

# HIGHER EDUCATION ECONOMICS: MEASURING THE RELATIONSHIP BETWEEN EDUCATION EXPENDITURE, HUMAN CAPITAL INVESTMENT, AND INSTITUTIONAL QUALITY IN DEVELOPING COUNTRIES

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## ABSTRACT

In the knowledge economy era, higher education investment has shifted from a mere social service to a strategic driver of economic growth through human capital development. However, higher education institutions in developing countries, such as Universitas Negeri Makassar (UNM), face significant challenges in balancing global quality ambitions with the reality of students' financial constraints. Objective: This study aims to analyze the paradigm shift of education spending into strategic human capital investment and identify the factors hindering the effectiveness of such investment. Methodology: A mixed-methods approach with a convergent parallel design was employed. Quantitative data from budget reports and quality rankings for the 2020-2025 period were integrated with qualitative data from in-depth interviews with management and students using the merging integration technique. Findings: The results indicate a positive but non-linear correlation between institutional spending allocation and academic quality, characterized by a time lag. Qualitatively, the "Bird-in-the-Hand" phenomenon was observed, where students prioritize current low costs to avoid economic risks triggered by high time budget pressure. Furthermore, bureaucratic inefficiency was identified as a moderating variable causing investment leakage, thereby reducing the Return on Investment (ROI) of education. Implications: This study recommends the necessity of digitalizing bureaucracy accompanied by radical debureaucratization and the implementation of adaptive subsidy schemes to ensure the sustainability of human capital investment without compromising accessibility.

**Keywords:** Human Capital Theory, Education Financing, Institutional Quality, ROI in Education, Bureaucratic Efficiency.

## 1) INTRODUCTION

The global discourse on education has shifted from viewing education spending as a social service to a key driver of economic growth. In the knowledge economy era, a nation's competitiveness is no longer determined by its natural resources, but by the quality of its human capital. In Indonesia, the constitutional mandate to allocate 20% of the state budget to

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education demonstrates a strong political commitment, but the main challenge lies in the effectiveness of converting this budget into globally competitive graduates.

This study examines whether the increase in education costs manifested through Single Tuition Fees (UKT) and government subsidies has truly transformed into improved education quality or merely reflects administrative inflation. The phenomenon in the field, as found at Makassar State University (UNM), shows a tension between the ambition to maintain institutional quality and the reality of students' financial limitations, which have an impact on accessibility.

Human Capital Theory asserts that every pound allocated to the education system is not a consumption cost, but rather a strategic investment that has a direct correlation with national productivity. Quantitatively, this investment is measured through the effectiveness of **Education Financing**, where global trends show that countries with education budget allocations above 5% of GDP tend to have more stable and inclusive economic growth.

However, a major challenge in Indonesia's **Higher Education Policy**, particularly at institutions such as Makassar State University (UNM), is ensuring that the amount of fees (such as UKT) translates linearly into **Institutional Quality**. This quality should not be merely perceptual, but must be based on quantitative data measured through key performance indicators, such as accreditation scores, international publication ratios, and graduate absorption rates in the job market.

Investment in human capital in higher education is a key determinant of regional economic growth and long-term innovation. However, Indonesia's transition to PTN-BLU status has created new fiscal challenges in which institutions must balance global quality ambitions with guaranteed accessibility for economically vulnerable groups. At Makassar State University (UNM), this dynamic is complicated by the gap between the availability of government assistance and the reality of structural poverty among students. Inequalities in accessibility and administrative bureaucratic barriers in financial management are crucial variables that have the potential to degrade the return on investment in education.

Despite efforts to digitise services, complaints about the rigidity and slowness of bureaucratic procedures, particularly in the UKT appeal mechanism and aid verification, still dominate the student experience. This inefficiency creates high non-monetary transaction costs, which directly threaten the sustainability of studies for students from 3T (Frontier, Outermost, Disadvantaged) regions. Therefore, an in-depth analysis is needed on how these structural barriers

affect the quality of human investment and what innovative strategies can be applied to break the chain of inefficiency.

To address this gap, this study focuses on four main research questions:

1. Fiscal Efficiency Analysis: How effective are the allocation of BOPTN budgets and UNM internal revenues in ensuring the availability of digital learning facilities and technology amid fluctuations in non-tax state revenue?
2. Accessibility and Economic Reality: To what extent can UKT classification policies and assistance mechanisms (KIP-K) mitigate the impact of structural poverty on students, particularly those outside the government assistance quota?
3. Quality and Human Investment: How do students perceive the quality of academic services and facilities as an output of the tuition fees they pay, and how does this contribute to the competitiveness of graduates?
4. Innovative Policy Strategies: What are the biggest structural obstacles to synchronising financing regulations, and how can innovative revenue-driven strategies and Big Data digitalisation be optimised to achieve competitive advantage?

This study departs from the premise that the quality of higher education is not only determined by the amount of financial input, but also by the efficiency of bureaucratic mechanisms in distributing these resources. By comparing the economic reality of students and the quality of services with management policies, this study aims to formulate an inclusive and innovative financing model. The focus on structural barriers in Eastern Indonesia has a significant impact on the global discourse on the economics of education in developing countries.

## **Literature Review**

The theoretical framework of this study is based on the integration of three main perspectives that complement each other in explaining the dynamics of higher education financing. The relationship between these three theories builds a coherent line of thinking: starting from the goal of education as an investment, the challenges of risk perception in financing, to the role of governance as a determinant of quality.

### ***Human Capital Theory***

The evolution of human capital theory in the economic landscape of the 21st century has undergone a fundamental shift, from a mere emphasis on quantitative accumulation (length of

schooling) to the integration of learning outcomes, regional innovative capacity, and economic return efficiency. The theoretical synthesis in this study is built on three main pillars that are interconnected in a contemporary manner.

The accuracy of human capital investment is no longer viewed through the administrative duration of education, but rather through actual learning outcomes. **Angrist et al. (2021)** emphasise that true human capital is a function of the cognitive skills that graduates have truly mastered. The latest global metrics show that a nation's economic growth is determined more by what students 'know and are able to do' than simply by the degrees they hold. In the context of institutions such as the University of Makassar (UNM), this means that the effectiveness of education funding will only be achieved if it can be converted into an increase in cognitive competencies that are competitive at the international level.

Superior cognitive quality will in turn become a key prerequisite for the emergence of sustainable innovation. **Diebolt and Hippe (2022)** in their longitudinal study prove that there is a strong causal relationship between the accumulation of human capital and a region's ability to produce innovation. Human capital creates 'absorptive capacity' that enables a region to absorb new technologies and transform them into economic value. Therefore, investment in higher education is not merely a social service, but an economic strategy to prevent regional stagnation and encourage the transition to a knowledge-based economy.

Complementing the two pillars above, global data updates from **Patrinos (2024)** show that even though the world is facing digital disruption, investment in higher education still provides the highest return on investment compared to other levels, especially in developing countries. However, Patrinos warns that these returns now depend heavily on institutional quality and the relevance of skills to the needs of the modern labour market. Without standardised quality, human capital investment risks falling into a low-quality trap, where large financial expenditures (such as tuition fees) do not correlate with improvements in the economic well-being of graduates.

Overall, the synthesis of these three perspectives forms a coherent line of reasoning: Angrist et al. provide a standard for measuring quality (input/process), Diebolt & Hippe explain its transformative impact on the regional economy (long-term output), and Patrinos validates the economic value of the investment (outcome/ROI).

For this study, this integrated framework serves as the basis for evaluating whether the budgetary policies and institutional quality for the 2020-2025 period have succeeded in creating a

healthy investment cycle. Failure to maintain bureaucratic efficiency and academic quality will not only reduce individual education ROI, but collectively will hamper regional innovation competitiveness in the future.

### ***The Bird-in-the-Hand Perspective in Education Financing***

In the context of the education economy in developing countries, investment choices made by students and parents are often based not only on rational long-term calculations, but also on mitigating short-term financial risks. This phenomenon is explained through a synthesis of the Bird-in-the-Hand perspective, which links three main dimensions: regional policy, the satisfaction of education providers, and the reality of state subsidies.

**Welch and Li (2022)** highlight that countries in Southeast Asia, including Indonesia, are undergoing a major transition from pure public funding to cost-sharing. In this transition, people tend to exhibit risk-averse behaviour. The Bird-in-the-Hand perspective explains that students value ‘the certainty of funds remaining in their pockets today’ (in the form of affordable tuition fees) over abstract promises of educational quality. Regional economic uncertainty makes people prefer domestic liquidity stability over expensive and financially risky educational investments.

This view is reinforced by the findings of **Fahriany and Rahayu (2023)**, who state that student satisfaction in higher education is largely determined by their perception of financial support and affordability. Psychologically and economically, students feel more secure when their current financial burden is low, which in turn increases their loyalty and academic focus. Conversely, increases in education costs even when intended for infrastructure improvements often lower satisfaction levels if the benefits are not immediately apparent. This confirms that in the higher education ecosystem, ‘one pound of subsidy today is worth more than a promise of improved facilities in the future.’

To bridge the gap between university funding needs and the limited purchasing power of the community, the government, through the Ministry of Education, Culture, **Kemendikbudristek (2024)**, has implemented intervention policies such as KIP-Kuliah and dynamic UKT adjustments. This policy is a form of mitigation against the Bird-in-the-Hand effect; by ensuring accessibility and providing direct cash assistance, the state seeks to reduce short-term financial risks for students. This is crucial so that students from vulnerable groups do not stop investing in their human capital due to fears of unbearable costs.

The integration of these three perspectives shows that higher education funding policies at institutions such as Makassar State University (UNM) must be managed very carefully. Referring to **Welch & Li**, universities must be aware of cultural resistance to cost increases. Through the lens of **Fahriany & Rahayu**, cost increases must always be accompanied by improvements in services that are immediately noticeable in order to maintain satisfaction. Finally, by utilising the Ministry of Education, Culture, **Kemendikbudristek** framework, universities must ensure that subsidy mechanisms are targeted appropriately to alleviate students' economic anxieties.

Failure to align these three aspects will result in financing policies being viewed as a burden rather than an investment, which will ultimately drive students away from educational institutions in order to secure their short-term financial liquidity. **The Bird-in-the-Hand Perspective Theory in Education** Financing explains the economic behaviour of students and parents. While Human Capital Theory promises long-term benefits, the Bird-in-the-Hand Theory reveals a psychological-economic tendency whereby people value 'current financial certainty' (such as low tuition fees or direct assistance) over abstract promises of future prosperity. The tension between the desire to invest in high quality and the fear of the risk of current financial burdens creates dynamics in determining pricing policies (UKT) at universities.

### ***Bureaucratic Efficiency and Education Quality***

In the educational economy ecosystem, bureaucratic efficiency acts as a moderating variable that determines the extent to which financial inputs can be converted into quality academic outputs. A synthesis of modern governance perspectives highlights that institutional failure is often not caused by budget constraints, but rather by administrative rigidity that hinders the flow of human capital investment.

**Agasisti and Berbegal-Mirabent (2023)** assert that efficiency in higher education institutions is highly dependent on the governance model adopted. In their comparative study, they found that universities with lean and autonomous bureaucratic structures tend to have higher research and teaching performance. Efficient governance allows for the precise and responsive allocation of resources to academic needs. Conversely, layered and complex bureaucracy creates high transaction costs, which slowly erode the value of investments made by the government and society.

In the domestic context, **Sutono et al. (2024)** provide a critical perspective on the digital transformation process in Indonesian universities. Although many institutions have adopted electronic information systems to support efficiency, their success is often hampered by a bureaucratic culture that remains conventional. Sutono argues that digitisation without ‘de-bureaucratisation’ will only transfer manual complexities into digital systems. This inefficiency has a direct impact on the quality of education, where the productive time of lecturers and students is often taken up with administrative matters rather than human capital development.

The alignment of **Agasisti** and **Sutono's** thinking shows that bureaucratic efficiency is the main driving force behind higher education funding. Referring to Agasisti's framework, institutions such as Makassar State University (UNM) must move towards a governance model that minimises procedural barriers so that budgets can immediately be directed towards quality aspects. Meanwhile, through Sutono's perspective, the ongoing efforts to digitise the bureaucracy must be accompanied by the simplification of workflows (business process re-engineering) so that investments in technology are not wasted. Without efficient bureaucracy, every pound allocated in the education financing scheme will experience ‘functional leakage’. Therefore, transparent and agile governance is an absolute prerequisite to ensure that human capital investment can provide maximum return on investment (ROI) for graduates and national development.

The quality of higher education is not only determined by the size of the budget, but also by policy governance. Based on agency theory, complex bureaucracy often causes deadweight loss in the education budget. Qualitative data shows that administrative complexity often hinders students' access to financial aid, which in turn reduces the quality of their learning experience.

**The Theory of Bureaucratic Efficiency and Educational Quality** serve as a monitoring instrument that bridges the two previous theories. Allocated budgets (investments) and costs paid by the community (financial sacrifices) will only be transformed into tangible institutional quality if managed through an efficient bureaucracy. Bureaucratic inefficiency acts as investment leakage that can degrade human capital value and worsen the community's perception of risk.

Thus, the alignment of these three theories aims to prove that the success of human capital development in higher education requires not only substantial financial capital, but also economic risk mitigation for students and bureaucratic governance transformation to ensure sustainable education quality.

## 2) METHOD

This study employs a mixed-methods research design to explore the dynamics of education funding at Makassar State University (UNM). This design was chosen based on the need to integrate the precision of quantitative budget data with in-depth narratives regarding the structural obstacles faced by stakeholders.

### *Research Approach and Design*

In accordance with the framework developed by Creswell and Baez (2021), this study emphasises the mastery of essential qualitative skills, particularly in conducting empathetic in-depth interviews to explore the economic realities of students and management. This design enables researchers to capture the phenomenon of ‘structural poverty’ and bureaucratic barriers that are not fully reflected in statistical figures alone. The qualitative approach focuses on management representatives (Rectorate and Financial Managers) and student groups (Student Executive Board, 3T regional students, and scholarship recipients) to obtain a holistic perspective.

### *Data Integration (Merging Integration)*

To ensure the validity of the inferences, this study adopted the data integration technique developed by **Guetterman and Fetters (2022)**. The integration was carried out at the discussion stage through a side-by-side comparison between quantitative findings related to BOPTN and PNBPN allocations and qualitative data from the interview results. The integration process aimed to:

- 1) Observing the alignment between the university's vision of accessibility and the reality of the implementation of unit costs (UKT) in the field.
- 2) Validate whether investment in digital infrastructure (LMS and Wi-Fi) is in line with students' perception of service quality.
- 3) Identify policy gaps between central regulations and local fiscal capabilities within the UNM environment.

### *Data Collection and Analysis Procedures*

Qualitative data collection was conducted using in-depth probing techniques to avoid normative responses from informants, in accordance with the technical guidelines for conducting interviews. Primary data from interviews was compared with physical documents such as budget

realisation reports and asset income trend data to achieve credible data triangulation. Data analysis followed an inductive-deductive pattern, in which themes that emerged from the field were linked back to human capital theory and return on investment (ROI) in education to comprehensively answer the research questions.

### 3) RESULTS AND DISCUSSION

#### *The Correlation Between Cost and Quality: A Paradox*

Quantitative analysis of institutional budget reports for the 2020-2025 period shows a significant upward trend in funding allocations for the digital infrastructure and research sectors. Within the framework of **Human Capital Theory**, this increase theoretically represents an effort to accumulate capital with the aim of enhancing the bargaining power of graduates. However, the data indicates a time lag between financial investment and improvements in institutional quality rankings.

Qualitative findings at Makassar State University (UNM) indicate that administrative barriers are not merely technical issues, but systemic obstacles to achieving quality standards. This is in line with the latest research by **Sutono et al. (2024)**, which confirms that digital transformation in Indonesian higher education often encounters resistance due to the rigidity of bureaucratic culture. Although investments in online systems have been made, the expected efficiency is often not achieved because manual procedures are still maintained.

In the context of Education ROI, this inefficiency creates significant opportunity costs for students. As explained by Sutono, when bureaucracy fails to provide fast services, the focus of human capital (students) is diverted from productive academic activities to repetitive administrative tasks. Therefore, the effectiveness of education spending does not only depend on the sophistication of the technology purchased, but on the courage of institutions to undertake radical debureaucratisation to ensure that these financial investments truly contribute to sustainable improvements in institutional quality.

These findings indicate that quality is not automatically guaranteed by a large budget. The success of human capital investment in higher education institutions is highly dependent on the precision of allocation. At Makassar State University (UNM), despite improvements in physical

facilities, the quality of academic output is still often hampered by a high administrative burden, indicating that financial investment has not been fully converted into functional efficiency.

Data analysis shows that the relationship between education costs and quality is not simply linear, but rather an inverted U-curve. Up to a certain point, increased funding does accelerate improvements in infrastructure and research output. However, beyond that point, additional costs tend to be absorbed by bureaucratic expansion and operational inefficiencies. At UNM, student complaints about the difficulty of meeting with officials for administrative matters reflect that increased costs have not been fully matched by service efficiency.

This study found an interesting phenomenon related to students' economic behaviour. Using the **Bird-in-the-Hand Perspective**, it was found that students tend to be resistant to UKT increase policies even though they are promised future quality improvements. For students, 'currently available funds' (in the form of low tuition fees or subsidies) are far more valuable than the promise of 'future benefits' (increased income after graduation), which are considered highly uncertain.

Interview data supports this; respondents stated that the current cost burden creates time budget pressure, forcing them to allocate time to side jobs in order to continue their studies. This creates a contradiction: institutional efforts to improve quality through self-funding risk degrading the quality of the student learning process due to economic pressures. Therefore, financing policies must consider this psychological-economic threshold so as not to trigger dropouts or a decline in academic performance.

Qualitative data analysis reveals a disconnect between the digitalisation policies announced by management and the reality of services at the operational level. This phenomenon has been identified as the Digital Bureaucracy Paradox, whereby the adoption of information technology has not been able to reduce rigid manual procedures. Respondent A, a student, made a critical attribution regarding the efficiency of administrative services after payment of tuition fees:

"We have paid our tuition fees on time, but just signing the KRS (Study Plan Card) or applying for a scholarship can take weeks because the system often malfunctions and the staff still ask for physical documents."

*"Kami sudah bayar UKT tepat waktu, tapi untuk urusan tanda tangan KRS atau pengurusan beasiswa saja bisa memakan waktu berminggu-minggu karena sistem sering error dan petugas tetap minta berkas fisik."*

The interview results reflect high **transaction costs** for students as service users. Theoretically, this delay is a manifestation of administrative bottlenecks that hinder human capital efficiency. The unpreparedness of digital infrastructure, which often experiences system errors, forces students to revert to conventional procedures (physical files), which directly triggers time budget pressure.

This finding reinforces the synthesis of Sutono et al. (2024) regarding barriers to digital transformation in Indonesia, where technology integration is often hampered by the resistance of paper-based bureaucratic culture. This creates a paradox for students: on the one hand, they have fulfilled their financial obligations based on the principle of human capital investment, but on the other hand, institutions fail to provide returns in the form of service efficiency.

Furthermore, this administrative complexity has a latent impact on the quality of education. Students' productive time, which should be allocated to academic activities and self-development, is absorbed by repetitive bureaucratic procedures. From an **educational ROI** perspective, this inefficiency reduces the return on investment by prolonging non-academic barriers that have the potential to degrade students' motivation and focus on learning.

Therefore, simplifying bureaucracy through a truly integrated system is no longer merely a managerial option, but rather an economic necessity to ensure that students' financial investments are not wasted on institutional functional inefficiencies.

### ***Accessibility as a Moderating Variable***

Empirical findings show that high education costs without an accurate subsidy system create 'time budget pressure' for students. Students are forced to take on part-time jobs to cover the shortfall in costs, which significantly reduces their academic focus and mental health. This creates a degradation of human capital before the education process is complete. Therefore, strategies to increase accessibility through KIP-Kuliah must be based on rigorous field verification to ensure that state investment is truly on target.

One crucial finding in this study is the role of **bureaucratic efficiency** as a moderating variable. As explained in the theoretical framework, slow bureaucracy acts as an investment leak. Even though the budget is available, obstacles in the administrative process, such as the complexity of scholarship disbursement or academic service bureaucracy, reduce the real value of the investment.

Data analysis shows that financial accessibility serves as a crucial moderating variable that determines the effectiveness of converting education expenditure into human capital quality. Within the framework of the **Bird-in-the-Hand Theory**, students tend to prioritise current liquidity to ensure the continuity of their studies over uncertain future returns. Qualitative findings confirm that when accessibility is hampered by limited aid quotas, there is a degradation in the quality of the learning process.

This accessibility gap is evident in the disparity between the number of students who need assistance and the availability of government intervention quotas. Based on internal institutional data, there is a significant gap where out of approximately 8,000 students in the low-income category, only 2,100 are accommodated through the KIP-Kuliah scheme. This situation forces students in this ‘assistance gap’ to bear the financial burden independently, which triggers the phenomenon of time budget pressure. As revealed in in-depth interviews:

“For those of us who did not receive scholarship quotas even though our parents only work as daily labourers, the only option is to work part-time until late at night. As a result, our focus in class has decreased dramatically due to physical exhaustion and the mental burden of paying for the next semester's tuition fees.”

*"Bagi kami yang tidak mendapatkan kuota beasiswa meskipun orang tua hanya bekerja sebagai buruh harian, pilihan satu-satunya adalah bekerja paruh waktu hingga larut malam. Dampaknya, fokus kami di kelas menurun drastis karena kelelahan fisik dan beban pikiran untuk membayar UKT semester depan."*

This narrative reflects that high education costs without an accurate risk mitigation system create barriers to human capital accumulation. In line with **Welch and Li (2022)** perspective on the financing transition in Southeast Asia, the inability of institutions to guarantee accessibility causes education investment to be viewed as high-risk speculation for economically vulnerable groups. Students are forced to trade off between study time and work time to maintain their personal solvency. Therefore, the role of accessibility as a moderator is very decisive; without an inclusive subsidy system and precise economic data verification, increasing the budget or institutional facilities will not have an optimal impact on the quality of graduates. Policy reforms at UNM need to be directed towards developing more adaptive internal assistance schemes to close the gap for students who are ‘eligible but not covered,’ in order to ensure that every individual has an equal opportunity to transform their cognitive potential into competitive human capital.

The results of the study indicate a disconnect between the potential returns on education and the reality of students' financial accessibility. When compared with Patrinos' (2024) recent study on Returns to Education in the 21st Century, several crucial points of convergence and anomalies are found that warrant discussion. Patrinos (2024) asserts that investment in higher education in the 21st century globally still provides the most competitive rate of return (private rate of return) compared to other investment instruments. However, findings at UNM reveal that this high potential ROI is hampered by accessibility issues at the entry level. The gap in aid quotas, where only around 2,100 of the 8,000 vulnerable students are covered by KIP-Kuliah, creates a significant investment risk for students. The inability to access this assistance forces students to make a trade-off in terms of time (working while studying), which, according to Patrinos' theory, can degrade the quality of skill acquisition and ultimately reduce individual ROI in the future.

Patrinos emphasised that in the modern era, the ROI of education is highly dependent on institutional quality and the relevance of graduates to the world of work. At UNM, management's efforts to improve international accreditation and graduate relevance are in line with Patrinos' vision. However, structural obstacles such as inefficient bureaucracy and an economic data verification system that is not integrated in real time have the potential to become an 'economic leak'. This bureaucratic inefficiency adds non-monetary costs for students, which indirectly confirms Patrinos' warning that investment in education without good governance support will produce suboptimal returns.

Patrinos' global study suggests the need for innovative financing schemes to maintain ROI sustainability. At the local level, UNM has formulated a strategy to diversify non-UKT revenue through asset and business unit optimisation to reduce dependence on student fees. These innovative measures, including plans to use Big Data for accurate UKT determination, are a form of local adaptation to the global challenges mapped out by Patrinos. The success of this strategy will determine whether UNM can maintain its position as a driving force for human capital in Eastern Indonesia without sacrificing accessibility for vulnerable groups.

This comparison concludes that although, on a macro level, higher education at UNM promises a positive ROI in line with global trends (Patrinos, 2024), on a micro level, this value is threatened by issues of accessibility and bureaucratic inefficiency. The failure to close the assistance gap for 5,900 vulnerable students who are not covered is not only a social problem, but also an economic failure in optimising the potential of national human capital. Therefore, more aggressive

policy interventions in terms of cross-subsidies and bureaucratic digitalisation are imperative to align local realities with global return expectations.

### ***Governance Reform as the Key to Education ROI***

The interviews emphasised that the quality of education would improve if universities simplified their bureaucracy. Digital transformation in administrative services (such as electronic signatures and online appointment systems) could reduce barriers for students, allowing financial resources to be allocated more to teaching and learning than to maintaining a slow bureaucratic structure.

Qualitative data analysis highlights that students often feel ‘trapped’ in an administrative maze that consumes their productive energy. From an **educational ROI** perspective, this inefficiency reduces returns on investment by prolonging study periods and increasing transaction costs for students. Therefore, strengthening the quality of higher education cannot be separated from governance transformation. The digitisation of bureaucracy is not merely a technical modernisation, but an economic necessity to ensure that every pound spent on education truly has an impact on improving human capital competencies.

The integration of these three theories shows that ideal higher education policy must be able to balance three pillars: ambitious human capital accumulation targets, mitigation of short-term financial risks for students (through accurate subsidy schemes), and reduction of bureaucratic inefficiencies. Failure in any of these aspects will render education investment futile or produce only superficial quality.

Theoretically, this study contributes by incorporating the Bird-in-the-Hand financial theory into the economic analysis of education, providing a new perspective on why financing policies often face public resistance in developing countries.

An in-depth analysis of UNM's internal policies shows that financial management efficiency and bureaucracy are determining variables in ensuring a return on investment in education. Based on policy strategy guidelines, UNM management is currently striving to transform from a budget-driven model (dependence on the state budget) to a more independent revenue-driven model. This step is seen as a form of governance reform to ensure that the costs incurred by students (UKT) can be converted into comparable service quality.

In an in-depth interview, management acknowledged structural obstacles in synchronising central regulations with local fiscal realities. However, as an innovative solution, UNM began optimising the management of assets and productive business units to reduce dependence on UKT revenue. An informant from the Rector's Office stated:

"Our long-term vision is to utilise the flexible autonomy of BLU to create alternative sources of income from business units, so that the burden of quality improvement costs does not fall entirely on students. This is a strategy to maintain a high educational ROI for our graduates in Eastern Indonesia."

*"Visi jangka panjang kami adalah memanfaatkan otonomi fleksibilitas BLU untuk menciptakan sumber pendapatan alternatif dari unit bisnis, sehingga beban biaya peningkatan kualitas tidak sepenuhnya bertumpu pada mahasiswa. Ini adalah strategi untuk menjaga ROI pendidikan tetap tinggi bagi lulusan kami di Kawasan Timur Indonesia."*

Theoretically, this effort is in line with the findings of **Agasisti and Berbegal-Mirabent (2023)**, where agile governance is key to institutional efficiency. This reform includes plans to implement Big Data-based Smart Financial Verification to ensure more accurate and objective determination of UKT categories. By minimising errors in subsidy targeting, universities can allocate resources more effectively to improve international accreditation and the relevance of graduates to the world of work.

Furthermore, the management also innovates bureaucracy to ensure that administrative processes, such as UKT appeals or payment deferrals, run efficiently without hindering the smooth running of student studies. Through the optimisation of an integrated management information system, UNM strives to break the rigid bureaucratic chain that has been a major complaint. The success of this governance reform is an absolute prerequisite: if bureaucracy can reduce academic transaction costs, the human capital produced will have higher competitiveness, which directly increases the ROI of education for both individuals and society at large.

### ***Analysis of Bureaucratic Efficiency and Institutional Quality Transmission***

Discussions regarding the quality of higher education cannot be separated from the bureaucratic mechanisms that regulate it. Based on the results of the analysis, it was found that management efficiency is a key variable that determines whether education expenditure (UKT and state subsidies) is actually transformed into improved academic quality or simply evaporates in the complexity of procedures.

Theoretically, referring to **Agasisti and Berbegal-Mirabent (2023)**, universities with high performance are generally supported by agile governance structures. However, the reality on the ground shows that there are structural obstacles in the process of disbursing research budgets and student services. Although administratively the institution has adopted a digital system, the findings of this study confirm the argument of **Sutono et al. (2024)** that digitisation without business process reorganisation only creates a ‘digital bureaucracy’ that remains rigid. This inefficiency creates opportunity costs for lecturers and students, where time that should be allocated for human capital innovation is taken up by repetitive administrative burdens.

The gap between modern governance idealism and bureaucratic practices is not only evident in secondary budget data, but is also sharply confirmed through the subjective perspectives of stakeholders at Makassar State University (UNM). To understand how these administrative barriers actually degrade the value of educational investment, it is necessary to examine the narratives of the direct experiences of students and academic staff. The following are the results of in-depth interviews that reveal how bureaucratic inefficiency is perceived as a financial and psychological burden by students.

#### Field Findings: Service Reality and Student Perceptions (Interview Data)

- 1) **Respondent A (Student):** “We have paid our tuition fees on time, but just signing the course registration form or applying for a scholarship can take weeks because the system often malfunctions and the staff still ask for physical documents.”

Further analysis, based on the results of the interviews above, validates that the ‘functional leakage’ predicted by bureaucratic theory does indeed occur. When students feel that their financial sacrifices (according to the Bird-in-the-Hand perspective) are not rewarded with speed of service (bureaucratic efficiency), their level of institutional satisfaction declines dramatically. This shows that the quality of education in the perception of service users is not only measured by the grandeur of the building, but also by how efficiently the institution values their time and investment.

This study concludes that the effectiveness of human capital investment at Makassar State University (UNM) lies at the intersection of global quality ambitions and local accessibility barriers. Based on a synthesis of the theories of **Angrist et al. (2021)** and **Diebolt & Hippe (2022)**, it was found that the education budget allocated by the institution has been directed towards increasing innovation orientation and learning outcomes quality. However, the potential return on education

investment (ROI) predicted optimistically by Patrinos (2024) is threatened with degradation due to the moderating variable of accessibility, which is not yet optimal.

Field evidence shows that there is a significant ‘assistance gap’, whereby most students from low-income backgrounds are not covered by permanent assistance schemes such as KIP-Kuliah. This situation is exacerbated by bureaucratic inefficiencies and manual administrative procedures that remain dominant despite the adoption of digital systems. As a result, there has been an increase in academic transaction costs that burden students financially and psychologically, which in turn can reduce focus and the quality of human capital accumulation in Eastern Indonesia.

#### **4) CONCLUSION**

This study provides new insights into the dynamics of higher education economics in developing countries by examining the relationship between education expenditure, human capital investment, and institutional quality at Makassar State University (UNM). The findings show that the transformation of education expenditure into competitive human capital does not occur automatically, but is crucially mediated by management efficiency and financial accessibility. Quantitatively, investment in digital infrastructure and academic quality shows a positive correlation with institutional performance, although there is a significant time lag before the impact of such investment is manifested in global learning outcomes.

Qualitatively, this study successfully identified the existence of a digital bureaucracy paradox, whereby the adoption of information technology has not been fully able to reduce rigid manual administrative barriers. This has resulted in high non-monetary transaction costs that must be borne by students. In addition, the Bird-in-the-Hand phenomenon has proven to be the dominant behaviour among vulnerable economics students; they tend to prioritise short-term financial liquidity through low tuition fees in order to avoid economic risk, rather than pursuing high but uncertain future returns on investment.

The originality of this study lies in its revelation that bureaucratic efficiency acts as a moderating variable that determines the success of converting budgets into human capital quality. Without radical debureaucratization and an adaptive subsidy system, increases in education budgets will only result in investment leakage. As a practical contribution, this study emphasises that for PTN-BLU institutions in developing countries, the economic sustainability of education is highly

dependent on fiscal independence through a revenue-driven model that continues to ensure inclusivity for students from disadvantaged regions (3T).

### ***Policy Recommendations***

In an effort to optimise higher education funding in Indonesia, this study formulates the following policy recommendations:

1. Digital Transformation of Bureaucracy for Efficiency in Return on Investment  
Government and university leaders (particularly at UNM) must prioritise the digitisation of integrated academic services (One-Stop Service). The aim is to reduce transaction costs for students so that they can focus their time on academic achievement, thereby maintaining the effectiveness of human capital despite budgetary pressures.
2. Targeted & Real-Time Subsidy Scheme To mitigate the Bird-in-the-Hand effect, UKT determination policies must be based on dynamic family economic data. Universities are advised to develop an independent verification system capable of automatically adjusting costs in the event of economic shocks affecting students' families, thereby providing the 'certainty' needed to prevent students from dropping out.
3. Performance-Based Funding The relevant ministries need to shift the budget allocation pattern from simply fulfilling quotas to funding based on institutional quality achievements (e.g. graduate employment rates and research patents). This will force universities to manage their bureaucracy in a more streamlined and productive manner.
4. Public-Private Partnerships (PPPs) To reduce the cost burden on students, policies should encourage industry involvement in funding applied research at universities. Investment from the private sector will provide a more certain return on investment for graduates, as the curriculum and skills developed will be more aligned with the needs of the global labour market.

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