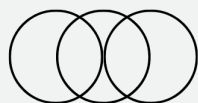
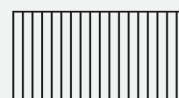
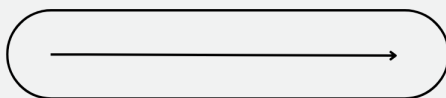


WOMEN
WORK &
ECONOMY



ECONOMIC REPORT

Canada's racialized immigrant women ^{1 2}

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Executive Summary

Immigrants have traditionally lagged behind labour outcomes of Canadian born workers, a fact that is more obvious for immigrant women and for recent arrivals (those entering Canada within the last five years). In this report we explore the barriers and challenges faced by racialized newcomer women in the Canadian labour market and how differences in their characteristics are (or aren't) related to differences in labour market outcomes. We use a specially designed survey to capture the experiences of a sample of racialized newcomer women regarding integration into the labour market and what resources and strategies have been most helpful in achieving career success and improving their quality of life. We follow with an in-depth analysis of the labour market environment of immigrant women to Canada using data from the Labour Force Survey and the O*Net data base. This allows us to quantify to what extent immigrant women may be facing barriers and challenges in the labour market, not only along many standard measures of job quality, such as employment, pay, or type of contract, but also examining other non-standard measures of job quality that are informative of the resilience of the jobs immigrants hold, such as the tasks they perform in their jobs.

We find that significant initial gaps between newcomer and Canadian-born women exist in employment, wages, schedules and tasks. Newcomer women work less hours, are less likely to work full time or have permanent contracts and earn substantially less than their Canadian-born counterparts. They are also less likely to work jobs requiring non-routine cognitive tasks, which are typically associated with quality jobs. However, they also experience significant improvements along all job aspects. For instance, initial wage gaps to between 63% and 68% of their original size over a span of twenty years. This progress is slightly faster for university educated women. More importantly, gaps in non-routine job tasks also diminish substantially over time, at least by 50% if not more. While it is difficult to evaluate whether a given type of job task signals a job as “good“, the general consensus is that nonroutine tasks will be harder to replace by technology, making those tasks – and the jobs that require them - safer (Frank et al., 2021).

Additional analysis also shows that these improvements are far from being homogenous among immigrant women, with significant additional gaps for immigrants more likely to be racialized, particularly those from East and South-east Asia. On this note, we highlight the substantial heterogeneity of experiences regarding the labour market integration of racialized immigrant women, and immigrant women more generally. Education plays a major part in these differences, but also family situation and the ability to validate foreign experience and credentials during the job search.

Introduction

Racialized immigrant women are known to have, on average, significantly worse labour market outcomes in host countries. Research on why and what can be done about it is limited, specifically for those falling at the intersection of race, gender and immigration status. Even research that does exist becomes quickly dated as the population make-up and immigration policies change often. Understanding why labour outcomes for these groups are so poor is crucial in economies in need of a skilled, innovative, and young workforce.

The purpose of this project was to identify how to improve the labour market outcomes of Canada's Racialized Newcomer Women (RNW), and as a result, reap the potential economic benefits of fully utilizing their talents in the Canadian economy. We use insights gained from examining the labour market environment of immigrant women, as well as survey data on the experiences of RNW specially gathered for this purpose, to inform the gaps in outcomes faced by these group and to direct policy towards the exact barriers experienced by these groups. In this study, we adopt the broad language of racialized immigrant women, only substituting in other terms like visible minority and ethnicity when the available data precludes the accurate use of this terminology.

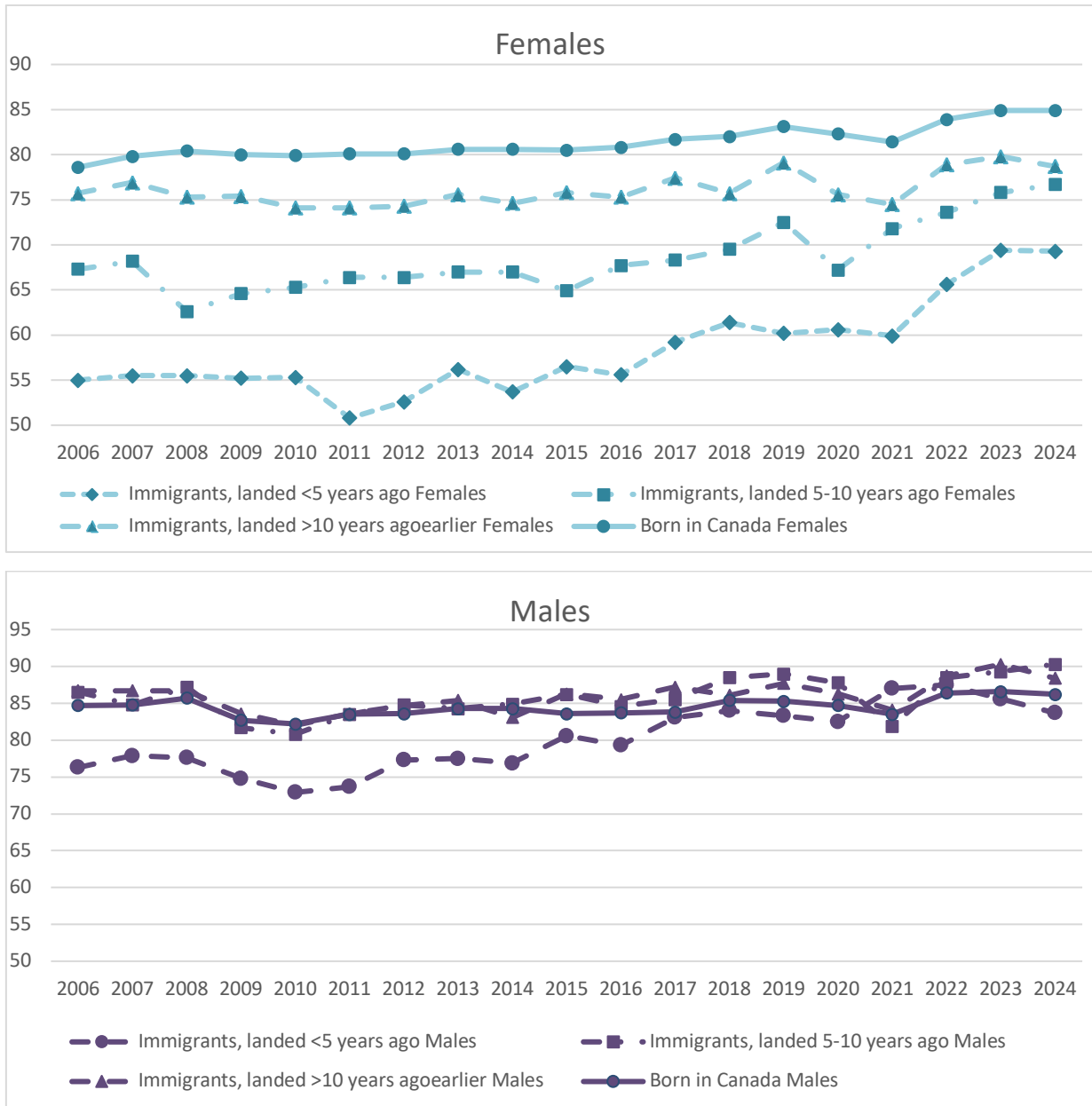
Immigrant – Canadian-born differences in economic outcomes

The number of racialized immigrant women in Canada has steadily increased over recent decades, from 55% of newcomer women immigrants (that is, those who arrived in Canada within the last 5 years) identifying as visible minorities in 1981 to 84% in 2021.³ Although many studies analyze the labour market outcomes of immigrants, racialized (or visible minority) persons, and women separately, the intersectional impact of all three characteristics has been understudied despite data that suggests that racialized immigrant women have by far the worst labour market outcomes on average.

The deterioration of Canadian immigrant's labour market outcomes over the late 1990s and early 2000s – particularly those of recent immigrants - is well documented for men (Aydemir and Skuterud, 2005; Yssaad and Fields, 2018) and to a lesser extent for women (Frenette and Morissette 2005; Adsera and Ferrer 2014). Figure 1 shows the evolution of employment rates since 2006, documenting the much larger gaps between immigrant and Canadian-born women relative to men. It also shows the gains in labour market outcomes recently documented are driven by immigrant men rather than women.

³ Statistics Canada. DOI: <https://doi.org/10.25318/9810030801-eng>

Figure 1. Employment Rate by immigrant status.

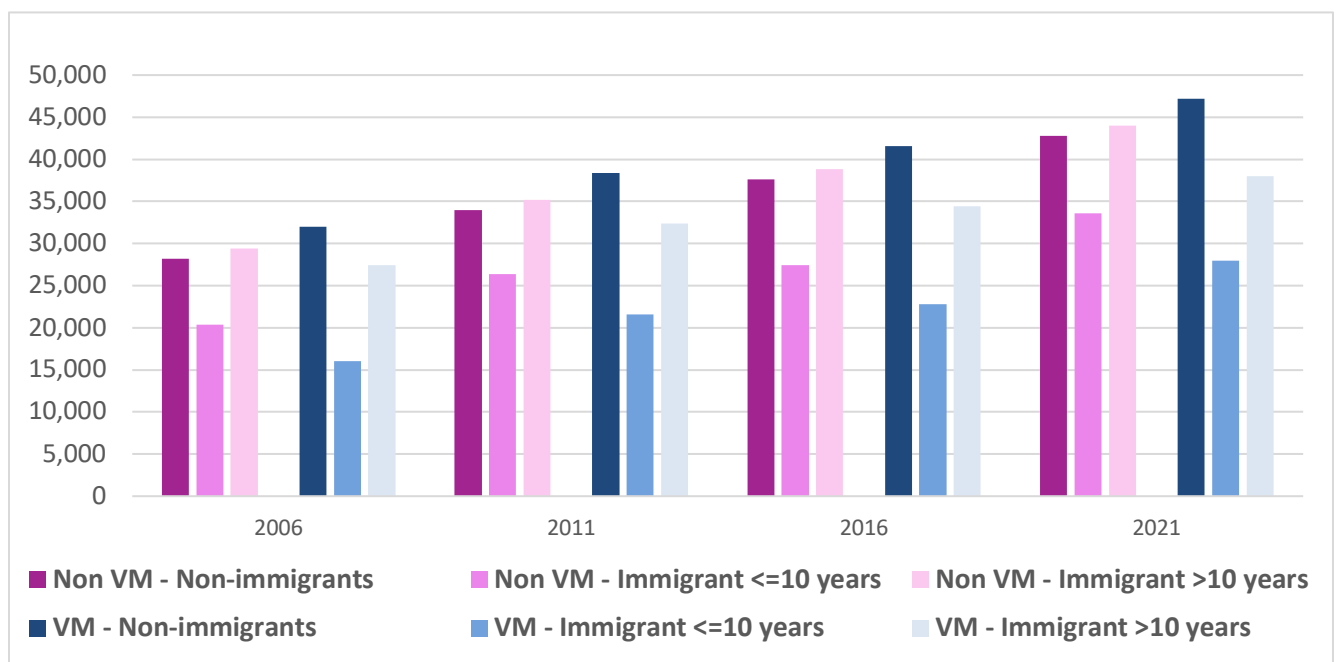


Source: Statistics Canada. Table 14-10-0086-01. Labour force characteristics of immigrants by educational attainment, three-month moving average, unadjusted for seasonality

A knowledge synthesis report developed on labour market outcomes and barriers faced by racialized immigrant women (Momani et al., 2020) found that previous research in this area does not typically account for intersectionality, leaving knowledge gaps and overlooks opportunities to apply lessons learned. The literature often focuses primarily on the challenges faced by

immigrant men, with some academic and policy attention paid to the unique challenges faced by immigrant women (Adserà and Ferrer 2016; Ng and Gagnon 2020). The existent literature documents that racialized immigrant women in particular face the most significant challenges entering and progressing within the labour market, having lower rates of labour force participation and higher unemployment in relation to comparison groups. Lightman and Gingrich (2013) show that women immigrants and racialized immigrants hold disproportionately more precarious jobs and are at higher risk of social exclusion.⁴ Moreover, wage gaps are significantly wider for visible minority immigrant women (Hudson 2016) relative to non-immigrant women and to Canadian-born, visible minority women (See Figure 2.).

Figure 2. Median wage of Women by visible minority and immigration status



Source: Statistics Canada. Table 98-10-0642-01. *Average and median employment income by visible minority, selected sociodemographic characteristics and the census year.*

The study of the reasons behind the existence of these differences in labour market outcomes between the immigrant and the Canadian born is extensive. Here we will only summarize the most common explanations.

- (1) One potential factor affecting the gaps for women is likely linked to their immigration entry visa category. Even if the number of immigrant women entering Canada as principal applicants has increased over the years, entering as a spouse or dependent of a principal

⁴ This precarity was made obvious during the pandemic, when Statistics Canada reported that newcomers to Canada, particularly newcomer women, were more likely to lose their jobs than Canadian-born workers (Hou, Picott and Zhan, 2020)

applicant is still the main category for women.⁵ For women arriving as spouses, Bonikowska and Hou (2017) show how those married to spouses entering as economic immigrants tend to perform better than those entering within the family class. The heterogeneity in these outcomes likely comes from the fact that even though the educational attainment of spouses is likely to match that of their partners (and principal applicants) through assortative matching, other characteristics such as experience, language fluidity, or the ability to move may not, rendering dependents less “labour market ready” than principal applicants (Sweetman and Warman, 2014). Banerjee and Phan (2014) further examine the issue of the occupational integration of dependent immigrants and find that *professional* immigrant women face significantly worse labour prospects regardless of their background.

- (2) Changes in the fortunes of immigrants arriving to Canada have also been linked to shifts in the most common source countries of immigrants, from Europe to Asia and the Middle East during the late 1990s, early 2000s, even if at that time immigration policy changes tended to favour more educated and skilled workers to facilitate their economic integration (Ferrer, Picott, and Riddell 2014). Empirical evidence shows that labour market assimilation can be difficult even for these highly skilled immigrants. Picot and Sweetman (2005) attribute increasing immigrant wage gaps to lower levels of socio-economic affinity between Canada and the new source countries, i.e. increasing linguistic distance (Adsera and Ferrer, 2021) or difficulty with credential recognition (Banerjee et al., 2021). However, even foreign credential recognition is not a guarantee for successful integration. The Toronto Region Immigrant Employment Council (TRIEC) reports that recently arrived foreign-educated immigrants are the least likely to work a job requiring a degree. Further, the earning gap for immigrant women, relative to Canadian-born women, is about 50% (TRIEC, 2018). Turcotte and Savage (2020) note that immigrants in the health field tend to be particularly overqualified for their jobs.⁶
- (3) Even among those with strong language proficiency and credentials, the ability of highly skilled professionals to pursue reskilling, such as technical training that is necessary to enter the workforce, can be inhibited by the cost and length of the reskilling process, especially if they are mothers who need access to childcare. Although this is a common challenge for women more generally, immigrant women are most significantly affected because of reduced social and family support, particularly during the initial years in the country. In addition, cultural norms regarding gender roles deeply affect household

⁵ In 2020 44% (37%) of immigrants admitted through Federal (Provincial) programs as principal applicants identified as female, up from 20% in 2013. However, 2020 was an exceptional year in terms of immigrants admitted due to the Pandemic, so caution should be exercised in inferring trends (Statistics Canada, <https://www.canada.ca/en/immigration-refugees-citizenship/corporate/publications-manuals/departmental-performance-reports/2021/gender-based-analysis-plus.html>) .

⁶ The fraction of nurse aides, care aides, or personal support care workers, with a bachelor’s degree is 25% versus 5% among non-immigrants (Turcotte and Savage, 2020).

bargaining regarding the balance between household and market activities for immigrant women to a larger extent than for the Canadian-born. This often results in limited roles for immigrant women to engage in the labor market.

- (4) There is further evidence both from labour market data and from reports from racialized immigrant women themselves of the impact of racial and gender discrimination on their labour market outcomes. Even when immigrant women are fluent in English and/or French, they describe discrimination for having accents or for how they speak these languages in their search for work. The social experiment conducted by Oreopoulos (2011), where fake resumes of similarly qualified individuals were sent to job adds in Toronto, offers some evidence of discrimination in employment. The study found that applicants with English-sounding names (versus foreign-sounding names) were much more likely to receive a call from prospective employers.

To fully understand the intersectional challenges of racialized immigrant women in the labour market, we use survey data specifically designed to collect the experiences of RNWs. The survey was designed to gain insight into the integration of RNWs into the labour market and which resources and strategies have been most helpful in achieving success in their careers and improving their quality of life.

Further, we will also summarize trends in labour market outcomes of immigrant women. Historic gender gaps in employment and wages were improving for women in general, and immigrant women in particular, during the years before the Pandemic (TRIEC, 2018). These gains were lost during the COVID-19 years, which hit immigrant women the hardest, but the recovery has been swift. Since 2022, progress in terms of participation has been unprecedented for women in Canada (LMCI Reports, March 2022; Crossman et al., 2021). In terms of employment, there have also been considerable gains, although not as remarkable as that of men (figure 1).

However, it remains to be seen whether these gains have reached all women alike, specifically immigrant or racialized women. Even during periods when marginal groups are “catching up” to mainstream demographics in terms of employment and wages. The question remains of whether these two variables properly summarize all relevant dimensions of desirable job characteristics. Measuring the quality of jobs more broadly is an important matter, but the multidimensional aspects of quality make this a slippery task.⁷

In general, little is known about whether the jobs immigrants hold are (or were in the past) “good” or “bad”. We consider here a broad array of standard job quality measures, such as wages, hours, type of contract, and full time versus part time work. We also consider other characteristics

⁷ In Canada, Chen and Mehdi (2018), used the 2016 Canadian General Social Survey (GSS) to track job quality across six dimensions contained in the European Union framework. Although highly informative, the GSS questionnaire is highly specific and difficult to replicate in large survey studies. A more objective look at job quality was summarized by the ICBC job quality Index developed by (Tal, 2013) encompassing wages, part-time work and self employment.

that can shed further light into the potential resiliency of these jobs, such as managerial activity and tasks required by jobs. How the distribution of these attributes across domestic and foreign-born workers changes over time will partially answer questions regarding the breadth of labour market progress for immigrant women.

On the policy front, increasing skilled immigration is often viewed as a solution for labour shortages across the country. However, if these newcomers – particularly those who are racialized and/or women – are not working in jobs commensurate with their skills and experience due to a variety of factors including gender and racial discrimination, this policy objective will not be met. Even though newcomer unemployment levels have been steadily decreasing over the years (prior and after the COVID-19 pandemic), these figures do not tell the full story of the many skilled immigrants taking jobs that they are overqualified for or and, often in a different field from which they have trained and have experience in, simply to meet their basic financial needs. There are potentially very high benefits in better employing the talents of RNW, such as a more cohesive society, leading to improved economic outcomes for all Canadians.

Theoretical framework and Empirical Methodology

To interpret estimates of the gaps in job attributes (at arrival and in subsequent years) between immigrant and Canadian-born women, we use the standard human capital theory applied to immigration, while recognizing that other factors such as cultural norms or discrimination might affect these patterns. When applied to immigration, the human capital model predicts that upon entry, immigrants experience a depreciation of the human capital specific to their previous labour market experience in their country of origin. This includes skills such as language fluency, knowledge of institutions and existence of established networks. Part of the economic assimilation process consists in acquiring these forms of country-specific human capital in the host country.⁸ As noted above, empirical economic research documents this process: immigrants experience worse labour market outcomes for immigrants than the native born upon arrival, but this is followed by a process of “catching-up” during the first ten years after migration. Whether complete parity to native levels is ever achieved is a matter of much controversy. Moreover, subsequent work points towards substantial heterogeneity in the process of “catching-up” across immigrants (See Bevelander and Nielsen (2001) for Sweden; Clark and Lindley (2005) for the UK; and Clarke et. al. (2019) for a comparison between Canada, Australia and the US).

Based on the previous literature examining differences in labour market outcomes between immigrant and native-born women, we propose the following working hypothesis regarding whether attributes of jobs held by immigrant women are expected to converge to those of native-born women in their first ten years in the destination country.

H1. Beyond educational differences, we expect the attributes of jobs held by immigrant women to differ in skill requirements from those of the native born. Their lack

⁸ See seminal papers by Chiswick (1986); Borjas (1987); Duleep and Regets (1997)

of local human capital will result in negative initial gaps in attributes signaling “good jobs” (i.e. immigrants will have jobs showing less of these attributes than the Canadian born), such as managerial activity, full time employment, permanent contracts, and high levels of non-routine job tasks. Alternatively, we expect smaller and possibly positive gaps in attributes that signal “bad jobs” (i.e. immigrants will have more of these attributes than the Canadian born), such as fixed term or casual contracts, part time or involuntary part time, and high levels of routine skill tasks, which may require less local human capital.

H2. Through the acquisition of local human capital and on-the-job learning, we expect these differences to decrease over time.

It is important to note that or may already employ a substantial share of immigrants and provide a point of entry into the labour market for newcomers.

Empirical Methodology

We use two different paths to learn about the situation of RNW in Canada. First, we conduct an exhaustive descriptive analysis of the result from the RNW Survey conducted by the Women, Work and the Economy group. This will inform us of the current situation of RNWs in detail providing context for regression results. Second, we conduct a direct comparison between immigrants and Canadian born women using regression methods with data from the Labour Force Survey (LFS).

To estimate the assimilation process of immigrants into the labour market, we use probit regressions or OLS regression models, depending on whether the dependent variable is binary or continuous. The coefficients of interest will inform us of how the position of immigrants changes with time in the country, relative to Canadian-born women.

In the case of binary dependent variables, the probit equation will be specified as follows:

$$\Pr(Y_{it} = 1) = \Phi(X_{it}\theta + \sum_k \beta_k ysm_k + \beta_2 Imm + \tau + m + Prov + \varepsilon_{it}) \quad (1)$$

where the dependent variable (Y_{it}) is the outcome of interest, such as indicators for managerial jobs, working full time or type of contract of women i observed at time t , and $\Phi(\cdot)$ is the cumulative normal distribution. The vector X_{it} contains standard demographic characteristics that are important in determining labour market outcomes of women. This include: a constant, age and age squared (to address life-cycle effects), education and presence of young children (to account for distinct productivity and opportunity costs of employment) and the prime-age male unemployment rate in the area to control for the business cycle.⁹ The independent variables of

⁹ It is important to remove from labour outcomes confounding effects that have to do with the extent of economic activity, since understandably, one would expect less employment during economic downturns regardless of gender or immigrant status. The standard measure of the business cycle is the prime-age male

interest are ysm_k , denoting k indicators, one for each 5-year period of years since arriving in Canada, (0 to 5; 6 to 10; 11 to 15; 16 to 20) and the variable Imm , an indicator for foreign born. The coefficients β_k capture the effect of assimilation into the labour market for immigrants, with $k=1$ denoting the effect of newcomers, and $k=4$ the effect of having been in Canada between 16 and 20 years. By construction, the coefficient β_2 corresponds to immigrants arriving more than 20 years ago. We also include province fixed effects to control for institutional features of the employment insurance system that may affect the decision to work. Fixed effects accounting for time trends and seasonal effects - a series of indicators for survey's month and year - are also included in (τ) and (m) and ε_{it} represents the error term. The Canadian born are the omitted category. Note that this specification estimates assimilation profiles as a spline (or step) function, rather than forcing a quadratic profile to labour market assimilation, which tends to overestimate the assimilation rate of recent arrival cohorts.

We use a similar linear regressions specification to analyze differences in wages, hours, and the tasks that are required in jobs held by women. The focus of our analysis will be to estimate the differences in these outcomes between Canadian-born women and immigrants in terms of how long the later have been in the country through an examination of the coefficients β_k .

$$Y_{it} = X_{it} \beta_1 + \beta_2 Imm + \sum_k^4 \beta_k ysm_k + \tau + m + Prov + \varepsilon_{it} \quad (1')$$

where the dependent variable (Y_{it}) is the outcome of interest, such as hourly wages, or skill indexes of women i observed at time t and all other variables are specified as above.

In addition, we modify our regressions slightly to address the effect that education or the presence of children bore on immigrant - Canadian-born differences in labour market outcomes:

$$\Pr(Y_{it}^{\square} = 1) = \Phi(X_{it}\Theta + \gamma_2 Imm * Education + \tau + m + Prov + \varepsilon_{it}) \quad (2)$$

$$\Pr(Y_{it}^{\square} = 1) = \Phi(X_{it}\Theta + \alpha_2 Imm * Young children + \tau + m + Prov + \varepsilon_{it}) \quad (3)$$

where ysm_k , is replaced by the interaction of the immigrant indicator and the education vector. The vector of coefficients γ_2 now reflects the changes in the probability of a given outcome depending on the level of education. In equation (3) the immigrant indicator is interacted with an indicator for the presence of young children (aged 0 to 5) and the vector of coefficients α_2 reflects the changes in the probability of a given outcome depending on whether there is a child 0 to 5 in the household. Similar equations are run for the linear regression case.

Estimating the labour market assimilation of immigrants in the host country requires disentangling the economic progress of a given cohort with time in the country from entry effects intrinsic to the composition of immigrants arriving any given year, which changes depending on the international political and economic landscape at the time of migration and the host country's immigration policies. Having multiple cross sections allows to identify the average progress of

unemployment rate, which isolates the effect of mainstream economic activity, leaving the female coefficient to pick up any gender related differences that remain.

immigrant cohorts distinctly from the entry effects by replacing the immigrant indicator with a series of indicators for different periods of arrival. However, the large number of parameters to be estimated and the limited sample of immigrants in the data renders these estimates imprecise at times. For estimates without cohort effects, such as the ones we note here, we acknowledge that these are a mixture of the cohort and entry effects (Borjas, 1985).

We are also aware that our estimates might be biased as we are unable to account for unobserved worker heterogeneity, which will require panel data. This is a common concern in the economics literature in immigration, and it has no obvious solution with current available data. However, in this regard we report that our estimates are similar to others in the field.

Data

We use two main data sources. The first is the RNW survey conducted by the Women, Work and the Economy group to learn about the experience of this demographic. The second is the LFS conducted by Statistics Canada to collect labour market and demographic information of Canadians to monitor labour market outcomes.

The RNW Survey

We designed a survey to collect the experiences of racialized newcomer women (RNW). The survey adopts the broad language of racialized immigrant women, only substituting in other terms like visible minority and ethnicity when the available data precludes the accurate use of this terminology. The population of our study included economic-category recent immigrants to Canada who identify as “racialized” and as “women”. We limited the sample to economic category immigrants since these are typically immigrants intending to work and who have plausibly prepared for immigration and integration in the labour market. As such, they constitute a lower bound in terms of the type of challenges immigrants may face for integration.

The Survey was distributed to 800 participants, from the email lists of immigrant-serving organizations, and paid an honorarium of \$50 per participant. Respondents had to identify as racialized women who became a permanent resident in Canada in 2012 or later through an economic category pathway (e.g. Express Entry, Provincial Nominees, Start-up visa, etc.). Although recent immigrants are typically those arriving in the country within the past five years, we extended the criteria to ten years because of the reduced intake of immigrants during the pandemic. Respondents were further restricted to be between the ages of 18 and 65, and to have a phone number in the area codes for the nine major Canadian cities where most immigrants concentrate (Toronto, Vancouver, Montreal, Calgary, Winnipeg, Saskatoon, Halifax, Edmonton, Ottawa).¹⁰

¹⁰ See the appendix for a listing of the pertinent area codes.

The survey asked about the respondent demographic background; immigration pathway; language, education, and labour market status; gender roles and the household division of labour; the use of government or private settlement services and resources; instances of discrimination; existence of support networks; health; impact of COVID 19; and expectations versus reality of the immigration experience.

We received a total of 694 answers to the survey, an 87% response rate.

The RNW Survey descriptive statistics

Most respondents entered Canada through the Worker’s program (61%), 28% entered through the Provincial Nomination program and 8% entered to the permanent resident pathway available to temporary residents.¹¹ Most respondents arrived with their families (74%) and became permanent residents (PR) in 2018 or later (82%). Respondents identify within the following broad ethnic categories: 31% South and Southeast Asian (e.g., East Indian, Pakistani, Sri Lankan, Vietnamese, Cambodian, Laotian, Thai and Filipino) 15% East Asian (Chinese, Japanese, Korean) 14% West Asian (Iranian, Afghan and Arab), 33% black, and 5% Latino (Includes all Latin American ethnicities). There is a 3% *Other Ethnicities* that correspond to Eastern Europe. Table 1. Shows how the sample compares with the immigrant population.

Table 1. Comparison between RNW Survey and Canadian Population

Panel A. Type of Economic Immigrant		
	Canada [1]	RNW Survey
Worker program	44%	61%
Skilled	24%	59%
Canadian Experience	15%	
Other	4%	2%
Business	3%	2%
Provincial Nominee	40%	28%
Temporary to PR pathway	13%	8%
Total Economic Class	272,635	677

¹¹ For an explanation of different programs see <https://www.canada.ca/en/immigration-refugees-citizenship/services/immigrate-canada.html>

Panel B. Ethnic Origin

	% Recent Immigrants ^[2]	RNW Survey
South Asian	30%	28%
Southeast Asian (includes Filipino)	16%	3%
East Asian (Chinese, Japanese, Korean)	14%	15%
Black	17%	33%
West Asian + Arab	16%	14%
Latin American	5%	5%
Other	1%	3%
Total	226,165	692

[1] 2023 data <https://open.canada.ca/data/en/dataset/f7e5498e-0ad8-4417-85c9-9b8aff9b9eda>

[2] 2021 Census of Population data <https://www12.statcan.gc.ca/census-recensement/2021/as-sa/fogs-spg/page.cfm?lang=E&topic=9&dguid=2021A000011124#>

Immigrant women in the RNW survey have high levels of education, with 32% having a bachelor's degree, and 60% a graduate degree. The main countries they obtained their education were Canada (10%), the UK (9%), China (7%), India (16%), Nigeria (20%). Approximately, 73% of these degrees were in English. It is therefore not surprising that 88% report an Excellent or Very Good level of English, with only 5% reporting a Fair or Poor level of English.¹² They arrived with significant levels of work experience with 60% reporting more than 5 years of experience before arriving.

Respondents resided mostly in Ontario (54%) with Alberta (18%), British Columbia (9%), Manitoba (7%), Saskatchewan (5%) and Nova Scotia (5%) and Quebec (3%) following.¹³ 74% of immigrants are married or single (never married) (19%). Those who had a partner report him to be a PR as well (56%), a citizen (12%) or PR (3%). These partners have similarly high levels

¹² Only 9% of respondents report high levels of French proficiency (Excellent or Very Good), and 86% report low levels (Poor or Fair).

¹³ The distribution of the Canadian population across provinces is Ontario 39%; Alberta 12%; BC 14%; Quebec 22%; Manitoba 4%; Saskatchewan 3%; Nova Scotia 3%

THE RNW SAMPLE

Overall the sample of RNW women is not closely representative of the population of immigrant women in Canada. The main distinguishing characteristic is that they are a highly educated group, even considering the already high levels of education among immigrant women more generally. This is partly explained by the relatively low fraction of Southeast Asian women in the survey, the group with lower educational level, and the high fraction of Black women born in Africa, a group with significant higher levels of education among Black immigrants (*“Census in brief: A portrait of educational attainment and occupational outcomes among racialized populations in 2021”*, <https://www12.statcan.gc.ca/census-recensement/2021/as-sa/98-200-x/2021011/98-200-x2021011-eng.pdf>). The different distribution of ethnicities is likely related to the VISA entry category.

of education as the respondent (i.e. 22% Bachelor’s, 40% graduate degrees). Approximately 66% of the immigrant women report to be currently working (or on parental leave). Immigrants report family income with thinner tails than the total income distribution for Canada (Appendix, Table A.5).

Table 2. Education

	NRW Survey	All immigrants	LFS ^[1] Recent Immigrants	Canadian Born
High School or less	3%	20%	14%	26%
College	3%	27%	20%	41%
BA	32%			
Med	4%	54%	66%	33%
MA/PhD	56%			
Other	2%			

[1] Includes men and women.

Statistics Canada. Table 14-10-0087-01

<https://www150.statcan.gc.ca/t1/tb11/en/tv.action?pid=1410008701>

The Labour Force Survey and the O*Net

To provide examine how the labour market of immigrant women evolves with time in the country, relative to the Canadian born, we use microdata from the LFS confidential microdata files, for the years 2006-2022. The LFS is a large-scale monthly survey used by Statistics Canada to ensure accurate estimates of unemployment in various regions across the country. All members of the households in the LFS are followed for six months of the year and asked to provide basic

demographic information and details of their labour force activity. The confidential files are made available by Statistics Canada through the Canadian Research Data Centers Network. The confidential files of the LFS have the additional advantage of providing representative samples of the population that better inform our forecasts. Each month there is a new rotation group entering the survey that is followed for 6 months, hence pooling all cross-sectional data together potentially introduces bias in the estimates. While clustering techniques could be employed to correct for it, we adopted the cleaner strategy of selecting respondents in the first month of their rotation for the analysis (and checked the robustness of our estimates to alternative choice of months).

Our aim was to review recent trends in labour market outcomes for immigrant women. Starting in 2006, the LFS reports immigrant status (permanent or temporary residents), year and age of arrival. We further focused on women aged 25-59 (to circumvent complications regarding school and retirement choices), excluding temporary residents as we could not differentiate those who were and were not on a path to permanent residency. We also focused women who are married or living common law at the time of the survey, given the significance that marital status typically has in determining the labour market outcomes of immigrant women.¹⁴ Unfortunately, the LFS does not include immigration visa information (identifying the reason for migration), visible minority status, and only limited information about immigrants' country of origin, which restricted our ability to review trends for racialized women. We conducted separate analysis using a similar sample of immigrant men (i.e., married or living common law, aged 25-59, excluding temporary residents) to provide a comparison in assimilation patterns of married immigrant men and women relative to their respective Canadian-born counterparts.

The LFS reports on many labour outcomes, including hourly wages, hours of work, type of contract (permanent, contract work, other casual work) and full-time work, and define involuntary part-time work as “working part time for economic reasons”.¹⁵ Overall, these variables measure in large part the extent of job security, an important determinant of job quality. We also have information on the workers National Occupation Classification (NOC). From this classification we define an indicator for managerial occupations. We further use the NOC to match information on tasks used in the job coming from the O*Net. These attributes we take to inform on some attributes of job resiliency to automation.

The O*Net provides detailed information about the tasks required to perform each job for the 700 different Standard Occupational Categories (SOC) coded by the US government and provides indices that capture variation in different work requirements across occupations. Economics has long made use of this information to measure the impact of technological change

¹⁴ The LFS does not provide information about the length of the marriage or the immigration status of the partner at arrival.

¹⁵ Specifically, it excludes working part time due to illness, caring for family members, going to school or personal preference.

on work. Early studies investigated the precarity of jobs, routine and non-routine jobs, in view of technological change.¹⁶ We consider a more modern approach that focuses on task replacement, rather than job replacement, to account for the more realistic possibility that technology will change the task composition of most jobs rather than eliminating them completely (Autor, 2015; Acemoglu and Restrepo, 2018). The scope of tasks surveyed by the O*Net and the highly structured measurement process, offers a unique opportunity to explore the concentration of immigrants in key tasks and, we argue, delivers an additional approach to measuring job quality related to the probability of replacement by technology.

Numerous studies use the O*Net combined with labour force survey data in Western economies. In Canada, Imai et al (2019) use the O*NET information to construct indexes for analytical and social skills to be merged with the Longitudinal Survey of Immigrants, and Adsera and Ferrer (2016) merge similar information with the Canadian Census of Population to look at social and analytical skills of immigrants. In Europe, Adsera et al. (2021) and D'Amuri, and Peri (2014) use the O*Net to construct other tasks skill indexes to merge with the occupations in the Economic Union Labour Force Survey (EU-LFS), Ortega and Polavieja (2012) construct indexes for manual and communication skills and merge these with the European Social Survey, and Anghel et al., (2014) and Amuedo and De la Rica (2011) merge the O*NET with Spanish Labour Force Survey data. The implicit assumption in all this work is that the task content of occupations in the US and Canada and other European countries is similar in relation to the skill dimensions being measured. This seems to be the case across all European countries, including CEE countries (see for instance, Hardy et al. (2018), Cedefop (2013) or Handle (2012)).

The O*Net contains information on requirements of formal education, job training, as well as tasks and environmental conditions of the jobs encompassing 277 descriptors. Researchers often use Principal Component Analysis (PCA), a common statistical technique to reduce dimensionality while preserving as much of the occupational data variation as possible. We prefer to examine each of the O*NET tasks independently, rather than using a composite measure, to nest our results within those in Frank et al (2021) study of the changing nature of work in Canada. The tasks were selected to represent the five distinct task groups that the literature has identified: non-routine cognitive analytical, nonroutine cognitive interpersonal, routine cognitive, routine manual, and non-routine manual and physical (Autor and Handel 2013). These major groups align well with the *a priori* expectation of being affected by automation, with non-routine tasks being harder to automate and routine tasks being easier. They also distinguish tasks that have *traditionally* being associated with women's jobs, such as non-routine interpersonal tasks, and that might be considered harder to be the domain of immigrants, particularly those for whom English is a second language. We add a measure of physical proximity, given its role behind job loss during the pandemic. In the O*NET, work tasks are

¹⁶ Autor et al. (2003) pioneered the use of O*NET information to document changes induced by technological progress in the use of routine and non-routine tasks in the workplace. Nowadays, there exists a substantial literature examining the risks of automation on jobs (Frey and Osborne, 2013; Arntz, Gregory and Zierahn, 2016).

measured on an importance scale ranging from 1 (not important) to 5 (extremely important), except for *structured versus unstructured work; time spent making repetitive motions; and time spent using hands to handle, control or feed objects, tools, or controls*. The first one measures the extent to which a job is structured for the worker versus allowing the worker to determine their tasks, priorities and goals and is based on a scale of 1 (no freedom) to 5 (a lot of freedom) that represents a worker’s degree of autonomy in their job. Because of the way it is recorded we relabelled this task “*autonomy*” and consider it a non-routine task. The latter two tasks are based on a frequency scale ranging from 1 (never) to 5 (continually or almost continually). (<https://www.onetcenter.org/content.html>).

THE O*NET TASKS

1. **Non-routine cognitive analytical tasks:** analyzing data or information, thinking creatively, interpreting the meaning of information for others, and autonomy (performing unstructured versus structured work)
2. **Non-routine cognitive interpersonal tasks:** establishing and maintaining interpersonal relationships; guiding, directing and motivating subordinates; and coaching and developing others
3. **Routine cognitive tasks:** repeating the same tasks, being exact or accurate,
4. **Routine manual/physical tasks:** pace determined by speed of equipment, controlling machines and processes, and time spent making repetitive motions
5. **Non-routine manual/physical tasks:** operating vehicles, mechanized devices or equipment; time spent using hands to handle, control or feed objects, tools or controls; spatial orientation; and manual dexterity.
6. **Physical proximity:** To what extent does this job require the worker to perform job tasks in close physical proximity to other people?

LFS descriptive statistics

For the LFS data, we report average values of our main dependent variables in Tables A.1, A.2 and A.3 in the appendix. Table A.1 covers standard quality measures found in the LFS, table A.2. covers O*Net measures of different routine tasks required by the jobs held and table A.3 covers O*Net measures of non-routine tasks. In the first three rows, the tables provide the weighted mean difference in each measure for each group at the beginning and end of our sample relative to that of the Canadian born in 2006. In rows 4 and 5, they display the Immigrant – Canadian-born gap for each measure each year. The first panel in each of these tables displays data for women and the second panel reports similar figures for men.

On average, employment of Canadian-born women improved over the sample years (rising by 7 percentage points between 2006 and 2022), while that of immigrant women worsened (declining by 3 percentage points), relative to that of Canadian-born women in 2006. The immigrant – native-born gap in employment increased from 1 percentage point in 2006 to 10 percentage points in 2022. The immigrant – native-born *wage gap* also increased, from being 12 percentage points lower for immigrant women in 2006 to 16 percentage points lower in 2022. Changes in other attributes such as type of contract, managerial activity, full time work or involuntary part-time employment were relatively small in magnitude, except for changes in hours of work, which increased substantially more for immigrant women. Smaller changes in employment, wages and hours were observed for men. (Table A.1)

We further look at the difference in average level of job tasks – as collected by the O*Net – required in jobs performed by men and women over the period. The positive figures in the first and third row of Table A.2 show that jobs in 2022 require more of some routine tasks such as *tasks being exact, conduct repetitive tasks, control machinery, and perform repeated motions*, than jobs in 2006 did. Jobs held by immigrant women increased these required tasks in 2022 by more than those held by the Canadian born, which resulted in positive Immigrant – Canadian-born gaps for these tasks in 2022. The extent to which jobs in 2022 show high degrees of *autonomy* (allowing or not the worker to determine their tasks) has declined for Canadian-born women, but even more so for immigrant women. Recall that this is considered a negative feature as the index ranges from 0 (no freedom) to 5 (lots of freedom). Therefore, a decline in the measure indicates a more mechanic and structured job. In this regard, immigrant women seem to have gained terrain as the gap in 2022 was larger than that in 2006. Finally, pacing the job to the speed of equipment, is a requirement that has declined for Canadian-born women, but increased for immigrant women. The corresponding changes for men were less dramatic. The biggest differences can be observed in routine physical measures, especially the task of *control machinery and equipment*, which declined for immigrant men but increased for Canadian-born men.

For non-routine tasks, immigrants typically held jobs with lower requirements for cognitive tasks (see the negative gaps in rows 4 and 5 of both panels). However, these gaps have declined over the years. For instance, the immigrant – Canadian-born gap in *inter-personal* tasks has declined by more than one third over the past fifteen years, and the gap in *coaching others* task by 40%. Regarding physical non-routine tasks, immigrant women typically held jobs with higher (or similar) requirements than the native born in 2006. By 2022, these gaps have declined by as much as 40% (manual dexterity, handling equipment). Finally, our index of physical proximity shows that this requirement has shrunk substantially in all of women’s jobs (declining by around 0.18 units for both groups). The gap for immigrant women increased only slightly in 2022.¹⁷

¹⁷ Average values of the dependent variables can be found in appendix table A.4

Results using the RNW

Here, we report findings from the survey regarding the early experiences of respondents. These results will inform our assessment of challenges faced by Racialized Newcomer Women as well as the strategies proven most successful for economic integration. In what follows, recall that the sample of RNW is drawn from the economic immigrant stream and it is highly educated, with a different ethnic composition than the general immigrant population.

Additional Education

Around three quarter of respondents took additional education in Canada, ranging from online courses to PhDs. 35% considered that this greatly improved their prospects, whereas 21% report that this had no impact in their employment careers. Table 3 reports incidence of additional Canadian education by type of degree or studies pursued. Note that respondents selected all types of education they acquired since arriving in Canada, so column 1 does not add to 100%.

Satisfaction with additional education seems correlated to the type of education pursued. Broadly, those who engage in formal university education report higher levels of great impact for these studies, even if the education was not completed.

Table 3. Incidence and Impact of additional education in Canada (RNW Survey)

	Incidence [1]	Impact [2]	
		No Impact	Greatly Improved
College	30%	14%	49%
University	16%	13%	51%
Some courses (post secondary)	12%	20%	42%
Federal/Provincial program	14%	21%	25%
Work training	27%	20%	35%
Other [3]	49%	22%	30%
Overall	73%	21%	35%

[1] Calculated over the sample of those who took additional education. Indicates whether the respondent completed education in the category independently of education taken in other categories.

[2] Categories: Greatly improved; somewhat improved, no impact, negative impact. Reports of negative impact are generally very small, below 1%

[3] College includes postgraduate college certification. Other includes bootcamp training programs, online courses and other

Note: Author's tabulations using responses to the RNW Survey.

The incidence and level of Canadian education is correlated with the education levels immigrants bring into the country. Most immigrants complete *Other* type of education (See Table 3). Table 4 (Panel A) indicates the fraction of immigrants who took additional Canadian education by the level of foreign education and the impact Canadian education had as reported by the immigrant.¹⁸ The greatest impact is experienced by those with *College* or *Other* education, but these are small number of respondents. Levels of impact are also significant for those with university education, either BA or MA and PhD, and for those with high school education or less. There are also significant differences by Visa category (Panel B), with those entering under the Worker Program slightly more likely to engage in further education. However, it is in the smaller categories, those entering through the Business program and the Temporary resident pathway, that seem to experience a greater impact from this additional education.

Table 4. Incidence and Impact of Canadian education by selected characteristics

	Incidence ^[1]	Impact ^[2]	
		Great Impact	No Impact
Panel A. (Foreign) Education			
HS or less (22)	55%	36%	18%
College (20)	55%	55%	9%
BA (217)	76%	39%	14%
Med (30)	77%	22%	17%
MA/PhD (388)	73%	32%	26%
Other ^[3] (13)	77%	50%	20%
Panel B. Visa			

¹⁸ Those with a (foreign) BA report completing *College* education (37%), *University* certification (13%) or take *Some post-secondary courses* (14%). Among those with (foreign) post-graduate education, many complete *College* education (23%), *University* degrees (18%) or *Work Training* programs (30%)

Worker Program (316)	76%	35%	22%
Provincial Nominee (129)	68%	30%	19%
Business Program (7)	70%	43%	29%
Temporary Resident (37)	67%	49%	19%

[1] Fraction who took Canadian education for a given level of foreign education/Visa category

[2] Among those reporting this level of foreign education/Visa category and who took Canadian education. Categories: Greatly improved; somewhat improved, no impact, negative impact. Reports of negative impact are generally very small, below 1%.

[3] Other category is mostly composed of post-doctorates, post graduate certificates, and degrees in Pharmacy or Accounting

Note: Author's tabulations using responses to the RNW Survey.

Barriers to education

Among those who took no additional education, 13% included *not to know how to find appropriate education* among the reasons for no additional education, 24% consider they *do not want or need further education*, 41% list *lack of resources* (money or time) among the reasons, and 12% cite language concerns or credential issues as a reason (Table 5). There has been some shift in terms of the incidence of reasons for no additional education. Among those immigrants who received their PR during or after the Pandemic, a larger fraction cite that they *don't want or need further education* or *lack of resources* to pursue additional education than before the Pandemic. To the extent that receiving PR status correlates with time of entry in Canada, this may suggest that immigrants arriving more recently are less focussed on education as a way of settling into Canadian environment.

Table 5. Reasons not to obtain additional education.

	% citing [1]	Timing of PR [2]	
		Before 2019	2020 and after
Don't know where to apply (24)	13%	13%	11%
Don't want/don't need (44)	24%	20%	39%
No resources [3] (77)	41%	38%	53%
Language or credential issues (23)	12%	13%	11%
Discrimination (2)	1%	--	--
Other [3] (26)	14%	17%	3%
Did not obtain Canadian education	187	151	36

[1] Calculated over the sample of those who did not take additional education. Indicates respondent cites this reason, independently of citing other reasons.

[2] Timing of acquiring PR does not necessarily indicate arrival in Canada.

[3] *No resources* indicate lack of time or money to access education. *Other* responses are generally associated with recent entrance in Canada and taking time to consider options

Note: Author's tabulations using responses to the RNW Survey.

There are also interesting correlations between the reasons for not completing education and the type of foreign education immigrant women had at arrival. Among those with a college education, lack of resources or issues with language or credential recognition were among the most cited reasons. However, among the main groups – BA and post-graduates – the more important reason is lack of resources, followed by considering additional education not wanted or needed (Table 6). This could be related to the cost of Canadian education for international students.

Table 6. Reasons not to obtain Canadian Education by level of foreign education

		Don't know where	Don't want /need	No resources ^[1]	Language/ credential	Other ^[2]
College	(9)	11%	0%	44%	33%	11%
BA		8%	17%	37%	10%	15%
(52)						
Med	(7)	14%	0%	14%	14%	29%
MA/PhD	(106)	16%	30%	45%	10%	12%
Other ^[2]	(3)	33%	33%	33%	33%	0%

[1] *No resources* indicate lack of time or money to access education. *Other* reasons category responses are generally associated with recent entrance in Canada and taking time to consider options

[2] *Other* education category is mostly composed of post-doctorates, post graduate certificates, and degrees in Pharmacy or Accounting

Note: Author's tabulations using responses to the RNW Survey

Work Careers

68% of respondents report being currently employed, a fraction that is slightly larger among principal applicants and those who obtained Canadian education (73%). Of those working, 82% do so full time and 65% have a permanent contract. Table 7 also illustrates the double disadvantage of racialized immigrant women. Immigrant women of West Asian/ Arab ethnicity are substantially less likely to be employed (49%) than any other ethnic group, Southeast Asian women less likely to work full time (62%) and South Asian women less likely to work under a permanent contract (50%).

Table 7. Employment by ethnicity

	Employed	Full time	Permanent	Seasonal	Contract
Black	75%	90%	77%	8%	15%
East Asian	67%	78%	66%	12%	22%
Latin American	70%	81%	60%	4%	36%
South Asian	71%	81%	54%	15%	31%
Southeast Asian	72%	62%	62%	15%	23%
West Asian /Arab	49%	72%	60%	16%	23%
Other	41%	56%	50%	-	50%
Total	68%	82%	65%	11%	24%

Note: Author's tabulations using responses to the RNW Survey.

Further, the distribution of type of contract varies by (foreign) education, whether the respondent obtained Canadian education, or visa category. Most notably, immigrant women without Canadian education and women with a graduate degree in Medicine are significantly less likely to work under a permanent contract (see Table 8).

Table 8. Type of contract, by Canadian education and Principal Applicant

		Contract	Permanent	Seasonal
Canadian Education	Yes	23%	69%	9%
	No	27%	54%	19%
Applicant Education	PA	26%	65%	10%
	Dependent College	18%	67%	15%
		10%	70%	20%

	BA	23%	67%	10%
	Med	40%	40%	20%
	MA/PhD	24%	68%	10%
	Express E.	23%	68%	10%
	Prov. Nominee	22%	67%	12%
Visa	Other	29%	57%	14%
	Temporary	37%	47%	17%
	Resident			
Overall		24%	65%	11%

Note: Author's tabulations using responses to the RNW Survey.

Overqualification and Mismatch

Less than half the respondents report to be working in their field (44%) and only 22% consider that their pay matches their qualifications. These figures are driven by workers entering through the Skills program, or the Provincial Nominee program, which are more likely to be matched in their fields than other immigrant categories. It is worth reporting that those with a degree in Medicine show the lowest fraction working in their field (31%) and the lowest report of pay matching qualification (6%). Those with a MA or PhD degree also report lower levels of pay matching skills (18%). Finally, note that those who received Canadian education do not report higher matches with field of study or rates of pay matching qualification.¹⁹ (See Table 9)

Table 9. Overqualification summary

Never had a job matching skills		39%
Work in their field of study		45%
Pay matches qualifications		23%
By selected characteristics	Work in field of study	Pay matches qualifications

¹⁹ Although a full tabulation of overqualification characteristics by industry has very small numbers in most cells, we highlight that women working in the accommodation sector or in retail trade report the lowest fraction of being working in their field of study (18% and 9% respectively).

Canadian Education		45%	15%
Education	BA	47%	29%
	Med	31%	6%
	MA/PhD	43%	18%
	Express E.	47%	23%
Visa	Prov. Nominee	44%	20%
	Temporary Residence	36%	33%

Note: Author's tabulations using responses to the RNW Survey.

Respondents are heavily concentrated in the service sector relative to the Canadian population (94% versus 82% in the Canadian population). Survey respondents are also differently distributed among service occupations. The majority are in Finance and Insurance (18% versus 5% among Canadians) and Health Care and Social Assistance (18% versus 13%), whereas the main service industry among Canadians is Trade (16%, versus only 6% of survey respondents). Approximately 60% of immigrants working in Finance and 50% working in Health Care report working in their field of study. Immigrant survey respondents are also more likely to be in Professional, Scientific or Technical industries than the Canadian population. (Table 10)

Table 10. Industry Classification RNW and Canada

Industry	Canada	RNW	
	%	%	% working in field
Total Good producing	18%	6%	
Agriculture, forestry, fishing, and hunt	0%	0%	100%
Mining, quarrying, and oil and gas extraction	1%	0%	50%

Utilities	1%	0%	0%
Construction	7%	1%	67%
Manufacturing	9%	3%	40%
Total Services	82%	94%	
Trade	16%	6%	71%
Transportation and warehousing	5%	1%	29%
Information and cultural industries	2%	3%	77%
Finance and insurance	5%	18%	61%
Real estate and rental and leasing	2%	1%	100%
Professional, scientific and technical	7%	11%	67%
Management of companies and enterprises	1%	2%	33%
Administrative and support, waste manag	5%	7%	13%
Educational services	8%	9%	49%
Health care and social assistance	13%	18%	50%
Arts, entertainment and recreation	2%	1%	20%
Accommodation and food services	7%	2%	18%
Other services (except public administration)	3%	11%	30%
Public administration	7%	5%	17%

Source: Author's tabulations using RNW Survey and Statistics Canada Table: 14-10-0202-01. <https://www150.statcan.gc.ca/t1/tbl1/en/cv.action?pid=1410020201>

Job search

Only a small fraction of respondents answered the question regarding whether they were actively looking for a job (38%). From these, half were only looking for a job matching their qualifications, 29% looked for any jobs, 17% were satisfied with their jobs and the rest (5%) did not want to work or did not believe could find jobs. Most of those who responded to this question reported never having a job that matched their qualifications. They list (non-exclusively) the following as the main problems encountered during the job search: (i) difficulties getting foreign experience recognized or having sufficient Canadian experience, (ii) difficulties getting education recognized and (iii) childcare issues during the search process or working required hours, or (iv) discrimination. By far, the most reported reason was (i) difficulties getting foreign experience recognized or having sufficient Canadian experience (81%) (see Table 11).

Additional barriers to employment might may have to do with job mobility. From those who reported actively looking for a job, only 37% would move cities if a suitable job presented itself (36% *may* move). Those who would not move cite (non-exclusively) their partners as the main reason (52%) or a desire to remain close to friends or family (59%).

Table 11. Problems when searching for jobs.

Recognizing foreign experience/Not enough Canadian experience	81%
Recognizing education credentials	45%
Childcare issues	25%
Language proficiency	13%
Discrimination	17%
Total answers (count)	262

Note: Author's tabulations using responses to the RNW Survey. Question prompted to select all that applied from a list of 17 alternatives

Respondents reported on the need of acquiring a formal language test in order to access work or training (62%), which could constitute an additional barrier to finding jobs or necessary education (approximately half of those who engaged in additional education required a language test). Respondents with post graduate degrees were also more likely to have needed a language test to access jobs or additional training (77% of those with a degree in Medicine, 63% of those with MA or PhD degrees and 69% of those with other post graduate degrees). By Visa category, Provincial Nominees (59%) and Temporary residents (56%) were slightly less likely to report the need for a language test.

Discrimination

Respondents reported having experienced discrimination both in professional (66%) and social contexts (59%) at some point since arriving to Canada. Among the types of discrimination encountered, the most common involved racial discrimination, reported by over 70% of respondents followed by discrimination related to language (between 53% and 60% of respondents).

Results using the LFS

Here, we report findings from the LFS regarding the labour market integration of immigrant women in Canada. Our focus was on the job quality of dimensions of the jobs, measured with a variety of standard (wages, managerial status, type of contract and schedules) and non-standard (tasks performed in jobs) measures, as discussed above. These results illustrate the current situation of immigrant women using a representative sample of the population and inform our forecast of the effects of improving the integration of immigrant women in the labour market.

Probabilities of job outcomes

We ran probit regressions on the indicator measures of job quality: managerial job, type of contract (permanent or contract work) and full time work. Because it is difficult to ascertain whether the type of contract (permanent or contract) or amount of time (full time versus part time) indicates a labour market barrier for women or a preference for lifetime balance, we consider involuntary part time employment as an important measure of the quality of the labour markets. Predicted probabilities are reported in Table 12, which shows marginal effects at different times since migration as outlined in probit equation (1).

The predicted probability of reporting a managerial occupation is 14% for Canadian-born women. Recent immigrants have a 9% probability of holding such position, which increases to 13% after 20 years in the country. Other attributes behave similarly. Immigrant women are three percentage points less likely to work in permanent jobs and four percentage points less likely to work full time upon arrival than the Canadian-born, but reach parity after 20 (between 16 and 20) years in Canada. Similarly, although immigrant women are twice as likely to do contract work upon arrival and more than twice as likely to work part-time involuntarily, progression is relatively fast and parity is reached either between 16 and 20 years or after 20 years in Canada.

Table 12. Predicted probabilities of labour market outcomes. Married women

	Manager		Type of contract				Schedules			
			Permanent		Contract		Full Time		Involuntary part time	
Panel A. Marginal Effects by years in Canada										
Canadian Born	0.137	**	0.796	**	0.045	**	0.802	**	0.044	**
	(0.001)		(0.001)		(0.002)		(0.001)		(0.000)	
Immigrants (ysm)										
0 to 5 years	0.092	**	0.763	**	0.082	**	0.763	**	0.102	**
	(0.003)		(0.004)		(0.003)		(0.004)		(0.003)	
6 to 10 years	0.096	**	0.774	**	0.066	**	0.786	**	0.087	**
	(0.003)		(0.004)		(0.003)		(0.004)		(0.003)	
11 to 15 years	0.101	**	0.773	**	0.052	**	0.800	**	0.079	**
	(0.003)		(0.004)		(0.002)		(0.004)		(0.003)	
16 to 20 years	0.112	**	0.784	**	0.046	**	0.824	**	0.061	**
	(0.003)		(0.005)		(0.002)		(0.004)		(0.003)	
20+ years	0.130	**	0.796	**	0.041	**	0.834	**	0.046	**
	(0.002)		(0.003)		(0.002)		(0.002)		(0.001)	
Obs.	574,467		574,467		574,467		574,467		574,467	

Regressions include controls for education (non-university post-secondary and university), age and age square, number of children in the household (under 6, and between 6 and 17), and the prime-age, male unemployment rate in the area, in addition to province, year and month fixed effects.

We perform similar analysis for a subsample of university educated women, reported in Table 13. While the average immigrant woman in Table 12 is less likely to work permanent contracts (particularly during the initial years), educated immigrant women are equally (or more) likely to work under permanent contracts than similarly educated Canadian-born women. University educated immigrant women also assimilate more quickly into full time jobs (within five and ten years in the country) than those without university education. The pattern we find for other job dimensions (being a manager, working part time involuntarily, or working contract jobs) is that assimilation gets slightly slower over the first 15 years but in the long-term, averages are typically better than those of the Canadian born.

Table 13. Predicted probabilities of labour market outcomes.
University educated, married women.

	Manager		Type of contract				Schedules			
			Permanent	Contract	Full Time	Involuntary part time				
Panel A. Marginal Effects by years in Canada										
Canadian Born	0.139	**	0.765	**	0.087	**	0.822	**	0.034	**
	(0.003)		(0.003)		(0.002)		(0.003)		(0.002)	
Immigrants (ysm)										
0 to 5 years	0.118	**	0.794	**	0.067	**	0.807	**	0.067	**
	(0.006)		(0.007)		(0.003)		(0.007)		(0.005)	
6 to 10 years	0.105	**	0.804	**	0.056	**	0.832	**	0.058	**
	(0.006)		(0.007)		(0.003)		(0.007)		(0.004)	
11 to 15 years	0.110	**	0.801	**	0.044	**	0.843	**	0.055	**
	(0.006)		(0.007)		(0.003)		(0.007)		(0.004)	
16 to 20 years	0.121	**	0.808	**	0.041	**	0.867	**	0.038	**
	(0.007)		(0.008)		(0.003)		(0.007)		(0.004)	
20+ years	0.143	**	0.822	**	0.035	**	0.871	**	0.025	**
	(0.006)		(0.006)		(0.002)		(0.005)		(0.002)	
Obs.	199,957		199,957		199,957		199,957		199,957	

Regressions include controls for age and age square, number of children in the household (under 6, and between 6 and 17), and the prime-age, male unemployment rate in the area, in addition to province, year and month fixed effects.

Next, we examine differences in job attributes by level of education and the presence of young children. Panel A and B in Table 14, show the predicted probabilities obtained under probit equations (2) and (3), where *year since migration* indicators are replaced by a single immigrant indicator interacted with education levels (equation 2) and presence of young children (equation 3) respectively. Note that these estimated probabilities correspond to the average immigrant in the indicated education/parenthood state, without taking into account the time spent in Canada. We have highlighted the rows corresponding to university educated and mothers with children under six years of age to ease comparison.

Table 14. Predicted probabilities of labour market outcomes. Married women

	Manager		Type of contract				Schedules			
			Permanent		Contract		Full Time		Involuntary part time	
Panel A. Marginal Effects by Education										
Can.Born - HS	0.146	**	0.814	**	0.027	**	0.788	**	0.060	**
	(0.002)		(0.002)		(0.001)		(0.002)		(0.002)	
Can.Born - PS	0.110	**	0.814	**	0.034	**	0.806	**	0.052	**
	(0.002)		(0.002)		(0.001)		(0.002)		(0.001)	
Can.Born – Univ.	0.137	**	0.799	**	0.062	**	0.846	**	0.030	**
	(0.002)		(0.002)		(0.001)		(0.002)		(0.001)	
Imm - HS	0.142	**	0.756	**	0.041	**	0.748	**	0.064	**
	(0.006)		(0.007)		(0.003)		(0.007)		(0.004)	
Imm - PS	0.117	**	0.771	**	0.048	**	0.747	**	0.069	**
	(0.005)		(0.007)		(0.003)		(0.007)		(0.004)	
Imm – Univ.	0.140	**	0.724	**	0.078	**	0.778	**	0.055	**
	(0.005)		(0.007)		(0.004)		(0.006)		(0.003)	
Observations	565,952		565,952		565,952		565,952		565,952	
Panel C. Marginal Effects by Number of Children										
CB - no Ch. 0-5	0.132	**	0.812	**	0.046	**	0.834	**	0.048	**
	(0.002)		(0.002)		(0.001)		(0.002)		(0.0011)	
Imm - no Ch. 0-5	0.120	**	0.792	**	0.035	**	0.728	**	0.035	**
	(0.002)		(0.003)		(0.001)		(0.003)		(0.0012)	
CB with Ch. 0-5	0.134	**	0.751	**	0.059	**	0.779	**	0.066	**
	(0.005)		(0.006)		(0.003)		(0.006)		(0.0036)	
Imm with Ch. 0-5	0.126	**	0.725	**	0.054	**	0.655	**	0.054	**
	(0.006)		(0.008)		(0.004)		(0.008)		(0.0036)	
Observations	565,952		565,952		565,952		565,952		565,952	

Panel A regressions include controls for education (non-university post-secondary and university), age and age square, number of children in the household (under 6, and between 6 and 17), the prime-age, male unemployment rate in the area, plus an interaction of immigrant indicator and each education level, in addition to province, year and month fixed effects.

Panel B regressions include the same controls, except the immigrant-education interactions, plus an interaction of immigrant indicator with an indicator for the presence of young children

On average, immigrants with high school education or less show a four percentage point gap in managerial level jobs, whereas immigrants with post secondary education generally are slightly more likely to hold such positions than their Canadian-born counterparts. Canadian born women are also more likely to hold a permanent contract or work full time than immigrant women at any given level of education. Indeed, the largest gaps appears for the university educated, with 72% of university educated immigrant working permanent jobs (78% working full time) versus 80% of Canadian-born women (85% working full time). Immigrant women are more likely than the Canadian born to work contract jobs at all levels of education and to work part-time involuntarily. In this regard, the largest differences in involuntary part time employment are observed precisely for the university educated (5.5% versus 3% among the Canadian- born).

Finally, we observe that the effect of children (Panel C) is relatively homogeneous for immigrant and the Canadian born. In both cases the presence of children negatively affects the probability of holding a managerial job, working full time or working under a permanent contract to a similar degree. However, the Immigrant – Canadian-born gaps in the likelihood of working contract jobs or working part time involuntarily is similar for those with and without young children.

Wages, hours and tasks

Next we look into estimates of wages, hours and skill measures gaps in labour market outcomes using equation (1') and report these estimates in Table 15.²⁰ To these regressions we add indicators for broad are of origin to net out this effect from that of differences in tasks.

The initial wage gap of immigrant women within five years since migration is 31% below the wage of similar Canadian-born women. There is a substantial wage assimilation process that results in a 10% gap at the 20 year mark of time in Canada. In agreement with results presented above regarding full and part time work, the number of hours worked also increases with time in the country, moving from over one hour less of work on average to similar amounts of work hours at 20 years.

Recent immigrant women hold jobs substantially less demanding in terms of non-routine cognitive tasks, falling behind those of the Canadian-born by as much as 0.19 units. There is, however, a sustained increase in the requirement of non-routine cognitive tasks among employed immigrants over years in Canada. The gap in *analyzing data* declines by about two thirds, the gap in *interpersonal skills*, *creative thinking*, and *autonomy* decline by a little over half. Nevertheless, gaps in cognitive tasks still exist by the 20 year mark.

²⁰ To conserve space, we report only estimates on some (not all) of the skill measures. Results for the full set of measures tell a similar story and are available upon request.

Immigrant jobs are generally closer to those of non-immigrants in terms of routine cognitive tasks and even these small gaps disappear by the time they have spent 10 years in Canada.

At the same time, requirements of physical non-routine tasks among employed immigrants is typically higher than among the Canadian born (see the positive coefficients in table 15), these differences narrow only slightly (and slowly) as immigrants spend more years in Canada. Similarly, gaps in routine physical tasks are positive (immigrant women's jobs perform more of those tasks in their jobs) and for the most part decline with time spent in Canada at different rates. For instance, performing *repeated motions*, almost disappears at 20 years since migration, whereas requiring to *adjust the pace of work to machinery* and *controlling machinery*, is reduced by more than half in the same time period. Further, immigrant women generally hold jobs that require working in close proximity to others to a larger extent than Canadian-born women do. This only becomes significant after 5 years in the country and remains at the same level even at 20 years since migration.

Because concerns about overqualification are more acute for educated immigrants, we conducted a similar analysis for the subsample of university educated women and present it in Table 16. We remark that gaps in wages and non-routine cognitive tasks for *recently arrived* university educated immigrant women are very similar (or slightly larger) to those of the average immigrant. Wages also improve at a similar pace, at least until the 20 year mark. The initial gaps are between 42% (*autonomy*) and 64% (*wages* and *interpersonal skills*) smaller. It is worth noting that for educated immigrants that have stayed in Canada for over 20 years, most of the gaps are positive, suggesting that immigrants not only have higher wages, but also perform more of non-routine cognitive tasks relative to Canadian-born women. While that is a plausible interpretation, we note that this group of long-standing immigrants might be highly selected from the population of immigrants. In particular it might reflect selected withdrawal from the labour market, if immigrant women with "bad jobs" are more likely to leave the labour market after a few years in Canada than the Canadian born with similar jobs, and immigrant women with better jobs are more likely to remain in the labour market than the Canadian born with similar jobs. Since we do not have data to try to tease out this possibility, we choose not to emphasize the long-term results.

Regarding routine tasks, immigrant women are less required to *being exact* than similarly educated Canadian-born women (by 0.5 units) but slightly more required to perform *repetitive tasks*. They also typically perform jobs that require larger amounts of routine manual tasks. Notably, we do not observe a faster decline in these routine physical tasks than for the average immigrant. Finally, while university educated immigrant women initially held jobs requiring close proximity to others relative to the Canadian-born, they are less likely to do so in the long-term.

Table 15. The immigrant gap by time in Canada - Coefficients from OLS regressions (Women)

	Standard Measures		Non-routine Cognitive				Non-routine Physical						
	Log wage	Total hours	Analyzing data	Interpersonal skills	Creative thinking	Autonomy	Manual Dexterity	Spatial Orientation					
Years s. migration	<i>Relative to the Canadian born</i>												
0 to 5	-0.311 ** (0.003)	-1.136 ** (0.129)	-0.188 ** (0.009)	-0.146 ** (0.007)	-0.144 ** (0.009)	-0.106 ** (0.006)	0.127 ** (0.011)	0.039 ** (0.006)					
6 to 10	-0.240 ** (0.003)	-0.455 ** (0.127)	-0.167 ** (0.009)	-0.111 ** (0.007)	-0.110 ** (0.009)	-0.067 ** (0.006)	0.127 ** (0.011)	0.034 ** (0.006)					
11 to 15	-0.176 ** (0.003)	-0.403 ** (0.130)	-0.124 ** (0.009)	-0.088 ** (0.007)	-0.095 ** (0.010)	-0.052 ** (0.006)	0.136 ** (0.011)	0.040 ** (0.006)					
16 to 20	-0.099 ** (0.004)	0.034 (0.134)	-0.073 ** (0.010)	-0.064 ** (0.007)	-0.060 ** (0.010)	-0.040 ** (0.006)	0.070 ** (0.012)	0.029 ** (0.006)					
20+	0.047 ** (0.006)	-0.441 (0.241)	0.059 ** (0.018)	0.041 ** (0.013)	0.078 ** (0.018)	0.010 (0.012)	-0.090 ** (0.021)	-0.040 ** (0.011)					
Observations	490,404	565,952	133,798	133,798	133,798	123,318	133,798	133,798					
	Routine Cognitive		Routine Physical										
	Being exact	Repeat task	Machine set speed	Control Machinery	Repeat motion	Proximity Close Physical							
0 to 5	-0.030 ** (0.010)	0.001 (0.010)	0.140 ** (0.010)	0.063 ** (0.010)	0.134 ** (0.010)	-0.015 (0.011)							
6 to 10	-0.023 * (0.010)	-0.004 (0.010)	0.107 ** (0.010)	0.060 ** (0.010)	0.115 ** (0.010)	0.045 ** (0.011)							
11 to 15	0.007 (0.011)	0.017 (0.010)	0.097 ** (0.011)	0.073 ** (0.010)	0.092 ** (0.010)	0.063 ** (0.011)							
16 to 20	0.004 (0.011)	-0.002 (0.011)	0.056 ** (0.012)	0.038 ** (0.010)	0.028 ** (0.010)	0.030 ** (0.012)							
20+	-0.003 (0.020)	-0.024 (0.019)	-0.073 ** (0.020)	-0.058 ** (0.019)	-0.067 ** (0.018)	-0.054 * (0.021)							
Observations	133,798	133,798	133,798	133,798	133,798	123,318							

Regressions include controls for education (non-university post-secondary and university), age and age square, number of children in the household (under 6, and between 6 and 17), immigrant's broad area of origin and the prime-age, male unemployment rate in the area, in addition to province, year and month fixed effects.

Table 16. The immigrant gap by time in Canada - Coefficients from OLS regressions (University Educated Women)

	Standard Measures				Non-routine Cognitive				Non-routine Physical							
	Log wage		Total hours		Analyzing data		Interpersonal skills		Creative thinking		Autonomy		Manual Dexterity		Spatial Orientation	
Years s. migration	<i>Relative to the Canadian born</i>															
0 to 5	-0.349 **	(0.005)	-0.757 **	(0.194)	-0.212 **	(0.014)	-0.163 **	(0.009)	-0.145 **	(0.013)	-0.109 **	(0.008)	0.152 **	(0.016)	0.030 **	(0.007)
6 to 10	-0.302 **	(0.005)	0.045	(0.196)	-0.206 **	(0.014)	-0.138 **	(0.009)	-0.150 **	(0.014)	-0.088 **	(0.008)	0.174 **	(0.016)	0.042 **	(0.007)
11 to 15	-0.231 **	(0.005)	-0.032	(0.204)	-0.171 **	(0.015)	-0.098 **	(0.009)	-0.111 **	(0.014)	-0.072 **	(0.008)	0.186 **	(0.017)	0.034 **	(0.008)
16 to 20	-0.128 **	(0.006)	0.110	(0.218)	-0.088 **	(0.016)	-0.059 **	(0.010)	-0.068 **	(0.015)	-0.064 **	(0.009)	0.105 **	(0.018)	0.019 *	(0.008)
20+	0.082 **	(0.010)	-0.512	(0.368)	0.072 **	(0.027)	0.051 **	(0.017)	0.070 **	(0.026)	0.012	(0.015)	-0.145 **	(0.031)	-0.041 **	(0.014)
Observations	171,725		195,541		45,907		45,907		45,907		43,928		45,907		45,907	
	Routine Cognitive				Routine Physical				Proximity Close Physical							
	Being exact		Repeat task		Machine set speed		Control Machinery		Repeat motion							
0 to 5	-0.051 **	(0.007)	0.036 *	(0.014)	0.104 **	(0.009)	0.103 **	(0.013)	0.169 **	(0.014)	-0.012		(0.017)			
6 to 10	-0.046 **	(0.007)	0.050 **	(0.014)	0.062 **	(0.009)	0.105 **	(0.013)	0.167 **	(0.014)	0.053 **		(0.017)			
11 to 15	-0.020 **	(0.007)	0.075 **	(0.015)	0.050 **	(0.009)	0.119 **	(0.014)	0.134 **	(0.015)	0.078 **		(0.018)			
16 to 20	-0.034 **	(0.007)	0.050 **	(0.016)	0.027 **	(0.009)	0.059 **	(0.015)	0.071 **	(0.016)	0.064 **		(0.019)			
20+	0.003	(0.013)	-0.017	(0.028)	-0.048 **	(0.017)	-0.123 **	(0.026)	-0.070 *	(0.027)	-0.135 **		(0.032)			

Observations 45,907 45,907 45,907 45,907 45,907 43,928

Regressions include controls for education (non-university post-secondary and university), age and age square, number of children (under 6, and between 6 and 17), immigrant's broad area of origin and the prime-age, male unemployment rate in the area, in addition to province, year and month fixed effects.

Table 17. Value of closing the gap for women at different times since migration (hourly wages)

2006 Immigrant women's average wage													20.7
2022 Immigrant women's average wage													24.09
Non-routine Cognitive													
Analyzing data			Interpersonal				Creative thinking			Autonomy			
	Skill Gap	Skill Price (\$)	Δ hourly wage (\$)	Skill Gap	Skill Price (\$)	Δ hourly wage (\$)	Skill Gap	Skill Price (\$)	Δ hourly wage (\$)	Skill Gap	Skill Price (\$)	Δ hourly wage (\$)	
Years since migration													
0 to 5	-0.21	9.01	1.91	-0.15	4.01	0.58	-0.15	5.64	0.82	-0.11	9.92	1.08	
16 to 20	-0.09		0.79	-0.06		0.24	-0.07		0.38	-0.06		0.63	

Skill gaps are those reported in table 16 for educated immigrant women.

Skill prices are reported in Table A8. These are the estimated coefficients of an OLS wage regression that includes the specific O*Net task.

Δ hourly wage indicates the estimated average increase in hourly wages if the immigrant women held jobs requiring similar levels of tasks than comparable Canadian born women (other things equal)

Forecast

To understand more clearly what the economic implications of closing the skill gaps between immigrant and Canadian-born women are, we further estimate a model of wage determination, where each of the job tasks we consider here are added to standard predictors of earnings, such as education and age. We take the estimated coefficients as measures of the price of tasks (See Appendix Table A.8) and use them to quantify the value of the skill gaps shown in Table 16, at the point of entry (0 to 5 years since migration) and between 16 and 20 years. The column labelled Δ *hourly wage* indicates the predicted increase in the educated immigrant's hourly wage, if the gap in that job-required task was closed and immigrant and Canadian-born women held jobs requiring similar tasks. We continue to focus on the sample of educated women since the literature suggests that these are more likely to be overqualified or mismatched in their jobs. We report tasks in which immigrant women lag behind the Canadian born, i.e. non routine cognitive tasks and the autonomy task (See Table 17).

Closing the initial gaps in cognitive tasks would increase the wages of educated immigrant women from \$1.9 (*analyzing data*) to \$0.6 (*interpersonal*), that is between 9% and 3% of the 2006 wage. While these are relatively large gains for immigrants, we note that an added benefit of closing these gaps would be - to the extent that the relative importance of routine tasks diminishes in relation to cognitive tasks - the increment in the resilience of the jobs.

Racialized immigrant women

Unfortunately, the LFS does not report ethnicity or visible minority status. To try to account for some of this heterogeneity in our regressions, we introduce an indicator for broad area of origin in the regressions, to try to account for. These coefficients allow us to examine differences in labour market outcomes among immigrants of different origins.

Table 18 shows differences in the probability of reaching desirable labour market outcomes (being a manager, having a permanent contract, or working with set contracts or working fulltime) plus the probability of being involuntary unemployed. Probabilities for Canadian-born women are shown in the first row. Focussing on involuntary part time work, African and Middle Eastern women are the most likely to report this situation.

Table 19 shows the area of origin coefficients for wages, hours and job tasks. These can be interpreted as the magnitude of the gap between immigrant women of different origins and the Canadian born for long term immigrants, that is after 20 years in the country, net of education, age, location, time in Canada and all other controls included in our regressions. The larger wage penalties are observed for South Asian women, who experience an additional 27% earnings gap, East Asian women (21% additional gap) and Middle Eastern women (19% additional gap). These differences are likely due to a combination of all barriers these women encounter, from language fluency, cultural differences regarding attitudes towards women's role in the family, or

discrimination. We believe a portion of the gaps could be related to credential recognition as well, since these gaps are larger for university educated immigrants (33%, 24% and 21% additional gaps respectively among the university educated, see column 1 in Table 19 Panel B).

Table 18. Predicted probabilities of labour market outcomes by place of birth
(Married women)

	Manager		Permanent		Contract		Full time		Involuntary PT	
Place of birth										
Canada	0.136	**	0.809	**	0.038	**	0.806	**	0.047	**
	(0.002)		(0.002)		(0.001)		(0.002)		(0.001)	
North America	0.138	**	0.694	**	0.094	**	0.730	**	0.055	**
	(0.007)		(0.009)		(0.006)		(0.009)		(0.004)	
Central/South America	0.099	**	0.765	**	0.100	**	0.796	**	0.064	**
	(0.005)		(0.007)		(0.005)		(0.006)		(0.004)	
Europe	0.132	**	0.726	**	0.092	**	0.787	**	0.051	**
	(0.005)		(0.006)		(0.004)		(0.003)		(0.003)	
Africa	0.097	**	0.711	**	0.126	**	0.776	**	0.081	**
	(0.005)		(0.008)		(0.007)		(0.008)		(0.005)	
Middle East	0.126	**	0.682	**	0.115	**	0.724	**	0.073	**
	(0.007)		(0.010)		(0.007)		(0.009)		(0.005)	
East Asia	0.106	**	0.765	**	0.086	**	0.829	**	0.051	**
	(0.004)		(0.006)		(0.004)		(0.005)		(0.003)	
South Asia	0.112	**	0.743	**	0.108	**	0.801	**	0.066	**
	(0.005)		(0.007)		(0.005)		(0.006)		(0.004)	
Oceania	0.119	**	0.750	**	0.088	**	0.804	**	0.046	**
	(0.011)		(0.016)		(0.015)		(0.014)		(0.008)	
Observations	574,467		574,467		574,467		574,467		574,467	
<p>Regressions include controls for education (non-university post-secondary and university), age and age square, number of children in the household (under 6, and between 6 and 17), the prime-age, male unemployment rate in the area, and indicators for area of birth, in addition to province, year and month fixed effects.</p>										

Table 19. The immigrant gap by area of birth - Coefficients from OLS regressions

Panel A. All Women																
	Standard Measures				Non-routine Cognitive				Routine Cognitive							
	Log wage		Total hours		Analyzing data		Interpersonal		Creative thinking		Autonomy		Being exact		Repeat Task	
<i>Relative to the Canadian born</i>																
Central/South America	-0.136	**	1.744	**	-0.141	**	-0.108	**	-0.158	**	-0.074	**	0.051	*	0.024	
	(0.007)		(0.267)		(0.020)		(0.015)		(0.020)		(0.013)		(0.022)		(0.021)	
Europe	-0.053	**	1.231	**	-0.038	*	-0.077	**	-0.068	**	-0.025	*	0.047	*	0.019	
	(0.007)		(0.251)		(0.019)		(0.014)		(0.019)		(0.012)		(0.020)		(0.020)	
Africa	-0.121	**	0.649	*	-0.143	**	-0.069	**	-0.131	**	-0.073	**	0.087	**	0.026	
	(0.007)		(0.282)		(0.021)		(0.016)		(0.021)		(0.014)		(0.022)		(0.022)	
Middle East	-0.185	**	-0.096		-0.135	**	-0.131	**	-0.082	**	-0.064	**	0.074	**	0.019	
	(0.008)		(0.293)		(0.022)		(0.016)		(0.022)		(0.014)		(0.023)		(0.023)	
East Asia	-0.205	**	2.954	**	-0.177	**	-0.213	**	-0.239	**	-0.133	**	0.104	**	0.068	**
	(0.007)		(0.248)		(0.018)		(0.014)		(0.019)		(0.012)		(0.020)		(0.020)	
South Asia	-0.270	**	1.243	**	-0.197	**	-0.240	**	-0.254	**	-0.168	**	0.054	**	0.053	**
	(0.007)		(0.259)		(0.019)		(0.014)		(0.019)		(0.012)		(0.020)		(0.020)	
Oceania	-0.072	**	2.318	**	-0.035		-0.070	**	-0.164	**	-0.068	**	0.077		-0.017	
	(0.013)		(0.486)		(0.034)		(0.026)		(0.035)		(0.022)		(0.045)		(0.037)	
Observations	490,404		565,952		133,798		133,798		133,798		123,318		133,798		133,798	

Table 19 (Cont.). The immigrant gap by area of birth - Coefficients from OLS regressions

Panel B. University Educated Women -																
	Standard Measures				Non-routine Cognitive					Routine Cognitive						
	Log wage		Total hours		Analyzing data		Interpersonal		Creative thinking		Autonomy		Being exact		Repeat Task	
Central/South America	-0.202	**	0.989	*	-0.071	*	-0.095	**	-0.160	**	-0.050	**	0.005		0.095	**
	(0.011)		(0.419)		(0.030)		(0.019)		(0.029)		(0.017)		(0.015)		(0.031)	
Europe	-0.090	**	1.253	**	-0.003		-0.092	**	-0.071	**	-0.026		0.013		0.069	*
	(0.010)		(0.382)		(0.028)		(0.018)		(0.027)		(0.016)		(0.014)		(0.029)	
Africa	-0.170	**	-0.058		-0.109	**	-0.085	**	-0.163	**	-0.064	**	0.005		0.132	**
	(0.011)		(0.422)		(0.031)		(0.019)		(0.029)		(0.017)		(0.016)		(0.031)	
Middle East	-0.208	**	-0.018		-0.078	*	-0.147	**	-0.117	**	-0.056	**	0.009		0.099	**
	(0.012)		(0.434)		(0.032)		(0.020)		(0.030)		(0.018)		(0.016)		(0.032)	
East Asia	-0.244	**	1.926	**	-0.119	**	-0.185	**	-0.256	**	-0.114	**	0.023		0.195	**
	(0.010)		(0.374)		(0.027)		(0.017)		(0.026)		(0.016)		(0.014)		(0.028)	
South Asia	-0.329	**	0.462		-0.178	**	-0.202	**	-0.225	**	-0.141	**	-0.002		0.141	**
	(0.011)		(0.389)		(0.028)		(0.018)		(0.027)		(0.016)		(0.014)		(0.029)	
Oceania	-0.034		2.193	*	0.093		-0.018		-0.142	*	0.015		0.010		0.041	
	(0.024)		(0.889)		(0.062)		(0.039)		(0.060)		(0.036)		(0.026)		(0.063)	
Observations	171,725		195,541		45,907		45,907		45,907		43,928		45,907		45,907	

Using same controls as specified in Table 1 plus indicators for area of birth (reported here). Similar regressions run for physical tasks reveal similar trends across areas of birth (Available upon request)

To the extent that broad area of birth can approximate the experience of racialized immigrant women, we find that the above gaps in pay are linked to gaps in desirable job characteristics. For instance:

- (1) Middle Eastern immigrant women are remarkably less likely to work full time than other immigrants (72% versus over 78% for other immigrant groups), or on permanent jobs (68% versus over 71% for other immigrant groups).
- (2) African and Middle Eastern immigrant women are more likely to work contract jobs than other immigrants (12% versus 10% average) and to be working involuntarily in part time jobs.
- (3) African, South American, East Asian and South Asian immigrants are all less likely to be managers, than the Canadian born, North American, European immigrants or Middle Eastern immigrants.
- (4) Gaps in non-routine cognitive tasks like *analyzing data* are larger for South and East Asian immigrants. But perhaps more importantly, these gaps are substantially smaller for the university educated (except South Asian university educated women) than for the average immigrant. However, gaps in *interpersonal skills* and *autonomy* are similar or only slightly smaller for educated immigrants, whereas gaps in *thinking creatively* are generally larger for the university educated women. This is consistent with the idea that there is a cultural component in job performance related to social interactions that might be difficult to bridge.
- (5) African, Middle Eastern, and East Asian immigrant women perform jobs with significantly higher requirements for *being exact* (0.9, 0.7 and 0.10 units respectively) than the Canadian born. There are no differences between university educated Canadian-born and immigrant women regarding this task. However, in performing *repetitive tasks* there are generally not significant or smaller differences between immigrant and non-immigrant women. These gaps however are larger among educated women, with immigrants from East and Southern Asia as well as African women reporting higher demands of this task.
- (6) Middle Eastern and East Asian and South Asian immigrant women perform particularly worse in standard measures of job quality, showing the largest wage gaps of all immigrant groups and are very likely related to larger gaps in non-routine cognitive tasks. The higher prevalence of non-routine and routine cognitive tasks among educated immigrants, relative to the Canadian born, suggest significant job mismatch for educated immigrants from these areas. Further, the similarity of the gaps in non-routine and most routine cognitive tasks between the average and the educated immigrant women supports the idea that differences in these tasks are not associated to education but to other barriers.

Additional information from the RNW help interpret the results from place of birth regressions. South Asian and Latin American women are less likely to find that *their pay meets their qualifications* (only 19% report so), while more East Asians (33%) and Southeast Asians (38%) agree with this statement, relative to the average of 23%. On the other hand, only Latin American women are substantially more likely to work within their field of study (58%) than the average immigrant (44%). In general, results regarding area of birth indicators corroborate results from the RNW in that there is an additional penalty in labour market outcomes attached to non-white ethnic groups.²¹

In addition, the RNW offers insight into the reasons behind the gaps in employment and labour market outcomes. Unequivocally, the main problem when trying to find a job is the lack of recognition for foreign experience (or lacking sufficient Canadian experience). This is particularly acute among East and South Asians, over 85% of whom report this to be the main challenge when searching for a job. Numerous studies tie the difficulties in recognizing foreign experience to employers' lack of familiarity with foreign labour markets, a factor that affects disproportionately women from Asia and Africa. It is likely that the low levels of employment, relative to Canadian-born women, observed for these groups during the initial 5 years since migration, are due to this.²²

Finally, discrimination in a professional context has been experienced by around two thirds of the RNW survey respondents, which suggests that this remains an issue. Black women and Southeast Asian women are more likely to report instances of race discrimination, whereas East Asian and Latin American are more likely to experience discrimination related to language proficiency or speaking with an accent. In this area more work is needed to disentangle discrimination from other related factors, such as language fluency and familiarity with foreign labour market and credentials.

Policy discussion

In designing adequate policies to address the labour market barriers of racialized immigrant women it is important to distinguish between barriers to labour market achievement related to individual characteristics, institutional barriers impeding career advancement and mobility (including discrimination), and cultural barriers. Whether immigrant women are less likely to choose work or seek promotion or job advancement because of cultural preferences is intrinsically different from whether they are less likely to find work or be promoted to a position

²¹ Recall that the groupings in the LFS do not correspond to ethnicity, but to place of birth, which makes it impossible to perform an exact correspondence between the categories in both samples.

²² In 2021, 68% of women aged 20 to 54 were employed full time, up from 65% in 2007. Non-Indigenous women born in Canada (i.e., Canadian-born) (70%) and long-term immigrant (65%) women had the highest rate in 2021, followed by Indigenous women (59%) and recent immigrants (59%). Drolet (2022)

they are seeking. Each of these factors affecting labour market outcomes requires a distinct political response. Policies designed to improve the labour market outcomes of racialized immigrant women that focus on individual characteristics are likely to fail if significant institutional barriers to employment exist. Rather, policies that directly address these barriers will have a better chance of success.

Among the highly skilled women in the RNW survey, 24% did not think that they needed additional education. However, most women identified lack of recognition of foreign experience/lack of Canadian experience as a major barrier to employment. Specifically, over 85% of South Asian and East Asian women identify lack of Canadian experience as the main challenge in searching for jobs. Further, 70% and 79% of East Asian and Latin American women in the survey report lack of references as an additional major barrier in job searching. To these women, programs that offer career advice and the opportunity to connect with peers and employers through networking, job fairs or practicums associated with training would be the most beneficial. The connection with employers has proven to be doubly beneficial as it may also increase employer's information about foreign educational credentials and labour market experience.

Other barriers to employment and job search highlighted by women in the RNW survey concerns family responsibilities. Above one third of respondents who were looking for a job state that they would not move to another city to pursue suitable employment. The main reason for this is being tied to a spouse who will not/cannot move or other types of family responsibilities involving children. This agrees with substantial qualitative work in the area showcasing the issue of women as tied immigrants (Banerjee and Phan, 2014; Sweetman and Warman, 2010). Also, one quarter of respondents identify childcare issues as a barrier to job searching or working, particularly among Latin American women and West Asian or Arab women. This finding supports a significant branch of current research looking into childcare issues as a barrier for work (Guo, 2013; Turcotte and Savage, 2020). Besides government policies offering some form of subsidized childcare support, a potential solution to address this type of barrier could originate from employers identifying creative forms of flexible employment that allow women to achieve the right work life balance.

Conclusion

We explore some dimensions of jobs that speak to the quality of immigrant employment relative to that of the Canadian born. Using confidential data from the LFS and the O*Net database we

show that significant initial gaps exist in employment and wages. Newcomer women work less hours, are less likely to work full time and earn substantially less than their Canadian-born counterparts. However, they also experience significant improvements along these dimensions, reducing initial wage gaps to between 63% and 68% of their original size over a span of twenty years.

Focusing on standard measures of job quality in Tables 12 and 13, we observe that there is significant progress over time spent in Canada to the point that parity is observed, particularly for university educated women. A similar story emerges regarding wages or tasks in Tables 15 and 16: large gaps in wages and non-routine job tasks diminish substantially over time, at least by 50% if not more. The change in routine tasks over time shows mixed results, likely reflecting specific job task requirements in occupations where immigrant women might be more concentrated. While, it is difficult to evaluate whether a given type of job task signals a job as “good“, the general consensus is that nonroutine tasks will be harder to replace by technology, making those tasks – and the jobs that require them - safer (Frank et al., 2021).

These results may reflect the job market assimilation process of immigrants, who typically struggle initially in the labour market but may recover equal footing with the Canadian-born later in their careers. However, we add a note of caution to this interpretation. While it likely reflects immigrant progress in terms of obtaining “better jobs” with time in Canada, an alternative explanation is the existence of selection bias. Since we lack panel data on the job trajectories of women, we use cross-sectional data to estimate average trends for the cohort of immigrants that entered a given time in the country, rather than for individuals. As such, we cannot control for changes in the composition of cohorts. For instance, if immigrant women are disproportionately more likely to withdraw from the labour market after five or ten years of working than the Canadian born due to adverse outcomes, our estimates for long term immigrants might be upward biased. This could be the case if these women were in precarious positions in the labour market to begin with, with low hours and pay when they left.

Additional analysis also shows that these improvements are far from being homogenous among immigrant women, with significant additional gaps for immigrants more likely to be racialized, particularly those from East and South-east Asia. On this note, we highlight the substantial heterogeneity of experiences regarding the labour market integration of racialized immigrant women, and immigrant women more generally. Education plays a major part in these differences, but also family situation and the ability to validate foreign experience and credentials during the job search.

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**Appendix
Descriptive statistics**
Table A.1. Standard quality measures. Weighted Mean differences by Immigrant

		Type of contract						Work schedule		
		Employed	Log wage	Manager	Permanent	Contract	Other casual	Full time	Total hours	Involuntary PT
WOMEN										
Canadian Born	2006	Reference								
	2022	0.07***	0.19***	0.01*	0.02***	0.01**	-0.03***	0.06***	0.18	-0.02***
Immigrant	2006	-0.01***	-0.12***	-0.02***	0.00	0.00	0.002	0.03***	2.19***	0.01**
	2022	-0.03***	0.03***	-0.01***	0.01	0.01***	-0.02***	0.04***	1.19***	-0.004
Immigrant-CB Gap	2006	-0.01***	-0.12***	-0.02***	0.00	0.00	0.002	0.03***	2.19***	0.01**
Immigrant-CB Gap	2022	-0.10***	-0.16***	-0.02***	0.01	0.00	0.01	-0.02**	2.01***	0.00
Observations		181,228	120,347	138,638	138,638	138,638	138,638	138,638	138,638	138,638
MEN										
Canadian Born	2006	Reference								
	2022	0.03***	0.13***	0.01*	0.045**	0.00	-0.05***	-0.00	-1.87***	-0.01***
Immigrant	2006	-0.02***	-0.12***	-0.04***	-0.03***	0.01***	0.02***	-0.01***	-0.82***	0.01***
	2022	0.02***	0.02***	-0.05***	-0.00	0.01***	-0.01	-0.02***	-1.89***	0.01***
Immigrant-CB Gap	2006	-0.02***	-0.12***	-0.04***	-0.03***	0.01***	0.02***	-0.01***	-0.82***	0.01***
Immigrant-CB Gap	2022	0.01**	-0.11***	-0.06***	-0.04***	0.00	-0.03**	-0.03***	-1.07***	0.00
Observations		169,195	119,383	149,466	149,466	149,466	149,466	149,466	149,466	149,466

Table A.2. O*Net Measures – routine tasks. Weighted Mean differences by Immigrant

		Cognitive			Manual		
		Being exact	Repeat Task	Autonomy	Control Machine	Speed Equipment	Repeat motion
WOMEN							
Canadian Born	2006	----- Reference -----					
	2022	0.131***	0.187***	-0.081***	0.121***	-0.065***	0.061***
Immigrant	2006	-0.073***	-0.064***	-0.036***	0.193***	0.137***	0.109***
	2022	0.155***	0.209***	-0.190***	0.194***	0.076***	0.178***
Immigrant-CB Gap	2006	-0.073***	-0.064***	-0.036***	0.193***	0.137***	0.109***
Immigrant-CB Gap	2022	0.024**	0.022**	-0.109***	0.073***	0.141***	0.117***
Observations		133,798	133,798	123,318	133,798	133,798	133,798
MEN							
Canadian Born	2006	----- Reference -----					
	2022	0.226***	0.356***	-0.096***	0.063***	0.048***	0.152***
Immigrant	2006	0.033***	0.026***	0.009	-0.038***	-0.007	0.083***
	2022	0.242***	0.401***	-0.159***	-0.085***	0.005	0.224***
Immigrant-CB Gap	2006	0.033***	0.026***	0.009	-0.038***	-0.007	0.083***

Immigrant-CB Gap	2022	0.016**	0.045***	-0.063***	0.148***	-0.043***	0.072***
Observations		146,177	146,177	129,236	146,177	146,177	146,177

Table A.3. O*Net Non-routine Measures. Weighted Mean differences by Immigrant and year

		Cognitive						Manual			Physical proximity	
		Analyze Data	Coach others	Inter-personal	Direct others	Interpret Info	Think Creatively	Manual dexterity	Operate vehicles	Spatial Orientation	Handle equipment	
WOMEN												
Canadian Born	2006						Ref.					
	2022	0.44***	0.49***	0.27***	0.51***	0.43***	0.50***	-0.11***	0.30***	-0.08***	-0.08***	-0.19***
Immigrant	2006	-0.08***	-0.17***	-0.22***	-0.15***	-0.17***	-0.13***	0.17***	-0.01	0.06***	0.17***	0.02
	2022	0.35***	0.39***	0.14***	0.40***	0.31***	0.41***	0.01	0.31***	-0.08***	0.03***	-0.16***
Immigrant-CB Gap	2006	-0.08***	-0.17***	-0.22***	-0.15***	-0.17***	-0.13***	0.17***	-0.01	0.06***	0.17***	0.02
Immigrant-CB Gap	2022	-0.09***	-0.10***	-0.13***	-0.11***	-0.12***	-0.09**	0.10***	0.01	0.00	0.11***	0.03*
Observations		133,798	133,798	133,798	133,798	133,798	133,798	133,798	133,798	133,798	133,798	123,318
MEN												
Canadian Born	2006						Ref.					
	2022	0.36***	0.56***	0.35***	0.52***	0.41***	0.54***	-0.13***	0.39***	-0.09***	-0.08***	-0.04***
Immigrant	2006	-0.01	-0.08***	-0.05***	-0.13***	-0.02**	-0.01	-0.02	-0.21***	-0.11***	0.03**	0.01
	2022	0.39***	0.49***	0.31***	0.38***	0.39***	0.53***	-0.19***	0.11***	-0.23***	-0.09***	-0.07***
Immigrant-CB Gap	2006	-0.01	-0.08***	-0.05***	-0.13***	-0.02**	-0.01	-0.02	-0.21***	-0.11***	0.03**	0.01
Immigrant-CB Gap	2022	0.03*	-0.07***	-0.04***	-0.014***	-0.02**	-0.01	-0.06**	-0.18***	-0.14***	-0.01	-0.03**
Observations		146,177	146,177	146,177	146,177	146,177	146,177	146,177	146,177	146,177	146,177	

Tab A.4. Average quality measures

	Women				Men				
	2006		2022		2006		2022		
	Can. Born	Immigrant	Can. Born	Immigrant	Can. Born	Immigrant	Can. Born	Immigrant	
Standard quality measures	Manager	0.12	0.12	0.14	0.12	0.25	0.20	0.25	0.19
	Log of hourly wage	3.03	3.03	3.34	3.18	3.38	3.26	3.51	3.40
	Total Hours	32.42	32.42	30.48	31.44	40.19	39.34	38.33	38.32
	Permanent job	0.79	0.79	0.81	0.80	0.74	0.71	0.79	0.74
	Contract job	0.04	0.04	0.05	0.06	0.03	0.04	0.03	0.04
	Other/Casual job	0.17	0.17	0.14	0.15	0.23	0.25	0.18	0.22
	Full time work	0.81	0.81	0.84	0.82	0.96	0.95	0.96	0.95
	Involuntary Part-time	0.06	0.06	0.03	0.04	0.01	0.02	0.01	0.02
Non-routine Cognitive	Analizing Data	3.00	2.92	3.44	3.35	3.07	3.06	3.43	3.46
	Coaching and developing others	2.71	2.54	3.19	3.10	2.56	2.49	3.12	3.06
	Interpersonal relations	3.72	3.50	3.99	3.86	3.36	3.31	3.71	3.67
	Guiding Directing subordinates	2.50	2.35	3.01	2.90	2.56	2.43	3.08	2.93
	Interpreting information	2.97	2.80	3.40	3.28	2.84	2.81	3.24	3.22
	Thinking creatively	2.92	2.79	3.42	3.33	2.86	2.85	3.41	3.39
	Autonomy	4.20	4.16	4.11	4.01	4.20	4.21	4.10	4.04
Non-Routine Manual	Manual Dexterity	2.22	2.39	2.12	2.23	2.58	2.56	2.45	2.40
	Operating vehicules, equipment	1.64	1.64	1.94	1.95	2.35	2.14	2.74	2.47
	Spatial orientation	1.37	1.43	1.29	1.29	1.85	1.74	1.75	1.62
	Handling equipment	3.01	3.18	2.93	3.04	3.36	3.39	3.27	3.26
	Being exact	4.06	3.99	4.19	4.21	3.95	3.99	4.18	4.20

Routine Cognitive	Repetitive Tasks	3.22	3.15	3.40	3.43	2.92	2.95	3.28	3.32
Routine Manual	Controlling machines, processes	2.12	2.31	2.24	2.31	2.69	2.65	2.75	2.60
	Speed Equipment	1.57	1.71	1.51	1.65	1.93	1.92	1.98	1.94
	Repeat motion	2.90	3.01	2.96	3.08	2.86	2.94	3.01	3.08
Proximity	Close physical proximity	3.63	3.64	3.44	3.47	3.33	3.33	3.29	3.26

Table A.5. Combined, Gross Family income

	NRW Survey	Canada (2021)
\$200,000 - \$299,999	3%	8%
\$150,000 - \$199,999	5%	7%
\$100,000 - \$149,999	13%	13%
\$75,000 - \$99,999	15%	13%
\$50,000 - \$74,999	20%	17%
26,000- \$49,000	16%	22%
Under \$26,000	15%	17%
Unsure/PNA/NA	12%	4%

Source: Author's tabulations using RNW Survey and Statistics Canada Table: 11-10-0012-01.
<https://www150.statcan.gc.ca/t1/tb11/en/cv.action?pid=1110001201>

Table A.8 Estimated Tasks prices

Task	Coefficient in log wage regressions	\$
Analyzing data	0.30	1.35
Interpersonal	0.19	1.21
Thinking Creatively	0.18	1.20
Autonomy	0.32	0.32
Manual Dexterity	-0.12	0.89
Spatial Orientation	-0.05	0.95
Being Exact	0.18	1.20
Performing Repetitive Tasks	0.02	0.02
Control Machine	-0.07	0.93
Speed of Equipment	-0.10	0.90
Repeat motions	-0.18	0.84
Works in physical proximity	-0.09	0.91

NOTE: Each figure in column (1) shows the coefficient of the corresponding task in a log wage regression. These estimated “task prices” are net of education and age, marital status and presence of children, province, year and month. The interpretation of the coefficient is that increasing the amount of task by 1 unit rises wages (on average) by a percentage given by the figure amount. The \$ amount is the value of the exponentiated coefficient

Appendix A

The RNW survey

800 participants were reached through email lists of immigrant-serving organizations and by asking those who see the email to share with those they believe may be eligible to participate. We reached out to immigrant service organizations (ISOs) in each of the 9 cities across Canada (Toronto, Vancouver, Montreal, Calgary, Saskatoon, Ottawa, Edmonton, Winnipeg, Halifax) to identify those interested in becoming partners for the project.

Eligibility criteria: Self-identifies as a woman; Self-identifies as racialized; Became a permanent resident in Canada in 2012 or later through an economic category pathway; Age 18-65; Has a phone number with one of the following area codes: Toronto (289, 905, 365, 416, 647, 437), Ottawa (343, 613), Montreal (438, 514, 263), Halifax (782, 902), Vancouver (604, 778, 236, 672), Calgary (403, 587, 825, 368), Edmonton (780, 587, 825), Saskatoon (306, 639, 474), Winnipeg (204, 431)

Process: The (participant) recruitment email was sent to potential participants by the immigrant serving organizations (or other appropriate parties, such as community centers), containing the consent letter with clear details of the purpose of the study, provisions for confidentiality and security of data, and requirements from participants, as well as the eligibility criteria, the remuneration amount, and some topics covered by the survey and examples of questions that will be asked. Those interested in participating followed the link to a google form to set up a video call appointment to proceed with the next steps.

The video call with a member of our research team was used to confirm the eligibility criteria. The research member obtained verbal consent from the participant, who had an opportunity to ask any questions about the purpose or format of the study. The participant was sent the remuneration gift card code and their survey link.

APPENDIX B

The O*NET

During the time framework we are considering, there have been several taxonomy changes in the O*Net classification: in 2009, 2010, and 2019. The main goal of a revision to the taxonomy is to reflect changes occurring in the world of work because of new technologies, innovative business practices, and the organization of work. As a result, new occupations emerge, and others are split or merged in the revisions. To use O*Net data across taxonomy changes, one needs to rewrite the classification codes so that the occupations are comparable. We first constructed a longitudinal file containing the selected sixteen O*NET tasks for the required years for all Standard Occupation Classification (SOC) codes used by O*Net in each year. We used the (O*Net provided) 2010-2019 crosswalk to make the 2022 O*Net data compatible with 2010 SOC codes. 2011 and 2016 data need no conversion since they used the same 2010 taxonomy. The ONET does not provide a direct crosswalk from 2006 to 2010 but does provide one between 2006 and 2009. We manually tracked changes between 2009 and 2010, effectively creating a 2006-2010 crosswalk, which we used to rewrite the 2006 occupation codes to be compatible with 2010 SOC codes. When a SOC code is split into multiple SOC 2010 codes, they all get the same index. If several codes merged into a single SOC code, we take a simple average across the indices corresponding to the (single) 2010 SOC code.

A further step is needed establishing a correspondance between the SOC classification and the NOC occupational classification used in the LFS. Occupations are matched by name and manually paired when the exact name is not a match. 205 NOC codes had just one match in the O*Net and 295 NOC codes were matched with more than one SOC code, and for these we take the average of the SOC occupations indexes. Only 4 NOC codes did not correspond to any ONET SOC coding.²³

The revised O*NET-SOC 2006 taxonomy, outlined here, will include 949 occupational titles, 812 of which represent O*NET data-level occupations. Data-level occupations are those occupations for which the O*NET Program collects data. Data and occupational information are collected on a wide variety of variables and scales, such as occupational characteristics and worker requirements drawn from the O*NET Content Model

The revised O*NET-SOC 2009 taxonomy will include the addition of 153 new and emerging (N&E) occupations identified within 17 in-demand industry clusters. N&E occupations are defined as occupations that involve significantly different work from that performed by job incumbents of other occupations, and occupations that are not adequately reflected by the existing O*NET-SOC structure (National Center for O*NET Development, 2006). There are a total of 159

²³ At the start of this project the LFS used NOC4 classification index. After the 2023 Rebase of the LFS files, it provided only NOC5 occupational classifications. We used the NOC4-NOC5 correspondence to update our tasks file to the new NOC5 classification.

N&E occupations; 6 of which were included in the O*NET-SOC 2006 taxonomy. N&E occupations are detailed O*NET-SOC level occupations. Fifty-two of the 153 N&E occupations being added to the 2009 taxonomy are breakouts of SOC occupations, while 101 N&E occupations are classified under SOC residual “All Other” categories.

The scheduled February 2011 release of O*NET 15.1 will represent the sixteenth update of the O*NET database since its initial release in 1998 and the fourth taxonomy modification. The first modification was the conversion from an Occupational Employment Statistics-based (OESbased) classification, O*NET OU 1998, to a SOC-based classification, O*NET-SOC 2000. O*NET-SOC 2006 represented the second taxonomy modification, where the main goal was to ensure that O*NET data were, and continue to be, collected at the appropriate level of specificity (National Center for O*NET Development, 2006b). **The third taxonomy modification, O*NETSOC 2009, reflected the addition of 153 N&E occupations.** The current, fourth modification will represent the conversion of the O*NET-SOC taxonomy to the 2010 SOC.

The O*NET-SOC 2010 taxonomy includes the addition of 4 new N&E occupations, bringing the total to 152 for this release. Fifty-four of the 152 N&E occupations are breakouts of SOC occupations, and the remaining 98 are classified under SOC residual “All Other” categories.

The Center revised the O*NET-SOC 2010 taxonomy to adopt the 2018 SOC structure’s codes, titles, and definitions. Additionally, the Center added and removed detailed occupations to reflect the current US economy. The Center’s technical report provides a detailed description of those revisions (see Gregory et al., 2019). In short, 157 occupations were removed (37 SOClevel occupations, 120 detailed O*NET-SOC occupations) and 63 occupations were added (51 SOC-level occupation, 12 detailed occupations) to the taxonomy.

<https://www.onetcenter.org/research.html?c=Taxonomy>

https://www.onetcenter.org/dl_files/UpdatingTaxonomy2009_Summary.pdf

The O*Net tasks

Non-routine cognitive analytical tasks: analyzing data or information, thinking creatively, interpreting the meaning of information for others, and autonomy (performing unstructured versus structured work).

Non-routine cognitive interpersonal tasks: establishing and maintaining interpersonal relationships; guiding, directing and motivating subordinates; and coaching and developing others

Routine manual tasks: pace determined by speed of equipment, controlling machines and processes, and time spent making repetitive motions

Routine cognitive tasks: repeating the same tasks, being exact or accurate

Non-routine manual and physical tasks: operating vehicles, mechanized devices or equipment; time spent using hands to handle, control or feed objects, tools or controls; spatial orientation; and manual dexterity

Physical proximity: To what extent does this job require the worker to perform job tasks in close physical proximity to other people?

Description of O*Net variables

Element ID	Element Name	Description	
1.A.1.f	Spatial Abilities	Abilities related to the manipulation and organization of spatial information	
1.A.2.a.2	Manual Dexterity	The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.	Additional Q Importance scale 1-5
4.A.2.a.4	Analyzing Data or Information	Identifying the underlying principles, reasons, or facts of information by breaking down information or data into separate parts.	Background Q Importance scale 1-5
4.A.2.b.2	Thinking Creatively	Developing, designing, or creating new applications, ideas, relationships, systems, or products, including artistic contributions.	Background Q Importance scale 1-5
4.A.3.a.3	Controlling Machines and Processes	Using either control mechanisms or direct physical activity to operate machines or processes (not including computers or vehicles).	Background Q Importance scale 1-5

4.A.3.a.4	Operating Vehicles, Mechanized Devices, or Equipment	Running, maneuvering, navigating, or driving vehicles or mechanized equipment, such as forklifts, passenger vehicles, aircraft, or watercraft.	Background Q Importance scale 1-5
4.A.4.a.1	Interpreting the Meaning of Information for Others	Translating or explaining what information means and how it can be used.	Background Q Importance scale 1-5
4.A.4.a.4	Establishing and Maintaining Interpersonal Relationships	Developing constructive and cooperative working relationships with others, and maintaining them over time.	Background Q Importance scale 1-5
4.A.4.b.4	Guiding, Directing, and Motivating Subordinates	Providing guidance and direction to subordinates, including setting performance standards and monitoring performance.	Background Q Importance scale 1-5
4.A.4.b.5	Coaching and Developing Others	Identifying the developmental needs of others and coaching, mentoring, or otherwise helping others to improve their knowledge or skills.	Background Q Importance scale 1-5
4.C.1.a.2.1	Face-to-Face Discussions	How often do you have to have face-to-face discussions with individuals or teams in this job?	Work context Q Time scale 1-5
4.C.2.a.3	Physical Proximity	To what extent does this job require the worker to perform job tasks in close physical proximity to other people?	Work context Q Importance scale 1-5
4.C.2.d.1.g	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls	How much does this job require using your hands to handle, control, or feel objects, tools or controls?	Work context Q Importance scale 1-5
4.C.2.d.1.i	Spend Time Making Repetitive Motions	How much does this job require making repetitive motions?	Work context Q Importance scale 1-5
4.C.3.b.4	Importance of Being Exact or Accurate	How important is being very exact or highly accurate in performing this job?	Work context Q Importance scale 1-5
4.C.3.b.7	Importance of Repeating Same Tasks	How important is repeating the same physical activities (e.g., key entry) or mental activities (e.g., checking entries in a ledger) over	Work context Q Importance scale 1-5

and over, without stopping, to performing this job?

4.C.3.b.8	Structured versus Unstructured Work	To what extent is this job structured for the worker, rather than allowing the worker to determine tasks, priorities, and goals?	Renamed Autonomy
4.C.3.d.3	Pace Determined by Speed of Equipment	How important is it to this job that the pace is determined by the speed of equipment or machinery? (This does not refer to keeping busy at all times on this job.)	Work context Q Importance scale 1-5