Catalogue no. 11-626-X — No. 050
ISSN 1927-503X
ISBN 978-0-660-03237-5

Economic Insights

Labour Market Outcomes of Young Postsecondary Graduates, 2005 to 2012

by Kristyn Frank, Marc Frenette, and René Morissette

Release date: September 17, 2015
Correction date: September 17, 2015

Statistics Canada Statistique Canada

Canada

How to obtain more information

For information about this product or the wide range of services and data available from Statistics Canada, visit our website, www.statcan.gc.ca.

You can also contact us by

email at infostats@statcan.gc.ca

telephone, from Monday to Friday, 8:30 a.m. to 4:30 p.m., at the following toll-free numbers:

- Statistical Information Service 1-800-263-1136
- National telecommunications device for the hearing impaired 1-800-363-7629
- Fax line 1-877-287-4369

Depository Services Program

- Inquiries line 1-800-635-7943
- Fax line 1-800-565-7757

Standards of service to the public

Statistics Canada is committed to serving its clients in a prompt, reliable and courteous manner. To this end, Statistics Canada has developed standards of service that its employees observe. To obtain a copy of these service standards, please contact Statistics Canada toll-free at 1-800-263-1136. The service standards are also published on www.statcan.gc.ca under "Contact us" > "Standards of service to the public."

Note of appreciation

Canada owes the success of its statistical system to a long-standing partnership between Statistics Canada, the citizens of Canada, its businesses, governments and other institutions. Accurate and timely statistical information could not be produced without their continued co-operation and goodwill.

Standard table symbols

The following symbols are used in Statistics Canada publications:

.	not available for any reference period
..	not available for a specific reference period
...	not applicable
0	true zero or a value rounded to zero
0^s	value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
^{p}	preliminary
^{r}	revised
x	suppressed to meet the confidentiality requirements of the *Statistics Act*
^{E}	use with caution
F	too unreliable to be published
*	significantly different from reference category ($p < 0.05$)

Correction has been made to this product

The publication has been reloaded on September 17, 2015

Please take note of the following change:

An error in the production of the PDF version resulted in the inclusion of incorrect data in Table 2. This error has been corrected. The HTML version was not affected.

Published by authority of the Minister responsible for Statistics Canada

An HTML version is also available.

Cette publication est aussi disponible en français.

Labour Market Outcomes of Young Postsecondary Graduates, 2005 to 2012

by Kristyn Frank, Marc Frenette, and René Morissette, Social Analysis and Modelling Division

This *Economic Insights* article documents the evolution of real annual wages and salaries and employment patterns of young postsecondary graduates by field of study from 2005 to 2012. Results are shown for Canadian-born individuals aged 25 to 34 who are college graduates or hold a bachelor's degree. The data are drawn from the linked 2006 Census–2011 National Household Survey–T1 Personal Master File. Fields of study are defined according to the Classification of Instructional Programs.

Introduction

Since the recession of the late 2000s, concerns have been raised as to whether the labour market outcomes of young postsecondary graduates have deteriorated in recent years.[1] Given the considerable financial and time investment associated with a postsecondary education, this question is of interest to policy makers, students and their families, and postsecondary institutions.

While previous research (Finnie and Frenette 2003; Walters 2004; Ostrovsky and Frenette 2014) has established that earnings of university and college graduates differ across fields of study, it is not known whether earnings and employment patterns of graduates from different fields of study have followed a similar trajectory in recent years.[2]

Using a novel data set (the linked 2006 Census–2011 National Household Survey (NHS)–T1 Personal Master File), the study assesses how real annual wages and salaries of young Canadian-born postsecondary graduates evolved by field of study over the 2005-to-2012 period.[3] It also compares employment patterns across fields of study, documenting which postsecondary graduates were more likely to be employed full time on a full-year basis, i.e., for 49 weeks or more. For both outcomes—earnings and employment patterns—results for bachelor's degree holders and college graduates are compared to those observed for high school graduates.

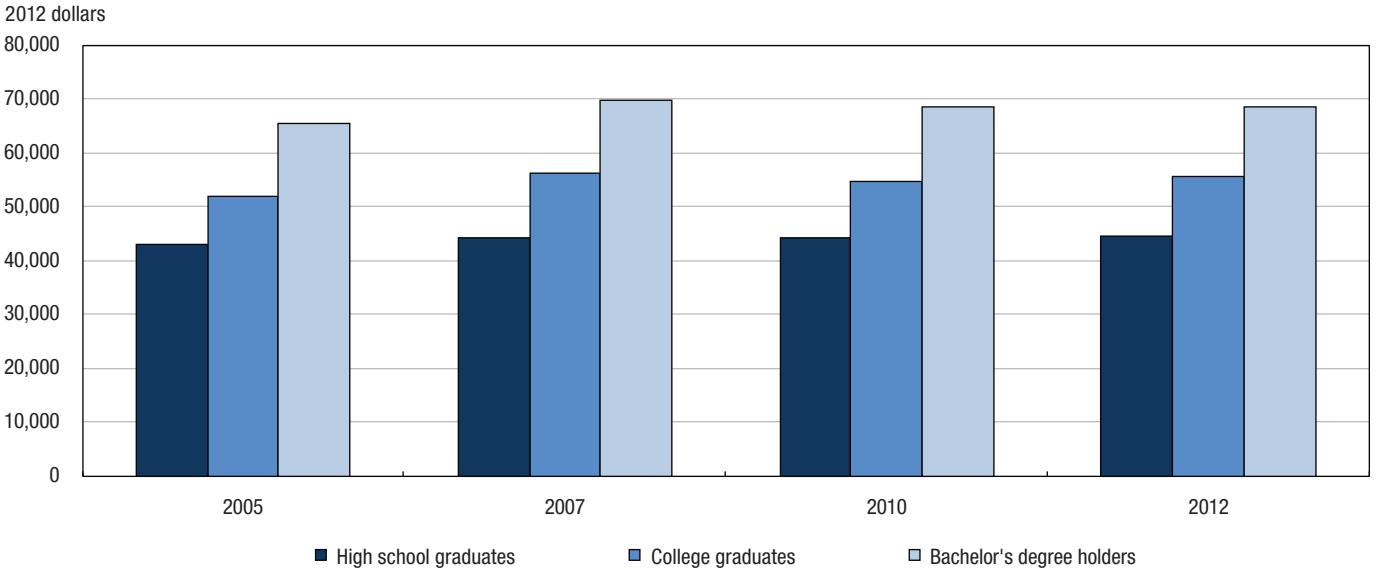
Earnings increased for male postsecondary graduates in Engineering and for female postsecondary graduates in Health

In 2005, Canadian-born male and female bachelor's degree holders aged 25 to 34 earned on average $65,400 and $46,500 (in 2012 dollars) in wages and salaries, respectively. This was more than $20,000 higher than the earnings received by their counterparts with only a high school diploma (Table 1 and Charts 1 and 2).[4] While young female bachelor's degree holders saw their earnings rise from 2005 to 2012, young male bachelor's degree holders experienced a slight decline in real earnings from 2007 to 2010 and little change afterwards. By 2012, young male and female university graduates earned 4.9% and 8.5% more, on average, than their counterparts did in 2005.

Earnings growth was not uniform across fields of study. From 2005 to 2012—a period characterized by rising oil prices[5]—young men with a bachelor's degree in Engineering recorded a 10% increase in real average earnings.[6] In contrast, their counterparts with a bachelor's degree in Social Sciences, Business Administration, and Mathematics, Computer, and Information Science experienced no growth in real average earnings during that period.[7] Even though the average real wages and salaries of young male bachelor's degree holders in Education were higher in 2012 than in 2005, the difference is not statistically significant at conventional levels.[8]

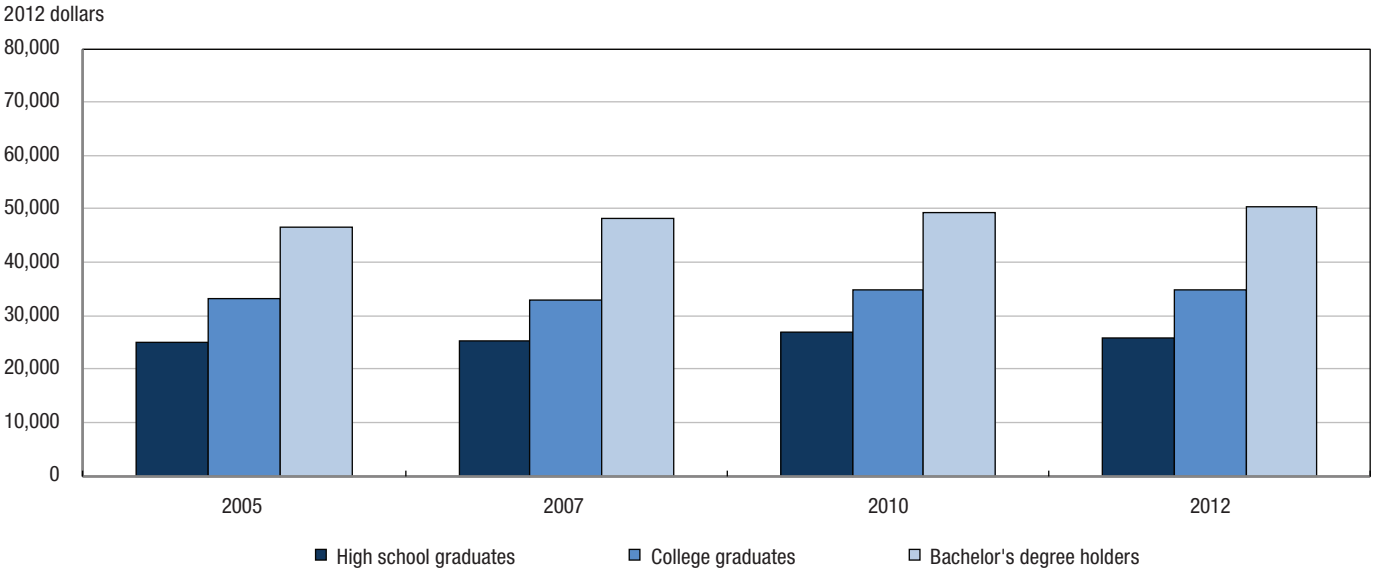
1. Studying outcomes of young graduates is important since Kahn (2010) and Oreopoulos, von Wachter, and Heisz (2012) find evidence of "scarring effects", i.e., of lasting negative consequences associated with poor early labour market conditions.
2. Using the National Graduates Survey (NGS), Walters (2004) analyzes the earnings of young postsecondary graduates who graduated in 1982, 1986, 1990, and 1995. Finnie and Frenette (2003) focus their earnings analyses on the first three cohorts. Ostrovsky and Frenette (2014) provide evidence on the long-term earnings prospects of postsecondary graduates by field of study.
3. Traditionally, two data sources have been used to document earnings trends for young postsecondary graduates: the census or National Household Survey (NHS) long questionnaire and the NGS. Response rates to both sources declined in recent years. The response rate to the mandatory long questionnaire of the census was 93.8% in 2006, compared with 69% for the 2011 NHS. The most recent NGS had a three-year follow-up period, compared with two years for previous cohorts. The response rate was 68% for the NGS class of 2005 and 49% for the class of 2009/2010. See the section titled "Data and definitions" for details on the linked 2006 Census–2011 NHS–T1 Personal Master File.
4. Real weekly wages earned by young Canadian-born male and female bachelor's degree holders in 2005 averaged $1,314 and $1,099, respectively. The corresponding amounts for their counterparts with a high school diploma are $973 and $602, respectively.
5. The conventional crude oil price index increased from 88.8 in 2005 to 132.3 in 2008, fell to 85.2 in 2009 and then increased to 121.6 in 2012. More recently, it fell from 128.1 in January 2014 to 78.3 in March 2015 (CANSIM table 330-0008).
6. Their real median earnings increased by 5%.
7. Real median earnings of young male bachelor's degree holders in Business Administration and Mathematics, Computer, and Information Science did not grow either.
8. While young men with a bachelor's degree in Humanities saw their average earnings rise from 2005 to 2012, the difference is statistically significant at the 10% level only.

Chart 1
Real average wages and salaries of Canadian-born male postsecondary graduates and high school graduates aged 25 to 34, 2005 to 2012



Source: Statistics Canada, 2006 Census–2011 National Household Survey–T1 Personal Master File.

Chart 2
Real average wages and salaries of Canadian-born female postsecondary graduates and high school graduates aged 25 to 34, 2005 to 2012



Source: Statistics Canada, 2006 Census–2011 National Household Survey–T1 Personal Master File.

Young female bachelor's degree holders saw their average earnings rise in several fields of study. Those who graduated in Education, Health, and Business Administration recorded increases in average real wages and salaries that varied between 10% and 12% from 2005 to 2012.[9] In contrast, those who graduated in Humanities experienced no growth in average earnings. Changes in average earnings observed in other fields of study were not statistically significant at conventional levels.

Overall, depending on the field of study considered, young men with a bachelor's degree earned on average between $9,500 and $38,900 more than young men with a high school diploma in 2012. Young women with a bachelor's degree earned on average between $12,700 and $32,900 more than young women with a high school diploma.

9. Growth in their real median wages and salaries varied between 8% and 16%.

Among male college graduates, average earnings reached a peak of $56,200 in 2007, fell from 2007 to 2010 and increased to $55,800 in 2012. By 2012, young male college graduates earned on average 7.1% more than their counterparts did in 2005. Young female college graduates also displayed some growth in earnings during this period but this was found to be not statistically significant.

Similar to young men with a bachelor's degree in Engineering, young men with a college certificate in Engineering also fared well from 2005 to 2012. Their average real earnings grew by 13% during this period, rising from $56,800 in 2005 to $64,200 in 2012 (Table 2). Average real earnings of male college graduates in Mathematics, Computer, and Information Science grew at a similar pace. Male college graduates in Personal and Protective Services saw their average real earnings increase by 18%.[10]

Young female college graduates in Health saw their average wages and salaries rise by 9% from 2005 to 2012, an increase that is similar to that experienced by young women with a bachelor's degree in health.

Overall, Tables 1 and 2 indicate that young male postsecondary graduates in Engineering and young female postsecondary graduates in Health experienced moderate earnings growth from 2005 to 2012 while young male bachelor's degree holders in Mathematics, Computer, and Information Science did not see their earnings rise. Nevertheless, earnings of young male college graduates in Mathematics, Computer, and Information Science did increase, along with those of young female bachelor's degree holders in Education and Business Administration. Considering the fields of study shown in Tables 1 and 2, there is no evidence of a substantial deterioration in the earnings of young postsecondary graduates in recent years.[11]

School enrollment rates changed little for young postsecondary graduates from 2005 to 2012

The relative stability of earnings observed from 2005 to 2012 in Tables 1 and 2 might be misleading if, in response to reduced employment opportunities, some postsecondary graduates left the labour market in 2012, earned no wages and salaries that year, and enrolled in school to pursue their schooling. If so, school enrollment rates of young postsecondary graduates should be higher in 2012 than in 2005.

Whether this is the case or not is investigated in Charts 3 and 4, using data from the Labour Force Survey (LFS). The percentage of young Canadian-born male and female postsecondary graduates enrolled in school is plotted from 2006 to 2014. Since the distinction between Canadian-born and immigrant postsecondary graduates can be made in the LFS only starting in 2006, the percentage of young postsecondary graduates—both immigrant and Canadian-born—enrolled in school is also plotted from 2005 onwards to allow inferences over the 2005-to-2012 period.

Table 1
Real annual wages and salaries of Canadian-born bachelor's degree graduates aged 25 to 34, 2005 to 2012

	Median				Mean			
	2005	2007	2010	2012	2005	2007	2010	2012
	2012 dollars							
Men								
Education	52,513	54,589	55,046	55,393	51,140	54,036	56,104	54,344
Humanities	43,637	45,891	49,308	52,892	47,070	51,284	49,318	54,045
Social Sciences	53,517	55,294	58,109	57,000	60,690	62,182	61,639	59,738
Business Administration	64,204	63,608	62,796	62,626	72,898	78,589	76,835	72,281
Mathematics, Computer and Information Science	66,036	65,965	64,234	63,079	71,714	71,600	69,366	69,920
Engineering	71,717	72,335	71,542	75,579	75,966	82,707	78,105	83,379
All fields of study	59,936	62,497	61,975	62,626	65,388	69,882	68,513	68,563
High school graduates	39,416	40,609	38,978	39,230	43,097	44,311	44,222	44,519
Women								
Education	43,037	42,879	44,775	47,150	41,459	42,298	44,885	45,884
Humanities	37,084	34,364	36,972	38,008	39,205	37,821	38,430	38,499
Social Sciences	42,136	44,997	42,830	43,426	43,173	46,749	44,911	44,935
Business Administration	46,190	49,143	50,142	53,633	50,001	51,838	53,107	56,107
Physical and Life Sciences	47,644	48,498	47,936	49,123	50,407	49,206	49,383	51,804
Health	55,667	54,720	62,341	60,021	53,144	53,534	58,886	58,691
All fields of study	45,127	46,846	47,410	48,350	46,543	48,162	49,369	50,506
High school graduates	23,325	23,709	23,674	23,546	25,010	25,374	26,821	25,792

Note: Numbers are shown for fields of study which have 200 observations or more in 2005 and 2012.
Source: Statistics Canada, 2006 Census–2011 National Household Survey–T1 Personal Master File.

10. Real median earnings of young male college graduates in Engineering and Mathematics, Computer, and Information Science increased by 12% while those of young male college graduates in Personal and Protective Services increased by 16%.
11. This conclusion holds when considering the 2007-to-2010 period.

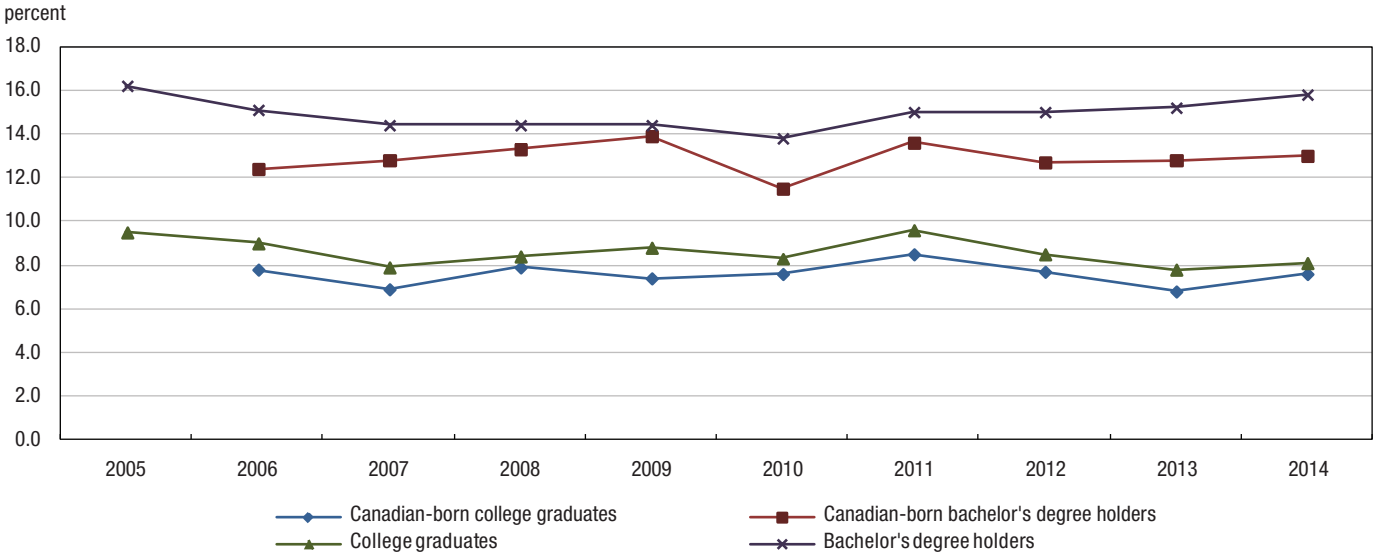
Table 2
Real annual wages and salaries of Canadian-born college graduates aged 25 to 34, 2005 to 2012

	Median				Mean			
	2005	2007	2010	2012	2005	2007	2010	2012
	2012 dollars							
Men								
Visual and Performing Arts	41,427	42,693	43,012	40,069	43,258	44,332	44,425	40,170
Social Sciences	41,550	49,389	43,057	42,839	50,574	51,374	47,405	49,567
Business Administration	45,605	46,771	45,180	42,500	50,270	52,080	50,032	48,416
Mathematics, Computer and Information Science	45,817	48,846	49,904	51,273	48,391	51,939	51,931	53,512
Engineering	52,937	57,282	54,901	59,041	56,779	63,778	59,600	64,186
Health	51,746	51,029	48,925	47,543	52,965	53,945	53,380	52,531
Personal and Protective Services	53,243	53,480	62,387	61,625	51,998	56,844	61,011	61,523
All fields of study	48,491	51,113	50,462	50,842	52,076	56,183	54,591	55,753
High school graduates	39,416	40,609	38,978	39,230	43,097	44,311	44,222	44,519
Women								
Visual and Performing Arts	30,461	30,472	35,808	31,861	29,489	29,889	32,198	32,049
Social Sciences	29,335	29,390	31,877	30,000	30,085	28,931	30,881	29,961
Business Administration	32,139	31,845	34,080	35,204	34,808	32,143	34,218	34,396
Health	34,142	35,389	36,576	36,112	33,957	36,463	37,185	36,914
Personal and Protective Services	29,100	29,280	34,901	32,671	32,886	34,040	39,337	36,306
All fields of study	31,649	31,548	34,199	33,936	33,254	32,816	34,798	34,891
High school graduates	23,325	23,709	23,674	23,546	25,010	25,374	26,821	25,792

Note: Numbers are shown for fields of study which have 200 observations or more in 2005 and 2012.
Source: Statistics Canada, 2006 Census–2011 National Household Survey–T1 Personal Master File.

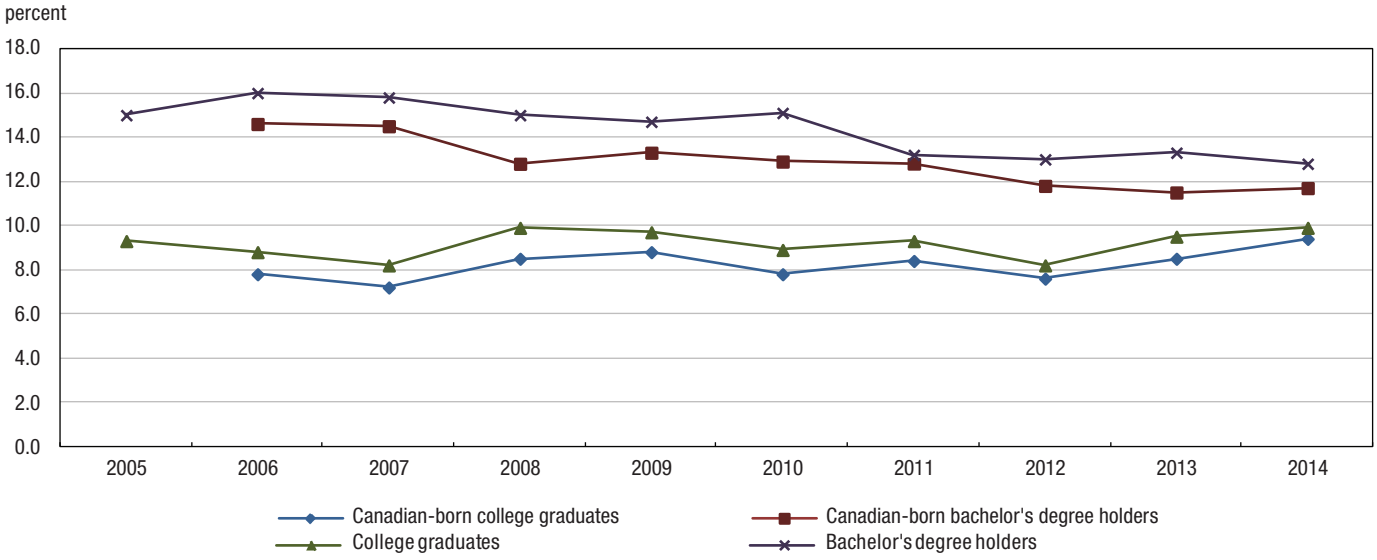
For Canadian-born male and female college graduates, school enrollment rates in 2006 are very similar to those in 2012. Similarly, for all male and female college graduates, school enrollment rates in 2005 are also very similar to those in 2012. Likewise, school enrollment rates of young Canadian-born women with a bachelor's degree and of all young women with a bachelor's degree are no higher in 2012 than they were in 2006.

Chart 3
Percentage of male postsecondary graduates aged 25 to 34 enrolled in school, 2005 to 2014



Note: Since the distinction between Canadian-born and immigrant postsecondary graduates can be made in the Labour Force Survey only starting in 2006, there are no data for 2005 for Canadian-born college graduates and bachelor's degree holders.
Source: Statistics Canada, Labour Force Survey (February and October).

Chart 4
Percentage of female postsecondary graduates aged 25 to 34 enrolled in school, 2005 to 2014



Note: Since the distinction between Canadian-born and immigrant postsecondary graduates can be made in the Labour Force Survey only starting in 2006, there are no data for 2005 for Canadian-born college graduates and bachelor's degree holders.
Source: Statistics Canada, Labour Force Survey (February and October).

Young Canadian-born male bachelor's degree holders also had similar school enrollment rates in 2006 and 2012. However, since their enrollment rate trended upwards from 2006 to 2009 whereas the aggregate school enrollment of young men male bachelor's degree holders trended downwards from 2005 to 2009, it is difficult to reach a conclusion regarding changes in school enrollment from 2005 to 2012 for the former group. Nevertheless, Charts 3 and 4 do not, overall, support the contention that school enrollment rates of young Canadian-born postsecondary graduates increased substantially from 2005 to 2012. This in turn suggests that the earnings trends shown in Tables 1 and 2 for young Canadian-born postsecondary graduates were not influenced by higher enrollment rates.

Employment patterns, 2005 to 2010[12]

The success of individuals in the labour market can be gauged not only by their annual earnings, but also by the degree to which individuals succeed in securing full-time employment.[13] Of all young men with a bachelor's degree in 2010, 82% worked full time on a full-year basis, i.e., for 49 weeks or more (Table 3 and Chart 5). In contrast, their counterparts with a high school diploma did so to a lesser extent: only 66% of them worked full year, full time that year. The percentage of young female bachelor's degree holders working full year, full time in 2010 was, at 65%, 14 percentage points higher than the corresponding proportion for young female high school graduates (Chart 6).

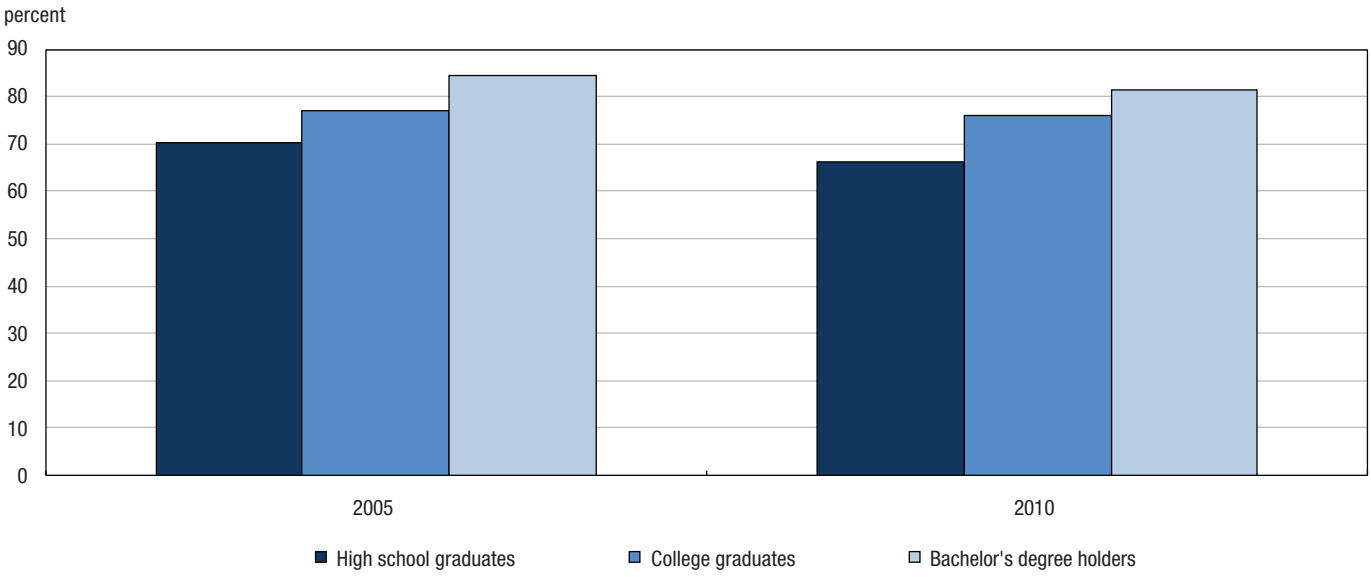
Table 3
Percentage of Canadian-born bachelor's degree holders aged 25 to 34 who are employed full year, full time, 2005 and 2010

	2005	2010
	percent	
Men		
Education	80.0	74.2
Humanities	74.7	75.2
Social Sciences	81.1	77.8
Business Administration	87.3	82.7 *
Physical and Life Sciences	82.6	F
Mathematics, Computer and Information Science	90.2	86.0
Engineering	89.6	87.2
All fields of study	84.4	81.6 *
High school graduates	70.2	66.2 *
Women		
Education	62.9	57.7 †
Humanities	56.5	67.6 *
Social Sciences	63.6	72.0 *
Business Administration	71.2	67.4
Physical and Life Sciences	70.8	61.2 †
Health	62.4	61.3
All fields of study	65.4	65.3
High school graduates	53.7	51.2

* difference between 2005 and 2010 is statistically significant at the 5% level
† difference between 2005 and 2010 is statistically significant at the 10% level
F too unreliable to be published
Note: "Full year, full time" is defined as working 49 to 52 weeks in the reference year, mostly full time (30 hours or more per week). Numbers are shown for fields of study which have 200 observations or more in 2005 and 2010.
Source: Statistics Canada, 2006 Census–2011 National Household Survey–T1 Personal Master File.

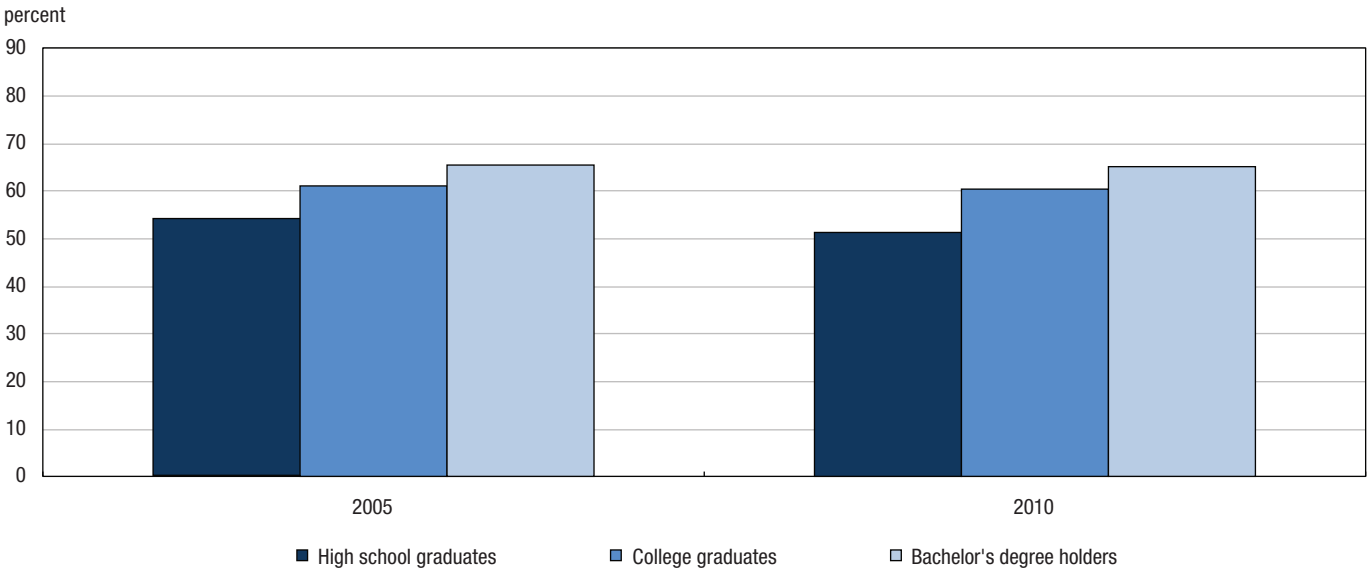
12. Since weeks worked and full-time employment indicators are not available for 2007 and 2012, employment patterns are analyzed over the 2005-to-2010 period.
13. For both young men and young women, increases in rates of full-year, full-time employment may also reflect a labour supply effect, i.e., growing involvement in the labour market.

Chart 5
Percentage of Canadian-born male postsecondary graduates and high school graduates aged 25 to 34 working full year, full time, 2005 and 2010



Source: Statistics Canada, 2006 Census–2011 National Household Survey–T1 Personal Master File.

Chart 6
Percentage of Canadian-born female postsecondary graduates and high school graduates aged 25 to 34 working full year, full time, 2005 and 2010



Source: Statistics Canada, 2006 Census–2011 National Household Survey–T1 Personal Master File.

Following the 2008/2009 recession, young men with a bachelor's degree saw their rate of full-year full-time employment drop in 2010 relative to 2005. In contrast, overall rates of full-year, full-time employment changed little for college graduates and young female bachelor's degree holders during that period (Tables 3 and 4).

Differences in rates of full-year, full-time employment observed across fields of study for young men with a bachelor's degree are substantial. Both in 2005 and 2010, no more than three-quarters of young men with a bachelor's degree in Humanities worked full year, full time, much less than the rates of 90% and 87% observed, respectively, among their counterparts in Engineering. Differences across fields of study for young female bachelor's degree holders or for young male and female college graduates are less pronounced. For both sexes and both years, young college graduates and bachelor's degree holders in most fields of study had higher rates of full-year, full-time employment than young high school graduates.[14]

14. For both young female college graduates in Personal and Protective Services and young female high school graduates, the incidence of full year full-time employment in 2005 amounted to 54%.

Table 4
Percentage of Canadian-born college graduates aged 25 to 34 who are employed full year, full time, 2005 and 2010

	2005	2010
	percent	
Men		
Visual and Performing Arts	74.4	68.9
Social Sciences	74.9	77.1
Business Administration	79.6	81.5
Mathematics, Computer and Information Science	77.2	77.1
Engineering	78.0	76.3
Health	73.2	68.2
Personal and Protective Services	74.6	76.0
All fields of study	77.0	76.0
High school graduates	70.2	66.2*
Women		
Visual and Performing Arts	64.1	64.1
Social Sciences	62.4	58.7
Business Administration	64.8	63.4
Health	56.5	57.1
Personal and Protective Services	54.2	61.2
All fields of study	61.1	60.5
High school graduates	53.7	51.2

* difference between 2005 and 2010 is statistically significant at the 5% level
Note: "Full year, full time" is defined as working 49 to 52 weeks in the reference year, mostly full time (30 hours or more per week). Numbers are shown for fields of study which have 200 observations or more in 2005 and 2010.
Source: Statistics Canada, 2006 Census–2011 National Household Survey–T1 Personal Master File.

Conclusion

The rise in youth unemployment during the recession of the late 2000s raised concerns about labour market outcomes for young postsecondary graduates. In the context of population aging, changing world commodity prices, and time-varying technological changes, it is unclear whether earnings of young postsecondary graduates from different fields of study have followed a similar trajectory in recent years.

This study has investigated this issue. The results indicate that young male postsecondary graduates in Engineering and young female postsecondary graduates in Health have experienced moderate earnings growth over the 2005-to-2012 period. Findings regarding young male postsecondary graduates in Mathematics, Computer, and Information Science are more nuanced, as young men with a bachelor's degree in that field experienced no growth in median or average earnings while their counterparts with a college certificate saw their average and median earnings grow by about 12%. Young female bachelor's degree holders in Business Administration and Education and young male college graduates in Personal and Protective Services also saw their median and average earnings rise.

Overall, the study did not find evidence of a substantial deterioration in the labour market outcomes of young postsecondary graduates in recent years. Although rates of full-year, full-time employment fell slightly for young male bachelor's degree holders from 2005 to 2010, they changed little for college graduates and young female bachelor's degree holders during that period. In aggregate, real average and real median earnings of young postsecondary graduates either had, by 2012, increased slightly relative to 2005 or shown little change.[15]

Throughout the period, young male and female postsecondary graduates in most fields of study received higher earnings and were more likely to be employed full year, full time than their counterparts with a high school education. This fact is an important reminder that even though relative hourly wage differentials between bachelor's degree holders and high school graduates narrowed somewhat during the 2000s (Frenette and Morissette 2014), higher education remains associated with better labour market outcomes.

15. This conclusion holds when the comparison is from 2007 to 2012 rather than from 2005 to 2012.

References

Finnie, R., and M. Frenette. 2003. "Earning differences by major field of study: evidence from three cohorts of recent Canadian graduates." *Economics of Education Review 22*: 179–192.

Frenette, M., and R. Morissette. 2014. *Wages and Full-time Employment Rates of Young High School Graduates and Bachelor's Degree Holders, 1997 to 2012*. Analytical Studies Branch Research Paper Series. no. 360. Statistics Canada Catalogue no. 11F0019M. Ottawa: Statistics Canada.

Kahn, L. 2010. "The long-term labour market consequences of graduating from college in a bad economy." *Labour Economics* 17 (2): 303–316.

Oreopoulos, P., T. von Wachter, and A. Heisz. 2012. "The short and long-term career effects of graduating in a recession: Hysteresis and heterogeneity in the market for college graduates." *American Economic Journal: Applied Economics* 4 (1): 1–29.

Ostrovsky, Y., and M. Frenette. 2014. *The Cumulative Earnings of Postsecondary Graduates Over 20 Years: Results by Major Field of Study*. Economic Insights, no. 40. Statistics Canada Catalogue No. 11-626-X. Ottawa: Statistics Canada.

Walters, D. 2004. "A comparison of labour market outcomes of postsecondary graduates of various levels and fields over a four-cohort period." *Canadian Journal of Sociology* 29 (1): 1–27.

Data and definitions

Data sources

This study uses data from the linked 2006 Census–2011 National Household Survey (NHS)–T1 Personal Master File. Linkage began with the 1,060,597 individuals who appeared in the 2006 Census of Population and in the 2011 NHS, identified by common information on both files. Of this group, 846,711 (79.8%) could be linked to a Social Insurance Number (SIN) on the 2010 T1 files (tax reference year for the 2011 NHS sample). Although sample selection was based on linking to the 2010 T1 data, the sample could then be linked to T1 data from other years for analytical purposes.

Almost two-thirds (64.1%) of individuals who could be linked to the 2010 T1 data consented to do so, leaving 542,715 in the sample. The sample dropped to 542,140 after eliminating individuals younger than 15 on May 16, 2006 (Census Day). A small number of records were also dropped because the reported age on the census differed from the reported age on tax data, or because of unresolved cases of multiple SIN holders. In the end, the linked file comprised 535,790 individuals, or 50.5% of the overlapping census and NHS sample.

To account for differences in characteristics between the original 2006 sample and the remaining sample on the linked file, longitudinal weights were created.[16] These weights ensure that the linked file is representative of the 2006 population.

From the linked file, four samples of Canadian-born individuals were selected. The first sample consists of Canadian-born individuals who were aged 25 to 34 in 2005; reported having a bachelor's degree, a college certificate, or a high school diploma in the census reference week in 2006; had positive wages and salaries, positive weeks worked and no self-employment income in 2005; and had no educational deductions and credits in 2005 and 2006.[17] The last restriction ensures that the level of education reported during the census reference week is the one that individuals had when they earned their employment income in 2005. The second sample consists of Canadian-born individuals who were aged 25 to 34 in 2007; reported having a bachelor's degree, a college certificate, or a high school diploma in the census reference week in 2006; had positive wages and salaries and no self-employment income in 2007; and had no educational deductions and credits in 2006 and 2007.[18] The third and fourth samples are similar to the first and second samples, respectively, but are based on NHS reference week in 2011.[19] These four samples permit an analysis of the evolution of real annual wages and salaries of young Canadian-born postsecondary graduates aged 25 to 34 and of their counterparts with a high school diploma over the 2005-to-2012 period.

Definitions

Bachelor's degree: A university degree at the undergraduate level, based on the highest certificate or degree. It excludes university certificates above or below a bachelor's degree, and first professional degrees in medicine, dentistry, veterinary medicine, or optometry. Graduates of Law (Bachelor of Law [LLB], Juris Doctor [JD] and Bachelor of Civil Law [BCL]) and Legal Research and Advanced Professional Studies (post-LLB/JD) programs were excluded from the analysis.

College certificate: A certificate awarded by a college, CEGEP, or other non-university institution (excluding registered apprenticeships or trades certificates), based on the highest certificate or degree.

Field of study: Field of study for the analysis in the late 2000s is based on the 2000 Classification of Instructional Programs (CIP) Canada 2000 codes, available for the highest certificate or degree in the 2006 Census and 2011 NHS. Fields are categorized into 11 major groups; the "Other" field of study was initially excluded because of small sample sizes. Depending on the years considered, the resulting samples vary between 8,936 and 11,624 observations for college graduates, between 7,614 and 8,765 observations for bachelor's degree holders, and between 7,382 and 8,692 observations for high school graduates. The major fields of study considered for college graduates and bachelor's degree holders are:

16. Earnings patterns by sex, educational level, and field of study in the full 2006 Census are similar to those of the portion of the 2006 Census used in the record linkage once the longitudinal weights are applied.
17. Graduates of Law (Bachelor of Law [LLB], Juris Doctor [JD] and Bachelor of Civil Law [BCL]) and Legal Research and Advanced Professional Studies (post-LLB/JD) programs were excluded because these programs generally prepare individuals for a first professional degree, and professional degrees in law cannot be determined from the "highest certificate or degree" variable.
18. Once again, the last restriction is imposed to ensure that the level of education reported during the census reference week in 2006 is the one that individuals had when they earned their employment income in 2007. The restriction regarding positive weeks worked cannot be applied for 2007 since information on weeks worked is not available on tax data. It is used for the first and third sample in order to allow the computation of weekly wages. Since very few individuals report positive wages and salaries and no weeks worked, adding this restriction is unlikely to affect the results.
19. For example, the third sample consists of Canadian-born individuals who were aged 25 to 34 in 2010; reported having a bachelor's degree, a college diploma, or a high school diploma in the NHS reference week in 2011; had positive wages and salaries, positive weeks worked and no self-employment income in 2010; and had no educational deductions and credits in 2010 and 2011.

Data and definitions (continued)

- **Education**
- **Visual and Performing Arts** (includes Communications Technologies)
- **Humanities**
- **Social Sciences** (includes Social and Behavioural Sciences and Law)
- **Business Administration** (includes Management and Public Administration)
- **Physical and Life Sciences** (includes Science Technologies)
- **Mathematics, Computer and Information Sciences**
- **Engineering** (includes Architecture and Related Technologies)
- **Agriculture and Conservation** (includes Natural Resources)
- **Health** (includes Parks, Recreation and Fitness)
- **Personal and Protective Services** (includes Transportation Services)

Additional restrictions are imposed in Tables 1 to 4. The numbers in Tables 1 and 2 are shown for fields of study which have at least 200 observations both in 2005 and 2012. The numbers in Tables 3 and 4 are shown for fields of study which have at least 200 observations both in 2005 and 2010.