**Article Type:** Research Paper

# The Analysis of Income Gap in Lower Middle-Income Countries

Ardian Dwi Saputro* and Siti Aisyah

**Abstract:** Sustainable economic growth is the goal of every country in the world. However, the economic growth that occurs is not in line with the welfare of the population in the lower middle-income countries. The high level of income inequality between the upper and lower classes indicates that there are problems that need to be resolved. This study aims to determine the direction and magnitude of the influence of trade openness, tax revenue, digital economy, corruption perception index, and government spending on the level of income inequality in six countries classified as lower Middle-Income countries in 2017-2021, namely (Bolivia, El Salvador, Honduras, Indonesia, Kyrgyzstan, and Ukraine) using panel data regression. The results with the Fixed Effects approach show that trade openness and the digital economy have a positive effect on the income gap, while government spending has a negative effect on the income gap. Meanwhile, tax expenditures and the corruption perception index have no effect on the income gap. Based on the results of this study, the government in each country should be able to pay attention to the development and support the economic facilities of the people in the lower middle class with various assistances that can directly increase their income.
**Keywords:** Income Gap; Trade Openness; Corruption; Government Spending; Lower Middle-Income Countries
**JEL Classification**: H27; H11; H71

**AFFILIATION:**
Department of Development Economics, Faculty of Economics and Business, Universitas Muhammadiyah Surakarta, Central Java, Indonesia

**\*CORRESPONDENCE:**
ardiandwi914@gmail.com

## Introduction

Economic development is a series of improvement processes in an economy that are carried out constantly with the aim of being able to increase total income and per capita income by taking into account the population rate and the fundamental changes that occur. Economic development is also intended so that the economic growth targeted by the government can be achieved, so that people can live in prosperity (Sukirno, 2011). As stated in the Constitution Number 11 of 2009, where the welfare of the population is the responsibility of the state. Arafat et al. (2020) found in his research that the problems and challenges faced by the government in improving the level of the economy deemed insufficient and tended to be uneven. This will lead to economic inequality and income inequality among the population in the country.

The income gap is the result of government policies that are only concerned with improving the national economy but are not too concerned with the economic difficulties that occur in the lower middle class (Rahmadi & Parmadi, 2019). For developing countries like Indonesia, the gap in income

distribution can lead to more severe economic problems such as the difficulty in finding employment which results in high unemployment rates and poverty problems. All of these conditions will certainly affect national income and hinder economic growth, which is a classic problem in developing countries (Agusalim & Pohan, 2018).

An open economy is one of the economic concepts that can increase national income by increasing international trade activities (Salvatore, 2014). Mishkin (2012) in his book found that the higher the export-import trade activity, the more active the country's economy could be. International trade activities, especially exports, will directly increase investment activities and increase national production output. In this study, several of Indonesia's main trading partners are analyzed on the condition of the income gap in each country to find out what plans or trading strategies are in the future. Thus, the government can plan when national export demand will increase and prepare products of the highest quality.

Income inequality is a problem that often occurs due to accelerated development, countries with established economic capacity and resources will easily record economic growth. Income inequality is an important issue for the development of every country. It is related to the distribution of income received by the community. The higher the income gap means that the distribution of income in society is increasingly unequal (Guellec & Paunov, 2017). The Gini Ratio is a measure commonly used to measure the degree of inequality in the income distribution of the population of an area. The Gini coefficient ranges from 0 to 1, if 0 indicates perfect equality, a value of 1 indicates perfect inequality (Dorsch & Maarek, 2019).

In 2021, the World Bank included Indonesia in the Lower Middle-Income Countries due to a decrease in Gross National Income (GNI) from 4,050 US$ in 2019 to 3,870 US$ per capita in 2020. The decline in Indonesia's GNI also signaled a decline in the national economy. In addition, many trading partners who are Indonesia's export destination countries have also experienced a decline in economic activity due to the Covid-19 pandemic. Many countries in Latin America, such as Bolivia, El Salvador, and Honduras, which are also Lower Middle-Income Countries, have reduced their import demand from Indonesia. On the other hand, the military tensions that occurred in Russia and Ukraine also affected national exports because Ukraine is the main destination for Indonesia's vegetable oil exports (Statistics Indonesia, 2020). This condition certainly needs to be considered by the government in order to anticipate trading partners who are in crisis, which will certainly affect national export demand and of course state revenues from international trade.

Various problems that occur affect the economy in each country and threaten the income gap of the population to a higher level because international trade activities carried out between countries have decreased. Considering that these traded products also involve production activities in the middle class such as farmers and expedition couriers (Nasution et al., 2020).

Trade openness is the result of adding the value of exports and imports divided by Gross Domestic Product (GDP) (Wibowo, 2018). If a country has a high level of openness, then

that country tends to have a high level of consumption. This means that the purchasing power of the people is also high. Thus, higher trade openness should also be an indicator of decreasing income inequality between residents (Damanik et al., 2018).

According to Mishkin (2012), taxes are mandatory contributions to the state owed by individuals or entities that are coercive based on applicable regulations. The increase in tax revenue indicates an increase in economic capacity and people's income. The increase in tax revenue should also be in line with the decrease in income inequality because taxes can also be used to carry out state expenditures that are used to accelerate development that are used to support economic activity (Isnanto et al., 2021).

Lower Middle-Income Countries are synonymous with countries that need seriousness and a little development in their economic structure to be more efficient and increase their national income (Jayanthi, 2021). According to Maria and Widayati (2020), economic activity in the current era of globalization relies heavily on the internet to facilitate various interests, including economic transactions. The massive use of software and smartphones also depends on internet connections, so internet users in a country can show the state of progress of the country's digital economy. If advances in information technology can be used appropriately, income inequality will also decrease due to the rising economy (Prastyaningtyas, 2019).

Another challenge in fighting income inequality is corruption. Corruption is an extraordinary crime because those who commit corruption abuse the power that has been entrusted by the community to reap personal and group benefits. If development funds are corrupted, then development will be hampered and will affect the economy which in the end the lower class people are also affected due to the lack of public facilities that should be able to facilitate their economic activities. In other words, acts of corruption will widen the income gap and will suffer the people (Sari, 2020).

The last factor that is thought to affect the income gap of the population is government spending. The role of the government in each country greatly affects the socio-economic conditions of its people. According to Zahroh (2017), the largest government expenditure is to realize the construction of infrastructure supporting the economy. The government will always strive to provide adequate infrastructure for a more efficient and faster distribution continuity. If the economy goes well, people's income will also increase and the income gap can be reduced (Khoirudin & Musta'in, 2020).

Income inequality is the unequal distribution of income in society. The importance of the instrument for equitable distribution of national development is needed to reduce the level of poverty. Didu and Fauzi (2016) mention in their research that human capital as reflected in the Human Development Index (HDI) has a negative effect on poverty levels and is able to reduce income inequality. Meanwhile, Belozyorov and Sokolovska (2018) found that increasing tax revenues by the government can reduce income inequality in countries that are members of the Organization for Economic Co-operation and Development (OECD).

During the period 1975-2005 in 125 countries, Haan & Papers (2016) using a fixed effects approach found that the development of state finances and the banking crisis had a positive effect on income inequality. Monnin (2014) using Vector Autoregressive (VAR) found a one-way causality between inflation rates and income inequality in 10 OECD countries during the period 1970-2010. Meanwhile, the findings of Tridico (2017) state that the level of consumption and government spending has no effect on income inequality in the OECD in 1990-2013.

During 1978-2015, Agusalim and Pohan (2018) using the Error Correction Model (ECM) method found that in the short term trade openness had a negative effect on income inequality. However, in the long term, trade openness has no effect on Indonesia's income inequality. Similar results were found by Imadidin et al. (2018) where the results in his research stated that the increase in export performance was able to reduce income inequality in the Regional Comprehensive Economic Partnership (RCEP) countries in 2011-2015.

Guellec and Paunov (2017) in their research emphasize the importance of digital innovation in new products and processes based on software code. However, his research also found that advances in the digital economy only benefit high-income groups. In other words, this will further increase income inequality in people who have not been able to reach such progress and innovation.

One of the Lower Middle-Income Countries, Kyrgyzstan, has carried out structural reforms of the legal system and property rights to strengthen finances in its country. These reforms have boosted the economy and increased investment and exports for the country. In addition, improving economic activity in Kyrgystan can also directly reduce income inequality in the country (Atabaev et al., 2014).

Keynesian theory in Mishkin (2012), explains that government spending will directly spur economic growth and can increase labor absorption which in turn will reduce income inequality. Alamanda, (2020) during 2005-2017 in 34 provinces in Indonesia, using the fixed effects approach found results similar to that theory, where the results of his research stated that government spending in infrastructure development has a negative correlation to income inequality.

Based on the background description above, this study aims to analyze the direction and magnitude of the influence of trade openness, tax revenue, digital economy, corruption perception index, and government spending on income inequality in Bolivia, El Salvador, Honduras, Indonesia, Kyrgyzstan, and Ukraine in where the six countries are classified as lower Middle-Income countries in 2017-2021 using panel data regression.

# Research Method

This study is an analysis of secondary data regarding the effect of trade openness, tax revenue, digital economy, corruption perception index, and government spending on

income inequality in six lower Middle-Income countries in 2017-2021 using panel data regression. The model applied is a modification of Agusalim and Pohan (2018) article with the following equation:

$$GINI_{it} = \beta_0 + \beta_1 TO_{it} + \beta_2 TAX_{it} + \beta_3 DE_{it} + \beta_4 CPI_{it} + \beta_5 GOV_{it} + \varepsilon_{it}$$

GINI is the Gini coefficient, TO is trade openness in percent, TAX is tax revenue in million dollars, DE is the digital economy represented by the percentage of the population using the internet, CPI represents the corruption perception index, and GOV is the total government spending in each country. expressed in million dollars.

Panel data regression combines time series data and cross section data. The cross section data covers six Lower Middle-Income Countries in 2017-2021, namely (Bolivia, El Salvador, Honduras, Indonesia, Kyrgyzstan, and Ukraine). The time series data covers the 2017-2021 observation range. Data were obtained from the World Bank, UN Comtrade, and Transparency International.

The span of the last 5 years was taken because in international trade, international market conditions can change rapidly at any time and the economy of each country will also fluctuate, so that countries that are included in the research will fall into the classification of countries with low, middle or high income. in the short term. This means that international trade planning and strategy in the short term will have a more efficient impact on the Indonesian economy.

# Result and Discussion

Based on the results of the model selection test using the Chow Test and Hausman Test, it can be seen that the Fixed Effects Model (FEM) was chosen as the best estimated model. The complete estimation results of FEM are presented in Table 1.

**Table 1** Estimated Results of Fixed Effects Model

| Estimated Results of Fixed Effects Model |
|---|
| $logGINI_{it}$ = -1.169 + 0.001 $TO_{it}$ − 0.000 $TAX_{it}$ + 0.002 $DE_{it}$ + 0.003 $CPI_{it}$ − 0.00000529 $GOV_{it}$ |
| (0.055)*** (0.482) (0.022)** (0.226) (0.044)** |
| $R^2$= 0.995; DW = 1.786; F-stat = 361.358; Prob.(F-stat) = 0.000 |

Source: EViews regression output results, processed. Note: *Significant at = 0.01; ** Significant at = 0.05; *** Significant at = 0.10.

**Table 2** Effects and Constants of FEM

| Country | Effects | Constanta |
|---|---|---|
| Bolivia | 0,119 | -1,050 |
| El Salvador | -0,046 | -1,215 |
| Honduras | 0,192 | -0,977 |
| Indonesia | 0,526 | -0,643 |
| Kyrgystan | -0,384 | -1,553 |
| Ukraina | -0,407 | -1,576 |

Table 1 shows the existing model with an empirical probability F statistic of 0.000 (< 0.01). Thus, together, trade openness, taxes, the digital economy, the corruption perception index, and government spending have an effect on the income gap. Meanwhile, the coefficient of determination ($R^2$) is 0.995, which means that the variation in the variables of trade openness, taxes, the digital economy, the corruption perception index, and government spending is able to explain 99.5% of the variation in income inequality in the 6 Lower Middle-Income Countries during 2017-2021, while the remaining 0.05 is explained by other variables not included in the model.

Table 2 shows each constant in 6 Lower Middle-Income Countries, it is known that the one with the highest constant is Indonesia with a constant of -0.643. This means that regarding the effect of trade openness, taxes, the digital economy, the corruption perception index, and government spending on the income gap, Indonesia tends to have the highest income gap. Meanwhile, Ukraine has the lowest constant, which is -1.576. This means that, regarding the effect of trade openness, taxes, the digital economy, the corruption perception index, and government spending on the income gap, Ukraine tends to have the lowest income gap.

Trade openness has a positive coefficient, which means that trade openness has a positive effect on income inequality. The coefficient of 0.001 means that if trade openness increases by 1%, the income gap will also increase by 0.1%. Then, the digital economy also has a positive regression coefficient, which is 0.002. Thus, if the digital economy increases by 1%, the income gap will also increase by 0.2%. Furthermore, the coefficient of government spending is -0.00000529; this means that an increase in government spending of 1,000 dollars will reduce the income gap by 0.529%. The relationship pattern used to realize the three variables with the income gap is logarithmic-linear.

Based on the results of the validity of the effect (t test), trade openness was found to have a positive effect on income inequality in 6 Lower Middle-Income Countries. This means that the higher the openness of the economy, it will increase the income gap in the community. This is due to the import-export commodities which are mostly carried out by the upper middle class. Such as imports of luxury consumer goods, including vehicles, smartphones, and computer equipment. In export activities, many commodities are exported by large collectors, so that producers do not feel a high enough profit. With all these conditions, the high openness of the economy has actually widened the income gap between the population. The results in this study support the findings of Carolina and Aminata (2019) which state that economic openness has a positive effect on income inequality in Indonesia due to the unpreparedness of the central government in providing economic support facilities in remote areas that have superior products.

Taxes were found to have no effect on income inequality in 6 Lower Middle-Income Countries. This happens because of the low tax compliance by residents in each country which in the end tax revenues in each country tend to be low. This condition is actually also related to the corruption perception index in each country. The residents seem to lose confidence in the government's performance and think if they will pay taxes. In line with this, in this study, the corruption perception index was also found to have no effect

on income inequality in the 6 Lower Middle-Income Countries. This condition indicates that there is a problem in the bureaucratic system of government in each country. The high level of economic activity will require legality from the government or the process can be simplified, so that economic activities can run more efficiently and this understanding seems to have been embedded in the community. Similar results were also found by Fajar and Azhar (2019), where in their research they stated that the perception index of corruption and tax revenue had no effect on economic development and income inequality in ASEAN.

The digital economy in this study proved to have a positive effect on income inequality in 6 Lower Middle-Income Countries. The digital economy is the answer to technological advances in the current era of globalization. The community is creative as widely as possible in taking advantage of opportunities from various economic lines. With the advancement of the digital economy, residents of one country can easily connect with residents of other countries. In addition, the digital economy also offers a new industrial sector or better known as the creative industry. However, the conditions of development, especially in terms of education that have not been evenly distributed and have not touched all levels of society in areas with difficult access, have resulted in a widening income gap between residents. The results in this study are in line with the findings of Wibowo (2018) which states that the rise of the digital economy in ASEAN has an effect on increasing income in the upper middle class and increasing income inequality of the ASEAN community.

The results of the t-test state that government spending has a negative effect on income inequality in the 6 Lower Middle-Income Countries. The increase in government spending directly accelerates economic development, so that public facilities or economic infrastructure can increase and assist the population in carrying out economic activities more efficiently. These results support Keynes's theory in Mishkin (2012), which argues that government spending will increase national income and reduce income inequality among residents.

# Conclusion

Based on the discussion of the regression analysis conducted, the government in each country, especially Indonesia, is expected to increase the allocation of state spending to realize economic development because it has been proven to reduce income inequality. The government can carry out several policies such as the construction of labor-intensive projects. In addition, the government can provide direct assistance to underprivileged communities or MSMEs so that they can develop and open new jobs, so that people's incomes can also increase. Meanwhile, the high openness of the economy and the digital economy is expected to be managed by competent human resources so that their contribution to the economy and the general public can be maximized and be able to reduce income inequality.

# References

Agusalim, L., & Pohan, F. S. (2018). Trade Openness Effect on Income Inequality: Empirical Evidence from Indonesia. *Signifikan: Jurnal Ilmu Ekonomi, 7*(1), 1–14. https://doi.org/10.15408/sjie.v7i1.5527

Alamanda, A. (2020). The Effect of Government Expenditure on Income Inequality and Poverty in Indonesia. *Info Artha, 4*(1), 1–11. https://doi.org/10.31092/jia.v4i1.614

Arafat, L., Rindayati, W., & Sahara. (2020). Faktor-Faktor yang Memengaruhi Indeks Pembangunan Manusia di Provinsi Kalimantan Tengah. *Jurnal Ekonomi dan Kebijakan Pembangunan, 7*(2), 140–158. https://doi.org/10.29244/jekp.7.2.2018.140-158

Atabaev, N., Atabaeva, G., & Baigonushova, D. (2014). Economic Growth and Remittances Inflow: Empirical Evidence from Kyrgyz Republic. *Eurasian Journal of Business and Economics, 7*(14), 61-70. Retrieved from https://www.ejbe.org/index.php/EJBE/article/view/133

Belozyorov, S. A., & Sokolovska, O. V. (2018). Personal income taxation and income inequality in Asia-Pacific: a cross-country analysis. *Journal of Tax Reform, 4*(3), 236–249. https://doi.org/10.15826/jtr.2018.4.3.054

Carolina, L. T., & Aminata, J. (2019). Analisis Daya Saing dan Faktor yang Mempengaruhi Ekspor Batu Bara. *Diponegoro Journal of Economics, 9*(1). Retrieved from https://ejournal2.undip.ac.id/index.php/dje/article/view/3803

Damanik, A. M., Zulgani, Z., & Rosmeli, R. (2018). Faktor-faktor yang mempengaruhi ketimpangan pendapatan melalui pertumbuhan ekonomi di Provinsi Jambi. *E-Jurnal Perspektif Ekonomi Dan Pembangunan Daerah, 7*(1), 15–25. https://doi.org/10.22437/pdpd.v7i1.4533

De Haan, J., & Sturm, J.-E. (2017). Finance and income inequality: A review and new evidence. *European Journal of Political Economy, 50*, 171–195. https://doi.org/10.1016/j.ejpoleco.2017.04.007

Didu, S., & Fauzi, F. (2016). Pengaruh Jumlah Penduduk, Pendidikan dan Pertumbuhan Ekonomi Terhadap Kemiskinan Di Kabupaten Lebak. *Jurnal Ekonomi-Qu, 6*(1), 102–117. https://doi.org/10.35448/jequ.v6i1.4199

Dorsch, M. T., & Maarek, P. (2019). Democratization and the Conditional Dynamics of Income Distribution. *American Political Science Review, 113*(2), 385–404. https://doi.org/10.1017/s0003055418000825

Fajar, M., & Azhar, Z. (2019). Indeks Persepsi Korupsi dan Pembangunan Manusia Terhadap Pertumbuhan Ekonomi di Negara-Negara Asia Tenggara. *Jurnal Ecogen, 1*(3), 681. https://doi.org/10.24036/jmpe.v1i3.5114

Guellec, D., & Paunov, C. (2017). *Digital Innovation and The Distribution of Income.* National Bureau of Economic Research Working Paper 23987.

Imadidin, R., Priyarsono, D. S., & Widyastutik, W. (2018). Fasilitasi Perdagangan, Kinerja Ekspor, dan Ketimpangan Pendapatan di Negara-Negara Rcep. *Jurnal Ekonomi dan Kebijakan Pembangunan, 6*(2), 32–46. https://doi.org/10.29244/jekp.6.2.2017.32-46

Isnanto, A., Istiqomah, I., & Suharno, S. (2021). Faktor-Faktor yang Mempengaruhi Penerimaan Pajak Penghasilan dalam APBN. *Jurnal Ilmiah Universitas Batanghari Jambi, 21*(2), 832. https://doi.org/10.33087/jiubj.v21i2.1436

Jayanthi, R. (2021). The Effect of Electricity Development in Indonesia on Poverty and Income Inequality. *Jurnal Ekonomi Pembangunan: Kajian Masalah Ekonomi Dan Pembangunan, 22*(1), 104–116. https://doi.org/10.23917/jep.v22i1.12076

Khoirudin, R., & Musta'in, J. L. (2020). Analisis Determinan Ketimpangan Pendapatan di Daerah Istimewa Yogyakarta. *Tirtayasa Ekonomika, 15*(1), 17. https://doi.org/10.35448/jte.v15i1.6407

Maria, N. S. B., & Widayati, T. (2020). Dampak Perkembangan Ekonomi Digital terhadap Perilaku Pengguna Media Sosial dalam Melakukan Transaksi Ekonomi. *Jurnal Konsep Bisnis Dan Manajemen, 6*(2), 234–239. Retrieved from https://ojs.uma.ac.id/index.php/bisman/article/view/3801

Mishkin, F. S. (2012). *Macroeconomics: Policy and Practice.* Boston: Pearson

Monnin, P. (2014). Inflation and Income Inequality in Developed Economies. *SSRN Electronic Journal.* https://doi.org/10.2139/ssrn.2444710

Nasution, D. A. D., Erlina, E., & Muda, I. (2020). Dampak Pandemi COVID-19 terhadap Perekonomian Indonesia. *Jurnal Benefita, 5*(2), 212–224.

Prastyaningtyas, E. W. (2019). Dampak Ekonomi Digital Bagi Perekonomian Indonesia. *Seminar Nasional Manajemen Ekonomi Dan Akuntansi (SENMEA), IV, 103–108.*

Rahmadi, S., & Parmadi, P. (2019). Pengaruh ketimpangan pendapatan dan kemiskinan terhadap pertumbuhan ekonomi antar pulau di Indonesia. *Jurnal Paradigma Ekonomika, 14*(2), 55–66. https://doi.org/10.22437/paradigma.v14i2.6948

Sari, D. P. (2020). Persepsi Wajib Pajak terhadap Citra Perpajakan Indonesia Setelah Fenomena Kasus Korupsi Pajak. *Jurnal Akuntansi Bisnis dan Manajemen, 27*(1), 15–28. https://doi.org/10.35606/jabm.v27i1.550

Statistics Indonesia. (2020). Ekspor Migas dan Non Migas Indonesia. Retrieved from https://www.bps.go.id/indicator/8/204/1/volume-migas-nonmigas-.html

Sukirno, S. (2011) *Teori Pengantar Makroekonomi.* Jakarta: PT. Raja Grafindo Persada.

Tridico, P. (2017). The determinants of income inequality in OECD countries. *Cambridge Journal of Economics, 1*(34), 1–26.

Wibowo, E. W. (2018). Analisis Ekonomi Digital dan Keterbukaan Terhadap Pertumbuhan GDP Negara ASEAN. *Jurnal Lentera Bisnis, 7*(2), 66-80.

Zahroh, S. (2017). Analisis Pengaruh PDRB, Angkatan Kerja, dan Upah Minimum Terhadap Pengangguran Di Kota Malang. *Jurnal Ilmiah Universitas Brawijaya, 1*(4), 1–11. Retrieved from https://jimfeb.ub.ac.id/index.php/jimfeb/article/view/3670