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Article

Financing Higher Education: Insights from Global Practices

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Abstract: The financing of higher education has undergone significant transformation globally, shifting from predominantly public funding to diversified sources including private contributions and endowment funds. Countries such as the USA, UK, Canada, and Australia have established models combining public and extrabudgetary resources, influencing developing nations like Uzbekistan and Kazakhstan. Despite growing interest in financing reforms, limited comparative studies exist on the structural composition and strategic integration of endowment funds and extrabudgetary mechanisms in Central Asian contexts. This study aims to analyze international best practices in higher education financing, with a focus on endowment fund structures, budget allocation models, and the applicability of these frameworks in Uzbekistan. The research reveals that countries with strong endowment systems (e.g., Harvard, Yale, Stanford) leverage alumni donations and investment returns to cover up to 35% of their budgets. In comparison, Uzbekistan is transitioning toward financial autonomy and increased engagement with international donors, introducing dual education models and entrepreneurial finance mechanisms. The novelty of the study lies in its cross-country comparative perspective, highlighting the diversification of funding mechanisms, and proposing structured endowment strategies for Uzbekistan's higher education sector. The findings underscore the strategic role of endowment funds in sustaining university innovation, quality, and autonomy. Policymakers in Uzbekistan and similar economies can benefit from adopting legal and institutional frameworks that facilitate endowment growth and financial independence in public universities.

Keywords: Education, Financial Resources, Extrabudgetary Money, Investments, Individual Expenses, Endowment Fund, Expenditures

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1. Introduction

The acquisition of funds and finance in any domain of human activity remains crucial, as it directly impacts the development of the respective sector, the efficiency of the endeavour, and the competitiveness of the outcomes in the market[1].

Nevertheless, despite the interest in the issue at hand, numerous questions persist, particularly since it pertains to the inherently "flexible" domain of education, which is characterised by ongoing transformations necessitated by the demand for integration into the global educational landscape[2].

An endowment is a sum of money or property bestowed upon an individual, organisation, or institution for a specific purpose.

The bulk of endowments aim to maintain the principal amount while utilising investment returns for philanthropic purposes. This indicates that the Endowment will evolve over time, providing a sustainable stream of revenue for its intended purpose. An endowment is typically structured as a trust, a private foundation, or a public charity. Trusts and private entities are typically established by wealthy individuals or families seeking to regulate the utilisation of their finances. Trusts and private institutions can have highly specific objectives, such as financing medical research or supporting a certain university. Conversely, open charities are frequently established by groups of individuals who seek to consolidate their resources to support a cause they are passionate about[3].

Literature Review

Historically, higher education has been primarily funded by public resources, particularly in nations that regard it as a public good. The Nordic countries, including Sweden, Norway, and Finland, have established systems in which higher education is predominantly tuition-free and significantly subsidised by the government, demonstrating robust welfare commitments and objectives of social justice. In contrast, nations such as the United States and the United Kingdom have adopted market-oriented strategies, wherein students substantially finance their education through tuition fees, frequently augmented by student loan systems[4].

A crucial aspect of global higher education financing is the involvement of international organisations and development aid. The World Bank, UNESCO, and regional development banks have financed several higher education reform programs, especially in Sub-Saharan Africa, Central Asia, and South Asia. These initiatives frequently seek to enhance governance frameworks, implement quality assurance mechanisms, and foster financial sustainability. The World Bank's engagement in nations such as Uzbekistan, Vietnam, and Ethiopia exemplifies the growing significance of international financial collaboration in the higher education domain[5].

In Uzbekistan, the "Modernising Higher Education Project", jointly funded by the World Bank, facilitates curricular reform, digital transformation, and the cultivation of skills pertinent to the labour market. In a manner akin to the reforms in Kazakhstan and Russia, Uzbekistan is progressively implementing cost-sharing mechanisms, testing institutional financial autonomy, and exploring dual education models to engage businesses in co-financing student education.

Notwithstanding these worldwide tendencies, the research underscores the significance of context-specific remedies. A universal strategy for financing higher education applicable across many socio-economic and political contexts does not exist. Policy formulation must consider local circumstances, encompassing labour market dynamics, administrative capabilities, cultural values, and public perceptions of schooling[6].

2. Materials and Methods

In recent years, Uzbekistan has rapidly embraced the credit module system and self-financing from other nations for its higher education framework. In Germany, education is financed by the government at three tiers: national, regional, and municipal. The primary source of state funding for higher education is the federal budget. It excludes government allocations for national research and other targeted projects, and the government budget share does not exceed 7%.

In Germany, universities have limited opportunities to acquire extra-budgetary income, such as tuition fees or financial support from European nations, due to the government-mandated free education for students. Approved applications will be granted a 15% reimbursement on contract fees for five distinct specialities[7].

Numerous private corporations, organisations, and foundations, including Mercedes-Benz, Lloyd's Enterprise, the German Research Society, and the Volkswagen Foundation, offer substantial funding for various research initiatives. Consequently, supplementary funding from external sources is essential for the progression of research in universities, especially in the fields of technological and scientific sciences.

Enhancing subsidies for higher education in Germany is among the most pressing areas of comprehensive educational reform. Initially, reduce funding from the state budget, modify the strategy for allocating and distributing resources, enhance their quality, investigate robust motivational factors for their advancement, as the majority of funding for higher education institutions is contingent upon the quality of their educational programs[8].

The finance component of the educational system in Russia currently necessitates regular improvement. These criteria necessitate the enhancement of the legislative framework and the integration of elements focused on the outcomes of funding activities. This method will enable the integration of governmental finance guarantees to some extent, while simultaneously fostering the accountability and responsibility of educational institutions for the outcomes of their actions[9].

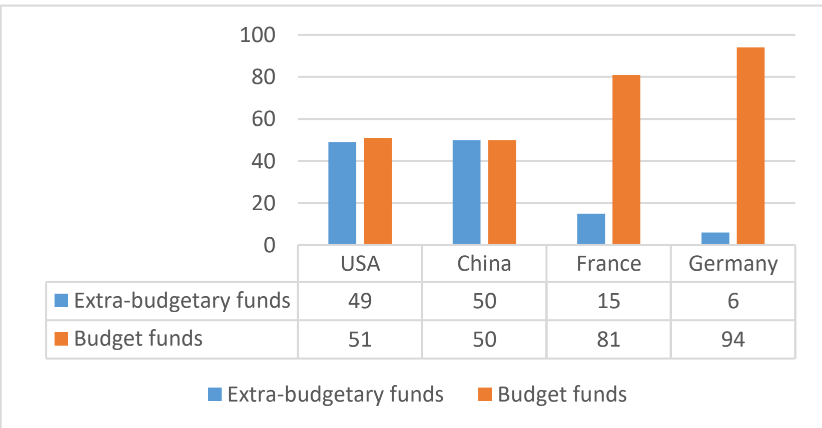
It is clear that nations increasingly recognise that the enhancement of Kazakhstan's higher education system occurs alongside the increase of public and private expenditures, the establishment of social stability, and the development of opportunities to advance citizens' well-being. Not merely financial success, but rather an enhancement of the individual's level of living.

In the 2021-2022 period, higher education expenditures in Kazakhstan constituted 53.1% of total educational consumption, while in Ukraine it was 38%, in Azerbaijan 23.8%, and in Tajikistan 24.1%. Among developed nations, the share of higher education spending was 54.5% in Norway, 50.2% in the USA, and 34.9% in Japan. In conclusion, there is a tendency to increase governmental investment in education, particularly higher education, both absolutely and relatively[10].

Simultaneously, an increasing number of private enterprises in Kazakhstan are engaging in the financial support of higher education institutions, so augmenting their fiscal contributions to universities and colleges. Government expenditure include both expenses and investment initiatives. In nations such as Chile, Malaysia, Brazil, Japan, Georgia, and the Philippines, over 81% of institutions are not government-operated. In nations including Hungary, Romania, the USA, Portugal, and Poland, over 54% of institutions are not government-operated. In nations like Japan, Chile, the USA, and Uruguay, approximately 73% of universities are privately owned. The proportion of funding for higher education institutions in foreign nations from both budgetary and non-budgetary sources was examined[11].

Table 1 illustrates that in the USA, 51% of higher education institutions' activities are funded by budgetary resources and 49% by non-budgetary sources. In China, this distribution is 50%. In France, 15% is derived from budget funds while 85% comes from non-budgetary sources. In Germany, 4% is funded by budgetary resources and 96% by non-budgetary financial resources.

Table 1. Proportion of support for higher education institutions in foreign nations from budgetary and non-budgetary sources, expressed as a %.



The number of higher educational institutions, including private businesses, is increasing in European countries. This indicates that they are acquiring additional funding from many origins, not solely from the government. In Austria, from 2001 to 2022, the number of higher education institutions rose from 44 to 77, representing a 75% increase. In Germany in 2022, there were 352 higher education institutions, an increase of 57% since 2000. The Global University Network refers to advanced socio-economic development as the knowledge society. Numerous countries globally lack adequate financial resources to provide such education[12].

In certain nations, the funding of higher education institutions is entirely government-controlled, while in others, it incorporates non-governmental sources. The ratio of state and non-state sources in financing is computed in an unforeseen manner. Canada's engagement is also significant, as from 1972, in accordance with the federal education savings plan, the funds were derived from a special registry, and the income was accrued over time and exempted from specific taxes.

Canada may be a sovereign state consisting of ten regions and three territories. The Canadian framework delineates responsibilities for political matters between federal and provincial governments, while the responsibility for education is assigned to municipalities. There exists a national education service, with each territory housing a distinct agency responsible for post-secondary education. Consequently, in Canada, the governance of the higher education system and the associated powers of open arrangement are predominantly delegated to the local level. Figure 1 below illustrates the sources of funding for higher education institutions in Canada

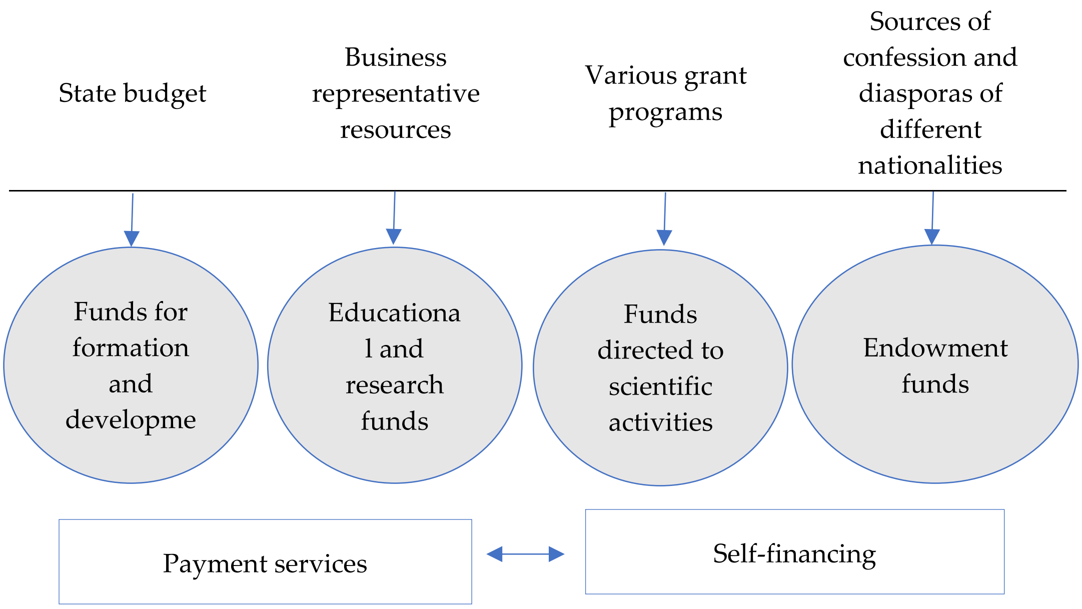


Figure 1. Financing Sources for Higher Education in Canada.

The Canadian education system's preferences include: expanding access to higher education for all segments of the population and alleviating inflationary pressure on the economy by diverting cash from circulation. The primary difficulty facing higher education is that the global demand for it is increasing more rapidly than countries can allocate sufficient financial resources for its adequate development[13].

Funding for the majority of European higher education institutions is geographically distributed. Higher education in France is ostensibly free; yet, students are responsible for all associated costs, including those related to the educational process. This include the use of hotel accommodations, amenities, and meals.

The collaboration among the USA, Great Britain, and Australia serves as a beneficial example of a toll-sharing system that can enhance educational opportunities. Typically achieved through the acquisition of advanced gear and the enhancement of the university's infrastructure, alongside the engagement of talented students, including the establishment of a unique scholarship fund.

The implementation of this financing scheme will reduce budgetary funds and, thus, require contributions from the students themselves. This financing model provides the following advantages:

1) Facilitates opportunities for joint financing of higher education institutions;
2) Enhances competition among higher education institutions;
3) Expands the array of various paid services in higher education institutions;
4) Increases budgetary allocations and the number of applicants for admission;
5) Educates regarding the transfer of acquired funds;
6) Enables oversight of the pricing of state higher education services;
7) Allows for the reduction of budgetary expenditures by attracting extrabudgetary resources[14].

In Kazakhstan, governmental education grants are utilised in a manner analogous to the funding mechanisms for education in the Russian Federation. The state instructional allowance is determined based on the standard cost of educating a student in a specific discipline within the state. Attracting additional funding for higher education institutions can be achieved by integrating practical professional experience into the students' curriculum and subsequently through the job network. Prospective employers intrigued by graduate students seek to establish payment and exchange agreements for personal expenses associated with their education or convenience. In certain circumstances, such relationships are established based on formal contracts.

They are predominantly received by poorer nations. Russia refrained from seeking such advancements for an extended period; however, the situation subsequently altered. Specifically, in January 1998, he backed an agreement between the Russian government and the International Bank for Reconstruction and Development for a loan to finance an innovative project for the advancement of education.

The proposal outlines a loan arrangement for Russia totalling 71 million dollars, of which 39.5 million is allocated to Russian universities. This includes 7.2 million dollars, which must be repaid by the higher education institutions, and 8 million designated for financing revolving credit for the distribution of educational materials, contingent upon reimbursement from government budgets to these institutions. It is allocated that 23.5 million dollars would be utilised for the creation of reserves and for the distribution of textbooks to public educational institutions.

Uzbekistan has a similar system of education finance. The government of Uzbekistan yearly provides state-funded grants via a competitive examination procedure, prioritising disciplines of national significance, including science, engineering, and teacher training. The quantity of tuition-free placements is established by the Cabinet of Ministers, contingent upon sectoral workforce requirements and fiscal capability. Similar to Kazakhstan and Russia, students who do not receive state scholarships must independently cover tuition fees or secure private sponsorship[15].

Since 2017, Uzbekistan has implemented significant adjustments in higher education financing as part of its comprehensive modernisation initiative. The reforms have encompassed augmented public investment in education, salary enhancements for academic personnel, and initiatives aimed at conferring financial autonomy to higher education institutions. Since 2019, certain institutions have been authorised to oversee their finances, establish tuition rates, and participate in entrepreneurial ventures.

To get foreign finance, Uzbekistan has collaborated with international organisations, including the World Bank, the Asian Development Bank, and the European Union, similar to Russia's 1998 deal with the International Bank for Reconstruction and Development (IBRD). These collaborations have facilitated initiatives designed to improve the quality and relevance of higher education, establish contemporary governance frameworks, and reinforce university-industry connections.

Furthermore, the incorporation of employers into the educational framework has accelerated in Uzbekistan via the implementation of dual education models and official partnerships with private sector enterprises. These relationships frequently encompass internships, applied research partnerships, and, in certain instances, partial or whole financing of students' tuition expenses in return for future employment obligations. Although at a nascent phase relative to more advanced models in Europe and Russia, these initiatives signify a strategic shift towards the diversification of funding in higher education.

Uzbekistan's developing strategy for higher education finance has structural parallels with Kazakhstan and the Russian Federation, particularly with state-sponsored grants, institutional autonomy, and international financial collaboration. The Uzbek model is still in a transitional stage, striving to reconcile public accountability with market-oriented reforms and international best practices in the industry.

3. Results

Financial support for higher education institutions from endowment funds is becoming progressively significant. In 2021, Russia will establish 12 new funds, joining over 420 existing funds in the country, predominantly within higher education institutions, with total assets exceeding 800 million roubles. In the future, educational funds will increase, and efforts to establish them have commenced. A strategic plan for the fund's development is being formulated.

Harvard University possesses the largest Endowment Fund globally. It comprises 13,000 distinct components that have existed for 350 years. Since 1974, Harvard University Management Company has managed the financial assets accumulated by Harvard University. 33% of resources are allocated to hedge funds, which yield a profit of 5.5%. 26% of the investments are allocated to stocks, yielding a return of 5.9%, while 20% of the investments are allocated directly, yielding a return of 16%.

In 2022, the Yale University Endowment Fund is projected to constitute 35% of the total university budget, with 45% of this funding derived from alumni contributions. 30% of resources are allocated to low-risk investments, comprising cash and bonds; 21.5% is designated for initiating new enterprises, and 16.5% is utilised for debt repayment.

In 2022, Stanford University's Endowment Fund constituted 23 percent of the university's total budget, while alumni contributions represented 39 percent. Of the total, 1.3 billion dollars in budgetary reserves, or 4.9% of overall expenditures, were allocated for the acquisition of university resources, while 21.8% of total costs were designated for various scholarships, and financial incentives for faculty and students were directed towards advancement. The fund yielded a benefit of 20% on worldwide market offers and 20% on properties.

The Endowment Fund of Princeton University constituted 23% of the institution's total budget. In 2022, this funding will contribute 1.4 billion to assist with university expenses. 18% of the funds are allocated for student support, indicating that 100% is directed towards educational expenses, housing, and complimentary meals for children from low-income families earning less than $65,000 annually, as well as free meals for students. Furthermore, 24.5% received Pella grants, 61% obtained financial help, and 82% of graduating students completed their university education without debt.

Consequently, it is appropriate to establish and develop a funding initiative in higher education institutions in Uzbekistan at present. The support funds will consist of extensive non-governmental non-profit organisations, joint-stock enterprises, budgetary contributions from ordinary individuals, educational investments by generations, and donations from alumni.

Currently, over 800 endowment funds operate in the USA, collectively amassing billions of dollars in cash. The table below presents the metrics of the Table 2 indicates that the Endowment funds have proven their sufficiency in history. This fund is greatly appreciated, since it enables universities in the USA and Europe to develop coherent ideas, maintain global governance, attract esteemed scholars for teaching, and provide them with competitive compensation. A progressive university cannot be enticing if it solely relies on public support. Therefore, it is essential to address the development of alternative financing sources inside Kazakhstan's higher education institutions, starting with the inclusion of financial reserves. The financial resources enable the accumulation of monetary assets and promote sustainable innovative development of universities in the long term. world's foremost endowment funds.

Table 2. Data regarding the endowment funds of the largest universities globally in 2022.

Higher education institutions with a large Endowment fund	Budget of the university	The share of the Endowment fund in the total budget	Alumni contributions directed to the endowment fund
Harvard	25,6	33%	47%
Yale	16,3	35%	45%
Stanford	12,6	23%	39%
Princeton	12,6	23%	64%

The most renowned endowment fund is the Nobel Foundation, established at the end of the 19th century. John D. Rockefeller is regarded as the foremost benefactor of global universities in terms of financial contributions.

Table 3 illustrates the critical role of private wealth in advancing higher education and scientific research through endowment funds. It reveals that influential investors across various industries—including technology, metallurgy, and manufacturing—have made substantial contributions ranging from $454 million to $1.8 billion. Most donations are directed toward institutions with a strong focus on medical research, cancer prevention, and technological advancement. This trend underscores the growing collaboration between private capital and academia to tackle pressing global issues such as health and innovation. The diversity of donors, both geographically and professionally, reflects a global commitment to supporting sustainable academic excellence and research development through philanthropic endowments.

Table 3. Founders of Prominent Endowment Funds.

No	Major investor	Amount of contribution	Name of university
1.	Terri Gou Founder of Foxconn company	454 mln. $	Oncology Hospital at National Taiwan University

2.	Penni Nayt	500 mln. $	Oregon Health and Science University Cancer Research Center
3.	Mrs Xelen Diller Spouse of Senforda Diller	500 mln. $	University of California
4.	Anil Agarval, Indian metallurgical magnate	3,5 mlrd. $	Odisha Institute of Scientific Investigation
5.	Betty Moore, spouse of Intel founder Gordon Moore	600 mln. $	California technological Institute
6.	Florens Irving	600 mln. $	Columbia University Herbert Church. To prevent cancer
7.	Maykl Blumberg	1,8 mlrd $	Johns Xopkins University

Endowment funds should be established at higher education institutions with a formal legal framework designated for certain purposes, namely investing. This support is intended to operate based on long-term criteria that ensure resource allocation and high productivity.

4. Discussion

The Endowment Fund is a specialised fund that supports education, research, and various services of higher education institutions, with resources mostly derived from financial assets. An endowment fund can be established by organisations and individuals with a shared purpose. In essence, fund initiators frequently serve as donors themselves and influence this support. Contributions allocated to this fund are non-reimbursable. If the founders of this support are prominent persons, the funds are consistently allocated openly by the higher education institutions. The Endowment Fund is typically established for an extended duration. If the Endowment Fund is terminated, the interest accrued will be allocated to the higher education institution that provided the funding; the principal will not be returned to the donor and will not be distributed.

The allocation of budgetary assets from the Endowment fund is contingent upon the procedures established by the higher education institution that created it. When its capital is influenced by a singular extensive investor, the aims of allocating financial resources are delineated within the Endowment Agreement. It is also possible to publish scholarly articles in high-ranking journals funded by this sponsorship. The funding for this support, with the business partners of higher education institutions, will be aligned with activities that elevate these institutions to greater heights. Annual reports on the allocation of reserves for this funding and their proposed utilisation are prepared each fiscal year. An endowment fund is a rare type of capital investment that aims to preserve capital, generate income, and minimise risk. An endowment fund encompasses not only the expenses associated with capital investment but also the expenditures incurred for personnel, including office costs, utilities, site development and maintenance, and accounting services.

5. Conclusion

Prominent international institutions, leveraging their extensive expertise, also engage in the commercialisation of financial resources outside academic pursuits. These resources are derived from recognised government grants and the commercialisation of educational services. Furthermore, the commercialisation of scientific research, esteemed academic prestige, and finance through designated funds. The contribution of Endowment funds to enhancing their material and technical resources via the establishment of a capital investment budget is substantial.

In conclusion, the global experiences and comparative practices examined in this study underscore the growing importance of diversified and sustainable financing mechanisms for higher education institutions. Countries such as the USA, UK, Germany, Canada, and Australia have adopted a mix of budgetary, extrabudgetary, and endowment-based strategies to fund their institutions, with endowment funds playing a critical role in supporting long-term development, infrastructure, scholarships, and research initiatives. Uzbekistan, like Kazakhstan and Russia, is transitioning toward a more autonomous and market-oriented financing model that includes increased public investment, institutional autonomy, and active engagement with international donors and private enterprises. The establishment of endowment funds in Uzbekistan is especially timely and necessary, as it reflects a shift toward creating permanent financial foundations that support educational excellence, innovation, and equitable access. These funds not only provide financial resilience but also foster stronger university-industry linkages and alumni engagement.

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