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The Evolution of the Returns to Human Capital in Canada, 1980-2006

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Abstract

This paper examines the evolution of the returns to human capital in Canada over the period 1980-2006. Most of the analysis is based on Census data, and on weekly wage and salary earnings of full-time workers. Our main finding is that the returns to education increased substantially for Canadian men between 1980 and 2000, in contrast to conclusions reached in previous studies. For example, the adjusted wage gap between men with exactly a bachelors' degree and men with only a high school diploma increased from 34 percent to 43 percent during this period. Most of this rise took place in the early 1980s and late 1990s. Returns to education also rose for Canadian women, but the magnitudes of the increases were more modest. For instance, the adjusted BA-high school wage differential among women increased about 4 percentage points between 1980 and 1985 and remained stable thereafter. Results based on Labour Force Survey data show the upward trend in returns to education has recently been reversed for both men and women. Another important development is that after fifteen years of expansion (1980-1995), the return to work experience measured by the wage gap between younger and older workers declined between 1995 and 2000. Finally, we find little difference between measures based on means and those based on medians of log wages for both genders. Also, 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 main conclusions from the analysis based on weekly wage and salary earnings of full-time workers.

JEL Classification: J24, J31

Key words: Human Capital, Wage Differentials, Returns to Education, Canada

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Executive Summary

This paper examines the evolution of the returns to human capital in Canada over the period 1980-2006. While particular emphasis is given to the returns to education, the evolution of the returns to experience is also examined.

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 made by 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. 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 principal 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). We also update earlier work to incorporate data since 2000 and examine the evolution of the returns to experience.

Most of 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. However, available data cover the 1980-2000 period only. To obtain recent information and, at the same time, to check the consistency of the findings from the Census, we also use data from the Labour Force Survey (LFS) from 1997 to 2006, and from the Survey of Labour and Income Dynamics (SLID) from 1996 to 2004. 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 our results of using broader earnings measures.

Our investigation with Census data yields several conclusions. For men, returns to education – as measured by the skill premium relative to high school graduates -- have been increasing between 1980 and 2000. For example, we

find that the raw BA-high school differential rose from 32 percentage points in 1980 to 38 percentage points in 2000. Most of this rise took place in the early 1980s and late 1990s. The BA-high school differential expands when we control for differences in years of potential experience, and, unlike the unadjusted wage gap, it shows an overall positive trend over the period, going from 34 percent in 1980 to 43 percent in 2000. The growth in (adjusted) wage differentials occurs steadily throughout the period and among all education groups above high school graduates.

This finding contrasts with conclusions of studies based on SCF data that show little change in returns to education for men during the 1980s and 1990s. The rise in the return to education among Canadian men, while significant, is, however, 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, most education wage differentials among women have been relatively constant over time. The adjusted wage differentials increase over the period 1980-2000, but the increases are not substantial – growth of 2 to 4 percentage points for most education categories. Given the modest 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 and older men expanded between 1980 and 1995. During the subsequent period 1995-2000 young workers did relatively well in terms of earnings, and the gap narrowed. Results for women show similar trends over the period. In contrast to the case of education, the 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 our results 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 modest 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 of the impact of education 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 a larger amount 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 1980-2000.

Finally, results from the two alternative data sources (LFS and SLID) support our findings based on the Census data. Indeed, estimated returns to education based on weekly earnings of full-time workers from the LFS are broadly similar to those obtained with Census data. The equivalent results based on data from the SLID are also generally consistent with those based on the Census, showing growth in the returns to education from 1996 to the early 2000s. Interestingly, results for the post 2000 period, which is not covered by Census data, show a downward trend in the BA-high school wage gap starting in 2003. Thus some of the growth in the return to education over the period 1980-2000 appears to have recently been reversed. The causes of this reversed trend and its impacts on university participation, are interesting subjects for future research.