Page: 33-48
E-ISSN: 2721-298X
DOI: https://doi.org/10.33830/tjeb.v6i1

JOURNAL ECONOMICS BUSINESS

Does Economic Growth Lead to Government Expenditure in Indonesia?

Benny Imantria[1*]
[1]Faculty of Economics and Business, Diponegoro University, Semarang, Indonesia
*Corresponding author e-mail: bennyimantria@students.undip.ac.id

Abstract: Economic growth effect on government expenditure has been debated theoretically and empirically. This study aims to identify the unidirectional relationship from GDP and government revenue to government expenditure in the short and long-run in Indonesia. Data sample used is a time series from 1976 to 2023, analyzed using ARDL model. The novelties lie in the time period, data variables, and analytical methods. This study found that GDP has no effect in the short-run, but GDP has a significant positive effect on government expenditure in the long-run, indicating that wagner's law has occurred in Indonesia during the observation period. Government revenue has a significant effect on government expenditure in the short and long-run, although the magnitude effect is lower in the long-run. Therefore, government expenditure is mainly determined by government revenue in the short-run and GDP in the long-run. Policymakers are expected to increase economic growth and government revenue, as well as allocate and realize government expenditure effectively.

Keywords: Economic growth, Expenditure, GDP, Revenue, Wagner's law

1. Introduction

The causal relationship between economic growth and government expenditure has been debated theoretically and empirically in public economics. Based on the great depression, a global economic downturn, Keynes argued that increased government expenditure would stimulate short-run economic growth (Keynes, 1936). Conversely, Wagner believes that increased economic growth would drive long-run increased government expenditure (Wagner, 1883; 1893; 1958).

Several previous studies have performed to verify the existence of wagner's law, but they do not have the same conclusion. Several studies have found that wagner's law occurs in the economies of both developing and developed countries, but some other studies have come to different conclusions. These differences may occur because the studies were conducted on different countries, data variables, and analysis methods (Nyasha & Odhiambo, 2019; Park, 2023).

Proving the occurrence of a wagner's law in a country is important because it can be a reference for policymakers to manage government expenditure appropriately. Government expenditure is a fiscal policy that plays an important role in creating public welfare (R. E. Wagner & Weber, 1977). The implementation of wagner's law shows the government's commitment to supplying public goods and government administration. Government expenditure will increase in absolute and relative terms to GDP to fund programs and activities in defense, administration, justice, education, and welfare (Peacock & Scott, 2000).

Based on Law No. 17 of 2003 on State Finance, government expenditure in Indonesia is used for the allocation function to create economic efficiency through provision of public goods.

Page: 33-48
E-ISSN: 2721-298X
DOI: https://doi.org/10.33830/tjeb.v6i1

Equitable and continuity provision of public goods that meet public needs is expected to reduce poverty and regional disparities as one of the visions for Indonesia Emas 2045. Government expenditure is expected to reduce the poverty rate to 0.5%-0.8% and the Gini index to 0.29-0.32.

Based on Figure 1, Indonesia's economic growth, which can be represented by Gross Domestic Product (GDP), has consistently increased every year. Economic growth only experienced a significant decrease of -13,13% during the monetary crisis in 1998 and -2,07% during the COVID-19 pandemic in 2020. Manufacturing industry is the fastest developing sector and the largest contributor to economic growth in Indonesia. Meanwhile, government expenditure also shows an upward trend every year during the period 1976-2023. Government expenditure only decreased significantly due to the monetary crisis in 1998-1999, fiscal year changes (with a shorter period in 2000), and the financial crisis in 2009-2010. GDP (12,89x) increased at a higher rate than government expenditure (8,15x), although both had an upward trend every year. This indicates that GDP has grown faster than government expenditure in Indonesia over the 1976-2023 period.

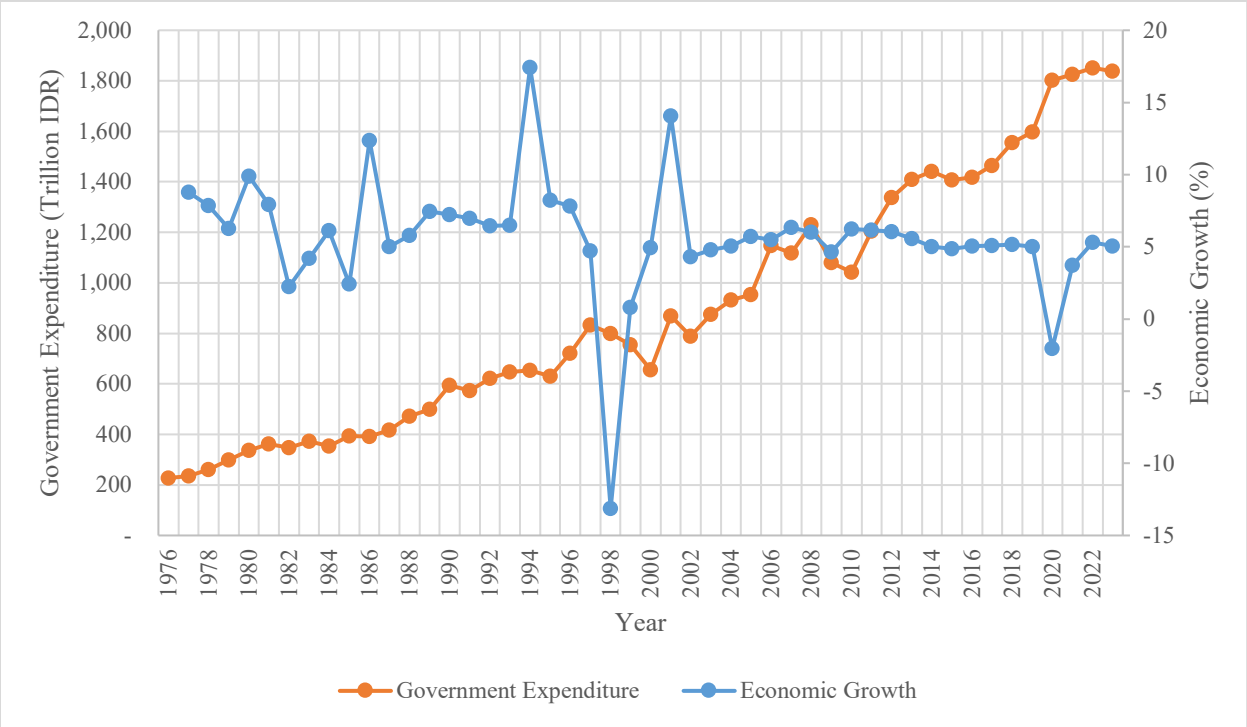


Figure 1. Economic Growth and Government Expenditure in Indonesia
Source: Statistics Indonesia (2025)

Unidirectional relationship from GDP to government expenditure was first argued by Adolph Wagner (1835–1917) who viewed the fast-growing urbanization and industrialization over the 19th century in EU. Wagner's law subsequently emerged with the hypothesis noted as increasing state activity, which posits that increased state activity due to increased national income during the urbanization and industrialization process (A. Wagner, 1958). If state activity can be measured in government expenditure, increasing state activity indicates that increased GDP will

Page: 33-48
E-ISSN: 2721-298X
DOI: https://doi.org/10.33830/tjeb.v6i1

drive to long-run increased government expenditure (R. E. Wagner & Weber, 1977). Therefore, government expenditure is an endogenous factor, and GDP is an exogenous factor.

GDP is the main determinant that impacts government expenditure (A. Wagner, 1958). Increased GDP will enhance the opportunity to increase tax revenue, thereby improving fiscal capacity. Adequate fiscal capacity can be used to provide public goods through government expenditure. Budget allocation of government expenditure will be added by government debt to provide public goods and government administration when fiscal capasity is limited.

Increased GDP will drive increased government expenditure in the long run to fund programs and activities, as explained by A. Wagner (1958) as follows. First, government expenditure on administration and protection functions is due to increased industrialization activities in the private sector, which require more regulation, as well as urbanization which leads to population density. Second, government expenditure on welfare and cultural functions due to economic growth, which increases public demand for higher quality public goods, especially in education and health, as well as the need for income redistribution to reduce inequality. Third, government expenditure on social functions due to technological advances and private investment in various sectors that create private sector monopolies, prompting the government to make similar investments to create economic efficiency.

In the last decade, studies to identify unidirectional relationship from GDP to government expenditure has been performed in developing and developed countries in Europe, Asia, and Africa, but still limited in Indonesia. Inchauspe et al. (2022) performed a study in Indonesia for the 1980-2014 period utilizing data variables of GDP, price, and government expenditure which was analyzed using granger non-causality. The study found that increased price and GDP will drive increased government expenditure, verifying the existence of wagner's law in Indonesia.

Several previous studies conducted to identify the unidirectional relationship between GDP to government expenditure have found different conclusions. Some studies have found that increased GDP will drive increased government expenditure, indicating the presence of wagner's law. Barra et al. (2015), Bayrakdar et al. (2015), Odhiambo (2015), Atasoy & Gür (2016), Cavicchioli & Pistoresi (2016), Afonso & Alves (2017), Leshoro (2017), Pistoresi et al. (2017), Abbasov & Aliyev (2018), Dudzevičiūtė et al. (2018), Irandoust (2019), Jalles (2019), Nyasha & Odhiambo (2019), Paparas et al. (2019), Sedrakyan & Varela-Candamio (2019), Babajide et al. (2020), Kumar & Cao (2020), Nirola & Sahu (2020), Sagdic et al. (2020), Tesařová (2020), Ghazy et al. (2021), Gurdal et al. (2021), Nusair & Olson (2021), Popescu & Diaconu (Maxim) (2021), Selvanathan et al. (2021), Bazán et al. (2022), Gallegati & Tamberi (2022), Inchauspe et al. (2022), Kirikkaleli & Ozbeser (2022), Rani & Kumar (2022), Trofimov (2023), Hossain et al. (2024) found that GDP had positive effect on government expenditure in some developing and developed countries.

Conversely, several previous studies to identify the unidirectional relationship from GDP to government expenditure have found opposite results. Mohammadi & Ram (2015), Adil et al. (2017), Funashima (2017), Kibara Manyeki & Kotosz (2017), Jaén-García (2018), Kónya & Abdullaev (2018), Pula & Elshani (2018), Ebaid & Bahari (2019), Gatsi et al. (2019), Ahuja & Pandit (2020), Olaoye et al. (2020), Arestis et al. (2021), O. Olaoye & Afolabi (2021), Park (2023) found that GDP had no effect on government expenditure in some developing and developed countries.

Page: 33-48
E-ISSN: 2721-298X
DOI: https://doi.org/10.33830/tjeb.v6i1

Based on previous studies that have different results to identify the unidirectional relationship from GDP to government expenditure, as well as GDP has a faster growth rate than government expenditure, further studies are needed to identify the effect of GDP on government expenditure in Indonesia. This study differs from previous studies because it has a longer observation period, uses government revenue as an independent variable to reduce omitted variable bias in the model equation, and uses ARDL for data sample analysis. Data samples used has a longer time period to ensure the reliability of estimation result (Paparas et al., 2019), including financial crisis and Covid-19, as well as the change from a balanced budget to a deficit budget also routine expenditure and development expenditure to a unified budget. Data variable includes government revenue as an independent variable that has an important role to the budget allocation of government expenditure in APBN. ARDL is used as an analytical method to identify the short and long-run effects of GDP and government revenue on government expenditure.

This study is important because increased government expenditure that may be caused by increased GDP must be realized effectively, efficiently, and prioritized through the provision of public goods in order to provide significant benefits to public welfare. This study aims to identify the effects of GDP and government revenue on government expenditure in the short and long-run, as well as the presence of wagner's law in Indonesia. This study is expected to contribute to new empirical evidence on the presence of wagner's law in Indonesia as a developing country which has undergone changes in the budgeting system. In addition, policymakers are expected to increase economic growth and government revenue, as well as allocate and realize government expenditure effectively.

2. Research Method

This study was conducted with quantitative methods utilizing time series data over 1976-2023 period, with 48 observations. Data sample was secondary data obtained from official publications issued by Statistics Indonesia with details as specified in Table 1.

Table 1. Variables and Data Sources

Variables	Descriptions	Unit	Sources
Gross Domestic Product (GDP)	Real gross domestic product (2010=100)	Trillion (IDR)	Statistics Indonesia
Government Revenue (REV)	Routine and development revenue, tax revenue, and non-tax revenue divided by GDP deflator (2010=100)	Trillion (IDR)	Statistics Indonesia
Government Expenditure (GE)	Routine and development expenditure, expenditure by classification of type divide by GDP deflator (2010=100)	Trillion (IDR)	Statistics Indonesia

Source: Data Processed (2025)

To eliminate the inflation effect, the data variables are expressed in real value using 2010 as the base year. Government revenue and government expenditure are measured using the total realization value due to changes in the format and structure of APBN based on the state financial reform in 2003. The new format and structure of APBN began to be implemented in 2005. Routine

Page: 33-48
E-ISSN: 2721-298X
DOI: https://doi.org/10.33830/tjeb.v6i1

revenue and development revenue were changed to tax revenue and non-tax revenue, while routine expenditure and development expenditure were changed to government expenditure by classification of type, namely employee, goods and services, capital, debt interest payments, subsidy, grants, social assistance, and miscellaneous expenditure. Wagner's law can be analyzed using functional forms as follows.

Table 2. Wagner's Law Functional Form

Version	Function
Peacock & Wiseman (1961)	GE=f(GDP)
Goffman (1968)	GE=f(GDP/P)
Gupta (1967)	GE/P=f(GDP/P)
Mann (1980)	GE/GDP=f(GDP)
Pryor (1968)	GCE=f(GDP)
Musgrave (1969)	GE/GDP=f(GDP/P)

Source: Paparas et al. (2019); Arestis et al. (2021); Rani & Kumar (2022); Hossain et al. (2024)

The Peacock & Wiseman (1961) functional form was used in this study because it better represents the unidirectional relationship from GDP to government expenditure and has been widely used in previous studies to identify the existence of wagner's law. This study also includes government revenue as an independent variable because it has an important role to determine government expenditure (A. Wagner, 1958). The data variables were transformed into log to simplify the analysis and to obtain a normal data distribution.

This study was conducted using ARDL analysis method because it can be applied to small observations and identify the short and long-run effect (Pesaran et al., 2001). Model equation can be written as follows:

$$\Delta(\ln GE_t)=\alpha_0+\beta_1 \ln GE_t+\beta_2 \ln GDP_t+\beta_3 \ln REV_t+\sum_{i=1}^{p}\theta_{1i}\Delta(\ln GE_{t-i}) +\sum_{j=1}^{q}\varphi_{1j}\Delta(\ln GDP_{t-j})+\sum_{j=1}^{q}\theta_{2j}\Delta(\ln REV_{t-j})+\varepsilon_t \quad (1)$$

were, GE: government expenditure; GDP: gross domestic product; REV: government revenue; α_0: intercept; $\beta_{1,2,3}$: long-run coefficients; Δ: first difference operation; θ_{1i},φ_{1j},φ_{2j}: short-run coefficients; ε_t: error term.

Cointegration between GDP, government revenue, and government expenditure indicating that error correction model can be applied to measure adjustment speed to long-run equilibrium. Error correction model based on eq.1 can be written as follows:

$$\Delta(\ln GE_t)=\alpha_0+\sum_{i=1}^{p}\theta_{1i}\Delta(\ln GE_{t-i})+\sum_{j=1}^{q}\varphi_{1j}\Delta(\ln GDP_{t-j}) +\sum_{j=1}^{q}\theta_{2j}\Delta(\ln REV_{t-j})+\delta ECT_{t-1}+\varepsilon_t \quad (2)$$

were, δ: adjustment speed; ECT_{t-1}: error correction term.

The procedure for estimating the ARDL model is performed in the following order: stationarity test, optimal lag selection, ARDL estimation, cointegration test using the bounds test, residual diagnostic tests, stability tests, and interpretation of estimation results.

Page: 33-48
E-ISSN: 2721-298X
DOI: https://doi.org/10.33830/tjeb.v6i1

Stationarity tests are conducted to ensure that data variables are stationary, in order to be used for further analysis. If time series data is non-stationary, it can create spurious regression, resulting in misleading estimation (Granger & Newbold, 1974). Unit root tests can determine stationary of data variables in I (0)/level form or I (1)/first difference form, using ADF (Dickey & Fuller, 1979) and PP (Phillips & Perron, 1988). The initial hypothesis (H_0) is that there is a unit root problem or random walk without drift, indicating that the data variables are non-stationary.

Optimal lag selection is performed to obtain an ARDL model residual that satisfies the Gauss-Markov assumptions. Optimal lag selection is obtained by identifying the measurement results of AIC, HQIC, and SBIC.

ARDL model is conducted based on the selected optimal lag to identify the effect of GDP and government revenue on government expenditure. If ECT_{t-1} has negative ($-1<\delta<0$) and significant p-value, adjustment speed to long-run equilibrium can be identified. The data variables in level form show long-run relationships, while the first difference form shows short-run relationships.

Cointegration test is conducted to confirm the presence of long-run relationship between data variables. In this study, the cointegration test is conducted using bounds test because it is suitable for a small data sample of 30-80 observations (Narayan, 2005). The initial hypothesis (H_0) is that there is no long-run relationship. If absolute calculated F-stat and t-stat values are larger than critical values of the upper bound/I (1) at the 5% significance level, then H_0 is rejected, indicating the presence of a long-run relationship in data variables.

Residual diagnostic tests are important to ensure that ARDL model estimation results meet the Gauss-Markov assumptions, which consist of being linear, unbiased, and efficient estimators (Gujarati & Porter, 2009). Residual diagnostic tests include normality test (skewness and kurtosis), heteroskedasticity test (breusch–pagan), and autocorrelation test (breusch–godfrey). The initial hypotheses (H_0) for residual diagnostic tests are that the data is normally distributed, no heteroscedasticity, and no autocorrelation.

Stability tests are conducted using CUSUM and CUSUM-squared. The dash line indicates critical value at the 5% significance level. A stable long-run relationship in data variables can be identified if the plot does not cross the critical value line.

3. Results and Discussions

Descriptive statistics will provide a brief overview of data variables used in this study during the observation period, as shown in Table 3.

GDP, government revenue, and government expenditure have shown an upward trend during the observation period. GDP has the highest growth compared to the others. A higher GDP will drive an increase in government revenue. Similarly, higher government revenue will lead to a larger fiscal capacity and increased government expenditure allocation in APBN.

Table 3. Descriptive Statistics

Variable	Obs	Mean	Std. Dev	Min	Max
GE	48	888.36	487.65	227.17	1,851.02
GDP	48	4,979.03	3,405.61	953.71	12,301.39

Page: 33-48
E-ISSN: 2721-298X
DOI: https://doi.org/10.33830/tjeb.v6i1

REV	48	760.25	416.99	179.18	1,639.17

Source: Data Processed (2025)

Stationarity test result performed utilizing unit root test can be detailed based on Table 4. The variable data is not stationary in level form because the p-value is not significant. The variable data is stationary in first difference form because the p-value is significant, therefore the initial hypothesis (H_0) is rejected.

Table 4. Unit Root Test Results

Variable	Level Form/ I(0)		First difference Form/ I(1)	
	ADF	PP	ADF	PP
lnGE	-1.448	-1.689	-8.591***	-8.865***
	(0.559)	(0.436)	(0.000)	(0.000)
lnGDP	-1.667	-1.633	-5.431***	-5.371***
	(0.448)	(0.465)	(0.000)	(0.000)
lnREV	-1.422	-1.549	-7.816***	-7.989***
	(0.571)	(0.508)	(0.000)	(0.000)

Notes: * p<0.05; ** p<0.01; *** p<0.001; P-value in parentheses

Based on Table 5, the selected optimal lag from AIC, HQIC, and SBIC is period 1. Therefore, the ARDL model uses data variables with a lag of 1 year. The ARDL model that uses the optimal lag will have best linear unbiased estimator for further analysis.

Table 5. Lag-order Selection Criteria

Lag	AIC	HQIC	SBIC
0	-2.307	-2.262	-2.185
1	-8.432*	-8.251*	-7.945*
2	-8.196	-7.88	-7.345
3	-8.244	-7.793	-7.028
4	-7.995	-7.408	-6.413

Note: * selected optimal lag

Table 6. Bounds Test and Residual Diagnostic Tests Results

Bounds Test									
Calculated Value		Critical Value 10%		Critical Value 5%		Critical Value 1%		P-value	
		I(0)	I(1)	I(0)	I(1)		I(0)	I(1)	I(0)
F	8.524***	3.287	4.320	4.020	5.175	5.723	7.130	0.001	0.003
t	-5.002***	-2.566	-3.228	-2.897	-3.589	-3.560	-4.301	0.000	0.002

Residual Diagnostic Test		
Diagnostic Tests	Chi2	Prob>chi2
Normality Test	4.500	0.105
Heteroscedasticity Test	1.550	0.213
Autocorrelation Test	0.583	0.445

Note: * p<0.10; ** p<0.05; *** p<0.01

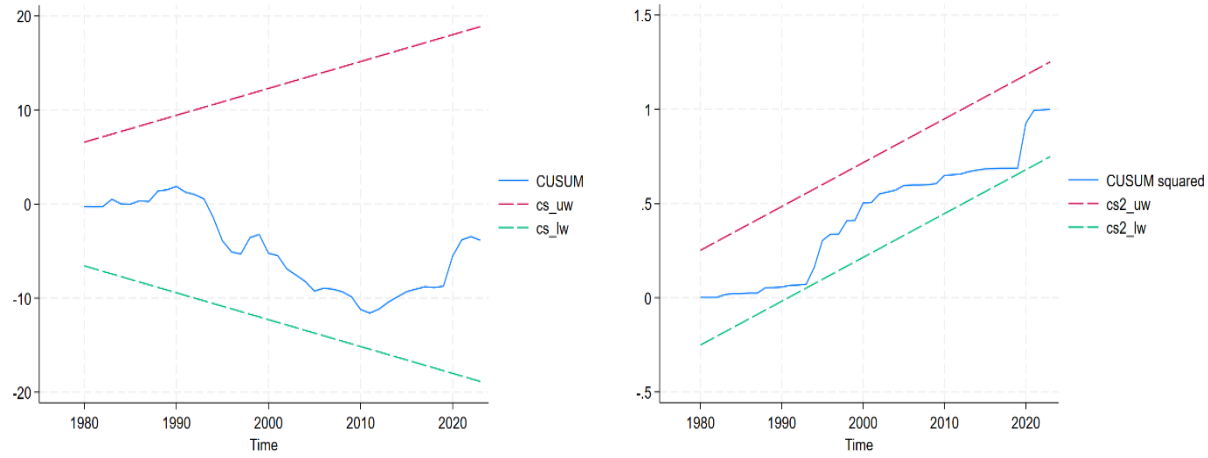
Page: 33-48
E-ISSN: 2721-298X
DOI: https://doi.org/10.33830/tjeb.v6i1

Cointegration test is conducted by bounds test. Based on Table 6, absolute calculated F-stat and t-stat values are larger than the critical values of the upper bound/I(1) and have significant p-values for I(1) variables. Therefore, the initial hypothesis is rejected, indicating long-run relationship between GDP, government revenue, and government expenditure.

Based on table 6, residual diagnostic test results have statistically insignificant Prob>chi2 values, indicating that ARDL model residuals are normally distributed, homoscedastic, and have no serial correlation.

Stability tests are conducted using CUSUM and CUSUM-squared to determine the stability of the variable coefficients. Based on Figure 2, the plots do not cross the critical value line at the 5% significance level in both stability tests, indicating that the data variables are stable in the long run.

Based on stationarity test, optimal lag selection, cointegration test, residual diagnostic tests, and stability tests, ARDL model can be used for further analysis to identify the effects of GDP and government revenue on government expenditure in the short and long-run.



a. CUSUM b. CUSUM-squared

Figure 2. Stability Tests Results
Source: Data Processed (2025)

The unidirectional relationship between GDP and government revenue to government expenditure is detailed in Table 7. Based on cointegration test and error correction term value, GDP and government revenue have short and long-run effects on government expenditure.

Table 7. ARDL Model Estimation Results

Independent Variables	Dependent Variable: ΔGE_t			
	Coefficient	Std. Error	t	P>|t|
Short-run Effects				
$\Delta lnGDP_{t-1}$	-0.262	0.226	-1.160	0.254
$\Delta lnREV_{t-1}$	0.529***	0.096	5.480	0.000
ECT_{t-1}	-0.635***	0.127	-5.000	0.000
Long-run Effects				

Page: 33-48
E-ISSN: 2721-298X
DOI: https://doi.org/10.33830/tjeb.v6i1

$lnGDP_{t-1}$	0.496***	0.10	4.67	0.000
$lnREV_{t-1}$	0.343*	0.128	2.67	0.011
R-squared		0.6515		
Obs		47		

Notes: * p<0.05; ** p<0.01; *** p<0.001

Source: Data Processed (2024)

GDP ($\Delta lnGDP_{t-1}$) has no effect on government expenditure (ΔGE_t) in the short run. Official government institutions have absolute authority to determine the budget allocation size of government expenditure in APBN. Physical capital development in Indonesia during the 1976-1998 period was actually foreign debt recorded as development expenditure in APBN, indicating that government expenditure is determined by economic growth and fiscal capacity. Poor government expenditure management has also driven to ineffective, inefficient and unaccountable government expenditure, resulting in lower quantity and quality of public goods. Kibara Manyeki & Kotosz (2017) found that poor government expenditure management in Kenya will result in government expenditure growth being slower than GDP growth.

Government revenue (ΔREV_{t-1}) has a significant positive effect on government expenditure (ΔGE_t) in the short run. An increase in government revenue (ΔREV_{t-1}) by 1% will increase government expenditure (ΔGE_t) by 0.529% in the short-run, ceteris paribus. Government expenditure is more determined by the government revenue than GDP in the short run. Increasing tax and non-tax revenue can enhance fiscal capacity, allowing for more funds to be allocated to government expenditure in APBN (A. Wagner, 1958). Increasing the budget allocation of government expenditure will drive to quantity and quality of public goods. Gurdal et al. (2021) found that increased tax revenues in G7 countries can create macroeconomic stability and allow for greater allocation of government expenditure to public goods.

GDP ($\Delta lnGDP_{t-1}$) has no effect, while government revenue (ΔREV_{t-1}) has a positive effect on government expenditure (ΔGE_t) in the short run. This condition indicates that government expenditure is more determined by government revenue in the short run. Increased government revenue can immediately increase the state budget, which can then be used to increase government expenditure in the current year.

The ECT_{t-1} has a negative coefficient and insignificant p-value, indicating that there is an adjustment in the short-run dynamics to long-run equilibrium. This adjustment is a process of reconciling the short-run behavior of economic variables with their long-run behavior. ECT_{t-1} coefficient value, which is -0.6359, shows that adjustment speed to long-run equilibrium is 63.59% each year.

GDP ($lnGDP_{t-1}$) has a significant positive effect on government expenditure (ΔGE_t) in the long run. An increase in GDP ($lnGDP_{t-1}$) by 1% will increase government expenditure (ΔGE_t) by 0.496% in the long-run, ceteris paribus. Increased government expenditure due to increased GDP in the long run will be explained by several reasons. First, the fast-growing of private sector in Indonesia, driven by industrialization and urbanization, requires regulations to create economic stability and social order, which in turn requires increased government expenditure for administration and protection functions. Second, the public, with a higher standard of living as Indonesia becomes an upper-middle income country in 2023, will demand the government to

Page: 33-48
E-ISSN: 2721-298X
DOI: https://doi.org/10.33830/tjeb.v6i1

provide higher quality public goods, especially in education and healthcare, which is necessary to increase government expenditure on social and cultural functions. Third, the private sector has advanced technological expertise and has invested in various sectors to create economic monopolies, so it is necessary to increase government expenditure on social functions by making similar investments in various sectors to create economic efficiency. Pistoresi et al. (2017) found that the increase in GDP in Italy after World War II led to an increase in government expenditure. Irandoust (2019) found that increases in GDP in 12 OECD countries increased government expenditure to meet public demand for higher quality public goods. Jalles (2019) found that wagner's law occurs more frequently in developed countries as economic growth exceeds potential. Kirikkaleli & Ozbeser (2022) found that an increased GDP drives long-run increased government expenditure in the USA.

Government revenue ($\ln REV_{t-1}$) has a significant positive effect on government expenditure (ΔGE_t) in the long-run. An increase in government revenue ($\ln REV_{t-1}$) by 1% will increase government expenditure (ΔGE_t) by 0.343% in the long-run, ceteris paribus. Increased government revenue can directly foster fiscal capacity, allowing for additional budget allocations of government expenditure to provide public goods (A. Wagner, 1958). Government revenue in the long-run has a smaller coefficient value compared to the short-run, indicating that government revenue has lower effect on government expenditure in the long-run. Fernández-Rodríguez et al. (2023) found that the optimal implementation of tax rates in the G7 and BRICS countries would increase government revenue. Irandoust (2019) found that excessive long-term tax rate increases in 20 OECD countries would lead to inefficiencies, especially for countries that already have high tax rates. Gamannossi degl'Innocenti et al. (2022) found that excessive long-term tax rate would lead taxpayers to engage in tax evasion and tax avoidance.

Government revenue ($\ln REV_{t-1}$) has smaller coefficient value than the GDP ($\ln GDP_{t-1}$), indicating that government expenditure is determined more by GDP than government revenue in the long-run. Increased private sector activity and demand for higher quality public goods will drive government expenditure, while excessive long-term tax rates will lead to inefficiency. Therefore, government expenditure must be allocated and realized effectively to provide public goods needed by the private sector and society.

GDP has a significant positive effect on government expenditure, verifying that wagner's law presence in Indonesia as a developing country. Government expenditure is largely determined by government revenue in the short-run but determined by GDP in the long-run. Policymakers are expected to increase GDP and government revenue to increase government expenditure on public goods. GDP can be improved by increasing factors of production (Barro & Sala-i-Martin, 2004), which consists of physical capital (Bruns & Ioannidis, 2020), labor (He & Xu, 2019), and human capital (J. Park et al., 2019). Meanwhile, government revenue can be increased by measuring the tax potential (Mawejje & Sebudde, 2019) as the biggest resource of government revenue in Indonesia.

Government expenditure has an optimal size relative to GDP (Ferris & Voia, 2017; Forte & Magazzino, 2018; Makin et al., 2019; Al-Abdulrazag, 2021). Government expenditure has a growth limit that is determined by fiscal capacity, especially tax revenues (Karceski & Kiser, 2020). In addition, excessive government expenditure can lead to waste and increase the potential for corruption (Leshoro, 2017).

Page: 33-48
E-ISSN: 2721-298X
DOI: https://doi.org/10.33830/tjeb.v6i1

Government expenditure must be used efficiently (Albassam, 2020) when fiscal capacity is limited in order to reduce public debt ratio and achieve fiscal sustainability. Government expenditure efficiency can be implemented by using fewer inputs to produce the same quantity and quality of public goods (Afonso & Alves, 2023). Efficiency in government expenditure can also be implemented by allocating the state budget proportionately between routine and development expenditure to maximize the impact on GDP (J. Abbasov, 2023).

4. Conclusions

This study was conducted using time series data from 1976 to 2023, which was analyzed using ARDL. This study found that GDP has no effect in the short-run, but GDP has a significant positive effect on government expenditure in the long-run, indicating the presence of wagner's law in Indonesia. Government revenue has a significant effect on government expenditure in the short and long-run, although the magnitude effect is lower in the long-run. Therefore, government expenditure is mainly determined by government revenue in the short-run and GDP in the long-run. Policymakers are expected to increase economic growth and government revenue, as well as allocate and realize government expenditure effectively.

This study has limitations as it only uses GDP and government revenue as determinants to identify increased government expenditure in Indonesia. Furthermore, this study has not yet provided a detailed explanation of the government expenditure response due to the shocks from political and economic events over 1976-2023. Further studies can be conducted to understand the effect of political institutions (Qiao et al., 2019; Barra et al., 2020; Kourtellos et al., 2020) in determining the budget allocation of government expenditure in the state budget, as well as to identify the optimal amount of government expenditure, evaluate the efficiency of government expenditure, and identify the government expenditure response due to the political and economic shocks such as the democratic reform (1998), regional autonomy policy implementation (2000), the state financial reform (2003), the monetary crisis (1998), the financial crisis (2008), and the COVID-19 pendemic (2020).

References

Abbasov, J. (2023). A New Simple Test to Evaluate the Efficiency of Government Spending. *Economics & Sociology*, *16*(3), 97–124. https://doi.org/10.14254/2071-789X.2023/16-3/6

Abbasov, J. A., & Aliyev, K. (2018). Testing Wagner's Law and Keynesian Hypothesis in Selected Post-Soviet Countries. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, *66*(5), 1227–1237. https://doi.org/10.11118/actaun201866051227

Adil, M. H., Ganaie, A. A., & Kamaiah, B. (2017). Wagner's Hypothesis: An Empirical Verification. *IIM Kozhikode Society & Management Review*, *6*(1), 1–12. https://doi.org/10.1177/2277975216667095

Afonso, A., & Alves, J. (2017). Reconsidering Wagner's Law: Evidence from the Functions of the Government. *Applied Economics Letters*, *24*(5), 346–350. https://doi.org/10.1080/13504851.2016.1192267

Page: 33-48
E-ISSN: 2721-298X
DOI: https://doi.org/10.33830/tjeb.v6i1

Afonso, A., & Alves, J. (2023). Does Government Spending Efficiency Improve Fiscal Sustainability? *European Journal of Political Economy*, 102403. https://doi.org/10.1016/j.ejpoleco.2023.102403

Ahuja, D., & Pandit, D. (2020). Public Expenditure and Economic Growth: Evidence from the Developing Countries. *FIIB Business Review*, *9*(3), 228–236. https://doi.org/10.1177/2319714520938901

Al-Abdulrazag, B. (2021). The Optimal Government Size in the Kingdom of Saudi Arabia: An ARDL Bounds Testing Approach to Cointegration. *Cogent Economics & Finance*, *9*(1). https://doi.org/10.1080/23322039.2021.2001960

Albassam, B. A. (2020). A Model for Assessing the Efficiency of Government Expenditure. *Cogent Economics & Finance*, *8*(1), 1823065. https://doi.org/10.1080/23322039.2020.1823065

Arestis, P., Şen, H., & Kaya, A. (2021). On the Linkage Between Government Expenditure and Output: Empirics of the Keynesian View Versus Wagner's Law. *Economic Change and Restructuring*, *54*(2), 265–303. https://doi.org/10.1007/s10644-020-09284-7

Atasoy, B., & Gür, T. (2016). Does the Wagner's Hypothesis Hold for China? Evidence from Static and Dynamic Analyses. *Panoeconomicus*, *63*(1), 45–60. https://doi.org/10.2298/PAN1601045A

Babajide, A. A., Okunlola, F. A., Nwuba, E., & Lawal, A. I. (2020). Wagner Proposition in Nigeria: An Econometric Analysis. *Heliyon*, *6*(8), e04680. https://doi.org/10.1016/j.heliyon.2020.e04680

Barra, C., Bimonte, G., & Spennati, P. (2015). Did Fiscal Institutions Affect Wagner's Law in Italy During 1951–2009 Period? An Empirical Analysis. *Applied Economics*, *47*(59), 6409–6424. https://doi.org/10.1080/00036846.2015.1071475

Barra, C., Ruggiero, N., & Zotti, R. (2020). Short- and Long-Term Relation Between Economic Development and Government Spending: The Role of Quality of Institutions. *Applied Economics*, *52*(9), 987–1009. https://doi.org/10.1080/00036846.2019.1646884

Barro, R. J., & Sala-i-Martin, X. (2004). *Economic Growth* (2nd ed.). The MIT Press.

Bayrakdar, S., Demez, S., & Yapar, M. (2015). Testing the Validity of Wagner's Law: 1998-2004, The Case of Turkey. *Procedia - Social and Behavioral Sciences*, *195*, 493–500. https://doi.org/10.1016/j.sbspro.2015.06.251

Bazán, C., Álvarez-Quiroz, V. J., & Morales Olivares, Y. (2022). Wagner's Law vs. Keynesian Hypothesis: Dynamic Impacts. *Sustainability*, *14*(16), 10431. https://doi.org/10.3390/su141610431

Bruns, S. B., & Ioannidis, J. P. A. (2020). Determinants of Economic Growth: Different Time Different Answer? *Journal of Macroeconomics*, *63*, 103185. https://doi.org/10.1016/j.jmacro.2019.103185

Cavicchioli, M., & Pistoresi, B. (2016). Testing Threshold Cointegration in Wagner's Law: The Role of Military Spending. *Economic Modelling*, *59*, 23–31. https://doi.org/10.1016/j.econmod.2016.06.011

Dickey, D. A., & Fuller, W. A. (1979). Distribution of the Estimators for Autoregressive Time Series With a Unit Root. *Journal of the American Statistical Association*, *74*(366), 427. https://doi.org/10.2307/2286348

Page: 33-48
E-ISSN: 2721-298X
DOI: https://doi.org/10.33830/tjeb.v6i1

Dudzevičiūtė, G., Šimelytė, A., & Liučvaitienė, A. (2018). Government Expenditure and Economic Growth in the European Union Countries. *International Journal of Social Economics*, *45*(2), 372–386. https://doi.org/10.1108/IJSE-12-2016-0365

Ebaid, A., & Bahari, Z. (2019). The Nexus Between Government Expenditure and Economic Growth: Evidence of the Wagner's Law in Kuwait. *Review of Middle East Economics and Finance*, *15*(1). https://doi.org/10.1515/rmeef-2017-0001

Fernández-Rodríguez, E., García-Fernández, R., & Martínez-Arias, A. (2023). Institutional Determinants of the Effective Tax Rate in G7 and BRIC Countries. *Economic Systems*, *47*(2), 101079. https://doi.org/10.1016/j.ecosys.2023.101079

Ferris, J. S., & Voia, M.-C. (2017). Is the Aggregate Size of Government in Canada Too Large? *Journal of Institutional and Theoretical Economics*, *173*(4), 723. https://doi.org/10.1628/093245617X14860182052097

Forte, F., & Magazzino, C. (2018). *Wagner's Law, Government Size and Economic Growth: An Empirical Test and Theoretical Explanations for Italy 1861–2008* (pp. 129–151). https://doi.org/10.1007/978-3-319-78993-4_10

Funashima, Y. (2017). Wagner's Law Versus Displacement Effect. *Applied Economics*, *49*(7), 619–634. https://doi.org/10.1080/00036846.2016.1203063

Gallegati, M., & Tamberi, M. (2022). Long Swings in the Growth of Government Expenditure: An International Historical Perspective. *Public Choice*, *192*(3–4), 227–248. https://doi.org/10.1007/s11127-022-00979-1

Gamannossi degl'Innocenti, D., Levaggi, R., & Menoncin, F. (2022). Tax Avoidance and Evasion in A Dynamic Setting. *Journal of Economic Behavior & Organization*, *204*, 443–456. https://doi.org/10.1016/j.jebo.2022.10.028

Gatsi, J. G., Appiah, M. O., & Gyan, J. A. (2019). A Test of Wagner's Hypothesis for the Ghanaian Economy. *Cogent Business & Management*, *6*(1). https://doi.org/10.1080/23311975.2019.1647773

Ghazy, N. H., Ghoneim, H., & Paparas, D. (2021). The Validity of Wagner's Law in Egypt from 1960-2018. *Review of Economics and Political Science*, *6*(2), 98–117. https://doi.org/10.1108/REPS-01-2020-0004

Goffman, I. J. (1968). On the Empirical Testing of Wagner's Law: A Technical Note. *Public Finance*, *23*, 359–364.

Granger, C. W. J., & Newbold, P. (1974). Spurious Regressions in Econometrics. *Journal of Econometrics*, *2*(2), 111–120. https://doi.org/10.1016/0304-4076(74)90034-7

Gujarati, D. N., & Porter, D. C. (2009). *Basic Econometrics* (5th ed.). McGraw-Hill/Irwin.

Gupta, S. P. (1967). Public Expenditure and Economic Growth: A Time-Series Analysis. *Public Finance*, *22*, 423–471.

Gurdal, T., Aydin, M., & Inal, V. (2021). The Relationship Between Tax Revenue, Government Expenditure, and Economic Growth in G7 Countries: New Evidence from Time and Frequency Domain Approaches. *Economic Change and Restructuring*, *54*(2), 305–337. https://doi.org/10.1007/s10644-020-09280-x

He, Q., & Xu, B. (2019). Determinants of Economic Growth: A Varying-Coefficient Path Identification Approach. *Journal of Business Research*, *101*, 811–818. https://doi.org/10.1016/j.jbusres.2018.12.013

Page: 33-48
E-ISSN: 2721-298X
DOI: https://doi.org/10.33830/tjeb.v6i1

Hossain, Md. A., Toufique, M. M. K., Smrity, D. Y., & Kibria, Md. G. (2024). Testing the Validity of Wagner's Law in Four Income Groups: A Dynamic Panel Data Analysis. *Heliyon*, *10*(2), e24317. https://doi.org/10.1016/j.heliyon.2024.e24317

Inchauspe, J., MacDonald, G., & Kobir, M. A. (2022). Wagner's Law and the Dynamics of Government Spending on Indonesia. *Bulletin of Indonesian Economic Studies*, *58*(1), 79–95. https://doi.org/10.1080/00074918.2020.1811837

Irandoust, M. (2019). Wagner on Government Spending and National Income: A New Look at An Old Relationship. *Journal of Policy Modeling*, *41*(4), 636–646. https://doi.org/10.1016/j.jpolmod.2019.02.003

Jaén-García, M. (2018). Wagner's Law: A Revision and A New Empirical Estimation. *Revista Hacienda Pública Española*, *224*(1), 13–35. https://doi.org/10.7866/HPE-RPE.18.1.1

Jalles, J. (2019). Wagner's Law and Governments' Functions: Granularity Matters. *Journal of Economic Studies*, *46*(2), 446–466. https://doi.org/10.1108/JES-02-2018-0049

Karceski, S. M., & Kiser, E. (2020). Is There A Limit to the Size of the State? The Scope Conditions of Wagner's Law. *Journal of Institutional Economics*, *16*(2), 217–232. https://doi.org/10.1017/S1744137419000481

Keynes, J. M. (1936). *The General Theory of Employment, Interest, and Money*. Macmillan.

Kibara Manyeki, J., & Kotosz, B. (2017). Empirical Analysis of the Wagner Hypothesis of Government Expenditure Growth in Kenya: ARDL Modelling Approach. *Theory, Methodology, Practice*, *13*(2), 45–57. https://doi.org/10.18096/TMP.2017.02.05

Kirikkaleli, D., & Ozbeser, B. (2022). New Insights into An Old Issue: Exploring the Nexus Between Government Expenditures and Economic Growth in the United States. *Applied Economics Letters*, *29*(2), 129–134. https://doi.org/10.1080/13504851.2020.1859448

Kónya, L., & Abdullaev, B. (2018). An Attempt to Restore Wagner's Law of Increasing State Activity. *Empirical Economics*, *55*(4), 1569–1583. https://doi.org/10.1007/s00181-017-1339-x

Kourtellos, A., Lenkoski, A., & Petrou, K. (2020). Measuring the Strength of the Theories of Government Size. *Empirical Economics*, *59*(5), 2185–2222. https://doi.org/10.1007/s00181-019-01718-0

Kumar, S., & Cao, Z. (2020). Testing for Structural Changes in the Wagner's Law for A Sample of East Asian Countries. *Empirical Economics*, *59*(4), 1959–1976. https://doi.org/10.1007/s00181-019-01686-5

Leshoro, T. L. A. (2017). Investigating the Non-Linear Wagner's Hypothesis in South Africa. *African Journal of Economic and Management Studies*, *8*(4), 462–473. https://doi.org/10.1108/AJEMS-01-2017-0008

Makin, A. J., Pearce, J., & Ratnasiri, S. (2019). The Optimal Size of Government in Australia. *Economic Analysis and Policy*, *62*, 27–36. https://doi.org/10.1016/j.eap.2018.12.001

Mann, A. J. (1980). Wagner's Law: An Econometric Test for Mexico, 1925–1976. *National Tax Journal*, *33*(2), 189–201.

Mawejje, J., & Sebudde, R. K. (2019). Tax Revenue Potential and Effort: Worldwide Estimates Using A New Dataset. *Economic Analysis and Policy*, *63*, 119–129. https://doi.org/10.1016/j.eap.2019.05.005

Page: 33-48
E-ISSN: 2721-298X
DOI: https://doi.org/10.33830/tjeb.v6i1

Mohammadi, H., & Ram, R. (2015). Economic Development and Government Spending: An Exploration of Wagner's Hypothesis during Fifty Years of Growth in East Asia. *Economies*, *3*(4), 150–160. https://doi.org/10.3390/economies3040150

Musgrave, R. A. (1969). *Fiscal Systems*. Yale University Press.

Narayan, P. K. (2005). The Saving and Investment Nexus for China: Evidence from Cointegration Tests. *Applied Economics*, *37*(17), 1979–1990. https://doi.org/10.1080/00036840500278103

Nirola, N., & Sahu, S. (2020). Revisiting the Wagner's Law for Indian States Using Second Generation Panel Cointegration. *Economic Change and Restructuring*, *53*(2), 241–263. https://doi.org/10.1007/s10644-018-9237-6

Nusair, S. A., & Olson, D. O. (2021). Testing Wagner's Law Versus the Keynesian Hypothesis for GCC Countries. *Applied Economics*, *53*(12), 1395–1417. https://doi.org/10.1080/00036846.2020.1832196

Nyasha, S., & Odhiambo, N. M. (2019). Government Size and Economic Growth: A Review of International Literature. *SAGE Open*, *9*(3), 215824401987720. https://doi.org/10.1177/2158244019877200

Odhiambo, N. M. (2015). Government Expenditure and Economic Growth in South Africa: an Empirical Investigation. *Atlantic Economic Journal*, *43*(3), 393–406. https://doi.org/10.1007/s11293-015-9466-2

Olaoye, O., & Afolabi, O. (2021). Government Spending and Economic Growth: A Trivariate Causality Testing. *African Journal of Economic and Management Studies*, *12*(2), 250–268. https://doi.org/10.1108/AJEMS-07-2020-0334

Olaoye, O. O., Orisadare, M., & Okorie, U. U. (2020). Government Expenditure and Economic Growth Nexus in ECOWAS Countries. *Journal of Economic and Administrative Sciences*, *36*(3), 204–225. https://doi.org/10.1108/JEAS-01-2019-0010

Paparas, D., Richter, C., & Kostakis, I. (2019). The Validity of Wagner's Law in the United Kingdom During the Last Two Centuries. *International Economics and Economic Policy*, *16*(2), 269–291. https://doi.org/10.1007/s10368-018-0417-7

Park, J., Ryu, D., & Lee, K. (2019). What Determines the Economic Size of A Nation in the World: Determinants of A Nation's Share in World GDP vs. Per Capita GDP. *Structural Change and Economic Dynamics*, *51*, 203–214. https://doi.org/10.1016/j.strueco.2019.09.001

Park, S.-J. (2023). A Re-examination of Granger Causality Between Government Expenditure and GDP. *International Journal of Economic Policy Studies*, *17*(2), 533–550. https://doi.org/10.1007/s42495-023-00114-y

Peacock, A., & Scott, A. (2000). The Curious Attraction of Wagner's Law. *Public Choice*, *102*(1/2), 1–17. https://doi.org/10.1023/A:1005032817804

Peacock, A., & Wiseman, J. (1961). *The Growth of Public Expenditure in the United Kingdom*. Princeton University Press.

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds Testing Approaches to the Analysis of Level Relationships. *Journal of Applied Econometrics*, *16*(3), 289–326. https://doi.org/10.1002/jae.616

Phillips, P. C. B., & Perron, P. (1988). Testing for A Unit Root in Time Series Regression. *Biometrika*, *75*(2), 335–346. https://doi.org/10.1093/biomet/75.2.335

Page: 33-48
E-ISSN: 2721-298X
DOI: https://doi.org/10.33830/tjeb.v6i1

Pistoresi, B., Rinaldi, A., & Salsano, F. (2017). Government Spending and Its Components in Italy, 1862–2009: Drivers and Policy Implications. *Journal of Policy Modeling*, *39*(6), 1117–1140. https://doi.org/10.1016/j.jpolmod.2017.05.003

Popescu, C. C., & Diaconu (Maxim), L. (2021). Government Spending and Economic Growth: A Cointegration Analysis on Romania. *Sustainability*, *13*(12), 6575. https://doi.org/10.3390/su13126575

Pryor, F. L. (1968). *Public Expenditures in Communist and Capitalist Nations*. George Allen & Unwin Ltd.

Pula, L., & Elshani, A. (2018). The Relationship Between Public Expenditure and Economic Growth In Kosovo: Findings from a Johansen Co-Integrated Test and a Granger Causality Test. *Ekonomika*, *97*(1), 47–62. https://doi.org/10.15388/Ekon.2018.1.11778

Qiao, M., Ding, S., & Liu, Y. (2019). Fiscal Decentralization and Government Size: The Role of Democracy. *European Journal of Political Economy*, *59*, 316–330. https://doi.org/10.1016/j.ejpoleco.2019.04.002

Rani, R., & Kumar, N. (2022). Wagner Hypothesis in India: An Empirical Investigation from Pre and Post Reform Period. *Journal of Public Affairs*, *22*(1). https://doi.org/10.1002/pa.2395

Sagdic, E., Sasmaz, M., & Tuncer, G. (2020). Wagner Versus Keynes: Empirical Evidence from Turkey's Provinces. *Panoeconomicus*, *67*(5), 657–674. https://doi.org/10.2298/PAN170531001S

Sedrakyan, G. S., & Varela-Candamio, L. (2019). Wagner's Law Vs. Keynes' Hypothesis in Very Different Countries (Armenia and Spain). *Journal of Policy Modeling*, *41*(4), 747–762. https://doi.org/10.1016/j.jpolmod.2019.02.011

Selvanathan, E. A., Selvanathan, S., & Jayasinghe, M. S. (2021). Revisiting Wagner's and Keynesian's Propositions and the Relationship Between Sectoral Government Expenditure and Economic Growth. *Economic Analysis and Policy*, *71*, 355–370. https://doi.org/10.1016/j.eap.2021.05.005

Statistics Indonesia. (2025). *Statistics Indonesia by Subject*. Statistics Indonesia. https://www.bps.go.id/id/statistics-table?subject=531

Tesařová, Ž. (2020). The Wagner's Law Testing in the Visegrád Four Countries. *Review of Economic Perspectives*, *20*(4), 409–430. https://doi.org/10.2478/revecp-2020-0020

Trofimov, I. D. (2023). Wagner's Hypothesis in Europe: A Causality Analysis with Disaggregated Data. *European Journal of Government and Economics*, *12*(1), 5–38. https://doi.org/10.17979/ejge.2023.12.1.9146

Wagner, A. (1883). *Finanzwissenschuft*. C. F. Winter.

Wagner, A. (1893). *Grundlegung der Politischen Okonomie*. C. F. Winter.

Wagner, A. (1958). Three Extracts on Public Finance. In *Classics in the Theory of Public Finance* (pp. 1–15). Palgrave Macmillan UK. https://doi.org/10.1007/978-1-349-23426-4_1

Wagner, R. E., & Weber, W. E. (1977). Wagner's Law, Fiscal Institutions, and the Growth of Government. *National Tax Journal*, *30*(1), 59–68. https://doi.org/10.1086/NTJ41862113