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MEAN YEARS OF SCHOOLING INEQUALITY AND RETURN ON EDUCATION: ANALYSING THE MAIN DETERMINING FACTORS

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ABSTRACT

Education is a determining factor in human development. West Java had a mean year of schooling (MYS) of around 8.37 years in 2019, which is still below the compulsory primary school. This study aims to find out the factors that can be attributed to low MYS. Ten variables influence the MYS. Principal Component Analysis (PCA) method was used to simplify the observed variables by reducing the dimensions. The result reduces ten variables to two factors containing five variables. The first factor is infrastructure (road access, distance to schools, and health centres) and the second factor is income (RMW and GRDP). These two factors significantly influence the MYS. This MYS, in turn, directly affects people's food consumption. A higher percentage of income for non-food represents a higher return to education. Districts have a lower return on education than cities. Two factors (infrastructure and income) do not directly affect the percentage of people's income for food but are affected through MYS. The central and provincial governments need to pay more attention to districts with an agricultural base on the availability of school infrastructure. In addition, it is necessary to increase people's income by providing better road access to reach better education.

Keywords: Education; human development; principal component analysis; return to education.

INTRODUCTION

Better human quality is essential for the development of an area. According to UNDP, human development contains four elements: productivity, equitable development of the population, for the population, and by the population. The Human Development Index (HDI) is a measuring tool that can reflect the status of human development. It is a composite index that covers three basic areas of human development. The three areas and their indicators include (i) health (life age); (ii) the education sector: knowledge; and (iii) the economic sector: a decent standard of living.

In 2019, the West Java HDI Ranking was the 10th with a value of 72.03. West Java's ranking has been the same since 2017. This illustrates the slow progress of human development in West Java. It is consistently behind its neighbouring region, DKI Jakarta, which is always the first among the regions in Indonesia. West Java also has a fairly large HDI disparity (Figure 1). There is quite a large difference between the largest HDI in Bandung City in 2019 (82) and the lowest HDI, Cianjur Regency (65).

One of the determining elements of the increase in HDI is the Average Length of School (ALS), where there are still disparities between districts and cities over the ALS in West Java. The ALS of West Java in 2019 was 8.37, not far from the ALS of 8.27 in 2017. This shows that, on average, most of the population did not even pass Junior High School. Most of these were in districts with ALS of 7.6 in 2019, which increased from 7.41 in 2017. Meanwhile, in urban areas, the ALS was 10.1 in 2019, which increased from 10.07 in 2017. This increase in ALS in districts and cities is considerably slow.

Development indicators in the education sector are reflected in the mean length of schooling (MYS). The increase in MYS is a very important concern as it affects the competition in looking for work, which eventually affects people's income. Insufficient income due to low education will affect the fulfilment of basic needs such as food consumption with good nutrition. Higher education will provide the community a better per capita income (Bruckner, 2013; Straus & Weinberg, 2017). Human capital with education has a positive and significant effect on employee performance (Rumawas, 2018). This is because educational investments will bring several benefits in return, referred to as Return to Education. The result shows that the level of education affects income. The rate of return at each level of education increases with an increase in education (Azhar et al., 2018).

The MYS West Java was 8.37 in 2019, but the gross enrolment rate (GER) of junior high schools in West Java was quite high. Figure 2 shows that the smallest was 84%, and the largest was 109%. In the future, the MYS of West Java is expected to increase even higher. A situation in which a region has a high GER value but still quite a low MYS indicates a problem because many junior high school students are unable to complete their education.

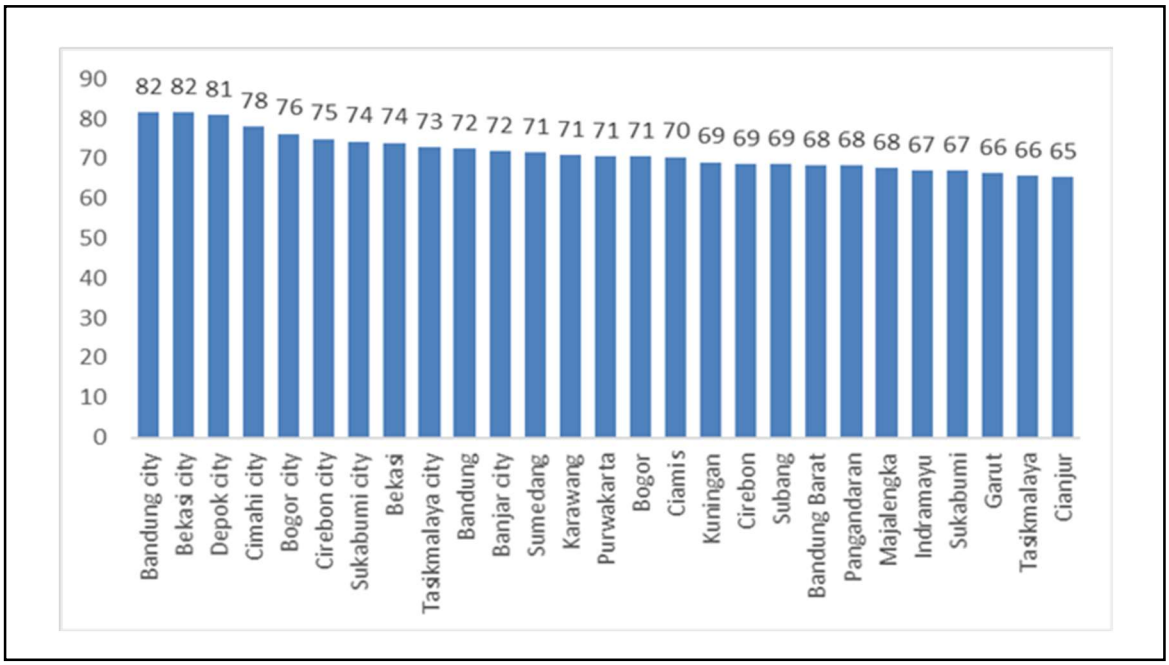


Figure 1. *HDI District and City West Java 2019*

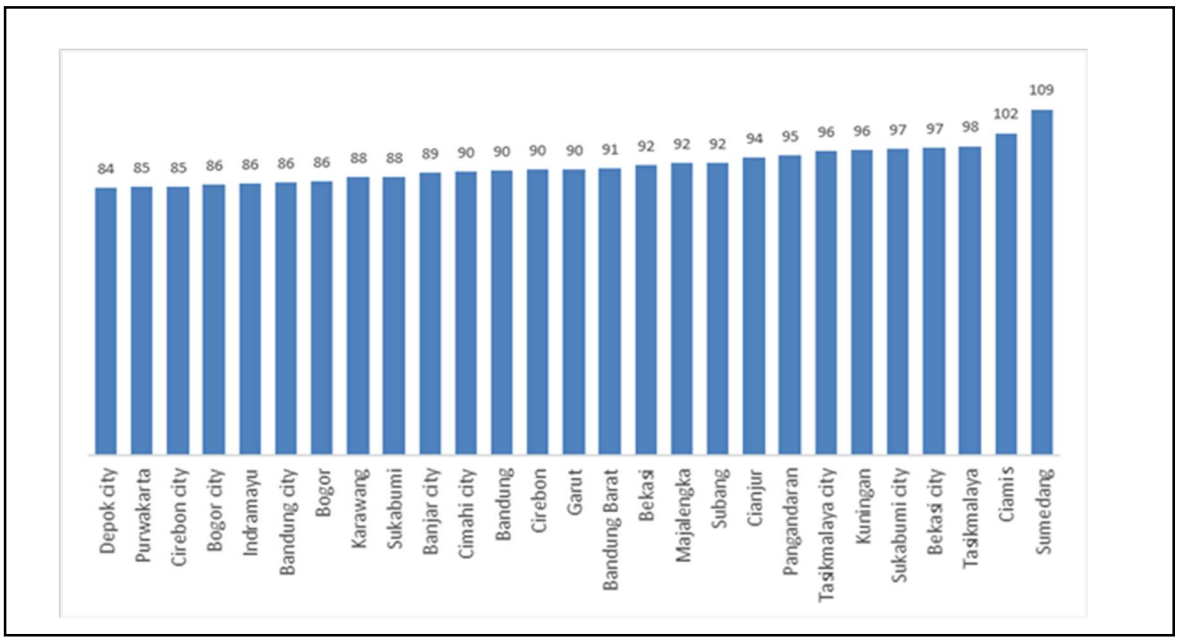


Figure 2. *Gross Enrolments Rate of Yunior High School District and City West Java 2019*

Developed countries such as America, South Korea, China, and Hong Kong have high per capita income through the development of vocational education to create superior human resources in the workforce, which ultimately helps influence people's income (Pratomo & Arifin, 2020). The results of previous studies showed a relationship between MYS and life expectancy (Hendajany & Rizal, 2019) and the occurrence of low-birth-weight babies (LBW) (Hendajany & Deden, 2020). LBW is one of the causes of stunting, a condition that will hinder the formation of quality human resources in the future. A proper understanding of the factors that influence MYS will help determine the right policy to improve MYS in the future.

However, the government in many countries realises that basic education is not only a right but also an obligation. By law, citizens are required to obtain education up to a certain basic level. Indonesia has launched a nine-year compulsory education program such that education is free until the level of Junior High School, as mandated by law no. 20 of 2003.

Expanding access to education has also become a global phenomenon. Data show that the government's spending on education in many developing countries is already close to the average observed in the developed world. For example, the education budget allocation in Indonesia is at least 20% of the state spending to fulfil the constitutional mandate. However, at the macro level, education spending does not explain the differences in learning outcomes between countries (Roser & Ortiz-Ospina, 2016). The influence of education funding in Indonesia, either through central government funds (APBN) or local government (APBD), does not have a dominant effect in increasing the Human Development Index (Yogiantoro et al., 2019).

Table 1 shows that West Java province, with its large budget for education, has a higher percentage of dropouts than Bali or is not much different from East Java which has a lower education budget. The percentage of primary school dropouts in West Java is lower than in the provinces in the central and eastern regions of Indonesia. This indicates that other factors other than the education budget affect the

success of the basic education process in West Java. In other words, this implies a complex educational production function in West Java.

Table 1
Comparison of the Amount of Education and Dropout Budgets in Several Provinces in Indonesia in 2019

Province	Education Budget		Students (ES & JHS)	Dropout (ES & JHS)	% Dropout
	magnitude (billion Rp)	%*			
West Java	37055.51	13.6%	6,241,249	5,337	0.09%
West Sumatra	7130.37	20.9%	845,224	1,024	0.12%
Lampung	7657.92	14.3%	1,152,590	1,597	0.14%
East Java	33519	16.1%	4,043,591	6,350	0.16%
Bali	6834.26	13.1%	590,410	381	0.06%
West Nusa Tenggara	5253.58	15.5%	685,240	1,872	0.27%
West Kalimantan	5910.67	16.7%	821,507	1,768	0.22%
East Kalimantan	10669.67	12.5%	567,548	583	0.10%
South Sulawesi	9898.6	17.3%	1,279,645	3,981	0.31%
Southeast Sulawesi	4245.33	17.2%	434,692	1,650	0.38%
Maluku	3216.3	17.1%	316,950	783	0.25%
Papua	13928.12	8.2%	563,488	5,465	0.97%

Source: https://npd.kemdikbud.go.id/

Family factors play an important role in education. Primary school enrolment participation in India shows a higher percentage of 88% in urban areas compared to 77% in rural enrolment (Bhandari, 2006).

The decision by households to send their children to school or not is made based on a comparison of the costs and benefits of doing so (Damon et al., 2016). A study in India shows that household size negatively and significantly affects education completion. The larger the household, the lower the percentage of children completing secondary education (Singh & Mukherjee, 2015).

The economic burden on poor families in Iran (especially costs and expenses for children at school), the geographic distribution of schools, and difficult access from villages are some of the common factors inhibiting the sustainability of education (Rahbari et al., 2014).

The results of a study in West Java indicate that poverty affects enrolment in junior secondary schools, in addition to the per capita GRDP and education of the heads of the family (Khairunnisa et al., 2015). The School Enrolment Rate (SER) for junior secondary schools of the poor in West Java is only 67.70%, with the highest SER in Depok City at 100% and the lowest in Purwakarta at 39.99%. On a broader scale, in Indonesia, SMERU's research also shows a significant effect of poverty on completing primary and secondary education (Suryadarma & Suryahadi, 2011). Therefore, the existence of a scholarship program either by the government or community becomes important to help the poor to be able to access better education. The scholarship program has contributed significantly to enhancing the quality and competencies of human resources (Setiabudi et al., 2019). The government needs to maximise work programs other than BOS (Bantuan Operasional Sekolah/School operational Funding) fund allocation, such as the Poor Students Program (BSM: Bantuan Siswa Miskin) and the Smart Indonesia Card (KIP: Kartu Indonesia Pintar) (Lestari & Setyadharma, 2019). The allocation of BOS funds has a positive but

insignificant effect on mean years of schooling in Central Java because the allocation of BOS funds has not been effective (Lestari & Setyadharma, 2019).

Poverty is exacerbated by the consumption of cigarettes by the head of the family (Yurekli et al., 2003). The poor and the poorest group tend to smoke the most. A high smoking habit will limit the ability of a poor family to pay for their children's education. Globally, 84% of smokers live in developing countries and are transitioning towards developing (Yurekli et al., 2003). The poorest households in Bangladesh spend almost ten times more on tobacco than on education (Efroymson et al., 2001). In addition, West Java is the province with the second largest percentage of smokers in Indonesia after Lampung in 2018, reaching 35.78 percent (BPS, 2019).

Poverty also brings consequences, including the inability of a family to own a house. Children who live in their own home at the secondary and higher education levels have better educational outcomes than those who live in a rented house (Whelan, 2017). Owning a house can lead to better educational outcomes for children to the extent that it places the child in a better home environment, a more stable home, and a better environment (Mohanty & Raut, 2009).

A large number of family members and/or small family members also adds to the burden on the family to fulfil their basic needs. As a result, other needs, such as education, will be neglected. Household expenditure has a direct contribution to human development, such as food, health, and education. Research results show an effect of the dependency ratio on the average length of schooling (Imaningsih et al., 2020).

Research in Java, Indonesia, that used 2000-2005 data found that improving infrastructure significantly enhances human development. In particular, electricity has a greater influence on human development than other types of infrastructure, such as clean water, roads, or the number of classrooms per student. Upgrades to other types of infrastructure in the long-term lead to lower increases in HDI, ranging from 0.01% to 0.03% (Kusharjanto & Kim, 2011).

The effect of infrastructure (access to electricity, clean water, and road) on HDI and its three component indices (health, education, and income) in 91 developing countries shows that the three infrastructure variables have a significant positive impact on HDI. However, access to electricity and water has a positive and significant effect only on education and health indices. On the other hand, road density is very significant for increasing the income index. The results show the importance of infrastructure for the human development (Sapkota, 2014). This result is also in line with a study by Mohanty et al. (2016), which shows that economic and social infrastructure affects human development.

The infrastructure also has a big role in the education process. Economic infrastructures such as better transport systems and roads increase school attendance and reduce health risks for school-age children (Lokshin & Yemtsov, 2005). Social infrastructure, such as better access to basic infrastructure services (water and sanitation), is vital in improving children's health (Brenneman et al., 2002).

The present study examines the factors causing low MYS in West Java by considering the socio-economic factors of the community, especially income and living costs, economic infrastructure, and social infrastructure. The novelty in this study is the determination of broader influential variables and uses the Principal Component Analysis (PCA) approach. PCA is a method in a multivariate analysis specifically developed to reduce data dimensions. Its main objective is to reduce the complexity of the interrelationships between a large number of observed variables to a relatively small number of their linear combinations, referred to as principal components (Djakaria, 2016). Using the PCA approach, this study aims to find the dominant factors (i.e., socio-economic factors, existing economic and social infrastructure) that influence MYS in West Java Province.

This research also relates MYS to the ability of income received by the community to meet their needs, especially food. This study also uses path analysis to see the direct or indirect influence of MYS and the factors that affect MYS with the ability of people's income to meet their food consumption.

METHODOLOGY

To evaluate the socio-economic condition in West Java, this study uses secondary data obtained from several sources. First, data on Average Years of Schooling, Number of Junior High Schools, GRDP, Regional Minimum Wages, Family Members, homeownership, and dependency rates are obtained from BPS. Data on the number of health centres and smoking population come from the Ministry of Health, while data on the education budget and the number of school dropouts are retrieved from the Ministry of Education and Culture. The research object is the regencies or cities in West Java, and all data is for 2019. The complete variables and their sources are shown in Table 2.

Table 2
Variable Type and Source

Variable Type	Variable	Source
Dependent	Consumption spending rate	Central Bureau of Statistics
Moderating	Mean Length of School	
Independent	Regional Revenue	
	Number of Middle Schools	
	Regional minimum wage	
	Number of family members	
	Homeownership	
	Dependency rate	
	Road length	
	Clean Water Access	
	Number of Health Centres	Ministry of Health
	Smoker population	

The study uses a descriptive analysis approach and verification. Descriptive analysis is used to explain the condition of education in West Java based on the data. Before carrying out the verification analysis, it is necessary to run the PCA to reduce the dimensions of the independent variables

The verification approach uses the path analysis popularised by Otis Dudley Duncan in social science (education) (Abebe & Girma, 2017). Path analysis is the development of the concept of correlation and regression. Path analysis studies whether the independent variable has a direct and indirect influence on the dependent variable. Path analysis can be viewed as an analysis similar to regression analysis. Both analyse the causality model. The difference lies in the level of complexity of the model. The regression analysis model analyses the dependent variable more as the impact of the independent variable, where the independent variable does not impact other independent variables. However, in the path analysis model, apart from the alleged impact of the independent variables on the dependent variable, changes in the independent variables may have an impact on other independent variables. Based on theoretical considerations, the causal model developed in this study is shown in Figure 3.

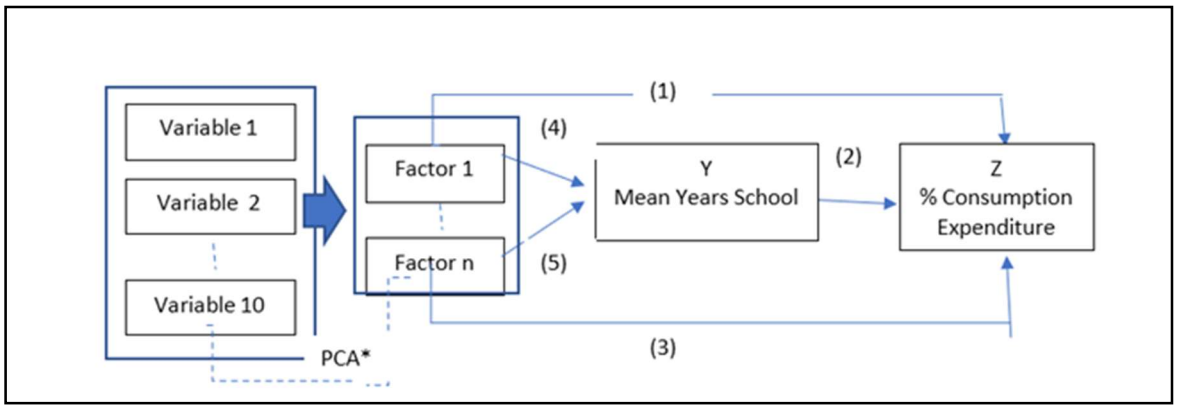


Figure 3. *Causal Model of MYS, MYS and Consumption Expenditure Factors.*

Note:
* PCA is used to simplify or reduce ten variables into several main factors/components.
Variables 1 to 10 are independent variables, as shown in Table 2.
Factor 1 to n is the number of factors that will be generated from PCA analysis.
(1), (2), (3) are the direct effects of Factors 1 to n and Y on Z which will be tested for significance
(4), (5) is a direct effect of Factors 1 to n on Y and indirectly on Z, which will be tested for significance.

The PCA method aims to simplify the observed variables by reducing their dimensions by eliminating the correlation between the independent variables by transforming the original independent variables into new variables that are not correlated at all. After several components of the PCA result that are free of multicollinearity are obtained, these components become new independent variables, which are regressed or analysed for their effects on the dependent variable (Y) by using regression analysis. The advantages of the PCA method include cleanly eliminating correlation without reducing the number of original variables (Mashadi, 2018).

The assumptions that must be met in the factor analysis include:

1. Correlation among independent variables. The correlation among independent variables must be strong enough, for example, above 0.5.
2. Partial correlation. The size of the partial correlation, i.e., the correlation between two variables by assuming the other variable remains, must be small. In SPSS, the detection of partial correlation is made through the anti-image correlation option.
3. Testing the entire correlation matrix (correlation among variables), as measured by the Bartlett test of sphericity or measure sampling adequacy (MSA). This test requires a significant correlation among at least a few variables.

To see whether factor analysis is appropriate, it is necessary to initially perform the Kaiser-Meyer-Olkin (KMO) and the Bartlett test. If the KMO value ranges from 0.5 to 1, then factor analysis is appropriate. However, if the KMO value is less than 0.5, then the factor analysis is not feasible. Meanwhile, the Bartlett test checks whether the variables involved are correlated. If MSA is > 0.5, the variable can still be predicted and analysed further.

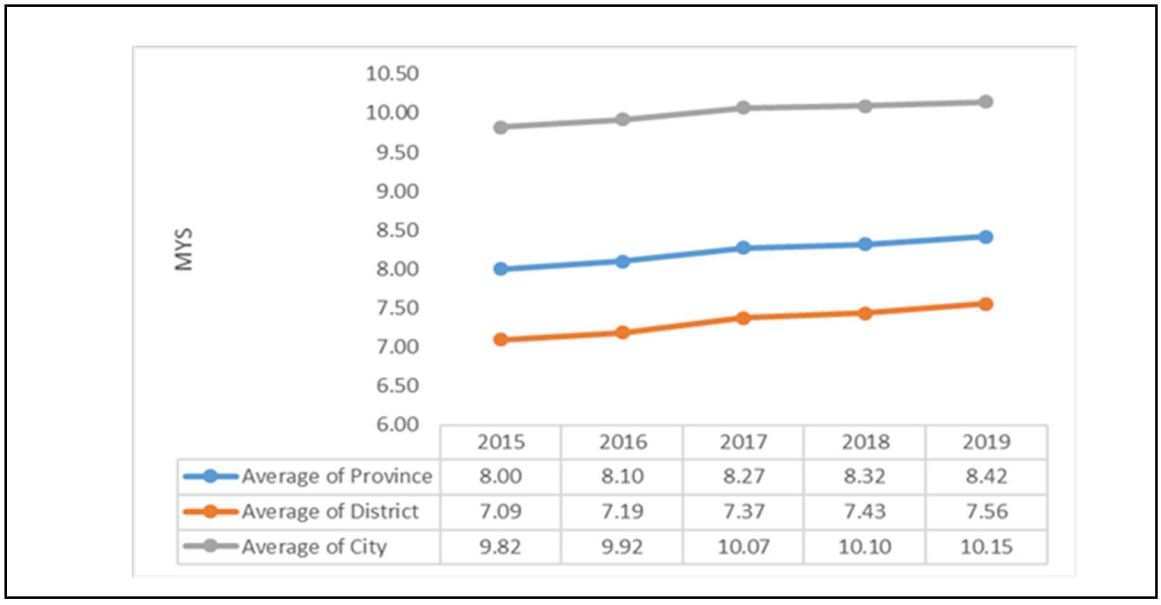
Other tests are communalities, eigenvalue, and matrix components. Communalities show how much variance can be explained by the formed factors. In factor analysis, several components are variables. Each factor represents the variable being analysed. The ability of each factor to represent the analysed variable is indicated by the amount of variance described, which is called an eigenvalue. The eigenvalue shows the relative importance of each factor in calculating the variance of the analysed variables. The eigenvalues is always sorted from the largest to the smallest. However, eigenvalues below 1 are not used to calculate the number of factors formed. The matrix component is a table that contains the loading

factor (correlation value) between the analysis variables and the formed factors. In addition, it also describes how precisely the variables are grouped into certain factors or components.

Based on the PCA results, a new dominant factor is formed from the reduction results, which is then regressed with MYS as the dependent variable. Regression estimates are obtained to indicate which factors significantly affect MYS in West Java. The average length of schooling is also regressed against the rate of return on education with a proxy for the percentage of consumption of basic needs on income. The smaller the percentage of consumption on income, the higher the rate of return on education. Thus, the influence of the dominant factor on the percentage of consumption on income can be seen. This model is a path analysis by analysing the pattern of causal relationships between variables to know the direct and indirect effects between variables.

RESULTS

From 2015 to 2019, MYS in West Java has shown an increasing trend in both districts and cities. However, there is still an MYS gap between districts and cities over the last five years. The average urban population who graduated from junior high school since they have had MYS is more than nine years, while the average for districts indicates that the population can only complete elementary school since the average MYS is under nine years.



	2015	2016	2017	2018	2019
Average of Province	8.00	8.10	8.27	8.32	8.42
Average of District	7.09	7.19	7.37	7.43	7.56
Average of City	9.82	9.92	10.07	10.10	10.15

Figure 4. *Development of Mean Years School in West Java Province 2015 – 2019.*

The disparity that occurred in 2019 can be seen in Figure 4. The MYS is low for the districts relative to the provincial MYS of 8.37 years, with Indramayu having the lowest MYS compared to other districts. Meanwhile, those who have MYS above the provincial MYS are generally urban areas, except for Bekasi and Bandung districts, which also have MYS above the province. Among all regions, Bekasi City has the highest MYS, which is 8.8 years. The MYS gap can also occur because of the disparities in the number of junior high schools, where the lowest is in Banjar City, with only 25 schools, while Bogor district has 690. The related gap in GRDP is also quite large, where the smallest is 3.2 million in Banjar City while the largest is 252.1 million in Bekasi Regency. This income disparity results from the differences in the level of welfare of the community and public facilities.

The analysis of the area is divided into agricultural and non-agricultural areas. Urban areas are classified as non-agricultural. Agricultural areas have an average GRDP of only 27,952 billion and an average RMW of 2.168 million, much less than the non-agricultural districts/cities that have a GRDP of 85,655 billion and an average RMW of 3.338 million.

The availability of supporting infrastructures, such as clean water, the length of roads, the number of health centres, and the number of junior high schools in urban districts classified as agricultural areas, is lower than that in non-agricultural urban districts.
The variables tested through PCA detected ten variables predicted to affect MYS. Those variables are the number of junior high schools, GRDP, Regional Minimum Wages, household members, the distance between secondary schools, road access, smokers, distance to health centres, dependency rates, and clean water coverage. All data are standardised since the units of the ten variables are different in units and/or scales.

The iteration process is carried out using the PCA method, starting from the ten included variables and checking whether they meet the assumptions of the PCA. Five variables (the number of junior high schools, smokers, household members, clean water coverage, and dependency rates) do not meet the MSA test and/or commonalities, so only five variables are obtained (GRDP, Regional Minimum Wages, distance between secondary schools, road access, and distance to health centres) that meet the requirements. The test results are:

- The determinant of the correlation matrix is 0.044, still close to 0.
- Kaiser Meyer Olkin measure of sampling of 0.695, over 0.5.
- Bartlett test of sphericity with a chi-square app value of 75.55 with a significance of 0.000.

Table 3
Eigen Value of Five Variables

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.900	57.993	57.993	2.900	57.993	57.993
2	1.361	27.226	85.219	1.361	27.226	85.219
3	.355	7.110	92.329			
4	.267	5.333	97.663			
5	.117	2.337	100.000			

Table 3 shows the result of the main component analysis of the five variables making up two main factors or components and can explain the variations in the MYS variable by 85.22%, where factor 1 can explain the variation of 57.99% and factor 2 can explain the variation of 27.22%. This means that there are still 14.78% of variable variations that cannot be explained by the two existing factors. Two factors can be described as follows:

1. Factor 1 consists of road access variables, the distance between junior high schools, and distance between health centres, which can be generalised into infrastructure factors.
2. Factor 2, which consists of the Regional Minimum Wage (RMW) variable and regional income (GRDP), can be generalised as a factor of income.

Both factors are included in the MYS regression model with the estimation results,

$$MYS = -7.93\ E\text{-}16 - 0.833\ V_1 + 0.225\ V_2 \quad (1)$$
$$(.000) \quad (-8.069)^* \quad (2.178)^{**}$$

*Significant at α=10% and **significant at α=5%

where,
V_1 = Infrastructure Factor and V_2 = Factor Income

The R square of the regression model above is 0.744, which means that the contribution of V_1 and V_2 is 74.4%. This also suggests that other factors outside the existing regression model have an influence of 25.6%. In the variable form, the regression model is as follows:

MYS = -7.93 E-16 - 0.833 (-0.253 X_1 -0.29 X_2 -0.890 X_3+ 0.913 X_4 + 0.940 X_5) + 0.225 (0.872 X_1 + 0.925 X_2 + 0.93 X_3 - 0.237 X_4 - 0.087 X_5)

MYS = -7.93 E-16 + 0.4069 X_1 + 0.4496 X_2 + 0.9506 X_3 - 0.8138 X_4 – 0.8026 X_5

Where: X_1: Regional Minimum Wage (RMW), X_2: GRDP, X_3: Access Road, X_4: Distance between junior high schools, X_5: Distance to health centres.

In Factor 1, the bigger the distance among junior high schools or health centres (i.e., the number of infrastructures is still limited), the more difficult the access is or, the larger the cost of transportation, which negatively impacts the participation in education (MYS). Meanwhile, the better the road access is (as measured by the percentage of the length of the road to the area), the faster it will be to reach education facilities.

The higher the income of a district or city, which is reflected in the GRDP, the higher the income per capita of the community. Hence, access to education becomes more affordable. The high income also leads to a higher capacity of the region to build facilities and finance education. Likewise, the higher RMW reflects increased welfare so people can have better access to education. The income received by an individual or society as compensation for their work, which is inseparable from the level of education as a return to education, affects the ability to finance the needed expenditure, such as for food consumption or other non-food items.

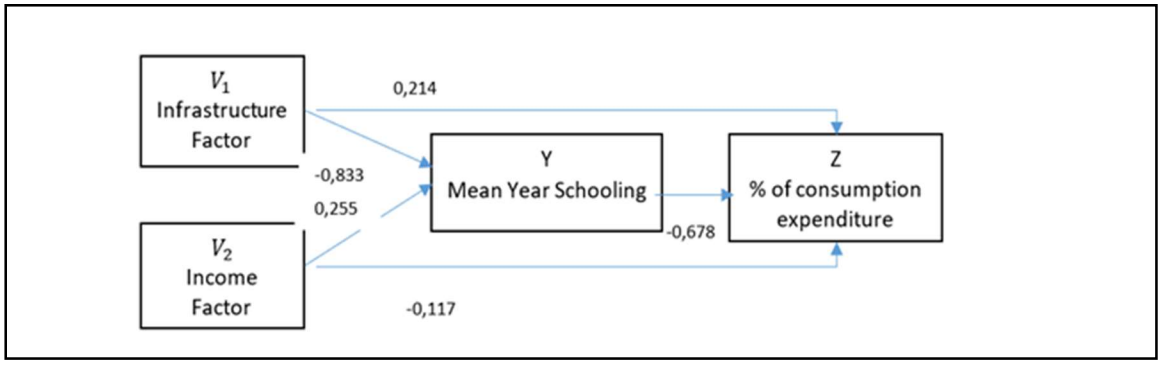


Figure 5. *Path Analysis Results.*

The R square obtained from the model is 0.796, which means that the contribution of V_1, V_2, and MYS is 79.6%, while other variables influence the remaining 20.4%. The path analysis results show that only the MYS variable has a significant direct effect on Z. This means that the length (level) of education affects the percentage of food consumption expenditure as a percentage of the total income. The higher the MYS, the higher the income and the lower the percentage of food consumption expenditure on total income, making the percentage of expenditure for non-food greater. Meanwhile, variables V_1 and V_2 do not have a significant direct effect on Z. This means that V_1 and V_2 only have a significant indirect effect

on Z through Y. The total effect of V_1 is -0.833*(-0,678) + 0.214 = -0.778, while the total effect of V_2 is equal to 0.255*(-0,678)-0.117 = 0.289.

DISCUSSION

An additional analysis is made using the Cartesian Coordinate System to compare among the districts. Some of the comparative analysis results between the variables for the district and city of West Java are shown in Figures 6, 7, and 8.

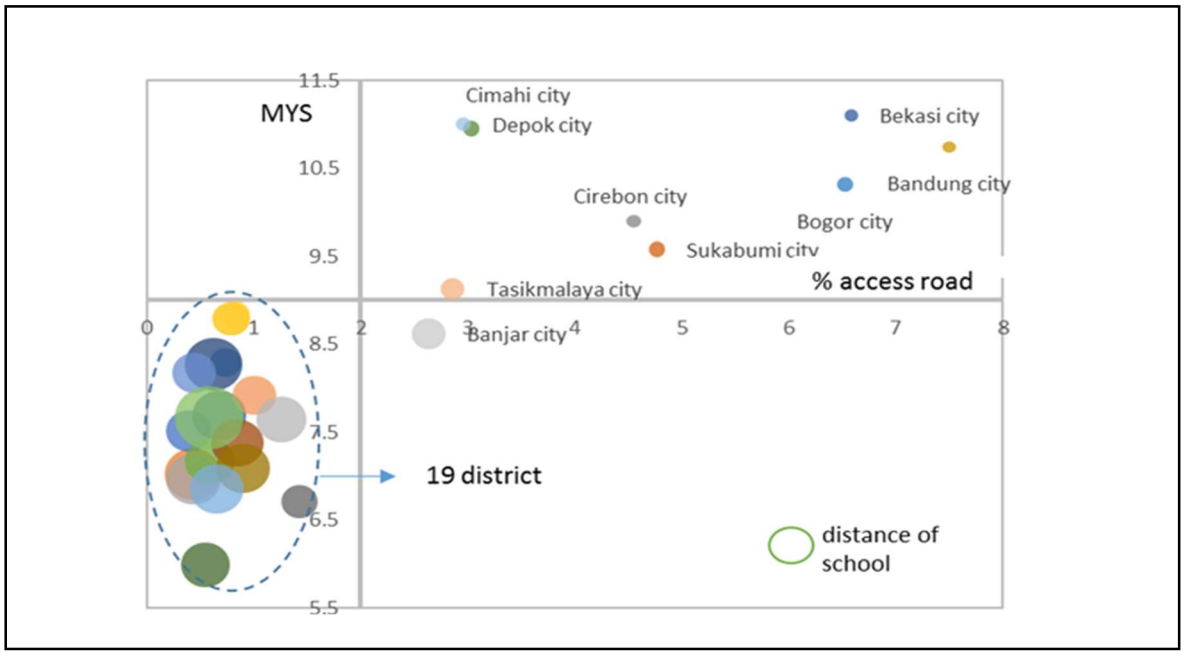


Figure 6. *Comparison of MYS, School Distance, and Road Access.*

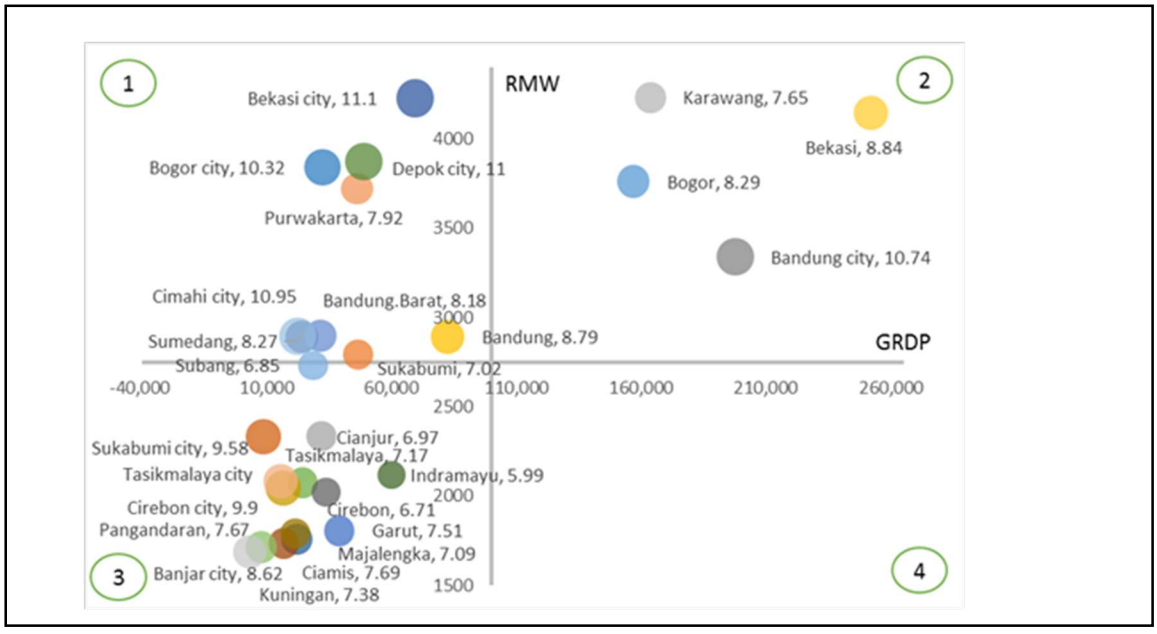


Figure 7. *Comparison of Mean Years of Schooling, RMW and GRDP.*

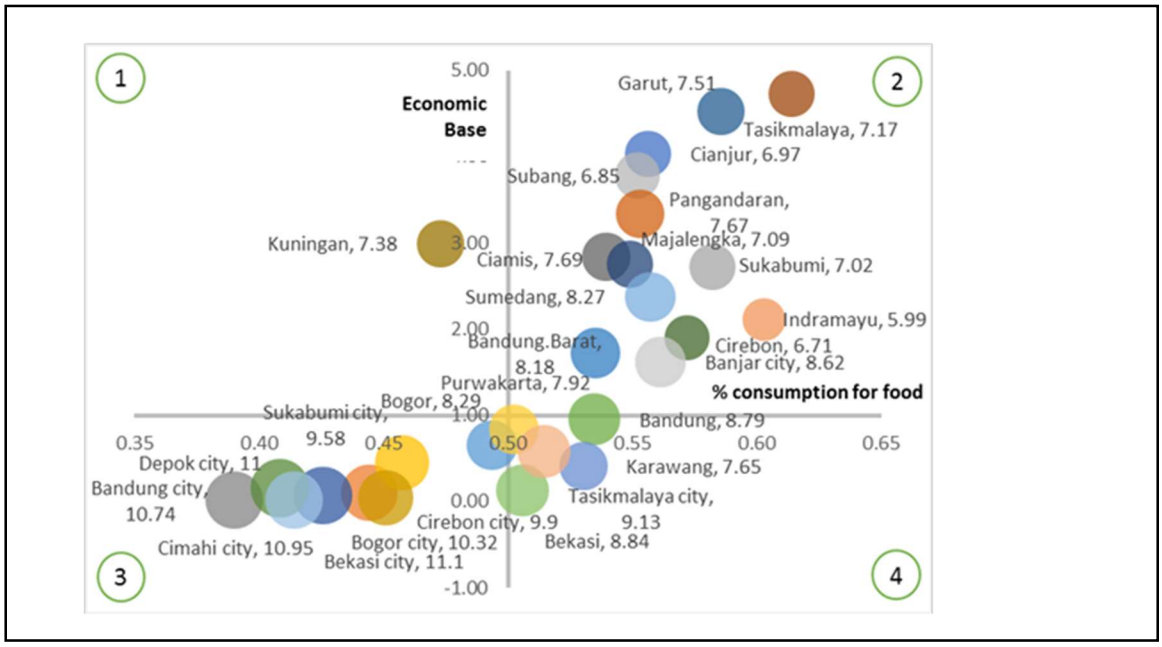


Figure 8. *Comparison of District / City Economic Base, % Food Expenditure and MYS.*

The three figures above show a large gap in road infrastructure and the number of schools causing disparities in MYS, especially between cities and districts. The average MYS for the district is 7.55 years (Figure 6), which may be attributed to the average distance of junior high schools of up to 9.7 km and road length coverage that only reaches 0.7333 of the area. In contrast, cities have an MYS of 10.15 years on average, which may be attributed to the short distance between junior high schools (1.4 km) and better road coverage reaching 4.6 of the area. The low MYS in agricultural districts may be attributed to the fact that they have low RMW and GRDP, which stay below the provincial average (Figure 7). Fifty-five percent (55%) of people's income in regencies is used for food consumption on average, while the percentage for cities is only 45% on average. This implies that the people in the regency have limited funds for education (Figure 8).

The low percentage of income (45%) that can be used for needs other than basic needs in districts in West Java, shows that the rate of return on education is still low. This is partly because investment in education for district residents has only reached an average of 7.33 years, compared to city residents with an average investment for education of 10.12 years, so the percentage of income for non-basic needs is higher than 55%.

Indonesia's MYS in 2019 was 8.75, and West Java's MYS only reached 8.42. West Java province even lost to provinces in eastern regions, such as Maluku with MYS 9.8 and North Sulawesi with MYS 9.43. There are 19 out of 27 districts/cities in West Java, or 70.4%, whose average population does not graduate from junior high school (figure 6). This shows that there is homework to do in increasing the competitiveness of West Java province's human resources so that they are equal to and even surpass other provinces. If not, employment opportunities from West Java's economic growth, for example, in 2019 of 5.07% or greater than the national economic growth of 5.02 %, will be utilised by more immigrants with better quality than human resources the natives of the province of West Java. Therefore, the development of education in west java is more directed at agricultural areas, which are on average lower than non-urban and national, to catch up with the quality of human resources. The results of the

analysis, the priority for improving human resources through MYS is the provision of adequate education infrastructure and access to that infrastructure (factor 1). Because districts with low MYS located near each other, the development of educational infrastructure due to budget constraints must be can utilise by neighbouring districts. Therefore, the selection of educational infrastructure locations must pay attention to spatial factors so that they are easily accessible and have adequate capacity for several districts.

Spatially shown in Figure 9, several regions can work together to improve MYS through educational facilities and road access that can be accessed together, such as between the districts of Indramayu, Majalengka, Cirebon, and Kuningan or between the districts of Sumedang, Garut, Majalengka, and Tasikmalaya.

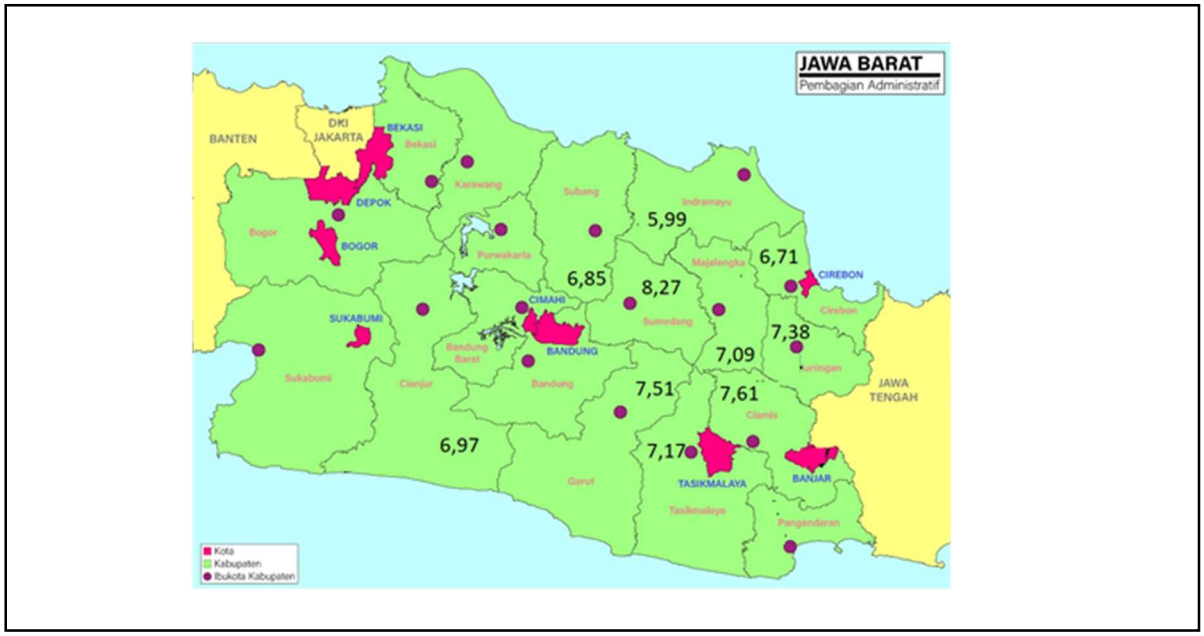


Figure 9. *Distribution of MYS Districts in West Java Province.*

The second factor, namely, the increase in population income through minimum wages and regional income, is needed to increase people's purchasing power, both consumption and education. However, on the other hand, an increase in the minimum wage that is too high will also result in reduced competitiveness of the region concerned, which can result in the departure of the job-providing industry in the area. So another thing the district or provincial government can do is to increase the productivity of agricultural products by increasing export-oriented agricultural products. The export value by the province in 2019. The largest was from West Java at USD 29.93 billion or 17.87% of total national exports, then from East Java at USD 18.67 billion (11.14%) and East Kalimantan at USD 16. .41 billion (9.79%). However, the export value of West Java's agricultural sector is only USD 117.2 million, still less than Central Java province, which has an agricultural export value of USD 162 million (BPS, 2020).

CONCLUSION

MYS is influenced by two factors: (a) three variables of road access, the distance between middle schools, and the distance between health centres, and (b) two variables of RMW and GRDP. Path analysis shows the direct effect of MYS and the indirect effect of infrastructure and income factors on the ability to meet food consumption. The higher the MYS, the higher the people's income so that the percentage of expenditure on food will be lower, allowing more spending on education. A higher

percentage of non-food expenditure on income represents a higher rate of return on education. The results above show that the rate of return to education in the city is 55% higher than in the district, which is only 45%. This result shows a recurring circle of community income - MYS - Income Capability (the percentage of food consumption) - MYS. Therefore, the right government policy is needed to break this circle by providing more schools, roads, and health infrastructure. The existence of adequate community income through the right policies for the RMW is also crucial so that education can be prioritised by the community in West Java province, especially in agricultural areas currently lacking in that sector. However, a very high increase in the regional minimum wage will invite resistance from employers and can cause industry migration from the area to other regions with lower minimum wages. The alternative to increasing people's income is to increase the value of agricultural production by directing more export-oriented agricultural production to the district.

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