

Study on the Transition from School to Society

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Summary

The time series trend of transition rates from 2006/07 to 2014/15 were analyzed carefully, and simulations to find the transition rates and the future number of students were conducted. It was remarkable that the transition rate from Grade 5 to Grade 6 has greatly improved recently. It was due to expanding the educational opportunity at the middle school level such as establishing post primary schools or branch middle schools in rural areas. The transition rates at the middle school level, and the transition rate from Grade 9 to Grade 10 have also greatly improved. However, the transition rates at the primary school level and from Grade 10 to Grade 11 have not showed clear progress.

Taking into account the trend of these transition rates and the number of incoming students to the KG based on the 2014 Census data, the number of basic school students may not increase as much as estimated previously even though new grades will be added at the primary and high school level as part of the cycle reforms in education. The main reason is the decreasing number of incoming students at the KG and the stagnation of transition rates at some grade levels. There appears to be a need to strengthen policies related to improving the quality of education and to reduce the economic burden of parents in order to prevent dropouts at each grade level. In this way, the transition rate can become sufficiently higher in future, and the number of students will become larger accordingly.

A structure of the educational background of people, who transfer as graduates or dropouts from different level of schools in society within a year, can be estimated using the cumulative transition rates in specific years. These people can become the human resources for development. Half of the people, who transferred from school to society, were middle school graduates or less based on the 2014/15 trend because the dropout rates from each grade level were still high. However, the ratio decreased greatly from 65% during the trend in 2010/11 because of the rapid improvement in advancement to upper grades and upper school levels. The situation may improve to 39% in 2029/30 if the current trend continues. If the transition rates greatly improve at each grade level, the rate may improve up to 20%.

In any case, TVET, which is relevant to the educational background of the people, is needed to prepare them for work in society. The current educational system provides only basic academic knowledge and skills which are not adequate to prepare them for the job market.

1. Purpose of the Study

Although the direct purpose of education is to extend and enrich the potential ability and skills of students, developed ability and skills are expected to be used in society in various ways. The educational system in any country plays an important role of providing human resources in society. If the 2014 Census data is analyzed fully, the relationship between education and its practical use will become clear. However, it has not been published yet. This paper only touches on how many educated people are provided within the society and what the trend is. After combining the results with the findings from the Census analysis, the full picture can be understood in future.

2. Method

Among the various data on education in Myanmar, the “Statistical Yearbook Number of Schools, Teachers and Students Population,” issued each year on March 31 by the Ministry of Education, provides the time series and is relatively reliable data on education. The general situation about the movement of students such as how many students enter to the education system, how many move to the next grade, how many repeat the same grade or dropout will be made clear, if the number of students in each year is examined carefully by grade.

Similar studies have been conducted such as the estimated number of students in future based on the assumption that the dropout rate will improve at some rate per year (Muta 2014a), the regional distribution of such students (Muta 2014b), revised estimates using more recent data (Muta 2014c), and issues concerning dropouts using mid-year data (Muta 2014d).

According to these previous analyses, it was clear that the repetition rates of grades less than 9 were rather low, and the transition rate, which is calculated by dividing the number of students in a grade by the number of students in one grade below during the last year, was an easier and useful tool to analyze. The value of (1-transition rate) can be used as a proxy for dropouts (Muta 2014a; 2014b; 2014c), and the same idea is used in this paper.

The object of the analysis was limited to Basic Education Schools under the Ministry of Education because of the availability of data. There are other types of schools in Myanmar such as Monastic Schools and Private Schools at the basic education level. The scale of these schools is small in general; however, there are also large schools. The number of private schools has been increasing.

Table 1 shows the numbers and rates of students under different school systems in 2013/14. Although the number of students in Monastic Schools was large at the primary school level and the number of students in Private Schools was large at the high school level, the ratios within the total were less than 4% for both cases. Even though these students were not included in the following analysis, the conclusion can be interpreted as the result of the entire education sector. There are also 36 technical high schools nationwide under the Ministry of Education, which were under the Ministry of Science and Technology until Mar. 2016. The number of entrants to these schools in 2013/14 was only 1,290, and they have been ignored for the analysis.

Table 1 Numbers and Ratios of Students in Basic Education Schools, Monastic Schools and Private Schools (2013/14)

Students	Primary	Middle	High	Total
MOE	5,166,317	2,542,830	730,866	8,440,013
Private	10,959	13,451	29,841	54,251
Monastic	208,926	55,588	4,753	269,267
Total	5,386,202	2,611,869	765,460	8,763,531
MOE	0.9592	0.9736	0.9548	0.9631
Private	0.0020	0.0051	0.0390	0.0062
Monastic	0.0388	0.0213	0.0062	0.0307
Total	1.0000	1.0000	1.0000	1.0000

Source: MNPED (2015)

3. Analysis

3.1 Number of Students and Transition Rates

First of all, the kind of human resources that were created under the current educational system was observed. Figure 1 shows the number of students as of March 31 in each year from 2007 to 2015 by grade. The lower figure shows Grade 1 and the upper figure shows the students enrolled at Grade 11 who passed the matriculation examination. Those who passed the examination are eligible to go to universities and colleges. The number of students decreased grade by grade, however, this was not due to a smaller student population at the upper grade, but because of dropouts at each grade level. It is also clear that the number of students increased greatly at the middle school and high school levels, but not very much at the primary school level. As an increase in the number of students at the primary school level was limited, the reason for the increased number of students at the middle school and high school levels must be due to an improvement in the promotion rate to the next grade.

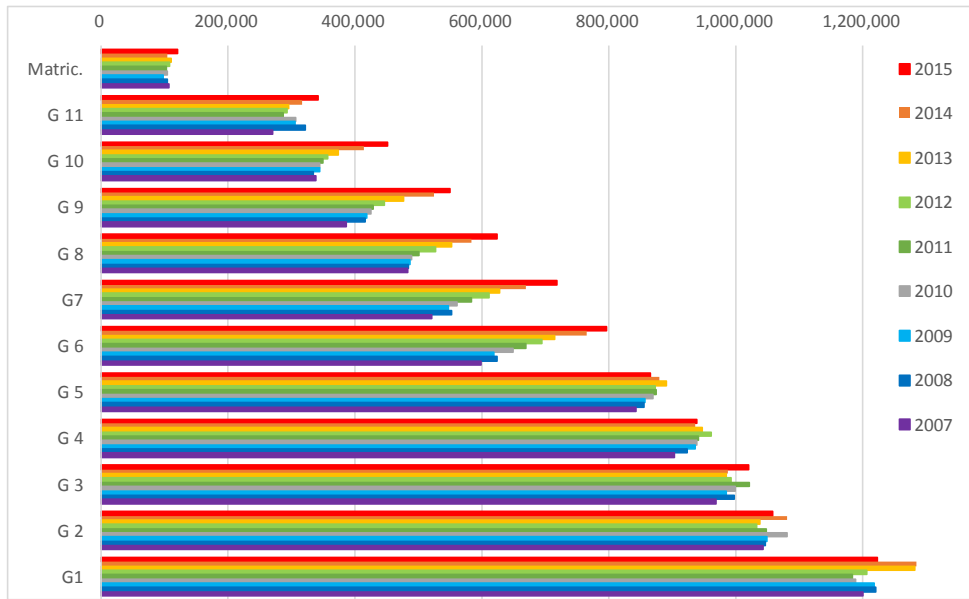


Figure 1 Transition in the Number of Students in Each Year by Grade as of March 31

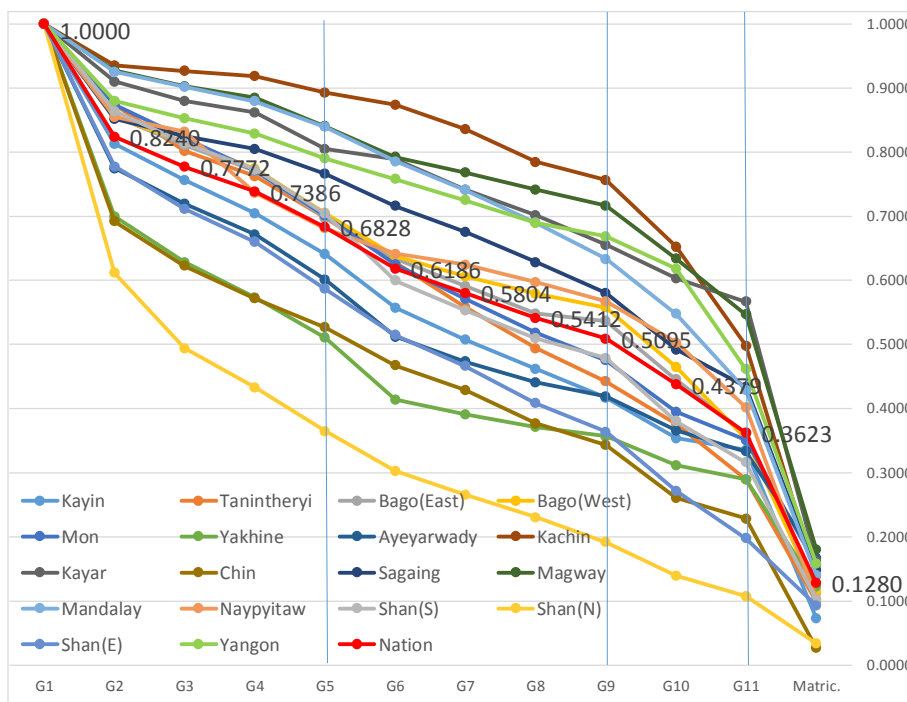


Figure 2 Cumulative Transition Rates from March 2014 to March 2015 by Region & State

It is easier to understand this phenomenon if the transition rate is calculated. Figure 2 shows the cumulative transition rates from March 2014 to March 2015 by region and state. The curve depends on the region and state, but the national average shows the general tendency.

The cumulative transition rate decreased grade by grade. When the number of students at Grade 1 was fixed at 1.0, it was 0.82 at Grade 2. It dropped rapidly. But, the drop was gradual thereafter until it reached 0.36 at Grade 11. This means in general, only 36% of Grade 1 students reached Grade 11 in 10 years. Looking at the results by region and state, the highest cumulative rate at Grade 11 was 57% in Kaya State, and the lowest rate was 11% in Shan State North. The major reason for these differences appeared to be the transition rate from Grade 1 to Grade 2. On average, the remaining 64% of the students dropped out from schools and went to work. However, there is almost no education or training given at schools to prepare students to work, and TVET (Technical and Vocational Education and Training) is needed for these young people otherwise they cannot become useful human resources for development.

As the matriculation examination pass rate was low, those who reached this level and passed decreased to 13% on average. Only those who passed are able to attend universities and colleges. When the total area of Figure 2 is supposed to be 1.0, the upper part of the area above the line shows the ratio of people who left school by either dropping out or graduating; and the lower part of the area shows the ratio who were still staying at school. Over the long run, the lines are expected to become parallel and they will stay in the upper limit, but this will take time.

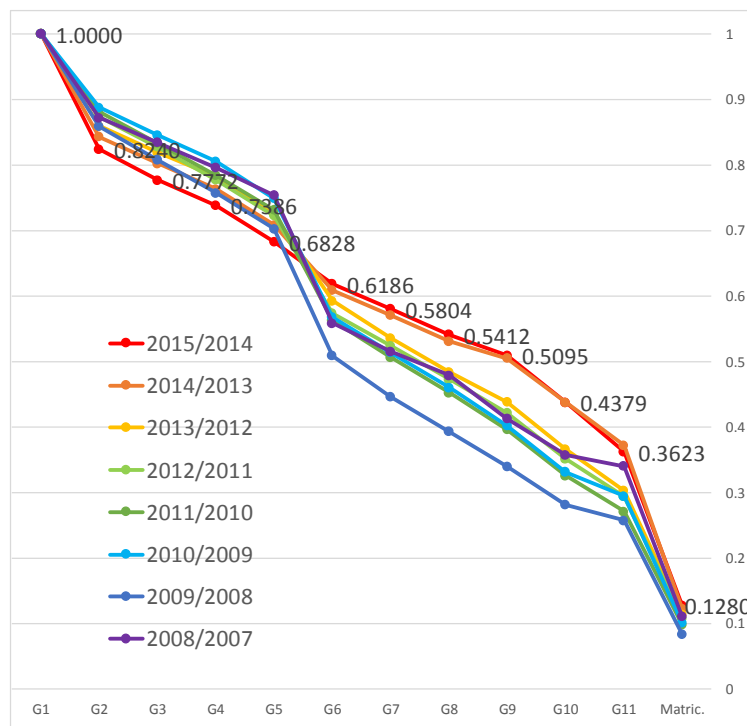


Figure 3 Time Series Trend of Cumulative Transition Rates Nationwide

Figure 3 shows the time series trend of cumulative transition rates nationwide. It clearly shows that the line has shifted upward; and an improvement in the transition rates is obvious. The drop especially from Grade 5 to Grade 6 used to be large, and it contributed to a decrease in the cumulative transition rate and the final value to reach Grade 11.

The drop from Grade 1 to Grade 2 did not improve and it is still large. However, this is not simply due to dropouts, but due to actual repetition, which is a combination of dropout and re-entrance to schools (Muta 2014d). Other research also showed similar evidence (Spohr 2014). It is likely that small 5-year-old children quit schools easily due to many reasons such as long commuting times to the school, not being able to become adapt to school life, finding study boring, etc. Unlike other grades, a transfer certificate is not necessary to enter to Grade 1. The previous record listed this kind of case only as a dropout.

According to Figure 2, (1-transition rate) from Grade 1 to Grade 2 was 0.18. Assuming the 12% was the repletion rate in actuality, the remaining 6%, which was still higher compared to other grades at the primary school level, was considered to be the real dropout rate; and apply this value to other years as well, then adjusted cumulative transition rates were calculated as shown in Figure 4. The most recent trend from March 2014 to March 2015 showed that 71% reached Grade 6, 50% reached Grade 10, 41% reached Grade 11, and 15% passed the matriculation examination.

Using other ways of explaining the progress to the upper school level, the progression rate to the middle school level was 71%, the progression rate to high school was 50%, and the progression rate to higher education was 15% if all school-age children entered Grade 1. The repetition rates were not considered, but it was generally low between Grade 2 and Grade 9. The basic figures were taken at the end of the academic years and omitted many dropouts during an academic year. That meant the real progression rate may have been a bit higher. In contrast, those who never attended schools were neglected, although the number was small. Taking this situation into account, the true progression rate may be a bit lower within the total population, and both possibilities may offset each other to some extent.

It is easier to understand where the transition rate improved in Figure 4. The large improvement came from the transition rate from Grade 5 to Grade 6. Figure 5 shows the distribution of student by grade and school location. Among Grade 1 students, 66% of the students were enrolled at primary schools in rural areas, and 12% of students were enrolled at primary schools in urban areas. The ratio of students who were enrolled in rural primary schools decreased to 58% in Grade 5. The students may have moved from rural schools to urban schools, from primary

schools to middle schools or high schools. However, the dropout rate from rural primary schools were probably high.

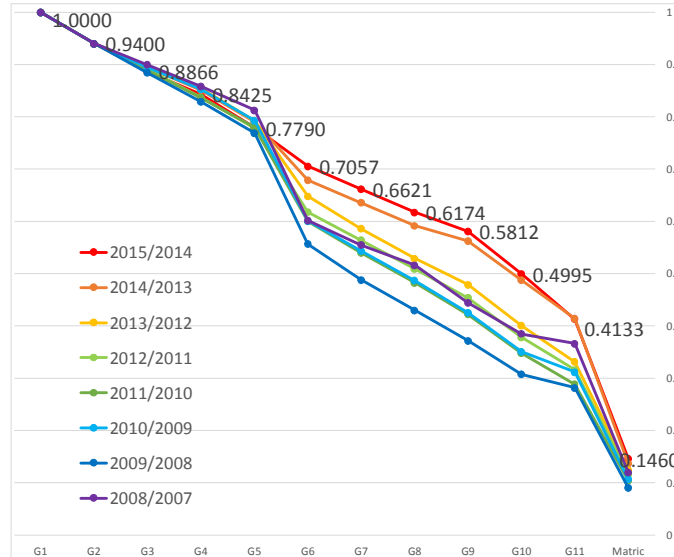


Figure 4 Time Series Trend of Cumulative Transition Rates after Adjustment of the Transition Rate from Grade 1 to Grade 2 Nationwide

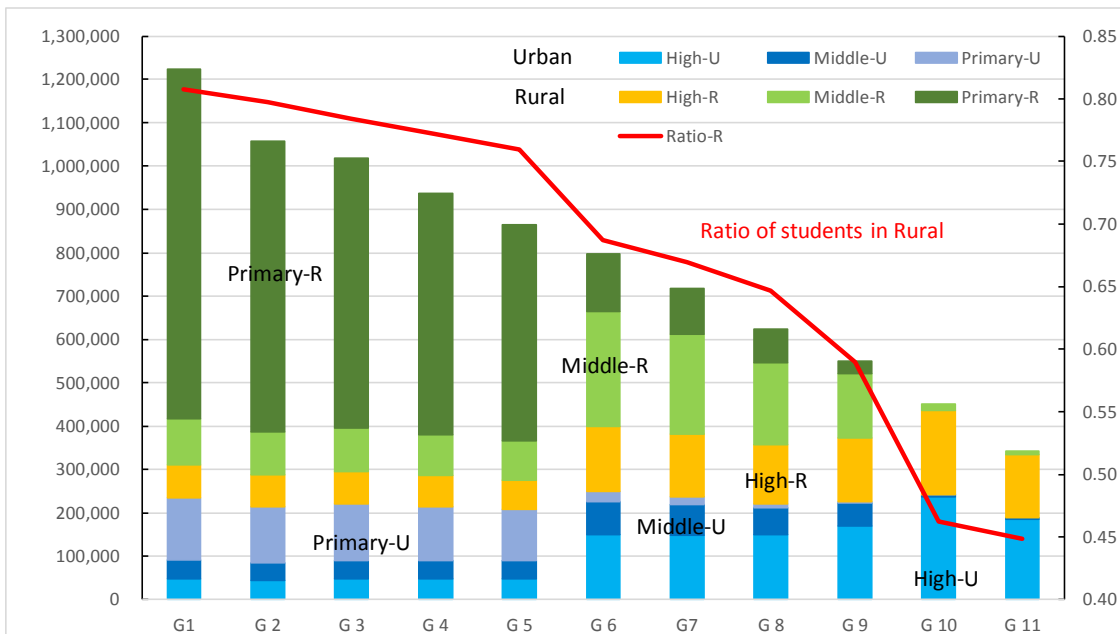


Figure 5 Distribution of Students in Different Types of Schools by Grade

Looking at the Grade 6, 33% of the students were enrolled at middle schools in rural areas, followed by urban and rural high schools, where the ratios were evenly 19%. It is notable that

17% of the students were enrolled at rural primary schools. By definition in Myanmar, post primary schools and branch middle schools are generally categorized as primary schools and the status of headmaster at these schools is the primary school headmaster. If these schools did not exist, especially in rural areas, many students would not be able to proceed to the middle school level. In fact, the establishment of these quasi-middle schools has increased in recent years.

Among the Grade 9 students, the largest group at 31%, was enrolled in the urban high schools, followed by rural middle and rural high schools; and the ratios were evenly 27% because of the higher dropout rate in rural areas. Among the Grade 10 students, the largest group at 53% was enrolled at urban high schools followed by rural high schools at 43%. It was interesting to see that 3% of the students were enrolled in rural middle schools, which most likely were branch high schools. In this way, the ratio of students who were enrolled in rural areas decreased from 81% in Grade 1 to 76% in Grade 5, from 69% in Grade 6 to 59% in Grade 9, and from 46% in grade 10 to 45% in Grade 10. There was a clear gap especially during the transition stages in school levels.

There is no examination for advancing to the middle school level. If students finish Grade 5 and want to be enrolled, there are no restrictions. One possible reason why students do not go to middle school is their inability to commute to the schools. The population is scattered over a vast area especially in rural areas, and middle and high schools may not be located nearby. It seems the active establishment of post primary schools and promoting them to branch middle schools greatly increased educational opportunities for primary school graduates, especially in rural areas despite the fact that educational conditions may not be equivalent to ordinal middle schools. This expansion of educational opportunities must have been the main reason why the transition rate from Grade 5 to Grade 6 increased so rapidly. The same reasons probably apply for advancement to the high school level.

In contrast, there is a strange trend of a decreased transition rate from Grade 1 to Grade 2, which is clearly shown in Figure 6. In general, 5-year-old children are too young to study subjects and many may not be sufficiently prepared or ready to study hard. Thus, there are many dropouts but the majority probably return to school the following year because they are older and more mature. But why have these students increased? One interpretation may be an increase in the enrollment of those who have difficulties. It is normal for the number of students who have difficulties to increase if the enrollment rate increases. Regardless, the KG was introduced at the primary school level from the 2016 academic year; and the emphasis is to acquire a readiness to study. Repetition or dropping out may not become problematic because regular compulsory

education starts from Grade 1 at age 6. As a result, there is no reason for students to dropout or repeat the KG.

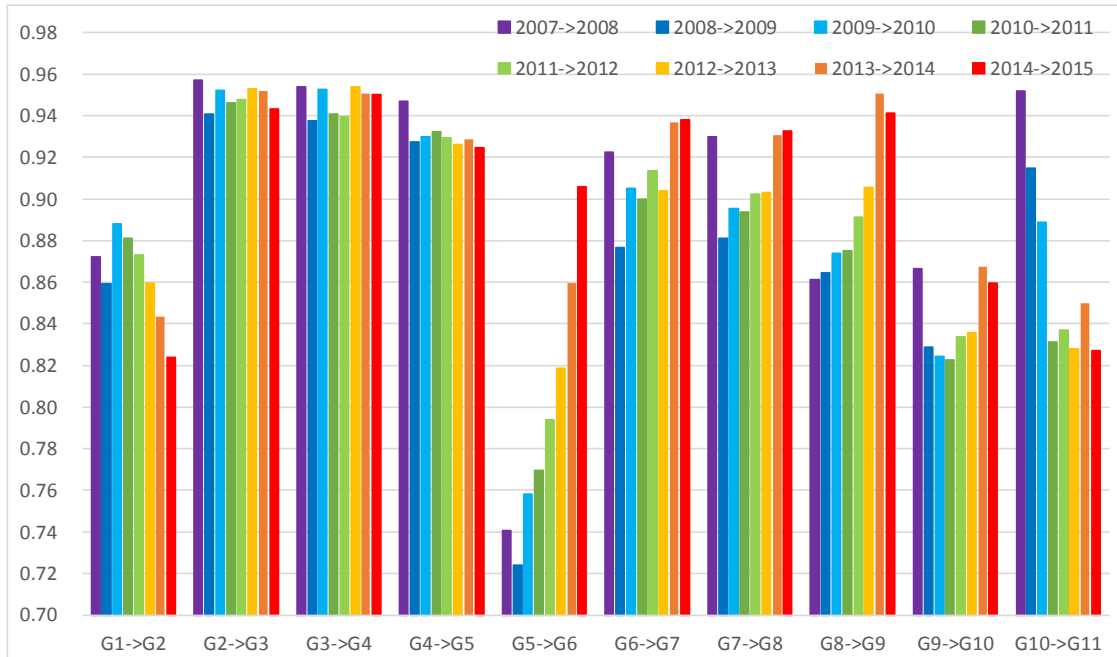


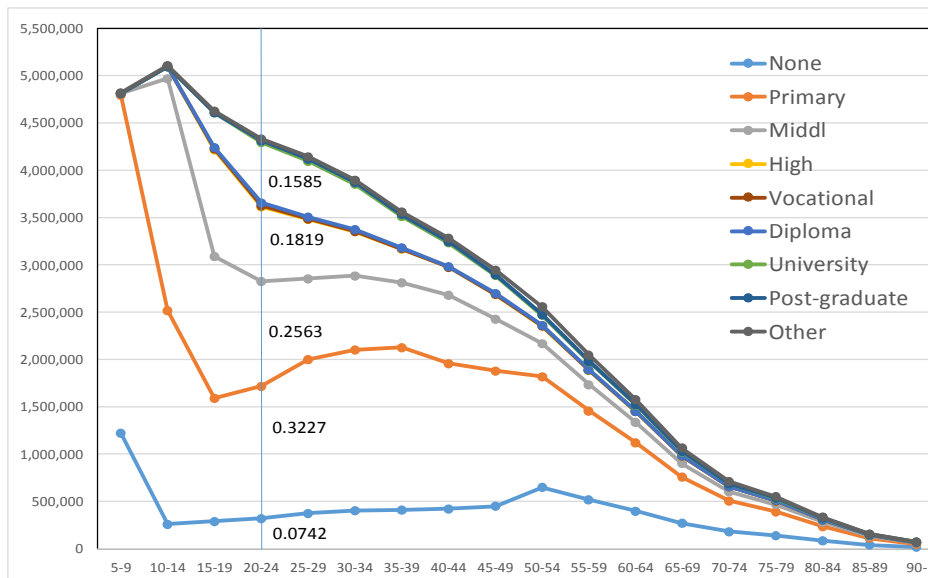
Figure 6 Time Series Trend of Transition Rates by Grade Interval Nationwide

The transition rate from Grade 10 to Grade 11 also did not increase. Although the number of students who advanced to Grade 11 increased, the pass rate of the matriculation examination did not increase. This means the number who passed and failed increased. There may be many students who give up advancing from Grade 10 to Grade 11, because they think it will be difficult to pass the matriculation examination; and there are also many who choose to repeat the grade (4.94% in March 2014). The purpose of education at the high school level should not be to simply pass the entrance examination for universities. It is not necessary for everybody to go to universities. The education at the high school level must strive to be meaningful to help students prepare for a higher level of work in society. If the role of the current matriculation examination is divided into an examination to graduate from high school and an examination to enter universities, the situation will improve drastically. An examination to graduate must be easier to pass.

3.2 Analysis of the 2014 Census Results

The analyses so far were based on the School Statistics of MOE for each year. Other relevant statistics are reviewed here. The number of people by age and educational background can be

drawn from the 2014 Census. The results are shown in Figure 7. It is apparent that the educational background of the younger generation is the highest within the entire population, excluding the generation which is still attending schools. In the age category of 20-24, the percentage of those who received education and training above high school was 16%, high school graduates was 18%, middle school graduates was 26%, primary school graduates was 32%, and those who never attended school was 7%. It was 4.2621% for 11-year-old children who did not receive any education, and the number was 40,228 in its age cohort. As the Census data was based on a declaration by respondents, the veracity of these declarations was not known. Although there is much information in the Census results, a detailed discussion may not be useful here.



Source: MOIP (2015) Table D-5a

Figure 7 Population by Educational Background and Age Range

3.3 Structure of Educational Background of Those Transferred from School to Society

In this section, the ratio for the educational background of those who went from a basic education school into society as part of the labor force, i.e. in the form of both dropouts and graduates, was analyzed based on the transition rate. In other words, how much of a potential labor force was produced under the trend of certain transition rates was analyzed. The number of new entrants to Grade 1 is different every year, and those who pass the matriculation examination may actually appear in society after graduating from universities 4 or 5 years later. Thus, the following calculation cannot show the exact number of people who actually transfer from school to society

in one year. A more sophisticated calculation is required. However, even the following simple calculation can show the general tendency at that time, and this is adequate to understand the situation.

Figure 8 shows the results based on the 2014/15 trend. The transition rate from Grade 1 to Grade 2 was adjusted under the assumption that the original figures included large number of repeaters of about 12%, and the dropout rate was 6%. Using the cumulative transition rate shown in Figure 4, a trend in the percentage of people with different educational backgrounds can be calculated easily. 15% of the population passed the matriculation examination; and they would become the graduates from universities and colleges. 27% of the population were the high school graduates; and 9% advanced to the high school, but did not finish. 8% of the population graduated from middle school, 12% were dropouts from middle school, 7% were graduates from primary school, and 22% were dropouts from primary school.

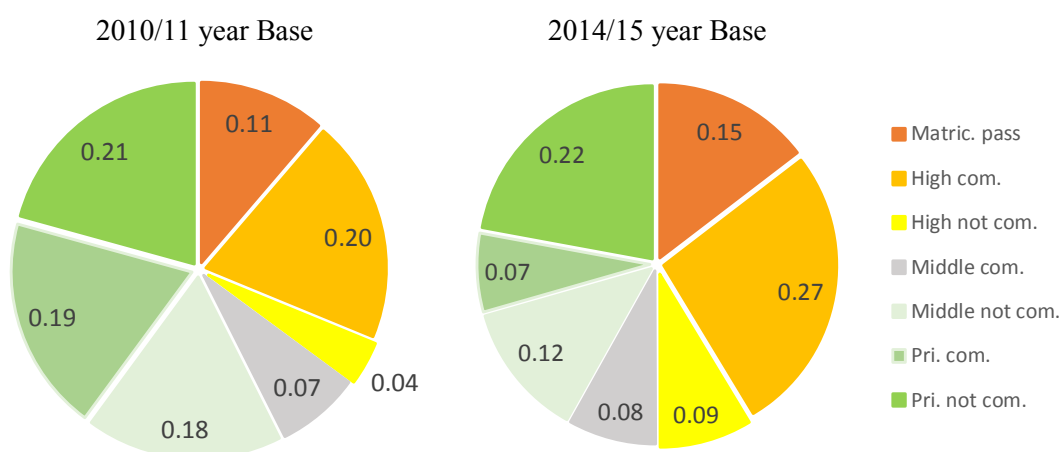


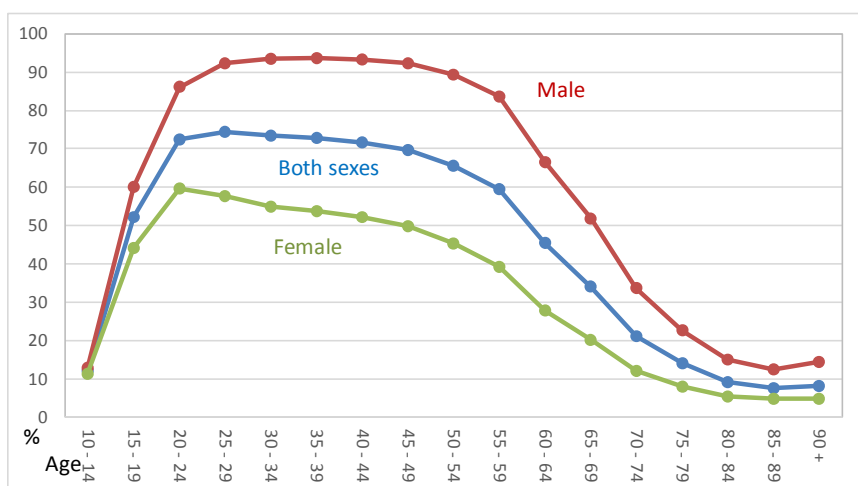
Figure 8 Structure of the Educational Background of Those Transferred from School to Society

Summing up these percentages, 42% of the population were dropouts from middle school level or below. If they entered primary school level at age of 5, their age may be less than 14 years of age. They are too young to receive any public training for work right after they leave school, but sooner or later, the majority may become low-educated, unskilled workers. Including the graduates from middle school level, it was 51%. 17%, 27%, and 15% of the population were graduated from middle school level or dropouts from high school level, high school graduates, and graduates from universities and colleges respectively. These 59% are ready to work, and the required training should be given as soon as possible. An educational background and a job are correlated. In general, dropouts from middle school level or below may be good candidates for unskilled and semi-skilled labor, graduates from middle school level may be good candidates

for skilled labor, high school graduates may be good candidates as technicians and clerical workers, and graduates from universities and colleges may be good candidates as future managers, engineers and professionals.

A similar calculation was made for 2010/11 year base. 40% of the population graduated from primary school or less, 29% were dropouts from high school or below, 20% were high school graduates, and 11% passed the matriculation examination. The ratio of graduates from middle school or below was 65%. These ratios are close to the figures in the age range 20-24 in the 2014 Census in Figure 7.

Of course, not all of the people who transferred to society from school became part of the labor force. Figure 9 shows the participation rate in the labor force by age range and sex based on the 2014 Census. There is a clear difference between males and females. The maximum rate of labor force participation for females was 60% at age 20-24, and it was 94% for males at age 35-39. On average, it was 74% at age 25-29. That means, it is necessary to multiply this rate by the number of people who transferred from school to society to calculate the number for the labor force according to educational background. More precisely, the labor force participation rate of those who are currently not attending school should be considered. The labor force participation rate depends on people's educational background in general, but it has not been published yet. If the figures are published, a more sophisticated calculation will be possible.



Source: MOIP (2015) Table E-1a

Figure 9 Labor Force Participation Rate by Age Range

Figure 10 shows the GPI (Gender Parity Index) by grade. GPI is defined as the number of

females divided by the number of males. This index shows the gender equivalence in general, and the number of females is less than males, if it is less than 1.0. In general, in most of the countries, the number of baby boys is a slightly higher than baby girls because of the different birth rates. Because the mortality rate of boys is higher than girls, the number of boys and girls becomes equal as they grow older. Eventually, the number of females exceeds males because females live longer. According to the 2014 Census, the GPI was 0.97 at the age of 5 and 1.0 at the age of 16.

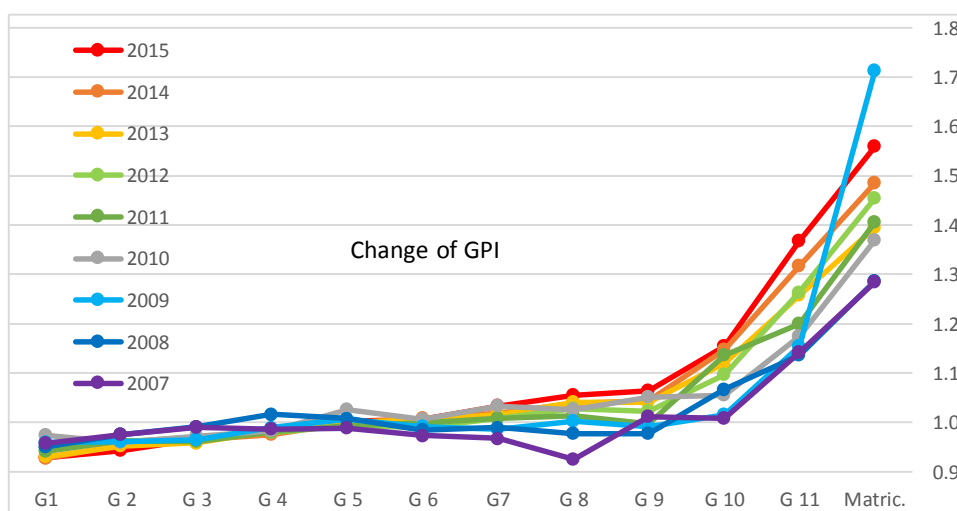


Figure 10 Time Series Trend of GPI by Grade

From Figure 10, the GPI of Grade 1, where the 5-year-old children are dominant, was 0.93 and it was smaller than 0.97. It can be seen that the girls were discriminated, but the truth is different. It seems that the both boys and girls come to school equally, but the boys repeat Grade 1 more than the girls, and this causes the number of boys to increase. As the children grow older, 5% of them or more drop out from the schools every year, but the boys drop out more than the girls, that makes the GPI larger year by year and it becomes 1.0 at the middle school level. There are many dropouts at the middle school and high school levels, and the GPI becomes 1.6 by the time the matriculation examination is passed. According to the 2014/15 data, the pass rate among the enrolled was 0.3268 for boys and 0.3728 for girls, and there was 0.0460 difference. In other sense, 60% are girls, and 40% are boys due to the matriculation examination. This is quite unusual in the world. Moreover, the university to be enrolled at is decided based on the score of the matriculation examination. There is no doubt that the ratio of female students is dominant in prestigious universities, sometimes 70%, because female students generally have higher scores. Figure 10 shows the increase in GPI at the upper grades becomes clearer in recent years although there was an exception such as 2019. As mentioned before, however, the labor force

participation rate of females is relatively low, many of them do not become part of the labor force even if they have a high level of education. Table 2 makes these phenomena clearer. The table shows the difference in transition rates between girls and boys. The time trend of the transition rate is almost the same both for girls and boys. If the table is examined carefully, it can be seen that the transition rate is generally higher for girls than for boys. This means the dropout rate is higher for boys. Furthermore, this tendency is much clearer from Grade 9 to Grade 10, and from Grade 10 to Grade 11.

Table 2 Time Series Difference of Transition Rates between Genders (Girl-Boy) by Grade Interval

	G1->G 2	G2->G 3	G3->G 4	G4->G 5	G5->G 6	G6->G7	G7->G 8	G8->G 9	G9->G 10	G10->G 11
2015/2014	0.0147	0.0128	0.0152	0.0261	0.0066	0.0228	0.0315	0.0226	0.0857	0.1437
2014/2013	0.0216	0.0123	0.0163	0.0145	0.0076	0.0129	0.0204	0.0034	0.0847	0.1378
2013/2012	0.0038	-0.0032	0.0134	0.0190	0.0096	0.0229	0.0286	0.0116	0.0756	0.1121
2012/2011	0.0184	0.0068	0.0174	0.0117	-0.0019	0.0087	0.0171	0.0070	0.0798	0.0880
2011/2010	-0.0105	0.0020	0.0097	0.0099	-0.0214	0.0011	-0.0163	-0.0255	0.0646	0.1067
2010/2009	-0.0006	0.0101	0.0170	0.0346	0.0002	0.0369	0.0351	0.0410	0.0500	0.1283
2009/2008	0.0089	-0.0098	-0.0020	-0.0090	-0.0113	0.0016	0.0122	0.0133	0.0317	0.0723
2008/2007	0.0162	0.0149	0.0243	0.0202	-0.0023	0.0151	0.0095	0.0474	0.0459	0.1149
Average 2015/11	0.0146	0.0072	0.0156	0.0178	0.0054	0.0168	0.0244	0.0111	0.0814	0.1204
Average 2011/07	0.0036	0.0043	0.0122	0.0139	-0.0087	0.0136	0.0101	0.0191	0.0482	0.1058
Average Total	0.0092	0.0057	0.0139	0.0159	-0.0021	0.0152	0.0172	0.0153	0.0646	0.1134

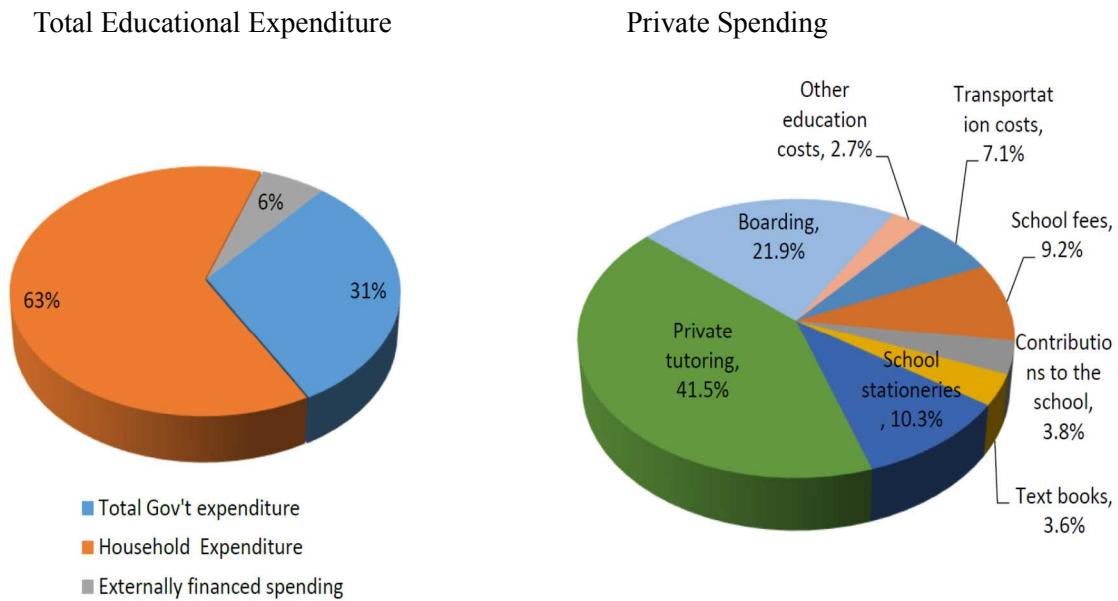
Note: "Average" shows the difference in the geometrical means between girls and boys.

There seems to be a tendency for boys to leave school easily if they feel they are not going to pass the matriculation examination. Judging from the trend between 2008/2007-2011/2010 and 2012/2011-2015/2014, the difference between girls and boys has spread in general. Boys may tend to quit school if there are good job opportunities, partly because the wage for boys is relatively higher than for girls. Over the long run, the lifetime income is larger if one has a better educational background in any country. A policy is desired that allows all students to stay in school until the end of at least middle school despite the difference in gender.

3.4 Issues on Educational Expenditure

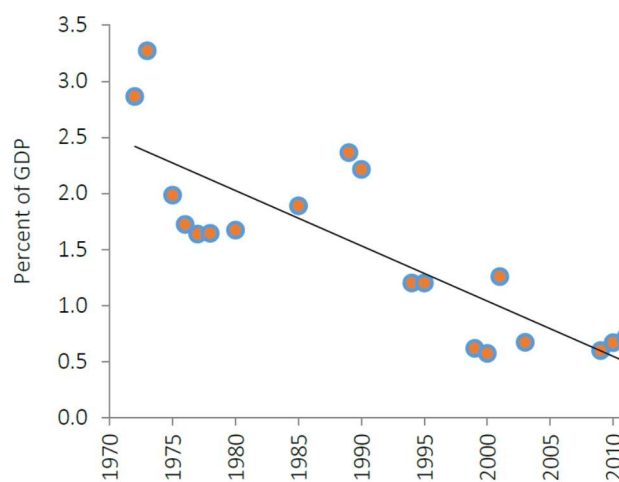
According to the 2009/10 Household survey (IHLCS) and government statistics shown in Figure 11, educational expenditure consists of 31% public expenditure, 63% household expenditure, and others. Within the household expenditure, the largest expenditure was private tutoring, which

accounted for 42%, followed by boarding and other costs. As school education alone was inadequate, students depended on private tutors, and looked for better schools even if the daily commute was far. The expenses of schools under several pretexts were still large. These high expenses are considered to be the reason for dropping out. In contrast, the progress and promotion rates are expected to increase along with an improved household income based on the economic development of the country.



Source: World Bank (2015) Figure 4.5, Figure 4.6

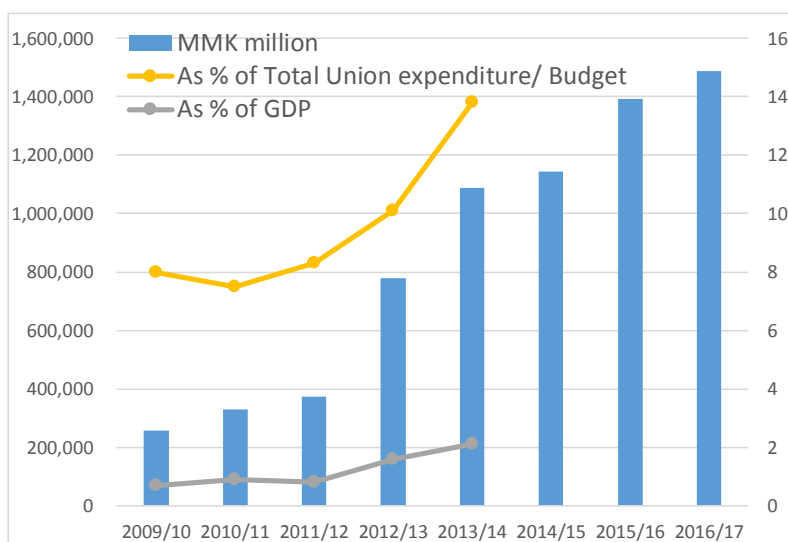
Figure 11 Structure of Educational Expenditure



Source: World Bank (2015) Figure 4.7

Figure 12 GDP Share of Educational Expenditure

As Figure 12 shows, the ratio of public educational expenditure accounted for 3% of GDP in the 1970s. It gradually decreased to 0.5% in 2010. Investment in education was very limited. It started to expand rapidly from 2011 and increased nominally about 4 times for 5 years. However, the major factor that contributed to the increased expenditure was the salary of teachers and the limited budget to improve educational conditions. It seems the ratio of the educational budget to GDP may have exceeded 3% now, but it is still less than neighboring countries. Despite this, the recent improvement in the promotion and progress rates, establishment of new school facilities, vast deployment of daily wage teachers, or other improvement activities were influenced by such increases in educational expenditure.



Source: World Bank (2015) Table 4.4, MOE Budget

Figure 13 Rapid Expansion of Educational Budget in Recent Years

3.5 Forecast of the Number of Students Based on the Time Series Trend of Transition Rates

An education cycle reform has been discussed for years. The current idea is to change the old system such as (5+4+2) to a new system such as (KG+5+4+3). 5-year-old students are enrolled in KG (Kindergarten), 6-year-old children are enrolled in Grade 1, and 18-year-old students are enrolled in universities and colleges, which is the common education cycle in most countries. For its first step, the new KG was introduced in the 2016 academic year. The upper part of Figure 14 shows the idea to proceed with the reform yearly. It will be in 2028/29 when new KG students in 2016/17 graduate from Grade 12, 13 years later. The current government is trying to accelerate this process in order to quickly catch up to other ASEAN countries, and the new Grade 6 will start from 2019/20, the new Grade 10 will start from 2010/21, and they will reach the new

Grade 12 in 2022/23. The reform will then be partly completed for 6 years as shown in the lower half of Figure 14. Although the parallel reform may cost more for the short term, it may be necessary to catch up to other ASEAN countries. Of course even for this reform, the first KG students in 2016/17 will graduate from Grade 12 in 2028/29, at which time the reform will be completed.

A: Year by year reform

Age	Primary					Middle				High		16	17
	5	6	7	8	9	10	11	12	13	14	15		
2015	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11		
2016	KG	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11		
2017	KG	G1	G3	G4	G5	G6	G7	G8	G9	G10	G11		
2018	KG	G1	G2	G4	G5	G6	G7	G8	G9	G10	G11		
2019	KG	G1	G2	G3	G5	G6	G7	G8	G9	G10	G11		
2020	KG	G1	G2	G3	G4	G6	G7	G8	G9	G10	G11		
2021	KG	G1	G2	G3	G4	G5	G7	G8	G9	G10	G11		
2022	KG	G1	G2	G3	G4	G5	G6	G8	G9	G10	G11		
2023	KG	G1	G2	G3	G4	G5	G6	G7	G9	G10	G11		
2024	KG	G1	G2	G3	G4	G5	G6	G7	G8	G10	G11		
2025	KG	G1	G2	G3	G4	G5	G6	G7	G8	G9	G11		
2026	KG	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10		
2027	KG	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	
2028	KG	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	G12
	Primary					Middle				High			

No Graduate from High
No Graduate from High
Reform Completion

B: Parallel reform

Age	Primary					Middle				High		16	17
	5	6	7	8	9	10	11	12	13	14	15		
2015	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11		
2016	KG	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11		
2017	KG	G1	G3	G4	G5	G6	G7	G8	G9	G10	G11		
2018	KG	G1	G2	G4	G5	G6	G7	G8	G9	G10	G11		
2019	KG	G1	G2	G3	G5	G6	G7	G8	G9	G10	G11		
2020	KG	G1	G2	G3	G4	G6	G7	G8	G9	G10	G11		
2021	KG	G1	G2	G3	G4	G5	G7	G8	G9	G10	G11		
2022	KG	G1	G2	G3	G4	G5	G6	G8	G9	G10	G11	G12	
2023	KG	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	G12
2024	KG	G1	G2	G3	G4	G5	G6	G7	G8	G10	G11	G12	
2025	KG	G1	G2	G3	G4	G5	G6	G7	G8	G9	G11	G12	
2026	KG	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G12	
2027	KG	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	
2028	KG	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	G12
	Primary					Middle				High			

No Graduate from High
First Graduate from G12
No Graduate from High
Reform Completion

Figure 14 Two Types of Basic Education Cycle Reform

Assuming that the current trend of changes in the transition rates continue, the change in the number of students can be calculated. A simulation will be made based on the idea of a "parallel reform" model; however, the estimated number of students after 2028/29 will be similar to the estimated number of students based on the "year by year" model.

First of all, the number of new entrants to KG is estimated. The number of Grade 1 students,

who are supposedly mainly 5-year-olds, exceed the number of children in the 2014 Census. Of course, Grade 1 students may exceed the number of relevant children in the Census if there are many repeaters, but there may be reasons why the Census undercounted the number of children (Muta 2015).

For example, it is calculated as 1.2553 times when the number of Grade 1 students in March 2014 is divided by the number of 5-year-olds. This figure differs by year, but it was 1.2755 on average for the last 5 years. Assuming Grade 1 students included 12% of repeaters from the previous year, the net entrants to schools is still 1.0972 times the 5-year-old population in 2014. It was 1.1232 time on average for the last 5 years. Obviously, there were also children who never attended schools, although the volume was not same as shown in the Census. This is puzzling, but a detailed analysis will be done on another occasion.

Although new entrants to schools include 6-year-olds or above, the majority are considered to be 5-year-olds. As a realistic solution, the number of entrants is supposed to be 1.1232 times the relevant age population according to the 2014 Census. The 2014 Census results indicate that the population of young children is decreasing. When the number of 0-year-old children is divided by the number of 4-year-old children, it becomes 0.8769, which means a 3.23% decrease per year on average. As the mortality rate of younger children is higher in general, the rate of decrease rate must be higher than this figure. However, there is no official future projection of the population thus far; and the number of 5-year-olds after 2018/19 is assumed to be same as the number of 0-year-old children in 2014, who will enter to KG in 2018/19.

The KG is free and recommended, but the new KG is not compulsory, and 6-year-old children can enter Grade 1 without having attended KG. Thus, it is assumed that KG students do not include repeaters. There is no data on the transition rate from KG to Grade 1 thus far. There is the idea that the transition rate may be less than 1.0 because of dropouts from KG who do not proceed to Grade 1. But, there is the other idea that some children may enter Grade 1 without having attended KG, then the calculated transition rate may exceed 1.0. Thus, it is safer to assume that the transition rate is 1.0. In this case, there is the possibility that the number of KG students has been underestimated and the number of Grade 1 students overestimated.

Another idea is that KG is the same as the old Grade 1, and the new Grade 1 is the same as the old Grade 2 because the changes are reflected only in the name of the grades. In this case, the number of students at the KG is larger, but the number of Grade 1 students is less because of the smaller transition rate such as the transition rate from the old Grade 1 to Grade 2. As a matter

of fact, the total number of primary school students becomes similar whichever idea is employed.

Under the new education cycle system, the trend in transition rates between the new Grade 2 and the new Grade 10 are considered to be same as the old education cycle system. The trend in the transition rate from the new Grade 1 to Grade 2 is supposed to be same as the old Grade 2 to Grade 3 because there is no problem of hidden repeaters. The trend in the transition rates from the new Grade 11 to Grade 12 is supposed to be same as the old Grade 10 to Grade 11 because Grade 12 is the last grade at the high school level. The trend in the transition rates from the new Grade 10 to Grade 11 is supposed to be the same as the old Grade 8 to grade 9 because it is the middle of the high school level.

Moreover, the average trend for the last 3 years is used as the base for the trend for transition rates, then two estimations are made, namely “trend estimation” and “high estimation.” The “trend estimation” assumes that the trend of the last three years will continue in future. Specifically, the rate of improvement was calculated using the following formula, then the geometric average of the rate for 3 years was calculated.

$$i = (x - (\text{transition rate from } (n+1) \text{ to } (n+2))) / (x - (\text{transition rate from } (n) \text{ to } (n+1)))$$

Here n is the year and x is the terminal transition rate.

From Figure 6, as the transition rate of any grade or in any year did not exceed 0.96, then this was considered to be the terminal rate of transition for the “trend estimation.” It does not appear easy to decrease this last 4% barrier. Theoretically, there is a possibility that the transition rate can be higher (up to 1-average mortality rate, that is 0.00458) (Muta 2014a), and this value is used for the “high estimation.” According to Figure 6, it is clear that a few of the transition rates show a declining trend, where the value (i) in the above formula exceeds 1.0. In this case, it is set as 1.0, which means no improvement, but not getting worse. In the case of a “high estimation,” the value is set as 0.95, which means a 5% improvement per year. Table 3 shows the results of these assumptions.

Table 3 Assumptions about the Improvement Rate for Simulation

Transition (Old system)	G1->G2	G2->G3	G3->G4	G4->G5	G5->G6	G6->G7	G7->G8	G8->G9	G9->G10	G10->G11	Final transition rate
Recent 3 year average	0.8422	0.9494	0.9517	0.9265	0.8606	0.9261	0.9220	0.9322	0.8540	0.8349	
Trend improvement (i)	1.0000	1.0000	0.9324	1.0000	0.7627	0.8883	0.8774	0.8046	0.9433	1.0000	0.9600
High improvement (i)	0.9500	0.9500	0.9324	0.9500	0.7627	0.8883	0.8774	0.8046	0.9433	0.9500	0.9954

Now new entrants to KG and the future transition rates for each grade level have been set, and the number of future students by grade can be estimated. Figure 15 shows the trend for the number of students by school level. Figure 16 shows the same information cumulatively from primary to high school level. Compared to previous estimations (Muta 2014a, 2014c, 2014d), the results are moderate for both estimations this time. The major reasons are the decreasing trend of new entrants to schools based on the 2014 Census, slower improvement of transition rates, and the decreased number of hidden repeaters in the first grade because of the introduction of KG.

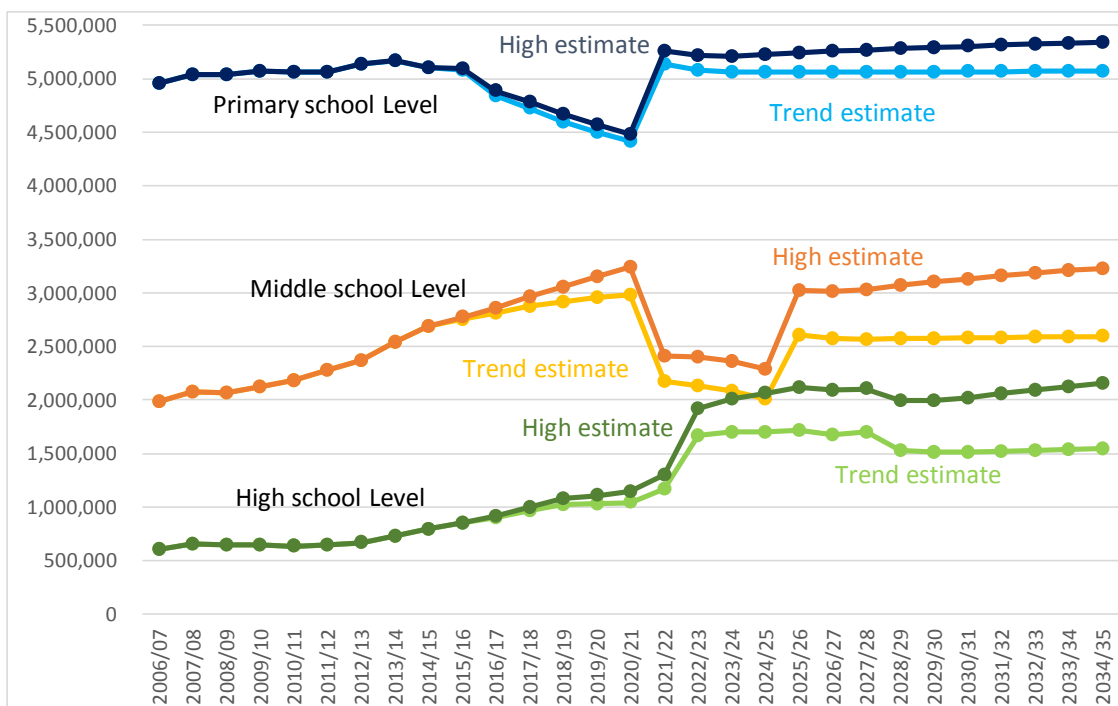


Figure 15 Time Series Trend of the Number of Students by School Level

Figure 15 and 16 show that the number of students at the primary school level will decrease until 2020/21, because the number of new entrants will decrease the number of repeaters in the first grade, which is the KG, disappear, and the number of actual grades will be the same as 4. The actual number of grades will increase from 2021/22 and the number of students will increase rapidly, but it will become constant or increase gradually depending on the method of estimation. There is not much difference between the results for “trend estimation” and “high estimation.” It may come already from relatively high transition rates and room for improvement may be limited.

The number of middle school students will increase along with an improvement in transition rates.

As clearly shown in Figure 14, the number of grades will decrease to 3 from 2021/22 for 4 years, and the number of students will decrease, but it will jump again. However, because of the decrease in the number of Grade 1 students and the shift to an older age group even in same 4 grades, the increase will not be as high. There is margin for increase because the improvement in transition rates is larger than at the primary school level.

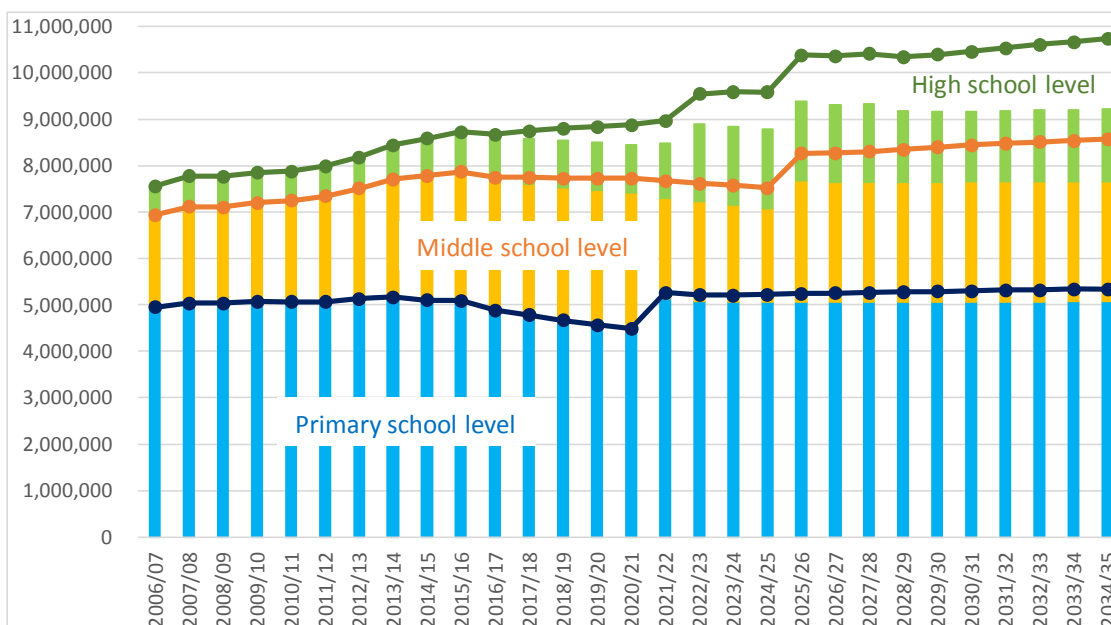


Figure 16 Time Series Trend of the Number of Students by School Level (Cumulative Figure)

In the case of high schools, the number of grades will increase from 2 to 3 grades from 2022/23, but will revert to 2 grades from 2025/26 for 3 years. Such changes in the number of grades influence the number of students, but the number will generally continue to increase because of improved transition rates at primary school, middle school, and high school levels, although the number of new entrants decreases. There is much room for increases in the number of students based on an improvement in transition rates.

In the case of “trend estimation,” the terminal transition rate is set lower. The current transition rates are sufficiently high and allow only minimal improvement. Additionally, the number of new entrants is on the decrease, the sum of the number of students for primary school and middle school levels do not appear to change very much even if one grade is added because of the decrease in the number of new entrants to schools. That implies the new school education cycle will take hold without much difficulty if limited resources such as classrooms or teachers are skillfully deployed.

Even if high school level is added in the case of “trend estimation,” the total number will decrease first then increase because of the added new grades at the primary school and high school levels. The total number of students increases gradually in the case of a “high estimation,” however, the addition is not high as estimated previously.

There are some children who never attend school, and the ratio seems to have been about 4% in 2014. If these children attend school, there is a possibility that the number of students will increase. However, based on the initial assumption, the number of new entrants to schools will be the same after 2018/19. If there is a decreasing trend in the number of small children as the 2014 Census suggests, this number has been unduly estimated. Therefore, the number of students in Figure 15 and 16 may not have been overly underestimated for the long term.

3.6 Structure of Educational Background of Those Who Will Transfer from School to Society

As analyzed, the number of middle school and high school students increases when the transition rates improve. As the dropout rates decrease, the number of dropouts from several grades becomes smaller, and graduates from upper schools increases. Labor force candidates who enter society with a high educational background will increase. Figure 17 shows data similar to Figure 8, which is the ratio of those who enter society with different educational backgrounds in 2029/30. In this figure, 35.73% was used as the matriculation examination pass rate, which was the average for the last 5 years.

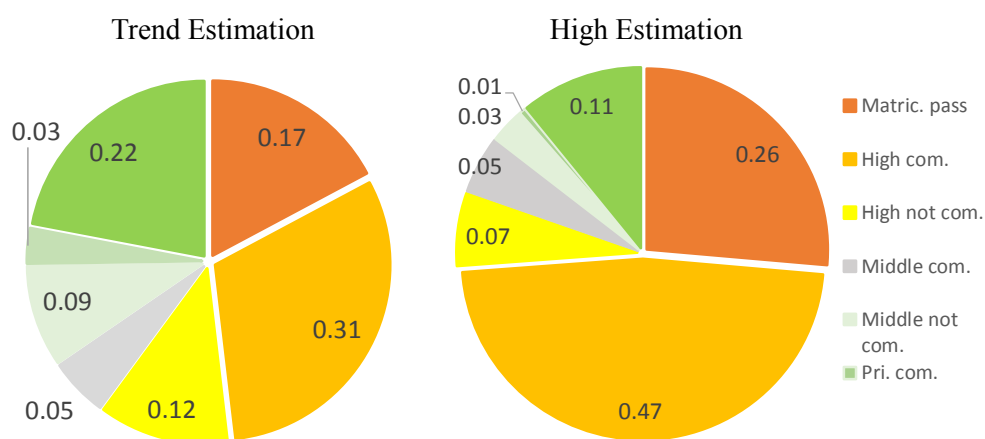


Figure 17 Structure of Educational Background of Those Who Will Transfer from School to Society Based on the 2029/30 Trend

The results for the “trend estimation” show that the ratio of dropouts from primary school was nearly the same for 2014/15 in Figure 8 because it was assumed the transition rates at the primary school level would not improve very much. Nevertheless, the matriculation pass ratio and high school graduates increase, and 48% of them become high school graduates or higher. In the “high estimation,” many students proceed to high school, and the ratio of high school graduates or higher accounts for 74%.

3.7 Necessity of Improvement in Educational Quality and TVET system for Graduates and Dropouts from Basic Education Schools

An important outcome of the educational system is the supply of useful manpower in society. However, there is no guarantee that those who move from school to society are adequately useful to begin work immediately. One of the major problems in education in Myanmar is the weakness of TVET at all levels. The main industry in Myanmar used to be agriculture, and this weakness was not a crucial problem. But it is impossible to become a developed country without an appropriate TVET system.

Currently, companies need to provide the required training for their employees, or they need to import the necessary engineers, technicians or other high-level human resources from other ASEAN countries. Because there is no longer a barrier to importing or exporting human resources, highly skilled manpower may come from abroad and the people of Myanmar may need to go abroad to work as low-pay labor force. Establishing an adequate TVET system along with enrichment of the basic education system is urgently needed.

The problems in education were studied for three years from 2012 by the Comprehensive Education Sector Review (CESR) and many papers have been published. The major critical issues pointed out about basic education and the TVET system are about both quality and quantity, which are not relevant to the currently changing needs of the society. The problems that are often mentioned are as follows.

For basic school education:

- There is a pattern in which enrollment rates decrease and dropout rates increase toward the upper grades.
- Shortage of opportunities to continue education for children who have dropped out.
- School quality varies significantly across different types of schools.
- Textbook content has not been revised for a long time.

Classroom teaching is dominated by rote-learning.

Lack of a quality assurance mechanism for classroom environments.

For TVET:

There is a significant TVET enrollment gap across regions.

There is a gap between the supply of TVET programs and demand for middle-level technical workers.

There is a lack of financial support for economically disadvantaged students.

There is a lack of opportunities for students to gain practical skills and experiences.

Teaching and learning is centered on rote-learning of the fixed curriculum.

Private companies have low confidence and trust in TVET institutions.

For basic problems:

The existing education laws have become outdated.

The past directives/measures implemented in the education sector have been fragmented and uncoordinated.

Educational policy decisions have not been based on evidence or analysis due to the lack of reliable and comprehensive statistics.

Relevant ministries, administrative bodies and schools are not fully serving their intended functions due to the lack of appropriate coordination and demarcation of roles to contribute to a unified purpose.

Current education system does not have a mechanism to continuously upgrade itself to respond to the needs of the job market.

The National Education Law was enacted in September 2014, and the amendment was made in June 2015. Based on this mother law, the sector laws are expected to be forthcoming such as Technical and Vocational Education and Training Law, Higher Education Law, Basic Education Law, and Private Education Law. The new government has set 12 economic policies, and one of them is the "Fostering the human capital that will be needed for the emergence of a modern developed economy, and improving and expanding vocational education and training" (GOM 2016).

The priorities of the Ministry of Education have been set as follows (MOE 2016), and the problems are adequately recognized, although it may take time to achieve these policies.

1. Improve access to education, focusing on completion of primary education by all school-age children.
2. Improve quality of education.

3. Ensure transparent implementation of educational reform.
4. Revise and refine draft Sectoral Laws.
5. Modify and revise the National Education Strategic Plan (NESP), based on the changes of the MOE organizational structure and emerging priorities of the government.
6. Provide technical and vocational education and training.
 - Expand access to TVET for various target groups.
 - Strengthen the quality and relevance of TVET based on industry demand.
 - Strengthen TVET sector management structures, system and tools.
 - Offer competency based modular short courses which meet the needs of regional demand.

4. Conclusion and Policy Implications

The time series trend of transition rates from 2006/07 to 2014/15 were analyzed carefully, and simulations to find the transition rates and the future number of students were conducted. It was remarkable that the transition rate from Grade 5 to Grade 6 has improved rapidly nationwide recently. It was the result of much effort to expand educational opportunity at the middle school level such as establishing post primary schools or branch middle schools especially in rural areas where educational opportunity is limited. The transition rates at the middle school level and the transition rate from Grade 9 to Grade 10 have also greatly improved. In contrast, the transition rates at the primary school level and the transition rate from Grade 10 to Grade 11 have not shown clear progress.

Taking into account the trend of these transition rates and the number of incoming students to KG based on the 2014 Census data, the number of Basic Education School students may not increase very much as estimated previously even though new grades will be added to primary and high school levels as part of the education cycle reform. The main reason is the decreasing number of incoming students to KG and the stagnated transition rates at some grade levels. There appears to be a need to strengthen policies related to improving the quality of education and to reducing the economic burden of parents to prevent further dropouts at each school level. In this way, the transition rate can become sufficiently high in future, and the number of students will increase accordingly.

A structure of the educational background of people, who transfer to society in one year from different levels of schools as graduates or dropouts, can be estimated using the cumulative transition rates in that specific year. These people become the human resources for development.

Half of the people, who transferred from school to society, seem to be middle school graduates or below based on the 2014/15 trend because the dropout rates from each grade level were still high. However, the ratio decreased greatly from 65% in the trend for 2010/11 because of the rapid improvement to advance to upper grades.

The situation may improve to 39% in 2029/30 if the current trend continues. The last 4% dropout from each grade seems high and improvement may be limited if the current trend continues. It must be discussed if this situation is adequate for the development of Myanmar 13 years later. If the transition rate improves at each grade level, the situation may improve up to 20% and the education system can upgrade the educational background of those who transfer from school to society.

In any case, TVET, which should be relevant to the educational background of people, is needed to prepare them for work in society. The current educational system only provides the basic academic knowledge that is not adequate as preparation for the job market. The TVET system should be considered based on not only social demand, but also on the actual quality of trainee candidates that it supplies.

There are many problems to be resolved in the education sector on human resources development. The least developed area is TVET in terms of quantity and quality (soft and hard skills). The problems are recognized and necessary measures will be taken over the long-term. But coordination among relevant ministries and administrative bodies appears to be difficult and time consuming. The education system requires a steady accumulation of knowledge and skills, and necessary changes cannot be made in a short period of time. It will take time to produce results. Even education cycle reform will take 6 years and 12 years to complete it. Meanwhile, the private sector also needs to take the initiative to develop their own HRD system.

A few policy implications drawn from this study are as follows.

1) Need to Reduce Dropouts

Transition rates are stagnated at each grade of primary school. There appears to be a 5% dropout rate from each grade, and this lowers total enrollment in basic education because these dropouts greatly reduce the number of students for the following years. The access may not be the reason because they were once enrolled at schools. The reasons should be investigated fully, and any solution including improvement in educational quality, providing the opportunities in alternative education and others should be considered seriously. Otherwise, it is not possible to

make compulsory education complete.

2) Enhancement of TVET

Those who enter schools move to society at some point as dropouts or as graduates. Any TVET is required appropriate to their educational background, because it is strongly linked to possible jobs in future. The current TVET situation is quite inappropriate for everyone. It has not made the best use of human resources at all, and is a waste of potential human resources. If the labor force movement in ASEAN countries becomes strong, highly skilled foreign workers will get high salary jobs, and the people of Myanmar will have to find lower salary jobs even abroad because of their lacks of required knowledge and job skills. A system needs to be urgently established not only to upgrade the educational background, which is the basis of knowledge and skills, but also to provide practical knowledge and skills for the job market. Otherwise, the educational system in Myanmar will only create a vast number of low pay candidate workers.

3) Separate the graduation examination from the entrance examination

The transition rate from Grade 10 to Grade 11 was lower than before. There is no need to reduce the entrance level to universities, however, the current purpose of high school education is focused too much on passing the matriculation examination. This may be why many high school students easily drop out from school before finishing because they feel it is too difficult to pass the matriculation examination. The purpose of high school education must not only be to pass the matriculation examination. The high school education should have its own meaning, and it should be appreciated. There must be appropriate places for high school graduates to work even though they do not pass the current matriculation examination. The simulation shows that about half of those who move from school to society are high school graduates if the transition rate rises. It is possible for them to become skilled or part of the clerical workforce if appropriate training is given. For the sake of the country, the current matriculation examination system should be changed. The current matriculation examination has two roles, namely to graduate from high school level and to enter universities and colleges. One idea is to separate the role of the graduation examination and the college entrance examination. It may be better to promote pride in graduating from high school level even if students do not go on to attend colleges or universities, and to help them find appropriate jobs. Perhaps some of them may have the opportunity to study at universities in the future as needed, which is commonly seen in most developed countries.

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