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Analysis of Education Investment in Economic Growth in Minahasa Regency

Rini Cristie Lumantouw[1*], Sjeddie R Watung[2], Robert Winerungan[3], Jerry R.H Wuisang[4], Listriyanti Palangda[5]
[1]Master's student in Economic Education, Faculty of Economics and Business, Manado State University
[2,4,5]Economics Education Study Program, Faculty of Economics and Business, Manado State University
[3]Economics, Faculty of Economics and Business, Manado State University,
Corresponding Author: Rini Cristie Lumantouw: rinicristielumantouw@gmail.com

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A B S T R A C T

This study aims to analyze education investment in driving economic growth in Minahasa Regency and identify its effectiveness and contribution to improving human resource quality. The background of this study is based on the phenomenon of relatively high education budget allocations, but not fully balanced by improvements in human resource quality indicators and labor absorption. This study uses a qualitative approach with a case study method. The data used are secondary data obtained from the Central Statistics Agency (BPS), related agencies, and local government reports. The results of the study indicate that education investment has a positive correlation with economic growth in Minahasa Regency. Increased education investment has been shown to contribute to increased labor productivity, reduced poverty levels, and the creation of positive externalities through innovation and development of educational institutions. The conclusion of this study confirms that education investment is a strategic factor in driving sustainable economic growth. Therefore, more targeted policies are needed, including strengthening partnerships between the world of education and industry, equalizing access to and quality of education, and optimizing the role of educational institutions in producing competitive human resources.

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INTRODUCTION

Education is a crucial factor in improving the quality of human resources and economic growth in a region. Minahasa Regency, as a region in North Sulawesi Province, has significant potential for increasing economic growth through investment in education.

However, many challenges remain in improving the quality of education in Minahasa Regency, such as limited resources, infrastructure, and teacher quality.

The goal of education is to design an environment and educational investment that enables communities to realize their full potential. The National Education System Law (SISDIKNAS) Number 20 of 2003 emphasizes the importance of skills, intelligence, morality, self-control, and spirituality in the educational process. In the educational context, teachers, in addition to serving as learning managers, facilitators, and motivators, also serve as demonstrators, guides, and assessors. Therefore, this study aims to analyze educational investment in economic growth in Minahasa Regency and provide recommendations for improving the quality of education and economic growth in the region.

Minahasa Regency is also part of the regional development planning framework, encompassing a unified national development planning system. This framework is implemented by the local government and stakeholders, based on their respective roles and authorities. It integrates spatial planning with regional development plans, and is implemented based on the conditions and potential of each region, in line with the dynamics of regional and national development.

Minahasa Regency, as a region in North Sulawesi Province, boasts diverse economic potential, yet its educational investment growth rate has tended to fluctuate over the past five years. An interesting phenomenon is that the regional budget allocation for education consistently meets or even exceeds the constitutional mandate (20% of the regional budget). However, human resource quality indicators, such as average years of schooling and the Open Unemployment Rate (TPT) for high school graduates, still present challenges. This phenomenon raises issues worthy of research.

Based on these issues, the primary focus of this research is to analyze in-depth the effectiveness and efficiency of educational investment in economic growth in Minahasa Regency and the extent to which this investment is able to produce quality human resources, encompassing both hard and soft skills.

If it is proven that investment in education and economic growth in Minahasa is weak or insignificant, the local government needs to immediately conduct a comprehensive evaluation of the allocation and use of education funds. The results of this analysis can provide specific recommendations for revising human resource budget policies, which are crucial for achieving sustainable regional development targets.

Relevance to Science: Scientifically, this research contributes by applying Educational Investment Theory at the regional (regency) economic level, which has unique characteristics. This research also seeks to integrate educational quality to provide a richer understanding of investment mechanisms.

Based on the overall background, practical urgency, and theoretical gaps outlined, the primary objective of this thesis is to analyze educational investment in economic growth in Minahasa Regency. The research findings are expected to significantly contribute to the formulation of effective educational policies and human resource development strategies to encourage sustainable investment growth in education in the region.

LITERATURE REVIEW

Educational Investment Theory

Educational investment is expenditure made to improve the quality of human resources through education. Human Capital Theory, developed by Gary Becker (1964), emphasizes that education is an investment in human resources that can increase individual productivity and income. Educational Investment as Core Human Capital: The main paradigm in current educational investment theory is deeply rooted in the concept of Human Capital, which views educational expenditure as an investment, not simply a consumption expense (Siregar et al., 2022; Yuliyanto, 2023).

The Role of Education in Sustainable Development Goals (SDGs). In the last decade, the role of educational investment has been increasingly linked to the achievement of the Sustainable Development Goals (SDGs), particularly SDG 4 on Quality Education. Recent research emphasizes that educational investment must focus on holistic education encompassing academics, social skills, leadership, and values, to produce resilient human resources in the era of Society 5.0 (Hidayat et al., 2023).

Thus, contemporary educational investment is not only oriented towards job creation, but also towards developing innovation and individual abilities to create economic value that exceeds the costs incurred (Human Economic Value Added - HEVA) (Sari, 2013).

Economic Growth Theory

Economic growth is the increase in output or national income of a country or region over a specific period of time (Solow, 1956). Endogenous Growth Economic Theory emphasizes the importance of economic growth, with its primary focus on human resource development through improvements in science and technology.

Early models of economic growth, the most dominant of which was the Solow-Swan (Neoclassical Growth Model), emphasized that short-term growth was driven by the accumulation of physical capital and labor force growth. This model has become a cornerstone but has also drawn criticism for considering innovation as a "given" and failing to explain its sources, limiting policymakers' ability to stimulate sustainable growth (Barro, 2020).

Criticism of Solow's exogenous nature gave rise to Endogenous Growth Theory, developed by pioneers such as Romer and Lucas. This theory successfully integrated the sources of sustainable growth, namely innovation and human capital, into economic models. Romer focused on investment in research and development (R&D) that generates new knowledge that is non-rivalrous (can be used by many without diminishing its benefits to others). The use of this

knowledge creates spillover effects that maintain the rate of return on capital, thus enabling sustainable growth. This model provides a strong justification for public policies that support R&D subsidies and intellectual property protection (Aghion & Howitt, 2021).

Growth theory faces new challenges around sustainability and inclusiveness. Green growth models emerge as a combination of endogenous growth theory and environmental constraints. These models assert that sustainable growth must integrate natural capital and mainstream investment in clean technologies. Growth that focuses solely on GDP without addressing environmental degradation and rising inequality is not considered optimal or sustainable. Thus, the policy focus shifts to creating a "triple dividend" (economic, social, and environmental) and ensuring that economic progress aligns with the achievement of the Sustainable Development Goals (SDGs) (United Nations, 2023).

Human Resource Quality

Human resource quality refers to the abilities and skills possessed by individuals to perform their jobs. Human resources relate to the ability to detail tasks and responsibilities at the following levels: (1) preparing job descriptions; (2) staff numbers and qualifications; and (3) meeting recruitment needs. A key factor in successful budget management is experienced and motivated staff. Every government agency must have trained and competent human resources capable of handling their tasks. Staff must also be provided with appropriate job descriptions (Hovart, 2005).

Human resource (HR) quality is fundamentally analyzed through the lens of Human Capital Theory, which asserts that HR is not simply a cost, but rather an investment asset that generates significant returns. This theory views HR quality as a combination of knowledge, skills, health, and other attributes acquired by individuals through investments (education, training, and health). Overall, the understanding of HR quality has shifted from a focus solely on formal education to a more holistic framework, incorporating health, psychological, and work motivational aspects.

METHODOLOGY

This study employed qualitative research. Its aim was to gain a deeper understanding of educational investment in economic growth in Minahasa Regency. According to Yin (2014), qualitative research utilizes a case study approach, where researchers attempt to understand specific and complex cases and phenomena. Strauss and Corbin (1998) define qualitative research as research that utilizes a grounded theory approach, where researchers attempt to develop theories from collected data.

This research took place in Minahasa Regency and utilized secondary data sources from the Minahasa Regency Statistics Agency (BPS), the Minahasa Regency Education Office, the Minahasa Regency Economic Office, and the Minahasa Regency Government Annual Report.

The data collection techniques employed were secondary data such as documentation, literature, surveys, and reports, with descriptive data analysis techniques. Kerlinger (1986) states that descriptive analysis is the process of

collecting, processing, and presenting data to describe the characteristics or properties of a phenomenon or population. According to Yin (2014), descriptive analysis is a data analysis technique used to describe and analyze data systematically and objectively with the aim of understanding the characteristics or properties of a phenomenon or population and to develop theories or concepts.

RESULT AND DISCUSSION

Synthesis of Human Capital Theory and Empirical Facts in Minahasa

The results of this study indicate a positive correlation between investment in education and economic growth in Minahasa Regency. This aligns with the Human Capital Theory developed by Gary Becker and Theodore Schultz, which views education as an investment with a high future return on investment.

Growth Transmission Mechanism

In Minahasa Regency, the transmission mechanism from education to economic growth occurs through several channels:

First, through increased marginal labor productivity. Workers in Minahasa with a higher average length of schooling tend to be more quickly attuned to technology and innovation. This is evident in the growth rate of the education services sector, which reached 7.15 percent, indicating greater efficiency in the provision of these services.

Second, through poverty reduction. Empirical data shows that, collectively, economic growth, education levels, and health significantly influence poverty reduction in North Sulawesi. In Minahasa Regency, investment in education provides opportunities for children from low-income families to obtain decent work with higher wages than in the traditional agricultural sector.

Third, through the creation of positive externalities. The existence of higher education institutions creates a conducive environment for the exchange of ideas and innovation. UNIMA's community service programs in Minahasa villages, such as the use of the STEAM method for coastal children or the empowerment of farmer groups towards economically independent villages, are concrete evidence of how investment in formal education provides spillover effects to non-formal communities.

Education Sector GRDP Analysis: Between Consumption and Investment

Government spending on education is often considered a fiscal burden. However, Minahasa Regency's GRDP data refutes this assumption. The GRDP for Education Services at Constant Prices (ADHK), which continues to increase from IDR 352.50 billion in 2021 to IDR 448.91 billion in 2025, indicates a significant accumulation of human capital. Theoretically, we can use the modified Solow-Swan growth model with human capital as the variable:

$$Y(t) = K(t)^{\alpha}H(t)^{\beta}(A(t)L(t))^{1-\alpha-\beta}$$

Where H(t) is the stock of human capital. In the Minahasa context, increases in HLS and RLS directly increase the stock of H(t). Because human capital has non-diminishing returns compared to physical capital alone, investment in education is key for Minahasa Regency to escape the middle-income trap and maintain sustainable economic growth in the long term.

Structural Challenges and Barriers

Although investment in education has shown impressive results, several obstacles remain that can hinder its optimal role in economic growth:

1. Mismatch between Education and the Job Market: Despite the rapid increase in the number of university graduates, there are challenges in absorbing an educated workforce at the local level. This often triggers the phenomenon of "diploma disease," or educated unemployment, where a diploma becomes merely an administrative requirement without the technical skills required by local industry.
2. Infrastructure Quality Gap: There remains a stark difference between schools in the city center of Tondano and those in remote or coastal areas. Inadequate facilities, infrastructure, and educational aids (APE) remain obstacles to achieving minimum education service standards.
3. Fiscal Dependence: The education budget's heavy reliance on central transfer funds (DAK/DAU) makes innovative regional programs vulnerable to changes in national policy. The independence of the education budget needs to be improved through optimization of local revenue (PAD) and partnerships with the private sector.
4. Teacher Distribution Issues: Despite adequate quantity, the uneven distribution of teachers across regions in Minahasa remains a classic problem that needs to be addressed by remapping teacher needs based on workload and location.

Impact of Private Investment in the Education Sector

In addition to government investment, private investment plays a crucial role in the education ecosystem in Minahasa. Private investment is not limited to the establishment of formal educational institutions by foundations, but also includes household spending on education, which constitutes a significant component of national public expenditure. In North Sulawesi, private investment generally has a significant impact on economic growth, although the relationship sometimes exhibits a negative slope in the short term due to competition for capital. However, in the education sector, private investment helps the government fulfill citizens' basic right to quality education. In Minahasa Regency, partnerships between the government and the private sector are beginning to be directed at developing environmentally friendly educational infrastructure and increasing regional competitiveness through the use of information technology.

CONCLUSIONS AND RECOMMENDATIONS

Research on education investment in economic growth in Minahasa Regency for the 2021-2025 period provides the following comprehensive conclusions:

1. First, Minahasa Regency's economic growth has shown a steady recovery and strengthening trend post-pandemic, with average growth above 5 percent. The education services sector is one of the main drivers of this growth, with its sectoral growth rate reaching 7.15 percent in 2025, surpassing the region's total economic growth.
2. Second, investment in education, both through the regional budget (APBD) (government) and household spending (private sector), has succeeded in significantly improving the quality of human capital. This is evidenced by Minahasa Regency's Human Development Index (HDI), which reached 78.48 in 2023, as well as increases in Average Years of Schooling (RLS) and Expected Years of Schooling (HLS), which are above the national average.15 These achievements demonstrate that Minahasa has the potential for comparative advantage in human resources.
3. Third, the presence of Manado State University (UNIMA) in Tondano has a massive economic impact through multiplier effects. UNIMA not only contributes to the creation of added value in the education services GRDP, but also encourages the growth of the accommodation, services, and local MSME sectors, and plays a role in the socio-economic transformation of rural communities in Minahasa.
4. Fourth, the regional government's budget commitment through the allocation of General Allocation Funds (DAU) and Special Allocation Funds (DAK) for physical education in 2024-2025 represents a strategic step to address infrastructure constraints. However, the main challenge remains the distribution of quality educators and the relevance of graduates to local job market needs, so that educational investment can have an optimal impact on reducing unemployment and poverty.

Based on the analysis and conclusions above, several strategic suggestions are proposed for stakeholders in Minahasa Regency:

1. Strengthening Strategic Partnerships (Link and Match): The Minahasa Regency Education Office, together with UNIMA, needs to build a collaborative platform involving the industrial and business sectors (DUDI) to formulate a curriculum based on competencies required by the modern job market. Vocational education and life skills training programs at the Learning Activity Center (SKB) need to be intensified to target educated unemployed individuals.
2. Equitable Digital Infrastructure Quality: Regional governments should prioritize physical Special Allocation Funds (DAK) allocations not only for building construction, but also for providing computer labs and high-speed internet access in remote schools. Investment in educational technology (EdTech) will facilitate the diffusion of knowledge and reduce the quality gap between regions.

3. Innovative Regional Scholarship Schemes: To increase higher education participation rates, regional governments are advised to create sustainable scholarship schemes for outstanding students from low-income families with a civil service bond or obligation to serve in Minahasa Regency after graduation. This will ensure the availability of local experts loyal to regional development.
4. Optimizing UNIMA's Role as an Innovation Center: UNIMA is advised to conduct more applied research and community service focused on solving Minahasa's local economic problems, such as developing a Lake Tondano-based agro-industry or digitizing the marketing of local MSME products. Downstreaming campus research to the community will strengthen regional economic resilience. 5. Mapping and Redistribution of Teachers: The Education Office needs to conduct regular competency audits and teacher distribution. Special incentive policies for teachers working in remote areas need to be strengthened to ensure equitable access to quality teaching for all students in Minahasa Regency without exception.

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