

ECONOMIC ANALYSIS

A. Sector Context and Economic Rationale

1. The Government of Mongolia assigns high priority to education, spending 7.5% of the gross domestic product or 15.1% of total government expenditures in 2016. Five years of primary education and 4 years of junior secondary education are compulsory and provided free of charge. Of the total 768 schools, 636 or 82.8% are public. Three free years of pre-primary education are provided at public kindergartens (826 or 64.1% of kindergartens). In SY2015 the net enrollment rate (NER) reached 74.4% for pre-primary education, 96.3% for primary education, 94.1% for junior secondary education, and 68.7% for senior secondary education.¹ Severe cuts in the education budgets in 2017 and beyond, however, greatly constrain the government's capacity to sustain access to and quality of education, which has been deteriorating partly due to the growth of kindergartner and school-age population.

2. The deterioration in access to and quality of education is due to the lack of available seats at schools and kindergartens. From SY2012 to SY2015, student enrollment in schools increased by 7.8%, outpacing the rate of increase in the number of schools (1.7%). Enrollments in kindergartens have grown more dramatically, by 24.5%, though 343 more kindergartens (36.3% increase) have been built to offset the enrollment growth. Ulaanbaatar saw a particularly significant expansion in student enrollment, recording an 18.1% increase in schools and a 41.5% surge in kindergartens, largely because of rural–urban migration. Thirty of the 33 schools that operated in three shifts in SY2015 were in Ulaanbaatar, and the average class size in Ulaanbaatar (30.9 in schools, and 34.7 in kindergartens) was bigger than the national average (27.7 in schools and 32.8 in kindergartens), as shown in Table 1.

Table 1: Key Education Statistics in Ulaanbaatar and Mongolia, SY2015

Statistics	Ulaanbaatar	National
Primary, junior, and senior secondary education		
Number of students	220,574	535,055
Increase from SY2012/13	33,752	38,932
Number of schools	215	768
Increase from SY2012/13	8	13
Number of three-shift schools	30	33
Number of students in three-shift classes ^a	7,672	7,782
Average class size	30.9	27.7
Average class size in SY2012/13	30.1	28.2
NER for primary education	96.8	96.3
NER in SY2013/14	93.6	96.0
NER for junior secondary education	98.0	94.1
NER in SY2013/14	91.7	93.5
NER for senior secondary education	72.2	68.7
NER in SY2013/14	57.6	59.9
Pre-primary education		
Number of students	92,900	225,388
Increase from SY2012/13	27,235	44,419
Number of kindergartens	591	1,288
Increase from SY2012/13	250	343
NER for pre-primary education	69.8	74.4
NER in SY2013/14	72.3	75.1
Average class size	34.7	32.8
Average class size in SY2012/13	34.9	32.7

NER = net enrollment rate, SY = school year.

^a Most students are in primary education (grades 1–5).

Source: Ministry of Education, Culture, Science and Sports.

¹ "SY" before a calendar year denotes the year in which the school year ends, e.g., SY2016 ends on 1 June 2017.

3. In Ulaanbaatar, the NER for primary, junior, and senior secondary education has been steadily improving since SY2012, and surpassed the national average in SY2015. However, this has been achieved with an increase in class size and the number of three-shift schools. Even in Ulaanbaatar, the growth of student enrollments has been uneven, creating acute shortages in some districts. Of the 30 three-shift schools in Ulaanbaatar, 19 are in Bayanzurkh and Songinokhairkhan districts, which are the main destinations of rural migrants and have the largest number of low-income, poorly serviced *ger khoroos* (subdistricts with traditional tents). Six three-shift schools are in downtown districts—Sukhbaatar, Chingeltei, and Bayangol—where students from other districts enroll for a perceived (better) quality of education. Table 2 shows the increase in student enrollments and shortfall in seats at public schools in the nine districts of Ulaanbaatar.

Table 2: Student Enrollment Increase and Shortages of Seats in Public Schools in Nine Districts of Ulaanbaatar, SY2016

District	No. of Students in SY2012	No. of Students in SY2016	Percent of Change	No. of Public Schools	No. of Students in Public Schools	No. of Seats Available in Public Schools	No. of Seats in Shortage in Public Schools	No. of Three-Shift Schools
Bagakhangai	554	690	24.5	1	690	1,090	(400)	0
Baganuur	5,231	5,553	6.2	3	5,413	3,994	1,419	0
Bayangol	30,502	37,609	23.3	19	33,698	21,642	12,056	2
Bayanzurkh	40,948	51,982	26.9	24	44,589	19,982	24,607	9
Chingeltei	21,959	26,212	19.4	15	24,621	13,320	11,301	3
Khan-Uul	16,581	25,532	54.0	19	21,728	12,070	9,658	5
Nalaikh	5,405	6,646	23.0	5	6,509	5,021	1,488	0
Songinokhairkhan	35,511	44,003	23.9	19	42,915	21,110	21,805	10
Sukhbaatar	30,131	35,318	17.2	26	38,118	18,821	9,297	1
Total	186,822	233,545	25.0	131	218,281	117,050	91,231	30

() = negative, No. = number, SY = school year.

Source: Ulaanbaatar Metropolitan Education Department.

4. By contrast, the NER for pre-primary education in Ulaanbaatar has been decreasing since SY2012 as the increase in available seats at free public kindergartens has not matched the pace of kindergarten-aged population growth. In Bayanzurkh and Songinokhairkhan districts as well as in Chingeltei district, the gross enrollment ratio (GER) was below the Ulaanbaatar average in SY2015, largely because of lack of available seats. Public kindergartens in these districts already have larger classes, and the number of dropouts throughout the year is high. Table 3 presents the growth of the kindergartner population, GER, and average class size at public kindergartens in the nine districts of Ulaanbaatar.

5. Moreover, low GERs are likely caused by the lack of kindergartens near home. As Table 4 shows, *khoroos* without kindergartens are concentrated in low GER districts, such as Bayanzurkh, Chingeltei, Nalaikh, and Songinokhairkhan districts (15 out of 26 *khoroos*). Because of the lack of places at public kindergartens, the number of private kindergartens has increased, accounting for 63.8% of the total kindergartens in Ulaanbaatar in SY2015. Private nurseries (without education services) have also been flourishing for the children of working parents.

6. Against this background, the Mongolia Sustainable Development Vision 2030 and Action Program for 2016–2020 highlight the importance of alleviating over-enrollment and eliminating three-shift schools, and providing universal access to pre-primary education, especially in Ulaanbaatar.²

² State Great Khural. 2016. *Mongolia Sustainable Development Vision 2030*. Ulaanbaatar; Government of Mongolia. 2016. *Action Program for 2016–2020*. Ulaanbaatar.

Table 3: Kindergarten-Aged Population, Enrollment, and Average Class Size in Nine Districts of Ulaanbaatar

District	No. of Kindergarten-Aged Population	No. of Kindergarten-Aged Population	Average Annual Growth Rate	No. of Students in Kindergartens	GER	No. of Students in Public Kindergartens	Class Size at Public Kindergartens
	SY2012	SY2015	Rate	SY2015	SY2015	Percent of Total Students	SY2016
Bagakhangai	299	410	11.1	320	78.0	329 - 102.80%	8.8
Baganuur	2,102	2,663	8.4	2,230	83.7	2,739 - 112.80%	28.7
Bayangol	15,506	20,778	10.3	17,462	84.0	14,941 - 85.60%	44.5
Bayanzurkh	22,805	32,375	12.8	20,103	62.1	13,607 - 67.70%	50.1
Chingeltei	12,708	15,269	6.3	9,353	61.3	8,214 - 87.80%	51.4
Khan-Uul	9,350	16,113	20.6	11,520	71.5	8,423 - 73.15%	46.3
Nalaikh	2,949	3,647	7.4	2,369	64.9	1,916 - 80.90%	41.8
Songinokhairkhan	21,975	31,770	13.3	18,013	56.7	16,183 - 89.80%	41.6
Sukhbaatar	10,316	13,066	8.4	11,530	88.2	10,008 - 86.80%	45.3
Total or Average	98,010	136,091	11.8	92,900	68.3	76,360 - 82.20%	34.9

GER = gross enrollment ratio, No. = number, SY = school year.

Source: Ulaanbaatar Metropolitan Education Department.

Table 4: *Khoroos*^a of Ulaanbaatar without Kindergartens, End of 2015

District	<i>Khoroos</i> without Kindergartens	No. of Kindergarten-Aged Population in the <i>Khoroos</i> without Kindergartens
Bagakhangai		
Bayangol	1st, 16th, 17th, 21st, 22nd	4,829
Baganuur	2nd	58
Bayanzurkh	2nd, 4th, 17th, 24th, 25th, 26th	7,296
Chingeltei	5th, 11th	996
Khan-Uul		
Nalaikh	7th	429
Songinokhairkhan	5th, 20th, 23rd, 26th, 28th, 29th	6,059
Sukhbaatar	2nd, 5th, 9th, 12th, 19th	2,370
Total Ulaanbaatar	26	22,037

^a An administrative subdivision in Mongolia often translated as subdistrict.

Source: Ulaanbaatar Metropolitan Education Department.

B. Demand Analysis

7. The relatively slow increase in the number of public schools and kindergartens in Mongolia reflects the fact that capital expenditures in the education sector have been kept at low levels (15.5% of the total education expenditures on average from SY2012 to SY2015). As significant cuts in education budgets are expected for 2017 and beyond as a precondition for the International Monetary Fund's 3-year Extended Fund Facility, the demand for seats at public schools and kindergartens are unlikely to be met with the state budget.³

8. Demand is especially high in Ulaanbaatar where 91,231 seats in public schools and 43,161 in kindergartens are estimated to be lacking in SY2016. Among public schools, those in centrally located Chingeltei and Sukhbaatar districts are particularly in demand as they are considered to offer better quality education. Students from other districts commute to those schools by car, contributing to traffic congestion in the city center. Students in suburban districts who cannot afford to commute by car go to schools in their own districts whose quality is perceived to be lower. However, even in the downtown districts, large class size and classes being run in three shifts negatively affect the quality of education. Seats in public kindergartens also face high

³ International Monetary Fund. 2017. IMF Executive Board Approves Financial Arrangement for Mongolia. Press Release No. PR17/193. 24 May. <http://www.imf.org/en/News/Articles/2017/05/24/17193-imf-executive-board-approves-financial-arrangement-for-mongolia>.

demand, as they require no fee. As a result, classes are mostly overcrowded and students are selected by lottery. Those who are not selected either go to private kindergartens for a fee, or stay at home.

C. Cost-Effectiveness Analysis

9. The cost-effectiveness analysis was undertaken in accordance with Asian Development Bank guidelines. The analysis reviewed the cost and anticipated effects of different project alternatives since a monetary measure of the project's potential benefits could not be established.

10. The project aims to sustain access to and quality of pre-primary, primary, junior, and senior secondary education during a period of economic difficulties, with large revenue shortfalls and cuts in government spending, including on education. The project will have the following outputs: (i) gap in enrollment capacity of schools and kindergartens narrowed, (ii) unfinished curriculum reform and associated assessment system reforms completed, (iii) teaching and learning materials that accompany the new curriculum provided, (iv) teachers and managers' knowledge and skills upgraded for the new curriculum and assessments, and (v) systems for planning and managing education services strengthened.

11. **Effects of newly constructed and expanded schools and kindergartens in Ulaanbaatar.** In SY2015, 41.2% of Mongolian students enrolled in primary, junior, and senior secondary education study in Ulaanbaatar where classes are overcrowded and sometimes run in three shifts. Out of 33 three-shift schools, 30 are in Ulaanbaatar in SY2016. From SY2012 to SY2015, student enrollments in Ulaanbaatar have risen by 18.1%, as opposed to the national average of 7.8%. Such increase is expected to continue until 2025 at the annual growth rate of 6.5%–7.5%. Similarly, 47.1% of Mongolia's kindergartner population resides in Ulaanbaatar in SY2015. The enrollment ratio for pre-primary education in Ulaanbaatar has been falling largely because of the lack of available seats at free public kindergartens. The annual growth rate of the kindergartner population in Ulaanbaatar averaged 11.8% from SY2012 to SY2015, and is likely to continue until 2019. The effects of newly constructed and expanded schools and kindergartens on enrollments are thus more significant in Ulaanbaatar than in other areas, where enrollment growth has been moderate or even negative.

12. **Effects of continuing professional development programs for school and kindergarten managers and teachers.** Competent teachers and school and kindergarten managers who can exercise effective instructional leadership are the key to quality education. Many studies show that providing continuing professional development opportunities, rather than one-off training, is most effective in improving the competencies of teachers and school and kindergarten managers. Schools and kindergartens with competent teachers and managers attract more students, as they offer better quality education. This has been one of the factors behind rural–urban migration in Mongolia.

13. **Effects of completed curriculum and student learning assessment system reforms.** Mongolia's education system has been operating without student learning outcome standards incorporated into the curriculum, and matching assessment criteria and methods. As a result, the impacts of the past curriculum and education reforms on student learning outcomes are unknown, lacking important feedback to improve curriculum and education policy. The medium- and long-term effects of clear student learning outcome standards and valid assessments are expected to be significant, both on student learning outcomes and the education system.

14. **Cost analysis.** The following three project alternatives were considered:

- (i) **Project case:** Construction and expansion of nine schools and 22 kindergartens in Ulaanbaatar (\$29.22 million); development and delivery of continuing professional development programs (\$0.38 million); and upgrading of curriculum standards and student learning assessment criteria and methods (\$1.06 million).
- (ii) **Alternative 1:** Construction and expansion of 11 schools and 27 kindergartens outside Ulaanbaatar (\$29.22 million),⁴ with the rest of the project interventions above (\$1.44 million).
- (iii) **Alternative 2:** Construction and expansion of nine schools and 22 kindergartens in Ulaanbaatar only (\$29.22 million).

15. **Cost-effectiveness analysis.** The cost-effectiveness of each alternative was analyzed qualitatively by considering the cost of each alternative as well as the anticipated effects and other consequences (Table 5).

Table 5: Cost-Effectiveness Analysis of Three Project Alternatives

Alternative	Cost (\$ million)	Anticipated Effects	Other Consequences	Evaluation
Project Case	30.66	<ul style="list-style-type: none"> (i) More students can attend schools and kindergartens and study in smaller classes (ii) Improved competencies of school and kindergarten managers and teachers to deliver quality education (iii) Effective feedback on student learning to improve curriculum and education policy 	<ul style="list-style-type: none"> (i) Significant reduction in three-shift schools and class size (ii) Better implementation of upgraded curriculum and assessments, leading to improved student learning outcomes (iii) Medium- and long-term feedback loop established to improve curriculum and education policy continuously 	The most cost-effective option, as it would enable the largest number of students to enroll in schools and kindergartens and contribute to improvements in student learning and education policy
1	30.66	<ul style="list-style-type: none"> (i) Fewer students can attend schools and kindergartens, with additional capacity underutilized (ii) Improved competencies of school and kindergarten managers and teachers to deliver quality education (iii) Effective feedback on student learning to improve curriculum and education policy 	<ul style="list-style-type: none"> (i) Increase in the number of three-shift schools and class size in Ulaanbaatar, lowering the quality of education, which affects a little less than half of Mongolian students (ii) Due to three-shift classes and large classes, difficulties in implementing upgraded curriculum and assessments 	Same cost as the project case but with much smaller effects on access to and quality of education
2	29.22	Larger number of students being able to attend schools and kindergartens and study in smaller classes	Significant reduction in three-shift schools and class size, and its ad-hoc effects on education quality	The least-cost option, but with only ad-hoc improvements on student learning

Source: Asian Development Bank.

16. **Conclusion.** When the cost is considered in combination with the anticipated effects, the project interventions were assessed as the most cost-effective option.

⁴ The size of schools and kindergartens to be constructed or expanded outside Ulaanbaatar will be smaller, which reduces the unit cost, even after considering higher transportation costs.