

# Impact of Taxation on the Economic Growth of the United State of America (An empirical review of the various type of federal taxes on the gross domestic product) between 2004 - 2023

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**ABSTRACT:** This study presents an empirical analysis of the impact of taxation on the economic growth of the United States of America between the period of 2004 to 2023. To identify the impact of taxation on the economic growth and their relationship, the author used a multiple regression model where the gross domestic product (a proxy for economic growth) as the dependent variable, while tax revenue from business income, individual income, employment income estate income, gift income and excise income are the independent variables. The result of the regression analysis has shown that individual income tax, employment tax and estate tax has continued to significantly impact the economic growth of the United States; while business income tax, gift tax and excise tax have continued to show an insignificant impact on the economic growth of the United States over the observed period (i.e. 2004 – 2023).

**KEYWORD:** Taxation, Economic Growth, Gross Domestic Product, United States of America,

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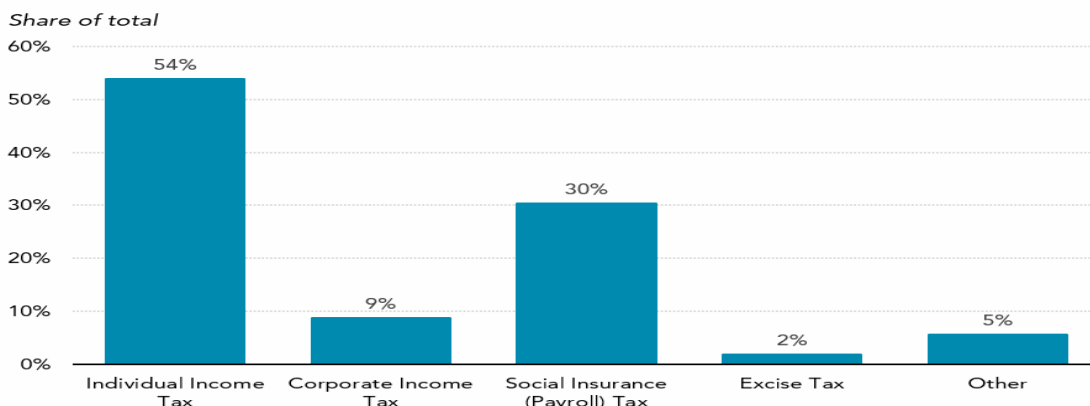
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## I. Introduction

One of the most significant and contentious issues in economic policy and public finance is taxation. Taxation has an impact on how resources are distributed, how income is distributed, how well markets function, how agents behave, and how well the economy performs. Additionally, taxes give the government the money it needs to fund public goods and services like social security, infrastructure, education, healthcare, and national defense. Thus, determining the ideal taxes level and structure is a major task for both researchers and legislators.

With a nominal GDP of \$27.36 trillion in 2023, the United States of America (USA) has the largest economy in the world, making up 26.1% of the global GDP (IMF 2024). With \$4.7 trillion in total tax income in 2023, or 16.8% of GDP, the United States of America is among the nations with the highest tax burdens in the world. The United States tax system has multiple tax categories that are imposed at the federal, state, and municipal levels. The Office of Management and Budget (2023) states that the following were the main sources of federal tax revenue in 2022: the corporate income tax (9%), the excise tax (2%), the individual income tax (54%), social insurance (payroll) tax (30%) and other taxes (5%).

**FIGURE 1**  
Sources of Federal Revenue  
Fiscal year 2022



Source: Office of Management and Budget. Historical Tables. Table 2.1, "Receipts by Source: 1934–2028," March 2023.



The study's primary goal is to examine how taxes affect the US economy's growth by utilizing GDP data from 2004 to 2023 together with data on six different tax kinds. Business income tax, individual income tax, employment tax, estate tax, excise tax, and gift tax are the six different categories of taxes. These taxes encompass a variety of economic activities, including production, consumption, income, wealth, and transfers. They are the most important and pertinent parts of the federal tax system. The following research questions will be addressed by this study:

- How does the GDP of the United States of America relate to each type of tax?
- What is the extent and importance of each tax type's influence on the US GDP?

The study makes multiple contributions to the body of knowledge already available on taxes and economic growth. First, it uses a sizable and reliable dataset from 2004 to 2023 to present an extensive and current empirical examination of the impact of six different tax types on the GDP of the United States. Second, it uses a multiple regression model to assess the GDP impact of each tax while holding constant other variables like population, trade balance, inflation, and government spending that could have an impact on economic growth. Thirdly, it provides policy implications and suggestions for strengthening the tax code and boosting US economic expansion.

## **II. Literature Review**

Taxation is seen as a burden which every citizen must bear to sustain his or her government because the government has certain functions to perform for the benefits of those it governs. A precise definition of taxation by Farayola (1987) is that taxation is one of the sources of income for government, such income as used to finance or run public utilities and perform other social responsibilities. Ochiogu (1994) defines tax as a levy imposed by the government against the income, profit or wealth of the individuals and corporate organizations. Adams (2001) identified taxation as the most important source of revenue for modern governments, typically accounting for a significant portion of their income. According to Aguolu (2004), taxation was seen as a compulsory levy by the government through its agencies on the income, consumption and capital of its subjects.

The sustainability of social and economic growth is influenced by taxes. The government must consider the trade-offs associated with luring foreign direct investment (FDI) in terms of offering incentives and the impact of these on the nation's sustainable development to achieve sustainable development in the social and economic sectors of the nation. Taxes are a type of fiscal tool used to promote or prohibit certain production or consumption practices that have an impact on the sustainability of the economy, the environment, or society.

According to Dwivedi (2004), economic growth is a sustained increase in per capita national output or net national product over a long period of time. It implies that the rate on increase in total output must be greater than the rate of population growth. Economic growth can be determined by four important determinants namely, human resources, national resources, capital formation and technological development. Economic growth is conventionally measured as the percent rate of increase in real gross domestic product, or real GDP. Growth is usually calculated in real terms – i.e., inflation-adjusted terms – to eliminate the distorting effect of inflation on price of goods produced. Measurement of economic growth uses national income accounting. Since economic growth is measured as the annual percentage change in gross domestic product (GDP), it has all the advantages and disadvantages of that measure.

In the world of academia, there are a voluminous literature on taxes and their growth features, as well as on widely varying methodologies and results. Keynes (1936) believed that governments could counteract the problem of instability in the economy caused by cycles of high unemployment, severe fluctuations in prices (inflation or deflation) and uneven economic growth using taxation as an instrument of fiscal policy to promote full employment, price level stability, and a steady rate of economic growth. In the Keynesian scheme, tax systems are a primary tool of fiscal policy used, rather than trying to design a neutral tax system, governments deliberately use taxes to move the economy in the desired direction. McBride (2012) shares the results of Congressional Research Service, which has found support for the theory that taxes have no effect on economic growth by relying on the U.S. experience since World War II, where they found that a rapid economic growth occurred in the 1950s when the top rate was more than 90%. Table 1 below reflects empirical studies which examined the effects of tax forms on economic growth:

**Table 1. Empirical reviews about the effects of taxes on economic growth**

Reference	Method/Data	Effects	Summary and Findings
Ergete & Bev. (2012).	Canadian provinces (1977-2006)	Negative	Reducing corporate income tax 1percentage point raises annual growth by 0.1 to 0.2 points.
Karel & Morten. (2011)	U.S. post-WWII exogenous changes in personal and corporate income taxes	Negative	A 1 percentage point cut in the average personal income tax rate raises real GDP per capita by 1.4 percent in the first quarter and by up to 1.8 percent after three quarters. A 1 percentage point cut in the average corporate income tax rate raises real GDP per capita by 0.4 percent in the first quarter and by 0.6 percent after one year.
Norman & Richard & Ismael. (2011)	17 OECD countries (Early 1970s to 2004)	Negative	Taxes on income and profit are most damaging to economic growth over the long run, followed by deficits, and then consumption taxes.
Christopher, Et al. (2009).	21 OECD countries (1971 to 2004)	Negative	Corporate taxes are most harmful, followed by taxes on personal income, consumption, and property. Progressivity of PIT harms growth. A 1 percent shift of tax revenues from income taxes (both personal and corporate) to consumption and property taxes would increase GDP per capita by between 0.25 percent and 1 percent in the long run. Corporate taxes, both in terms of the statutory rate and depreciation allowances, reduce investment and productivity growth. Raising the top marginal rate on personal income reduces productivity growth.
Barro & Redlick. (2011).	U.S (1912 to 2006)	Negative	Cut in the average marginal tax rate of one percentage point raises next year's per capita GDP by around 0.5%.
Christina & David. (2010).	U.S. post-WWII (104 tax changes, 65 exogenous)	Negative	Tax (federal revenue) increase of 1% of GDP leads to a fall in output of 3% after about 2 years, mostly through negative effects on investment.
Alberto & Silvia. (2009).	OECD countries (fiscal stimuli and fiscal adjustments, 1970 to 2007)	Negative	Fiscal stimuli based upon tax cuts are more likely to increase growth than those based upon spending increases. Fiscal consolidations based upon spending cuts and no tax increases are more likely to succeed at reducing deficits and debt and less likely to create recessions
International Monetary Fund, (2010).	15 advanced countries (170 fiscal consolidations over the last 30 years)	Negative	1% tax increase reduces GDP by 1.3% after two years.
Reed. (2008).	U.S. states (1970-1999, 5year panels)	Negative	Robust negative effect of state and local tax burden. Multi-year panels mitigate mis-specified lag effects, serial correlation, and measurement error.
Bania. Et al. (2007).	U.S. states	Negative	Taxes directed towards public investments first add then subtract from GDP.
Young & Roger. (2005).	70 countries (1980 - 1997, cross-sectional and 5-year panels)	Negative	Reducing corporate income tax 1 percentage point raises annual growth by 0.1 to 0.2 points.
Randall & Donald. (2004).	Counties separated by state borders (1960 to 1990)	Negative	States that raised income taxes averaged a 3.4% reduction in per capita income.
Marc. (2004).	U.S. states (1972 to 1998, multi-year panels)	Negative	Higher tax rates negatively affect short run growth, but not long run growth.
Blanchard & Perotti. (2002).	U.S. Post-WWII (VAR/event study)	Negative	Positive tax shocks, or unexpected increases in total revenue, negatively affect private investment and GDP.
Fabio. (2001).	23 OECD countries (1951 to 1990)	Negative	Effective marginal income tax rates negatively correlated with GDP growth.
Folster & Henrekson. (2001).	Rich countries (1970 to 1995)	Negative	Tax revenue as a share of GDP negatively correlated with GDP growth.
Norman & Richard & Michael. (2001).	OECD countries (1970 to 1995)	Negative	Distortionary taxes reduce GDP growth. Consumption taxes are not distortionary.
Kneller, Bleaney & Gemmell. (1999).	OECD countries (1970 to 1995)	Negative	Distortionary taxes reduce GDP growth.
Howard. (1997).	U.S. states (1977 to 1993)	Negative	Progressivity of income taxes negatively affects GDP growth.
Enrique & Gian Maria & Patrick. (1997).	18 OECD countries (1965-1991, 5-year panels)	None	Estimated effective tax rates on labor and capital harm investment, but effect on growth is insignificant. Effective consumption taxes increase

			investment, but not growth. Overall tax burden levels have no effect on investment or growth.
Miller & Russek. (1997).	Developed and developing countries	Negative	Tax-financed spending reduces growth in developed countries, increases growth in developing countries.
Mullen & Williams. (1994).	U.S. states (1969 to 1986)	Negative	Higher marginal tax rates reduce GDP growth.
William & Sergio. (1993).	Developed and developing countries	None	Effects of taxation are difficult to isolate empirically.
Koester & Kormendi. (1989).	63 countries	Negative	Controlling for average tax rates, increases in marginal tax rates reduce economic activity. Progressivity reduces growth.
Helms. (1985).	U.S. states (1965 to 1979)	Negative	Revenue used to fund transfer payments retards growth.
Katz, Mahler & Franz. (1983).	22 developed countries	None	Taxes reduce saving but not growth or investment.

**Source: Adopted from McBride. (2012)**

According to McBride (2012), The idea that taxes affect economic growth has become politically contentious and the subject of much debate in the press and among advocacy groups. That is in part because there are competing theories about what drives economic growth. Some subscribe to Keynesian, demand-side factors, others Neo-classical, supply-side factors, while yet others subscribe to some mixture of the two or something entirely unique.

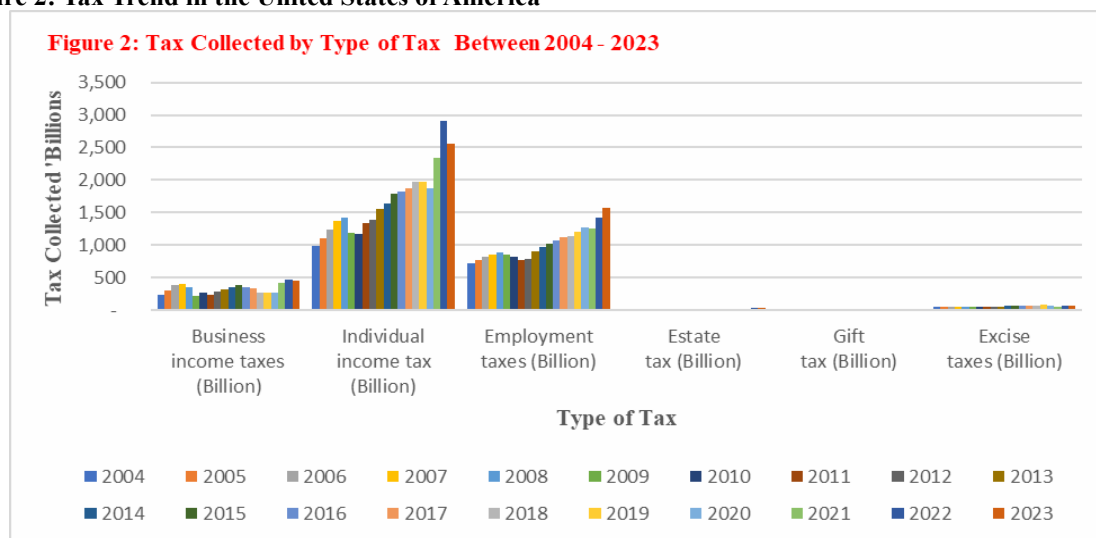
The literature review shows that there is no conclusion on the impact of taxation on the economic growth of the USA in the recent years. The different studies use different methods, data, and assumptions, and obtain different results and conclusions. Moreover, most of the studies focus on the impact of income taxes, especially the marginal tax rates, and neglect the impact of other types of taxes, such as estate tax, excise tax and gift tax, which may also have significant effects on the economic growth. Therefore, there is a need for a more comprehensive and updated empirical analysis of the impact of taxation on the economic growth of the USA, using data for various types of taxes and the GDP from 2004 to 2023, which is the aim of this study.

### III. Methodology

#### An Analysis of Tax Revenue from 2004 - 2023 as it impacts the economic growth of the United States of America

The internal revenue service (IRS) and the federal reserve bank of the United States of America serves the source of the data used for the purpose of this study. Tax revenue from business income, individual income, employment income estate income, gift income and excise income, and GDP—a proxy for economic growth—are the variables considered. Using the data analysis tool in Microsoft excel, the multiple regression model was used to examine the substantial impact of the different type of tax revenue on economic growth of the United States of America from 2004 to 2023.

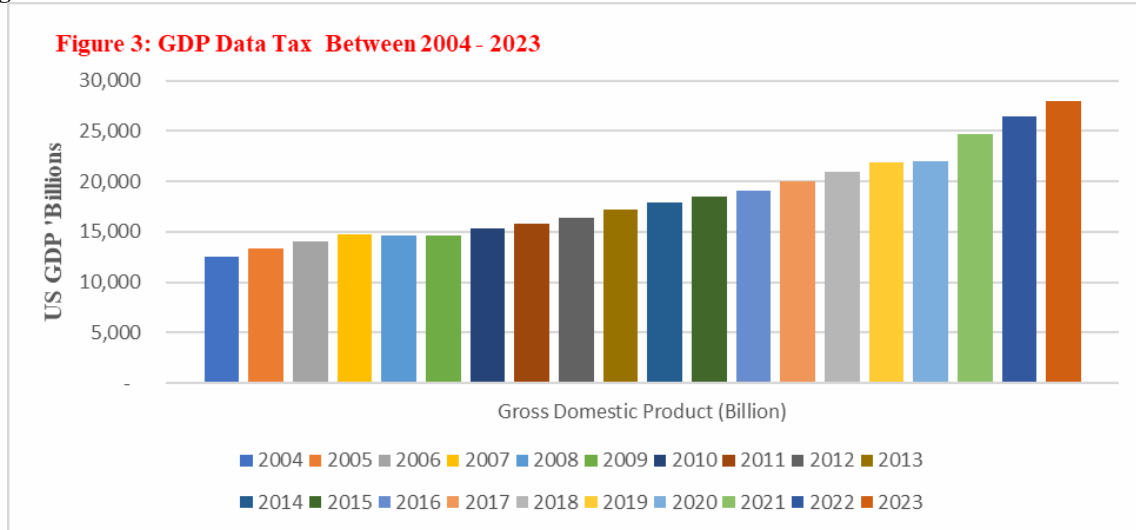
**Figure 2: Tax Trend in the United States of America**



**Source: Author's Analysis of Tax Data obtained from IRS website**

Figure 2 above shows that tax revenue depicted an upward trend over the last 20years (2004 – 2023); with individual income, employment tax being the major driver of tax revenue to the U.S government. Even though the United States of America has many corporations (large, medium-sized and small), the business income tax has not significantly driven the tax revenue earned by the U.S government.

**Figure 3: GDP Trend in the United States of America**



*Source: Author's Analysis of Tax Data obtained from Federal Reserve Bank*

Figure 3 above evidenced that GDP which is the variable that represents economic growth for this research paper continues to trend upwards; same as the tax revenue trend for each type of tax as depicted in figure 2.

**Model Definition**

To analyze the impact of the various type of tax revenue on the economy growth of the United States of America, the following model was employed:

$$Y = f(X_1, X_2, X_3, \dots, X_n)$$

Where, Y represent dependent variable and X1, X2 and X3 are explanatory variables

In econometric term

$$GDP = \beta_0 + \beta_1BIT + \beta_2IIT + \beta_3EIT + \beta_4EST + \beta_5GT + \beta_6EXT + \mu$$

GDP = Gross Domestic Product (2004 – 2023)

BIT = Business Income Tax (2004 – 2023)

IIT= Individual Income Tax (2004 – 2023)

EIT= Employment Income Tax (2004 – 2023)

EST= Estate Income Tax (2004 – 2023)

GT= Gift Income Tax (2004 – 2023)

EXT= Excise Income Tax (2004 – 2023)

$\beta_0$  = Intercept

$\beta_1 - \beta_6$  = Coefficient of explanatory variables

$\mu$  = Error term

**Aprior expectation**

$$\beta_1 - \beta_6 > 0$$

The research expectations of the explanatory variables (Tax revenue from business income, individual income, employment income estate income, gift income and excise income) are expected to be positive (i.e. greater than zero) which indicates positive increase on economic growth in the United States of America.

**IV. Results and Interpretations**

**Table 2: Model Result**

Variables	Statistic/Co-efficient	Results
Intercept	$\beta_0$	4,870.555
Business income taxes	$\beta_1$	0.108
Individual income tax (including Estate and trust income tax)	$\beta_2$	4.377
Employment taxes	$\beta_3$	12.138
Estate tax	$\beta_4$	(114.477)
Gift tax	$\beta_5$	(203.530)

Excise taxes	$\beta_6$	(51.053)
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**Source: Author's Computation 2024**

The regression model given as:

$$GDP = \beta_0 + \beta_1BIT + \beta_2IIT + \beta_3EIT + \beta_4EST + \beta_5GT + \beta_6EXIT + \mu$$

$$4870.555 = 0.108BIT + 4.377IIT + 12.138EIT - 114.477EST - 203.530GT - 51.053EXT + \mu$$

The implication of the econometric model above is that holding all the explanatory variables constant, the Gross Domestic Product (GDP) stood at 4870.55. However, taxes from estate income, gift income and excise income at -114.477, -203.530 and -51.053 respectively; indicates that any unit increase in their respective tax revenue will lead to decrease in gross domestic product, while tax revenue from business income, individual income and employment income signifies positive unit at 0.108, 4.377 and 12.138; hence states that any unit increase in their respective tax revenue will substantially impact Gross Domestic Product (GDP) of the United States of America.

**Table 3: T-value Summary of Linear Regression Analysis**

	<i>T Stat</i>	<i>P-value</i>
Business income taxes	0.031	0.976
Individual income tax	3.427	0.004
Employment taxes	5.046	0.000
Estate tax	(2.966)	0.011
Gift tax	(1.165)	0.265
Excise taxes	(2.043)	0.062

**Source: Author's Computation 2024**

The t-statistic result (probability level) on business income tax, individual income tax, employment tax, estate tax, gift tax and excise tax signify 0.976, 0.004, 0.000, 0.011, 0.265 and 0.062 respectively. The result shows that only individual income tax, employment tax and estate tax have significant impact on gross domestic product of the United States of America at 0.05 level of significance while business income tax, gift tax and excise tax are statistically insignificant for the period under review.

**Table 4: Goodness of fit of Regression Model**

<i>Regression Statistics</i>	<i>Results</i>
R Square	0.987
Adjusted R Square	0.982
Standard Error	600.309
<i>ANOVA (F)</i>	170.099
<i>Significance F</i>	0.000

**Source: Author's Computation 2024**

From table 4 above, the coefficient of determination (R Square) of 0.9870, indicates that 99% of the variations in the gross domestic product is explained by the explanatory variables (Tax revenue from business income, individual income, employment income estate income, gift income and excise income); while the remaining 1% unexplained variations is influenced by other variables not considered in this model but captured by the error term in the model. The model also exhibits extreme significance, with a significance level of 0.000 and an F-statistic value of 170.099, surpassing the benchmark of 0.05.

**Table 5: Diagnostic Tests of the Regression Model**

Test	Statistic	p-value	Result
Heteroskedasticity	Breusch-Pagan Test	0.105	P-value exceeds 0.05; hence, the problem of heteroskedasticity does not exist. Fail to reject the null hypothesis of homoskedasticity.
Autocorrelation	Durbin-Watson Test	N/A	The Durbin-Watson statistic is 2.006, indicating no autocorrelation problem.
Normality	Jarque Bera Test	0.293	P-value exceeds 0.05; hence variables follow a normal distribution. Fail to reject the null hypothesis of normality.

**Source: Author's Computation 2024**

The results of the diagnostic tests above in table 4 show that the regression model is valid and reliable, as it does not suffer from any major problems of heteroskedasticity, autocorrelation and non-normality.

## V. Conclusion

The main objective of this study was to examine the impact of taxation on the economic growth of the United States of America, using data for business income tax, individual income tax, employment tax, estate tax, excise tax and gift tax and the US GDP as variables between 2004 to 2023. The study employed a multiple regression analysis to test the Aprior expectation that taxation has a positive impact the on economic growth of the United States of America. The results showed that taxation has a statistically significant and positive impact on the U.S GDP.

Taxation has continued to play a crucial role in the economic growth of the United States of America as it continues to serve as an economic instrument for fostering economic expansion and ensuring national development. One of the most dependable revenue sources that supports economic growth is taxation. Based on the results, the study draws the conclusion that tax revenues have a significant impact on the growth of the United State economy over the examined periods (i.e. 2004 – 2023).

Additionally, the research paper concludes that certain tax revenue, such as individual income tax, employment tax and estate tax has continued to positively impact the economic growth of the United States; while tax revenue from business income tax, gift tax and excise tax have continued to show an insignificant impact on the economic growth of the United State.

## **VI. Recommendation**

Based on the findings of this study, it is recommended that policymakers consider a balanced approach to taxation that promotes economic growth while ensuring sufficient revenue generation. Specifically, reducing corporate tax rates could incentivize investment and business expansion, thereby stimulating economic activity, and boosting tax revenues from corporations.

Additionally, simplifying the tax code and minimizing loopholes can enhance compliance and reduce tax evasion. Implementing progressive tax policies that do not overly burden lower-income households can also support consumer spending, which is crucial for economic growth.

Tax gap has continued to grow on annually and it represents lost tax revenue, while tax examination has continued to fall annually. Policy makers should ensure that appropriate funding is made available to increase the enforcement activities of the internal revenue service of the United States of America.

## **VII. Suggestion for Future Research**

The study has some limitations that suggest avenues for future research. Initially, the study's depiction of the link between taxes and economic growth was done using a linear model, which might not accurately represent the intricacy and dynamics of the economy. In order to take into consideration any potential interactions and feedback effects between the variables, future study may use a structural or nonlinear model.

Secondly, the study's use of aggregate GDP and tax statistics may have obscured the heterogeneity and diversity of the various tax regimes and economic activity kinds. Disaggregated or sectoral data may be used in future studies to investigate the differing impacts of taxation on different economic sectors.

Thirdly, the study examined how taxes affect economic growth using a time series analysis, which might not account for the impact of additional factors that could also affect economic performance. The influence of additional variables, such as institutional quality, political stability, social capital, and cultural values, on the relationship between taxation and economic growth could be incorporated into future study through panel data analysis or cross-country comparison.

Finally, future research should focus on the long-term effects of progressive tax policies and explore the optimal mix of tax rates and structures that maximize economic growth without compromising fiscal stability.

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**Appendix  
Data**

<b>Years</b>	<b>Gross Domestic Product (Billion)</b>	<b>Total Internal Revenue collections (Billion)</b>	<b>Business income taxes (Billion)</b>	<b>Individual income tax (Billion)</b>	<b>Employment taxes (Billion)</b>	<b>Estate tax (Billion)</b>	<b>Gift tax (Billion)</b>	<b>Excise taxes (Billion )</b>
2004	12,527	2,019	231	990	717	24	1	55
2005	13,324	2,269	307	1,108	771	24	2	57
2006	14,040	2,519	381	1,236	815	27	2	58
2007	14,715	2,692	396	1,366	850	25	2	53
2008	14,608	2,745	354	1,426	883	27	3	52
2009	14,651	2,345	225	1,190	858	22	3	47
2010	15,309	2,345	278	1,176	824	17	3	47
2011	15,842	2,415	243	1,346	768	3	7	49
2012	16,420	2,524	281	1,388	784	12	2	56
2013	17,192	2,855	312	1,564	898	14	6	61
2014	17,912	3,064	353	1,644	976	18	3	71
2015	18,435	3,303	390	1,793	1,022	18	2	77
2016	19,089	3,333	346	1,816	1,074	20	2	76
2017	20,037	3,417	339	1,867	1,123	22	2	64
2018	20,918	3,465	263	1,972	1,133	23	1	74
2019	21,902	3,565	277	1,982	1,208	16	2	81
2020	22,025	3,493	264	1,871	1,268	17	1	72
2021	24,655	4,112	419	2,348	1,258	23	5	58
2022	26,408	4,902	476	2,904	1,418	29	4	71
2023	27,957	4,694	457	2,562	1,566	34	2	74

**Source: Tax Data – IRS Website, GDP Data – Federal Reserve Bank Website**