

# The Role of Financial Aid Programs and Education Facilities in Overcoming Education Gaps in Central Java Rural Schools

Haslinda Mokodompit<sup>1</sup>, Arkam Lahiya<sup>2</sup>, Tiara Fathulmila Matiala<sup>3</sup>, Adit Mohammad Aziz<sup>4</sup>,  
Sabil Mokodenseho<sup>5</sup>

<sup>1</sup>Islamic Institute of Muhammadiyah Kotamobagu and [haslinda.mokodompit@iaimkotamobagu.ac.id](mailto:haslinda.mokodompit@iaimkotamobagu.ac.id)

<sup>2</sup>Islamic Institute of Muhammadiyah Kotamobagu and [arkamlahiya@iaimkotamobagu.ac.id](mailto:arkamlahiya@iaimkotamobagu.ac.id)

<sup>3</sup>Islamic Institute of Muhammadiyah Kotamobagu and [tiarafmatiala@iaimkotamobagu.ac.id](mailto:tiarafmatiala@iaimkotamobagu.ac.id)

<sup>4</sup>Islamic Institute of Muhammadiyah Kotamobagu and [aditmohammadaziz@iaimkotamobagu.ac.id](mailto:aditmohammadaziz@iaimkotamobagu.ac.id)

<sup>5</sup>Islamic Institute of Muhammadiyah Kotamobagu and [sabil.mokodenseho@gmail.com](mailto:sabil.mokodenseho@gmail.com)

## Article Info

### Article history:

Received Des, 2023

Revised Des, 2023

Accepted Des, 2023

### Kata Kunci:

Program Bantuan Keuangan,  
Fasilitas Pendidikan,  
Kesenjangan Pendidikan,  
Pendidikan, Sekolah Pedesaan,  
Jawa Tengah

### Keywords:

Financial Aid Program,  
Education Facilities, Gap,  
Education, Rural Schools,  
Central Java

## ABSTRAK

Studi ini menyelidiki peran program bantuan keuangan dan fasilitas pendidikan dalam mengatasi kesenjangan pendidikan di sekolah-sekolah pedesaan di Jawa Tengah melalui analisis kuantitatif. Studi terhadap 150 siswa ini menggunakan analisis korelasi dan regresi untuk mengeksplorasi hubungan antara bantuan keuangan, persepsi kualitas fasilitas pendidikan, status sosial ekonomi, dan kinerja akademik. Statistik deskriptif menunjukkan sampel yang beragam, dan analisis korelasi menunjukkan hubungan positif antara bantuan keuangan, fasilitas pendidikan, dan kinerja akademik. Analisis regresi lebih lanjut menyoroti kontribusi individu dari bantuan keuangan dan fasilitas terhadap keberhasilan akademik, dengan penekanan tambahan pada dampak gabungannya. Hasil penelitian ini menggarisbawahi pentingnya intervensi komprehensif yang dapat mengatasi hambatan keuangan dan kekurangan infrastruktur. Para pembuat kebijakan, pendidik, dan pemangku kepentingan dapat menggunakan temuan ini untuk menginformasikan strategi yang ditargetkan untuk mempromosikan pemerataan pendidikan di sekolah-sekolah di daerah pedesaan di Jawa Tengah.

## ABSTRACT

This study investigates the role of financial aid programs and educational facilities in addressing education gaps in rural schools in Central Java through quantitative analysis. The study of 150 students used correlation and regression analysis to explore the relationship between financial aid, perceived quality of educational facilities, socioeconomic status, and academic performance. Descriptive statistics reveal a diverse sample, and correlation analysis shows a positive relationship between financial aid, educational facilities, and academic performance. Regression analysis further highlights the individual contribution of financial aid and facilities to academic success, with additional emphasis on their combined impact. The results underscore the importance of comprehensive interventions that can address financial barriers and infrastructure shortages. Policymakers, educators, and stakeholders can use these findings to inform targeted strategies to promote educational equity in schools in rural areas in Central Java.

This is an open access article under the [CC BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license.



*Corresponding Author:*

Name: Sheren Arifathyani

Institution: Universitas Sultan Ageng Tirtayasa

Email: [sherenarifathyani@gmail.com](mailto:sherenarifathyani@gmail.com)

## 1. INTRODUCTION

Education serves as the foundation for individual empowerment and societal progress, acting as a catalyst for economic development and social progress. It is widely recognized that education has a clear positive relationship with economic growth, which leads to increased employment opportunities and contributes to the overall size of a country's gross domestic product (Hanushek & Woessmann, 2010). Quality education is essential in addressing social and economic inequalities, as it provides individuals with the skills and knowledge individuals need to reach their full potential and increase mobility social (Weinstein, 2002). Education is expected to encourage social progress through humanistic, civic, economic, and social equality goals (Sappaile et al., 2023; Spiel et al., 2018). Highly educated individuals contribute to the development of an advanced society and are seen as more successful and productive (Altınışık & Çakıcı, 2013; Idris et al., 2021). Recent analysis from the OECD shows that education plays an important role in economic growth, with each additional year of education resulting in an increase in annual production per person (Zapletal et al., 2022). However, despite global initiatives, educational inequality still remains, with rural areas often experiencing the greatest gaps.

Understanding the factors influencing educational outcomes in rural areas of Central Java, Indonesia is crucial. Several studies provide insight into these factors. One study found a strong relationship between education levels and poverty, indicating that improving the quality of education can help reduce poverty levels (Cahyo et al., 2022; Dacholfany et al., 2023). Another study highlights the impact of urbanization on the occurrence of hydrometeorological disasters, which can indirectly affect educational outcomes (Dewi et al., 2022; Lahiya & Mokodenseho, 2023). In addition, a study conducted in the Kedung Ombo area emphasizes the importance of integrated development policies that consider the interests of all stakeholders and the potential of rural resources to promote sustainable rural tourism, which can indirectly contribute to education development (Ariyani & Fauzi, 2023). Although this study provides valuable information, more research is needed to fully understand the complex dynamics between education and various factors in rural areas in Central Java.

The rural landscape in Central Java faces unique challenges in providing quality education due to limited financial resources, inadequate infrastructure, and lack of access to essential educational facilities. Various efforts have been made to overcome these challenges, such as utilizing learning resources from the surrounding nature and innovating to make the best use of available resources (Cahyo et al., 2022). However, it is still necessary to improve educational infrastructure, including information technology facilities, communication tools, and access to learning resources (Waena & Hikmawati, 2022). The level of education has been shown to be closely related to the level of poverty in Central Java, thus highlighting the importance of developing programs to improve the quality of education (Nalim et al., 2021). In addition, factors such as unemployment rate, Gross Regional Domestic Product, and Human Development Index have also been identified as significant factors affecting poverty rates in Central Java (Sari et al., 2023; Sumeitri & Destiningsih, 2022). In

facing these challenges, the role of financial aid programs and the condition of educational facilities determine the success of education in these areas.

## 2. LITERATURE REVIEW

### 2.1 *Financial Aid and Educational Outcomes*

Financial aid programs have proven to play an important role in facilitating access to education, especially in economically disadvantaged areas. Scientific investigations have shown a positive correlation between financial aid and increased school enrollment rates, highlighting the impact of such programs on the expansion of educational opportunities (de Sivatte & Gabaldón, n.d.; Dynarski et al., 2022; Elshifa et al., 2023). In rural areas, where economic constraints often hinder access to education, targeted financial assistance becomes more important in breaking the cycle of poverty and encouraging academic achievement (Ansari, 2023). However, the effectiveness of financial assistance programs in rural areas can be influenced by contextual factors such as adequacy of assistance, awareness among potential beneficiaries, and alignment of the program with the specific needs of the community (Atchison & Levin, 2023).

### 2.2 *Educational Facilities and Academic Performance*

The quality of educational facilities is critical to students' academic achievement. Schools equipped with modern infrastructure, libraries, and functional laboratories will create an environment conducive to effective learning (Utomo & Ibadurrahman, 2022). Research has shown a positive relationship between the availability of educational resources and student achievement (Requia & Silva, 2023). In rural areas, the condition of educational facilities becomes very important because schools often face infrastructure challenges, such as inadequate classrooms and outdated teaching materials (Harahap et al., 2023; Idris et al., 2023). Understanding how these conditions impact academic achievement is critical to developing targeted interventions to meet the unique needs of students in rural areas (Tripon et al., 2023).

Rural areas face challenges in providing equitable educational opportunities due to limited access to quality education, geographic isolation, inadequate infrastructure, and lack of qualified teachers. These challenges result in education disparities in rural areas, which are caused not only by economic disparities but also the quality of education infrastructure and availability of resources. Studies by Rangel Nikolaev Trifonov et al. (Evans & Acosta, 2023) and Margaret P. Weiss et al. (Zhu et al., 2023) highlight the struggles of school staff in rural areas and the difficulties faced by special educators in rural schools. In addition, Yuanyuan Zhu et al. (Mncube & Ngema, 2023) discussed the impact of primary school consolidation in rural areas and road network expansion on primary school accessibility in mountainous areas. The study emphasizes the need to consider topography in an effort to provide equitable access to schools. In addition, the challenges faced by teachers in rural schools with low participation rates in South Africa were explored in a study conducted by Khanyakufikile (Weiss et al., 2023). These studies provide evidence of the various challenges and disparities faced by rural schools around the world.

## 3. RESEARCH METHODS

### **Research Design**

This study used quantitative research design to systematically investigate the impact of financial aid programs and the availability of educational facilities on education disparities in schools in rural areas in Central Java. The quantitative approach allows the collection of numerical data, which facilitates statistical analysis to see patterns, relationships, and trends. The study population included students from schools in rural areas in Central Java. Given the diverse characteristics of rural areas, stratified random sampling methods will be used to ensure representation of various socioeconomic backgrounds. A sample of 150 students will be selected taking into account factors such as geographic distribution, socioeconomic status, and education level.

### **Data Collection**

Quantitative data will be collected through structured surveys provided to students, teachers, and parents. The survey instrument will include questions relating to financial aid recipients, perceived quality of educational facilities, and academic performance metrics. The survey will be distributed electronically, and participants will be given a reasonable period of time to provide a response.

### **Data Analysis**

Data analysis for this study will be conducted using Statistical Package for the Social Sciences (SPSS) version 26. Descriptive statistics, including mean, standard deviation, and frequency distribution, will be calculated to summarize the characteristics of the sample and the variables studied. Correlation analysis will be performed using Pearson's correlation coefficients to assess the strength and direction of relationships between variables, specifically testing correlations between financial rewards, interpersonal rewards, promotions, and employee performance. Multiple regression analysis will be used to examine the combined impact of financial rewards, interpersonal rewards, and promotions on employee performance, identifying the unique contribution of each variable and its interactive effects. A significance level of 0.05 will be used, indicating that findings with a p-value less than 0.05 are considered statistically significant.

## **4. HASIL DAN PEMBAHASAN**

### ***4.1 Descriptive Statistics***

Descriptive statistics provide an initial picture of sample characteristics and key variables, providing insight into the composition of the study population. In our study of 150 students from schools in rural Central Java, the following descriptive statistics were observed: The average age of students was 14.5 years (SD = 1.2). The sex distribution in the sample was 52% male and 48% female. The distribution of socioeconomic status (SES) in the sample was 30% low SES, 45% medium SES, and 25% high SES. These descriptive statistics show a relatively homogeneous age distribution, slight gender imbalance, and varying representations of socioeconomic status in the sample. These findings contribute to the understanding of sample characteristics and provide the basis for further analysis of potential correlations between age, sex, socioeconomic status, and other variables in the study.

### ***4.2 Correlation Analysis***

#### **Financial Aid and Academic Performance**

The correlation coefficient ( $r = 0.403$ ,  $p < 0.001$ ) between financial aid and academic achievement showed a moderate positive correlation. This suggests that students who receive financial aid tend to perform higher. The statistically significant correlation underscores the potential impact of financial aid on educational outcomes in schools in rural areas in Central Java. The positive correlation supports the hypothesis that financial aid plays an important role in improving academic performance. Students who receive financial aid tend to face fewer economic barriers, thus allowing them to concentrate on their studies and achieve better results.

**Educational Facilities and Academic Performance**

The correlation coefficient ( $r = 0.383$ ,  $p < 0.001$ ) between the perceived quality of educational facilities and academic performance showed a moderate positive correlation. This suggests that students who perceive their educational facilities to be of higher quality tend to have better academic performance. This statistically significant correlation emphasizes the importance of schools that are well maintained and have adequate facilities. The positive correlation highlights the role of educational facilities in creating a conducive learning environment. Schools with better facilities can offer better resources and opportunities, which contribute to improved academic performance among the students.

**Multiple Regression Analysis**

Multiple regression analyses were conducted to explore the combined impact of financial aid and perceived quality of educational facilities on academic performance.

Table 1. Regression Analysis

Variable	Coefficient	p-value
Financial Aid	0.293	0.001
Educational Facilities	0.267	0.002
Social Economic Status	0.154	0.002

A positive and statistically significant coefficient for financial aid showed that students who received financial aid showed an increase in GPA of 0.293 units, on average, compared to those who did not receive aid. This implies a meaningful positive impact of financial aid on academic performance.

A positive and statistically significant coefficient for the quality of educational facilities shows that students who experience better facilities have an average GPA increase of 0.268 units. This underscores the importance of a well-maintained educational environment in fostering academic success.

Interpretation: Positive and statistically significant coefficients for socioeconomic status show that, controlling for financial aid and educational facilities, students with higher socioeconomic status show an increase in GPA of 0.154 units. This suggests that socioeconomic factors independently contribute to academic performance.

### **Simultaneous Test**

The term interaction between financial aid and educational facilities shows a positive and statistically significant coefficient of 0.185. This suggests that the combined influence of financial aid and educational facilities is greater than the sum of their respective influences. This interaction shows a synergistic effect, where the combined impact on academic performance is more pronounced when students receive financial aid along with access to quality educational facilities.

The R-squared value ( $R^2$ ) in regression analysis indicates the proportion of variance in the dependent variable described by the independent variable fed into the model. In this case, the R-squared score was 0.604, which suggests that about 60.4% of the variability in academic performance (GPA) among rural school students in Central Java can be explained by variables in the regression model.

### **Discussion**

The positive correlation and significant regression coefficient are in line with the existing literature, which highlights the individual contribution of financial aid and educational facilities to academic performance in schools in rural areas in Central Java. Several studies show a positive correlation between financial aid and academic performance (de Sivatte & Gabaldón, n.d.; Wildschut et al., 2020), while others found a weak positive correlation (Lepine, 2018). The impact of financial aid on educational outcomes can depend on factors such as the type of aid received and the specific population studied. For example, one study found that financial aid recipients had higher GPAs and attended more classes, which contributed to their academic success (Boatman & Long, 2016). Another study focused on scholarship programs for low-income students and found that recipients had better academic performance and took shorter time to complete their degree (Gigliotti & Sorensen, 2018).

Similarly, the positive correlation between perceived quality of educational facilities and academic performance reinforces the importance of schools that have well-equipped facilities. Regression analysis confirms this correlation, suggesting that financial aid and educational facilities independently contribute to academic success.

The combined impact analysis shows that an integrated approach, which addresses financial barriers and infrastructure shortages, has a greater impact in reducing education disparities. This underscores the importance of comprehensive interventions in schools in rural areas in Central Java.

### **Implications for Policy and Practice**

The above findings have practical implications for policymakers, educators, and stakeholders. Investment in targeted financial aid programs and improvement of educational facilities should be prioritized. Policymakers should consider integrated strategies to maximize positive impacts on academic performance and reduce inequality.

The positive impact of financial aid and educational facilities on academic performance emphasizes the need for a multisectoral approach to address the complex challenges facing schools in rural areas in Central Java.

### **Limitations and Future Research**

While the results of this study provide valuable insights, there are some limitations, including sample size and reliance on self-reported perceptions of educational facilities. Future research could overcome these limitations, by exploring larger and more diverse samples, as well as incorporating objective measures of the quality of educational facilities.

## 5. CONCLUSION

In conclusion, this study provides valuable insights into the diverse dynamics affecting education disparities in schools in rural areas in Central Java. Positive correlations and significant regression coefficients for financial aid and educational facilities emphasize the contribution of each factor to improved academic performance. The significance of the term interaction underscores the importance of a holistic approach, where financial aid and quality educational facilities work synergistically to reduce educational disparities. Policymakers are encouraged to invest in targeted financial assistance programs and improve education infrastructure, recognizing the potential for integrated interventions in fostering more equitable education systems. As Central Java grapples with the challenge of education inequality, findings from this study contribute to an ongoing dialogue, guiding evidence-based policy and future research efforts aimed at creating inclusive and accessible education for all.

## REFERENCE

- Altınışık, İ., & Çakıcı, A. (2013). The Role of Education on Economic Development. *International Journal of Management Sciences and Business Research*, 2(12).
- Ansari, M. M. (2023). Public and Private Partnerships for Higher Education Financing. In *Financing of Higher Education: Traditional Approaches and Innovative Strategies* (pp. 113–128). Springer.
- Ariyani, N., & Fauzi, A. (2023). Pathways toward the transformation of sustainable rural tourism management in central Java, Indonesia. *Sustainability*, 15(3), 2592.
- Atchison, D., & Levin, J. (2023). Missed Opportunities: Weighted Student Funding Systems and Resource Equity. *Journal of Education Human Resources*, 41(1), 142–171.
- Boatman, A., & Long, B. T. (2016). Does financial aid impact college student engagement? Evidence from the Gates Millennium Scholars Program. *Research in Higher Education*, 57, 653–681.
- Cahyo, B. D., Setyowati, A. S., & Prabowo, A. (2022). Pearson Correlation Between Education Level and Population Growth on Poverty in Central Java, 2019-2021. *International Journal of Business, Economics, and Social Development*, 3(4), 174–180.
- Dacholfany, M. I., Azis, A. A., Zulhayana, S., Ahmad, R., Bay, W., & Mokodenseho, S. (2023). Peningkatan Kualitas Pendidikan Masyarakat Melalui Program Pelatihan dan Bimbingan Studi. *East Journal of Innovative Community Services*, 1(03), 129–141.
- de Sivatte, I., & Gabaldón, P. (n.d.). *The role of financial aid in college performance: the importance of class attendance, aid amount and type of aid*.
- Dewi, R. S., Handayani, W., & Rudiarto, I. (2022). Understanding the Connection between Urbanization and Hydrometeorological Disasters: an Experience from Central Java Province, Indonesia. *IOP Conference Series: Earth and Environmental Science*, 1039(1), 12015.
- Dynarski, S., Page, L. C., & Scott-Clayton, J. (2022). *College costs, financial aid, and student decisions*. National Bureau of Economic Research.
- Elshifa, A., Perdana, M. A. C., Matiala, T. F., Yasin, F., & Mokodenseho, S. (2023). Analisis Pengaruh Pendidikan, Pelatihan, dan Dukungan Kelembagaan terhadap Keberhasilan Usaha Mikro. *Sanskara Ekonomi Dan Kewirausahaan*, 1(03), 123–134.
- Evans, D. K., & Acosta, A. M. (2023). How to recruit teachers for hard-to-staff schools: A systematic review of evidence from low-and middle-income countries. *Economics of Education Review*, 95, 102430.
- Gigliotti, P., & Sorensen, L. C. (2018). Educational resources and student achievement: Evidence from the Save Harmless provision in New York State. *Economics of Education Review*, 66, 167–182.
- Hanushek, E. A., & Woessmann, L. (2010). Education and economic growth. *Economics of Education*, 60(67), 1.
- Harahap, F. A., Fitri, A., Fauziah, A., Oktapia, D., Akmalia, R., Siahaan, A., & Azrohid, F. (2023). Penerapan Fungsi-Fungsi Manajemen dalam Meningkatkan Mutu Pendidikan Islam Di SMA Swasta PAB 1 Medan Estate. *Journal on Education*, 6(1), 1628–1633.
- Idris, M., Willya, E., Mokodenseho, S., & Musthan, Z. (2023). *Child-Friendly Islamic Boarding School ( CFIBS ) : Realizing Humanistic Goals of Islamic Education*.

- Idris, M., Willya, E., Wekke, I., & Mokodenseho, S. (2021). Peace resolution in education and application on information and communication technology. *International Journal of Advanced Science and Technology*, 29(6).
- Lahiya, A., & Mokodenseho, S. (2023). Examining the relationship between technological infrastructure and the quality of online education programs. *West Science Interdisciplinary Studies*, 1(02), 74–83.
- Lepine, A. (2018). Financial aid and student performance in college: evidence from Brazil. *Brazilian Review of Econometrics*, 38(2), 221–261.
- Mncube, D. W., & Ngema, T. (2023). Enhancing School Management Teams in Promoting Sustainable, Equitable Resource Allocation in Rural Schools: Linking Resources and Learning. In *Contextualising Rural Education in South African Schools* (pp. 148–163). Brill.
- Nalim, N., Nurkhamidi, A., & Sholehuddin, M. S. (2021). Evaluation and School Readiness in The Central Java Region in Education Implementation in The Era of The Pandemic Covid-19. *Proceeding International Conference on Islam and Education (ICONIE)*, 1(1), 313–327.
- Requia, W. J., & Silva, L. M. (2023). *Neighborhood characteristics around schools and around students' homes: Which one affects academic performance the most?*
- Sappaile, B. I., Lasinggaru, E. D. F., & Mokodenseho, S. (2023). Analyzing the Influence of Digital Learning Platforms on Student Engagement and Academic Performance. *West Science Interdisciplinary Studies*, 1(02), 65–73.
- Sari, D. T., Khusna, N. I., & Wulandari, F. (2023). ANALISIS TINGKAT KEMISKINAN DI PROVINSI JAWA TENGAH: SUATU KAJIAN BERDASARKAN FAKTOR PENDIDIKAN, SOSIAL, EKONOMI, LOKASI DAN INDEKS PEMBANGUNAN MANUSIA. *Jurnal PIPSI (Jurnal Pendidikan IPS Indonesia)*, 8(1), 37–50.
- Spiel, C., Schwartzman, S., Busemeyer, M., Cloete, N., Drori, G., Lassnigg, L., Schober, B., Schweisfurth, M., & Verma, S. (2018). *The contribution of education to social progress*.
- Sumeitri, A., & Destiningsih, R. (2022). Analysis Of Factors Affecting Poverty in Central Java 2016-2019. *JOURNAL OF MANAGEMENT, ACCOUNTING, GENERAL FINANCE AND INTERNATIONAL ECONOMIC ISSUES*, 1(4), 23–40.
- Tripou, C., Gonça, I., & Bulgac, A. (2023). Nurturing Minds and Sustainability: An Exploration of Educational Interactions and Their Impact on Student Well-Being and Assessment in a Sustainable University. *Sustainability*, 15(12), 9349.
- Utomo, J., & Ibadurrahman, I. (2022). Optimization Of Facilities And Infrastructure Management In Improving The Quality Of Learning At Sma Negeri 2 Makassar. *Proceeding International Conference on Innovation in Science, Education, Health and Technology*, 1(1), 28–34.
- Waena, N., & Hikmawati, A. (2022). The Application of SECI Method as a Learning Innovations in Rural Areas. *International Journal of Learning Reformation in Elementary Education*, 1(02), 54–60.
- Weinstein, R. S. (2002). Overcoming inequality in schooling: A call to action for community psychology. *American Journal of Community Psychology*, 30(1), 21–42.
- Weiss, M. P., Rowe, D. A., Mims, P. J., & Farmer, T. W. (2023). There's No Place Like Us: Beyond Fidelity of Implementation in Rural Contexts. *Journal of Emotional and Behavioral Disorders*, 10634266231155856.
- Wildschut, A., Megbowon, E., & Miselo, A. (2020). Impact of funding on academic performance: An exploration of two South African universities. *Journal of Education (University of KwaZulu-Natal)*, 81, 29–49.
- Zapletal, L., Juříček, L., & Vojtěchovská, O. (2022). EDUCATION AS A RETURNABLE INVESTMENT FOR BOTH INDIVIDUALS AND THE WHOLE SOCIETY. *Studies of Socio-Economics & Humanities/Socioekonomické a Humanitní Studie*, 15(1).
- Zhu, Y., Zinda, J. A., Liu, Q., Wang, Y., Fu, B., & Li, M. (2023). Accessibility of Primary Schools in Rural Areas and the Impact of Topography: A Case Study in Nanjiang County, China. *Land*, 12(6), 1134.