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Abstract

This study examines disparities in apprenticeship certification and employment income between childhood immigrants (individuals who arrive in Canada before age 18) and Canadian-born apprentices by sex. It uses integrated administrative data from the Longitudinal Immigration Database, the Registered Apprenticeship Information System and the T1 Family File. Results show that male childhood immigrants were 3 percentage points less likely than their Canadian-born counterparts to obtain certification, while female childhood immigrants were 5 percentage points less likely than their Canadian-born counterparts to obtain certification. Employment income trajectories also differed by sex. Compared with Canadian-born males, male journeypersons who immigrated as children earned approximately 10% less four years before certification, 8% less two years before certification and 6% to 7% less from certification to four years after certification. By contrast, most earnings differences among females were not statistically significant after controlling for sociodemographic, program, trade and employment characteristics. One exception was that female childhood immigrants earned approximately 7% more two years before certification. These findings contribute to understanding how childhood immigrant status is associated with different apprenticeship outcomes for males and females, with certification differences observed for both males and females but persistent employment income differences observed primarily among males.

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Introduction

Canada experienced population growth in recent years, largely driven by immigration. This has brought housing issues and infrastructure development needs to the forefront (Government of Canada, 2024; Statistics Canada, 2023a). Additionally, an aging population—and, in turn, an aging workforce in certain occupations, such as the skilled trades—has led to potentially higher demands for some skilled trades workers (Statistics Canada, 2022; Government of Canada, 2024). In response, the Government of Canada has emphasized the importance of expanding and strengthening pathways into skilled trades careers as part of broader economic and workforce development priorities (Office of the Prime Minister, 2025). Apprenticeship training represents a primary pathway into these occupations by helping individuals to become journeypersons through certification.¹ However, access to certification and subsequent labour market outcomes are not evenly distributed. Substantial disparities persist along the lines of sex, employment conditions and the trade itself, with females underrepresented in most skilled trades and experiencing different labour market outcomes than males (Jin et al., 2020; Frank & Frenette, 2019; Leanage & Mehdi, 2026).

Although childhood immigrants—those who arrive in Canada before the age of 18 years—may earn Canadian educational credentials, they remain an understudied group within apprenticeship pathways. Recent research has begun to address this gap by examining certification rates and employment income over time (Leanage, 2026; Leanage & Stick, forthcoming). For example, recent studies have shown that childhood immigrant journeypersons were less likely to obtain certification than their Canadian-born counterparts, even after accounting for sociodemographic, program and employment characteristics (Leanage, 2026). Moreover, among those who become certified journeypersons, childhood immigrants had lower annual income earnings before, at, and after certification relative to Canadian-born journeypersons, even after accounting for observable characteristics (Leanage & Stick, forthcoming).

A large body of research highlights persistent sex stratification within the skilled trades, where women—particularly in male-dominated occupations—face barriers to entry, training opportunities and earnings progression (Jin et al., 2020; Frank & Frenette, 2019). Yet, little is known about how the intersection of immigrant status and sex jointly shape apprenticeship completion and employment income. Given that males have been shown to be overrepresented in the trades (Leanage & Mehdi, 2026), understanding how childhood immigrant males and females navigate certification and subsequent labour market outcomes is essential for assessing equity and integration within this segment of the workforce.

This article examines disparities in obtaining certification and employment income by childhood immigrant status and sex. Specifically, two research questions are addressed: (1) whether the likelihood of obtaining certification varies between childhood immigrant and Canadian-born apprentices by sex, before and after accounting for sociodemographic, program and employment characteristics; and (2) whether annual earnings (log) among certified journeypersons vary by childhood immigrant status and sex before, at, and after certification, and whether these differences persist after accounting for other factors.

The analysis draws on two complementary components. The first component examines certification among registered apprentices who entered apprenticeship programs from 2008 to 2015 and either obtained or did not obtain certification (within two years of program duration), drawing on the sample and methodology used in the Leanage (2026). The second component examines employment income trajectories of certified journeypersons, following cohorts certified from 2008 to 2018 (from four years

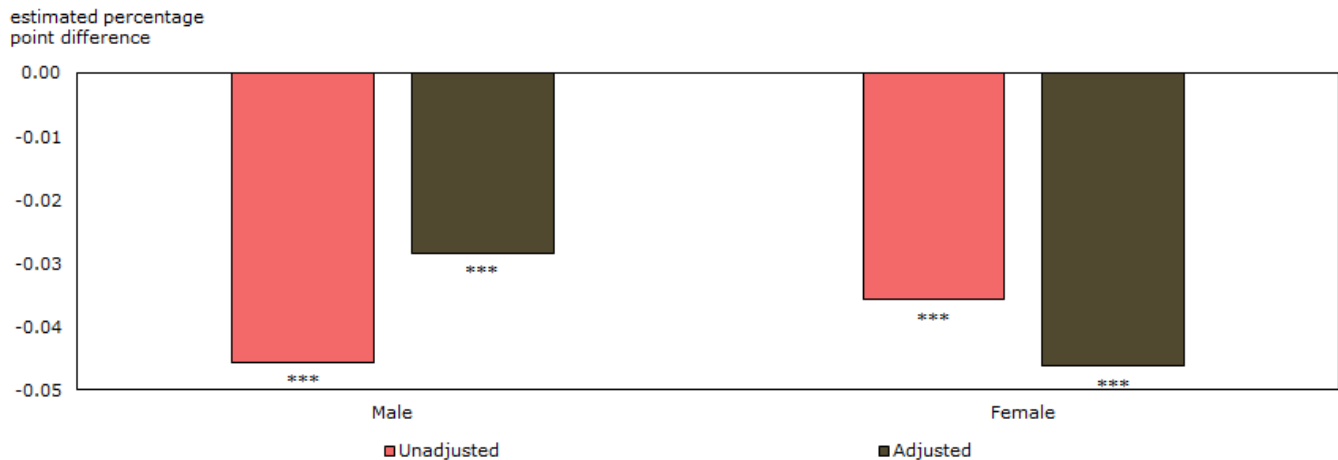
1. The process for obtaining journeyperson certification varies across Canada. According to Statistics Canada (2023b), “requirements for granting a certificate vary by jurisdiction in Canada. In most cases, apprentices are issued a certificate when they fulfill such requirements as supervised on-the-job training, technical training and passing one or more examinations. Trade qualifiers, meanwhile, become certified once they pass an examination.”

before to certification through four years after certification), using the sample from Leanage and Stick (forthcoming).^{2,3,4}

Childhood immigrants are less likely to become certified journeypersons than Canadian-born individuals, and this gap is more prevalent among females

Chart 1 presents the predicted probabilities of obtaining certification by sex and childhood immigrant status. In Model 1, which controls for year of certification, childhood immigrants were less likely to obtain certification than Canadian-born apprentices among both males and females (by 5 and 4 percentage points, respectively). In Model 2, which accounts for sociodemographic, income, employment, and program characteristics, childhood immigrants remained less likely to obtain certification, with gaps of 3 percentage points for males and 5 percentage points for females. Overall, the results indicate persistent certification disadvantages for childhood immigrants regardless of sex.

Chart 1
Estimated percentage point difference in certification among registered apprentices by sex and childhood immigrant status



Note: Controls in unadjusted models (year of certification) and for adjusted models age, marital status, region, pre-registration training credits, program duration, trades, type of certification, union membership, number of industries, registered pension plan member and year of certification.
Sources: Statistics Canada, Longitudinal Immigration Database, Education and Labour Market Longitudinal Platform, 2023.

2. The longitudinal employment income sample (Leanage & Stick, forthcoming) includes approximately 89% of certified journeypersons who could be matched to the certification sample (Leanage, 2026). Individuals were excluded if employment income data were not available for all five observation periods—two and four years before certification, the year of certification, and two and four years after certification—consistent with Statistics Canada’s longitudinal earnings methodology (Statistics Canada, 2023b).
3. Sample size limitations in the forthcoming studies (Leanage, 2026; Leanage & Stick forthcoming), reflecting the predominance of males (approximately 85% to 90%) and the smaller share of females (approximately 10% to 15%) in apprenticeship and journeyperson samples, precluded fully disaggregated analyses by sex across certification cohorts, duration, and trade-specific income outcomes. The analyses are therefore combined in this article to examine sex differences in certification and employment income outcomes.
4. Similar to Leanage & Stick (forthcoming), adult immigrants were excluded from the analysis because they may enter skilled trades through economic immigration streams emphasizing pre-migration work experience and credentials—such as the Federal Skilled Worker Program—resulting in employment trajectories that differ from apprenticeship-based pathways completed in Canada (see Statistics Canada, 2023c).

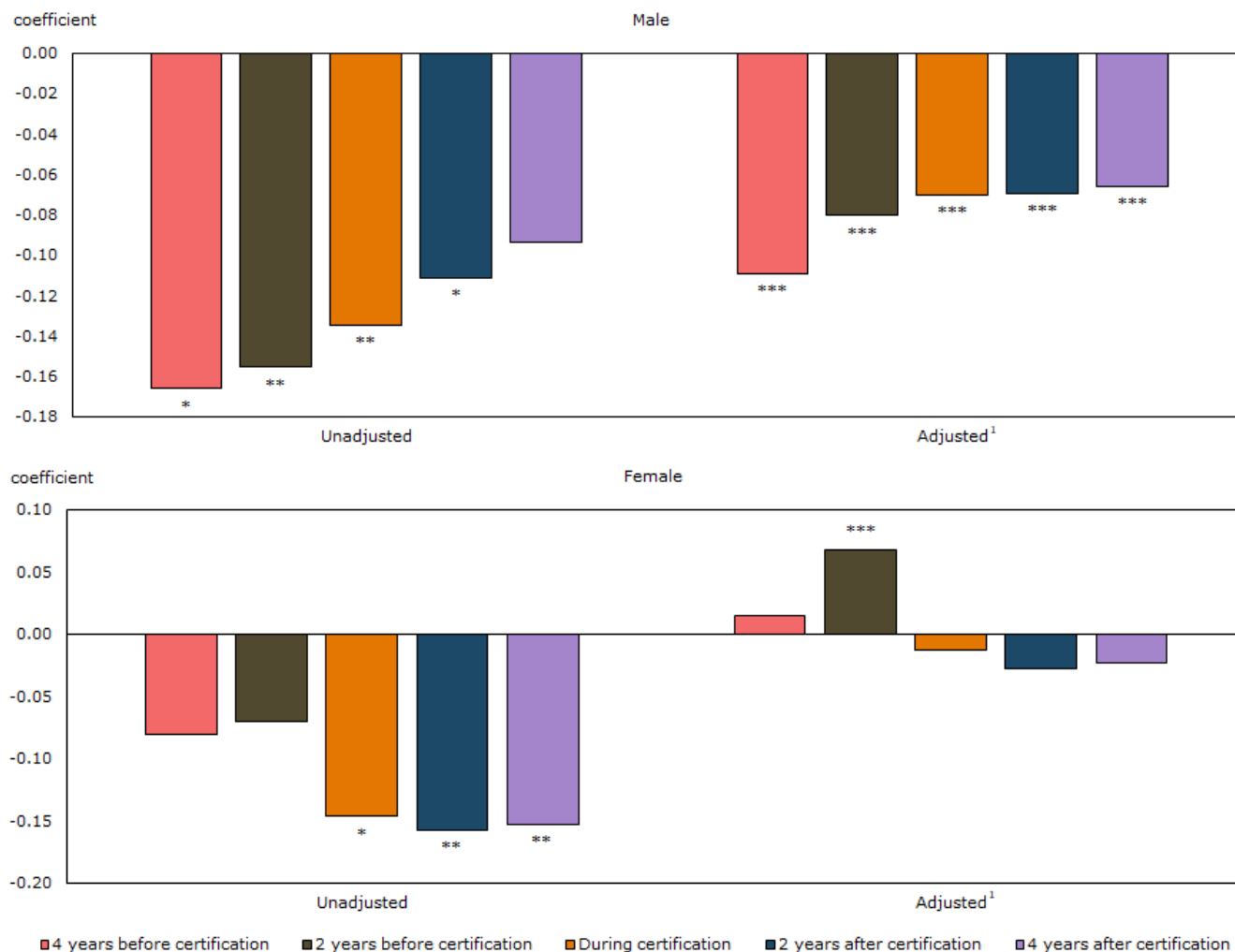
Additional analyses (not shown) suggest that observable characteristics explain different shares of the certification gap—about 35% for females and about 45% for males. Among females, the largest contributions are associated with income distribution, particularly earnings below \$15,000 (42%), regional differences in British Columbia (38%), and pre-registration credits (27%), while differences in apprenticeship program duration reduce the gap (–92%). Among males, the explained portion of the gap is primarily associated with income distribution, especially earnings below \$15,000 (48%), pre-registration credits (27%) and differences in age structure (–21%). The results indicate that certification gaps are partly shaped by differences in labour market conditions, previous training and demographic composition, with the relative contribution of these factors differing between females and males.

Male childhood immigrant journeypersons had lower annual earnings compared with male Canadian-born journeypersons before, at, and after certification

Chart 2 presents estimates from ordinary least square regression models, showing sex differences in log annual income earnings by childhood immigrant status over time relative to certification, accounting for sociodemographic, employment and program-related characteristics.^{5,6}

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5. Similar to Leanage and Stick (forthcoming), standard errors are clustered at the trade level to account for potential correlation in earnings among workers within the same trade. Previous research shows that wages and skill accumulation are strongly occupation-specific, implying shared earnings structures within occupations (Altonji et al., 2016; Böhm et al., 2024; Kambourov & Manovskii, 2009).
 6. Following the Leanage and Stick (forthcoming) study, percentage changes in odds are calculated by transforming the estimated log-odds coefficients using the formula $(e^{\beta} - 1) \times 100$. Values greater than 100% reflect multiplicative differences in odds rather than bounded percentage changes. For example, a 125% increase indicates odds that are more than twice as large as those of the reference category, while larger values indicate substantially stronger associations.

Chart 2
Differences in log annual earnings between childhood immigrant and Canadian-born journeypersons, by sex and time relative to certification



* significantly different from reference category ($p < 0.05$)

** significantly different from reference category ($p < 0.01$)

*** significantly different from reference category ($p < 0.001$)

1. Adjusted earnings are based on an ordinary least squares regression model that controls for controls in unadjusted models (year of certification) and for adjusted models age, marital status, region, pre-registration training credits, program duration, trade (five-digit), union membership, number of industries, registered pension plan member, and year of certification.

Note: Controls in unadjusted models (year of certification) and for adjusted models age, marital status, region, pre-registration training credits, program duration, trade (five-digits), union membership, number of industries, registered pension plan member, and year of certification.

Sources: Statistics Canada, Longitudinal Immigration Database, Education and Labour Market Longitudinal Platform, 2023

Among males, childhood immigrant journeypersons consistently had lower annual earnings than Canadian-born journeypersons across all time points relative to certification with controls. In Model 1, childhood immigrant males had approximately 14% to 15% lower annual earnings than Canadian-born journeypersons two and four years before certification and about 12% lower earnings at the time of certification. Although the earnings gap narrowed after certification, childhood immigrant males continued to earn about 10% less two years after certification. By four years after certification, the difference in earnings between childhood immigrant and Canadian-born journeypersons was no longer statistically significant. In Model 2, childhood immigrant males had about 10% lower annual earnings four years before certification, about 8% lower two years before certification, and roughly 7% lower at the time of certification and in the post-certification period (6% to 7%) relative to Canadian-born journeypersons. Additional analysis (not shown) indicated that observable characteristics account for a substantial share of the earnings differences among males, with the largest contribution coming from regional differences

(reducing the gap by about 30% to 36%), followed by union membership (about 14% to 18%), registered pension participation (about 14% to 22%) and trade specialization (about 11% to 14%).

By contrast, among female journeypersons, most differences in earnings between childhood immigrants and Canadian-born individuals were not statistically significant. In Model 1, childhood immigrant females earned approximately 14% less at certification, 15% less two years after certification, and 14% less four years after certification relative to Canadian-born female journeypersons. However, after accounting for sociodemographic, program, trade, and employment characteristics, these differences were no longer statistically significant. The only statistically significant difference observed was two years before certification, when childhood immigrant females earned approximately 7% more than Canadian-born female journeypersons. Additional analysis (not shown) demonstrated that the earnings difference two years before certification for females was largely explained by observable characteristics, particularly apprenticeship program duration (92%), union coverage (22%), registered pension participation (14%), regional differences (12%), and trade specialization (10%). Overall, the results suggest broadly similar earnings patterns between childhood immigrant and Canadian-born females across the certification trajectory.

Conclusion

This article provided evidence that integration into the skilled trades among childhood immigrants varies by sex and across different stages of the apprenticeship pathway, including early career income outcomes. Childhood immigrant journeypersons, regardless of sex, were less likely to become certified journeypersons than their Canadian-born counterparts, with larger and more persistent gaps observed among females. However, employment income trajectories varied by sex. Among male journeypersons, childhood immigrants consistently had lower annual employment income earnings before, at, and after certification, relative to their Canadian-born counterparts after accounting for sociodemographic, program and employment characteristics. Among female journeypersons, income differences across the certification trajectory were mixed and less consistent. Additional analyses indicate that differences in pre-apprenticeship income distribution, regional labour market conditions, previous training credits and demographic composition explain a substantial portion of certification and earnings gaps, with the relative contribution of these factors varying by sex.

This study extends existing research on immigrant journeypersons by focusing on labour market integration of childhood immigrants and highlighting how disparities emerge at multiple stages of the apprenticeship and early career pathway. Consistent with previous work (Leanage, 2026), childhood immigrants—regardless of sex—are less likely than their Canadian-born counterparts to obtain certification and become journeypersons. Aligned with Leanage and Stick (forthcoming), childhood immigrants who become certified also have lower annual income earnings before, at, and after certification. However, sex-disaggregated analyses show that this overall disadvantage is driven primarily by childhood immigrant males, who experience persistent income disadvantages across the certification trajectory. These results underscore the importance of examining skilled trades pathways by immigrant status and sex, particularly in the context of meeting current and future labour market demand in Canada.

The patterns observed in the present study are broadly similar to those of adult immigrants, particularly among males, despite differences in age of arrival (see Paul et al., 2026). This suggests that adult and childhood immigrants may experience similar labour market disadvantages in skilled trades when compared with the Canadian-born population. However, because this study does not directly compare childhood and adult immigrants, further research is needed to examine the extent these groups differ in their post-certification employment outcomes. Further research could also examine trade-specific and institutional factors—such as wage-setting arrangements, union coverage, firm size, regional labour market conditions and access to employment networks—that may be associated with observed

differences in post-certification outcomes among childhood immigrants. Longer-term analyses following journeypersons beyond four years after certification, as well as qualitative or mixed-method approaches, would provide further insights on how workplace practices, job assignment processes and career progression contribute to variation in labour market outcomes within the skilled trades.

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