



How Education Level Affect Unemployment Rate

By

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Submitted to

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Abstract

The purpose of this research is to investigate and gain a better knowledge of how education levels impact the unemployment rate. The researcher will collect the data from the statistical evidence from National Statistic Office, Ministry of Digital Economy and Society, and also Bank of Thailand.

After collecting the total unemployment rate in Thailand and the unemployment rate divided by education level, STATA program is applied to find the relationship between dependent and independent variables.

The results of the study presents that there are five independent variables having statistically significance. Respectively, the most influential factors are less than primary school, high school, primary school, junior high school, and university. On the contrary, no degree, other education degrees, and unknown are not statistically significant.

Keywords: education level, unemployment

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1. Introduction

Thailand is one in every country that has never been taken over by other dominating countries. In contrast to neighboring countries, Thailand's teaching model emerged almost entirely from line, chasing its own way. The formal education system of the country may be tracked back to the thirteenth century, when the alphabet was adopted. The prominence was instructed at Royal colleges, whilst people might attend at Buddhist religious communities.

Thailand has supplemented its schooling structure based on developed principles since the nineteenth century, as the country's combination into the intercontinental economy has developed. Several parts of the current Thai high-ranking teaching method are modeled after the American educational scheme in undergraduate programs of study.

Thailand is presently trying to strengthen its combination with the worldwide education region, with a particular emphasis on local federations. The number of collaboration initiatives in the middle of Thai and international higher education institutions is growing, and governments have increasingly highlighted Thailand's education system's globalization.

According to the Thai Education Act 1999 and amendments in 2002, Thailand's educational system specifies six years of elementary education (six degrees of education), three years of junior secondary school (three degrees of education), and three years of high school (three degrees of education).

The Thai Education Act distinguishes three sorts of education: formal education, non-formal education, and informal education. There are two stages of formal education: fundamental education and higher education. The fundamental education is the education that is provided for at least 12 years prior to higher education. It is divided into three levels: pre-elementary school for children aged 3-6 years, elementary school (6 years), lower secondary school (3 years), and high school (3 years). There are two sorts of three-year high schools: general education and vocational education. Another type of formal education is higher education, which is divided into two levels: undergraduate and graduate. The phrase higher education is used instead of university education since it might encompass certificates or diplomas following the basic education.

Thailand's Ministry of Education is the primary provider of education in the country. The state has direct responsibility over education and enables private sector participation from

preschool through higher education. With a focus on obligatory education, a nine-year education includes six years of elementary school and six years of junior high school.

Focusing on the unemployment rate in Thailand, during the pandemic period, the rate has been increasing since the beginning of 2020. Figure 1 below shows how COVID-19 ruins every sector in Thailand. However, In this study, only education level will be focused.

KEY SOCIAL INDICATORS													
Components	Year	Year	2019				2020				2021		
	2019	2020	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Employment*													
■ Workforce (million)	38.17	38.54	38.36	38.42	37.95	37.96	38.19	38.17	38.72	39.08	38.75	38.77	38.64
% year-on-year	0.7	1.0	0.6	-0.2	-2.0	-1.1	-0.4	-0.6	2.0	2.9	1.5	1.6	-0.2
■ Employed (million)	37.61	37.68	37.70	37.78	37.48	37.48	37.42	37.08	37.92	38.28	37.58	37.82	37.70
% year-on-year	-0.7	0.2	0.9	-0.3	-2.1	-1.1	0.7	-1.9	1.2	2.2	0.4	2.0	-0.6
■ Unemployed	373,000	651,000	351,000	577,000	394,000	372,000	395,000	745,000	738,000	727,000	758,000	732,000	871,000
■ Unemployment rate (%)	0.98	1.69	0.92	0.98	1.04	0.98	1.03	1.95	1.90	1.86	1.96	1.89	2.25
Household debt**													
■ Household debt value (trillion baht)	13.49	14.03	12.97	13.09	13.25	13.49	13.50	13.59	13.77	14.03	14.14	14.27	N.A.
% year-on-year	5.1	4.0	6.3	5.8	5.6	5.1	4.1	3.8	3.9	4.0	4.7	5.0	N.A.
Ratio to GDP (%)	79.8	89.4	78.4	78.4	78.8	79.8	80.2	83.8	86.6	89.4	90.6	89.3	N.A.
■ NPLs (billion baht)	140.6	144.4	126.4	127.4	133.3	140.6	156.2	152.5	144.3	144.4	148.7	150.4	N.A.
% year-on-year	16.7	2.7	9.0	10.0	12.2	16.7	23.6	19.7	8.3	2.7	-4.8	-1.4	N.A.
% NPLs to total loans	2.90	2.84	2.75	2.74	2.81	2.90	3.23	3.12	2.91	2.84	2.92	2.92	N.A.

Figure 1 Employment and Household Debt in Thailand in 2019 – 2021

Source: *Labor Force Survey Report, National Statistical Office, Ministry of Digital Economy and Society
**Bank of Thailand

2. Literature Review

This study is to focus on how educational factors affect the unemployment rate in Thailand. There are many related researches regarding the relationship of educational level and unemployment, which can be seen as follows:

1. Mirica and Andreea (2014) creates an experiment regarding higher education as a solution to employment. The approach compares the number of first-year students to the number of high school graduates to assess higher learning demand. In order to analyze the long-term association, the Engel-Granger approach was applied. The two researchers found that when the unemployment number among people with college degrees in Europe is examined, it is frequently lower than those of their secondary counterparts. A long-term inverse link between unemployment and demand for higher education. In order to reduce unemployment, stimulating high school graduates to seek further education may be a good policy.

2. Grabe and Mang'unyi (2018) investigate the links between education and unemployment. Since the research used a quantitative research paradigm, the contributors were selected using structured random selection in the methodology along with the cross-sectional survey. To assess the associations, the crosstabulation, correlation, and chi-square data analysis procedures were applied, while the multiple regression model built was used. The researchers found that the links were formed in such a way that educational level was stumbled to be positively related to unemployment and to have the greatest domination on unemployment. The findings demonstrate a negative relationship between economic position and educational attainment whereas it was associated with unemployment in a good way.

3. Riddell and Song (2011) builds an investigation focusing on the influence of education on the state of unemployed prevalence. Positive associations between education and labor force transitions, according to both researchers, are likely to be confounded by education's endogeneity. Using data on compulsory schooling legislation, child labor limitations, and conscription risk during the Vietnam War are brought to construct involved factors. What is found from the study is that education considerably boosts the re-employment rate of the jobless. Areas with 12 and 16 years of schooling have particularly great impacts.

4. OECD (2021) displays a figure illustrating unemployment rates dependent on educational level: lower secondary, upper secondary non-tertiary, or tertiary. Unemployed persons are defined as those who are out of work yet are actively looking for a job and are now available to begin working. This statistic calculates the proportion of 25-64-year-olds who are jobless out of all 25-64-year-olds in the labor force. Attached Figure 1 below shows the statistical chart from OECD.

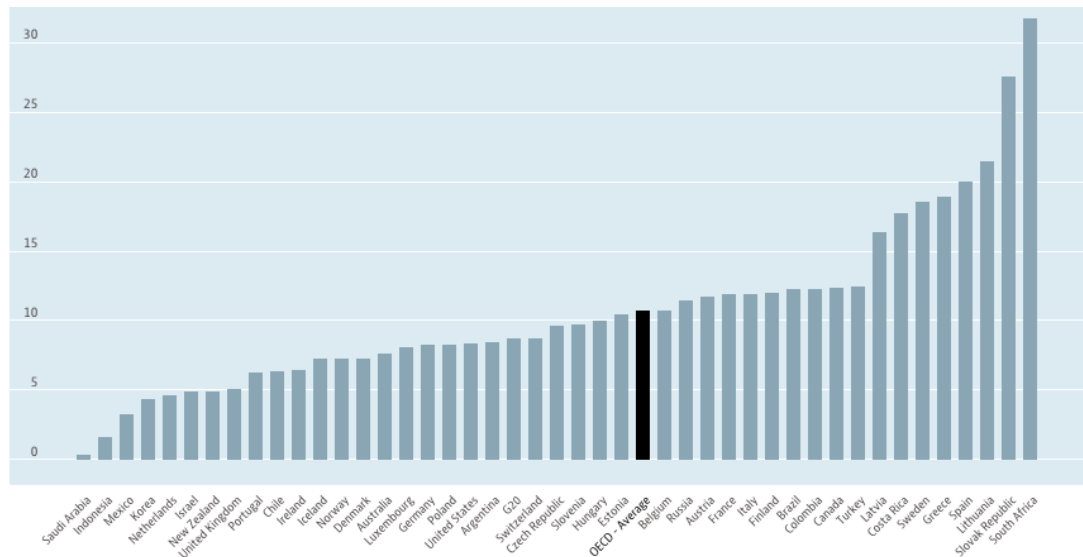


Figure 2 Unemployment Rates by Educational Level
Source: Education at a glance: Educational Attainment and Labour-force Status

In terms of research gaps, all of the studies do not precisely distinguish the education level and compare it to the employment rate. The majority of the literature employs a survey approach to determine experiment findings and answer research questions. Furthermore, there were just a few Thai studies on the impact of an education degree on the unemployment rate. It makes studying tough, and the researcher must find a remedy to develop another approach of methodology.

3. Data & Research Methodology

3.1 Conceptual Framework

In this research, there are 8 dependent variables including no degree, less than primary school, primary school, Junior high school, high school, university, other education degrees, and unknown. The independent variables consist of the total unemployment of each education level. The conceptual framework of this study outlines the overall method process in which the 8 independent variables influence the total unemployment of each education level. The following stage is to conduct the statistical data. STATA will also be used to investigate and determine the link between independent and dependent variables.

3.2 Research Methodology and Data Sources

The researcher collects data from literature, papers, theories, and other relevant studies using the internet. It may be used to assess descriptive statistics based on primary data, such as numbers, graphs, pie charts, and tables that are portrayed in terms of frequency, percentage, mean, estimating equations, and statistics.

3.3 Hypothesis

H_0 = There is no significance relationship between no degree, less than primary school, primary school, Junior high school, high school, university, other education degrees, and unknown toward the total unemployment of each education level

H_1 = There is no significance relationship between no degree, less than primary school, primary school, junior high school, high school, university, other education degrees, and unknown toward the total unemployment of each education level

4. Result Analysis and Discussion

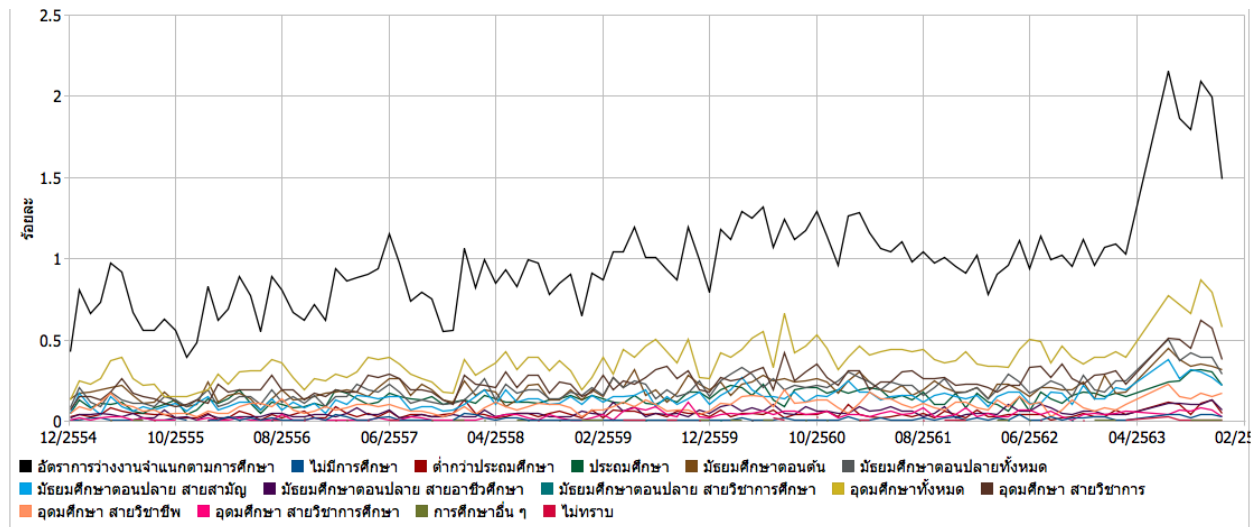


Figure 3 Unemployment Rate (Divided by Each Educational Level) from 2012 to 2020

Source: National Statistic Office

From Figure 2, it implies that the total rate of unemployment has fluctuated all the time From 2012 to 2020. However, it also has been gradually increasing. The greatest rate of unemployment can be seen from the beginning of 2020. It implies that the COVID-19 pandemic is the main factor that led the scale to the zenith of the statistic.

Quarter/Year	2012	2013	2014	2015	2016	2017	2018	2019	2020
Q1	0.7	0.7	0.9	0.9	1.0	1.2	1.2	0.9	1.0
Q2	0.8	0.7	1.0	0.9	1.1	1.2	1.1	1.0	2.0
Q3	0.6	0.8	0.8	0.9	0.9	1.2	1.0	1.0	1.9
Q4	0.5	0.7	0.6	0.8	1.0	1.1	0.9	1.0	1.9

Table 1 Total Unemployment Rate (in quarter) from 2012 to 2020

Source: National Statistic Office, Ministry of Digital Economy and Society

From Table 1, apart from the unemployment rate divided by educational level, it emphasized the statement from the previous paragraph that the COVID-19 pandemic increases the unemployment number of people in Thailand. To illustrate, the disease was firstly found in December 2019 in Wuhan, China. Focusing since the beginning of 2020, the rating number increases from 1.0 in the first quarter to 2.0 in the second quarter, which is the highest ratio and it seldom decreases in the next period.

4.1 Analyzing Total Unemployment of Each Education Level and Eight Independent Variables: No Degree, Less than Primary School, Primary School, Junior High School, High School, University, Other Education Degrees, and Unknown

In this part, the STATA program is used by the researchers to determine the relationship between the total unemployment of each education level and no degree, less than primary school, primary school, Junior high school, high school, university, other education degrees, and unknown

Total Unemployment of Each Education Level

$$Y = \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + u_i$$

Where

Y = The total unemployment of each education level

X₁ = No degree

X₂ = Degree of less than primary school

X₃ = Degree of primary school

X₄ = Degree of junior high school

X₅ = Degree of high school (or equivalent)

X₆ = University level (or equivalent)

X₇ = Other education degree

X₈ = Unknown

U_i = Constant

Number of obs	16
Prob > F	0.0000
R-squared	0.9999

Total Unemployment of Each Education Level	Coefficient	P-value	Result
No degree	0.4496	0.178	Not Statistically Significant
Less than Primary School	1.1864	0.000	Statistically Significant
Primary School	1.0348	0.000	Statistically Significant
Junior High School	0.9884	0.000	Statistically Significant
High School	1.0814	0.000	Statistically Significant
University	0.9740	0.000	Statistically Significant
Other Education Degrees	0.2648	0.284	Not Statistically Significant
Unknown	-0.2300	0.402	Not Statistically Significant
_cons	-0.0055	0.320	Not Statistically Significant

Table 2 The OLS Regression of Unemployment of Each Educational Degree toward the Total Unemployment

In Table 2, the OLS regression shows a 95 percent confidence interval for coefficient. The P- value must be less than 0.05 to establish a statistically significant relationship between X and Y. If R-square is larger than zero, the P-value is utilized to determine it. The variance of the Y variable is represented by the R-squared value. This explains 99.99 percent of the difference in unemployment of each educational degree toward unemployment rate

Furthermore, the two-tailed P-values test the hypothesis that each coefficient is not equal to zero. The P-value must be less than 0.05 to reject the H_0 hypothesis. Less than primary school, primary school, junior high school, high school, university have a statistically significant role in explaining the total unemployment of each education level.

The interpretation of the relationship between dependent variable and independent variables are as follows:

Degree of Less than Primary School, Primary School, Junior High School, High School, and University Level (Statistically Significant)

For degrees of less than primary school, when X_2 increases 1 unit, Y increases 1.1864 units, holding other things constant. The P-value from the data is 0.000, which is less than 0.05, showing that the education level of less than primary school is statistically significant.

For the degree of primary school, when X_3 increases 1 unit, Y increases 1.0348 units, holding other things constant. The P-value from the data is 0.000, which is less than 0.05, showing that the education level of primary school is statistically significant.

For degree of junior high school, when X_4 increases 1 unit, Y increases 0.9884 units, holding other things constant. The P-value from the data is 0.000, which is less than 0.05, showing that the education level of junior high school is statistically significant.

For the degree of high school, when X_5 increases 1 unit, Y increases 1.0814 units, holding other things constant. The P-value from the data is 0.000, which is less than 0.05, showing that the education level of high school is statistically significant.

For university level, when X_6 increases 1 unit, Y increases 0.9740 units, holding other things constant. The P-value from the data is 0.000, which is less than 0.05, showing the university level is statistically significant.

No degree, Other Education Degrees, and Unknown (Not Statistically Significant)

For no degree, when X_1 increases 1 unit, Y increases 0.4496 units, holding other things constant. The P-value from the data is 0.178, which is more than 0.05, showing that the education level of no degree is not statistically significant.

For other education degrees, when X_7 increases 1 unit, Y increases 0.2648 units, holding other things constant. The P-value from the data is 0.284, which is more than 0.05, showing that the other education degrees are not statistically significant.

For unknown reasons, when X_8 increases 1 unit, Y decreases 0.2300 units, holding other things constant. The P-value from the data is 0.284, which is more than 0.402, showing that unknown level is not statistically significant.

5. Conclusion and Policy Recommendation

5.1 Conclusion and Limitation of the Study

There are eight hypotheses affecting the total employment of each education level, which are no degree, less than primary school, primary school, junior high school, high school, university, other education degrees, and unknown.

As a result, less than primary school, primary school, junior high school, high school, and university level have a positive relationship with the total employment of each education level. On the contrary, no degree, other education degrees, and unknown are not statistically significant, particularly unknown that gives a negative relationship with the total employment of each education level.

Consecutively, the most positively and statistically influential independent variables are less than primary school, high school, primary school, junior high school, and university.

Focusing on limitations of the study, as the COVID-19 pandemic has been occurring in recent years since the late of 2019. It implies that there is only little literature regarding the rapid change to the impact of education level to unemployment.

A time limitation is also a hindrance. Due to time constraints, the study cannot be provided to a larger audience. If the research duration is prolonged, the results may be more accurate and provide a greater insight.

5.2 Policy Implication

For the policy implication, the author can give two inferences regarding the results from the data and the OLS regression, which are as follows:

1. The unemployment rate has been obviously increasing because the COVID-19 pandemic has been prevalent over Thailand and also other countries. It causes the economic sector to collapse. Many employees are laid off as a result of this. As a result, in order to minimize the rate of unemployment, the government must find a solution to these problems.

2. When the researcher concentrates on high school level, comparing academic courses and vocational courses (in appendix), the finding indicates that vocational courses have a low rate of

rise in employment rate, but academic high school level has a greater rate of increase in unemployment. Consequently, vocational courses should be encouraged in order to create work employment.

5.3 Suggestion for Further Research

In the part of suggestion for further research, the researcher suggests two implications, which are the following:

1. From Table 2, it may suggest that the level of education has less of an influence because an increase in one unit of people with no degree in education raises the total unemployment rate by 0.4496 units, but an increase in one unit of those with a university degree raises the whole unemployment rate by 0.9740 units. Therefore, education level may not be a significant factor in determining how unemployment is influenced.

2. Those who need to research unemployment and education levels should look for more facts and literature. More proof would provide readers with a better comprehension of the issue and explanation.

6. References

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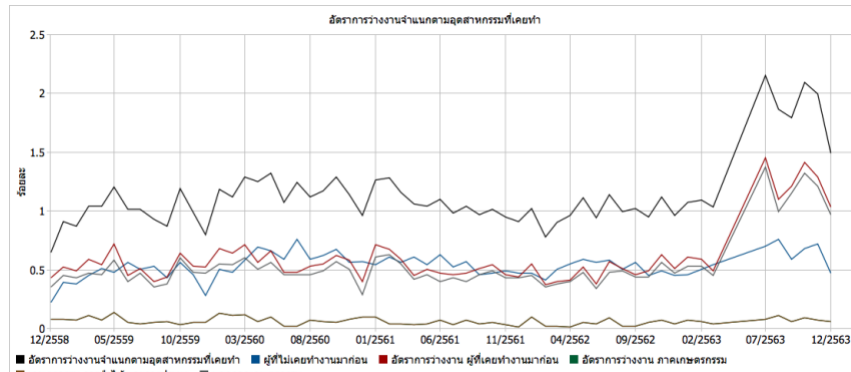
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8. Appendix

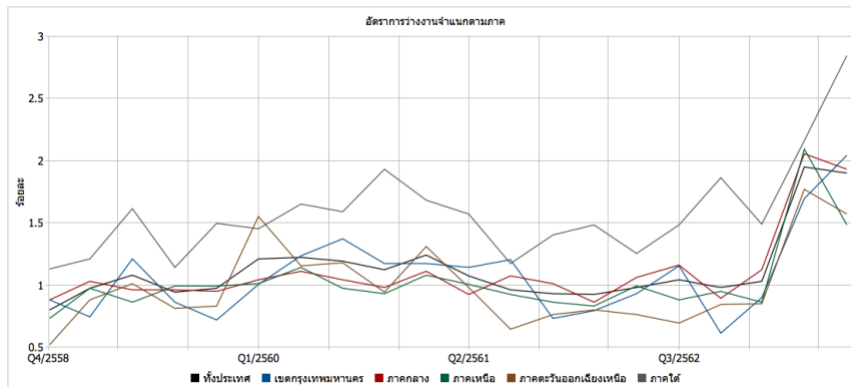
ระดับการศึกษา/ชั้น	2559		2560		2561		2562		2563	
	รัฐบาล	เอกชน	รัฐบาล	เอกชน	รัฐบาล	เอกชน	รัฐบาล	เอกชน	รัฐบาล	เอกชน
รวม	10,509,464	2,645,062	10,432,311	2,628,250	10,160,389	2,774,881	9,956,654	2,758,199	9,874,293	2,747,140
ก่อนประถมศึกษา	1,121,793	630,665	1,221,349	612,562	1,203,747	611,623	1,135,157	576,577	1,106,673	550,755
ประถมศึกษา 1 (เฉพาะชั้น 1 ถึง 6) (เฉพาะ)	484	21,246	967	17,356	955	27,441	1,278	19,905	1,358	18,145
ประถมศึกษา 2 (เฉพาะ/เฉพาะ 1	61,253	194,685	122,699	174,852	145,199	175,566	127,686	166,445	127,419	156,460
ประถมศึกษา 3 (เฉพาะ/เฉพาะ 1	539,067	213,056	543,629	210,102	505,130	197,195	491,849	191,987	475,092	184,119
ประถมศึกษา 3 (เฉพาะ/เฉพาะ 2	512,350	201,679	553,658	210,252	556,127	211,421	514,051	198,240	506,762	192,031
เด็กลูก	6,639	-	396	-	336	-	293	-	42	-
ประถมศึกษา	3,759,586	1,067,184	3,696,866	1,053,910	3,676,161	1,077,721	3,660,151	1,090,056	3,617,211	1,079,059
ประถมศึกษาปีที่ 1	624,650	185,272	611,186	180,296	639,440	195,292	632,750	196,266	587,374	180,364
ประถมศึกษาปีที่ 2	609,380	184,150	605,050	178,319	590,775	179,494	619,796	192,604	620,053	191,981
ประถมศึกษาปีที่ 3	618,996	181,831	606,351	177,991	601,349	176,695	587,547	176,754	618,611	187,807
ประถมศึกษาปีที่ 4	626,566	176,838	619,475	176,587	606,206	176,696	601,573	174,249	589,429	173,015
ประถมศึกษาปีที่ 5	634,840	170,956	625,545	172,678	617,619	176,433	604,736	175,132	601,121	171,768
ประถมศึกษาปีที่ 6	645,154	168,137	629,259	168,039	620,772	173,111	613,349	175,051	600,623	174,124
ประถมศึกษาตอนต้น	1,993,139	520,918	1,992,481	524,872	1,977,065	527,324	1,961,437	536,398	1,940,491	539,881
ประถมศึกษาปีที่ 1	684,144	113,226	684,433	115,087	676,772	116,538	673,533	116,509	666,578	116,610
ประถมศึกษาปีที่ 2	668,366	107,326	659,324	107,774	668,779	109,694	652,649	112,972	650,338	112,946
ประถมศึกษาปีที่ 3	640,629	100,366	638,724	102,011	631,534	101,092	635,255	106,917	623,575	110,325
ประถมศึกษาตอนปลาย	1,583,159	358,365	1,541,916	367,844	1,526,356	363,590	1,509,524	368,629	1,543,557	385,557
ประถมศึกษาปีที่ 4	563,980	132,853	544,563	129,564	550,680	128,450	546,375	133,558	565,983	142,623
ประถมศึกษาปีที่ 5	501,801	116,384	491,342	122,655	480,431	115,772	484,038	117,745	489,297	121,864
ประถมศึกษาปีที่ 6	513,378	109,128	506,011	115,625	495,245	119,368	479,111	117,326	488,277	121,070
อุดมศึกษา	2,051,787	267,930	1,979,699	269,062	1,777,040	394,623	1,690,385	386,539	1,666,361	391,888
ปริญญาตรีและต่ำกว่า	1,899,865	239,434	1,732	2,864	1,695,011	370,240	1,585,071	362,148	1,443,913	326,926
อุดมศึกษาปีที่ 1	487,626	124,696	445,142	124,017	463,877	118,476	446,218	122,959	1,108,627	239,794
อุดมศึกษาปีที่ 2-4	1,412,239	114,738	1,384,465	122,381	1,195,134	251,764	1,138,853	239,189	5,509	3,641
สูงกว่าปริญญาตรี	151,922	28,496	140,092	22,664	122,029	24,383	105,314	24,391	113,821	25,168
ประกาศนียบัตรวิชาชีพ	5,045	2,843	7,120	2,864	6,698	3,009	4,935	3,836	1,552,540	366,720
ปริญญาโท	124,482	23,028	110,874	17,125	90,490	18,778	77,431	18,030	83,489	18,466
ประกาศนียบัตรวิชาชีพชั้นสูง	1,025	-	1,790	-	1,792	-	1,344	-	1,228	-
ปริญญาเอก	21,370	2,625	20,338	2,675	23,049	2,596	21,404	2,525	23,595	3,061

ที่มา: สำนักงานสถิติกระทรวงศึกษาธิการ กระทรวงศึกษาธิการ

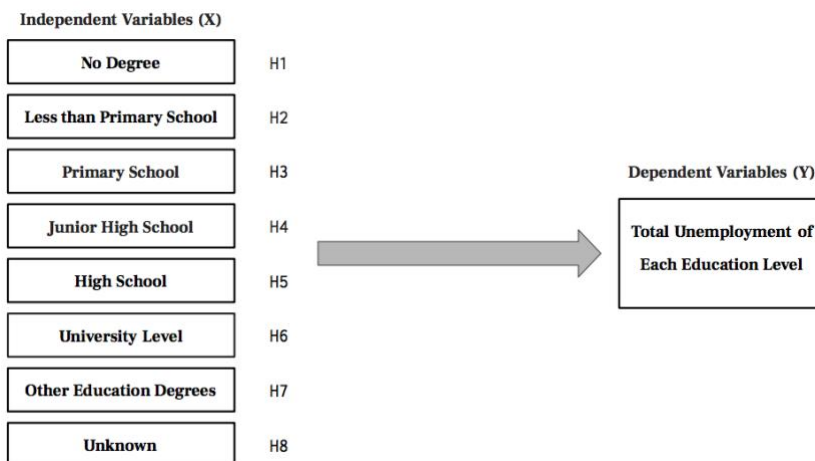
The number of unemployed (divided by education level)



The rate of unemployment (divided by industrial sector)



The rate of unemployment (divided by each part of Thailand)




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. reg avg_total avg_no_edu avg_less_pri avg_pri avg_junior_high avg_high avg_uni a
> vg_other_edu avg_unknown
```

Source	SS	df	MS	Number of obs	=	16
Model	2.03749473	8	.254686841	F(8, 7)	=	13469.63
Residual	.000132358	7	.000018908	Prob > F	=	0.0000
				R-squared	=	0.9999
				Adj R-squared	=	0.9999
Total	2.03762708	15	.135841806	Root MSE	=	.00435

avg_total	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
avg_no_edu	.4495524	.300215	1.50	0.178	-.2603431	1.159448
avg_less_pri	1.186415	.1206899	9.83	0.000	.9010286	1.471801
avg_pri	1.034831	.0601472	17.20	0.000	.8926054	1.177057
avg_junior_high	.9883546	.0764914	12.92	0.000	.8074812	1.169228
avg_high	1.081409	.0731354	14.79	0.000	.908471	1.254346
avg_uni	.9740358	.0260076	37.45	0.000	.9125376	1.035534
avg_other_edu	.2648305	.2281542	1.16	0.284	-.2746685	.8043296
avg_unknown	-.2300371	.2577417	-0.89	0.402	-.8394994	.3794252
_cons	-.0054554	.0050994	-1.07	0.320	-.0175135	.0066027

The OLS regression of dependent and independent variables

```
. reg avg_high avg_high_normal avg_high_voc
```

Source	SS	df	MS	Number of obs	=	35
Model	.153385235	2	.076692617	F(2, 32)	=	7011.83
Residual	.000350003	32	.000010938	Prob > F	=	0.0000
				R-squared	=	0.9977
				Adj R-squared	=	0.9976
Total	.153735238	34	.004521625	Root MSE	=	.00331

avg_high	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
avg_high_normal	1.017079	.0216245	47.03	0.000	.9730316	1.061127
avg_high_voc	.9351671	.0535579	17.46	0.000	.8260732	1.044261
_cons	.0019263	.0017437	1.10	0.278	-.0016255	.0054782

Comparing academic courses and vocational courses in high school level