IMPLICATIONS OF HIGHER EDUCATION SYSTEM FOR HUMAN CAPITAL IN MONGOLIA THROUGH THE LENS OF CLARK'S TRIANGLE

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Abstract

Employing Clark's Triangle as a theoretical framework, this conceptual paper explores the interaction between the state, market and higher education institutions in Mongolian tertiary education system. More specifically, it is a historical analysis, which examines the implications of the interaction between these three forces for the country's human capital, in particular for public and private returns to investments in higher education. The 1990-political and economic transition brought the logic of the free liberal market into Mongolian higher education system that was fully subsidized and centrally planned during the socialist period prior to 1990. The empirical evidence shows that the post-socialist massive expansion and commercialization trends increase access to tertiary education, but it has implications for transforming the institutional landscapes rather than increasing the socioeconomic mobility for individuals. The study utilized primary data retrieved from statistical databases and secondary data retrieved from graduate tracer surveys.

Кларкийн Гурвалжин онолд үндэслэн энэхүү өгүүлэл нь Монголын дээд боловсролын систем дэхь төр, зах зээл, дээд боловсролын байгууллагуудын хоорондын харилцааг харуулахыг зорив. Тодруулбал либерал буюу чөлөөт зах зээлийн эдийн засгийн үед эдгээр гурван хүчний (төр, зах зээл, их дээд сургуулиуд) хоорондын харилцааны улмаас Монгол улсын хүний капитал нөөц хийгээд хувь хүний өөрийн дээд боловсролдоо оруулах хөрөнгө оруулалт болон төрийн зүгээс дээд боловсролд хийж буй хөрөнгө оруулалтаас гарах үр нөлөөг судалсан юм. Социализмын үед Монгол улсын дээд боловсрол нь улсаас бүрэн санхүүжилттэй, төвлөрсөн төлөвлөгөөт системд тулгуурлаж байсан ба харин 1990 оны улс төр, эдийн засгийн шилжилт нь либерал зах зээлийн логикийн зарчмийг Монголын дээд боловсролын системд бий болгосон юм. Ингэснээр Монголын дээд боловсрол нь асар хурдацтай тэлж арилжааны чиг хандлагатай болсоноор барахгүй дээд боловсрол эзэмших хүртээмжийг ихээхэн нэмэгдүүлжээ. Харин энэхүү тэлэлт нь зөвхөн дээд боловсролын байгууллагуудын тогтолцоонд өөрчлөлт оруулсанаас биш дээд боловсрол эзэмшсэн хувь хүний нийгэм эдийн засгийн хөдөлгөөнийг тэр бүр нэмэгдүүлж чадахгүй байна. Уг судалгаанд статистикийн мэдээллийн сан, баримтат эх сурвалжаас авсан анхдагч өгөгдөл болон төгсөгчдийн хөдөлмөр эрхлэлтийн судалгааны дүгнэлт мэдээллийг ашиглав.

Key words: higher education, human capital, returns to higher education; Clark's Triangle
JEL Code: I230, J240, I260, I280

Introduction

As higher education shapes countries' social, cultural and economic facets, the study of higher education policies possesses many philosophical and theoretical attributes as a scholarly field. This study explores the interaction between state, market and higher education institutions in Mongolian tertiary education system based on Clark's Triangle as a conceptual framework. More specifically, the study examines the implications of the interaction between these three forces for the country's human capital. The 1990-political and economic transition brought the logic of the neoliberal market into Mongolian higher education system that was fully subsidized and centrally planned during the socialist period prior to 1990. The empirical evidence shows that the post-socialist massive expansion and commercialization trends have significantly increased the access to higher education in the country, but it had implications for transforming the institutional stratifications rather than increasing the socioeconomic mobility for individuals. The study utilized both primary and secondary data analysis. The former used primary data retrieved from various sources including statistical bulletins prepared by the National Statistical Office of Mongolia and electronic open access depositories from the UNESCO, World Bank and Ministry of Education and Science of Mongolia (MES). For secondary data analysis, two graduate tracer surveys were reviewed. The two graduate surveys included *"Graduate Tracer Survey for 2018-2019 Academic Year"* conducted by the Mongolian National University in 2020 and *"Graduate Employment Tracer Study-2019"* undertaken by the Ministry of Labor and Social Welfare.

Conceptual framework

Our conceptual framework centres on Burton Clark's triangle of coordination as a paradigm for describing Mongolian higher education system in the post-socialist period and its interaction with three major forces — state, market and academic institutions (Clark, 1983). Clark's triangle is used here as a means for organizing the empirical evidence and identifying the dominant force that led to a certain shape of higher education system in the country. The resultant shape of the triangle identifies the resource asymmetries and power dynamics affecting the Mongolian higher education system. When describing the complex system of tertiary education, Clark identifies the three dominant forms of forces situated within a two-dimensional space of a triangle (Figure 1).

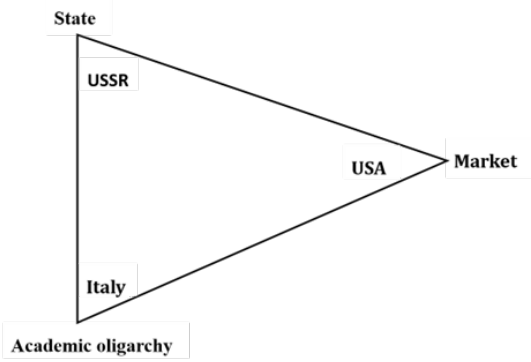

Figure 1: Clark's triangle

Clark refers to these three forces as part of a separate system that has certain dynamics of its own. The location of any society within the space of the triangle represents different degrees of these three elements. According to Clark, the process of coordinating higher education system is complex in nature, encompassing political coordination, academic coordination and market coordination. The political coordination refers to the fact that issues centering on higher education serve as an interest of political parties, involving ministries, parliaments and jurisdictions of a country as well as their relevant policies and legislations. The academic coordination refers to "academic oligarchy" which is one of the three vectors of the triangle. By this term, Clark means the ways in which academics seek hegemony in the system in a form of professional associations and science councils that can exert powerful collective voices at national, provincial and local levels. Clark argues that prominent academics are able to transfer their power to bureaucratic and political levels within and across disciplines, within and across institutions and within and across sectors.

Furthermore, Clark points out that a system may be coordinated primarily not by state or the academic oligarchy exclusively, but instead by market. According to Clark, the market interaction along with its three functions such as consumer market, labor market and institution market, affects the behavior of individuals and organization, and in economic terms promotes efficient allocation of resources (Arrow, 1962). While the constantly changing labor market shifts consumer preferences from one field to another and one specialty to another, the institution market, according to Clark, refers to the interaction between institutions and consumers in the market. In other words, Clark stated that privileged institutions are able maneuver the consumer and labor markets as they "secure their brand name position in the consumer and labor markets" (Clark, 1983, p. 171). Hansmann, later, developed this concept further by describing this rent-seeking institutional behavior has an associative value (Hansmann, 1999, 2012).

Moreover, the interpretation of Clark's triangle varies from author to author depending upon whether they view it as static or dynamic. Maggio (2012) calls Clark's triangle a "zero-sum effect model" (p.6), because the model situates the system of the three forces in one place within the triangle in a certain period. According to Maggio, such a zero-sum nature of Clark's triangle allows for comparison of systems at any given historical period, but it does not capture

the evolving dynamics of these three forces and their influences upon one another. According to Salazar and Leihy (2013) and Lang (2015), the three points on the triangle are not fixed but have dynamic qualities and the forces changing the shape of the triangle are altered due to wide-ranging changes occurring in the higher education system since 1983, when Clark's triangle was first published. Lang (2015) considers that the triangle has dynamic vectors representing multidirectional forces that define the shape and performance of a system, though it would always remain triangular in terms of its shape (Figure 2). The legs of the triangle are elastic, and they constantly change and interact with each other defining the force in the system (Lang, 2015). If the triangle is equilateral, there is no hierarchy among the three levels. In addition to the static or dynamic version of the triangle, contemporary scholarship offers a variety of versions, such as shifting from state control to state supervision (van Vught, 1995) and a state cooperation with the academe and the market (Jongbloed, 2003). For instance, Salazar and Leihy (2013) propose a neo-Clark's triangle called "microcosmographia", which consists of multiple triangles that depict the major domains and their interacting forces. Additionally, the academic oligarchy leg of the triangle is subject to various interpretations such as higher education institutions (HEIs), namely colleges and universities collectively (Lang, 2015), "academe," (Jongbloed, 2003), "managers," (Salazar and Leihy, 2013), and "steering core" (Clark, 2004). Overall, if we consider Clark's triangle as dynamic, the resultant shape of the triangle identifies the forces inherent in the tertiary education system. The resultant shape also identifies the resource asymmetries and power dynamics affecting the deficiency, distribution, role and value of intangible capital in societies. To that end, we formulate the following dynamic version of Clark's triangle upon which our discussion of findings is based.

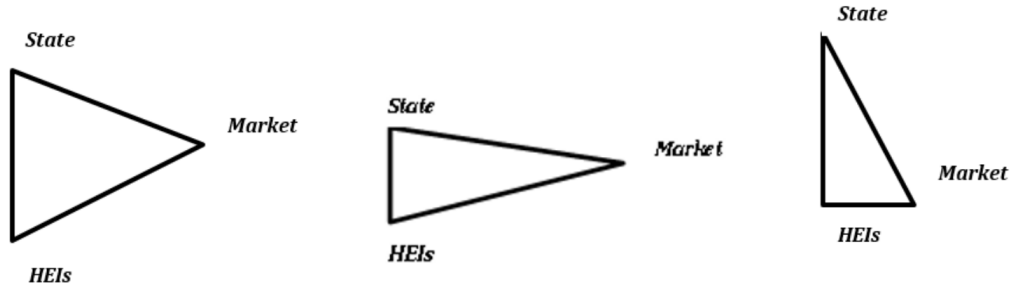

Figure 2: Dynamic version of Clark's Triangle

For example, if the university education and training are fully subsidized by the state budget, then the length between the state and HEIs legs would be shorter, while the length between the market and HEIs would be longer. Further, this would indicate that the principal factor, if not exclusive, in institutional change is "resource dependence" thus denying the effects of market competition. If there is a decline in public funding for higher education, then universities would seek other sources of private funding or marketization processes, which would shorten the third leg of market in Clark's triangle, and introduce competition as a factor in institutional behavior. Hence, the strength and influence of a dimension results in different triangular shapes.

Discussions

In 1990, Mongolia underwent a socio-economic transition from centrally planned-socialism to a liberal market-oriented democratic society that in economic terms assumed the possibility of perfect markets. The end of the centrally planned command economy necessitated fundamental changes in the structure and modus operandi of many social institutions, including those of higher education institutions. The demise of the socialist centrally planned economy in 1990 had profound implications for the Mongolian tertiary education. With the liberalization of the economy and legalization of private higher education in the early 1990s, the number of higher education institutions increased exponentially, peaking at 186 in 2002 /See Figure 3/. However, the total number of HEIs has decreased in recent years as the accreditation process for for-profit diploma mills has been tightened, and the Ministry of Education and Science (MES) has made several attempts to merge state universities. By the latest count in 2020, there were 95 HEIs with 21 state universities, 71 private and three foreign HEIs /See Figure 3/.

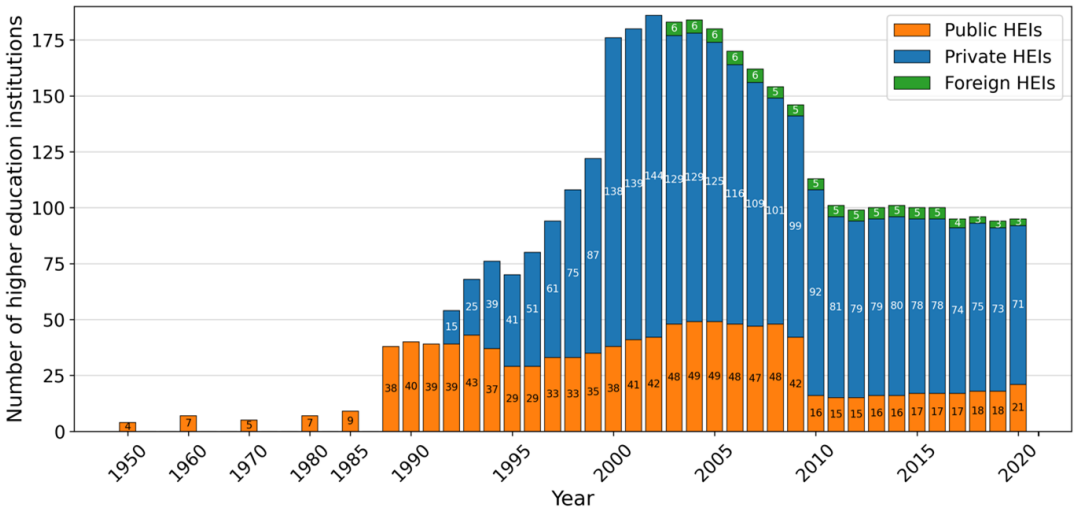

Figure 3: Number of higher education institutions including public, private and foreign[1]

The structural changes in the financing of higher education in the beginning of 1990s gradually shifted the fully subsidized- provision of higher education to a tuition-fee-paying system. The post-socialist policy reforms such as cutbacks in state subsidies by introducing tuition fees, which were inherently market-based even when subsidized, have greatly expanded the provision of higher education. Legalizing private higher education and transitioning the public universities to a tuition-fee-paying system have had an enormous impact on the development of higher education in Mongolia for the past three decades, contributing at the same time to massification, system expansion and institutional stratification. The gross enrollment reached

[1]Source: Primary data retrieved from Ministry of Education and Science database

an all-time high rate, growing from 20.2% percent in 1990 to 68.8% percent in 2020, exceeding the OECD's average of 55% percent /see Figure 4/. By contrast, the centrally planned human resource training during the socialist period provided access to a slim minority of little over 20% percent of tertiary age cohorts. Hence, the role of Mongolian higher education has shifted from being for a selected few to mass, enrolling more than 50% percent of relevant age cohorts.

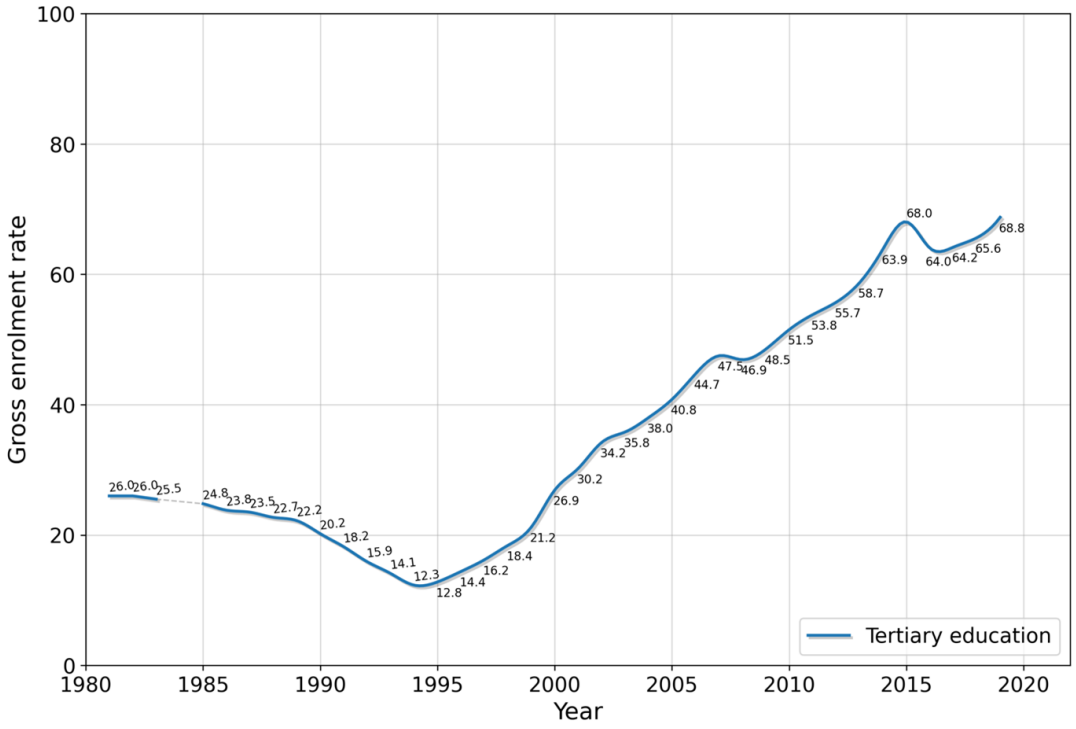

Figure 4a: Higher education gross enrolment rate (1980-2020)[2]

Trow (2007) identified three stages in the development of higher education: elite (less than 15 percent of the tertiary age cohort), mass (50 percent), and universal access (above 50 percent). According to Trow, when the enrollment reaches to the universal stage, it becomes a social norm. Hence, the current mass enrollment in Mongolia has already reached to near universal higher education. Despite the significant decline in total number of HEIs in recent years from 186 in 2002 to 95 in 2020, the enrollment continuously grows. The absolute number of students has grown tremendously over the last two decades by more than tenfold – rising from 17,338 students in 1990 to 178,295 in 2015 (see Figure 7).

As shown in below Figure 3, the number of private HEIs constitute over 70% of total number of HEIs. Despite the exponential growth of private higher education institutions in the post-socialist period since 1995, the enrollment in private institutions ranges only between 30% to 40% percent of total higher education entering cohorts. As shown in Figure 4 below, across

[2]Source: Primary data retrieved from World Bank open statistical data

the complete time period (1999 - 2019), there has been steady increase in enrolment rates for private HEIs, rising from an initial level of 29.2% in 1999 to 44.2% in 2019 with the mean of 33.2% percent.

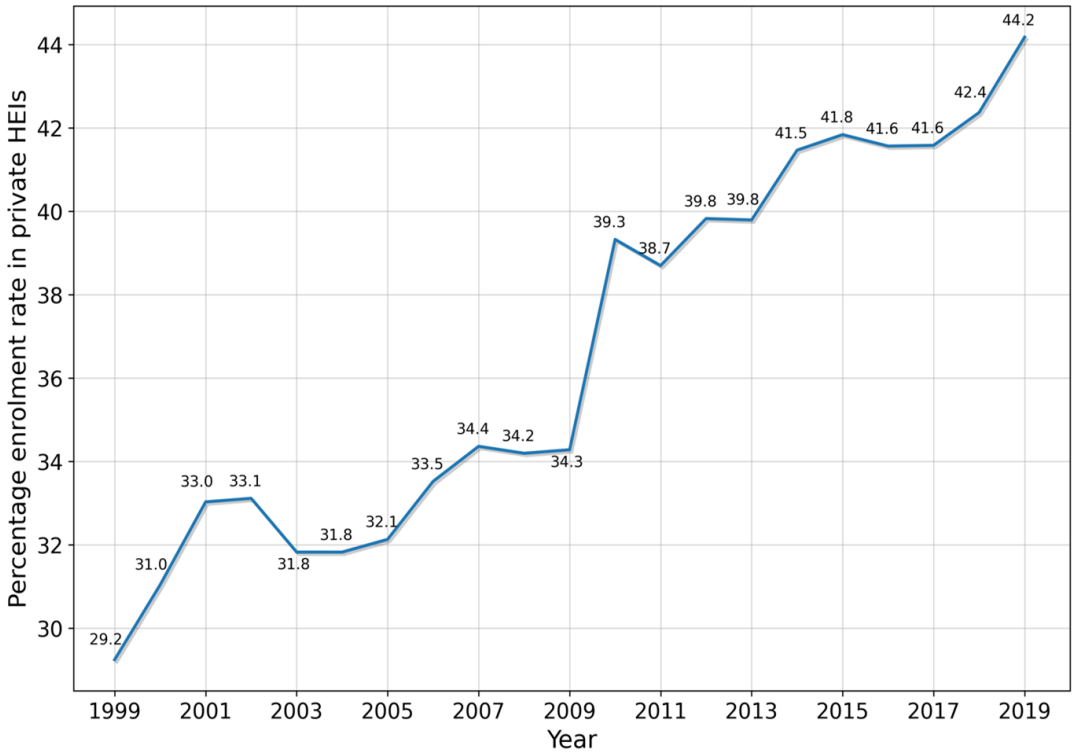

Figure 4b: Percentage of enrollment rate in private HEIs (1999-2019)[3]

Because the majority of private providers, in many regards, function as open-access institutions, the private HEIs generally play a demand-absorbing role in Mongolia, with relatively limited financial resources to reach to the status as a reputable university. In most cases, the flagship traditional state universities from the socialist time, namely the National University of Mongolia (NUM), Mongolian University of Science and Technology (MUST) and the University of Health Science maintain their reputation enrolling students through a selective admission based on national university entrance examination tests. By being selective and managing their enrollment, the entering cohorts remain consistent in size for state universities. As such the flagship traditional state universities, to a certain extent, side-step the annual anxiety that comes with enrollment swings, while private HEIs respond with open doors taking risks. The decline in the number of private HEIs in recent years is in part related to short-term revenues and long-term viability, as majority of their revenues originate in most part from tuition fee. With only three decades of development of private higher education in the country, the private HEIs are too small to be cost-effective. Thus, the increasingly market-driven higher education sector has implications for creating institutional stratification rather than increasing the eco-

[3]Source: Primary data retrieved from the UNESCO Institute for Statistics database

nomic return for graduates on their investment in higher education. The reality is that students just graduate with a degree, but without a pathway to sustainable employment that secures a reasonable standard of living.

The increase in participation in higher education in the past twenty years is a result of many factors, including a set of driving forces, such as demographic growth in the proportion of tertiary education age cohort and the success rates in upper secondary education completion. In addition, the rapid decline of vocational and technical education programs at the undergraduate level also contributed to the mass enrollment in HEIs. During the socialist period prior to 1990, vocational and technical education colleges used absorb the growing social demand for post-secondary education. The demographic factors including the population growth for 18-24 years old cohorts have significant impact on increasing the aggregate social demand for higher education. In developing countries like Mongolia where tertiary education enrollment is almost exclusively domestic, the increase in the population of the tertiary education age significantly affects the mechanic increase in higher education enrollment. The population for 18-24 years old in Mongolia grew from 195,000 in 1970 to 591,000 in 2010 (Figure 5). This growth in population was driven by the baby boom resulted from the socialist pro-natal policy in the 1970s and the 1980s.

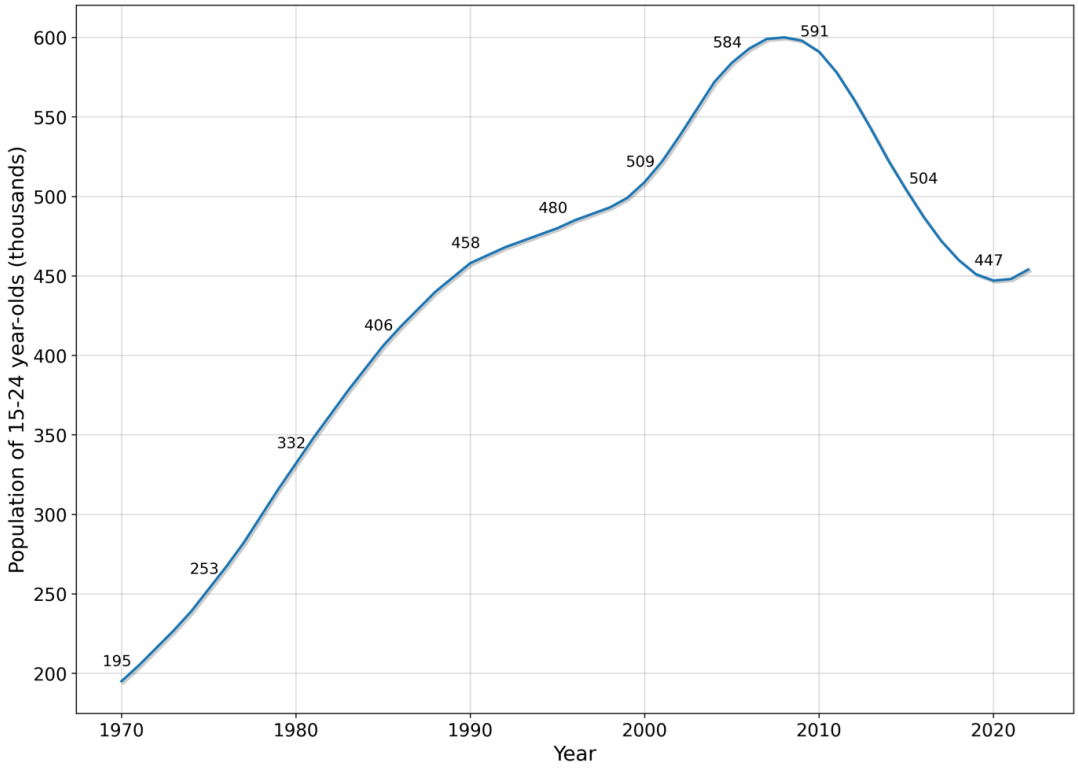

Figure 5: Growth of the population for 18-24 years old (1970-2020)[4]

[4]Source: Primary data retrieved from the UNESCO Institute for Statistics database

In addition to the demographic factors, the success rates in pre-tertiary schooling and the upper secondary education completion rates also have a significant pipeline impact on overall enrollment levels in tertiary education. The basic education, particularly upper secondary education enrolments, suffered a severe decline during the transition period of the 1990s due to the contraction of public financing and loss of social safety nets for the pre-tertiary education services in rural areas, as it dropped from 67% percent in the 1980s to 44% percent in the 1990s. However, the gross enrollments in upper secondary education have recovered over the past two decades, reaching over 80% percent in 2006 to 97% percent in 2012 (Figure 6), increasing the potential growth of tertiary education eligible population, who can continue into postsecondary education. This clearly shows that the success rate in pre-tertiary schooling over the past decade has also increased the social demand for higher education in Mongolia.

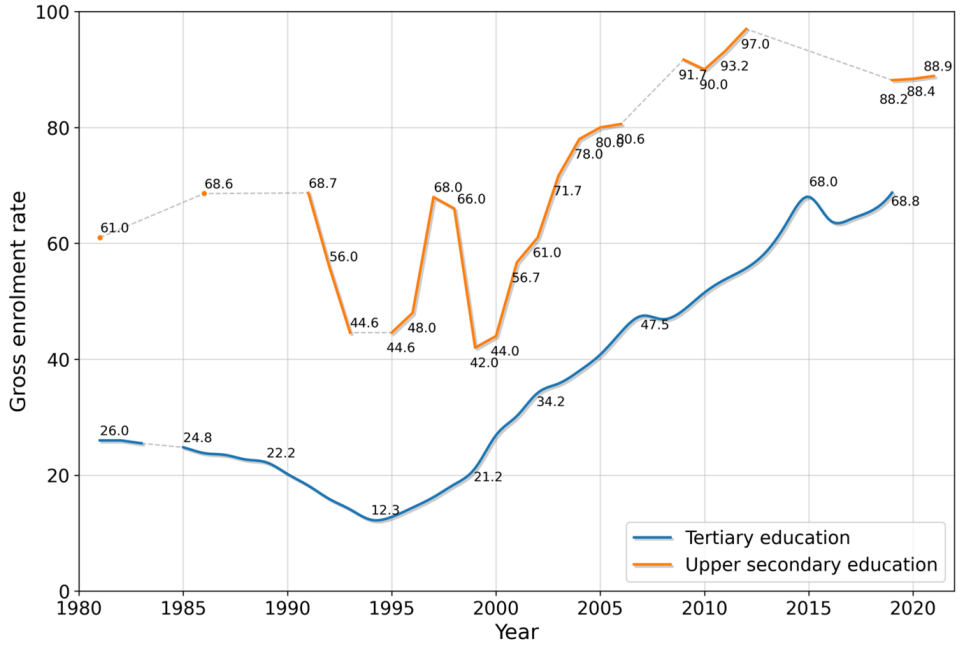

Figure 6: Gross enrolment rate for tertiary and upper secondary education during the period 1981 to 2021[5]

Vocational and technical education could be an alternative to higher education for the growing tertiary education eligible population. During the socialist period, admission to higher education was limited to only a selected few and the remaining non-selected majority were absorbed into other post-secondary education options such as vocational education and *technikum*[6]. However, the decline of large-scale industries in the 1990s during the transition period conditioned a significant decrease in enrollment in technical and vocational education. As such

[5]Source: Primary data retrieved from the UNESCO Institute for Statistics and the World Bank databases

[6]The category of *technikums*, unlike the purely vocational schools of TVET, aimed to train low and middle level (depending on profile) industrial managers, accountants, bookkeepers, nurses, medical technicians, foremen, coordinators, technical supervisors or semi-specialists in occupations that require skills more advanced than purely manual labor.

the growing tertiary education age cohort was faced with a limited post-secondary education option alternative to higher education.

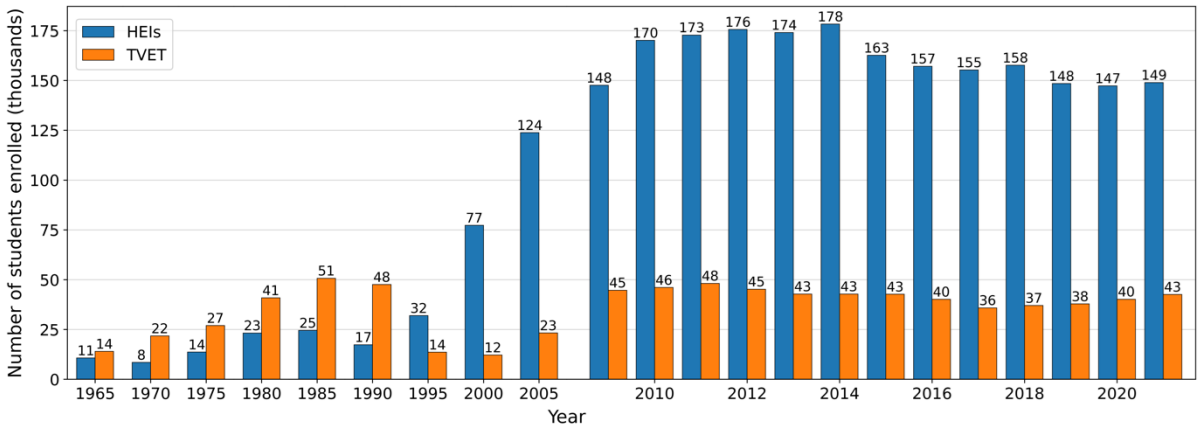

Figure 7a: Number of students enrolled in HEIs and in TVET (1965 to 2021)[7]

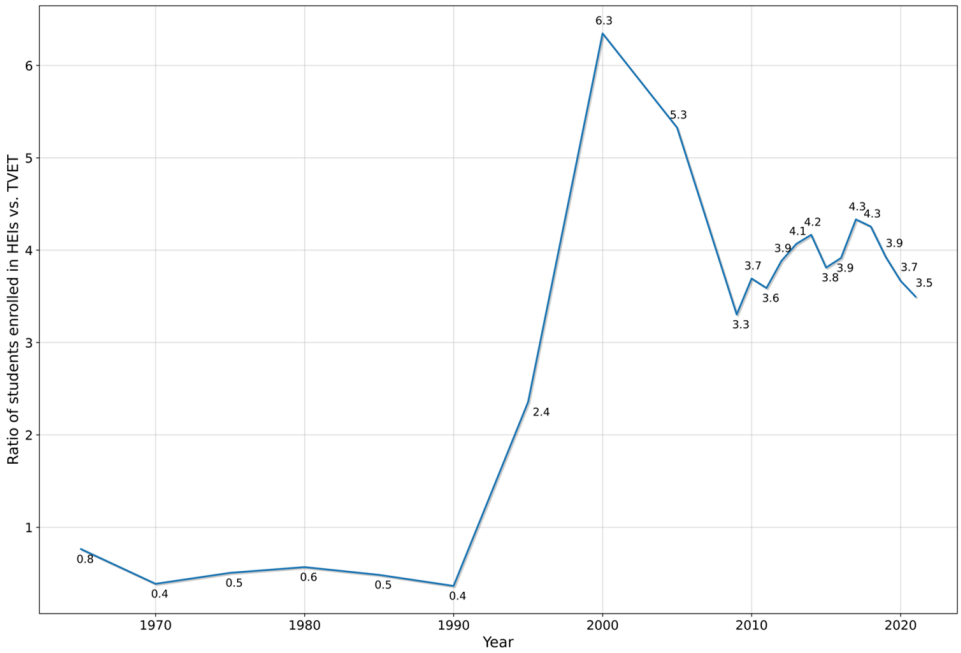

Figure 7b: Ratio of students enrolled in HEIs compared to those in TVET (1965- 2021)

As shown in Figure 7a below, during the socialist period from 1965 to 1985, the total numbers of students enrolled in TVET shows modest but sustained growth from 24669 students in 1965

[7]Source: Primary data retrieved from *"Foundation of Education Sector in Mongolia and its Development in 80 Years"* and National Statistical Bulletins

to 75245 in 1985, with the majority of students participating in TVET. As shown in below Figure 7b, the ratio across these years during the socialist period indicates that for every 100 students, approximately 35.7 were enrolled at HEIs versus 64.3 participating in TVET. By 1995, the ratio of students enrolled in HEIs compared to those participating in TVET had inverted, showing that the number of students at HEIs outnumbered those in TVET by 2.4 to 1. In the 1990s, the absolute number of students enrolled in TVET significantly decreased from 54,661 in 1989 to 11,245 in 1999, while the absolute number of students enrolled in higher education institutions dramatically increased almost four folds from 19,504 in 1989 to 77,281 in 2000. This represents the case where for every 100 students, 86.3 were enrolled in HEI while only 13.7 participating in TVET in the 2000s during the post-socialist period.

In the subsequent period leading to 2009, the total number of students enrolled in TVET continued to increase from 12177 in 2000 to 44681 in 2009, as the Mongolian government has initiated significant efforts to reform the TVET sector with support from the international donor organizations. Significant investments have been made to upgrade training facilities and to introduce a competence-based training curriculum. However, many of the initiatives taken by joint efforts of the Mongolian government and international donor organizations have been more ad-hoc and donor-driven. Over the remainder of the timeframe until 2021, the variation in the proportions of enrolments in HEIs vs. TVET appears to be relatively limited, with the maximum changes in enrolments observed between 2017 and 2021 (3.5 %); a decrease of students at HEIs and the concomitant increase in students in TVET. At the starting point of this change in 2017, approximately 81.2 students for every 100 enrolments were in HEIs, as compared to 18.8 students in TVET. From 2017 leading up to 2021, there is a slight reduction in the preference for HEIs over TVET with 77.8 of 100 students enrolled in HEIs, while 22.2 are participating in TVET. This gradual increase in enrollments in TVET has in large part resulted from the monthly stipends given to TVET students rather than their desired choices to pursue skilled trades. Because the stipends are in practical effect supply-side public subsidies, they, in terms of Clark's triangle, diminish the role of the market and expand the role of the state. Despite the efforts by Mongolian government to increase the enrollment in TVET, the rates of private returns from these public investments are less economically attractive to individuals due to the number of factors, such as a less prestigious career option than a university education, less associative value of TVET and precarious working conditions for skilled trade workers in the country.

Moreover, the shift from the fully subsidized- provision of higher education to a tuition-fee-paying system has almost no effect on decreasing the enrollment in HEIs but instead has contributed to increasing the enrollment, in particular for private HEIs. The structural transition brought several cost-cutting and cost-recovery measures, including freezing capital investment and reducing state subsidies in tertiary education by introducing "displacement" tuition fees. Due to the cutback in state subsidies, Mongolian universities have undergone severe funding deficiencies, which forced to introduce tuition fees to cover their faculty salary, administrative and operational costs. Particularly, the private HEIs rely on mass enrollment, as a tuition fee is their major source of revenue generations. According to the World Bank (2010), tuition fee accounts for 62% percent of funding for private higher education institutions and 58% percent

for state universities. Therefore, tuition fees have become the largest source of financing for both public and private tertiary education institutions in Mongolia. In terms of Clark's triangle, this, in turn, expanded the power of the market vertex while weakening the power of the state. Because of the previous close – or shorter leg – relationship between the state and the HEIs, it also diminished the power of the academe as a force in shaping the overall system. However, the process that sets price for tuition fee in Mongolia does not necessarily adhere to market principles, as HEIs cannot increase their tuition fees above the maximum limit set by the Government. The fact that state regulation overrides the market for tuition is evidence of the kind of higher educational market imperfection that Spence described in his 2002 Nobel Prize address. Of course, it is also evidence of the triangular dynamism that Clark described. From this perspective, one could say that Mongolia is an example of the sort of "asymmetrical" failure that some economists, including Stiglitz (1989) began to predict more than 25 years ago, at least as far as post-secondary education is concerned.

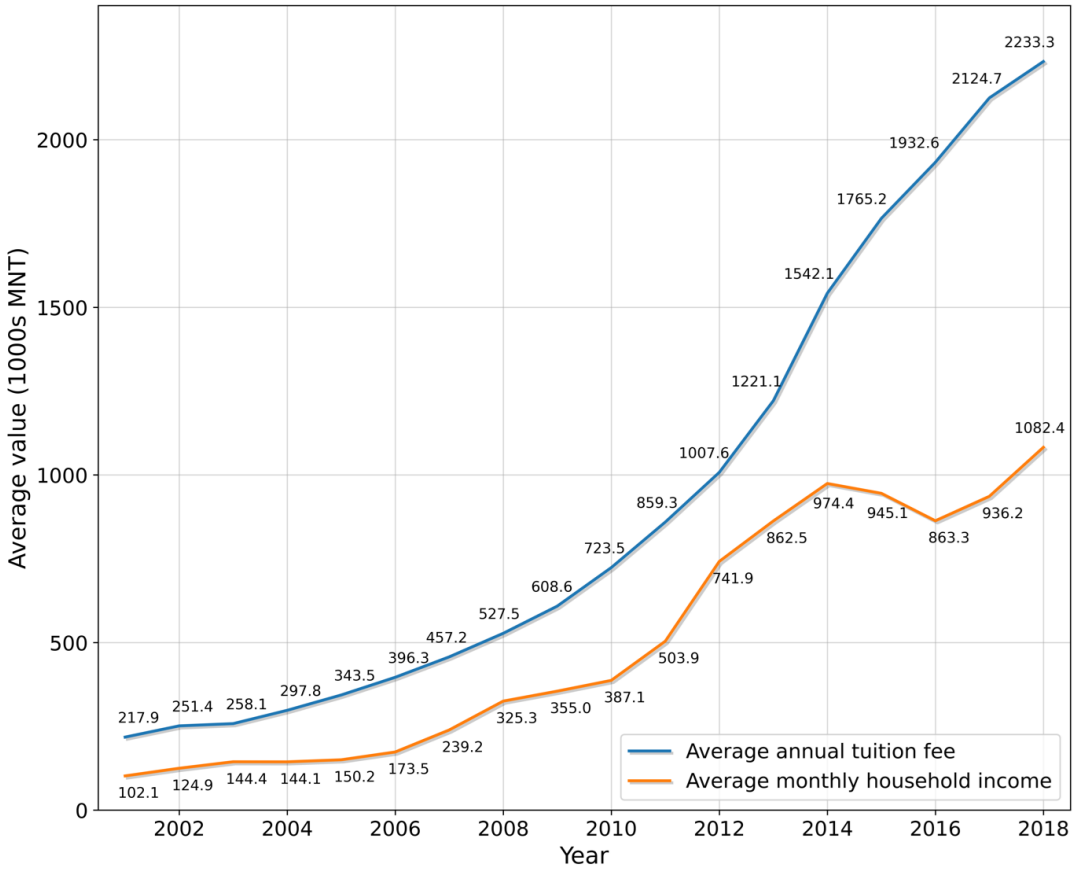

Figure 8a: Variation in average annual tuition fees and average monthly household income in 1000s MNT (2001- 2018)[8]

The relationship between household income and tuition fees for higher education was stronger during the early 2000s leading up 2012, but weakened thereafter. As shown in Figure 8a, the changes in average cost of tuition fees mirrored the variation in income until 2012 where the changes began to diverge. While the rise in monthly household income slowed from 2012 and then monthly incomes fell in 2016, the increase in tuition fees continued until 2014, with an average annual growth of 16.4%. This pattern reflects that tuition fees may be a potential financial burden for low-income families. In 2014, the rate of relative annual increase peaked at 26% and subsequently began to slow; the year-on-year increase was 5.1% by 2018. Because of data limitations, the questions as to whether there are significant variations in tuition fees across fields of study and between institutions are beyond the scope of our study. Our analysis provides an accurate estimate of the correlation between monthly household income and tuition fees for higher education participation and how the relationship has changed over time from 2001 up to 2018. Hence, further study of a much narrower sense of the term “access” is necessary in order to examine the particular constraints that students from low-income fami-

[8]Source: Primary data retrieved from the Ministry of Education and Science database and National Statistical Bulletins

lies may face in choosing their institution or field of study if there are significant variations in tuition fees across different fields of study and between private and state HEIs.

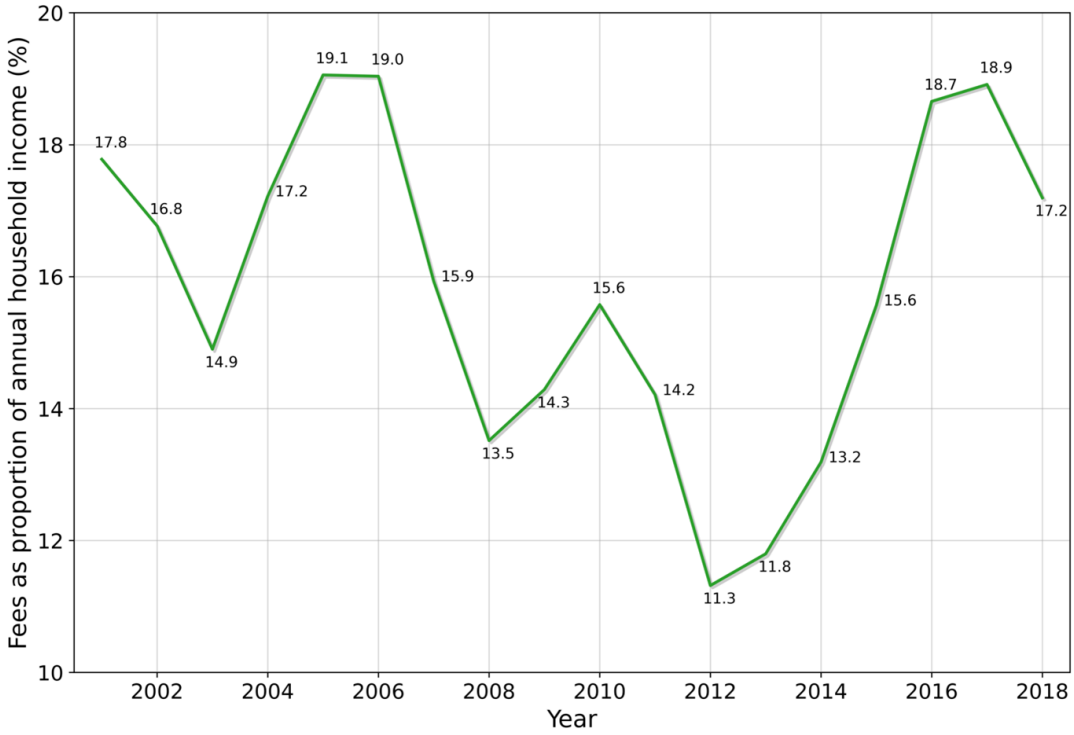

Figure 8b: Annual tuition fees as a proportion (in percentage) of annual household income from 2001 to 2018

The relationship between average tuition fees and household income shows that the mean tuition fee cost is approximately 15.8% of the annual household income across the time period (Figure 8b). Variations in the cost of tuition fees relative to income were largely driven by instability in income rather than tuition fees, as fees were observed to increase smoothly. Hence, the increase in tuition fees relative to monthly household income occur in 2006 and 2010: years during which the growth in monthly household income was almost flat. Conversely, the strong income growth from 2011-2012 (47%) resulted in the minimum tuition fee cost relative to income. The divergence of household income and fees growth rates in 2012, and the subsequent fall in household income in 2016 is the cause of the rapid increase in tuition fees as a proportion of household income from 11.3% in 2012 to 18.7% in 2016 respectively. Overall, the broad trend indicates that as average monthly household incomes rose by 100,000 MNT, average annual tuition fees increased by 180,000 MNT. Of note, the gross enrolment rate in higher education continued to increase across the time period irrespective of increase in tuition fees and variations in household income. This pattern reflects that tuition fees have had little impact on higher education participation, because the enrollment in HEIs increases regardless of the increase in tuition fees.

If expressed in the US currency, for example, the tuition fee for undergraduate bachelor's degree studies in 2016-2017 academic year, excluding the living expenses, was 1,932,000 MNT, which would be approximately worth of 942 USD according the average currency conversion rate of that particular year as reported by the International Monetary Fund's exchange rate archives. The latest fees for tuition in 2018-2019 academic year would be worth of 918 USD. Compared to the countries with a tuition fee paying higher education system, such as the United States, Japan, Singapore and South Korea, the average cost of undergraduate education in Mongolia is apparently at the lowest end of the tuition fee scale. On one hand, lower tuition fees can help to promote students' access and equity in higher education, particularly among the disadvantaged populations. On the other hand, lower tuition fees apparently constrain the resources available to higher education institutions to support their efforts to maintain quality academic programs and feature the appropriate laboratories, libraries, and other infrastructures that permit teaching and research at the highest possible levels. Hence, the low tuition fee is associated with low opportunity costs, which could erode incentives to improve quality and efficiency of higher education but increases enrollment irrespective of existence of tuition fees.

Moreover, the widening participation in higher education after Mongolia transitioned from the centrally planned socialist system to a market-oriented democracy in the 1990s is unlikely to guarantee expanded employment opportunities. The persistent lower rate of employment after graduation among university graduates between 2001 and 2012 challenges some conventional assumptions about the relationship between education and jobs (Figure 9). As shown in Figure 9, the graduate employment rate increased swiftly from 2001 to 2003, with a relative increase of more than 25% year-on-year. However, the change in employment rate was less consistent, leading to a slow average annual growth of 2.8% over the nine-year period between 2003 and 2012. Although the recent period between 2015 and 2018 shows a significant increase in the employment jumping from 42% percent in 2012 to 73% percent between 2015 and 2016, and 75% percent in 2018 respectively, this increase comes with a caveat.

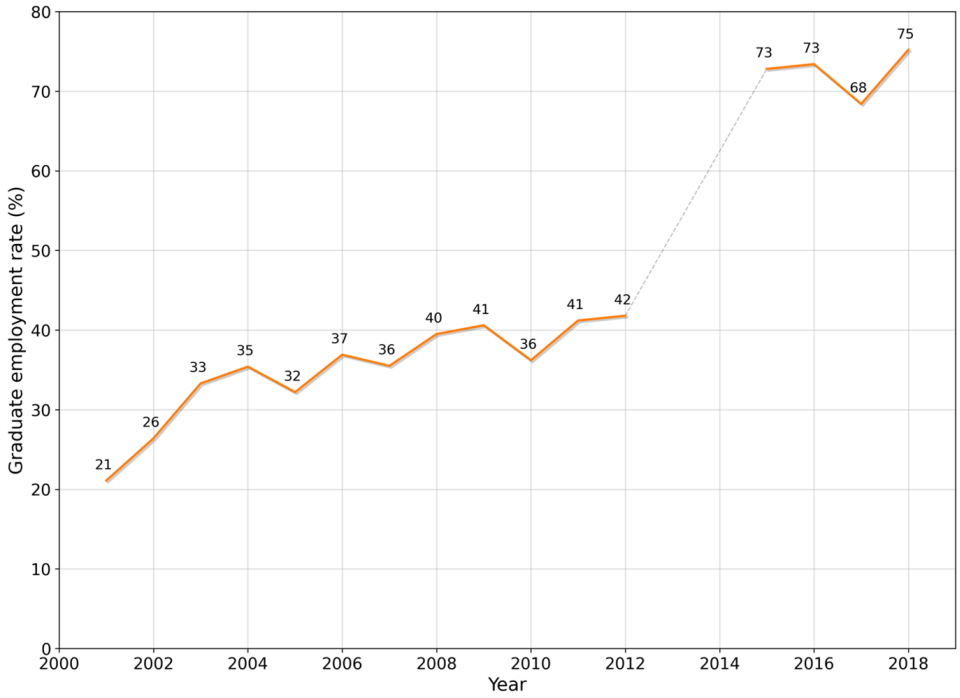

Figure 9: Percentage employment rates for graduates of tertiary education during the years 2001 to 2018 (grey dashed line indicates years where data is not available)[9]

According to the results of the Graduate Tracer Survey-2019 conducted by the Labor and Social Welfare Research Institute at the Ministry of Labor and Social Welfare of Mongolia, the employment rate for higher education increased in recent years, because unemployment rate decreased by 12.7% percent, reaching to 3.6% percent compared to previous years. But the Graduate Tracer Studies for 2018-2019 conducted by the National University of Mongolia concluded that the increase in self-employment and entrepreneurship for university graduates has augmented the employment rate after graduation. The result of the Graduate Tracer Survey-2019 conducted by the Labor and Social Welfare Research Institute, indicates that 13.9% percent of total graduates employed between 2017 and 2019 were self-employed or involved in entrepreneurships, and 23.4% percent of graduates worked in jobs that are unrelated to their college major. The findings of the Graduate Tracer Survey-2019 also point out that, between 2017 and 2019, graduates who majored in medicine, veterinary medicine, art, mathematics, statistics, teaching, education, construction and architecture had a higher prevalence rate of working in an occupation related to their field of study. The graduates who majored in agriculture, nature conservation, social welfare and humanities had a higher prevalence rate of working in jobs outside their field of studies. In 2017-2019, the following majors such as agriculture, nature conservation, biology, liberal arts and economics yielded a high prevalence of mismatch, as graduates who majored in these fields faced increased frequency of being employed in jobs unrelated to their degree field.

[9]Source: Primary data retrieved from the Ministry of Education and Science statistical data

This disjunction of supply and demand for higher education in the labor market challenges some conventional assumptions about the relationship between education and jobs –many workers are overeducated for their jobs or their jobs are not necessarily closely related to their field of studies. This clearly indicates that rates of growth in tertiary education enrollment between 2000 and 2012 was accelerated virtually by emergence and increase in private for-profit higher education, as well as other demographic and economic factors. The population growth of post-secondary education age cohort and substantial decline in student enrollments in TVET have increased the aggregate social demand for higher education but the impact of tertiary education outputs on both private and public investment appeared to be limited during this period. The decline in private rates of return is reflected in the fact that higher education attainment could not ensure employment outcomes for university graduates in their chosen degree fields in Mongolia.

The decline in return of public investments in human capital as measured by economic and social returns is reflected in the fact that HEIs cannot produce graduates with degrees and qualifications relevant to the labour market. Under the centrally planned economy during the socialist period, the supply and demand for university graduates were coordinated by the state as rationally planned and specified in its series of Five-Year plans for social and economic development. As such, under socialism, access to employment after graduation was guaranteed for university graduates. Of note, the socialist centralized system had the capacity to control the higher education expansion quite cautiously. The series of Five-Year plans constrained higher education participation among the population, as a slim minority of little over 20% percent of tertiary age cohorts was provided access to higher education, while the remaining 80% percent was absorbed to the vocational and technical education or directly entered the labor after they completed the upper secondary education. The transformation from socialism to democracy, which entailed liberalization of the economy and labor markets, rising exposure to the global economy, and greater expansion of higher education, made employment after graduation more insecure for university graduates. Despite the insecure employment after university graduation, the decline in rate for enrollment in TVET as an alternative to university education after 1990 and the demographic changes described above have increased the social demand for higher education in Mongolia. Enrolment is only a measure of the degree to which input demand for higher education is met. The Mongolian HEIs, particularly the private ones, accommodate this booming demand through offering low-cost degree programs. Private colleges offer degree programs mainly in the humanities, social sciences and business administration–a reflection of the low delivery cost of these programs and the absence of costly learning infrastructures needed for programs in fields such as Engineering, Manufacturing, and Construction, Agriculture, Forestry, Fisheries, and Veterinary (See Figure 10a).

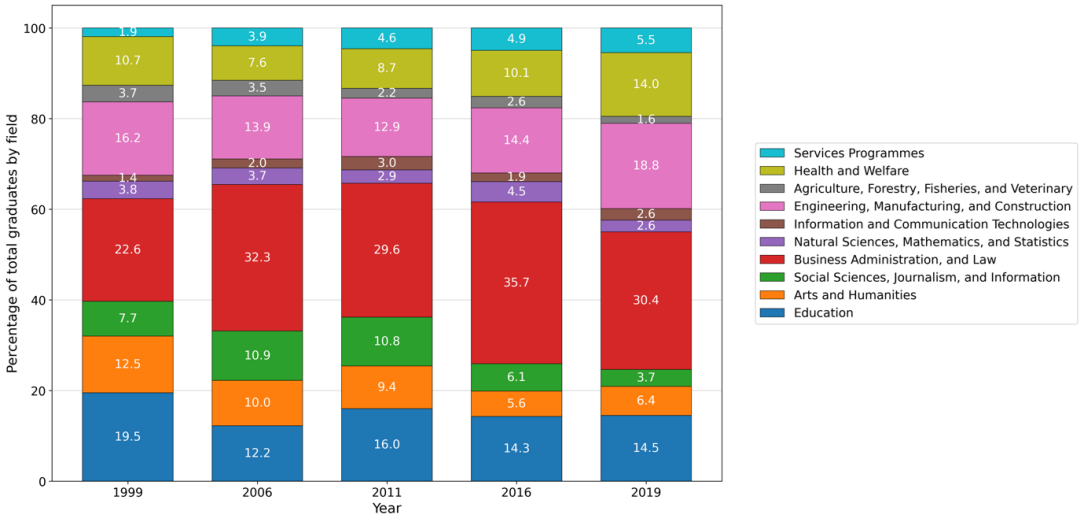

Figure 10a: Percentage of total graduates by field of studies from 1999 to 2019[10]

As shown in above Figure 10a, the low-cost degree programs, such as Business Administration, Services Programmes, Social Sciences, Journalism, and Information, Arts and Humanities (BHSSA) constituted the majority of the graduates, ranging from 44.8 percent in 1999 to 57.1 percent in 2006, while graduates in the applied science fields, including Engineering, Manufacturing, and Construction, Agriculture, Forestry, Fisheries, and Veterinary (Eng.Env) accounted for 19.9 percent in 1999 and 17.4 percent in 2006 respectively. This situation resulted in the mismatch between labor market supply and demand in the post-socialist period during the 1990s and the first decade of 2000s.

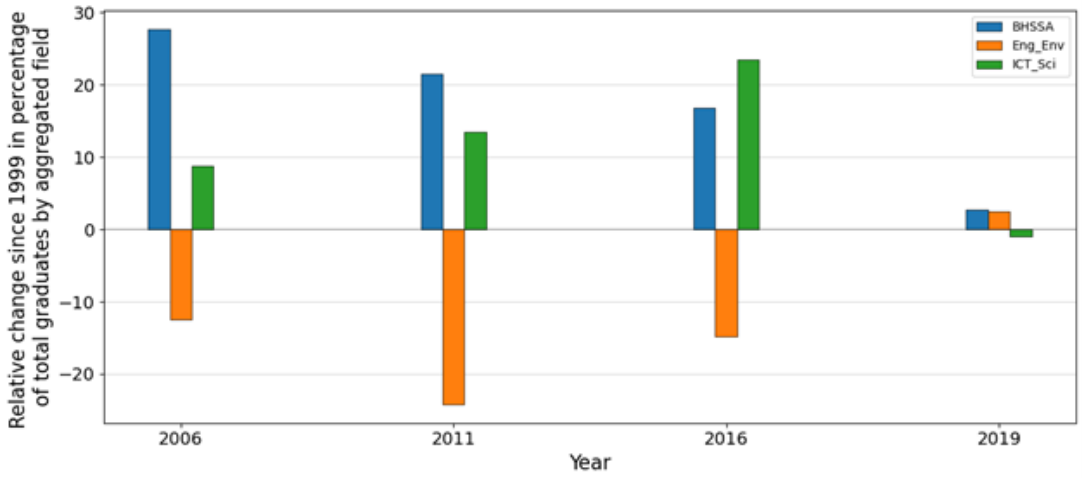

Figure 10b: Relative annual change since 1999 in percentage of total graduates by aggregated field[11]

[10]Source: Primary data retrieved from the UNESCO Institute for Statistics Database

In terms of relative change in percentage of total graduates by aggregated field, significant growth is observed in the Business, Arts & Humanities and Social Sciences sector between 1999 and 2016, along with the contraction of the Engineering and Agriculture & Environment fields. However, by the final set of data in 2019, the changes since 1999 have been largely negated. The BHSSA group showed initial strong growth from 1999 to 2006, but then shrank back over the subsequent years, with the largest fall between 2016 and 2019 (-12%). For the Engineering/Environment group (Eng.Env), a change in the trend occurs between 2011 and 2016, when it switches from a period of decline to strong growth, largely cancelling out any changes across the full time period. The ICT and Natural/Mathematical Sciences grouping grew strongly between 1999 and 2016, but saw a significant reversal between 2016 and 2019 to bring the proportions close to where there were in 1999. The proportion of graduates in these three groupings of fields (BHSSA, Eng.Env, and Ict.Sci) is at approximately 70% of the total graduates (69.8% in 1999 vs. 71.5% in 2019), showing that it is unlikely to be the case that other fields, such as Health and Welfare and Education, are impacting their share of the graduate cohort.

The gradual shrinking enrollment in BHSSA and a significant growth in enrollment in engineering-related technologies and health science professions in recent years between 2016 and 2019 indicate that the match between workers' chosen field of study in college and the available jobs in labor market have gained a considerable attention for both consumers of higher education and policy stakeholders. The prevalent mismatch between labor market supply and demand during the transition period between 2000 and 2005 has implications for the decisions faced by students when selecting a college major. As students consider the likelihood that they will be able to find a secure job related to their major, and potential returns to their investment in higher education, enrollment in those majors that teach occupation-specific skills has increased. By contrast, the enrollment in majors such as foreign languages, social sciences and liberal arts has shrank, as graduates, who majored in these fields have a higher prevalence of working in jobs outside their degree fields. Because poor employment prospects may induce a number of graduates to work in jobs that do not require an academic degree in order to escape unemployment (Di Pietro and Cutillo, 2006), seeking migrant work to foreign countries has become a common way to negotiate the life after graduation for Mongolian graduates. The international development organizations such as the World Bank routinely expound that the major problems leading to the relatively high rate of unemployment among university graduates are low-cost and low-quality education and a mismatch between the demand for and supply of skills in the labor market (World Bank, 2010). However, the evidence shows that it is more a global phenomenon (OECD, 2006) rather than it is only Mongolian. The global expansion of higher education has produced a great number of tertiary-educated populations, whose employment prospect have become more unpredictable than it used to be decades ago (Núñez and Livanos, 2010). This is

[11] **BHSSA**: Business Administration, Services Programmes, Social Sciences, Journalism, and Information, Arts and Humanities
Eng_Env: Engineering, Manufacturing, and Construction, Agriculture, Forestry, Fisheries, and Veterinary
ICT_Sci: Information and Communication Technologies, Natural Sciences, Mathematics and Statistics

particularly true in the case of post-socialist Mongolia because access to higher education was only for the selected few during the socialist period prior to 1990, as the labor market supply and demand were coordinated by the state through its series of Five-Year plans, which was a socialist method of planning economic growth over limited periods through the use of quotas. The post-socialist expansion of higher education coupled with under-protected, volatile labor market has generated a large number of university-educated populations in Mongolia working in jobs outside their degree fields or working in jobs that do not require a tertiary education degree.

There are considerable variations in graduates' methods to negotiate their life after graduation and further career destinations. Several pieces of evidence reveal that the high underemployment of the university graduates lead to two types of migration: out-migration and in-migration. The former refers to those seeking migrant work abroad, while the latter refers to the limited geographic access to higher education in other provinces outside of Ulaanbaatar capital city. The majority of HEIs are concentrated in the capital city Ulaanbaatar. Of 95 higher education institutions, 87 are located in Ulaanbaatar and only 8 are located in other provinces in 2016-2017. This trend remains the same across the time series of the researched periods. The tertiary education students studying in Ulaanbaatar constitutes 91.4 percent (143,684) while only 8.6 percent (13,454) are studying in rural areas. The greatest concentration of higher education institutions in the capital city of Ulaanbaatar, and the limited physical access to higher education in other parts of the country increase in-migration to the capital city resulting in-country brain drain from rural areas. As for out-migration, seeking migrant work to foreign countries is the most common methods for graduates to negotiate the under-protected and volatile labor market after graduation. South Korea is the most common destination for Mongolian migrant workers. According to the data provided by the Employment Service Center at the Ministry of Labor, in 2004-2013, totally 22,441 Mongolians went to South Korea seeking migrant labor work. Of this, 86.3 percent were male and 88.4 percent were under 35 years old. According to the latest unofficial information, the Mongolian migrant workers have grown to an estimated 40,000 individuals, or 1.3% percent of the entire Mongolian population. Although there is an absence of time-series historical data that provides the quantitative estimate of the higher educated migrant populations, there is substantial qualitative evidence that South Korea thus absorbs, by far, the relatively young and higher educated Mongolian migrant workers.

The growth in personal remittances provides another evidence of increased out-migration in the country. As shown in Figure 11 below, the personal remittances constitute a significant part of national GDP and have sharply increased in the first decade of the 2000s reaching to 10.2% as a percentage of GDP in 2004 from 4.9% in 2002 and 0.1% in 2001 respectively according to the World Bank. The World Bank data records remittances transferred through formal channels only, such as such banks, money transfer operators, or other officially registered institutions. Mongolians working abroad remit quite a considerable sum of money to their family members through semi-formal channels such as formal institutions providing money transfer services outside the regulatory mechanisms of the country authorities or through informal

channels that are outside financial regulation, but are legal. Thus, it can be concluded that all remittances coming into the national economy influence the development of Mongolia as a recipient country and livelihood for certain populations to a greater or lesser extent. On the one hand, labor migration, if involves a change in permanent residence for Mongolians working abroad, leads to considerable losses of human capital, and promotes a deficit of labor force in some sectors of the Mongolian economy. On the other hand, the labor migration allows reducing the unemployment rate and poverty rate in the country.

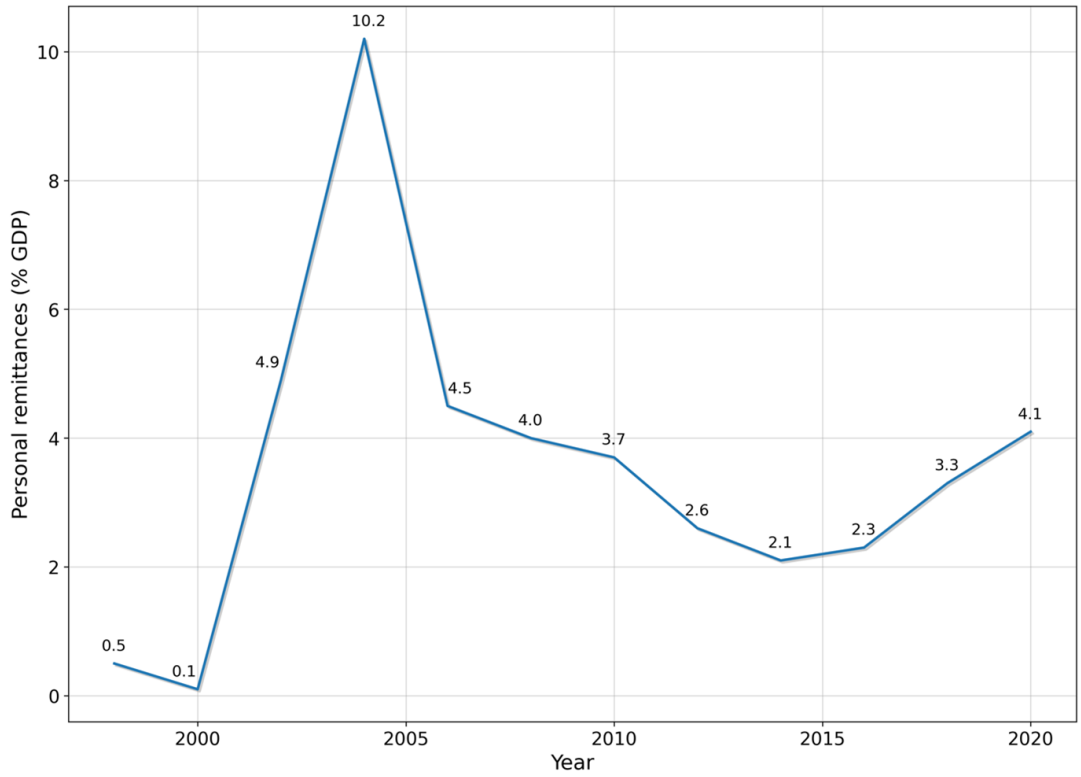

Figure 11: Personal remittances as percentage of GDP in Mongolia[12]

The experience of Mongolia with in-migration and out-migration exemplifies some recent thinking about Clark's Triangle and about subsidiarity in international protocols like the Bologna Process. Mongolia's experience, especially with out-migration, indicates that insofar as tertiary graduates are concerned the country's market vertex comprises multiple markets, only one of which is accessible to the state vertex. If that is indeed the case, as from this research it seems to be, should the government's policy-making think in terms of two "state" vertices, one national and one international just as there are two "market" vertexes Middlehurst (2010) would describe this arrangement as a "supra-national" vertex. But what if the supra-national vertex within the context of Clark's triangle applies to the "market" vertex, and is not an extension of the power of the "state" vertex? If one takes the empirical example of the Bologna Process as evidence, the main, and nearly exclusive, point of multi-lateral

[12]Source: Primary data retrieved from the World Bank database

negotiation – let's say between Mongolia and South Korea-would be the movement of students as consumers within an international market. In that scenario, this is not a problem in terms of private investments and returns, as Mongolian tertiary graduates evidently have already discovered. The return on public investment in human capital, however, becomes problematic: investments or costs occur in one jurisdiction but the returns on those investments are realized in another. Subsidiarity, of which this is an example, is a chronic problem in the Bologna Process (Gérard, 2008) as it would be if the government of Mongolia were to seek a similar solution, thus creating what in terms of Clark's Triangle would be a "push-pull" relationship between the "state" vertex and the "market" vertex, which takes basically two forms. In one, the regulatory power of the state functions as a counter-weight against the force of the market, both exerting control of the "academe" vertex. In the other, the university or "academe" vertex faces a "resource dependence" choice between state supply-side subsidies and demand-side funding, mainly in the form of tuition fees. In the case of a developing economy like Mongolia's, a systematic expansion of a supra-national force in the "market" vertex may be so great as to over-power the fiscal capability of the government to restrain the dynamic force of the market.

Conclusion

The Figure 12 below is a visual depiction of a conceptual framework revisited, depicting the pattern of interaction between higher education institutions collectively, state and market forces. The Figure 9 below portrays the post-socialist period of Mongolia characterized by free market economy and state deregulation.

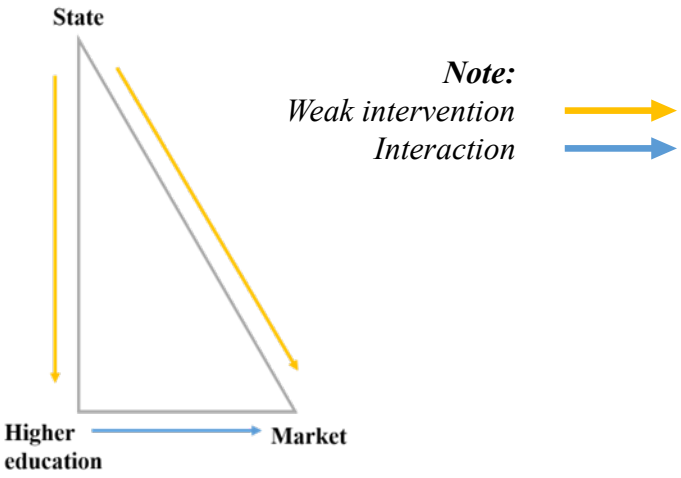

Figure 12: Triangle of interaction for HEIs in the post-socialist period

The transition from socialist, centrally planned economy to market-oriented democracy characterized by privatization and cutbacks in state subsidies has served as a structural factor, which drove the expansion of higher education in the post-socialist period. The resultant shape of the triangle in Figure 12 above identifies that market is the dominant force inherent in the overall tertiary education system in Mongolia that leads to the rapid increase in private HEIs and overall enrolments. But the "market" leg in this post-socialist Triangle signifies the demand for academic degree and professional qualifications from potential students as consumers of higher education. In the post-socialist period, the state has been essentially weak to effectively regulate the free market, especially the *de facto* "supra-national market". Regulating the consumers' market, in particular labor market, can be challenging in developing countries like Mongolia, where labor market information is scarce and where greater economic uncertainty and large informal sectors often drag down productivity and economic growth. Increasing the supply of higher education, particularly through private mass higher education of lesser quality has extended access to higher education for those from an unprivileged background inherited from the socialist time. But such an increase in the supply of higher education has implications for changing the institutional landscapes for tertiary education system rather than increasing the socioeconomic mobility for individuals. The changes in the institutional landscape can be reflected in the upsurge of private HEIs and vocationally-oriented bachelor's degree granting colleges but a very few research universities, featuring the appropriate laboratories, libraries, and other infrastructures that permit teaching and research at the globally recognized level. The in-and out-migration phenomenon among university graduates have implications for bringing spatial mobility rather than socioeconomic mobility in the country. This scenario in Mongolia fails to support the orthodox human capital theory – as formalized by Becker (1964), Schultz (1971), and Mincer (1984) that increasing the supply of and access to higher education benefits both individuals and society. The massive expansion of higher education in Mongolia fails to ensure the economic success of individuals and the nation. Hence, the state intervention is essential in developing countries like Mongolia in order to ensure the balanced version of the Triangle, namely the effective interaction between the state, HEIs and the market. A good policy should be defined by its effects on the interaction of the three forces in the Triangle and by the extent to which the particular policy mitigates the market or institutional failure. To sum up, Clark's triangle is used as a means of explaining the forces that led to the shape of the higher education system in Mongolia and its implications for students and households as consumers of higher education and colleges and universities as suppliers of higher education, as well as the overall socioeconomic development of the country. But Clark's Triangle is not used as a means of validating any particular policy viewpoints.

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