



## Model of The Determinants of School Participation Rates in Banyuwangi Regency: An Application of System Dynamic Analysis

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**Abstract:** Education is one of the priority basic services for human resource development. There are two indicators to measure the success in education, known as the accessibility of education and the quality of education. Efforts to determine the level of success of the Government in opening access to education services can be identified from several indicators. These indicators are a benchmark for the success of the Government in opening access to education for the entire community, especially those related to the School Participation Rate. This study aims to determine the existing conditions and analyze the forecasting of determinant factors that affect the achievement of school participation rates in Banyuwangi Regency. This study used a qualitative method with a dynamic system approach. The results showed that the school participation rate in Banyuwangi Regency was influenced by several determinant factors that were interrelated with each other. Based on the existing conditions, there was a need to improve all of the determinant factors. However, an increase in poverty factor as an impact of COVID-19 has encouraged government to provide an alternative policies to avoid the decrease in school participation rates. The results of the forecasting simulation for the next 20 years showed that the behaviour of time from the school participation rate will be in line with the increase in determinant factors in education system, while the results of forecasting education quality showed that within next 20 years, there will be a significant increase in the first two years of the simulation, then there will be an increase in slopes in the opposite direction from the school participation rate and accompanied by an increase in other elements that run in the education system in Banyuwangi Regency.

**Keywords:** school participation rate; determinant factor; system dynamic

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### INTRODUCTION

Education is reflected in the integral status of human rights that enhances human dignity through knowledge, wisdom and understanding (Claude, 2005). Education can be described as a long-term investment in order to produce quality and competent human resources. In order to see how success of the government in opening access to viable education services for citizens can be seen from the number of school participation rates. A high number of school participation indicates a greater opportunity in accessing education, and increases human resources in the region. The definition of viable education service was based on the generic definitions of "services" (Sahney et al., 2004). Educational services as a regular and continuous activity to meet user expectations, covering the entire life of community organizations (Moenir, 2002). The perception of quality is often complex, which makes it difficult to define the specific quality of the terms and its coverage (Cheng, 2003; Mohammadian, 2004). The provision of quality education depends on many factors related to the education stakeholders and their circumstances (Rodriguez et al., 2021; Herbert et al., 2022; Zhang et al., 2020; Bruns et al., 2019). The types of basic services provided by the state are, a) citizenship services, b) health services, c) educational services, d) economic services (Basri, 2011).

Given the importance to develop good education, the Government's issued (1) Law No. 20 of 2003 on the National Education System in article 51 paragraph 1 that the management of early childhood education units, primary education, and secondary education based on minimum standards with the principle of school-based management / Madrasah, (2) Law No.5 of 2000 on National Programs of 2000-2004, namely the realization of school/community-based management, (3) Decree of the Minister of National Education No.44 of 2002 concerning the Establishment of the Board of Education and the School Committee, (4) Decree of the Minister of National Education No.087 of 2004 on School Accreditation Standards, (5) Government Regulation No.19 of 2005 on National Standards of Education, (6) Decree of the Minister of National Education No.129a/U/2004 on Minimum Service Standards in Education.

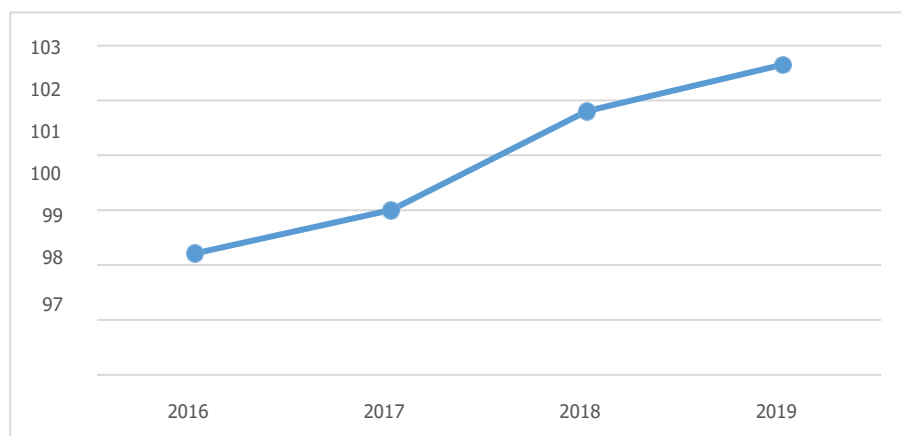
The quality in education includes the quality of inputs, outputs and outcomes. Educational inputs can

be said to be qualified if they are able to create an atmosphere of Active, Creative, Effective, Fun and Meaningful Learning that refers to PAKEMB (Pembelajaran Aktif, Kreatif, Efektif, Menyenangkan, dan Bermakna). The outputs can be defined to be qualified if the student's academic and non-academic learning outputs are high. While the outcomes can be declared meaningful if the graduates are quickly absorbed in the world of work, the salary is reasonable and all parties recognize the greatness of the graduates are satisfied (Diknas, 2007). Meanwhile the number of school participation rates is also the output of an educational service that can be declared feasible.

The school participation rate provides an overview of how much the absorption rate of formal education is (Citra, 2008). According to Badan Pusat Statistik (2021), Educational Age consists of: (1) 6-12 years old in elementary school, (2) 13-15 years old in junior high school, (3) 16-18 years old in upper secondary education and (4) 19-24 years old in college degree or above. The school participation value ranges from 0-100, The higher school participation rate indicates the more school-age children attending school in a region. On the other hand, Glewwe and Kremer (2005), stated that school participation is strongly influenced by the demand side, this statement supported by Dreher (2006) that there are supply and demand factors that greatly influence the school participation rate, with several demand factors including: (1) per capita income (family welfare), (2) adult literacy rate (parental education), and (3) number of schools and population urbanization. In the meantime, supply factors include (1) the teacher-to-student ratio, (2) the cost of education, and (3) government education spending.

A similar statement was conveyed by Khairunnisa et al. (2011) which stated that the main factors affecting the achievement of the junior high school participation rates were socio-economic factors which were reflected on the significance of the Gross Regional Domestic Product variable, poverty, the proportion of children aged 13 to 15 years who work, and the education of the household's head. Supporting this statement, poverty leads children from poor households to have little opportunity to go to school (Diyang, 2020). It proves that economic conditions affect the school participation rates. Otherwise (Burde et al., 2016) states that access to education is also influenced by the availability of scholarships. Scholarships are one of the specific measures to encourage school-age children to receive viable education. The public's awareness of the importance of education encourages the increasing of the Human Development Index as a regional development indicator.

A particular interest in the quality of educational services has been manifested since the 1990s (Cope & Sherr, 1991) with the focus on the elementary education and junior high school (Sun & Chen, 2016; Horoz et al., 2022). The educational quality had an inclusive character according to the pursued purpose, learning outcomes and user experiences (Reynold, 1986; Brennan, 1992; Tang & Zairi, 1998). All of these previous studies led to the same focus, which is the school participation rates. This was demonstrated by several studies (Citra, 2008; Pertiwi, 2009; Khairunnisa, 2011; Pegas, 2012; Lestari, 2014; Rahmatin, 2017; Tanuar et al., 2017). Therefore, this research has in contrast to the previous research regarding to the focus on the relationship between poverty levels and school participation rates while this research tries to observe the extent of accessibility and quality of education in affecting how well the school participation rates (APS) is, with determinant factors using a dynamic system techniques so it can be determined a forecasting for further recommendation as a strategy and policy direction for the improvement of the elementary & junior high school system in Banyuwangi Regency.



Sources: BPS, 2019

**Figure 1.** School participation rates Banyuwangi Regency of 2016-2019

The school participation rates in elementary education or junior high school have been steadily increasing since the last 5 years. Moreover, the APS achievement in 2019 in elementary school has exceeded 100% (Education Department of Banyuwangi Regency, 2019). As shown in [Figure 1](#), in 2016 the APS achievement of Banyuwangi Regency was 99.21 and then increased to 100 in 2017. This achievement had respectively increased from 101.8 in 2018 and to 102.65 in 2019. Despite the continuous improvement of achievements, there are several indicators in the process of achieving the school participation rates, including; (1) education index, (2) average length of school, (3) Net enrollment rate, (4) Gross enrollment rate, (5) Literacy rate, (6) Poverty rate, (7) Labor participation rate, (8) Number of elementary and junior high school, (8) Number of innovation programs in education, (9) Education budget allocation, (10) Population density, (11) Number of elementary and junior high school teachers, (12) Data on elementary and junior high school group, (14) Nominal income per capita. These indicators subsequently became a benchmark for measuring the success of the government in opening up educational opportunities for the entire community. There are many obstacles and challenges in improving the level of community education from the school participation rate. The government must be able to identify and analyze the obstacles and challenges in order to increase school participation rate so the government needs innovation to achieve its desired purposes.

Given the important meaning of the school participation rate so this research aims to generate a forecasting of the determinant factors resulting from the achievement of school participation rates in Banyuwangi Regency so that it can be a guide for the Regional Government in efforts to maintain the achievements that had been achieved and continue to innovate on educational services in the region. The school participation rate is one of the indicators of regional development, and strives to continue to improve in order to promote the realization of a better Human Development Index score. The qualitative method with a system dynamic approach used in this research is expected to contribute for local governments in producing policy innovations then it will be generated to forecast recommended policy direction strategy which can be used as an effort to increase the success of elementary and junior high school education services in the future. Therefore, this research is expected to give a lot beneficial for the local government in general and for Banyuwangi Regency in particular.

## **METHODS**

This research study used a qualitative method with a dynamic system approach. Through the dynamic system, researchers observed the problem and interrelationship between system elements. This study was conducted in Banyuwangi Regency, East Java. Data collection instruments consisted of interview and observation involving school participation rate, education index, average length of school, pure participation rate, gross participation rates, literacy rate, poverty rate, labor participation rate, number of accredited schools, number of elementary and junior high school, number of innovation programs in education, allocation of education budget, population density level, number of elementary and junior high school teacher, elementary and junior high school group, total availability of class room, and income per capita. Data analysis method in this dynamic system is carried out in several stages ([Maani et al., 2000](#)). The steps are problem identification and recognition; conceptualization system; formulation model; behavioral analysis; testing and development model; policy analysis and implementation model.

Simulating the dynamic system, there are two main things that need to be considered, namely the accumulation and feedback phenomena. The analysis is carried out on the dynamic model which is a representation of the problem in the study with a focus on observing the behavior that occurs as a result of the intervention on the model. First step, describing the problem that occurs and identifying why the problem needs to be solved. After that, an understanding of the problem was carried out with a qualitative analysis system, model simulation, and model testing. The second stage is a system description to understand the problem systematically by providing a description of the system. The drawing system used is a causal loop diagram (CLD).

The next step is model simulation. Simulation is done by compiling a simulation model based on the CLD that has been created. The CLD diagram has described how an education system runs and interrelates between one element and another. Then the researcher followed up by providing a formulation in the stock flow diagram to know how the behavior of the education system in Banyuwangi Regency was. The Stock Flow Diagram is followed up by conducting a simulation test that intervenes on all elements in a series of educational systems that have been diagrammed. From the existing simulation tests, it can be concluded about the Behavior of Time (BoT) from the School Participation rate and the Education Quality level in Banyuwangi Regency. This BoT will be a characteristic of the loops associated with the two priority levels.

## RESULT AND DISCUSSION

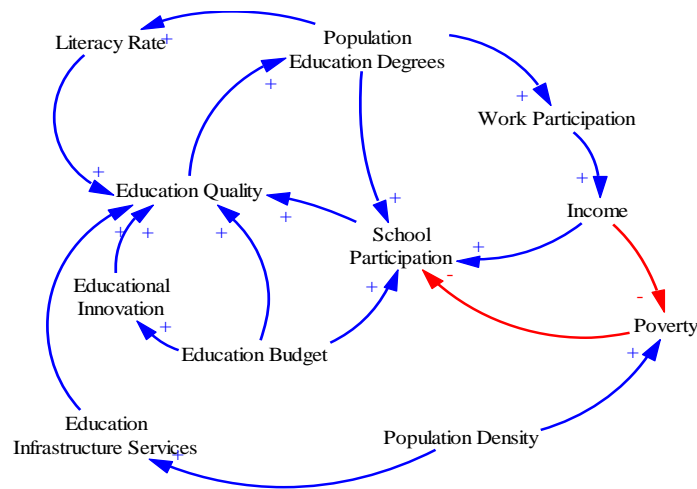
Well-prepared tables and or figures must be of significant feature of this section, because they convey the major observations to readers. Any information provided in tables and figures should no longer be repeated in the text, but the text should focus on the importance of the principal findings of the study. In general, journal papers will contain three-seven figures and tables. The same data can't be presented in the form of tables and figures. The results of the study are discussed to address the problem formulated, objectives and research hypotheses. It is highly suggested that discussion be focused on why and how of the research findings can be shaped and to extend to which the research findings can be applied to other relevant problems.

Based on the results of mapping, assessment and deepening of the existing condition of the school participation rate in Banyuwangi Regency, there are indicators of development performance that have a determinant on the achievement of school participation rate. The results of the analysis are obtained to determine the role/contribution of each determinant indicator to the number of school participation rates. The following Table 1 is the achievement of the performance indicators that have a determinant of the school participation rate.

**Table 1.** Achievement of APS determinant factor

Determinant factor	Year of achievement		
	2018	2019	2020
Poverty	7.8	7.52	8.06
Labor participation rate	72.12	72.06	-
Average length of school	7.12	7.13	7.16
Number of accredited elementary and junior high school	1352	1349	1345
Number of elementary and junior high school	1352	1349	1360
Number of innovation programs in education	8	8	8
Population density	278 jiwa/km	301 jiwa/km	302 jiwa/km
Number of elementary school teacher	7,116	6,858	6,755
number of junior high school teacher	3,124	3,134	3,181
Elementary school group	5.651	5.629	5.584
Junior high school group	1.773	1.779	1.787
Total availability of classrooms	-	-	13.56
Literacy rate	91.42	91.94	92.03
Pure participation rate	89.58	90.17	90.65
Gross participation rate	98.27	101.8	100.5
School participation rate (APS)	98.05	99.05	99.16
Education index	0.59	0.59	0.59
Education budged	Rp.122,166,600	Rp. 122,513,600	Rp. 122,713,600
Nominal income per capita	44,844,003.93	47,887,338.71	46,219,867.68
Nominal riil per capita	30,168,419.42	31,663,413.87	30,372,447.10

Based on the table above, there are various determinant factors for school participation rate in Banyuwangi Regency which can be described in a more concise causal loop diagram (CLD) form. The use of the CLD model in this case is used to solve problems related to the school participation rate in Banyuwangi Regency which is caused by several determinant factors so that it can be used as forecasting to maintain the achievements and to increase innovation in educational services in Banyuwangi Regency.



**Figure 2.** Causal Loops Diagram of Banyuwangi Regency School Participation 2021

Determinant factor is a major influence factor in the implementation of an activity and becomes the main role holder of school participation rate. Achievement of school participation rate in Banyuwangi Regency in the past three years has increased, although not significantly. Based on the data obtained from this study, there are several determinant factors affecting school participation rate in Banyuwangi Regency. Figure 2 shows that there is a negative/minus sign (-) from the income factor to the poverty factor. This sign means that the higher income of people of Banyuwangi Regency, it can help reduce poverty. The poverty factor towards school participation also shows a negative/minus sign (-) which means that if the poverty rate decreases, it can increase public interest in carrying out educational activities or school participation.

Based on the CLD, one factor with other factors influences each other to increase the school participation rate in Banyuwangi Regency. Almost all of the above factors must be increased to achieve the school participation rate, it is different from the poverty factor which must be reduced, because poverty has a definition as a condition where there is an inability to meet basic needs such as food, clothing, shelter, education, and health. So that the government needs to reduce the poverty rate in the region so that it does not increase every year.

Based on poverty data in Banyuwangi Regency, there have been fluctuations in the achievement of the poverty rate for the last three years. In 2018 the poverty rate was 7.8% and decreased in 2019 to 7.52%. This positive achievement could not continue in 2020 where the Covid-19 pandemic caused an increase in the poverty rate to 8.06%. The economic level of the community was really depressed during the pandemic. This requires the government to provide other alternatives to prevent school participation rate from decreasing. One of the important findings in the research of [Glewwe and Kremer \(2005\)](#), is that school participation is strongly influenced by the demand side, including family welfare, so that children from poor families cannot go to school because their parents cannot afford school fees. [Hayati and Nasution \(2020\)](#), found that the level of family welfare had a significant effect on school participation. [Takahashi \(2011\)](#), states that children living in households with a high level of welfare tend to be still in school compared to children living in households with a low level of welfare. Poverty can cause children from poor households to have little opportunity to go to school ([Diyang, 2020](#)).

The position of the arrow in the CLD shows the interrelationship between one determinant factor and another. One of them, if the position of education degrees taken as the initial factor, it can be explained that the education level of the population can have an influence on the work participation rate and also the school participation rate. The higher a person's education level, the higher the work participation rate and can increase income to meet the needs of life which in turn can reduce poverty rates while increasing interest in school participation. Work participation rate is the percentage of the worker to the number of people aged ten years and over. The existence of work participation rate shows the availability of the worker in the region. Based on the research data, it shows that the work participation rate in Banyuwangi Regency has a downward trend. In 2018 it was 72.12% and decreased to 72.06% in 2019.

In addition to population education degrees, work participation rate, and poverty, the government also needs to pay attention to population density data in decision making and as a policy basis for the availability of public service infrastructure facilities in the region. Based on the research data in the table above, it shows that



the population density in Banyuwangi Regency continues to increase every year. According to [Panggabean \(2020\)](#), a large population tends to have a relatively low quality and is considered a development burden. However, the quantity problem can be overcome by improving the quality.

Population density data also has a relationship to determine income per capita. Income per capita is obtained from the division of a country's national income by the country's population. Based on income per capita data in Banyuwangi Regency, it shows that there have been fluctuations during the last three years. Income per capita increased in 2019 and was unable to survive in 2020 due to the Covid-19 pandemic. The results of Huda's research (2013), prove that income per capita has a significant positive effect on school participation rate, which means that to increase school participation rate it is necessary to increase the level of income per capita, with a high income per capita it will make it easier to get education and in the end the school participation rate can increase.

The arrow in the CLD figure shows that population density is not only correlated with the school participation rate, but also with education quality through the education infrastructure rate, because education infrastructure services can improve the education quality. The availability of educational infrastructure is included in the education budgets, which can help the implementation of educational activities in Banyuwangi Regency. Furthermore, the education budget in this causal loop diagram has an influence on educational innovation, education quality and also school participation. The suitability of the education budget with educational needs can help improve the quality of education in Banyuwangi Regency. Besides that, it can also help the government to create various educational innovations to attract public interest and also improve the quality of existing education. The high school participation rate makes the people of Banyuwangi Regency more educated which makes an increase in the quality of education and has an impact on the education index.

The Education Index achieved in Banyuwangi Regency is also a concern in efforts to increase school participation rates because the education index is one of the predicting determinants of school participation rates in Banyuwangi Regency. Education index is a reflection of the results of education development which has a strategic position, considering the quality of human resources reflected in it greatly determines the level of productivity of a region. In accordance with the data obtained in this research, the achievement of the education index in Banyuwangi Regency from 2018-2020 was 0.59. This achievement shows that the education quality in the Banyuwangi Regency is in a medium position, above 0.50. The indicators forming the Education index are mean years of school (MYS). However, the condition of the achievement of education index did not increase or in other words it was stagnant. This needs to be a concern because the education index is a representation of the performance of the Regional Government in education.

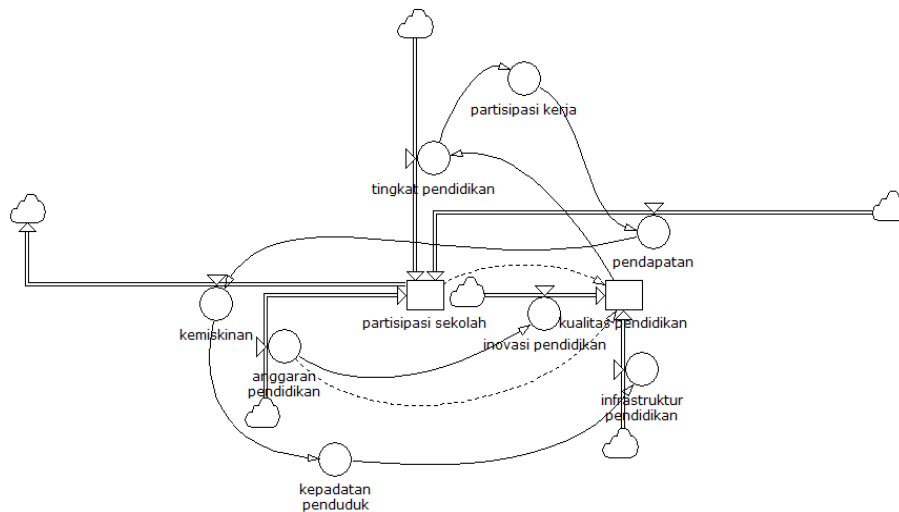
Mean years of School (MYS) is defined as the number of years spent by the population in formal education. The MYS is also a composite indicator for calculating the human development index. Through this indicator, the average population aged 25 years and over who have taken education can be described. Based on the results of the study, during the last 3 years the MYS in Banyuwangi Regency has increased. However, the increase in this value has not been significant so that it does not have many implications for the value of the human development index. As an illustration, with the achievement of mean years school in Banyuwangi Regency in 2020 at 7.16, it shows that the average education level of the Banyuwangi population has reached junior high school.

Furthermore, to organize educational activities every year, Banyuwangi Regency must have an adequate education budget allocation, because the education budget is included in the determinants of school participation rates. Based on Law Number 8 of 2017 concerning the State Revenue and Expenditure Budget, the education budget is defined as the budget allocation for the education function that is budgeted through state ministries/agencies, the education budget allocation through transfers to regions and village funds, and the education budget allocation through expenditures. financing, including the salaries of educators, but not including the official education budget, to finance the administration of education which is the responsibility of the government. To carry out educational activities in accordance with the provisions and adjust to the school participation rate in Banyuwangi Regency, as much as Rp. 122,166,600,000 were budgeted in 2018, then increased to Rp. 122,513,600,000 in 2019 and amounting to Rp. 122,713,600,000 in 2020. This increase in the amount of the education budget adjusts to the number of students and the achievement of school participation rates as well as the need for educational activities in the relevant year to be carried out effectively.

The relationship of each determinant factor shows that the government needs to pay attention to many aspects to increase school participation rate. Government policies to ensure that parents are educated and have adequate income greatly affect school participation because these two factors clearly affect school participation rates ([Handa, 1999](#)). This is the reason for the important role of the government to allocate budget in the education sector to solve the problem of poverty in line with the increase of work participation rate. The

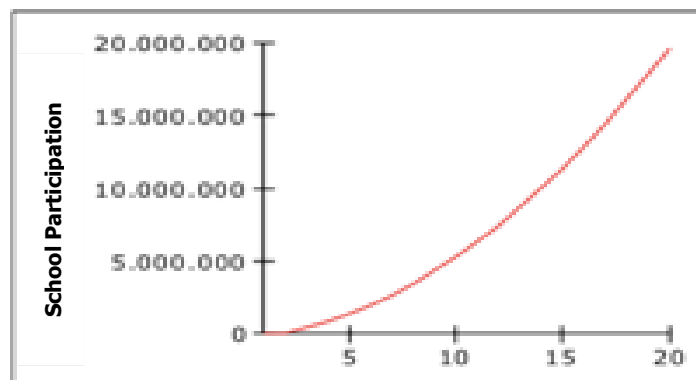
allocation of education budget is a government commitment and this has been shown in Banyuwangi Regency, where the budget allocated in education has increased every year. [Faguet and Sanchez \(2006\)](#) reveal that government spending in education has a significant effect on school participation.

The budget allocated by the government to the education sector is proven by the CLD figure that has a positive sign (+) on school participation rate and the quality of education in Banyuwangi Regency. With these various conditions, the Government continues to innovate in order to increase school participation rates. Banyuwangi Regency Government which has a very high commitment to improving human resources. Based on data released by the Banyuwangi Regency Education Office (in Banyuwangi Regency, 2019) it is stated that the school participation rate at both the elementary and junior high school levels has continued to increase in the last 5 years. Even the elementary school participation rate in 2019 has already exceeded 100%. This proves that all school-age children have been able to receive education and even school-age children from the surrounding area have enjoyed educational services in Banyuwangi Regency. Through the CLD, then followed up with the formulation of a stock flow diagram to get how the behavior of the Education system is seen from the priority elements, namely School Participation Rate and Education Quality.



**Figure 3.** Stock Flow Diagram of School Participation

From the Stock Flow Diagram, it is followed up by a simulation test to get conclusions about the Behavior of Time (BoT) of the School Participation and Level of Quality of Education in Banyuwangi Regency. This BoT will be characteristic of the loop associated with the two priority levels. As stated by [Citra \(2008\)](#), the school participation rate is one indicator of regional development, this effort is made to continue improving the achievement of a better Human Development Index score. Increasing the school participation rate is a priority because it is a goal that is highly expected by the Government, both at the central and regional levels. Increasing the school participation rate will certainly increase the level of community education ([Moenir, 2002](#)). This increase in the degree of education will also have implications for human development. The results of the formulation using a stock flow diagram are simulated within the next 20 years, so the description of School Participation BoT and Education Quality BoT in Banyuwangi Regency can be generated as follows.

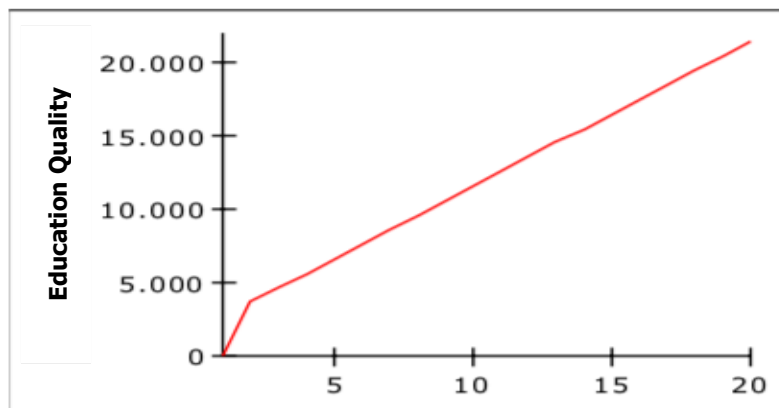


**Figure 4.** BoT of School Participation

The results of the powersim simulation of the various determinant factors contained in the stock flow diagram bring up the main parameters, namely the school participation rate and the quality of education. From the results of the stock flow diagram, it can be seen that there are 8 elements that influence the movement of the stock value of the school participation rate, is education level, income, work performance, educational innovation, education budget, poverty, population density and educational infrastructure. Based on the simulation results after run, it was found that 3 main elements became significant leverage, namely the level of education, educational innovation and an adequate education budget allocation as a reference in determining the simulation.

This shows the most sensitive element that affects the school participation rate in Banyuwangi Regency is the education level of the community with the final intervention score of 27,298, this value places the level of education as the most sensitive element when compared to the other two elements. In accordance with the statement of [Dreher \(2006\)](#), [Glewwe and Kremer \(2005\)](#) that the adult literacy rate (parental education) which it refers to the education level of the community is one of the demand factors that affect the achievement of school participation rates, therefore the education level of the population in accordance with the CLD is strongly supported by educational innovation and education budget. So based on [figure 4](#), school participation BoT in Banyuwangi Regency, a simulation resulted the characteristic exponential growth ([Malthus, 1978](#)). Which means that in the 20-year (long-term) simulation period it provides reinforcement. This refers to the school participation rate that will increase in line with a balanced slope from the beginning to the end of the simulation in accordance with the Increase in elements of other elements that run in the education system in Banyuwangi Regency.

The increasing levels of education in society, it can be assumed that the school participation rate will increase without ruling out other variables that can affect it. Assuming that the increase in the level of education is supported by educational innovation and the education budget, it is found that the school participation BoT in Banyuwangi Regency means the greater value of the education society, the faster of the increases that occurs in the elements of the school participation rate or in other words it can be observed the acceleration of school participation rate in Banyuwangi Regency in the next 20 years.



**Figure 5.** BoT of Education Quality

From the results of the stock flow diagram, it can be seen that 4 elements that affect the movement of the stock value of the quality of education include the education budget, educational innovation, educational infrastructure and school participation. After running on each of the determinant factors, it was found that 2 main elements became significant leverage on the stock of quality education, namely Educational Innovation and Educational Budget. As for the two elements, educational innovation is the most sensitive element with a difference in the final intervention value of 0.907 when compared to the education budget factor.

According to [Faguet and Sanchez \(2006\)](#) reveal that government spending in education has a significant effect on school participation. In line with [Dreher \(2006\)](#) that government spending in education is a supply factor that affects the quality of education and school participation. This is in line with the sensitivity results that the relevant education budget is supported by educational innovation factors that affect the quality of education in Banyuwangi Regency. Based on [Figure 5](#). Education Quality BoT simulation in Banyuwangi Regency resulted in a simulation with the characteristics of "goal seeking" ([Malthus, 1978](#)). Which means that in the 20-year (long-term) simulation period, the Education Index Score that describes the Quality of Education will increase quite significantly in the first two years of the simulation, and in the following year.

Thus, the increase in educational innovation can be assumed that the quality of education will be more



qualified without ruling out other variables that can affect it. Assuming that the increase in educational innovation is supported by the relevant education budget issued by the Banyuwangi Regency government, it is obtained that the Education Quality BoT increases the value on the school participation, it is necessary to strengthen the increasing of the population's education level, and an increase in the population's education level can only be done by improving the quality of Education which must be supported by education innovation and an adequate education budgets, which was accompanied by an increase in other elements running in the education system in Banyuwangi Regency.

## CONCLUSION

Increasing the school participation rate is a goal that is highly expected by the Government, both at the central and regional levels. Based on the results of mapping, assessment and deepening, it can be concluded that there were 20 existing conditions as determinant factors on the achievement of school participation rates in Banyuwangi Regency. By adopting dynamic system analysis, it can be described in a more concise causal loop diagram (CLD) form in order to find out where the position of these indicators is in contributing to the school participation rate. From the results of the Causal Loop Diagram, it was found the determinants that most influential of school participation rate in Banyuwangi Regency include (1) literacy rate, (2) population education degrees, (3) work participation, (4) income, (5) poverty, (6) population density, (7) education infrastructure services, (8) education budget, and (9) educational innovation. The relationship of each determinant factor shows that the government needs to pay attention to many aspects to increase school participation rate. Through the CLD, two priority elements are generated, namely school participation rate and education quality then followed up to get a forecast with the formulation of a stock flow diagram. The results of the formulation with a stock flow diagram are simulated within the next 20 years, that is an overview can be generated as follows (1) school participation BoT resulted in an exponential growth characteristic which means that in the 20-year (long-term) simulation period it provides reinforcement. This is refers to the school participation rate that will increase in line with a balanced slope from the beginning to the end of the simulation in accordance with the increase in elements other elements that run in the education system in Banyuwangi Regency and (2) Education Quality BoT resulted a goal seeking characteristic which means that in the 20-year (long-term) simulation period, the Education Index Score that describes the Quality of Education will increase quite significantly in the first two years of the simulation, and in the following year. This research still has several limitations; 1) the results of the sensitivity test using quantitative data can still be sharpened; 2) its validity can be deepened, and; 3) the lack of data timeline provided by Banyuwangi Regency. Further investigation is required to construct a holistic understanding. Nevertheless, the results of this research are expected to contribute to local governments in producing policy innovations as an effort to increase the future success of elementary and junior high school education services in Banyuwangi Regency.

## REFERENCES

- Badan Pusat Statistik. (2021). *Angka Partisipasi Sekolah* (Internet). <https://sirusa.bps.go.id/sirusa/index.php/indikator/569>.
- Basri, M. (2011). Budaya Mutu Dalam Pelayanan Pendidikan. *Jurnal Otoritas*, 1(2), pp. 110-117.
- Brennan, R. L. (1992). Generalizability theory. *Educational Measurement: Issues and Practice*, 11(4), 27-34.
- Bruns, B., Macdonald, I. H., Schneider, B. R. (2019). The Politics of Quality Reforms and The Challenge for SDGs in Education. *World Development Journal*, 118(2019), 27-38.
- Burde, D., Kapit, A., Wahl, R. L., Guven, O., & Skarpeteig, M. I. (2016). Education in Emergencies: A Review of Theory and Research. *Review of Educational Research*, 87(3), 619-658. doi:10.3102/0034654316671594.
- Cheng, Y. C. (2003). Quality assurance in education: internal, interface and future. *Quality Assurance in Education*, 9(4), 202-213. <http://dx.doi.org/10.1108/09684880310501386>
- Citra, S. H. (2008). *Analisis Faktor-faktor yang Mempengaruhi Angka Partisipasi Sekolah di Sumatra* [Thesis, Universitas Bengkulu].
- Claude, R. P. (2005). The right to education and human right education. *International Journal on Human Rights*, 2, 37-60. <http://www.surjournal.org>
- Cleland, J., & Durning, S. J. (2019). Education and service: how theories can help in understanding tensions. *Med Educ*, 53, 42-55. <https://doi.org/10.1111/medu.13738>.

- Cope, R., & Sherr, L. (1991). *Total Quality Management for Organizations: Concepts and Tools, A Handbook for Tertiary Education*. Technical and Further Education, National Centre for Research and Development Ltd. Leabrook. <https://doi.org/10.1108/09544780410523044>
- De Róiste, A., Kelly, C., Molcho, M., Gavin, A. & Nic Gabhainn, S. (2012). "Is school participation good for children? Associations with health and wellbeing". *Health Education*, 112(2), 88-104. <https://doi.org/10.1108/09654281211203394>.
- Diyang, G. C. (2020). Faktor penentu partisipasi sekolah anak pada rumah tangga sector pertanian di Indonesia. *Jurnal Kependudukan Indonesia*, 15(2), 215-226.
- Dreher, A. (2006). Does globalization affect growth? Evidence from a new index of globalization. *Applied Economics*, 38(10), 1091-1110. DOI: 10.1080/00036840500392078.
- Fauzan, M., Nusantara, A., Nawatmi, S., & Santoso, A.B. (2020). Indeks pembangunan manusia dan pendidikan di Jawa Tengah. *Jurnal Bisnis dan Ekonomi*, 27(1), 51-54. <https://unisbank.ac.id/ojs/index.php/fe3/article/view/7788>
- Faguet, J. P. & Sanchez, F. (2006). Decentralization's Effects on Educational Outcomes in Bolivia and Colombia. *World Development*, 36(7), 1294– 1316.
- Glewwe, P. & Kremer, M. (2005). Schools, Teachers and Education Outcomes in Developing Countries. Schools, teachers, and education outcomes in developing countries. *Handbook of the Economics of Education*, 2, 945-1017.
- Handa, S. (1999). Raising primary school enrolment in developing countries: The relative importance of supply and demand. *Journal of development Economics*, 69(1), 103-128.
- Hayati., & Nasution, E. S. (2020). Influencing Factors to the Family Welfare in Mulyasejati Village towards Citarum Harum. *KnE Social Sciences*, 4(14), 194-205. DOI 10.18502/kss.v4i14.7873
- Herbert, B., Fischer, J., & Klieme, E. (2022). How Valid are Student Perceptions on Teaching Qualities Across Education Systems? *Journal of Learning and Instructions*. 82(2022). <https://doi.org/10.1016/j.learninstruc.2022.101652>
- Horoz, N., Buil, J. M., Lenthe, F. J. V., & Houweling, T. A. J., Koot, H. M. & Lier, P. A. C. (2022). Children's Behavioral and Emotional Problems and Peer Relationships Across Elementary School: Association with Individual- and School Level Parental Education. *Journal of School Psychology*, 93, 119-137.
- Kabupaten Banyuwangi. (2019). Profil Pendidikan (Internet). Available from <https://banyuwangikab.go.id/profil/profil- pendidikan.html>. Accessed at 12 February 2021.
- Khairunnisa., Hartoyo, S., & Anggraeni, L. (2011). Determinan Angka Partisipasi Sekolah SMP di Jawa Barat. tahun 2007-2011. *Jurnal Ekonomi dan Pembangunan Indonesia*, 15(1), 91-112. <https://doi.org/10.21002/jepi.v15i1.444>
- Lestari, N. A. (2014). Analisis Faktor-Faktor Yang Mempengaruhi Angka Partisipasi Sekolah Serta Angka Putus Sekolah Tingkat SD Dan SMP. *Journal Anggaran dan Keuangan Negara Indonesia*. <https://doi.org/10.33827/akurasi2019.vol1.iss1.art46>
- Listianawati, I. (2012). Faktor-faktor yang Memengaruhi Pendidikan Dasar di Sulawesi Utara [Thesis, Institut Pertanian Bogor].
- Maani, K. E., & Robert, Y. C. (2000). *System Thinking and Modelling Understanding Change and Complexity*. Pearson Education.
- Malthus, T. (1978). *An Essay on the principle of population, as it affects the future improvement of society*. London: J. Johnson
- Mariglynn, E., & Stephanie D. (2018). Ready to serve the public? The role of empathy in public service education programs. *Journal of Public Affairs Education*, 24(3), 300-320.
- Moenir. (2002). *Manajemen Pelayanan Umum di Indonesia*. Bumi Aksara.
- Moleong, L. J. (2012). *Metodologi Penelitian Kualitatif*. PT Remaja Rosdakarya.
- Mohammadian, A. K. (2005). Gender Differences in Automobile Choice Behavior. *Research On Women's Issues in Transportation*, 41-48.

- Panggabean, M. (2020). *Faktor-Faktor yang mempengaruhi Dependency Ratio di Indonesia*. In Proceeding Seminar Akademik tahunan Ilmu Ekonomi dan Studi Pembangunan 2020. ISBN: 978-602-534460-5-7.
- Pegas, N. E. (2012). Pengaruh Kemiskinan Dan Tenaga Pengajar Terhadap Angka Partisipasi Sekolah di Kalimantan Barat. *Jurnal Pembangunan dan Pemerataan*, 3(3).
- Prahasta, E. (2018). *Systems Thinking & Pemodelan Sistem Dinamis*. Informatika.
- Rahmatin, U. Z. (2017). Pengaruh Tingkat Kemiskinan Dan Jumlah Sekolah Terhadap Angka Partisipasi Sekolah (APS) Di Kota Surabaya. *Journal Pendidikan Ekonomi, Manajemen dan Keuangan*, 1(2), 127-140. <https://doi.org/10.26740/jpeka.v1n2.p127-140>
- Risteska., & Marija. (2010). *Good Governance in Education*. Skopje: UNDP. [https://info.undp.org/docs/pdc/Documents/MKD/00049939\\_Good%20governance%20in%20Education%20-%20English%20\\_final%20corrected\\_.pdf](https://info.undp.org/docs/pdc/Documents/MKD/00049939_Good%20governance%20in%20Education%20-%20English%20_final%20corrected_.pdf)
- Rodriguez, J. V., Rodado, D. N., Borrero, T. C., & Parody, A. (2022). Multidimensional Indicators to Measure Quality in Education. *International Journal of Education Development*, 8(2022). <https://doi.org/10.1016/j.ijedudev.2021.102541>
- Sahney, S., Banwet, D.K., & Karunes, S. (2004). A Servqual and QFD approach for total quality education in the Indian context: a student perspective. *International Journal of Productivity and Performance Management, Emerald*, 53(2), pp. 143– 166. <https://doi.org/10.1108/17410400410515043>
- Soesilo, B. & Karuniasa, M. (2014). *Permodelan System Dynamics Untuk berbagai bidang ilmu pengetahuan kebijakan pemerintah dan bisnis*. Lembaga Penerbit Fakultas Ekonomi Universitas Indonesia.
- Sun, J. C. Y., & Chen, A. Y. Z. (2016). Effect of Integrating Dynamic Concept Maps with Interactive Response System on Elementary School Student's Motivation and Learning Outcome: The Case of Anti Phishing Education. *Journal of Computers and Education*, 102, 117-127.
- Susilo, W. H., Aima, M. H., Indriati, C. K., & Hutajulu, J. (2014). *Riset kualitatif dan aplikasi penelitian ilmu keperawatan, analisis data dengan pendekatan Fenomenologi, Colaizzi dan perangkat lunak N-Vivo*. Trans infomed.
- Takahashi, K. (2011). Determinants of Indonesian rural secondary school enrolment: gender, neighbourhood and school characteristics. *Bulletin of Indonesian Economic Studies*, 47(3), 395-413
- Tang, K. H., & Zairi, M. (1998). Benchmarking quality implementation in a service context: A comparative analysis of financial services and institutions of higher education: Part II. *Total quality management*, 9(7), 539-552.
- Tanuar, E., Yesmaya, V., & Irwansyah, E. (2017). *Hubungan Partisipasi Sekolah dengan Tingkat Kemiskinan di Indonesia* [Master Thesis Universitas Islam Indonesia].
- Zhang, J., Li, H., Lin, J., Zheng, W., Li, H., and Chen, Z. (2020). Meta-analysis of the relationship between high quality basic education resources and housing prices. *Land Use Policy*, 99, 104843.