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ADB

IRIM
INDEPENDENT RESEARCH INSTITUTE OF MONGOLIA

LABOUR MARKET ANALYSIS

Final report

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1 Introduction

This report on the Labour market analysis is the fourth major output from the consulting service on "Higher education responsiveness to labour market" implemented by the Ministry of Education, Culture and Science. With this study we determine the major features of the labour market for higher educated people and evaluate the economic return of higher education. The numerous studies, reviewing the impact of higher education on income level, have depicted varying results. All of the studies indicated strong correlation between a person's education level and their labour productivity, i.e. their income. Furthermore, the studies proved that investment on the education industry generated macro-economic growth and many positive social benefits.

Although studies on Mongolian education sector are rare, some international comparative studies have shown that Mongolian return of education has a few similarities with the average global trend. For example, a study conducted by the World Bank in 2011 on Mongolian return of education indicated 13.7% return from elementary education, 4.2% return from secondary education, and 10.1% return from higher education (Claudio & Patrinos, 2014). The global average of these indicators are 11.5%, 6.8% and 14.6%, respectively. The main conclusions from this study stated that higher education's high return resulted in many people pursuing higher education, and that the national government should implement policies to finance higher education.

The researchers from consultant team studied the correlation between the labour market and higher education by mainly using the latest quantitative data from the NSO's 2013 "Labour Force Survey" (LFS). The reasons for choosing this quantitative data are as follows:

- The NSO has been quarterly conducting the sample survey on the Labour Force since 2006 by using international methods and will continue to do so.
- Base survey for the population's employment status.
- The raw data, the questionnaire and the brief report is available for public on the NSO's official website at the end of the year.
- It is possible to determine the long-term trends and fluctuations.
- It is possible to evaluate the economic return of higher education by comparing various indicators between citizens with higher and other levels of education.
- It is possible to evaluate the main employment indicators, such as reasons for employment, unemployment and wages, of citizens with higher educations.
- It is possible to compare the indicators of higher education citizens by social groups, such as residence, gender, age, and health.

2 Cleaning and preparing quantitative data

This study mainly uses the "Labor Force Survey", the largest nationwide sample survey performed quarterly by the NSO since 2006. This sample survey annually encompasses over 12800 households from the capital and 21 aimags.

Before the study on the labour market, the research team cleaned and prepared the quantitative data acquired from the NSO's 2013 Labour Force Survey through their website (www.1212.mn).

We cleaned the data by using the following steps:

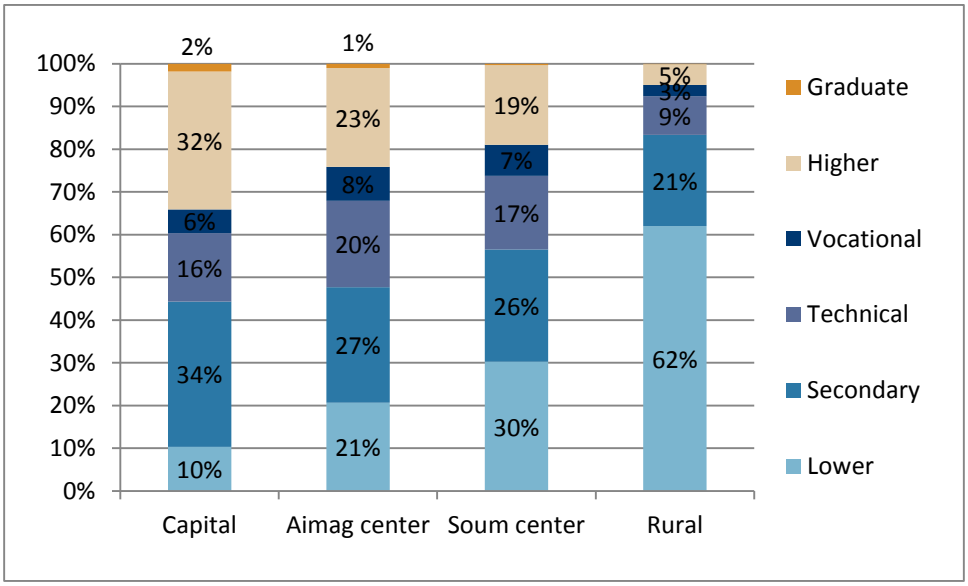
- Instead of using numerical values for variable name, we used we assigned word values.
- Chose citizens between ages 16 and 55
- To simplify residence based comparison, the residence variable "rural area" was coded into 0.
- The variables "married with certificate" and "married not yet certified" from question 10 of Section 1 was changed into "married"
- In question 11 of Section 1, we created the "mobility" variable for citizens, who lived for more than 6 months in a residence other than their current residence in the past 5 years. If they have migrated the value will be 1, otherwise the value will be 0.
- Decreased the levels of education, in question 18 of Section 2, from 9 to 6. Particularly, 1-no education, 2-elementary, 3-secondary were grouped into "lower", 8-masters, 9-doctorate were grouped into "beyond."
- In question 22 of Section 2, the coding for "whether attended training courses in the past 3 years" was changed from "no=2" into "no=0". This will make comparing the effects of enrolling into courses.
- Created a new variable, "myemp1", for determining unemployed people in section 3, because this sample survey didn't clearly define an unemployed person. An unemployed person has been defined as a person who hasn't worked a single hour for the past week and, in general, a person who didn't work but is fully prepared to work.
- In order to convert categorical values for the duration of unemployment, in section 3, into quantitative values, the category interval average for duration of unemployment was converted into the average duration of unemployment. This conversion was also performed on the duration of employment.
- In question 90 from Section 5, we created the variable "available "to determine people who haven't worked in the past week but were prepared to work. /Yes is 1, No is 0/
- In question 92 from Section 5, reasons for unemployment such as "company was liquidated" and "downsizing" were combined into "downsizing".

- In question 118 from Section 6, average monthly wage of the past 12 months were log-transformed into the new variable “logwage12mo”. This makes observing the difference of wages much simpler.
- In question 127 from Section 7, reasons for quitting their previous job such as “company was liquidated” and “downsizing” were combined into “downsizing”.

3 Main results

Comparing residence and the education level of citizens between ages 16-55, who participated in the labour force survey, revealed some major differences. In the figure, while the percentage of citizens with bachelor's or higher education level in the capital city is 34%, in rural areas it is only 5%. On the other hand, 62% of citizens in rural ears have secondary or lower education level compared to 10% of citizens in the capital.

Figure1. Residence and education level of the citizens



21% of total citizens between ages 16-54, who participated in the Labour Force Survey (LFS), have higher education level (including master's and doctorate's degrees).

Table1. Percentage of education level distribution, by gender

Education level	Total percentage	Total women	Total men	23-35 y.o women	23-35 y.o men
Lower than secondary	29.8	25.8	34.0	23.9	32.6
Secondary	27.6	28.4	26.6	23.0	22.9
Technical	15.6	13.1	18.3	9.7	15.5
Vocational	5.8	7.0	4.5	2.8	2.6
Higher /bachelor's/	20.4	24.7	15.9	39.1	25.6
Graduate /master's, doctorate's/	0.9	1.1	0.6	1.5	0.9
Total	100	100	100	100	100

The table above shows the increasing difference between men and women with primary education. Furthermore, number of men with lower than secondary and technical education is greater than the number of women with the same education level, while the number of women with secondary and higher education level is greater than the men with those respective education levels.

Around 5.4% of total survey participants have some sort of disability, more than half of whom have lower than secondary education. This implies that disabled people have great difficulty increasing their education level. Only 6.7 per cent of disabled people have higher education. From the other side, people with lower than secondary education have a higher chance of being disabled.

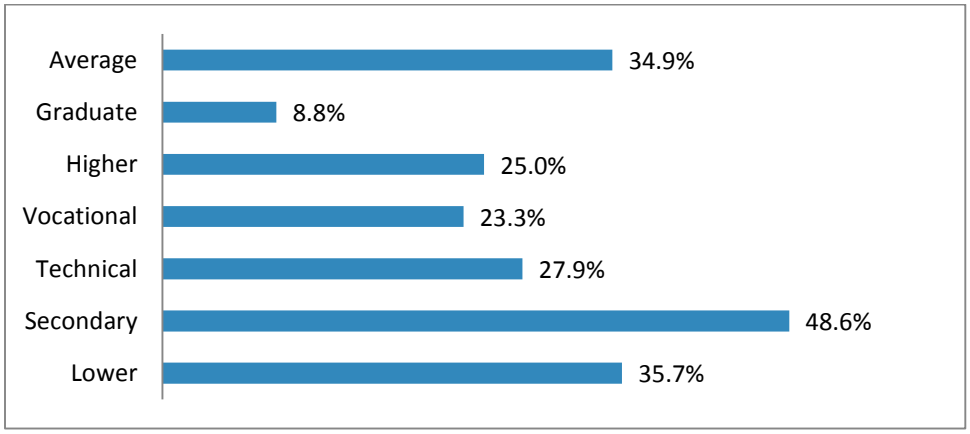
Table2. Citizens with disabilities and education

Education level	Education level of disabled citizens	Percentage of disabled citizens
Lower than secondary	51.2%	9.2%
Secondary	20.2%	3.9%
Technical	15.3%	5.3%
Vocational	6.5%	6.1%
Higher /bachelor's/	6.7%	1.8%
Graduate /master's, doctorate's/	0.1%	0.4%
Total	100%	5.4%

3.1 Employment

Around 65.1% of total number of citizens is employed, and 34.9% is unemployed. Comparing the education level of unemployed people, reveals that the lower the education level the lower the employment rate. For example, nearly half of citizens with secondary education are unemployed while only a quarter of citizens with higher education are unemployed.

Figure 2. Percentage of unemployed people



Most common reasons for unemployment are studying, baby-sitting, or housework. However, unemployed citizens ready to work make up only 18%. Comparing the reasons for unemployment by

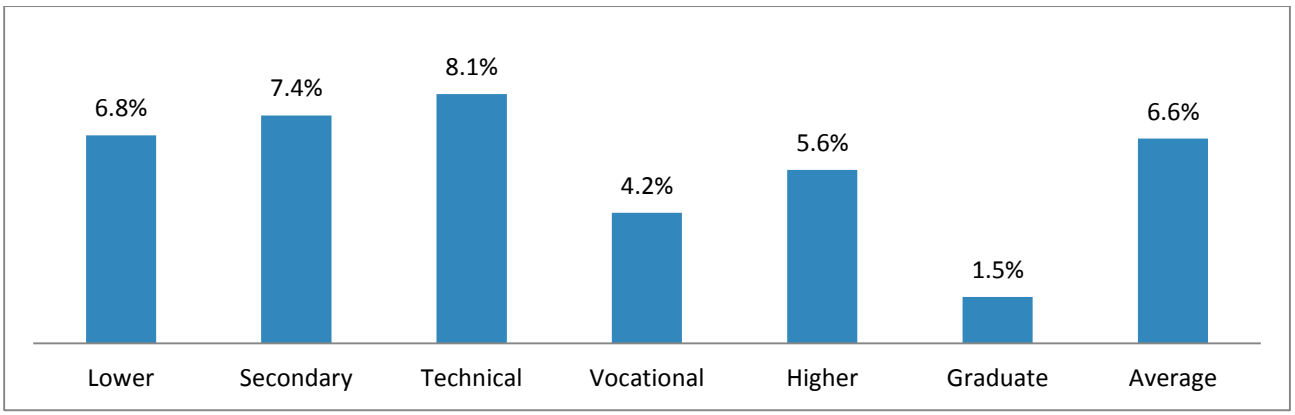
gender reveals that reasons, such as ready to work, studying, disabled, reluctant to work, are prevalent in men, while reasons, such as baby-sitting and house work , are prevalent in women.

Table3. Reasons for unemployment

Reason for unemployment	Total percentage	Male	Female
Studying	33%	36%	30%
Ready to work	18%	22%	16%
Babysitting	12%	2%	19%
House work	11%	7%	13%
Disabled	9%	12%	8%
Retired	2%	2%	3%
Unwilling to work	2%	4%	1%
Sickness	2%	3%	2%
Leaving to study	1%	1%	1%
Taking care of sick or elderly	1%	1%	1%
Others	8%	11%	6%
Total	100%	100%	100%

Since it is difficult to directly define an unemployed person from the LFS, we created a new variable that defined an unemployed person as a person who is able, yet didn't work in the last week. This resulted in the percentage of unemployment decreasing down to 6.4% of total citizens. We restricted the age from 25 to 44 to compare the unemployment rate with education level. Thereby making it possible to compare the results from university graduates.

Figure3. Unemployment level, by education level



The figure shows that unemployment rate is low for people with higher education.

The table below shows the reasons for unemployment compared by education level of people between ages 25-40, who weren't prepared to work.

Table4. Reasons of unemployment, by education level

Education level	House work	Studying	Leaving to study	Disabled	Unwilling to work	Baby-sitting	Sick-ness	Care for sick and elderly	Others	Total
Lower than secondary	17%	1%	0%	35%	5%	21%	6%	3%	12%	100%
Secondary	24%	6%	0%	8%	4%	35%	5%	3%	14%	100%
Technical	20%	0%	0%	12%	5%	40%	3%	3%	16%	100%
Vocational	12%	4%	0%	16%	2%	29%	8%	4%	24%	100%
Higher	20%	4%	1%	4%	1%	52%	2%	2%	14%	100%
Graduate	27%	9%	0%	0%	0%	36%	18%	0%	9%	100%
Total	20%	3%	0%	15%	4%	36%	5%	3%	14%	100%

The main reasons of unemployment for people between the ages 25-40 with lower than secondary education, are disability, babysitting and housework. The main reasons for people with secondary or higher education, are babysitting and housework.

Another important indicator for the labour market is the duration of unemployment. Longer duration of unemployment lowers the chances for a person to find a job and reveals low activity in the labour market.

Table5. Duration of unemployment and education level, percentage

Education level	< 1 month	1-3 month	4-6 month	7-11 month	1-2 year	> 3 year	Total
Lower than secondary	0.47	0.78	2.18	2.81	3.9	21.06	31.2
Secondary	0.78	1.72	0.62	1.87	6.4	14.98	26.37
Technical	0.78	1.72	1.09	0.78	4.21	8.27	16.85
Vocational	0.31	0.31	0	0	0.31	1.09	2.03
Higher /bachelor's/	1.09	2.03	1.4	3.43	5.3	9.98	23.24
After bachelor's /master's, doctorate's/	0	0	0	0	0.16	0.16	0.31
Education level	< 1 month	1-3 month	4-6 month	7-11 month	1-2 year	> 3 year	Total

The table shows that most unemployed citizens have been ready to work for over a year. The higher the education the shorter the duration of unemployment, meaning that duration of unemployment significantly depends on the education level.

Other statistics on the labour market reveal that in a highly active labour market the duration of unemployment is on average 17days, but during low activity the average increases up to 6 months. Compared to the global average, this indicator is somewhat positive. For example, the average duration of unemployment in Slovakia is 30 months, and in USA it is 6 months.

On the other hand, the higher the education level for people above the age 25 the shorter the duration of employment. This is due to the number of years required to attain higher education.

Table6. Duration of employment and education, percentage

Education level	Up to 1 year	1-2 years	3-4 years	5-9 years	More than 10 years	Total
Lower than secondary	0.87	1.91	2.06	3.1	21.26	29.2
Secondary	1.36	2.89	2.78	4.5	10.01	21.56
Technical	0.9	2.67	2.54	4.2	7.54	17.83
Vocational	0.27	0.77	0.76	1.41	4.1	7.31
Higher /bachelor's/	1.16	3.28	3.87	6.7	7.75	22.76
After bachelor's /master's, doctorate's/	0.08	0.15	0.15	0.33	0.63	1.34
Total	4.64	11.68	12.16	20.24	51.28	100

On average, a person with higher education worked for 5.7 years, while a person with primary education worked for 6.4 years. Further analysis reveals that people who have one stage higher education on average have worked 1 month less than people in the same region, with the same age and gender. Meaning that a person with higher education has worked 3 months less than an exact same person with secondary education.

A person's duration of employment in their last job is interesting. This table is obviously shorter compared to the previous table. Comparing the duration of employment in their last job and education level reveals very low correlation. In other words, distribution of the duration of employment in their last job is similar among people's education level.

Table7. Duration of employment in their last job and education level

Education level	Up to 1 year	1-2 years	3-4 years	5-9 years	More than 10 years	Total
Lower than secondary	2.17	3.05	2.78	4.68	9.8	22.49
Secondary	2.99	4.78	5.02	6.68	6.75	26.22
Technical	2.34	3.46	3.63	5.46	8.38	23.27
Vocational	0.68	0.81	1.22	1.9	3.7	8.31
Higher /bachelor's/	2.31	3.63	4.58	4.21	4.58	19.3
After bachelor's /master's, doctorate's/	0.07	0.07	0.1	0.07	0.1	0.41
Total	10.55	15.81	17.33	23	33.31	100

3.2 Return on higher education

Wage rate is an important indicator for the labour market equilibrium. The high wage rate demonstrates higher labour demand than the supply, while low wage rate demonstrates lower labour demand than the supply. A person's high knowledge, skills and experience, in other words, a person with high human capital has a higher wage.

The LSF reveals that the higher the education level, the higher the average wage rate. The average wage rate of a person with higher education is higher by 42% than that of a citizen with secondary education, and 27% higher than technical education citizen's wage rate. However, the average wage rate of a person with a master's or a doctorate's degree is more by 59% and 43%, respectively.

Table8. Average wage rate by education level and gender, thousands of MNT

Education level	Average wage rate	Female	Male
Lower than secondary	315.9	272.5	325.3
Secondary	439.2	371.7	481.3
Technical	491.2	413.6	532.3
Vocational	496.6	462.3	545.3
Higher /bachelor's/	623.3	568.1	697.9
After bachelor's /master's, doctorate's/	700.5	624.5	828.8
Total	481.8	463.1	494.5

Source: Labour force survey 2013, NSO

Gender comparison reveals that women who attain higher education have a 53% increase in average wage rate. This increase in wage rate goes up to 68% after attaining master's or doctorate's degree. We conclude that higher education level leads to increase in the average wage, especially for women.

To further analyse and define the return on higher education, we need to use a special model that takes age, gender into account. Economic models focus and log-transform the percentage of increase of monetary variables. Therefore, instead of the nominal wage rate, we shall use the log-transformed

amount. Although the labour productivity increases with age, the marginal productivity decreases. This will be reflected in the model. Results of the simple model for evaluating Educational return:

logwage = 5.7 + 0.04×age -0.0×age ^2 -0.39×edu1 +0.11×edu3 + 0.17×edu4 + 0.41×edu5 + 0.54×edu6

R2=0.19 t-stat (7.93)(-7.77) (-25.8) (6.8) (7.7) (27.7) (12.4)

Age- age, edu1 –lower than secondary education, edu3 – technical education, edu4 – vocational education, edu5 – higher education, edu6 master's and doctorate's. The secondary education level shall be used as base for comparing the educational return evaluation. The results above were simplified into the table below.

Table9.Educational return, compared to secondary education (accounting for age)

Education level	Benefit
Lower than secondary	-39%
Technical	11%
Vocational	17%
Higher /bachelor's/	41%
After bachelor's /master's, doctorate's/	54%

The table displays the benefit of higher education as 41% and the benefit of education above higher education to be 54%. This indicates that citizens with a bachelor's education have 41% more income than citizens with the same age but secondary education. In other words, each year spent in a university adds around 10% of return on investment. Meanwhile citizens with a secondary education earn 39% more income than citizens with the same age but lower than secondary education.

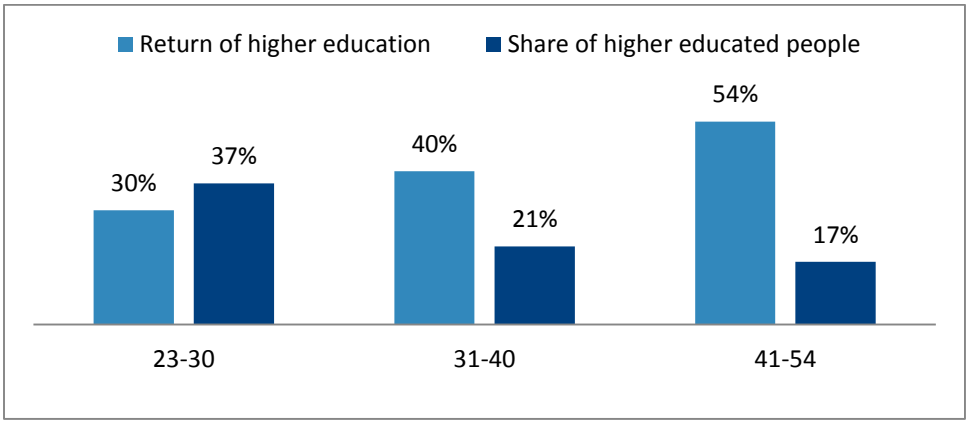
According the survey conducted by the World Bank, average annual educational return from 150 countries is 4.2% and 14.6% from higher education.(Claudio & Patrinos, 2014). This proves that higher education has relatively high return, which is also true for our country. Higher education has high return in developed countries as well. For example, the survey for the past 40 years on the return on higher education in USA revealed it to be 41%, same as the Mongolian return (Lkhagvasuren, 2014). Unfortunately this does not imply that Mongolian wage rate for higher education is the same as the wage rate in USA. The ratio between the wage rate of secondary education person and the wage rate of higher education person is similar in Mongolia and USA. In other words, the Mongolian higher education has returns and results close to the international level.

What is the payback period for a Mongolian higher education graduate? Let's calculate it. Let's assume the initial investment, in other words the average annual tuition rate, to be 2 million MNT. The wage rate of higher education employee is higher than the wage rate of secondary education employee by 180'000 MNT per month or 2.1 million MNT a year. Meaning that a higher education employee can payback the 4 years of education with 4 years of the wage rate difference.

This educational return is even less in Europe (Krueger, 2010). This is due to tuition-free higher education in Europe, resulting in a high number of university and college graduate. The high number of youths with very minimal secondary education, who continue to be unproductive even after graduation,

diminish the average wage rate. This phenomenon can be observed in our country, by comparing the times with high and low university admissions.

Figure4. Return of higher education, by age group



Although the percentage of higher educated citizens among people over 40 is quite low, they receive 54% more income than people in the same demographic group but with secondary education. On the other hand, higher percentage of youths between the ages 23-30 have higher education, yet have a low return of 30%. This shows that the higher the number of university admissions the lower the average basic skills of students, which gradually lowers the return on education and wage difference.

In the next few years, depending on whether the admission of universities goes up or down the return on higher education will go up or down as well. It is irrational to conclude that low return on higher education is the result of poor educational quality. This could be explained by the decrease of marginal quality of university entrants. In economic theory, marginal decrease eventually decreases the total average. In other words, as more students are admitted to universities the lower the quality of university graduates, and also lower quality difference between higher and secondary education.

For further analysis, gender and marital status were also considered. This resulted the return on higher education to increase up to 45%. In other words, people with the same age, gender and marital status but higher education receive 45% more income than the same people with secondary education. The higher educational return for women reaches 50%.

Table10.Return on education, compared to secondary education(accounting for age, gender, marital status)

Education level	Return	Return, male	Return, female
Lower than secondary	-43%	-45%	-37%
Technical	10%	11%	8%
Vocational	20%	16%	23%
Higher /bachelor's/	45%	41%	49%
After bachelor's /master's, doctorate's/	58%	58%	60%

As we can see from the table above, the return from all educational levels except lower is positive. Educational return of one more year is almost 10%. Also, marital status doesn't affect a person's wage rate. Yet women in the same age and education level as men seem to earn 18% less income.

The return on education changes drastically among residence (Dahl, 2002). In our study, comparing the educational return for urban and rural residence revealed that the differences in lower than secondary and master's, doctorate's return is decreasing. To clarify, people with secondary education have 25% higher income than people with lower than secondary, regardless of residence, age, and gender. The difference of return in the previous calculation, which didn't account for residence, was 43%.

Table11. Return on education, compared to secondary education (accounting for age, gender, marital status and residence)

Education level	Return
Lower than secondary	-25%
Technical	10%
Vocational	21%
Higher /bachelor's/	40%
Graduate	48%

Also the R2, coefficient of determination, for this model has increase from 0.20 to 0.26. This displays the high difference in people's income among urban and rural residences.

Table12. Difference of average wage rate among residence, by rural areas

Residence	Difference in wage rate
Soum center	16%
Aimag center	28%
Ulaanbaatar	49%

High difference in wage rate among urban and rural areas is evident from the results. Due to the difference in wage rate, people with high productivity mostly reside in the capital. Therefore let's determine the correlation between higher education and migration.

1.1 Higher education and migration

There is high correlation between citizens' migration and education. From one side, people migrate to acquire education. From the other side, educated people migrate to find a good job position. There have been many studies stating that education has positive affect on migration(Machin, 2012) (Malamud, 2012). Let's briefly take a look at this correlation in our country.

The average wage rate by residence is shown below. The table indicates high difference in citizens' average wage rate among residence, regardless of education level, age or gender.

Table13. Average wage, education level and residence, thousands of MNT

Education level	Capital	Aimag center	Soum center	Rural area	Total
Lower than secondary	461.1	358.6	311.0	288.5	315.9
Secondary	518.8	417.1	382.4	372.4	439.2
Technical	583.2	480.3	437.3	381.1	491.2
Vocational	558.7	504.2	454.6	406.1	496.6
Higher /bachelor's/	712.2	577.9	523.0	449.9	623.3
After bachelor's /master's, doctorate's/	763.1	632.4	512.7	450.0	700.5
Total	617.3	487.1	422.9	328.3	481.8

To clarify, not only does the increase in education level lead to the increase in the average wage rate, moving from a rural area into a bigger city increases the wage as well. In general, studies have shown that migration of people with high education level positively affects their wage rate. (Lkhagvasuren, 2014). This is one of the main reasons that people with higher education tend to live either in aimag centres or the capital city.

Therefore we need to compare the educational return of people from the same residence. We used the same model as before.

Table14. Return on education and residence, compared with secondary education

Education\Residence	Capital	Aimag centre	Soum centre	Rural area
Lower than secondary	-11%	-19%	-27%	-31%
Secondary	11%	12%	11%	2%
Technical	12%	23%	28%	22%
Vocational	36%	43%	44%	40%
Higher /bachelor's/	46%	55%	45%	42%

As you can see, the difference of educational return varies among residence. For example, the difference of educational return between higher and secondary education in Ulaanbaatar is 36%, which is lower than the national average. This difference is relatively high in aimag and soum centres. In soums, people with primary or secondary education have low income while people with higher

education have high income. In addition, difference between return on secondary education and return on education lower than secondary is the lowest in the capital. This could be explained by the fact that rural areas are on high demand for people with higher education compared to the capital.

Let's compare the migration of citizens with the education. Comparing the percentage of citizens that lived in another place for more than 6 months in the last 5 years reveals that the higher the education level the more likely the citizen will migrate. There doesn't seem to be any change in migration between genders. This education-dependent migration rate is most likely due to youths moving to big cities in order to attend universities.

Table15. Percentage of migrated citizens

	Male	Female	Total	Older than 35
Lower than secondary	3.6%	3.0%	3.3%	2.2%
Secondary	8.5%	8.2%	8.3%	4.2%
Technical	7.4%	6.9%	7.2%	5.1%
Vocational	6.7%	7.0%	6.9%	6.2%
Higher /bachelor's/	15.1%	14.9%	15.0%	10.0%
Lower than secondary	20.3%	21.1%	20.8%	20.3%
Total	7.7%	8.4%	8.0%	5.2%

Although people older than 35 tend to migrate less, the higher their education level the more likely they are to migrate. In developed countries, the migration rate of higher education citizens is 6%, while migration rate of secondary education citizens is 3%. In Mongolia, the migration rate is higher than the developed countries, but higher education citizens' migration rate is still twice as higher than that of secondary education citizens.

Let's view the percentage of people older than 35 that moved to the capital. The table below shows that most people older than 35 that moved to the capital have higher education.

Table16. Percentage of citizens migrating to the capital

	Older than 35
Lower than secondary	0.1%
Secondary	2.4%
Technical	2.4%
Vocational	3.4%
Higher /bachelor's/	8.1%
Lower than secondary	12.7%
Total	3.1%

On the other hand, people with secondary or lower education are less likely to move to the capital. This completely negates the belief, which states that mostly poor and uneducated people are migrating into the capital.

Educated people migrating from the rural areas tend to have higher productivity and in turn earn higher wages compared to the average intellectual person of Ulaanbaatar with the same education. This

becomes another factor the wage rate in Ulaanbaatar is higher than the wage rate in rural areas. In other words, people migrating from rural areas increase the average employee quality of Ulaanbaatar.

Associated with this, a question of whether the high education leads to migration or whether migration leads to increase of education arises. After many years of studying this question, labour economists have concluded that education affects a person's migration (Malamud, 2012), (Machin, 2012). To clarify, these economists used quantitative data from American colleges during the Vietnam War. During these times, college graduates weren't enlisted into the military, so many students enrolled into colleges. By studying the migration in the labour market of these college students, they concluded that high education led to increase of migration. This is very similar to the current status of Mongolia. The Mongolian labour market is quite flexible and people with higher education are migrating at a faster rate. These migrations result in employment in higher wage and productivity jobs. In other words, higher education is an important factor to increase nationwide employment in industries with high labour productivity.

Generally, it isn't necessarily positive for people to be employed in one occupation for a long period of time. Rather rapid migration into high productivity industries is more efficient. In a country such as Mongolia, where industries (for example: mining, construction) have either high increase or decrease, or where industries quickly appear or disappear, a new labour market policy that migrates people from bad industries into good industries should be implemented.

1.2 Relevance of higher education

It is very challenging to determine the relevance of university graduates with their work. A mismatch is defined by the inability of the employer and employee to cooperate. We cannot conclude that Mongolian higher education is not relevant with the labour market, solely based on the aforementioned return on higher education. Meaning, it is difficult to conclude that majors attained by university graduates are irrelevant with the labour market, when the educational return on higher education is relatively close to the global average return. One indicator that could determine the relevance is duration of unemployment. As shown in the previous section, duration of unemployment for people with higher education is considerably low, therefore there is no proof of irrelevance between universities and the labour market.

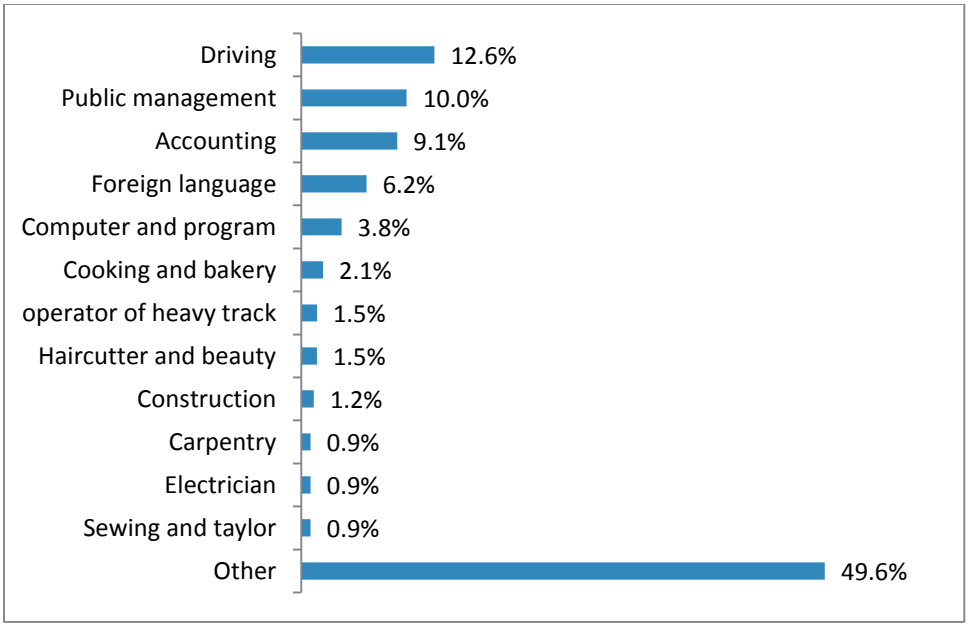
Another indicator to show the relevance of higher education and the labour market, is tendency to study further by people with higher education. In the past three years, around 4.3% of people over 24 newly enrolled into a professional training courses. The higher the education level the higher their tendency to enrol into a professional training course. Nearly 7.8% of people with higher education enrolled.

Table17. Percentage of newly enrolled people into professional training courses

	Older than 24
Lower than secondary	1.5%
Secondary	3.2%
Technical	4.8%
Vocational	4.2%
Higher /bachelor's/	7.8%
Lower than secondary	17.6%
Total	4.3%

7.8% of people with higher education enrolled into professional training courses in the past three years. The courses are listed by their types below. There were many different types of training courses, among which driving, Management academy, accounting, language and computer courses were the most common. Courses are considered as important even after graduation.

Figure5. Enrolment of citizens with higher education into training courses



The types of course enrolment highly differ among gender groups. For example, most people enrolled into accounting and language courses are women, while the gender of people enrolled into computer, management academy and driving courses is nearly equal. Regrettably, there are many issues. Is a driving course additional training? If the industry they worked in goes away and they pursue to attain a new profession, does their former university count as poor?

Sociologists ask people's impression to evaluate the relevance of job. In the sample survey, when asked if their current occupation is relevant to their attained major, half of the respondents answered "relevant", a quarter answered "irrelevant", and the rest answered "don't know".

Table18. Relevance between profession and occupation, by education level

Educational level	Congruent	Incongruent	Don't know	Total
Lower than secondary	39%	9%	53%	100%
Secondary	35%	17%	48%	100%
Technical	53%	47%	0%	100%
Vocational	58%	42%	0%	100%
Higher /bachelor's/	69%	31%	0%	100%
Lower than secondary	85%	14%	1%	100%
Total	49%	25%	26%	100%

Comparing the answers with the education level reveals that people with lower education levels tend to answer "Don't know", while people with higher education tend to answer "Relevant" Around 70% of people with higher education attained a major that matches their occupation.

Since most people tend to answer according to their current mood, this indicator has a disadvantage of being highly subjective. Therefore it is not an important indicator. On the other hand, a person's wage rate and period of unemployment provides a more real depiction of their work compatibility and labour market congruency.

The issue of occupation relevance is highly relative and difficult to summarize. The main method to improve the relevance is by making the labour market more flexible.

3.3 Issues to focus on

Average person and marginal person. Nowadays a person with higher education earns 40% more income than a person with no higher education. But this difference will gradually decrease if we add the number of university students. This is due to the student who barely passed the university admissions threshold having much lower skills than the student who placed first. Therefore the more students admitted into universities the lower the average skill level of students, which leads to decrease in labour productivity and wage. On the other hand, this is a statistical average, which means that the investment parents put in their children's education won't result in the same return. Aside from the child's basic skills, the return varies depending on their graduated university and place of employment after graduation.

Low average wage rate of women. In association with the issue above, when a certain social group comprises most of the higher education entrants, the average return of that group declines. This is called selection bias. For example, when the number of female university graduates increases, their average wage rate will inevitably decreases. By misunderstanding this concept and demanding equal pay for people in the same occupation and education will make the situation for women even worse. Employers will decline to this demand and make them less likely to hire women. This could potentially increase unemployment among women.

Dynamic choice. Primary school graduate will most likely follow his peers and try his luck by signing up for a university. He/she believes that attaining his/her profession and working at a good job means high income. At the very least he/she would earn the same as people who didn't attend a university. This is

the right choice for this kid. The reason is that the probability of he/she can earn more than his/her potential is less. In very rare cases, a person with higher education earns less than a person with secondary education. But this is no reason to believe higher education has bad return. Actually higher education increases the total average productivity and wages for the labour market.

Difference of return among regions. High number of enterprises in the capital and good technology investment causes the migration of educated people into the capital. Therefore the main way to remove the wage difference among residence is by increasing investment for agriculture industry in rural areas.

Marriage market. In recent years, the average age of marriage is increasing and marriage is being postponed for a longer period. The main factor is the difference in education level between men and women. An international study proved that the difference in education level between men and women affects marriage (Belot M., 2006).

Women with higher education comprise 24.7% of total number of women, while men comprise, nearly 10% less, at only 15.9% of total number of men. This difference is more apparent between the ages 23-35. For example, 39.1% of women and only 25.6% of men within this age group have higher education. This consequently postpones marriage for youths and in turn decreases childbirth. This phenomenon was observed in European countries as well, negatively affecting population growth and age group structure.

In Mongolia, this issue is possibly caused by professional schools with high number of women. We must further research other causes for this issue. Our country should carefully consider this issue and create policies directed specifically towards higher education for men.

4 Conclusion, recommendations

The following conclusions can be made from this labour market survey:

- Higher education generally has high return.
- This study is comparable to the surveys of Ministry of Labour.
- It is relatively close to the international labour market.
- People with higher education have a short duration of unemployment, they often switch occupation, and have relatively high wage rate.
- As for training courses, skill-providing courses, such as management, language and driving, are in high demand. Since people usually enrol in courses according to their personal needs, it is difficult to say that universities need to provide these courses.
- Wage rate difference between urban and rural regions is high. Therefore the wage of a graduate differs depending on their employment residence. For example: it is likely that wage rate will be low in rural areas.
- Education is very important for vulnerable groups.
- People with higher education have higher average wage than people with technical or vocational education.
- There is high difference between technical and vocational education.
- Employment, wage and work migration are very important. High migration could signify promotion. Labour market for educated workers is flexible.
- People with higher education tend to migrate more. This is not affected by gender.
- It is difficult to determine the reasons for workers' inter-industry migration with this survey.
- Most men and women have similar positions in the labour market.

Based on these survey conclusions, the consultant team offers the following recommendations for the clients and universities:

- It is possible make continuous general analysis of the higher education and the labour market by using the primary quantitative data from quarterly and annual issues of the Labour Force Survey published by the NSO. This report contains examples for the subject matter and the degree of analysis. Furthermore the quantitative data, instructions, and results of the analysis are included in the appendix.
- Due to the large amounts of data, this survey requires professionals with basic experience in economy, statistics and quantitative analysis.
- Special statistics programs such as Stata, SPSS and R, are required to work with large data.
- It is imperative to use these survey results in conjunction with labour market surveys conducted annually by the Ministry of Labour and surveys conducted by the universities. These surveys

have their own advantages, and together provide better information regarding changes of the labour market.

- Cooperation with the Higher and vocational education sector of the Institute of Education, affiliate office of the Ministry of Education, Culture and Science of Mongolia, is key to increasing the analysis capacity. With this objective in mind, the consultant team created a memorandum of collaboration with the institute to include the sector's director and specialists in the research process and training workshops. Furthermore the sector's specialists shall receive the quantitative data and programs, used in this study, and learn analysis through advanced trainings.

Another recommendation for education policy makers is that it is important to pay attention on improving education of male population. In our research, the share of high educated male population is much lower than that of female population and it may lead to serious sociological problems such as less marriage, less population growth in the long-run. In order to increase the number of male students in higher education, policy makers can take several actions such as to lower the admission requirements for male students or to lower the tuition fee of the programs in which male students mostly study etc,.

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6 Appendix. Summary of the labor market survey

It is possible to include the information from various labour market surveys conducted by Universities, Ministry of Education, Culture and Science, and other educational institutions. Although the quantitative data is not available to the public, the main results are published in the survey report. The survey reports are available for download from the Ministry of Labour's Employment services, research and information centre's website (http://www.hudulmur.mn/sudalgaa/list). In this appendix section, we shall introduce the surveys' summary and main results.

6.1 Survey on employment of Mongolian youths

In 2014, Rand corporation conducted a survey titled "Improving the Mongolian labour market and increasing youths employment" for the Ministry of Labour. The sample survey included the whole country. By using the supply and demand, they determined the parts of the labour market that worked well and the parts that didn't, as well as issues that required change.

Survey questions. The survey contained the following questions:

- How are Mongolian labour market indicators changing compared to that of similar countries?
- What are the main obstacles facing the Mongolian labour market development?
- How is the aspiration of Mongolian youths to study and work? How does this aspiration change depending on gender, age, education level and employment?
- What obstacles are Mongolian youths facing when attaining education, or receiving and improving their profession?
- How do youths prepare for employment? How do youths find out about the employment requirements?
- How well informed are youths regarding various government aids for youth's employment? How well do they use these aids?

Main survey results. The survey provided the following main results:

- Although the number of formal employment is increasing, it is still lower than the total of number of people in informal employment and animal husbandry. Formal employment has better working conditions, less hours per week, less days per month and higher wage rate than informal employment and animal husbandry.
- Labour productivity is becoming a main issue in the Mongolian labour market. Although Mongolia has low unemployment, compared to the global average, most employees are working in a low productivity industry or occupation.
- Education level and school admissions are positive; educational return is high. More youths are choosing to attain higher education in universities rather than attaining technical, vocational skills.

- Technical, vocational educational institutions. TVET graduates have low wage rates. The lack of skills by employees who graduated TVET, indicates unfilled demand. But in recent years, TVETs are implementing more reforms to improve school curriculums, equipment and teachers' skills.
- Rate of unemployment among Mongolian youths is quite high. Compared to similar countries, this number of inactive youths is considerably high, especially in aimag centres and in Ulaanbaatar. These youths are not contributing to the economy, developing their skills nor supporting their families. They are creating a lost opportunity cost, not only for themselves but for the whole nation, and are in-danger of becoming a critical social welfare issue.

Based on these results the survey team has prepared the following recommendations:

- To increase the access to education, especially in rural areas and to inactive youths.
- To implement programs that improves communications skills and critical thinking.
- To provide information and advice about career planning to students and pupils in all education levels.
- To create and improve an official internship program for practical training, in collaboration with employers.
- To improve the new admission criteria of TVEIs to international standards.
- To improve the quality of short courses for TVEIs
- To create coordination between the Ministry of Education, Culture and Science and the Ministry of Labour, in order to improve the outcome education and labour markets
- To identify inactive youths at an early age and assist them with their issues.
- To provide information and courses for organizations that serve schools and youths.
- To support private companies that provide labour intermediation services and create competition.
- To continuously conduct surveys on employment of youths and the labour market demand
- To further survey the employment interests and obstacles of women, disabled people and elderly.

6.2 Survey on employment of graduates

Since 2013, Institute of Labour Study of the Ministry of Labour has been conducting employment surveys for the graduates throughout the country. The main purpose of this survey is to study and analyse profession, skill and employment level of the graduates ,to create a database which can show correlation between education and employment, and to provide customers with information required to generate policy that would support the employment of graduates.

In this scope, the following surveys have been conducted:

- "2011 sample survey on employment of University and Vocational school graduates". By making graduates' profession as the main criteria, proportional probability and simple random

sampling methods were used to study the surveyed 1495 graduates (university graduates 982; vocational graduates 513)

- "2013 sample survey on employment Univesity and Vocational school graduates". 1232 graduates from university and 768 graduates from vocational school participated in this sruvey conducted in 2014.
- "2011 tracking survey for employment of University and Vocational school graduates". Graduates participating in "The 2013 employment survey" were asked to participate in 2014 survey again and the purpose was to compare changes made over the past year. 1017 out of 1495 graduates from the previous survey participated in the repeat survey. (university graduates 731; vocational graduates 286)

The results of the surveys is shown below:

Table 19.Main indicators for employment of graduates

	2011 graduates				2013graduates	
	2013 survey		2014 survey		University	Vocational schools
	University	Vocational schools	University	Vocational schools		
Employment %	75.3	43.4	80.5	55.6	72.0	51.2
Profession with the highest employment rate	Construction, society, economy, transportation, military, police, medical, computer mathematic	Transportation, culture, art, wood processing	Military, police, construction, transportation, computer mathematic, medical, culture, law, society economy	Wood processing, transportation, mining, tourism	Military, police, teacher, construction, society, economy, engineer	Communication, construction, roads, building material, service, geology, mining, transportation, tourism,
Unemployment %	24.7	56.6	19.5	44.4	28.0	48.8
Reasons for not searching for jobs or being unemployed for the past year	Running private business-35.3%, Taking care of children or elder people -18%, Pending employment -9%, Pending school enrolment -8.8%		Taking care of children or elder people -74%, Not required to work-8.5%, Any satisfied work-8.1%	Taking care of children or elder people -60%, Any satisfied work -9.8%, Our work stopped -7.5%,	Taking care of children or elder people -24.9%, Involved in vocational training-17.4% Pending employment-14.3%	
Congruence between job and profession	58.9%	43.2%	58.6%	47.7%	62.4%	54.9%

Source: Employment survey for the graduate 2013, 2014-1, 2014-2, Ministry of Labour

Besides the information above, Universities can assess the following information from the Graduates' survey:

- Comparison between profession of the graduate and current working sector
- Congruence between profession of the graduate and their current job
- Comparison between profession of the graduate and current profession
- Comparison between profession of the graduate and work searching process
- One-year plan of graduates
- Difficulties encountered during the initial period in a new working environment
- Factors impacting job entrance
- Lack of skill in the working place

Work satisfaction

Whether the graduate's education level and skill can meet the requirements for the position

6.3 Barometer survey

An annual survey conducted by the Ministry of Labour, since 2010, is the Barometer survey which tracks demand in the labour market. So far, the results of the 5th survey has been released. The purpose of this survey is to forecast the demand of the labour market in the coming 12 months and identify lack of workforce.

Main results of the survey. In the last survey conducted in 2014, 1722 establishments from the capital and 21 provinces were selected and 43.4% of the total registered employees work for these establishments. The following are the survey results:

- 32.7% of the entities are planning to recruit 77.5 thousands new employees in 2015.
- In construction, retail, wholesale, processing and agricultural sector, demand for labour force is high.
- In the last year, 16.3% of these establishments did not recruit new employees as they had not found any professional personnel.
- Health (26%), construction (26%), property (25%) and entertainment (22%) sectors were struggling due to lack of labour force.
- 18.4% of employers think that the main problem for hiring new employees is that they are irresponsible and usually unsatisfied with their salary and 18.3% of the employers think that new employees are inexperienced. Also 11% of total employers consider that education level of new employees does not meet job requirements.
- Oversupply of workforce: there is oversupply of workforce in socio-economy, business management sectors.
- Over-demand: trade and construction sector
- Demand and supply in balance: some sub-sectors of construction and processing industry, machine and machinery operator, driver

6.4 Survey for informal employment structure and status

Informal employment rate can be estimated based on the employment sample survey conducted by National Statistical Office. Sample survey from 2013 shows that about 17 per cent of total workforce work in informal sectors.

In 2013, Ministry of Labour conducted informal employment survey by using International Labour organization's method and it included 2715 households. However, the survey did not compare characteristic of employees, who work in informal sector, with level of education, therefore it became difficult for universities to implement the results into their operation.

Brief survey results:

- Throughout the country, informal employees reached 174.5 thousand. Hereof, 49% is men and 51% is women. 42.9% of these employees work in Ulaanbaatar, 49.7% work in centre of provinces and 7.4% work in soums. Average age is 39.
- 44.4% of the informal employees work in wholesale and retail sector and auto repair sector. 17.2% work in transportation and warehouse industry. 15.7% works in manufacturing industry and 22.3% work in other sectors.
- 77.5% of the informal employees is private business owners, 13.4% is the paid employees , 5.8% is employers, 2% is family business owners and 1.3% is members of cooperatives.
- 20% of informal employees work up to 1 year in informal sector, 28% work for 2-4 years and 52% work more than 5 years.
- 61% of informal employees work in this sector as they have no other choice and 47% of them work due higher salary. 86% of the employees decided to continue their current job and business.

6.5 Forecast on mid-to long-term labor supply and demand

In 2013, Institute of Labour Study of the Ministry of Labour developed mid-to long-term prediction models of the market and anticipated changes in labour market for the upcoming 10 years based on 19 economic sectors and 10 groups of profession.

Main survey results:

- In 2012, workforce participation rate in 63.5% and the number will increase to 63.7% in 2017 and 62.5% in 2022.
- In 2022, economically active population will increase by 186,000.
- In 2013-2022, actual economic growth is estimated to be 6.6%. Mining, processing industry, transportation, communication, administration, health, culture and service sectors will grow by 1-2 per cent more than the average.
- In 2013-2022, Number of total employees will increase by 1.8% per year. Hereof, the sectors which can show the rapid growth would be culture(8.2), science(8.1%), health(7%), mining (7%), construction (6.3%), water supply (6.8%), information and communication (4.7%), public management (5.6%). However, employment in service(-3.1%), agriculture(-1.5%), tradesectors (-0.2%) is estimated to decline in the coming decade.
- If classified by jobs and profession, in 2013-2022, the fastest growing jobs would be legislator, public and non-public officer, manager (4.2%), technician and professional assistant (4.6%), industry, construction, handcraft, relevant service workers(4.6%), and elementary occupations(4.7%)
- Moreover, based on the survey, most on demand jobs in 2017 and 2022 were determined and compared with each other.