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The Evolution of the Returns to Human Capital in Canada, 1980-2005

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Abstract

We examine the evolution of the returns to human capital in Canada over the period 1980-2005. Our main finding is that returns to education increased substantially for Canadian men, contrary to conclusions reached previously. Most of this rise took place in the early 1980s and since 1995. Returns to education also rose, albeit more modestly, for Canadian women. Another important development is that after years of expansion, the wage gap between younger and older workers stabilized after 1995. Controlling for work experience and using Canadian Census data appear to account for the main differences between our results and earlier findings.

JEL Classification: J24, J31

Key words: Human Capital, Wage Differentials, Canada

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Executive Summary

This paper provides a comprehensive and up-to-date examination of the evolution of the returns to human capital in Canada over the past 25 years. While particular emphasis is given to the returns to education, we also examine the evolution of the returns to experience (or age).

Good and reliable estimates of the returns to human capital, in general, and the returns to education, in particular, are essential for assessing the benefits of the large investments in human capital made by local, provincial and federal governments in Canada. Furthermore, in order for the market for education to function well, it is essential for individuals contemplating investments in education to know the kinds of returns they should expect on these investments. This is particularly important in an era of rising tuition fees. We cannot expect as many young people to continue attending colleges and universities in the face of rising costs, unless they are aware of large pecuniary benefits associated with these costly investments. Unfortunately, the existing Canadian literature on the returns to education presents a somewhat confusing picture. On the basis of studies such as Freeman and Needels (1993), Murphy, Riddell and Romer (1998) and Burbidge, Magee and Robb (2002) it is widely believed that, for the labour force as a whole, the wage gap between more- and less-educated workers remained stable during the 1980s and 1990s. Indeed, Burbidge et. al. (2002) conclude that the education wage premium – the gap in earnings between university-educated workers and those with less than a university degree – was approximately constant for males over the period 1981-2000 and declined for females. In contrast, Boudarbat, Lemieux and Riddell (2006) conclude that education wage differentials (adjusted for experience) increased substantially over the period 1980-2000. They find that the education wage premium rose for both men and women, although the gains for women were more modest.

The main objective of this paper is to reconcile these divergent conclusions about the behaviour of the returns to education in Canada. We focus in particular on accounting for the different findings of the two most recent studies – those of Burbidge, Magee and Robb (2002) and Boudarbat, Lemieux and Riddell (2006). Another important contribution of the paper is to update earlier work using the recently released 2006 Census. We also examine the evolution of the returns to experience and estimate the returns to education for a broader set of outcomes such as annual earnings, annual weeks of work, and the probability of being employed any time over an entire year.

Our analysis is based on the Census because it allows a long time perspective, and provides consistent information on educational attainment, as well as labour market outcomes over the sample period. In addition, we focus on “adults” age 16 to 65 and use weekly wage and salary earnings of full-time workers as our main measure of wages. However, we also examine the impact on results of using broader earnings measures.

Our investigation with Census data yields several noteworthy findings. For men, the economic returns to education – as measured by the skill premium relative to high school graduates -- increased between 1980 and 2005. For example, we find that the raw BA-high school differential rose from 32 percentage points in 1980 to 40 percentage points in 2005. Most of this rise took place in the early 1980s and since 1995. When we control for differences in years of potential experience, the male BA-high school differential also increases by 8 percentage points and, unlike the unadjusted wage gap, it shows an overall positive trend over the period. In addition, throughout the period there is steady growth in (adjusted) returns to schooling among all education groups above high school graduates. The adjusted differential rises by 8 percentage points for non-university post-secondary graduates and 6 percentage points for those with a university post-graduate or professional degree.

This finding contrasts with conclusions of studies based on Survey of Consumer Finance data that show little change in returns to education for men during the 1980s and 1990s. However, the rise in the return to education among Canadian men, while significant, is much less dramatic than that experienced in the U.S.

The results for women are quite different from those for men. First, returns to education are systematically larger than for men. Second, among women the growth in the returns to education beyond high school has been less dramatic. The adjusted wage differentials increase over the period 1980-2005, but the increases are more modest than those for men – growth of 3 percentage points for the non-university post-secondary and university post-graduate categories and 6 percentage points for university bachelor's degree graduates. Given the smaller changes in education wage differentials for females, there has been some convergence between the returns to education of men and women. However, returns to education remain larger for women than men.

Regarding returns to work experience, our results show that the wage gap between younger (age 16-25 or 26-35) and older (age 46-55) men expanded between 1980 and 1995. During the subsequent period 1995-2005 the earnings of young workers kept pace with those of older workers, and the gap stabilized. Results for women are similar —substantial increases in wage inequality by age between 1980 and 1995, followed by relative stability (albeit some further widening) in age-wage differentials. In contrast to the case of education, returns to experience are lower for women than for men.

Adjusting for experience and using the consistent and larger samples from the Census appear to account for the bulk of the difference between the results of this paper as well as Boudarbat, Lemieux and Riddell (2006) and those of Burbidge, Magee and Robb (2002). In contrast, using means (as is done in this paper) or medians (as is done by Burbidge et. al.) plays a very small role.

The use of broader earnings measures – such as including self-employment earnings, using weekly earnings of all workers, or using annual earnings of full-time workers -- does not alter the principal findings from our benchmark analysis based on weekly wage

and salary earnings of full-time workers. However, the use of broader measures does increase the magnitudes of the estimated returns, in some cases quite substantially. These increases in the magnitudes of the returns arise because higher education is associated with the quantity of work – as well as a “skill premium.” The use of broader measures also tends to result in greater growth in the return to education over the period 1980-2005.