

2025



Universitas Syiah Kuala

Darussalam – Banda Aceh

REPORT

TRACER STUDY SURVEY RESULTS BACHELOR IN MATHEMATICS STUDY PROGRAM



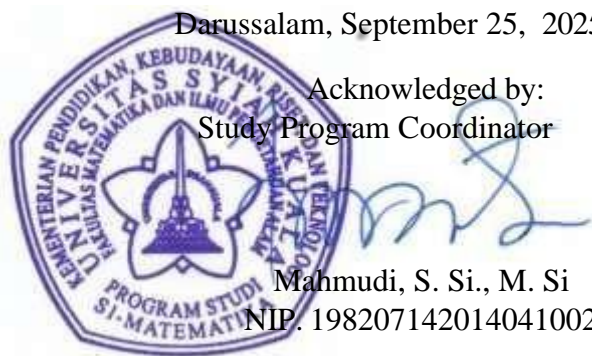
Compiled by :
TPMA Team of Bachelor in Mathematics Study Program

**FACULTY OF MATHEMATICS
AND NATURAL SCIENCES**

APPROVAL PAGE

Report on Tracer Study Survey Results
Study Program: Bachelor in Mathematics
Year: 2024/2025

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Acknowledged by:
Study Program Coordinator

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Table of Contents

Approval Page

Table of Contents

1. Introduction	1
2. Objectives of Monitoring and Evaluation.....	2
3. Data Processing Method	3
4. Monitoring Results of Alumni Data Collection.....	5
5. Future Plans	18
6. Conclusion and Recommendations.....	19

1. Introduction

A Tracer Study is an activity aimed at monitoring and evaluating the conditions and career paths of graduates after completing their higher education. This activity plays an essential role as a performance measurement tool for universities in fulfilling Key Performance Indicators (IKU), particularly those related to the relevance of graduates to workforce needs. Through the implementation of the Tracer Study, information is obtained regarding the success rate of graduates in securing decent employment, the relevance between job fields and the competencies taught during their studies, as well as the level of alumni satisfaction toward the learning process provided by the institution.

For the Bachelor's Degree Program in Mathematics, the implementation of a Tracer Study serves as a strategic effort to evaluate the effectiveness of the teaching and learning process as well as the suitability of the curriculum with current needs and developments of the job market. The data collected from alumni tracking becomes an essential basis for formulating academic policies and curriculum development so that it remains adaptive to advancements in science, technology, and industry demands. In addition, this activity also strengthens relationships among alumni, industry sectors, and educational institutions, opening opportunities for cooperation through internship programs, applied research, and employment opportunities for current students.

The Department of Mathematics, Universitas Syiah Kuala (USK), has produced thousands of graduates up to the year 2025, with approximately 300 active students currently enrolled. This number is expected to continue increasing in the coming years. Therefore, the implementation of the Tracer Study is a strategic step to measure the department's success in producing high-quality, competitive graduates who meet labor market expectations. This activity is also aligned with the department's mission to improve accountable, credible, and transparent governance.

The results of alumni tracking are expected to provide constructive feedback for the Bachelor's Degree Program in Mathematics in its efforts toward continuous improvement, especially in curriculum development, enhancement of learning processes, and provision of supporting educational facilities. The Mathematics Program continues to comply with the Tracer Study standards established by the Career Development Centre (CDC) Universitas Syiah Kuala.

Through this Tracer Study, it is expected that the Bachelor's Degree Program in Mathematics at USK will obtain more accurate and relevant data to support self-evaluation, improvement of academic quality, and strengthening collaboration networks with alumni and stakeholders. Thus, the Tracer Study not only serves as an evaluation instrument of educational outcomes but also as an essential framework in achieving sustainable quality improvements and the vision of the Bachelor's Degree Program in Mathematics, Universitas Syiah Kuala.

2. Objectives of Monitoring and Evaluation

The implementation of the Tracer Study for the Bachelor's Degree Program in Mathematics, Universitas Syiah Kuala, aims to:

1. Obtain updated information regarding graduate conditions, including employment status, waiting time to get their first job, job relevance to competencies acquired during study, and satisfaction level toward academic services received.
2. Assess the relevance of the curriculum and learning process to job market needs, advancements in scientific knowledge, and technological progress, enabling ongoing curriculum adjustments.
3. Provide supporting data for the program's self-evaluation activities, especially for Internal Quality Audit (AMI) and accreditation processes.
4. Build and strengthen an integrated and sustainable alumni database as a means of communication and collaboration among study programs, alumni, and industries.
5. Support the achievement of the Institutional Key Performance Indicators (IKU) of Universitas Syiah Kuala, especially regarding graduate employability and job relevance to academic programs.
6. Serve as a basis for strategic decision-making in curriculum development, improvement of graduate competencies, and enhancement of academic governance and services.

The implementation of the Tracer Study for the Bachelor's Degree Program in Mathematics is expected to provide significant benefits, including:

1. For the Study Program: The tracer results serve as an evaluation tool and feedback mechanism to improve education quality, teaching effectiveness, and curriculum relevance to labor market demands.
2. For the Department and Faculty: Tracer Study data supports internal quality assurance systems and serves as reference material for evaluating performance achievements required for Internal Quality Audit and institutional accreditation.
3. For Universitas Syiah Kuala: The results contribute to improving Key Performance Indicator achievements and strengthen the university's reputation as a higher education institution responsive to industry needs.
4. For Students and Prospective Graduates: The information serves as guidance to prepare for the job market and improve competencies aligned with industry requirements.
5. For Alumni: The activity strengthens ties with their alma mater and opens opportunities for collaboration in academic, research, and career development programs.
6. For Industry Partners and Employers: The results provide insights into the quality, competencies, and characteristics of graduates, supporting recruitment processes and establishment of strategic partnerships.

3. Data Processing Method

Before processing the survey results, alumni data collection and sampling determination were first carried out. The stages of implementing the Tracer Study for the Bachelor's Program in Mathematics include:

1) Data Collection

Data collection was conducted by the Alumni Tracking Team of the Mathematics Department, Universitas Syiah Kuala, using Google Forms. The survey was conducted at the end of 2023, targeting all graduates within three graduation periods (February, May, and August 2023). The team actively monitored the progress of responses and performed follow-ups by contacting alumni who had not yet participated.

2) Survey Sample

The alumni tracing activity used a census method targeting all graduates from various year groups to obtain comprehensive data on alumni conditions, including employment, further study, and societal contributions. The collected data is essential for evaluating curriculum relevance, improving graduate quality, and strengthening alumni networks.

However, the data collection process faced challenges, particularly in reaching alumni who graduated several years earlier. Difficulties included changes in contact information, low alumni engagement, and disrupted communication with the study program. These conditions led to slower tracking and potentially incomplete datasets.

3) Data Processing and Analysis

Survey data were obtained through Google Form spreadsheets with restricted administrative access. The data were compiled using Google Sheets and analyzed through descriptive statistical methods. Only complete responses were included to ensure accuracy. The analysis results were then presented in a report containing statistical findings and relevant recommendations for program development.

4) Data Presentation

The presentation of data in this Tracer Study focuses on the following aspects:

- a. Respondent profile
- b. Study experience
- c. Respondents currently working
- d. Respondents pursuing further studies
- e. Respondents who are entrepreneurs
- f. Respondents who were Bidikmisi scholarship recipients

4. Monitoring Results of Alumni Data Collection

1) General Overview of Graduate Profiles

The tracer study was conducted in three periods in 2023 with a total of 37 respondents: 15 in Period 1, 6 in Period 2, and 16 in Period 3.

Among all respondents, the majority were female (81%), distributed as follows: 13 out of 15 respondents in Period 1, 5 out of 6 in Period 2, and 12 out of 16 in Period 3. This difference aligns with the higher proportion of female students enrolled in the program. Although not normally distributed, the gender representation remains valid for analytical purposes.

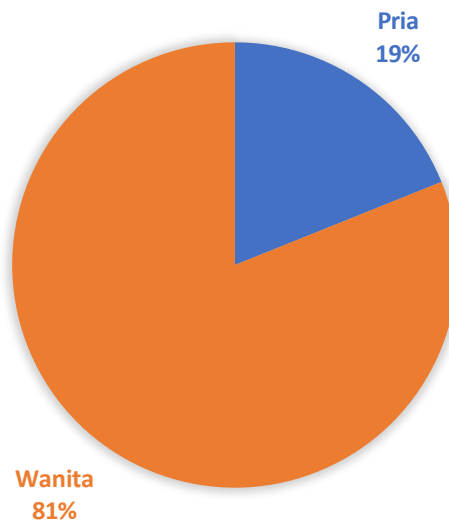


Figure 1. Respondent Distribution by Gender

The average GPA recorded per graduation period demonstrated strong results, with values of 3.20 for Period 1, 3.36 for Period 2, and 3.37 for Period 3 — indicating stable academic performance over time. Most graduates completed their studies within eight to nine semesters, with several finishing in fewer than eight semesters, showing efficient academic progress.

In terms of geographic distribution, most graduates lived in the Province of Aceh (84%), while others resided in North Sumatra (11%), West Java (3%), and Jakarta (2%), indicating alumni mobility for career growth or education.

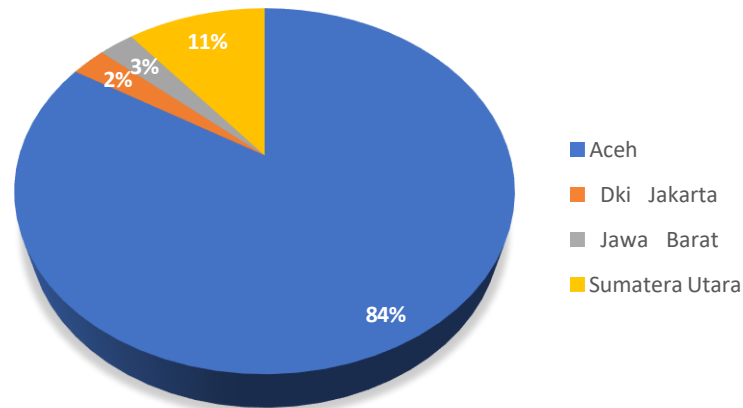


Figure 2. Respondent Residence Locations

Graduates showed diverse post-study activities: 46% had entered the workforce, 22% were actively seeking employment, 13% pursued further studies, and 8% became entrepreneurs. The remaining percentage consisted of graduates currently unable to work due to specific circumstances.

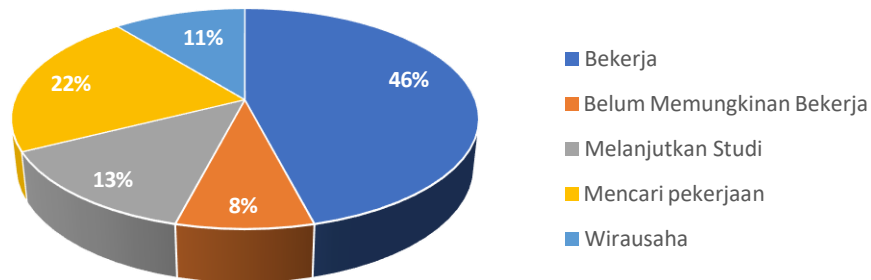


Figure 3. Current Alumni Activity

Some graduates were awaiting recruitment results, while others were preparing to begin employment shortly—reflecting an active transition from academic life to professional pathways.

Graduates expressed positive perceptions regarding the relevance of their study program to their current activities. Most respondents rated the alignment as “Good/High” to “Very Good/Very High,” indicating that the Mathematics curriculum effectively equips students with applicable competencies for further studies and employment.

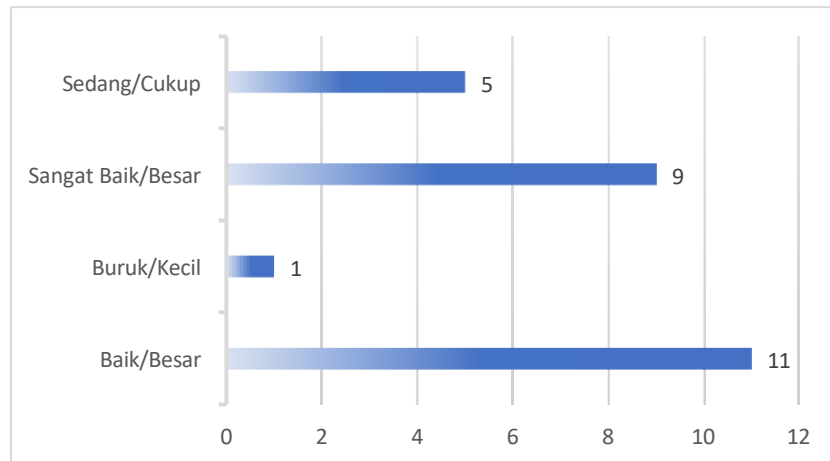


Figure 4. Relevance of Academic Knowledge to Current Activity

From a financial standpoint, most respondents funded their undergraduate studies independently or with family support (65%), while approximately 30% received financial support through the KIP-K/Bidikmisi scholarship. For final project research funding, nearly all graduates relied on family sources.

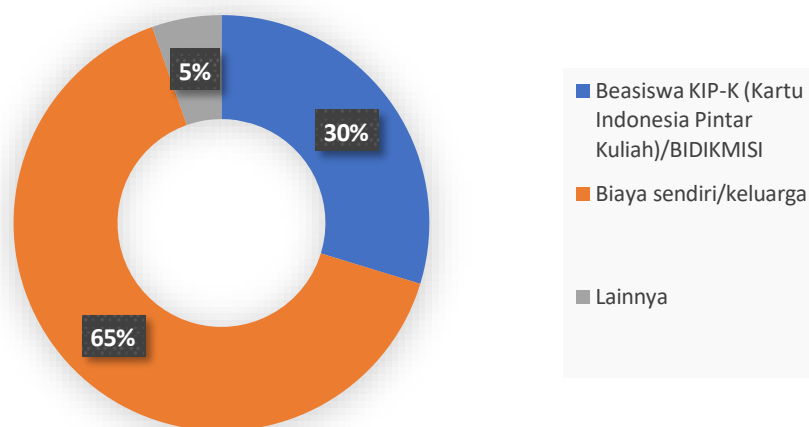


Figure 5. Tuition Funding Sources

Graduates also demonstrated interest in contributing to institutional development. Suggested contributions included academic involvement (speakers, curriculum review), institutional collaboration, and provision of resources such as books or facilities. This willingness indicates strong emotional and professional ties with the institution and presents valuable potential for future academic and strategic development.

2) Experience and Perceptions of Respondents Toward the Bachelor’s Degree Program in Mathematics

Alumni demonstrated a very good level of study efficiency. The majority of graduates (67.57%) successfully completed their studies on time within a duration of 8 to 9 semesters. Additionally, 18.92% of graduates completed their studies earlier, in less than 8 semesters.

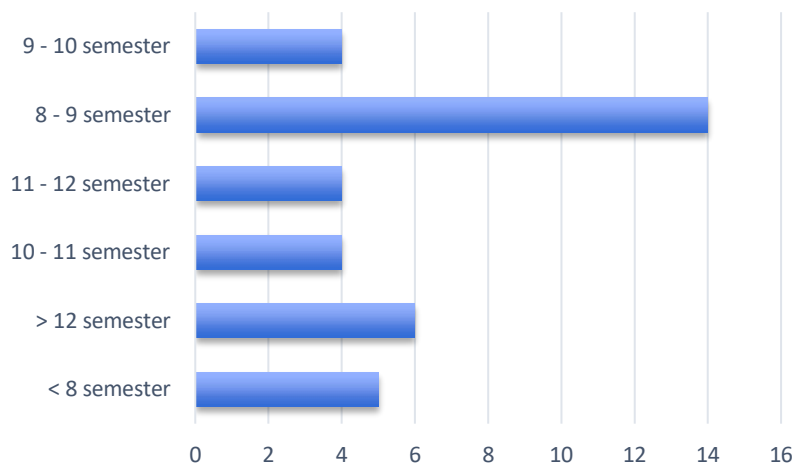


Figure 6. Study Duration

Regarding potential obstacles that may have prolonged study time, most alumni (94.59%) reported that they did not face significant barriers related to financial issues, course repetition, family problems, or health constraints. The most notable challenge identified was thesis preparation, in which 10.81% of alumni acknowledged it as a factor that slightly delayed their graduation. This indicates that the final thesis process remains a crucial phase requiring greater attention and support.

Overall, alumni provided very positive evaluations of various aspects of academic activities. Classroom learning, academic advising, thesis supervision, and interaction with lecturers were rated in the “Good/High” to “Very Good/Very High” categories by more than 97% of respondents. This suggests a high level of satisfaction with core academic services.

From a quality standpoint, learning methods such as lectures, discussions, practicums, and assignments received similarly positive feedback, with the majority of alumni rating them “Good/High” to “Very Good/Very High.” Internship programs were considered very relevant to the field of study, providing adequate competencies and offering exposure to career pathways. All alumni who participated in internships (100%) expressed positive evaluations. The study program was perceived as having adequately prepared graduates for the professional world. Alumni rated the program’s efforts in introducing the workforce environment as “Good/High” (86.49%) and in developing entrepreneurial awareness as “Good/High” (78.38%). In addition, alumni participation in non-academic activities was also high; 83.78% were involved in student organizations, and 70.27% participated in extracurricular activities, both of which contributed to soft skills development.

Facilities supporting the learning process were generally well received. The library, classrooms, and laboratories were rated “Good/High” by most alumni. However, internet connectivity was identified as an area requiring improvement, although still rated “Good/High” by 70.27% of respondents. Other supporting facilities such as worship spaces, sports facilities, and student activity centers were considered adequate and supportive of student needs.

3) Alumni Who Are Employed

The job search process among graduates reflects strong initiative. A total of 71% of graduates began searching for employment prior to graduation, while 29% started after completing their degree. This proactive approach resulted in very positive outcomes, as the majority of graduates (53%) successfully secured their first job within less than three months after graduation. This finding indicates a strong labor market demand for Mathematics graduates.

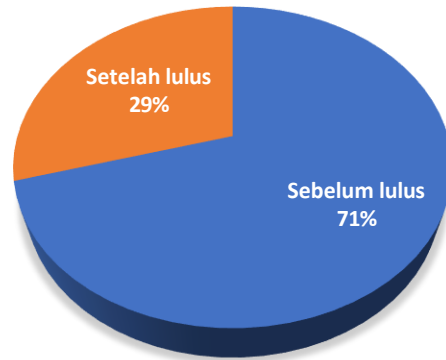


Figure 7. Timeline of Job Searching

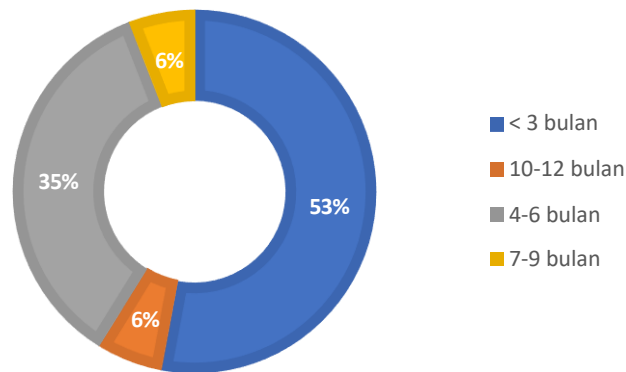


Figure 8. Time Taken to Obtain First Job

During the job search process, graduates utilized a variety of information channels. The most frequently used resources were online platforms (websites, social media, etc.) and personal networks (lecturers, parents, and friends). When securing employment, online media remained the most effective source (59%), followed by networking channels (35%). During the job application process, most graduates (59%) submitted between 1 and 5 job applications, and a similar proportion (59%) received 1 to 2 interview invitations.



Figure 9. Job Search Information Sources

Graduates are distributed across various industry sectors with diverse job characteristics. The majority (76%) are employed full-time, while the remaining 24% work part-time or as freelancers. In terms of employment type, 59% hold contractual positions, 23% are permanent employees, and 12% work without formal employment agreements.

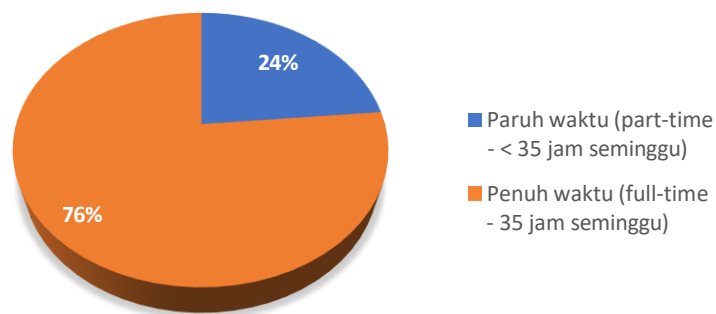


Figure 10. Employment Status

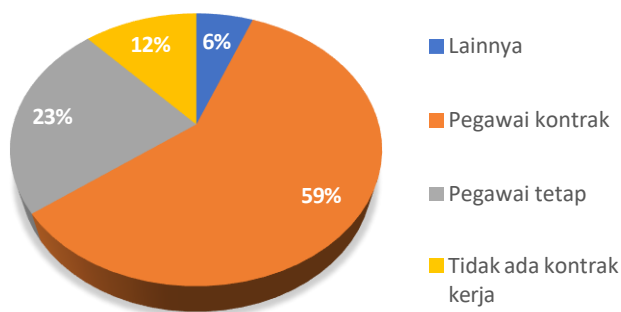


Figure 11. Employment Contract Type

The most common employment sector for graduates is education services (47%), followed by financial services and insurance (17%), along with several other sectors. Alumni are employed in a wide range of institutions including government agencies, state-owned enterprises (BUMN/BUMD), and private companies.

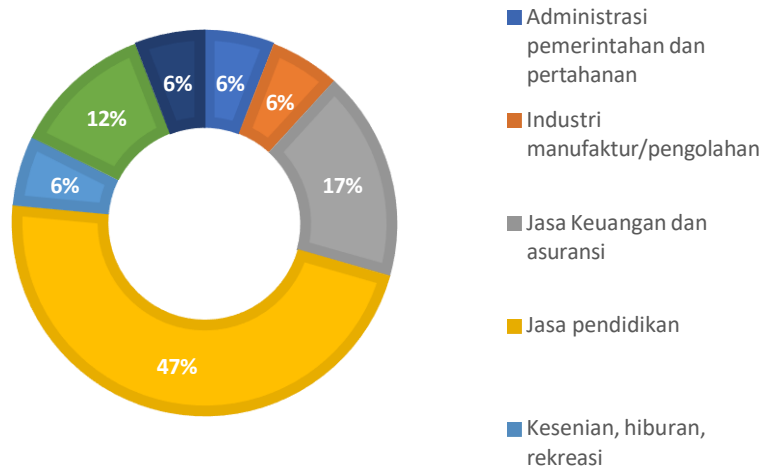


Figure 12. Industry Sector

Initial salary levels among graduates are considered competitive. Most graduates (59%) earned under IDR 2,500,000 in their first job, while 23% reported salaries between IDR 2,500,001 and IDR 5,000,000. Additionally, 18% earned above IDR 5,000,000.

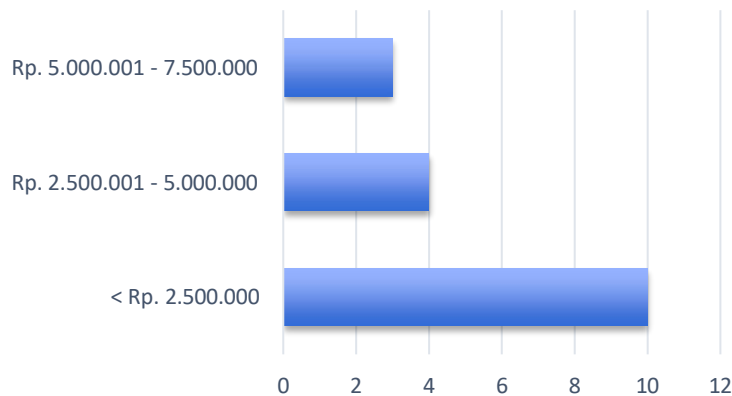


Figure 13. Graduate Salary

When choosing a job, the primary consideration among alumni was alignment with their field of study, followed by salary and benefits. Key factors determining an ideal job included competitive compensation and clear career growth opportunities.

The majority of graduates (65%) chose to work within the Aceh Province, mainly due to the availability of local job opportunities and proximity to family. However, 35% have successfully built careers outside Aceh, particularly in North Sumatra and Jakarta, demonstrating mobility and competitiveness at the national level.

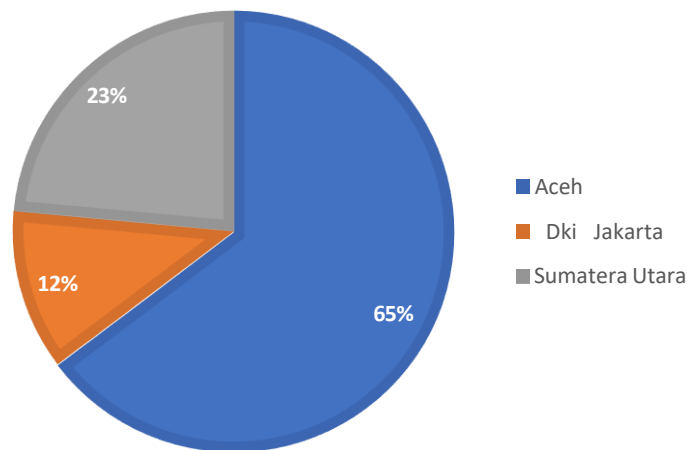


Figure 14. Employment Location

4) Graduates Pursuing Further Studies

The primary motivation driving 100% of graduates to continue their studies is the desire to increase future employment opportunities. This indicates a long-term perspective in which higher educational qualifications are viewed as an important career investment. This decision was also carried out with proper planning, where most graduates (60%) began their advanced studies within 4–6 months after graduation, while 40% started within less than 3 months. After completing their studies, all of them (100%) reported having a clear plan to enter the workforce.

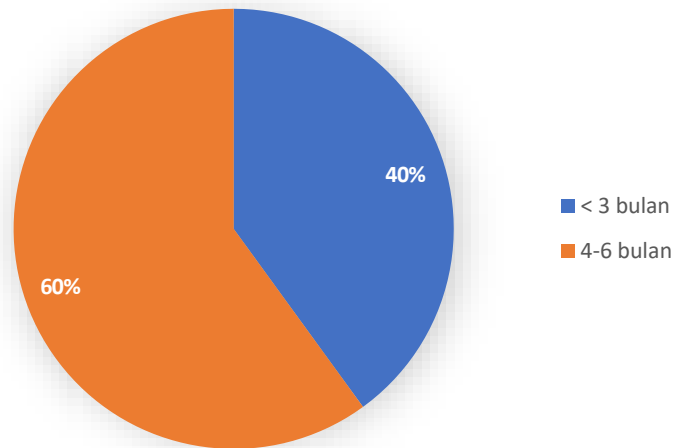


Figure 15. Time to Continue Studies

Graduates pursued various levels of further education. The highest proportion enrolled in Professional/Specialist programs (40%), with the majority taking the Teacher Professional Education (PPG) program. Additionally, postgraduate studies (Master's degree) also represented a significant portion (40%), with the chosen field being a Master of Mathematics. The remaining graduates pursued other relevant levels of study.

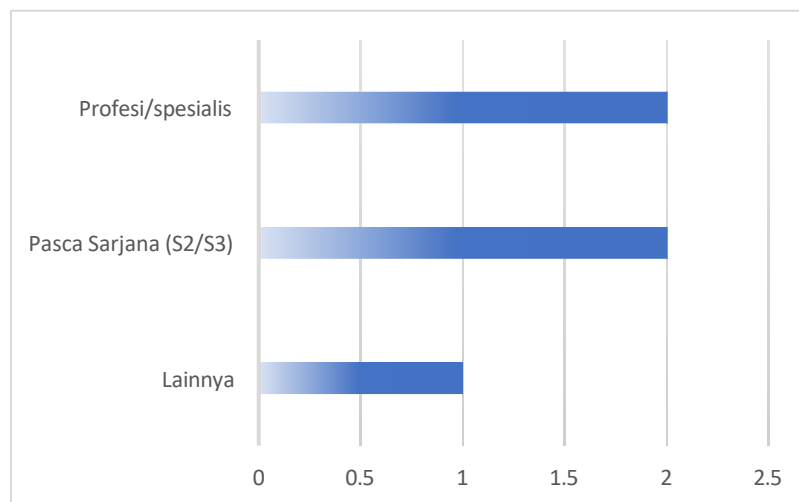


Figure 16. Level of Continued Study

In terms of institution, Universitas Syiah Kuala was the primary choice for 60% of graduates, indicating a high level of trust in the quality of their alma mater. Meanwhile, the remaining 40% chose to continue their studies at private universities in Indonesia.

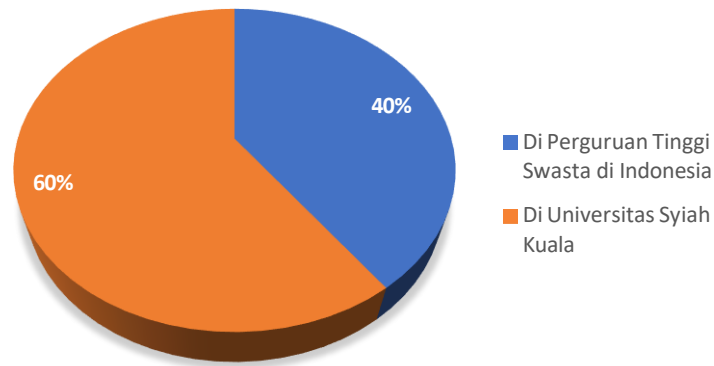


Figure 17. Institution of Further Study

Funding sources for further studies also varied. A total of 60% of graduates successfully received financial assistance through government scholarships, demonstrating their achievement and competitiveness in securing funding opportunities. Meanwhile, 40% financed their studies independently through personal or family support. This diversity in financial sources reflects the determination and various pathways pursued by graduates to achieve their academic goals.



Figure 18. Sources of Funding for Further Studies

5) Entrepreneurial Graduates

Some graduates of the Bachelor of Mathematics Program demonstrated high interest and initiative in pursuing careers in entrepreneurship. Those who entered the entrepreneurial field came from diverse backgrounds. Most of them (75%) had no prior work experience, indicating that entrepreneurship became their primary career pathway after graduation. Most businesses (75%) were initiated after graduation, with timelines ranging from less than 3 months to 9 months post-graduation, while 25% had already started their business even before completing their studies.

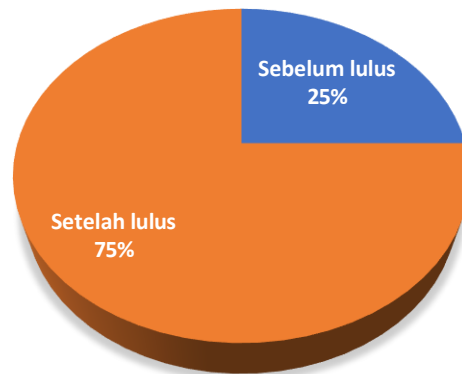


Figure 19. Starting a Business

The motivations behind this career choice vary, including the desire to create job opportunities, continue family businesses, and other personal reasons related to independence. In terms of capital, the main source of funds came from parents or family (75%), while the remaining graduates used alternative funding sources.

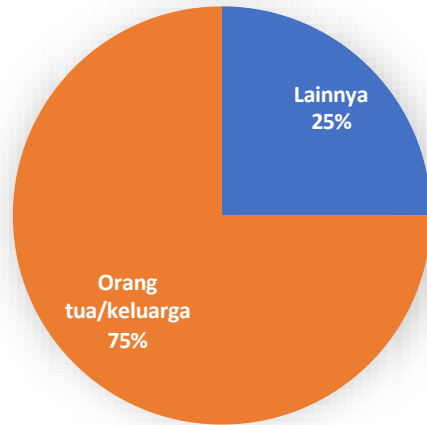


Figure 20. Source of Business Capital

Most businesses operated by graduates fall within the trade sector (75%) and other service sectors. Business ownership is equally divided between personal businesses (50%) and family-run businesses (50%). All of these businesses (100%) have been operating for more than 7 months, indicating a reasonably sustainable business phase.

Financially, the initial investment capital varied, although most were under IDR 25,000,000. The monthly revenue generally fell below IDR 10,000,000, with an average profit margin of 10–20% of the total revenue. This level of income provides a competitive earning opportunity for the entrepreneurs.

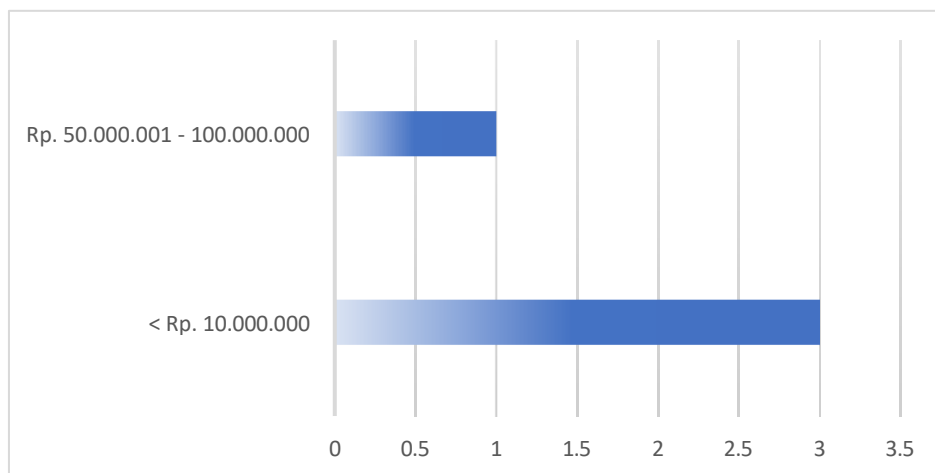


Figure 21. Business Revenue

Most businesses (75%) are licensed establishments registered as sole proprietorships, operating at the local level and not yet legally incorporated. Within their business structure, graduates play key roles. The majority serve as founders (50%), while others hold roles as co-founders or work as freelancers. Interestingly, some graduates have successfully established partnerships with major companies, reflecting the potential growth and credibility of their businesses. All documented businesses are located in Indonesia, with most situated in Aceh Province.

6) Bidikmisi Scholarship Recipient Alumni

Specific data on graduates who were recipients of the Bidikmisi Scholarship cannot yet be analyzed further. There were no respondents from this category who completed the dedicated questionnaire section regarding Bidikmisi alumni.

5. Future Plans

Based on the results of the alumni tracer study analysis, several strategic recommendations can be formulated as feedback for the Bachelor of Mathematics Program to support continuous improvement. First, the study program needs to strengthen the alumni network in a more systematic manner. This effort is aimed not only at increasing respondent participation in future tracer study activities but also at building solid partnerships where alumni can actively contribute as sources of career information, mentors, and facilitators for industry access for students.

Second, structured efforts are needed to increase students' early exposure to the professional world. Programs such as more integrated internships, guest lectures from industry practitioners, and collaborative projects with companies should be intensified. By doing so, prospective graduates will not only gain theoretical knowledge but also a practical understanding of the challenges and dynamics of the professions they may pursue.

Finally, the findings reinforce the importance of improving all competency attributes (both hard skills and soft skills) throughout the academic process. The study program is expected to continuously evaluate and adjust the curriculum to strengthen technical skills relevant to industry developments, while simultaneously integrating soft skill development—such as communication, leadership, and adaptability—into coursework and student activities. The implementation of these three recommendations in a synergistic manner will ensure that graduates of the Mathematics Program become increasingly competent and highly competitive

7. Conclusion and Recommendations

a. Conclusion

Several key points can be concluded from the results of the alumni tracer study:

b. Recommendations

Based on the above conclusions, several recommendations are formulated as follows:

- 1) The Bachelor of Mathematics Program is encouraged to take a more proactive role in managing and strengthening the alumni network. This may be achieved through facilitating regular alumni gatherings, establishing active communication platforms, and involving alumni as partners in academic activities (e.g., guest lecturers, mentors, or providers of job vacancy information) to increase participation and contributions.
- 2) To better prepare students, the program needs to enhance their early exposure to the professional world. This can be accomplished by strengthening structured internship programs, organizing career workshops, and inviting more industry practitioners to share insights in the classroom.
- 3) Although the program's relevance to the field is already high, regular curriculum evaluation remains necessary. There should be stronger emphasis on integrating soft skill development into coursework and further strengthening technical competencies identified by alumni as areas requiring improvement, such as foreign language proficiency and negotiation skills.
- 4) To obtain more comprehensive data in future studies, optimization of the tracer study data collection process is required. Increased outreach prior to graduation and the utilization of a stronger alumni network are expected to improve response rates, including from scholarship recipient groups, ensuring analysis results more accurately represent the entire graduate population.