Research Article

Influence of Education Level and Cigarette Consumption on Poverty in RW 1 RT 1 Ngaglik Batu, East Java

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Abstract.
This research aims to determine the effect of cigarette consumption and community education level on income in Ngaglik Village RT.01 RW.01 Batu City. This analysis uses independent variables, namely cigarette consumption and education level. The dependent variable was people's income. This research uses primary data obtained from distributing questionnaires to 48 family cards occupying Ngaglik Subdistrict RT.01 RW.01 Batu City. The analysis was done using the Slovin Method. Then a normality test, two variable linear regression test, multicollinearity test, heteroscedasticity test, and autocorrelation test were carried out with the help of SPSS tools. Firstly, the results of this study showed that cigarette consumption had no significant effect on income, while education level did. Second, the head of the families in this study were mostly men. Third, it is very important to educate about the dangers of smoking so that people have knowledge about not smoking and alleviating poverty.

Keywords: cigarette consumption, education level, income

1. Introduction

Indonesia is a country that is facing a poverty crisis, the percentage of poverty in Indonesia in March 2023 amounting to 9.36% and a population of 25.90 million people experiencing poverty (BPS, 2023b). One of the goals of state development is to improve the quality of human resources in order to achieve national development goals. Development can be achieved when followed by economic growth. According to Bank Indonesia, Indonesia's economic growth is strong, as evidenced by the condition of the business sector which is supported by the processing industry, wholesale and retail trade, as well as mining and quarrying (BI, 2023).

Apart from Indonesia's economic growth, several indicators such as education, health and income are also important to improve the quality of human resources. Even people who have income must be able to optimize that income into family needs that must
be met. However, as reported by the *Southeast Asia Tobacco Control Alliance* (SEATCA) report entitled *The Tobacco Control Atlas*, the ASEAN region stated that Indonesia was the country with the largest number of smokers in ASEAN with a population of 65.19 million people in 2019 (SEATCA, 2019). Active smokers are equivalent to 28.26% of the total population in Indonesia (BPS, 2023a). Compared with Singapore, active smoking is inversely proportional to 345 thousand people, which is equivalent (Suliankatchi et al., 2019).

Based on the data in Figure 1a, the large number of smokers in Indonesia indicates that the income earned is not always used to meet basic needs but is spent on cigarettes. In fact, the price of cigarettes is not cheap, so this is the cause of poverty because people tend to ignore basic needs and create greater expenditure. (Oktaviani et al., 2022) states that the expenditure of households that consume cigarettes is at least IDR 1,191,000/month. If this expenditure figure is spent on basic needs, it will be more beneficial, while smokers are addicted to smoking so it is difficult to give up the smoking habit. Research conducted by (Pratama, 2018) and (Almizi & Hermawati, 2018) states that the higher the cigarette addiction, the higher the incidence of poverty because it reduces the family’s financial ability to meet needs.

![Figure 1: Number of smokers in Indonesia. Source: BPS (2023).](image)

One indicator of poverty is the quality of human resources as stated by (Afif, 2018); (Almizi & Hermawati, 2018); (Sari et al., 2022) that human resources can be seen from the poverty experienced by observing community productivity, the smaller the productivity, the greater the case of poverty. The quality of human resources can also be seen from
the level of success of education in creating skilled workers (Achyanadia, 2016); (Firdaus et al., 2013). In Indonesia itself there are several levels of formal education, namely; Elementary, middle school, high school and undergraduate. Elementary School is the first level of school, Elementary School is a preschool before middle school or junior high school and is occupied by students aged 5-13 years for 6 years. Junior High School (SMP) is the second basic level of formal education in Indonesia after elementary school which is taken for 3 years by students who are naturally aged 13-15 years. High School is the last formal education that students must take before entering higher education and is the highest level of formal education in Indonesia. Meanwhile, graduate is the level of further education after high school which is taken in approximately 4 years (Julianto, 2019).

According to Sugiharti, L., Sukartini, NM, & Handriana (2015) in their journal entitled “Cigarette Consumption Based on Individual Characteristics in Indonesia” explains that individuals with low levels of education are usually at the elementary school (SD) level. smoking is more common than at higher levels of education. One other indicator is the level of income, the higher the income earned by each individual, the higher the cigarette consumption (Pratama, 2018). However, cigarette prices are affordable because Indonesia is the largest cigarette producer in Southeast Asia, meaning cigarette consumption does not depend on the income of each individual community. Apart from that, the stress level of low-income people also encourages people to consume cigarettes (Octaviani et al., 2022); (Robinson & Arsani, 2020); (Surjono & Handayani, 2013) (Assari & Bazargan, 2019).

Income is one indicator in looking at poverty, this was stated by (Cendekia, 2018) that a person’s stable income also has a better impact on the family’s economy and vice versa. Meanwhile, poverty itself is an indicator of the consequences of economic growth and development of a region which can influence the level of welfare and prosperity of its population as measured by its income level (Afif, 2018). Economic growth is an important indicator that is proof of a country’s success, which describes the development of a country’s economy. In development and economic growth there are several other macro factors such as inflation rate, poverty rate, unemployment rate, quality of human resources, and others. This is the basis for the discussion in this research, namely the macro indicators that we take are the level of poverty obtained from income data, the quality of human resources taken from the education level of residents, and cigarette consumption in the Ngaglik RT 1 RW 1 Batu City area. Researchers took subjects in this area because based on a survey of several people, it was stated that the majority of people in Ngaglik smoke. Ngaglik is a village in the heart of Batu City.
which is known as a Tourist City which has various tourist attractions, thus the income of the Ngaglik community is obtained from tourism economic activities so this is what differentiates it from previous research. So based on this background the researcher took the title **Influence Education Level and Cigarette Consumption on Poverty in RT 1 RW 1 Ngaglik, Batu City.**

2. Literature Review

Level of education

A person's level of education can be a determining factor in determining how capable they are at work. The ability of an individual employee to carry out the assigned duties and responsibilities with academic background, skills and experience to support the assigned duties and responsibilities can help the company become competitive as quality human resources (Aisyah, 2015). According to Kina (2020), indicators of the quality of human resources can be described as follows: a) Intellectual quality which includes knowledge and skills, b) quality of education, c) understanding of the field, d) abilities possessed, e) work enthusiasm that exists in him and f) planning and organizational skills and professionalism. Indonesia's human resources are classified as low, this is due to the low quality of education. This is proven by the Indonesian workforce, which is mostly dominated by junior high school education with 10% a bachelor's degree, 25% high school graduates and the remaining 65% junior high school graduates (Aisyah, 2015). With the productive age, the quality of junior high school education is decreasing, making it an indicator of obstacles to economic development in Indonesia (Khusaeni et al., 2021). From the understanding of the experts above, we can conclude that one of the qualities of human resources is the level of education which is the reference for our research.

A person's level of education can be a determining factor in determining how capable they are at work (Trisnawati, 2021); (Wainwright, 2017); (Ningtiyas et al., 2022). The ability of an individual employee to carry out the assigned duties and responsibilities with academic background, skills and experience to support the assigned duties and responsibilities can help the company become competitive as quality human resources (Aisyah, 2015). According to Kina (2020), indicators of the quality of human resources can be described as follows: a) Intellectual quality which includes knowledge and skills, b) quality of education, c) understanding of the field, d) abilities possessed, e) work enthusiasm that exists in him and f) planning and organizational skills and professionalism. Indonesia's human resources are classified as low, this is due to the
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**Smoke**

Many skilled human resources are created from maximum education (Nabila & Umro, 2020). Education that teaches many benefits will make students aware of avoiding negative things such as smoking (Friedman & Horn, 2019). Smoking is the activity of inhaling tobacco smoke packaged in a burned cigarette, then the smoke is inhaled and enters the body and exhaled back out (Armstrong-James, 1997). Smoking is an activity that is detrimental to health and the body and is generally accepted by most people. This activity is usually associated with activities to fulfill euphoric desires and needs, but some smokers are aware of the potential diseases associated with smoking (Sitepoe, 2000). According to Hall in his book entitled “Stop Smoking” (Aulia, 2010) Smoking behavior is a phenomenon that exists and occurs in people who are aware of the negative impacts of smoking but claim to justify this behavior. From the understanding described by the experts above, it can be concluded that cigarette consumption is a consumption activity, namely tobacco in the form of cigarettes which are smoked and then exhaled into the air and have a negative impact on health. Therefore, many people avoid smoking to maintain health and do lots of positive activities.

### 3. Methodology

**Data Types and Sources**

From the article above, the data obtained was 45, then the Slovin Test was carried out to obtain the required sample and then 41 KK (Family Cards) were obtained. The method used to obtain the data was a survey and direct interviews. This research was researched using an approach method that has a quantitative nature. There are two types of data namely; qualitative and quantitative data. Qualitative data can be
interpreted as data in the form of words, sentences or images. Meanwhile, quantitative data is data in the form of numerical data or qualitative data that is evaluated (scoring).

Data analysis

The model used in this research is a quantitative descriptive model which aims to describe the object of our research using numbers starting from DTA collection and then interpretation, appearance and also the results.

4. Results and Discussion

Model selection

Normality test

![Normal P-P Plot of Regression Standardized Residual](image)

Figure 2: Normality Test. Source: Author Data (2022).

Based on the output results using the P-plot method above, results are obtained if the data or residuals are normally distributed, because the data follows the line and is not too far from the line. However, if you look at several points that are away from the line, in this case a different normality test method is carried out, namely the Kolmogorov-Smirnov test below. The P-plot test is one of the tests used to test whether the data is normally distributed or not (Akbar, 2018). There are several things that guide the regression model which can be said to meet the normality assumption, namely that the points follow and approach the diagonal line (Nur Fauziah et al., 2018). Based on the output results using the P-plot method above, the data results are normally distributed, because the data follows the line and is not too far from the line. There are several weaknesses of using the P-plot test, in the test the distance between the distribution of the data on the line is relative so each researcher's assumptions are
different (Akbar, 2018). Therefore, a different normality test method was carried out, namely the Kolmogorov-Smirnov test below.

One-Sample Kolmogorov-Smirnov Test

<table>
<thead>
<tr>
<th>N</th>
<th>Unstandardized Residual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal Parameters</td>
<td>Mean: .0000000</td>
</tr>
<tr>
<td></td>
<td>Std. Deviation: 1.03612172</td>
</tr>
<tr>
<td>Most Extreme Differences</td>
<td>Absolute: .102</td>
</tr>
<tr>
<td></td>
<td>Positive: .102</td>
</tr>
<tr>
<td></td>
<td>Negative: -.101</td>
</tr>
<tr>
<td>Test Statistic</td>
<td>Asymp. Sig. (2-tailed): .200^c,d</td>
</tr>
</tbody>
</table>

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.
d. This is a lower bound of the true significance.

Source: Author Data (2022)

Figure 3: Kolmogorov-Smirnov.

After carrying out a normality test using the Kolmogorov-Smirnov method on the 3 variables smoking (X1), education (X2), and poverty (Y), the table above was obtained. Hypothesis and how to read it:

H0 = Population data is normally distributed
H1 = Population data is not normally distributed

The basis for decision making is:

If the probability value is > 0.05 then H0 is accepted
If the probability value < 0.05 then H0 is rejected

In the Kolmogorov-Smirnov test results table above the probability value is 0.200, meaning the probability value is > 0.05, so according to the basis for decision making above, H0 is accepted and the data is normally distributed.

4.1. Multicollinearity test

The multicollinearity test produces the coefficient table above. In the table above, what we pay attention to is the size of the VIF value or variance inflation factor and its tolerance. The basis for decision making can be said to be free from multicollinearity.
problems if the VIF < 10, and the tolerance value > 0.1 (Tala & Karamoy, 2017). Based on the results of the coefficient table above, the VIF value of the smoker (X1) and education (X2) variables appears to be 1.002 < 10, and the tolerance value is 0.998 > 0.1, so the data we examined did not occur in multicollinearity.

### 4.2. Heteroscedality test

Based on the Spearman test results, the table above is obtained. From the table above we can see the GIS results. each variable.

Hypothesis and how to read it:

H0 = There is no Heteroscedality in the Data

H1 = There is heteroscedality in the data

On the basis of which decisions are made are:

If Sig is >0.05 then H0 is accepted

If Sig is <0.05 then H0 is rejected

Based on the results above, the Value Variable (X1) is 0.984 > 0.05, while the GIS Education Variable (X2) is 0.982 > 0.05. This means that both variables have a sig
of more than 0.05, which means that H0 is acceptable or the data does not have heteroscedality problems.

4.3. Autocorrelation test

Based on the results of autocorrelation testing using the Durbin-Watson method, the table above is obtained. There are several bases for making decisions based on the Durbin-Watson test results above:

If $D < d_l$ or $d < 4 - d_l$ then hypothesis 0 is rejected, which means autocorrelation occurs.

If $d_u < d < 4 - d_u$ then hypothesis 0 is accepted, which means there is no autocorrelation.

If $d_l < d_u$ or $4 - d_u < d < 4 - d_l$ then it cannot be concluded or there is no conclusion.

Durbin Watson autocorrelation test calculation results

- $n =$ number of respondents
- $d =$ durbin Watson
- $d_l$ and $d_u =$ views from durbin Watson table

Answer: $N = 41$ $D = 1.151$ $d_l = 1.3992$ $d_u = 1.6031$

4 - $D_l = 4 - 1.3992 = 2.6008$

4 - $D_u = 4 - 1.6031 = 2.3969$

Then treatment was carried out using the Cochrane Orcutt method to eliminate autocorrelation in the data above.

Cochrane Orcutt coefficient table method above. In the table above we focus on the non-standardized $b$ value for variable $B$ lag_res of 0.417.

After carrying out the Cochrane Orcutt test, the Durbin-Watson value was 2.040. After that we compare it with the initial hypothesis $D = 2.040$ $d_l = 1.3992$ $d_u = 1.6031$
4-DL = 4 - 1.3992 = 2.6008
4-DU = 4 - 1.6031 = 2.3969
DU < D < 4-DU = 1.6031 < 2.040
< 2.3969

Then after seeing the results above, H0 is accepted or which means there is no autocorrelation in the data above.

4.4. Multiple linear regression test

Based on these results, the R value is obtained which shows the value of the closeness of the relationship between the dependent variable, namely lag_y (income) and the independent variables, namely lag_x1 (smokers), and lag_x2 (education). The R value shows a value of 0.684 or 68.4%, where this number shows a close/strong
relationship, where the value is close to 1. The closer it is to 1, the closer the relationship will be. Based on these results, an R2 (R Square) figure of 0.467 or 46.7% was obtained. From this it can be seen that the independent variable is able to mean that the percentage contribution of the independent variable to the dependent variable is 46.7%. This R Square value shows the coefficient of determination which shows how big a role the independent variables (lag_x1, lag_x2) simultaneously and simultaneously influence the dependent variable (lag_y).

The Adjusted R Square value is the R Square value that has been adjusted where the R Square value will always be smaller (<) than R Square. Based on the results above, the Adjusted R Square value is smaller (<), namely 0.438 and this meets the requirements. The standard error of the estimated value is a measure of the number of regression models in predicting the Y value. Based on the regression results above, a value of 0.96520 is obtained, where in this case the inaccuracy figure in estimating the Y value is 0.96520.

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>30.235</td>
<td>2</td>
<td>15.117</td>
<td>16.227</td>
<td>.000*</td>
</tr>
<tr>
<td>Residual</td>
<td>34.470</td>
<td>.37</td>
<td>.938</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>64.705</td>
<td>.39</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*a. Dependent Variable: LAQ_Y
b. Predictors: (Constant), LAG_X2, LAG_X1

c. Source: Author Data (2022)

**Figure 10:** Adjusted R Square Value.

1. H0: There is no significant influence between the lag_x1 and lag_x2 variables simultaneously on lag_y

2. Ha: There is a significant influence between lag_x1 and lag_x2

Coinciding with lag_y

1. Based on the results above, the calculated f is 16.227 with a significance of 0.000, where this value is smaller (<) than 0.05 (0.000<0.05). From these values, it can be seen that the influence of the two independent variables, level of education and cigarette consumption (lag_x1, and lag_x2) on the dependent variable or income (Y) is significant.
Based on the results of the regression analysis of the lag_x1 variable against lag_y, a sig value of 0.428 was obtained, which means it is greater than 0.05. This shows that the lag_x1 variable has no significant effect on lag_y.

Based on the results of the regression analysis of the lag_x2 variable against lag_y, it shows a sig value of 0.000 which can be interpreted as smaller (<) than 0.05. This shows that the lag_x2 variable has a significant effect on lag_y.

After looking at the test results above, the results of the lag_x1 variable are not significant while the lag_x2 variable is significant with lag_y which means H0 is accepted and H1 is rejected.

Then, based on the results of the analysis discussed, it proves that human resources can be utilized if the education received by the community is good. Good education can provide an understanding of the dangers of smoking so that when students enter society they can provide an understanding of the negative impacts of smoking. Apart from being dangerous for health, cigarettes also cause poverty because the high price of cigarettes is an expense that sacrifices basic necessities. The level of education has a significant relationship to the level of community welfare. Meanwhile, what influences the tendency to smoke is the level of welfare (Aini, 2018); (Robinson & Arsani, 2020). Good education can provide an understanding of the dangers of smoking so that when students enter society they can provide an understanding of the negative impacts of smoking. Apart from being dangerous for health, cigarettes also cause poverty because the high price of cigarettes is an expense that sacrifices basic necessities. Based on BPS data, expenditure on cigarettes is the second largest expenditure after rice. This shows that cigarette consumption in Indonesia is very large. In fact, if the money is spent on more important needs it will be much more useful. As explained by Scholar (2018), reducing cigarette consumption further improves welfare because people act more productively and are not trapped in poverty. However, efforts to eradicate poverty
continue. In agreement with the previous figures, Almizi & Hermawati (2018) revealed that one way to alleviate poverty is to reduce the amount of cigarette consumption because cigarettes are an obstacle to fulfilling the family’s economy. When a family is able to provide for its economy, prosperity is easy to obtain. However, there are still many economic obstacles that affluent households must face.

Households that have higher education are better able to understand economic conditions so that the head of the household can set a good example to the family, including not consuming cigarettes because apart from being dangerous for health, it is also a drain on finances. In this study, from 45 family cards obtained from RT heads, 41 samples were finally obtained, all heads of households were men, so many smoked and caused a lot of household expenses. This is in accordance with research conducted by Oktaviani et al (2022) & Kurniawan (2022) that cigarettes are one of the commodities that cause poverty. However, based on the results of research in Ngaglik - Batu, cigarettes are not a factor in the poverty of the people there so that the theory found contradicts the results of research analysis in the field.

5. Conclusion

From the results of our research, it was concluded that in the long term the quality of education and the quality of human resources have a significant effect on the income of Ngaglik residents which will also affect poverty in the area. This is based on theories and indicators in economic growth where the concept of development requires quality human resource indicators as one of the indicators of economic development. Therefore, it is necessary to improve the quality of human resources and increase competitiveness. This can be proven and compared with developed countries, namely Japan, where the level of competition is very high, thus encouraging its citizens to continue to improve quality, thereby encouraging economic development and making the country advanced.

Meanwhile, cigarette consumption does not have a significant effect on the income of Ngaglik residents, which means it does not affect poverty in the area. In this case it is proven that cigarette consumption has no correlation with people at all levels of education and some traders. Smoking behavior itself is largely driven by environmental factors, biological factors and psychological factors. However, usually people with a higher level of education have a higher percentage of work stress levels which can encourage them to consume cigarettes. Meanwhile, citizens who have a low level of education or perhaps less. This can also encourage people with low education and
income to smoke. On the other hand, there are also many things that contradict the explanation above. Therefore, cigarette consumption is essentially a person’s individual desire and idealism.

6. Suggestion

Based on the research above which resulted in a mini research that has been carried out, we as authors provide recommendations or suggestions which we set out as follows: In increasing economic development it is necessary to increase macroeconomic indicators to support economic growth in regions which will also support economic growth country. Some of these indicators that we studied were the quality of human resources at relatively low levels of education. Efforts that must be made are to improve and improve the quality of community education, which can be done with programs that can support community skills and knowledge as well as further promote the mandatory 12-year formal school program.

Apart from that, equitable distribution of schools in the regions is also very important, so the government must also pay more attention to children under school who drop out of school because of costs or are affected by the environmental impact. Because you can see at the red light intersection near Ngaglik Village, you can see many children busking by painting their bodies as silver humans, or wearing clown costumes. If you look again, they are actually potential successors who will take part in macroeconomic development in the region.

7. CONFESSION

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References


