

Health inequality at older ages in Canada

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Introduction

Retirement, health and aging have been at the centre of policy conversations in Canada for several decades, as the population mix continues to shift toward older ages. In the early 1990s, concerns regarding the sustainability of public pensions were front and centre; Canadian policy responded by moving away from pay-as-you-go funding of pensions for seniors toward partially pre-funding public pensions. This ensured the expected growth in pension payments as baby boomers entered retirement remained manageable. Unlike many other countries around the world, Canadians did not undertake any major pension reforms over the past several decades. As described in Milligan and Schirle (2025), there were several minor reforms that reduced incentives to enter retirement at early ages. It appears those reforms had the expected effects on labour supply and retirement patterns among older Canadians—incentives changed more for those with lower incomes and that is where retirement patterns changed. However, the reforms were not substantial enough to dramatically alter labour supply and had fairly small redistributive effects.

In this paper we aim to describe the extent to which health inequalities have changed over time in Canada. Given the relatively small redistributive effect of pension reform, we would not expect pension reform in Canada to have had much, if any, effect on health inequality. Similarly, there have not been major reforms to Canada's public health insurance system known to impact health inequality among older Canadians. (Note the public insurance in Canada covers most necessary health care expenses, with pharmaceutical coverage varying across the country.) In our

analysis, we are also limited in our ability to investigate the degree of change in health and health inequality over longer periods, as few surveys have offered the opportunity to develop consistent measures of health over time.

To make progress, we make use of the Canadian Community Health Survey (CCHS) over the period 2001-2022 to describe the health of Canadians. We are able to compare groups of individuals by age, gender, education and income. Unfortunately there is not sufficient information in this survey to also assess the importance of public pensions and income policies for seniors' well-being across the income distribution.

We begin by presenting broad trends in labour market outcomes for older Canadians as context for understanding the extent to which their experience has changed over several decades. We then present our estimates of health across groups and over time, comparing trends in inequality across education and income groups.

Canada's retirement income and public pension system

As background, we provide some information on the Canadian public pension and retirement income system. A more complete description can be found in Milligan and Schirle (2025), where we also outline the modest reforms over this period. Here we provide just a summary.

The public pension system in Canada consists of three main pieces. First is a demogrant called Old Age Security which is paid monthly starting at age 65. There is a phaseout with income that impacts about the top ten percent of income earners. The amount is small (about C\$740 / Euro 450 per month in 2025) but provides a near-universal floor of benefits.

The second piece is the earnings-related Canada Pension Plan (and the similar Quebec Pension Plan in the province of Quebec). Benefits are a function of earnings averaged over ages 18 until retirement, with some exclusions for having young children and low-earning periods.

Importantly, there is a cap for coverage that binds at approximately median earnings, so those in the top half of the earnings distribution do not see all their earnings covered by the plan. The benefit rate is a flat 25 percent of adjusted lifetime earnings. Early access to benefits (with age-dependent actuarial adjustment) is available from age 60, with the normal retirement age set at age 65. Since 2019, a new additional expansion of CPP began to be phased in, but its impact will be felt much more on future cohorts than those already retired or near retirement as the already and just retired have contributed only small amounts to the new additional CPP tier.

The third piece is a low-income supplement called the Guaranteed Income Supplement. This supplement provides additional income to low-income seniors and is phased out with retirement income (from the CPP, QPP, private pensions, capital income, or earnings) at a rate of 50 cents on the dollar. About 35 percent of Canadian seniors receive the Guaranteed Income Supplement. When combined with the base Old Age Security benefits, the resulting retirement income is sufficient to be close to or exceed the standard low-income poverty line used in Canada.

In addition to the public pension system, around 40 percent of Canadians have pensions provided through their workplace. In many cases, this income exceeds what is provided through the public pension system. Beyond that, there is additional scope for tax-preferred savings through special accounts (called Registered Retirement Savings Plans) which allow savings to accumulate without tax until withdrawn.

Over the time period since 2000 there have been a number of minor reforms to the system. The full list of reforms is in Milligan and Schirle (2025). These reforms have mostly been expansions—OAS and GIS benefits have been increased depending on age and income. For the CPP and QPP, there were changes in the actuarial adjustment rate and the introduction of the new tier of benefits being phased in across cohorts and having minimal impact on the incomes of current retirees.

Labour force analysis

To provide context for the analysis of health inequality at older ages, we begin by presenting information about the labour market. We focus on a simple measure—binary employment status. For data, we use the Labour Force Survey (LFS). The LFS is a monthly survey, which samples roughly 60 thousand dwellings (100 thousand individuals) and reports various demographic and labour force outcomes. In the LFS, education is reported as the highest degree obtained by the individual, which we code into four categories (having completed less than high school, completion of high school, obtained a college degree or trades certificate, or having completed a

Bachelor's degree or higher). In the LFS, employment status captures whether respondents have paid employment in the reference week of their interview and includes individuals who are self-employed.

In Figure 1 we present the employment rates of men and women over the years 1976 to 2024, for each 5-year age group 55-59, 60-64, and 65-69. Here, we can see the U-shaped pattern in men's employment rates that has been observed in past research.¹ Until the early 1990s, the employment rates of older men had been falling steadily. Among men age 60-64, for example, employment rates fell from 0.636 in 1976 to only 0.399 in 1995. Since then, older men's employment rates increased steadily, reaching 0.613 in 2024 among the men age 60-64.

To study inequality trends, we focus on the second part of the “U”—the upswing between 1995 and 2024—and how this upswing varies across education groups. In the LFS we can only observe current labour market earnings so we cannot categorize employment by a broad measure of current income (which might include pension or capital income) or by a backward-looking measure of lifetime income or earnings. So, we use education groups as an indicator of socioeconomic status to gain some degree of insight into inequality and how employment changes vary across different groups. Because the largest change over time is in the age 60-64 group we proceed by graphing the data only for that group.

¹ See Coile, Milligan, and Wise (2019) for the cross-country evidence of this U-shape pattern. Milligan and Schirle (2019) focus on the Canadian evidence.

In Figure 2, we can see that the increase in employment rates between 1995 and 2024 occurred for men age 60-64 in every education group. Among those with high school completion, for example, employment rates increased by over 19 percentage points, from 0.406 to 0.599 over this period. This pattern reflects both a change in labour market behaviour and a change in the composition of this education group.² There is some gradient in the change across education groups, with the lowest education group showing a 19 percentage-point gain in employment against a 11 percentage-point increase for the highest education group. The work gap at older ages between education groups has decreased for men.

In the bottom panels of Figure 1 and 2 we present comparable information for women. In Figure 1 we can see that, unlike men, there was only a slight reduction in the employment rates of older women age 60-64 and 65-69 from the late 1970s into the early 1990s. However, the employment rates of women age 55-59 increased steadily over this earlier period. The employment rates of all women 55-69 rose after the mid-1990s. Between 1995 and 2024, the employment rates of women age 60-64 rose by 21.4 percentage points, from 0.399 to 0.613. Schirle (2008) presents a deeper analysis of the upswing in female employment rates at older ages over this time period and how it interacted with trends for men. Looking across education groups in Figure 2, the same pattern emerges for women as was seen with men. There are increases across all education groups, with a bigger increase at lower education groups than for higher-educated women.

² See Schirle (2008) and Milligan and Schirle (2019) for decompositions of these trends by education group.

The analysis of work at older ages reveals three important trends that provide context for the health inequality analysis to come. First, there are distinct patterns for men and women, with a U-shape time trend for men and a more steady increase in employment at older ages for women. Second, there is a gradient in employment at older ages for both men and women, with higher-educated people working more. Third, the slope of this education-work gradient has diminished over the last thirty years.

Health analysis

We now proceed to the main analysis of the paper, the study of health inequalities at older ages. We will investigate how health at older ages has changed across both education groups and income groups. Our analysis employs the Canadian Community Health Survey (CCHS). The CCHS is a cross-sectional survey that samples roughly 65 thousand individuals over the age of 18 from private residences across Canada every year. (The sample does not include anyone living in an institutional setting such as a long-term care facility.) The health indicators we rely on are consistently asked in each year the CCHS is administered (biannually 2001/3/5 and then annually from 2007-2022). In each year we sample individuals aged 55 to 69; there are 15-20 thousand individuals sampled in this age range each year.

The two measures of health we use are self-reported. The first is a self-reported indication of general health. Specifically, each respondent is asked, “*The following question is about health. By health, we mean not only the absence of disease or injury but also physical, mental and social*

well-being. In general, how is your health?" to which respondents report excellent, very good, good, fair, or poor. We use this to construct an indicator for whether the person reports fair or poor health.

The second health indicator is a simple health index designed to capture various components of individual health. Similar to the health index used in Milligan and Schirle (2017), we follow the approach of Poterba, Venti and Wise (2013) and obtain the first principal component of a set of indicators for health status. The indicators include self-reported fair or poor health, daily smoking, regular drinking, self-assessed overweight status, reported arthritis, high blood pressure, heart disease, effects of stroke, diabetes, Alzheimer's disease or dementia, and having cancer. As described in Coile, Milligan and Wise (2017), the first principal component is the "weighted average of indicators where the weights are chosen to maximize the proportion of the variance of the individual health indicators that can be explained by this weighted average." The estimates are used to predict a percentile score for the health of each individual in our sample and this score is used as the health index

We obtain cell-means for our two health measures within age, education, and income groups. In the CCHS, education represents the highest degree obtained by the individual (having completed less than high school, graduated from high school, obtained a college degree or trades certificate, or having completed a Bachelor's degree or higher). We construct income deciles using the survey's available information describing household total income before taxes (including

government transfers) and adjusting for household size (using the square root of the number of household members).

In Figures 3 and 4 we present our health estimates over the years 2001-2022, for men and women within each 5-year age group. Using our measure of self-assessed health being fair or poor (Figure 3), we do not see any clear difference across age groups in health status. This will reflect the nature of the question, whereby individuals are likely to rate their health in relative terms, with peers in their own age group in mind.³ For men, there appears to be a downward trend in reports of fair or poor health over time, while for women there is no clear time pattern to see. When we look at our health index that also captures the prevalence of health conditions (Figure 4) we can see clear age differences, with younger men and women (age 55-59) enjoying better health than older age groups. For men, the health index appears fairly stable over the first part of our time period from 2001 into the 2010s, with possibly some slight improvement appearing over the past decade. For women, there appears to be a clearer upward trend in the health index since the early 2000s. Overall, the information from Figures 3 and 4 suggest stable and possibly improving health for men and women over the past two decades.

We now turn to disaggregation of these general trends in our two health measures by education and by income groups. This analysis provides some insight into whether health inequality is growing at these ages. In Figure 5 we present our estimates for self-assessed fair or poor health

³ See Juerges (2007) for evidence on cross-country differences in self-reported health “reporting styles” and Kapteyn, Smith, and van Soest (2007) exploring the relative nature of self-reports using descriptive vignettes.

across education groups. We show the years 2001 and 2022 so we can see both the level and trend of health across education group. It's clear that more highly educated men and women are less likely to report fair or poor health, as expected. However, over time there is no change in the portion reporting fair or poor health. In part, we expect this also reflects the nature of how people answer this type of question: when comparing to peers a person may only consider people within their age group in the same time period. Relative differences between socio-economic status groups at one point in time would reflect overall differences in general health, but this measure would not help us understand time trends.

In Figure 6, we present estimates of the health index, which could be more informative for comparisons over time. For men, it appears the health index may have actually fallen for most education groups between 2001 and 2022, but increased for those with post-secondary certificates or diplomas. Differences in composition across groups here may help explain the lack of a clear trend in Figure 4. For women in Figure 6, there appears to be a clear gap between the health index in 2001 and 2022, showing increases for all education groups. The improvements in health appear slightly larger for those with education more than high school completion.

In Figure 7 and 8 we present similar information for our measures of health by comparing across household income deciles. While the health gradient appears as expected—those with more income appear to have much better health—time trends are less clear. For men, there are no obvious improvements over time across income deciles. For women (in Figure 8) we can see some improvement over time for most deciles, except the very top. As such, we might suggest

that health inequalities decreased over this period for women. The discrepancy we see here for women, between Figure 6 and Figure 8, may reflect some disconnect between women's education levels and their placement in the household income distribution. Because household income also includes the spouse's income, women's health (especially for earlier birth cohorts of women) may depend more on their spouse's income than their own education group's employment opportunities.

To summarize the findings on health, we have three main results. First, there is a clear health gradient for both men and women across income groups and education groups, with better health for those with higher education and income. Second, men and women display different patterns over time, with more evidence of improvements in female health than for males in the measures we have available. Third, our evidence is fairly inconclusive about the changes in health inequality over time, with no consistent indications for either men or women that the health-income or health-education gradient is shifting over time.

Conclusions

In this paper we provide descriptive evidence of the levels and trends of health inequality over time for older people in Canada, comparing men and women using consistent measures of self-assessed health over a period of two decades. As context for the health analysis, we show that over this period both men and women worked substantially more at older ages than in previous generations, with more of an increase for lower-educated people.

Our analysis reveals health gradients at older ages across both education and income-based measures of advantage. For women, there is some indications of improved health over time, but not for men. The slope of the health gradients, however, show no substantial changes over time for either men or women.

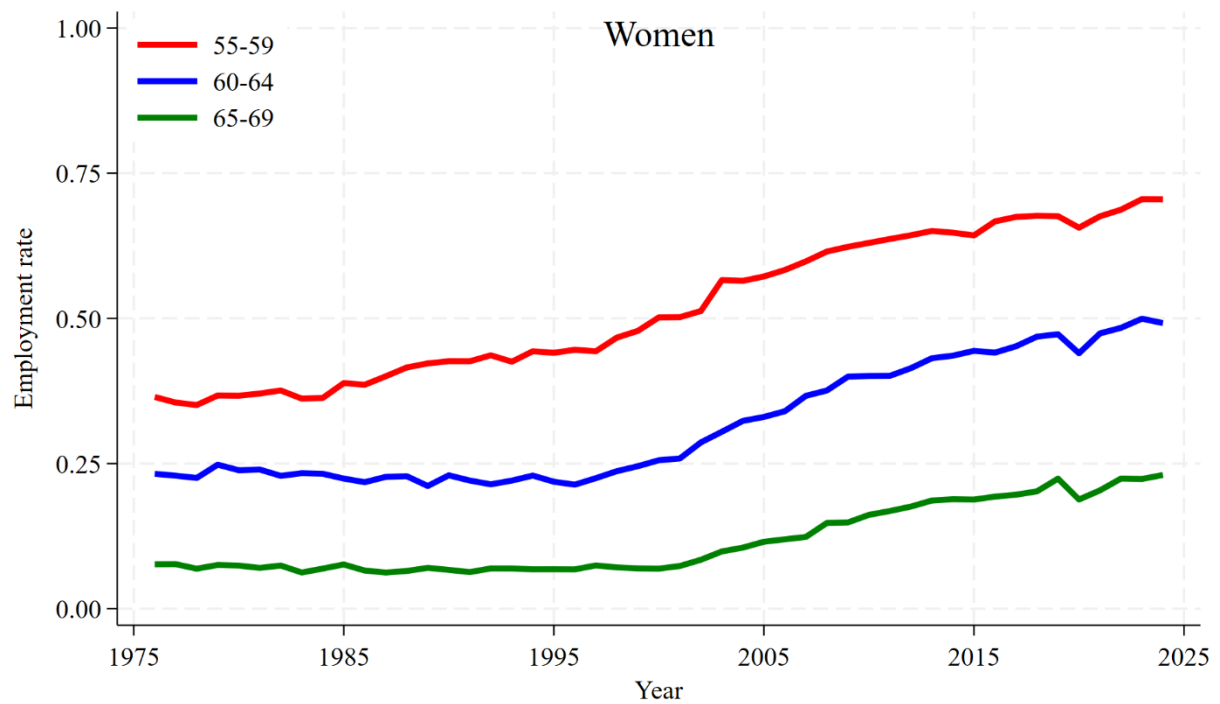
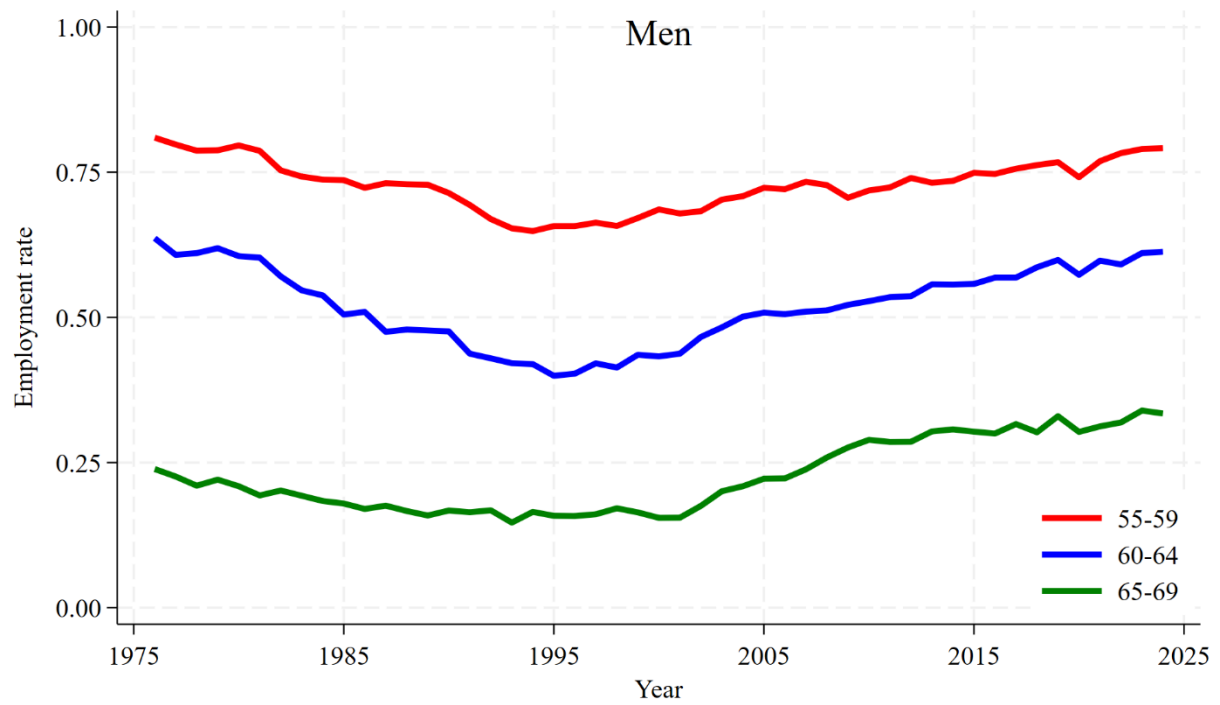
This evidence comes from a period in Canada with stable pension policy, with no major reforms that had a substantial impact on work lives. So, it is difficult in our work to evaluate how pensions may influence measures of health inequality. The value of our work here may come in part by providing a steady baseline for comparison with other countries where substantial pension reforms did occur and researchers attempt analyses trying to disentangle the impact of reforms from underlying trends.

In addition, our work here contributes to the larger investigation of health at older ages, including the work on the large inequalities in longevity documented in Milligan and Schirle (2021) and Milligan (2024). Research into the causes and drivers of health inequalities and disparities at older ages is ongoing.

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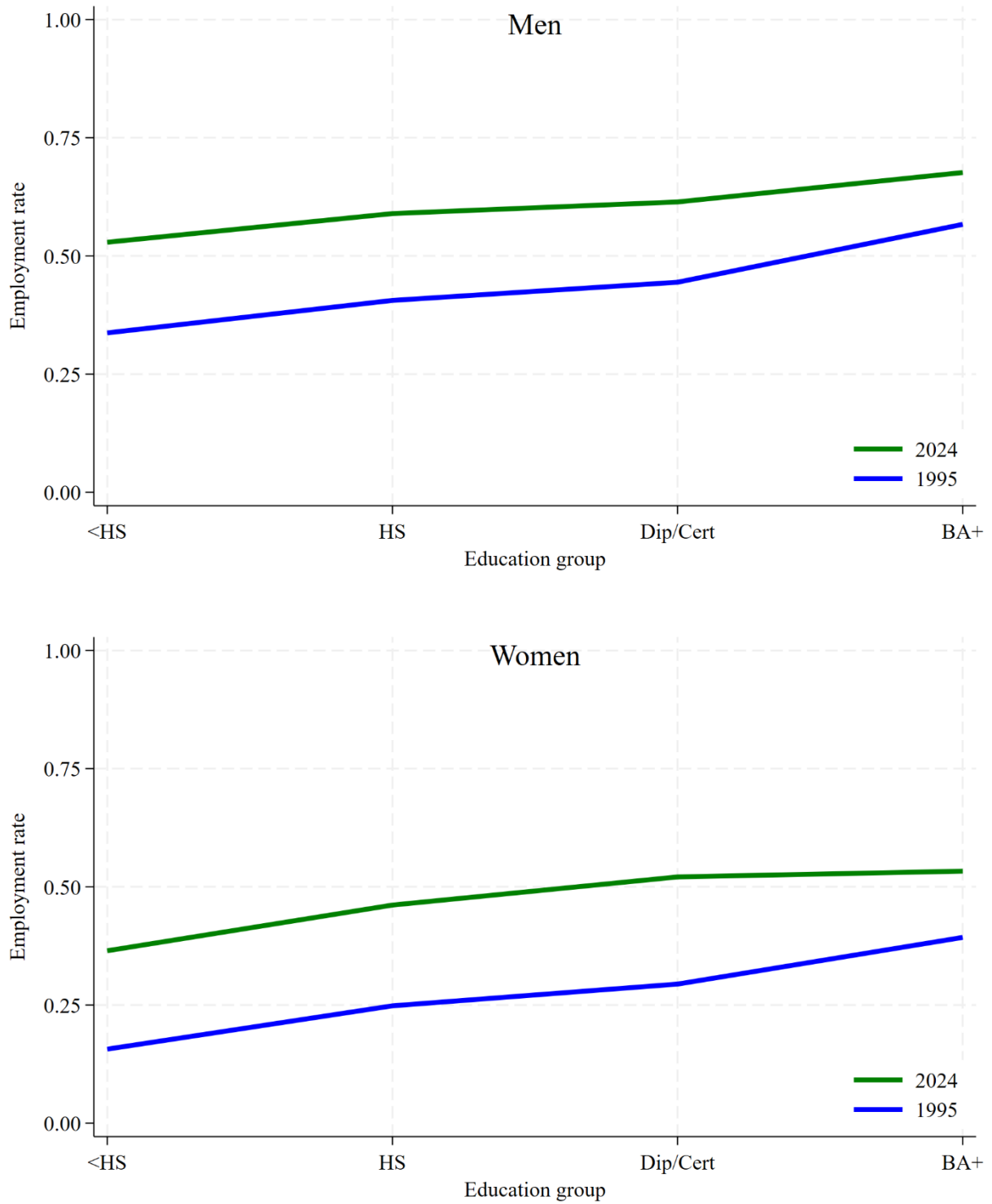
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Figure 1: Employment rates over time by age



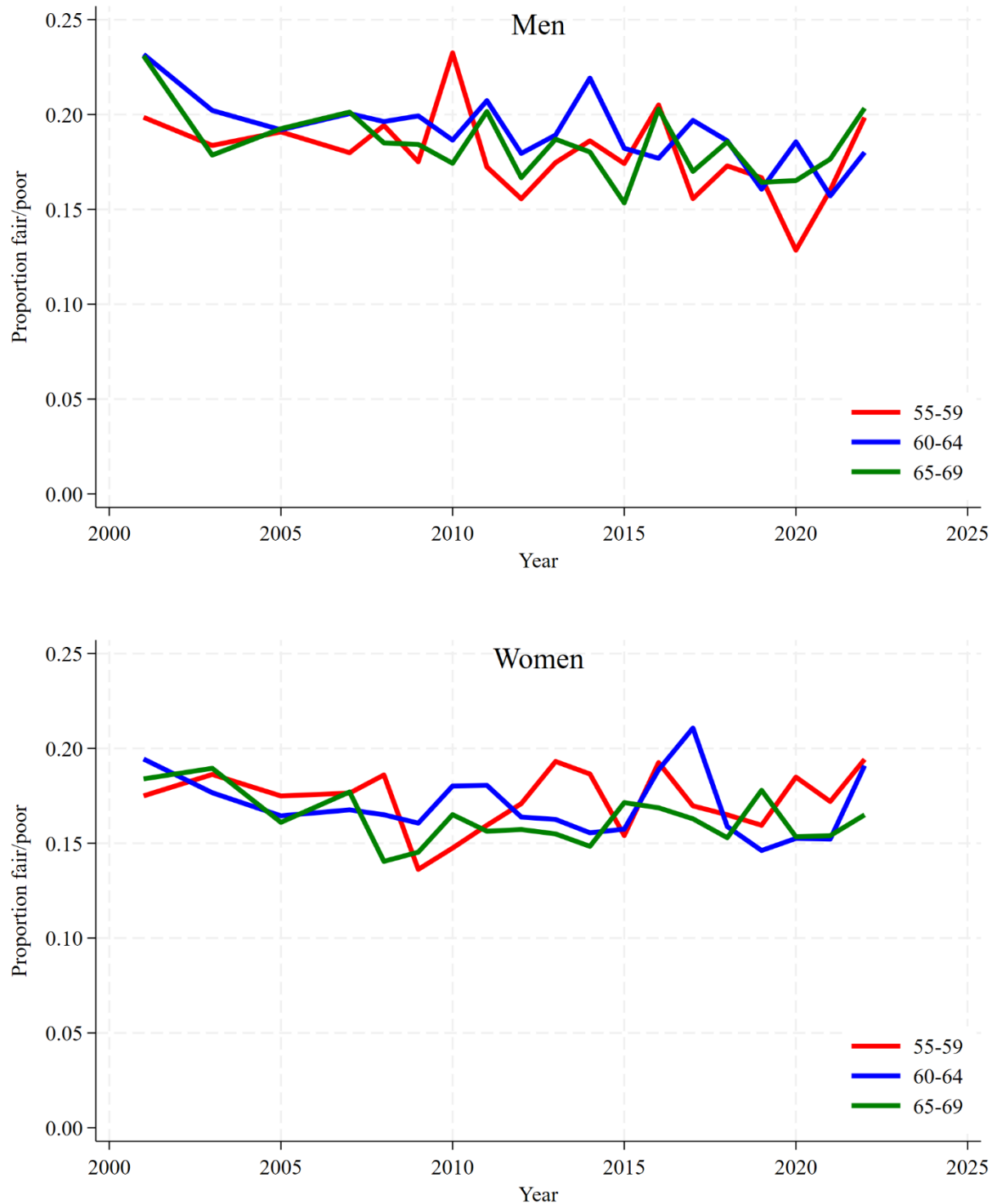
Notes: Data is from the Labour Force Survey. Graphed variable is binary employment rate.

Figure 2: Employment rates by education group at age 60-64



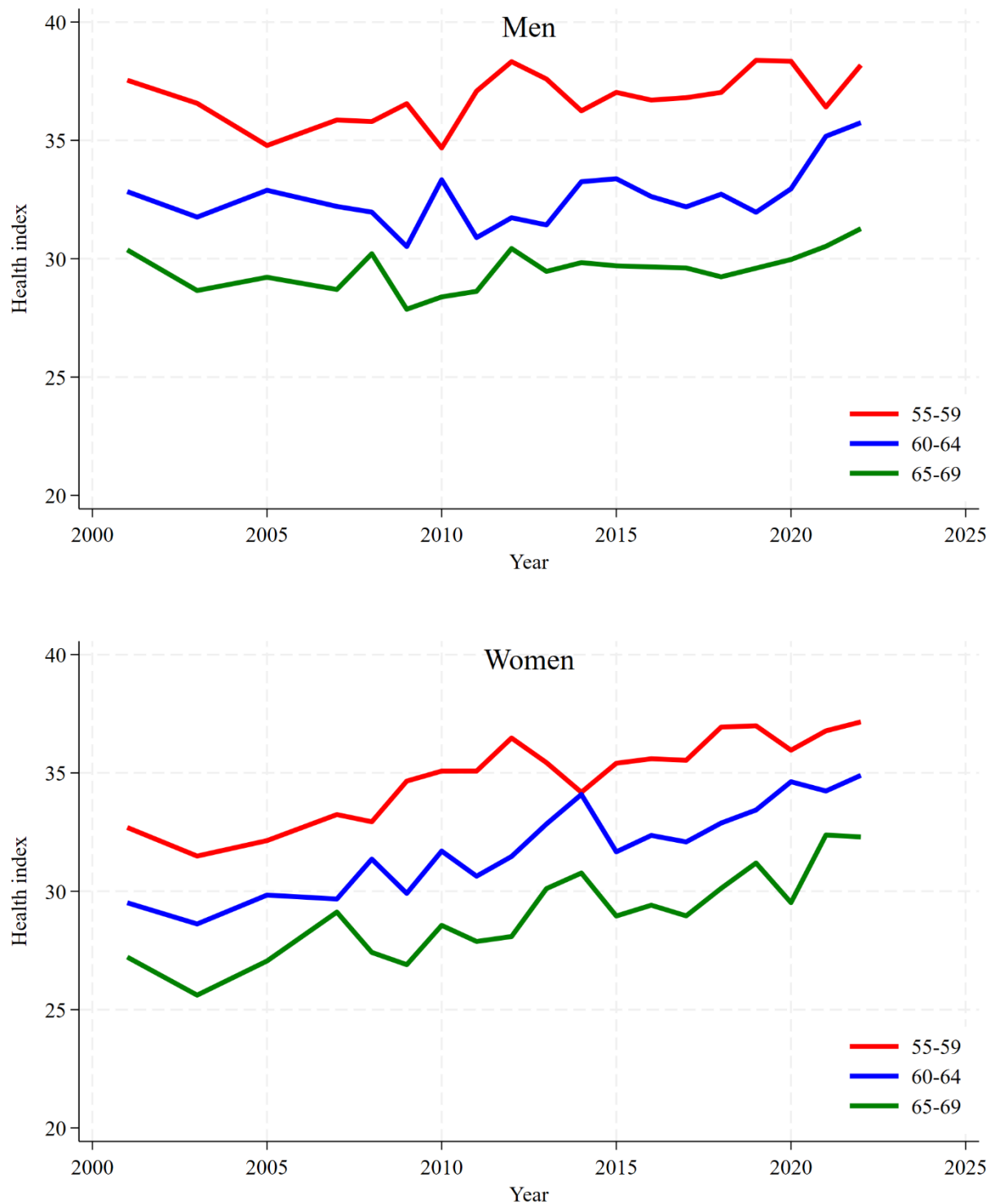
Notes: Data is from the Labour Force Survey. Graphed variable is binary employment rate. Education categories are high school incomplete, high school complete, post-secondary diploma or certificate, bachelors degree or higher.

Figure 3: Self-assessed health over time and age group



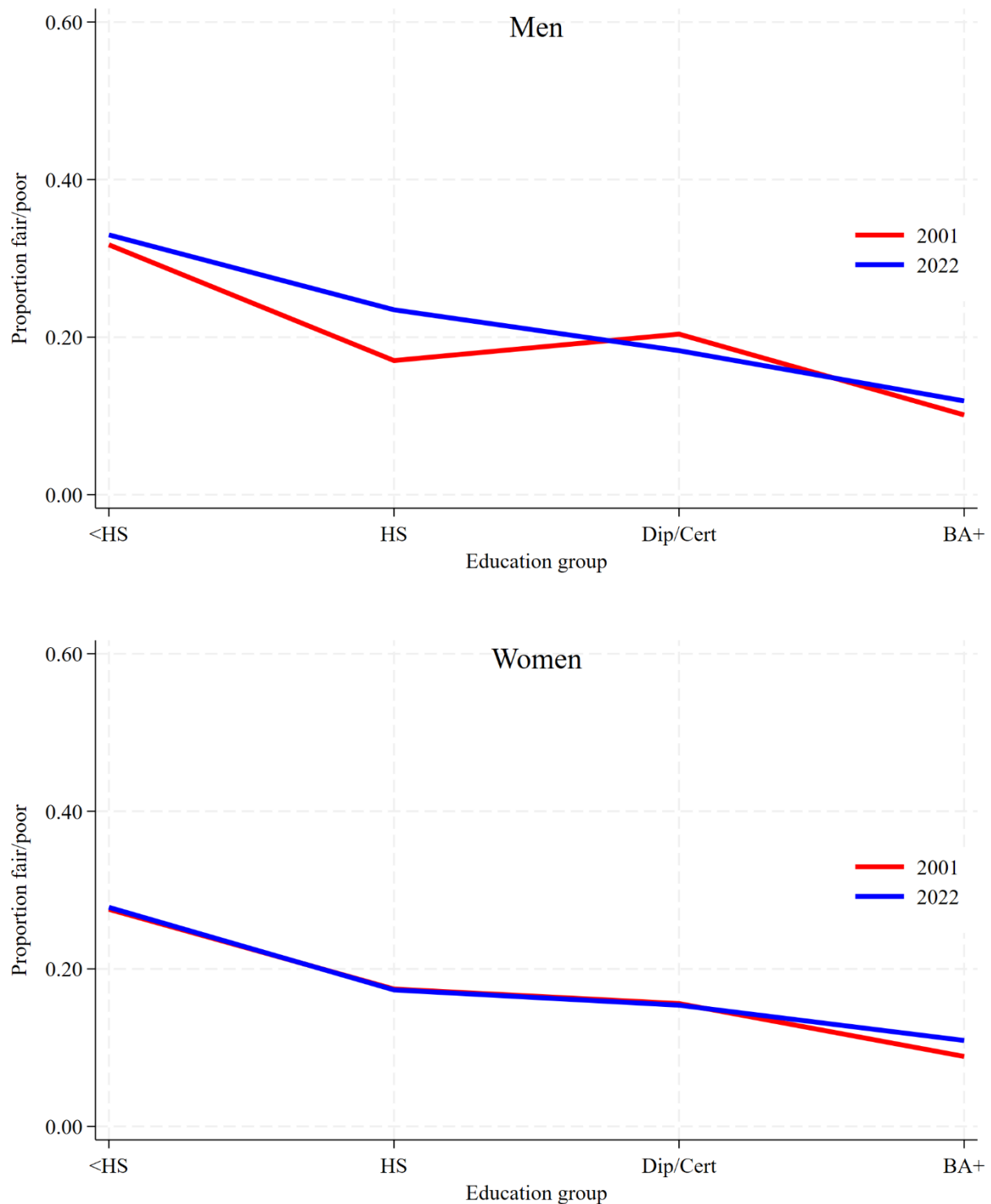
Notes: Data is from the Canadian Community Health Survey. Graphed variable is binary indicator for self-assessed health response being 'fair' or 'poor'.

Figure 4: Health index over time and age group



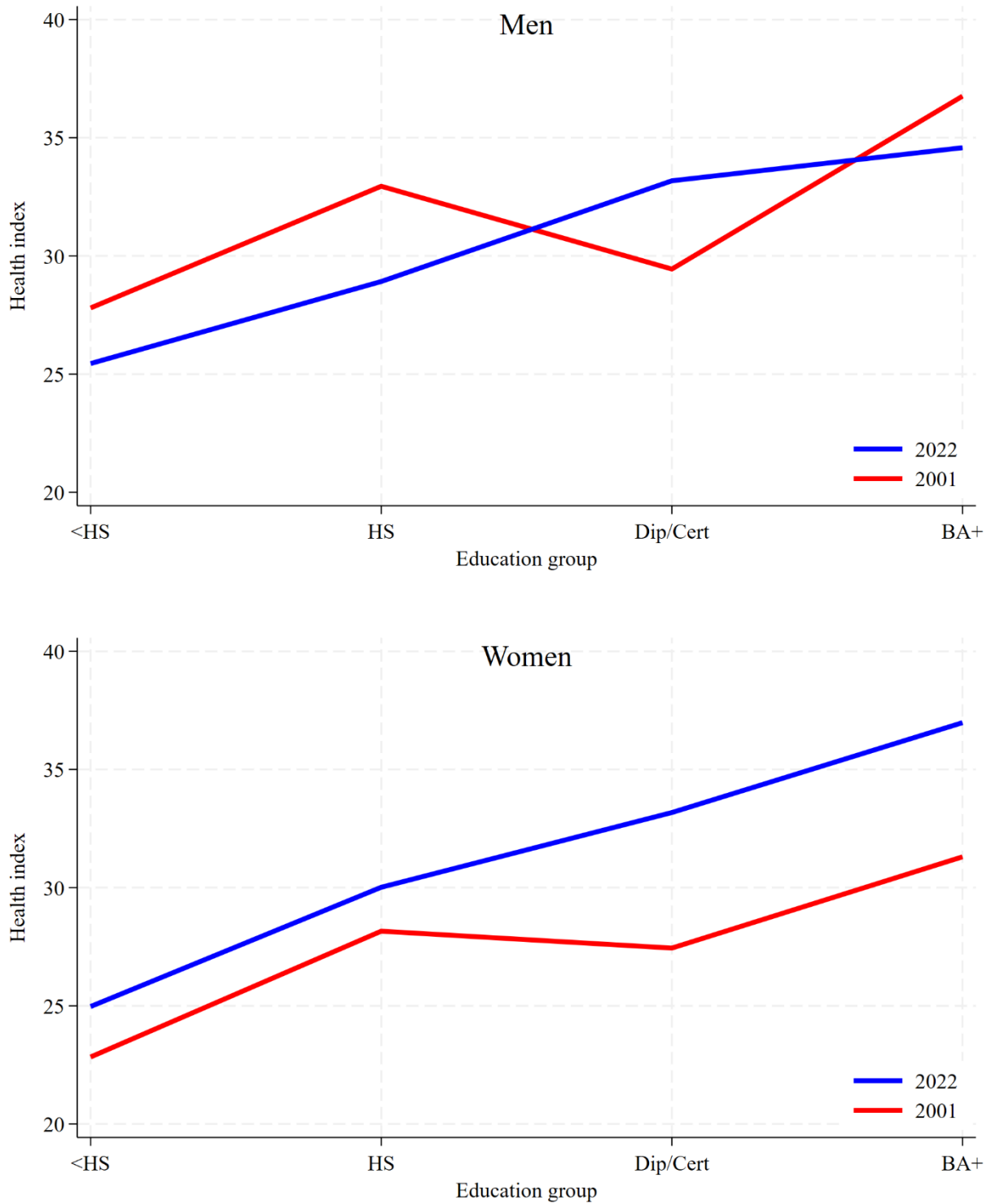
Notes: Data is from the Canadian Community Health Survey. Graphed variable is a health index as described in the text, with a higher value indicating better health.

Figure 5: Self-assessed health by education group at ages 65-69



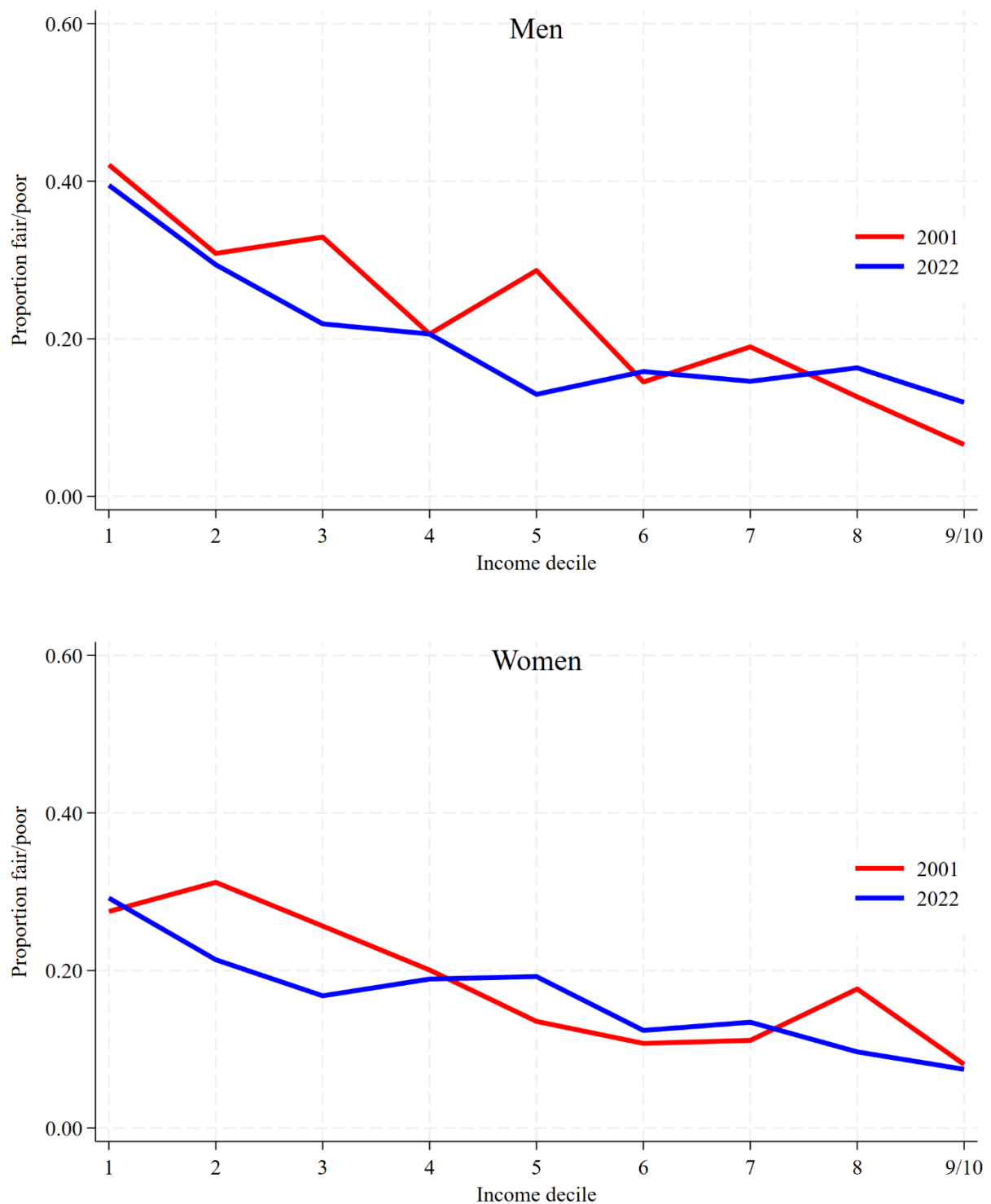
Notes: Data is from the Canadian Community Health Survey. Graphed variable is binary indicator for self-assessed health response being 'fair' or 'poor'. Education categories are high school incomplete, high school complete, post-secondary diploma or certificate, and bachelors degree or more.

Figure 6: Health index by education group at ages 65-69



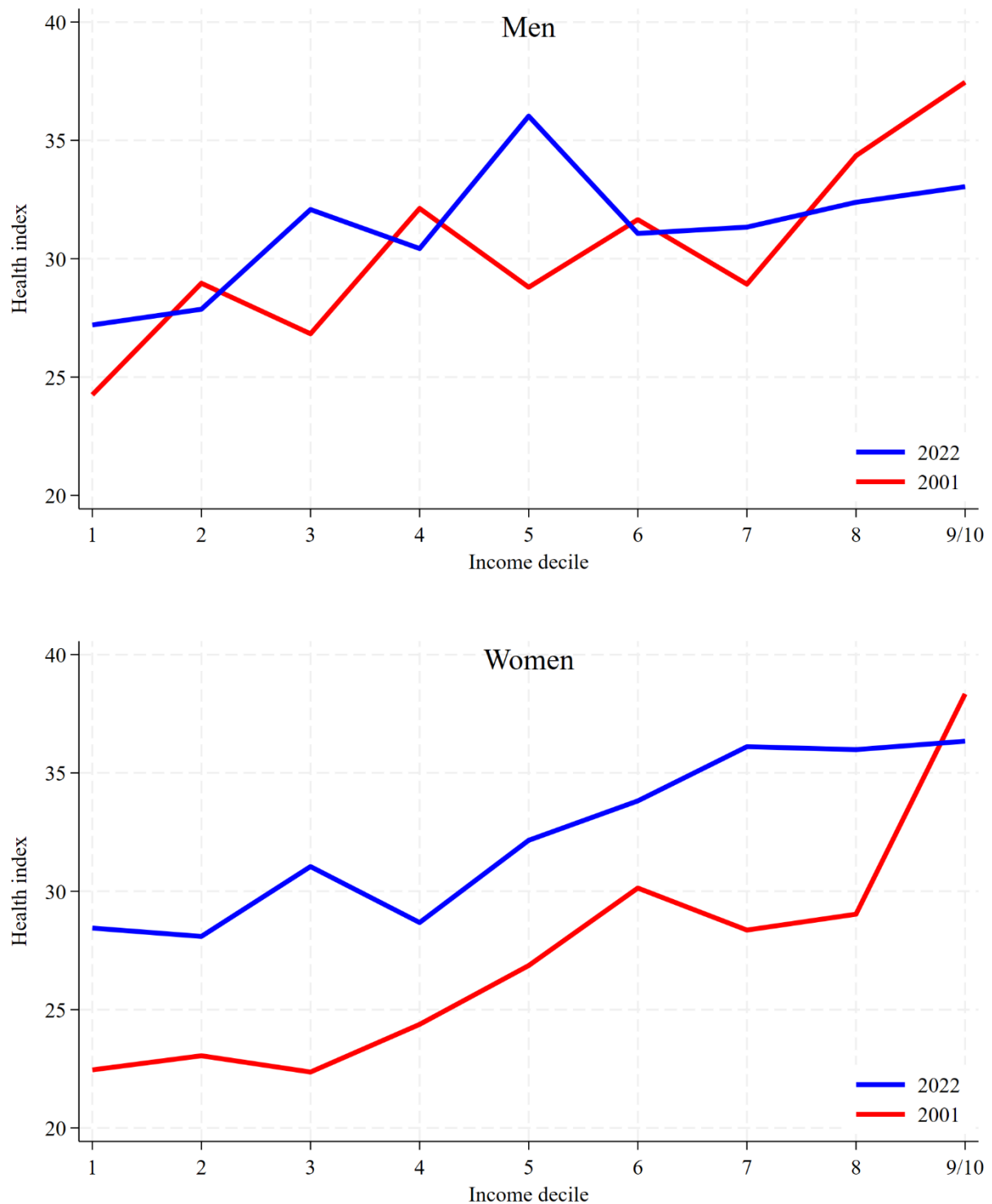
Notes: Data is from the Canadian Community Health Survey. Graphed variable is a health index as described in the text, with a higher score indicating better health. Education categories are high school incomplete, high school complete, post-secondary diploma or certificate, and bachelors degree or more.

Figure 7: Self-assessed health by income decile at ages 65-69



Notes: Data is from the Canadian Community Health Survey. Graphed variable is binary indicator for self-assessed health response being 'fair' or 'poor'. Income decile is the decile of household before-tax income. The 9th and 10th deciles are combined.

Figure 8: Health index by income decile at ages 65-69



Notes: Data is from the Canadian Community Health Survey. Graphed variable is a health index as described in the text, with a higher score indicating better health. Income decile is the decile of household before-tax income. The 9th and 10th deciles are combined.