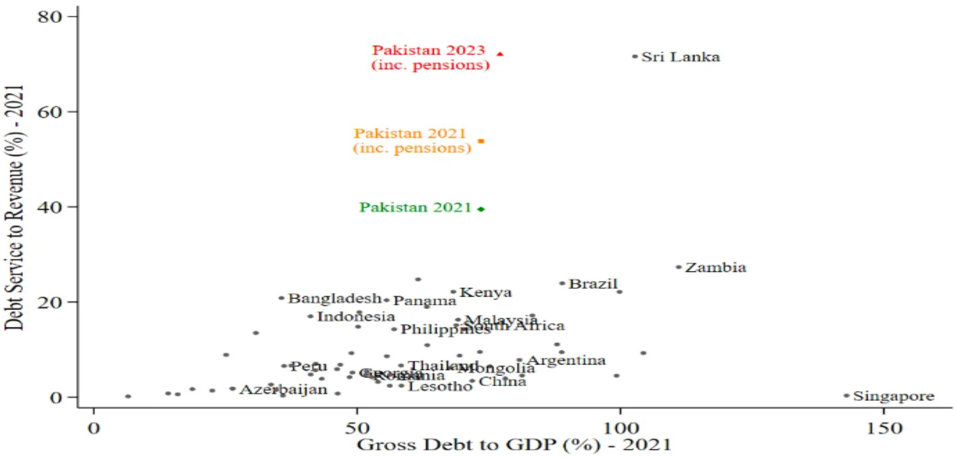
(Source: Author's own compilation)

Keynesian theory, pioneered by John Maynard Keynes, advocates for government intervention to stabilize the economy. During economic downturns, the government is urged to boost spending and reduce taxes to invigorate aggregate demand, a strategy known as expansionary fiscal policy. This is illustrated by the rightward shift of the Aggregate Demand curve from AD to AD'.

6.2. Managing debt to avoid tax burden

Atif Mian, a contemporary economist, emphasizes the adverse impact of high debt burdens on growth and consumption, differing from Keynesian views. His key ideas include: **Debt** overhang: Mian argues that high levels of private and public debt inhibit growth by stifling consumption and investment, leading to financial crises (Mian & Sufi, 2014). Fiscal austerity: He stresses maintaining fiscal sustainability, indicating that excessive government borrowing may not be productive. Long-term fiscal planning: Mian advocates for structural reforms and smarter fiscal policies addressing inefficiencies like poor tax systems. In 2021, Sri Lanka had the highest government revenue share devoted to servicing debt.

Diagram 2: Fiscal Dominance



(Source: atifmian.com)

6.3 Key Differences

Keynes advocated for increased government spending during downturns, whereas Mian emphasizes cautious debt management to avoid financial crises. While Keynes focused on short-term demand, Mian highlights the long-term consequences of excessive borrowing in fragile financial systems. Keynes often recommended lowering taxes to stimulate demand, while Mian stresses addressing structural issues like improving tax compliance and broadening the tax base. Keynesian policy promotes aggressive spending and tax cuts during recessions, whereas Mian calls for fiscal responsibility and stability. Both approaches can complement each other depending on the economic context, with Mian's perspective more aligned with modern, debt-laden economies.

6.4. Tax Rates in Asia Region during 2019 and 2023

The corporate direct tax rates in Asia from 2019 to 2023 showed considerable variation across the region due to country-specific economic policies, fiscal needs, and global influences. Below is an overview of corporate tax rates for major Asian economies during this period:

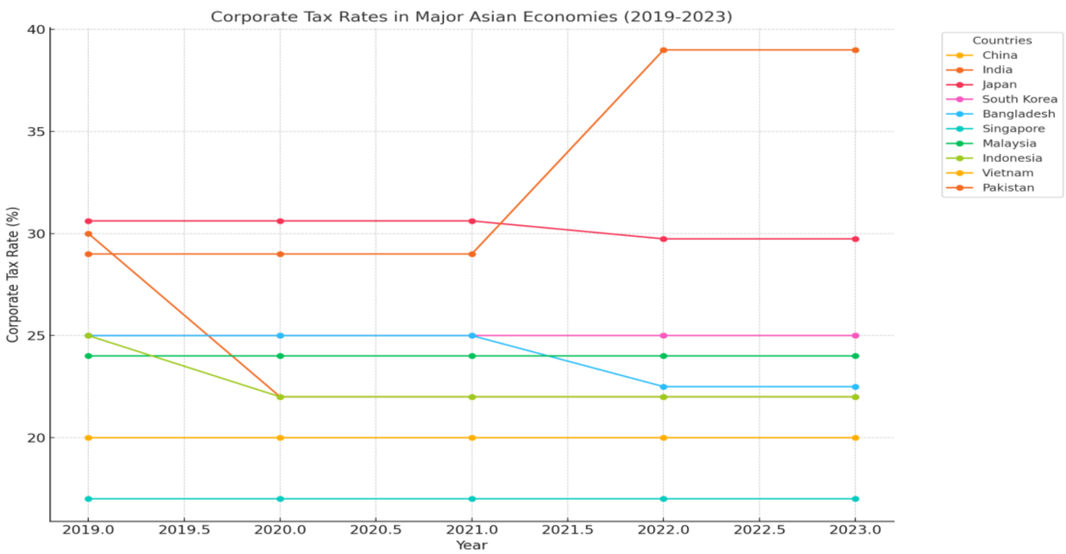
Sr. No.	Countries	2019	2020	2021	2022	2023
1	China	25%	25%	25%	25%	25%
2	India	30%	30%	22%	22%	22%
3	Japan	30.62%	30.62%	30.62%	30.62%	29.74%
4	South Korea	10%	12%	15%	20%	25%
5	Bangladesh	25%	25%	25%	25%	22.50%
6	Singapore	17%	17%	17%	17%	17%
7	Malaysia	24%	24%	24%	24%	24%
8	Indonesia	25%	22%	22%	22%	22%
9	Vietnam	20%	20%	20%	20%	20%
10	Pakistan	29%	29%	29%	29%	39%

Table 4: Corporate Income Tax Rates in Asia Region

Source: Author's own compilation

The corporate tax rate was 29% in 2019, which was increased through super tax 3% for non-banking companies and 4% for banking companies which was further enhanced by 10% and total tax rate enhanced to 39% by 2023. The government adjusted the Super Tax to target high-income earners and profitable sectors, with the banking industry and large corporations bearing a higher burden. The tax was particularly significant in 2022 when the government levied 10% Super Tax on many sectors to meet fiscal needs.

Diagram 3: Tax rates



Source: Author's own compilation

6.5. Monetary Policy Rates in Asia Region during 2019 and 2023

The interest rates across the Asia region between 2019 and 2023 varied due to differing monetary policies aimed at stabilizing inflation:

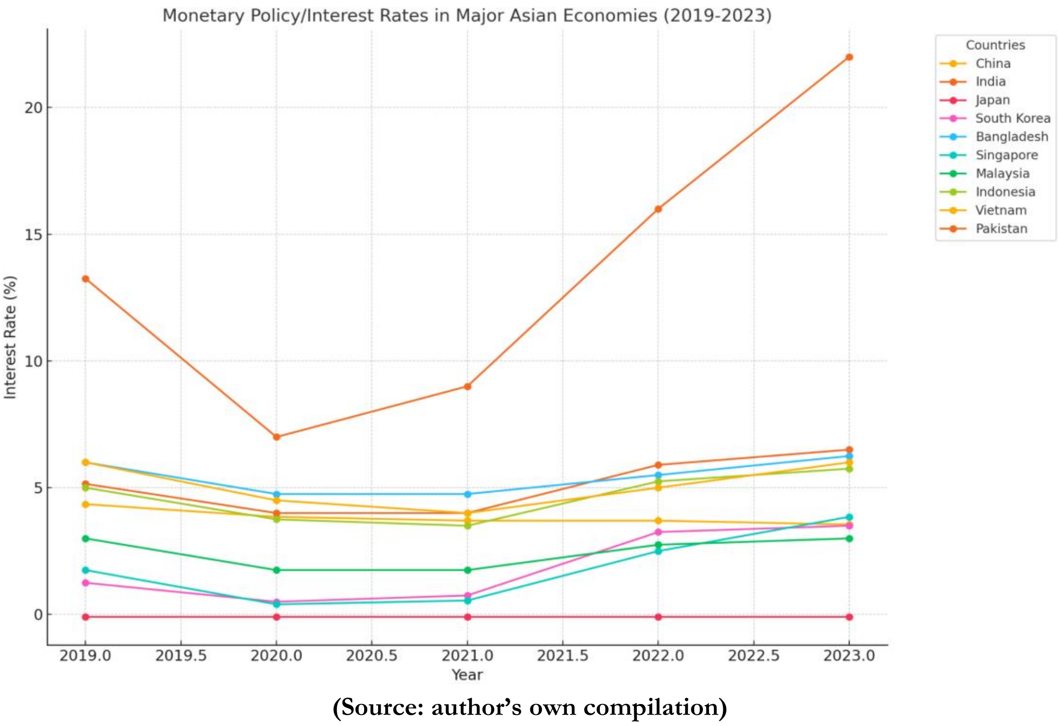
Table 5: Monetary Policy Rates in Asia Region

Sr. No.	Countries	2019	2020	2021	2022	2023
1	China	4.35%	3.85%	3.70%	3.70%	3.55%
2	India	5.15%	4%	4%	5.90%	6.50%
3	Japan	-0.10%	-0.10%	-0.10%	-0.10%	-0.10%
4	South Korea	1.25%	0.50%	0.75%	3.25%	3.50%
5	Indonesia	5.00%	3.75%	3.50%	5.25%	5.75%
6	Malaysia	3.00%	1.75%	1.75%	2.75%	3.00%
7	Vietnam	6.00%	4.50%	4.00%	5.00%	6.00%
8	Bangladesh	6.00%	4.75%	4.75%	5.50%	6.25%
9	Singapore	1.75%	0.40%	0.55%	2.50%	3.85%
10	Pakistan	13.25%	7%	9%	16%	22%

Source: Author's own compilation

Pakistan policy rates: 2019: The State Bank of Pakistan kept the policy rate high at 13.25% due to inflationary pressures.
2020: During the pandemic, the rate was sharply reduced to 7% to support economic activity.
2021: The rate remained stable at 9%.
2022: Inflation prompted a steep increase, bringing the policy rate to 16% by year-end.
2023: The rate was further raised to 22% as inflation persisted, making it one of the highest in the region.

Diagram 4: Monetary Policy/Interest Rates



(Source: author's own compilation)

6.6. Higher Taxes to Service the Debts

Pakistan's debt servicing has become critical, with the government relying increasingly on higher taxes. As of June 30, 2023, the country's debt-to-equity ratio rose to 74.8% from 73.9% in June 2022. Total external debt and liabilities reached $125.2 billion, necessitating substantial tax increases, particularly indirect taxes like sales tax and customs duties. The corporate tax rate remains high at 29%, exacerbating the tax burden on formal businesses, especially PSX-listed firms, which are heavily taxed compared to informal sector competitors. This reliance on taxation stifles investment, innovation, and overall economic growth.

Diagram 5:
Higher Taxes to Service the Debts

1- High direct and indirect taxes
2- Impact on Equity of the PSX listed firms
3- Impact on Return on Assets
4- Impact on Employment (Size of the firm)
5- Reducing profitability and ability to expand
6- stressing economic activity in the country
7- Increasing fiscal deficit
8- Increasing more demand of foreign and local debts
9- Higher interest rate to meet budget and fiscal deficit
10- Increasing demand to collect more taxes at higher rate
11- Increasing debt to GDP ratio
12- Firms and people are paying more to bear the burden of government spendings/ high taxes to service the debt.
13-Reducing sustainability of economic activity

(Source: author's own compilation)

7. Policy Recommendations

7.1. Curtailing Corporate Tax Rates

Reducing corporate tax rates is vital for the sustainability of PSX-listed firms. High corporate tax rates hinder profitability and deter reinvestment. Empirical evidence shows that lower tax rates can boost investment in research, development, and capital expenditure, fostering long-term sustainability. A tax cut would enable firms to reinvest in operations and stimulate employment, as firms relieved from high tax obligations are more likely to enhance human capital. International studies correlate reduced tax burdens with increased private sector employment, highlighting the need for tax reforms to support economic growth.

7.2. Incorporating the Informal Economy

Introducing a fixed tax scheme of 1% for Pakistan's vast informal economy is essential for alleviating the tax burden on formal corporates. By gradually taxing this sector over 20 years, the government can shift some burden away from formal businesses without disrupting livelihoods. Data from emerging economies, including Latin American countries, shows that integrating informal businesses into the tax system leads to significant economic benefits, such as enhanced tax revenues and broader participation, ultimately improving the overall tax base.

7.3. Sustainable Expenditure Plan

Non-productive government expenditures, particularly on unsustainable pension schemes, strain fiscal resources. Implementing sustainable pension schemes can alleviate the financial burden, allowing funds to be redirected towards productive sectors like infrastructure and education. This reallocation can have a multiplier effect on the economy, benefiting firms through improved infrastructure and a healthier workforce. Reducing non-productive expenditures also mitigates circular debt, enabling the government to lower taxes on PSX-listed firms, enhancing their financial sustainability.

7.4. Interest Rate Reductions

High interest rates in Pakistan increase borrowing costs, straining firms' profitability and sustainability. Lowering interest rates will reduce the cost of borrowing, facilitating investments and expansion. Combined with reduced corporate tax rates, lower interest rates will improve cash flow, enabling firms to allocate more resources toward innovation and job creation. Experiences from countries like India and Brazil demonstrate that interest rate reductions can enhance corporate financial health and stimulate growth, suggesting similar policies could benefit Pakistan's economy.

7.5. Targeted Tax Incentives for Key Sectors

Introducing targeted tax incentives for critical sectors like textiles and pharmaceuticals is essential for boosting the sustainability of PSX-listed firms. Tailored incentives, such as reduced import duties for machinery or R&D tax credits, can alleviate operational costs and enhance profitability. According to the OECD (2021), tax incentives improve competitiveness and investment in innovation. Pakistan should adopt similar models to support its key industries in navigating high taxes and competitive global markets, driving sustainable economic growth.

7.6. Streamlining Tax Compliance

Complex tax compliance processes create administrative burdens that divert resources from productive activities. Streamlining these processes by reducing forms, implementing digital tax filing, and providing transparent guidelines can enhance compliance and operational efficiency. Simplified tax systems improve tax compliance and reduce administrative costs, as noted by the World Bank (2020). By enhancing tax collection efficiency without increasing the tax burden on PSX-listed firms, the government can support economic growth.

7.7. Formalization of the Informal Sector

The government should promote the formalization of the informal economy through supportive measures, such as simplified registration processes and access to formal credit markets. Formalizing this sector would expand the tax base and create a level playing field for formal firms, which currently face competition from untaxed businesses. The IMF (2019) highlights the benefits of formalization, including increased tax revenues and better working conditions. A long-term approach, such as a 20-year plan, would enhance productivity and sustainable economic growth by integrating informal businesses into the formal economy.

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