

Opportunities and Ways to Improve Tertiary Education Funding of Mongolia

^[1]EnkhchimegDolgorsuren, ^[2]GandolgorDorjgotov, ^[3]BvjlkhamMakhbal

^[1]Associate Professor, lecturer, (Ph.D), ^[2]Lecturer, ^[3]Lecturer,

(Department of Economics and Management, National Defense University of Mongolia)

^[1]enkhchimeg4494@gmail.com, ^[2]dgan2143@gmail.com, ^[3]hi.buje99@gmail.com,

Abstract: The education sector in any country is evolved depending on the rapid development of society, economy, and information technology. Even the legal basis of education is composed well, capital issue, which is the main dynamic of everything, hasn't been succeeded by the institutes and universities; the government hasn't given any directions. The condition to develop the science will be composed by making the way to raise capital. Education funding should be viewed systematically. This is because 68% -70% of the expenditures financed from the state budget are spent on recurrent expenditures. It is understood that the money should be spent on curricula, teachers' salaries, and social issues, not on recurrent expenditures. Establishing an Endowment fund is one way to solve this issue. There is a way to introduce an endowment fund to our country by doing research about the experience of institutions and universities of foreign countries localizing it.

Key words: education, endowment fund, university, service of education.

I. Introduction

Tertiary education is the sector that is most sensitive to socio-economic and market changes. Looking at how countries have financed their education systems, they have often invested more in primary education. In countries with low levels of development and income, the demand for highly educated and skilled workers is relatively low. However, as the economy grows faster, the demand for knowledgeable and skilled labor in the country increases dramatically. Not only primary and secondary education, but also any profession, technical or higher education is needed. This phenomenon is now very clearly observed in our country. As a result, low-, middle-, and high-income countries are spending more on vocational education, tertiary education, and research.

Mongolia's long-term development policy, Vision 2050, aims to increase equity, efficiency and effectiveness in the education sector. Reports from UNESCO and other research organizations also highlight the importance of funding to improve the quality and access to education. Expenditures on our education sector account for 5% of GDP and

15.3% of state budget expenditures, at the same level as in high-income countries. 46% of total expenditures in the education sector are spent on general education, 23% on preschool, 9% on tertiary education, 4% on TVEC, and 18% on sector management. Therefore, higher education funding plays an important role in improving the quality and access to education, so further increase the financial independence of tertiary education institutions, increase research and innovation activities, university-industry partnerships, foreign and domestic cooperation, projects and programs is required.

The purpose of this study is to determine the process and trends of higher education financing in Mongolia and its key indicators. In order to achieve the research objectives proposed the following objectives. This includes:

1. Current situation of funding of educational sector of Mongolia;
2. Governmental policies about tertiary education and their implementations;

3. Investigate the possibility of diversifying university funding sources;
4. Identify opportunities and ways to increase funding for higher education.

Increasing funding for the higher education sector and supporting it through investment policies will undoubtedly have a significant impact on improving the quality and access to higher education while increasing its social role and efficiency, accelerating economic development based on national values and knowledge.

II. Methodology

The research method used document research, analysis, comparison and summarization. The forecast of the share of education expenditures in the state budget and GDP was calculated by econometric analysis.

III. Literature review

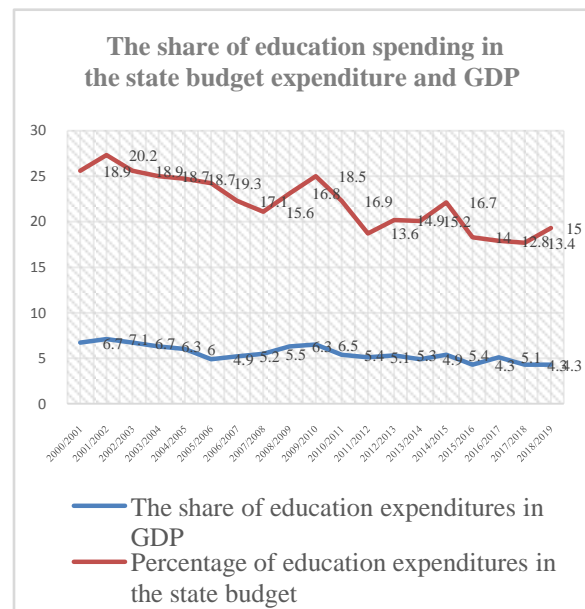
3.1. Current situation of educational sector funding of Mongolia

The number of operating universities and colleges decreased two times from 183 in the 2004/2005 academic year to 95 in the 2019/2020 academic year. Of the 95 tertiary education institutions, 36.8 percent are universities, 52.6 percent are institutions, 7.4 percent are colleges, and 3.2 percent are foreign affiliates. The majority of all educational institutions are non-state owned schools. Compared to the 2001/2002 academic year, non-state owned schools increased by 4.7 percentage points, while state owned schools decreased by 3.9 percentage points. 76.6 percent of universities and colleges are accredited for the 2018-2019 academic year. Although the accreditation process was delayed in 2015-2017 due to the need to reform the legal and regulations of the Education Accreditation Office, 45 programs

were accredited in 2018, 47 in 2019, and 45 in 2020¹.

In the 2001-2002 academic year, there were 90.6 thousand students in universities and colleges, and in the 2019-2020 academic year, it increased by 1.6 times compared to 10 years ago to 148.5 thousand, but decreased by 5.8% compared to the previous year. In terms of education level, in the 2019-2020 academic year, 80.3% of all students are studying for a bachelor's degree (119,203), 17.3% for a master's degree (25,773), and 2.3% for a doctorate (3,392). 146.0 thousand (92.6%) of university and collegestudents study in Ulaanbaatar and 11.6 thousand (7.4%) in rural areas. Assuming that the growth rate of undergraduate students in the 18-24 age group is stable based on historical averages using the updated population projections, the number of undergraduate students in 2020 is likely to increase by 64% in 2045.

Resource: www.1212.mn

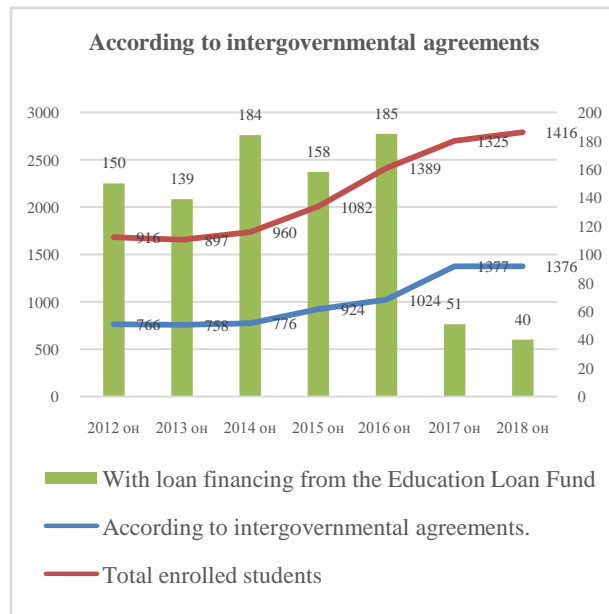


According to intergovernmental agreements, as 1,376 students who study abroad in 2018 by the country they study: 37.1% in Russia, 26% in China, 14.5%

¹Statistic of MCES, (Oct. 2020), UB.

in Hungary, 5.5% in Turkey and 4.2% in Japan. 1.2% -2.9% were studying in India, Poland, Vietnam and Ukraine. Today, 959 people from 34 foreign countries are studying, of which 380 (39.6%) have a bachelor's degree (including Mongolian language training), 363 (37.8%) 216 (22.5%) are enrolled in master's programs.

Foreign students, masters' and doctoral students are studying at 38 tertiary education institutions, 11 of which are state-owned and 27 of which are privately owned. There are 681 students from China, 54 from Russia and 65 from the Republic of Korea, which is 83.4 percent of all foreign students.



Resource: www.1212.mn

Education in Mongolia is, firstly, large and sparsely populated, secondly, due to the long cold winter months, and high heating costs, and thirdly, because the sector itself is labor-intensive, it is more expensive than other sectors. In Mongolia, the principle of school funding is based on the use of funding formulas (based on the number of students and geographical location), operating costs (school renovations), current funding (teacher

retirement costs), and sometimes demand-based financing. The average annual tuition fee for a bachelor's degree is 2,149.8 thousand MNT for a state-owned school and 2,316.8 thousand MNT for a private school for the 2019-2020 academic year. Compared to the previous school year, tuition fees at public schools increased by 5.7% and at private schools by 4.6%.

Statistics show that tuition costs are increased more than the number of universities, which is related to other macroeconomic inflation and exchange rates. 85.9% of education expenditures came from households and 14.1% from other sources in 2000². Today, 81% are financed from households and 19% from other sources. Here in the labor market, students work part-time to earn tuition.

3.2. Results

The purpose of this study is to determine the trend of key indicators of higher education financing through exponential dynamic analysis. The assessment of future aspects about the percentage of education expenditures in the state budget and in GDP. Here, the forecast of the share of education expenditures in the state budget and GDP is calculated based on statistics for 2001-2019.

Transformed exponential trend model:

$$y_t = \alpha * \exp^{\beta t} \quad y_t = \exp^{\alpha + \beta t}$$

$$\ln y_t = \ln(\alpha) + \beta * t$$

$$\ln(y_t) = \alpha + \beta * t$$

²Research about economic and social development of Mongolia,(2000)UB.

Equation is a liner model I'm estimate using the least-squares method, with $\log(Y_i)$ as the dependent variable and X_i as the independent variable. This result in equation. Forms of exponential trend hypothesis equations:

$$\ln(y_t) = 20.303 - 0.021x$$

$$\log(\widehat{Y}_{20}) = 20.303 - 0.021 * 20 = 19.883$$

$$\log(\widehat{Y}_{21}) = 20.303 - 0.021 * 21 = 19.883$$

$$\log(\widehat{Y}_{22}) = 20.303 - 0.021 * 22 = 19.841$$

$$\log(\widehat{Y}_{23}) = 20.303 - 0.021 * 23 = 19.820$$

$$\log(\widehat{Y}_{24}) = 20.303 - 0.021 * 24 = 19.799$$

$$\ln(y_{t\%}) = 6.8795 - 0.023x$$

$$\log(\widehat{Y}_{20}) = 6.8795 - 0.023 * 20 = 6.4195$$

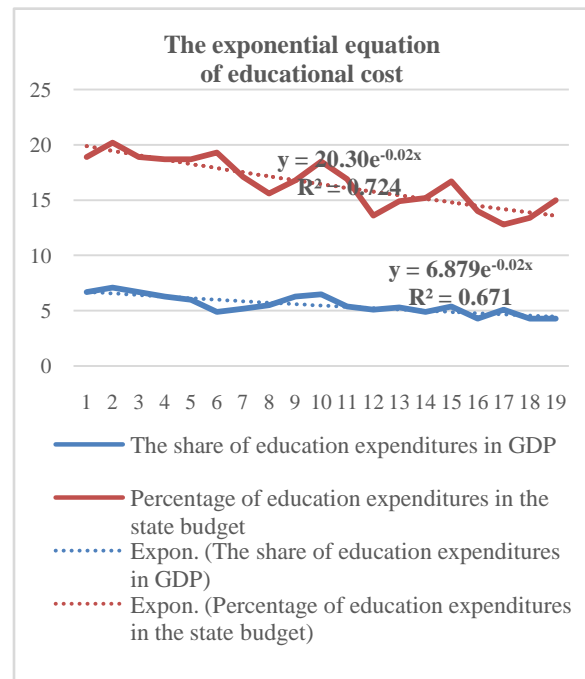
$$\log(\widehat{Y}_{21}) = 6.8795 - 0.023 * 21 = 6.3965$$

$$\log(\widehat{Y}_{22}) = 6.8795 - 0.023 * 22 = 6.3735$$

$$\log(\widehat{Y}_{23}) = 6.8795 - 0.023 * 23 = 6.3505$$

$$\log(\widehat{Y}_{24}) = 6.8795 - 0.023 * 24 = 6.3275$$

Let us consider all the criteria for the confidence of the equation in the same way as for linear dynamic analysis and derive its graphical results. The equation can be used for dynamic forecasting, as there are sufficient criteria for the determination of the coefficient of determination, the equation, and its parameters. The calculation was performed on Data Analysis.



This analysis shows that the share of education expenditures in the state budget and GDP cannot be reduced from 19.8% and 6.3% in the future.

IV. State policies on tertiary education and their implementations

Based on the Law on Tertiary Education Financing and Student Social Security (2011), the National Program for the Development of Results-Based Education System (2018), and the National Program for the Development of Research-Based Universities (2018) government policies and activities are underway.

Not only the government is funding very little for tertiary education, but it also over-regulating. For example, the number of students to be admitted each year and the level of tuition fees are set, permission is granted to open and close curricula, and principals are fired and appointed directly. This reduces the incentive to pursue a visionary, long-term sustainable policy for the development of the university, and makes the

private sector and businesses unsure of financial support for universities.

Theoretically, there are only a few key government interventions in education:

1. Developing education development policy,
2. Funding
3. Setting standards for all levels of education,
4. Monitoring the implementation of the standard through independent accreditation organizations,
5. Conducting a baseline study on how to ensure access, quality and equity in education;
6. Negotiating and cooperating with international organizations on any issue of public education.

There are many bitter experiences in the world and in Asia where the reputation of the world's largest universities has declined due to the government's institutional regulation of the world's largest universities. For example, India's Institutes of Technology is a prestigious university that competes with the Massachusetts Institute of Technology, enrolling only 4,000 students a year out of 250,000 applicants, and graduates from all over the world. Due to government policies that involved the university's governance and management, such as ethnicity-based admissions in addition to exam scores, and the employment of professors living only in India, the large, well-known university soon ran out of good professors and teachers. As the result the university is no longer in the top 200. As a similar policy has been implemented at the University of Malaysia, where the best students of the country used to study, best students of the country started studying at the National University of Singapore, which ranks 12th in the world and 1st in Asia, in neighboring Singapore and not in Malaysia.

Since Mongolia's transition to a market economy, the state budget and fiscal policy has been reformed three times, from 1990 to 2000, from 2000 to 2012, and from 2013 to the present. Since 2010, especially in the education sector, recurrent expenditures have been budgeted on an input-based basis, while investment expenditures have been budgeted on a program-based basis since 2013. Funding for state-owned higher education institutions consists of tuition fees, state budget funds, loans, research and development project financing, business income, and donations from business entities, organizations, and individuals established in accordance with regulations approved by the relevant state central administrative. Since Mongolia's transition to a market economy, the state budget and fiscal policy has been reformed three times, from 1990 to 2000, from 2000 to 2012, and from 2013 to the present. Since 2010, especially in the education sector, recurrent expenditures have been budgeted on an input-based basis, while investment expenditures have been budgeted on a program-based basis since 2013. Funding for state-owned higher education institutions consists of tuition fees, state budget funds, loans, research and development project financing, business income, and donations from business entities, organizations, and individuals established in accordance with regulations approved by the relevant state central administrative.

Currently, public universities in Mongolia finance 70% of their total cost with tuition fees. Salaries of teachers and staff, social insurance, library enrichment, computer and laboratory costs, landscaping, foreign relations in higher education, teacher

development, and small-scale research are all funded by student fees. As a result, public universities do not have good research professors, foreign skillful professors are not invited to semesters to teach well in English, not all students have access to the latest textbooks, electronic libraries, high-speed computers and equipment. They aren't able to do experiment in laboratories with sample materials, lose, learn, know, and practice every day. Therefore, they are likely to be rejected in the labor market during the Fourth Industrial Revolution.

In the 2018-2019 academic year, MNT 99.9 billion was spent on domestic students studying for tertiary education, MNT 0.9 billion on foreign students studying in Mongolia, and MNT 25.7 billion on Mongolian students studying abroad.

Increasing the share of the education sector in the state budget expenditures to 20% -22%, planning the financing to be equal to 3% -5% of the GDP, and training specialists who can be sold in the labor market are the demand for tertiary education in the industrial fourth revolution. We believe that the financing of higher education can be decided not only by the state, but also through public-private partnerships.

Today, our tertiary education institutions are beginning to contribute to the development of research-based universities and results-based education systems through the introduction of quality management systems. In particular, a comprehensive integrated education service which introduces standard-based quality control policies and planning; ensures teacher and student development and social security; improves the training content, methodology and learning environment based on the needs of employers and the research obtained from them in line with the new demands in the tertiary education sector and new changes in all sectors of society; is underway to change

the assessment methodology and continuously monitor the results and ensure quality assurance. However, it is clear that the quality of education will ultimately depend on the amount of funding in the implementation of the results-based education system from 2018 onwards. Investment is very important to improve the quality of higher education, and the government needs to address this issue in its budget.

V. Discussions: Making the funding of universities multi-sided

These reforms, which have reduced funding for higher education as a result of economic reforms in developing and developed countries, are aimed at increasing funding from sources other than tuition fees. The proportion of undergraduate students in the world's top 10 universities has declined, with the proportion of master's and doctoral students accounting for more than 50 percent. Our country also needs to focus on increasing the number of master's and doctoral students in the future.

There are many ways to raise funds for universities, including the establishment of an endowment fund, voucher systems, scholarships, loans, business income, and some costs are paid by government. Although Mongolian universities have not established an endowment fund yet, it is a viable option in a situation where thousands of graduates, individuals and businesses are essentially unable to maintain and increase their income beyond savings.

The following four types of endowment funds can be established for universities in developed

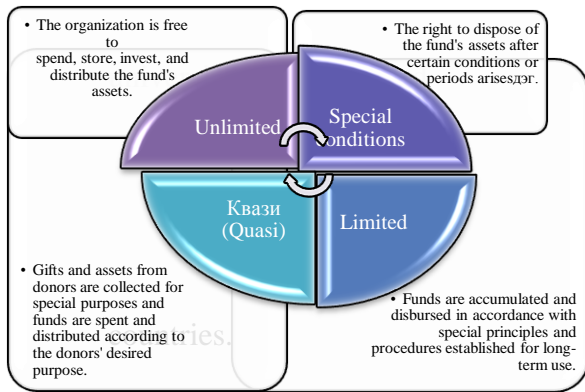


Figure 1. Types of Endowment fund

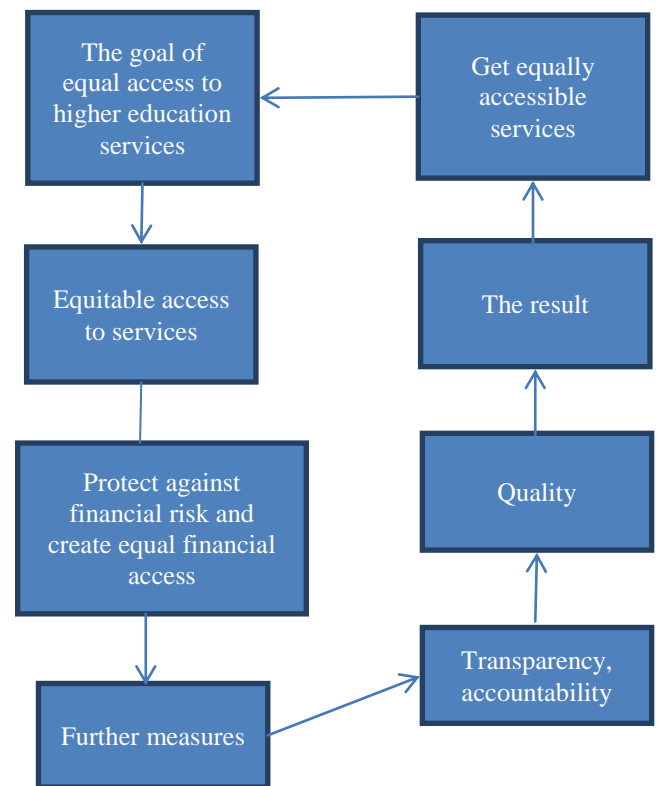
Of these four types, it is possible to use the “unlimited” form of Endowment. Because of the current state of development of the Mongolian stock market and the lack of experience in opening and using the Endowment Fund, it is important to pursue a flexible policy for the first time. However, choosing the “Unlimited” form of the Endowment Fund does not create the right to spend the fund's assets arbitrarily, and in foreign countries only 5-6 percent is spent annually on the organization's activities. It is important to take the following steps to raise funds for the endowment fund. These include:

- To organize the first donor meeting based on the University Alumni Association and conduct a survey of potential donors;
- To launch a special website explaining donor fund rules, objectives and financial plans to donors, and a question and answer section;
- To sell endowment ideas to foreign and domestic donors;
- To demonstrate to donors the benefits of long-term investment, and demonstrate that the school can be a reliable financial partner and increase its assets;
- To introduce to the endowment fund, distribution of printed materials, and marketing activities.

In establishing an endowment fund, the university may rely on its own innovation and technology center, or may choose to establish a new unit.

VI. Conclusion: Opportunities and methods to increase the tertiary education funding

Today, the first step is to improve students' participation in education and to enable them to evaluate and express their views by making the implementation of government policies more transparent by reporting on the implementation of the program in line with education budget spending. This is reflected in the implementation of a national program to implement a results-based education system. This is explained by the following scheme.



Scheme 1. Tertiary education service and funding

The quality of tertiary education is a problem not only for Mongolia, but for all

developing countries around the world. How are countries addressing this issue? First, it governance issues are solved independently, and the university board, not the Ministry of Education, makes decisions on all issues. Many methods are used, such as hiring strong, well-researched teachers, providing adequate solutions to their salaries and social security issues, and not hiring graduates as teachers. Education funding should be viewed systematically. This is because 68% -70% of the expenditures financed from the state budget are spent on recurrent expenditures. It is understood that the money should be spent on curricula, teachers' salaries, and social issues, not on recurrent expenditures. Good funding is needed to improve the quality of higher education. First, the government needs to increase funding for tertiary education and basic research. Second, if funding cannot be significantly increased, 28% -40% should be funded annually, depending on the cost of the school's programs and laboratories, rather than a small portion of the recurrent costs of public universities. The government needs to reduce its involvement in the management of state-owned universities, tuition fees, student enrollment, and program permits. This is a key principle that the government applies to state-owned universities in all countries, whether funded or not.

Although the legal framework for education is well established, universities and colleges have not been successful in addressing the issue of funding, which means the driving force behind any action, and the government has not identified ways to address this yet. Once the ways to raise capital are identified, the conditions will be created for the development of science in its true sense.

One way to address this is to establish an endowment fund to raise funds for the school. There is an opportunity to study the experience of foreign universities in

establishing endowment funds and adapt them to local conditions. In order to establish an endowment fund, it is important to nurture donors and individuals, develop credible rules and regulations, and develop detailed financial estimates of how donations and gifts will grow in the future and how they will benefit them. It is fully feasible in the following ways:

1. Regularly conduct basic and applied research in the field of education, create a research database and improve the management system for evidence-based policy, development planning, monitoring and evaluation;
2. Pursue a flexible tuition discount policy to encourage university students;
3. Establish a new source of university funding or endowment fund to ensure the future stability of the university, reduce government pressure, create academic freedom, and increase the quality and competitiveness of Mongolian universities and bring them closer to the international level;
4. Adopt a law on investment in higher education;
5. The share of education expenditures in the state budget and GDP should not be reduced from 19.8% and 6.3%;
6. Tertiary education funding needs to be increased by 5% -7%.

REFERENCES

- [1] Statistic of MCES, (Oct. 2020), UB.
- [2] Research about the economic and social development of Mongolia, (2000), UB.
- [3] Caridad Arajuho, Katie Nesmif "World Education Financing in Mongolia" (2012), World Bank Assessment.
- [4] Munkhkhand.J. "Opportunities to ensure sustainable development of higher education institutions through the implementation of a quality management

- system”, Ph.D. in Management, (2018), UB.
- [5] Education Quality Assessment, Quarterly Journal. (2010), UB.
- [6] National Council for Education Accreditation. Probability of education in the United States. UB. (2012), and use (p14-20, p32-41).
- [7] Ministry of Education, Culture and Science. Education quality reform policy 2012-2016.
- [8] Draft budget of Mongolia, (2020), UB.
- [9] National Statistical Office. Analysis of the state of basic indicators of higher education and factors influencing it. (2019), UB.
- [10] Andrea Chiarini. Effects of ISO 9001 certification on Academic Processes. (2015), A First Exploratory Research from Italy.
- [11] John Daniel. (2011)., The Impact of New Business Models for Higher Education on Student Financing, Bellagio Conference Centre.
- [12] Apprenticeships as a route to higher education. The Veterinary record. (2011:169:458)
- [13] Deming WE. Out of the crisis quality productivity and competitive position