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Analysing the relationship between tax rates and economic growth

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Abstract

This study examines tax rate impacts on economic growth in India and six other countries (1999-2018), revealing a negative correlation, especially in developing economies. Limitations include sample size and regression analysis absence, yet offering insights for growth-oriented fiscal policy design.

Keywords: Tax rate, economic growth, fiscal policy design, India

Introduction

1. **GDP:** Total value of goods and services produced within a country in a specific period.
2. **GDP Per Capita:** Economic output per person, indicating a nation's prosperity.
3. **GDP Annual Growth Rate:** Yearly change in GDP at constant local currency values.
4. **Fiscal Policy:** Government's use of taxation, spending, and borrowing for economic goals.
5. **Progressive Tax Rate:** Higher-income individuals or entities face higher tax rates in this system.

Research Area

Analyses tax rates' impact on economic growth in India and seven countries, categorized by similarity. Examines income tax, corporate tax, and sales tax effects on GDP growth.

Relevance of the Area

Illuminates variable tax-GDP relationships across economies, essential for equitable fiscal policies.

Reasons for Tax Rate Selection

- **Individual Income Tax:** Hinders savings and investment, particularly for the poor, curbing economic growth.
- **Sales and Corporate Taxes:** Stifle innovation, mobility, output, and employment while discouraging spending, impeding economic growth. Chosen for their universality in illustrating the tax-economic growth link, critical in underdeveloped nations.

Research Questions

- Does altering tax rates impact economic growth?
- What's the character of this relationship (positive, negative, or complex)?
- Does the effect vary between developing and developed economies?
- What are the consequences of tax rate changes on the Indian economy?

Methodology

Data has been collected on tax rates and subsequent GDP growth rates for 20 years (1999-2018) across 7 economies to test the accuracy of the suggested model.

Literature Review

	Author	Source	Data Set	Effects	Summary of Findings
1.	Ergete Feredeand Bev Dahlby (2012) ^[8]	"The Impact of Tax Cuts on Economic Growth: Evidence from the Canadian Provinces"	Canadian provinces (1977-20 06)	Negative	Reducing corporate income tax 1 percentage point raises annual growth by 0.1 to 0.2 points.
2.	Young Leea, Roger H. Gordon (2005) ^[3]	"Tax Structure and Economic Growth"	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.
3.	Randall Holcombe & Donald Lacombe (2004) ^[10]	"The Effect of State Income Taxation on Per Capita Income Growth"	Countries separated by state borders (1960 to 1990)	Negative	States that raised income taxes averaged a 3.4% reduction in per capita income.
4.	Ihtsham UL Haq Padda & Naeem Akram (2009) ^[11]	"The Impact of Tax Policies on Economic Growth: Evidence from South-Asian Economies"	Pakistan, India, Sri Lanka (1975-20 06)	Negative	Tax policies transitory affect the economic growth. The level of output is permanently reduced, but the rate of output growth has no lasting effects due to increase in taxes.
5.	Michael Bleaney, Norman Gemmell & Richard Kneller (2000) ^[12]	"Testing The Endogenous Growth Model: Public Expenditure, Taxation and Growth Over the Long-Run"	Annual dataset of 22 OECD countries from 1970-75	Negative; dependant on time period	The short term effects of growth are more significant than long term. Further increase in taxation after the optimal tax rate causes greater reduction in growth.
6.	Stefan Fölster, Magnus Henrekson (2000) ^[13]	"Growth effects of government expenditure and taxation in rich countries."	Annual dataset of 22 OECD countries from 1970- 1995	Negative	Tax rates and expenditure are negatively correlated to economic growth. Higher Taxes have been observed to lower economic progress. Lower tax rates can stimulate economic growth of a rich country.

This data will be graphed to check:

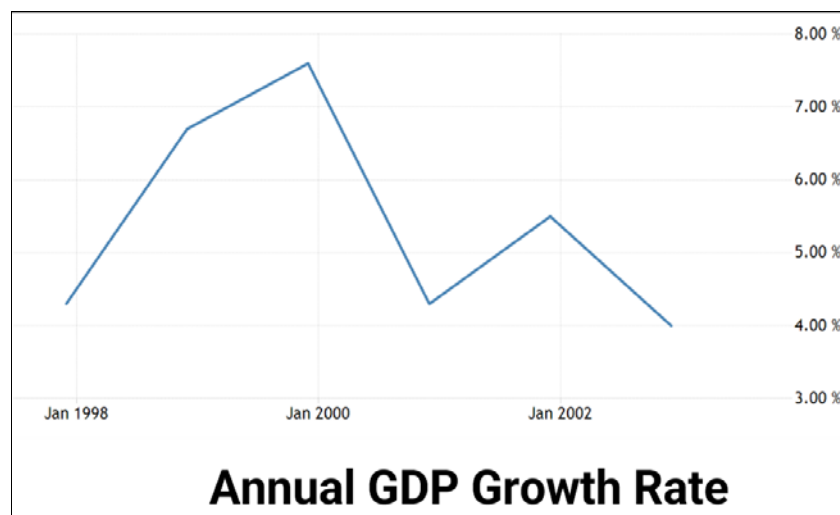
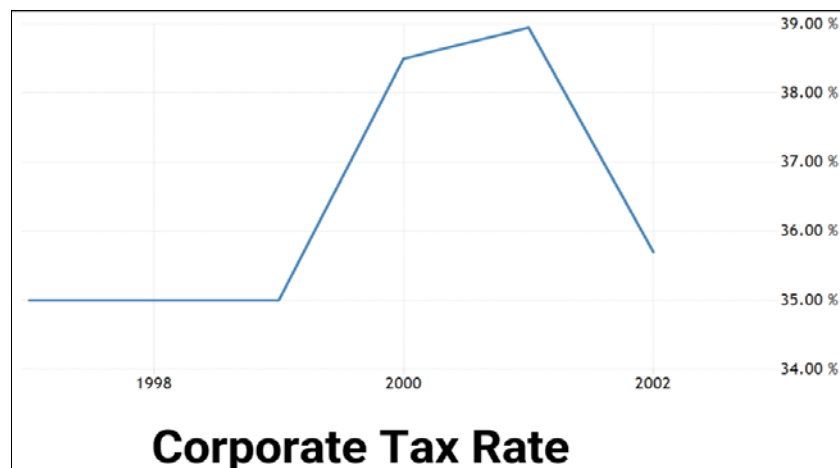
- Changes in either of the different tax rates and the annual GDP growth rates the direction and magnitude of change

Data sources

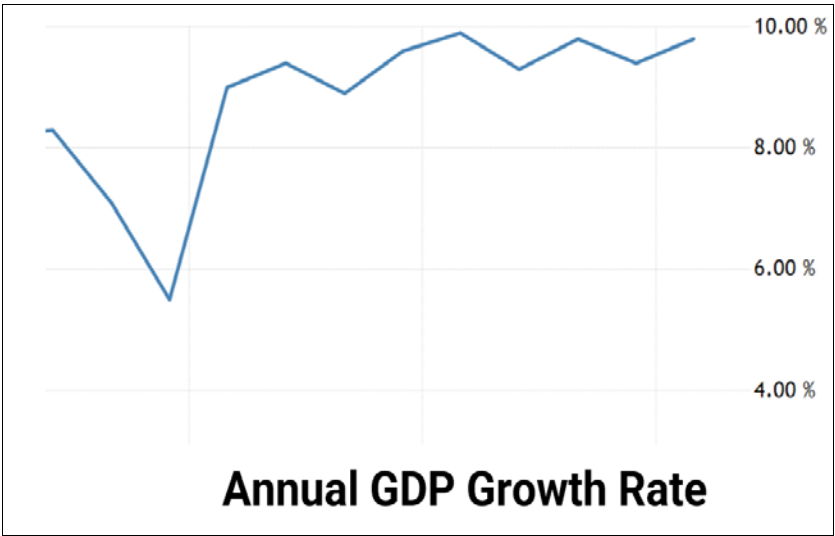
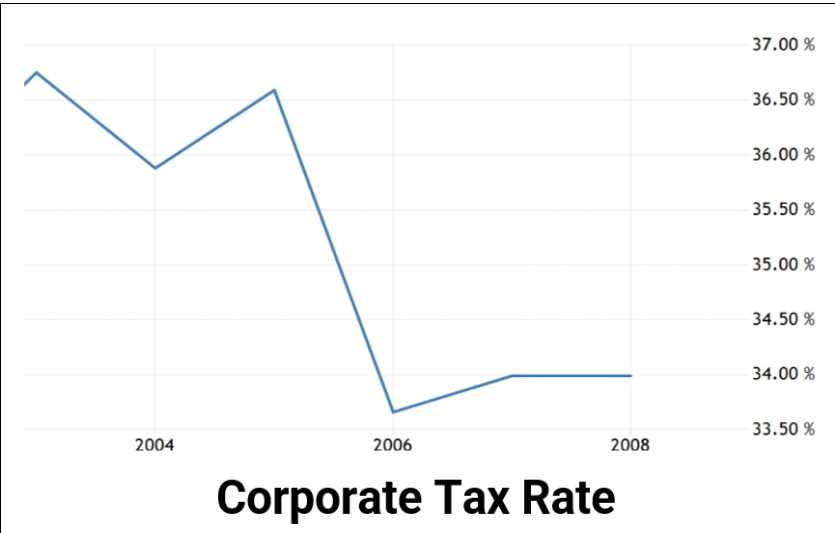
- Ministry of Statistics and Programme Implementation (MOSPI)

- Brazilian Institute of Geography and Statistics
- National Institute of Statistics and Geography (Mexico),
- Statistics Indonesia,
- State Secretariat for Economic Affairs (Switzerland),
- Central Department of Statistics & Information (Saudi Arabia),
- Statistics Singapore

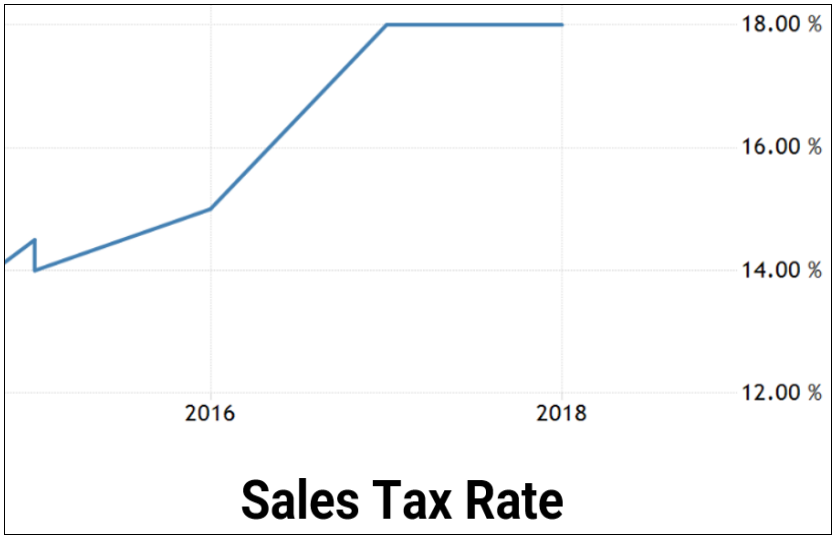
Data Analyses (Graphical) India

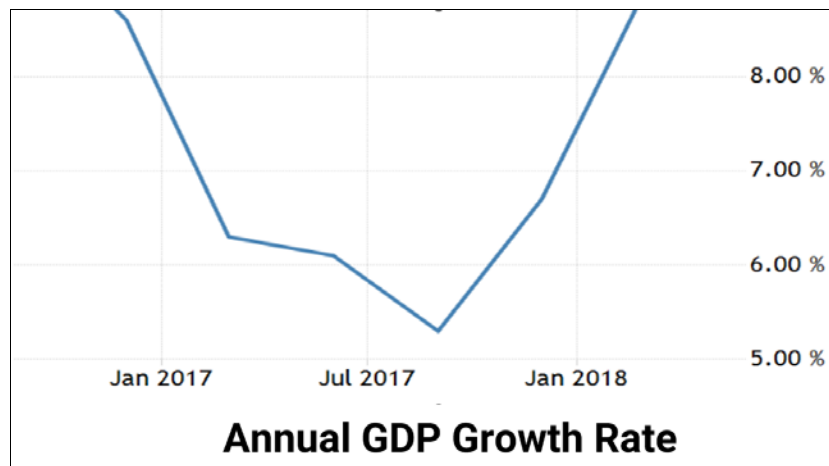


- (Corporate) Tax rate increase - 4%
- GDP growth rate decrease- 3.5%
- **Reason:** The Indian government increased corporate tax to boost revenue and address fiscal deficit.
- (Corporate) Tax rate decrease- 3.5%
- GDP growth rate increase- 1.5%
- **Reason:** The Indian government increased corporate tax to stimulate economic growth and encourage investment.



- (Corporate) Tax rate decrease- 3%
- GDP growth rate increase- 4%
- **Reason:** The Indian government increased corporate tax to fund infrastructure development and enhance public services.

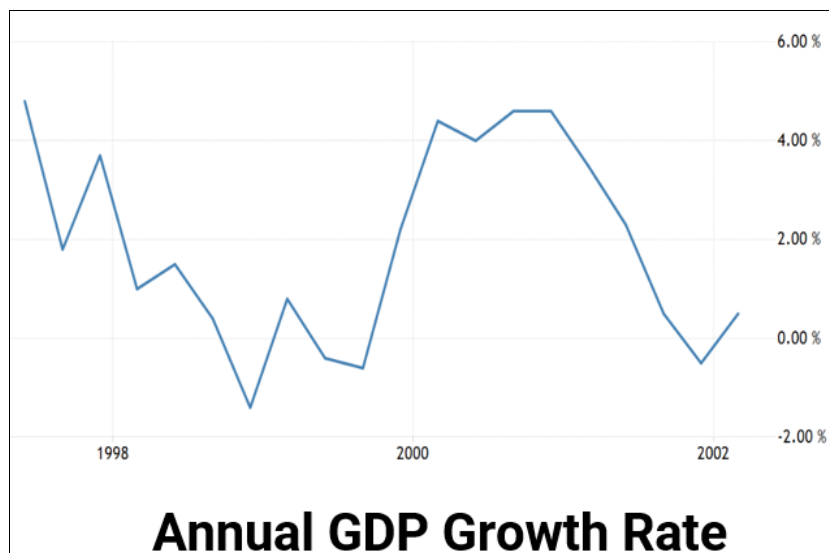
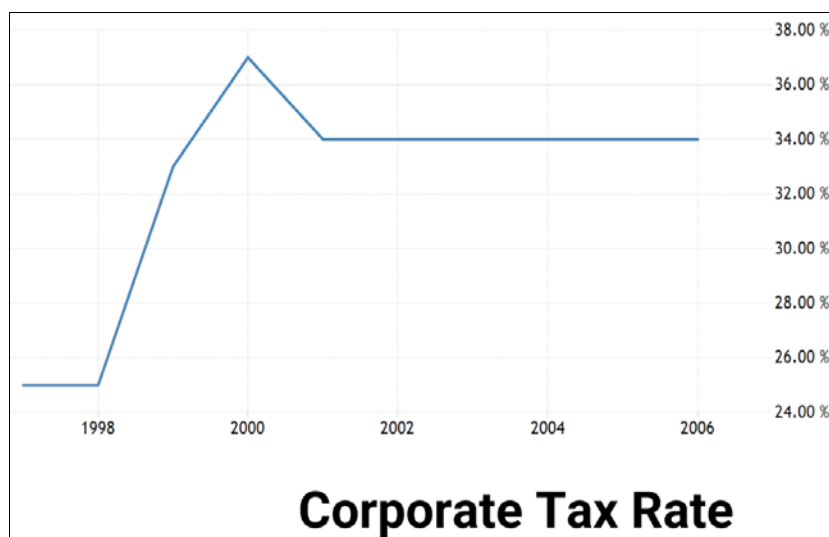




- (Sales) Tax rate increase- 4.5%
- GDP growth rate decrease- 3.5%
- **Reason:** The Indian government increased sales tax in

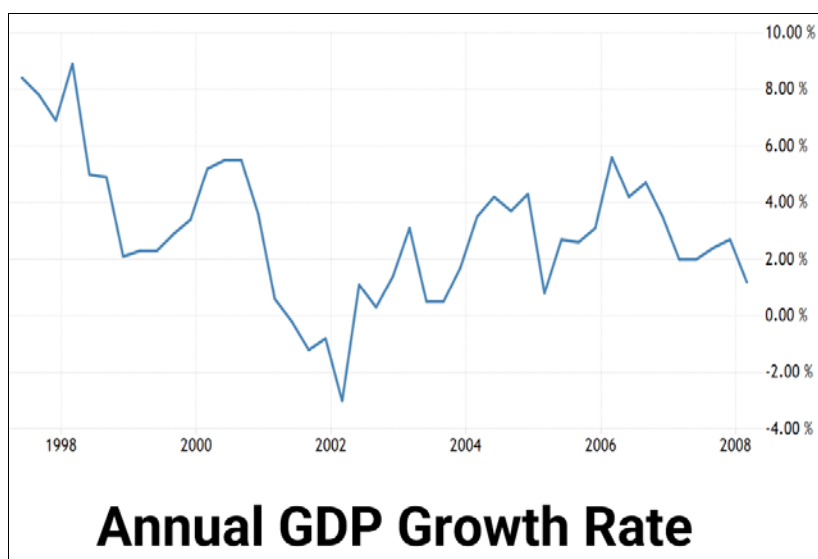
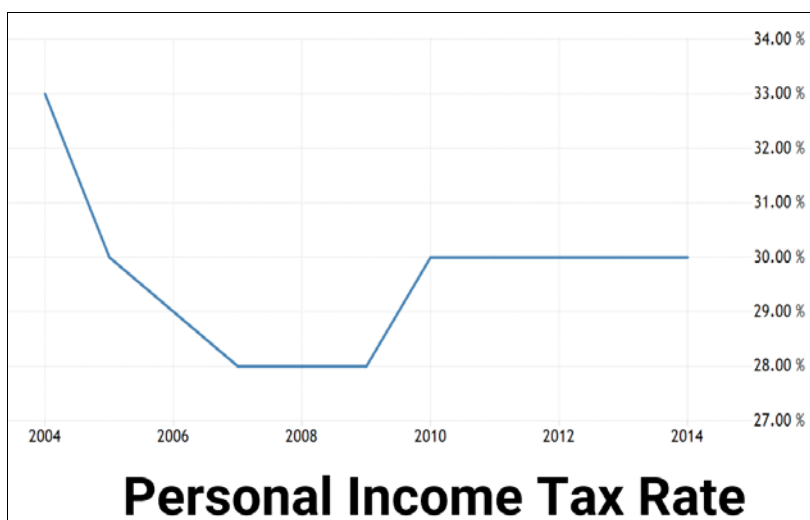
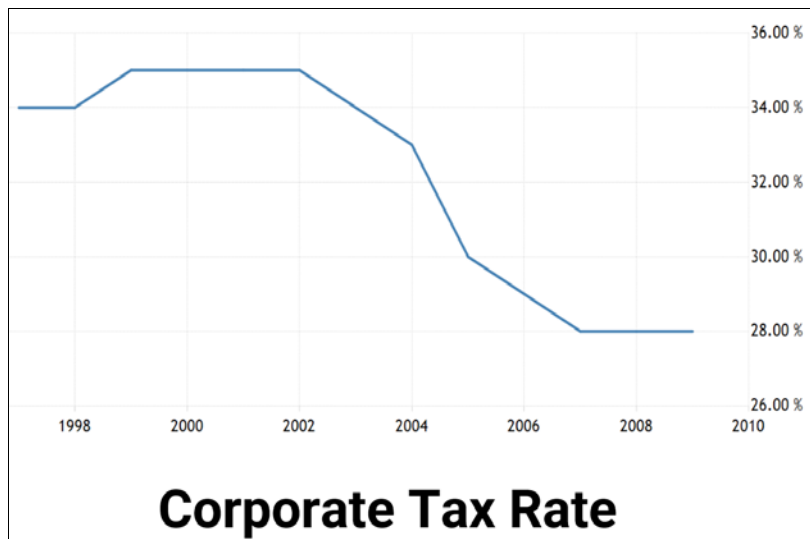
2017-2018 to implement the Goods and Services Tax (GST) reform, aimed at streamlining indirect taxes and creating a unified national market.

Brazil (Similar)

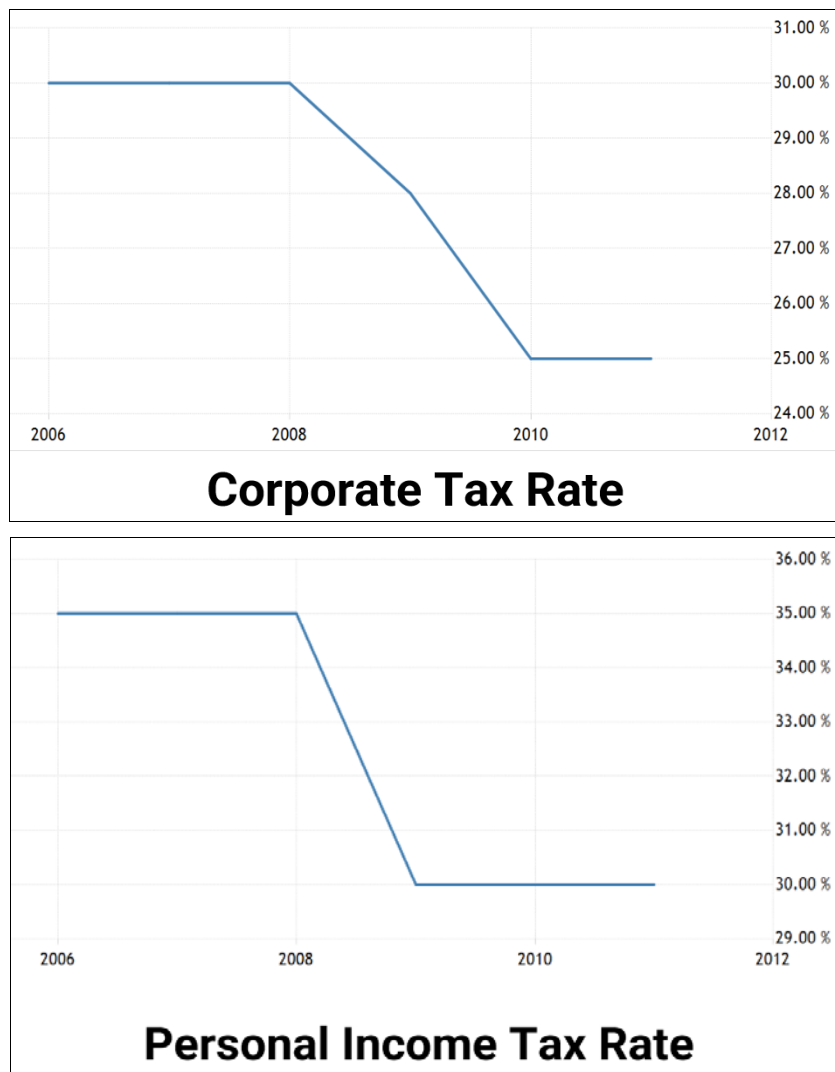


- (Corporate) Tax rate increase - 12%
- GDP growth rate decrease- 6%
- **Reasons:** To address fiscal imbalance resulting from excessive government spending, stabilize the economy during severe crises, manage significant public debt,

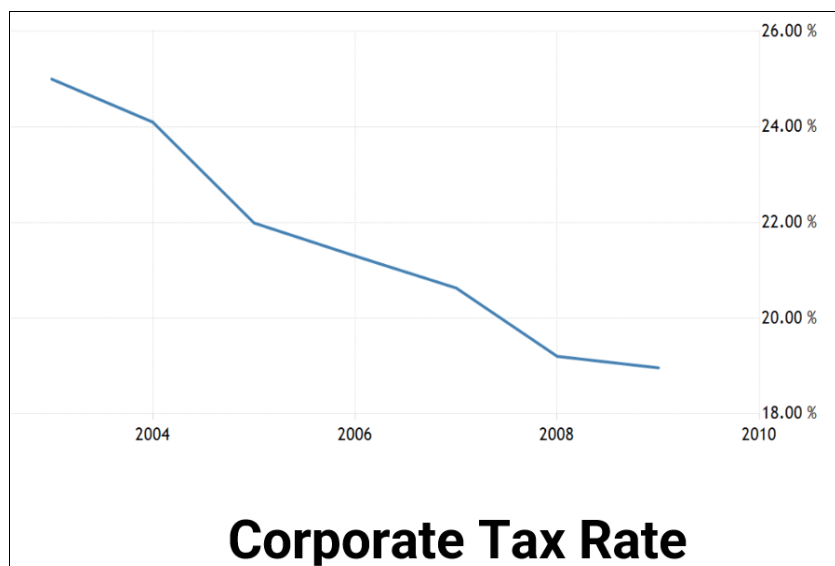
fund essential initiatives for economic growth and social welfare, create a more balanced tax system, and adhere to IMF agreements as part of structural reforms aimed at restoring economic stability.

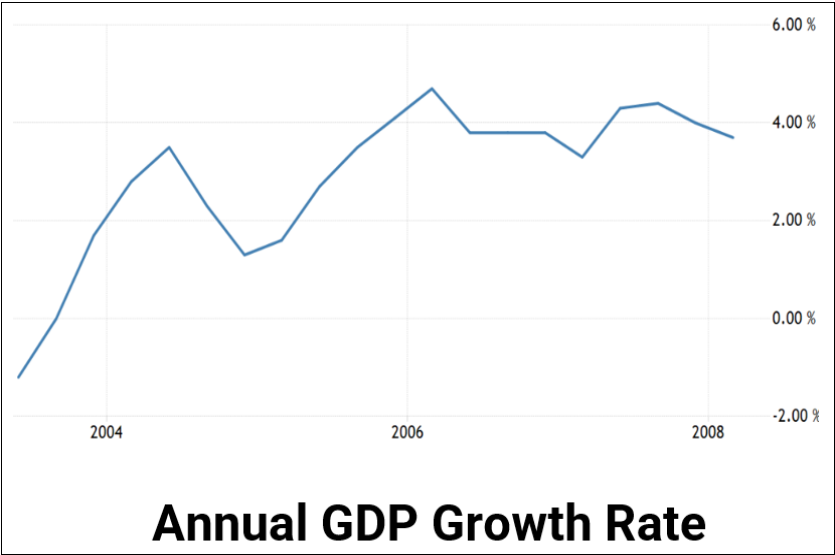
Mexico (Similar)

- (Corporate) Tax rate decrease- 7%
- GDP growth rate increase- 9%
- (Personal Income) Tax rate decrease- 5%
- **Reason:** The Mexican government decreased corporate tax from 2000-2006 to attract foreign investment, promote business growth, and stimulate economic development.
- **Reason:** The Mexican government reduced personal income tax in 2004-2006 to stimulate consumer spending, boost economic growth, and attract foreign investment.

Indonesi (Similar)

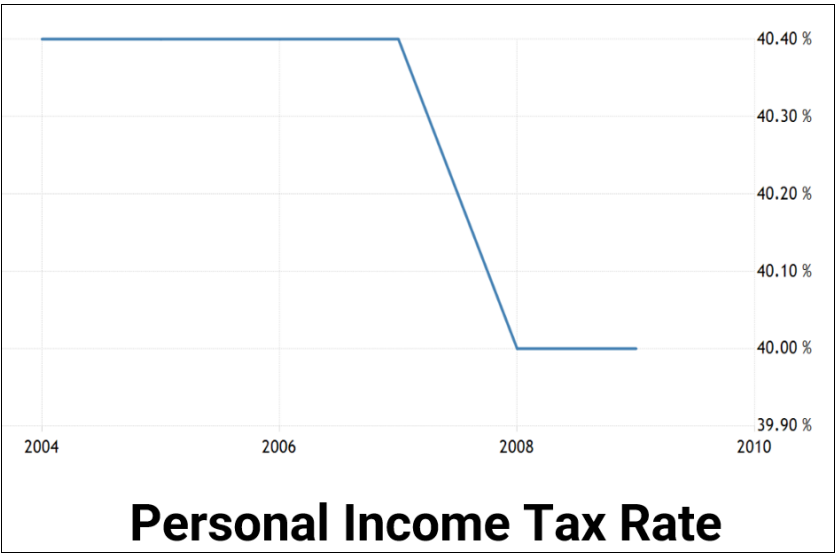
- Tax rate decrease- 5%
- GDP growth rate increase-1.75%
- **Reason (Corporate):** The Indonesian govt reduced corporate tax to encourage business investment, promote competitiveness, attract foreign companies, fostering economic growth & job creation.
- **Reason (Personal Income):** It reduced personal income tax rates in 2008-2009 to stimulate consumer spending, increase disposable income & drive economic growth during a period of economic uncertainty & global financial crisis.

Switzerland (Dissimilar)



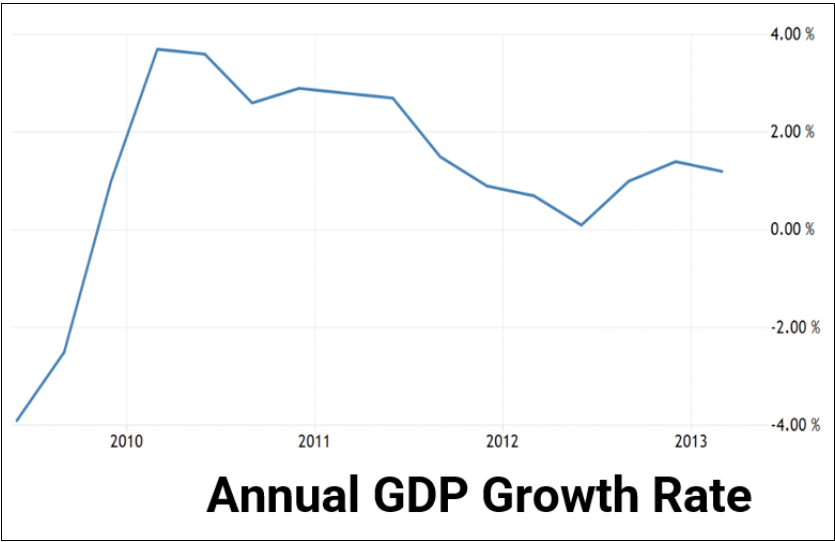
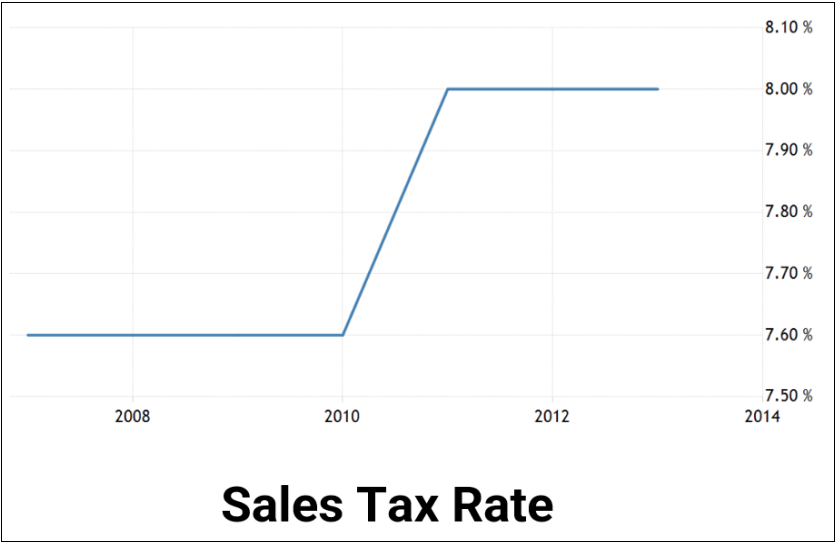
- (Corporate) Tax rate decrease-5%
- GDP growth rate increase- 2%
- **Reason:** The Swiss government reduced the corporate tax to enhance business competitiveness, attract foreign

investment & bolster economic growth by creating a more favorable tax environment for companies operating there.

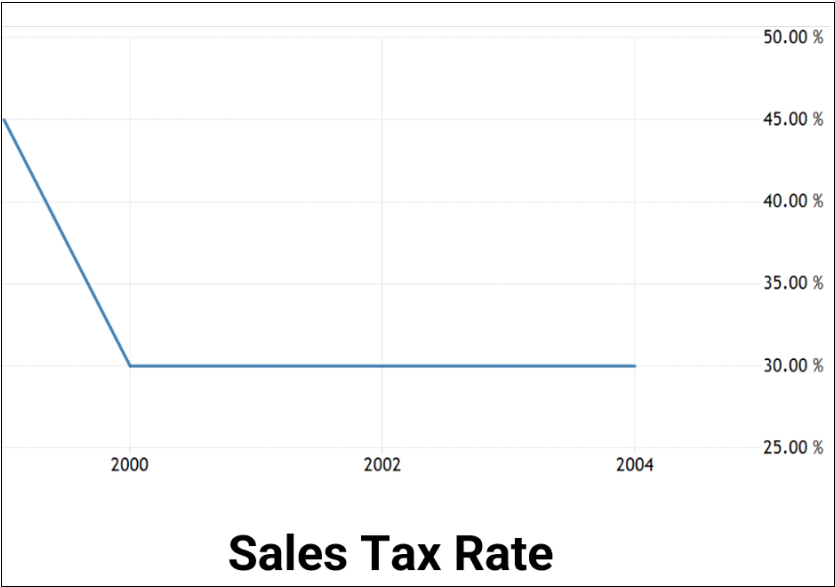


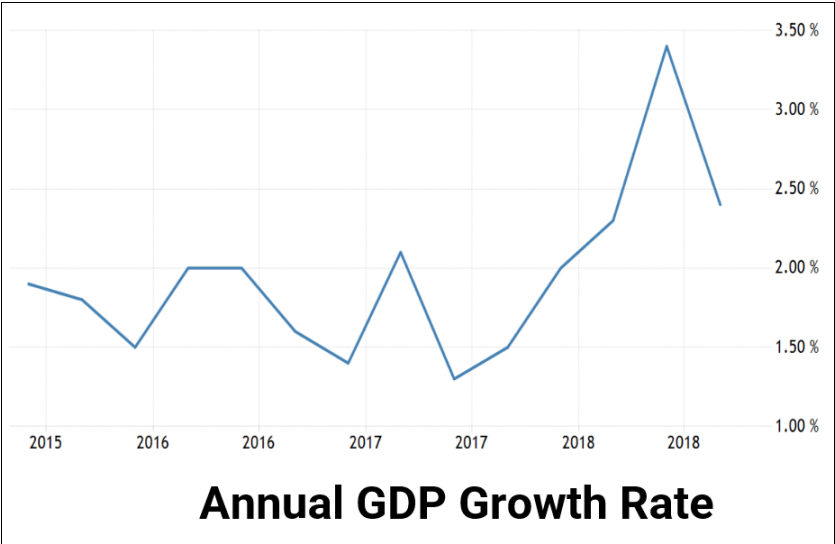
- (Personal Income) Tax rate decrease-0.4%
- GDP growth rate increase- 0.4%
- **Reason:** The Swiss government reduced tax rates to stimulate consumer spending, increase disposable

income, & attract and retain skilled workers. Fostering economic growth & enhancing the country's overall competitiveness.



- (Sales) Tax rate increase- 0.4%
- GDP growth rate decrease- 0.5%
- **Reason:** The Swiss government increased tax to generate additional revenue, address budgetary deficits, and support public spending priorities such as infrastructure development, social welfare programs, and other government initiatives.

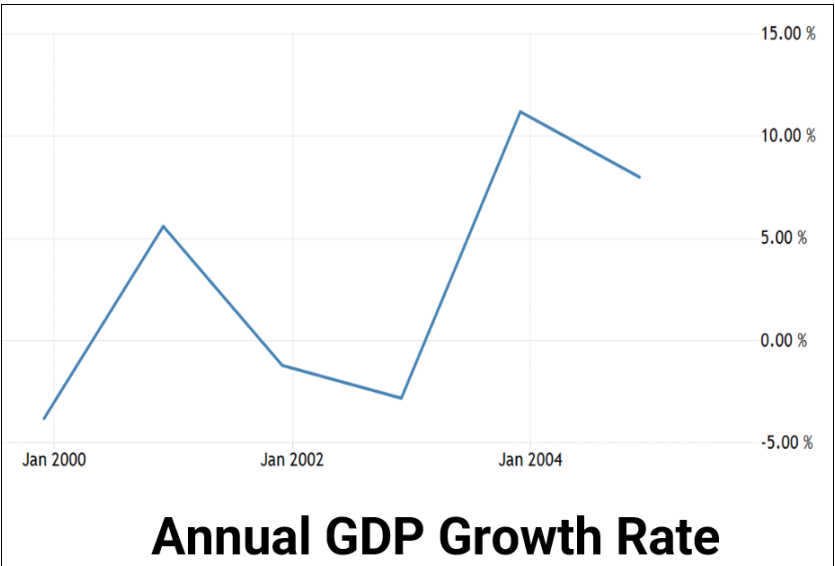
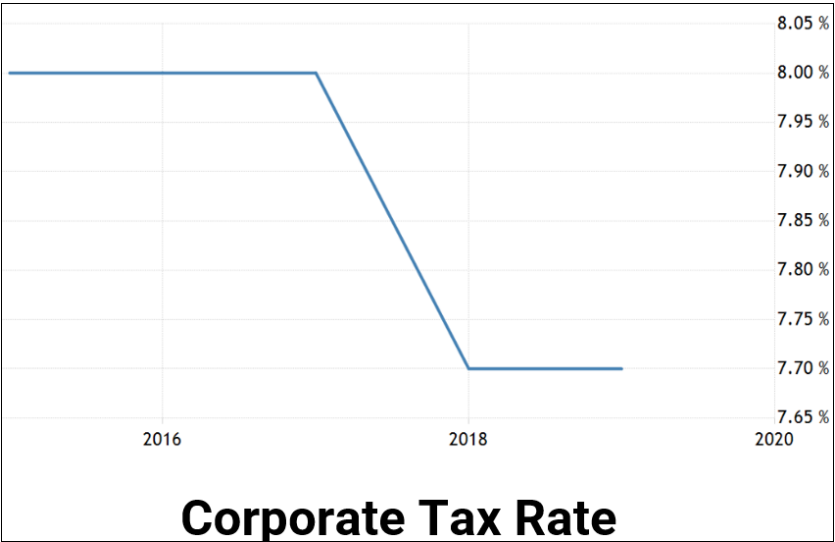




- (Sales) Tax rate decrease- 0.3%
- GDP growth rate increase- 0.6%
- **Reason:** The Swiss government reduced the sales tax rate in 2017-2018 to stimulate consumer spending, and

economic activity, and provide relief to households & businesses during the economic slowdown to promote affordability and competitiveness.

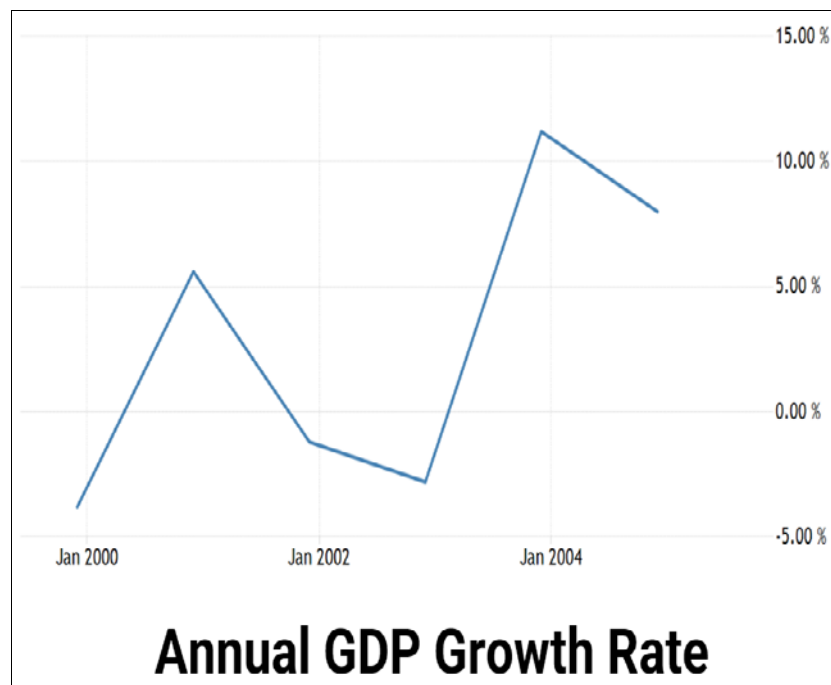
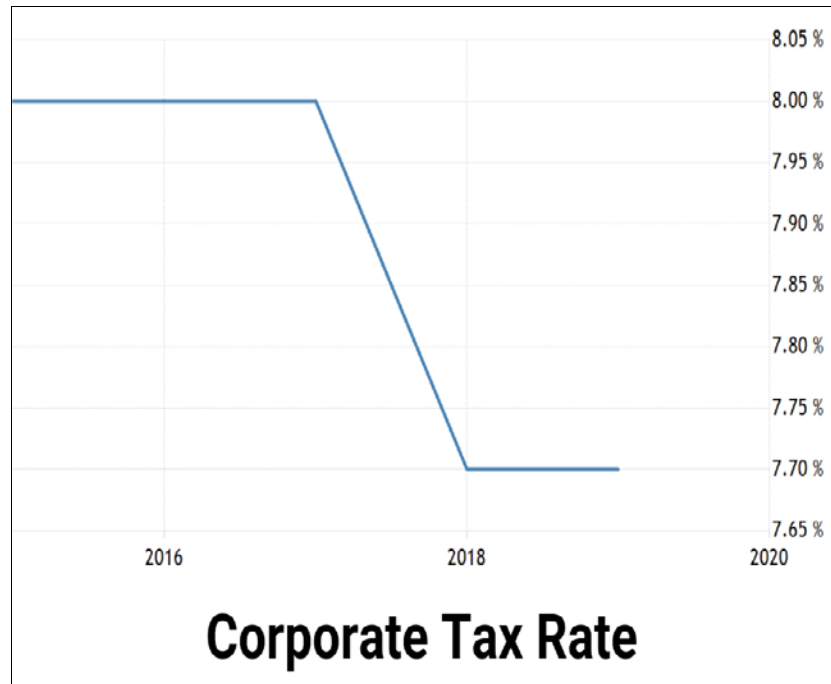
Saudi Arabia (Dissimilar)



- Corporate tax rate decrease-15%
- GDP growth rate increase- 5%
- Reasons: To diversify the economy away from oil revenue, attract multinational corporations for job creation and technology transfer, enhance

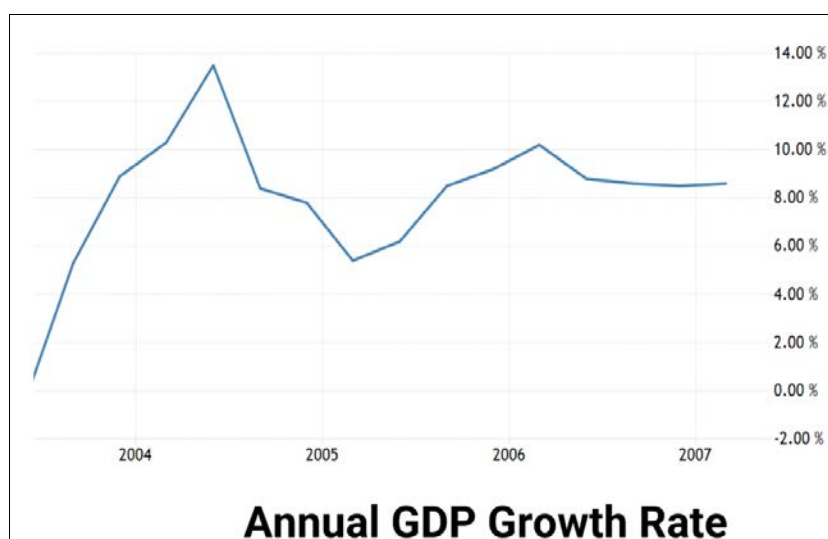
competitiveness through tax reductions and R&D support, all as part of a broader strategy to boost profitability, stimulate reinvestment, expand operations, and improve living standards.

Singapore (Dissimilar)



- (Corporate) Tax rate decrease- 2.5%
- GDP growth rate increase- 5%
- **Reason:** The government reduced tax to attract foreign

investments, encourage business growth, and enhance the country's competitiveness as a global business hub, fostering economic development and job creation.

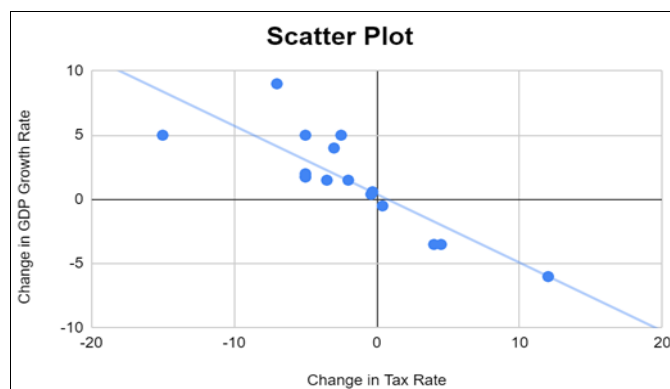


- (Personal Income) Tax rate decrease- 2%
- GDP growth rate increase- 1.5%
- **Reason:** The government reduced personal income tax rates in 2004-2006 to stimulate consumer spending, increase disposable income, and attract and retain skilled workers, thus supporting economic growth and enhancing the country's overall competitiveness.

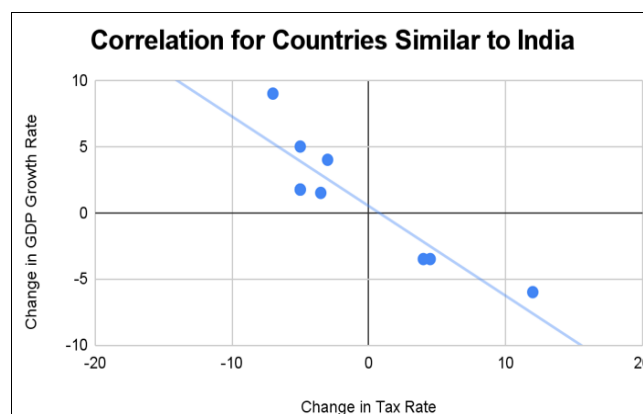
A negative correlation implies that tax rates and GDP growth rates move in opposite directions. When there is an increase in the tax rate, the GDP growth rate will generally fall.

Under general conditions, the government should reduce taxes when the economy is experiencing a dwindled output or income. However, the resulting increase in GDP will be different for developing countries and developed ones.

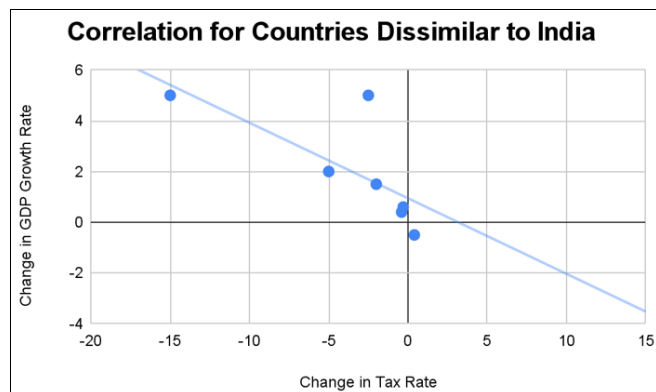
Conclusion



Correlation Coefficient = -0.833



Correlation Coefficient = -0.901



Correlation Coefficient = -0.726

In our analysis, we observe that tax rate changes and GDP growth rate changes are more correlated in countries that are similar to India (developing countries) than in countries that are dissimilar to India (developed countries). Thus, tax rate changes would be more beneficial to developing countries concerning their effects on output and income.

Limitations

While our study's limited scope makes it challenging to draw conclusions for all developed and developing countries, we adapted by using graphical analysis instead of regression analysis due to knowledge limitations. We recognize that GDP fluctuations may result from various factors beyond tax rates, so we examined multiple instances across diverse economic contexts to establish broad correlations.

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