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Higher Education in Uzbekistan: Reforms and the Changing Landscape since Independence

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Abstract

This paper is the first study that carefully documents higher education reforms in Uzbekistan since the demise of the former Soviet Union. It analyses evolution of the sector with clear emphasis on government policy and its impact on changing the country's higher education landscape since independence. The study highlights complex interactions between the distinct pre- and post-independence contexts, policy legislation and its implementation on the one hand, and the demands of the new market-based economic system and the requirements of building and strengthening state institutions to support the transition process on the other hand. The paper will show why the country's peculiar 'strictly top-down' approach to reforms has not been successful on improving a number of key areas including access to higher education, and human as well as physical capacities of high education institutions which ultimately determine the quality of higher education provisioning.

Introduction

Higher Education (HE) played an important role in the pre-independence period under central planning as it helped to provide the economy with specialist skills to support the country's industrialisation drive, also serving as the means through which the prevailing ideology was promoted. HE plays no less important role in modern market-based economies. Education in general, and higher HE in particular, contributes to human capital accumulation by creating new ideas, blueprints, and innovative technologies (Olssen and Peters, 2005; Gyimah-Brempong *et al.*, 2006; Pegkas and Tsamadias, 2014). In well-functioning meritocratic economic systems, HE can serve as a catalyst for achieving social mobility and cohesion, matching individual aspirations and societal goals in the process.

Uzbekistan has a long tradition of HE albeit in a narrower sense of the term. It inherited most of the territories of the three independent khanates (kingdoms ruled by *Khans*) centred in Bukhara, Khiva and Kokand which ruled central Asia between the 16th and 19th centuries. The education system in pre-Soviet times in central Asia, also known as Turkistan at the time, included *maktabs* (schools) and *madrasas* (colleges), both funded by the landed estates and charitable donations. *Maktabs* taught basics skills of reading and writing, and more talented students, usually by the age of 14, went to study at *madrasas* where they would spend another 10 years studying theology, literature, law, philosophy, and other 'worldly wisdom' (Allworth, 1994; Majidov et al., 2010). One of the universities in modern Uzbekistan, the Samarkand State University, claims to be a spiritual heir to Samarkand's well-known 15th century *Madrasai Oliya* (Higher Madrasa) established by Ulugbek - a Timurid King and Astronomer - where advanced math and astronomy were also taught. The country's first modern and secular higher education institution (HEI), the Turkistan National University, was created in April 1918 in Tashkent under the Soviet rule. The name of the university changed several times since then: to the Central Asian State University in 1923, to the Tashkent State University in 1960, and finally to the National University of Uzbekistan in 2000.

This paper is the first study that carefully documents the evolution of higher education reforms in Uzbekistan since the demise of the former Soviet Union. It examines key HE reforms undertaken in Uzbekistan since independence and analyses the impact of these reforms on the

changing landscape of the HE system in the country. The study highlights complex interactions between policy legislation and its implementation on the one hand, and the demands of the new market-based economic system and the requirements of building and strengthening state institutions on the other hand.

In the next section, we provide brief background information on Uzbekistan's unique approach to transition, as it closely resonates with the country's HE system reforms. The basic determinants of demand for HE since independence is discussed in Section 3. In Section 4, we discuss the key characteristics of the HE system at the time of independence and examine fundamental and systematic HE reforms introduced since 1991. The impact of the HE reforms in shaping the current HE landscape in the country is analysed in Section 5. Finally, discussions and concluding remarks are presented in Section 6.

Uzbekistan's General Approach to Economic Reforms

Unprecedented political and economic developments that swept across the former communist bloc countries in the late 1980s and the early 1990s did not leave Uzbekistan unaffected. Similar to other former Soviet republics, the country gained its independence in 1991 after the dissolution of the former Soviet Union (FSU). The disintegration of the FSU was seen by many as the final proof of the triumph of a market-based economic system over a centrally planned one. Following the prevailing euphoric expectations at the time about the advantages of a market-based economic system, Uzbekistan also joined the crowd of other post-communist economies and committed itself to a transition towards a market economy.

Transition from a centrally-planned economy to a market-based economy requires fundamental and comprehensive reforms in both socio-political and economic spheres of life. In terms of the former, this entails a move away from a single-party administrative bureaucratic system towards a multi-party civil society based on democratic institutions, and a replacement of the communist ideology with a national ideology that was consistent with democratic values and free market principles. In terms of the latter, this involves introduction and protection of private property rights, privatisation of state-owned enterprises, and facilitation of private entrepreneurial

initiatives. Further institutional reforms in the monetary, banking, fiscal and judiciary systems, as well as liberalisation of prices and achievement of macroeconomic stabilisation, are needed to support the transformation process. Changing the structure and composition of subject-disciplines taught at higher education institutions (HEIs) and reorientating the priorities of the HE system are equally important as the system prepared personnel for the new economic system and social order.

Although the Uzbek government agreed with the essence of this comprehensive reform package, which was developed and endorsed by influential international financial institutions such as the International Monetary Fund and the World Bank, its gradualist approach to transition was unique in terms of the pace, sequencing, and prioritisation of reforms, resulting in the so called "Uzbek model" of economic development (Pomfret, 2000). The Uzbek model emphasised, among other things, the guiding role of the state during transition, the precedence of economics over politics, and the gradualist approach to reform implementation (Karimov, 1995 and 1998). Hence, in principle, Uzbekistan adopted a 'developmental state' approach to transition: the authorities decided to maintain a complete control over the "commanding heights" of the economy, including the HE sector, the transport, communications and media industries, and the financial, agricultural and extractive sectors.

The regulations do allow entry of small scale private enterprises to some of these sectors such as the financial and agricultural sectors, but large enterprises with systemic importance remain state-owned and hence state-controlled. In other sectors, such as the HE sector and extractive industries, however, no direct private sector participation is permitted. It is, therefore, not surprising that Uzbekistan's general approach to HE reforms has been described as top-down and strictly centralised, offering little or no autonomy to HEIs in matters concerning course design, student intake, and management of own finances (Weidman and Yoder, 2010).

Dynamics of the Determinants of HE Demand: A Background

The supply of and the demand for HE services play equally important roles in shaping the structure of a national HE sector. Given the vitally important role of the HE sector in the economic process, public policy and regulation ultimately determine the quantity of HE supply and at what cost it will

be provided. The key demand-side factors, on the other hand, include structural transformation of the economy, changing demographic conditions, and improvements in per capita income levels. Before embarking upon a detailed analysis of the HE policy and regulation, we will discuss these demand-side phenomena briefly.

With population of over 20 million people, Uzbekistan was the third largest former Soviet republic behind the Russian Federation and the Ukraine in 1990. It was, however, one of the poorest and least industrialised countries of the Soviet Union: its per capita income level in 1988 was only 62% of the USSR average and the share of industrial production in GDP was 33% in 1990 (Ruziev *et al.*, 2007). The country's population increased from around 21 million in 1991 to around 31 million in 2014 (ADB, 2015). Further, the share of the 14-24 year olds in the general population expanded by over a million between 1990 and 2015, which highlights a significant expansion of demand for HE services during independence.

Figure 1 shows data on the changing structure of the economy during independence. In 1993, and in terms of the national income, agriculture accounted for 36%, manufacturing, mining, energy and construction sectors jointly accounted for 35%, public administration, trade and transport for around 10%, and financial and other services for the remaining 19% and as the economy slowly moved towards a free market system, some sectors shrunk and others expanded in relative size. Most notable changes can be observed in relation to agriculture, which fell by almost half, to 17% of GDP by 2012, and services, which increased from around 30% of GDP in 1993 to more than 50% of GDP in 2012. Although the share of the manufacturing, mining, and energy sectors in national income remained relatively stable during this time, their composition changed. While some of the industries shrank in size or disappeared (e.g. agricultural machine building, and airplane building industries shrank and disappeared respectively), others emerged and expanded (e.g. a strong automotive industry emerged, and mining and energy sectors expanded).

<Figure 1 about here>

As the composition of the economy changed, so did the structure of demand for labour. As can be seen in Figure 2, in 1991, more than 40% of the employed labour force worked in agriculture, 14% in industry, and the rest in other sectors of the economy. By 2012, only 27% of the employed

labour force worked in agriculture, 13% in industry, and the remaining 60% in the services sector. The growing importance of the services sector is a natural phenomenon as the sector was underdeveloped under central planning. Further, the demand for services is expected to increase even more with rising per capita income levels: it is estimated that four in every five new jobs created in the economy between 2010 and 2030 will be in the services sector (World Bank, 2014, p. 28).

<Figure 2 about here>

In terms of economic performance, the size of the economy expanded and per capital income levels also rose notably during transition after a slight dip in the early 1990s (Ruziev et al., 2007). The economy experienced strong and sustained growth of around 8% per year since the mid 2000s. The country's GDP, measured in current US dollars terms, grew from around $US13 billion in 1990 to more than $US63 billion in 2014. And, in PPP dollar terms, it grew from $US62 billion in 1990 to around $US165 billion in 2014 (World Bank, 2015). Per capita income levels also rose during this period. GDP per capita rose from around $US650 in 1990 to more than $US2000 in 2014 in current US dollar terms, and from around $US3000 in 1990 to $US5300 in 2014 in PPP dollar terms. In terms of income distribution, limited available data indicate an inverted U-shaped behaviour for the 1988-2003 period: the Gini coefficient was 24 in 1988, 44 in 1998, 36 in 2000, and 35 in 2003 (World Bank, 2015).

The demand for HE increased strongly during independence in response to changing economic conditions and demographic dynamics, necessitating a supply-side transformation in the HE sector. In line with the authorities' generally cautious and gradualist approach to transition, however, the HE sector reforms were introduced only slowly and gradually. Some important changes, albeit of ad hoc nature, such as the enactment of the Law on Education in 1992, and the prioritisation of accounting, banking, economics, and other business related disciplines - deemed particularly important in the early years of transition - were introduced in the first half of the 1990s. But, truly fundamental and systematic reforms were introduced only in the second half of the 1990s.

Key HE Reforms since Independence

Upon independence in 1991, Uzbekistan inherited an education system that was organisationally and structurally similar to those found in other members of the FSU. In 1988-89, there were 43 HEIs in Uzbekistan, including 40 specialised institutes and 3 generic universities. Around 310 thousand students studied five-year taught degree courses in these HEIs, of which around 45% were enrolled in courses offered in evenings and by correspondence (Brunner and Tillett, 2007, p. 158). Almost half of the student population specialised in education, a quarter in industry and construction, around 10% in agriculture, and the rest in other areas such as healthcare and sports, transport and communications, and economics and law (Goskomstat, 1989). With approximately 15% of the relevant age cohort studying at HEIs in 1991, access to higher education in the country was one of the lowest in the former Soviet Union (UNDP, 2009).

Of the 40 specialised institutes, which concentrated on specific fields of knowledge such as agriculture, medicine etc., 14 were teacher-training institutes specialising in the area of education, 10 in engineering and technical studies, 7 in medical-pharmaceutical studies, 3 in agricultural studies, 3 in arts and culture, 3 in national economy and cooperative services, and in 1 physical training and sports. The three generic universities offered HE courses in wide range of specialisations - except for medicine - and were also larger in size, collectively accounting for around 12% of the overall student population. The universities were better funded, more prestigious and located in major politically and economically important cities such as Tashkent - the capital city since 1930, Samarkand - Uzbekistan's first capital city until 1930 and the country's cultural centre, and Nukus - the capital of the Karakalpak Autonomous Republic.

<Table 1 about here>

Another peculiar feature of the pre-independence HE system in Uzbekistan is that almost half of the HEIs were located in Tashkent, where around 60% of the student population also studied (see the last two columns of Table 1). The concentration of the HEIs in Tashkent was influenced by a combination of factors. First, most of the manufacturing industries in pre-independence Uzbekistan were concentrated in and around Tashkent which made the city the most prosperous administrative region in the country - its per capita output exceeded the national average by more

than two and a half times. Second, Tashkent was the largest regional city in central Asia with around 2 million population in 1990 and had been historically seen as a higher education hub for the country and the central Asia region. For example, the National University of Uzbekistan bore the name the Central Asian University until 1960, and the Tashkent Institute of Paediatric Medicine was called the Central Asia Institute of Paediatric Medicine until 1988, both playing regionally important roles in central Asia at certain points in their history. Third, as a rule, almost all regions had teacher-training institutes. Regionally important agricultural and medical institutes existed only in some regions such as Samarkand and Andijan. Some of the regions such as Bukhara and Qashqadarya, which had strong natural gas and associated processing industries, also hosted technical institutes.

In line with the Uzbek authorities' general approach to transition, reforms were introduced only gradually to the education system in general and the HE sector in particular. The Law on Education, which was enacted on 2 July 1992, provided the legal foundations and laid the underlying philosophical principles for carrying out further reforms in the education system. It emphasised, among other things, a secular and ideology-free nature of the new education system. The timeline of the key HE changes since independence is illustrated in Figure 3 below.

<Figure 3 about here>

Several new HEIs were created in quick succession in the early 1990s, taking the total number of HEIs in the country to 58 by 1995-96. The rationale for setting up these new HEIs was dictated by both the demands of the new economic system and the new statehood which necessitated strengthening and expanding of state institutions. For example, transition to a market economy required a considerable expansion of the financial sector to ease the financing constraints of the emerging private sector. Further, the decentralisation of inter-enterprise relations, coupled with the exponential increase in the number of small and medium enterprises, necessitated the enlargement of the tax collection apparatus to fill up the state coffers. Likewise, the independent statehood also required establishing some new state ministries and agencies such as the ministry of foreign affairs, the ministry for foreign economic relations, the state customs agency etc., and expanding others such as the ministry of internal affairs, the ministry of defence etc. to maintain the law and order and to patrol the national borders. In the short run, the personnel shortages in these areas were filled in

by selecting and retraining teacher-training graduates who were in relatively abundant supply by default. The authorities set up the new specialist HEIs, also expanding the profiles of the existing ones, as a longer term solution to prepare specialists for new and emerging sectors.

Most of the new HEIs were created by dividing the existing HEIs and only a few were created from a new. For example, the Tashkent Institute of Finance and the Tashkent State University of Economics emerged from the foundations of the former Public Economy Institute. The World Economy and Diplomacy University, which focused on preparing specialists for state-institutions in the areas of international economic and political affairs, was established from a fresh in 1992 at a venue previously occupied by the former Communist party school in Tashkent.

Several private HEIs briefly emerged in the first few years of independence. But, generally, these institutions had low entry requirements; and most were not adequately resourced in terms of personnel and physical infrastructure. Only one of these institutions, the Tashkent Institute for International Economic Relations and Entrepreneurship (TIIERE) was able to obtain an official licence. However, fearing sub-standardisation of HE degrees, the government soon decided not to allow any private sector involvement in the HE sector, resulting in the demise of a newly emerging market segment. TIIERE's license was also revoked just a few months after the start of the academic year in 1993. To this day, all of the HEIs in the country, with the exception of the branches of foreign universities, remain publicly-owned.

The reorganisation of the HE entrance examination rules, which attempted to remove abusive discretionality from the HE examination process, was arguably the most significant reform of the early 1990s. Admissions to HEIs before independence were based on oral and/or written entrance examinations, usually in three relevant subject areas, administered locally at each HEIs. However, public concerns about the subjectivity of such exams and their susceptibility to corruption grew especially strongly in the late 1980s and the early 1990s. In order to radically improve fairness of access to HE and to limit widespread corrupt practices, a new centralised testing system, based on multiple choice questions and an automated marking system, was piloted in selected HEIs in 1993. The new system of testing HE candidates was formally adopted across all HEIs (except for HEIs specialising in performance-based disciplines such as arts and sports) in 1994. The State Test Centre

(STC), accountable directly to the Cabinet of Ministers, was formally set up in May 1994 to administer the new HE entrance examination system.

As elsewhere in the FSU, HE was universally free in pre-independence Uzbekistan: there were no tuitions fees and students were paid stipends, scaled on students' academic performance, to cover living expenses. But, the Uzbek authorities changed this tradition partially in 1994, by introducing a dual track funding formula for HE tuition fees. Under the new funding regime, only a part of the HE places are publicly funded - the so called 'grant places', and the remaining places are funded privately - the so called 'contract places'. The allocation of the fixed grant places, which are subject to an annual review, are merit-based depending on the entrance examination results, with top entrance examination performers being offered government grants. But, students, irrespective of being funded publicly or privately, are still offered merit-based monthly stipends as in the past.

Although the reforms of the early 1990s changed the nature of the HE system to a considerable extent, the institutional structure of the system remained relatively intact. Comprehensive reforms requiring a complete overhaul of the entire education system were initiated only in the second half of the 1990s. The government's vision for the education system was formulated in the official reform programme referred to as 'The National Programme for Personnel Training' (NPPT), which became law in August 1997. The programme was born out of the government's belief of the non-reversibility of the move towards a market-based economy, and an appreciation of the fact that developing an education system consistent with market principles was vital in pursuit of economic prosperity (ADB, 2004, p.94). Nevertheless, NPPT was still an embodiment of the government's strictly top-down approach to HE reforms as it did not grant HEIs any autonomy in important matters such as designing new HE courses and managing own finances.

NPPT aimed at creating an education system that reflected national values, met personal aspirations, and produced highly qualified specialists that the new economic system demanded; it was also seen as an opportunity to formally and comprehensively de-ideologise the education curriculum, and to increase the range and structure of degree programmes offered at HEIs. NPPT was a state-initiated and fully-funded programme involving a strict top-down implementation plan coordinated by the Cabinet of Ministers and aided by other government institutions such as the

Ministry of Higher and Secondary Specialised Education (MHSSE), and various other ministries linked to particular HEIs in their areas (e.g. the Ministry of Health is linked to Medical HEIs etc).

NPPT set out clear timescales to achieve its reform targets. Stage 1, which covered the 1997-2001 period, involved creation of an appropriate infrastructure necessary for the implementation of the programme, which included developing new curricula, teaching and learning resources, and exploring alternative sources of HE funding. Stage 2, which covered the 2001-05 period, was set out to promote a nationwide drive for development of teaching content, including textbooks, electronic and online learning materials. It also reorganised the existing five-year academic degree courses, and research based *aspirantura* and *doktorantura* programmes in HEIs into a Bologna process style Bachelor's degrees (four-years), Master's degrees (two years), and PhD programmes. And Stage 3, which covered the period beyond 2005, was intended to fine-tune the programme after the first five years of the implementation. In May 2011, the government adopted a new programme, covering the 2011-16 period, which focused on improving physical and human resources at HEIs, including upgrading information-technology facilities and raising the quality of HE degrees and courses.

Reforms and the Current Landscape of HE

As a result of the reforms mostly associated with NPPT, both the HEIs and full-time student numbers increased significantly in the post-independence period. The number of HEIs affiliated with the MHSSE increased from 43 in 1989 to 78 in 2015, and the number of full-time students increased from around 180 thousand to around 250 thousand during this time. However, HE courses offered in evenings and by correspondence were gradually phased out by the late 1990s, thereby making HE study a full-time preoccupation only. The reforms also affected the vertical and horizontal organisational structure of the HE system. Table 2 provides some information about the horizontal diversity of the HE sector in terms of the type of HEIs. HEIs can be classified into six types under the new HE system. These include generic universities, specialised universities, institutes, academies, regional branches of the specialised HEIs, and branches of foreign universities. Of the 78 HEIs in Uzbekistan in 2015, 11 were generic universities, 10 were specialised universities, 35 were

institutes, 2 were academies, 13 were regional branches of domestic HEIs, and 7 were branches of international HEIs. With the exception of the foreign university branches, all HEIs in Uzbekistan are state-owned.

<Table 2 about here>

With the exception of the three universities that existed before independence, the generic universities were created on the basis of the former regional teacher-training pedagogic institutes. Generic universities, e.g. the National University, the Samarkand State University, the Ferghana State University etc., are the largest of the HEIs in terms of both student numbers and the number of taught subject specialisations. Specialised universities, e.g. the Tashkent State University of Economics, the University of the World Economy and Diplomacy, the Tashkent State Technical University etc., offer programmes in narrower areas of specialisation and are also smaller in size compared to generic universities. As a rule, HEIs that are considered to be relatively important in their area of specialisation, and also have relatively large student population, are given a specialised 'university' status. All regional branches of domestic HEIs belong to Tashkent-based HEIs and are established in regional capital cities. Academies are leading scientific-methodological centres in specific fields, so their status is more superior compared to that of universities and institutes. They offer postgraduate degrees and continuous professional development and executive re-training courses although the Academy of Medicine also offers undergraduate degrees.

Foreign university branches (FUBs), which are set up as public-private partnerships (World Bank, 2014), are a relatively new phenomenon in Uzbekistan's HE system. FUBs were set up as a government initiative. In the late 1990s, the government experimented with competitively selecting up to 800 HE students annually from Uzbek HEIs and funding their studies at HEIs in advanced economies such as the USA, the UK, Germany, and Japan. The government saw the establishment of FUBs, which offered internationally recognised HE courses at home, and hence ensured greater positive externalities and spill-overs in terms of specialist preparation, as a cost-effective alternative to this scheme.

The Russian Economics University was the first FUB to establish its branch in Uzbekistan in 2001. The London-based Westminster University established a branch in Tashkent in 2002. The

next FUB was opened in 2006 by the Moscow State University. The Russian Oil and Gas University and the Management Development Institute of Singapore opened their Tashkent branches in 2007. The Turin Polytechnic University, Italy opened its branch in 2009, and finally, Inha University, South Korea opened its branch in 2014. FUBs administer their entrance tests independently and enjoy complete autonomy on curriculum design. However, mostly due to regulation, FUBs have not yet grown into serious players in the HE market: their combined student population was less than 6000 in 2015-16 which is less than 3% of the country's HE student population.

Figure 4 illustrates a peculiar HE sector structure that emerged in the post-independence period. HEIs are subject to multiple layers of accountability, resulting in the duplication of administrative control which limits the capacity of the MHSSE to manage the HE system strategically and limits the HE system's ability to flexibly adapt to changes (Weidman and Yoder, 2010, p.63). The Cabinet of Ministers, which sits at the top of the governance hierarchy, is in charge of all key decisions concerning the HE system. It sets the state educational standards, determines the funding methods, number of study streams, student enrolment numbers, including the proportion of enrolment places that are publicly funded, and approves senior management level appointments at HEIs. The State Test Centre administers HE entrance examinations and carries out accreditation and ranking of HEIs. The role of MHSSE in managing the HE sector is therefore mostly complementary as it is limited to supervision of HEIs, approval of secondary legislations, provision of methodological guidance, organisation of the academic year, etc. The administrational influence of MHSSE over HEIs is further weakened by that fact that of the 78 HEIs supervised by MHSSE, 27 are also accountable to various ministries and state agencies to which they are formally attached. For example, the Academy of Medicine is attached to the Ministry of Health; the University of Agriculture is attached to the Ministry of Agriculture and Water Resources, etc.

<Figure 4 about here>

In addition to the 78 HEIs affiliated with MHSSE, there are several other providers of specialist HE training which are outside the influence of MHSSE, as depicted on the bottom left corner in Figure 4. These institutions specialise in personnel preparation for various state departments and agencies. Some of the HEIs belonging to this category are directly linked with

various government offices serving the national security and upholding the rule of law such as the National Security Service and the Ministry of Internal Affairs. Others have more civilian credentials, e.g. the Academy for State and Social Construction under the Office of the President, the Graduate School of Business under the Cabinet of Ministers, and the Banking and Finance Academy affiliated with the Bankers' Association. All of these HEIs are accountable directly to the Cabinet of Ministers and respective government ministries that they are attached to and little information is publicly available about their student enrolment figures, funding models etc.

Given Uzbekistan's peculiar context, it is difficult to differentiate the diversity of the HEIs in terms of status and prestige afforded by legislature. For example, all HEIs, with the exception of regional branches of HEIs, are allowed to offer undergraduate, postgraduate, and PhD courses. In de facto terms, however, the specialist institutions supporting state-institutions are considered the most prestigious by both the general public and the civil service institutions as they play an important role in elite regeneration. As proxies for talent, HE certificates from them are often used as the minimum requirement to get relatively important bureaucratic positions. They are followed, in the order of importance, by academies, generic universities, specialist universities, and institutes. Anecdotal evidence from HE insiders at the time of this study suggests that the most senior positions for academies and universities are appointed by the President and those for institutes are decided by the Cabinet of Ministers.

Figure 5 illustrates the geographic distribution of HEIs and their student populations across the country in 2012-13, another measure of horizontal diversity. The vertical axis measures the number of people residing, and the horizontal axis measures the number of students studying, in each of the fourteen administrative regions in the country. The size of the bubbles measures the number of HEIs in each region. Almost half of the HEIs were based in Tashkent in the pre-independence period. Although a number of HEIs were created across the regions since the early 1990s, a disproportionately high number of HEIs are still located in Tashkent city - 34 out of 78. Similarly, in 2012-13, of the approximately 252,000 students enrolled in HEIs around 40% studied in Tashkent. The figure is a slight improvement to the pre-independence figure of 60%, which is mainly down to the transformation of regional teacher-training institutes into generic universities and expansion of their size.

<Figure 5 about here>

The number of full-time students studying at HEIs increased noticeably during the post-independence period. However, more robust measures of access to HE that take into account population demographics and dynamics of demand for HE depict a gloomy picture. The number of HE graduates per 10,000 people dropped from around 28 in 1993 to around 14 in 2001; similar, but less dramatic, trends can be observed regarding the gross enrolment rates which fell from around 15 in 1991 to around 9 in 2012 (World Bank, 2014, p.23).

Additional data that sheds further light on this matter is presented in Figure 6, which illustrates the growing mismatch between the demand for and the supply of HE places for the 1996-2014 period. The number of HE applications, which measures the effective demand for HE, increased from 106 thousand in 1996 to more than 540 thousand in 2014 - more than fivefold increase in demand. Unfortunately, the HE enrolment places, which measure the supply, increased only modestly during this period, going up from around 49 thousand in 1996 to 58 thousand in 2014. As a result, the mismatch between the HE demand and supply widened significantly since 1996. Furthermore, the number of applicants per 100 HE places increased from 342 in 1989 (Balzer, 1992, p.178) to 938 in 2014 - almost a threefold increase.

The observed mismatch between the HE supply and demand can be explained partly by the changes observed in population demographics and improvements in per capita income levels since independence. However, policies in the secondary specialised education (SSE) sector, which progressively phased out the upper, professional and specialised secondary schools and replaced them with academic lyceums and professional colleges, as well as the rationing of the HE supply also contributed to the increasing mismatch between the HE demand and supply. The reorganisation and expansion of the size of the SSE sector lowered the labour market return on middle education and encouraged a greater number of SSE graduates to seek entry into HE. This, coupled with the rigidity of the HE supply and the fact that applicants' are given only a single university choice each year, created a bottleneck effect as unsuccessful but ambitious applicants attempt entry into HEIs the following year again. Therefore, it is no surprise that in 2014 the number of applicants for HE places exceeded the number of secondary and SSE graduates by about 8%.

<Figure 6 about here>

Furthermore, the data for HE student specialisations for the 2007-12 period shows that the distribution of the specialisations was driven mostly by the government's policy priorities rather than in line with changing economic conditions (World Bank, 2014). Despite the changing structure of the economy as described in Figures 1-2, the distribution of the student population across most of the broad specialisation areas did not change notably during this period: around 5-7% of the students specialised in transport and communications, 7-10% in economics and law, around 8% in healthcare, and around 1% in other disciplines such as arts. Furthermore, although the share of agricultural production in the country's output nearly halved, the share of students specialising in agriculture fell only marginally from 9% in 1989 to 7% in 2012; given the fact that the 2012 figure reflects only full-time students, this might actually imply an increase in full-time to full-time comparisons. The most dramatic changes, however, occurred in relation to education. The success of the government's decision to fundamentally reform and expand the secondary specialised education system would depend on the availability of subject-specialist teacher-trainers for professional colleges. Subsequently, more than half of the HE entrance places were allocated to education. In its peak in 2009, of the approximately 300 thousand HE students, around 170 thousand specialised in education. Since then the number of the students specialising in education fell by around 45 thousand, also driving the overall student population down to around 250 thousand by 2012.

The analysis of the supply and demand factors in the HE indicates an urgent need for the expansion of the supply of HE provision. However, this has to be done without sacrificing the quality standards. The existing human resource capacity of the HE system seems inadequate for this task; as can be seen in Table 3, which details the highest academic qualifications of full-time academic members of staff at HEIs in 2013, almost two-thirds of full-time members of staff had no scientific qualifications. In addition, Uzbekistan's HE system scores lowly in important indicators of human capital such as the number of patent applications and journal publications. In 2009, the number of patent applications per million people was only 19, and the number of technical and scientific journal publications per million population was only 5 (World Bank, 2014, p.8). The relatively poor quality human capital at HEIs hinders the HE sector's contribution to overall

economic performance in terms of research and innovation; and more importantly, it also significantly constrains the government's future attempts to expand access to HE.

Uzbekistan spends around 8-10% of GDP on its education system, a relatively high figure for a country of Uzbekistan's per capital income level (Weidman and Yoder, 2010; World Bank, 2014). However, only a small proportion of this budget is spent on HE; in fact, the share of HE spending on education declined from 10% in 1990 to around 5% in 2013 (World Bank, 2014, p. 72). This is partly explained by the authorities' conscious attempt to fund an increasingly higher proportion of HE expenditure through private (personal) financing. With the introduction of private funding of HE tuition fees, the share of government funding of HE enrolment places decreased from 100% in 1990 to around 33% in 2015 (MHSSE, 2015). In 2013, the average tuition fee for domestic HEIs was around US$1,400 and for international ones around US$4,400 (World Bank, 2014, p.62). Another peculiarity of Uzbekistan's HE funding model is that up to 40% of the HE system budget is spent on student stipends, of which only one third comes from the state budget (World Bank, 2014, p.80).

Discussion and Concluding Remarks

Uzbekistan undertook important reforms in its HE sector since becoming independent in 1991. Initially, in the early 1990s, some important, albeit ad hoc, reforms were implemented. But this changed when NPPT was formulated and made into a national law in 1997, transforming the structure and organisation of the HE system drastically. The most important changes since independence can be highlighted as follows: introduction of an automated entrance examination regime overseen by the State Test Centre; adoption of a Bologna process-style three cycle HE system comprising bachelors, masters, and doctorate programmes; allowing entry of foreign HEIs into the HE system; and moving away from a fully public-funded model of HE towards the one that increasingly relies on personal financing. The number and variety of HEIs in students studying full time HE courses also changed during this period. The HEIs numbers increase from 43 in 1989 to 78 in 2015; and the types of HEIs now include academies, generic universities, specialised universities, institutes, regional branches, and FUBs. The number of students studying full time HE courses increased from around 180 thousand in 1989 to around 250 thousand in 2015.

The demands of the new market-based economic system and the requirements of building and strengthening state institutions to support the transition process were the key drivers for HE reforms - factors inspired by the global events beyond the control of the national authorities. Uzbekistan's general approach to transition has been about managing, rather than resisting, the prevailing 'winds of global change'. Therefore, although the creation of the new HEIs, including expanding taught HE subject-disciplines, were dictated by global trends, ultimately the state was and remains the main initiator and implementer of the reforms in the HE sector. This strictly top-down approach to reforms, however, has not been successful on improving a number of key areas including management and organisation of HEIs, access to HE, and the quality of human and physical capital at HEIs.

The current structure of HE management, with several levels of official control over the activities of HEIs, is too rigid to adjust the provision of HE services to the changing needs of a dynamic market economy. To this date, the student enrolment numbers, the number of study streams and subject areas, and even the curriculum content, are all presided by various government departments. Despite generating more than two-thirds of their funding from the private sector, HEIs are unable to use these funds freely, including in matters concerning remuneration of members of staff. As a result, staff salaries are generally low and do not incentivise a sufficient number of talented individuals to commit themselves to, and invest in, and retain over the long-term. Further, although HE enrolment numbers increased during the early years of independence, this did not take into account demographic factors and changing demand conditions described in Section 2. As a result, the mismatch between demand for and supply of HE increased considerably in the post-independence period.

HEIs should be given greater autonomy to manage their finances more freely and also be able to decide independently on things like programme design, research conduct and student enrolment numbers. The combination of these factors is likely to result in an environment where HEIs will compete with each other for the best talent, students and staff domestically and increasingly internationally. Greater competition amongst HEIs, which is lacking at the moment, will help eradicate some of the administrative inefficiencies observed today. Further, given the growing mismatch between the demand for and the supply of HE services, the authorities should

reconsider allowing private sector entry into the sector albeit under strict regulation, supervision and oversight.

Another important issue to be addressed is the method of offering HE funding to students. At present 38% of all student places at HEIs are publicly-funded; the public funds also contribute to about 36% of student stipends. Both of these funding opportunities are merit-based: government grants are offered to top scoring applicants and student stipend payments are scaled on academic performance. Since students from lower income households are more likely to be in need of financial help, moving away from a merit-based system towards a means tested system will result in more equitable public sector funding, which will ensure greater access to HE and better opportunities for social mobility.

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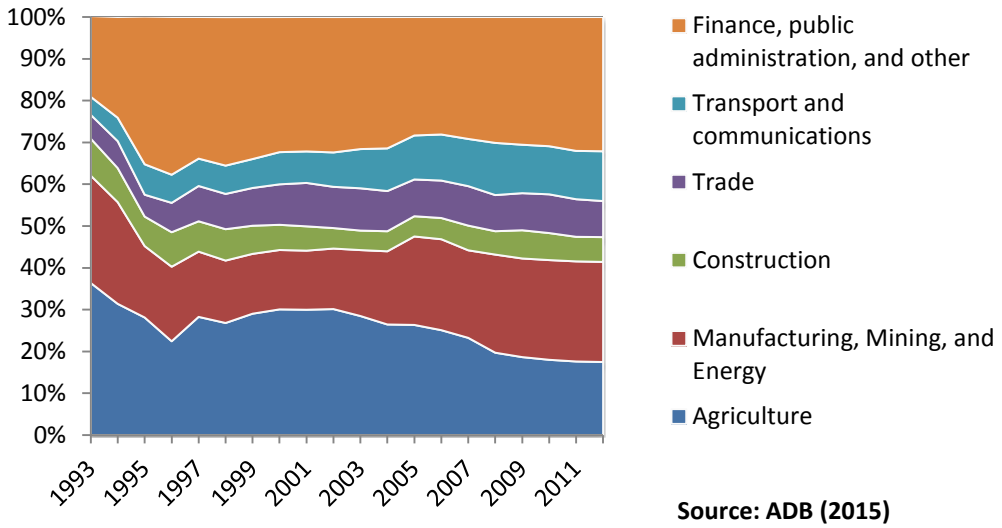
FIGURES & TABLES:

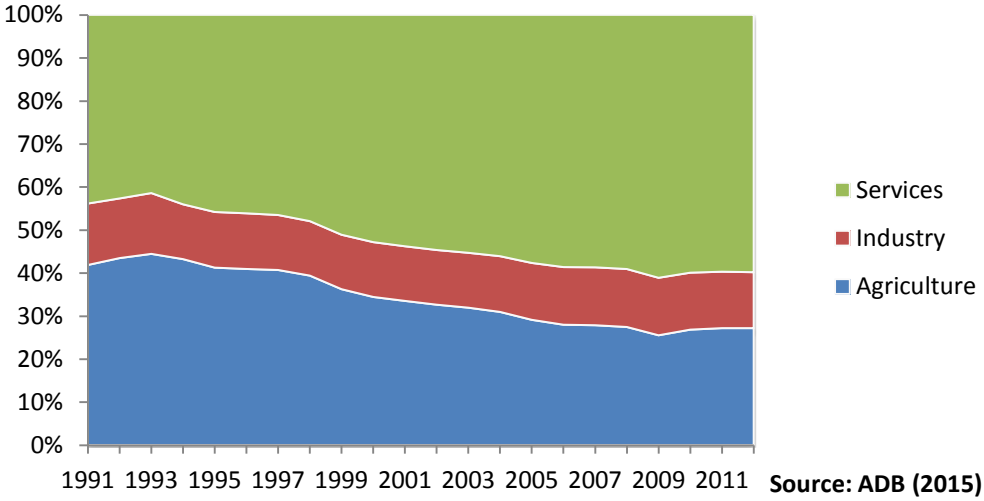
1. FIGURES

Figure 1. Share of GDP by Industrial Origin in Uzbekistan, 1993-2012.



Source: ADB (2015)

Figure 2. Employment by Sectors of Economy in Uzbekistan, 1991-2012.



Source: ADB (2015)

Figure 3. Timeline of Key Changes in HE since Independence.

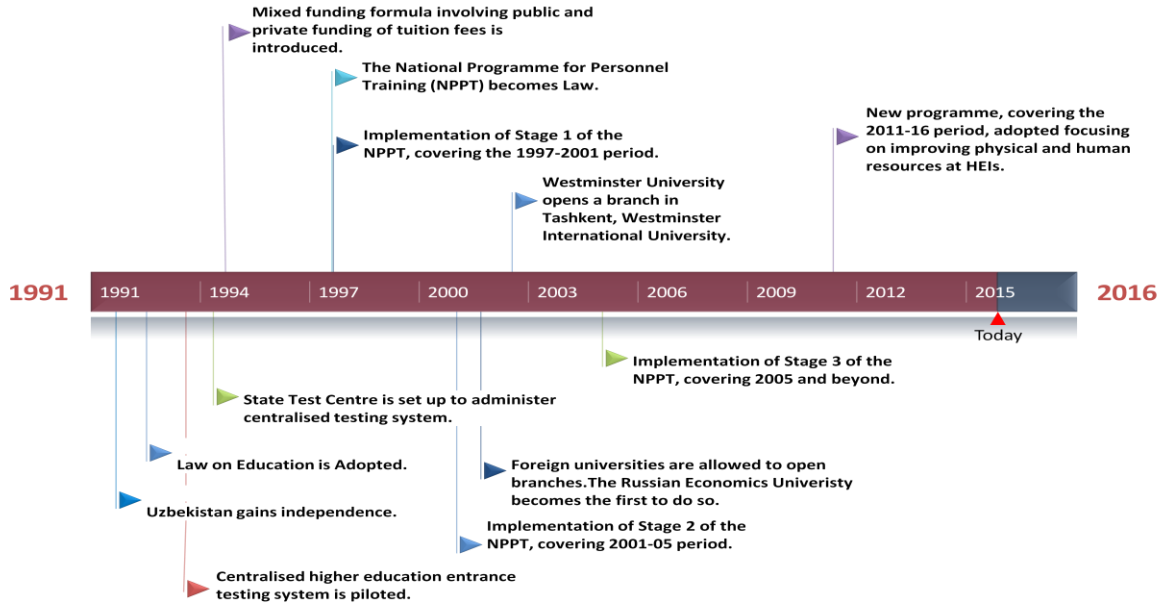


Figure 4. Hierarchical Structure of the Higher Education System in Uzbekistan.

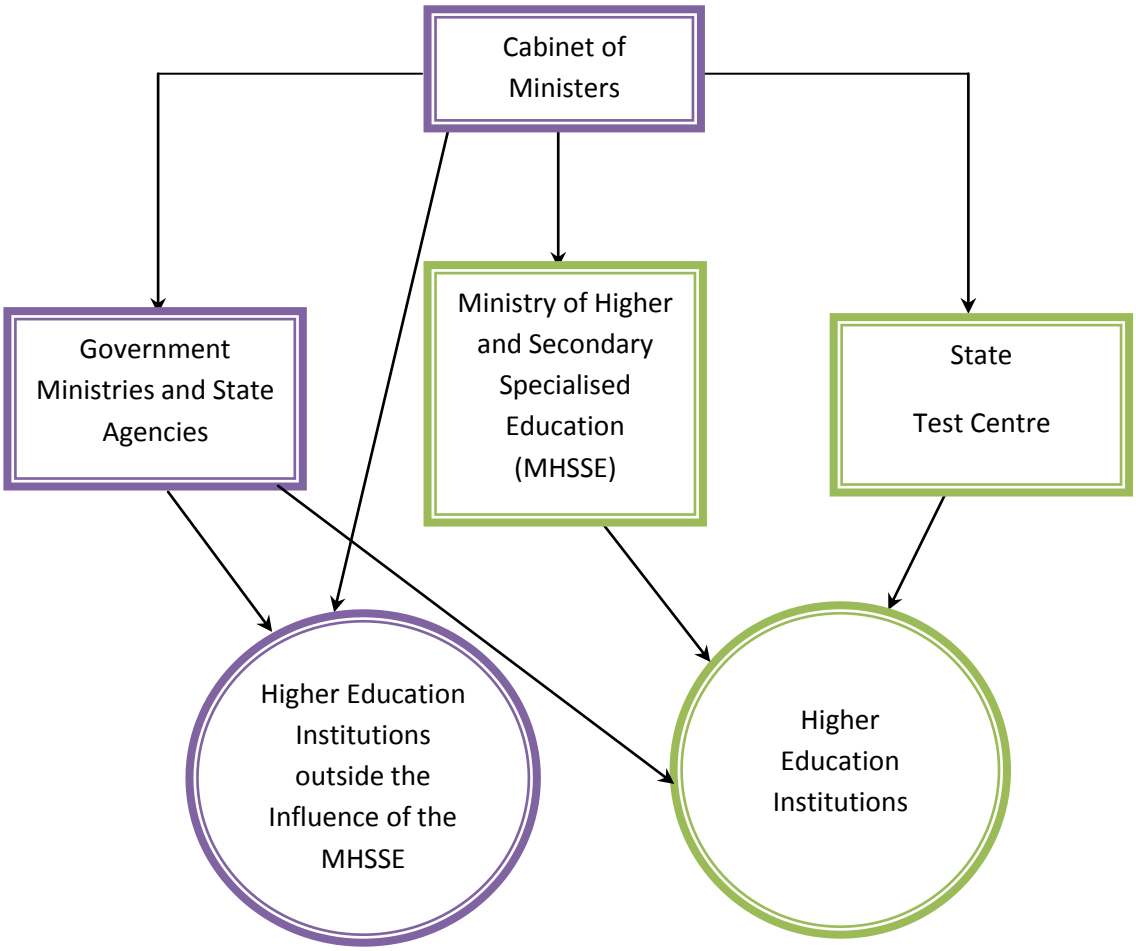
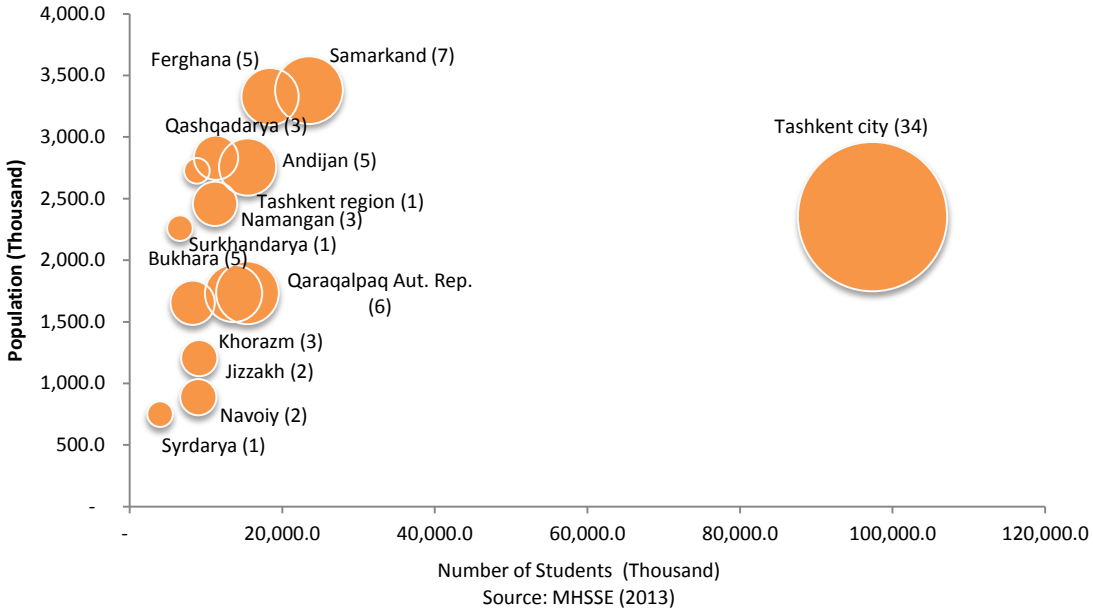
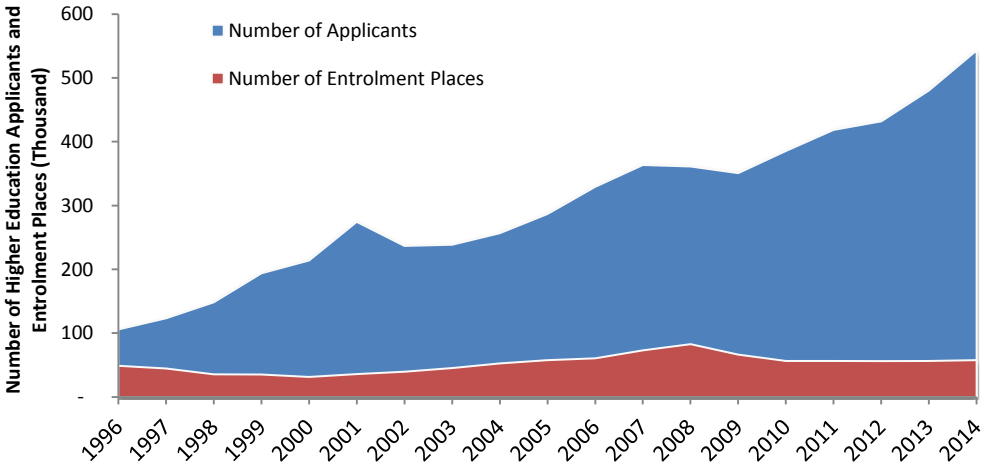


Figure 5. Geographic Distribution of HEIs and Student Population in 2012-13.



Source: MHSSE (2013)

Figure 6. Demand for and Supply of Higher Education Places, 1996-2014.



Source: MHSSE (2015)

2. TABLES

Table 1. Horizontal Diversity by Type of HEIs in 1988-89.

HE Types	Number	Student Population	Located in Tashkent	Student Population in Tashkent
Generic Universities	3	36964	1	19300
Specialised Institutes	40	271908	18	162900
Total	43	308872	19	182200

Source: Goskomstat (1989)

Table 2. Horizontal Diversity by Type of HEIs in 2015.

HE Types	Number	Average Student Population	Average Number of Subject Specialisation
Generic universities	11	6242	35
Specialised universities	10	5054	23
Institutes*	35	3236	17
Regional branches of domestic HEIs	13	671	4
Academies	2	2305	3
Branches of foreign universities	7	820	na

Note: * Includes the State Conservatoire and the Higher School of Dance and Choreography
Source: Authors' calculations from various official sources.

Table 3. Academic Qualification of Full-time Staff at HEIs in 2013.

	Domestic HEIs		***International HEIs***	
	Number	***% of Total***	***Number***	***% of Total***
Doctor of Philosophy/Science	1314	*6.1*	21	*9.7*
Candidate of Science	7491	*34.5*	56	*25.9*
No Scientific Qualification	12893	*59.4*	139	*64.4*
Total	21698	*100.0*	216	*100.0*

Source: MHSSE (2013)

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