As part of our on-going research into understanding the variation in wages and other working conditions around people whose primary work is service-oriented, what we call the Service Class, the Martin Prosperity Institute and the Institute for Competiveness and Prosperity have looked at the impact of completed education on wage levels. We continue that investigation by looking at how the returns to education vary by occupational class and age. And, while the results support the general expectation that more education and experience equals higher income, interesting variation by occupational class and age are found.

Previously, we looked at how the variation in returns to education has varied over time in the Canadian economy. We used Census data to investigate average returns based on highest level of education completed. We will continue that investigation using detailed data from the Labour Force Survey of 2010. So, rather than looking at the relationship over time, we will instead consider a cross-sectional look which provides greater detail. We will present information by age for all Canadian workers and by occupational class and age. Previously, we presented information on average inflation-adjusted income, which may have resulted in college graduates being given a higher return for their education. This would be from them working more hours rather than actually having a higher wage. Our analysis will continue by looking at average hourly wage for all “full-time” (30 hours per week or more) workers.

As before, we will consider people who have not graduated from high school, those whose highest degree is a high school diploma, those with a college degree or certificate, and those with a university degree. The categorization is based on completion so a person with some college courses but without a degree is considered a high school graduate. Having some university courses with a college degree would put a person in the college graduate category. We are also considering age and occupational class. Age is broken into the standard StatsCan Census categories and only includes general working ages (15–69). Occupational class is determined in the standard way of the MPI based on Florida (2002).

Exhibit 1 shows quite clearly the increase in earnings associated with higher education. It also shows that earnings also increase with experience (age) peaking in late 40’s through late 50’s. At the peak for all education categories, which is the 50–54 age range, a high school diploma increases average hourly wage by 17% over not having a high school diploma — adding a college degree or certificate, increase average wages by another 15%. Adding a university degree to a high school diploma increases average wage by nearly two-thirds (66.5%). And, while wages increase or decrease with age, the basic relationships hold true. University graduates have the highest wages and those without a high school diploma to lowest. The exception is for people in their teens and early twenties who may have graduated high school but haven’t had time to complete a post-secondary education. By 25–29, the pattern is firmly established.
While experience increases earnings though age 59, the value of experience varies according to the level of education. Among university graduates, average hourly wage can increase by almost $23 based on age. For college graduates, the greatest increase is under $13 while just under $10 for high school graduates and just over $7 per hour for those with less than a high school education. So, education doesn’t just increase wages — it increases the experience bonus that can be earned when employed based on education. This interaction between education and experience multiplies the value of any degree, but is especially strong for university degree holders.

As is also expected, the experience bonus peaks and then decreases (this is often expressed in a standard Mincer wage equation as having a negative coefficient on experience-squared). Across all education levels, late 40’s to late 50’s are the “peak earning years” — a life stage that many baby boomers are currently exiting. We shall see shortly that while the overall trends for both experience and education levels match the typical expectations when considering the occupational classes separately, the results are not as predictable.

Exhibit 1 shows the same age and education level relationships but separately by occupational class. Those working in a creative occupation (being paid to think; technology workers, artists/designers, business, medical, financial professionals, educators) are first. They are followed by service workers (those being paid to provide a service; not necessarily everyone employed in a service industry) and the working class (manufacturing, trades, and construction).

For both the creative and service class, although the average hourly wage levels are generally different, across age categories and education levels, the patterns are generally in-line with the overall results. University graduates consistently have the highest average wages, followed by college graduates, then those with only a high school diploma and finally those without a high school diploma. The service class has a much more limited range of hourly wages across all education levels and ages so the wage benefit from additional education isn’t very large — generally $1 or $2

Exhibit 2
Average Hourly Wage by Education Completed and Age by Occupation Class

**Creative Class:** average hourly wage by age (2010)

**Service Class:** average hourly wage by age (2010)

**Working Class:** average hourly wage by age (2010)

Design by Michelle Hopgood, Martin Prosperity Institute

Martin Prosperity Institute
per hour for adding a university or college degree to a high school diploma. The exception is the much lower hourly wage paid to those without a high school diploma. The service class shows the same “inverted-U” shape as the overall numbers with an increase for experience that depreciates at older ages.

The creative class differs from the service class in a few respects. First, the reward for a university degree is much higher. While a college degree or certificate consistently offers some increase in average hourly wages compared to just having a high school diploma, the difference isn't as great as that provided by a university degree. While only about 60% of the creative class have a university degree, very few are lacking a high school diploma so the “less than high school” numbers are less reliable. A second interesting difference with the creative class is that the depreciation of experience is almost non-existent. There is a slight drop for workers in their 60's, but that could be from retirees who are still working a new job being included as wage earners. Creative workers may always be gaining new skills and experiences with age for which they are rewarded with higher average hourly wages.

The working class curves have shapes, behaviours and hourly wage ranges similar to the service class. However, a couple of very significant differences should be pointed out. First, those working in manufacturing and construction seem to get to their peak earnings faster and then only increase slightly with experience. They also have a steeper discount for age in the later years. Second, the highest wages are not earned by those with a university degree but by those with a college degree or certificate — likely, this is the value of professional training that results in certification, like the “Red Seal” program in Ontario. Those in the working class with a university degree earn basically the same average hourly wage across all ages as someone who has a high school diploma. There is no additional reward for a university degree. However, failure to graduate high school does result in lower hourly earnings.

We have shown how returns from education vary with age and by occupational class. And, we have shown that the relationship between education level and hourly wage varies and exhibits different behaviours among the occupational classes. In the last Insight of this series on the returns to education, we will look at the variation in returns to education by specific occupation and show jobs where a university degree offers the greatest returns and jobs where a college degree is a better choice.

*The Martin Prosperity Institute at the University of Toronto's Rotman School of Management is the world's leading think-tank on the role of sub-national factors—location, place and city-regions—in global economic prosperity. We take an integrated view of prosperity, looking beyond economic measures to include the importance of quality of place and the development of people's creative potential.*