



PERSPECTIVES

Education and Workforce: for a more productive and equitable society

Be like your sister and stay in school

The benefits of increasing Quebec's male graduation rates

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Despite considerable progress in educational attainment over the last few decades, Quebec continues to do poorly when it comes to dropout rates, particularly among boys. In 2021, there were 234,000 men who had no secondary school diploma. Among 25-to-34-year-olds, 12% had neither a diploma nor any proper qualifications, the worst performance of any Canadian province. This under-education of boys represents a substantial loss of potential productivity. A CIRANO study (Connolly and Lange, 2025) shows that if the problem were seriously addressed and boys' dropout rates decreased to the level of girls', men, and society as a whole, would make major gains. Achieving this parity would, by the next two to four decades, cut in half the number of men who were missing the needed requirements for the labour market.

According to data from the 2021 Census, 12.1% of men aged 25 to 34 in Quebec had neither earned a diploma nor professional requirements, compared with 7.4% of women. The high dropout rate among boys represents a substantial loss of productivity potential, as well as putting additional pressure on public finances. That's the result of less qualified and educated individuals contributing on average less in taxes and receiving more government benefits in the form of employment insurance, social assistance or child benefits.

Lacroix et al, 2023, make several interesting observations about this gender difference. Firstly, girls' advantage in this area is relatively recent: in the first half of the 20th century, men were on average better educated than women, particularly at the university level. It was around the 1990s when parity between men and women was achieved for university graduation rates. More than 30 years later, women are now far more likely to earn a university degree: In 2021, 61.9% of bachelor's degrees in Quebec were awarded to women (Statistics Canada, 2023a).

Women have significantly caught up, while men are now falling behind

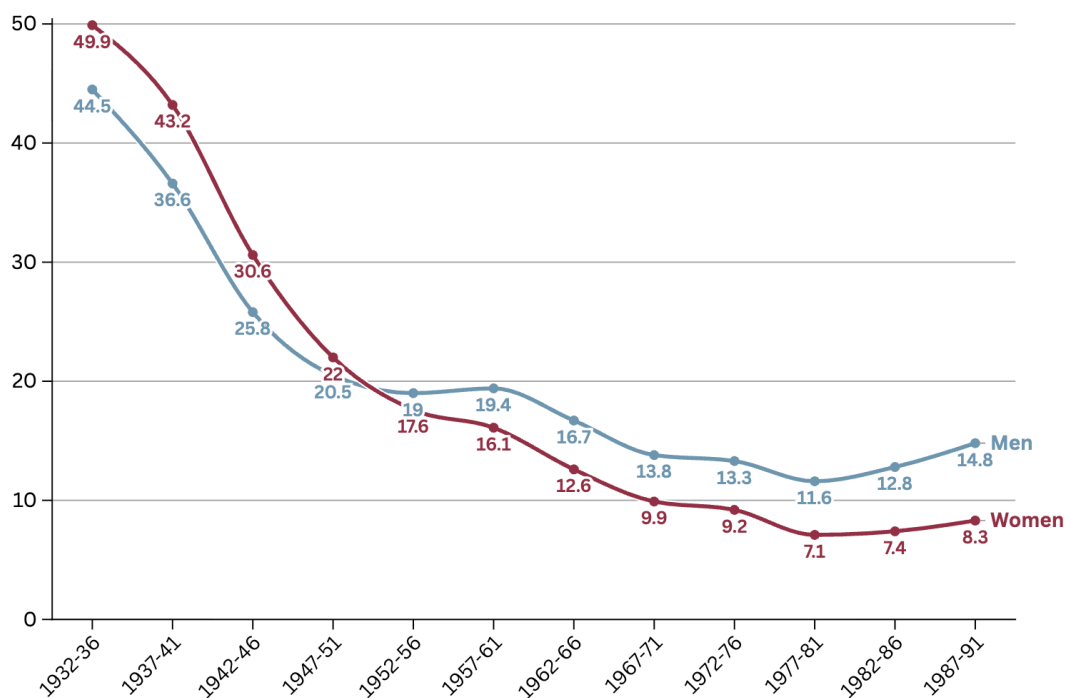
There appears to be a lack of interest in the issue of men's under-education. That may be due to the public wrongly believing that men do not suffer from this under-education. After all, their earnings and employment rates are still generally higher than those of women.

However, raising education rates has a number of benefits that should not be overlooked. Its impact on society includes economic growth and development, social benefits and, at the individual level, improvements in income and well-being (Lacroix et al., 2023).

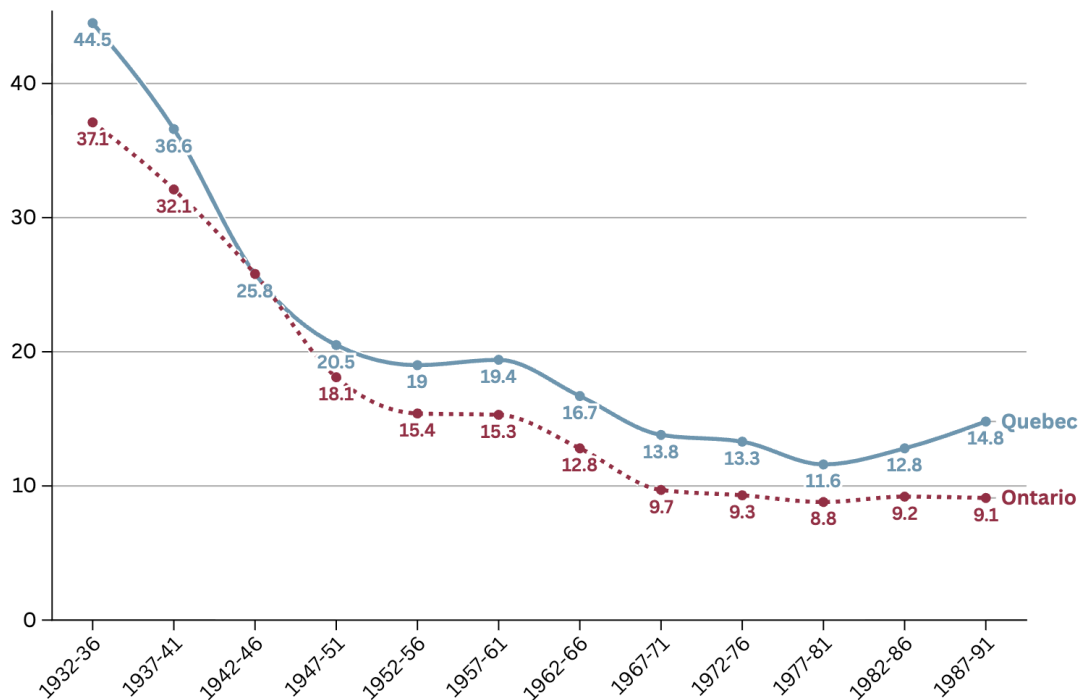
The dropout rate for Quebec men is higher than for Quebec women and Ontario men

For those born before 1952, there were more women than men who failed to complete secondary school education. Thanks to a massive rise in education across the country, the dropout rate continued to fall. It went from 19% for men and 17.6% for women for those born from 1952 to 1956, to 11.6% for men and 7.1% for women for those born from 1977 to 1981. The rates started to rise slightly for those born between 1987 and 1991, reaching 14.8% for men and 8.3% for women.

For many years, the dropout rate for men had been lower in Ontario than in Quebec. The solid blue line in the first figure is identical to the solid blue line in the figure on the next page, but the dotted red line shows the dropout rates for men in Ontario. A similar trend can be seen in Quebec and Ontario: a fall in dropout rates resulting from the rise in education levels in the first half of the 20th century. This was followed by a less pronounced fall and a stabilizing for the cohorts born in the 1970s and onward.



Dropout rate in Quebec in 2016, by gender and birth cohort



Male dropout rate in 2016, by province and birth cohort

Despite their higher rates of education and the value that education holds, women still earn less than men

We try to understand how men's and women's levels of education explain the differences in rates of employment, employment earnings, income taxes and government transfers. We break this down by looking at the distribution of male and female Quebecers' highest levels of education and comparing them to the employment earnings gap between men and women. We are interested in seeing to what extent higher levels of education attained by women reduce the earnings gap, particularly in the case of women with a secondary school diploma (SSD).

The first few rows of the table report the averages of the variables for women and men, followed by the difference between the two groups. We see, for example, that women have yearly incomes that are on average lower than men (around 26.1% lower, or \$15,038). The last lines show the result of the decomposition, i.e., the component of the gap that is explained by the variables of the model (level of education and age group) and the component of the gap that remains *unexplained*.

The *explained* component of the gap between men and women is negative, meaning that women should have higher incomes than men based strictly on their observed level of education. In other words, our decomposition exercise reveals that women's educational advantage protects them, in a way, by raising their incomes. Without this advantage, the male-female gap would be even greater.

	Employment (0/1)	Logarithm of Employment Income	Employment Income (\$)	Government Transfers (\$)	Income Taxes (\$)	Taxes Minus Government Transfers (\$)
	(1)	(2)	(3)	(4)	(5)	(6)
Average for Women	0.877 (0.003)	3,604 (0.009)	43,991 (0.398)	9,495 (0.139)	5,661 (0.062)	3,834 (0.163)
Average for Men	0.895 (0.003)	3,866 (0.009)	59,030 (0.620)	15,560 (0.275)	3,060 (0.052)	12,500 (0.290)
Gap (W-M)	-0.018 (0.004)	-0.261 (0.013)	-15,038 (0.736)	-6,065 (0.308)	2,601 (0.081)	-8,666 (0.332)
Explained Gap	0.012 (0.001)	0.100 (0.005)	6,637 (0.399)	2,426 (0.164)	-0.35 (0.022)	2,776 (0.177)
Explained Share	-66.67 %	-38.31 %	-44.13 %	-40 %	-13.46 %	-32.03 %
Unexplained Gap	-0.030 (0.004)	-0.361 (0.012)	-21,675 (0.816)	-8,492 (0.366)	2,951 (0.077)	-11,443 (0.384)
Unexplained Share	166.67 %	138.3 %	144.13 %	140 %	113.46 %	132.03 %

Oaxaca-Blinder decomposition at the mean

Source: Authors' calculations based on data from the 2016 Census

Note: The sample is restricted to individuals born between 1962 and 1971, i.e., ages 40-49 in 2016, born in Canada or who arrived in the country before the age of 15, and residing in Quebec in 2016. Standard deviations robust to heteroscedasticity in brackets.

Men's employment income would increase by at least 10% if they had the same level of education as women

What would men's employment income, income taxes and government transfers be if their graduation rates matched that of women? To find out, we conducted a retrospective analysis in which we weighted the male

population according to three counterfactual scenarios. In the first scenario, Quebec men are assigned the education distribution of Quebec women. In the second scenario, they are assigned the dropout rate of Quebec women, and men who are no longer in the 'no SSD' category are distributed among the other categories according to the distribution observed among Quebec men *conditional* on the SSD. In the third scenario, Quebec men are assigned the dropout rate of Quebec women, but here the men who are no longer in the 'no SSD' category are allocated entirely to the SSD category.

	Effect on Employment Income		Effect on Income Taxes		Effect on Government Transfers	
	(in \$)	(in %)	(in \$)	(in %)	(in \$)	(in %)
Counterfactual Scenario	(1)	(2)	(3)	(4)	(5)	(6)
Scenario 1	6,627	11.2	2,421	15.6	-348	-11.4
Scenario 2	1,397	2.4	441	2.8	-105	-3.4
Scenario 3	633	1.1	177	1.1	-89	-2.9

Counterfactuals, Quebec men aged 40 to 49 in 2016

Source: Authors' calculations based on Public Use Microdata Files (PUMF) data from the 2016 Census

Under the first scenario, employment income would be \$6,627 higher on average for each man aged 40 to 49, an increase of 11.2%. Income taxes would rise by \$2,421 (or 15.6%) and government transfers would fall by \$348 (or 11.4%). These changes are quite significant, since they result from a fairly ambitious scenario of increased education levels, not only at the bottom of the distribution, but across all levels of education, from secondary to the post-graduate level. The second and third scenarios are less ambitious, and thus, employment earnings increase by 2.4% and 1.1%, respectively. The effects on employment earnings in dollars (\$633) are about 10 times smaller in scenario 3 than in scenario 1. Even if the effects in scenario 2 or 3 are lower than in scenario 1, they still represent significant impacts on public finances.

If Quebec boys' dropout rates decreased to the level of girls', the number of boys without an SSD would be cut in half within two to four decades

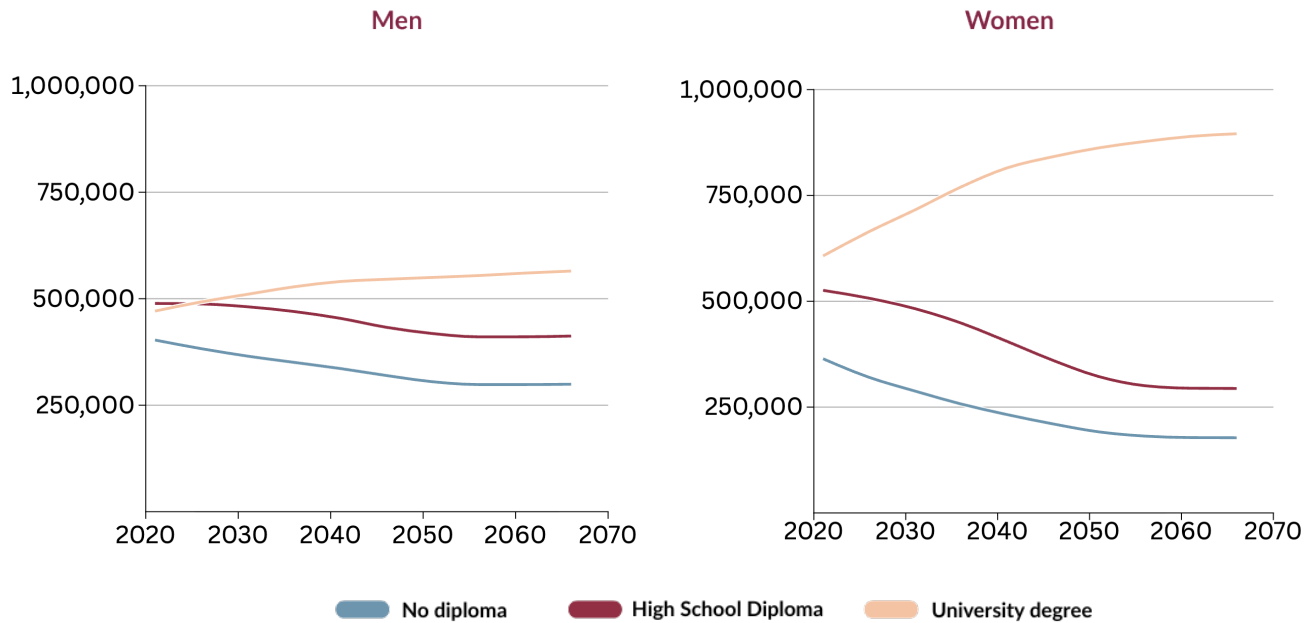
We then ran projections for the Quebec workforce, looking at education levels over the period of 2021 to 2066. In these analyses, we consider the Canadian-born population or those having immigrated before the age of 15. The role of immigration in population growth is therefore excluded from our analysis.

We start with the population of those aged 25 and over as observed in 2021, then project into the future by applying to each age bracket the survival rate estimated by Statistics Canada (Statistics Canada, 2023a), as well as the labour force participation rate for 2016. We chose not to use the 2021 Census data since income information is based on the year previous to the census, that is the year 2020, the first year of the COVID-19 pandemic. That said, the choice of the census year used has little effect on the results.

In 2020, there were slightly fewer men with a university degree than with an SSD, while the opposite is true for women. In our projections, the number of individuals with a university degree shows a significant increase, for both men and women, by 2066.

This increase is due to the fact that, as the years go by, the older cohorts are replaced by younger ones, with the younger ones obtaining university degrees in much greater proportions than the older cohorts. There is a particularly marked increase among women.

Our projections suggest declines in the number of people without any diploma or with only an SSD. That means that in 2066, Quebec would find itself with around 300,000 men and 177,000 women without an SSD diploma, just over 400,000 men and 294,000 women with an SSD, and 565,000 men and 895,000 women with a university education. Assuming that the new cohorts maintain the level of education attained by the youngest cohort in 2021, the portrait of the Quebec population could change significantly over the coming decades. This reflects the earlier massive increases in education among those born in the 20th century.



Projections of the Quebec population by highest level of education, 2021-2066

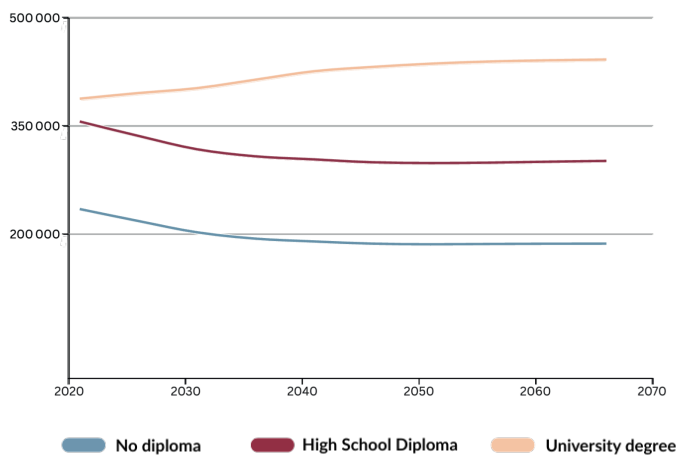
Source: Authors' calculations based on PUMF data from the 2016 and 2021 Census, and probability of survival indicators (Statistics Canada, 2023c).

Note: The initial sample is restricted to individuals born in Canada or who arrived in the country before the age of 15 and were residing in Quebec in 2021. For the sake of clarity, the level of education categories corresponding to trade schools or college studies are omitted from the figures.

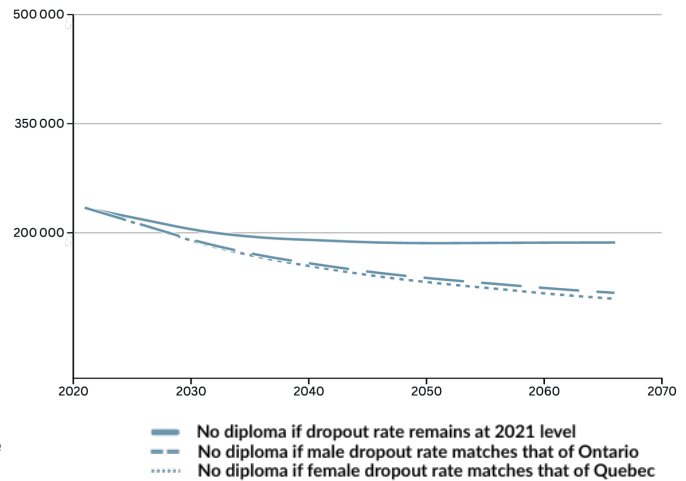
We then calculate two counterfactual projections, one in which the dropout rate for boys is reduced to that of girls in Quebec, the other to that of boys in Ontario. Since the focus here is on men in the labour market, the left-hand figure on the following page repeats the left-hand panel of the above figure, but multiplied by the labour market participation rate for each level of education. The relative position of the curves is slightly different between the two figures because participation rates are not identical across education levels. The projection that was based on the distribution observed in 2021 (i.e., without a counterfactual) already foresees increases in education due to the replacement of older and less educated cohorts by those who are younger and more educated.

Our two projections show that this downward trend would be reinforced by Quebec men catching up in terms of obtaining an SSD.

Without that catch-up, we could expect to have around 187,000 men without an SSD in 2066. This projection falls to 117,000 or 109,000, depending on the counterfactual scenario chosen, a drop of 37% or 41.5%. This would therefore represent a considerable decrease in the proportion of men without an SSD, especially if we start from what is observed in 2021 (i.e., around 234,000 men without adequate qualifications for the labour market). This number would be halved by 2066 if men attained a secondary school dropout rate similar to that of Quebec women or Ontario men.



Projections of the male population in the Quebec labour market by highest level of education



Projections of the male population without any diploma in the Quebec labour market, according to two counterfactuals

Source: Authors' calculations based on PUMF data from the 2016 and 2021 Census (Statistics Canada, 2019 and 2023b) and the probability of survival indicators (Statistics Canada, 2023c).

Note: The initial sample is restricted to men born in Canada or who arrived in the country before the age of 15 and who were residing in Quebec in 2021. For the sake of clarity, the categories of levels of education corresponding to trade schools or college studies are omitted from the figures.

Investing more in schools could bring immense benefits

Education benefits individuals and society as a whole. In terms of educational attainment, Quebec has made giant strides since the Quiet Revolution. Unfortunately, a significant proportion of young men in Quebec drop out before obtaining their SSD, and the dropout rate for boys is higher in Quebec than in any other Canadian province. Our analyses show that there are major benefits to be gained from boys catching up.

Our analyses do, however, present certain limitations. In particular, we see the relationship between level of education and individuals' income, income taxes and government transfers to be one of cause and effect. Otherwise, we could not claim that changing the distribution of education would lead to a change in income. However, with such a simple model, we cannot claim a causal relationship, which was not the aim of our study.

Nevertheless, our approach is informative and highlights the magnitude of not addressing the boys' dropout rates in Quebec. We have sought to provide useful answers to the question of how individuals themselves and society might benefit from a secondary school graduation rate for boys that converges with that of girls. For such convergence to occur, additional public spending would be needed, with school resources and qualified staff being prime examples. If we are to assess the returns associated with such an investment, it is important that we better understand the benefits associated with higher graduation rates for boys.

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