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Canadian Social Assistance & Poverty Trends

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Abstract

There is a lack of research on Canadian Social Assistance (SA) that focuses on education (through quantitative analysis), the working poor, and across economic regions. This dissertation builds upon previous research by addressing these important gaps in Canadian literature about Social Assistance (SA) and poverty. First, through logistic regression, we analyze SA caseloads across the ten provinces by including education, measures for capturing the working poor, and other demographic data to determine who is most likely to claim SA and in which provinces. Next, we use panel tax data to examine trends of exit from SA across industries by fitting a logistic regression measuring employment success rates of persons reliant on SA across ten Canadian provinces. Lastly, we employ a novel approach to studying poverty in Canada by employing a shift-share regression across economic regions to decompose the variation attributed to those living in the bottom decile of the income distribution. Taken together, the findings point to a shift in SA caseloads: SA caseloads are changing, and single men are no longer the main group of recipients. Next, some provinces, namely Quebec, have lower SA participation rates. We also provide evidence for factors that are conducive to employment success of SA recipients: increased SA benefit levels and unionization are protective factors against SA reliance. Lastly, we provide additional research that paints a vivid picture of poverty in Canada. Namely, that income inequality is increasing, and that students, women, immigrants, persons living or working on Reserve, and younger individuals continue to live in economically precarious situations. We further find evidence of slight attenuation of income inequality across gay and lesbian couples from 2000-2018.

Keywords: Social Assistance, Poverty, Public Policy, Employment Success, Regional Variation, Longitudinal Analysis, Income Inequality

Summary for Lay Audience

There is a lack of quantitative research on Canadian Social Assistance (SA) that focuses on education, the working poor, and across economic regions. This dissertation addresses these important gaps in Canadian literature about SA and poverty. First, we analyze SA caseloads across the ten provinces by including education and other demographic data to determine who is most likely to claim SA and in which provinces. Next, we use tax data to examine trends of SA exit across industries. Lastly, we examine poverty in Canada by employing a longitudinal analysis across economic regions to examine factors associated with those living in poverty. Taken together, the findings point to a shift in SA caseloads. For example, single men are no longer the main group of recipients. Next, some provinces, namely Quebec, perform better with respect to their SA rates. We also provide evidence for factors that are conducive to employment success of SA recipients: increased SA benefit levels and unionization are protective factors against SA reliance. Lastly, we provide additional research that paints a captivating picture of poverty in Canada, by demonstrating additional evidence of increasing income inequality, and that students, women, immigrants, persons living or working on Reserve, and younger individuals continue to find themselves in economically precarious situations.

Co-Authorship Statement

I attest that this thesis is original, has not been submitted as part of another program, and has been completed entirely by myself. Both Dr. Holm (Supervisor) & Dr. Haan (Committee Member) have provided continuous feedback and editing throughout all stages of the research process. Any errors are my own.

Chapter one author contributions:

Elena Draghici: Conceptualized the model, writing, led data analysis, and revisions.

Dr. Anders Holm: Advised on the analysis, editing of the manuscript, and revisions.

Chapter two author contributions:

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Elena Draghici: Conceptualized the model, writing, led data analysis, and revisions.

Dr. Anders Holm: Advised on the analysis, editing of the manuscript, and revisions.

Dr. Michael Haan: Advised on the analysis, editing of the manuscript, and revisions

Chapter three author contributions:

Elena Draghici: Conceptualized the model, writing, led data analysis, and revisions.

Dr. Anders Holm: Advised on the analysis, editing of the manuscript, and revisions.

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Table of Contents

List of Tables

List of Figures

Chapter 1

1 Introduction

5.3 million Canadians live in poverty, over half of which rely on social assistance (SA) programs for groceries and rent (Statistics Canada, 2020). These staggering statistics compel us to rethink what SA truly means and how we can better support those in greatest need. Canada has the potential to be a global leader in social policy reform, but there is an overall lack of evidence-based research dedicated to the efficacy of SA and employment programs (Lightman, et al. 2010). Traditional SA models disincentivize employment by enforcing deductions on earned income, not delivering adequate employment supports, and by restricting the pursuit of higher education—all of which contribute to the barriers faced by millions of Canadian who live in poverty today (Hamilton & Mulvale, 2019). By failing to address the challenges faced by those living in low socioeconomic sectors, policy makers have struggled to bridge the widening income gap in Canada (Townson, 2000; Hjartarson, Pearce, & Mendelsohn, 2010). The goal of this research is to provide a relevant contribution to the present body of work in social policy reform, specifically to demonstrate that the current SA (welfare) model is not a reliable instrument to mitigate poverty and falls short in narrowing the income gap.

Historically, policy decisions targeting social programs have been more closely linked to the fiscal ideology of the dominant party rather than to scientific evidence about poverty reduction (Lightman & Herd, 2010). The provinces are responsible for administering SA through their own Acts & Regulations, determining benefit amounts, and creating employment support programs. Given that every province is governed by its own government, there is variation in how SA is administered and funded. This provincial variation also results in caseload differences and affords an opportunity to examine changes in reliance on social services and to evaluate policy decisions (Hansen et al., 2006). For instance, Manitoba, a leader in social policy reform in the 1970s, was the first to establish a longitudinal basic income pilot project that proved to have significant positive effects on the overall economic well-being of recipients (Calnitsky & Latner, 2017). On the other hand, Ontario has made significant funding and service

delivery changes to their SA program over the last 20 years, resulting in a program with municipal-level oversight. These changes correspond to the shifts in political leadership over the last two decades (Herd et al., 2005; Kneebone, & White, 2009). Despite the historic differences in political leadership, Alberta and B.C. have both been running their SA programs on a provincial scale, resulting in a relatively more standardized approach than in Ontario. Although the broader economic health of each province can influence reliance upon SA, the contextual difference across provinces provides a diverse and rich research context with respect to social services models (Kellerman, 2005).

My dissertation builds upon my master's research (published in the *Journal of Poverty*), which looks specifically at employment behaviors and individual characteristics of Ontario social assistance clients. I found that women, older persons, and those who lived in areas with lower education levels were less likely to exit assistance for gainful employment. Additionally, I found that changes in Ontario's social assistance policies from 1992-2015 negatively impacted social assistance clients' ability to reintegrate into the workforce permanently. Both my findings and the body of existing research suggest that geography, political context, and individual level characteristics are all key factors in studying the efficacy of social programs (Lemieux and Milligan, 2008; Shibuya, 2018; Kellerman, 2005; Federal-Provincial-Territorial Directors of Income Support, 2016). Given that provinces administer SA, our findings can help to inform province level policy by demonstrating the differences across provincial regions. In other words, if some provinces do better than others in terms of SA reliance, further research could examine why (are their policies stricter in terms of eligibility for SA, or do they provide stronger supports to clients that allow liberation from SA?). By conducting province-wide analyses, we provide an original research contribution that focuses on province-specific caseloads and individual characteristics of social assistance clients.

Our first analysis draws upon data from the Canadian Income Survey (2012-2017) to establish a demographic profile of SA reliance by province. We accomplished this by modeling the probability of SA receipt across provinces and measuring how the caseloads vary based upon individual, contextual, and economic factors. Through logistic regression analysis, we examine rates of people on SA per province, controlling for year,

amount of SA collected, and other key demographic variables (age, sex, family composition, and immigration). We pay particular attention to the working poor (those who work and claim SA in a calendar year). Our analysis includes regional economic factors that help explain between-province variation such as education levels, median income, and unemployment rates.

Our second analysis uses the Longitudinal Administrative Databank (LAD), accessed through Western's Statistics Canada Research Data Centre. The LAD is a 20% sample of all Canadian tax filers and provides detailed financial and geographic information. This analysis provides an in-depth description of employment behaviours of both SA and disability clients and allows for comparison between provinces to establish probabilities of reliance upon SA by demographic group, province, last industry of employment, and year (2000-2018). The dependent variable, employment success, is coded as a tax filer claiming SA in one year and not the next, but with a declared employment income of over half the median income (~$30,000/year). Understanding who relies upon SA, and to what degree, provides a basis for policy intervention regarding poverty levels and back-to-work transitions. My findings indicate that more than 50% of SA recipients do not have recent work experience (as evidenced by lack of employment income and industry attachment), pointing to a disconnect between overt program goals and outcomes. This paper is presently under review with the *Canadian Review of Sociology*.

Our final analysis examines the distribution of poverty in Canada and whether the well-documented growth in inequality at the national level is also observed at the municipal level. To address this, we use the LAD to assess the severity of poverty across Canadian jurisdictions. Specifically, we will look at whether poverty is clustered across specific regions or demographic groups. By fitting a shift-share regression, where the dependant variable is a regional offset between one's total income and their region's bottom decile (p10), we decompose the sources of poverty across a set of individual and geographic predictors. We further assess the extent to which transfer payments, such as SA, mitigate poverty across geographic regions. This is an important and novel research

contribution which assesses the degree to which SA helps alleviate financial strain for Canada's least well-off.

Taken together, our research provides a comprehensive analysis of the Canadian SA model, with goal of both informing public policy and to motivate additional research on ways to reduce income inequality in Canada. Providing updated research on Canadian SA and poverty is a necessary first step in creating evidence-based policy that moves individuals out of poverty and into the workforce. Furthermore, examining employment success of SA clients is a productive and efficient approach to determine best practices currently implemented by the provinces with respect to SA.

1.1 Policy Background & Problem Framing

Scholars and politicians have debated the source of poverty and how to best distribute resources for centuries. For Marx, poverty was framed in terms of the labour division that resulted from the European industrial era—where machines replaced working class employees, while the owners of the means of production benefited from cheap labour (Marx & Engels, 1848). Marx's notion of ownership and its implication on income and social inequality has built the foundation for many sociological theories, many of which have helped to shape the way scholars and policy makers understand poverty. Marx's theory evolved from capitalistic regimes and has been tested in the real world through decades of communistic governments. As these theories evolved and were subject to both real-world (given much of the world was under some form of communist government) and social-scientific testing, the understanding of poverty became less of an individual syndrome and more of a greater societal problem of resource distribution.

Centuries later, in the 1960s, Canadian policy reform aimed to bridge the income gap between social classes by implementing the Canada Assistance Plan (CAP), revolutionizing the way Canada frames income inequality and poverty (Federal-Provincial-Territorial Directors of Income Support, 2016; Roy, 2004).[1] Canada began to

[1] In 1996, CAP became the Canada Health and Social Transfer.

look at income inequality as an economic issue, stemming from the lack of adequate employment opportunities (or access to them), rather than as an individual choice that stems from a behavioral issue or personal predisposition. The shift in perspective informed how decision makers enacted poverty reduction policies: the introduction of CAP signaled emphasis on economic reform through policy implementation (Banting & Myles, 2016; Pal, 2014).

By defining poverty as a phenomenon that is no longer linked to individual characteristics, but rather one of resource distribution, the Canadian government began to grow into a welfare state (Banting, 2004). Increasing social provisions have provided safety nets to Canadians for decades, be that through health care, student loans, employment and maternity benefits, social assistance, or increased unionization. Power Resource Theory (PRT) posits that people use the resources they have at their disposal, which includes social programs and other safety nets allocated by the government. Furthermore, PRT, much like Marxist theory, views power as unequally distributed in society, and that those with greater economic resources enjoy more power than those with less (Olsen & O'Conner, 2018). The welfare state can be seen as attempt to shift this power to those who do not necessarily participate in the labour market (for example, homemakers) or those who cannot perform in the labour market to the extent that makes them financially independent.

According to Korpi (1983), power resources are "characteristics which provide actors. . . with the ability to punish or reward other actors (p.15)." The power individuals hold (or their worth in society) is commensurate with either their wealth or ability to perform successfully in the labour market. However, it is important to note that for decades, sociologists have pointed to inequality as existing across different dimensions of society, not only in terms of financial means. As such, an important critique of PRT (and Marxism) is its exclusive focus on economic inequality and lack of focus on social inequality. Given that power and resources go hand-in-hand, it is important to examine inequality across economic lines, but also across demographic groups (e.g., gender, race, sexuality). Traditionally, social assistance programs in Canada have been provided to those who were deemed deserving of them. For example, unwed mothers did not used to

fall under this category, pointing to a distinct moral component underlying social programs (Raphael, 2020).

The political aspect of our social world is one that is almost inseparable from economics. Individuals who run for federal office tend to be educated, white, and come from the upper-middle to upper classes (Belkhir, Charlemaine, & Jack, 2003). These characteristics may correlate with a certain financial and social privilege and may have implications on how people view the world. Politicians who come into office, and subsequently the policies they advocate for and enact (including social provisions), are laden with values that are associated with a class of people that are in favor of perpetuating a status quo (maintaining wealth). Although the voter base in Canada includes minorities, it has traditionally been white middle to upper class men and (later) women who elect politicians based on their personal interest. Those individuals who lack the means to partake in the political world often do not have their voices heard: a lack of individual diversity in public office often translates into a lack of diversity in political decision making. Social assistance policies are no exception to this. According to Brady (2019), "[p]olitical theories contend that poverty is a political outcome driven by power relations over collective choices about how to distribute resources" (p.164).

Power Resource Theory focuses on how the power differential between social classes affects social policies, and specifically how countries (such as Canada) that experience large social movements (unionization, welfare reform, etc.) tend to place more emphasis on resource redistribution (Brady, 2019). However, the changes to social policy reform, specifically with respect to social assistance, suggests that, as a nation, we are still unsure of how to address social issues such as poverty and income inequality. One recent example is the Ontario Basic Income Pilot Project (BIPP), which aimed to provide livable wages to individuals and families living in poverty. BIPP was established by the former provincial leadership but was abruptly cut short of its three-year research window following new provincial leadership in 2018, who cited fiscal constraints (Province of Ontario, 2018). Politically driven policy decisions are more closely linked to the fiscal ideology of the dominant party than to scientific evidence (Osberg & Xu, 1999).

Banting & Myles (2016) argue that politically driven anti-poverty policies inform the benchmark by which we measure their success—if we set our standards low, we hold the illusion that they are working, even though a substantial portion of the population continues to experience material deprivation. With respect to the unwed mother example above, if policies are written such that they disenfranchise or punish a particular group, and those individuals fail to receive financial assistance, then those policies are working. The question then becomes whether those policies and benchmarks are equitable across groups. Policies that target individual characteristics, as opposed to acknowledging the role of the broader socioeconomic context in creating economic disparity, will perpetuate segregation of those in lower socioeconomic sectors.

By defining poverty as a phenomenon that is no longer rooted in individual characteristics, but rather as one of unequal resource distribution, the Canadian government began to align itself with the ideals of a welfare state (Banting, 2004). Despite the shifting paradigm, little has been done to improve social assistance policy reform, despite mounting evidence that the current system does little to support individuals in need in their integration into the workforce (see Herd et. al, 2005 & Shibuya, 2018). Given Canada's propensity for large social movements (e.g., high rates of unionization) and large governments, Power Resource Theory would contend that there should be more equitable resource redistribution and subsequently more power redistribution (Korpi, 1983; Brady, 2019). However, this is not entirely the case, and this dissertation aims to illuminate the continued inequality in Canada. Esping-Andersen (2013) criticizes North American SA policies as being rooted in Anglo-Saxon morality, which perpetuates traditional views on the family. This traditional underpinning stigmatizes poverty and creates unfair policies for certain demographics, specifically for single mothers and women.

The idea of material security as something that is independent from the labour market is a central tenant in welfare states (Olsen & O'Conner, 2018). Decommodification refers to the extent to which individuals are reliant upon the current market and can be measured through the number of social programs that provide financial support (Esping-Andersen, 2013). Pensions, unemployment, and sickness

benefits, as well as SA, are all designed to provide individuals with the ability to support themselves while they are not actively participating in the market. However, the way Canadian SA is currently organized, specifically through punitive policies designed to deter people from accessing them, indicates that SA contributes to the commodification of individuals because of the program's goals of reintegrating recipients into the labour force. Commodification creates and exacerbates social and income inequality by shifting power away from individuals who do not or cannot participate in the labour market (for example, persons with disabilities, single parents, homemakers). Further, commodification amplifies existing inequalities that make the labour market an uneven playing field (for instance due to sexism or racism) by not taking into consideration the wage disadvantages experienced by certain groups. Therefore, livable social safety nets are key in creating a balanced distribution of power and resources. Lastly, commodification devalues human life by limiting resource redistribution, and therefore limits access to things like housing, healthcare, nutrition, and education. A poignant example of this is the recent discussion in Canada about privatizing healthcare, which will ultimately create unequal access to medical care, disproportionately affecting lower income individuals (who also tend to be visible minorities, sexual minorities, and women).

To be successful, SA must also be effective in providing individuals with the necessary education and training to secure well-paying positions. However, SA policies disincentivize employment and higher education. The working poor (those who barely make enough to get by and who may partially supplement their income through SA) are unable to become financially independent because of the deductions placed on earned income and overall lack of effective employment supports. Further, SA generosity has been shown to significantly decrease working poverty (Brady, Fullerton, & Cross, 2014; Kenworthy, 2011). Given that search for employment is one of the main contingencies upon which one can continue to be eligible for SA benefits, it makes sense to implement strong employment support programs that offer and incentivize education and job skill training. In short, programs that cultivate human capital are often the most effective in moving people from one strata of the income distribution to the next (Holm et al., 2017; Heinesen, Husted, & Rosholm, 2013).

1.2 Eligibility for Social Assistance

Social assistance programs in Canada are provincially run, and there is variation between the provinces in how the program is funded and administered. The funding for social assistance programs (health care, social assistance, student funding, etc.) starts at the federal level, through the Canada Health and Social Transfer Program (Lecours & Béland, 2010). Social assistance programs are last resort options for persons who have exhausted all other material/financial means to support themselves.

Eligibility for social assistance is mostly consistent across Canada: recipients must fall between the ages of 18-64, be able and willing to accept full-time employment, and meet the asset requirements (in other words, fall below mandated asset levels) (Federal-Provincial-Territorial Directors of Income Support, 2016). If SA applicants have an asset (for example, a vehicle) that falls above the asset limit[2], they are expected to sell it and live off the proceeds prior to becoming eligible for benefits. Similarly, a recipient making above their family unit's monthly employment limit (typically around $200-300/ per month for a single person in British Columbia (B.C.).), any amount above the said limit is deducted dollar for dollar from their cheque. To illustrate, in 2014 in B.C., an employable single person was eligible for a maximum amount of $610/ month ($375 for shelter costs and $235 for basic support); if that recipient is employed and made $400 that month, their assistance cheque would be cut down to $410. The most this recipient could make on assistance is $810 a month before their assistance amount becomes $0. Of important note, many recipients rely on extended health benefits that the social assistance program provides in addition to monetary support. When recipients are penalized for employment earnings for three consecutive months, their extended medical coverage is cancelled, making affording dental care or prescriptions a challenge for families who lack the resources to pay for them after food and rents are covered.

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[2] The legislation for asset limits is lengthy and may vary by province and year, thus a detailed discussion of this is out of the scope of this thesis. The example we are referring to applies to B.C. social assistance recipients (not disability), where in 2013-2017 the asset limit for a vehicle was $10,000. we invite the reader to refer to their province's social assistance program for more detailed information.

To ensure that the recipient remains eligible for assistance, they must provide monthly reports that list all earned and unearned income, which may affect their next month's assistance cheque (British Columbia Employment and Assistance Act (11), 2002). For individuals who cannot access the policies associated with their provincial assistance provide (due to mental health, homelessness, or lack of internet access), this may mean increased hardship in the month that the deduction took place. In addition to monthly reporting, many ministries will conduct random or flagged eligibility reviews, which are often degrading and invasive. Eligibility reviews often involve calling landlords to verify living situations (rental amounts, presence of a spouse, etc.), running credit checks, and interrogating recipients to determine whether benefits should continue, stop, or be repaid. Such practices signal mistrust of the recipient, who must prove their entitlement to benefits as low as $760/month (Herd et. al, 2005; Government of British Columbia, 2020). When individuals must face the harsh reality of poverty, where they may not know where their next meal is coming from, securing employment is no longer of main concern (Calnitsky & Latner, 2017).

Social assistance programs are often low paying to incentivize employment. Although there have been increases to assistance benefits over the last few years, these increases were small (around $100 to $120/month over a ten-year period) and fail to keep up with inflation rates or high rental costs (especially in cities such as Vancouver and Toronto) (Béland & Daigneault, 2015). The lack of adequate funding provided to recipients does not make a strong case for mitigating poverty, which is especially true when looking at other eligibility criteria, such as strict rules surrounding the pursuit of education (British Columbia Employment and Assistance Regulation, Part 3 (16), 2002). Those wishing to attend a post-secondary program are typically denied assistance and informed that they must access other means of funding available—student loans. Although I do not argue that student loans are issued for many people (employed or not), we do see the high cost of education as one of the drivers that perpetuate income inequality.

The goal of social assistance policies is to transition a recipient into full-time employment, which is why many recipients have an employment obligation. The

employment obligation requires the recipient to be able and willing to look for full-time employment, or at least employment that renders the recipient ineligible for further benefits. However, it is often the case that employment programs are underfunded or understaffed (Cote & Fenn, 2014). Based on my previous graduate research (Hillman, 2020), I found that the employment programs that compliment Ontario Works were overall ineffective in reintegrating recipients into the work force successfully, indicating a lack of efficacy of at least one social assistance policy. While federal distribution of funding aims to be equal, not all provinces offer the same social assistance monthly payments or employment support provisions. Although the variations in the amount of issued benefits can be attributed to economic variations between provinces (availability of jobs or differences in rental payments), social assistance policy reform can be explained by political ideology.

Taken together, our research points to a growing disparity in Canada, and specifically across regions. We demonstrate that SA is falling short of helping individuals move out of poverty and fail to reintegrate SA recipients into gainful employment permanently. Due to the high degree of economic variation in Canada, our analyses demonstrate the need for a more responsive SA program that considers these important economic differences. With respect to policy, SA recipients would benefit from increased benefit levels in general, but also ones that accounts for differences in costs of living, job opportunities, and transportation costs. Given that our results show that employed persons still rely on SA to make ends meet, policy could focus on increasing minimum wage, implementing a universal basic income and increase taxation of corporations to help fund these blanket programs.

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Chapter 2

2 Social Assistance Trends & the Working Poor: Evidence from the Canadian Income Survey

Canada's diverse socioeconomic and political regions provide a rich research context, especially with respect to social programs. In this paper, we use the Canadian Income Survey (CIS) from 2012-2017 to explore the probabilities of people relying on social assistance (SA) across a set of individual and contextual predictors. We focus on a largely understudied population: those who present evidence of both employment and SA reliance in a calendar year. By acknowledging that employed individuals still struggle financially and must rely on SA to supplement their income, we can begin to acknowledge that certain barriers (lack of free education or childcare for example) continue to perpetuate poverty in Canada. Through logistic regression analysis, we find significant differences in effects across provinces recipients that work and claim SA in a given year, most notably in Quebec. The findings of our research support previous findings that identify older persons, single persons, especially single mothers, as the most reliant upon SA. We provide additional evidence of the changing nature of SA caseloads: sex alone is no longer a significant predictor of SA receipt. Given the results from our exploratory analysis, we advocate for increased childcare subsidies, education incentives, and return-to-work training for SA recipients or those that live in precarious economic conditions.

2.1 Introduction & Literature Review

Prior to presenting the current literature on SA, it is important to provide a brief introduction to Canadian SA and its intended purpose. SA is a federally mandated and provincially run financial assistance program that aims to provide Canadians with a safety net in times of economic distress. In the 1960s, Canadian policy reform aimed to bridge the income gap between social classes by implementing the Canada Assistance Plan (CAP), revolutionizing the way Canada frames income inequality and poverty (Federal-Provincial-Territorial Directors of Income Support, 2016; Roy, 2004). Canada began to look at income inequality as an economic issue, stemming from the lack of

adequate employment opportunities (or access to them), rather than as an individual choice that stems from a behavioral or personal predisposition. The shift in perspective informed how decision makers enacted poverty reduction policies, specifically with increased emphasis on economic reform (Banting & Myles, 2016; Pal, 2014). The goal of SA programs is not only to provide modest financial aid, but also to transition recipients into the labour market as quickly as possible. For this reason, the typical eligibility criteria for SA are to fall between 18-64 years of age (one's prime employment years) and to be actively looking for and be willing to accept employment. Of important note, there are limits on how much a recipient can earn before deductions occur from their SA cheque (typically $200-500/month, depending on the province and family characteristics). Deductions on earned income, as well as restrictions on education have led some researchers to criticize our present SA model as one that disincentives employment (Calntisky & Latner, 2017). As such, we are interested in examining those who work and rely on SA in a given year to explore how prevalent this demographic is in Canada.[3]

Research conducted into poverty and reliance on SA entitlement programs in Canada is vast. Single mothers (Shibuya, 2018), the elderly (Sarkar, Traverso-Yepez & Gadag, 2020), those with lower levels of education (Coelli, Green, & Warburton, 2007), and less work experience (Bane & Ellwood, 1994; Cooke & Gazso, 2009) have all been previously identified as having increased poverty rates and reliance upon entitlement programs. Immigrants in Canada, however, have been shown to have declining levels of reliance upon entitlement benefits from 1993 to 2007 (Ostrovsky, 2012). Employment

[3] SA is comprised of both income and disability assistance. In most circumstances, to be eligible for disability, applicants must first be eligible for income support, and often application for disability can be lengthy and can stretch beyond a year. Although the main difference between the two types of support is that those on disability do not have a work requirement, many individuals on regular assistance also have medical or hardship exemptions. For this reason, we look at rates of SA across Canadian provinces, to assess the degree of poverty/working poverty in Canada (see Kneebone & White, 2009 for an example of aggregating the two types of SA). The main issue in both SA types is the lack of financial independence to support oneself. Lastly, individuals that are medically incapacitated or reside in care facilities are not included in the CIS.

skills (Cheng, 2002) and higher levels of education levels (Torche, 2011) have been previously demonstrated to positively correlate with labour market success. However, a recent report by Herd, Kim, & Carrasco (2020) indicates that SA recipients have a wide array of educational backgrounds, and that about 30% had some form of post-secondary training. Given these findings, we test the effects of age, family composition, education, presence of employment, and immigration status on SA receipt. However, it is worthy to note that there may be other extraneous factors that may affect both educational attainment and/or SA participation. Further, because ~~single~~ women and single mothers have been continuously identified as a particularly disadvantaged population, we test the correlation between different family types to examine whether a) the probability of SA reliance for women and single mothers continues to be higher than men or married women and b) to examine SA trends across different family compositions.

Other research looks at SA benefit dollar amounts, and changes to employment earnings exemptions (policy) as predictors of caseload changes (Blank, 2002; Blank & Ruggles, 1994). Milligan & Stabile (2007) find that lower benefit amounts result in lower SA caseload numbers. Similarly, Lemieux and Milligan (2008) found that decreasing benefit amounts were associated with an increased labour supply in Quebec, while recipients who collected a higher benefit had decreased employment rates of up to 5%. Alternatively, more stringent eligibility rules contribute to lower numbers of SA caseloads (Finnie & Irvine, 2008; Berg & Gabel, 2015; Falvo & Jadidzadeh, 2020). However, some researchers caution that the decreased caseloads are in fact a result of less people being eligible for SA, as well as increased spells of SA of those already in receipt of benefits (Stevens, Simpson & Frankel, 2011). Lastly, Kneebone & White (2009) test the SA policy effects on caseload numbers across Ontario, B.C., and Alberta and find that budget cuts led to substantial decreases to caseloads. Specifically, the authors conclude that increased eligibility criteria during SA policy reform of the 1990s contributed to decreased SA participation. Their analysis also incorporates logged employment income to test the relationship between earnings and SA. Similarly, we test the effects of logged employment income, and we expect that employment income and SA reliance will be negatively correlated. We further build on this study by including all Canadian provinces.

With respect to provincial differences, studies have taken different approaches to examining policy reform differences and their impacts. Dinan & Noel (2020) look specifically at Quebec's focus on increasing human capital by implementing subsidized childcare services and job skills that anticipate a dynamic labour market. Ontario, Alberta, and most notably B.C., have been found to have tightened eligibility criteria and lowered benefit amounts in reaction to changing attitudes to SA and social policy reforms of the 1990s (Finnie & Irvine, 2008). Newfoundland, on the other hand, had significantly increased its benefit amounts (particular for single persons) and, in turn, has experienced increased caseload numbers as a result (Berg & Gabel, 2015). Alternatively, provinces such as Manitoba, Prince Edward Island, and New Brunswick, lowered benefit amounts for single recipients (Berg & Gabel, 2015), and B.C. remains the only province with a time limit on benefits (maximum of two years on assistance out of every five) (Finnie & Irvine, 2008). Provinces with lower regional unemployment rates have been found to speed up exit from SA (Finnie & Irvine, 2008; Kneebone & White, 2009).

Macroeconomic indicators, such as employment rates, may be indicative of availability of jobs and overall economic health of a region, and thus, may act as a protective factor against SA reliance. For this reason, our analysis incorporates the unemployment rate as a control variable for each province and year. Following Finnie & Irvine's (2008) analysis, we test the effect of region size. We further assume that smaller regions with less employment opportunities may have increased reliance on SA in comparison to larger cities and major metropolitan areas. We test this hypothesis through an interaction between being employed and region size. Lastly, Finnie & Irvine's (2008) research uses the LICO (the low-income cut off or poverty line) as a poverty benchmark. Our analysis uses the Market Basket Measure to measure poverty and SA as an updated poverty benchmark that considers the cost of shelter, food, and basic necessities per family and region size (Statistics Canada, 2021).

Research points to SA spells to be generally under two years to permanent exit but that spells are significantly longer for single individuals and, in particular, single mothers (Finnie & Irvine, 2008; Fortin, Lacroix, & Drolet, 2004; Shibuya, 2020). Lightman, Mitchell, & Herd (2010) find that SA recipients who leave benefits for

employment fare worse in terms of wages and working hours than those who did not rely on assistance—effects that are observable for several years post SA. Peter & Polgar (2020) find that a common theme amongst SA recipients is a lack of choice in pursuit of jobs and training, as well as a lack in addressing barriers (secure housing or time for single parent homes) prior to job search perpetuated their financial instability and was ineffective in a permanent transition to work from SA. Similar findings are presented by Danziger, Kalil, & Anderson (2000) who use American data: women with multiple barriers to employment (physical and mental health issues, lack of training and education, and substance abuse) have the lowest probabilities of exiting off social assistance. These findings may allude to the inadequacy of employment supports offered through SA programs to support recipients in a responsive manner, despite employment being at the forefront for eligibility and the main solution to transitioning people into the labour market. Hillman (2021) finds that women fare worse than men in transitioning out of SA for gainful employment, and that regions with higher levels of education have higher probabilities of exit from SA. Nevertheless, it is also important to note that these and similar findings could also be indicative of unobserved individual characteristics or predispositions of persons relying on assistance for extended periods of time.

Little is known about individuals who work and supplement their income with SA. Given that SA eligibility is directly tied to employment, such that SA benefits are deducted from one's employment income, those who rely on SA while continuing to work signals a need to re-examine barriers to the labour market. For example, education is known to be a key predictor for labour market success, yet many people lack the resources to pay for a college degree, which hurts their chances at becoming financially stable. A recent report indicates an increasing number of SA recipients with bachelor's degrees. For example, in a recent qualitative study on SA recipients by Gazso (2020), 39% of respondents had some post-secondary education. Stapleton, Murphy, & Xing (2012), used data from the Survey of Labour and Income Dynamics and found that 52% of working poor Torontonians (earning at least $3000-$16,700 and work 910+ hours/year) have some degree of post-secondary education. Our research builds upon the literature by including measures of education in quantitatively studying SA rates across all Canadian provinces. Using U.S. data, Glass (1982) finds that the difference between

employed and unemployed women on SA is mainly summarized in their overall economic situation (owning a home, work experience) rather than in demographic differences. Interestingly, the SA reforms of the 1990s in the U.S. were found to worsen poverty conditions for those who exclusively relied upon SA, but not for those who work and receive SA (the working poor) (Cheng, 2002). SA recipients that are single mothers, persons with lower levels of education, living above or below the poverty line, and low wages were all found to be factors associated with partial SA reliance. Our focus on those employed and on SA within a calendar year fills an important knowledge gap in Canadian SA reliance. For this reason, we explicitly test the effects of being employed across provinces and region sizes on SA reliance through two interaction terms.

Millions of Canadians experience financial hardship expressed either through lack of access to childcare, food insecurity, or long spells on SA. Despite this, only a few studies look at all Canadian provinces collectively, with most literature focusing only on three provinces: Ontario, B.C., and Alberta. Further, to determine whether provincial policy measures is associated with SA reliance, we include an interaction term between being employed and province. We theorize that more generous provinces will have lower rates of SA reliance, possibly due to increased generosity for work search supports and possibly larger earnings exemptions for employment income (which incentivize work). Our second interaction term between region size and being employed will help to illuminate whether provincial policy (province variable) or economic opportunity (region size) matters more with respect to SA reliance. The research we present in this paper attempts to look at Canada in a holistic way by incorporating all provinces and all family types, specifically capturing an understudied population—the working poor.

The Research Questions

Given the focus of previous literature on provincial policy, family composition, education levels, and economic opportunity, we seek to test the following research questions:

- Are certain demographic groups more likely to claim assistance over others (do factors such as age, sex, marital status, or presence of children affect SA reliance)?

- Do rates of people on assistance change across broader temporal (yearly trends) or contextual factors such as by province (SA policy) or region size?
- Are there any protective factors against reliance on SA, such as education, employment, or family composition?
- What can we learn from those who are working and receive SA benefits?

Although many of these questions have been previously addressed in other research, our analysis is novel in that we examine individuals who work and claim SA and include education to negatively predict SA reliance. Given that individuals that work may be different from other individuals on SA our analysis may answer interesting policy question on SA for working individuals. Further, given the study period does not capture any significant economic fluctuations, therefore our results could be consistent across time, at least in recent history. We now turn to the research methods section, starting with the dataset and model description that we use to answer the research questions.

2.2 Methods

Data

The data used for the analysis are from the Canadian Income Survey (CIS) from 2012-2017. The CIS is a Statistics Canada public use dataset comprised of questions pertaining to income and expenditure of Canadians across ten provinces. The CIS is a cross-sectional survey comprised of a sub-sample of respondents who participated in the Labour Force Survey. The CIS is a yearly cross-sectional survey, making the present study a cohort analysis of SA recipients (the data do not allow for distinguishing between income and disability assistance). The population of study is all Canadians, excluding Northern Canada, persons residing on reserve or in institutions, and military personnel living camps (Statistics Canada, 2017). The average number of observations per year across 2012-2017 is 63,876 (unweighted) and the response rate ranged from 68-79%. Given that survey data are self-reported, it is possible that individuals may under report amounts of SA, as Warburton & Warburton (2004) point out in their study using the Survey of Labour and Income Dynamics.

We begin manipulating the data by appending the 2012-2017 into one dataset. A check for how the missingness is distributed across the variables of interest yielded an even split across key demographic variables such as age, sex, province of residence, etc., and there was no discernible pattern of missingness detected. Therefore, we were satisfied that these missing values did not pose a problem with respect to data analysis and were listwise deleted by Stata during regression analysis (Statacorp, 2019). As per policy, to be eligible for SA, a person (in most cases) must be between the ages 18-64 to satisfy the work search requirement. As such, we deleted cases that were in age categories below 16 and above 60 or that belonged to a family type that indicated the respondent was elderly.[4] After defining the population of interest, the resulting dataset consisted of 202,471 observations (unweighted) across six years and ten provinces. The weighted results yielded a sample size of 118 million, or about 19 million respondents per year.

Models

The model most appropriate for the analysis is the multivariate logistic regression because of the binary nature of the dependent variable, *on assistance*. Given a set of independent variables, the logistic regression model is used to estimate the probability of success for a binary response variable (success/failure) that follows a Bernoulli distribution (Agresti & Finlay, 2009). The coding of the dependent variable is usually 0 to indicate failure and 1 to indicate success. A predetermined threshold, typically anything over a probability of 0.5, governs whether the change in a variable is deemed a as a success or not (Breen, Karlson, & Holm, 2018). In the present research, we calculate the predicted probability of an individual claiming SA, given the explanatory variables in the model. The model is defined as:

[4] The CIS provides age categories only. Therefore, we were unable to capture those over 60. Per SA policy, most individuals are not eligible for SA passed retirement age, given their eligibility for old age benefits.

$$\mathrm{Log}\left(\frac{\mathcal{P}_{\mathrm{i}}}{1-\mathcal{P}_{\mathrm{i}}}\right) = \beta_0 + \beta_1 X_{1,i} + \cdots + \beta_k X_{k,i}\ ;\ \forall\, i \in \{1, \ldots n\} \qquad \text{Equation (1)}^5$$

where $\mathcal{P}_{\mathrm{i}}$ denotes the probability of individual i being on assistance, given the other variables within the data. The dependent variable, *on assistance*, is defined by $Y_i;\ \forall i \in \{1, \ldots n\}$ and the set $\beta = \{\beta_0, \beta_1\ \ldots \beta_k\}$ define the regression coefficients for the independent variables. The k independent variables are denoted as $X_i = \{X_{1,i} \ldots\ X_{k,i}\}$ in which the observations are indexed by $i \in \{1, \ldots, n\}$. Lastly, all parameters within the model are assumed to be fixed effects.[6] Frequency (sampling) weights were applied to the model for inferential purposes, as per the direction of Statistics Canada (Statistics Canada, 2017).

Variables

The dependent variable in the model is *on assistance*, which is a binary variable defined as 1 if the case has SA benefits in the amount of greater than zero in the reference year, and 0 if the case does not have declared SA benefits (see Table 2.1 for descriptive statistics). An independent variable, *working*, is based on the variable that measures how much employment earnings one has in the reference year. We code working as 1 if the declared amount is above zero, and 0 as lower than or less than zero (some individuals reported negative amounts if they lost income due to being self-employed). The working variable captures variation in the dependent variable for those who work and rely on SA within a calendar year. Interestingly, a cross tabulation between working and on assistance indicates that 78% of the sample have reported income from both sources, while only 22% of those claiming SA did not declare employment earnings (raising the threshold of the working variable to $1000 did not change the beta coefficient). We

[5] The structure of this equation reflects the data's non-panel nature and assumes that mobility across provinces is possible in the event of a person being surveyed twice.

[6] Although previous research on the current topic treated regions as random-effects, which resulted in a mixed-effects model, there are not enough parameters (provinces) to justify an assumption of a random geographical effect (for example, Hillman, 2021).

control for level of employment earnings by including logged employment income as a continuous variable.[7]

Table 2.1- Summary Statistics from the Canadian Income Survey 2012-2017

Variable	Mean	Variable	Mean
On Assistance		Family Type	
No	0.88	Single Male	0.10
Yes	0.12	Single Female	0.07
		Couple, no kids	0.175
Year		Couple with kids	0.35
2012	0.165	Couple, No kids, with other relatives	0.165
2013	0.165	Single female parent	0.03
2014	0.165	Single male parent	0.005
2015	0.165	Female, other family type	0.05
2016	0.17	Male, other family type	0.055
2017	0.17		
		Family Size	8.13
Province			
Atlantic Canada	0.06	Marital Status	
Quebec	0.23	Married/Common-Law	0.58
Ontario	0.395	Separated/Divorced	0.055
Manitoba	0.035	Widowed	0.005
Saskatchewan	0.03	Single	0.365
Alberta	0.12		
B.C.	0.13	Age	
		16-24	0.185
Region Size		25-39	0.34
Large Region pop.>500K	0.585	40-59	0.47
Mid-size region pop.100,000-500,000	0.165		
Small region size pop. <100,000	0.25	Immigration dummy	
		0	0.56
Unemployment Rate	12.04	1	0.44
Ln (employment income)	20.54		
		Permanent Resident	
MBM dummy		Missing	0.44
Earn Above MBM	0.86	Has PR	0.20
Earn Below MBM	0.14	Does not have PR	0.36

[7] An income of 0 remained as 0 in the logged income variable.

Working			Sex		
	No	0.055		Male	0.50
	Yes	0.945		Female	0.50
Education Level					
	Less than Highschool	0.115			
	High School/Some Postsecondary	0.29			
	Postsecondary Certificate/Diploma	0.30			
	University Degree	0.295			
Observations				202471	202471
Weighted= 118,080,667 (~20,000,000/year))					

Source: Author calculations, Canadian Income Survey 2012-2017 (due to rounding, the totals many not equal to 100).

Next, we import Market Basket Measure (MBM) amounts from Statistics Canada[8], which includes costs of shelter, food, and other necessities (reported in 2021 constant dollars) (Statistics Canada, 2018). We divide the MBM dollar threshold by the square root of family size (square root equivalence), then code the MBM dummy variable as 1 if the square root equivalence variable is more than an economic family's total income, before taxes. Given that families often rely on income from government transfers and other sources of income, it makes sense to use the total amount of income available to a family unit. The rationale behind using the square root and not the total number of household members is related to the assumption that each new household member does not burden the household income as much as the first- i.e., housing does not need to increase linearly with each new member. In other words, a household of three does not need a family income three times the income of one person to have equal "quality" of life. The MBM dummy indicates whether the amount of income available to a family unit in a given year falls above or below the affordability threshold for their region and family size.

[8] The CIS has the MBM region sizes only, so we imported the MBM dollar amounts from 2 sites: Table: 11-10-0230-01 (formerly CANSIM 206-0093) for 2012-2016 and Table: 11-10-0066-01 for 2017 amounts. Both tables reported amounts for a family of 4 and are all reported in current dollar amounts (2021).

We include several explanatory and control variables in the analysis to describe the variation between groups and provinces. The *year* variable captures the years from 2012-2017 and is modelled as a fixed effect to determine fluctuations in caseloads across the study period within provinces. We control for sex using a binary variable and the data have an even distribution across sexes. We also include family size as a control variable, modelled as a linear effect, to measure the probability of claiming SA by the number of people within an economic family. The variable f*amily type* describes the respondent's family composition: single, couple, children, no children, or other. To control for marital status, we collapse the variable into 4 groups: married or common law, separated or divorced, widowed, and single. Couples and single persons comprise 58% and 36.5% of the sample, respectively.

To test effects of education on SA reliance, we include education as a categorical variable: less than high school, completed high school and/or some postsecondary, postsecondary certificate or diploma, and university degree or certificate. We collapse age categories as follows: 16-24, 25-39, and 40-59.

The original dataset was comprised of ten provinces. However, due to smaller samples in the Atlantic provinces, we collapsed the Atlantic provinces (New Brunswick, Prince Edward Island, Nova Scotia, and Newfoundland and Labrador) into one category. In general, the Atlantic provinces are similar to one another with respect to macroeconomic indicators such as median income and rates of unemployment. Thus, it is reasonable to assume a high degree of homogeneity across these provinces. We collapse market basket regions[9] based on population size: large region if the population exceeds 500,000 people, mid-size region if the population ranged from 100,000 to 500,000 people, and small region if the population was under 100,000 people. The result was a fairly even split between the three groups: 40% of observations belonged to large urban

[9] To distinguish between regions, the CIS has a variable for over 40 market basket measure (MBM) regions across the provinces. Statistics Canada determines market basket regions based on calculations of how much a 'basket' of goods costs (basic clothes and groceries) given the population size and location of a particular region. The MBM is a way to measure the financial wellbeing of a family unit compared to the Canadian poverty line (Statistics Canada, 2019).

centers, 35% belonged to small or rural regions, and 26% were classified as mid to small size regions.

We include the provincial unemployment rates from statistics generated from the LFS (Statistics Canada, 2020). The rationale behind this decision was twofold: first, a robustness check of the unemployment rate, as calculated from the CIS dataset, indicated that employed persons comprised 84-94% of the data, depending on year and province. In other words, the unemployment rate (calculated as proportion of those not working in a given year, not specifically only those in the labour force) was between 6-16%. Because we want to include an economic measure that can act as a control between different regions and it appeared that the dataset is more heavily skewed towards those that are employed, it made sense to import the unemployment rate by year and province. The unemployment rate is a continuous variable in our analysis.

To account for immigration status, we use the permanent resident variable which indicated whether a person is a landed immigrant. It is important to note that the flag is only present for those individuals that are living in a census metropolitan area with a population of 500,000 or greater. However, when looking at how the immigration variable was distributed across regions with different populations, there were permanent residents in mid to small and rural areas as well, although 91% of those who answered yes to being a PR resided in large metropolitan areas. The landed immigrant variable describes persons who have permanent resident (PR) status in Canada and is comprised of just under 9% of those who have PR status and 20% that do not. The remaining 68% are either missing or "valid skip". [10] Given the high amount of missingness on this variable, we recode the variable as follows: 1= respondent has PR, 2= the responded does not have PR, and 0= missing—either not stated or valid skip. In this case, valid skip would likely indicate those who are Canadian citizens either by birth or naturalization. Next, we use an immigration dummy variable to model the missingness (immigration

[10] We did not impute this variable because Canada has such a high number of immigrants from various demographic backgrounds, that the estimated missing values may not be meaningful.

dummy variable=1 for missing values (44% of responses) and 0=did not impute (just under 56% of responses) yielded a significant p-value. Therefore, the missingness could be considered as missing at random. Eligibility for SA extends to those who have PR, and they follow the same SA eligibility criteria with respect to employment, asset limits, etc.

2.3 Results

We run two models: the first model is the main effects model (Table 2), with independent variables only, and the second includes two interaction terms (Table 2.2). We test the goodness of fit across models by running a likelihood ratio test (chi-square=2543.71, p-value= 0.00), and given the significant p-value, we are satisfied the second model explains more variation in the dependent variable than the model without interactions (Aikaike's information criterion for the first model (107673.4) was larger than the value for the interaction model (105151.7). We present the results by research question. We report the estimates for the full model (Model 2), unless otherwise stated.

Table 2.2- Predicted log odds of social assistance receipt

	Model 1	Model 2
	On Assistance	On Assistance With Interactions
Year (Ref=2012)		
2013	-0.026	-0.016
	(0.045)	(0.045)
2014	0.128**	0.135**
	(0.045)	(0.045)
2015	0.047	0.057
	(0.046)	(0.046)
2016	0.163***	0.195***
	(0.043)	(0.043)
2017	-0.023	0.033
	(0.042)	(0.042)
Unemployment rate	0.027*	0.026*
	(0.013)	(0.013)
Ln (employment income)	-0.235***	-0.575***
	(0.004)	(0.013)
Immigration		
Immigration dummy (Ref= non-missing)	0.126***	0.114**
	(0.029)	(0.039)
Permanent Resident (Ref=missing)	0.338***	0.231***
	(0.040)	(0.041)
Sex (Ref=male)		
Female	0.017	-0.002
	(0.028)	(0.029)

Marital Status (Ref=married)		
Separated/Divorced	0.402***	0.428***
	(0.060)	(0.060)
Widowed	0.340*	0.273
	(0.140)	(0.143)
Single	0.616***	0.630***
	(0.049)	(0.049)
Earn MBM (Ref=earn above MBM)		
Earn below MBM	0.522***	0.265***
	(0.044)	(0.043)
Age (Ref=16-24)		
25-39	0.818***	0.800***
	(0.045)	(0.044)
40-59	0.864***	0.873***
	(0.050)	(0.049)
Education Level (Ref=Less than Highschool)		
High School/Some Postsecondary	-0.469***	-0.430***
	(0.035)	(0.035)
Postsecondary Certificate/Diploma	-0.711***	-0.626***
	(0.037)	(0.038)
University Degree	-1.136***	-1.032***
	(0.043)	(0.043)
Family Type (Ref= single male)		
Single female	-0.036	-0.047
	(0.067)	(0.065)
Couple, no kids	0.200**	0.171*
	(0.073)	(0.072)
Couple, with kids	0.295***	0.276***
	(0.077)	(0.077)
Couple, no kids, with other relatives	0.845***	0.955***
	(0.072)	(0.071)
Single parent, female	0.894***	0.690***
	(0.075)	(0.073)
Single parent, male	0.130	0.020
	(0.115)	(0.112)
Female, other family type	1.004***	0.996***
	(0.071)	(0.068)
Male, other family type	1.194***	1.131***
	(0.071)	(0.068)
Family Size	0.308***	0.339***
	(0.014)	(0.014)
Province (Ref=Atlantic Canada)		
Quebec	0.155**	0.512***
	(0.051)	(0.094)
Ontario	0.607***	0.265**
	(0.050)	(0.091)
Manitoba	0.260***	0.063
	(0.072)	(0.123)
Saskatchewan	0.275***	-0.360*
	(0.079)	(0.141)
Alberta	0.493***	-0.397**
	(0.069)	(0.146)
B.C.	0.322***	-0.442***
	(0.066)	(0.123)
Working (Ref= not working)		3.653***
		(0.153)

Interactions between Working & Province (Ref=working in Atlantic Region)		
Working in Quebec		-0.464***
		(0.098)
Working in Ontario		0.444***
		(0.090)
Working in Manitoba		0.284*
		(0.118)
Working in Saskatchewan		0.798***
		(0.136)
Working in Alberta		1.088***
		(0.144)
Working in B.C.		0.970***
		(0.122)
Region Size (Ref= Large Region pop.>500K)		
Mid-size region pop.100,000-500,000		0.498***
		(0.082)
Small region size pop. <100,000		0.333***
		(0.077)
Interactions between Working & Region Size (Ref=not-working in Large Region)		
Working in mid-size region		-0.617***
		(0.085)
Working in Small region		-0.418***
		(0.080)
Constant	-2.358***	-2.437***
	(0.176)	(0.187)
Observations	202471	202471

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ Source: Canadian Income Survey 2012-2017, Authors' calculations.

Are certain demographic groups more likely to claim assistance over others (do factors such as age, sex, marital status, or presence of children affect SA reliance)?

The model failed to significantly predict a difference between males and females. However, marital status and family type yielded interesting results: in comparison to married individuals, the log odds of being on assistance for separated or divorced individuals are higher (β=0.428), which implies that the probability of being on SA increases multiplicatively when comparing married and divorced individuals. The estimate for widowed individuals failed to reach significance in the full model (model 2). Single persons have the greatest probability of claiming SA and the model predicts a greater chance (β=0.630) over married individuals. In comparison with single males,

single parent females have a higher probability of relying on SA (β=0.690). Interestingly, after inclusion of the interaction terms, the model predicts a slightly lower probability for single females, indicating that contextual factors may in fact be more important than demographics in this case. Couples without kids and living with relatives and persons who indicated 'other family type' as their living arrangement had larger odds of SA receipt over single parent females, in comparison to the reference group. With respect to family size, for every additional person in a family unit, the predicted probably of SA receipt increases by (β=0.339).

The PR variable and the immigration dummy were both significant. The reference category for PR is Canadians. Those who answered 'no' to having PR Status was omitted due to collinearity. The PR variable measures how immigration status affects odds of being on assistance and the dummy variable captures the missingness of the PR variable. The model predicts that persons who have evidence of recent immigration have a (β=0.231) increase in the log odds of being on assistance.

Relative to respondents aged 16 to 24, the odds of being on SA are higher for both those aged 25 to 39 (β=0.800) and for those aged 40-59 (β=0.873).

Do rates of people on assistance change across broader temporal (yearly trends) or contextual factors such as by province (SA policy)?

With respect to year, 2013 and 2017 are predicted to have lower probability of SA receipt, as compared to 2012 in model 1. Taken together, the remaining years across the study period imply that there is generally an increase in SA caseloads across time. However, not all the years in the model yielded significant estimates. Geographically, provincial estimates were all significant in model 1, but once the interaction terms were introduced, Manitoba's estimate became insignificant, and the estimates slightly decreased for the remaining provincial dummies. In comparison to the reference category (Atlantic Canada), Quebec and Ontario have higher odds of SA receipt (β= 0.512 and β=0.265, respectively), while Saskatchewan, Alberta, and BC all have predicted lower odds of SA receipt. has 41% lower odds (β= -0.360, β= -0.397, and β= -0.442, respectively) (see Table 2). The unemployment rate was largely unaffected by the

inclusion of the interaction terms and the model predicts an increase in probability with each one unit increase in the unemployment rate (β=0.026).

Are there any protective factors against reliance on SA, such as education, employment, or family composition?

With respect to education level, all three categories of the variable yielded significant results and predict decreased odds of SA receipt. Furthermore, the estimates across levels of education were largely unaffected after the inclusion of the interaction terms, pointing to a relatively strong protective factor against SA reliance. Relative to the reference category, less than high school, all levels of education are associated with lower predicted odds and those who hold a university degree have the lowest probability of SA receipt (β= -1.032). Bachelor's degree holders have the lowest probability of SA receipt of any other educational group. Like education, employment earnings also predict a decreased probability with every unit increase of logged dollar amount (β= -0.575).

What can we learn from those who are working and receive SA benefits?

The interaction terms[11] included in the analysis were: working and province and working and region size. The inclusion of these interaction terms appeared to have accounted for much of the variation in the dependent variable than the provincial fixed effects alone. As hypothesized, relative to large urban centers of 500,000 people or more, residing in a region with a population of 100,000 to 500,000 and residing in a rural region (population of less than 100,000) increases of being on assistance (β=0.498 and β=0.333, respectively). Earning below a family unit's MBM threshold is also significant and the model predicts an increase (β=0.265) in probability of SA receipt, in comparison to those who earn above their MBM threshold. The interaction between working and province indicates that those working in Quebec have the lowest chance of SA receipt relative to

[11] Interaction terms are somewhat hard to interpret in logistic regression models (Breen et al., 2013). By estimating linear probability models instead this problem could be circumvented (Breen et al., 2018). However, as the differences in terms of predicted probabilities are minimal, we proceed with the application of logistic regression models with interaction terms.

those working in the reference group (β= -0.464) (working in Atlantic Region), while the remaining provinces all had larger odds of SA receipt, relative to the reference.

2.4 Discussion

Some of our most notable findings are the lack of difference in SA reliance between men and women (signaling a shift in caseload demographics from previous research), an increase in reliance on SA of newcomers to Canada, and Quebec's apparent ability to reintegrate SA recipients into the workforce. The analysis illuminates the demographic groups who are most likely to receive assistance and that provinces have different outcomes for those who work and claim SA. As seen in the literature review, barriers such as childcare and lack of education contribute to continued reliance on government transfers. For example, single mothers, who are more likely to claim assistance than the reference group (single males), are clearly a disadvantaged group. Securing gainful employment for single mothers may be difficult for several reasons. The stress and time commitment required to raise children on one's own can be seen as unattractive attributes to employers and could make it impossible to dedicate 40 hours a week to work outside the home. Furthermore, if a single mother also lacks social capital indicators such as education or work experience (both of which have been shown to decrease reliance upon SA, as seen through the present analysis and existing literature presented), it may not only place her in a lower skilled position, which is often compensated at lower rates, but it also could prevent her from securing work at all (see Lightman, Mitchell, & Herd, 2010). Despite the federal government's introduction of federal and provincial childcare benefits (which are exempt from decreasing SA benefits amounts), single mothers remain a disenfranchised group that continue to struggle financially. These findings indicate that more needs to be done to support single parent families in maintain employment, which may mitigate negative financial outcomes for single mothers. One example is a subsidized childcare system, and as our analysis shows, the only province with such a system in place (Quebec) has the lowest probabilities of SA receipt for those who work.[12]

[12] At the time of writing, Canada had not yet implemented subsidized childcare.

Further, the fact that being employed is a protective barrier against entry onto SA (as evidenced by our analysis), also points to the importance of employment programs. Employment programs serve as an important component of both eligibility for SA benefits and the financial stability of recipients. Social policy initiatives that acknowledge and address barriers to the labour market can mean better outcomes for those living in precarious living situations.

In addition to being employed, those who work and earn a livable wage (above the Market Basket Measure (MBM) threshold) have lower predicted odds of reliance on SA, compared to those who make below the MBM threshold. Although this may seem like a positive finding with respect to decreasing caseloads, it does not actually indicate a lack of need, but is rather reflective of eligibility criteria. Specifically, family units claiming SA have earning maximums depending on the family size (financial contributors and dependents) that decrease benefit amounts up to ineligibility. It makes sense, however, that if a family unit earns enough to support themselves, then the need for government intervention is negated. The issue becomes one of who we deem as eligible, and at what level poverty is benchmarked—many families still experience food and housing insecurity even if they do not qualify for or claim SA. Alternatively, the fact that working individuals still rely on SA may also be indicative of a need to raise minimum wage or provide free college training to stimulate the demand side of the labour market.

Our model failed to predict a significant difference across men and women, contrary to previous findings possibly because we include a richer set of covariates. However, with respect to marital status, the analysis brought forth some interesting findings, which are also mostly consistent with the existing research. Previous research supports the fact that single people comprise the bulk of caseloads across provinces (Federal-Provincial-Territorial Directors of Income Support, 2016), and are entitled to the lowest benefit amounts (Falvo & Jadidzadeh, 2020; Berg & Gabel, 2015; Hillman, 2021). The presence of a partner appears to have a protective effect against entry onto SA, which makes sense if both are contributing to the economic well-being of the family (either through paid or non-paid work). In line with single mothers being one of the

demographic groups most likely to claim SA, divorced/separated individuals are more likely to claim SA as well. Our findings indicate that persons living in 'other' family type situations had the highest probability of SA receipt than other groups. 'Other' could indicate that the individual resides with older children who support themselves, or the individual lives with another person who does not fit the definition (or timeline) of a spouse or is not a partner at all (friend or roommate). None of the persons who stated they belong to 'other' economic family type were single, rather 'other family type' cases were spread across couples, those persons living with children above or below 25, and those who live in a multi-person economic household. Given that multi-generational households are more common for immigrant families than for Canadian born families (Haan, Yu, & Draghici, 2021), our findings may be capturing variation between immigrants and Canadian born individuals. Given that our model predicts that immigrants have an increased reliance on SA, these findings may be complimentary. Other possible explanations may be that those struggling to secure gainful employment resort to shared accommodations, regardless of immigration status. More research into immigration and SA receipt may be warranted, given the conflicting findings between the present analysis and past research. Lastly, given that the probability of SA receipt is higher as age increases, the model could be capturing the effects of those still living with and being supported by their parents and who would not necessarily claim SA (eligibility for SA begins at 18 years of age).

Unsurprisingly, one of the largest effects captured by our model is education, where higher levels of education predict lower odds of being on SA and appears to act as a protective barrier against poverty and SA reliance. Although there could be other factors at play that mediate access to education and are not directly observable in the data, our present analysis lends evidence that education facilitates employment success. As indicated in the literature review, there may be an increase in individuals with post-secondary that rely on SA, and future research could focus on educational profiles of recipients. Given that single mothers appear to struggle the most financially, providing additional incentives or benefits to single parent homes can have significant and long-lasting effects on their financial wellbeing and that of their children. Many SA programs disincentivize pursuit of education, especially degrees with a longer time commitment,

such as bachelor's degrees. The rationale behind student ineligibility is that in most cases student loans can address that financial need. However, the financial burden caused by crippling student debt post-graduation may not be an option for all people, especially single parents. The mounting evidence in favor of education as a gateway into stable and lucrative employment (see Torche, 2015 and Torche, 2011) in almost all studies on the topic points to evidence towards a more financially accessible higher education model in Canada to mitigate poverty and income inequality.

Our analysis suggests that PR status positively predicts the odds of claiming SA in comparison to naturalized or Canadian-born individuals, and this is contrary to the existing literature (Ostrovsky, 2012; Baker & Benjamin, 1995; Crossley, McDonald, & Worswick, 2001; Noel, 2020). However, our analysis includes important demographic information such as education and economic indicators such as region size and unemployment rate in addition to immigration—looking solely at raw differences between PR and Canadians may provide different results. Further, because the PR variable is only applicable to those who live in a Census Metropolitan Area, our results may indicate that newcomers living in regions with increased population (and hence competition), are at a greater disadvantage than their Canadian born counterparts. This could be due to issues such as language skills or difficulty navigating Canadian labour markets. The difference between holding PR and becoming a Canadian citizen is small: PRs cannot vote, and immigrants must hold PR for five years to get citizenship. PRs are eligible for the same SA benefits as Canadian citizens and participate in the same employment programs. However, what we demonstrate in our analysis is the difference between being Canadian born and a newcomer to Canada (within the last 5 years). Research shows that many newcomers to Canada have a wide range of skills and they are more likely than Canadian citizens to hold degrees in STEM-related fields (Gu, Hou & Picot, 2020; Ostrovsky & Picot, 2020), which are both well-paying and in high demand. However, length of time in Canada and rates of low income are inversely related (Picot & Hou, 2003). Refugees are also eligible for assistance but on a temporary basis which is reviewed to ensure the applicant is pursuing a valid work permit.

Given the significance of the interaction terms between working and province, the present analysis provides evidence of considerable variation in reliance upon SA across Canadian provinces and regions. These findings suggest that SA reliance for those who are working poor is not only tied to provincial differences in program administration, but also to more populous regions offering more work opportunities and thus can better support SA recipients into the workforce. Although causal interpretations are not possible with the present analysis, the findings support additional research into why working SA recipients fare better in some provinces over others. Additionally, an overwhelming majority of SA recipients in our sample had evidence of employment, indicating that many Canadians on SA are struggling with securing gainful employment and require SA to supplement their income. Lastly, provincial unemployment rates yielded significant results in predicting SA, pointing to the macroeconomic effects of poverty and SA reliance. Thus, an abundance of jobs can serve as a protective factor against SA. Given that the creation of a diverse industrial mix has been shown to protect against high rates of unemployment, especially in times of economic depression (Baldwin & Brown, 2004; Lyngemark & Weatherall, 2020; Shearmur & Polèse, 2007), it makes sense that larger regions with more job opportunities are conducive to lower SA reliance. Future research could explore whether similar trends are present across a longer time period, including times of economic depression (such as the 2008 recession and following the Covid-19 pandemic).

As with most other provinces, Ontario SA benefits typically fall short of the poverty line and include tough eligibility criteria that often disincentivizes employment (Finnie & Irvine, 2008). Quebec was the only province where the model predicted a decrease in predicted odds in SA through an interaction with being employed. One explanation may be that Quebec is progressive in their approach to poverty, and their SA program is one of the most generous in terms of benefit amounts (only Newfoundland and Labrador exceed Quebec's benefits with respect to percent of MBM issued through benefits) (Noel, 2020). Dinan & Noel (2020) point out that Quebec's SA program is largely regarded as more generous than the rest of Canada, both with respect to administrative expenditure and benefit amounts. Furthermore, Quebec dedicates a significant portion of their SA budget to childcare and employment program services

(Dinan & Noel, 2020). Furthermore, Quebec's SA program is considered to be resilient against macroeconomic events (Dinan & Noel, 2020), likely due to their focus on employment in a dynamic labour market. Quebec's demographically targeted approach to single mothers (as evidenced through their subsidized childcare program) and youth (youth employment programs) may at least partially explain their apparent success in moving employable SA recipients into the workforce.

Quebec's SA model incorporates an effective employment program (Emploi-Quebec) component that aims to target barriers of SA recipients (child-care, grant funding to recipients, and high-quality service through their program offices) (Noel, 2020). Emploi-Quebec has been evaluated and is determined to be a unique and effective program within Canadian SA models (Noel, 2020). However, the success of Quebec's SA program over that of the other provinces may not be replicable due to Quebec's specific mix of sociocultural and socio-political factors that make their program a success, as compared to other jurisdictions.

Generally, we find that the demographic estimates of SA reliance are mostly consistent with those found using tax data from the Longitudinal Administrative Databank and through other provincial administrative datasets (as evident through the analyses and results in Finnie & Irvine, 2008; Falvo & Jadidzadeh, 2020; Hillman, 2021). The only exception to this is the estimate for immigrants, which we found have higher probabilities of SA reliance than Canadian born individuals. Additionally, we find that employment and income are negatively related to SA reliance, as one would expect to, given the findings of previous research and eligibility criteria. The only exception to the consistency is the fact that the CIS appears to overestimate the employment rate and the demographic split in Canada, specifically in favor of those who are employed and married individuals with children. Further, the data provide meaningful and consistent results with administrative data but lack enough detail to make definitive findings across all provinces, despite applying weights. Overall, the CIS proves to be a generalizable and useful dataset to answer research questions about poverty and Canadian SA programs.

Lastly, we discuss a few limitations of the present study. First, the data do not distinguish between disability and SA benefits. This is an important distinction because those on disability do not necessarily have an employment requirement and are not required to enter into an employment contract. The lack of distinction between these groups could partially explain why many of the interactions between province and being employed did not yield significant results. Second, the analysis cannot apply to Indigenous persons because the CIS does not extend to those living on Indigenous lands, nor does the survey have an indicator for those who identify as Indigenous. Finally, the data are not administrative and are subject to the accuracy of participants' reporting, which means that certain aspects, including declaring (or not declaring) SA could be misrepresented, as it may be with respect to employment. Sample selection bias may also be an issue, given the voluntary nature of the survey.

2.5 Conclusion

This paper examined the geographical, temporal, and demographic characteristics as determinants for SA caseload numbers. By comparing provincial and region size interactions with employed individuals, our analysis sheds light on factors associated with SA reliance. Namely, the availability of jobs and program structure (as evidenced by Quebec's employed SA recipients having the lowest probabilities of SA reliance) are both key factors in the decreasing SA reliance. Our analysis suggests that risk factors for SA reliance include underemployment, lack of education, being single or a single parent, and being older. Although our analysis cannot imply causality, it does provide additional, updated evidence of SA reliance across Canadian provinces and jurisdictions. Further, our analysis may set the stage for future researchers interested in studying those who work and receive SA. Overall, this paper points to a mix of individual and contextual factors that contribute to poverty, and the need to consider both when studying SA reliance. Given that both previous research and our analysis finds education and employment to be important factors protecting against SA reliance, it is important that SA eligibility does not disincentivize against these protective factors. Hence, it important that policy is redirected towards providing the SA recipients with the means and incentive to pursue education and obtain gain full employment. This may be done

through supportive programs and less strict eligibility criteria that enables SA recipients to search for employment. Lastly, our analysis used open sources survey data that did yield interesting and significant results, albeit not for all provinces. Although administrative data are held in higher regard with respect to level of detail and generalizability of results, some generalizable findings are still possible, as evidenced through our analysis.

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Chapter 3

3 Employment Success of Social Assistance Recipients: A Provincial Analysis by Industry

Poverty continues to burden millions of Canadians each year, and social assistance (SA) is one program that provides last-resort financial assistance, conditional upon looking for and accepting work. Using tax panel data of SA recipients from across seven Canadian regions between 2000–2018, we model the probabilities of employment success (ES) across industry of employment, SA benefit amounts, unionization, and individual level characteristics. We adopt an economic stance to explain reliance upon SA, examining the broader macroeconomic indicators of ES, and to demonstrate the factors associated with exiting SA. We find that many SA recipients do not present evidence of recent employment, indicating a disconnect between stated SA program aims and their outcomes. We provide evidence for increased SA benefits and unionization as significant predictors of ES of SA recipients.

3.1 Introduction

Social assistance (SA) is an essential service that lies at the heart of any welfare state (Kenworthy, 2011; Esping-Andersen, 2013). The goal of short-term financial programs such as SA is to support the movement of people into the workforce permanently but to do so, individuals must be able to access and maintain jobs that financially support them. Esping-Andersen (2013) describes North America's SA program policies as being rooted in Anglo-Saxon, traditional views of the family, which stigmatizes single parents (particularly lone mothers), poverty, and welfare reliance. This stigmatization of poverty is the reason why some individuals are viewed less favorably based on their income, wealth, and occupation. As such, SA policies are reflective of this view and often fail to make it into political platforms or remain unactioned. Therefore, a deeper understanding of how SA policies may hinder individuals in securing financial independence is warranted. For this reason, we focus on employment success of individuals reliant upon SA programs, which fills an important research gap in Canadian research by incorporating industry and unionization into the understanding of SA reliance, and what

factors are conducive to exiting SA. By understanding that there are differences between Canadian regions and across industries with respect to employment, we test how these differences manifest for persons who rely on SA specifically.

We test individual level characteristics, policy indicators, regional effects, and labour force characteristics to better understand employment success (ES) of people who rely on subnational SA programs. Our analysis incorporates both program-level variables to test the efficacy of SA programs and macroeconomic indicators (such as industry of last employment) to predict future labour market success across both men and women. Although focusing on macroeconomic trends (the area where policy intervention can have the greatest effect), we use micro-level controls to establish more efficient estimates and avoid both ecological fallacy and aggregation bias (individual characteristics are correlated with higher order factors, see Van Poppel & Day, 1996).

Our analysis addresses whether contextual indicators are significantly more important than individual level predictors in explaining ES of SA recipients. If within-individual variation (policy – moving identical individuals between regions/SA schemes) is minimal and most variation is between individuals, the scope of the policy becomes limited. Therefore, we seek to answer the following questions:

1) What are the regional Differences in ES of SA Recipients?
2) What role does industry of employment and union membership have on predicting future ES?
3) How do differences in SA benefit amounts impact on ES of SA recipients?
4) What individual level characteristics (i.e., marital status, family size, immigration, age, or disability) best predict employment success?
5) To what extent do Spells off assistance predict future ES?

Using the Longitudinal Administrative Databank (LAD) from 2000-2018, we model ES through logistic regression to demonstrate the contextual effects that contribute to moving SA recipients off assistance and discuss the implications of our model on SA trends and policies. Below, we first introduce Canadian SA and then review the different perspectives that aim to understand the efficacy of SA through economic trends in the

labour market. Specifically, we explore whether SA reliance may be due to broader socioeconomic or political trends. We then provide an overview of the data and variables and the results of the analysis. We conclude with a discussion of our findings and limitations of our analysis.

3.2 Policy Background—The Canadian Case

Canadian SA is an income-tested, work-first program, much like SA programs in the U.S. and Europe. Globally, Canada is considered a liberal welfare state (Esping-Andersen, 2013), but its SA programs—which purportedly serve as safety nets—often fall short of helping those in greatest need (Hillman, 2021). For example, benefit levels typically do not consider inflation or high housing costs and are seldom increased. (Béland & Daigneault, 2015). Furthermore, the deductions placed on employment income often result in individuals avoiding work (Peter, 2018). When employment is disincentivized by significantly decreasing benefit amounts, SA recipients may opt to not work at all, thereby perpetuating the cycle of poverty (Hamilton & Mulvale, 2019). However, the focus of the paper remains on the amounts of benefits paid per province, as opposed to employment income claw backs from SA benefits.[13]

Designed as a short-term, last-resort financial assistance program, SA is federally mandated yet provincially run, creating significant variation in how the program is administered across Canada (Hansen, Lofstrom, & Zhang, 2006). For this reason, a cross-provincial analysis of ES rates is key when examining which factors are conducive to ES and why. Nevertheless, there are several key policies that all provinces incorporate into their SA programs, most of which pertain to SA eligibility. Recipients must typically fall between the ages of 18-64, hold Canadian citizenship or permanent residency status, be able and willing to accept full-time employment, and meet the asset requirements (Federal-Provincial-Territorial Directors of Income Support, 2016). In most cases, the

[13] Due to the yearly nature of the LAD and the fact that SA cheques are administered monthly (accounting for employment deductions), the present data cannot determine the amount of claw backs, and thus, are not included in this paper.

deduction on earned income is higher for single persons in receipt of SA—a group that also receives the least benefits to begin with (Hansen, Lofstrom, & Zhang, 2006). Another important group of SA recipients are those granted disability status by an SA authority. Disability recipients differ from regular SA clients in that they do not have an employment mandate, have a higher earnings exemption on earned income, and receive higher monthly benefits (Federal-Provincial-Territorial Directors of Income Support, 2016).

Although SA eligibility requirements are generally consistent across provinces, there are variations in benefit amounts (Finnie & Irvine, 2008), funding structure (Hillman, 2021), caseloads (Hansen et al., 2006), and program administration. Newfoundland and Labrador and Prince Edward Island have the most generous SA benefits out of all Canadian provincial SA programs (Tweddle, Battle, & Tojman, 2016), but both historically have one of the highest unemployment rates in the country. The province of Quebec, while administering lower SA benefit amounts than Newfoundland and Labrador, has been effective in moving recipients off SA and into the labour force by providing additional supports for families (such as universal childcare and additional employment supports over and above those found in other provinces) (Dinan & Noel, 2020).

Lastly, SA programs require recipients to look for full time work and to take the first job available, regardless of the financial compensation or sustainability of the position (Lightman, Mitchell, & Herd, 2010). Not only are traditional SA models reactive (as opposed to a proactive model such as a universal basic income but they also often fail to provide the necessary employment supports to ensure recipients secure gainful work (Herd, Mitchell, & Lightman, 2005). Although SA recipients typically must attend employment programs, the efficacy of such resources has long been subject to dispute. SA employment programs are often criticized for being limited in their ability to offer recipients a foundation for effective job search and to succeed in securing employment (Lightman, Mitchell, & Herd, 2005). Lastly, employment programs typically often offer the wrong types of supports, as they often force individuals to focus primarily on

accepting unskilled jobs that often fail to meet the financial needs of a family unit (Herd, Mitchell, & Lightman, 2005; Lightman, Mitchell, & Herd, 2010).

3.3 Literature review

Social Assistance reliance and other social issues can be framed as behavioral issues, where individual characteristics, choices, and predispositions guide one's labour market success or failure (Pal, 2014). Human capital indicators such as education (Bourdieu, 1973; Torche, 2011; Coelli, Green, & Warburton, 2007), work experience (Bane & Ellwood, 1994; Cooke & Gazso, 2009), and cognitive skills (Farkas & Vicknair, 1996; Esping-Andersen & Cimentada, 2018), are all crucial individual level predictors of ES. Yet individual level predispositions cannot influence how many jobs are available, as this is due to macroeconomic fluctuations. When SA reliance is understood as a societal or economic issue, broader contextual indicators are key contributors to increased poverty rates (Banting & Myles, 2016). Local unemployment rates increase reliance on SA programs in North America (Hofferth, Stanhope, & Harris, 2005; Finnie & Irvine, 2008), and job availability and overall labour market demands are central to understanding why certain groups experience success attaining gainful employment, and others—particularly groups already in the bottom decile of the income distribution—struggle to move out of poverty (Kenworthy 2011). To alleviate the strain on a country's poorest, Kenworthy (2011) argues that job creation through economic development and increased transfer payments—in other words, SA benefits—are essential for ensuring and maintaining livable conditions for individuals and families in poverty.

SA programs, services, and benefit amounts vary widely from region to region, as does the implementation of SA. Some research suggests that high SA transfer amounts can significantly decrease the number of working poor (Brady, Fullerton, & Cross, 2014), yet others argue that high SA benefit amounts reduce labour supply (Lemieux & Milligan, 2008). Similarly, some researchers argue that low SA benefit amounts disincentivize reliance upon SA program (Moffit, 2003; Falvo & Jadidzadeh, 2020). While low SA benefit rates have been shown to correlate with overall lower reliance on SA and slight increases (around two percent) in employment participation (Finnie, Irvine, & Sceviour, 2004), when transfers are too low people cannot maintain a standard of

living that would enable them to focus on seeking work or developing skills (Calnitsky & Latner, 2018). Lubotsky (2004) argues that the correlation between lower reliance on SA and employment increases could imply that individuals may either avoid accessing SA altogether or become ineligible. The working poor (those who may partially supplement their income through SA) are unable to become financially independent because of the deductions placed on earned income and lack of effective employment supports.

Similar contradictions exist in the research on SA recurrence. SA recipients tend to cycle on and off SA, indicating that the current SA model fails those it intends to aid, at least permanently. While one U.S. longitudinal study suggests that SA return was not common (Cheng, 2003), others have found that up to 50 percent of SA recipients return to SA within two years (Hofferth, Stanhope, & Harris, 2005). Shibuya (2018) finds that the average SA spell in Ontario is around 21 months until permanent exit, while Barret (2000) finds that the average SA spell in New Brunswick to be about 10 months for men and 15 months for women. Single men and single mothers are identified as demographic groups with the longest spell lengths on SA and the lowest exit probabilities (Barrett & Cragg, 1998; Finnie, Irvine, & Sceviour, 2004; Cooke, 2009). Recent Canadian literature identifies women as having significantly lower odds of leaving SA than men (Smith-Carrier, 2017). Length of time off SA has been shown to be a strong predictor against SA return (Hall, Graefe, & De Jong, 2010; Hillman, 2021), which can be seen as the inverse of the ‘welfare-trap’—a phenomenon where individuals in receipt of benefits for longer periods of time become increasingly reliant upon the state for financial support (Hansen, Lofstrom, & Zhang, 2006).

Heinrich, Muesuer, & Troske (2005) examine how industrial effects in Missouri and North Carolina affect long-term employment for female SA recipients. Comparing earnings of temporary versus permanent work across industries, they argue that participation in any employment (temporary or otherwise, but only if that temporary work eventually leads to permanent employment) is key in moving SA recipients into the workforce permanently. Ong & McConville (2001) examine the occupations held by SA recipients in Los Angeles and find that most are in low-skilled and low-paying jobs; the authors argue that traditional SA models that aim to move recipients into the workforce

quickly require the recipient to have sufficient marketable skills to become financially independent, which is seldom the case. Lastly, Zumaeta (2021) finds that SA recipients with previous work experience and education significantly improves the probability of securing employment in Florida. Our analysis builds upon these studies to include both men and women, conjugal status, country-wide estimates, and consider program-level variables in our analysis.

Gasper, Henderson, & Berman (2017) find that targeted training programs specific to in-demand industries has been successful in increasing outcomes for low-income individuals. Working papers by Bartik & Randall (1999) and by Bartik (1997) both attempt to explain decreasing SA caseloads by examining state-level macroeconomic indicators such as employment rate, job availability, and the specific industrial mix of the local labour market as important predictors for SA caseloads in the U.S. Although Bartik & Randall (1999) acknowledge the importance of industry at a macro level in explaining ES of SA recipients, they also point out that education and experience are unobserved variables that can help predict SA reliance in addition to industry sector volatility. These findings lend credence to designing a research study that incorporates industry to predict ES. Although these references are not recent, this is to the best of our knowledge the most up to date reference in this area.

Union membership is also important for counteracting income and wage inequality (Western & Rosenfeld, 2011). Canada has a large, unionized workforce, with over a third of organizations employing anywhere from 76 to 100 percent unionized staff (Vernon & Brewster, 2013). Industries such as construction, mining, and public service are known to have a primarily unionized workforce. Unions typically provide employees with sizeable severance packages (Walsworth, 2009) and, where available, will reassign union members to other positions in the event of injury or job loss. Although some research suggests that unionization can slow employment (economic) growth by around 2-3 percent (Walsworth, 2010), unions are important to ensuring the fairness, safety practices, and wage equality policies are adhered to in the workplace, especially in the public sector (Card, Lemieux & Riddell, 2020). For low-skilled workers, especially men, union involvement can significantly improve labour market outcomes and increase wages

(Lemieux, 1993; Card, Lemieux & Riddell, 2020). Nevertheless, there is evidence that shows that unionization is declining in Canada (especially in the private sector), which may further contribute to the cycle of poverty in Canada (Card, Lemieux, & Riddell, 2020).

The literature above positions economic (such as unemployment rate, industry, and unionization) and contextual factors (regional and program-level variables) as key drivers with respect to the ES of SA recipients. As we explore how ES is disbursed across industries and provinces, we take both business cycle trends and program policy variables into consideration when predicting ES of both male and female SA recipients. Specifically, we assume that labour market success and poverty are both cyclical in nature.

3.4 Methods

3.4.1 Data

To answer the research questions stated in the introduction, we use the Longitudinal Administrative Databank (LAD). The LAD is a panel dataset comprised of a 20 percent random sample of all Canadian tax filers and includes information from the T1 individual tax return, as well as geographical, immigration, and employment related data (Statistics Canada, 2021a). Given the high rate of tax filing among Canadians living in low socioeconomic conditions (Finnie, Irvine & Sceviour, 2004), the LAD is widely used by social scientists interested in the demographics and economics of SA (Hillman, 2021; Finnie & Irvine, 2008; Finnie, Irvine & Sceviour, 2004). Although the LAD has some limitations, namely the lack of education variables and the fact that it is based on yearly data (while SA is a monthly benefit), it is a useful tool to assess policy outcomes, especially for social programs.

We sample data from the LAD between 2000–2018 and extract all SA recipients ages 18–65 (per usual SA eligibility criteria). The resulting dataset yields just over 450,000 (unweighted) observations across the study period with an average of 13 years of data per individual and represents a simple random sample of SA clients across Canadian

provinces.[14] Missing observations account for five percent of the sample, with no discernable pattern across variables and were listwise deleted, resulting in just over 425,000 (unweighted) observations analyzed through the regression analysis. Analyses were conducted via Stata 16 (Statacorp, 2019) and employ the program's time series function to allow for lagged variables (such as spells).

3.4.2 Model

We use a logistic regression with robust standard errors that includes both within- and between-person variation to model ES on panel data.[15] Given the binary nature of the dependent variable, ES, the logistic regression is the best choice for modelling the probabilities of ES across the defined set of covariates.

We fit four models to determine changes in ES variability across the set of covariates. Our baseline model one assumes that provincial differences in SA policy and service provision solely explains ES of SA recipients (see Table 3.2 for regression table). We include one additional variable in each of models two through four and compare each new model to our baseline. Model two includes the lagged industry variable; model three includes provincial SA benefit amounts; and model four includes lagged union membership.

The model is defined as:

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[14] Our population of interest captures not only persistently unemployed persons, but also those who have lost their jobs and have lived in some degree of poverty (strictly based on the eligibility criteria for SA). As such, our analysis measures how well people are staying off assistance, given their previous employment status (i.e., their individual-level characteristics such as work experience or other skills necessary for employment).

[15] Given that Statistics Canada requires the use of weights when using confidential data, we were unable to use Stata's xtlogit command. We have instead estimated a conditional logistic regression that only exploits within individual variation and hence are not dependent on weights. However, this model drops respondents that do not have multiple SA spells. Thus, many of the people in the defined sample were not included in the conditional logit model's estimates, implying that this model is less efficient than the logistic model with robust standard errors. Further, both the logit and conditional logit presented quantitatively similar estimates. For this reason, we opted for the logistic regression model.

$$ln\left(\frac{\mathcal{P}(Y_{i,j,t}|\, X_{i,j,t},\mathrm{Z}_{j,t},\mathrm{t})}{1-\mathcal{P}(Y_{i,j,t}|\, X_i,\beta_i)}\right) = \beta_0 + \beta_1 X_{1,i,j,t} + \cdots + \beta_k X_{k,i,j,t} + \beta_{\mathrm{k+1}} Z_{1,j,t} + \cdots + \beta_{k+l} Z_{k,\mathrm{j},t}$$

Equation (1)

In Equation 1, the terms $\beta = \{\beta_0, \ldots \beta_{k+l}\}$ define the independent variable coefficients. The $k + l$ independent variables are defined as $X_i = \{X_{1,i,j,t}, \ldots\ X_{k,i,j,t}\}$ and the individual observations are indexed by i. They appear in the *j*th region at time *t*. The first k variables (denoted with x) are individual factor variables, and the last l variable (denoted with z) are regional level variables. Causal effect interpretation of the z-variables requires either that they are independent of the individual level variables or independent conditioned on the observed Xs. We maintain the latter assumption. ES, the dependent variable, is defined by $Y_{i,t};\ \forall i \in [1, \ldots, n]$. We discuss the variables in detail below.

Given we estimate parameters across nested models, we follow Karlson, Holm, & Breen (KHB) (2012) to re-estimate models one, two, and three for two reasons: confounding and rescaling. The latter is the result from a better fit from more independent variables and will lead to change in the effect of already included variables whether there is confounding or not. In other words, the KHB method rescales the log odds to make them more interpretable in terms of confounding. As such, we run a base model (with province fixed effects and individual level covariates), then fit a second logistic model with an added independent variable specific to model two and again in model three. Lastly, we fit the full model (model four) with all the independent variables we want to test. Adding covariates increases the explanatory power of the model, but the fit changes due to log-odds scale regardless of confounding (Karlson, Holm, & Breen, 2012). We decompose the change due to scaling and confounding, which splits the variation across our focal independent variables. By comparing across the four models, we can see how coefficients change, and thus we can determine specific relationships across macroeconomic and individual level predictors.

3.4.3 Variables & Descriptive Statistics

We code the binary **dependent variable,** ES, as 1 if an applicant was 'successful', meaning they did not claim SA (SA=0) in a given year and were not considered to be low income (following the work of Hillman, 2021). We use the low-income measure after tax (LIMAT) to determine low-income status. LIMAT[16] is provided by Statistics Canada (see Table 2) and is calculated as half of the median household income, per household size (Statistics Canada, 2016). Thus, our analysis assumes a relative poverty measure, as it compares economic outcomes as they relate to the median income of the greater population. ES=0 in all situations where a person claimed any SA benefits. Conceptually, if a person claimed SA, we counted them as reliant upon the program and not financially independent. There is about 60/40 split of observations without ES and those with, respectively.

Table 3.1-Low-Income Measures Threshold Amounts, Canadian dollars

Household size	After-tax income	Before-tax income
1 person	22,133	25,516
2 persons	31,301	36,084
3 persons	38,335	44,194
4 persons	44,266	51,031
5 persons	49,491	57,054
6 persons	54,215	62,500
7 persons	58,558	67,508

Table 3.1-Low-Income Measures Threshold Amounts in Canadian Dollars in 2016.

Source: Statistics Canada, 2016 Census of Population

[16] Using the LIMAT indicator variable in the LAD ensures that all observations across tax years have a consistent definition of low-income based on their family size and taxation year. The amounts shown in table 1 provide a modest definition of low-income status but would render an SA applicant ineligible for further benefits (in a typical situation) (in line with Hillman, 2021).

Industry and union membership (1=paid union dues in time t-1, 0=did not) are focal independent variables used to measure the ES of SA recipients. Both variables are lagged (t-1) to determine which industries have the greatest success in predicting the reintegration of SA recipients into the workforce. We collapsed industry categories to fit the broader definitions of the North American Industry Classification System (NAICS). The result is 23 industry groups[17], where the mining, oil, and gas industry is the reference category.[18] We calculate the number of people across industries (in time t-1)[19] with and without ES. The unclassified category is the largest, which is partly due to unclassified industries, some missingness (three percent), and those who do not have recent industry attachment.

The contextual variables included are provincial fixed effects, region-size fixed effects, unemployment rate (from the Labour Force Survey (LFS)), and provincial SA benefit amounts (from May Tree, 2021),[20] which resulted in seven different provincial jurisdictions: Atlantic Canada (consisting of Newfoundland and Labrador, New Brunswick, Nova Scotia, and Prince Edward Island), Ontario (reference), Quebec, Manitoba, Saskatchewan, Alberta, and British Columbia. We use the LAD's area size variable and collapse it: region size 1= 500,000+, region size 2= 30,000-499,999, and region size 3= 15,000 or less (observations are split mostly evenly across these categories).

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[17] To avoid over-fitting, we use broad industry categories to ensure we capture enough economic diversity across all provinces.

[18] Oil and Gas is one of the largest sectors in Canada and has been subject to volatility across our study period. We thought it would make sense to use this as our reference, as this sector is found across most provinces. From the point of view of the variable, the choice of reference level is immaterial, and the overall fit of the variable does not change.

[19] When coding the lag variable, the first observation is automatically coded as missing. To ensure information from this case is still included in the analysis, we recoded all missing values as the 0 category. In the year before being unsuccessful, just under a million observations (weighted) had either unclassified or missing industry values, while 275,000 people had missing or unclassified in the year prior to becoming successful.

[20] We collapse these provinces because of their small number of observations in each Atlantic province and their homogeneity with regards to unemployment rates.

To control for macroeconomic trends, we use the unemployment rate by province and year from the Labour Force Survey (Statistics Canada, 2021a) as a measure of regional economic prosperity. Figure 1 demonstrates fluctuations in business cycles across 2000-2018 and across all provinces. The unemployment rate, as calculated by the LFS, includes persons 15 and above and is defined as the proportion of persons who are in the labour force but are unemployed (Statistics Canada, 2015). Given that job availability undoubtedly plays a role in how many people are employed, including SA recipients, the unemployment rate is an important indicator to include in models that explain ES (Finnie & Irvine, 2008; Berg & Gabel, 2015). Figure 1 shows that there is significant variation in unemployment rates across Canadian provinces. Figure 2 demonstrates the percent change in unemployment rates across provinces from 2000–2018 and reveals the fluctuating nature of unemployment rates, indicating that within-province variation across time is unrelated to individual level characteristics.

To control for SA benefits amounts, we import data of maximum benefit amounts paid to a single employable person by province and year (Maytree, 2021). We use benefit levels as a proxy for provincial SA program generosity only, much like in the work of Finnie & Irvine (2008). Given that benefits for the single employable category of recipients are the lowest out of all family types because of the assumption that this group is most employable, using benefit-levels for single individuals provides a good indicator of program generosity. In 2018, the highest yearly SA benefits were paid to residents living in Atlantic Canada (Newfoundland & Labrador, $11,599) and the lowest yearly SA benefits were paid by New Brunswick, at $7,261 (May Tree, 2021). The remaining provinces fall around $9,200/year (May Tree, 2021).

Figure 1- Unemployment rate by province and year

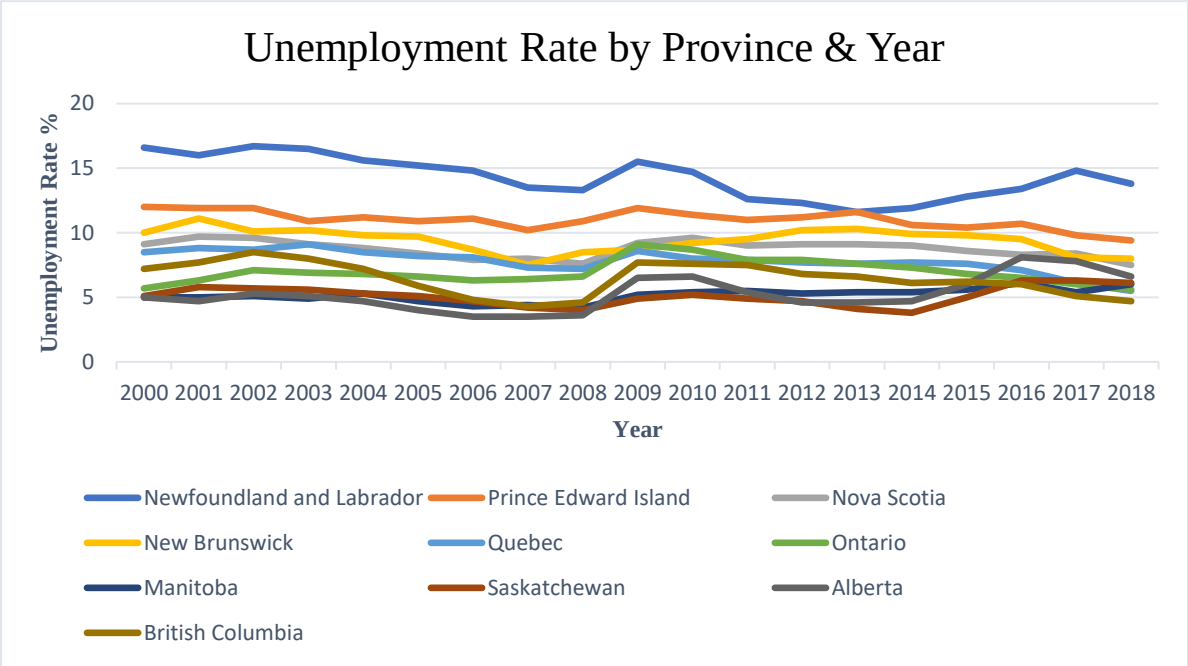

Figure 1-Fluctuations in unemployment rates across 2000-2018 and all provinces Source: Statistics Canada, Labour Force Survey

Figure 2-Percent change in unemployment rates across provinces

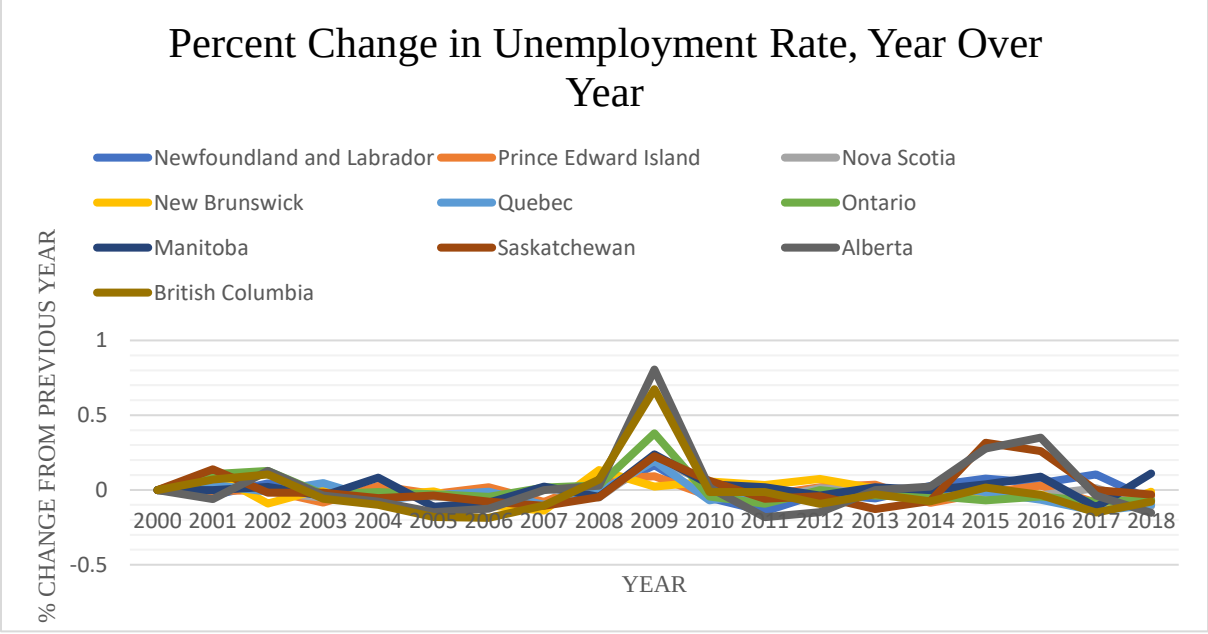

Figure 2- The Percent change in unemployment rates across 2000-2018 and all provinces. Source: Statistics Canada, Labour Force Survey, Authors' calculations

Individual level characteristics are captured by age, family size (modelled as a continuous measure, ranging from 1 to 7+) and marital status (1=married/common-law; 2=separated/divorced/widowed; 3=single). We control for disability by using a proxy, the disability tax credit for self (i.e., the primary filer)[21] (1=claimed disability credit for self>0, 0= did not claim) (similar to Hillman, 2021). Sex is also used as a control variable (reference category=female, which comprised about 55 percent of the sample). Ages of persons in the data were coded as age-group categories (18-24, 25-35, 36-44, 45-55, and 56-65) and used as a factor-level variable in the model to better determine effects of age on ES throughout the lifespan. We use conjugal status to determine ES of singles, couples, and divorced individuals. We collapsed the categories into three: divorced (including separated or widowed), married (or common-law), and singles. Single individuals are the largest category and comprised just under 50 percent of the sample; married or common law persons comprised just over 30 percent and separated, divorced, and widowed individuals comprised just under 20 percent of the sample. To determine immigration status, we used the immigration files provided with the LAD by merging the person identifier with the landing year as a proxy for either permanent residents or naturalized Canadians (immigrant=1, Canadian born=0). Everyone with either a zero or a missing value is considered Canadian born. Naturalized refers to persons who immigrated to Candida, but now hold citizenship.

Lastly, the year variable (continuous) is used as a control to capture the temporal effect of ES across 2000-2018. We code a spell variable, or length of time off SA, to determine whether this plays a role in predicting ES. Weights are applied with the LAD weighting variable and multiplied by 5 to ensure both representativity of the Canadian

[21] Our sample is comprised of about 4% of persons claiming the disability tax credit (DTC), while the 2017 Canada Revenue Agency (CRA) (2018) reported figure was about 5% of Canadian tax filers. As indicated by Mendelson (2015), the majority of those claiming the DTC are on SA.

population and compliance with Statistics Canada policy. All figures and data tables presented in this paper are weighted and rounded, unless otherwise stated.

3.5 Results

3.5.1 Regional Differences in ES of SA Recipients (research question 1)

We first model ES across provinces (see Table 3.2, model one), controlling for region size and individual level covariates. As predicted by model one, individuals living in large and rural centers have a lower probability of ES (OR= 0.973 and OR= 0.855, respectively), as compared to those in a mid-size region of 30,000-499,999. Figure 3 demonstrates Provincial differences provide some interesting insights: in comparison to the reference group (Ontario), Atlantic Canada's log odds coefficient is statistically insignificant (OR=0.978), while residents of Quebec (OR=1.194) and Alberta (OR=1.157) had increased odds of ES. Manitoba, Saskatchewan, and BC all yielded lower odds of ES (OR=0.590, OR=0.736, and OR=0.982, respectively), as compared to Ontario.

Table 3.2- Logistic regression results of ES (reported in log odds), re-estimated using KHB Decomposition Method

Table 3.2- KHB Decomposition Models

	Model 1 Base Model	Model 2 Industry	Model 3 Ln (Benefits)	Model 4 Union
Region Size(ref=pop.30,000-499,999)	-0.0271*	-0.00198	-0.0022	-0.00941
Large Region (pop.=500,000+)	(0.0114)	(0.0117)	(0.0117)	(0.0117)
Small Region (pop.<15,000)	-0.157***	-0.908***	-0.0906***	-0.0766***
	(0.0120)	(0.0123)	(0.0123)	(0.0123)
Atlantic Canada (ref= Ontario)	-0.0222	-0.0276	-0.0716**	-0.115***
	(0.0219)	(0.0223)	(0.0231)	(0.0231)
Quebec	0.177***	0.172***	0.1793***	0.129***
	(0.0114)	(0.0116)	(0.0116)	(0.0117)
Manitoba	-0.528***	-0.537***	-0.493***	-0.444***
	(0.0271)	(0.0274)	(0.0280)	(0.0280)
Saskatchewan	-0.307***	-0.310***	-0.315***	-0.300***
	(0.0264)	(0.0266)	(0.0266)	(0.0266)
Alberta	0.146***	0.071***	0.138***	0.202***
	(0.0172)	(0.0175)	(0.0197)	(0.0197)
BC	-0.018	-0.0179	0.0002	0.0110
	(0.0148)	(0.0151)	(0.0152)	(0.0153)
Year (continuous)	0.006***	-0.232***	-0.0257***	-0.0084***

	(0.000841)	(0.0009)	(0.0009)	(0.000966)
Unemployment Rate	-0.046***	-0.044***	-0.0444***	-0.029***
	(0.0038)	(0.0038)	(0.0038)	(0.00384)
Age 25-35 yrs. old (ref=18-24 yrs.)	0.023	-0.071***	-0.0719***	0.0324
	(0.0205)	(0.0207)	(0.0207)	(0.0206)
36-44 yrs. old	0.140***	0.052**	0.0508**	0.150***
	(0.0204)	(0.0207)	(0.0207)	(0.0206)
45-55 yrs. old	0.093***	0.107***	0.1071***	0.222***
	(0.0205)	(0.0208)	(0.0208)	(0.0208)
56-65 yrs. old	-0.355***	-0.092***	-0.091*	0.0515*
	(0.0219)	(0.0224)	(0.0224)	(0.0223)
Family size (1-7)	0.0822***	0.101***	0.1016***	0.108***
	(0.0037)	(0.0037)	(0.0037)	(0.00375)
Marital Status (ref=married/common law)	-0.855***	-0.941***	-0.941***	-0.936***
Separated/divorced/widowed	(0.0131)	(0.0133)	(0.0133)	(0.0134)
Single	-0.896***	-0.939***	-0.939***	-0.929***
	(0.0115)	(0.0117)	(0.0117)	(0.0118)
Immigration (ref=non-immigrant)	-0.347***	-0.305***	-0.305***	-0.306***
	(0.0125)	(0.0127)	(0.0128)	(0.0128)
Disability (ref= no disability)	-0.138***	0.116***	0.1165***	0.152***
	(0.0239)	(0.0243)	(0.0243)	(0.0244)
Sex (ref= female)	0.146***	0.051***	0.0509*	0.0235*
	(0.00884)	(0.0094)	(0.0094)	(0.00938)
Time spent off SA (ref= time 0)	2.311***	1.910***	1.909***	1.899***
1 year off SA	(0.0171)	(0.0172)	(0.0173)	(0.0173)
2 years off SA	2.720***	2.244***	2.243***	2.220***
	(0.0186)	(0.0188)	(0.0188)	(0.0188)
3 years off SA	3.544***	2.905***	2.905***	2.846***
	(0.0115)	(0.0114)	(0.0114)	(0.0113)
Industry in t-1: Unclassified or missing		-0.216***	-2.514***	-2.104***
		(0.0791)	(0.0792)	(0.0792)
Agriculture, forestry, fishing, and hunting (ref=mining, oil, and gas)		-0.958***	-0.959***	-0.789***
		(0.090)	(0.090)	(0.0901)
Utilities		0.710***	0.714***	0.182
		(0.194)	(0.194)	(0.194)
Construction		-0.456***	-0.455***	-0.531***
		(0.0825)	(0.0825)	(0.0825)
Manufacturing-food, clothing, tobacco		-0.779***	-0.778***	-0.854***
		(0.0866)	(0.0866)	(0.0866)
Manufacturing-wood, paper, chemical		-0.489***	-0.486***	-0.531***
		(0.0868)	(0.0867)	(0.0868)
Manufacturing- metal, electronics, and furniture		-0.254**	-0.251**	-0.237**
		(0.0842)	(0.0842)	(0.0843)
Wholesale trade		-0.581***	-0.577***	-0.447***
		(0.0844)	(0.0844)	(0.0844)
Retail-clothing, furniture, food and beverage		-0.960***	-0.958***	-0.910***
		(0.0812)	(0.0812)	(0.0812)
Retail-sporting goods, books, misc.		-1.044**	-1.042***	-0.854***
		(0.0837)	(0.0837)	(0.0837)

Transportation		-.476***	-.4733***	-0.472***
		(0.0857)	(0.0857)	(0.0858)
Postal & courier		-0.199	-0.1968	-0.472***
		(0.106)	(0.106)	(0.106)
Information & cultural industries		-.402***	-0.399***	-0.358***
		(0.0965)	(0.0965)	(0.0965)
Finance & insurance		-0.118	-0.1156	0.0505
		(0.0949)	(0.0949)	(0.0949)
Real estate, renting & leasing		-0.695***	-0.692***	-0.623***
		(0.0899)	(0.0899)	(0.0899)
Scientific & technical services		-0.632***	-0.629***	-0.500***
		(0.0860)	(0.0861)	(0.0861)
Management of enterprise		-0.950***	-0.948***	-0.899***
		(0.081)	(0.0801)	(0.0811)
Educational services		-0.336***	-0.334***	-0.790***
		(0.0858)	(0.0857)	(0.0860)
Health care & SA		-0.230**	-0.227*	-0.503***
		(0.0815)	(0.0815)	(0.0816)
Arts, entertainment & recreation		-0.929***	-0.928***	-0.880***
		(0.092)	(0.0921)	(0.0922)
Accommodation & food services		-0.383***	-1.381***	-1.225***
		(0.0809)	(0.0801)	(0.0809)
Other service (except public admin)		-0.818***	-0.815***	-0.698***
		(0.0836)	(0.0836)	(0.0837)
Public administration		-0.0407	-0.0394	-0.482***
		(0.0842)	(0.0842)	(0.0845)
Logged SA benefit amounts			0.339***	0.447***
			(0.0443)	(0.0443)
Union membership in t-1				0.988***
				(0.0126)
Constant	-21.79***	49.39***	51.57***	12.33***
	(1.642)	(1.771)	(1.787)	(1.856)
Observations	425460	425460	425460	425460

Standard errors in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Source: Longitudinal Administrative Databank 2000-2018, Authors' calculations.

Figure 3-Predicted probability of ES by province, Model 4

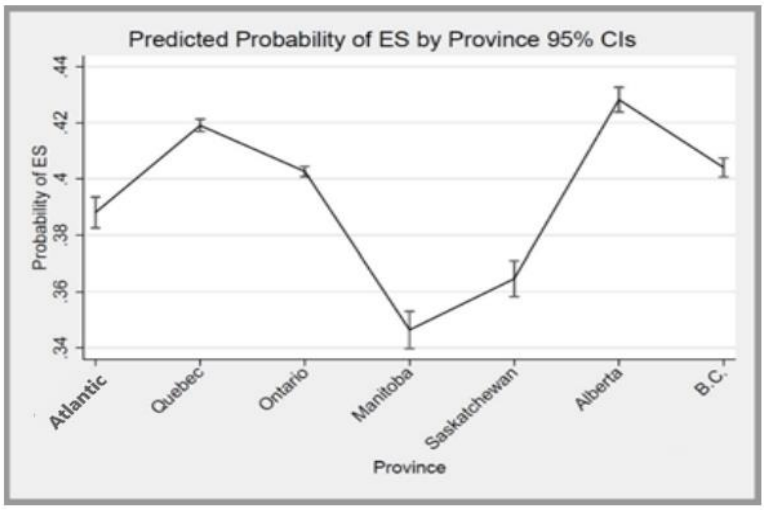

Figure 3- Predictive Margins of Employment Success across 2000-2018 by province. Source: Longitudinal Administrative Databank, Authors' calculations.

3.5.2 The Role of industry of employment and union membership when predicting future ES (research question 2)

An overwhelming majority (78 percent of the sample) do not present evidence of employment success in t-1, as indicated by the lagged industry variable (time t-1). When comparing models one through four, controlling for industry stood out as an important driver behind the variation of ES in the sample population. Most notably, we see differences in log odds across the spell variables and for those claiming disability. In model two, we add the lagged industry variable to determine whether provincial effects of ES are mitigated or increased. Including industry as a control makes little difference in the provincial estimates. The temporal effects in model two predict a lower probability of ES with each passing year, albeit by a small amount (OR=1.006). Figure 4 shows that in model four, which controls for logged SA benefits and union membership, the effect of each passing year does not change significantly but does show a consistent decline in the probability of ES across the study period.

Figure 4-Predicted probability of ES by union membership, Model 4

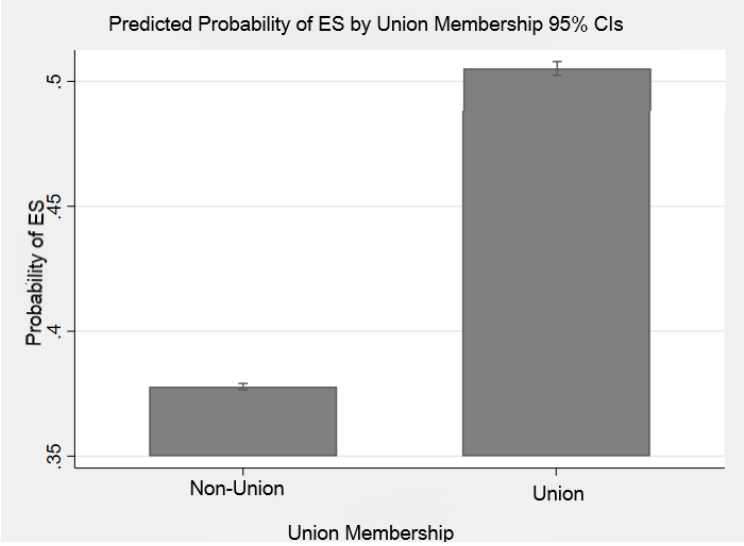

Figure 4- Predictive Margins of Employment Success across 2000-2018 by union membership. Source: Longitudinal Administrative Databank, Authors' calculations.

The effects of industry remain unchanged between models two and three after accounting logged SA benefit amounts. Our analysis indicates that SA benefits only impact the provincial variables. However, by accounting for union membership in model four, we observe some significant changes across industries. Model four predicts that those with union association in time t-1 have an increased probability of ES (OR=2.686). While model three predicts a decreased probability of ES (OR= 0.383) in the Agriculture, Forestry, Fishing, and Hunting industry, after controlling for unionization in model four, the same industry saw an increase in probability of ES (OR= 0.454). The log odds for Construction remained stagnant, despite including unionization, and predicts that workers in this industry experience about a decrease in predicted odds of ES across models three (OR=0.634) and four (OR=0.588). Educational Services (OR=0.716), Health care and Social Assistance (OR=0.797), Wholesale Trade (OR=0.562), and Accommodation and Foods Service Industries (OR=0.251) all have lower predicted probabilities of ES in model three, as compared to Oil and Gas. However, after controlling for unionization, the odds increase slightly.

The only statistically insignificant industries in model three are Public Administration, Postal and Courier, and Finance and Insurance, pointing to a lack of significant difference between predicting odds of ES across these three industries and the reference for the study population. However, Public Administration reaches significance in model four, and by controlling for union membership we observe a decrease in probability of ES for SA recipients who worked in this industry in time t-1, as compared to the reference category (OR= 0.616). Only two industries are predicted to increase chances of ES, as compared to the reference group: Utilities, and Finance and Insurance (but both failed to reach statistical significance in model four, possibly due to too few SA recipients securing jobs in these sectors).

3.5.3 Differences in SA benefit amounts and their impact on ES of SA recipients (research question 3)

Model three, which adds logged SA benefit amounts to measure effect of provincial social program generosity, predicts that with every dollar increase in logged SA benefits, the probability of ES increases (OR=1.404). The log odds in model three for Atlantic Canada become significant and the model predicts a decrease in ES (OR= 0.931), as compared to Ontario (see figures 1 and 2). Alberta's predicted probability of ES more than doubles after accounting for SA benefit amount in model three, and the model three predicts an increase in probability of ES as compared to Ontario (OR=1.148). Models three and four both predict ES for Quebec as higher than Ontario (OR=1.196 and OR=1.138, respectively).

After introducing industry and unionization effects, the region sizes (population centers) appear to matter less as ES predictors, indicating that industry effects are more important for predicting gainful employment than SA services. Despite this, increased benefit amounts do significantly affect ES, and we conclude that SA program generosity does lend strong evidence for increased ES.

3.5.4 Individual level characteristics as predictors of ES (research question 4)

With respect to age, model four does not significantly predict a difference in ES between those aged 18-24 and 25-35 (Figure 5). However, model four does predict that all age groups older than those 18-24-years old, have higher chances of ES (see Table 3.2). Family size has a slightly positive effect on ES and model four predicts a multiplicative effect on the probability of ES with each additional family member (OR=1.114). Model fours suggests that men have greater odds of ES than women (OR=1.024) and that for separated, divorced, widowed, and single individuals, the predicted probability of ES is less than married or common law individuals (OR= 0.395) (see figure 6).

Model 1 predicts a decrease in ES for those claiming disability (OR= 0.871), but after controlling for industry, unionization, and logged SA benefits, the final estimate of ES for those presenting evidence of disability increases (OR=1.164), compared to those who did not claim it.

Figure 5-Predicted probability of ES by age group, Model 4

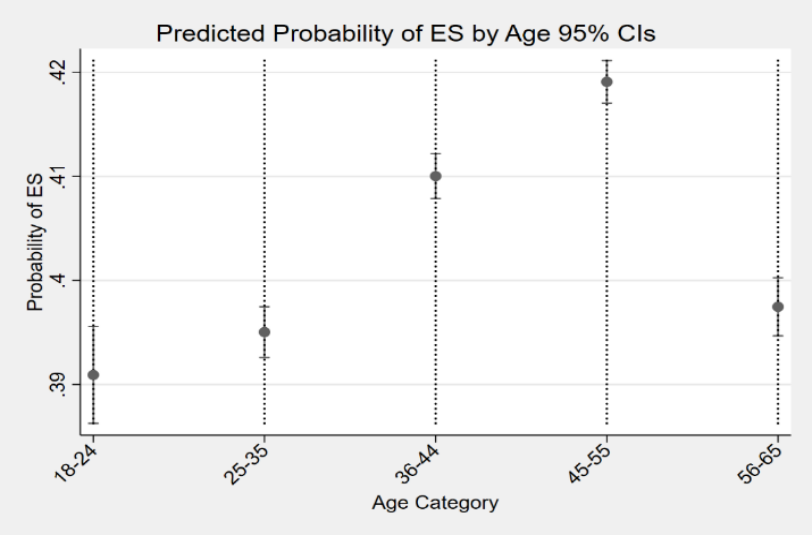

Figure 5- Predictive Margins of Employment Success across 2000-2018 by age group. Source: Longitudinal Administrative Databank, Authors' calculations.

Figure 6-Predicted probability of ES by marital status, Model 4

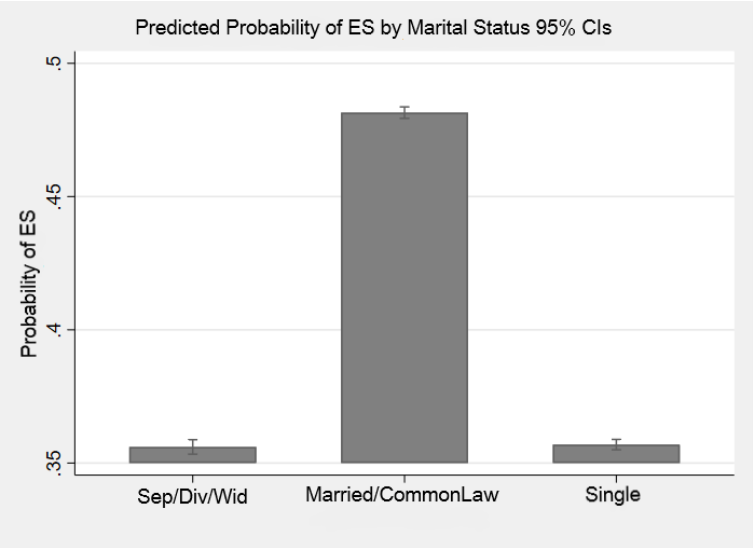

Figure 6- Predictive Margins of Employment Success across 2000-2018 by marital status. Source: Longitudinal Administrative Databank, Authors' calculations.

3.5.5 Spells off assistance as predictors of future ES (research question 5)

Across all models, the most significant predictor of ES is the time spent off assistance (Figure 7). In comparison to the reference category of time t (t=0), the spell variable predicts increasing odds of ES with each passing year, but the magnitude of the coefficients slightly decreases across models one through four (see Table 3.2). These large effects are consistent with previous findings (see Hillman, 2021).[22] The log odds for the spell variable's categories do not change significantly after adding logged SA benefits or union membership to the models (OR=17.219). It appears that industry accounts for much of the variation in the spell variable, as indicated by the decrease in log odds once we introduce industry in model two.

[22] The small confidence bands are due to the large sample size (figure 6).

Figure 7-Predicted probability of ES by years spent off assistance, Model 4

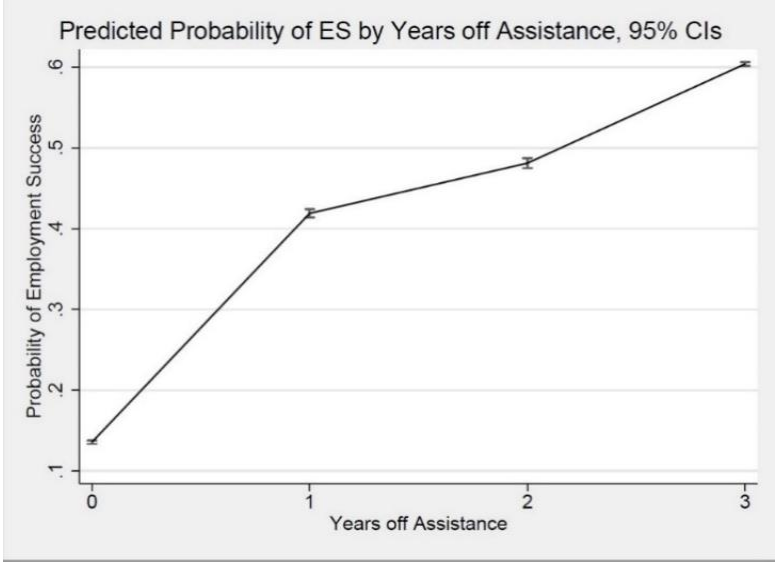

Figure 7- Predictive Margins of Employment Success across 2000-2018 by years off assistance. Source: Longitudinal Administrative Databank, Authors' calculations.

3.6 Discussion

While traditional SA models are criticized as a non-viable option to keep low-income individuals and families from living in poverty-stricken conditions (Osberg & Xu, 1999; Lightman et. al, 2010; Calnitsky, 2016), some provinces are considered as leaders in social policy reform. Quebec has a special case of SA in Canada, which emphasizes childcare subsidies, provides relatively high SA benefits, and has a more responsive employment support program (Dinan & Noel, 2020; Daigneault et. al, 2021). The fact that Quebec residents have a higher probability of ES over Ontario is likely due to its universal childcare system. By providing families (especially single mothers) with childcare supports, parents can attend a full-time job or school during working hours, thereby increasing their human capital through either a credential or work experience. Given the changing nature of SA caseloads from predominantly unattached men to women and single parent homes (Stapleton & Bednar, 2011; Herd, Kim, & Carrasco, 2020), SA recipients would benefit from increased childcare subsidies that facilitate full-time employment.

The increased predicted log odds for Alberta likely captures the effects of business cycles. Although the 2008 recession hurt the Alberta economy, it was able to gradually recover and major industries such as oil and gas in this province were once again employing large numbers of individuals post-recession. In other words, it is easier to secure jobs in regions that are economically flourishing because of the abundance of opportunities. Although Marchand (2015) finds that income inequality increased in local labour markets because of the energy boom across Western Canada, he found that absolute poverty was also reduced.

An explanation of Alberta's significantly higher probability of ES in comparison to Ontario emerges through closer examination of the findings in models three and four. The addition of the unionization increased Alberta's estimate for ES, which indicates that unionization explains part of the variability in ES. That unionization is prevalent across trades industries, such as Oil and Gas, suggests that the abundance of these jobs serves as a protective barrier to unemployment. Manitoba and Saskatchewan had similar lower odds of ES as compared to Ontario, which is likely due to these provinces being primarily rural and having a homogenous industrial mix. In other words, there are simply more job opportunities in more populous provinces with booming economies. Interestingly, based on our analysis, both small and large regions are both less likely to have higher rates of ES, but likely for different reasons: smaller, rural areas usually lack a diverse industrial mix, making securing a job difficult. However, large urban centers typically have high income disparity and higher levels of educated individuals who compete for jobs in the labour market (Ganong & Shoag, 2017).

Across industries, the Accommodation and Food Services industry are typically comprised of lower-skilled workers that include positions such as hotel caretaking staff, front desk staff, food and beverage servers, cooks, and low-level managerial positions (Government of Canada, 2020). Given that these jobs typically do not require any formal training or certification, the human capital skills may not be sufficient to effectively market oneself after job loss—especially if job loss is due to a shortage of work, such as during an economic downturn. Furthermore, given that this, and other service industries such as Retail are typically sensitive to economic booms and busts of other major

industries (for example the Oil and Gas sector in Alberta), the model may be capturing macroeconomic effects of recession and business cycles in general. We control for this with unemployment rate, which does provide evidence that ES is moderately sensitive to fluctuations in unemployment rates. Alternatively, we see lower predicted probabilities of ES across industries that typically require higher education, such as Educational Services. The policy implications here are clear: SA recipients need more support with regards to education or job-skill training that can place them into jobs that are financially sustainable.

Interestingly, unemployment rates seem particularly sensitive to the inclusion of union-membership. Although a significant amount of SA research in Canada focusses on provincial differences—and for good reason, as there is significant variation with regards to SA policy and economic indicators—it appears that ES is predicted best by both program supports and macroeconomic effects. Unionization counteracts gender wage differences (Western, Bruce, & Rosenfeld, 2011) and improves outcomes of the working-poor, even above poverty reduction policies (Brady, Baker, & Finnigan, 2013), and provide workplace related benefits such as education, training, and job security (CUPE, 2016). Unions are also considered generous with respect to severance (Walsworth, 2010), which could negate the need to seek SA benefits between job loss and next employment and potentially improve one's chances of ES. In other words, it could be the case that getting a unionized job while on SA acts a protective barrier—either with regards to pay or job retention. Overall, the results suggest that unions are a protective factor against unemployment. Lastly, the analysis suggests that persons in receipt of disability are especially vulnerable with respect to employment and can benefit from increased social policies that help protect their jobs and promote labour market inclusion. Estimates for ES of persons with disabilities increased because of SA benefits also, lending credence to increased benefit amounts being conducive to ES. For example, Stapleton & Procyk (2011) indicate that many disability recipients on Ontario may opt to work for cash to avoid losing benefits, which points to a downfall of claw backs on SA and not to a lack desire to work. One policy implication of this is lower the deductions on earned income for both SA and disability recipients to incentivize employment, while allowing the continuation of financial and medical benefits (Lahey et al., 2021).

With SA benefits included in model three, the estimate for Atlantic Canada became statistically significant and predicts a lower probability of ES, as compared to Ontario, while Alberta's significantly increased. This is an interesting result, given the abundance of economic opportunity in Canada's largest and most populous province (Ontario) and its region with the highest rates of unemployment (Atlantic Canada). For other provinces, there was no significant difference across coefficients before or after adding SA benefits, pointing to the fact that increased SA generosity has greater implications for success, specifically in more precarious labour markets. Indeed, all provincial differences disappear when differences in benefits are accounted for, suggesting that the key differences in ES between provinces are benefits: provinces that pay more SA have more success bringing people into employment and that policy can either help or hinder ES. Increased benefits may improve ES due to direct financial benefits, allowing people to buy work clothes or spend time looking for adequate opportunities without fear of not making ends meets. Alternatively, increased benefits may translate to additional support in the form of work training allowances, more incentives to attain credentials (certificates), or better-quality employment supports that help move recipients into sustainable employment. Regardless of the reason, the fact that an increase in logged benefit amounts yields an increased probability of ES is telling enough—increased benefits increase the predicted odds of ES for the SA population. This finding lends credence to Kenworthy's (2011) argument in favor of increased transfer payments to those living in poverty. The present analysis provides additional evidence that more generous SA programs have better program outcomes.

Immigration estimates across models show that newcomers to Canada have decreased chances of ES, while other research points to recent immigrants depending much less on social benefits than full Canadian citizens (Ostrovsky, 2012). However, given the population of the present study is anyone who claimed SA across the study period, the model may be predicting the wage effect of newcomers, who have been shown to earn less in the early years of immigration (Oreopoulos, 2011). Furthermore, many economic immigrants (as opposed to refugee claimants) come to Canada with higher levels of education, and the population captured in the sample could be those who are either new or have not acquired the culture capital required to successfully compete in

a North American labour market. Lastly, research has shown that there could be systematic discrimination ingrained in our society, which tends to hire non-Caucasian or recent immigrants at lower rates than Canadian-born (Bowlus, Miyairi, & Robinson, 2016; Oreopoulos, 2011).

One of the most notable findings of our analysis is the additional evidence for the cycle of poverty. Shibuya (2018) writes about the 'duration dependence', where the more time spent on SA, the greater the dependence upon SA becomes—either through some unobserved process, or through loss of human capital such as recent and relevant work experience. The fact that staying off SA strongly predicts ES is a very telling finding: the more time one spends in the labour market, the lower the chances of having to rely on SA. Further, the longer one spends on SA, the lower their chances of liberation from it (Rotar, 2021). Upward social mobility from one stratum of the income distribution to another can be difficult without strong human capital indicators such as education and work experience. To move individuals out of a state of poverty or working poverty, SA programs could increase focus on increased skills and opportunities for these individuals. For example, Adams, Chow, & Rose (2018) found that placing SA recipients in training programs decreased their time on assistance by an average of almost 5 months.

Given our results, it is apparent that for SA recipients, a mix of SA policy and economic-level factors affect ES. Regional differences in ES are sensitive to changes in SA benefit amounts, but to a lesser extent to industry (although certain industries are more prominent in certain provinces). Previous labour market attachment of SA recipients contributes to greater variation in ES than contextual or temporal effects alone, and although industry can loosely estimate employability of the persons in the present sample, the results may in fact be more indicative of volatility across industries.

Our analysis does not control for effects of race, sexual orientation, education, or indigeneity, spells on SA—all factors that may be important indicators of ES. Many studies have pointed that racial (Lightman & Good Gingrich, 2018; Block & Galabuzi, 2011) and sexual minorities (Waite, Ecker, & Ross, 2019) are at a disadvantage in the labour market with regards to wage and/or working hours. Future research could look at

these effects in the context of social mobility out of poverty or off SA. Similarly, education is a key determinant in labour market success (Edgerton et al., 2012; Ferrer & Riddell, 2003; Becker, 1975) and is shown to correlate with ES (Hillman, 2021) as well as aid in intergenerational mobility (Torche, 2011). Further research could build upon the current analysis to include education to examine the extent to SA recipients rely on educational attainment as a means of moving out of poverty. Lastly, it is important to note that results can only be generalized to working age individuals who have claimed SA, and also participate in the labour market to some degree, rather than individuals who solely rely on SA.

3.7 Conclusion

The strongest predictors of ES for SA recipients are unionization, SA benefit amounts, and time spent off SA. Inclusive policies often correspond with unionization, both of which are key for increasing labour market success and for providing equitable work opportunities to women, recent immigrants, and persons with disabilities. We demonstrate that SA generosity can significantly improve SA recipient outcomes. Given that the goal of SA is to reintegrate the recipient into the workforce permanently and as quickly as possible, providing additional supports to people faced with precarious financial situations is key in decreasing poverty.

While individual level characteristics, government policy, and business cycles all play a role in one's ability to achieve financial independence, the latter two (to varying degrees) are dependent upon government decision-making. By providing people with adequate support through increased SA payments and return-to-work training, we become better equipped to handle economic shifts and overall ensure increased economic prosperity. Building resilience to market fluctuations through investment in our least well-off is an important next step for future governments to consider when setting the benchmarks of success. At present, SA programs are reactive and can be seen as a band-aid solution to a largely economic problem, while proactive measures can focus on education and work training before major economic events occur. Increased transfer payments could be reserved for very poor or as emergency supplements in cases of economic downturns. As Esping-Andersen (2013) states, the stigmatization of poverty

significantly impacts how we choose to view people who rely on social programs; this, in turn, creates a losing situation for those who need to rely on them by attributing their lack of finances to personal choice. By systematically placing barriers for SA recipients such as disincentivizing work, and limiting access to education, training, and childcare for those in need, we are failing those who need social support the most.

3.8 References

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Chapter 4

4 Poverty in Canada: A Decomposition of Regional Income Inequality Trends

Income inequality has been rising in North America and Europe over the past decades (Lindert, 2000; Marchand, Dubé, & Breau, 2020). The current economic situation in Canada presents a relevant research context to assess the poverty across regions. First, the well documented growth in inequality in Canada is a necessary field of research and can play a significant role in economic development, employment, and social policies. Next, Canada's large land mass has significant economic variation across the ten provinces, which creates differences in economic outcomes across regions. By combing the geographic (regional) understanding of Canada with its particular economic and demographic mix, we are able to longitudinally demonstrate the factors associated with income inequality and poverty. Our analysis may also have implications for geographically large countries with diverse industries, such as the US. Using the Longitudinal Administrative Databank (LAD), we aim to decompose the sources of regional income equality by regressing the difference between an individual's income and their p10 of their economic region, creating a shift-share regression using demographic and contextual level predictors, across 65 Canadian economic regions, and 18 years of data. Tax data have been previously demonstrated to provide more accurate estimates of incomes (and therefore inequality), in comparison to survey data (Burkhauser et al., 2018). Thus, the data we use provides strong evidence of rising inequality in Canada. The research we present sets the stage for additional theoretical and empirical work on income disparity in Canada.

4.1 Literature Review

Historically, economic downturns (specifically the Great Depression), wars, and social movements have contributed to the growth and decline of income inequality across the past hundred years. Perrucci &Wysong (2008) state that during the Great Depression, those in lower socioeconomic strata became even more poor and climbing into the bottom-middle and middle of the income distribution was near impossible. However,

from post-World War II (1946) into the mid-seventies, there was an increase of people in the middle portion of the income distribution, with ten percent at the very top and bottom (Perrucci &Wysong, 2008). The middle 80% of people were able to move within the middle portion of the income distribution with much greater ease than in the years prior to World War II. One of the main reasons why this trend occurred is that in times of economic downturns, bottom earners are most sensitive to financial shocks and are often the first to lose jobs. Kenworthy (2011) explains that this is because the poor typically lack culture capital (skills and education) that would enable them to secure higher earning positions. He further posits that those living in the bottom decile of income distribution not only work in lower paid jobs, but also jobs with less hours. In prosperous economic times, the poor are able to generate some income and may even improve their financial situations, but these improvements become reversed when economies tank, such as what occurred during the Great Depression and the Great Recession of 2008 (Kenworthy, 2011). Second, the emergence of the welfare state post-World War II spurred a huge social movement that centered around redistributive policies in the forms of social assistance and social programs. For example, universal health care, pensions, and social assistance (welfare) were largely a result of the post-World War II focus on humanitarian aid (Olsen & O'Conner, 2018). Redistributive policies significantly improved the financial situations of poor persons and played a role in narrowing income inequality by targeting financial aid to those in need (Korpi & Palme, 1998).

Presently—since the 1970s—we see evidence of increasing income inequality in the top shares of wealth, which can be explained by the unequal distribution of income due to several key factors. First, changes in technological advancement such as computers and the internet led to differences in how people can access and learn the technologies (Lindert, 2000). The concept of the digital divide states that there is a difference between sociodemographic groups in their access and literacy of computers and the internet (Van Deursen & Van Dijk, 2019). Those who were able to learn and secure access to the technology fared much better economically than those who did not (Van Deursen & Van Dijk, 2019). Given that computer technology quickly became the gold standard of how business and communication were conducted, it makes sense that those who had access to this technology became computer-literate and were thus more

desired in the labour force. For example, researchers have concluded that wage inequality in the U.S. is best explained by polarization across occupations, especially with respect to three main positions: in management, computer analytics, and secretarial work (Mouw, Ted & Kelleberg, 2010). Furthermore, there is a large evidence base that suggests that social mobility is reproduced through parental occupations (Jonsson et al., 2011) and that mobility is significantly tied to increased levels of education (Torche, 2011).

Lastly, we see an increase in income inequality because of a significantly rise of wealth share at the top of the income distribution (Lindert, 2000; Atkinson, Piketty & Saez, 2011). Although top incomes had significantly decreased as a result of the Great Depression and World Wars, as well as the rest of the income distribution, these decreases are not solely responsible for the levels of poverty observed in the lower ends of the income distribution (Lindert, 2000; Atkinson, Piketty & Saez, 2011). However, over the course of the last 40 years, the top of the income distribution amassed a significant portion of the wealth, observable in several countries but most notably in North America, Britain, and China. The extent of the rise of the inequality is dramatic: the top percentile of the income distribution owned just under 9% of the wealth in 1976, but this expanded to almost 24% in 2007 (Atkinson, Piketty & Saez, 2011). In the US, the top percentile owns 40% of the wealth in 2016, up from around 30% in the 1980s (Zucman, 2019). To explain the phenomenon of the surge of wealth concentrated at the top, Atkinson, Piketty & Saez (2011) examine existing research on income inequality and wealth distribution and conclude that the increase in wealth share at the top is due to significant increases in wages of those already considered top earners. This dramatic increase demonstrates that the top one percent of incomes are growing at an increasingly disproportionate rate compared to the rest of 99%.

Most of the aforementioned literature on income inequality focuses on income disparity at the national level. However, there is a fast-evolving trend to take into consideration smaller geographic units such as provinces or census divisions. In 1965, Williamson argued that regional inequality is an important avenue of research, and argued that regional policies, migration patterns, and industrial change all contribute to changing face of income disparity at the regional level. Recent literature by Khan &

Siddique (2021) finds that income disparity across census divisions contribute more to income disparity than nationally calculated indicators. Similar findings are provided on data in the European Union (Artelaris & Petrakos, 2016) and China (Crane et al., 2018).

In Canada, a recent study by Marchand, Dubé, & Breau (2020) looks specifically at income inequality (using the GINI) at the regional level (Census Divisions) and finds that rise of inequality at the national level is partly driven by regional inequality. Furthermore, they find that there are differences across regions that are driven by the specific industrial mix of that region, where Service, Arts, and Entertainment, IT, and other knowledge-based industries were found to create higher levels of regional inequality. Similarly, Picot & Hou (2014) compare national income inequality in Canada with provincial and major metropolitan cities and find that recent immigrants (1-5 years in Canada) have the highest rates of low-income status and that the rates progressively drop commensurate with years in Canada. Corak (2017) demonstrates through his analysis on intergenerational mobility that there is a high degree of variation across Census Divisions in Canada and that mobility is correlated with areas with higher immigration rates. Although Census Divisions (CDs) can provide interesting results in terms of income inequality, we argue CDs are mainly arbitrary geographic divisions, and we opt to use economic regions as regional self-contained labour markets. Economic regions (ERs) are a unique concept to Canada: Employment and Social Development Canada uses these regions to calculate one's benefit level for Employment Insurance (EI) (Employment and Social Development Canada, 2022). The rates for EI are based on unemployment and wage data of a particular region, which takes into consideration the nature of the labour market in that particular region. For this reason, we consider ERs as a better measure of spatial analysis of inequality than census divisions, which are comprised of census divisions, but grouped by economic activity (Statistics Canada, 2018). Given that poverty and labour market attachment are directly related, we choose ERs as the geographic unit of our analysis.

Given our interest in regional income disparity, we look at several demographic, mobility, and geographic factors. First, it is well-established in the existing literature that women (Marchand, Dubé, & Breau, 2020; Cooke, 2009), homosexual persons (Waite,

Ecker, & Ross, 2019), particularly gay men (Waite, 2015), Registered First Nations (Lamb et al., 2013) immigrants (Picot, Hou, & Coulombe, 2008), and those with disabilities (Chen, Osberg, & Phipps, 2015) are at an increased risk of poverty. Although most literature on SA finds that immigrants rely on SA less than their Canadian born counterparts (Ostrovsky, 2012), research on poverty rates finds that immigrants experienced increasing rates of poverty from the 1990s and in into the 2000s (Picot, Hou, & Coulombe, 2008), and that it takes about 13 years for newcomers to attain similar levels of income as their Canadian born counterparts (Bowlus, Miyairi, & Robinson, 2016).

Geographic mobility is also an important factor to consider when looking at labour market outcomes. Canada affords an opportunity to examine this, as its large land mass and varied industrial mix across the country attracts workers to different provinces and cities. According to Newhook et al. (2011), up to 44% of Canadians work outside of their CD, based on 2006 data. Previous literature identifies younger, single men as the most mobile demographic (Greenwood, 1997). However, education and potential earnings play a significant role in one's choice to relocate—recent literature by White & Haan (2021) find that the most mobile group in terms of education are those with university degrees. Although some literature suggests that income disparity is higher in larger cities (Ganong and Shoag, 2017), possibly due to increased competition and diverse mix of skilled and unskilled labour, Canadian literature implies that migration across provincial lines increase economic outcomes for individuals on average (White & Haan). However, the degree to which mobility impacts poverty rates is a largely understudied area in Canada, and thus, we include indicators for mobility in our analysis.

Given our literature review, we make the following broad hypotheses:

(1) Students, women, immigrants, Indigenous persons, and those claiming SA or disability will fare worse economically and we expect to see a smaller distance between their average incomes and the bottom decile.

(2) Mobile persons, persons living in a CMA, men, older individuals, and married individuals will have better economic outcomes, and thus, will have incomes that are at a greater distance from the bottom decile.

We now turn to the methods and results section of the analysis.

4.2 Methods

Income inequality studies employ a wide variety of indicators such as the GINI coefficient (which employs the Lorenz curve) and the p90/p10 measure (the ratio of the top 10% of incomes and bottom 10% of incomes, respectively). We focus our attention the p90/p10 because it remains largely unaffected by non-top coded data (Burkhauser, Feng, & Jenkins, 2009). Furthermore, in line with Kenworthy's (2011) focus on the bottom decile, we feel our analysis on the national inequality trend and the regional offset decomposition model are more consistent by using the p90/p10.

We employ a shift-share regression model (see Blien et al., 2014 & Patterson, 1991) to decompose the sources of variation contributing to regional poverty. Shift-share analyses are used to demonstrate and decompose differences in economic variables across spatial and temporal factors, and have been demonstrated to be useful for geography, policy studies, and other disciplines interested in analyzing information across geographic divisions. Although shift-share regressions typically look at rates (employment, industrial change, etc.) across regions, we apply the econometric model to poverty and income levels. Shift-share regressions are different from ordinary regressions because they account for geographic changes in their dependent variable.

4.2.1 Data

We use data from the Longitudinal Administrative Databank (LAD) to model our poverty measure across Canadian provinces. The LAD is a 20% sample of all tax filers and includes detailed geographic, income, and demographic information such as immigration, sex, marital status, and family composition. To create our analytical sample, we take all tax filers aged 15-65 (working age population) from 2000-2018. Given that our geography of interest is economic regions, we used the postal code conversion file to

create a concordance dataset between postal code (in the LAD) and the economic region (postal code conversion file). We merge the concordance file by economic region to the master dataset of tax filers to determine which economic region an individual resided in that tax year. Next, we use the person identifier in the LAD to merge with the immigration files provided with the dataset to determine which individuals immigrated to Canada and when (landing year). We bottom code our data at $0 total income (to avoid negative values resulting from things like business or capital losses) and we do not top code the incomes (in line with Marchand, Dubé, & Breau, 2020) to get a clearer idea of the disparity between the top incomes, in relation to the bottom decile.

Next, we use data from the Labour Force Survey from 2000-2018 to determine rates of education levels, by Economic Region, as well as the unemployment rate, industry[23], and dependency ratio. Given that nominal variables require an excluded category, we keep only certain levels of variables.[24] We include proportions of persons who hold a bachelor's degree or higher, per economic region, which we model as a continuous variable in our models. To control for industry effects, we collapsed the NAICS codes into seven broad categories and calculated the percentage of each by economic region. We keep the following industries and combine them into one category capturing knowledge industries: IT, Finance, Real Estate, Professional and Management Services, Education and Healthcare, Arts Entertainment and Recreation, Accommodation and Food Services, Other Services, and Public Administration. Excluded broad industry categories are Agriculture, Forestry, Fishing and Hunting and Utilities, Mining, Quarrying, and Oil and Gas Extraction, Manufacturing, Wholesale, Retail Trade, Transportation, and Warehousing.

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[23] Although the LAD has industry in the data, we felt the LFS would provide more accurate estimates because of the missing values in the LAD for this variable. Therefore, we decided to use an aggregate measure by economic region based on the Labour Force Survey.

[24] We do this because running each category separately resulted in collinearity issues, and most categories are either dropped or result in insignificant estimates (as the proportions equal to one). A similar issue results with proportions of education per economic region, which is why we only use bachelor's degree or higher in our region-level variables.

The unemployment rate per economic region is determined using LFS data. We divide the number of persons unemployed by the total number of people who are in the labour force (excluding anyone who is indicated as 'not in the labour force'). The dependency ratio is also derived from the LFS and is based on economic region. We calculate it by dividing the number of individuals outside the workforce relative to those in the work force, based on age (those below 15 and above 65 divided by the number of people of working age, 15-65). These aggregate statistics were collapsed and merged into our LAD master file by economic region. Due to low sample sizes, some regions were collapsed together, and the dataset contained 65 economic regions across the ten provinces (Canada has around 80 economic regions, as determined by Employment Social Development Canada). All results and tables are weighted using population weights, per Statistics Canada policy. The survey weights are stratified by economic region. Our analytical sample from 2000-2018 consists of about 15,611,930 unweighted (78,065,000 weighted) person-period observations in our main effect model across year and economic region and about 15,606,655 unweighted person-period observations (78,038,000 weighted) in our models containing demographic and mobility variables and interaction terms.

4.2.2 The Models

The dependent variable is a measure of poverty based on the distance of a person's logged total income subtracted from the log of the tenth percentile within their economic region. We use a relative measure of poverty (bottom decile) in our analysis as individuals deemed living in significant poverty on average make less than $10,000/year (which corresponds to the bottom decile) (Herd, Kim, & Carrasco, 2020). Kenworthy (2011) argues that income can come from many forms, tax rebates, social programs, thus we use the total income variable to determine both the value of the individual's income and to calculate the p10 of their economic region.[25] First, we add one to each

[25] Using total income is in line with research done by Marchand, Dube, & Breau (2020), who's analysis was done on Census years.

observation's total income and take the log of that amount (to ensure no missing values are generated from those with $0 total incomes). Next, we create another variable based on economic region, to calculate the bottom decile per region and year. Lastly, we subtract the person's income from the bottom decile to come up with our poverty distance measure, which is our continuous dependent variable (i.e., the higher the number, the further they are from poverty, or a positive number indicates distance from p10, and a negative number indicates distance closer to p10). Thus, our dependent variable is a regional offset, where we scale poverty by region by creating an offset of one's poverty level based on their total income, relative to the bottom decile of total incomes in their economic region. Although offsets have been used in geography studies for decades, they are typically employed in Poisson regressions; however, they can be applied to any linear model (Knudsen, 1992).

We employ shift-share regression with robust standard errors, given the panel structure of the data, to model our poverty measure. The model is defined as:

$$y_{i,t,j} = \alpha + \beta_1 X_{1,i,t,j} + \beta_2 X_{2,i,t,j} + \cdots + \beta_k X_{k,i,t,j} + \epsilon_i \qquad \text{Equation (1)}$$

Where $y_{i,t,j}$ is the difference between the log of a person's total income and the log of the p10 of the person's economic region, by year. The terms $\beta = \{\alpha, \ldots \beta_k\}$ represent the independent variable coefficients. We define the k independent variables as $X_i = \{X_{1,i,t,j}, \ldots X_{k,i,t,j}\}$ in which the *k*th entry represents the *k*th independent variable where each individual observation is indexed by i and within the *j*'th region at time *t*. The dependent variable, is defined by $Y_{i,t,j};\ \forall i \in [1, \ldots, n]$.

With respect to geography and mobility, we use a series of dummy variables and model them as fixed effects in our regression. We use the LAD's flag for census metropolitan area (CMA) to control for whether the individual resides in a population area of 100,000, where half the residents reside in the core of the municipality (Statistics Canada, 2018). The reference category is residing in a CMA. Next, we examine whether mobility across provinces or economic regions help improve the financial situation of individuals. First, we code a lagged economic region variable and subtract those two

codes, and if the result is 0, then we know the person did not move between time t and t-1; all other values are recoded as 1 to indicate a move between time t and time t-1. The same approach is taken to determine whether an individual moved provinces. For both 'moved' variables, the reference category is those that did move. Persons who moved across economic regions makeup 0.5% of our sample (388,690 person-year observations) and those who moved provinces comprise 0.2% of our sample (129,710 person-year observations). Lastly, we control for economic region by including the 65 regions in the regressions as fixed effects.[26] We control for year by including it as a fixed effect, with the year 2000 as the reference category.

To test demographic variables interest[27], we include sex (where male is the reference) and marital status, where we code a dummy variable consisting of three categories: married/common-law (reference), separated/divorced/widowed, and single. Married/common-law individuals comprise 57% of our sample, separated/divorced/widowed make up just under 10%, and singles account for 33%. We use the family size variable, which indicated the size of the family unit from 1-7+ and we model this as a continuous variable in our analyses. We take advantage of the LAD's same-sex couple flag to measure whether homosexual couples are at an increased financial disadvantage, as compared to straight couples and singles (reference is not in a same-sex relationship and includes couples and singles). There is a 50/50 split between gay men and gay women in our data, but those in same-sex relationships comprise only 0.3% of our sample (237,910 person-year observations)

Next, we code age groups into six categories: 15-25 (reference), 26-35, 36-45, 46-55, and 56-65. We control for students by including a binary variable, where 1=student (reference) based on whether they claimed tuition for self of over zero, and 0 if no tuition was claimed. Students comprise just under 11% of our analytical sample, the rest are non-

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[26] We do not report the year and ER fixed effects in models 3-8 for conciseness.

[27] We initially included union dues in our regressions, but the variable was dropped due to collinearity, and we excluded it from our analysis.

students. We use a proxy to control for Indigenous persons by using the Indian Exempt Employment Income variable found in the LAD, which indicates whether the individual either works or lives on reserve (this does not apply to Indigenous persons who do not meet this criteria). The Indigenous proxy variable is coded as 1 if the individual claimed over zero dollars for this tax credit (the reference category), and 0 if they did not. Individuals who work or live on reserve make up 0.4% of our sample (349,380 person-year observations). Self-employment is also included as a control variable, and we code a binary variable as 1 if they claimed self-employment income of over 0 (reference) and 0 if they did not. Self-employed individuals are 9% of our analytical sample. Individuals who work zero (reference), one, or two or more jobs are also controlled for by determining the number of T4's they reported on their tax return.

Next, we include persons who rely on social assistance (SA) by coding a binary variable, 'on SA'=1 if they claimed SA of over zero in year t (reference) and 0 if they did not. Persons claiming SA comprise 6% of our sample (just over 9,000,000 person-year observations). Individuals who present evidence of a disability are included in our regressions and we use the disability tax credit variable to code our disability variable: 1=claimed a disability amount of over zero (reference) and 0=did not claim. Disability recipients comprise 1% of our sample (just under 1,000,000 person-year observations).

Lastly, we include two immigration variables. The first variable considers those who landed in Canada in the last five years of year t, and the second if they landed in Canada within the last ten years of time t. Both variables are binary and the reference categories for each are those who landed in Canada within the specified timelines. Table 4.1 demonstrates that immigrants landing in the last 5 years comprise 8% of our sample (6,147,520 person-year observations) and those landing in the last ten years comprise just under 17% of our sample (13,015,780 person-year observations).

Table 4.1-Variables indicating immigration status

Immigration Status	Freq.	Percent
Landed last 5 years	6,147,520	8%
Everyone else	71,918,040	92%
Last 10 years		
Landed last 10 years	13,015,780	17%
Everyone else	65,049,780	83%

Table 4.1-Immigration status of persons in Canada, indicating whether they arrived in the last 5 or 10 years. Everyone else denotes Canadian citizens, persons with PR, and immigrants who arrived more than 5 years ago from time t. Counts show person-year observations, weighted. Counts have been rounded. Source: Longitudinal Administrative Databank, 2000-2018, Authors' calculations.

We estimate eight nested shift-share regressions. We begin with main effect models examining regions only in model 1, then we add year in model two. In model three, we add the individual level predictors, and in model four we include the aggregated LFS variables (the dependency ratio, percentage of people with a bachelor's degree or higher, percentage of persons in seven broad industry groups, and the unemployment rate). In models five through eight we test our interaction terms. Model five examines the interaction between sex and same-sex couples to determine whether gay men couples or lesbian couples fare worse economically than their straight counterparts. To test the effects of mobility on poverty, model six includes an interaction term between sex and 'moved across economic regions' and marital status and 'moved across economic regions.' In model seven, we examine whether moving provinces increases or decreases one's distance from the bottom decile of the income distribution by interacting sex first with moved provinces, then with marital status. Lastly, we examine the time trend with the same-sex couple flag to test whether poverty has increased or decreased for this demographic across our 18-year study period by interacting year with same-sex couple.

4.3 Results

First, we look the p90/p10 index across Canada from 2000-2018, across persons 15-65. We do this by first coding the top ten percent (p90) of incomes in Canada by year, then the bottom ten percent of incomes (p10) in Canada by year and dividing the two to come

up with the p90/10 index across 18 years. Figure 8 demonstrates the ratio and shows the income disparity between the bottom and top deciles of incomes in Canada, such that the larger the quotient, the higher the disparity between the two percentiles.

Figure 8-Canada p90/p10 inequality index

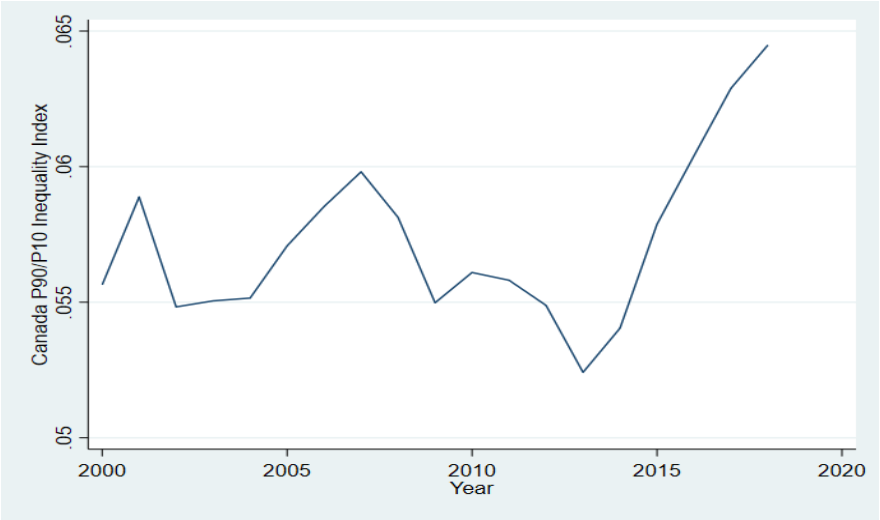

Figure 8- The Canada p90/p10 index across 2000-2018. Includes all of Canada and all persons aged 15-65. Source: Longitudinal Administrative Databank, Authors' calculations.

Table 4.1 report results for model 1- economic region fixed effect only (r-squared=0.0142) and model 2- economic regions and year fixed effects (r-squared=0.0146). Table 4.2 shows the regression results (we omit the coefficients for year and economic region for ease of reading). We estimate these two models only to demonstrate that geography or time alone are not significant predictors of our dependent variable. The rest of the models have higher r-squared values: model three is 0.30 and the remaining models four through eight have an R-squared value of 0.32. Models three through eight exclude year and economic region dummies.

Table 4.2-Main OLS Regression Models 1 & 2 Poverty Distance from Bottom Decile

	Model 1	Model 2	Model 2 Con't
	Region Only Model	Region & Year Model	Region & Year Model
Economic Regions (ref=1010)		Years (ref=2000)	

100	-0.0133	-0.0146	2001	-0.0373***
	(0.0116)	(0.0116)		(0.00252)
1040	0.0375**	0.0367**	2002	-0.0104***
	(0.0131)	(0.0131)		(0.00264)
1110	-0.159***	-0.159***	2003	-0.00701**
	(0.0108)	(0.0108)		(0.00261)
1210	-0.0961***	-0.0971***	2004	-0.0109***
	(0.0121)	(0.0121)		(0.00262)
1220	-0.0562***	-0.0569***	2005	-0.0440***
	(0.0117)	(0.0117)		(0.00264)
1230	0.0109	0.0104	2006	-0.0280***
	(0.0128)	(0.0128)		(0.00253)
1240	-0.0294*	-0.0302*	2007	-0.0678***
	(0.0128)	(0.0128)		(0.00261)
1250	0.0218*	0.0222*	2008	-0.0434***
	(0.00921)	(0.00921)		(0.00260)
1310	-0.147***	-0.148***	2009	-0.00794**
	(0.0116)	(0.0116)		(0.00264)
1320	-0.142***	-0.142***	2010	-0.0121***
	(0.0102)	(0.0102)		(0.00261)
1330	-0.0701***	-0.0703***	2011	-0.0156***
	(0.0111)	(0.0111)		(0.00262)
1340	-0.0244*	-0.0243*	2012	-0.0291***
	(0.0122)	(0.0122)		(0.00269)
1350	-0.176***	-0.177***	2013	0.00753**
	(0.0139)	(0.0139)		(0.00270)
2410	-0.257***	-0.258***	2014	0.0174***
	(0.0127)	(0.0127)		(0.00261)
2415	-0.203***	-0.204***	2015	-0.0380***
	(0.0103)	(0.0103)		(0.00264)
2420	-0.173***	-0.173***	2016	-0.0689***
	(0.00800)	(0.00800)		(0.00264)
2425	-0.232***	-0.232***	2017	-0.100***
	(0.00853)	(0.00853)		(0.00265)
2430	-0.215***	-0.215***	2018	-0.109***
	(0.00906)	(0.00906)		(0.00262)
2433	-0.249***	-0.250***		
	(0.00969)	(0.00968)		
2435	-0.119***	-0.119***		
	(0.00762)	(0.00761)		
2440	0.0475***	0.0478***		
	(0.00744)	(0.00744)		
2450	-0.168***	-0.168***		

	(0.00866)	(0.00865)
2455	-0.166***	-0.165***
	(0.00838)	(0.00838)
2460	-0.131***	-0.131***
	(0.00900)	(0.00900)
2465	-0.121***	-0.121***
	(0.0117)	(0.0117)
2470	-0.221***	-0.222***
	(0.00979)	(0.00978)
2475	-0.0681***	-0.0689***
	(0.0103)	(0.0103)
2480	0.0186	0.0178
	(0.0122)	(0.0122)
3510	0.0946***	0.0950***
	(0.00785)	(0.00785)
3515	-0.0241**	-0.0240**
	(0.00882)	(0.00882)
3520	-0.0123	-0.0122
	(0.00933)	(0.00932)
3530	0.381***	0.382***
	(0.00727)	(0.00727)
3540	0.0424***	0.0433***
	(0.00777)	(0.00777)
3550	0.0445***	0.0448***
	(0.00774)	(0.00774)
3560	0.0349***	0.0352***
	(0.00848)	(0.00848)
3570	0.107***	0.107***
	(0.00864)	(0.00863)
3580	-0.0642***	-0.0645***
	(0.00942)	(0.00941)
3590	0.0162	0.0156
	(0.00870)	(0.00870)
3595	0.0279**	0.0274**
	(0.0103)	(0.0103)
4610	-0.0490***	-0.0479***
	(0.0120)	(0.0120)
4630	-0.0751***	-0.0747***
	(0.0101)	(0.0101)
4650	0.0203*	0.0209*
	(0.00817)	(0.00817)
4660	0.142***	0.142***
	(0.0145)	(0.0145)

4670	0.141***	0.140***
	(0.0187)	(0.0187)
4680	1.460***	1.461***
	(0.0210)	(0.0210)
4710	-0.00937	-0.00851
	(0.00934)	(0.00934)
4720	-0.146***	-0.146***
	(0.0120)	(0.0120)
4730	-0.00923	-0.00836
	(0.00920)	(0.00920)
4740	0.0412**	0.0406**
	(0.0144)	(0.0144)
4750	0.290***	0.290***
	(0.0112)	(0.0112)
4810	-0.0366***	-0.0361***
	(0.00990)	(0.00990)
4820	0.00239	0.00245
	(0.0103)	(0.0103)
4830	0.197***	0.198***
	(0.00786)	(0.00786)
4850	0.0755***	0.0763***
	(0.00991)	(0.00990)
4860	0.0872***	0.0886***
	(0.00784)	(0.00784)
4870	0.116***	0.117***
	(0.0104)	(0.0104)
4880	0.304***	0.304***
	(0.0131)	(0.0131)
5910	0.0182*	0.0187*
	(0.00815)	(0.00815)
5920	0.352***	0.353***
	(0.00747)	(0.00747)
5930	-0.0224**	-0.0214*
	(0.00852)	(0.00851)
5940	0.0494***	0.0491***
	(0.0116)	(0.0115)
5950	0.0779***	0.0776***
	(0.0117)	(0.0117)
5960	0.224***	0.223***
	(0.0146)	(0.0146)
5980	0.0928***	0.0927***
	(0.0151)	(0.0151)
Constant	1.418***	1.450***

	(0.00706)	(0.00729)
Observations	78,065,000	78,065,000

Standard errors in parentheses

* p<0.05 ** p<0.01 *** p<0.001

Source: Longitudinal Administrative Databank 2000-2018, Authors' calculations.

Table 4.3- OLS Regression Models 3-8 Poverty Distance from Bottom Decile

	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
	Base Model with Individual Predictors	With Group Level Variables	Same-sex Interaction	Moved ERs Interactions	Moved Provinces Interactions	Year & Same-sex interactions
CMA (ref= non-CMA)	0.251***	0.111***	0.112***	0.111***	0.111***	0.111***
	(0.00113)	(0.00156)	(0.00156)	(0.00156)	(0.00156)	(0.00156)
Self-employed (ref=not self-employed)	0.883***	0.872***	0.872***	0.872***	0.872***	0.872***
	(0.00194)	(0.00191)	(0.00191)	(0.00191)	(0.00191)	(0.00191)
Student (ref=non-student)	-0.113***	-0.119***	-0.119***	-0.119***	-0.119***	-0.119***
	(0.00131)	(0.00127)	(0.00127)	(0.00127)	(0.00127)	(0.00127)
Moved ERs (ref=did not move)	-0.0131*	0.0544***	0.0545***	0.0192	0.0545***	0.0544***
	(0.00569)	(0.00561)	(0.00561)	(0.0107)	(0.00561)	(0.00561)
Moved Provinces (ref=did not move)	0.0352***	-0.0400***	-0.0401***	-0.0415***	-0.128***	-0.0400***
	(0.0101)	(0.00999)	(0.00999)	(0.00997)	(0.0191)	(0.00999)
Male (ref=female)	0.384***	0.387***	0.388***	0.388***	0.387***	0.387***
	(0.00102)	(0.000986)	(0.000987)	(0.000989)	(0.000987)	(0.000986)
Indigenous Proxy (reference=not Indigenous)	0.00339	-0.198***	-0.198***	-0.198***	-0.198***	-0.198***
	(0.00617)	(0.00520)	(0.00520)	(0.00520)	(0.00520)	(0.00520)
Age Groups (ref=15-25)						
26-35	0.959***	0.947***	0.947***	0.947***	0.947***	0.947***
	(0.00143)	(0.00140)	(0.00140)	(0.00140)	(0.00140)	(0.00140)
36-45	1.106***	1.100***	1.100***	1.100***	1.100***	1.100***
	(0.00161)	(0.00157)	(0.00157)	(0.00157)	(0.00157)	(0.00157)

46-55	1.060***	1.052***	1.052***	1.052***	1.052***	1.052***
	(0.00173)	(0.00169)	(0.00169)	(0.00169)	(0.00169)	(0.00169)
56-65	1.266***	1.259***	1.259***	1.259***	1.259***	1.259***
	(0.00203)	(0.00200)	(0.00200)	(0.00200)	(0.00200)	(0.00200)
Claimed SA (ref=did not claim SA)	0.438***	0.471***	0.471***	0.471***	0.471***	0.471***
	(0.00209)	(0.00204)	(0.00204)	(0.00204)	(0.00204)	(0.00204)
Claimed DTC (ref=did not claim DTC)	0.223***	0.211***	0.211***	0.211***	0.211***	0.211***
	(0.00486)	(0.00478)	(0.00478)	(0.00478)	(0.00478)	(0.00478)
Multiple Job Holder (ref=no T4s reported)						
1 Job	2.028***	2.048***	2.048***	2.048***	2.048***	2.048***
	(0.00217)	(0.00217)	(0.00217)	(0.00217)	(0.00217)	(0.00217)
2+ Jobs	1.996***	2.029***	2.028***	2.029***	2.029***	2.029***
	(0.00218)	(0.00217)	(0.00217)	(0.00217)	(0.00217)	(0.00217)
Immigration (ref=non-immigrant)						
Landed in last 5 years	-0.305***	-0.283***	-0.283***	-0.283***	-0.283***	-0.283***
	(0.00255)	(0.00252)	(0.00252)	(0.00252)	(0.00252)	(0.00252)
Landed in last 10 years	-0.0782***	-0.266***	-0.266***	-0.266***	-0.266***	-0.266***
	(0.00200)	(0.00202)	(0.00201)	(0.00202)	(0.00202)	(0.00202)
Same-sex couple (ref=not same-sex couple & single)	0.0311**	0.0235*	0.208***	0.0237*	0.0236*	-0.230*
	(0.0107)	(0.0105)	(0.0133)	(0.0105)	(0.0105)	(0.111)
Marital Status (ref=married)						
Separated/Divorced/Widowed	0.181***	0.172***	0.172***	0.173***	0.173***	0.172***
	(0.00153)	(0.00148)	(0.00148)	(0.00149)	(0.00149)	(0.00148)
Single	-0.128***	-0.161***	-0.161***	-0.162***	-0.161***	-0.161***
	(0.00130)	(0.00126)	(0.00126)	(0.00127)	(0.00126)	(0.00126)
Family Size (1-7+)	0.00764***	0.000829*	0.000781*	0.000888*	0.000857*	0.000830*
	(0.000397)	(0.000389)	(0.000389)	(0.000389)	(0.000389)	(0.000389)
Dependency Ratio		2.666***	2.671***	2.658***	2.663***	2.667***
		(0.369)	(0.369)	(0.369)	(0.369)	(0.369)

% with Bachelor's Degree or Higher	-9.593***	-9.607***	-9.592***	-9.593***	-9.593***
	(0.268)	(0.268)	(0.268)	(0.268)	(0.268)
Industrial Composition	1.624***	1.628***	1.628***	1.625***	1.624***
	(0.219)	(0.219)	(0.219)	(0.219)	(0.219)
Unemployment Rate	0.175	0.159	0.175	0.174	0.172
	(0.452)	(0.452)	(0.452)	(0.452)	(0.452)
Interaction Terms					
Sex##Same-sex (ref=female not in same-sex relationship)					
Male x same-sex relationship		-0.365***			
		(0.0207)			
Sex##Moved ER (ref=female did not move)					
Male x moved ER			-0.0676***		
			(0.00926)		
Marital Status## Moved ER (ref=married did not move)					
Separated/Divorced/Widowed x Moved ER			-0.107***		
			(0.0146)		
Single x Moved ER			0.177***		
			(0.0100)		
Marital Status## Moved Provinces (ref=married did not move)					
Separated/Divorced/Widowed x Moved Provinces				-0.136***	
				(0.0277)	
Single x Moved Provinces				0.206***	
				(0.0174)	
Sex## Moved Provinces (ref=female did not move)					
Male x Moved Provinces				0.0148	
				(0.0165)	
Same-sex## year (ref=heterosexual couple 2000)					
Same-sex x 2001					0.174

						(0.121)
					Same-sex x 2002	0.240*
						(0.119)
					Same-sex x 2003	0.260*
						(0.117)
					Same-sex x 2004	0.309**
						(0.114)
					Same-sex x 2005	0.326**
						(0.117)
					Same-sex x 2006	0.291*
						(0.116)
					Same-sex x 2007	0.319**
						(0.113)
					Same-sex x 2008	0.242*
						(0.115)
					Same-sex x 2009	0.296**
						(0.113)
					Same-sex x 2010	0.270*
						(0.113)
					Same-sex x 2011	0.326**
						(0.113)
					Same-sex x 2012	0.205
						(0.114)
					Same-sex x 2013	0.248*
						(0.115)
					Same-sex x 2014	0.272*
						(0.112)
					Same-sex x 2015	0.219
						(0.114)
					Same-sex x 2016	0.254*
						(0.113)
					Same-sex x 2017	0.203
						(0.113)
					Same-sex x 2018	0.223*
						(0.113)
Constant	-1.320***	-1.314***	-1.314***	-1.314***	-1.314***	-1.314***
	(0.00371)	(0.00708)	(0.00708)	(0.00708)	(0.00708)	(0.00708)

Observations (weighted)	78,038,000	78,038,000	78,038,000	78,038,000	78,038,000	78,038,000

Standard errors in parentheses

* p<0.05 ** p<0.01 *** p<0.001

Source: Longitudinal Administrative Databank 2000-2018, Authors' calculations.

As indicated by Figure 8, it is clear that income inequality is rising in Canada. Although there was a slight dip in the p90/p10 index during the 2008 recession (which makes sense given that the total incomes of top earners were affected more, narrowing that gap) and in 2013, we see a drastic increase in inequality from 2014-2018, resulting from the growth of incomes at the top decile.

We do not see much change in our independent variables across models four through eight: it appears that much of the variation in our dependent variable is captured through the addition of the individual and group level variables, and the interaction terms did not have a large effect on explaining additional variation in our poverty distance variable. Notably, residing in a CMA resulted in a 28.5% increase in distance from the bottom decline in model three, but once we account for industry, education, the unemployment rate, and dependency ratio, this distance becomes much less and results in an 11.7% increase in distance from the bottom decile, as compared to those who reside in more rural areas (possibly due to an increase in employment opportunities in more metropolitan areas).

Interestingly, our two mobility variables, moved provinces and moved economic regions, present some interesting trends. First, in model three, it appears those who moved between economic regions have a disadvantage with respect to their financial outcome, but as we include the group level variables, we can see a slight advantage of 5.6% further distance from the p10, as compared to those who did not relocate across regions. Figure 9 demonstrates that those who move across ERs are, on average, further away from the p10. However, the larger error bars around the movers point to a lot of uncertainty of this estimate. Moving provinces presents the opposite trend: although in model three we observe a positive, hence further distance from the p10, once the aggregated variables are accounted for in the remaining models, moving provinces results in a 4% closer distance to the p10. Figure 10 demonstrates the predicted margins of

distance from the p10 between movers and non-movers. However, it is evident that there is a lot of uncertainty in this estimate, as indicated by the larger error bars around the 'moved' margin. However, figure 11 indicates that once we include the interaction terms for moving provinces with sex and marital status, the coefficient grows 12% closer to the p10. The interaction term between moving provinces and marital status results in an economic disadvantage for divorced/separated/widowed category (by 12.7%), but a significant advantage for singles who move to a different province by 22.9% greater distance from the p10, as compared to married persons who did not relocate. Similarly, Figure 12 shows the interaction between marital status and moving across economic regions, where singles who move fare better economically than divorced/separated/widowed persons, as compared to their married

Figure 9-Predicted poverty distance for persons who moved across economic regions.

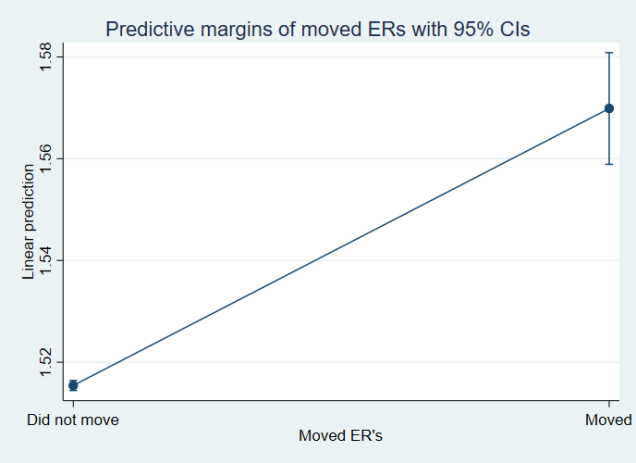

Figure 9- Predictive margins for persons who moved across economic regions, across 2000-2018. Source: Longitudinal Administrative Databank, Authors' calculations.

Figure 10-Predicted poverty distance for persons who moved across provinces.

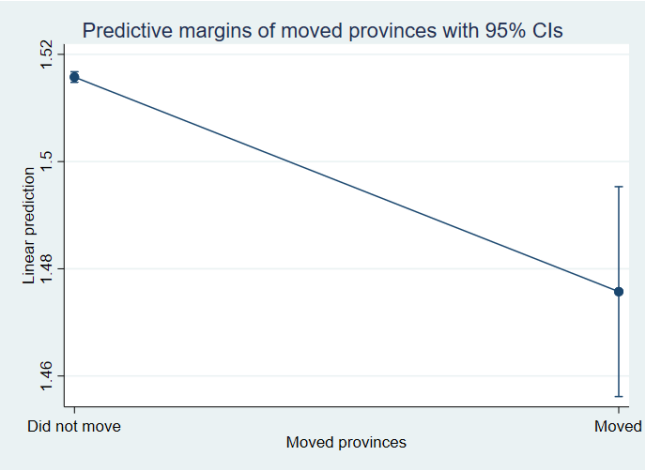

Figure 10- Predictive margins for persons who moved provinces, across 2000-2018. Source: Longitudinal Administrative Databank, Authors' calculations.

Figure 11-Interaction between marital status and moving province.

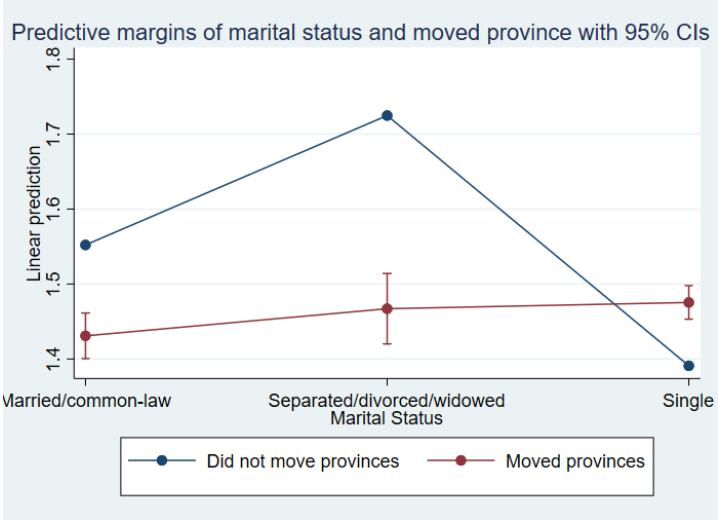

Figure 11- Predictive margins for the interaction term between moving provinces and marital status, across 2000-2018. Source: Longitudinal Administrative Databank, Authors' calculations.

Figure 12-Interaction between marital status and moving across economic regions.

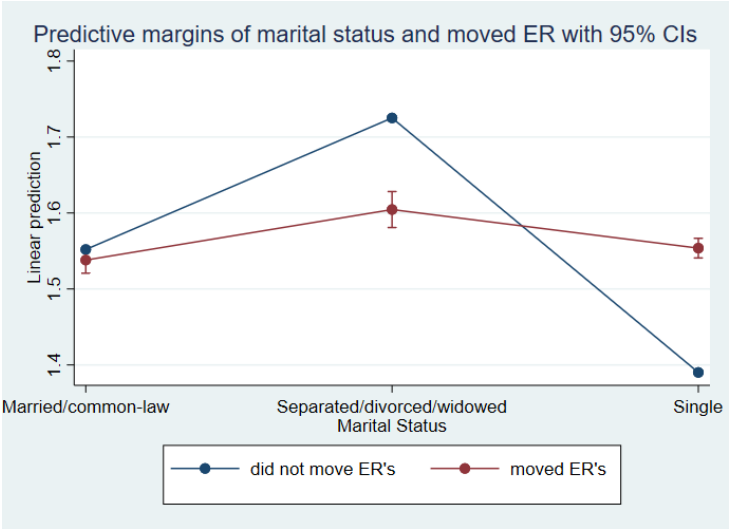

Figure 12- Predictive margins for the interaction term between moving across economic regions and marital status, across 2000-2018. Source: Longitudinal Administrative Databank, Authors' calculations.

counterparts. The interaction between sex and moving provinces did not reach statistical significance, pointing to a lack of difference between genders and mobility across provinces with regard to distance to the p10. However, the interaction term between sex and moving economic regions results in a slight advantage for males, by 6.5%, as compared to females. Consistent with the interaction term coefficients, single persons are more likely to have incomes that are closer to the bottom decile, over married divorced/separated/widowed individuals, as compared to their married counterparts.

Self-employed persons have an economic advantage over those who are not and have 141.8% larger distance from the bottom decile (this trend continues across all remaining models of interest). As hypothesized, students fare worse economically than non-students, as they have an 11.2% closer distance to the p10 for their economic region across years. Students have a higher probability of living closer to the bottom decile than non-students. The Indigenous proxy reveals that after accounting for the specific aggregated variables of an economic region, persons working or living on reserve have a consistent financial disadvantage across models of 17.9% closer to the bottom decile than individuals who did not claim this tax credit.

With respect to age, we see a trend consistent with previous literature that as people age, they accumulate wealth and move further from poverty, which is a trend consistent across all models. Next, and consistent with Kenworthy (2011), estimates for social assistance recipient and disability provide strong evidence for transfers moving people out of poverty: the poverty distances for people claiming SA and the DTC are 60% and 23.5%, respectively. Interestingly, once the region level variables are included in model four, the coefficient for SA slightly increases, while the coefficient for the DTC slightly decreases, pointing to a possible disadvantage for persons with disabilities in competing in labour markets that have higher rates of higher education, and increased unemployment. This trend is not observed for those claiming SA. Persons with one or two or more jobs are further away from the bottom decile, in comparison to those who did not have a T4 slip issued.

The estimates for same-sex couples provide some interesting trends: after the region level variables are included, the estimate for same-sex couples slightly decreases but remains positive, indicating a slight economic advantage over non-same-sex couples of just under 3%. However, once we include the same sex by year interaction, we see this estimate turn negative, pointing to a 20.5% increase in distance to the bottom decile. Next, consistent with existing literature, immigrants who came to Canada within the last five years are 24.7% closer to the bottom decile, as compared to non-immigrants. Newcomers arriving within the last ten years, are on average 23.4% closer to the bottom decile. Lastly, with each person increase, the family size coefficient indicates about a 0.08% increase in distance from the bottom decile, possibly due to either dual income households, or additional transfers such as family benefits.

With respect to the region-level variables in the model, the dependency ratio indicates that the more people outside the force (i.e., less than 15 and over 65), the better individuals fare. Although this may seem counterintuitive, it could point to the fact that people in richer regions are retirees or families who have more disposable income, and thus, have more children. Both demographics are associated with increased transfer payments also (child benefits and retirement benefits such as pensions or government assistance such as OAS and GIS). Next, persons residing regions with higher rates of

persons holding bachelor's degrees or higher have, on average, an economic disadvantage, presumably to increased competition in the labour market. Furthermore, residing in a region that is comprised of our key industries of interest, on average, increases distance from the bottom decile significantly, which could be due to the fact that these industries are more developed in larger regions and likely have more employment opportunities. Alternatively, jobs in knowledge-based industries, on average, pay higher wages than service-based industries. Lastly, the unemployment rate coefficients failed to reach statistical significance across all models.

Figure 13-Predicted poverty distance for the interaction term between sex and same-sex.

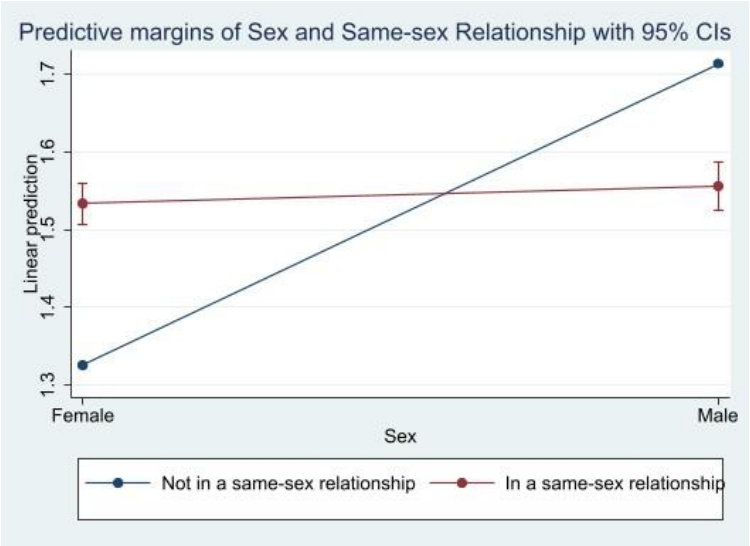

Figure 13- Predictive margins for the interaction term between sex and same-sex flag, across 2000-2018. Source: Longitudinal Administrative Databank, Authors' calculations.

The interaction term between sex and same sex yields interesting results, pointing to gay men as having an increased advantage over females in heterosexual relationships. Figure 13 demonstrates that gay men are 30% closer financially to the bottom decile than men who are not in a same-sex relationship. In other words, gay couples fare better economically than women, but worse than men who are not in a same sex relationship. Interestingly, there is little difference between lesbians and gay men with respect to distance to the p10, although gay men fare slightly better. Further, we notice that the gap

between gay men and women shrunk across our study period, pointing to a change in societal trends from the 1990s and early 2000s. Our same-sex by year interaction demonstrates similar findings: in 2002 (2001 was insignificant), same-sex couples 27% further on average from the p10, but in 2014, the distance increase to just over 31%, as compared to those not in a same-sex relationship in 2000. Figure 14 shows the predictive margins of distance from the p10 for same-sex couples in 2000 and 2018. It is clear that our poverty measure appears fairly equal between straight and same-sex couples in 2018, whereas in 2000 straight couples were further away from the bottom decile than same-sex couples.

Figure 14-Predicted poverty distance for the interaction term between same-sex couples by year.

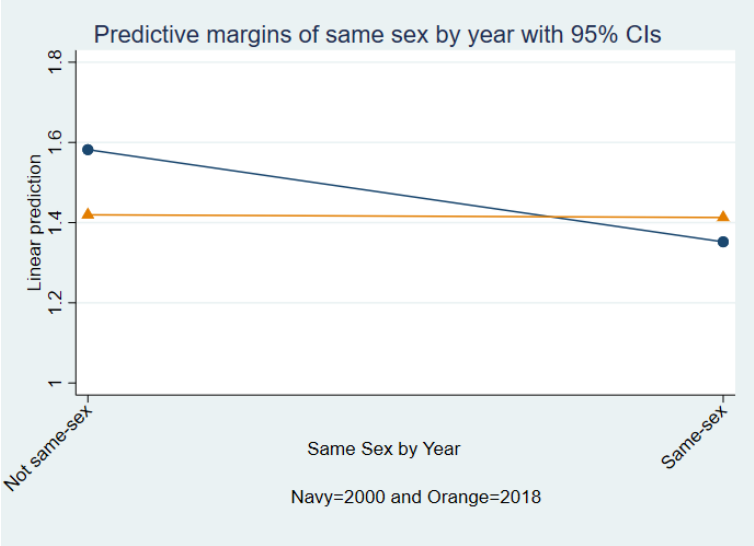

Figure 14- Predictive margins for the interaction term between sex and year, across 2000-2018. Source: Longitudinal Administrative Databank, Authors' calculations.

4.4 Discussion & Limitations

Figure 8 demonstrates the staggering income inequality trend in Canada over the last 18 years. Most notably, this trend grew significantly after 2013. A shrinking middle class and increases in income at the top of the income distribution undoubtedly play a role. Furthermore, housing prices over the last 20 years have significantly impacted the

financial situation of individuals and families: those who were able to secure property fare much better than those struggling to keep up with staggering rental prices (Hulchanski, 2001; Statistics Canada, 2021; Ederer, Mayerhofer, & Rehm, 2021). More recently, the Covid-19 pandemic has not only exacerbated the housing and income inequality trends for both top and low earners, and now with inflation reaching levels not seen in the last 30 years (Statistics Canada, 2022), it is likely that this income inequality trend will continue to grow. Our models demonstrate that transfer payments help move people out of poverty—in line with previous research that points to increased benefit levels as conducive to leaving SA (Draghici, Holm, & Haan, under review).

Although some research suggests that rural areas can be more resilient to economic shocks, our models clearly show that individuals living in a CMA fare better economically. However, due to the decrease in the distance from the p10 across models three and four, it appears that education and industry account for a large portion of this variation in distance from the bottom decile. Although more densely populated areas have more employment opportunities across a wide range of industries, there are also more individuals with higher levels of education, making it difficult for those who do not possess these credentials to compete in these labour markets. One possible solution to this is a creation of a more equitable education system, such as in Germany, Sweden, and Norway, by making university and college training free. Given that our models demonstrate that students are at an increased economic disadvantage than non-students, such policies would make attaining higher degrees more attractive to many people. Although the recent labour shortage (driven by the Covid-19 pandemic) in Canada has driven governments to provide increased subsidies for trades training to increase supply across construction industries (Employment Social Development Canada, 2022), extending the same benefits to university degrees would further narrow the income disparity by creating additional educational (and therefore employment) opportunities for all Canadians.

With respect to our interaction terms and mobility, our findings are consistent with previous literature: younger, single, men tend to do better economically when moving across provincial lines. Interestingly, the interaction term for males that move

across ER's indicates that men fare worse than women who do not move, but the opposite is observed for males who move provinces. This finding could be due to longer distance moves resulting in better economic outcomes than shorter moves, but one limitation of our analysis is that we do not know whether person relocated to the neighboring ER or to one in a different province. Further research could examine this trend closer by controlling for distance. It is plausible that with increased costs of living in major metropolitan areas such as Toronto and Vancouver, people opt to relocate further to secure cheaper housing, and find themselves either commuting or securing different employment opportunities (possible lower paid ones in favour of saving travel costs).

Despite years of literature on the gender wage gaps and implementation of key employment policies focussed on equitable hiring and pay practices, our models demonstrate that women continue to be at an economic disadvantage as compared to straight men, and same-sex couples. The motherhood penalty may, in part explain these findings. Recent literature demonstrates that there is a shift in demographics of SA caseloads across Canada from single men to women and single mothers (Stapleton & Bednar, 2011; Herd, Kim, & Carrasco, 2020), lending credence to increased policy in the area of gender equality in the workforce. Increased transfers for women and single mothers could significantly improve the financial situation of this demographic. Our findings also support a plethora of previous research arguing in favor of subsidized childcare and the newly implemented measures to achieve a universal childcare system by Trudeau's liberal government. Future research could test what impact this subsidy has on financial wellbeing of women and single mothers.

The findings from the analyses point to evidence of an improving financial position of gay and lesbian couples. Figure 13 demonstrates that gay women and gay men appear to be financially similar with respect to our poverty measure, which is contrary with previous literature that identifies a 'lesbian wage premium' over gay men (Waite, 2015). Furthermore, figure 14 demonstrates attenuation of income inequality across gay and lesbian couples from 2000-2018. However, because we could only determine gay individuals who are in relationships (a limitation of our analysis), further research could

examine this closer using data that include more detailed demographic information that captures all sexual minority identities and relationship statuses.

We urge the reader to interpret the Indigenous proxy with caution. The variable only captures persons who are registered First Nations and that either live or work on reserve, and it is not indicative of any personal characteristics that drive Indigenous persons closer to poverty. Rather, we see our findings with respect to this variable as additional evidence of the disparity in financial outcomes across Indigenous persons living on and off reserve. For example, Lamb (2013) finds that Indigenous persons relocating off reserve fare better economically, as compared to those do not. Given this, governments should consider increasing financial aid to Indigenous reserves and boost their economic development.

With respect to other limitations, we note that we would have liked to conduct our analysis over a longer period of time. However, due to the limitations of the data, not all variables of interest were available before 2000 and we chose to use that year as the starting point. We were also unable to include Northern Canadian regions due to inconsistencies across the geographic scope between the LFS and the LAD. Future research could build upon this analysis to include these understudied regions. Next, tax data do not include visible minority status, which would likely yield some interesting results across our economic regions of interest. We also cannot account for individual level predispositions that our data cannot account for. Further research could look at poverty measures by using the Census, which includes much more rich and detailed demographic information.[28] Lastly, we attempted to run a series of multilevel models instead of modelling the economic regions as fixed effects, but due to computation limitations, we ere unable to run them on our entire sample size (we opted for increased observations over the choice of model). Future research could employ different methods to income inequality analysis to determine consistent and inconsistent findings, and

[28] We attempted to calculate proportions of Visible Minorities in the Census confidential files across the last 20 years, but due to low cell counts we were unable to include estimates that resulted in any meaningful variation.

further strengthen our knowledge base on this topic. Lastly, future research could examine how the covid-19 pandemic impacted poverty long-term, specifically for minorities and individuals living in poverty.

4.5 Conclusion

This paper examined the rising income equality in Canada and decomposed it across several geographic, demographic, and mobility predictors. By fitting a shift-share regression across 65 self-contained labour markets in Canada, we were able to determine the factors associated with extreme poverty across our study period. We demonstrate through our analysis that income inequality in Canada is rising due to rising inequality across regions. We show that differences in both demographic composition and economic opportunity play significant roles in these regional differences. The research presented here can be used as a research base for further poverty and income inequality research, especially with regards to differences across regions in Canada. By researching this important topic, policy makers can be equipped to implement better measures to counteract income inequality and improve the lives of persons living in the bottom deciles of the income distribution. As Wilkinson & Pickett (2011) demonstrate through their analysis of 23 countries, income inequality significantly contributes to worse health outcomes, higher crime and poverty rates, prevents upward social mobility, and decreased life expectancy. Narrowing the income gap in Canada will certainly be a long and arduous process, but one that is necessary to improve the lives of millions of Canadians and creating a more prosperous Canada.

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5 Conclusion & Future Research

This dissertation attempted to provide updated and novel analyses on social assistance (SA) and poverty in Canada, with special attention paid to geographic divisions. The first analysis (Chapter 2) provides an updated picture of SA reliance across demographic groups and provinces. Further, it incorporates a largely understudies population, the working poor. The findings of the first analysis provide additional evidence of the shifting SA caseload with respect to gender, as we did not find any meaningful difference between men and women regarding SA receipt. Furthermore, we find interesting provincial trends, where Quebec's special case of SA indicates lower probabilities of SA reliance. The addition of educational variables in this first analysis are a novel contribution to studying SA (at least quantitatively) in Canada. Future research could examine educational pathways of SA recipients longitudinally to determine whether there are any significant discrepancies or causal implications of SA reliance and levels of education.

The second analysis (Chapter 3) examined how the degree to which SA recipients can move off SA and into the workforce. We find that there is significant variation across industries, and that unionization and higher SA benefit levels are just a few social policies that are conducive to successful reintegration into the labour force. In contrast to the first analysis and consistent with the third analysis, we see that gender still matters when examining labour market trends. To counteract the continuing gender divide and to influence stronger policy measures, future research could examine deeper what factors contribute to increased and decreased employment success of SA recipients.

The last analysis (Chapter 4) took a slightly different approach, as we looked at a more holistic picture of poverty across Canada. We find that income inequality continues to rise, and we argue the importance of examining these trends across economic regions. Our analysis also argues for increased transfers, and that mobility plays an important role in the financial situation of Canadians. Further, we found that there is a slight attenuation of poverty rates for gay couples when comparing poverty in 2000 with 2018. Future research could look poverty in Canada across visible minorities and more detailed sexual minority statuses and complete an analysis pre- and post-Covid-19 to determine any

(potentially causal) links between income inequality and unforeseen economic fluctuations across demographic groups. Lastly, all the recommended future research could be applied to Northern Canada, as this region is widely understudied. Due to the data limitations, we were not able to expand our geographic area to these northern regions, despite efforts to do so.

Taken together, the work provided in this dissertation largely argues for the increase of transfer payments and targeted social policies to alleviate the strain on those living in impoverished conditions. Although this is not a novel perspective, the analyses here provide additional evidence for increased transfers. Future research could focus more on transfers and explore whether a universal basic income model is financially feasible to implement. Providing Canadians with the necessary supports to life themselves out of poverty are necessary to ensure a more equitable and prosperous Canada.

Curriculum Vitae

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Hillman, E. (2021). Longitudinal Analysis of Employment Success Rates of Ontario Income Assistance Clients: An Analysis by Region. Journal of Poverty, 25(4), 361-385. Doi: 10.1080/10875549.2020.1840484

Haan, M., Yu, Z., & Draghici, E. (2021). Household Formation in Canada and the United States: Insights into Differences by Race, Ethnicity, Immigrant Populations, and Country. Housing Policy Debate, 1-22. Doi: https://doi.org/10.1080/10511482.2021.1950802

Draghici, E., Holm, A., & Haan, M. (Accepted). Employment Success Rates of Social Assistance Clients: A Provincial Analysis by Industry. *Canadian Review of Sociology*

Draghici, E., & M. Haan. (In Preparation). Life after Layoff: The Migratory Behaviour of Recently Displaced Workers.

Draghici, E., Haan, M., & Holm, A. (In Preparation). Poverty in Canada: A Decomposition of Regional Income Inequality Trends

Draghici, E., & Holm, A. (In Preparation). Social Assistance Trends & the Working Poor: Evidence from the Canadian Income Survey

Conference Presentations

Draghici, E. (Presented). Longitudinal Analysis of Employment Success Rates of Ontario Social Assistance Clients: An Analysis by Region. *Sociology Graduate Student Conference*, Western University. London, Canada. March 6, 2020.

Draghici, E. (Presented). Longitudinal Analysis of Employment Success Rates of Ontario Social Assistance Clients: An Analysis by Region. *Canadian Population Society*, Inequality Across the Life Course. Virtual Conference. June 2021.

Draghici, E & Holm, A. (Presented). Social Assistance Across Canada: Evidence from the Canadian Income Survey. Congress: *Canadian Population Society*, Policy & Inequality. Virtual Conference. June 2021

Haan, M., Lu, Y., Cardoso, M. & Draghici, E. (Presented). Life after Layoff: The Migratory Behaviour of Recently Displaced Workers. Congress: *Canadian Population Society*, Immigration & Migration. Virtual Conference. June 2021

Awards & Grants

Canadian Research Data Centre Network Emerging Scholars Award December 2021

Ontario Council for Articulation & Transfers (ONCAT) June 2021- August 2022
With Dr. Michael Haan (PI), Dr. Wolfgang Lehmann & Taylor Paul

Mitacs Research Training Award September 2020 - December 2020

Western Graduate Research Scholarship September 2019 - August 2023
The University of Western Ontario

MPA Graduate Scholarship September 2018 - April 2019
The University of Western Ontario

Pacific Leader's Scholarship September 2015
Government of British Columbia

Professional Experience

Analyst
Statistics Canada July 2022-Ongoing

Research Assistant May 2021-August 2022
Ontario Council for Articulation & Transfers (ONCAT)

Research Assistant April 2021-February 2022
Higher Education Strategy Associates

Graduate Teaching Assistant May 2020- May 2022
Department of Sociology, University of Western Ontario

Graduate Student Assistant September 2019- May 2020
Pathways to Prosperity, University of Western Ontario

Case Coordinator August 2017- July 2018
Surface Rights Board, Ministry of Municipal Affairs, Government of Alberta

Case Review Officer January 2016- November 2016
Ministry of Jobs, Tourism and Skills Training and Responsible for Labour, Government of British Columbia

Intraday Quality Assurance November 2015- January 2016
Ministry of Social Development & Poverty Reduction, Government of British Columbia

Employment & Assistance Worker October 2013- November 2015
Ministry of Social Development & Social Innovation, Government of British Columbia

House Supervisor December 2012- October 2013
Westcoast Genesis Society- Maria Keary Cottage

Residential Support Worker September 2012- May 2013
Ellendale Program Elizabeth Fry Society

Community Support Worker January 2008 to September 2008
Phoenix House Community Residential Facility

Service & Leadership Experience

Case Competition Judge March 2022
UNICEF Western, International Policy Case Competition: Vaccine Equity in Ethiopia

Case Competition Judge March 2021
UNICEF Western, International Policy Case Competition: South Sudan Humanitarian Crisis

Peer Reviewer September 2019- September 2022
Journal of Social Thought, University of Western Ontario

Research Assistant September 2012 to June 2013
Kwantlen Polytechnic University, Department of Counseling Psychology

Youth Group Coordinator/Office Support Worker April 2012- March 2013
Adoptive Families Association of BC

Maida Duncan Drop-in Support Volunteer March 2012 to September 2012
Elizabeth Fry Society
