Law Encorcement on Tax Imposed and Economic Growth

Bernard Nainggolan
Faculty of Law, Universitas Kristen Indonesia

Abstract

Classical economic theory states that one factor that causes market failure is tax imposed. With tax imposed, the allocation of goods and services in free market is not Pareto efficient. Studies on the impact of tax on economic growth result various conclusions. It can be negative (Lee, Young, and Gordon 2005), negative and unclear (Gale and Samwick 2017), andpositive (Brys et al. 2016). This study is conducted to study the association between tax imposed and economic growth in 116 countries from 2005 to 2017. The data used in this study came from the World Development Indicators of the World Bank and were analyzed using univariate, bivariate, and multivariate analyses employing the fixed effects regression model for panel data. The dependent variable was GDP, while the independent variables were taxes on income, profits, and capital gains (% of total taxes), other taxes (% of revenue), labor tax and contributions (% of commercial profits), andaccess to electricity (% of population). The results of analyses show that taxes on income, profits, and capital gains, labor tax and contributions, andaccess to electricitytaxesare positively and significantly associated with economic growth ratestatistically, while other taxes is negatively and significantly associated with economic growth rate statistically.

Keywords: Tax Imposed, Economic Growth, Neoclassical theory, market failure, Random effect.

Introduction

In the classical economic theory, market failure is a situation where the allocation of goods and services in free market is not Pareto efficient that often causes a net loss of economic value. The market failure terminology was first proposed by Victorian philosopher Henry Sidwigk (Krugman and Robin 2006; Bator1958).Market failure is often associated with government intervention in the provision of public goods, time-inconsistent preferences,information asymmetries,non-competitive markets, principal–agent problems, or externalities. Government intervention that has impacts on inefficient resources allocation, often called government failure. Goernment failure that can cause market failure can be in form of policies, such as tax, subsidy, wage and price control, and regulation that cause market failure (Furton and Adam 2019; Shand 1987;Schmidtz 1993).

Aaron Levine (Paour 1995) proposed that income distribution, risk management, and product-pricing problem need government intervention. He emphasized the use of a comparative-institutions approach in assessing government actions to correct market "failure." It can happen if the government does not intervene the market then the situation will be worse. How does the government get involved in the market?

The government intervene the market by enforcing tax law to the market. The development of endogenous economic growth theory has opened a theory on the effects of tax on economic growth (Myles 2000). In his theoretical model, Myles (2000) showed the analysis of tax incidence and the prediction of growth effect.

The structure and financing of a tax is a critical discussion in obtaining economic growth. Tax rate cut can encourage individualsto work, save, and invest. However, if tax rate cut is not funded by intermediate expenditure cuts it will also cause a deficit increase in central government budget and in the long run will reduce national saving and will increase interest rate (Gale and Samwick 2017).

The next problem from taxation is the obedience to pay tax. The obedience to pay tax becomes part of law enforcement problem. Paying tax as a private obligation is still considered as a separate part of public interest. Avoidance of tax payment obligation is maintaining injustice and at the same time killing the economic life of society (Stammler 1994; Teguh and Barkatullah 2017).

One basic problem of this law enforcement, including tax law, is legal culture, beside legal substance and structure that is not organized, planned, and implemented well. Legal culture that is merely afraid of the sanction that will be imposed causes lack of basic awareness about tax payment obligation voluntarily. Paying tax as an effort to promote economic development must be based on morality, cultural, and religiosity. Therefore, tax imposed must be felt appropriately and substantially by the society intrinsically so that the obedience will be internalization (Friedman 1975).

Lee, Young, and Gordon (2005) carried out a study using cross-country data from 1970–1977 that were obtained from the Office of Tax Policy Research (OTPR) at the University of Michigan. The data from OTPR provided extensive tax data compiled from various sources, including the World Bank's World Development Indicators (WDI) and Price Waterhouse Cooper (PwC), and Corporate Taxes: Worldwide Summaries and Individual Income Taxes. They found that statutory corporate tax rates are significantly negatively correlated with cross-sectional differences in average economic growth rates. A 10% tax cut will increase yearly economic growth rate by around one to two percent.

Meanwhile, Gale and Samwick (2017) conducted a study on the impacts of tax on economic growth. They found that tax impact uncertain. Some estimation done resulted in positive, small effects. On the other hand, Brys et al.(2016) found that tax system reinforcement can support economic growth. Their study focused on tax impact on economic growth from efficiency perspective. Tax design aspect policy can foster inclusive growth.

How is the impact of law enforcement on tax imposed on economic growth in countries in the world? This study aims to investigate the impacts of taxes on income, profits, and capital gains (% of total taxes), other taxes (% of revenue), labor tax and contributions (% of commercial profits), andaccess to electricity (% of population) on economic growth in countries in the world.

Data and Methods

Data

The data used in this study came from the World Development Indicators of the World Bank Data[1]. The data were panel data that covered 116 countries from 2005 to 2017. In total, there were 1,508 observations (country-year) in the analysis.
The dependent variable in the study was GDP (current million US$). Meanwhile, the independent variables were taxes on income, profits and capital gains (% of total taxes), other taxes (% of revenue), labor tax and contributions (% of commercial profits), and access to electricity (% of population). Taxes on income, profits, and capital gains are levied on the actual or presumptive net income of individuals, on the profits of corporations and enterprises, and on capital gains, whether realized or not, on land, securities, and other assets. Intragovernmental payments are eliminated in consolidation. Other taxes include employer payroll or labor taxes, taxes on property, and taxes not allocable to other categories, such as penalties for late payment or nonpayment of taxes.In addition,labor tax and contributions is the amount of taxes and mandatory contributions on labor paid by the business. Furthermore, access to electricity is the percentage of population with access to electricity. Electrification data are collected from industry, national surveys, and international sources (Word Bank 2020).

Methods

Data in this study were analyzed using univariate, bivariate, and multivariate analyses. With univariate analysis, the summary statistics of variables in the model were presented. These include the number of observation, mean, standard deviation, minimum, and maximum values. With bivariate analysis, the scatter diagram between the independent variables and dependent variable were displayed. With multivariate analysis, a fixed effects regression model for panel data was employed (Green 2008; Baltagi 2008). The model is as follows.

$$\ln(GDP) = \beta_0 + \beta_1 IncomeTax + \beta_2 OtherTax + \beta_3 LaborTax + \beta_4 Electricity + \varepsilon$$

The dependent variable is ln (GDP). The independent variables are taxes on income, profits and capital gains (Income Tax), other taxes (Other Tax), labor tax and contributions (Labor Tax), and access to electricity (Electricity).β_0 is the intercept of the model and β_i is the regression coefficient for independent variable *i*. ε is the error term.

Results

Univariate Analysis

The results of bivariate analysis are presented in Table 1. It can be seen that the is a great variation in GDP, tax on income, profits, and capital gains, other taxes, labor tax and contributions, and access to electricity across countries and times.GDP (current.,

[1] Accessed from https://databank.worldbank.org/source/world-development-indicators on March 2020.

million) ranged from US$110.23to US$19,485,393.9, tax on income, profits, and capital gains varied between -4.47% and 130.54% of total taxes, other taxes ranged from -4.87% to 36.38% of revenue,labor tax and contributions varied between 0% and 54% of commercial profits, and access to electricity ranged from 3.65% and 100% (universal) of population.

Tabel 1: Summary Statistics (number of observations (*n*), mean, standard deviation, minimum, and maximum) ofVariables in the Model

Variables	n	Mean	Standard Deviation	Minimum	Maximum
GDP (current million US$)	1,508	482,817.3	1,761,705	110.2	19,485,394.9
Tax on income, profits, and capital gains (% of total taxes)	1,508	36.5266	16.99251	- 4.47	130.54
Other taxes (% of revenue)	1,508	2.256313	3.231538	-4.87	36.38
Labor tax and contributions (% of commercial profits)	1,508	16.66603	11.55766	0	54
Access to electricity (% of population)	1,508	82.95564	26.62734	3.65	100

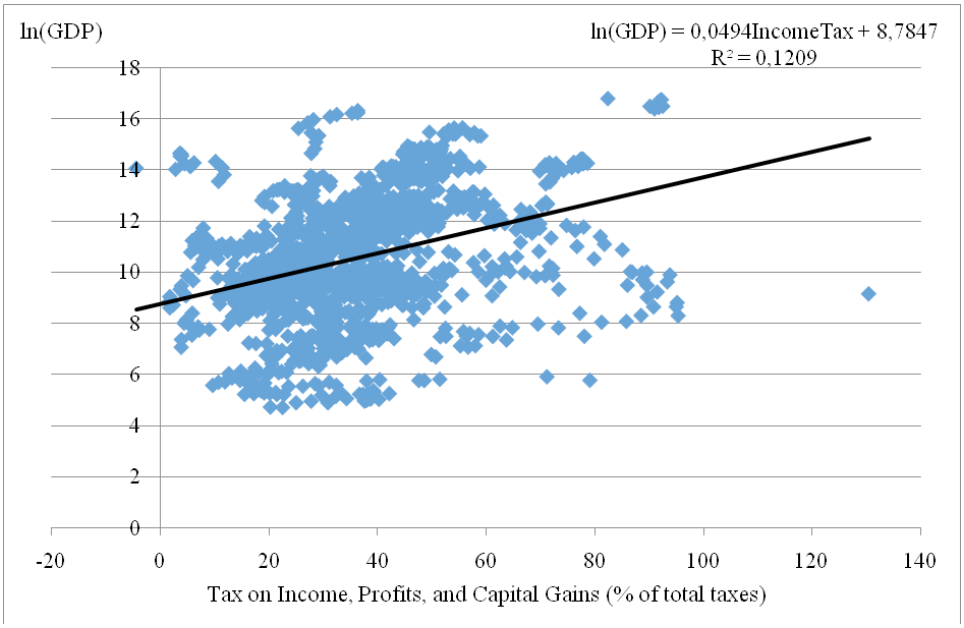
Source: World Bank (2020)(Author's calculation).

Bivariate Analysis

The results of bivariate analysis between tax on income, profits, and capital gains, other taxes, labor tax and contributions, and access to electricity and GDP are displayed in Figure 1 – Figure 4. It can be seen that there is a positive bivariate relationship between tax on income, profits, and capital gains, labor tax and contributions, and access to electricity and GDP. An increase of one percent in tax on income, profits, and capital gains of total taxes, in labor tax and contributions of commercial profits, and in access to electricity of population will increase economic growth rate by 0.0494 (Figure 1), 0.0755(Figure 3), and 0.0294(Figure 4) respectively.However, other taxes were negatively associated with economic growth. An increase in one percent of other taxes causes a decline in economic growth rate by 0.017 (Figure 2). In addition, tax on income, profits, and capital gains, other taxes, labor tax and contributions, and access to electricity each explains the variation in economic growth rate by 12.1%, 0.87%, 13.1%, and 10.5% respectively.

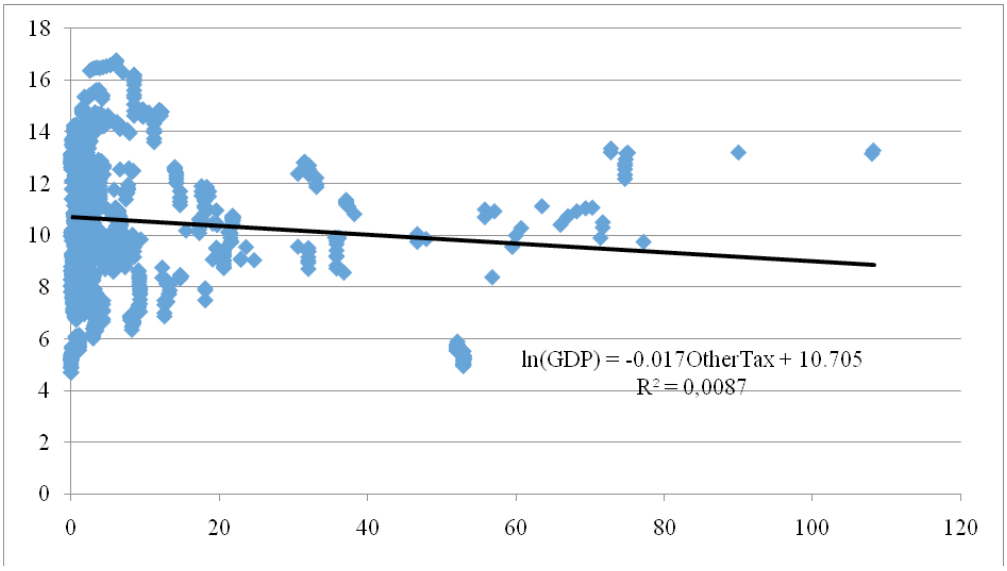
A use of taxes imposed by the government is to return those taxes to the tax payers by building up infrastructure, including electricity. It can be seen that access to electricity also has a positive association with economic growth rate.

Figure 1: Tax on Income, Profits, and Capital Gains (% of total taxes)and GDP (million US$): 116 Countries 2005–2017



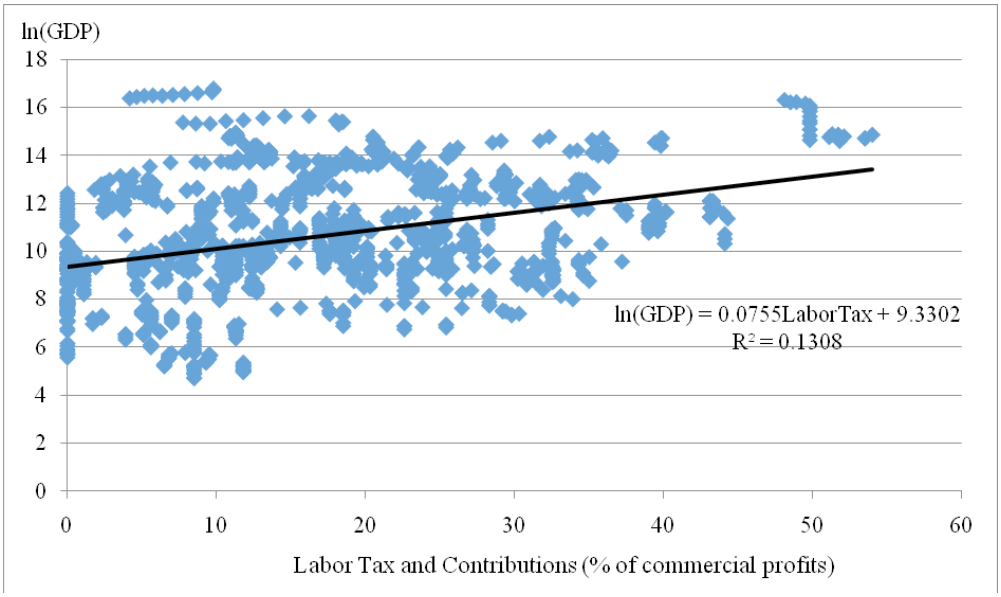
Source: World Bank (2020)(Author's calculation).

Figure 2: Other taxes (% of revenue)and GDP (million US$): 116 Countries 2005–2017



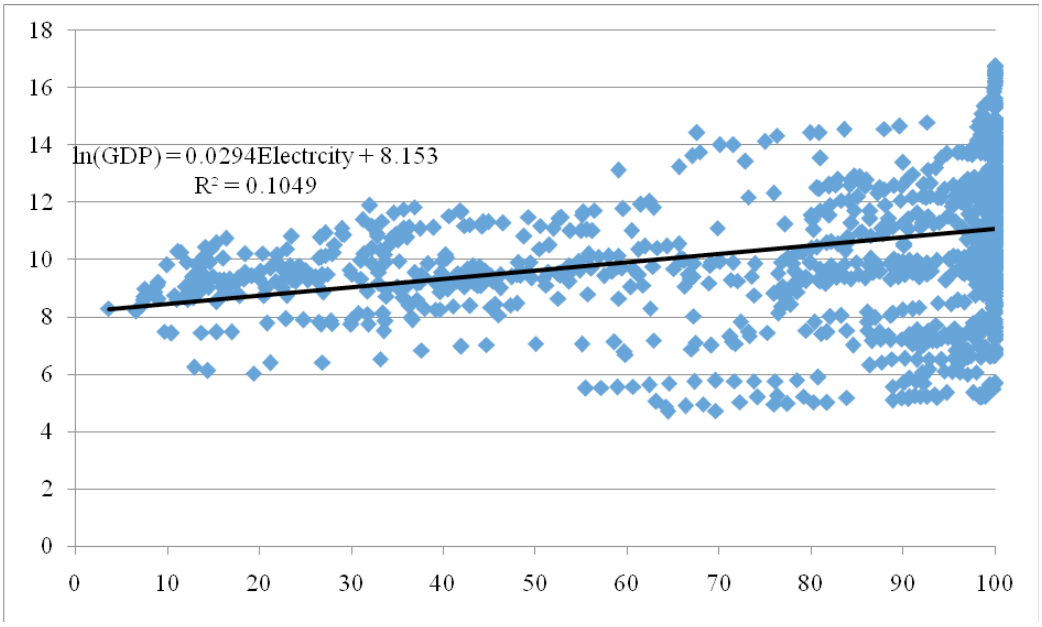
Source: World Bank (2020)(Author's calculation).

Figure 3: Labor Tax and Contributions (% of commercial profits)and GDP (million US$): 116 Countries 2005–2017



Source: World Bank (2020)(Author's calculation).

Figure 3: Access to Electricity (% of population) and GDP (million US$): 116 Countries 2005–2017



Source: World Bank (2020)(Author's calculation).

Multivariate Analysis

The results of multivariate analysis (coefficients, standard errors, test statistics *t*, and *P*-value) for the fixed effects regression model of the determinants of GDP are presented in Table 2. It can be seen that tax on income, profits, and capital gains, labor tax and contributions, and access to electricity are positively and significantly associated with economic growth rate statistically, while other taxes is negatively and significantly associated with economic growth rate statistically.

Taxes on income, profits, and capital gains (% of total taxes) was significant at the less than 0.001 significance level. Other things being the same, an increase in one percent of taxes on income, profits, and capital gains (% of total taxes) will increase economic growth rate by 0.054. In this study, taxes on income, profits, and capital gains was the first strongest factor of GDP.

Other taxes (% of revenue) were significant at the less than 0.001 significance level. After controlling for the effects of other factors, an increase in one percent of other taxes (% of revenue) will decrease economic growth by 0.016. In this study, other taxes were the fourth important determinant of economic growth rate.

Labor tax and contributions (% of commercial profits) was significant at the less than0.001 significance level. Ceteris paribus, an increase in one percent of labor tax and contributions (% of commercial profits) will increase economic growth rate by 0.077. In this study, labor tax and contributions (% of commercial profits) was the second strongest predictor of GDP.

Access to electricity (% of population) was significant at the less than 0.001 significance level. Other things being the same, an increase in one percent of access to electricity (% of population) will increase economic growth rate by 0.018. In this study, access to electricity was the third important determinant of GDP.

Table 2: Coefficients, Standard Error, Test Statistic *z*, and*P*-value for the Random Effect Regression Model of the Determinants of GDP

Variable	Coefficients	Standard Error	t	P-value
Intercept	5.943	0.203	29.262	< 0.001
Tax on income, profits, and capital gains (% of total taxes)	0.054	0.003	17.696	< 0.001
Other taxes (% of revenue)	-0.016	0.004	-4.045	< 0.001
Labor tax and contributions (% of commercial profits)	0.077	0.005	16.649	< 0.001
Access to electricity (% of population)	0.018	0.002	9.155	< 0.001

Source: World Bank (2020)(Author's calculation).

Conclusions

The results of thisstudy on the association between law encorcement on tax imposed and economic growth show that, in the order of importance, tax on income, profits,

and capital gains (% of total taxes), labor tax and contributions(% of commercial profits), and access to electricity (% of population) have positive effects on economic growth rate significantly and statistically, while other taxes (% of revenue) has negative effects on economic growth rate These findings imply that the government of countries should enforce law on tax imposed to foster economic growth.

References

Baltagi, B. H. 2008. Econometric Analysis of Panel Data, Wiley.

Browning, Edgar K., and Jacquelene M Browning. 1994. "Market Failure: Public Goods and Externalities." *Public Finance and the Price System*.

Brys, Bert, Sarah Perret, Alastair Thomas, and Pierce O'Reilly. 2016. "Tax Design for Inclusive Economic Growth." *OECD Taxation Working Papers*. https://doi.org/10.1787/5jlv74ggk0g7-en.

Francis M. Bator. 1958. The Anatomy of Market Failure. *Quarterly Journal of Economics*, 72(3), pp. 351–79.

Furton, Glenn, and Adam Martin. 2019. "Beyond Market Failure and Government Failure." *Public Choice*. https://doi.org/10.1007/s11127-018-0623-4.

Gale, William G., and Andrew A. Samwick. 2017. "Effects of Income Tax Changes on Economic Growth." In *The Economics of Tax Policy*. https://doi.org/10.1093/acprof:oso/9780190619725.003.0002.

Greene, W.H. 2008. Econometric analysis 6th ed., Upper Saddle River, N.J. Prentice Hall.

Hindriks, Jean and Myles, Gareth D. 2006. Intermediate Public Economics, Cambridge, Massachusets Institute of Techonolgy.

Lawrence M. Friedman. 1975. The Lefal System, A Social Science Perspective, New York, Russel Sage Foundation.

Lee, Young, and Roger H. Gordon. 2005. "Tax Structure and Economic Growth." Journal of Public Economics. https://doi.org/10.1016/j.jpubeco.2004.07.002.

Myles, Gareth D. 2000. "Taxation and Economic Growth." *Fiscal Studies*. https://doi.org/10.1111/j.1475-5890.2000.tb00583.x.

Pasour, E. C. 1995. "Market Failure and Government Failure." *Cultural Dynamics*. https://doi.org/10.1177/092137409500700313.

Paul Krugman, P and Robin Wells Robin. 2006. *Economics*, New York, Worth Publishers.

Schmidtz, David. 1993. "Market Failure." *Critical Review*. https://doi.org/10.1080/08913819308443316.

Shand, Alexander. 1987. "The Failure of 'Market Failure.'" *Economic Affairs*. https://doi.org/10.1111/j.1468-0270.1987.tb01870.x.

Stammler. 1994. Defenition of Law inHari Chand, Modern Jurisprudence, KL International Law Book Services.

Teguh Prasetyo and Abdul Halim Barkatullah, A.H. 2017.*Filsafat, Teori dan Ilmu Hukum*: *Pemikiran Menuju Masyarakat yang Berkeadilan dan Bermartabat* (Philosophy, Theory, and Law Science: Thinking toward Just and Dignified Society).Rajawali Pers, Jakarta.

World Bank, 2020. World Development Indicators.