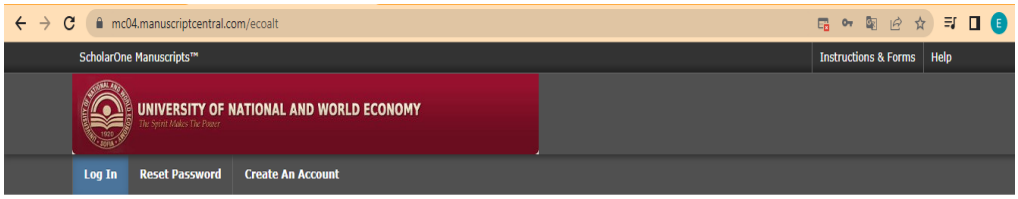
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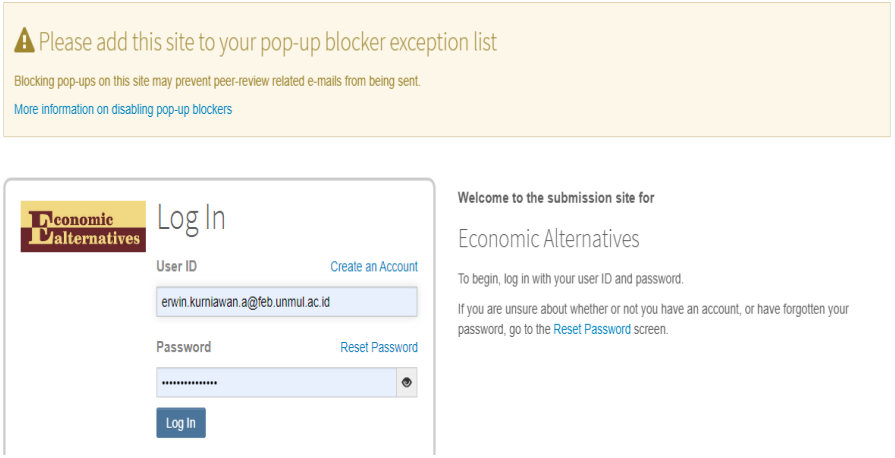
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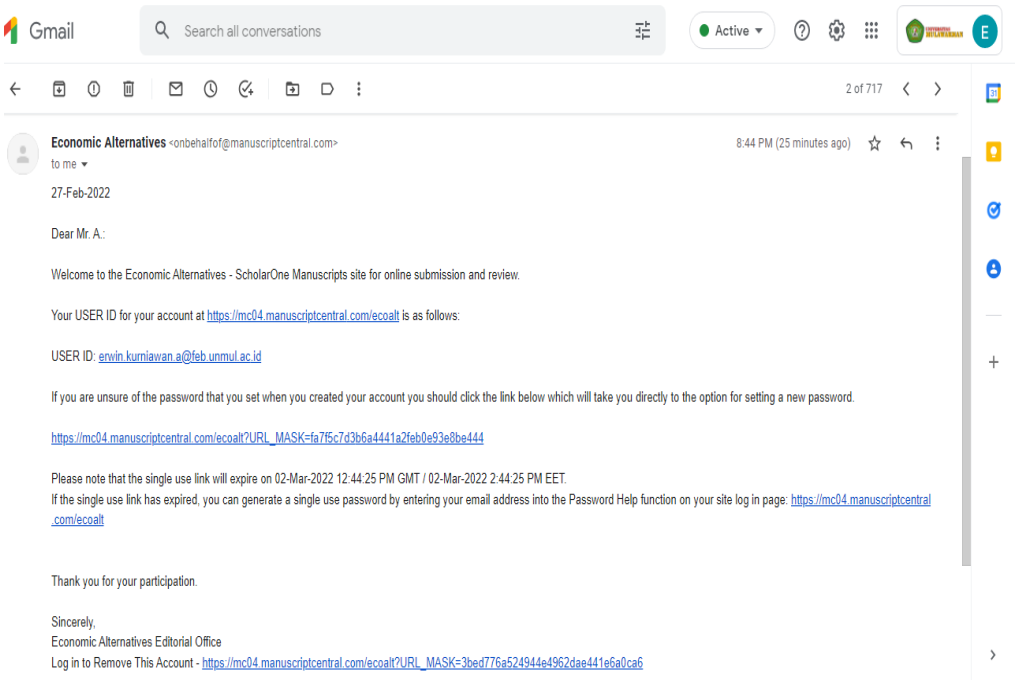
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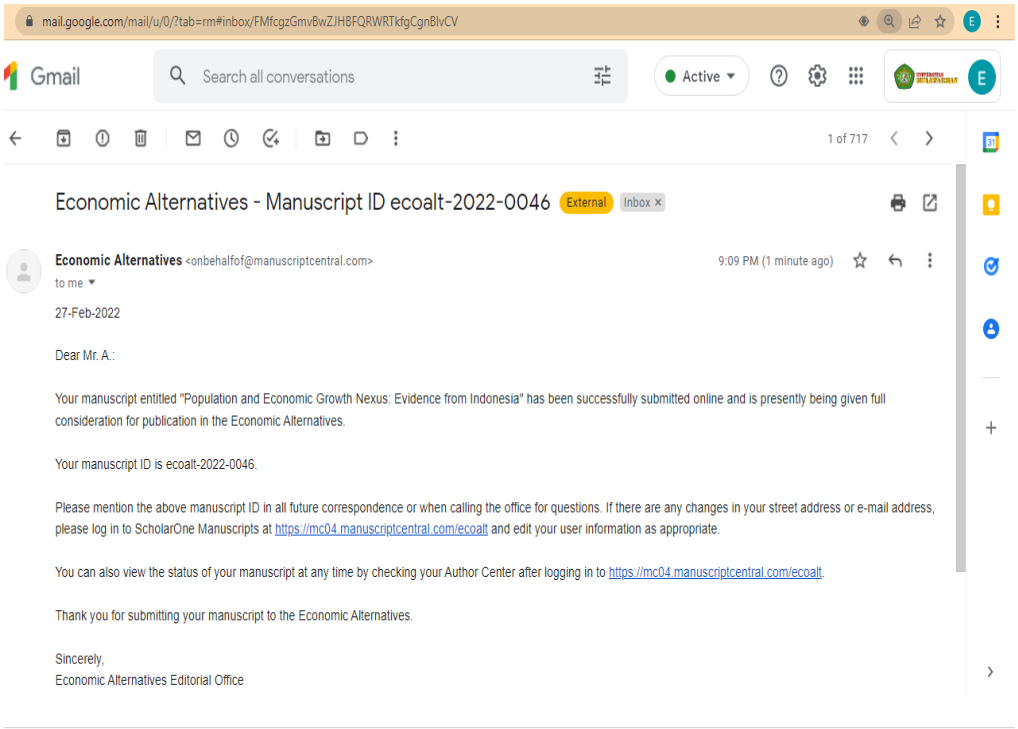

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Population and Economic Growth Nexus: Evidence from Indonesia

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JEL Codes:	F62, E21, E24, J11

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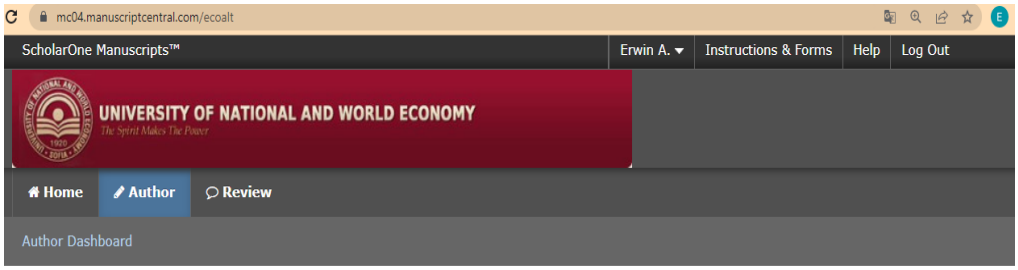
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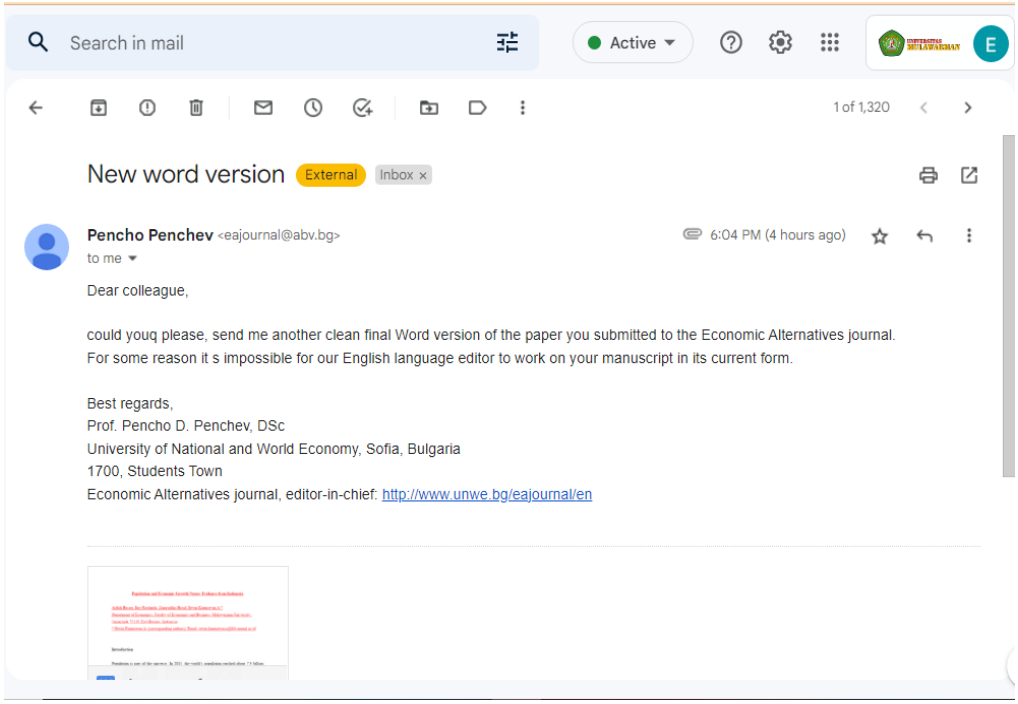
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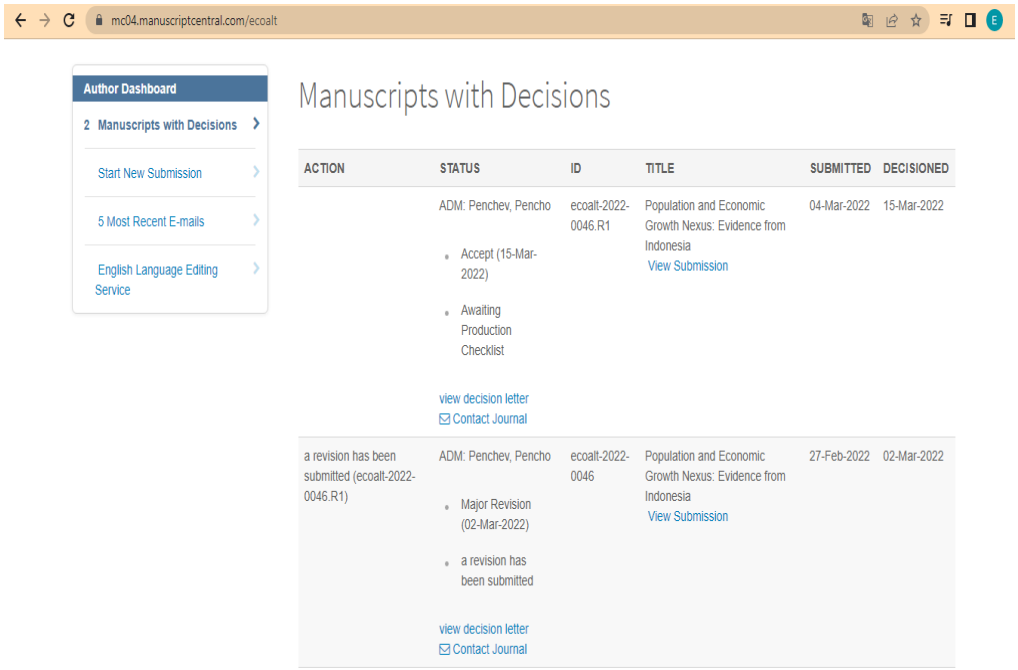
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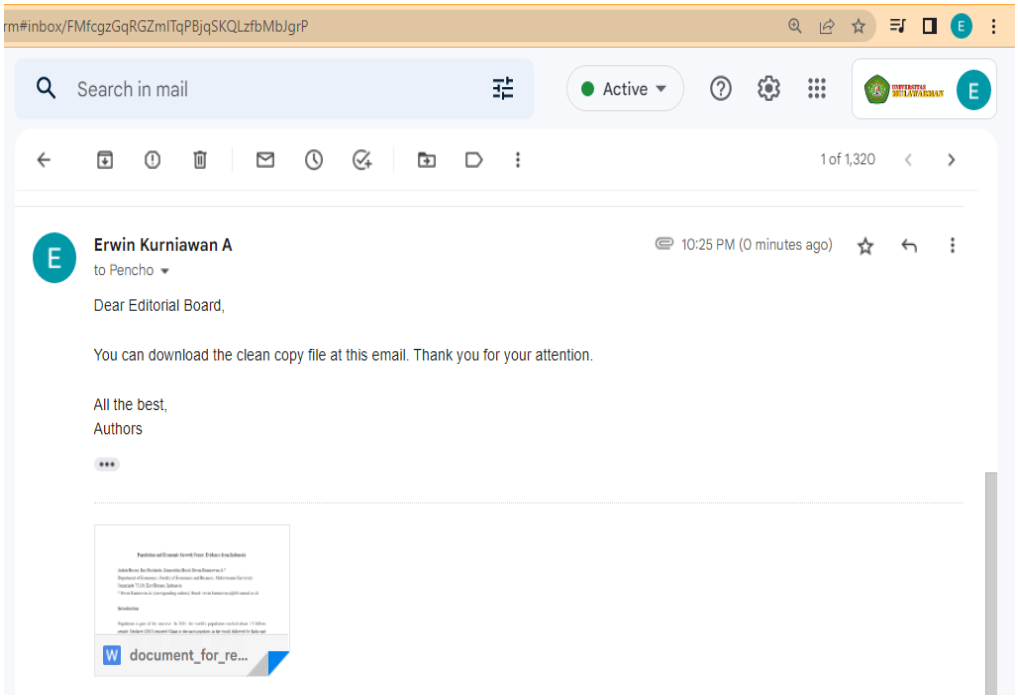
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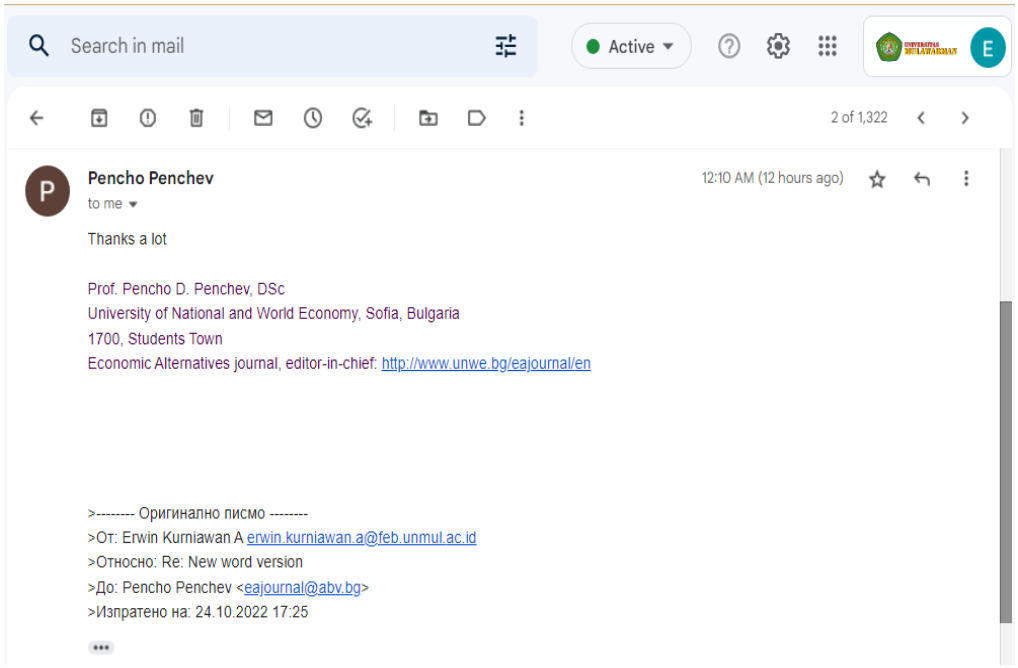
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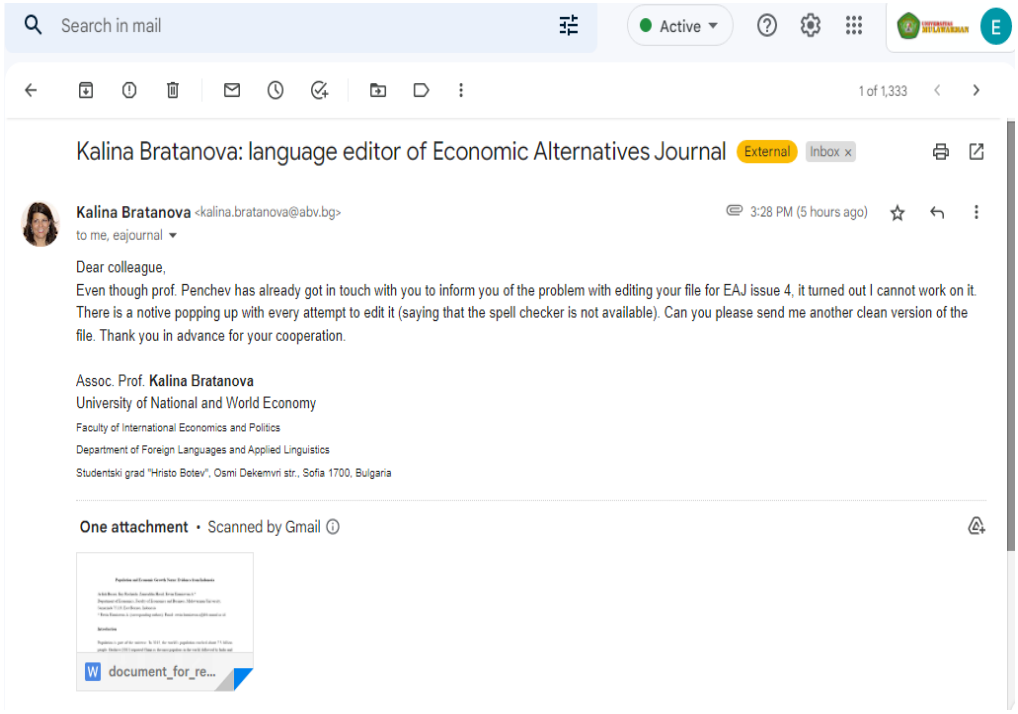
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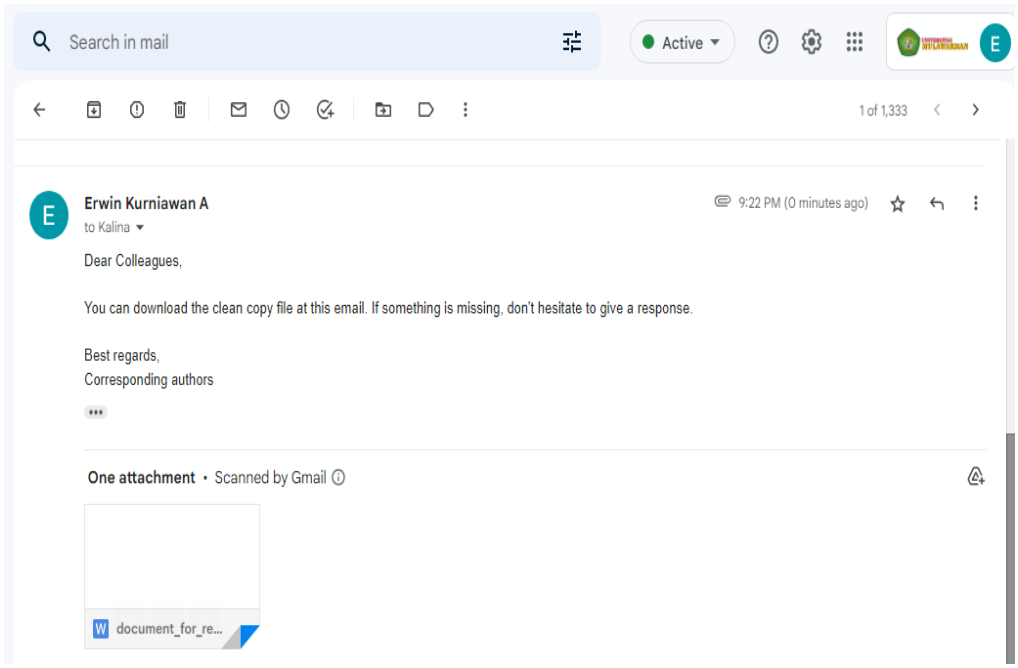
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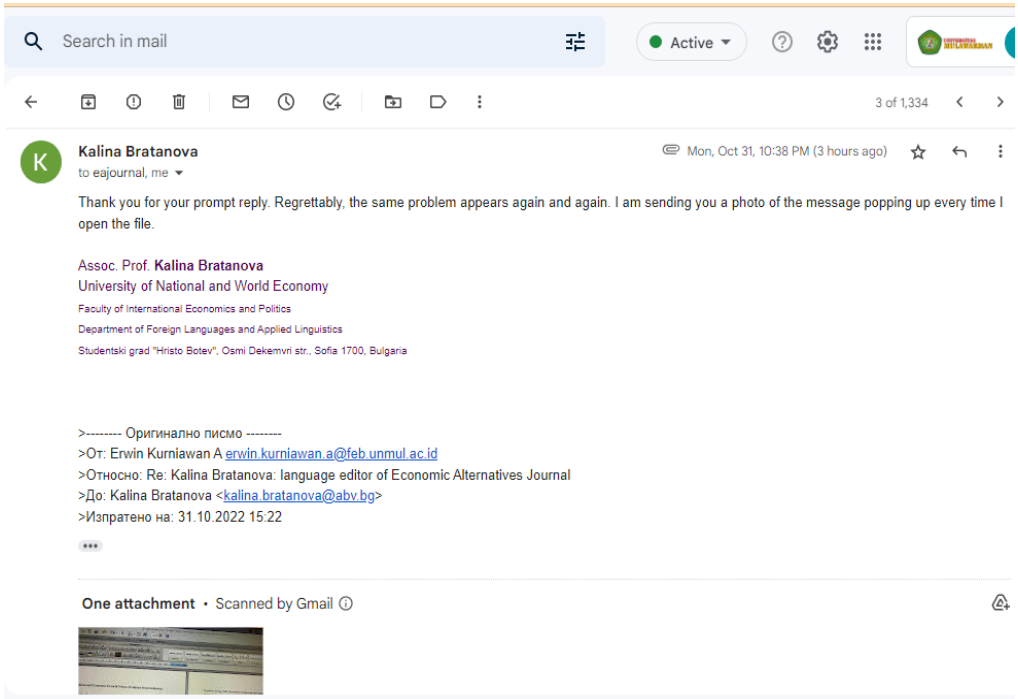
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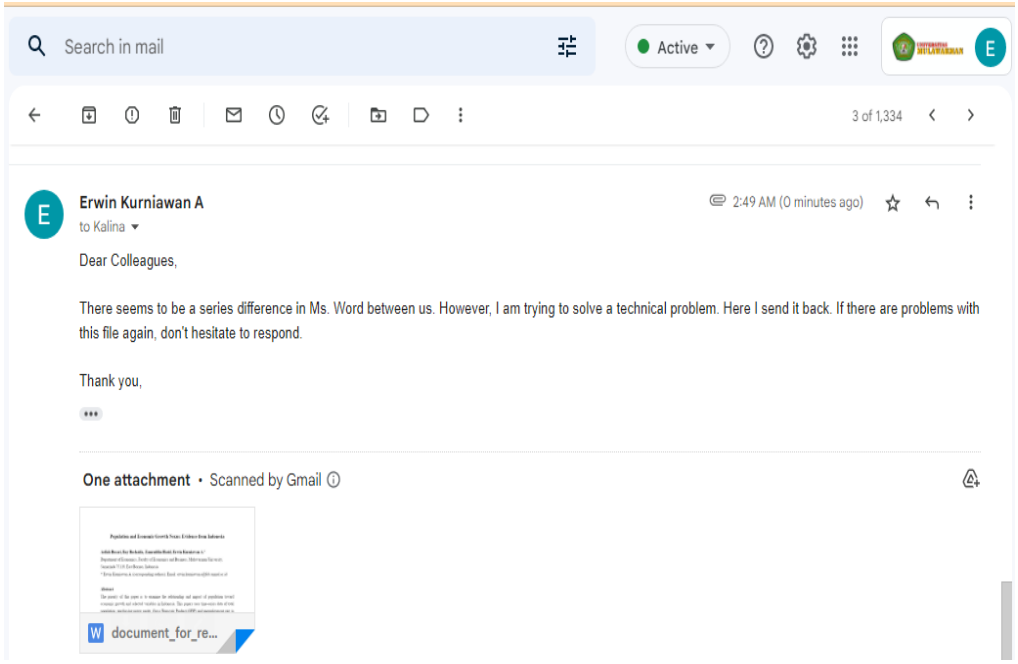
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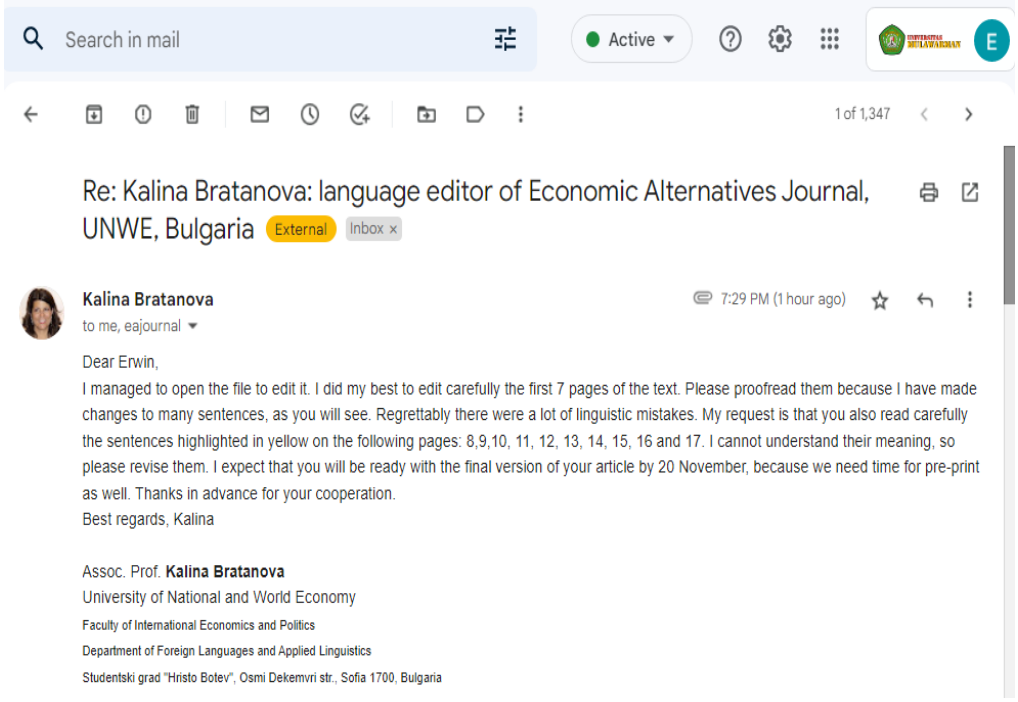
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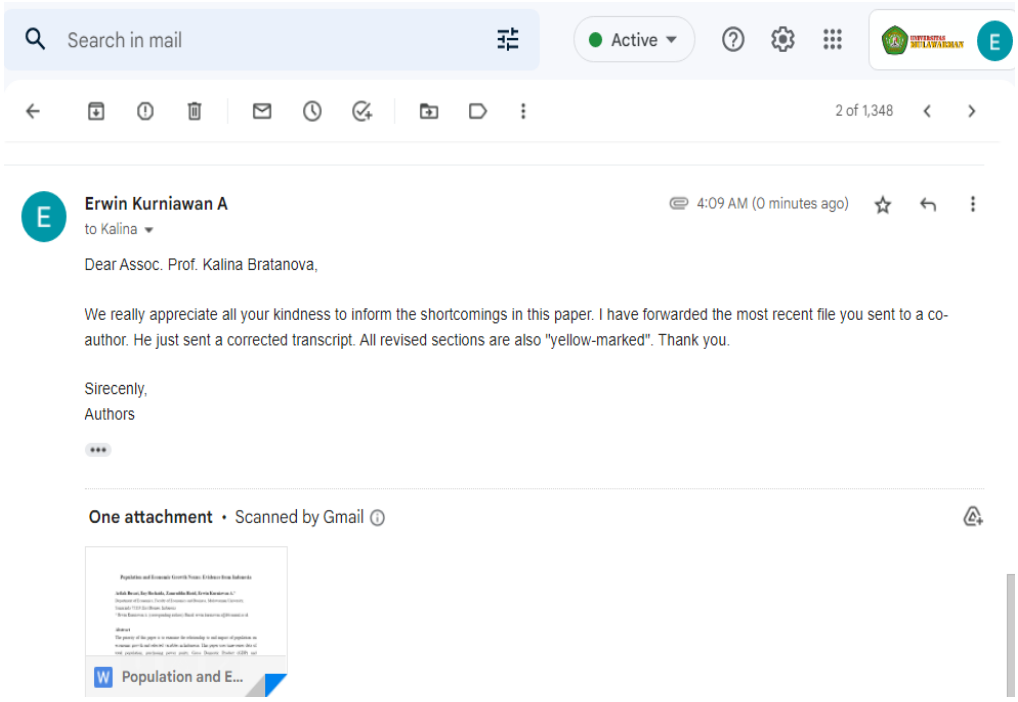
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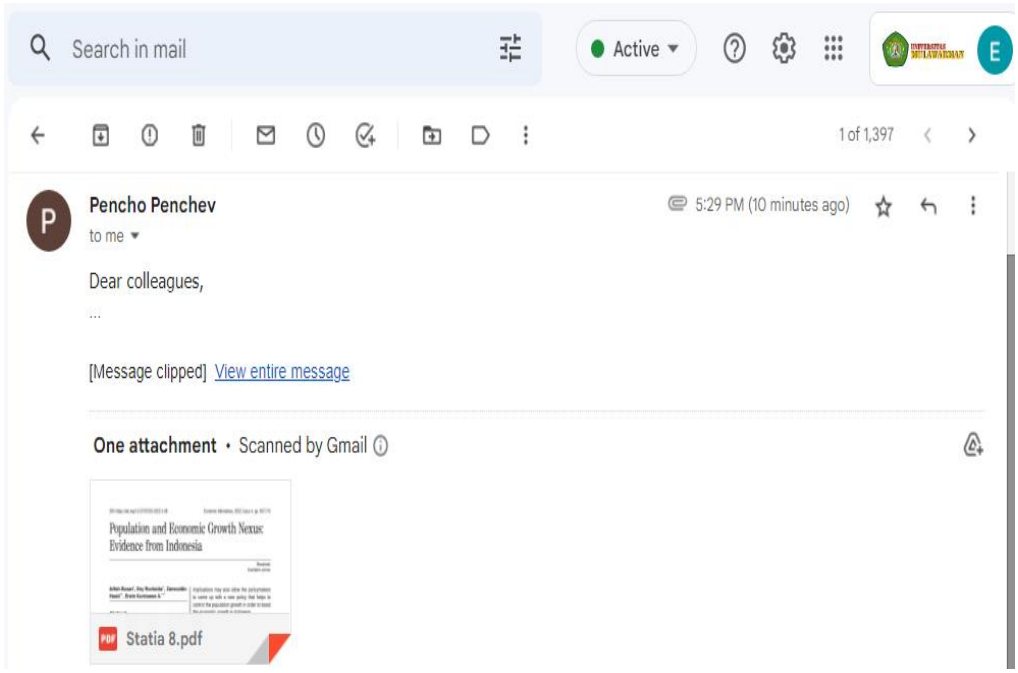
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Economic Alternatives - Very important final proofreads

Pencho Penchev <eajournal@abv.bg> Wed, Nov 30, 2022 at 5:29 PM
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VERY important - please, look at p. 702 - there is a missing formula (4) and some question marks. We can not publish the paper without this, so write me how to correct the manuscript.

Best regards,

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PS Dear colleagues from Indonesia I would like to ask you for a second reading of your paper - we want to be sure that there are no more mistakes.

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There are 2 parts that need to be corrected in this manuscript. First, the word "???" which has not been erased in the sentence above the function of equation (4) on page 702. Then, for Table 1, Table 2, and Table 3 (pp. 703-704) it seems that it requires improvement. It just needs to be tidied up, without changing any content. Next we send a little correction (attached in the pdf and word files). Have a nice weekend.

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Authors: Arfiah Busari, Eny Rochaida, Zamruddin Hasid, Erwin Kurniawan A.
Abstract
The priority of this paper is to examine the relationship to and impact of population on economic growth and selected variables in Indonesia. This paper uses time-series data of total population, purchasing power parity, Gross Domestic Product (GDP) and unemployment rate in Indonesia for the period 1987-2020. The data are retrieved from the World Bank World Development Indicator, St. Louisfed and Trading Economics. The method applied to analyze the data is Ordinary Least Square (OLS) with the support of EViews software. The finding shows that the population has a significant impact on the purchasing power parity, unemployment and GDP which means that the population indirectly impacts the economic growth in Indonesia. Both economic and demographic factors used in this paper are important in explaining the total population and economic growth in Indonesia and hence in view of policy implications. The implications may also allow the policymakers to come up with a new policy that helps to control the population growth in order to boost the economic growth in Indonesia.
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unemployment, GDP, purchasing power parity, standard of living, population size, Indonesia
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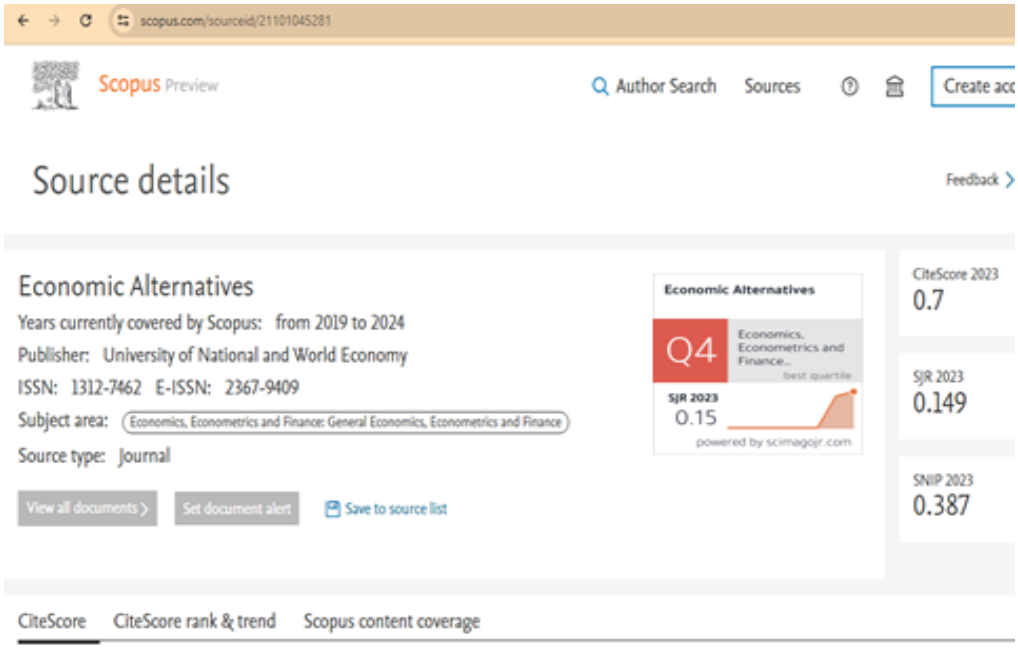
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It's my pleasure to inform you that, after the peer review, your paper,

"Population and Economic Growth Nexus: Evidence from Indonesia"

has been ACCEPTED with content unaltered to publish with Economic Alternatives journal. Your fine contribution is highly appreciated.

Sofia, 17.03.2022 Editor-in-chief:

(Prof. Pencho Penchev, DSc)

Introduction

Population is part of the universe. In 2015, the world's population reached about 7.3 billion people. Geohive (2015) reported China as the most populous in the world, followed by India and USA, while Indonesia at fourth with 258,812,062 people. It also reported that Indonesia's yearly growth is 1.17 percent with daily increase 8,267 people. In 2013, the United Nations Population Division projected that population would rise to about 8.1 billion in 2025 and reach about 9.6 billion by the year 2050. The overwhelming majority of that population will inhabit the developing world. For most of human existence on earth, humanity's numbers have been few (Díaz et al., 2019).

However, during 1800, the world's women bore an average of seven to eight children each (Dao, 2012). Today, that number is just below three. Basically, there are two main reasons for this declining which is marriage decline because women nowadays work and man and if they do so, they will get married at later age, so there is less time to have children. Second, because of the higher living-cost, they try to limit the number of children in the family because they think having more children means more cost (ZA et al., 2021).

Meanwhile, in developing country such Indonesia, Peterson (2017) shows that the country is experiencing tremendous increasing in their population growth. It is estimated that the Indonesia population growth will continuing to increase for a period of time. Indonesia is a country that known as the fourth populous country in the world. Indonesia 2014 population is estimated at 252.8 million, an increase from 2013's estimate of 250.6 million (World Population Review, 2015). In 2015, as expected, the population in Indonesia already reach 255, 708, 785 people. This data is consistent with what Todaro & Smith (2011) stated in their book and evidence that developing countries is getting populous especially in the case of Indonesia.

Indonesia been chosen as the country of this research study. According to the World Bank (2015), Indonesia achieved -700, 000 of net migration in 2012. Meanwhile, Index Mundi (2014) defined net migration as entry including the figure for the difference between the number of persons entering and leaving a country during the year per 1,000 persons (based on midyear

population). We refer an excess of persons entering the country as net immigration. For example, 3.56 migrants/1,000 population. While an excess of persons leaving the country as net emigration, for example, -9.26 migrants per 1,000 populations. The net migration rate shows the contribution of migration to the overall level of population change. High levels of migration can cause problems such as increasing unemployment and potential ethnic strife (if people are coming in) or a reduction in the labor force, perhaps in certain key sectors (if people are leaving).

According to Shofoyeke (2014), population is a critical factor in the development plans of any civilized society. For effective planning for the development of developing countries, it is necessary to have an actual count of the population, such as an accurate census. This will enable government to know how many people to whom they should distribute amenities and social services.

Indonesia's population has grown to 249.9 million in 2013, from 162.5 million in 1985. The average annual percent change in the population, resulting from a surplus (or deficit) of births over deaths and the balance of migrants entering and leaving a country in Indonesia from 2000 to 2012, become negative. There is declining of population growth in Indonesia during the years.

In relation to that, Indonesia's economy in terms of real GDP has also grown tremendously from about 5.8 percent in 2013 compare to 3.5 percent in 1985 (World Bank, 2015). In addition, employment rate has reduced showed by the unemployment rate in Indonesia averaged 6.15 percent from 1982 until 2014, reaching an all the time high of 11.24 percent in the third quarter of 2005 and a record low of 2 percent in the fourth quarter of 1983. This declining situation seems to indicate that there is a relationship between population growth and economic growth in Indonesia.

The growth of population in Indonesia has been double than in year 1987 in 2020. Base on assumption, when the population is increase, there must increase in the workforce, it is significant that more people are going to be productive in the market, which the productivity output should be increase by following with the growth of this population. By examining this indicator, we could know whether the increasing of the population is contributing to the

economic growth. For standard of living, they assumed that the greater the economic growth and development of a country, then suppose that the better the standard of living. This is because with the higher GDP, then the infrastructure of a country is expected to be better and improved. Last, unemployment rate is another economic indicator which could explain how the economic growth reacts. If there is higher unemployment, then the country is expected to be still in low economic growth.

In short, this paper will focus on the possibility of population growth being associated with economic growth. It aims to determine the correlation between the population and economic growth. Apart from that, if there is a correlation between economic growth and population growth, then what impact it brings to the standard of living those people? At the same time, if there is a correlation between economic growth and population growth, then what is the impact of population and economic growth toward unemployment rate in the country? To study the relationship and impact of population toward economic growth in Indonesia. Apart from that, this research aim to study what other indirect relationship and impact of the population toward the selected variables within short-run and long-run.

The empirical result of this paper important for further study of the determinants of economic growth performance in Indonesia because this research specified to explain the relationship between the selected economic indicators with the economicals output which could be one of the supporting findings for certain literature argument. The empirical results of this research are potentially important for the policy marker to make decision if the nature of the decision is to increase the productivity in economic growth.

Literature Background

Review of the relationship between economic growth and population

~~Rehorick (1979)~~Puleston & Tuljapurkar (2008) review of Marquis de Condorcet's understanding which saying that unlimited population is good because the larger the population, the more people are available to increase the means of subsistence. At the same time, Rehorick (1979)

review Godwin's view based on the Reason's saying that population can be under control as long as people can overcome their sex desires by their intellectual mind.

With the improvement in the people's mind, they can control the growth of population, which is inconsistent with Malthus's theory. In some other view, it is encouraging to control the population of the human as to avoid them from the battle of scarce resources such as food to feed their increasing number in this world (Scoones et al., 2019).

Simon (1987) stated that a big size of population does unnecessary will give positive impact to the country's economic growth as it is also depend on their level of education. If a country has a big size of population but their people have low education, then their size of population will not impact their economic growth. In addition, Simon stated that in the very short run, additional people will be a burden. However, under conditions of freedom, population growth poses less of a problem in the short run, and bring more benefits in the long run under the condition of government control as their government have to consider the source of food that they have and a size of people that they need to feed before implementing a policy. Again, on the other side he stated that rate of population does not determine the rate of economic development, but in his studies, he did not deny that population affects the size, growth and the density in economic progress. Population growth in the more developed world increase income per person not proven while higher population density in less developed countries associated with higher rate of economic growth (Furuoka, 2009).

Another positive view from ~~Kothare~~ Sinding (2009~~1999~~) they correlated, mentions that population can be beneficial to an economy because population growth to technological advancement. Rising population promotes the need for some sort of technological change in order to meet the rising demands for certain goods and services.

With the increased populace, they blessed economies with a large labor force, making it cheaper than well, because of its immense availability. An increase in labor availability and a low cost for labor results in a huge rise in employment, as businesses are more inclined to the cheap labor. Low labor costs result in a shift of money usage from wages into advancement through

technology. The technological advancement that accompanies the growth of population and the expansion of population allows for even more population to survive due to the rise in overall outputs by the business and the nation. Thus, it generates demands for goods and results in overall economic growth. The rising population provides a supply of labor and contributes to the increase in output of goods. Consistent with Simon (1987), ~~Darrat & Al Yousif (1999)~~Muharromy & Auwalin (2021) found out that there is a positive relationship between the population growth and economic growth in the long-run.

Another researcher, Ashraf et al. (2013) and Stuckler (2008) using standard neoclassical theory, the movement in observed relative prices can account for over 60 percent of the fall in fertility and over 50 percent in the increase in per capita income in England during the key years of the demographic transition.

Review of the relationship between economic growth and standard of living

~~Barro & Sala-i-Martin (1995)~~Cantillon (2013) and Fleurbaey & Gaulier (2009) explained that in order to understand the differences in living standards, it is important to understand the reasons for different growth experiences in different countries, since even small differences in growth rates lead accumulate over time huge differences in the standards of living we may enjoy. Besides, they stated that if we can learn about government policy options that have even small effects on the long-term growth rate, then we can contribute much more to the improvements in standards of living than has been provided by the entire history of macroeconomics analysis of counter-cyclical policy and fine tuning. In this study, several variables have been used to show the standard of living, such as per capita output rate, capital per worker, rate of return to the capital, and growth rate per worker.

Standard of living, according to Easterlin (2000) is affected by what people themselves say about their source of well-being. In addition, it is also concern about happy family life and relation, personal and family health, work, their personal character and social life values. The improvement in the quantity of goods and services that people consumed is also a part of a standard of living level measurement. Apart from that, the improvement in people's quality of

life, such convenience and comfort availability, is another measurement of the improvement in the standard of living life of the people. Other than that, the increasing in the people's life expectancy is another way to detect standard of living of the people. In this research, they used annual growth rate, GDP per capita and share of world population to proxy the standard of living (Easterlin, 2000).

Another study from Golley & Tyerswhich (2013) compares China's and India's economic growth, is related to their population size. According to the Asian Development Bank's Country Economic Review (CER) done in 2002, have featured in the 7-8 percents per annum range, which has led to an unprecedented rise in the standard of living for millions of Chinese while India's CER published a steady rise around 6 percents annual growth for 2001. However, while this outstanding growth has brought enormous benefit to citizens of both countries, India and China have fallen into the "Malthusian Population Trap"; "when population is low, the standard of living is higher but, when population size is large, the standard of living will below, and population will be reduced by either the 'preventive check' (intentional reduction of fertility) or by the 'positive check' (malnutrition, disease and famine)." Per capita income, technological advancement, education level and fertility rate have been used to proxy the standard of living.

Meanwhile, Chen (2013) used Thermo-dynamics as variables in his study. These variables used related to biological systems, including human societies. His finding shows that at low levels of living standard, increasing living standard will increase the population size and at high living standard, increasing living standard will decrease the population size. The increase of population size or living standard increases social pressure and pressure to migration. Besides, his study shows that results got from a simple thermodynamic system which can be extended to provide a qualitative understanding about more complex thermodynamic systems, such as human societies. The study developed an analytical model of human population as a function of space, cost of raising children and living standard.

Review of the relationship between economic growth and unemployment rate

Another study by Furuoka (2013) on population and economic growth in Thailand shows the existence of a long-run equilibrium relationship between population growth and economic development in Thailand. The study also shows that there exists a unidirectional causality from population growth in Thailand. Means that population growth in Thailand has a positive impact on the country's economic performance. These findings support the population-driven economic growth hypothesis, which states that population growth promotes economic development.

Mulok et al. (2011) study shows that there is no existence of a long-run relationship between the economic growth and the population growth. They're finding also show that there is no causal relationship between economic growth and population growth in Malaysia. Thus, they conclude that economic growth is not the cause of population growth and vice versa. Some countries experience higher economic growth even with small population and others experience lower economic growth even with large population.

Apart from that, Maqbool et al. (2013) examined the determinants of unemployment in Pakistan over 1976 to 2012 with the unemployment population, foreign direct investment, gross domestic product, inflation, and external debt. Autoregressive Distributed Lag (ARDL) approach has been applied to test determinants of unemployment. Their finding shows that gross domestic product, population, inflation and foreign direct investment are significant determinants of unemployment in Pakistan in short-run and the long-run. There is inverse and significant relationship between unemployment and inflation both in short and long-run. A one percent rise in inflation causes unemployment to decrease by 0.34 percent.

In another view, Maddah (2012) relates the increasing of theft in Iran because of the increasing of unemployment in that country. He claimed that increasing in their population lead to the increasing of the unemployment rate indirectly increased the crime rate in that country. People commit crimes when there is a high rate of unemployment. In addition, their poverty rate also makes their situation worse and, as a result, they commit crimes.

Besides that, Al-Saraireh (2014) examined that there is a negative correlation coefficient between unemployment rate and migration labor force and positive correlation coefficient with

government expenditure, which increasing expenditure lead to increase unemployment in the native labor force. Their finding shows that unemployment will give negative impact on their economic growth. They suggest that government should reduce their expenses in order to reduce the unemployment rate.

Methodology

Econometrics Model ~~of study~~

We construct the empirical model in this study based on the theoretical framework used by Simon (1987) and Wijaya et al. (2021). The econometric model that used in this study is to measure the relationship and impact on each of the selected variables that been used in this study, which are population, GDP, purchasing power parity, and unemployment rate. The econometric model that used in this study is written at below:

$$LGDP_t = \propto + \beta_1 LPPP_t + \beta_2 LPOP_t + \beta_3 LUNEM_t + \varepsilon_t \quad (1)$$

Where, $LGDP_t$ = Log of GDP for period t; $\propto$ = Constant; $LPPP_t$ = Purchasing Power Parity for period t; $LPOP_t$ = Total population for period t; $LUNEM_t$ = Log of unemployment rate for period t; ε_t = Error term.

Data collection

Secondary time series data is used in this study and the data are retrieved from World Bank World Development Indicator, St. Louisfed and Trading Economics. The data frequency is in annually data and the sample period of study is from 1987 to 2020. The dependent variable that will be examined is the economic growth which measured in GDP while the independent variables are standard of living which measured by the Purchasing Power Parity (PPP), unemployment rate and total population. GDP and total population obtained from Trading Economics. The PPP obtained from St. Louisfed and unemployment rate obtained from World Bank World Development Indicator. Throughout the analysis, all variables are transformed into

logarithm form.

Demarcation

In this paper, total population can be defined as all persons falling within census. From the broadest sense, the total may comprise either all usual residents of the country or all persons present in the country at the time of the census (Perez & Hirschman, 2009; Alba, 2018). Purchasing Power Parity (PPP) can be defined as calculation of GNI using a common set of international prices for all goods and services, to provide more accurate comparisons of living standards (Todaro & Smith, 2015), unemployment rate defined as the number of unemployed persons as a percent of the total of people from total labor force, rather than the number of unemployed (Darma et al., 2022). In Irwansyah et al. (2022) studies also stated that Gross Domestic Product (LGDP) is defined as the total final output of goods and services produced by the country's economy, within the country's territory, by residents and nonresidents, regardless of its allocation between domestic and foreign claims.

Data analysis

Augmented Dickey-Fuller (ADF) unit root test is used to examine the integration order of each selected variable for its stationary properties (e.g. Yijo et al., 2021). The purpose of running unit root test is to ensure that the used time series data in this study do not comprise the variable that only stationary at second differences because the limitation of the Co-integration test used in this study cannot handle the data with I(2) property. Ordinary Least Square (OLS) method which the ADF equation can be written as below estimated the ADF auxiliary regressions:

$$\Delta LGDP_t = \rho\, LGDP_{t-1} + \sum_{i=1}^{m} \alpha_t \Delta LGDP_{t-1} + \varepsilon_t \quad (2)$$

$$\Delta LGDP_t = \beta_1 + \rho\, LGDP_{t-1} + \sum_{i=1}^{m} \alpha_t \Delta LGDP_{t-1} + \varepsilon_t \quad (3)$$

Equation 2 showed the ADF equation that comprises intercept only, while equation 3 indicated the ADF equation that consists of intercept and trend. Y indicated the tested variable, α showed

the constant, showed the estimated parameters, T indicated index of time, denoted variable with lagged in first differences, and showed error term. If the null hypothesis is rejected at 5% level of significant, it indicated that the tested variable is stationary and contained no unit root problem. The null hypotheses of ADF unit root test are:

H_o *: The tested variable has unit root.*

H_A *: The tested variable has no unit root.*

Kwiatkowski, Phillip, Schmidt, and Shin (KPSS) unit root test is used in this study as to get a consistence results to proof that the level of integration of tested variables. Kwiatkowski et al. (1992) suggested that the standard unit root test should not reject the null hypothesis. The null hypotheses of KPSS unit root test are different with ADF and PP unit root test, which we write the hypotheses of KPSS unit root test below:

H_o *: The tested variable has no unit root.*

H_A *: The tested variable has unit root.*

The rejection rules are still the same as ADF and PP unit root test, but rejection of null hypothesis brings a different meaning. If the null hypothesis is rejected, it means that the time series data comprises the unit root problem or it is not stationary. The regression of KPSS equation is written as below:

$$n_i = \frac{\frac{1}{T^2}\sum_i S_{it}^2}{S_{it}^2(\sigma)} \quad (4)$$

Where, indicated the sum of residual while indicated variance of residual which denoted the lag parameter and T indicated the number of observation.

After the integration order of the variables is identified with no present of I(2) variable, Johansen Co-integration Test is conducted to examine the long run relationship between the examined variables. The equation of Johansen Co-integration Test is written in below:

$$\Delta Y_t = \sum \pi_t \Delta Y_{t-1} + \quad \pi_i Y_{t-k} + \varepsilon_t \quad (5)$$

Where, indicated the number of co-integration vectors which contained the long run information needed for investigation. Two likelihood tests are used to examine the number of co-integration vector which are trace test and maximum Eigen value test. The regression of trace test is written in the following equation:

$$T_{trace} = -T\sum_{i=r+1}^{N} In\,[(1-r_i)]^2 \quad (6)$$

Where, T is the number of observations and N is the number of variables, is the biggest estimated Eigen value. The hypotheses of trace test are represented is follow:

H_o *: The number of co-integration vector is less than or equal to r*

H_A *: The number of co-integration vector is the most at r*

The regression of maximum Eigen value test is written as below:

$$T_{max} = -\,T\,In(1-\lambda_{r-1}) \quad (7)$$

Where, T indicated the number of observations and is the largest estimated Eigen value. The hypotheses of maximum Eigen value test are represented at below:

H_o *: There is r number of co-integration vectors.*

H_A *: There is r +1 number of co-integration vectors.*

According to Johansen & Juselius (1990), if there is a conflict results between trace test and maximum Eigen value test, the result of maximum Eigen value should be consider because of maximum Eigen value test is more powerful. However, in the report, we include the trace test result too because according to Lutkepohl et al. (2001), in particular, the trace test are advantageous if there are at least two more cointegrating relations in the process than specified under the null hypothesis.

Once the cointegration is detected in the test of Johansen Cointegration, the Vector Error Correction Model (VECM) is implies to the model. The granger causality test also can be

detected through the VECM derived from long run co-integrating vector. The VECM granger causality test is to distinguish between the short run and long run relationship between the GDP, PPP, population and unemployment rate. It expressed example of the regression below:

$$\Delta LGDP = \propto + \sum_{i=1}^{k} \beta_{0i} \Delta LPPP_{t-1} + \sum_{i=1}^{k} \beta_{1i} \Delta LPOP_{t-1} + \sum_{i=1}^{k} \beta_{2i} \Delta LUNEM_{t-1} + \beta_{4} ECT_{1t-1} + \varepsilon_{1t} \quad (8)$$

$$\Delta LPPP = \propto + \sum_{i=1}^{k} \beta_{5i} \Delta LGDP_{t-1} + \sum_{i=1}^{k} \beta_{6i} \Delta LPOP_{t-1} + \sum_{i=1}^{k} \beta_{7i} \Delta LUNEM_{t-1} + \beta_{9} ECT_{2t-1} + \varepsilon_{2t} \quad (9)$$

$$\Delta LPOP = \propto + \sum_{i=1}^{k} \beta_{10i} \Delta LGDP_{t-1} + \sum_{i=1}^{k} \beta_{11i} \Delta LPPP_{t-1} + \sum_{i=1}^{k} \beta_{12i} \Delta LUNEM_{t-1} + \beta_{14} ECT_{3t-1} + \varepsilon_{3t} \quad (10)$$

$$\Delta LUNEM = \propto + \sum_{i=1}^{k} \beta_{15i} \Delta LGDP_{t-1} + \sum_{i=1}^{k} \beta_{16i} \Delta LPPP_{t-1} + \sum_{i=1}^{k} \beta_{17i} \Delta LPOP_{t-1} + \beta_{19} ECT_{4t-1} + \varepsilon_{4t} \quad (11)$$

Where, $\propto$ is constant, β_i is indicated the estimated parameters, K is the lag length, ECT_{t-1} is indicated the error correction term and ε_t indicated the random error term. The hypotheses of VECM test are represented at below:

$$H_o : \beta_{1i} = \beta_{2i} / \beta_{3i} = \beta_{4i} = 0 \quad (12)$$

$$H_A : \beta_{1i} = \beta_{2i} / \beta_{3i} = \beta_{4i} \neq 0 \quad (13)$$

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The rejection rules are reject the null hypothesis when the t-statistic is bigger than critical value or probability value is smaller than alpha value. If the null hypothesis is rejected, that means either X can Granger cause Y or Y can Granger Cause X.

Empirical Findings

Unit root test

The results of the unit root and stationary test in level and first difference for the variables used, including total population (LPOP), purchasing power parity (LPPP), unemployment rate (LUNEM) and nominal GDP (LGDP). The variables are stationary at the first difference for ADF and DFGLS tests.

As for the KPSS results, all variable proved to stationary since the results do not reject the null hypothesis at 5 percent level at first difference (see Table 1). Thus, it allows for proceeding to the Johansen-Juselius cointegration test to determine the existence of long-run equilibrium relationship.

Johansen cointegration test

Table 2 present the empirical result of the cointegration procedure. Both results from the maximum eigenvalue and the trace statistics show that the null hypothesis (r=0) was rejected at 5% significant level of number co-integrating vector. As a conclusion, the result implies that GDP, population, purchasing power parity and unemployment rate are cointegrated in the long run.

The VECM of Granger causality test

The results of Granger causality test within the vector error-correction model (VECM). The error correction term (ECT) contains information about the speed of change toward long-run equilibrium. In Table 3, only coefficient on the lagged ECT for total population is less than one and statistically significant level with a negative sign. This shows that LPOP is strongly endogenous. It solely endures short-run adjustment to bring about the long-run equilibrium. In the LGDP, LPPP and LUNEM caused long-run LPOP. The coefficient of ECT for LPOP is 0.04, indicates a speed adjustment of 0.04 percent, hence, it requires longer time in order to go back to the long-run equilibrium which

Figure 1 summarized the relationship among the GDP, PPP, population and unemployment rate in Indonesia. It also shows the direction of the Granger causality among the variables. From the results above, the entire variable is a one-way causality. The difference between the direction is it is direct or indirect relationship. The result implies that there are 5 uni-directional and 2 indirect causality.

Discussion

Since GDP will influence the purchasing power parity of people, purchasing power parity will influence population and population will bring impact to the unemployment rate, so government should take necessary action such as implement maximum wages to labors (Amalia et al., 2018). When the wages are set up, the purchasing parity power can be under control and limited. This is logic because when the household's income is constraint; their expenses will be limited too. Apart from that, the households aware of the risk of an increasing number of people in the house could be a cost to the family. So, they by self practically implement the birth control to their family. As a result, unemployment could be reduced because less child born. However, it will reduce the labor supply for the country in the future. The population might affect the country's economic activities.

There has been a growing concern in society on population and its impact on society since decade (Roy et al., 2021). There have been some well-known researchers that study about this issue. Some of them claim that population would negatively affect the society and some of them suggest that population is a good way to generate economic growth.

Given that Indonesia is among the high populated people compared to many other countries in Asia, it is extremely important to establish an empirical study to investigate the impact of population toward economic growth in this country. Studies into the determinants of economic growth are necessary to improve the effectiveness of the policies.

Both economic and demographic factors used in this study including total population, purchasing power parity, unemployment rate and gross domestic product are important in explaining total population and economic growth in Indonesia and in view of policy implication, the results from this study may allow the policymakers to come out with a new policy that helps to control the population growth in order to boost the economic growth in Indonesia.

High unemployment rate could be a cost to a country. As for Indonesia, there are many people living in that country (Rayhan et al., 2020). Having more people but jobless is not a good way to perform the economy of the country. Unemployment rate could lead to negative effect such as

the increasing of crime. Thus, to avoid this from happening in Indonesia, government should provide more employment opportunities to their citizens. Creates more job could be a better start for the government. Apart from that, job search agencies should help both new and experienced workers to find jobs suitable for their educational background, skills and experiences. The methods of accumulation and dissemination of information on jobs should be improved as well. When unemployment rate decrease, economic growth will become better because more people working. When people are working, then they have better income sources. People will purchase thing and there are economic activities such as buying and selling. They will generate economy when there are economic activities.

Besides that, the government should help unemployed citizens by providing them with short-term support through skills training and living expenses. If necessary, the government could send some of the unemployed youth to work abroad as long as they are willing and able to work. The government will still benefit from that. Another way for increasing employment is through the improvements in education and training. This is because people should have the required capability, including skill and knowledge, for doing the work and perform well. Apprenticeship training programs and entrepreneurship skills training programs also help to reduce unemployment rate. Government should strengthen and expand internship opportunities since many apprenticeship positions will turn into permanent job.

As the empirical evidences in this study has shown that total population will influence economic growth, government should be more concern on birth control (Furuoka & Munir, 2010). As mentioned before, having more people but jobless is not a good way to perform the economy of a country. In addition, more people reduce the quality of the environment. This is because more people lead to more usage of vehicles, more carbon dioxide and more human activities such as open burning, which turn out badly for the environment. In addition, air pollution becomes more serious when there are more people in the town. It may be a good sign for the country that there are people living in their country, but government should know population influences economic growth as well. They could be a burden to the country and there is more concern about the negative externalities rather than positive externalities. Thus, government should enhance birth control policy to control the population.

By effectively controlling the fertility rate in Indonesia, parents will have more time to work and earn money. By this, they can increase their purchasing power parity, have more spending power and creating demand which stimulates production and jobs. However, declining fertility rates will reduce labor supply. But, with Indonesia, declining fertility rates could give opportunities to those unemployed. Less birth means fewer people and less competition on the job hunting.

Besides, the government could always have the authority to change the policy according to the country's condition. If the situation demand more population than it would be, then the government can nullify the current policy and enhance new policy (Lam, 2011). Taking into example the case in China over last years (which is now is no longer practical), China is one of the country that ever implemented birth control policy which is one family one child. However, when China analysed that the birth controls policy was no longer effective, the government nullify the current policy and enhance new policy that enable the citizen to have over one child in the family. Thus, Indonesia could do the same thing. However, the decision and action must suit the economic condition of the country. If not, it could be a falling for Indonesia.

Conclusion, Implication, and Future Studies~~s~~

The main purpose of this study is to examine the relationships between population and economic growth in Indonesia for the period of 1987-2020. We constructed the empirical model adopted in this study based on the theoretical framework used by Simon (1987). An economic factors used include unemployment rate and gross domestic product whereas total population represents the demographic variables and purchasing power parity. We analysed each of the variables in this study.

The time series analyses are performed by applying cointegration and causality analyses. The first step leading to cointegration test is conducting unit root test for each variable and determining their order of integration. We have summarized the main findings as follows. First, the result of ADF, DFGLS and KPSS show that all the variables are stationary at first difference level whereas other variables are non-stationary at level. As for Johansen cointegration test, the

results reveal that GDP, population, purchasing power parity and unemployment rate are cointegrated in the long run because there only exists one co-integrating vector between the variables used.

Furthermore, Granger causality test within the VECM framework is used to determine the long-run and short-run causality between the variables used for GDP, population, purchasing power parity and unemployment in which the variables are cointegrated in the long run. From the coefficient on the lagged ECT for total population, the negative sign shows that LPOP is solely withstands short-run change to bring about the long-run equilibrium. It also indicates that in the long run, LPOP is affected by LGDP, LPPP and LUNEM.

In conclusion, the analysis in this study is better performs for population and its impact on purchasing power parity, unemployment and GDP. Those variables seem to be influence each other and will result to the society in the future. As one has to know that population is a much complex phenomenon than can be captured by the simplistic model presented here. This study has at least shown that the population has a significant impact on the purchasing power parity, unemployment and GDP which means, there is indirectly impacts of population on the economic growth in Indonesia.

The empirical evidences in this study suggests that the long-term management and reduction in the total population is associated with the economic environment within the country since these variables will influence the economic growth. Further analysis of total population and economic growth in Indonesia should be made and we need more attention to the economic influences to extract more reliable results and be used as policies for their best combating. There are few limitations that confined to this study and will be presented as follows.

References

Alba, R. (2018). What majority-minority society? A critical analysis of the census bureau's projections of America's demographic future. *Socius: Sociological Research for a Dynamic World*, *4*(1), 1-10. https://doi.org/10.1177/2378023118796932

Amalia, N., Nurpita, A., & Oktavia, R. (2018). Human development index, unemployment and poverty in Papua Province, 2010-2015. *Jurnal Ekonomi Pembangunan, 16*(1), 24-34. https://doi.org/10.22219/jep.v16i1.8180

AL-Saraireh, S. I. (2014). The relationship between unemployment rate in Jordan with rates of foreign labor force, government expenditure, and economic growth. *International Journal of Business and Social Science, 5*(3), 294-301. Retrieved from https://ijbssnet.com/journals/Vol_5_No_3_March_2014/35.pdf

Ashraf, Q. H., Weil, D. N., & Wilde, J. (2013). The effect of fertility reduction on economic growth. *Population and Development Review, 39*(1), 97–130. https://doi.org/10.1111/j.1728-4457.2013.00575.x

Aao, M. Q. (2012). Population and economic growth in developing country. *International Journal of Academic Research in Business and Social Science, 2*(1), 6-17. Retrieved from https://hrmars.com/papers_submitted/8747/population-and-economic-growth-in-developing-countries.pdf

~~Barro, R. J., & Sala i Martin, X. (1995). *Economic growth*. London: Massachusetts.~~

Cantillon, S. (2013). Measuring differences in living standards within households. *Journal of Marriage and Family, 75*(3), 598-610. https://doi.org/10.1111/jomf.12023

Chen, J. (2013). Population, migration, living standard and social pressure: A modeling approach from thermodynamics. *Interdisciplinary Description of Complex Systems, 11*(3), 345-349. https://doi.org/10.7906/indecs.11.3.7

Darma, S., Lestari, D., & Darma, D. C. (2022). The productivity of wineries – An empirical in Moldova. *Journal of Agriculture and Crops, 8*(1), 50-58. https://doi.org/doi.org/10.32861/jac.81.50.58

~~Darrat, A. F. & Al-Yousif, Y. K. (1999). On the long-run relationship between population and economic growth: some time-series evidence for developing countries. *Eastern economic Journal, 25*(3), 301-313. Retrieved from https://www.jstor.org/stable/40325933~~

Díaz, S., Settele, J., Brondízio, E. S., Ngo, H. T., Agard, J., Arneth, A., Balvanera, P., Brauman, K. A., Butchart, S., Chan, K., Garibaldi, L. A., Ichii, K., Liu, J., Subramanian, S. M., Midgley, G. F., Miloslavich, P., Molnár, Z., Obura, D., Pfaff, A., Polasky, S., … Zayas, C. N. (2019). Pervasive human-driven decline of life on Earth points to the need for transformative change. *Science, 366*(6471), eaax3100. https://doi.org/10.1126/science.aax3100

Easterlin, R. A. (2000). The worldwide standard of living since 1800. *The Journal of Economic Perspective, 14*(1), 7-26. https://doi.org/10.1257/jep.14.1.7

Fleurbaey, M., & Gaulier, G. (2009). International comparisons of living standards by equivalent incomes. *The Scandinavian Journal of Economics, 111*(3), 597-624. Retrieved from https://www.jstor.org/stable/40254847

Furuoka, F. (2009). Population growth and economic development: New empirical evidence from Thailand. *Economics Bulletin, 29*(1), 1-14. Retrieved from

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https://www.researchgate.net/publication/227355930_Population_Growth_and_Economic_Development_New_Empirical_Evidence_from_Thailand

Furuoka, F. (2013). Population and economic development in Indonesia: A revisit with new data and methods. *Acta Oeconomica*, *63*(4), 451-467. https://doi.org/10.1556/aoecon.63.2013.4.3

Furuoka, F., & Munir, Q. (2010). Is population growth beneficial or detrimental to economic development? A new evidence from Pakistan. *Journal of Population and Social Studies*, *18*(2), 25-38. Retrieved from https://so03.tci-thaijo.org/index.php/jpss/article/view/84669

Golley, J., & Tyers, R. (2013). Contrasting giants: Demographic change and economic performance in China and India. *Procedia - Social and Behavioral Sciences*, *77*, 353-383. https://doi.org/10.1016/j.sbspro.2013.03.093

Irwansyah, I., Paminto, A., Ilmi, Z., Darma, D. C. & Ulfah, Y. (2022). The flip side of economic growth – Predictions from Indonesia. *Signifikan: Jurnal Ilmu Ekonomi*, *11*(1), 107-124. https://doi.org/10.15408/sjie.v11i1.20280

Johansen, S., & Juselius, K. (1990). Maximum likelihood estimation and inference on cointegration with applications to the demand for money. *Oxford Bulletin of Economics and Statistics*, *52*(2), 169-210. https://doi.org/10.1111/j.1468-0084.1990.mp52002003.x

~~Kothare, R. (1999). Does India's population growth has a positive effect on economic growth?. *Social Science*, *4*(10), 1-14. Retrieved from https://pages.cs.wisc.edu/~dluu/data/papers/rkothare99.pdf~~

Kwiatowski, D., Phillips, P. C. B., Schmidt, P., & Shin, Y. (1992). Testing the null hypothesis of stationarity against the alternative of a unit root: How sure are we that economic time series have a unit root?. *Journal and of Econometrics*, *54*(1-3), 159-178. https://doi.org/10.1016/0304-4076(92)90104-Y

Lam D. (2011). How the world survived the population bomb: lessons from 50 years of extraordinary demographic history. *Demography*, *48*(4), 1231–1262. https://doi.org/10.1007/s13524-011-0070-z

Lutkepohl, H., Saikkonen, P., & Trenkler, C. (2000). Maximum eigenvalue versus trace tests for the cointegrating rank of a VAR process. *Econometrics Journal*, *4*(2), 287-310. https://doi.org/10.1111/1368-423X.00068

Maddah, M. (2012). An empirical analysis of the relationship between unemployment and theft crimes. *International Journal of Economics and Financial Issues*, *3*(1), 50–53. Retrieved from https://www.econjournals.com/index.php/ijefi/article/view/304

Maqbool, M. S., Sattar, T. M. A., & Bhalli, M. N. (2013). Determinants of unemployment empirical evidences from Pakistan. *Pakistan Economic and Social Review*, *51*(2), 191-207. Retrieved from https://www.jstor.org/stable/24398836

Muharromy, N. S. E., & Auwalin, I. (2021). The effect of population growth and trade openness on economic growth of the OIC countries. *Jurnal Ekonomi Syariah Teori dan Terapan*, *8*(5), 537-547. http://dx.doi.org/10.20473/vol8iss20215pp537-547

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Mulok, D., Asid, R., Kogid, M., & Lily, J. (2011). Economic growth and population growth: Empirical testing using Malaysian data. *Interdisciplinary Journal of Research in Business*, *1*(5), 17-24. Retrieved from https://www.researchgate.net/publication/231227272_Economic_Growth_and_Population_Growth_Empirical_Testing_Using_Malaysian_Data

Rayhan, A. A. M., Rusdarti, R., & Yanto, H. (2020). Factors influencing unemployment rate: A comparison among five Asean countries. *Journal of Economic Education*, *9*(1), 37-45. https://doi.org/10.15294/JEEC.V9I1.38358

~~Rehorick, D. A. (1979). Understanding Malthusian thought: Relevance of Malthus's categorical frame of reference. *Canadian Studies in Population*, *6*, 9-22. https://doi.org/10.25336/P60C8T~~

Roy, J., Hasid, Z., Lestari, D., Darma, D. C., & Kurniawan A, E. (2021). Covid-19 maneuver on socio-economic: Exploitation using correlation. *Jurnal Pendidikan Ekonomi & Bisnis*, *9*(2), 146-162. https://doi.org/10.21009/JPEB.009.2.6

Scoones, I., Smalley, R., Hall, R., & Tsikata, D. (2019). Narratives of scarcity: Framing the global land rush. *Geoforum*, *101*, 231-241. https://doi.org/10.1016/j.geoforum.2018.06.006

Shofoyeke, A. (2014). An appraisal of the 2004 national policy on population for sustainable development. *Mediterranean Journal of Social Sciences*, *5*(23), 2520-2529. Retrieved from https://www.richtmann.org/journal/index.php/mjss/article/view/4816

Perez, A. D., & Hirschman, C. (2009). The changing racial and ethnic composition of the US population: Emerging American identities. *Population and Development Review*, *35*(1), 1–51. https://doi.org/10.1111/j.1728-4457.2009.00260.x

Peterson, E. W. F. (2017). The role of population in economic growth. *SAGE Open*. https://doi.org/10.1177/2158244017736094

Puleston, C. O., & Tuljapurkar, S. (2008). Population and prehistory II: space-limited human populations in constant environments. *Theoretical Population Biology*, *74*(2), 147–160. https://doi.org/10.1016/j.tpb.2008.05.007

Simon, J, L. (1987). Population growth, economic growth and foreign aid. *Cato Journal*, *7*(1), 159-193. Retrieved from https://www.cato.org/sites/cato.org/files/serials/files/cato-journal/1987/5/cj7n1-10.pdf

Sinding S. W. (2009). Population, poverty and economic development. *Philosophical transactions of the Royal Society of London. Series B, Biological Sciences*, *364*(1532), 3023–3030. https://doi.org/10.1098/rstb.2009.0145

Stuckler D. (2008). Population causes and consequences of leading chronic diseases: a comparative analysis of prevailing explanations. *The Milbank Quarterly*, *86*(2), 273–326. https://doi.org/10.1111/j.1468-0009.2008.00522.x

The Geohive. (2015). *Current world population (ranked)*. Retrieved from http://www.geohive.com/earth/population_now.aspx

The Index Mundi. (2014). *Indonesia net migration rate*. Retrieved from http://www.indexmundi.com/indonesia/net_migration_rate.html

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The World Bank. (2015). *Net migration*. Retrieved from http://data.worldbank.org/indicator/SM.POP.NETM

The World Population Review. (2015). *Indonesia population 2015*. Retrieved from http://worldpopulationreview.com/countries/indonesia-population/

Todaro, M. P., & Smith, S. C. (2011). *Economic development (11th ed.)*. Boston, MA: Addison-Wesley.

Todaro, M. P., & Smith, S. C. (2015). *Economic development (12th ed.)*. London: Pearson.

Wijaya, A., Kasuma, J., Tasenţe, T., & Darma, D. C. (2021). Labor force and economic growth based on demographic pressures, happiness, and human development: Empirical from Romania. *Journal of Eastern European and Central Asian Research, 8*(1), 40-50. https://doi.org/10.15549/jeecar.v8i1.571

Yijo, S., Purwadi, P., & Alex, S. (2021). Attention of economic growth and oil prices: Evidence from Indonesia. *International Journal of Energy Economics and Policy, 11*(5), 425-433. https://doi.org/10.32479/ijeep.11538

ZA, S. Z., Amalia, S., Darma, D. C., & Azis, M. (2021). Spurring economic growth in terms of happiness, human development, competitiveness and global innovation: The ASEAN Case. *ASEAN Journal on Science and Technology for Development, 38*(1), 1-6. https://doi.org/10.29037/ajstd.653