

Employment and Wages
for Alberta Workers
with a Post-Secondary Education

2017

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Table of Contents

Abstract	4
Labour Force Characteristics	5
Labour Force Characteristics: Labour Force.....	5
Labour Force Characteristics: Participation Rate.....	6
Labour Force Characteristics: Employment Rate	6
Labour Force Characteristics: Unemployment Rate	7
Labour Force Characteristics: Labour Force Status and Education	8
Labour Force Characteristics: Male Labour Force Status and Education.....	8
Labour Force Characteristics: Female Labour Force Status and Education.....	9
Wage and Salary	10
Wage and Salary: Wages.....	10
Wage and Salary: Male Wages	10
Wage and Salary: Female Wages	12
Wage and Salary: Annual Income.....	13
Occupation and Industry	14
Occupation and Industry: Industry.....	14
Occupation and Industry: Occupation	15
Occupation and Industry: Top Ten	16
Summary and Conclusion	17
Appendix	18
Occupation and Industry: Wage Categories for Males.....	18
Occupation and Industry: Wage Categories for Females	18

Abstract

Between 2015 and 2020, Alberta's economy is expected to add approximately 197,000 new jobs.¹ In addition, over 50.0% of all new jobs are expected to require some form of learning beyond a high school education. Post-secondary education is a degree, certificate (including a trade certificate), or diploma from an educational institution beyond the secondary (high school) level. More education and training is expected to be a key to success in the new economy. Over the next five years, there will be a strong demand for occupations that need university degrees.

A major challenge with this growth in employment is matching the demands of the new workplace and evolving economy with the skills of its workforce. Since the new jobs created will favor the well qualified, post-secondary education is a requisite for having a competitive advantage in the labour force. This report investigates the relationship between education levels, employment, and earnings and tests the hypothesis that as people get more education, the chance of obtaining employment and higher earnings increases.

By using data from the Labour Force Survey, expected wages and salaries of high school graduates and graduates of post-secondary schooling have been analyzed. The main findings of this investigation are that on average employees with a higher level of educational attainment have greater participation in the workforce, lower levels of unemployment and higher pay.

¹ *Alberta Regional Occupation Outlook: 2015-2020*

Labour Force Characteristics

Labour Force

The working age population is composed of persons 15 years of age and over, excluding persons living on reserves and other Indigenous settlements in the provinces, full-time members of the Canadian Armed Forces, the institutionalized

population, and households in extremely remote areas with very low population density. In 2017, more than 1.9 million Albertans aged 15 years and over had some level of post-secondary education.

The labour force is composed of that portion of the working age population who, during the reference week, were employed or unemployed. The reference week is defined as the week containing the 15th day of the month in which information is collected for the Labour Force Survey.

Between 2007 and 2017, the number of university bachelor's degree holders in the working age population had the greatest increase at 74.2%, followed by those with a university graduate degree at 61.3%, and then by post-secondary certificate or diploma at 26.3%. The number of Albertans in the working age population with a high school diploma had the smallest increase at 25.3%.

Table 1 - Alberta Labour Force and Working Age Population by Education Level

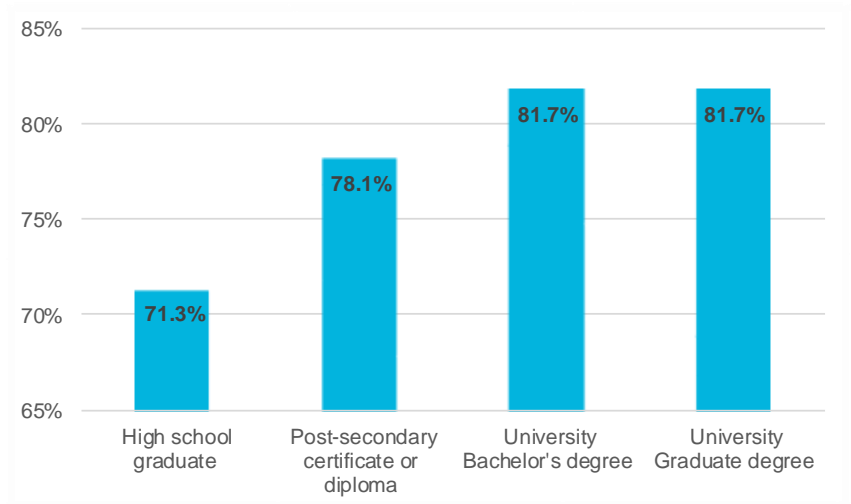
Education Level	Labour Force			Working Age Population		
	2007	2017	Change	2007	2017	Change
High School Graduate	469,700	544,500	15.9%	609,400	763,500	25.3%
Post-secondary Certificate or Diploma	693,100	843,100	21.6%	854,800	1,079,900	26.3%
University Bachelor's Degree	299,600	515,100	71.9%	362,000	630,500	74.2%
University Graduate Degree	117,900	191,200	62.2%	145,000	233,900	61.3%

Participation Rate

The participation rate represents the total labour force expressed as a percentage of the working age population (persons 15 years of age and older). Figure 1 displays Alberta's participation rate by education level for 2017. The participation rate for those with a post-secondary certificate or diploma was 6.8 percentage points higher than for high school graduates. Albertans with a bachelor's and graduate degrees experienced the highest participation rate at 81.7% (10.4 percentage points higher than for high school graduates).

The relationship between the participation rate and education level was investigated using the Chi Square statistic and was found to be statistically significant at the 0.01 level (99% confidence level). Individuals with higher levels of education are more likely to participate in the workforce.

Figure 1 – Participation Rate in Alberta by Education Level, 2017

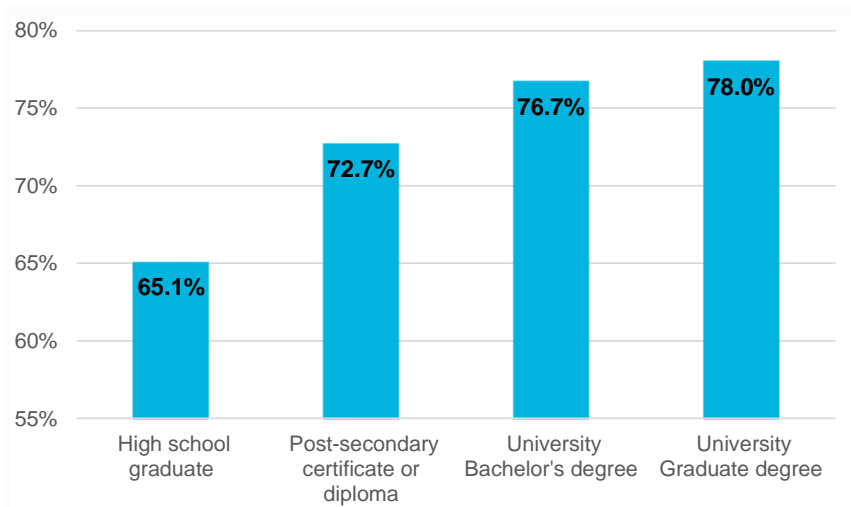


Employment Rate

The employment rate represents the number of persons employed expressed as a percentage of the working age population (persons 15 years of age and older). The employment rate reflects, to a certain extent, the state of an economy. A high employment rate indicates the ability of an economy to create jobs and to employ a large percentage of its working age population.

Figure 2 indicates that post-secondary graduates experienced higher employment rates than high school graduates in 2017. The employment rate for those with a post-secondary certificate or diploma was 7.6 percentage points higher than for high school graduates. Albertans with a university graduate degree experienced the highest employment rate of 78.0% followed by those with a bachelor's degree at 76.7%.

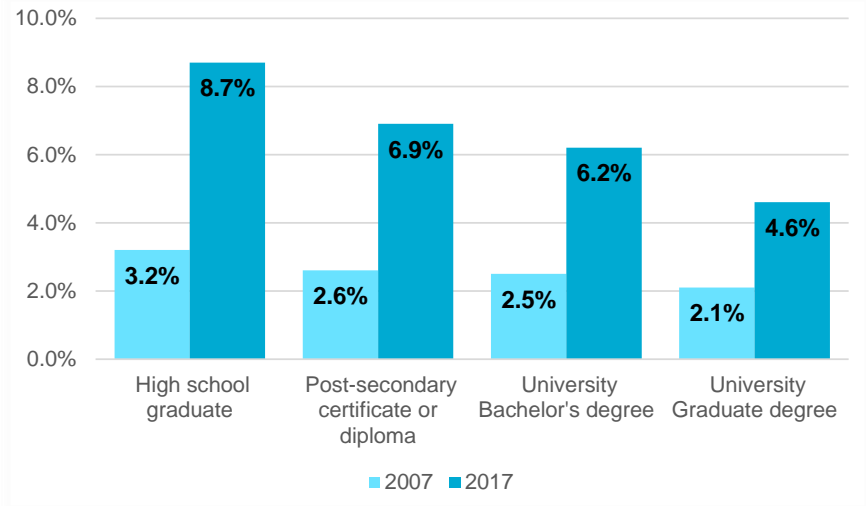
Figure 2 – Employment Rate in Alberta by Education Level, 2017



Unemployment Rate

The unemployment rate represents the number of unemployed persons expressed as a percentage of the labour force. Figure 3 reflects the unemployment rate of Albertans with varying degrees of education for 2007 and 2017. Those who earned a graduate degree had the lowest unemployment rate compared to those with other education levels in 2017.

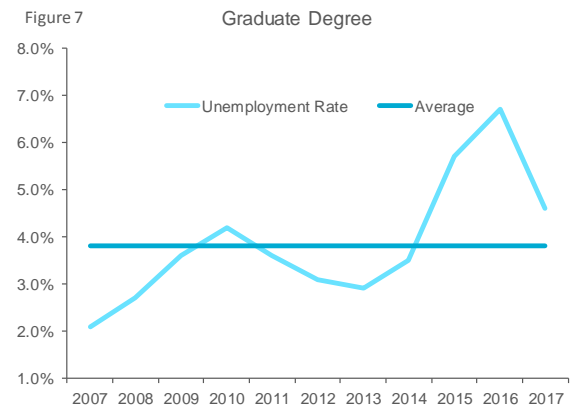
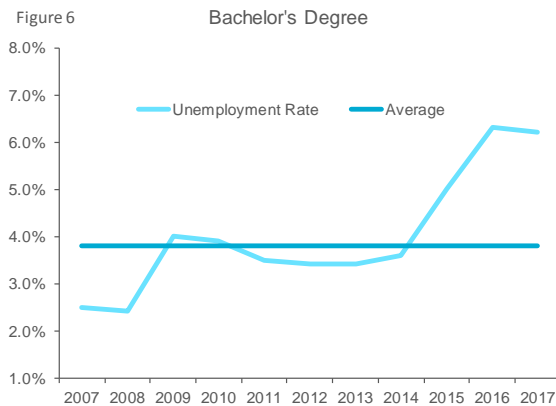
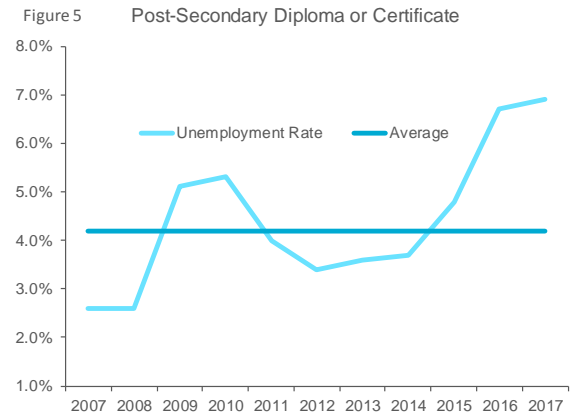
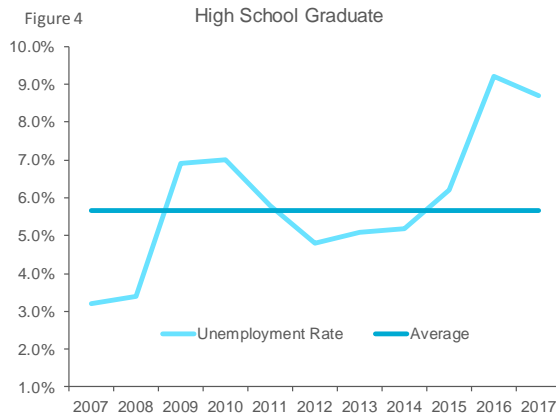
Figure 3 – Unemployment Rate in Alberta by Education Level



Figures 4 to 7 shows the annual and average unemployment rates for the four different education levels between 2007 and 2017.

Figure 4 to 7 – Unemployment Rate in Alberta by Education Level

High school graduates had the highest average unemployment rate at 5.7%, over the last 10 years with a highest rate of 9.2% in 2016 and a lowest rate of 3.2% in 2007. Those who obtained bachelors and graduate degrees tied for the lowest average unemployment rate at 3.8% over the 10 year.



Labour Force Status and Education Level

This section discusses employment and education levels in Alberta and tests the hypothesis employment varies by educational attainment. Tables created using Statistics Canada's Labour Force Survey show the employment probability by age for employed males and females.

Table 2 - Alberta Employment Probability for Males, 2017

Age	Education Level	Employed	Unemployed	Not in the Labour Force	Total
15 to 24	High School Graduate	71.2%	11.2%	17.5%	100.0%
	Post-Secondary Certificate or Diploma	69.4%	11.5%	19.1%	100.0%
	University Bachelor's Degree	80.7%	10.2%	9.1%	100.0%
	University Graduate Degree	60.5%	11.8%	27.7%	100.0%
25 to 44	High School Graduate	85.2%	6.3%	8.4%	100.0%
	Post-Secondary Certificate or Diploma	91.8%	5.6%	2.7%	100.0%
	University Bachelor's Degree	92.3%	5.0%	2.7%	100.0%
	University Graduate Degree	94.9%	2.1%	3.0%	100.0%
45 to 64	High School Graduate	74.2%	6.7%	19.1%	100.0%
	Post-Secondary Certificate or Diploma	79.5%	7.9%	12.6%	100.0%
	University Bachelor's Degree	82.3%	5.5%	12.2%	100.0%
	University Graduate Degree	87.3%	5.7%	6.9%	100.0%

Male Labour Force Status and Education Level

Table 2 shows that males aged 25 to 44 with a high school diploma had an 85.2% probability of employment, those with a post-secondary certificate or diploma had a 91.8% probability, and those with a university bachelor's degree had a 92.3% probability. Males aged 45 to 64 with a high school diploma had a 74.2% probability of employment, those with a post-secondary certificate or diploma had a 79.5% probability, and those with a university graduate degree had a 87.3% probability.

The relationship between levels of education and employment for males in the labour force was statistically significant at the 0.01 level of probability (99% confidence level). The results indicate that employment varies by level of education.

Female Labour Force Status and Education Level

Table 3 shows that females aged 25 to 44 with a high school diploma had a 69.4% probability of employment, those with a post-secondary certificate or diploma had a 80.2% probability, and those with a university bachelor's degree had a 80.6% probability. Females aged 45 to 64 with a high school diploma had a 64.7% probability of employment, those with a post-secondary certificate or diploma had a 73.1% probability, and those with a university graduate degree had a 77.6% probability.

Table 3 - Alberta Employment Probability for Females, 2017

Age	Education Level	Employed	Unemployed	Not in Labour Force	Total
15 to 24	High School Graduate	74.1%	6.3%	19.6%	100.0%
	Post-Secondary Certificate or Diploma	70.8%	6.7%	22.6%	100.0%
	University Bachelor's Degree	79.4%	5.7%	14.9%	100.0%
	University Graduate Degree	78.9%	6.3%	14.8%	100.0%
25 to 44	High School Graduate	69.4%	6.3%	24.3%	100.0%
	Post-Secondary Certificate or Diploma	80.2%	4.9%	14.9%	100.0%
	University Bachelor's Degree	80.6%	4.9%	14.5%	100.0%
	University Graduate Degree	83.1%	4.6%	12.2%	100.0%
45 to 64	High School Graduate	64.7%	5.5%	29.8%	100.0%
	Post-Secondary Certificate or Diploma	73.1%	5.4%	21.5%	100.0%
	University Bachelor's Degree	75.2%	5.9%	18.9%	100.0%
	University Graduate Degree	77.6%	4.9%	17.5%	100.0%

The relationship between levels of education and employment for females in the labour force was statistically significant at the 0.01 level of probability (99% confidence level). The results indicate that employment varies by level of education.

Wage and Salary

Wages

The following section compares wage and salary information to levels of education in Alberta. This section tests whether wage rates are related to levels of education that female and male Albertans have against the alternative hypothesis that wage earnings are unrelated to levels of education. To determine whether the association between education levels and wage rates was statistically significant, the Pearson Chi-Square test was used. Tables created from data from Statistics Canada's Labour Force Survey, show the average wage rates for males and females.

Table 4A - Education Level and Wages for Alberta Males, 2017

Age	High School Graduate	Post-Secondary Certificate or Diploma	University Bachelor's Degree	University Graduate Degree
15 to 19	\$11.34	N/A	N/A	N/A
20 to 24	\$16.23	\$19.15	\$16.10	N/A
25 to 29	\$22.64	\$29.91	\$28.21	\$34.51
30 to 34	\$27.70	\$33.49	\$35.51	\$35.47
35 to 39	\$27.94	\$34.84	\$39.37	\$40.27
40 to 44	\$27.80	\$36.82	\$40.76	\$50.27
45 to 49	\$29.01	\$35.71	\$39.19	\$40.94
50 to 54	\$27.71	\$35.32	\$42.46	\$44.86
55 to 59	\$29.37	\$32.49	\$44.23	\$39.79
60 to 64	\$26.45	\$31.13	\$34.09	\$42.40
65+	\$17.50	\$19.53	\$33.04	\$32.11
15+	\$26.91	\$35.60	\$38.48	\$42.89

Male Wages

Average hourly wage rates are displayed for Alberta males in Table 4A. The table demonstrates that males experienced an increase in average hourly wage rates with the completion of post-secondary education. Alberta males consistently attained higher average hourly wage rates upon completion of a post-secondary certificate or diploma, a university bachelor's degree, or a university graduate degree.

Table 4A shows that males; aged 15 years and over, with a high school diploma could expect to earn an average of \$26.91 per hour. Males in the same age group with a post-secondary certificate or diploma made \$35.60 an hour, with a university bachelor's degree made \$38.48 per hour, and those with a university graduate degree earned \$42.89 per hour.

Table 4B shows how wages relate to levels of education for males. Hourly wages were transformed into wage groups. Details on the wage categories are in the appendix A. Table 4B, shows that 44.1% of low wage earners had a high school diploma and made up 27.1% of the employed male population. Those who obtained a graduate degree made up 14.9% of high wage earners, almost double their share of 8.2% of the employed male working age population. Males are more likely to be in higher wage categories as their education increases.

Table 4B - Alberta Hourly Wage Categories by Education Level for Males, 2017

Education Level	Low	Lower Middle	Upper Middle	High	All Wage Levels
High School Graduate	44.1%	33.1%	20.9%	10.0%	27.1%
Post-Secondary Certificate or Diploma	32.5%	41.5%	50.9%	43.4%	42.1%
University Bachelor's Degree	18.0%	19.8%	21.1%	31.7%	22.6%
University Graduate Degree	5.3%	5.6%	7.1%	14.9%	8.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Table 4B investigates the relationship between levels of education and wages, and tests the hypothesis that earnings are related to education for men in Alberta, by using the Pearson Chi-Square test.

The relationship between hourly wages and education levels was statistically significant at the 0.01 level of probability (99% confidence level). The outcome of this test shows that on average males with higher levels of education earn more.

Female Wages

Alberta females experienced an increase in hourly wage rates with higher levels of education, even though female wage rates were lower than males. Females with a university bachelor's degree received a higher hourly wage at a younger age, and this was consistent throughout the working age population. Alberta females with a university graduate degree earned the highest average hourly wage rate.

Table 5A shows that Alberta females, ages 15 and over, with a high school diploma earned an average of \$21.27 per hour. Female Albertans in the same age group with a post-secondary certificate or diploma made an average of \$26.24 per hour, with a university bachelor's degree made an average of \$33.59 per hour, and those with a university graduate degree earned an average of \$37.03 per hour.

Table 5A - Education Level and Wages for Alberta Females, 2017

Age	High School Graduate	Post-Secondary Certificate or Diploma	University Bachelor's Degree	University Graduate Degree
15 to 19	\$10.85	N/A	N/A	N/A
20 to 24	\$13.47	\$16.25	\$20.29	N/A
25 to 29	\$18.42	\$21.64	\$27.23	\$26.42
30 to 34	\$20.79	\$23.40	\$30.29	\$31.99
35 to 39	\$21.35	\$24.03	\$34.66	\$34.24
40 to 44	\$21.62	\$24.84	\$32.63	\$38.68
45 to 49	\$20.67	\$26.09	\$35.68	\$36.80
50 to 54	\$22.79	\$27.80	\$36.59	\$42.75
55 to 59	\$22.25	\$27.57	\$28.91	\$35.37
60 to 64	\$18.45	\$23.20	\$27.37	\$30.08
65 to 69	\$14.34	\$17.96	\$18.99	\$24.86
15+	\$21.27	\$26.24	\$33.59	\$37.03

Table 5B shows how wages relate to levels of education for females. Hourly wages were transformed into wage groups. Details on the wage categories are in the appendix A. Table 5B, shows that 42.1% of low wage earners had a high school diploma and they accounted for 23.9% of female employees. Women, who obtained a graduate degree made up 17.5% of high wage earners, almost double their share of 9.1% of the employed female population. Females are more likely to be in higher wage categories as their education increases.

Table 5B - Alberta Hourly Wage Categories by Education Level for Females, 2017

Education Level	Low	Lower Middle	Upper Middle	High	All Wage Levels
High School Graduate	42.1%	27.6%	18.2%	7.2%	23.9%
Post-Secondary Certificate or Diploma	35.5%	46.9%	45.1%	25.2%	38.3%
University Bachelor's Degree	17.4%	19.4%	28.8%	50.0%	28.7%
University Graduate Degree	5.0%	6.1%	8.0%	17.5%	9.1%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Table 5B investigates the relationship between levels of education and wages, and tests the hypothesis that earnings are related to education for women in Alberta, by using the Pearson Chi-Square test.

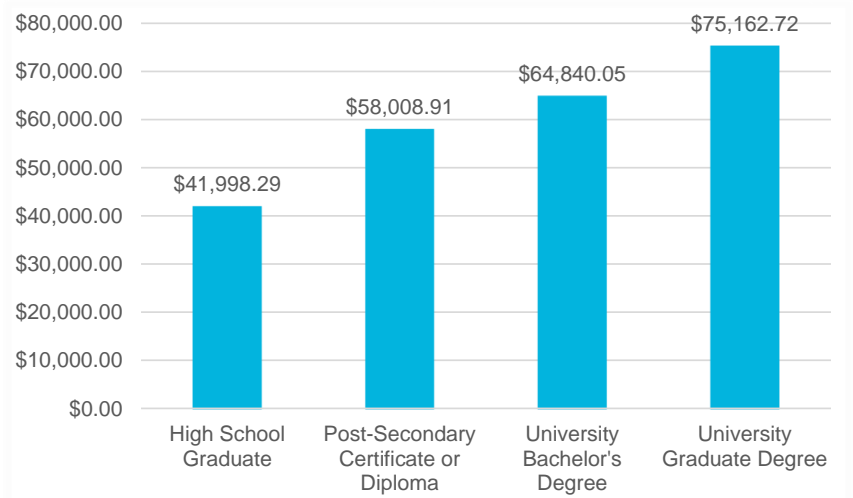
The association between wage rates and education levels was statistically significant at the 0.01 level of probability (99% confidence level). This means that on average females with greater levels of education earn higher wages.

Annual Income

The information in Figure 8 displays estimated annual earnings by education level. Average gross salaries were calculated by multiplying average hourly earnings by usual hours worked per week and by 52 weeks, provided by Statistic Canada.

In 2017, it is estimated that an employee with a post-secondary certificate or diploma earned 38.1% more than a high school graduate. A university bachelor's degree graduate earned 11.8% more than a post-secondary certificate or diploma graduate, and those with a graduate degree could earned 15.9% more than a university bachelor's degree graduate.

Figure 8 – Average Annual Employment Earnings by Education level, 2017



Occupation and Industry

Industry

Table 6 shows the average wage by industry and education level. Albertans employed in the Construction industry with a high school education on average made \$28.99 an hour while those with a post-secondary diploma or certificate on average earned \$36.15 an hour. Meanwhile hourly earnings for a bachelor's degree holder were \$37.55 and those with a graduate degree earned an average hourly rate of \$35.20. In almost all industries, a higher education level was associated with a higher average wage.

Table 6 - Average Wage by Industry and Education Level, 2017

Industry	High School Graduate	Post-Secondary Certificate or Diploma	University Bachelor's Degree	University Graduate Degree	Average Wage
Agriculture	\$21.72	\$21.42	N/A	N/A	\$21.10
Forestry, Fishing, Mining, Oil and Gas	\$36.93	\$42.49	\$51.72	\$58.14	\$43.95
Utilities	\$35.13	\$47.94	\$54.26	N/A	\$47.69
Construction	\$28.99	\$36.15	\$37.55	\$35.20	\$33.10
Manufacturing	\$25.96	\$32.98	\$36.69	\$41.15	\$31.06
Wholesale Trade	\$29.05	\$33.42	\$36.01	\$35.29	\$31.91
Retail Trade	\$19.53	\$21.85	\$24.06	\$22.74	\$20.02
Transportation and Warehousing	\$27.24	\$34.01	\$36.49	\$36.19	\$31.27
Finance, Insurance, Real Estate and Leasing	\$25.26	\$30.15	\$31.91	\$39.64	\$29.90
Professional, Scientific and Technical Services	\$26.64	\$31.88	\$38.45	\$42.43	\$35.34
Business, building and other support services	\$21.60	\$25.43	\$26.87	\$21.63	\$23.09
Educational Services	\$24.25	\$29.31	\$36.06	\$42.01	\$33.91
Health Care and Social Assistance	\$23.36	\$29.05	\$36.94	\$38.02	\$31.51
Information, Culture and Recreation	\$20.84	\$27.69	\$27.25	\$30.46	\$23.83
Accommodation and Food Services	\$15.56	\$17.45	\$18.53	\$15.01	\$16.23
Other Services	\$21.45	\$26.33	\$22.88	\$31.65	\$24.28
Public Administration	\$33.49	\$38.37	\$42.22	\$45.37	\$38.83
Average	\$24.35	\$31.25	\$35.80	\$39.87	\$31.40

Occupation

Table 7 shows the average wage by occupation and education. Albertans employed in Middle management occupations in trades, transportation, production and utilities with a high school education on average earned \$44.43 an hour. With a post-secondary diploma or certificate, on average they made \$51.88 an hour, with a bachelor's degree they earned an average hourly wage of \$50.33 and those with a graduate degree, earned an hourly rate of \$56.52. In almost all occupations, a higher education level was associated with a higher average wage.

Table 7 - Average Wage by Occupation and Education Level, 2017

Occupation	High School Graduate	Post-Secondary Certificate or Diploma	University Bachelor's Degree	University Graduate Degree	Average Wage
Administrative and financial supervisors and administrative occupations	\$26.85	\$28.10	\$31.10	\$29.33	\$28.26
Industrial, electrical and construction trades	\$29.50	\$35.63	\$35.75	N/A	\$33.36
Professional occupations in natural and applied sciences	\$40.64	\$40.64	\$47.28	\$49.80	\$46.09
Professional occupations in education services	\$31.75	\$36.74	\$37.13	\$40.85	\$37.57
Sales representatives and salespersons - wholesale and retail trade	\$18.73	\$22.71	\$26.03	\$15.81	\$20.60
Service support and other service occupations, n.e.c.	\$16.29	\$17.79	\$16.86	N/A	\$16.14
Service representatives and other customer and personal services occupations	\$16.73	\$19.22	\$20.96	\$20.83	\$18.18
Maintenance and equipment operation trades	\$30.09	\$38.37	\$34.90	N/A	\$35.15
Office support occupations	\$22.57	\$25.02	\$26.76	\$24.27	\$24.19
Professional occupations in business and finance	\$33.46	\$40.46	\$39.97	\$44.79	\$39.69
Technical occupations related to natural and applied sciences	\$33.07	\$39.75	\$39.76	\$32.33	\$37.90
Transport and heavy equipment operation and related maintenance occupations	\$26.72	\$28.66	\$26.16	\$26.77	\$27.53
Service supervisors and specialized service occupations	\$17.38	\$19.38	\$19.24	N/A	\$18.31
Specialized middle management occupations	\$49.46	\$46.39	\$47.20	\$55.90	\$48.93
Retail sales supervisors and specialized sales occupations	\$23.47	\$29.13	\$27.06	\$29.47	\$26.29
Professional occupations in law and social, community and government services	\$34.75	\$32.99	\$38.43	\$43.49	\$38.74
Professional occupations in nursing	N/A	\$37.85	\$42.50	\$46.34	\$41.32
Sales support occupations	\$15.71	\$15.91	\$15.41	\$15.08	\$14.89
Technical occupations in health	\$26.45	\$33.50	\$36.93	N/A	\$32.67
Distribution, tracking and scheduling co-ordination occupations	\$23.04	\$25.55	\$26.19	N/A	\$24.14
Assisting occupations in support of health services	\$21.65	\$25.13	\$24.25	\$21.02	\$23.99
Middle management occupations in trades, transportation, production and utilities	\$44.43	\$51.88	\$50.33	\$56.52	\$50.10
Paraprofessional occupations in legal, social, community and education services	\$20.02	\$22.69	\$23.49	\$23.52	\$22.32
Care providers and educational, legal and public protection support occupations	\$20.63	\$23.36	\$21.75	N/A	\$22.63
Middle management occupations in retail and wholesale trade and customer services	\$32.57	\$35.68	\$34.47	N/A	\$34.24
Supervisors and technical occupations in natural resources, agriculture and related production	\$39.66	\$44.81	\$38.32	N/A	\$41.19
Finance, insurance and related business administrative occupations	\$26.58	\$29.63	\$33.12	N/A	\$29.46
Professional occupations in health (except nursing)	N/A	\$36.26	\$46.36	\$39.26	\$42.05
Processing, manufacturing and utilities supervisors and central control operators	\$34.14	\$44.30	\$42.90	N/A	\$24.03
Workers in natural resources, agriculture and related production and Harvesting, landscaping and natural resources labourers	\$23.42	\$24.95	\$24.46	N/A	\$22.89
Professional occupations in art and culture and Technical occupations in art, culture, recreation and sport	\$22.67	\$25.44	\$27.39	\$31.65	\$24.44
Other installers, repairers and servicers and material handlers	\$24.52	\$26.51	\$23.49	N/A	\$24.41
Trades helpers, construction labourers and related occupations	\$22.90	\$26.30	N/A	N/A	\$23.52
Processing and manufacturing machine operators and related production workers	\$25.04	\$23.54	\$23.26	N/A	\$41.79
Occupations in front-line public protection services	\$45.20	\$46.95	\$42.14	N/A	\$45.33
Assemblers in manufacturing and Labourers in processing, manufacturing and utilities	\$21.76	\$23.47	N/A	N/A	\$22.19
Senior management occupations	N/A	N/A	\$41.98	N/A	\$43.58
Average	\$24.35	\$31.25	\$35.80	\$39.87	\$31.40

Top Ten

Table 8 lists the top 10 highest paying industries and shows the employment proportion of the four education categories. The Utilities industry on average was the highest paying industry with an average hourly wage of \$47.69. Of those in the utilities industry, 14.8% had a high school diploma, 44.3% had a post-secondary diploma or certificate and 34.1% had a bachelor's degree.

Table 8 - Proportion of Employment by Education in the Top 10 Paying Industries, 2017

Industry	High School Graduate	Post-Secondary Certificate or Diploma	University Bachelor's Degree	University Graduate Degree	Total	Average Wage
Utilities	14.8%	44.3%	34.1%	N/A	100.0%	\$47.69
Forestry, Fishing, Mining, Oil and Gas	20.9%	44.2%	25.9%	9.0%	100.0%	\$43.95
Public administration	16.2%	41.8%	31.4%	10.6%	100.0%	\$38.83
Professional, scientific and technical services	12.0%	29.9%	40.8%	17.2%	100.0%	\$35.34
Educational services	9.2%	22.2%	44.3%	24.2%	100.0%	\$33.91
Construction	29.0%	59.1%	9.6%	2.3%	100.0%	\$33.10
Wholesale trade	28.6%	47.7%	18.6%	5.1%	100.0%	\$31.91
Health care and social assistance	10.3%	44.1%	34.7%	10.9%	100.0%	\$31.51
Transportation and warehousing	38.0%	36.1%	20.1%	5.9%	100.0%	\$31.27
Manufacturing	28.7%	45.1%	21.5%	4.7%	100.0%	\$31.06
All Industries	25.5%	40.2%	25.6%	8.6%	100.0%	\$31.40

Table 9 lists the top 10 highest paying occupations and shows the employment shares for the four education categories. Middle management occupations in trades, transportation, production and utilities had the highest hourly pay with an average of \$50.10. Among the Managers, 15.9% had a high school diploma, 42.5% had a post-secondary diploma or certificate, 29.0% had a bachelor's degree, and 12.6% with a graduate degree. High school graduates represent 25.5% of the employed population but in nine out of the 10 occupations, the proportion of high school graduates is lower than 25.5%.

Table 9 - Proportion of Employment by Education in the Top 10 Paying Occupations, 2017

Occupation	Post-				Total	Average wage
	High School Graduate	Secondary Certificate or Diploma	University Bachelor's Degree	University Graduate Degree		
Middle management occupations in trades, transportation, production and utilities	15.9%	42.5%	29.0%	12.6%	100.0%	\$50.10
Specialized middle management occupations	6.6%	30.6%	39.5%	23.2%	100.0%	\$48.93
Professional occupations in natural and applied sciences	4.5%	16.5%	58.2%	20.8%	100.0%	\$46.09
Occupations in front-line public protection services	21.7%	52.6%	23.1%	N/A	100.0%	\$45.33
Senior management occupations	N/A	N/A	53.9%	N/A	100.0%	\$43.58
Professional occupations in health (except nursing)	N/A	7.6%	47.0%	42.2%	100.0%	\$42.05
Processing, manufacturing and utilities supervisors and central control operators	20.8%	63.9%	13.8%	N/A	100.0%	\$41.79
Professional occupations in nursing	N/A	25.0%	67.5%	5.7%	100.0%	\$41.32
Supervisors and technical occupations in natural resources, agriculture and related production	39.3%	47.6%	10.5%	N/A	100.0%	\$41.19
Professional occupations in business and finance	9.4%	23.5%	51.1%	16.0%	100.0%	\$39.69
All occupations	25.5%	40.2%	25.6%	8.6%	100.0%	\$31.40

Summary and Conclusions

Albertans with a university bachelor's or graduate degree experienced the highest participation rate in 2017 at 81.7%.

The employment rate for those with a post-secondary certificate or diploma was 7.6 percentage points higher than for high school graduates. Albertans with a university graduate degree experienced the highest employment rate, at 78.0% while those with a bachelor's degree had the second highest rate at 76.7%.

For both genders, there was a relationship between higher levels of education and higher hourly wage rates. Most of the top 10 paying industries and occupations employed a higher proportion of people with post-secondary education than their proportion of the employed population. This suggests that one is more likely to work in these top industries and occupations with an education level higher than high school is obtained.

In conclusion, for both males and females, a higher level of educational attainment was related to greater participation in the workforce, better employment opportunities, lower unemployment, and higher earnings.

Appendix

The wage categories are determined by dividing the data into quartiles (four equal groups) that each contains approximately 25% of the employed survey respondents who were not self-employed during the reference week. The groups do not contain exactly 25% due to hourly wages that occurred multiple times around the 25%, 50% and 75% cut-off points.

Wage Categories for Males

For males, the low hourly wage category was made up of those who earned less than \$22.00 an hour. The lower middle category consisted of those who earned between \$22.00 and below \$31.73 an hour. The upper middle hourly wage group were those who earned between \$31.73 and below \$44.23 while high wage earners were those who earned \$44.23 per hour and above.

Wage Categories for Females

For females the low hourly wage category was made up of those who earned less than \$17.50 an hour. The lower middle consisted of those who earned between \$17.50 and below \$25.00 an hour. The upper middle hourly wage group were those who earned between \$25.00 and below \$36.54 while high wage earners were those who earned \$36.54 per hour and above.

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