

Education and Lifetime Income for Aboriginal People in Saskatchewan

by

Professor Eric Howe

Department of Economics

University of Saskatchewan

citation information:

Eric Howe: "Education and Lifetime Income for Aboriginal People in Saskatchewan," in Jerry P. White, Paul Maxim and Dan Beavon, eds., *Aboriginal Policy Research: Setting the Agenda for Change, Volume I*. Toronto: Thompson Educational, 2004, pp. 175-189.

Address: Professor Eric Howe
Department of Economics
University of Saskatchewan
9 Campus Drive
Saskatoon, Saskatchewan S7N 5A5
Canada

Phone: (306)966-5212
Fax: (306)966-5232
Email: eric.howe@usask.ca

September 2002

Education and Lifetime Income for Aboriginal People in Saskatchewan¹

Abstract

Saskatchewan's Aboriginal people achieve a high rate of financial return on their educational investment. This paper calculates the average lifetime earnings of Aboriginal males and females contingent on whether or not they earn a highschool diploma, attend technical school, or attend university. The results are summarized in Table 11, toward the end of this paper. It shows, for example, that an Aboriginal male who drops out of school gives up over \$0.5 million. An Aboriginal female can earn over \$1 million by obtaining a highschool diploma and then attending university, but will earn less than \$90,000 in her lifetime if she drops out of highschool. These results have important implications for Aboriginal young people making educational decisions, for Aboriginal households deciding how much to encourage young people educationally, for the funding of educational programs targeting Aboriginal people, and for the economic future of Saskatchewan.

¹I am indebted to so many individuals and organizations that it is impractical to mention them all. Three who must be mentioned, however, are Jack Stabler, Professor at the University of Saskatchewan, for involving me with Aboriginal issues in the arctic starting in the 1980's, Kelly Lendsay, President of Aboriginal Human Resources Development Council of Canada, for involving me with Aboriginal issues in southern Canada starting in the early 1990's, and Robert Kennedy, QC, Barrister and Solicitor, for getting me interested in the subject of this paper in the summer of 2002. I am also grateful to seminar participants at the University of Saskatchewan Centre for the Study of Co-operatives for useful discussion. None of these helpful people, however, should be blamed for any remaining errors.

Introduction

There is a substantial literature on the financial return to education. A good, recent summary of the literature can be found in Ashenfelter and Rouse (2000), which contains Figure 1. Figure 1 shows the financial rate of return to education by sex and ethnicity.

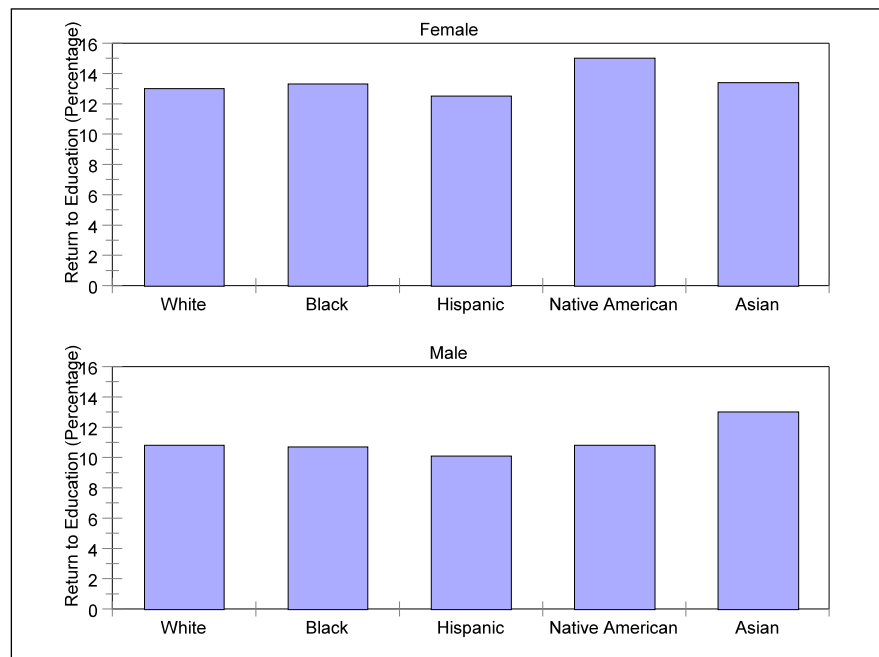
Note from Figure 1 that women

have a higher rate of return than men. This fact will be relevant below, so it is useful to ask why the data are like that. Women, as is well known, make about one-third less than men in Canada.

However, women with

higher levels of education make very similar amounts. Why is the rate of return to education higher for women? Both males and females experience positive returns—the more education the higher average earnings—but women also benefit from catching up to men. Consequently, women receive a double benefit from education. Their earnings rise because average earnings rise with education, but they also rise because they are catching up with men.

Figure 1. The Return to Education by Sex and Race/Ethnicity (Source: Ashenfelter and Rouse [2000], p. 105)



Similarly for Aboriginal People. Note in Figure 1 that Aboriginal people have among the highest rates of return to education.² Why? Just as in the analysis of women, Aboriginal people earn less than Nonaboriginal people. But the difference largely disappears for higher levels of education. Consequently, Aboriginal people receive a double benefit from education.

In fact, the rate of return for Aboriginal women is truly extraordinary because they receive a triple benefit from education. Their earnings rise because average earnings rise with education, and also rise because they are catching up with men, and also rise because they are catching up with Nonaboriginal earnings.

Although it is useful and interesting, the analysis summarized in Figure 1 has significant shortcomings. Foremost, the rates of return in Figure 1 are for postsecondary education alone. Figure 1 says nothing about the financial value of a highschool diploma. However, a fundamental educational decision for many Aboriginal people in Canada is whether to persist and receive a highschool diploma. (Correspondingly, a fundamental household decision for Aboriginal households is how much support and encouragement to provide—and what sacrifices to make—for young people making educational decisions.)

Moreover, the results in Figure 1 say nothing about the return to different types of postsecondary education. For example, the results in Figure 1 say nothing about the return to attending a postsecondary technical school as opposed to a University. Figure 1 combines all forms of postsecondary education, whether Law School, Medical School, University, or learning to be a heavy equipment operator.

²In particular, the highest rate of return is for Aboriginal females. Among men, Aboriginal males are in a tie for second place.

Like most of the analyses in the literature, the result shown in Figure 1 are derived using data from the United States. It would be useful to know what the results are for Canada.

Finally, the results shown in Figure 1 are not compelling for most young people. You would certainly get my attention if I were shown that I could make a fifteen percent return on an investment. However, the same thing is not true of many young people, afflicted with inexperience and with the impatience of youth.

Consequently, the purpose of this paper is to analyze return to education for Aboriginal people in Saskatchewan. We will calculate lifetime earnings for an average Aboriginal male or female if they:

- drop out before finishing highschool;
- get a secondary school diploma;
- attend a nonuniversity postsecondary institution (i.e. a technical school); or
- attend university.

The answer will, of course, depend on the age of the Aboriginal person; I will assume arbitrarily that they are thirteen in 2002. I will analyze earnings from wages and salaries, which make up the largest part of income for both Aboriginal and Nonaboriginal people.

The data

The principal source of data will be the Microdata Files for the Census of Canada. These files show the responses of a scientific sample of the one in five Canadians who receive the Census long form. For the 1996 Census Microdata Files, one in 38 Canadian residents are

included in the Microdata files; for 1991, one in 33.3 are included. There are 27,128 Saskatchewan residents in the Microdata Files in 1996 and 29,282 in 1991. The breakdown of the total into male and female, and into Aboriginal and Nonaboriginal are shown in Table 1 for those who are of labour force age.³

Table 1. The Number Individuals in the Census Microdata Files for Saskatchewan

	Labour Force Age Male		Labour Force Age Female	
	Aboriginal	Nonaboriginal	Aboriginal	Nonaboriginal
1991	434	10,401	525	10,728
1996	509	9,583	620	9,968

At the time of this writing, the Microdata Files for the 2001 Census are not available.

Prior to 1991, the Census of Canada Microdata Files do not include Aboriginal status.

There are four principal categories of Aboriginal People in Canada: Registered Indians, Unregistered Indians, Metis, and Inuit. Moreover, there are fascinating issues associated with the distinction between Aboriginal identity and Aboriginal origin. In fact, many of these issues of categorization have been critical to aspects of my earlier research into Aboriginal economic development (see Lendsay, Painter, and Howe [2000 and 1997] and Stabler and Howe [1991 and 1990]). However, for this paper, the data on Aboriginal people will be that for Registered Indians. That is to simplify the analysis, not to deny the Aboriginal identity of other Aboriginal people.

³Following Statistics Canada, labour force age is taken to be 15. Prior to age 15, Statistics Canada does not keep track of labour market outcomes.

The Data Analysis

We need to analyze eight different types of individual: males and females with each of four educational outcomes. As noted, each type of individual is assumed to be thirteen in 2002, so they will reach labour force age in 2004, and will be assumed to retire when they reach 65 in 2054. Between 2004 and 2054, for each individual, we need to quantify four variables: their employed earnings,⁴ labour force participation rate, unemployment rate, and survival rate. Annual earnings will then be their employed earnings times the participation rate times one minus the unemployment rate times the survival rate. Lifetime earnings will be the cumulation of annual earnings.

Only one of these variables can be treated straightforwardly: survival rates. Standard life expectancy data were used, as given in Court of Queen's Bench (2000). These were used to compute survival rates.

For the other variables—the participation rate, unemployment rate and wage rate—we will use the following procedure. The life-cycle patterns of these variables are changing dramatically for Aboriginal people, so we will use data on Nonaboriginal people to measure life-cycle patterns. Then we will apply multiplicative factors to each variable to adjust for aggregate differences between Aboriginal people and Nonaboriginal people. Then we will use multiplicative factors to adjust for differences between Aboriginal people at differing levels of education.

⁴That is, what their earnings would have been if they had been employed. This includes earnings from both fulltime and parttime employment.

As noted, employed earnings, the participation rate, and the unemployment rate vary over an individual's lifetime. This variation is shown, compiled from the 1996 Census Microdata Files, for Nonaboriginal residents of Saskatchewan in Table 2.

Table 2. The participation rate, the unemployment rate, and wage rate for Nonaboriginal residents of Saskatchewan, by age

Age Cohort	Participation Rate		Unemployment Rate		Wage Rate	
	Male	Female	Male	Female	Male	Female
15-20	0.28073	0.23925	12.57%	15.63%	\$5,116.03	\$3,772.12
21-25	0.53376	0.49958	14.76%	12.23%	\$16,063.46	\$11,313.45
26-30	0.73125	0.67632	9.26%	7.65%	\$26,354.27	\$17,569.70
31-35	0.77679	0.66391	5.29%	6.36%	\$32,299.97	\$18,716.64
36-40	0.80842	0.74062	5.01%	4.85%	\$34,296.34	\$20,301.75
41-45	0.81593	0.76133	3.36%	2.92%	\$36,728.05	\$22,058.09
46-50	0.87097	0.75429	3.44%	2.73%	\$37,197.27	\$23,113.02
51-55	0.82448	0.69894	3.58%	4.98%	\$35,566.96	\$20,599.53
56-60	0.65462	0.50977	5.52%	5.11%	\$29,690.52	\$16,947.00
61-65	0.31533	0.12635	4.97%	3.57%	\$16,542.83	\$9,672.18

Refer to the data for males in Table 2. Note that the participation rate rises rapidly in the twenties, but continues to rise until later in life. Then beginning in the 50's, the participation rate begins to fall as people begin to take early retirement. The pattern of the unemployment rate is similar, mostly falling over an individual's lifetime. It is somewhat higher in the early twenties than in the late teens because individuals are seeking careers in their twenties whereas they were seeking jobs in their late teens. The unemployment rate begins to rise again beginning in the 50's because older workers can have difficulty finding a new job if they become unemployed at that age. The unemployment rate falls again in the 60's because individuals who become unemployed in their 60's are more likely to simply retire and drop out of the job market. The wage rate increases over an individual's life until they reach their 50's, when it begins to fall. This fall is

brought about by the fact that higher wage individuals are more likely to take early retirement and drop from the sample; because some individuals' knowledge becomes less current so they are paid less; and because individuals in this age range who become unemployed may have to take substantial wage cuts in order to be re-employed.

Examining the data for females in Table 2, note that the results are broadly similar to the results for males. The participation rate is somewhat lower because it is more common for women to not work outside the home; and does not climb as rapidly in the 20's because women are more likely to stay at home to raise their young children. The unemployment rate tends to be similar and follows a similar pattern. In Saskatchewan, the wage rates for women tend to be about 60% of that for men.

Following our methodology, we need to compute multiplicative adjustments to correct the above results for the average differences between labour market outcomes for Aboriginal and Nonaboriginal people. We will discuss participation rates first, then unemployment rates and then wage rates.

Table 3 shows the average labour force participation rate for residents of Saskatchewan, compiled from the 1991 and 1996 Census Microdata files. Here we see an Aboriginal participation rate that is tending toward the rate for Nonaboriginals. Our hypothetical Aboriginal individuals, who are 13 in 2002, will not be labour-force age until 2004, by which time the difference in labour-force participation rates is expected to be eliminated.

Table 3. Average Labour Force Participation Rates for Residents of Saskatchewan

	Male			Female		
	Aboriginal	Nonaboriginal	Ratio	Aboriginal	Nonaboriginal	Ratio
1991	61.14%	82.68%	1.35	41.81%	66.57%	1.59
1996	68.05%	80.14%	1.18	51.97%	66.17%	1.27

Before leaving the analysis of Table 3, note the rapid increase in the female Aboriginal participation rate. Between 1991 and 1996—just five years—the rate increased by a quarter from 42% to 52%. This observation will be important below in the analysis of unemployment rates and wage rates.

Table 4 shows the average unemployment rate for residents of Saskatchewan, compiled from the 1991 and 1996 Census Microdata files. For males, the data are straightforward, the Aboriginal unemployment rate is tending toward the rate for Nonaboriginals. The ratio of the two rates decreases from 5.652 to 4.881 in five years. This implies a 2.891% decrease in the ratio per year.

Table 4. Average Unemployment Rates for Residents of Saskatchewan

	Male			Female		
	Aboriginal	Nonaboriginal	Ratio	Aboriginal	Nonaboriginal	Ratio
1991	30.432%	5.384%	5.65	22.66%	6.31%	3.59
1996	31.408%	6.434%	4.88	28.27%	6.71%	4.21

For females, the data are more complicated. The large increase in the Aboriginal female labour force participation rate shown in Table 3 drove up the Aboriginal female unemployment rate. The ratio of the two increases from significantly below the male to marginally below the male. Consequently, in the following analysis, I supposed that the multiple for Aboriginal females will rise to the multiple for Aboriginal males and then decrease following the same pattern, which is given in Figure 2.

Examining Figure 2, the ratio of the Aboriginal to Nonaboriginal unemployment rate is expected to gradually decline. The two rates will be equal just after the middle of the 21st Century.

Figure 2. Ratio of Aboriginal to Nonaboriginal Unemployment Rates for Male and Female Residents of Saskatchewan

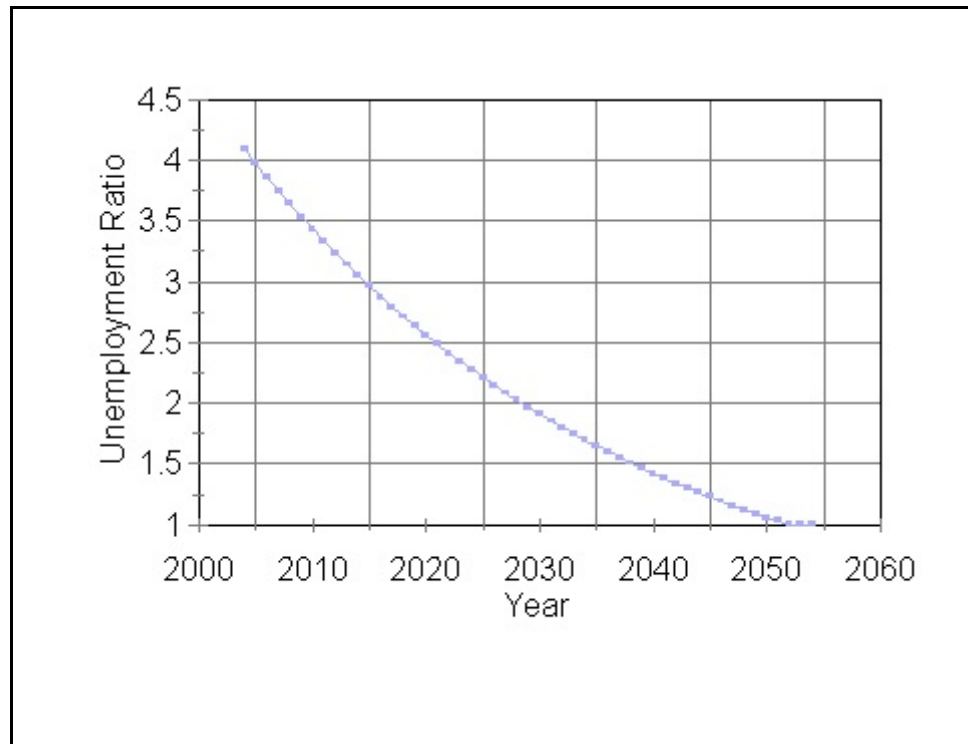


Table 5

shows the average wage rate for residents of Saskatchewan, compiled from the 1991 and 1996 Census Microdata files. Again, the data for males are relatively straightforward. Here we see that the ratio increased from .4579 to .4853 in five years, for a 1.169% increase per year. However, again because of the rapid increase in the Aboriginal female participation rate, the Aboriginal female wage rate actually decreased. Again, I regarded this as a movement toward the result for

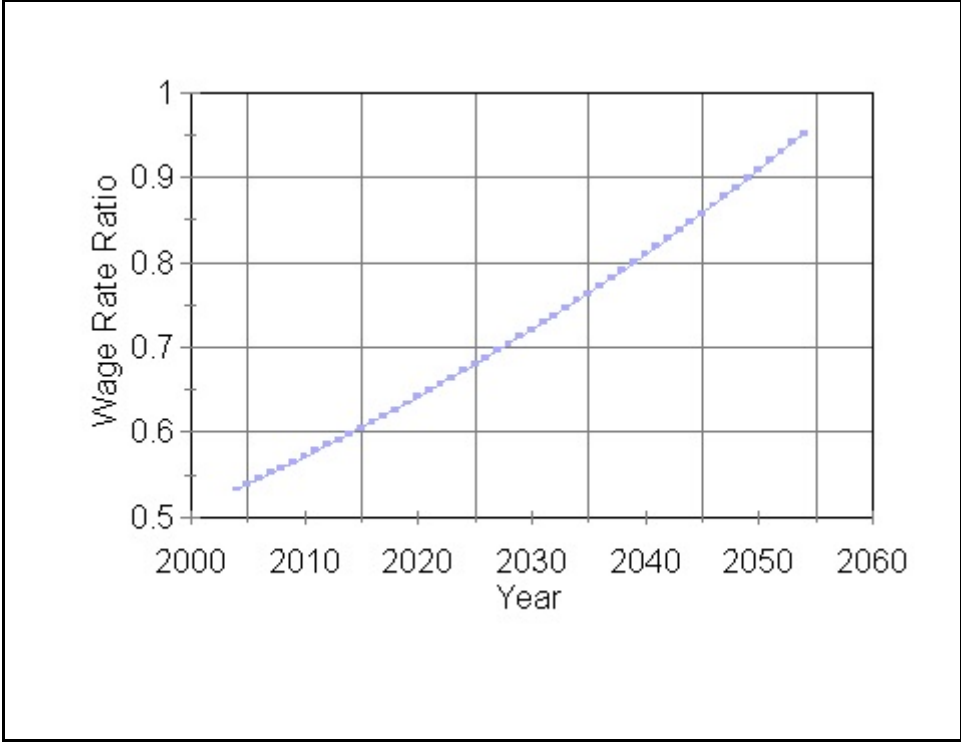
males, and the female rate was predicted to follow that for males, so the same ratio was used for both sexes. The ratio is shown in Figure 3.

Table 5. Average Wage Rates for Employed Residents of Saskatchewan

	Male			Female		
	Aboriginal	Nonaboriginal	Ratio	Aboriginal	Nonaboriginal	Ratio
1991	\$11,971.54	\$26,147.44	.4579	\$12,132.87	\$14,592.24	.8314
1996	\$13,951.34	\$28,750.74	.4853	\$11,744.84	\$16,779.67	.6999

Examining Figure 3, the ratio of Aboriginal to Nonaboriginal wage rates is expected to gradually increase, but wage differences will persist and wage parity will not be achieved even by the middle of the 21st Century.

Figure 3. Ratio of Aboriginal to Nonaboriginal Wage Rates for Male and Female Residents of Saskatchewan



In addition to the above, multiplicative adjustments are required for the relationship between the labour market outcomes for Aboriginal people with differing levels of education. All are compiled from the 1996 Census Microdata files. Table 6 provides the multiplicative adjustments for the participation rate, Table 7, the unemployment rate, and Table 8, the wage rate.

Table 6. The participation rate contingent on education levels, for Aboriginal residents of Saskatchewan

Education Level	Participation Rate	Ratio to Each Sex's Aboriginal Average
Male		
Stopped Education Prior to High School Graduation	39.39%	.57889
Graduated From High School	68.00%	.99925
Attended Nonuniversity Postsecondary Institution.	84.81%	1.24627
Attended University	80.00%	1.17559
Female		
Stopped Education Prior to High School Graduation	16.76%	.32238
Graduated From High School	50.00%	.96203
Attended Nonuniversity Postsecondary Institution	64.95%	1.24964
Attended University	76.19%	1.46595

Table 7. The unemployment rate contingent on education levels, for Aboriginal residents of Saskatchewan

Education Level	Unemployment Rate	Ratio to Each Sex's Aboriginal Average
Male		
Stopped Education Prior to High School Graduation	47.7%	1.51849
Graduated From High School	20.6%	.65551
Attended Nonuniversity Postsecondary Institution.	29.9%	.95042
Attended University	27.5%	.87558
Female		
Stopped Education Prior to High School Graduation	39.683%	1.40376
Graduated From High School	33.333%	1.17915
Attended Nonuniversity Postsecondary Institution.	23.810%	.84255
Attended University	16.250%	.57434

Table 8. The wage rate contingent on education levels, for Aboriginal residents of Saskatchewan

Education Level	Wages	Ratio to Each Sex's Aboriginal Average
Male		
Stopped Education Prior to High School Graduation	\$9,870.72	.70751
Graduated From High School	\$12,953.21	.92846
Attended Nonuniversity Postsecondary Institution.	\$14,831.98	1.06312
Attended University	\$18,149.46	1.30091
Female		
Stopped Education Prior to High School Graduation	\$7,300.15	.62156
Graduated From High School	\$7,584.35	.64576
Attended Nonuniversity Postsecondary Institution	\$12,350.93	1.05160
Attended University	\$19,743.95	1.68107

A final adjustment is necessary to allow for the economic growth which will occur between now and the middle of the 21st Century. The Saskatchewan Bureau of Statistics estimates wage income in Saskatchewan in its Income and Product Accounts. These amounts were converted to constant dollars using the Consumer Price Index from Statistics Canada. Statistics Canada also provides estimates of Saskatchewan employment in its Labour Force

Survey. The ratio—real wages per employee—increases by 0.655% per year, which was used for the growth in the overall real wage rate. The Consumer Price Index was also used to convert the above 1991 and 1996 wage rates to 2002 Dollars.

Annual Earnings

Using data from the previous section of this paper, it is possible to estimate annual earnings for Aboriginal people in Saskatchewan. There are eight separate sets of computations: there are four educational categories and for each there are separate computations for males and females.

All eight sets of computations are available on request but only two are produced in this paper. Table 9 shows the computation of lifetime earnings for an Aboriginal male who drops out before receiving his highschool diploma. Table 10 shows the computation for an Aboriginal female dropout.

Refer first to Table 9. The first column shows the individual's age and the second shows the year. The third column shows the wage rate, which for each year is obtained as a product of the following five terms:

1. The Nonaboriginal male wage rate for the appropriate age, from Table 2;
2. The Aboriginal wage rate adjustment ratio, from Figure 3;
3. The Consumer Price Index to obtain 2002 dollars;
4. The Aboriginal male education adjustment ratio, from Table 8; and
5. The wage growth rate adjustment.

Table 9. Earnings for an Aboriginal male if he dropped out prior to completing high school, measured in 2002 dollars

Age	Year	Wage Rate	Participation Rate	Unemployment Rate	Survival Rate	Adjusted Earnings
15	2004	\$2,343	0.16251	78.1%	0.9976	\$83
16	2005	\$2,386	0.16251	75.9%	0.9959	\$93
17	2006	\$2,430	0.16251	73.7%	0.9939	\$103
18	2007	\$2,474	0.16251	71.5%	0.9918	\$114
19	2008	\$2,520	0.16251	69.5%	0.9896	\$124
20	2009	\$2,566	0.16251	67.5%	0.9872	\$134
21	2010	\$8,204	0.30899	76.9%	0.9849	\$576
22	2011	\$8,354	0.30899	74.7%	0.9826	\$642
23	2012	\$8,507	0.30899	72.5%	0.9803	\$707
24	2013	\$8,663	0.30899	70.4%	0.9784	\$774
25	2014	\$8,822	0.30899	68.4%	0.9764	\$841
26	2015	\$14,738	0.42331	41.7%	0.9748	\$3,547
27	2016	\$15,008	0.42331	40.5%	0.9731	\$3,680
28	2017	\$15,283	0.42331	39.3%	0.9714	\$3,815
29	2018	\$15,563	0.42331	38.2%	0.9699	\$3,951
30	2019	\$15,848	0.42331	37.1%	0.9684	\$4,089
31	2020	\$19,779	0.44968	20.6%	0.9669	\$6,831
32	2021	\$20,142	0.44968	20.0%	0.9650	\$6,995
33	2022	\$20,511	0.44968	19.4%	0.9634	\$7,163
34	2023	\$20,886	0.44968	18.8%	0.9618	\$7,332
35	2024	\$21,269	0.44968	18.3%	0.9599	\$7,501
36	2025	\$22,997	0.46799	16.8%	0.9581	\$8,579
37	2026	\$23,418	0.46799	16.3%	0.9561	\$8,769
38	2027	\$23,847	0.46799	15.8%	0.9538	\$8,958
39	2028	\$24,284	0.46799	15.4%	0.9514	\$9,149
40	2029	\$24,729	0.46799	14.9%	0.9485	\$9,336
41	2030	\$26,967	0.47233	9.7%	0.9457	\$10,872
42	2031	\$27,461	0.47233	9.5%	0.9423	\$11,066
43	2032	\$27,964	0.47233	9.2%	0.9389	\$11,261
44	2033	\$28,476	0.47233	8.9%	0.9353	\$11,458
45	2034	\$28,998	0.47233	8.7%	0.9317	\$11,655
46	2035	\$29,906	0.50420	8.6%	0.9277	\$12,784
47	2036	\$30,454	0.50420	8.4%	0.9235	\$12,995
48	2037	\$31,012	0.50420	8.1%	0.9190	\$13,203
49	2038	\$31,580	0.50420	7.9%	0.9143	\$13,410
50	2039	\$32,158	0.50420	7.7%	0.9088	\$13,607
51	2040	\$31,312	0.47728	7.7%	0.9032	\$12,454
52	2041	\$31,886	0.47728	7.5%	0.8967	\$12,621
53	2042	\$32,470	0.47728	7.3%	0.8900	\$12,786
54	2043	\$33,064	0.47728	7.1%	0.8823	\$12,938
55	2044	\$33,670	0.47728	6.9%	0.8737	\$13,075
56	2045	\$28,622	0.37895	10.3%	0.8649	\$8,415
57	2046	\$29,146	0.37895	10.0%	0.8551	\$8,499
58	2047	\$29,680	0.37895	9.7%	0.8445	\$8,576
59	2048	\$30,224	0.37895	9.4%	0.8333	\$8,643
60	2049	\$30,777	0.37895	9.2%	0.8213	\$8,701
61	2050	\$17,462	0.18254	8.0%	0.8082	\$2,370
62	2051	\$17,782	0.18254	7.8%	0.7947	\$2,379
63	2052	\$18,108	0.18254	7.6%	0.7795	\$2,382
64	2053	\$18,440	0.18254	7.5%	0.7639	\$2,377
65	2054	\$18,777	0.18254	7.5%	0.7470	\$2,367

Table 10. Earnings for an Aboriginal Female if she dropped out prior to completing high school, measured in 2002 dollars

Age	Year	Wage Rate	Participation Rate	Unemployment Rate	Survival Rate	Adjusted Earnings
15	2004	\$1,469	0.07713	89.8%	0.9989	\$12
16	2005	\$1,496	0.07713	87.2%	0.9982	\$15
17	2006	\$1,523	0.07713	84.7%	0.9975	\$18
18	2007	\$1,551	0.07713	82.2%	0.9967	\$21
19	2008	\$1,580	0.07713	79.8%	0.9959	\$24
20	2009	\$1,609	0.07713	77.5%	0.9953	\$28
21	2010	\$4,913	0.16106	58.9%	0.9944	\$323
22	2011	\$5,003	0.16106	57.2%	0.9937	\$343
23	2012	\$5,094	0.16106	55.6%	0.9931	\$362
24	2013	\$5,188	0.16106	54.0%	0.9925	\$382
25	2014	\$5,283	0.16106	52.4%	0.9918	\$402
26	2015	\$8,354	0.21803	31.8%	0.9913	\$1,231
27	2016	\$8,507	0.21803	30.9%	0.9907	\$1,270
28	2017	\$8,663	0.21803	30.0%	0.9900	\$1,309
29	2018	\$8,822	0.21803	29.1%	0.9892	\$1,348
30	2019	\$8,983	0.21803	28.3%	0.9882	\$1,388
31	2020	\$9,745	0.21403	22.8%	0.9873	\$1,589
32	2021	\$9,924	0.21403	22.2%	0.9860	\$1,630
33	2022	\$10,105	0.21403	21.5%	0.9850	\$1,671
34	2023	\$10,291	0.21403	20.9%	0.9838	\$1,713
35	2024	\$10,479	0.21403	20.3%	0.9827	\$1,756
36	2025	\$11,575	0.23876	15.0%	0.9816	\$2,305
37	2026	\$11,787	0.23876	14.6%	0.9805	\$2,356
38	2027	\$12,003	0.23876	14.2%	0.9792	\$2,408
39	2028	\$12,222	0.23876	13.8%	0.9778	\$2,460
40	2029	\$12,446	0.23876	13.4%	0.9764	\$2,513
41	2030	\$13,771	0.24544	7.8%	0.9749	\$3,038
42	2031	\$14,023	0.24544	7.6%	0.9732	\$3,095
43	2032	\$14,280	0.24544	7.4%	0.9712	\$3,153
44	2033	\$14,541	0.24544	7.2%	0.9691	\$3,211
45	2034	\$14,808	0.24544	6.9%	0.9670	\$3,270
46	2035	\$15,800	0.24317	6.3%	0.9646	\$3,472
47	2036	\$16,090	0.24317	6.1%	0.9618	\$3,533
48	2037	\$16,384	0.24317	6.0%	0.9590	\$3,594
49	2038	\$16,684	0.24317	5.8%	0.9561	\$3,655
50	2039	\$16,990	0.24317	5.6%	0.9532	\$3,717
51	2040	\$15,420	0.22533	9.9%	0.9499	\$2,972
52	2041	\$15,702	0.22533	9.7%	0.9464	\$3,025
53	2042	\$15,990	0.22533	9.4%	0.9426	\$3,078
54	2043	\$16,283	0.22533	9.1%	0.9384	\$3,129
55	2044	\$16,581	0.22533	8.8%	0.9340	\$3,181
56	2045	\$13,891	0.16434	8.8%	0.9288	\$1,933
57	2046	\$14,145	0.16434	8.6%	0.9239	\$1,964
58	2047	\$14,404	0.16434	8.3%	0.9181	\$1,992
59	2048	\$14,668	0.16434	8.1%	0.9124	\$2,022
60	2049	\$14,937	0.16434	7.8%	0.9063	\$2,050
61	2050	\$8,681	0.04073	5.3%	0.8999	\$301
62	2051	\$8,840	0.04073	5.2%	0.8930	\$305
63	2052	\$9,002	0.04073	5.0%	0.8858	\$309
64	2053	\$9,167	0.04073	5.0%	0.8776	\$311
65	2054	\$9,335	0.04073	5.0%	0.8691	\$314

The fourth column shows the labour force participation rate, which for each year is obtained as a product of the following two terms:

1. The Nonaboriginal male participation rate for the appropriate age, from Table 2; and
2. The Aboriginal male education adjustment ratio, from Table 6.

The fifth column shows the unemployment rate, which for each year is obtained as a product of the following three terms:

1. The Nonaboriginal male unemployment rate for the appropriate age, from Table 2;
2. The Aboriginal male unemployment adjustment ratio, from Figure 2; and
3. The Aboriginal male education adjustment ratio, from Table 7.

The sixth column shows the survival rates from the standard mortality tables. The seventh column computes average annual earnings as the following product:

1. Column 3;
2. Column 4;
3. One minus column 5; and
4. Column 6.

The accumulated value of the seventh column yields lifetime earnings.

Table 10 is computed similarly, using data for females.

Lifetime Earnings

Lifetime earnings of an Aboriginal male and female are summarized in Table 11. One of the notable results from Table 11 is the extraordinary return to education achieved by Aboriginal people in Saskatchewan. An Aboriginal dropout lives an economically marginalized life in which

the male earns only a little more than a third of a million dollars, and the female earns less than 90 thousand dollars. That is over an entire lifetime! If however they persist through university or technical school, they receive up to fourteen times more!

Table 11. Aboriginal lifetime earnings in Saskatchewan

	Male Lifetime Earnings	Female Lifetime Earnings
An Aboriginal person drops out of school prior to receiving a highschool diploma, and does not subsequently obtain a highschool equivalency	\$344,781	\$89,502
An Aboriginal person obtains a highschool diploma either by graduation or by subsequently completing highschool equivalency, with no further formal education	\$861,636	\$294,350
An Aboriginal person attends a program at a non-university postsecondary institution (a technical school), with no further formal education	\$1,191,146	\$646,904
An Aboriginal person attends a program at a university	\$1,386,434	\$1,249,246

Another remarkable feature of Table 11 is the difference between the earnings of males and females. An Aboriginal male who contemplates dropping out of highschool experiences a drop in his lifetime earnings of

$$\$861,636 - \$344,781 = \$516,855$$

Financially, a male's most important single educational decision is whether to get a highschool diploma. On the other hand, the situation for an Aboriginal female is decidedly different. She is economically marginalized with lifetime earnings of less than \$90,000 without a highschool diploma. Her lifetime earnings more than triples with a highschool diploma. However, in order to achieve (approximate) income parity with her male counterpart, she has to go to university. She will still earn less (principally because female participation rates are lower) but only ten percent less. Only by going to University will she be able to earn more than a million dollars in lifetime earnings. This would seem to be a factor explaining why Aboriginal females typically outnumber Aboriginal males at university. At the University of Saskatchewan's College of Arts and Science, Aboriginal females outnumber Aboriginal males by nearly two to one.

In order for the above analysis to influence the behaviour of Aboriginal youth as they make educational decisions, it is necessary to state the numbers in a way Aboriginal children will find compelling.⁵ Moreover, the information must be provided at a very young age. Thus, note the following. A brand new, fully loaded Ford F150 Supercab , XLT, 4x4 with a 5.4l V-8 Engine costs \$38,600, so for an Aboriginal male to drop out is equivalent of owning

$$\frac{\$861,636 - \$344,781}{\$38,600} = 13$$

of these and pushing them off a cliff! For an Aboriginal female, dropping out as opposed to obtaining a diploma and then attending university is equivalent to owning

⁵I am indebted for this point to Allan Blakney, former premier of Saskatchewan, who observed that many educational decisions are made when children who are very young. It would be unfortunate for example if the above results are only compelling to Aboriginal people who are in grade twelve, since important educational decisions are made long before grade twelve.

$$\frac{\$1,249,246 - \$89,502}{\$38,600} = 30$$

of these trucks and pushing them off a cliff!

Although the above analysis is in terms of educational choices, it also has important implications for reproductive choices. If a young Aboriginal woman gets pregnant before she earns her highschool diploma, both she and her partner may well end up dropping out of school, which condemns the couple and their child to a life of poverty. If they drop out, the couple will only have lifetime earnings of:

$$\$344,781 + \$89,502 = \$434,283$$

On the other hand, if they postpone having children until they both receive their highschool diplomas, that will yield lifetime earnings for the couple of:

$$\$861,636 + \$294,350 = \$1,155,986$$

If they both attend technical school, they will have lifetime earnings of:

$$\$1,191,146 + \$646,904 = \$1,837,050$$

If they both attend university, they will have lifetime earnings of:

$$\$1,386,434 + \$1,249,246 = \$2,635,680$$

When young people have a child and allow that to end their formal education, they are not doing what is best for themselves or their child.

The above analysis has important implications for the funding of educational programs to enhance the opportunities and increase the success rates for Aboriginal people. Income forgone to an individual represents a loss to society both in terms of what the individual would have produced to earn that income, and also any resulting expenditure on social assistance programs.

The half million dollars that a young Aboriginal man wastes by dropping out of highschool is a loss to him, but it is also a loss to society. When a young Aboriginal woman drops out of school, society's loss of the value of what she would have produced is great, but probably less than the resulting social assistance payments. It would be better to have programs which would keep both of them in school.

The above analysis has important implications for the economic future of Saskatchewan. Amounts of money of the magnitude shown herein will not be lightly left unclaimed. It is true that some Aboriginal people face impediments and as a consequence do not have significant educational choices. Others, however, supported by their own determination and encouraged by their families, can make choices. Faced with the financial implications of their choices, many Aboriginal people are currently seeking higher levels of education. And there will be many more in the future, as the number of role models and mentors increase, and as educational expectations change. With young people making their choices, the average education level for Aboriginal people will rise to that of Nonaboriginal people in Saskatchewan sometime in the 21st Century.

Bibliography

- Ashenfelter, Orley and Cecilia Rouse: "Schooling, Intelligence, and Income in America" in Kenneth Arrow, *et. al* (eds): *Meritocracy and Economic Inequality*. Princeton, NJ: Princeton University Press, 2000.
- Lendsay, Kelly, Marv Painter, and Eric Howe: "Managing Saskatchewan's Expanding Aboriginal Economic Gap," *Journal of Aboriginal Economic Development*, 1(2), Winter 2000, pp. 31-45. (Partially reprinted in *Council for the Advancement of Native Development Officers Newsletter*, 2(9), Winter 2000-2001, pp. 10-13.)
- Lendsay, Kelly, Marv Painter, and Eric Howe: "Impact of the Changing Aboriginal Population on the Saskatchewan Economy: 1995-2045," in *Saskatchewan and Aboriginal People in the 21st Century*. Regina: Federation of Saskatchewan Indian Nations, 1997, pp. 37-143.
- Court of Queen's Bench: *Queen's Bench Rules of Saskatchewan*, January 31, 2000.
- Stabler, Jack and Eric Howe: "Socio-Economic Transformation of the Native People of the Northwest Territories, 1800-2000," in *Old Pathways and New Directions: Towards a Sustainable Future*. Calgary: Arctic Institute of North America, 1991, pp. 137-180.
- Stabler, Jack and Eric Howe: "Native Participation in Northern Development: The Impending Crisis in the NWT," *Canadian Public Policy*, 16(3), September 1990, pp. 262-283.