Université de Montréal

The Distributive Effects of Trade Unionism: A Look at Income Inequality and Redistribution in Canada's Provinces

par Phillippe J. Scrimger

École de Relations Industrielles
Faculté des études supérieures et postdoctorales

Thèse présentée en vue de l'obtention du grade de
Ph.D. en relations industrielles

September 2018

Résumé

Dans un contexte de déclin de la justice distributive, cette thèse tente de répondre à cette question fondamentale : est-ce que les syndicats rendent les sociétés plus égalitaires ? Elle tente de comprendre comment, malgré un environnement de plus en plus hostile, les syndicats peuvent demeurer un contre-pouvoir aux forces du capital et promouvoir l'égalité et la solidarité dans la distribution des ressources économiques. Les réponses à cette problématique sont fournies par une évaluation de la relation entre différentes dimensions du pouvoir syndical, de l'inégalité des revenus et de la redistribution des revenus dans les provinces canadiennes lors des dernières décennies. Aussi, cette thèse examine si différentes compositions du membership conditionnent l'impact distributif des syndicats.

Cette enquête mobilise un cadre original combinant des théories provenant de différentes perspectives. La théorie des ressources de pouvoir – qui postule que les conséquences en termes de distribution sont le reflet de la balance des pouvoirs entre le travail et le capital – fait figure de cadre de référence principal. À ce cadre sont ajoutées plusieurs extensions théoriques telles que les sources endogènes du pouvoir syndical, la conceptualisation de ressources de pouvoir du capital et la composition des revenus des membres syndicaux. L'argument de la composition du membership, qui est la principale addition à la théorie dominante mobilisée, est construit par l'intégration des théories économiques et du choix rationnel des préférences de redistribution. Cet argument soutient que les effets égalitaires des syndicats doivent être modérés en fonction des profils des revenus des membres.

Le cadre méthodologique de cette recherche est construit à partir d'une analyse quantitative des données provinciales canadiennes au niveau macro sur différentes périodes, celles-ci s'étalant

du début de la décennie 1980 au début de la décennie 2010. Ce design sous-national, en plus de fournir un laboratoire unique pour l'étude comparative du syndicalisme et du capitalisme, offre un échantillon dans lequel les variables clés peuvent être plus facilement isolées et étudiées. S'inspirant de récentes avancées méthodologiques, le cœur de la stratégie analytique de cette thèse repose sur une analyse multi-niveaux de données de séries temporelles et transversales utilisant des modèles à effets aléatoires. Cette stratégie nous permet d'utiliser une analyse simultanée de prédicteurs censés affecter les conséquences distributives différemment à travers le temps. Ceci ouvre aussi la possibilité pour une évaluation substantive des prédicteurs présentant une faible variabilité telles que les variables syndicales et politiques.

Malgré des changements importants dans l'économie politique des provinces canadiennes, nos résultats soutiennent que l'impact distributif du syndicalisme lors des dernières décennies doit être envisagé comme étant égalitaire, mais de façon modérée. Ces effets sont modérés puisque les syndicats réduisent les inégalités et favorisent la redistribution seulement parmi les tranches moyennes et supérieures des segments de la distribution. Cet impact ciblé est lié aux profils des revenus des individus syndiqués. En ventilant la composition des revenus du membership, nous démontrons que les membres sont disproportionnellement localisés dans ces segments où les effets égalitaires des syndicats sont les plus significatifs. Ces résultats suggèrent que la solidarité syndicale est ancrée en fonction des limites des revenus de la population syndiquée. Ils démontrent aussi que la mesure traditionnelle du pouvoir syndical dérivant de la perspective du « pouvoir du nombre » offre une évaluation incomplète de l'influence syndicale. Lorsque l'évaluation du pouvoir syndical est limité à la densité syndicale, une majeure partie de l'impact distributif de cet acteur demeure inaperçue.

Mots-clés : Syndicalisme, Composition du Membership, Théorie des Ressources de Pouvoir, Inégalité, Redistribution

Abstract

In a context of declining distributive justice, this thesis sets out to answer a fundamental question: Do trade unions shape more equal societies? It aims to investigate whether, despite an increasingly hostile environment, trade unions still act as a countervailing power to the forces of capital, promoting equality and solidarity in the distribution of economic resources. Answers are provided through an assessment of the relationship between various dimensions of trade union power, market income inequality, and income redistribution in Canada's provinces over the last few decades. The thesis also examines whether various patterns of membership composition condition the distributive impacts of trade unions.

The investigation is set in an original framework combining theories from many perspectives. Power resources theory, which posits that distributive outcomes reflect the balance of power between labour and capital, acts as the main frame of reference. This main frame is complemented by theoretical extensions relative to endogenous sources of union power, the conceptualization of capital power resources, and the income composition trade union members. The membership composition argument – suggesting that the egalitarian effect of trade unions is moderated by the income profile of members – is the most extensive addition to the dominant theory and is built from an integration of economic theory and rational-choice theories of preferences for redistribution.

The research design consists of a quantitative analysis of provincial macro-level data from Canada's provinces over different periods ranging from the early 1980s to the early 2010s. The subnational design, beyond providing a rare laboratory for the study of comparative trade unionism and capitalism, offers a sample in which key relationships can be arguably more easily isolated and studied. Drawing from recent methodological advancements, the bulk of the analytical strategy

relies on multilevel analyses of time-series-cross-sectional data using random effect models. This strategy allows for the simultaneous analysis of predictors expected to affect distributive outcomes differently over time. It also opens up possibilities for a substantive evaluation of slow moving trade union and political variables.

Despite great changes to the political economy of the provinces over the period analyzed, research results suggest that the distributive impact of trade unionism over the last few decades should be understood as egalitarian, but moderate. The effect is moderate as trade unions appear to reduce inequality and favour redistribution only within the middle and upper income segments of the distribution. This targeted impact was found to have much to do with the income profile of unionized individuals. Unpacking the income composition of membership shows that members are disproportionally located in those income segments where the egalitarian impact of unions is significant, suggesting that union solidarity is bounded within the income limits of the unionized population. The results also show that traditional measures of trade union power derived from a "power-in-numbers" perspective offer an incomplete assessment of union influence. When the evaluation of union power is limited to density levels, much of trade unionism's distributive impact goes unnoticed.

Key words: Trade Unionism, Membership Composition, Power Resources Theory, Inequality, Redistribution

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List of Main Abbreviations

ADL   Autoregressive Distributed Lag
AR1   First-Order Auto-Regressive
CALURA Corporations and Labour Unions Returns Act
CANSIM Canadian socioeconomic Information Management System
CIS   Candian Income Survey
CME   Coordinated Market Economy
CPA   Capital Power Resource
EC   Error Correction
FDL   Finite Distributed Lag
FEM   Fixed Effects Model
FEVD   Fixed Effect Vector Decomposition
HS   Household Surveys
LDV   Lagged Dependent Variable
LFS   Labour Force Survey
LPR   Labour power resource
LME   Liberal Market Economy
LMAS   Labour Market Activities Survey
LRI   Labour Relations Index
LRM   Long-Run Multiplier
ICT   Information and Communication Technology
ILO   International Labour Organization
OECD   Organisation for Economic Co-operation and Development
OLS   Ordinary Least Squares
PA   Partial Adjustment
PCSEs   Calculate panel-corrected standard errors
PRT   Power Resource Theory
RCM   Random Coefficient Model
R&D   Research and Development
REM   Random Effect Model
RIM   Random Intercept Model
SBTC   Skill-Biased Technological Change
SC   Serially Correlated
SCF   Survey of Consumer Finances
SLID   Survey of Labour and Income Dynamics
SUM   Survey of Union Membership

SWH	Survey of Work History
TPP	Trans-Pacific Partnership
TSCS	Time-Series-Cross-Sectional
TSM	Technology-selection Model

Acknowledgements

It takes a village to finish a PhD. My deepest thanks go to:

My supervisor, Gregor Murray, for his commitment to the quality of this thesis. Gregor's dedication to his students' academic experience is unparalleled. In addition, his ability to provide tailored guidance and opportunities to his students while spending most of his life 30,000 feet above ground is simply fascinating.

My thesis committee, Brahim Boudarbat and Ian MacDonald, for agreeing to meet systematically and provide thorough feedback over the last two years. A PhD student could not ask for a more talented and supportive committee.

The academic community at Université de Montréal's School of Industrial Relations. I would like to thank the school's professors for providing me with an impressively rich academic experience. I am particularly grateful to Jean-Michel Cousineau for mentoring me in my teaching and to Patrice Jalette for his devotion to the PhD program. To all the administrators, especially Cristina Piccoli, I am thankful for your patience and kindness. I would also like to reserve special thanks to Sean O'Brady and my other student colleagues for their friendship and support.

The community at the Interuniversity Research Centre on Globalization and Work (CRIMT), whose support has proven invaluable in helping me obtain specialized training at the University of Michigan and the European Trade Union Institute.

To my friends everywhere else for their encouragement and simply being there.

To my family – Danielle, Thomas, Michèle, Pierre-Yves, Zoë, and Clémence – for their understanding. This entire achievement would have been impossible without you.

To my loving partner Anita for going through the daily grind with me. This achievement is ours.

Introduction

As inequality is increasing everywhere (Heisz, 2016; ILO, 2015; OECD, 2011), the effectiveness of redistribution through progressive taxation and social protection is declining (Banting and Miles, 2016; Causa and Hermansen, 2017). Parallel to these developments is the secular decline of trade unions, at least in relative terms, observed across advanced economies (Pinto and Beckfield, 2011). While the golden age of trade unionism coincided with the "Great Compression" – a period from the 1940s to the 1970s of drastic inequality reduction (Goldin and Margo, 1992) – there is some evidence that the egalitarian effect of unions has faded in the last few decades (Baccaro, 2011; Pontusson, 2013). Beyond the limitations imposed by an institution in crisis, trade unions now operate in an increasingly difficult environment. Declining economic growth, globalization, financialization, fiscal austerity, and the rise of pro-capital right-wing coalitions have rendered trade unions ineffective (Jacobs and Myers, 2014; Peters, 2011; 2012; Streeck, 2014a; 2014b; 2016) and left many workers in more precarious and insecure work (Cranford, Vosko and Zukewich, 2003; Dufour et al., 2010; Fudge, 2017; Stone and Arthurs, 2014). These features of the new political economy have impacted workers differently. As the loss of status and of economic resources is uneven, labour stands divided and more barriers to the creation of broad solidarities are erected. Meanwhile, the ability to promote more equal societies has become a primary criterion by which to measure the quality of trade unionism as inflation has been replaced by increasing economic injustice as the dominant issue facing post-Keynesian economies (Crouch, 2017).

It is in this context that this thesis sets out to explore the modern distributive effects of trade unionism. The framing question is simple: do unions shape more equal societies? Specifically, the study aims to evaluate how different levels of trade union power and varying patterns of union

membership composition effect market income inequality and income redistribution. These relationships are studied through a framework combining insight from power resources theory (Kelly, 2008; Korpi, 2006), economics (Card, Lemieux and Riddell, 2004; Fortin, Green and Lemieux, 2012; Freeman, 1980; Freeman and Medoff, 1984), and retional-choice theories of redistributive preferences (Alt and Iversen, 2017; Becher and Pontusson; Meltzer and Richard, 1981; Rueda, 2018). Empirically, the thesis proposes a quantitative investigation of Canada's provinces from the 1980s onward. The main analytical strategy consists of the multilevel analyses of time-series cross-sectional (TSCS) provincial-level data.

The thesis is divided into eight chapters. The first sets out the research problem and works towards specifying the object of research. The first parts of this chapter situates the current state of trade unionism by discussing trends in the literature, changes in the political economy, and union decline and its causes. The chapter continues with an overview of recent empirical literature on the socioeconomic effects of trade unionism. From this overview, the research objectives and questions are specified. The chapter ends with a discussion on research design, arguing why Canada's provinces provide an appropriate laboratory for the study.

The second chapter specifies the research object by defining the main concepts: economic inequality, economic redistribution, and trade unionism. This is followed by the construction of the conceptual framework, which is built through an analysis of multiple theories hypothesizing the nature of trade unions' distributive impact: power resources theory, economic theory, rational-theories of preferences for redistribution, and theories that speak to the endogenous sources of union power. The chapter ends by specifying a set of working hypotheses.

The third chapter operationalizes the conceptual framework set out in Chapter 2 into usable variables for the empirical portion of the thesis. For each variable, different operationalization strategies are compared and decisions are justified. The chapter also specifies the data source for each measure.

The fourth chapter provides an overview of the analytical approach. It starts by defining time-

series-cross-sectional data, and discussing its advantages and disadvantages. This is followed by an overview of TSCS modelling approaches. The chapter ends with the selection of a modelling approach for the empirical analysis.

Research results are analyzed in the presentation of three separate articles. The first article (Chapter 5) looks at the relationship between labour power resources (different forms of trade union power and social-democratic party incumbency) and market income inequality. It also compares the predictive value of labour power resources to that of capital power resources (globalization and financialization). The second article (Chapter 6) evaluates the impact of trade unionism on income redistribution. It also considers how the income profile of members conditions the way trade unions engage in the politics of income redistribution. The third article (Chapter 7) bridges the first two through a more in-depth study of trade union income composition and its effects on both market income inequality and redistribution.

Chapter 8 provides an integrated discussion of the main research findings. First, it overviews the articles' main findings and offers an overall assessment of the distributive impact of trade unions in Canada's provinces over the period studied. Second, these results are relativized by discussing broad inequality-increasing changes to the political economy and pointing out challenges to trade unionism in this context. The chapter ends by considering unions' future distributive impacts and strategies.

The conclusion provides a summary of the research and its contributions. It also discusses research limitations, implications for future research, and practical considerations for trade unions and policymakers.

Chapter 1

The Research Problem: Trade Unionism and Distributive Justice in Decline

1.1 Introduction

Do trade unions shape more equal societies? Such is the framing question of this thesis. This chapter aims to contextualize this general question in order to set out a more specific inquiry through the remainder of thesis. By doing so, it explores some of the underlying causes to the changing of nature of trade unions' distributive impact. This allows for a more informed appreciation of recent empirical evidence on the egalitarian effect of trade unionism.

The chapter is divided as follows. It starts by situating the study of trade unionism's distributive impact in its broader academic and socioeconomic context. This is followed by more contextualization through a discussion of the golden age of unionism, the decline of unionization internationally and provincially, and its causes. The chapter continues with an overview of the literature on the broad socioeconomic effects of trade unionism in an era of union decline and neoliberalism. It ends by outlining the thesis objective, specifying the research question, and discussing the choice of Canada's provinces as a laboratory for exploring this question.

1.2 Contextualizing the study trade unionism

1.2.1 The academic context: from "What do unions do?" to "What unions no longer do"

More than thirty years ago, in their well-known book *What do unions do?*, Richard Freeman and James Medoff (1984) argued that the net effect of unionism on the American economy was positive. They provided empirical proof that the beneficial impact of the "collective voice" and "institutional response" provided by unions – what they called the "positive face" of unionism – outweighed the negative effect of the monopolistic nature of union representation. From these empirical findings they concluded that "[o]n balance, unionization appears to improve rather than harm the social and economic system" (p. 19).

Thirty years later, sociologist Jake Rosenfeld (2014) published *What unions no longer do*, a book that examines the socioeconomic consequences of union decline in the United States. Rosenfeld shows that the weakening of American unions has eroded the capacity of the labour movement to mobilize a collective voice to fight economic injustices of many forms. In the same year, noticing the erosion of unionism – notably by pointing out that unionization rates in the United States have recently declined to levels similar to what they were in the years immediately preceding the Great Depression – Freeman (2014) published *What can labour organizations do for U.S. workers when unions can't do what unions used to do?*, a study exposing the emergence of new types of collective representation for workers and new roles for labour unionism outside the bounds of collective bargaining.

In only three decades, the study of the socioeconomic impact of unionism has moved from a scientific program seeking to understand the role and effects of a central actor in the political economy to questioning the very existence of unionism as a social and economic institution. Between *What do unions do?* and *What unions no longer do* emerged an extensive literature on the causes of union decline and strategies for its eventual renewal. In fact, the majority of scientific effort on the subject of collective labour relations has focused on the determinants of deunionization and

on ways to reverse this downward trend. Rosenfeld (2014) argues that while this focus is well justified, the consequences of union decline consist of an equally important field of research:

> "The importance of Big labour to the polity and economy in the mid-twentieth century helped launch a rich and extensive literature investigating the causes of labour's decline. No comparable effort exists to explain the broad consequences of labour's loss in the United States" (p. 2).

He adds that "The causes of this transformation [deunionization] have been thoroughly discussed and debated, both within the academy and among nation's press and opinion leaders. It is time we explore the consequences" (p. 30). Integrating this promising area of research, this thesis aims to explore the broad distributive consequences of trade unionism in an era of decline and neoliberal hegemony.

1.2.2   The political economy context: neoliberalism

The "tone" of the scholarship on trade unionism shifted with changes to the political economy. These changes started with declining growth in the 1970s, which set off a search for a strategy to recapture capital accumulation (Streeck, 2014b). The answer was neoliberalism and its many features – commercial and financial market liberalization, labour market flexibilization, welfare state retrenchment, and fiscal austerity – which have disrupted the balance of power in capitalist democracies and reshaped distributive outcomes.

In the era of neoliberalism, increases in productivity no longer equate with increases in real wages, labour's share of national income has decreased, and economic inequality of all kinds are intensifying (ILO, 2015). Workers face increasing levels of precariousness, insecurity, and risk on the labour market as the standard employment relationship erodes (Cranford, Vosko and Zukewich, 2003; Dufour et al., 2010; Fudge, 2017; Stone and Arthurs, 2014) and trade unions decline (Peters, 2011; Pinto and Beckfield, 2011). The unwaged and vulnerable are increasingly marginalized by governments engaged in tax competition to attract mobile capital and fiscal austerity to satisfy creditors (Peters, 2012; Streeck, 2014a). Meanwhile, elites have enjoyed considerable income and

wealth growth in this new economic configuration (Piketty and Saez, 2009; Piketty and Saez, 2014; Saez, 2005).

It is in this context that unions now operate, conditions which must be kept in mind as unionism's contribution to welfare as an inequality-reducing force in modern capitalist democracies is evaluated throughout this thesis. As these conditions tilt the balance of power evermore in favour capital owners and employers, it is perhaps not surprising that unions no longer do what they used to do.

1.3 The golden age of trade unionism and its consequences

The golden age of unionism coincides with the three decades following the Second World War. It started with the emergence of a consumer society, supported by exceptional economic prosperity, significant productivity gains, and wage growth. In addition to strong economic growth, the well-being of workers was increased by Keynesian economic policies that stimulated overall demand via social programs that insured the purchasing power of individuals, by labour union militancy, and by the enactment of minimum labour standards and union-friendly legislation that favoured high levels of unionization. Over this period in Canada, workers' wages doubled, their working hours were reduced, and they gained access to numerous other social benefits (Rouillard et Rouillard, 2015).

The golden age of unionism also intersects the golden era of industrial citizenship in Canada, a moment of important expansion of individual and collective labour rights (Arthurs, 1967). From the 1960s to the 1970s, collective labour rights were strengthened in the private sector and extended to the public sector, discrimination at work became constitutionally prohibited, minimum labour standards and legislation relating to health and safety were expanded, and social rights related to medical care and pensions were reinforced (Fudge, 2010). This golden era of industrial citizenship was built on three pillars: (i) a traditional conception of the male breadwinner in a standard

employment relationship, (ii) a commitment to social rights attenuating the most aberrant class dynamics, and (iii) a sovereign state of Keynesian nature (Fudge, 2010).

Finally, the golden age of unionism also coincides with the "Great Compression", a historical period ranging from the 1940s to the 1970s when economic inequality was drastically reduced in most industrialized countries (Goldin and Margo, 1992). In addition to the levelling effect of the devastation of capital investments induced by the the Great Depression and the two World Wars, and the equalizing effect of the strong economic growth of the post-war decades (Piketty, 2013), many scholars (Atkinson, 2015; Krugman, 2009; Reich, 2015) suggest that the counter-power to capital provided by unionism and unions' role in the development of progressive public policy played in important role in reducing income and wealth disparities.

The heyday of unionism therefore coincided with shared and equitable economic growth, an expansion of rights and working conditions conferred by citizenship at work, and a more equal distribution of economic resources. However, starting in the late 1970s and early 1980s, something changed. From this moment on, organized labour movements across advanced capitalist democracies fell into crisis. Union decline, its causes, and its consequences are discussed in the following parts of this chapter.

1.4 Trends in unionization: persistent diversity and shared decline

Nobel prize winning economist Joseph Stiglitz (2012) argues that union decline represents the most important societal transformation witnessed in the United States in the last few decades. While acknowledging the importance of structural shifts in the economy, he explains that "the most obvious societal change is the decline of unions, from 20.1 percent of wage- and salary-earning U.S. workers in 1980 to 11.9 percent in 2010" (p. 64) of which the main consequences have been the creation of an "imbalance of economic power and a political vacuum" (p. 64).

The sheer magnitude of union decline in the United States makes the American case unique, but deunionization is an international phenomenon. However, while decline is generalized, variability between nation persists. As for Canada, a subnational investigation of unionization rates also shows general decline, but with persistent diversity across provinces.

1.4.1 Unionization: international trends

Figures 1.1 through 1.3 show unionization trends[1] across a range of OECD countries, including Canada. For the sake of convenience, national trends presented in the figures are grouped according to a varieties of capitalism (Hall and Soskice, 2001) inspired typology. This way of grouping countries is also used in Pinto and Beckfield (2011) and was originally proposed by Pontusson (2005). As with the varieties of capitalism framework, countries are grouped by association to liberal market economies (LME), in which firm activities are primarily coordinated by competitive market arrangements, and coordinated market economies (CME), where firms coordinate their activities using non-market relations. However, a distinction is made between Continental CMEs and Nordic CMEs not only on the basis of the important differences in unionization levels between these two groups, but also on account of the different nature by which social security benefits are allocated within these two categories. Where Continental CMEs typically have contributory insurance mechanisms established and stratified by occupations, Nordic CMEs typically resort to a universal provision of social benefits based on a concept of "social citizenship". Again, this typology is used for convenience. As Pontusson points out, "we should not think of typologies as being right or wrong. Rather, we should think of them as heuristic devices – ways of organizing information – that may be more or less useful" (2005: p. 17).

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[1]Unionization trends shown in this section were compiled using OECD data. The OECD defines unionization as the ratio of wage and salary earners that are trade union members, divided by the total number of wage and salary earners.

Figure 1.1: Unionization trends in nordic CMEs
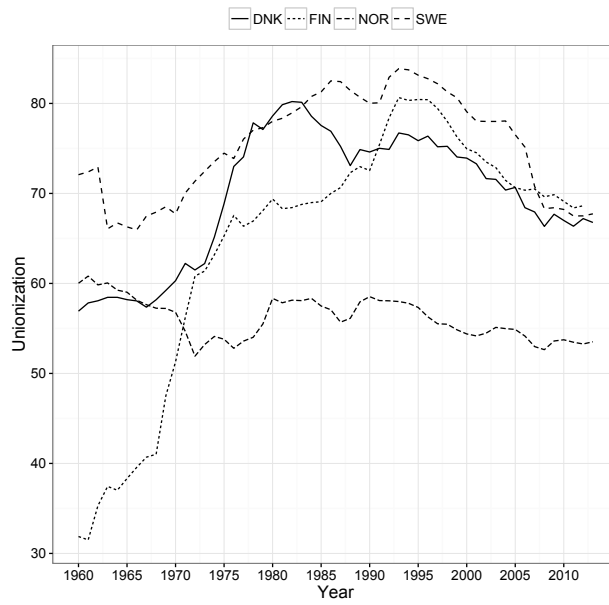
Figure 1.2: Unionization trends in continental CMEs
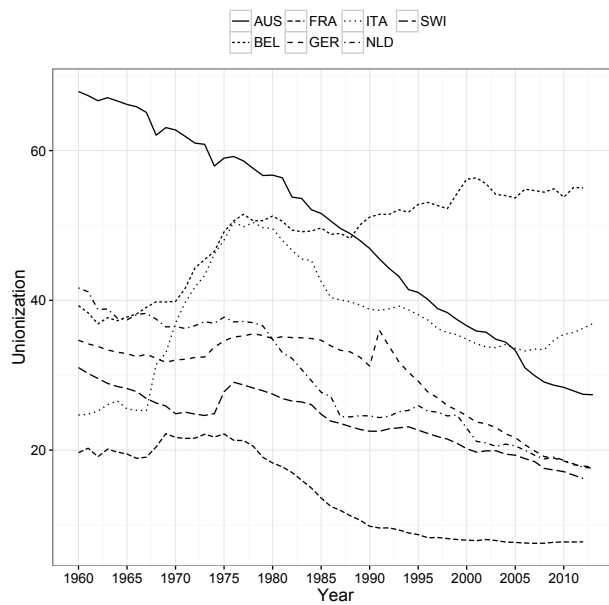
Figure 1.3: Unionization trends in LMEs
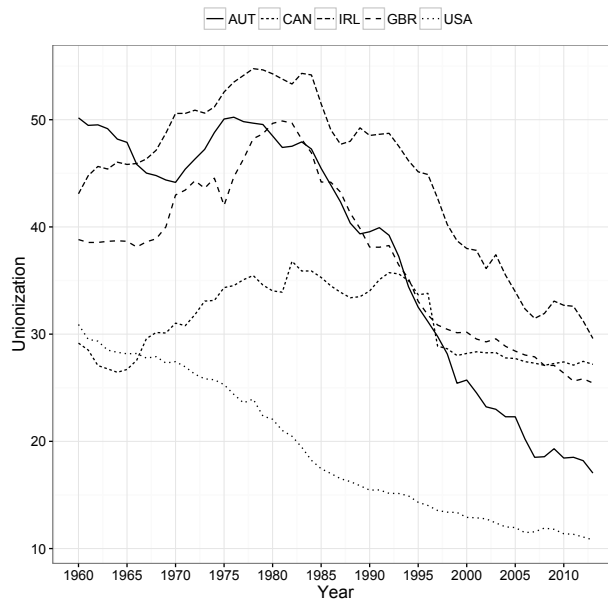
Source: OECD.

Comparing Figures 1.1, 1.2 and 1.3 show important differences between groups. Unionization rates are relatively high in Nordic CMEs, low in LMEs, and typically somewhere in between in Continental CMEs. While union decline generally started in the late 1970s and 1980s in LMEs and Continental CMEs, deunionization commenced a little later in Nordic CMEs, starting around the mid-1990s. One notable exception to the deunionization trend is Belgium, where union density appears to have progressively increased throughout the period shown in Figure 1.2.

As for Canada, Figure 1.3 shows that its case is unique among LMEs, as it is the only country whose recent unionization levels are similar to what they were at the beginning of the examined period.

The particularity of the Canadian case is further exemplified by contrasting it with the United States. Unlike the relative stability of unionization in Canada, unionization rates have declined by 20.08 percentage points between 1960 and 2013 in the US. This dissimilarity is staggering considering the geopolitical proximity and economic integration of the two countries (Belanger et al., 2013). Even more surprising is the fact that both regions have undergone the same structural changes (growth from the services sector in total employment), they show comparable approval

rates for unionism, and similar labour frameworks governing labour relations. Eidlin (2015) argues that differences in union political incorporation and state diagnosis of the "labour problem" can explain, at least in part, the divergence in trends between these two countries.That being said, after a peak in the early 1980s, Figure 1.3 suggests that unionization rates have generally declined in Canada. Most of this decline took place in the private sector, particularly in male-dominated goods-producing industries (Galarneau and Sohn, 2013; Legree, Schirle and Skuterud, 2014).

Even if the time period covered by the three figures above is slightly longer than the one studied in Pinto and Beckfield (2011), the same broad conclusion holds: there appears to be persistent diversity across countries, but shared decline through time. Pinto and Beckfield suggest that the over-time effect (shared decline) constitutes the dominant dimension of change in unionization trends. However, they describe the over-time trend as a common shift and not as a tendency towards international convergence. They argue that whether one emphasizes "persistent diversity" or "shared decline" is a matter of one's object of research. Analysts highlighting decline focus on the erosion of collective bargaining institutions caused by neoliberalism and structural changes to the economy; those who highlight diversity emphasize the comparatively high level of trade power in coordinated versus liberal market economies.

Overall, these international trends set the broader context for a Canadian subnational study of trade unionism. The analysis now turns to examining whether these trends reflect developments in the provinces.

1.4.2 Unionization: provincial trends in Canada

Figure 1.4 through 1.6 show unionization rates in Canadian provinces starting in mid-1970s. The data used to generate these figures was taken from Legree, Schirle and Skuterud (2014). This dataset is for the most part derived from the Corporations and Labour Unions Returns Act (CALURA) and the Labour Force Survey (LFS).[2] Figure 1.4, 1.5, and 1.6 show generalized union

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[2]It should be noted that large dips that appear between 1995 and 1997 in most of the time-series presented in figures 1.4 to 1.6 coincide with Statistics Canada's move from CALURA to LFS for unionization rate estimates. One of the biggest differences between these two data sources is that union membership in the CALURA era was self-reported

decline starting in the early 1990s, with the exception of British-Columbia, where deunioniza-
tion started earlier. The largest declines are observed in New-Brunswick, British-Colombia and
Alberta. Even if the downward over-time trend seems quite evident, especially in more recent
decades, there remains noticeable diversity across Canadian regions. Moreover, there are two ex-
ceptions to general decline: Saskatchewan and Prince Edward Island, where union density seems
to have followed an upward trend during most of the observed period.

Figure 1.4: Unionization trends in the eastern
provinces

Source: Legree, Schirle and Skuterud (2014).

by unions. This changed when the LFS came into effect. For more information on the implications of this switch see
Galarneau and Sohn (2013) as well as Legree, Schirle and Skuterud (2014).

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Figure 1.5: Unionization trends in Quebec, Ontario and British-Colombia
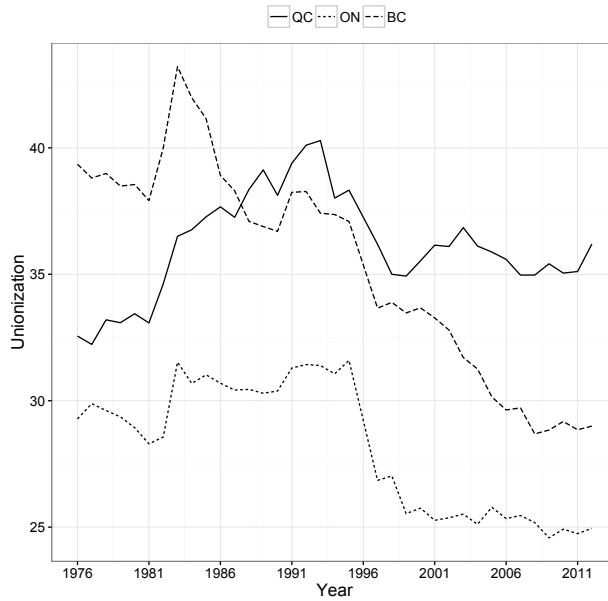
Source: Legree, Schirle and Skuterud (2014).

Figure 1.6: Unionization trends in the Prairie provinces
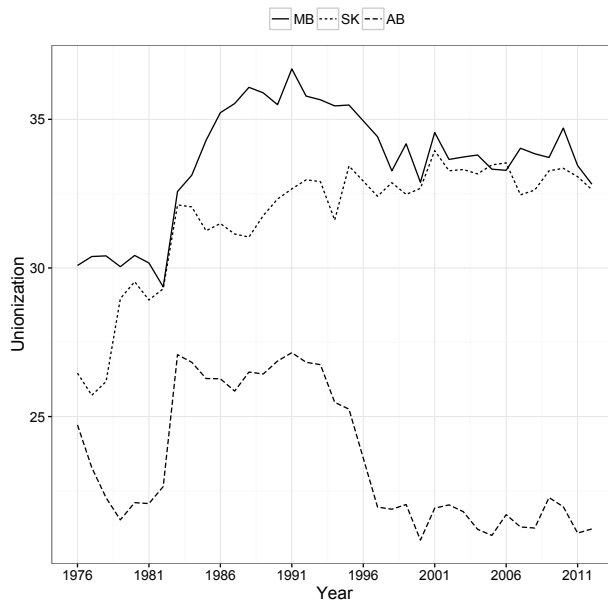
Source: Legree, Schirle and Skuterud (2014).

Haddow and Klassen argue that these different patterns in unionization can be explained by the

differing effect of political partisanship on the nature of labour institutions of each province. By doing so, they emphasize the "persistent diversity" component of unionization trends. In contrast, working from the "shared decline" perspective, Graefe (2015) maintains that the institutionalist approach used by Haddow and Klassen relies exclusively on an analysis of links between "surface" institutions that underestimates the structural similarities between certain provinces.

Whether differences or similarities represent the most important dimension of unionization trends in the provinces is an interesting question. However, it is fair to say that unions have generally been on the decline over the last few decades, which suggests that their role and impact in the political economy has also changed. Before turning to discussing the socioeconomic impacts of trade unionism in a context of decline, the causes of the crisis are examined.

1.5   Causes of trade union decline

The causes of union decline are multiple and complex. A consensus seems to exist on the fact that the drivers of deunionization are both exogenous and endogenous to the union movement (Bryson, Eddinghaus and Visser, 2011; Kochan, 2012).

Within the exogenous explanations, structural change to the economy is by far the most commonly used narrative to explain unionization trends. The argument goes as follows. The bulk of economic output in advanced economies has moved from highly unionized goods-producing sectors (especially the manufacturing sector) to a lightly unionized service industry. This move being explained in part by increased international competition due to globalization and major technological changes, which have reduced the demand for low skilled workers (Kochan, 2012). The structural changes caused financialization – the process through which financial markets and financial institutions have more and more influence on economic and social policy (Palley, 2007; Sweeney, 2013) – has also been shown to reduce union power as "the shareholder society" has put the interests of capital above those of workers (Darcillon, 2015; Peters, 2011; Vachon, Wallace and

Hyde, 2016). These structural changes have increased the need for flexibility and adaptability, engendering new models of work organization, which are not compatible with the codetermination of working conditions and have given rise to more precarious forms of work (Cranford, Vosko and Zukewich, 2003; Dufour et al., 2010; Fudge, 2017; Stone and Arthurs, 2014).

Another important contributing factor to union decline in the last few decades has been the open opposition and the confrontational attitude of business towards trade unionism (Freeman, 2004; Stanford, 2008). Management opposition takes two forms: union substitution and union suppression (Kochan, 2012). The first, union substitution, refers to the situation where employers offer above market wages and working conditions in order to avoid unionization. The second, union suppression, happens when employers express opposition to unionism via unfair labour practices or simply by illegal dismissals for union activities. No matter which strategy is used, the result is the same for unions: "[...]today it is employers, not workers, who determine whether workers who want a union will be able to get one" (Kochan, 2012: p. 304). MacDonald (2014) offers a set of examples of such employer strategies in North America, some of them extreme in their symbolism of violent coercion:

> "the rapid expansion since the 1970s of the 'union avoidance' industry (Logan 2006; Riddell 2001), or of the significant costs that corporations across North America are prepared to assume in closing recently unionized locations, in paying fines levied for unfair labour practices and in lobbying for anti-union legislation, not to mention the massive reallocation of capital entailed in the strategy of shifting production facilities to nonunion regions. Union repression efforts have run the gamut from the return of coercive methods – viz. the paramilitarization of strike suppression in the 1980s and 1990s in the USA, anti-union court injunctions and back-to-work legislation in Canada – to more sophisticated technologies of human resources management and industrial psychology, which engineer similar ends" (p. 731).

These forms of management opposition were made legitimate in part by declining union approval ratings from the general population (Freeman, 2005).

Each of the aforementioned exogenous explanations of union decline can be grouped under the wide banner of the neoliberalization of the economy and of politics. Symbolized at the time by the anti-union policies of Ronald Reagan in the United States and Margaret Thatcher Great Britain, this

neoliberal transition has had the effect of reducing union power by limiting its political resources (Jacobs and Myers, 2014). The negative impact of growing neoliberalism on unionism should not be seen as the passive retrenchment of government in the safe-guarding of labour market and employment relation institutions that were developed in the decades immediately following the Second World War. Rather, "states have become more preoccupied with, and interventionist in, the regulation of class relations institutions in order to facilitate a broad liberalization of work and employment relations institutions" (Howell, 2016: p. 574).

In addition to economic and political shifts, the occurrence of several socio-demographic changes such as the rise of diversity in the labour market (more women, visible minorities, youth, etc.) and the emergence of confronting value systems have also shaken the foundations of trade unionism, which has not adapted to serve a transformed labour force (Dufour et al., 2010).

Those who emphasize the endogenous factors behind deunionization argue that unions are themselves partial vectors of the exogenous determinants of their decline. Endogenous factors highlight the difficulties unions face in developing strategies for their renewal and adaptation to changes in the external environment. Levesque and Murray (2010) explain that the loss of capacity of trade unions stems from a misapprehension and an under-exploitation of their power resources and from problems relative to developing strategic skills to take advantage of these levers of power. Other authors mention that the representation crisis within trade unions is a major cause of its decline. In the same vein, Dufour and Hege (2010) argue that unions suffer from an internal crisis of legitimacy due to their inability to represent the different interests of a diverse workforce and to develop a common identity between members. By no longer having the ability to speak for the workforce collectively, unions have lost their macro-capacities to influence policy by mobilizing either protest or consent when facing government-led social and economic reforms (Culpepper and Regan, 2014). As they no longer represent a credible threat or problem-solving solution to policy reform, governments do not seek out the input of unions as they once did. Particularly in non-corporatist countries, unions have lost their place as "representatives of all those who depend

on working for a living" and "capable negotiating partners" (Culpepper and Regan, 2014: p. 728), becoming instead a voice for a few insiders or simply a narrow interest group like any other.

As for political strategies, unions' inability to propose a convincing progressive alternative to neoliberalism and to position themselves as a vehicle for radical social change has contributed to their loss of influence in the political economy (Gumbrell-McCormick and Hyman, 2013). Others have been more critical on the subject of union strategies in the neoliberal era, arguing that union leaders in North America have acted within the "strategic horizon defined by neoliberal capitalism" which has contributed to the reproduction of this ideological system and to the failures of unions themselves (MacDonald, 2014).

In sum, endogenous factors explaining the state of unionism expose how unions themselves are responsible for their weakened position. The endogenous perspective is less deterministic and leaves more room for union renewal as the causes are seen as internal and perhaps more easily addressed.

In reality, the overall explanation of union decline probably lies in a combination of exogenous and endogenous causes and more than likely varies across political economies and over time. One factor that can explain varying explanations with regards to union decline is the variety of industrial relations systems that exist in developed economies. Indeed, levels of unionization can be affected by institutional variables such as access to the workplace, legal protection for union organizers and union members, the centralization of collective bargaining, and the presence of left-wing governments and pro-union legislation (Schabel, 2003). Differences in institutional arrangements are also likely to either limit or exarcerbate the impact of the exogenous and endogenous factors discussed above.

Since most studies focus on one driver or a limited set of drivers of deunionzation, it is virtually impossible to estimate accurately the relative importance of each explanation (Kochan, 2012). The above presentation of the causes of union decline is in no way comprehensive. Its objective was to

explain some of the trends presented in the previous section and to contextualize the discussion of the socioeconomic effects of unionism presented next.

1.6   The socioeconomic effects of trade unionism

In *What do unions do?*, Freeman and Medoff (1984) conclude that unionism, on balance, has a positive effect on American society. This conclusion relied on evidence from a completely different era when union rates were much higher and union power was more important. Since the time when this book was published, the political and economic environment has changed considerably in a way that is less favourable to unions and challenges Freeman and Medoff's conclusions (Kaufman, 2005). The broad socioeconomic effect that unionism had in its golden age has likely changed in an era of decline, post-industrialism and neoliberalism. Focusing on evidence from the 1970s onward, the post golden-age era, this part of the chapter overviews scholarship on the socioeconomic effects of unionism. The focus is set on the distributive consequences of trade unionism, as this thesis aims to explore unions' effect on inequality and redistribution. The ability to promote more equal societies has become the primary criterion by which to measure the quality of trade unionism as inflation has been replaced by increasing worker insecurity and economic injustices as the dominant issues facing post-Keynesian economies (Crouch, 2017).

1.6.1   Trade unions, the wage premium, and economic inequality

The fact that unions generally increase their members' wages is not a contested fact. This is due to the increase in bargaining power resulting from the monopolistic nature of union representation. As Freeman and Medoff (1984) put it: "Everyone 'knows' that unions raise wages. The questions are how much, under what conditions, and with what effects on the overall performance of the economy" (p. 43). In their own estimate, the union wage premium in the United Sates was approximatively 15 percent in the 1970s. They also estimated that an increase of 10 percent in unionization rates among blue-collar workers of the manufacturing sector would translate into

a 1.5 percent wage increase for these workers. In the decades that followed, however, the wage premium changed.

Many have shown that union decline is linked with a modest, but secular decrease in the union wage premium in Canada and the United States (Blackburn, 2008; Blanchflower et Bryson, 2004; 2010; Bratsberg et Ragan Jr., 2002; Fang et Verma, 2002). However, Hirsch (2004) argues that methodological shortcomings related to sampling and data matching may cause some studies to potentially underestimate the wage premium. In a more recent study examining the US case, using a longitudinal methodological approach slightly different than those of previous studies, Gabriel and Schmitz (2014) show that the union wage premium remained fairly stable in the 1990s and 2000s. Whether the premium is decreasing or remains relatively stable is an important question, but one that goes beyond this thesis. However, what is of a direct concern to the object of this thesis is the profound change on the structure of wages and income that may transpire when fewer and fewer workers benefit from the union wage premium. This last point introduces the concept of economic inequality.

There is a consensus in the empirical literature that weakening of unions in that last few decades is linked with increased wage inequality. Card, Lemieux and Riddell (2004) estimate that union decline explains roughly 15 percent of the increase in hourly wage inequality observed in Canada in the 1980s and 1990s. The same estimate for the United States and United Kingdom is measured at about 20 percent. Western and Rosenfeld (2011) – using a similar approach to Card, Lemieux and Riddel (2004), but also controlling for the union wage effect on the non-unionized sector – estimate that union decline in the US accounts for one-fifth to one-third of increases in wage inequality between 1973 and 2007. The estimates produced in these two studies and other similar research (see Mishel, 2012) rely mostly on the econometric analysis of individual-level wage data. However, wages are only one part of the economic resources available to individuals and are structured by many factors beyond individual characteristics such as educational attainment.

Looking at studies from the field of political economy offers a broader assessment of the impact of unions on inequality, notably by looking at income instead of wages and controlling for larger economic and political changes. In a study measuring the impact of labour institutions on income inequality across 51 countries, Baccaro (2011) finds that trade unionism and collective bargaining lowered inequality in the 1970s and 1980s. Starting in the 1990s, however, the union effect was no longer significant. Rather, rising inequality starting in the 1990s is attributable to commercial and financial globalization, to changes in human capital, and to an increase in the demand for skilled labour induced by technological change. Baccaro comes to the same conclusion when restricting his sample to advanced economies:

> "From the early 1990s on, the institutions associated with labour power – high trade union density, high collective bargaining coverage, a coordinated bargaining structure – and particularly coordinated bargaining, largely forfeited their capacity to directly reducing inequality and only kept an indirect effect on inequality through the size of the welfare state" (p. 266).

He argues that whatever effect unions have had more recently on income inequality operates through their influence on redistributive politics and the size of the welfare state. He adds, however, that while they no longer significantly affect over time changes in inequality, union power and the quality of labour institutions remain important determinants of distributive differences across countries. Results in Golden and Wallerstein (2011) and Pontusson (2013) are similar to those of Baccaro (2011). Pontusson (2013) estimates that since the mid-1990s, the explanatory power of unionism has disappeared mostly as a result of dwindling unionization.

Other studies show that unions maintain a significant effect on inequality. Looking at 20 advanced economies during 1980-2010, Jaumotte and Buitron (2015) find evidence that union decline has increased market income inequality internationally. They also estimate a strong negative relationship between unionization and top earners' income share. Similarly, Visser and Checchi (2012) find that unionization still compresses the upper tail of the income distribution and earnings across the distribution.

Overall, some international studies in the political economy perspective show that the distributive effect of unionism is fading in an era of union decline. While unions effectively reduced inequality in the 1970s and 1980s, somewhere in the 1990s this effect was lost. Other studies indicate that the inequality-reducing effect of trade unionism has remained, despite union decline. At worst, unions have become a non-influential in the domain of inequality; at best, they remain an egalitarian force in our societies.

As for national and subnational studies, Jacobs and Myers (2013) find that the neoliberal swing in political partisanship since Ronald Reagan's election in the early 1980s has limited unions' capacity to reduce economic inequality in the United States. They find evidence that union decline has contributed to the stagnation of revenues of individuals located in the middle of the distribution, while financial deregulation led to significant growth of income at the top of the distribution. Similarly, Farber *et al.* (2018) show that over the twentieth century, unions have had an equalizing effect on the income distribution, especially in periods of trade union expansion when they tended to draw on unskilled workers and raise their relative wages.

Regarding the Canadian case, in addition to the findings of Card, Lemieux and Riddell (2004) on wage inequality discussed earlier, Mackenzie and Shillington (2015) find a strong negative relationship between the decline of union coverage and the increase of after-tax and transfer income inequality. However, this result is based on a basic descriptive statistical analysis. More rigorous studies of the link between unionism and economic inequality in Canada have tended to pool provincial observations over time. Within these studies, Breau (2007) finds evidence of a negative relationship between deunionization and inequality from 1981 to 1999. Looking at provinces from 1981 to 2011, Cousineau and Merizzi (2015) estimate that union density reduces inequality in both the short and long run; although the long run effect is slightly smaller. Cousineau and Merizzi also indicate that unions tend to increase the share of income held by the bottom three quintiles of the distribution in the short run, but tend to increase the share of income held by the middle three quintiles in the long run. In contrast, from 1980 to 2003, Kellerman (2007) finds no significant

relationship between unionization and market income inequality.

In addition to its effect on wage and income inequality, trade unionism has been linked with the decline of labour's share of national income. Piketty (2013) argues that in a context where capital returns (revenue growth generated from profits, dividends, interest, etc.) are higher than economic growth, we systematically observe an intensification of the accumulation and the concentration of wealth. In such a context, the ratio of capital on national income increases and, as this ratio increases, labour's share of national income decreases. This process is amplified by increased capital mobility and heightened competition between countries for capital investment of which the outcome is the growing bargaining power of capital *vis-à-vis* labour. However, while Piketty is very proficient at explaining the economics behind the labour share of national income, he provides little insight on how unions may affect this ratio.

In an international comparison from 1981 to 2005, the ILO (2011) finds a positive relationship between unionization and the labour share of national income. Comparing 13 countries from 1986 to 2007, Dunhaupt (2013) estimates that financialization, short-term financial governance, globalization, and commercial and financial liberalization have decreased the bargaining power of workers and have led to a decline in labour's share of national income. However, Dunhaupt finds no significant direct link between unionization and the share of labour in the national income, but argues that this is likely due to methodological limitations. In another international study, Sweeney (2013) concludes that technological change, globalization, deregulation of the labour market (including deunionization) and financialization are the main determinants of the reduced share of labour in the national income. He adds that the main consequences of this change are increases in economic inequality, reduced aggregate demand and diminished economic growth. At the national level, Fightenbaum (2011) estimates that union decline in the United States explains roughly 29 percent of the decrease in labour's share of national income from 1997 to 2006. Lapointe (2014) argues that union decline is one of the major determinants of the labour's declining share of national income in Canada.

Overall, the literature on market inequality and labour's share of income suggests that trade unionism promotes more equal societies. However, as unions decline and their membership composition changes, there is evidence that their support for egalitarian effect is dwindling.

1.6.2   Trade unions, welfare state, and economic redistribution

The previous section focused on how unions affect inequality. This section looks at how trade unionism, through its political influence, impacts the redistribution of income through taxes, social transfers and other welfare state policies.

In an international comparison, Bradley *et al.* (2003) find that unionization is positively and significantly linked with state-led economic redistribution. However, they do find evidence that this relationship is strongly mediated by unions' relationships with left-wing governments and with unions' capacity to affect the market distribution of income (pre-redistribution):

> "Whereas statistical procedures suggest that they [unions and leftist governments] might be equally important, comparative historical evidence demonstrates that leftist incumbency is decisive. Union density's strong effect on post-tax and transfer inequality is a product of its strong relationship with leftist government and pre-tax and transfer inequality" (p. 226).

Also comparing countries over time, Iversen and Soskice (2006) obtain slightly different results, showing how unions have a positive impact on redistribution even when controlling for electoral system and political partisanship. More recently, Jaumotte and Buitron (2015) also find evidence of a positive relationship between unionization and redistribution. However, Pontusson (2013) shows that unions have lost their impact on redistribution since the 1990s and points to changes in union membership composition as a root cause. Mosimann and Pontusson (2013) argue that unions can have a positive impact on economic redistribution and social spending, but that the nature of this effect depends on union characteristics such as the economic affluence of union members versus the non-unionized and unwaged. They show that union members situated

at the top of the income ladder generally have higher preferences for redistribution than their non-unionized counterparts. In the same vein, Becher and Pontusson (2011) show that unionization generally has a positive impact on public spending and welfare state generosity, but argue that the link between unionization and redistribution depends on the relative economic position of union members.

As for national and subnational studies, looking at the United States from 1964 to 1982, Radcliff and Saiz (1998) estimate that unionization has a positive impact on the generosity of social programs and on the progressiveness of the tax system. However, they argue that union decline is pushing unions and their members to limit the scope of their demands to a narrower range of social issues and therefore:

> "As union density declines, labour may concentrate on narrow issues (like labour law) that lack any immediate relevance to nonorganized workers, or on policies (like trade protectionism) that are arguably contrary to the interests of consumers. In sum, the extent to which labour represents the interests of all wage earners will, like its influence on the legislative process, vary directly with its size" (p. 115).

Deunionization causes unions to consolidate their demands on a limited array of issues, which dampens their impact on broader social matters. Comparing American states, Hogler *et al.* (2015) show that states that have higher levels of unionization tend to have more progressive tax systems, but that generalized union decline is making tax systems more and more regressive. Also working on the US, Kelly and Witko (2012) find that stronger unions and higher Democratic Party incumbency at both the federal and state level are linked with higher levels of state-led inequality reduction through market conditioning (market regulations) and explicit redistribution (taxes and transfers).

As for Canadian provinces, Haddow (2013; 2014) estimates that unionization has a strong and significant positive impact on the redistributive effect of provincial taxes and transfers. Haddow (2015) shows that variables that speak to the balance of power between capital and labour, including unionization, explain much of the measured differences in economic redistribution between

Quebec and other Canadian provinces. Specifically, he estimates that higher unionization in Quebec explains in part why Quebec redistributed more income than other provinces from 1981 to 2009.

Overall, a number of studies point to a positive relationship between unionism, the size of the welfare state, and income redistribution. However, this relationship is not not always straightforward and often mediated by other variables such as political partisanship and union membership composition.

1.6.3   Trade unions, social justice, and democracy

Through and beyond its effects on the distribution of economic resources and state policy, trade unionism can also embody a force for social justice and democracy. This section provides an overview of the literature exploring unions' effect on inclusive economic growth, middle class vitality, poverty, and the quality of democracy.

The social contract that existed in industrialized countries during the three decades immediately following the Second World War can be approximated by how equitably the exceptional economic growth of the postwar period was shared (Kochan, 2012). During this period, productivity gains – often operationalized by the growth of gross domestic product per capita – were paired with growth in real wages of the same magnitude. Besides remarkable economic growth and industrial expansion, other factors contributed to reinforcing the social contract such as Keynesian economic policies, and high trade union militancy and density supported by laws that facilitated the unionization process (Rouillard and Rouillard, 2015). However, starting in the 1970s and 1980s, as productivity continued to rise and real wages stagnated, the social contract which ensured inclusive growth between labour and capital collapsed. The rupture between productivity and wages started in the 1970s in the US and in the 1980s in Canada. It has been sustained ever since, largely due to union decline (Cooper et Mishel, 2015; Kochan, 2012; Lapointe, 2014; Rouillard and Rouillard,

2015).

Trade unionism is associated with a more viable class structure by strengthening the middle class and thus reducing the antagonism between labour and capital. The importance of the middle class has often been argued in academia and in civil society. Easterly (2001) argues that countries with a large and homogeneous middle class are wealthy societies that typically show higher levels of accumulation of human capital and public infrastructure, more efficient national economic policies, more democratic institutions, less economic instability, the most modern sectoral economic structures, and more advanced urbanization. Birdsall (2007) suggests that a large and powerful middle class favours sustained economic development and the establishment of strong state institutions. She argues that a strong middle class has a beneficial effect on the distribution of income, especially on the reduction of poverty: "the experience of the mature Western economies suggests that the poor benefit when an economically strong middle class insists on accountable government and supports, through their willingness to pay taxes, universal and adequate public services" (p. 11). Similarly, Thurow (1984) argues that the middle class is the fibre that keeps the social fabric from ripping and ensures a healthy democracy. Without an intermediate class, the social climate would become tense or even revolutionary.

Freeman *et al.* (2015) show that the sustainability of the middle class relies heavily on unionization and the union wage premium. They estimate that declining unionization rates can explain roughly 20 percent of the decline of the middle class from 1985 to 2011. Similarly, Mackenzie and Shillington (2015) argue that the stability of the middle class in Canada depends on the overrepresentation of union members in the median income group. They estimate that families that have at least one member who is unionized are 1.75 times more likely to be in the fifth to ninth deciles of the income distribution, as compared to the bottom four deciles. They further argue that union decline accentuates the hollowing out of the middle class:

> "Because union density has been in steady decline in the private sector, individuals losing union representation and experiencing income losses will inevitably outnumber those gaining union representation and experiencing income gains. This, in turn, sug-

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gests that the change in union density in the private sector over the past 30 years is an important driver of growing income polarization and inequality" (p. 3).

Beyond its direct impact on class structure, union decline also impacts intergenerational mobility. Freeman *et al.* (2015) show that wage growth across generations in the United States is higher in heavily unionized communities. They also link intergenerational mobility and middle class sustainability:

> "A strong union movement is not simply sufficient for high levels of intergenerational mobility and middle-class membership, but it could be necessary. If that is the case, it will be difficult to meaningfully increase intergenerational mobility and rebuild the middle class without also rebuilding unions or some comparable worker-based organizations" (p. 21).

Also in the US, Brady, Baker and Finningan (2013) argue that highly unionized regions generally have lower levels of working poverty. They estimate that unionization is a better predictor of working poverty rates than economic growth and social policy.

Along with its effect on the social contract and class structure, unionism can have an impact on political participation and through it, the nature of politics and the quality of the democratic process. The most direct way unions favour democratic vitality is by fostering electoral participation (Bryson *et al.*, 2012; 2014; Rosenfeld, 2014). Rosenfeld (2014) estimates that the participation premium produced by union membership is particularly high among private sector workers with little education, a generally less mobilized demographic group that struggles to obtain political representation. However, although the union effect on political participation has facilitated the political inclusion of non-elites, as unionization rates decline, this effect is fading over time. As for Canada, Jackson (2013) argues that the labour movement has always been an important political actor favouring progressive social and economic change, but that decline has diminished the political impact of unionism.

To sum up, this part of the chapter has shown how, despite decline, the literature suggests

that unions still promote egalitarian socioeconomic outcomes. This corroborates conclusions in Ahlquist's (2017) review of much of the same scholarship. However, much of the literature suggests that the impact of organized labour in capitalist democracies is slowly fading as union membership falls and other major changes to the political economy have an increasingly structuring effect on distribution outcomes.

1.7   Thesis objective and research question

The literature surveyed above shows a sizeable amount of evidence supporting the egalitarian effect of trade unionism, despite union decline and its broader political and economic context. However, the literature also points to a loss of union effectiveness in fighting inequality and promoting redistributive policies, as deunionization continues and membership composition changes.

This thesis aims to contribute to this scholarship. **It asks a simple question: do unions shape more equal societies?** To provide answers, this research project studies three key issues. First, it looks at *trade unions' impact on market income inequality*. This provides an evaluation of how union militancy and collective bargaining effect the distribution of income prior to explicit redistribution by the state. Second, this thesis evaluates *unions' capacity to influence income redistribution through taxes and social transfers using political influence and action.* Third, as analysts are increasingly pointing to membership composition as a crucial determinant of trade unionism' distributive impact, this study explores *how the income profile of members conditions unions' effect on inequality and redistribution*. These issues are studied through an analysis of Canada's provinces from the 1980s onward. Multiple theoretical perspectives are combined to provide a comprehensive understanding of unions' distributive impact. Using Canada's provinces as a unit of analysis provides many advantages. The chapter ends by highlighting some of these benefits.

1.8   Why Canada's provinces?

Many theoretical and empirical reasons justify the relevance of comparing Canadian provinces.

First, a provincial comparison provides a less commonly used research design to test dominant theories. Kelly and Witko (2012) argue that studies on the determinants of economic inequality and redistribution have focused on the national-level, underestimating to some degree the subnational predictors of distributive outcomes. Moreover, Kellermann (2007) argues that comparative welfare state theories, which are predominantly featured in the theoretical framework of this thesis, have for the most part been empirically tested on national-level data from a common set of rich industrial democracies. He suggests that to further evaluate the explanatory power of these theories in explaining differences in levels of economic inequality and redistribution, datasets from different levels of analysis should be used. Kellerman suggests that Canadian provinces provides an alternative set of regions on which hypotheses derived from these theories can be tested. More generally, Greafe (2015) points out that Canadian interprovincial comparisons in the social, economic and political domains are rare. Like Kellermann, he argues that Canadian political scientists have been primarily engaged in national-level theorization and have generally ignored the interprovincial developments of the last three decades.

However, a problem that can arise when comparing subnational regions is a lack of variability across units. This does not appear to be a problem in the Canadian provincial context. Kellermann (2007) argues that Canadian provinces are both socially heterogeneous and have considerable political independence. Due to provincial differences in labour relations laws, unionization rates also differ substantially across the provinces (Degree, Schirle and Skuterud, 2014). Moreover, the redistributive impact of provincial transfers and income taxes differ significantly across Canadian provinces (Haddow 2013; 2014; 2015). In fact, Haddow (2014) estimates that when provinces' more limited fiscal resources are controlled for, interprovincial discrepancies in economic redistribution show comparable variations to those observed across advanced capitalist welfare states. As for the political sphere, while legislative institutions and electoral systems are homogeneous across the provinces, significant differences exist in terms of party systems and political dynamics that induce important differences in the policy-making process across regions (Evans and Smith, 2015; Haddow and Klassen, 2006; Wesley, 2016).

Second, the similarities between provinces make it easier to isolate the relationships analyzed in this thesis. Kellerman (2007) argues that Canadian provinces provide "an attractive institutional environment" (p. 9) to test theories of comparative capitalism, as the homogeneous legislative institutions and electoral systems along with the shared interest and exchange rates, and a generally common capital market regime have the benefit of reducing the number of potentially confounding variables. Moreover, controlling for "third variables" that may confound the nature of the relationships of interest in this thesis may be more feasible given that Canadian provinces are homogeneous insofar as they share common institutional underpinnings familiar to, but in no way an ideal type of, liberal welfare states and liberal market economies (Haddow and Klassen, 2006).

Third, as argued by Haddow and Klassen (2006), the Canadian context as a whole has been rarely studied in major comparative social and economic studies. This is in part due to the fact that Canada's political economy fits awkwardly in to the typologies derived from dominant comparative welfare state theories. However, there is general agreement that Canada is indeed a liberal welfare state in the sense of Esping-Andersen's (1990) three worlds of capitalism typology or a liberal market economy as defined by Hall and Soskice's (2001) varieties of capitalism approach. That said, Fast (2016) argues that "the ideal-typical classification of Canada as an LME is only superficially informative" (p. 136) and masks how diverse and disconnected the provinces are and how different the relationship between unions, government and firms are between them. In addition, some authors argue that Canada simply does not represent an ideal type of a liberal welfare state or a liberal production regime. This is because some social services in Canada, such as health care and education, are social democratic in nature (Olsen, 1998). Nonetheless, the scope of the Canadian welfare state remains narrow in comparison to many European welfare states especially with regards to expenditure on employment creation and training, housing and community amenities (O'Connor, 1998). In sum, the complicating effect of the hybrid nature of the Canadian welfare state has limited work on Canada and its provinces, opening areas for further research.

1.9   Conclusion

This chapter started off by situating trade unionism in its current context, which can be generally described as one of decline. With this context in mind, the chapter explored recent empirical evidence on the distributive effect of trade unions. An overall assessment of the literature showed that unions largely remain an egalitarian force in modern political economies. However, some evidence suggest that this impact is fading, as unions become weaker and other economic and political factors become increasingly important determinants of distributive outcomes. This suggests that the distributive effect of trade unions is still open to debate. The chapter ended by setting the research objective and question, and by arguing the advantages of using the provinces as a laboratory to further the study of the relationship between trade unions, inequality, and redistribution.

The next chapter engages with the theoretical literature on the distributive impact of trade unions. This will provide the foundation on which the empirical portion of this thesis will rely for its evaluation of trade unions as vectors of equality and solidarity.

Chapter 2

Theorizing the distributive effect of trade unions

2.1 Introduction

Chapter 1 mobilized recent empirical work on the distributive effect of trade unionism, providing an overall assessment of the nature of key relationships. In Chapter 2, the aim is to provide a deeper understanding of the processes involved in trade unions' impact on inequality and redistribution. The discussion proposed in this chapter culminates with a theoretical framework, combining multiple perspectives, to be utilized in the empirical chapters of this thesis.

The chapter is divided in four parts. First, key concepts – economic inequality, economic redistribution, and trade unionism – are defined. Second, a theoretical discussion integrating power resources theory (PRT), economic theory, and rational-choice theories is presented to describe the nature of key relationships. Third, a general theoretical framework integrating these different perspectives is proposed. Fourth, working hypotheses and empirical objectives are outlined.

2.2 Conceptualizing inequality, redistribution, and trade unionism

The term "socioeconomic" is used here in opposition to "economic" to specify the nature of the welfare criteria of interest in this thesis. The term is used to mark a move away from orthodox economics that typically takes economic efficiency as the sole criterion when evaluating the worth

of labour market institutions such as unionism (Kaufman, 2005). Rather, this thesis will focus on what are often considered normative welfare criteria as they raise contested ideas of ethics and justice.

Extending orthodox welfare criteria to include normative social outcomes such as questions of distributive justice or equity has a long tradition in the academic field of industrial relations. In fact, the institutional economists of the early XXth century who dominated the field of industrial relations in North America were already critiquing the orthodoxy's assessment of the impacts of unionism on the labour market and the economy more broadly. Focusing solely on the monopoly face of unionism, orthodox economics labelled unions as welfare-reducing institutions. As all other social objectives, other than economic efficiency, were deemed normative in nature and thus "not amenable to scientific analysis" (Kaufman, 2005: p. 4), they were disregarded. In contrast, the early institutionalists believed that "[. . .]all economic theory is inherently normative so they felt it permissible to introduce explicit normative criteria" (p. 4). Hence, rather than seeing unions as purely monopolistic entities, these institutionalists saw unionism as a device which could limit the asymmetry of power in favour of employers that stems from labour market imperfections (Kaufman, 2004; 2005). These institutionalists recognized that labour markets on their own do not necessarily generate optimal or just outcomes and that from these imperfections emerges an opportunity for unions to have a positive impact on welfare be it by reducing these imperfections or simply by being a vector of justice and equity.

However, the debate on the relevance or precedence of the efficiency criteria or equity criteria seems to be becoming much less pertinent in light of recent evidence that shows that justice and performance may not be as mutually exclusive as once believed. Through an extensive empirical inquiry, Ostry, Berg and Tsangarides (2014) show that there is a negative relationship between income inequality and sustained economic growth. In other words, higher inequality limits continued economic growth. In a similar study, the OECD (2014) shows that economic inequality has a negative impact on durable growth. The study also shows that redistribution through taxation and public transfers does not harm growth. Thus, the opposition between moral considerations and

economic preoccupations does not necessarily represent a zero sum game.

That said, much like the work of the early institutionalists, unionism as a labour market institution will be evaluated in this thesis based on its impact (or lack thereof) on normative welfare criteria. Distributive outcomes will be the broad criterion, with economic inequality and redistribution being the specific points of interest.

2.2.1 Economic inequality

Defining what is to be considered an inequality always raises questions of morality and ethics. More specifically, qualifying a situation as being unequal implies taking position on what is to be considered just or unjust. Many great thinkers, such as John Rawls, Amartya Sen, Ronald Dworkin and Robert Nozick, to only name a few, have proposed different sets of rules which once enacted and respected can ensure an appropriate distribution of limited collective goods, and from which it is possible to distinguish just and unjust situations (for a comparative analysis of these theories of justice, see Roemer, 2009). That being said, inequality is always evaluated on the basis of its natural antonym: equality. Economic inequality, the conceptual focus here, relates to a situation in which economic resources are not distributed equally between members of a community. Thus, economic inequality suggests dispersion and distance between the economic position of individual members of a given group. In contrast, economic equality represents a state where members of a collectivity have identical levels of economic resources.

More concretely, according to Atkinson (2015: p. 28), defining economic inequality is a matter of answering two questions: "inequality among whom?" and "inequality of what?". The first question is a matter of unit of analysis. It conveys what Roemer (2008) calls the "domain" of inequality, which refers to the entities of interest (individuals, households, collectivities, provinces, countries, etc.) among which economic inequality can be evaluated. Should we be investigating inequality between active individuals on the labour market or inequality between households? And if households are to be looked at, how do we adjust the unit of analysis in order to incorporate such issues as household composition and economies of scale resulting from shared fixed-costs

of living? The importance of choosing the right unit of analysis cannot be understated as it will drastically influence the level of measured inequality. This decision must be guided by clearly enunciated research questions or objectives and be grounded in theory. The unit of analysis used in this thesis is specified in the next chapter.

The second question, "inequality of what?", is a matter of the material resources (wages, income, wealth, etc.) or immaterial resources (opportunity) of which the distribution between individuals or entities can be subject to inequality. It expresses what Roemer (2005) defines as the "currency" of inequality. Is it more relevant to look at flows of economic resources (income) or stocks (wealth)? If, for example, flows of economic resources are to be chosen, which dimensions of income (earnings, income from capital, private transfers or public transfers, and the value of public services) merit specific attention and why? Here again, decisions relative to the currency are critical, as they will have an impact on the level of dispersion.

Adding to the complexity of these decisions are the multiple measures of inequality that can be used to assess the level of dispersion of economic resources between individuals or entities, each having advantages and disadvantages, and each being sensitive to changes in specific areas (bottom, middle, and top) of the distribution economic resources (for a comparative analysis of different measures of inequality, see Jenkins and Van Kerm, 2009).

Is inequality always synonymous with injustice? According to traditional economic logic, this need not be the case; increased inequality is, in many ways, acceptable. Building from the Pareto principle – a fundamental principle in economics that states that a change is considered positive if it increases an individual's welfare without diminishing another's – Feldstein (1998) argues that inequality is not the "real problem". Feldstein's logic rejects the egalitarian argument that the marginal economic welfare of each person is reduced as their resources (wage, revenue, etc.) are increased, even becoming potentially negative after a certain level. To support his argument, he gives the following example:

"Some see inequality as so unlovely that they regard increasing the income of the well-

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to-do as a 'bad thing' even if their increased income does not come at anyone else's expense. Such an individual, whom I would describe as a 'spiteful egalitarian', might try to reconcile this with the Pareto principle by saying, 'It makes me worse off to see the rich getting richer. So if a rich man gets $1,000, he is better off and I am worse off. I don't have fewer material goods, but I have the extra pain of living in a more unequal world.' I reject such arguments and stick to the basic interpretation of the Pareto principle that if the material well-being of some individuals increases with no decrease in the material wellbeing of others, that is a good thing even if it implies an increase in measured inequality" (p. 358).

In the same vein, Fields (2007) maintains that it is hard to find an orthodox economic rationale opposed to inequality. Fields and Feldstein do not reject the fact that inequality is indeed increasing in the United-States, but rather dismiss the problematic nature of this phenomenon. In their opinion, the real problem when it comes to distributive outcomes is absolute poverty – situations of pure and total lack of resources – and not the differences in living conditions between members of a collectivity.

Those who do not see a problem with increasing inequality see this process as being fair or natural. This natural process of increased inequality is determined by two forces. On the one hand, growing inequality is explained by the merit of individuals at the top of the income distribution. Feldstein (1998) suggests that increases in inequality can be linked with the productivity gains of highly qualified individuals, entrepreneurial success, and the increased working time of persons at the top. On the other hand, inequality is seen as a natural consequence of major and untamable economic changes such as technological change and globalization. The impact of these changes being predominantly negative for the economic prosperity of unskilled individuals and positive for the skilled.

Fields and Feldstein's vision of growing inequality as a natural process void of any power struggle has been much refuted in more recent work. It is a way of conceptualizing inequality that points to many victims, but finds few culprits. Although wage increases of certain persons can be partially or perhaps even fully explained by their productivity gains, the recent growth of some

individuals' wages has very little to do with increased output. Taking the financial sector in the United States as an example, the increased economic well being of certain persons can be rather explained by increases in rent-seeking behaviours resulting from high market power:

> "While in 1980 wages in the financial sector were basically on par with wages in the rest of the economy, by 2006 the average wage in finance was 72 percent higher than the average nonfinancial wage. These wages can't be explained solely by skills; research argues that rents account for 30-50 percent of these higher wages, especially since the late 1990s" (Stiglitz, 2015 : p. 43).

Another glaring example of the increased market power of certain individuals and of the discord between productivity and retribution is the case of CEO pay in the US. "CEO pay has skyrocketed far above the rate of employee pay. In 1965, the ratio of the average annual income of CEOs to workers was 20-to-1. By 2013, it was 295-to-1" (Stiglitz, 2015 : p. 52). One would expect such an increase in remuneration to be paired with gains in productivity. Like in the financial sector, however, the link between performance and economic return is not necessarily positive:

> "A closer look at CEO compensation shows that there is little relationship between pay and performance. Compensation goes up when firm performance goes up, but it also goes up when performance goes down. CEOs are often compensated simply for luck, such as when oil company executives get paid more when global oil prices go up" (Stiglitz, 2015 : p. 53).

Hence, there is nothing completely "natural" about wage increases in certain segments of the population. Data shows that the process is much more complex and reflects, at least in part, the exercise of market power. In the same vein, larger economic forces such as financialization, globalization, and technological change that have a structuring effect on the distribution of economic resources in capitalist democracies can either be seen as a natural phenomenon or as the result of power struggles and actor strategies. The standard view is to see these forces as exogenous and deterministic. While they are encompassing and profoundly restructuring the social and economic domains, the scale of these processes must not hinder the way they are theoretically conceptualized. If questions such as "who makes the rules of globalization?" and "who decides the direction of technological change?" are asked, the answers that may follow could illuminate processes that

are not at all natural, but rather social and political (Atkinson, 2015; Stiglitz, 2015). This endogeneity of these processes will be discussed in more detail later in the chapter.

Economic inequality has been hitherto conceptualized as a socioeconomic phenomenon which can properly be defined by specifying its "currency" and "domain". It has also been argued that the evolution of inequality over time cannot simply be posited as a natural economic process, but must also be understood as a social and political phenomenon.

2.2.2 Economic redistribution

Economic redistribution is defined as the redistributive impact of the welfare state. The concept relates to the nature and magnitude of the inequality reducing effect of government policies. In essence, economic redistribution "is the difference between the hypothetical income inequality that would exist in the absence of government activity and the income inequality that exists after government has acted" (Kelly, 2008: p. 24). This definition of economic redistribution reflects a highly abstract appreciation of the concept. In reality, however, such a definition is unworkable. While it is possible to obverse the evolution of income inequality for several decades in many political economies, "[...] a world in which government has not yet played a role simply does not exist. Thus, the full implications of government action on income distribution can only be imperfectly measured" (p. 24). In the absence of a world without government, it is essential to define a baseline from which redistribution can be assessed.

Economic redistribution is by its very nature a comparative concept. It is the difference between the levels of dispersion of economic resources before and after government action. To truly define redistribution, it is necessary to define a criterion for comparison, a state Kelly (2008) terms "pre-redistribution", from which to evaluate the redistributive impact of government. Logically, the baseline of comparison must reflect a distribution of economic resources that is derived from nongovernmental sources. The most commonly used baseline is the distribution of market income. Atkinson (2015: p. 30) defines market income as the sum of earnings (wages and salaries received

by employees or the self-employed), income from capital (interest on bank account, or on bonds, dividends on shares, or rent on property owned), and transfer payments from private bodies, such as a pension. Heisz (2016) defines it simply as income generated from earnings and investments. Statistics Canada's "plain language definition" is even more general: "total income before tax minus income from government sources." In any case, definitions of market income will vary based on the surveys used in empirical inquiries. The general idea though is that market income represents the economic resources that individuals can derive from interaction with the market. Market income inequality thus represents the "natural" distribution of income that is generated by market forces.

Empirically, redistribution is often defined as the difference between market income inequality and disposable income inequality, which is the income individuals or households actually receive after state intervention (for studies using this definition, see inter alia Banting and Myles, 2013; Bradley *et al.*, 2003; Heisz, 2015; Kelly, 2008; Ostry *et al.* 2014; Pontusson, 2005).

Government can reduce economic inequality directly or indirectly (Immervoll and Richardson, 2011). The direct and indirect impact of government on the distribution of economic resources can also be referred to as "explicit redistribution" and "market conditioning". Explicit redistribution relates to the more traditional redistributive mechanisms that are taxation and benefit transfers. If progressive in nature, fiscal policy (income tax for example) compresses the distribution of economic resources and reduces inequality. However, it does not necessarily embody a transfer from the economically well-off to the less well-off the way that benefit transfers can, provided that they are targeted towards the less fortunate and funded by tax revenue from the well-off. Commonly known transfer programs in Canada are Employment Insurance, Old Age Security, and federal child benefits. Provincially, the main programs are Social Assistance, Workers' compensation, and the provincial child benefit programs. Another way that governments redistributes economic resources is through the provision of public services such as education or health care. The value of these in-kind income transfers does have important redistributive effects. Atkinson (2015) shows

that disposable income inequality in European countries decreases dramatically once the value of public expenditure is accounted for. However, Atkinson also notes that these types of transfers are not easily valued. This is probably why most empirical studies do not take them into account. As mentioned earlier, redistribution is an imperfect concept and the *full* redistributive impact of government is impossible to measure.

The second inequality-reducing government activity, market conditioning, is much less straightforward. Market conditioning refers to the indirect impact that government action can have on market inequality by modifying or manipulating private decisions:

> "Private individuals, corporations, and organizations are doubtlessly the ones who make the decisions that fundamentally drive market outcomes. These private decisions, however, are always conditioned by the institutions and policies created by government. [. . .]State action influences market decisions, meaning that an outcome such as pretax, pre-transfer inequality is a combined result of private and state actions" (Kelly, 2008: p. 89).

Kelly (2008) defines two basic ways for government to modify the market distribution of income:

> "The first is by influencing the characteristics of individuals. If the labour market values intelligence, experience, skills, and so on, then the fortunes of those without these characteristics will improve if these characteristics can somehow be acquired with government assistance. The second is by influencing the market itself. If government takes action that induces demand for or supply of a particular kind of worker or changes investment rules, distributional consequences might be felt" (Kelly, 2008: p. 42).

Market conditioning was the favoured policy strategy in Canada to fight rising inequality in the 1980s and 1990s, and is still very dominant today (Green and Townsend, 2013). The strategy consisted in supporting skill development in order to fight inequality generated by technological change, which shifted labour demand towards highly skilled workers. The strategy also involved influencing the market itself by boosting the demand for unskilled labour by enacting policies that favoured flexibility in order to fight unemployment. More generally, however, market conditioning by government refers to what Stiglitz (2015) calls "writing the rules of the game". There are many rules to the games that are played out on "private" markets such as financial regulation, rules

on corporate governance, international trade and finance agreements, labour law, macroeconomic policy, etc. These rules set the bounds within which individuals or entities operate. Markets do not exist in a vacuum; "it is government that structures markets and sets the rules and regulations under which they operate. Rules and institutions are the backdrop of the economy, and the ways we set these rules, and keep them up to date and enforce them, have consequences for everyone" (Stiglitz, 2015: p. 23). While it is difficult to measure the distributive impact of the rules of the game set by government, their importance must not be understated.

2.2.3 Trade Unionism

This section focuses only on the conceptual definition of unionism as an institution. This is because the sections that immediately follow will define unionism more fully through an overview of the theories that will be tested in this thesis. For now however, two preliminary points are highlighted.

First, in this thesis, unions are broadly defined and studied at the institutional level. The impact of unions on distributive outcomes is conceptualized and analyzed at the intermediary level, between the individual and the political domain. Unions are seen as intermediary organizations or organized social networks through which individual economic and political preferences of members are shaped and combined (Becher and Pontusson, 2011). The influence and role of unions surpasses the workplace and the labour market more generally. They are not solely economic institutions aimed at protecting members' interests as wage-earners, but also social entities that serve the wider ambitions of members as citizens and human beings (Murray and Verge, 1999).

Second, unions are seen as a countervailing power to that of capital in capitalistic democracies. They inherently favour positive economic outcomes in these democracies (Kaufman, 2005). They are defined as the main vehicle through which workers can actualize their power resources at the firm-level and on the labour market to influence working conditions. Unions also represent an important bridge between individual workers and the political domain where power struggles condition the (un)balance of "the rules of the game" that dictate the nature of the relations be-

tween labour and capital (Hyman and Gumbrell-McCormick, 2010) and the respective economic outcomes that these two groups can retain from production. This means that unions are not defined as simple interest groups. Rather, they are conceptualized as the broad structural counterpart to capital power.

2.3 Theoretical approachs

2.3.1 Economic theory: within-sector and between-sector union effects

Economic theory has come to acknowledge the many faces of unionism. Focusing initially on the "monopoly" face of unions, economists then turned to examine their "voice" face, and have recently started to look at their "monopsony-reducing" face (Kaufman, 2004; 2005). Looking at these dimensions one by one highlights an important evolution in how economists conceptualize unionism and its consequences.

First, the economic sciences focused heavily on the monopolistic nature of union representation and its impact on the labour market. Working with the assumption that labour markets are perfectly competitive, economists theorized that the monopolistic nature of unions (the collective bargaining of contracts by one union representing all workers) increased the wages of union members to levels above market value, thus creating inefficiencies. This impact is commonly known as the union wage premium. The main impact of the wage premium, according to classic models, is to reduce the demand for labour in the unionized sector and, in turn, increase the supply of labour in the non-union sector. To absorb this additional supply of labour, employers in the non-union sector reduce wages. The main consequences of this process are increases in wage inequality between sectors and inefficiencies in the allocation of labour.

Second, the pioneering work of Freeman and Medoff (1984) extended economic theory by suggesting that the "voice" face of unionism can have social and efficiency-enhancing effects. The voice face of unionism, also known as the "institutional response" face, conveys the idea that unions may induce efficiency in situations where labour markets are imperfect and do not operate in

a purely competitive fashion. For example, unions can increase the quality of information sharing on the labour market and diminish turnover costs within firms and across the economy.

Third, the monopsony-reducing face of unionism concerns the role of unions as a countervailing power against abuses from employers who, in some cases, benefit from monopsonistic labour markets (Kaufman, 2005). This most recent addition to the economist's conceptualization of unions diverges from the previous two dimensions as it recognizes that labour markets, as they exist in reality, are often characterized by asymmetric power relationships.

With this overview of the faces of unionism in mind, what have economic studies concluded on the nature of the relationship between unionism and distributive outcomes? Starting with Freeman (1980) and Freeman and Medoff (1984), the economic theorization of the relationship between unionism and distributive outcomes has focused on two offsetting effects: the wage standardizing "within-sector effect" and the inequality increasing "between-sector effect" (Card, Lemieux and Riddell, 2004; Fortin, Green and Lemieux, 2012).

The within-sector effect of unions reduces overall inequality in two ways. First, as uniformity takes wages out of competition, unions strive to standardize wage rates of comparable unionized workers across establishments of a same industry. Second, within establishments, unions tend to raise wages disproportionally at the bottom of the distribution. As unions are democratic organizations, it is expected that the majority of members would not allow wages to become concentrated in the hands of a few unionists and that that those located below the mean wage would favour union wage policies guaranteeing greater gains at the bottom of the wage scale (Freeman, 1980). Moreover, great wage disparities between members of a same union would likely harm organizational strength which relies heavily on solidarity. The between-sector effect increases inequality. The monopoly face of union representation raises wages in the unionized sector and drives down wages in the non-unionized sector. As wages go up in the unionized sector, the demand for labour falls. This creates a spillover of labour in the non-union sector, which puts a downward pressure on wages there. Overall, unions produce more equal distributive outcomes when their inequality

reducing effect more than offsets their inequality-increasing effect.

However, Western and Rosenfeld (2011) argue that the union effect on wages in the non-unionized sector is not necessarily negative. Employers may increase wages of non-unionized workers to avoid unionization altogether, a rational they call the "union threat effect". They add that unions can also reduce inequality by contributing to a moral economy through the institutionalization norms of equity and fairness.

Union decline should theoretically increase inequality as the overall impact of the within-sector compression effect is reduced when the proportion of the workforce that is unionized diminishes. Inequality may also increase as the union "threat effect" becomes less plausible in a context of deunionization. Empirical findings support these arguments. Controlling for the confounding effect of qualifications, Card, Lemieux and Riddell (2004) find that union decline explains roughly 15 percent of the rise of wage inequality in Canada in the 1980s and 1990s. In the United-States, Western and Rosenfeld (2011) evaluate that union decline explains between one-fifth and one-third of the increase in wages disparities between 1973 and 2007. However, these empirical observations are mostly true for male workers as deunionization has been concetrated in sectors dominated by men (Fortin, Green and Lemieux, 2012; Western and Rosenfeld, 2011).

Economic theory is insightful in explaining the impact of unions on wage differentials in the labour market. However, it defines unionism in a relatively narrow way, focusing only on its role in wage bargaining and thus understating the broader distributive impacts of unions on the labour market and in society. Particularly, economic theory fails to appreciate how unions can have an impact on labour market policies and redistributive policies which greatly effect distributive outcomes. To further conceptualize the key relationships studied in this thesis, a theory that appreciates unions' broader role in distributive struggles is needed.

2.3.2 Power resources theory: unions and class power struggles

Initially proposed by Korpi (1983) and Stephens (1979), power resources theory (PRT) rapidly

became a dominant framework in the study of welfare-state development and comparative capitalism. Even if other explanations – the logic of industrialization (Wilensky, 1975) and state-centered institutionalist theories (Heclo, 1974; Skocpol, 1979) – have significant explanatory power, many authors consider PRT as the dominant theory in its field (Myles and Quadagno, 2002; Bradley *et al.*, 2003). However, the turn of XXIth century saw the emergence of competing theories such as the varieties of capitalism (Hall and Soskice, 2001) and related approaches which considered PRT as outdated and simplistic (Bradley *et al.*, 2003). Still today, however, many empirical studies show the explanatory value of PRT in accounting for recent socioeconomic developments. The remainder of this section presents how power resources theory defines the relationship between unionism, economic inequality, and redistribution.

The epistemological foundations of power resources theory are a combination of marxist and pluralist conceptions of power and of the functioning of capitalist democracies. Kelly (2008) argues that the PRT rejects the marxist notion that the power of capital holders is such that the lower social classes are powerless to change the social and economic order. At the same time, PRT does not agree with the pluralist idea that power, in capitalist societies, is dispersed and distributed through multiple interest groups who have a more or less comparable ability to influence the political system in order to ensure socioeconomic externalities that are favourable to them. Like many marxists, however, proponents of PRT hold that the concept of class is key to the analysis of social processes and to understanding socioeconomic externalities generated in capitalist democracies. PRT also retains the pluralist idea that government and the political sphere more broadly are not only accessible to the upper classes, but also to the lower classes who are able to activate considerable collective power resources.

Proponents of PRT argue that capital owners and employers (the upper classes) are by far the most powerful actors in capitalist societies as they hold the majority of economic resources along with the means of production (Olsen and O'Connor, 1998). This general asymmetry in power is sustained by the different nature of the power resources associated with the lower classes and upper classes (Korpi, 1998). Proponents of PRT argue that the balance of power between labour

and capital is fluid and may vary across political economies and over time. Although capital owners will always have the upper hand in a capitalist system, the lower classes can limit this structural disadvantage through the collective mobilization of their resources which can lead to significant institutional reform and the reduction of inequalities of all types (Korpi, 1998; Olsen and O'Connor, 1998).

Regarding the focus of this thesis, PRT suggests that the balance of power between labour and capital is the main determinant of the allocation of resources in the labour market and of the redistribution of material resources through the welfare state (Becher and Pontusson, 2011; Bradley et al., 2003; Busemeyer, 2015; Kelly, 2008; Korpi, 1998, 2006, O'Connor and Olsen, 1998). More specifically, the size of the welfare state and the importance of its redistributive component depend primarily on the power resources of the lower classes. The lower classes' preference for a broad and redistributive state is explained by the differences between labour and capital in coping with life trajectory risks (aging, illness, unemployment, poverty, work related accident, etc.) (Korpi, 2006). Having higher individual resources, members of the lower classes attempt to institutionalize insurance mechanisms to mitigate these risks. In contrast, having the necessary resources to purchase private insurance against such risks, members of the upper classes have no incentive to support public insurance programs. Consequently, the lower classes, and the entities that represent them, are defined by PRT as the main protagonists of the expansion of the welfare state and its distributive impacts.

Individually limited in terms of power resources, the desire to mitigate life risks generates a potential for collective action among members of the lower classes (Korpi, 2006). PRT suggests that the lower classes can increase their power resources in the labour market and in politics by coalescing into unions and left wing (typically social-democratic) political parties. Unions represent a vehicle by which to combine and actualize power resources on the labour market, while leftist political parties hold the same function in the political domain (Bradley *et al*., 2003; Kelly, 2008). Both vehicles are built and supported by a wide social-democratic coalition composed by interconnection of unions and labour-friendly political parties. The basic proposition of power re-

sources theory is that when and where the lower classes coalesce and organize within unions and left-leaning political parties, they increase their power resources and thus their ability to influence the distribution and redistribution of the material resources produced in capitalist democracies.

Defining power resources

Power resources are defined as "attributes (capacities or means) of actors (individuals or collectivities) which enable them to reward or to punish other actors" (Korpi, 1998: p. 42). In developed capitalist societies, the most important forms of power resources are (i) the legitimate monopoly on the means of violence (owned by the state), (ii) property (physical and human capital), and (iii) labour power (Korpi, 1998). Each power resource has several characteristics that determines its effectiveness such as the costs associated with its mobilization and implementation, its scope, its rarity, its centrality, its concentration and potential (for a detailed description of these properties, see Korpi, 1998). A power resource need not be activated to alter the balance of power and to redefine the distribution of resources. Power resources theory suggests that the existence of an imbalance in power between socioeconomic groups rarely leads to open conflict. In fact, in a situation of power asymmetry, it is unlikely that a rational actor in a position of weakness will activate his resources to pressure his counterpart (Korpi, 1998). In such a setting, the rules regulating social and economic processes in capitalist societies, which structure distributive outcomes, can be adapted to the preferences of the dominant group without open conflict.

Labour power resources

As it is the lower classes which are the main instigators of economic and social reform, proponents of PRT have mainly been engaged in conceptualizing labour's power resources. Individually, members of the working-class have only limited power resources to influence how the fruits of domestic production are distributed in the market and redistributed by the state. When organized, however, members of the lower classes have the potential for the mobilization of great resources.

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The absolute power resource of the individual worker on the labour market is the freedom to deprive an employer of his or her labour. However, whatever the skill level, a threat by a single employee to leave work does not constitute a serious threat to the employer and therefore has little impact on the decisions and behaviour of firms on the labour market (Kelly, 2008). Individually, workers have no real weight in decisions concerning the workplace and the functioning of the labour market.

However, when workers decide to bargain collectively, their power *vis-à-vis* employers drastically increases. As explained by Kelly (2008): "While the threat of one worker walking off the job is likely of little consequence to a business owner or manager, the threat of an entire group of workers leaving is much more serious. Replacing one worker is simply much easier than replacing 5,000" (p. 83). By acting collectively, the lower classes can increase their power resources in the labour market and force outcomes that are favourable to them. Specifically, the collective manifestation of workers' power resources puts pressure on employers to raise wages and benefits to a level higher than what they would be in the absence of trade unions. Assuming, as does power resources theory, that unionized workers tend to be at the bottom and the middle of the income scale, and assuming that unionization increases wages and benefits of these individuals, it can be argued that unionization reduces economic inequality. Unionization allows the lower classes to increase their economic gains in the labour market and, thereby, reduces the income gap between the labour and capital.

The power resources created through unionization and their impact can be amplified when the level of cooperation among workers is high. A high level of cooperation exists when members of the lower classes manage to unionize several industries and workers with various skill levels (Kelly, 2008). Beyond membership, the power resources provided by unionization can vary on the basis of where collective bargaining takes place (local, sectoral or national) and the degree of centralization of the labour movement (the existence or lack of large central gathering of union members from different sectors and diverse qualification). The higher the level of collective bargaining (e.g.

national level), and the more union membership is concentrated in large federations that transcend several industries and skill levels, the higher is the potential for cooperation or coordination among workers from the lower classes. A well-organized and coordinated labour movement can therefore mobilize higher power resources than isolated and scattered unions.

So far, the focus has exclusively been on the market power resources of the lower classes, that is to say, the resources that allow the labour-class to influence decisions of capital owners and employers in the private domain. The discussion now turns to defining the political power resources of the lower classes.

In capitalist democracies, the state can have a significant impact on the social and economic realities of individuals. Determining whether this impact is positive or negative and who the main victims or beneficiaries of this intervention are greatly depends on how the state chooses to balance (or not) private property rights (which are beneficial to the economic well-being of the upper classes) and redistribution of collective production (which is by definition beneficial to the lower classes). As explained in Kelly (2008), the powers entrusted to the state allow it to freely favour one side or the other in this so called dilemma:

> "Having the power of the sword and the purse allows the state to take from some and give to others. The state also has the power to protect property from unlawful taking by one citizen from another. The degree to which the state utilizes its legitimate use of force to protect current property holders as opposed to redistributing property of various types has important implications for the relative well-being of the rich and the poor" (Kelly, 2008 : p. 84).

To influence the state's position within this dilemma, members of the lower classes can mobilize their individual voting rights in an attempt to elect into power political parties reflecting their preferences for redistribution. In a familiar logic to that presented above regarding unionization, isolated voters from the lower classes can only have a limited impact on the results of democratic elections and, in turn, on the decisions of the party which forms government. To increase their political power resources, individual voters from the lower classes can collectively support political

parties representing their interests. Hence, for the lower classes, political parties are in the political realm what unions represent in the private sphere, a vehicle for combining and actualizing power resources of otherwise isolated persons.

Power resources theory puts a particular emphasis on political parties, which are seen as the most important interest group through which individuals can act collectively:

> "In power resources theory [...] political parties are viewed as the most important determinant of state activity. Political parties take center stage in power resources theory, in large part because parties are the most proximate and direct indicator of lower class power resources in government" (Kelly, 2008 : p. 84).

In fact, political parties that form government are seen as the actor having the greatest and most direct influence on the development and implementation of public policies. Consequently, electing left-leaning parties in the upper echelons of the political sphere has historically been the main way through which the lower classes can influence state decisions. However, putting left-leaning parties into power requires broad coalitions that transcend the political domain and the labour market:

> "Creating a political party and mobilizing its numerical majority in the party's support was one way the working class could increase its power. However, the success of social-democratic, labour, or other parties of the left would depend upon a well-organized labour movement. High rates of unionization and the organization of unions into a cohesive labour central or confederation were therefore crucial (Korpi, 1980, 1983). It was also acknowledged that labour strength could be augmented if the working class was able to form coalitions with other classes, such as agrarian or white-collar workers (Esping-Andersen, 1990; Esping-Andersen and Friedman, 1982)" (Olsen and O'Connor, 1998: p. 6).

There exists a close link between the two vehicles through which power resources can be combined. What speaks clearly to this link is the fact that unionized individuals have a higher propensity to exercise voting rights than non-unionized persons (Bryson *et al.*, 2012; Bryson *et al.*, 2014; Pontusson, 2013; Rosenfeld, 2014).

To summarize, the freedom of association that exists in democratic systems enables the lower classes to build collective representation in the labour market and in the political realm to increase

their power resources and, in turn, produce more egalitarian distributive outcomes. The effectiveness of the actualization of labour power resources in both the political domain and in the market depend on large coalitions that spread through both realms.

Extending power resources theory

The next three sections of this chapter will discuss extensions to power resources theory. These extensions attempt to correct some of PRT's theoretical and empirical limits. First, the discussion proposes an expanded conception of trade union power by considering alternatives to the "power-in-numbers" perspective conveyed in standard applications of PRT. Second, PRT is extended to consider how union membership composition conditions the distributive impact of unions. This is done in an effort to move beyond the restrictive PRT assumption that trade unions act as representatives of a homogeneous working-class. Third, as PRT proponents have been primarily engaged in the examination of labour power resources, a conceptualization of capital power is provided. This is done by treating large structuring forces such as globalization and financialization as processes fostered and leveraged by capital owners and employer to shape distributive outcomes in their favour.

2.3.3   Expanding the conception of union power

The theoretical discussion that preceded leads to the conclusion that numbers represent the only source of power for unions. Labour power is seen as a function of union density rates and of the breadth of the labour-friendly coalitions that transcend market and political spheres. However, low or declining unionization rates do not necessarily equate with the weakening of unions. Sullivan (2010) offers a example to illustrate this point:

> "Union density in France is relatively low at 8.3 percent in 2003 (Visser, 2006), but its labour movement has a comparatively high degree of influence. The French working class has a history of militant direct action and effectively thwarting policy proposals viewed as hostile to workers. For instance, recent attempts by the French government to give companies more flexibility to hire and fire young workers were met with massive resistance from a coalition of student and labour groups. This brought nearly three

million protestors to the streets in March 2006 in what was called 'the biggest single day of strikes and demonstrations that the country has seen for well over a decade' (*Economist*, 2006: 22). Conversely, in the UK where union density is more than three times higher than in France (Visser, 2006: 45), the labour movement is widely believed to be moribund and in need of renewal (Fairbrother, 2000; Fernie and Metcalf, 2005; Heery et al., 2003a)" (p. 148).

Indeed, French unions have long maintained that "membership was less important than the ability of unions to mobilize workers to support them when necessary, for example, in obeying strike calls or in voting for union candidates in works council elections" (Crouch, 2017: p. 5). It has nonetheless become routine in the study of unionism to "begin by citing declining union density figures as proof of labour's weakness" (Sullivan, 2010: p. 147). To correct for this bias and to complement the sometimes narrow lens of the "power-in-numbers" orthodoxy, other dimensions of union power are discussed below, focusing primarily on union institutional power, militancy and political action.

As the French case exemplifies, the political sway of unions cannot be solely appraised as a function of membership size. The institutional power of unions can provide a complementary approximation of union power and government porosity to union demands. If institutions are defined as more or less stable compromises reflecting coalitional power dynamics (Mahoney and Thelen, 2010), it follows that relatively union-friendly labour statutes may proxy the political influence of unions. Trade unions' institutional resources can be seen as a platform for influence, providing them with the legitimacy to play a wider role in civil society (Rigby and Garcia Calavia, 2018).

Political action is one of the most prevalent strategies used by unions in advanced capitalistic societies to pursue their objectives (Hamann and Kelly, 2003). However, up to this point in the theoretical discussion, the relationship between unions and actors in the political domain remains mostly undefined. There are many ways unions can influence politics and use the political domain as a source of power. Hamann and Kelly (2003) highlight multiple channels through which this can be done: (i) establishing links with political parties, (ii) participating in electoral activities, and

(iii) organizing strikes and protests.

Standard applications of PRT have focused mostly on the two first types of union political action: the capacity of trade unions to access the policy-making process by helping their political allies form government through the electoral participation of union members. Even when union density is low, the associational power of union members can greatly influence electoral outcomes. Sullivan (2010) argues that while union density is low in the United States, the votes of 15 million dues-paying members can completely change electoral outcomes and the political landscape, especially in tight elections. This gives unions a potential for strategic use of alliances and voting which can be leveraged to reach desired outcomes.

Strikes and political protest represent another channel through which unions can increase their influence in the political sphere and have an impact on policy-making. While it would appear that disruptive tactics in the work place are less frequent and less effective than they once were, militant actions, general strikes, and mass protest still represent an important source of union power which can be harnessed internally (Sullivan, 2010). Recent evidence from Western Europe shows that even in a context of declining membership, density, strike action, and bargaining power, union-led general strikes have still managed to force concessions from governments pursueing neoliberal policy reforms (Hamann, Johnston and Kelly, 2013). In the same vein, Crouch (2017) finds evidence that the capacity of unions to reduce inequality does not operate so much through the power provided by numbers as it does through trade union incorporation in governing institutions. The implication being that the impact of unions on distributive outcomes has become much more political in nature.

However, evidence from the United States suggests that while "union presence within an industry still translates into higher wages compared to industries and regions lacking labor representation" (Rosenfeld, 2006: p. 257), strike activity "no longer positively influences worker pay at the industry-region level" (p. 257). Rosenfeld's results also suggest that strike activity "fails to translate into narrower wage distribution for workers within particular industries and regions"

(p. 257). Hence, while internal union resources most definitely matter, it would seem that the structural power offered by numbers remains important.

How do unions mobilize their members to produce militant behaviour and to embark on political action despite potential low levels of membership? This question conveys ideas of internal power resources which can be leveraged to inspire and mobilize members. Levesque and Murray (2002, 2010) have proposed a mapping of such internal resources of power. Beyond material resources, Levesque and Murray suggest that the effectiveness of union actions can be increased by harnessing internal and external solidarity to bolster collective cohesion, and creating narratives – also known as collective action frames in the social movement theory tradition – which give union actions a sense of efficacy and legitimacy.

The objective here is not to go exhaustively through all the internal resources unions can leverage to increase their power relative to other actors. Rather, the intention is to highlight how a strictly numerical assessment of union power can be misleading, and that endogenous sources of power can be actualized effectively, even in the face of small membership. This means that other measures will be required to fully approximate the concept of union power in the empirical portion of this thesis.

2.3.4 Trade union membership composition and distributive outcomes

In PRT, trade unions are defined as working-class representatives whose members share identical preferences for solidaristic and egalitarian socioeconomic outcomes, preferences which convey the interest of all workers, even the non-unionized. This restrictive assumption of labour unity is being increasingly contested by analysts (Becher and Pontusson, 2011; Ceron and Negri, 2018; Han and Castater, 2016; Nijhuis, 2009; Pontusson, 2013) who emphasize the importance of trade union membership composition in understanding the distributive effects of unionism.

This section of the chapter highlights the insights provided by the "composition" argument.[1]

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[1] Note that the trade union composition argument is discussed in Chapter 6 (Article 2) and Chapter 7 (Article 3) of

First, using economic theory, it is argued that unions will reduce economic inequality within the segments of the population where union members are more heavily located. Second, using rational-choice theories of distributive preferences, it is posited that trade unions are more likely to engage in the politics of redistribution if a sizeable proportion of their members stand to gain from redistributive policies.

Membership composition and economic inequality

As opposed to PRT, economic theory does not prescribe a specific direction to the relationship between trade unions and economic inequality or market income inequality as it will be defined in the next chapter. Rather, the nature of this relationship depends on whether the within-sector inequality-reducing effect of unions outweighs their between-sector inequality-increasing effect (Freeman, 1980; Freeman and Medoff, 1984; Card, Fortin and Riddell, 2004; Fortin, Green and Lemieux, 2012).[2] The idea is that the likelihood that the within-sector effect outweighs the between-sector effect depends a lot on how union members are distributed in the overall income spectrum.

If the unionized workforce is relatively small and or concentrated in a narrow income segment, it can be expected that the within-sector effect of unions will be modest and the between-sector effect will be large. For example, if trade unions predominantly represent upper-middle class workers, it is expected that the compression effect of unionism (wage standardization and union bargaining preferences to increase wages at the bottom) will only be felt in this segment of the distribution, leaving the lower classes behind. In contrast, if unions organized large numbers of workers across the income spectrum, the within-sector inequality-reducing effect will likely be felt across the whole distribution. Overall, the concept of union membership composition helps in crafting expectations on the potential egalitarian effect of unions: whether it will be small and targeted or large and comprehensive.

Assuming that union decline concentrates remaining members in increasingly narrow segments

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this thesis. Therefore, the discussion that will follow will be brief as to avoid repetition.

[2]See Section 2.3.1 of this chapter for a definition of these effects.

of the distribution, it should limit the egalitarian effect of unions as the between-sector effect increasingly offsets the inequality-reducing within-sector effect.

Membership composition and economic redistribution

Becher and Pontusson (2011) suggest that rather than looking at unions purely through a "class" perspective, which positions unions as unconditional supporters of redistribution, one should attribute policy preferences following an assessment of who stands to gain and who stands to lose from redistributive politics. This "winner-loser" framework is derived from ideas found in theories of preference formation based on material self-interest.

Theories of individual preferences based in material self-interest are, for the most part, rooted in Meltzer and Richard's (1981) median voter model. Meltzer and Richard argue that the voter with the median income is decisive in determining the tax share and the size of government redistribution. As the mean income increases in relation to the median income, the median income earner will decide on increasingly higher levels of taxation and redistribution. As for winners and losers, the model suggests that voters with incomes below the median (winners) will support political parties that favour higher taxes and more redistribution, while above median income earners (losers) will push for lower taxes and less redistribution. The implication for the study of union preferences is that the median income threshold consists of a benchmark separating winners and losers. As such, the proportion of union members on both sides of this marker acts as a proxy for general union support for redistribution. If union members are disproportionally located in the top half of the distribution, most union members stand to lose from redistribution and vice versa. This is the rational used by Becher and Pontusson (2011) who find that higher levels of union inclusiveness in the bottom deciles of the income distribution is associated with higher levels of redistribution.

Using a different approach within the material self-interest paradigm, Alt and Iversen (2017) find evidence that exposure to economic risk, not relative income, is the main determinant of voter

preferences for redistribution. They formalize an "insurance with segmented labor market model" in which individual preferences for redistribution are determined by the distribution of risk on the labour market. If risks (e.g. risk of job loss) are distributed evenly across segments, support for redistribution should be higher. Alternatively, if risks are concentrated in a few segments, then people facing low risk will be less inclined to support redistribution as the likelihood of income loss is low. In other words, those exposed to high economic risk stand to gain from more generous public insurance schemes (e.g. employment insurance and social assistance) and those who do not gain. While the comparative criterion is changed, this model suggests a similar implication for union preferences. If most union members are located in labour segments with low risks, one would expect unions to be less disposed to support redistribution through public insurance schemes.

Regardless of the material currency (income or risk) being studied, that union group preferences for redistribution is shaped by more complex processes than a simple statistical mean of individual preferences based on self-interest is highly likely. Evidence suggests that the importance of income as a predictor of support for redistribution is highly variable across different political units (Beramendi and Rhem, 2016), which means that some of the variability is explained by other factors. Rueda (2018) argues that individual preferences are first formed on the basis of material self-interest, but then altered by the interaction of two factors: altruism and group identity. He argues that support for redistribution can be found in higher income groups, but that this altruistic behaviour is conditional on group identity. If the poor share many non-material characteristics with the rich (race, ethnicity, religion), the latter are more likely to support redistribution in a show of "parochial solidarity". Rueda argues that all individuals reap moral benefits from promoting equality between members of their own group, but that these benefits are more relevant for the preference formation of the rich as material concerns trump moral ones for the poor.

Rueda's argument can be extended to the study of unions. Recent evidence suggests that being part of a union promotes altruistic support for redistribution by the internalization of distributive norms, and the union rhetoric on the relationship between inequality and economic growth

(Mosimann and Pontusson, 2017). Mosimann and Pontusson (2017) find that altruism promoted by unions is especially apparent in high-wage members. However, the selflessness of high-wage earners is not as marked in countries where unionists are predominantly located in the upper parts of the distribution, a growing trend in Western Europe. Interpreting Mosimann and Pontusson's evidence through Rueda (2018) argument would suggest that the moral benefits of supporting redistribution are more evident to rich union members when some of their unionized peers are low income earners. This means that a union movement predominantly populated by higher income earners may still support redistributive policies aimed towards the bottom of the distribution. Such solidarity would likely rely on union narratives set in a working class perspective (Levesque and Murray, 2013).

Working with the assumption that general union interest is a simple reflection of the preferences of members as it has been done above is convenient, but reductive. It assumes that redistributive policy preference aggregation within a union movement is done through a type of majority rule democratic process, disregarding how institutional preferences may be shaped by political entrepreneurs within unions (e.g. high ranking officers), the bureaucratic nature of the institution itself or the moral project underlying union group identity. Moreover, it neglects how union structure itself may affect the way preferences are shaped within the union movement. If workers are organized in large vertical industrial unions, which represent both unskilled and skilled workers across the income spectrum, it is expected that solidarity will be higher between members and that their socioeconomic preferences will converge (Nijhuis, 2009). In contrast, if workers are organized in horizontal craft or occupational unions, it is expected that preferences will be divided along organizational lines. As the risk and income profile of members vary from one organization to the other, so too do the socioeconomic preferences voiced by each union. Unionism at a macro level, therefore, may resemble more a collection of small communities between which solidarity may be hard to cultivate.

2.3.5   Conceptualizing capital power resources

Power resources theory focuses almost exclusively on the lower classes and their power re-
sources. This follows from the contention that the lower classes are the main protagonists of so-
cioeconomic change in capitalist democracies. Consequently, the proponents of PRT have mainly
been concerned with the analysis and measurement of labour's power resources and their impact
on society. The effect of this particular emphasis is twofold. First, focusing on the lower classes,
especially on the labour movement, has ensured that PRT analysts have undervalued the role of
employers and capital owners in the development of the welfare state (Iversen and Soskice, 2001;
Korpi, 2006). According to Iversen and Soskice (2001), employers can show a preference for eco-
nomic and social policies that insure workers against risks that arise from the acquisition of specific
skills, offering a comparative advantage to employers of certain industries. Second, for a theory
which postulates that the balance of power between socioeconomic actors explains the distributive
outcomes of capitalistic democracies, PRT scholarship lacks in conceptualizing the study of capital
power resources (Olsen and O'Connor, 1998). Indeed, in an era of globalization and financializa-
tion, "PRT is still almost exclusively focused on the power resources of labour while largely ig-
noring structural developments which are rapidly and decisively increasing the strength of capital"
(Olsen and O'Connor, 1998: p. 21). Yet, recent studies show how increases in the power resources
of pro-capital, right-wing coalitions contribute strongly to the increase of economic inequality
(Jacobs and Myers, 2014). These right-wing coalitions have seen their power grow through the
cultivation of antiunion ideologies, the enactment of antiunion policies, the implementation of ne-
oliberal policies promoting the deregulation of financial markets and other structural changes such
as the globalization of production.

This section of the chapter attempts to remedy the second fault line of under-conceptualization
of capital power resources. This is done by looking at how broad structural changes in capitalist
democracies – globalization and financialization – act as power resources for capital owners and
employers. These structural forces are known to shape distributive outcomes. However, studies of
economic inequality and economic redistribution rarely look at these processes as being the results

of power exertion and actor agency.

Globalization and financialization should not be conceptualized as unyielding deterministic processes over which actors have little power. Explaining the relative success of individuals with regard to these forces in a purely economic way obscures the possibility that the nature and intensity of major processes are the result of the deliberate action pursued by actors. If these structural changes produce winners and losers, then these processes become a "social problem". If there are winners and losers, then it is highly possible that some groups may wish to perpetuate these processes and other groups may wish to amend them. This opens up questions of power when studying such forces. Churchill (2000) summarizes this argument in the following way:

> "The main sociological questions of globalization are, from where does power in the global system emanate, how is this power maintained, who benefits from it, and who suffers from it? In looking at globalization as a social problem, we must consider this question of power, for it is chiefly through the control and use of power that social problems are created, perpetuated, and resolved" (p. 10).

Looking at power when defining the relationship between globalization and financialization, on the one hand, and distributive outcomes, on the other hand, pushes us to see the former as endogenous to actor preferences and behaviours.

Globalization

Economists have generally assessed the impact of globalization on within-country distributive outcomes through international trade theory. Standard international trade theory predicts that the trade patterns of a specific country depend on the distribution of its factor endowments (labour, human capital, natural resources, and capital) and suggest that "social groups, as defined by their stakes in the factors of production, will have their fortunes altered in predictable ways by trade opening or protectionism" (Berger, 2000: p. 49). The well known Heckscher-Ohlin theorem hypothesizes that globalization will increase inequality within advanced countries. Its logic is well explained by Freeman (2009):

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"Trade between advanced countries and developing countries will raise inequality in advanced countries and reduce it in developing countries. This is because advanced countries have relatively more skilled workers than unskilled workers, which should lead them to import products made by less-skilled workers and export products made by skilled workers. This reduces the demand for less-skilled workers and increases demand for skilled workers, which raises income inequality" (p. 584).

More simply, Stiglitz (2012) explains as follows:

"The basic idea is simple: the movement of goods is a substitute for the movement of people. If the United States imports goods that require unskilled workers, it reduces the demand for unskilled workers to make those goods in the United States, and that drives down unskilled workers' wages" (Stiglitz, 2012: 61).

Indeed, it is theorized that the deregulation of markets and the intensification of international trade lowers the demand for unskilled labour in advanced capitalist societies (Amine, 2011). This is so because low-wage developing countries provide a globalized economy with a remarkable abundance of unskilled labour. It is estimated that recent developments such as China's shift to market capitalism, India's market reforms and entry into the global trading system, and the collapse of Soviet communism have resulted in the doubling of the number of workers in the world economy over the last few decades (Freeman, 2009). This downward pressure on the wages of unskilled labour is additionally accentuated by the fact that capital is much more mobile than unskilled workers and can threaten to relocate to low-wage labour market in order to further drive down wages.

Most empirical studies that have sought to evaluate the relationship between unionism and distributive outcomes across Canadian provinces (Breau, 2007; Cousineau et Merizzi, 2015, Haddow, 2013; 2014; 2015) treat globalization as an exogenous process with which actors of each province most compose. Even studies framed in the PRT perspective do not conceptualize the nature and intensity of globalization as resulting from endogenous power struggles – a contention the discussion turns to now.

Defining globalization as un inalterable external force is an analytical mistake. Rather, socioeconomic actors must be seen as both conditioned by and vectors of globalization. To understand

the globalization process and its impacts, the agency, power and the capacity of actors must be recognized (Giles, 2000; Murray, 2010). If globalization is studied through questions such as who are the actors involved, what are their interests, and what power or capacity do they have to impose the preferences, the room for manoeuvre that actors have in conditioning this process becomes more apparent.

Looking at the process by which international trade agreements are reached can help illuminate which actors hold the balance of power in deciding the direction of globalization. Pointing out the actors who are involved in the negotiation of these deals offers an immediate understanding of which actors have a say in the process of globalization. The Trans-Pacific Partnership Agreement (TPP) negotiations provide a good example.[3] For a decision making process carrying immense social and economic impact, one may expect all socioeconomic stakeholders to be involved in the negotiation process. However, for the TPP, this was not the case. It has been shown that these negotiations took place in secret and only involved corporate and government representatives, to the exclusion of labour and the general public (Reich, 2015b, Stiglitz, 2014). In Canada, even when public consultations were carried out, there was some worry that most of the participants were directly invited by government officials and consisted for the most part of industry representatives or specialists from academia (Dey, 2016).

If rules that frame how globalization is allowed to evolve only reflect the preferences and preoccupations of business, then globalization becomes a process through which the power of capital can be increased. This argument is expanded by Stiglitz (2015):

> "While it is essential that the United States work with global partners to establish rules for international trade and investment, the kinds of rules that we've been making through trade agreements increasingly set the terms of trade in favour of businesses and against workers and the public interest in both the United States and among our economic partners. These rules determine who will benefit from increasingly globalized world, but trade agreements – written behind closed doors, with the active participation of firms but no other stakeholders – are failing to deliver the rules we need for managing globalization in a way that benefits all" (p. 103).

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[3]The agreement was never ratified after the United States withdrew its signature. However, it has since been replaced by the signed Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), which incorporates most of the Trans-Pacific Partnership (TPP) provisions, but has yet to be ratified

In short, those who write the rules that structure globalization are the ones who benefit from globalization. A recent study forecasting the potential socioeconomic returns of the TPP estimates that the agreement would have a negative impact on economic growth and employment while also increasing economic inequality in Canada (Capaldo, Izurieta and Sundaram, 2016). More specifically, the share of total income going to labour would decrease meaning that the only clear winners of the TPP would be capital owners. Regardless of these outcomes, even if TPP negotiations have failed following the withdrawal of the United-States, Canada is actively pursuing a new deal – The Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) – which includes most of the provisions found in the TPP. This points to the reality that business leaders have closer ties with government officials than other stakeholders. Regarding the relationship between business and government in Canada, Coleman (2013) argues that business associations have much more access to government than labour with a select of group business chief executives having especially close ties to top ministers. This can be partly explained by the fact that "business leaders occup[y] a 'privileged position' in capitalist economies, because they 'do not appear simply as the representatives of a special interest', but as 'functionaries performing functions that government officials regard as indispensable'" (Lindblom, 1977, cited in Farrell and Abraham, 2015: 529).

Beyond the specific example of the TPP, many authors have theorized more political interpretations on how the relationship between business and government may effect the direction of globalization and, in turn, the distribution of economic resources. For the most part, this scholarship has focused on how business gains structural power over labour from globalization and uses this power to exacerbate the impact of globalization on distributive outcomes. This increased power is derived from the ease with which firms can relocate their activities when the barriers to the exit and entry of capital are lowered. This power is defined as being structural because firms do not need to physically relocate to gain a bargaining advantage against labour or to influence government decision regarding labour market regulations or fiscal policy. They only need to threaten to do so. The following example summarizes the idea:

"To lower wages in the United States, for example, the industrialist need not import labour from Mexico nor move his factories to Mexico. He simple needs to be able (to threaten) to do so. The potential of substituting foreign workers and production for domestic workers and production reduces labour's bargaining power by making the demand for domestic labour more elastic" (Berger, 2000; p. 46).

At the same time, as capital is more mobile than labour, the exit options of workers in the face of globalization remain relatively unchanged, which further solidifies the structural power of employers. A consequence of this imbalance of structural power is that government policy becomes evermore responsive to business preferences:

"The growing mobility of capital and the relative immobility of labour would make governments increasingly responsive to the interests of capital. If taxes, industrial policy, environmental regulation, or industrial relations in any society are too costly or constraining, investors will pull up stakes and transfer them elsewhere; workers cannot move so easily" (Berger, 2000: p. 51).

As international competition for capital investments increases, governments construct more attractive labour markets by lowering employment standards and cutting back social protection programs (e.g. employment insurance), which lowers labour's bargaining power. This reinforced firms' ability to find new ways of organizing work through increasingly complex production networks, which have lead-firms set prices and standards for output in dependent organizations without taking responsibility or liability for employees (Weil, 2014). The consequences have been the transformation of the employment regime towards non-standard, precarious and insecure forms of work (Cranford, Vosko and Zukewich, 2003; Fudge, 2017; Stone and Arthurs, 2014). At the same time, tax cuts aimed at increasing investments and growth reduced state revenue and produced public deficits. The solution for fighting deficits became fiscal austerity: cutting social expenditures and redesigning social programs to lower costs (Peters, 2012; Streeck, 2014a).

With the structural power provided by globalization, business can deliberately accelerate the process in order to enhance their exit options and gain further structural power. Ferrell and Newman (2015) argue that business can have a "structuring power" on the process of globalization through direct political strategies. They argue that the globalized economy has given certain actors

the possibility not only to structure the rules of their home jurisdictions, but also influence the rules in other jurisdictions. This means that actors can influence one jurisdiction's rules in order to force changes in another.

Financialization

Financialization is a "process whereby financial markets, financial institutions and financial elites gain greater influence over economic policy and economic outcomes" (Palley, 2007: p. 1). Through the "thesis of financialization", Palley (2007) argues that financial markets "should be seen as part of an economic system that distributes power and affects the character of production and the distribution of income" (p. 5). He adds that economic outcomes such as changes in the functional distribution of income, wage stagnation, and increased income inequality should be understood as the result of a new economic configuration promoted by financial interests. Many authors suggest that the rise of financialization and of the economic model it promotes is the result of a deliberate political agenda that gave rise to neoliberalism, a framework built on market-based ideas, which has become the dominant paradigm of global economic policy. Indeed, financialization accelerated following important financial market deregulation in 1980s and became over time "a core feature of neoliberalism" (Hyde *et al.*, 2017: p. 1) or even its "most fundamental product" (Tomaskovic-Devey and Lin, 2011: p. 556).

Financialization is said to have an impact on corporate behaviour by aligning the interests of management with those of shareholders, the result being a change in managerial priorities from the growth of market share to short-term profits (Palley, 2007, Peters, 2011). This means that rather than investing profits in research and development or fixed capital – the basis of long term profitability, real growth, and higher employment and wages – firms prefer to act upon short-term strategies relying on financial means. Such a mean can take the shape of firms using profits or debt to repurchase their own stocks (buybacks) to increase share value in the short run, while undermining productive reinvestments and wages (Lazonick, 2014). Moreover, product market share is now increased through mergers and acquisitions, which usually means wage cuts, reduced working

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conditions or layoffs for affected workers (Peters, 2011).These behaviours are exacerbate by the growth of stock option pay for top executives, further aligning financial interests with corporate priorities (Lazonick, 2014; Palley, 2007).

Another way financialization is affecting inequality is by redefining power dynamics within non-financial firms whose earnings are increasingly generated through financial participation and investment. This is how, for example, nonfinancial firms such as General Motors and Ford have come to generate most of their earnings through their auxiliary financial institutions, which were initially conceived to complement their productive ventures, but have expanded their portfolio over time, so as to resemble financial firms (for detailed examples of such firm activities, see Lin and Tomaskovic-Devey, 2013: p. 1293). Lin and Tomaskovic-Devey (2013) argue that the financialization of nonfinancial firms has "decoupled the generation of surplus from production, strengthening owners' and elite workers' negotiating power relative to other workers", the result of which has been the "incremental exclusion of the general workforce from revenue-generating and compensation-setting processes" (p. 1284).

As the financial industry grows, financialization may also increase inequality simply because earnings in the the financial sector are higher and increasing, compared to other sectors. This is happening because the financial sector has been extracting rents from workers in nonfinancial firms (Lin and Tomaskovic-Devey; 2013; Tomaskovic-Devey and Lin, 2011). This process, Hyde *et al.* (2017) explain, "increases compensation of financial sector workers, puts downward pressure on wages of nonfinancial workers, and increases the demand for low-wage service workers who cater to the needs of financial workers – all of which contribute to polarized income distributions" (p. 4). Through rent theory, Tomaskovic-Devey and Lin (2011) argue that politically and ideologically motived institutional transformations, such as financial market deregulation, provided market power to financial actors, which allow them to secure a larger share of income at the expense of other actors in society.

Born out of the need of capital owners to reframe capital accumulation in an era of declining

economic growth, financial capitalism has completely changed firm governance and the balance of power between labour and capital to the point of generating unsustainable levels of inequality (Peters, 2011; Streeck, 2014a; Streeck, 2014b, Streeck *et al.*, 2016). The distributive changes brought upon by this broad structural change should be seen as the result of a deliberate strategy to increase capital power at the expense of labour.

A note on technological change

In this thesis, technological change is not conceptualized as a capital power resource. However, as it is a key driver of inequality, an overview of the nature of its distributive impact is presented below. Much like the above discussion on globalization and financialization, it can be argued that technological change should not be understood as a purely exogenous process, but also as the result of explicit decisions made by actors.

Economists have for the most part explained the impact of technological change on inequality through the theory of skill-biased technological change (SBTC). This theory argues that the direction of technical changes in the production of goods and services, such as the use of new information and communication technology (ICT) favours the economic fortunes of skilled as compared to unskilled workers (Acumoglu, 2002; Cahuc and Zylberberg, 2001, Violante, 2008). SBTC entails a "change in production technology that favours skilled over unskilled labour by increasing its relative productivity and, therefore, its relative demand. Ceteris paribus, SBTC induces a rise in the skill premium – the ratio of skilled to unskilled wages" (Violante, 2008: 1). In other words, SBTC is said to increase economic inequality. Concretely, it is the nature of recent technological change that is said to be more complementary to the work of skilled labour. Amine (2011) provides three arguments to support this claim: (i) skilled workers are better equipped to implement and exploit new technologies, (ii) the knowledge of new technologies (robotics, automation, digitization) become a criterion for hiring and thus a barrier to employment for unskilled, and (iii) new technologies increase the level of responsibility, abstraction and interdependence of jobs and tasks, a

reality which is more suitable to skilled workers. However, Atkinson (2007) argues that many studies show that the distributive impacts of SBTC can vary across countries. He cites evidence that SBTC has had no apparent impact on the distributive outcomes of Scandinavian countries while it has increased inequalities in Anglo-Saxon countries. He adds that some studies have shown that income distribution may remain rather unchanged, despite periods of pronounced technological progress.

It is easy to think of technological change as an deterministic process. However, governments have the capacity to condition the trajectory of technological developments and, in turn, the impact that these changes have on distributive outcomes. In fact, through public funding of research initiatives and the procurement objectives of government departments, the state plays an important role regarding the direction and nature of technological change. Atkinson (2015) provides the following example:

> "When the US Defence Advanced Research Projects Agency (DARPA) launched it's Grand Challenge competition for autonomous vehicles for 2004, an explicit goal of the project was for the US military to provide such driverless vehicles for one third of it's ground forces by 2015. But were the wider consequences outside the military – for taxi drivers and others – considered? Were plans made to encourage the redeployment of the human drivers who would no longer be required?" (p. 120)

This illustrates how government decisions can shape the trajectory of technological change and its distributive consequences. More importantly, this example demonstrates the state's ability to control the evolution and impact of a process which, *a priori*, may seem to be unalterable.

Another way that government can condition the direction of technological change is by influencing the supply of skills in the labour market. The standard skill-biased technological change model discussed earlier predicts that exogenous technological change will increase wage differentials between skilled and unskilled labour. To limit the inequality-increasing effect of SBTC, the policy response in Canada has been to implement initiatives that favour the development of the human capital of unskilled workers. However, other models show that this policy strategy could in fact increase the inequality-increasing impact of technological change. Using a technology-

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selection model (TSM), Green and Townsend (2013) argue that favouring the development of skills can endogenously dictate the direction of technological change and actually increase wage differentials. Their argument is as follows:

> "If the education level of the economy is increasing, more entrepreneurs will choose to produce with the new technology since its defining factor (skilled labour) is becoming more abundant. As a result, we will observe a decline in high-skilled wages because of the increased supply of skilled labour, but we will also observe a decline in the wages of unskilled workers because there is less demand for their services" (p. 85).

Empirically, looking at Canadian data from 1980 to 2007, these authors find evidence that increases in relative supply of skills coincided with bigger wage skill differentials with both skilled and unskilled workers experiencing very little increase in wages. While acknowledging the usefulness of investments in human capital, the authors point to the need for investments in physical capital.

The key here is that technological change should not be seen as an exclusively exogenous process. State decisions can directly or indirectly affect the direction of technological change. Thus, technological change should also be seen as a social and political process which can be influenced by government intervention and public policy.

2.4   General theoretical framework

In this part of the chapter, the elements of the theoretical discussion presented above are combined and summarized into a general framework. Figure 2.1 organizes in a simple diagram the main relationships studied in this thesis. Using this diagram as reference, the preceding theoretical discussion is translated into broad propositions to be explored in the empirical portion of this thesis.

Figure 2.1: General theoretical framework
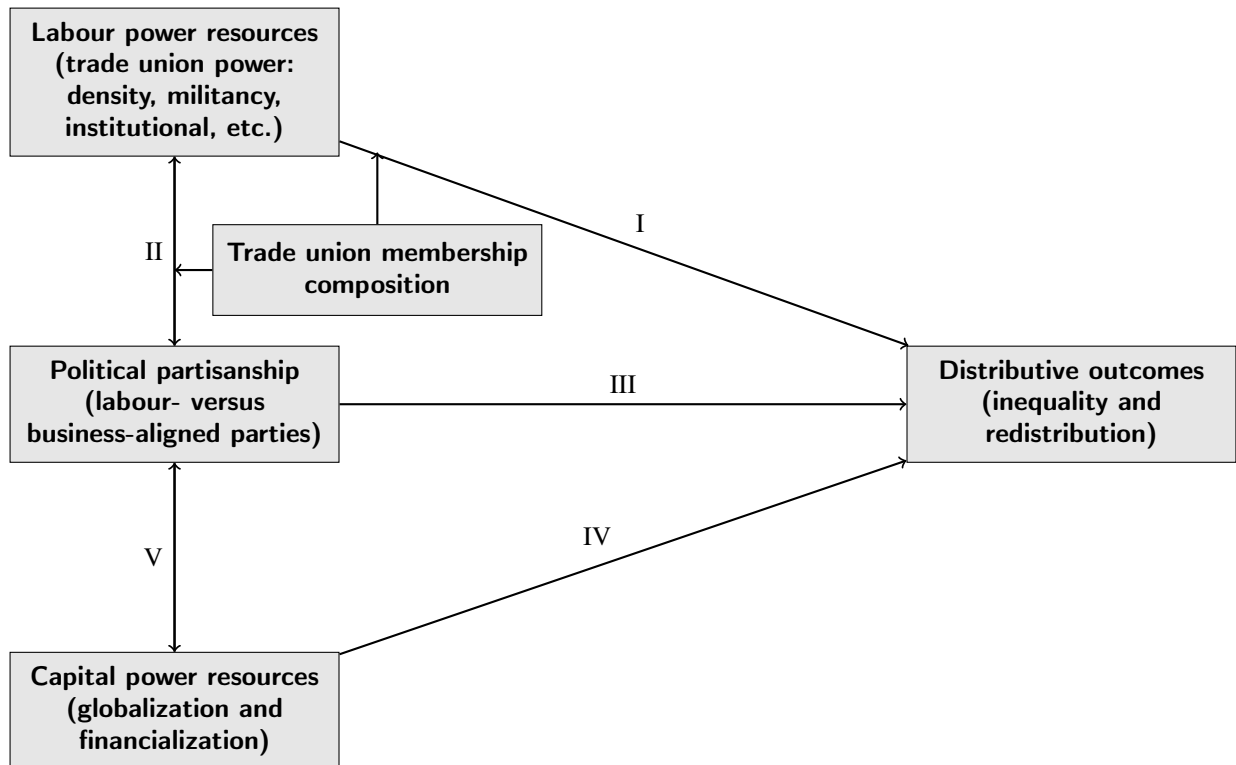
As the main area of inquiry in this thesis are the distributive effects of trade unionism, the bulk of the empirical portion of will focus on the relationships illustrated by lines I, II, and III in Figure 2.1. Unions directly affect market inequality through collective bargaining (line I). The cooperation and coordination provided by unionism allows workers to combine and increase their power resources. A well organized workforce is expected to reduce economic inequality by forcing the standardization of wages and securing bigger gains for those at the bottom of the distribution. However, the overall inequality-reducing effect of unionism on the labour market will depend on union membership composition (see Section 2.3.4). This effect may be more targeted than comprehensive if union members populate narrow segments of the population. Union power is defined as having many dimensions (see Section 2.3.3), from a purely numerical conception (e.g. union density rates) to an appreciation of endogenous power resources (e.g. militancy). The size and nature of the direct impact of trade unions on economic inequality is conditioned by the institutional environment (the "rules of the game") crafted by government, which can constrain or reinforce

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union power. By being bidirectional, Line II conveys the idea that the quality of the institutions on which unions rely to exert and reproduce their power stems from a continuous feedback process between organized labour and government. Higher union power increases labour's political sway and produces labour friendly institutional arrangements, which generates more egalitarian outcomes. Following PRT, it is expected that labour-aligned social-democratic parties are more responsive to unions and thus more inclined to support collective labour rights.

Trade unions' impact on economic redistribution is defined as indirect (lines II and III). It operates through trade unions' influence over state tax systems and social transfers. Influence is a function of trade union power, which can be mobilized to support or punish political parties through electoral participation and political action. In PRT, trade unions are defined as labour-class representatives who participate in coalitions with social-democratic parties to shape more equal societies. Union support for more progressive tax systems and generous social protection is conceptualized as unconditional as members are assumed to be beneficiaries of redistribution. This assumption is relaxed by theorizing trade union membership composition as conditioning the nature of trade union engagement in the politics of redistribution (see Section 2.3.4). For unions to actively support redistributive policies, a sizeable constituency of union beneficiaries must effectively exist.

Capital power resources are theorized to directly and indirectly impact economic inequality. Directly, capital holders and employers leverage globalization and financialization to increase their bargaining power towards employees in order to lower wages and working conditions (line IV). This is done, among other strategies, by increasingly credible threats to relocate operations and by decoupling revenue generation from production in non-financial firms (see section 2.3.5). Capital can use its influence in the political domain to reinforce its power resources through further deregulation and liberalization of product and financial markets (line V). Increasingly mobile capital also allows capital owners and employers to use an exit threat strategy against governments in order to create a favourable institutional environment for investments. This reinforces capital's power

over workers as governments enact increasingly flexible labour market policies, which translate into more precarious and vulnerable employment relationships. The exit strategy can also be used to shape capital-friendly fiscal policies, which reduce state revenue and puts a downward pressure on spending, limiting redistribution through austerity measures (line III). Overall, the exertion of capital power and its reproduction through government policy is expected to increase inequality and reduce redistribution.

2.5   Working hypotheses and empirical objectives

The last part of this chapter translates the theoretical discussion and general framework into workable hypotheses to be tested in the three articles that compose the empirical portion of this thesis (Chapter 5, 6, and 7). The objective and hypotheses of each article is briefly outlined below.

2.5.1   Article 1: Labour Power Resources and Market Income Inequality: an Analysis of Canadian Provinces

The primary objective of this article is to assess how labour power resources affect the distribution of market income inequality. The first three hypotheses consist of a standard test of power resources theory, including a broader conceptualization of labour power by including an endogenous source of union influence (union militancy):

> *Hypothesis 1: Higher levels of unionization are associated with less market income inequality.*

> *Hypothesis 2: Higher levels of union militancy are associated with less market income inequality.*

> *Hypothesis 3: Higher levels of left- and centre-party incumbency are associated with lower levels of market income inequality.*

The secondary objective of the article is to assess explanatory value of capital power resources (globalization and financialization) to changes in the distribution of market income. It also aims to compare the predictive value of labour and capital power resources in an attempt to suggest a

hierarchy in the explanatory value of both sources of power. This is done to compensate the lack of attention of PRT scholarship on the distributive impact of the exertion of growing capital power. To this end two more hypotheses are tested:

> *Hypothesis 4: Higher levels of globalization are associated with more market income inequality.*

> *Hypothesis 5: Higher levels of financialization are associated with more market income inequality.*

2.5.2 Article 2: Do Unions Promote More Equal Societies? A Look at Income Redistribution in Canada's Provinces

Article 2 looks at the relationship between trade union power and economic redistribution. The state takes a more prominent role in this article as trade union influence on redistribution is said to be indirect, operating through unions' ability to influence government policy. Different dimensions of union power are considered. The first dimension is unions' numerical power, which relates to density levels and is referred to as organizational power in this article. The second dimension is union institutional power, which considers the quality of trade union institutions as reflecting the porosity of government to union demands. The first two hypotheses that are tested consist of a standard test of PRT where unions are assumed to be labour-class representatives who unconditionally support redistributive policies:

> *Hypothesis 1: Higher levels of union organizational power are associated with higher levels of income redistribution.*

> *Hypothesis 2: Higher levels of union institutional power are associated with higher levels of income redistribution.*

In an attempt to relax the restrictive assumption of absolute union support for redistribution, the article controls for trade union membership income composition. Derived from rational theories of preferences for redistribution, the following argument is put forward: trade unions are more likely to support redistributive policies when a sizeable portion of their membership benefits from

income transfers from the top towards the bottom. Conversely, if the economic position of members predominantly sets them as funders of redistribution, union support for redistribution should be modest. More formally, this argument is evaluated through a third hypothesis:

> *Hypothesis 3: Income redistribution is higher when union membership is more inclusive to lower-income earners.*

2.5.3 Article 3: Trade Unions, Inequality and Redistribution in Canada's Provinces: The Role of Membership Income Composition

Article 3 attempts to integrate the issues explored in the first two articles through a more in-depth examination of trade union membership composition and its impact on distributive outcomes. Further highlighting issues with the PRT assumption of labour homogeneity – that all union members share identical preferences for socioeconomic outcomes, which can be extended to non-unionized members of the working-class – the third article aims to demonstrate how the income profile of union members is key to understanding the impact of unionism on both market income inequality and income redistribution through taxes and transfers.

Using economic theory to extend PRT, a hypothesis is formalized on the effect of composition on market income inequality:

> *Hypothesis 1: Trade unions reduce market income inequality within the income segments where trade union members are predominantly located.*

Through testing this hypothesis the aim is to show how union composition enhances our understanding of the location, strength, and nature of unions' distributive impact.

Building from the second article, Article 3 also assesses the impact of membership composition on income redistribution through the following hypothesis:

> *Hypothesis 2: Income redistribution is higher when union membership is more inclusive to lower income earners.*

However, Article 3 goes beyond Article 2, by interpreting results in light of a more exhaustive decomposition of union membership income composition by income decile. This allows for a better understanding of why the redistributive effect of unions is targeted in specific areas of the overall income distribution.

2.6   Conclusion

This chapter started by defining inequality, redistribution, and trade unionism. From there it moved on to describe key relationships between these concepts through an overview of economic theory, power resources theory, and rational-choice theories of preferences for redistribution. This theoretical mixture provided the foundations for a general framework, which is original in its integration of many sources of labour and capital power resources. It is also innovative in its inclusion of trade union membership composition as a moderating factor of the relationship between trade unions and distributive outcomes.

The chapter concluded by specifying a set of workable hypotheses derived from the general theoretical framework. The next chapter outlines the operationalization strategy by discussing the measurement of each variable used in the empirical articles.

Chapter 3

Measuring the Distributive Effect of Trade Unionism

3.1 Introduction

This chapter decomposes concepts from the general theoretical framework presented in Chapter 2 into workable variables for quantitative analysis. Beyond providing the operationalization strategy for each variable, this chapter offers a detailed discussion of the advantages and disadvantages of different measurement approaches.

The chapter is divided in two parts. First, the dependent and independent variables are operationalized into measurable indicators. Second, the data source for each variable is presented.[1]

3.2 Operationalization of dependent variables

This thesis aims to study the how unionism affects distributive outcomes in Canada's provinces. In this part of Chapter 3, the broad conceptualization of economic inequality and redistribution is translated into working indicators that will be used throughout the empirical portion of the thesis.

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[1]Variable operationalization and data sources are presented more succinctly in each article in the empirical portion of this thesis (see Chapter 5, 6, and 7).

3.2.1 Economic inequality

To assess economic inequality, four measures are used: the Gini coefficient[2], two inter-decile ratios[3] (D_9:D_5 and D_5:D_2) and the share of total income held by the top 1 %. This set of indicators is used in an attempt to assess the union impact on different parts of the distribution. The Gini coefficient offers a good overall measure of inequality, but is most sensitive to changes in the middle of the distribution (Alloson, 1978; Atkinson, 1970; Heisz, 2016). The D_9:D_5 ratio measures how well the top of the distribution does relatively to the middle. The D_5:D_2 ratio measures how well the middle of the distribution does relatively to the bottom.[4] Finally, the share of total income held by the top 1 % of income earners measures changes at the top end of the distribution. These measures are calculated using market income[5], which acts as the "currency" of economic inequality. As for the "domain" of inequality, measures are calculated using individual income, which are derived from adjusted household incomes.[6]

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[2]The Gini coefficient is a summary indicator of inequality that ranges between 0 and 1, where 0 represents a situation of perfect equality (all persons have the same income) and 1 represents perfect inequality (one person holds all the income). Mathematically, the Gini coefficient can be defined as the relative mean absolute difference (Sen, 1977). It takes the following form:

$$G = \frac{\sum\limits_{i=1}^{n}\sum\limits_{j=1}^{n}|x_i - x_j|}{2\sum\limits_{i=1}^{n}\sum\limits_{j=1}^{n}x_j} = \frac{\sum\limits_{i=1}^{n}\sum\limits_{j=1}^{n}|x_i - x_j|}{2n\sum\limits_{i=1}^{n}x_i} \tag{3.1}$$

where x_i is the income of person i, and n is the total number of persons.

[3]Inter-decile ratios are calculated by dividing the upper income limit of the higher of the two deciles being compared (e.g. D_9) with the upper limit of the other (e.g. D_5).

[4]D_2 is used as opposed to D_1 as the upper income limit of the first decile in some provinces is equal to zero at certain time points.

[5]Market income is defined as income generated from earnings and investments (Heisz, 2016). Statistics Canada's "plain language definition" of market income is the "total income before tax minus income from government sources". Market income represents the economic resources that individuals can derive directly from market sources. This does not mean, however, that the distribution of market income is purely a market process. For example, the distribution of market income can be greatly affected by political decisions such as the enactment of labour-friendly legislation or the increase of the legal minimum wage.

[6]Individual incomes are adjusted to take into account economies of scale, which increase with household size. This is done by dividing household income by the square root of the number of persons within the unit and attributing the result as each person's income so that, for example, each individual in a four-person household with a total income of $ 100,000 is ascribed an income of $ 50,000. CANSIM individual market income estimates used to calculate the Gini coeffcents, the D_9:D_5 ratios and the D_5:D_2 ratios use this method. However, for the income share of the top 1 % measure, CANSIM market income estimates are unadjusted and include capital gains.

3.2.2 Economic Redistribution

Defining redistribution is a matter of assessing how government intervention reduces market inequality. As discussed in the previous chapter, there are many channels through which government redistribution happens. The empirical portion of this thesis, however, focuses on "explicit redistribution" through taxation and social transfers. The magnitude of explicit redistribution by government is commonly measured as the percentage change between market income inequality and after-taxes-and-transfers income[7] inequality (see Banting and Myles, 2016; Bradley *et al.*, 2003; Heisz, 2007; Kelly, 2008; Ostry *et al.* 2014; Pontusson, 2005). More formally, if one uses the Gini coefficient (G) as a measure of inequality, redistribution (R) is defined as follows:

$$R = \left(\frac{G_M - G_{ATT}}{G_M} \right) \times 100 \tag{3.2}$$

Where G_M is the level of market inequality and G_{ATT} is the level of after-taxes-and-transfers inequality.

3.3 Operationalization of independent variables

3.3.1 Market labour power resources: trade union variables

Following power resources theory and other theoretical extensions presented in the previous chapter, four trade union variables are operationalized. Three of them relate to different dimensions of union power: union density, union militancy, and union institutional power. The other, union inclusiveness, assesses the income composition of union movements.

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[7]Also known as disposable income, Statistics Canada simply refers to after-taxes-and-transfers income as "after-tax income" which is defined as "the total income from all sources minus federal, provincial and territorial income taxes paid for the reference year", http://www23.statcan.gc.ca/imdb-bmdi/document/NHS_D77_T7_V1-eng.html, accessed September 29th 2016.

Union density

Different measures of the power of labour unions are the principal independent variables of interest in this thesis. The two most frequently used measures to assess the market power of labour are (i) union density, also known as the unionization rate, and (ii) union coverage. Statistics Canada defines the union density as the proportion of employed workers who are union members and the union coverage as the proportion of employees covered by a collective bargaining agreement, whether they are union members or not (Galarneau and Sohn, 2013). Fitzenberger, Kohn and Lembcke (2012) define the two measures in the following way: "on the one hand, union density is a proxy for union power and therefore influences the bargaining outcome in the covered sector. Collective bargaining coverage, on the other hand, captures the actual application of bargaining agreements" (p. 3).

In the empirical portion of this thesis, union density will be preferred to union coverage for both theoretical and practical reasons. Theoretically, when comparing the two measures, it is often argued that union density offers a purer approximation of union power than union coverage. Fitzenberger, Kohn and Lembcke (2008) contend that "union density governs a union's threat point in the collective bargaining process and is therefore pivotal to the bargaining outcome" (p. 4). Their argument is based on the following logic:

> "The higher the number of union members paying membership fees, the higher is the union's funding. In case of industrial conflicts, higher financial power enables the union to pay strike benefits for a longer period of time. Financial power and union representation at the shop floor increase individual support for union action, the probability and the length of a strike, and therefore the expected damage inflicted upon employers" (p. 4).

Similarly, Visser (2013) argues that "bargaining coverage is a measure of union presence, not of union pressure in the labour market." He adds that "coverage rates tell us something about the size or reach of collective agreements, but nothing about the content, tightness, costs or benefits of these agreements" (p. 22). In fact, union coverage rate levels may have nothing to do with

labour power itself and more to do with employer organizations and the administrative governance of collective bargaining agreements (OECD, 2004).

This theoretical debate is, however, not very relevant within the context of the decentralized bargaining systems that exist in Canadian provinces. First, in Canada, as it is often the case in regions under conditions of predominantly single-employer bargaining, coverage only slightly surpasses density (OECD, 2004; Visser, Hayter and Gammarano, 2015) and both measures tend to move in the same direction over time (OECD, 2012). One exception to the predominantly decentralized bargaining system in Canadian provinces is Quebec's decrees system that allows "'juridical extension' of certain collective agreement provisions to cover employers and workers in a given geographic and industrial 'sector' who were not parties to the original collective agreement" (Slinn, 2015: p. 61) However, the number of workers that are affected by decrees has decreased tremendously over the years and, for the part, Quebec's collective bargaining system is decentralized at the firm level. Second, the prevalence of the Rand Formula, with automatic deduction of union dues, for union members and non-union members alike, further reduces the practical difference between density and coverage.

Finally, practical considerations also motivate the decision to use union density as an indicator of the market power of labour. Using union density allows for the use of a dataset that covers a slightly longer time period as information collected by Statistics Canada on union density dates back further than observations on union coverage.

Union militancy

As noted in the previous chapter, it is important to complement the assessment of labour power provided by union density with a measure which approximates levels of internal power resources. Such internal resources will be measured using an indicator of worker militancy. Available data for the Canadian provinces makes the approximation of the larger concept of worker militancy possible through a measure of labour dispute which includes estimates of both strikes and lockouts (Briskin

and Klement, 2004). The most frequently used measure of labour disputes in the literature involves estimating the person-days lost as a result of work stoppages (Rosenfeld, 2006). This is also the estimation strategy used by Statistics Canada (Akyeampong, 2001; 2006). More technically, the measure that will be retained for the empirical portion of this thesis will be the number of workdays lost due to strikes and lockouts per 1,000 employees. As this is a relative measure, it makes interprovincial comparisons more valid. However, as Akyeampong (2006) argues, this measurement approach comes with some drawbacks:

> "Analysis of year-over-year changes and trends in labour-dispute statistics is always problematic. The annual data are affected by many factors, among them collective bargaining timetables (in particular, the number and duration of agreements), size of the parties involved, duration of the stoppages, state of the economy and labour market, changes in industrial relations legislation, and labour-management relations. Other contributing factors include changes in union density (the proportion of employees unionized), and union tactics" (p. 5).

Among these issues, a notable problem is that including a measure of union militancy could induce multicollinearity in the models that include union density and other control variables discussed below.

Union institutional power

Union institutional power acts as an approximation of the porosity of governments to union demands. The argument, as it was made in the previous chapter, is that the extent of union influence over government should be reflected by the quality of the institutions on which unions rely.

Union institutional power is measured by the Labour relations index (LRI) created by Legree, Schirle and Skuterud (2014; 2016; 2017). This index captures the extent to which provincial labour relations statutes are supportive of trade unions. The LRI is constructed through the evaluation of laws that govern 12 aspects of labour relations covering features that range from the rules which frame the certification process to statutes on strike-breakers.[8] Formally, the index is constructed as follows. For each of the 12 aspects, a score of 0 is given when a law is relatively unfavourable

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[8]Appendix A presents the construction of this LRI in greater detail by defining each of the 12 aspect with which it is constructed.

to unions and a score of 1 is assigned when a law is relatively supportive of unions. In the year a law is introduced, a fraction representing the portion of the year the law was in place is assigned. The final composite index is obtained by calculating the unweighted average of the [0, 1] values in each province in each year.

Other indexes such as the Fraser Institute's Index of Labour Relations Law (Karabegovic, Gabler and Veldhuis, 2012) and the OECD's Employment Protection Legislation indicator could be used as alternatives to the LRI. However, the Fraser Institute's index is built more as labour market flexibility index and provincial data are not available for the OECD's indicator.

Union inclusiveness

The union inclusiveness measure serves as an approximation of union income composition. Specifically, it is used to test the underlying assumption of power resources theory that members of the labour-class, of which unions are representatives, have identical distributive preferences. It also serves as a tool to understanding why the distributive impact of unionism is targeted in specific areas of the overall income distribution. Following Becher and Pontusson (2011), union inclusiveness is measured using the percentage of union members located under the adjusted household median income. While Becher and Pontusson (2011) propose many similar measures, this is the one they prefer to use in their multivariate analysis. For comparison's sake, the same measure is used here.

3.3.2 Market capital power resources: globalization and financialization

In the previous chapter, it was argued that control over the process of globalization represents an important source of power resources for employers and capital owners. Indeed, by controlling the direction and intensity of globalization, capital can increase its power on the labour market *vis-à-vis* labour and coerce governments towards redistributive policies that are less favourable to labour. Similarly, financialization was also defined in the previous chapter as an inequality-increasing process that can be leveraged by economic elites to alter the distribution of power and

resources between labour and capital.

Globalization

Globalization is approximated through a conventional measure of trade openness which is used in many similar studies to this one (Breau, 2007; Checchi and Garcia Penalosa, 2008; Cousineau et Merizzi, 2015; Haddow, 2014, 2015, Jacobs and Myers, 2014). Trade ratios are simple intuitive measures obtained by dividing the sum of total exports and imports by gross domestic product (GDP). They are considered to be *de facto* measures of trade openness as they indicate the actual amount of trade that takes part in a specific region over a determined amount of time (Baccaro, 2011). Like in Haddow (2014, 2015), both international and interprovincial trade ratios will be used to measure the intensity of globalization in Canadian provinces. These ratios take the following form:

$$\text{International trade} = \left(\frac{\text{international imports + international exports}}{GDP} \right) * 100 \qquad (3.3)$$

$$\text{Interprovincial trade} = \left(\frac{\text{interprovincial imports + interprovincial exports}}{GDP} \right) * 100 \qquad (3.4)$$

Trade ratios are the most commonly used measures of trade openness and policy. Their popularity can be explained by the fact that data needed for their computation are readily available and, as they are quite commonly used, they facilitate for comparability across studies (David, 2007). That said, some comparable studies use multiple indicators to assess the intensity of trade in an effort to grasp a more sophisticated appraisal of the globalization process. For example, some authors complement trade ratios with indicators of tariff rates and of inward or outward foreign direct

investments (Baccaro, 2011; Bradley *et al*., 2003). Bradley *et al*. (2003) decompose trade ratios with a measure of imports from what they term "least developed countries" (non-OECD countries at the time of the study), which gives a more precise estimate of the potential effect of competition from low wages countries. However, these are comparative studies that focus on national entities for which more extensive data is available. When working with subnational units, such as Canadian provinces, there is much less available data and therefore less flexibility as to how to measure globalization.

Financalization

As in other studies looking at distributive outcomes, the financial sector is defined as the combination of finance, insurance, and real estate (FIRE) economic activities (Hyde *et al.*, 2017; Van Arnum *et al.*, 2013). Once the financial sector is defined, the next step is evaluating its relative importance in the economy. To do this, Hyde *et al.* (2017) use the proportion of total employment stemming from the FIRE sector to capture financialization. Van Arnum *et al.* (2013) use the percentage of value added to GDP by the FIRE sector. In this thesis, financialization in the provinces is assessed with a measure of the share of provincial gross domestic product generated (GDP) by the financial sector. This measurement is arguably broader and should offer a general appraisal of the process of financialization in the provinces.

Financialization is a multidimensional and complex concept. Accordingly, other measures have been used to assess its different dimensions such as indicators of credit expansion, financial crises (Hyde *et al.*, 2017), and ratios of financial receipts to business receipts of non-financial firms (Lin and Tomaskovic-Devey, 2013). However, to this author's knowledge, the data required for their computation are not readily available for Canadian provinces.

3.3.3 Political power resources

Power resources theory contends that the capacity of labour and capital to actualize political

power resources will affect inequality and redistribution. The partisan composition of government – whether it is sensitive to labour or capital interests – will determine the nature of government decisions with regards to the rules that regulate labour markets and explicit redistribution through taxes and social transfers.

Although there is debate among political scientists as to how political partisanship should be operationalized, the process usually consists in measuring either left- or right-party strength, or estimating both in alternative models, where strength is usually approximated by the share of cabinet seats held by a specific party (Allan and Scruggs, 2004). According to Haddow (2014), the common approach in Canadian research is to measure partisanship with separate dummy variables for left, centre and right incumbency (see Haddow, 2013; 2014; 2015; Noel and Deault Picard, 2015; Petry *et al.*, 1999; Roy and Boychuk, 2016; Tellier, 2006).

However, coding provincial political parties into categories of left, centre and right partisan orientation is a challenging task. This thesis will use Haddow's (2014) procedure. He codes the New Democratic Party (NDP) and the Parti Quebecois (PQ) as the political left, the Liberal Party as the centre, and the Progressive Conservatives (PC) as the political right. The British Colombia Social Credit Party and the Saskatchewan Party are both classified as the political right. While one could argue that the British Colombia Liberal Party should be coded as the political right,[9] Haddow finds no difference in outcomes in his empirical application when estimating an alternative model with the BC liberals coded as the political right.

Haddow's classification is consistent with Wesley's (2015: p. XXXII) analysis of data from the Comparative Provincial Election Project (CPEP), which assesses how Canadians view the provincial party systems in which they live. Wesley shows that while the left/right positioning of parties from the same political tradition do vary across provinces (e.g. the Liberals in Quebec and British Colombia are more to the right than the Liberals in the Maritimes), the rankings of major parties within provinces is consistent: the NDP (PQ in Quebec) is to the left, the Liberal Party is in the

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[9] In Noel and Deault Picard (2015), as in Roy and Boychuk (2016), the BC Liberal Party is coded as the political right, but these authors do not justify this decision. As the dependent variables in Haddow's study are similar to the ones in this thesis, his categorization of political parties will be used.

centre, and the PC is to the right.

Regardless of how one codes provincial parties, assessing the political context with a set of binary variables may not reflect overall changes to the political landscape. For example, the operationalization strategy used here may not capture the overall shift to the right in provincial politics in the era of neoliberalism, which might question the assumption that left and centre parties are relatively supportive of labour; compared to right parties. Indeed, after the high point of social democracy in the 1970s and the ascent of neoliberalism through the 1980s, every social democratic party that formed government in the provinces "abandoned core Keynesians policies and replaced them with supply-side policies on skill acquisition at the individual level, retreated from progressive taxation, and cut expenditures" (Evans and Smith, 2015: p. 387) Moreover, " [t]he New Democrats in Saskatchewan, BC, Ontario and Nova Scotia, as well as PQ governments in Quebec, have all imposed back-to-work legislation and other legislative strategies to discipline their public-sector workforce" (p. 386). These actions taken by the "left" indicate a shift in political philosophy that is not well reflected in the way partisanship is operationalized in this thesis. As political systems drift to the right in every province, the adequacy of positioning parties on a left-right spectrum is perhaps becoming increasingly inadequate if all governments, regardless of traditional partisan orientation, operate within the limited frame of zero-deficit politics. With these limits in mind, the conventional approach in operationalizing partisanship in comparative provincial studies is used in this thesis.

3.3.4   Control variables

Technological change

The literature proposes two strategies to operationalize and control for technological change. The first consists in using measures that account for the general level of educational attainment in the region of interest. This strategy is an indirect approximation of technological change as it assumes that an increased offer of highly skilled workers (higher levels of educational attain-

ment) is usually paralleled by increased investments in research and development, and skill-biased technologies. Common ways of measuring the increased supply of skills include university graduation rates (Cousineau et Merrizi, 2015), average number of schooling years of the working-age population (Baccaro, 2011), and secondary school enrolment as a percentage of the population of secondary school age (Bradley *et al.*, 2003).

The second strategy proposes to assess technological change through different measures of research and development (R&D) expenditure. Breau (2007) suggests that this kind of measure is a simpler and more direct estimate of technological change. In his study of inequality in Canadian provinces, he estimates technological change with an R&D-intensity index defined as the ratio of R&D expenditures to shipments. In his measure, R&D expenditures include those made by all levels of government, business enterprise, higher education, and private non-profit organizations as well as those from foreign sources. In a similar study, Cousineau and Merizzi (2015) complement their educational attainment measure with a direct estimate of R&D-spending per worker. In his international study, Baccaro (2011) concentrates on the specific kind of capital that the literature relates to skill-biased technological change. He estimates the ratio of the stock of information and communication technology capital over total capital. This kind of measure has the potential to be an even more direct approximation of the nature and application of new technologies in the production process that actually accentuate skill-based inequalities.

Breau (2007) argues that educational attainment measures "tend to assign other unexplained residual factors to technological change" and therefore do not "directly represent the sources and application of new technologies in the production process" (p. 80). Therefore, the second type of measure is retained for the empirical portion of this thesis. Specifically, much like in Baccaro (2011), a measure of information and communication technology investment (ICTI) as a percentage of yearly GDP will be used as a direct measure of the nature and direction of technological change.

Economic context

In addition to technological change, control variables assessing the economic circumstances of the provinces are included in the analysis to reduce the effect of confounding variables on the relationships under investigation. These include measures of GDP per capita (gross domestic product by total provincial population), the extractive sector's share of provincial GDP, employment rates (number of persons employed expressed as a percentage of the population 15 years of age and over), and unemployment rates (unemployed persons expressed as a percentage of the labour force). As provincial prosperity increases (economic and employment growth, and less unemployment), one would expect market inequality to fall. Falling levels of prosperity (economic downturns, decreasing employment and increasing unemployment) may have two opposite effects on redistribution. It can limit government fiscal capacity and thus its provision of social protection, but also increase economic insecurity, thereby stimulating demand for social protection and thus increased redistribution. As for the relative size of the extractive sector, studies in the Canadian context show that booms in the extractive resources sector can have significant distributive impacts, specifically by increasing the wages of less-educated and younger workers (Fortin and Lemieux, 2016). The effect of the relative size of the extractive sector on redistribution, however, is less straightforward.

3.3.5 Summary of variables

Table 3.1 summarizes all the variables discussed above. The table also indicates the proposed impact of all independent and control variables on both market inequality and redistribution. The "$-$" sign predicts a negative impact, the "$+$" sign predicts a positive impact, the "$+-$" relates a relationship that can be either positive of negative, and the "N/A" term reports an undefined relationship.

Table 3.1: Summary of variables and proposed effects

Variables	Definition	Proposed impact on	
		Market inequality	Redistribution
Dependent variables			
Market income inequality	Measured by four indicators: the Gini coefficient, D_9:D_5 ratio, D_5:D_2 ratio, and the income share of the top 1%		
Income redistribution	Percentage change between market income inequality and after-tax-and-transfers inequality as measured by the Gini coeffcient, D_9:D_5 ratio, D_5:D_2 ratio, and income share of the top 1%		
Independent variables			
Labour power resources			
Union density	Proportion of employed workers who are union members	−	+
Union militancy	Workdays lost due to strikes and lockouts per 1,000 employees	−	+
Union institutional power	Labour relations index (LRI)	−	+
Union inclusiveness	Percentage of union members located below the provincial median adjusted household income.	−	+
Capital power resources			
International trade	International imports plus exports as a percentage of GDP.	+	−
Interprovincial trade	Interprovincial imports plus exports as a percentage of GDP.	+	−
Financialization	Financial sector (FIRE) share of GDP	+	−
Political variables			
Left party incumbency	Dummy variable: score of 1 if the political left is in power and score of 0 if otherwise.	−	+
Centre party incumbency	Dummy variable: score of 1 if the political centre is in power and score of 0 if otherwise.	−	+
Control variables			
Technological change	Information and communication technology investment (ICTI) as a percentage of GDP.	+	N/A
GDP per capita	Average real income per person calculated by GDP divided by population.	−	−+
Extractive sector	Extractive resources sector's share of GDP	−	−+
Employment rate	Persons employed expressed as a percentage of the population 15 years of age and over	−	−+
Unemployment rate	Unemployed persons expressed as a percentage of the labour force	+	−+

Additionaly, while three categories of political incumbency were defined earlier in this chapter (left, centre and right), only two dummy variables (left party incumbency and centre party incumbency) are shown in Table 3.1. This is done to avoid the dummy variable trap or, more technically, to reduce multicollinearity in the multivariate models estimated in the empirical portion of this thesis. Deciding which category to exclude is a theoretical decision. In this case, following the

preceding discussions on power resources theory, it makes sense to exclude the political right. In this theory, right-wing governments are not seen as equally important protagonists of socioeconomic change affecting distributive outcomes. Omitting a dummy variable for right incumbency, however, does not mean that the political right is not incorporated in the analysis. Rather, the impact of the reference category whose dummy variable is embedded within the intercept term (McDaniel, 2016). In other words, the effects of left and centre-party incumbency is measured relative to right-party incumbency.

3.4   Data source

3.4.1   Market income inequality and income redistribution

The source of the income data used to measure inequality and redistribution is Statistics Canada's Canadian socioeconomic Information Management System (CANSIM) database.[10] The CANSIM database combines many surveys in order to generate longitudinal data series of income trends for Canada and its provinces.

Estimates for the four indicators of inequality and redistribution are constructed using three CANSIM tables. First, Gini coefficient values are taken directly from Table 206-0033. Second, estimates for the D_9D_5 and D_5D_2 ratios are calculated using information from Table 206-0031. Estimates in Table 206-0033 and 206-0031 rely on observations from three statistical surveys: the Survey of Consumer Finances (SCF) from 1976 to 1992, a combination of the SCF and the Survey of Labour and Income Dynamics (SLID) from 1993 to 1997, the SLID from 1998 to 2011, and the Canadian Income Survey (CIS) beginning in 2012.[11] Finally, data for the income share of the

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[10]During the analysis and writing of this dissertation, Statistics Canada has reorganized its website. All data, including data that was once located within the CANSIM database, are centralized in one location under the "Data" rubric of the institution's updated website. That said, the old CANSIM table numbers can still be used to retrieve data, meaning that the tables referred to here are still usable today.

[11]Estimates from the Survey of Consumer Finances include income data for persons aged 15 years and over. Estimates from the Survey of Labour and Income Dynamics and the Canadian Income Survey include income data for persons aged 16 years and over. This means that the income data used in this thesis is taken from the working-age population.

top 1 % of income earners are taken from Table 204-0001. Estimates in Table 204-0002 rely on observations from the Longitudinal Administrative Databank (LAD).

3.4.2   Labour power resources: trade union variables

Union density

Union density estimates by province are taken from CANSIM Table 279-0025 and 282-0220. Table 279-0025 offers provincial data from 1976 to 1995 period based on observations from the Corporations and Labour Unions Returns Act (CALURA). Table 282-0220 provides provincial data from 1997 onward and is based on the LFS. The missing provincial values for 1996 are added by linear extrapolation.

Union militancy

The information needed to construct the union militancy variable (workdays lost due to strikes and lockouts per 1,000 employees) is provided by two CANSIM tables based on observations from the LFS. First, the number of days lost to work stoppages are given by CANSIM Table 278-0009. Second, the number of employed persons is taken from CANSIM Table 282-0087.

Union institutional power

Yearly provincial data for union institutional power is measured by the Labour Relations Index (LRI) of which estimates are taken directly from the database created and provided by Legree, Schirle, and Skuterud (2014; 2016; 2017).

Union inclusiveness

The union inclusiveness measure (proportion of union members located under the overall median adjusted household income) is constructed using public-use microdata files from the Survey

of Labour and Income Dynamics (SLID).[12] Creating this variable consists in giving each individual an income equal to the square root of the total market income of their respective household. Once this is done, the overall distribution is split in half. The final step is to estimate the proportion of union members in the bottom half of this distribution.[13] The STATA code for constructing this variable using SLID microdata files is presented in Appendix B.

3.4.3 Capital power resources: globalization and financialization

Globalization

The international and interprovincial trade ratios are computed with estimates in CANSIM Table 384-0038 taken from the Provincial and Territorial Gross Domestic Product by Income and Expenditure Accounts statistical program. The ratios are calculated using expenditure-based gross domestic product estimates expressed in 2007 chained dollars which adjust real dollar amounts for inflation over time.

Financialization

The financialization variable (FIRE sector share of GDP) is constructed using estimates from CANSIM Table 379-0003 for the 1984 to 1996 period and CANSIM Table 379-0030 from 1997 onward. Estimates in both these tables are based on the Gross Domestic Product by Industry – Provincial and Territorial statistical program.

3.4.4 Political power resources

Data used to construct the left party incumbency and centre party incumbency variables are

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[12]As the 2001 public-use SLID microdata file has an unsatisfactory sample size, estimates for 2001 are generated by linear extrapolation.

[13]As some provinces have low numbers of observations, union membership is extended to include all individuals covered by a collective bargaining agreement to increase reliability. This is minor adjustment considering that union density and coverage are very highly correlated in the provinces and that coverage levels only slightly surpass density levels.

taken from the Canadian Parliamentary Guide.[14]

3.4.5   Control variables

Technological change

The technological change variable is constructed using two CANSIM tables. Total information and communication technology investments are calculated by summing yearly investments in software, and computers and electronics. These estimates are available in CANSIM Table 031-0007 which is based on observations from the Stock and Consumption of Fixed Non-Residential Capital statistical program. GDP estimates are taken from CANSIM table 384-0038, which rely on observations from the Provincial and Territorial Gross Domestic Product by Income and Expenditure Accounts statistical program.

Economic context

Four variables – GDP per capita, the extractive sector's share of GDP, employment rates, and unemployment rates – are used to control for the economic context of each province. First, for the GDP per capita variable, yearly provincial GDP estimates are taken from CANSIM Table 383-0038 which are then divided by population estimates from CANSIM Table 051-0001. Second, data used to construct the extractive sector's share of total GDP variable is taken from CANSIM Table 379-0003 for the 1984 to 1996 period and CANSIM Table 379-0030 from 1997 onward.[15] Third, employment- and unemployment-rate estimates are taken directly from CANSIM Table 282-0087 which is constructed from LFS observations.

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[14]More information on this guide is provided here: http://www.greyhouse.ca/parl.htm, accessed November 4th 2016.

[15]Table 379-0003 follows the Standard Industrial Classification SIC, and defines the extractive sector as including mining (including milling), quarrying and oil-well industries. Table 379-0030 follows the North American Industry Classification System (NAICS) and defines the extractive sector as including mining, quarrying, and oil and gas extraction.

3.4.6 Summary of data source

Table 3.3 below summarizes the data source of each variable. As it is a summary table, only the direct source of data is specified. In other words, the CANSIM tables from which the data is taken directly are noted, while the survey data – such as the LFS or the SLID for example – on which CANSIM constructs its estimates are not.

Table 3.2: Summary of data sources

Variables	Data source
Dependent variables	
Market inequality	CANSIM Table 206-0031, 206-0033 and 204-0001
Redistribution	CANSIM Table 206-0031, 206-0033 and 204-0001
Independent variables	
Labour power resources	
Union density	CANSIM Table 279-0025 and 282-0220
Union militancy	CANSIM Table 278-0009 and 282-0087
Union institutional power	Legree, Schirle and Skuterud (2014; 2016; 2017)
Union inclusiveness	SLID public-use microdata files
Capital power resources	
International trade	CANSIM Table 384-0038
Interprovincial trade	CANSIM Table 384-0038
Financialization	CANSIM Table 379-0003 and 379-0030
Political variables	
Left party incumbency	Canadian Parliamentary Guide
Centre party incumbency	Canadian Parliamentary Guide
Control variables	
Technological change	CANSIM Table 031-0007 and 384-0038
GDP per capita	CANSIM Table 383-0038 and 051-0001
Extractive sector	CANSIM Table 379-0003 and 379-0030
Employment	CANSIM Table 282-0087
Unemployment	CANSIM Table 282-0087

3.5 Conclusion

This chapter provided the operationalization strategy and the data source for each variable. The empirical originality of this thesis is particularly evident by the many indicators used to measure the dependent variables, which allow for an assessment of the union impact in different segments of the income distribution. It is also observed in the multidimensional operationalization of trade

union power, for which four variables are constructed, including one accounting for membership composition.

Chapter 4

Analytical Strategy: Assessing Trade Unions' Distributive Effect Within and Between Provinces

4.1   Introduction

This chapter outlines the analytical approach used in each of the three articles presented in the following chapters, constituting the empirical portion of this thesis. The methodological approach in each article is quantitative. Univariate and bivariate analyses are carried out to describe and explore key relationships. This is followed by multilevel analyses of time-series-cross-section data using a random-effect modelling strategy. As univariate and bivariate analyses are common and generally well understood, this chapter focuses on defining time-series cross-sectional (TSCS) data analysis.

The chapter is divided as follows. First, it describes TSCS data, overviews the advantages and disadvantages of using this type of data, and compares different methods to model its time and spatial structure. The chapter ends by selecting and defining the modelling approach used in the empirical portion of this thesis.

4.2   Defining TSCS data

"Time-series-cross-section data are characterized by having repeated observations on fixed

units, such as states or nations" (Beck and Katz, 1995: p. 634) and are "perhaps the most commonly used data in comparative politics (broadly defined as any comparison of political units) and in comparative political economy" (Beck and Katz, 2011: p. 332). TSCS data can also be defined as what Bartels (2008) calls "clustered data". Panel data, multilevel data and TSCS data can all be seen as clustered data structures which "possess multiple levels of analysis where lower-level units of analysis are nested within higher level units of analysis" (Bartels, 2008: p. 1). Sometimes, clustered data is also referred to as "hierarchical data" (Bell and Jones, 2015).

The hierarchical nature of TSCS data becomes apparent by the way databases of this type are stacked by level of analysis. Table 4.1 below provides an example of TSCS data. The observations within the table are sorted first according to cross-sectional unit (by province) and then by time period. More technically, in this example, provinces are seen as level-2 units (clusters) and time points are seen as level-1 units (measurement occasions).

The size of a TSCS dataset is obtained by multiplying the number cross-sectional units (N) by the number of time points (T). Thus, if an analyst is interested in the Canadian provinces ($N = 10$) over three decades ($T = 30$) then he or she is working with a dataset containing 300 observations or measurement occasions ($10 \cdot 30 = 300$).

Table 4.1: TSCS data structure

provinceID	year	Var 1	Var 2	Var 3	Var 4
Alberta	1980	...	...	...	...
Alberta	1981	...	...	...	...
Alberta	...	...	...	...	...
Alberta	...	...	...	...	...
Alberta	2014	...	...	...	...
Ontario	1980	...	...	...	...
Ontario	1981	...	...	...	...
Ontario	...	...	...	...	...
Ontario	...	...	...	...	...
Ontario	2014	...	...	...	...

In this thesis, all multivariate analyses will be carried out on what Stimson (1985) classifies as temporally-dominated TSCS data, for which the number of measurement occasions (yearly

observations) is superior to the number of clusters (provinces).

4.2.1 TSCS data: advantages and disadvantages

The advantages of using TSCS data are well known and need not be discussed in great detail here. Podesta (2002) suggests three broad benefits of TSCS data.

First, when dealt with separately, time-series (TS) analysis and cross-sectional (CS) analysis both face the problem of small sample sizes, which can lead to violations of standard statistical analysis. Alternatively, pooling TS and CS data can greatly increases sample sizes and thus the number of predictors that can be included in the analysis. This is because a large temporal or spatial dimension can be leveraged to inflate the total number of observations.

Second, pooled datasets allow for the evaluation of variables that otherwise elude study in simple cross-sectional or time-series analysis. "This is because their variability is negligible, or not existent, across either time and space" (p. 8). For example, while provincial statutes regarding the unionization process may not vary much over time, these institutional differences may differ quite substantially across provinces and thus represent an important predictor of the outcome variable – an effect that would go unnoticed in simple time-series analysis.

Third, Podesta argues that pooled-TSCS analysis provides the opportunity to "capture not only the variation of what emerges through time and space, but the variation of these two dimensions simultaneously" (p. 8). However, a simultaneous interpretation of these two dimensions can lead to what Bartels (2008) calls "cluster confounding". Rather, Bartels suggests that "estimating separate within- and between-cluster effects, allows for more explicit substantive interpretations of effects" (p. 2). The real advantage TSCS analysis, he argues, is that one can clearly distinguish the within-cluster effects (an effect over time) and the between-cluster effects (cross-sectional effect) of predictors.

However, TSCS analysis has many disadvantages. The general problem with using a pooled design is that "both the temporal and spatial properties of TSCS data make the use of ordinary least

squares (OLS) problematic" (Beck and Katz, 1995: p. 634). Indeed, pooled-TSCS designs often violate some of the core OLS assumptions about the error process, namely that the error terms are independent and identically distributed (i.i.d). Analysts using pooled-TSCS data must deal with three well known issues: the possibility that errors show (i) between unit heterogeneity, (ii) spatial correlation across units, and (iii) serial correlation within units. Each of these three broad issues is briefly discussed below, then are further assessed in the following sections.

Unit heterogeneity

The first issue relates to the likelihood that the errors in TSCS models show unit or panel heterogeneity, where the variances of the error process differ from unit to unit" (Beck and Katz, 1995: p. 636). This happens because units with "higher values on variables tend to have less restricted and, hence, higher variances on them" (Podesta, 2002: p. 10). It can also be caused by the scale of the dependent variable (for example, absolute levels of government spending), which may vary considerably between political units (Beck and Katz, 1995).

More technically, unit heterogeneity means that there is heterogeneity of the intercepts between units (Beck and Katz, 2011). This means that units (provinces in this case) "differ in ways not explained by observed independent variables" (Wilson and Butler, 2007: p. 104). If researchers estimate simple OLS models on data pooled from different units "they implicitly assume that unobserved local factors do not exist" (p. 104). This assumption can lead to severe consequences such as overestimation or underestimation of the slope coefficients or even to a misdiagnosis of the direction of the relationship between predictor and outcome variables.[1]

Spatial correlation

The second issue relates to the possibility that "TSCS errors to be contemporaneously corre-lated in that large errors for unit i at time t will often be associated with large errors for unit j at time t" (Beck et Katz, 1995: p. 636). This is common to international or subnational comparative

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[1]For a graphical representation of these consequences, see Wilson and Butler, 2007: p. 105.

designs where political economies are strongly integrated. For example, exogenous shocks that affect distributive outcomes in Quebec are likely to also affect these outcomes in Ontario. It may be expected that subnational studies are even more likely to show contemporaneous correlation in the error terms as Canadian provinces share shocks induced by federal-level forces. It is distinctly possible, for example, that changes to the federal employment insurance program will have an impact on the distributive outcomes of all provinces. Contemporaneous correlation may also differ across political units (Beck and Katz, 1995). For example, it is expected that the exogenous shock of deindustrialization will induce contemporaneous correlation in the error terms between the provinces that have big manufacturing sectors such as Ontario and Quebec. Therefore, it is expected that TSCS designs will violate the OLS assumption that "errors for one unit are unrelated to the errors for every other unit (no spatial correlation)" (Beck and Katz, 1995: p. 636).

Serial correlation

Finally, the implications of the time-series dimension of TSCS data is that the errors may show temporal dependence (Beck and Katz, 1995), meaning that errors for unit i at time t are correlated with errors for unit i at time $t + 1$. For example, it is likely that the level of economic inequality at time t is strongly determined by its previous value at time $t - 1$. The time dimension of TSCS data heavily structures the data and must be modelled. Not modelling these dynamic issues can lead to weak tests of theory, biased estimates, and incorrect inferences (De Boef and Keele, 2008).

Having covered, the most oft-cited problems in TSCS analysis, it is now time to turn to how these problems may be dealt with.

4.3   modelling TSCS data

For over thirty years, starting with the oft-cited article by Stimson (1985), methodologists have been working on ways to properly model TSCS data. Beck and Katz's (1995) solution to dealing

with TSCS-design issues became the dominant approach in comparative studies working with political units. Their three-step solution can be summarized as follows:

1. "Pool the data from different units (countries) into one data set and apply ordinary least squares (OLS);

2. Adjust for autocorrelation by either adding an LDV [lagged dependent variable] to the model or transforming the data based on an estimate of autocorrelation of the error terms, assumed to be common across panels; and

3. Calculate panel-corrected standard errors (PCSEs)" (Wilson and Butler, 2007: pp. 103-104).

However, over time it became evident that this solution was unsatisfactory and that the dynamic and cross-sectional issues in TSCS analysis have been largely ignored by analysts (Wilson and Butler, 2007). Since the Beck and Katz's 1995 article, methodologists have proposed increasingly sophisticated ways to deal with issues relative to regression analysis across time and space. A brief overview of these methods is outlined in the next four sections. The first section offers preliminary information on notation and nomenclature. It also presents the basic pooled-modellingTSCS model. The next two consider estimation techniques for the time-series dimension and the cross-sectional dimension of TSCS analysis. The fourth proposes a general strategy for TSCS modelling.

4.3.1 Notation, nomenclature, and restricted TSCS models

As the specifications discussed in this section appear in any standard text or lecture notes, they are discussed without citation or claims of originality. Conventional usage is followed for notation and nomenclature.

As noted before, the number of cross-sectional units is denoted by N, the number of time points T, and the total number of observations is given by NT. In this thesis, time periods correspond to years and units to provinces.

In a pure cross-section dataset (e.g. a snapshot in time of economic inequality in multiple provinces), the basic model is:

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$$y_i = \alpha + x_i \beta + \varepsilon_i \qquad (4.1)$$

where $i = 1,...N$, α is a constant (the intercept), x_i is an observation on a single independent variable or a vector of such variables in unit i, and ε_i is an error term. In a pure time-series dataset (e.g. economic inequality in a single province), the basic model is:

$$y_t = \alpha + x_t \beta + \varepsilon_t \qquad (4.2)$$

where $t = 1,...T$, α is a constant (the intercept), x_i is an observation on a single independent variable or a vector of such variables at time t, and ε_i is an error term. Finally, in a TSCS dataset (e.g. economic inequality in multiple provinces over time), the basic model is:

$$y_{i,t} = \alpha + x_{i,t} \beta + \varepsilon_{i,t} \qquad (4.3)$$

where $i = 1,...N$, $t = 1,...T$, α is a shared constant (shared intercept) across all is, $x_{i,t}$ is an observation on a single independent variable or a vector of such variables in unit i at time t, and $\varepsilon_{i,t}$ is an error term. The model shown in Equation (4.3) is a highly restricted pooled-TSCS design. Embedded in this model are temporal and spatial assumptions. First, it assumes that the intercept α does not vary across units. As discussed above, this is a problematic restriction insofar as it disregards the possibility of unit heterogeneity. Second, this model assumes no time structure in the data and thus restricts the dynamic dimension to be static. As noted above, ignoring potential serial correlation can lead to erroneous estimates and misguided inference.

While unlikely, if the TSCS data satisfies all OLS assumptions including the three highlighted earlier (i.e. no unit heterogeneity, no spatial correlation, and no serial correlation), then the model in Equation (4.3) can be estimated using OLS and OLS standard errors (Beck and Katz, 1995). However, as this is rarely the case, other models must be considered to deal with TSCS issues.

4.3.2 modelling the time-series dimension

A fundamental assumption in Equation (4.3) is that there is no covariance between error terms at time t and errors at a different time point k. That is to say that $Cov(\varepsilon_{i,t}, \varepsilon_{i,k}) = 0$. In most TSCS data, this assumption is problematic as it is expected that multiple observations of a same social outcome are correlated across time. In more practical terms, it is expected that the value of income inequality in a province at time t is correlated with its previous values at times $t-1$, $t-2$, and so on. As a consequence of the time structure of TSCS data, one must correctly model dynamics in order to get unbiased estimates and make reliable inferences. This section offers an overview of modelling strategies for the dynamic component of TSCS data. For the most part, the focus is on modelling dynamics using stationary data, but some comments are made on TSCS analysis with non-stationary data further below.[2] Additionally, only the modelling of first-order processes is discussed below, meaning that it is assumed that the dynamics only go back one time period.[3] The technical presentation that follows is strongly inspired by those of De Boef and Keele (2008) and Beck and Katz (2011). No claims of originality are made.

Equation (4.3) is commonly referred to as a static model. "The specification is static because any changes in $x_{i,t}$ or the errors are felt instantaneously and their effect dissipates instantaneously; there are no delayed effects" (Beck and Katz, 2011). This is the most restricted specification, which means it is nested in all the dynamics models to follow.

A simple way to add dynamics to a static specification is to use a finite distributed lag (FDL)

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[2]"A univariate process is stationary if its various moments and cross-moments do not vary with time. [...] Stationary processes are mean reverting, and the best long-run forecast for a stationary process is that mean. Thus, we can think of the mean as the 'equilibrium' of a stationary process. Alternatively, we can think of the statistical properties of the data as not varying simply as a function of time (so, for example, there are no trends in the data)" (Beck and Katz, 2011: p. 333). A non-stationary series is one that often raises issues relating to "unit roots or integrated series in which shocks to the series accumulate forever. These series are long memoried; even distant shocks persist to the present" (Beck and Katz, 2011 : p. 342). As stationarity is an assumption that underlies many statistical procedures in TSCS analysis, non-stationary data is often transformed to become stationary.

[3]TSCS data can be structured by higher-order processes. All the models presented here can be generalized to allow for these higher-order dynamics. For simplicity's sake, the presentation is restricted to first-order processes.

model which assumes that the effect of $x_{i,t}$ on $y_{i,t}$ sets in over two or more periods but then dissipates. The FDL is expressed as follows:

$$y_{i,t} = \alpha_0 + \beta_0 x_{i,t} + \beta_1 x_{i,t-1} + \varepsilon_{i,t} \tag{4.4}$$

Another common way to add dynamics to the static model is to specify a first-order autoregressive (AR1) errors process. Assuming an AR1 process is, in fact, assuming that one has the following serially correlated (SC) error model:

$$y_{i,t} = \alpha_0 + \beta_0 x_{i,t} + \varepsilon_{i,t} + \rho v_{i,t-1} \tag{4.5}$$

where $\varepsilon_{i,t}$ refers to an independent identically distributed (iid) error process and $v_{i,t}$ refers to a generic error process that may or may not be iid.

The most commonly used dynamic model is the lagged dependent variable (LDV) model, also known as the partial adjustment (PA) model, which takes the following form:

$$y_{i,t} = \alpha_0 + \alpha_1 y_{i,t-1} + \beta_0 x_{i,t} + \varepsilon_{i,t} \tag{4.6}$$

This model implies that the effects of $x_{i,t}$ and on $y_{i,t}$ are largest in the current period and decay in subsequent periods.

All of the above models are nested in the general autoregressive-distributed lag (ADL) model:

$$y_{i,t} = \alpha_0 + \alpha_1 y_{i,t-1} + \beta_0 x_{i,t} + \beta_1 x_{i,t-1} + \varepsilon_{i,t} \tag{4.7}$$

meaning that the FDL, SC, and LDV models are all restricted forms of the ADL.[4] Note that the ADL model can be rewritten in error correction (EC) form. This is done by first subtracting $y_{i,t}$

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[4]Other restricted forms of the ADL model exist (see, De Boef and Keele, 2008), but only the restrictions that are more frequently used in TSCS are discussed here.

from both sides of equation (4.7) to get the first difference in $y_{i,t}$ on the left-hand side, and adding and subtracting $\beta_0 x_{i,t-1}$ from the right-hand side to get the first difference of $x_{i,t}$. Regrouping terms after this sequence of operations leads to:

$$\Delta y_{i,t} = \alpha_0^* + \alpha_1^* y_{i,t-1} + \beta_0^* \Delta x_{i,t} + \beta_1^* x_{i,t-1} + \varepsilon_{i,t} \tag{4.8}$$

As shown by De Boef and Keele (2008), it is easy to see the equivalence between the ADL and the EC models by simple substitution: $\alpha_1^* = (\alpha_1 - 1)$, $\beta_0^* = \beta_0$, and $\beta_1^* = (\beta_0 + \beta_1)$. Here, the short-run effects of $x_{i,t}$ and $x_{i,t-1}$ are given by β_0^* and $\beta_1^* - \beta_0^*$ respectively. Choosing between an ADL or EC specification is a matter of usage: "For comparison with other models [more restricted models] the ADL model works better, but for direct substantive interpretation of the coefficients the EC model is easier to work with (since one can directly read off the short-run impact of a change in x as well as various long-run impacts)" (p. 335).

How does one choose a dynamic model? De Boef and Keele (2008) suggest that the answer is quite simple: "begin by estimating a general model, using theory and empirical evidence as the basis for estimating restricted models" (p. 189). They add this: "While theory is a necessary condition for building good dynamic specifications, it is seldom sufficient. Given that caveat, good econometric practice is to start with general models and test using t or F tests or the AIC[5] to be sure any restrictions imposed are consistent with the data" (p. 199). This strategy prevents analysts from imposing invalid restrictions to their model, which can lead to biased estimates of coefficients, and thus incorrect inferences. Given the annual data typically used in studies that compare political units, Beck and Katz (2011: p. 340) argue the ADL model with no more than two lags is often the most general specification that need be considered. They also argue that "more parsimonious specifications are easier to interpret (and convey to the reader), and so more complicated specifications with higher-order lags come at a cost" (p. 340).

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[5]The Akaike information criterion (AIC) is a commonly used measure of the relative quality of statistical models.

How does one substantively interpret dynamic models? Dynamic models allow us to estimate and test for short- and long-run effects and to compute a variety of quantities that help reach a deeper understanding the temporal articulation of social processes (De Boef and Keele, 2008: p. 191). While the short run effects are readily available in the ADL and EC models above, the way long-run effects can be extracted from dynamic models are discussed below. Subsequently, mean- and median-lag lengths and the information they provide are also discussed.

As it is more straightforward with the EC model, it is used to show how long-run effects can be estimated. Long-run effects are obtained by estimating the long-run multiplier (LRM) for x. LRMs are defined as the total effect that $x_{i,t}$ has on $y_{i,t}$ distributed over future time periods (De Boef and Keele, 2008). When using the EC model, the LRM is easily calculated by dividing β_1^* by α_1^*, where β_1^* is the long-run effect and α_1^* gives the error correction rate (or speed of adjustment) with which to compute the number of time periods that pass before the long-run effect of $x_{i,t}$ dissipates.

One can extract even more information from dynamic models by computing mean and median lag lengths. Doing so provides information as to "[...] how many periods it takes for some portion of the total effect of a shock to dissipate or how much of the shock has dissipated after some number of periods" (De Boef and Keele, 2008: p. 192). For example, the median lag length – which indicates the first successive period at which at least half the total shock has dissipated – is calculated "by listing the effect of a unit change in $x_{i,t}$ at each successive lag, standardizing it as a proportion of the cumulative effect, and then noting at which lag the sum of these individual effects exceeds half of the long-run effect" (p. 192). De Boef and Keele (2008) provide a more detailed technical presentation on how to calculate these quantities and discuss all the substantive information that can be derived from them.

Two broad conclusions can be drawn from this short overview of dynamic models. First, analysts must carefully choose the model that rightfully fits the temporal structure of their data, keep-

ing in mind that the costs of imposing invalid restrictions are high. This is most easily done by starting with general models and then, data permitting, using more parsimonious models. Second, analysts should extract all pertinent information from dynamic models. "A complete interpretation of dynamic linear models requires a careful explication of short- and long-run effects, error correction rates, long-run multipliers, and mean and median lag lengths" (De Boef and Keele, 2008). Doing so provides the necessary tools for more robust theory testing.

4.3.3   modelling the cross-sectional dimension

Accounting for unit heterogeneity: fixed effects models

There are multiple ways to allow for unit heterogeneity. The simplest and most commonly used approach to model unit heterogeneity is to allow the intercepts to vary by unit. This is called the fixed-effects model (FEM). Although recent contributions have argued strongly for alternatives (more on these below), FEMs are considered by many to be the "default" strategy or the "gold standard" in dealing with unit heterogeneity (Bell and Jones, 2015). Fixed-effects models have the following form:

$$y_{i,t} = x_{i,t}\beta + f_i + \varepsilon_{i,t} \tag{4.9}$$

where f_i is a set of dummy variables $(f_1, f_2, ..., f_N)$ marking each cross-sectional unit (e.g. province). Notice that this notation of the FEM has no constant term. If a constant term is included, then one must use $N-1$ provincial dummies to avoid perfect collinearity. In fact, instead of a shared constant term, FEMs give each unit their own intercept. This is equivalent to "unit centering all observations, so that the only question at issue is whether temporal variation in x is associated with temporal variation in y; all cross-sectional effects are eliminated by unit centering" (Beck, 2009: p. 483).

Not including fixed effects (FE) could lead to omitted variable bias where fixed effects both explain y and are correlated with x. It is quite easy to test if fixed effects belong in the model. This

is done by estimating Equation (4.9) and then testing "the null hypothesis that all the f_i are equal. This is most easily done via a standard *F*-test on a model with a constant term and one particular effect dropped, with the null being tested that all the other effects are zero" (Beck, 2009: p. 483).

However, including fixed effects can come at serious costs. First, including fixed effects implies adding dummy variables which use up a large number of degrees of freedom, which makes estimation difficult. Second, and more importantly, "a characteristic (some would say a shortcoming) of the FEM is that time-invariant variables cannot be included in the model, and slowly moving variables will typically have high standard errors because they will be highly correlated with the fixed effects" (Wilson and Butler, 2007: p. 105). This can pose a problem in studies of comparative political economy which often include institutional variables that vary very little or not at all over time. Including fixed effect models could remove the explanatory power of such variables and increase the likelihood of type II errors.

Potential solutions to this problem have been suggested. Plumper and Troeger (2007) propose the use of a fixed-effect vector decomposition (FEVD) estimator to allow time-invariant variables to be modeled within the framework of the FEM. However, this strategy has been widely criticized by methodologists (see Bell and Jones, 2015: p. 140). Others argue that well-specified models often do not require fixed effects (Beck, 2009), as good theory could make them irrelevant. However, Wilson and Butler (2009) show that not testing for fixed effects on the basis of theory is misguided:

> "But to use theory as an argument against the diagnostic value of FEM is to fundamentally misunderstand the role of statistical analysis in theory evaluation. If we knew the true model (not that a model is ever really "true") and had all the appropriately measured data, then this would be a valid argument. But absent divination of the true specification, we first use regression analysis to test our theories against plausible alternatives. Unit heterogeneity represents the alternative explanation (almost always a plausible one) that unobserved local factors drive, at least in part, the cross-country variation in the dependent variable. In most cases, researchers are painfully aware of potentially important variables that are missing from the analysis. Accounting for these missing variables is not atheoretical; it is simply careful science" (p. 106).

Despite the drawbacks of using fixed-effects model, they remain an important tool in dealing with unit heterogeneity in TSCS analysis and can be estimated using OLS. Moreoever, analysts who

use FEMs often estimate panel-corrected standard errors (PCSE), which account for nonspherical errors.[6]

Accounting for unit heterogeneity: random effect models

An alternative to FEMs are random-effect models (REMs), which are becoming the preferred approach by researchers to deal with unit heterogeneity. Bell and Jones (2015) argue that random-effect models and their extensions,[7] "can provide everything that FE promises and more" (p. 133), notably by allowing for the use of time-invariant variables. Moreover, Bartels (2008) shows that REMs provide a solution to substantive interpretation problems associated with "cluster confounding", which occur when one cannot differentiate within- and between-cluster effects. Indeed, newer formulations of REMs do not assume that the within- and between-unit effects of predictors are the same, which allows for a more substantive interpretation of results. However, before turning to these new modelling approaches, the classical REM is defined. The technical presentation that follows is strongly inspired by those of Bartels (2008) and Bell and Jones (2015).

It is convenient to look at TSCS as multilevel data with two levels of analysis. In the context of this thesis, time points (yearly observations) are said to be nested inside higher-level units (provinces). If $N = 10$ and $T = 30$, then one has 300 measurement occasions (level-1 units) nested in 10 provinces (level-2 units). Within this structure, time-varyant variables are said to be located at level-1 and time-invariant variables (contextual variables) are located at level-2.

The RE solution to unit heterogeneity is to "partition the unexplained residual variance into two: higher-level variance between higher-level entities and lower-level variance within these entities, between occasions" (Bell and Jones, 2015: p. 135). This is achieved by having a residual term (error term) at each level, the higher-level residual being the random effect. The classic RE

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[6]For more information on PCSEs see Beck and Katz (1995).

[7]A word on terminology: Bartels (2008) clarifies that "the term "random effects" technically implies both a random intercept model (RIM) and the more general random coefficient model (RCM)" (p. 1).

model can be expressed as follows:

$$y_{i,t} = \beta_{0i} + \beta_1 x_{1i,t} + \varepsilon_{i,t} \tag{4.10a}$$

where

$$\beta_{0i} = \beta_0 + \beta_2 z_{2i} + u_i \tag{4.10b}$$

Equation (4.10a) and Equation (4.10b) are respectively the "micro" and "macro" parts of the model or the level-1 and level-2 components of the model. By substituting the level-2 equation into the level-1 equation, Equation (4.10a) and Equation (4.10b) can be estimated together:

$$y_{i,t} = \beta_0 + \beta_1 x_{1i,t} + \beta_2 z_i + (u_i + \varepsilon_{i,t}) \tag{4.11}$$

where, in the fixed part of the model, β_0 is the intercept term, $x_{1i,t}$ is a time-variant independent variable (or a vector of such variables) measured at level-1 with coefficient β_1, and z_i is a time-invariant independent variable or a vector of such variables measured at level-2 with β_2. The "random" part of the model consists of u_i, the level-2 residual term for level-2 entity i which allows for differential intercepts for level-2 entities, and $\varepsilon_{i,t}$, the level-1 residual term for measurement occasion t of higher-level unit i. By including β_{0i}, the intercept is allowed to vary randomly across level-2 units with u_i representing unobserved heterogeneity in higher-level units.

If one assumes that the error terms u_i and $\varepsilon_{i,t}$ are normally distributed, one can estimate their overall variances:

$$u_i \sim N(0, \sigma_u^2) \tag{4.12a}$$

$$\varepsilon_{it} \sim N(0, \sigma_\varepsilon^2) \tag{4.12b}$$

In essence, what the classic REM does is partially pool the data by "assuming that [...] higher-level entities, though not identical, come from a single distribution σ_u^2 – which is estimated from the data, much like the occasion-level variance σ_ε^2 – and can itself be interpreted substantively"

(Bell and Jones, 2015: p. 136).

While they have been shown to perform well, REMs are not as widely used as FEMs. Two reasons explain this: the problem of endogeneity and the issue of omitted variable bias in REMs.

The problem of endogeneity has to do with the "exogeneity assumption of RE models: that the residuals are independent of the covariates; in particular, the assumptions concerning the occasion-level covariates and the two variance terms" (Bell and Jones, 2015: pp. 136-137). In other words, the problem lies mostly in the fact that the assumption of no covariation between level-1 independent variables and level-2 residuals ($Cov(x_{i,t}, u_i) = 0$) often does not hold in practice. In effect, "the discovery of this endogeneity has regularly led to the abandonment of RE in favour of FE estimation", which as was discussed earlier, "models out higher-level variance and makes any correlations between that higher-level variance and covariates irrelevant, without considering the source of the endogeneity" (Bell and Jones, 2015: p. 137).

The omitted variable bias has to do with the commonly held argument that RE modelling "is inappropriate because it treats unobserved heterogeneity across countries as random" (Bartels, 2008: p. 8) instead of modelling it, thus leading to potential omitted variable bias. This is, according to Bartels, a common misconception. In fact, all the REMs do is separate the random error into a within-cluster ($\varepsilon_{i,t}$) and between-cluster ($u_{i,t}$) component. The real disadvantage of RE modling has to do with the interpretation of the coefficients. Indeed, "though the coefficients from an RE model are now partially pooled, as opposed to completely pooled, the estimates still assume that the within- and between-cluster effects are equal, this making substantive interpretations imprecise" (p. 8).

The general problem with standard REMs is that they model two processes in one term. In other words, classical REMs assume that the within- and between-unit effects are the same, which can lead to cluster confounding (Bartels, 2008). This problem can be solved by REMs that effectively distinguish the within- and between-unit effects. This is made possible by adding "one additional

term in the the model for each time-varying covariate that accounts for the between effect that is, the higher-level mean" (Bell and Jones, 2015: p. 141). This additional term is then treated in the same way as any other level-2 variable. Formally, the level-1 and level-2 models, respectively, are expressed as follows:

$$y_{i,t} = \beta_{0i} + \beta_{1i} x_{i,t} + \varepsilon_{i,t} \tag{4.13a}$$

and

$$\beta_{0i} = \beta_0 + \beta_2 z_i + \beta_3 \bar{x}_i + u_i \tag{4.13b}$$

By combining Equation (4.13a) and Equation (4.13b), one obtains:

$$y_{i,t} = \beta_0 + \beta_1 x_{i,t} + \beta_3 \bar{x}_i + \beta_2 z_i + (u_i + \varepsilon_{i,t}) \tag{4.13c}$$

where $x_{i,t}$ is a time-variant variable (or a vector of such variables), $\bar{x}_i$ is the unit mean of x_t (the time-invariant component of time-variant variables). More clearly, β_1 is an estimate of the within effect (as the between effect is controlled by $\bar{x}_i$ and β_3 estimates the "'contextual' effect that explicitly models the difference between the within and between effects" (Bell and Jones, 2015: p. 141). One can get a direct estimate of the between-cluster effect by redefining β_3 as this difference:

$$y_{i,t} = \beta_0 + \beta_1 x_{i,t} + (\beta_4 - \beta_1) \bar{x}_i + \beta_2 z_i + (u_i + \varepsilon_{i,t}) \tag{4.14a}$$

which can be rearranged as:

$$y_{i,t} = \beta_0 + \beta_1 (x_{i,t} - \bar{x}_i) + \beta_4 \bar{x}_i + \beta_2 z_i + (u_i + \varepsilon_{i,t}) \tag{4.14b}$$

where β_1 and β_4 respectively give direct estimates of the within- and between-effects of $x_{i,t}$. Bell and Jones (2015: p. 142) argue that the formulation in Equation (4.14b) is preferred to that of Equation (4.13c) for three reasons: (i) temporal data is more easily interpreted as the within- and

between-effects are clearly separated; (ii) while group mean centering $x_{i,t}$ in Equation (4.13c) induces correlation between $x_{i,t}$ and $\bar{x}_i$, this collinearity is lost in Equation (4.14b); and (iii) in the event where multicollinearity exists between $\bar{x}_i$s and time-invariant variables, the former can be dropped without the risk of heterogeneity. Again, as with the more standard REM, the residuals are assumed to be normally distributed (see Equation 4.7a and Equation 4.7b).

Bell and Jones (2015: pp. 143-144) demonstrate that the FEM is actually a constrained form of the REM. In fact, REMs that properly specify the within- and between-effects provide identical results to FEMs. The great advantage of REMs is that between-effects can be truly modeled and estimated using meaningful variables at both levels of analysis (Bartels, 2008; Bell and Jones, 2015). As opposed to FEMs, REMs also do not limit the types of hypotheses that can be tested (Bartels, 2008). More advanced formulations of REMs (e.g. Random coefficient models) can be used to test even more sophisticated hypotheses such as how level-2 variables can mediate the effects of level-1 variables on the dependent variable (Beck, 2009).

4.3.4   Combining dynamic and cross-section models

If the TSCS data being used exhibits issues relative to its structure in both time and space, then one has to model both dimensions simultaneously. Combining dynamic and cross-sectional models is quite straight forward. For example, an LDV model (Equation 4.6) can be combined with an FE model (Equation 4.9) in the following way:

$$y_{i,t} = \alpha_1 y_{1i,t-1} + \beta_1 x_{i,t} + f_i + \varepsilon_{i,t} \tag{4.15}$$

Remember that an FE model need not have a shared intercept if a dummy variable is included for each unit. Similarly, an LDV model (Equation 4.6) can be combined with a standard RE model (Equation 4.11):

$$y_{i,t} = \alpha_0 + \alpha_1 y_{i,t-1} + \beta_1 x_{i,t} + \beta_2 z_i + (u_i + \varepsilon_{i,t}) \tag{4.16}$$

There are plenty more combinations that analysts can use to model TSCS data. Both theory and the data itself must guide the modelling decision process.

4.3.5 Modelling TSCS data: an iterative process

Modelling TSCS is an iterative process through which many specifications must be tested and compared to find the model or models that best fit the data. It is a data-driven process in the sense that it is the structure of the data that determines the statistical models, these are not forced upon the data.

Methodologists agree that there is no single way to go about analyzing TSCS data. Wilson and Butler (2007: p. 212) argue that analysts who still wonder "Where is the fix?" completely misunderstand the iterative process that is TSCS modelling. In a review of dynamic models for TSCS data, Beck and Katz (2011) conclude by stating that "there is no cookbook for modeling the dynamics of TSCS models" (p. 350). More generally, Beck (2009) points out that TSCS data presents "a series of interesting issues that must be carefully considered, and not a standard set of nuisances that can be dealt with by a command in some statistical package. There is never a statistical panacea, and there is no such panacea for TSCS or BTSCS[8] data" (p. 491).

In conclusion, as Wilson and Butler (2007) argue, TSCS data used in the comparison of political units are "often error-ridden, highly aggregated, or otherwise problematic", thus "the bar for confirming theories with regression analysis should be very high" (p. 119). The best prescription is to take time-series and cross-sectional issues seriously and to use and compare diligently the tools developed by methodologists.

4.4   Selecting the modelling approach

Given the advantages outlined above, the empirical portion of this thesis, which includes three articles presented in the following chapters, will rely on the multilevel analysis of TSCS data us-

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[8]time-series-cross-sectional using a binary dependent variable.

ing random effect models that distinguish the within- and between-province effects of independent variables. As discussed above, this approach does not assume that the within- and between-unit effects of predictors are the same. By modelling heterogeneity between provinces using meaningful variables, this strategy allows for a more substantive interpretation of results than would be possible using fixed-effects or classical random-effect models (Bartels, 2015; Bell and Jones, 2015). While multilevel estimation for macro-level TSCS data is rather new to comparative political economy, scholars have started to adopt this strategy in subnational (Haddow, 2016) and international studies (Jacques and Noel, 2018).

The effect of each predictor used in the empirical analysis to follow has two dimensions. The first dimension is the within-effect or the over time impact of predictors. This measures how short-term changes to variables, year-to-year variations in this case, are associated with short-term variations of the dependent variable. The second dimension is the between-effect impact of variables. It estimates how changes to the average level of independent variables between provinces is associated with changes in the dependent variable. This impact is said to be long-term.

The models estimated in each of the three articles take the following form:

$$y_{i,t} = \beta_0 + \beta_1(x_{i,t} - \bar{x}_i) + \beta_2\bar{x}_i + (u_i + \varepsilon_{i,t}) \tag{4.17}$$

where β_1 and β_2 are respectively the direct within- and between-effects estimates of each independent variable, and where u_i and $\varepsilon_{i,t}$ are respectively the between-unit and within-unit component of the error term.

Beyond its technical appeal (see Bartels, 2015; Bell and Jones, 2015), this modelling strategy has practical advantages for the analysis proposed here. First, it allows a simultaneous estimation of the short- and long-term impact of each predictor. In the case of union density, for example,

it becomes possible to assess whether variations in unionization rates are linked with long-term provincial differences in distributive outcomes and short-term changes in inequality within the provinces. Second, this approach makes it possible to measure, within one model, the effect of competing sets of predictors, which theory suggests should unfold at different moments in time. For example, power resources theory suggests that the distributive impact of political partisanship and union power are the result of long-term path dependencies that should be more evident in the long-run between-unit regression estimates (Haddow, 2016). This is especially true for the political variables, which for many of provinces vary very little or not at all over time. Conversely, theory suggests that it is the intensification of the processes of globalization and financialization that are said to impact income inequality, not their average levels across provinces. The impact of the steady intensification of these processes is expected to be captured by the short-term within-unit regression estimates.

As for the structure of the data used in each of the following articles, tests show that they are structured through time and space. The modified Wald test indicates the existence of heteroscedasticity for all models in each article. The Breusch-Pagan Lagrange multiplier test for independence identifies contemporaneous correlation and the Lagrange multiplier test additionally detects serial correlation in all models. To address these issues, models in all three articles are estimated with panel-corrected standard errors (PCSEs) and first-order autocorrelation process (AR1).

4.5 Conclusion

This chapter focused on defining TSCS analysis and providing some strategies for dealing with its common issues. It also constitutes a considerable effort to explore and clarify different approaches to TSCS data analysis. The chapter ended by selecting an analytical strategy for the empirical articles that make up the following three chapters. This strategy – the multilevel analysis of TSCS data using random effect models – reflects recent methodological advances in studies of

comparative political economy. As such, this thesis uses the most advanced analytical tools to explore the relationship between trade unionism, inequality and redistribution.

Now that the research question is set, the theoretical framework outlined, the variables operationalized, and the analytical approach defined, the empirical investigation can begin. This investigation is presented in the the next three chapters, each of which consists of a distinct article.

Chapter 5

Labour Power Resources and Market Income Inequality: An Analysis of Canadian Provinces (Article 1)

Abstract: Using power resources theory (PRT) as a frame of analysis, this article looks at the relationship between unions and market income inequality in Canadian provinces. The study expands on standard tests of PRT by conceptualizing the processes of globalization and financialization as capital power resources. Further, it broadens the empirical definition of union power by adding a measure of union militancy to complement union density. The study also uses a set of four inequality measures to assess the union effect on different segments of the income distribution. Results from time-series cross-sectional (TSCS) analysis using multilevel modelling suggest that union power is only moderately associated with market income inequality. Only union militancy appears to be linked with lower inequality and this relationship is only true for changes in the middle and upper half of the distribution. As for capital power resources, estimates indicate the increasing effect of financialization on the economic configuration of the provinces to be associated with higher levels of income inequality.

Key words: Trade Unions, Income Inequality, Power Resources Theory, Multilevel Analysis

5.1 Introduction

As wages are stagnating, as labour's share of the national income is decreasing, and as different types of economic inequality are intensifying (ILO, 2015), many influential scholars are left

wondering how to build a countervailing force to capital in an attempt to insure fairness in the distribution of economic resources. Unions can be such a counter-power or, many would argue, they used to be.

The golden age of unionism coincided with the "great compression", an expression first used by Goldin and Margo (1992) to signify a historical period ranging from the 1940s to the 1970s when economic inequality was drastically reduced in most industrialized countries. In addition to the levelling effect of the devastation of capital investments induced by the two World Wars and the Great Depression, and the equalizing effect of the strong economic growth of the post-war decades (Piketty, 2013), many scholars (Atkinson, 2015; Krugman, 2009; Reich, 2015a) suggest that the counter-power provided by unionism and unions' role in the development of progressive public policy had a significant impact on the reduction of income and wealth inequality.

Labour's effectiveness in influencing distributive outcomes was supported by strong union militancy and union friendly legislation. In Canada, during the 1960s and the 1970s, workers saw the extension of collective labour rights to the public sector and the strengthening of these rights in the private sector, the constitutionalization of the prohibition of discrimination at work, the expansion and strengthening of minimum labour standards and legislation relating to health and safety, and the expansion and strengthening of social rights related to medical care and pensions (Fudge, 2010). Indeed, the golden age of unionism coincided with the golden era of industrial citizenship.

However, starting in the late 1970s and early 1980s, as the world entered the neoliberal era, something changed. From this moment on, a general decline of unionization was observed in the industrialized world (Pinto and Beckfield, 2011). Analysts highlight both the exogenous and endogenous reasons of union decline. On the exogenous side, structural change to the economy is by far the most commonly used narrative to explain deunionization trends. Under the pressure of globalization and major technological changes, the bulk of the economic output of advanced economies has moved from highly unionized goods-producing sectors to a lightly unionized service industry

(Kochan, 2012). Another development, the financialization of the economy, is also said to have a negative impact on unionization (Darcillon, 2015; Sweeney, 2013; Vachon *et al.*, 2016). Others have pointed to the open opposition of employers to unionism (Freeman, 2005; MacDonald, 2014) legitimized by declining approval ratings among the general population (Freeman, 2005) and by the rise of neoliberalism symbolized by the anti-union policies of Ronald Reagan and Margaret Thatcher (Jacobs and Myers, 2014).

Those who emphasize the endogenous factors highlight the difficulties unions face in developing strategies for their renewal and adaptation to changes in the external environment. Some focus on the misapprehension and under-exploitation of unions' own power resources (Levesque and Murray, 2010). Others argue that decline followed a legitimacy crisis caused by unions' inability to represent the different interests of a diverse workforce and to develop a common identity (Culpepper and Regan, 2014; Dufour and Hege, 2010). The decline of union power has also been explained by the loss of union influence in the political sphere and by the fact that unions have not been able to propose a convincing progressive alternative to neoliberalism (Hyman and Gumbrell-McCormick, 2010). On this last point, MacDonald (2014) argues that union leaders in North America have acted within the "strategic horizon defined by neoliberal capitalism" (p. 731), which has contributed to the reproduction of this ideological system and to the failures of unions themselves.

The causes of union decline have been looked at extensively. What is less well understood, however, are the consequences of such a socioeconomic transformation (Rosenfeld, 2014). While work has started in this regard, much remains to be done.

This article seeks to contribute to a growing literature on the socioeconomic consequences of union decline by looking at its distributive impact. It attempts to answer a fundamental question: do unions promote more equal societies? The reduction of inequality has become an important criterion by which to assess the overall contribution of unions to welfare as inflation has been replaced by increasing worker insecurity as the dominant issue facing post-Keynesian economies

(Crouch, 2017). Moreover, while inequality reduction has long been seen as a purely moral or ethical objective, recent evidence shows that more equal societies tend to foster more sustained periods of economic growth (OECD, 2014; Ostry, Berg and Tsangarides, 2014). That being the case, inequality reduction must not only be seen as a means to temper social unrest derived from sentiments of injustice, but also as a lever of prosperity.

More precisely, this study focuses on evaluating the relationship between unionism and market income inequality in Canadian provinces from 1984 to 2013. Expectations on the nature of this relationship are derived from both political (power resources theory) and economic theory. These expectations are tested on TSCS data using a multilevel modelling approach. For the most part, results show that trade union power is modestly associated with market income inequality. In fact, only one dimension of union power, union militancy, appears to be significantly linked with inequality, this relationship being positive (inequality-reducing) and targeted in the middle and upper half of the income distribution. Alternatively, estimates show one dimension of capital power, financialization, to be significantly associated with higher levels of market income inequality throughout the distribution.

Working on the provinces offers a set of analytical advantages that will be discussed below, but generally relate to the increased capacity to control confounding variables in a subnational comparative research design. Moreover, while union decline and increased inequality are a common theme to many provinces, substantial differences in distributive outcomes exist across these subnational units despite them all being liberal market economies within a single federation. This suggests that there are forces at work at the provincial level that matter for income inequality, which would not be possible to grasp in a national or international level analysis.

The organization of this article is divided as follows. First, the theoretical and empirical literature on the distributive impact of unions is assessed in order to derive formal hypotheses. Second, the variables are selected and the methodological strategy of the study, which relies mostly on bi-

variate descriptive statitics and multivariate time-series-cross-sectional analysis, is defined. Third, the results are presented and discussed.

5.2 Literature review: trade unions and inequality

5.2.1 Economic theory

Starting with Freeman (1980) and Freeman and Medoff (1984), the economic literature on the relationship between unionism and inequality has largely focused on how the union wage premium affects the distribution of wages. To evaluate the overall impact of unions on the distribution of wages, one must look at both the "within-sector effect" and the "between-sector effect" of unionism.

On the one hand, within the unionized sector, unions are said to raise wages disproportionally at the bottom of the distribution relative to the top, therefore reducing wage dispersions. However, the importance of this within-sector compression effect partly depends on where unionized workers are located in the wage distribution (Fortin, Green and Lemieux, 2012). If only a small proportion of union members are located at the bottom of the overall wage distribution, the within-sector compression effect will be relatively small. On the other hand, it is theorized that the between-sector effect of the union wage premium increases wage dispersion. As the union wage premium increases, labour demand for union workers declines. This increases the offer of labour in the nonunion sector and, in turn, puts a downward pressure on the wages of non-unionized workers. This is commonly known has the "spillover effect" of unionization. However, Western and Rosenfeld (2011) argue that the impact of unions on nonunion wages need not be negative as powerful union movements contribute to a moral economy that institutionalizes norms of equity benefiting all workers. Moreover, in highly unionized regions or economic sectors employers with nonunion labour may chose to increase wages as a means to avoid unionization itself. This union "threat effect" can offset the inequality-increasing between-sector union effect. Overall, unions produce more equal distribution of wages when their inequality-reducing effect more than offsets their

inequality-increasing effect.

Union decline should theoretically increase inequality as the overall impact of the within sector compression effect is reduced when the proportion of the workforce that is unionized diminishes. Inequality may also increase as the union "threat effect" becomes less plausible in a context of deunionization. However, union decline could reduce wage inequality as the between-sector effect of unionism becomes less and less important. Empirical findings seem to support the first two points. Card, Lemieux and Riddell (2004) find that union decline explains roughly 15 percent of the rise of wage inequality in Canada in the 1980s and 1990s. In the United-States, Western and Rosenfeld (2011) estimate that union decline explains between one-fifth and one-third of the increase in wage disparities between 1973 and 2007. However, these empirical observations are mostly true for male workers (Western and Rosenfeld, 2011; Fortin, Green and Lemieux, 2012) as deunionization has been concentrated in sectors dominated by men.

Economic theory is insightful in explaining the impact of unions on wage differentials in the labour market. However, it defines unionism in a relatively narrow way, focusing only on wage bargaining and thus understating the broader distributive impacts of unions. Economic theory fails to appreciate how unions can have an impact on labour market policies, which greatly effect distributive outcomes.

It cannot explain, for example, why unions in many Canadian provinces are actively supporting the "Fight for $ 15 and Fairness", a campaign aimed at improving the economic well-being of those at the very bottom of the distribution, while leaving the economic position of most union members unchanged. If unions are narrowly defined as economic agents, it becomes hard to understand why they would lobby for policy change that does not benefit them directly. The reason why unions push for broad socioeconomic change is because they not only represent their members as wage-earners, but also as citizens and human beings (Murray and Verge, 1999) with, it has been argued, more prominent egalitarian dispositions (Mosimann and Pontusson, 2017). Focusing on

the within- and between-effects discussed above neglects other channels through which unions can reduce inequality, more generally. Beyond compressing wages within the unionized workforce or influencing policy, union presence has also been shown to tighten the general distribution of compensation within firms. Indeed, studies show that union presence reduces the concentration of economic resources at the very top of the distribution by reducing CEO compensation (Banning and Chiles, 2007; Gomez and Tzioumis, 2006; Huang and *al.*, 2017). These findings suggest, as Gomez and Tzioumis (2006) argue, "that unions may indeed operate as a "fairness factor and/or implicit regulator", translating union members desire for reduced intra-firm wage dispersion into reality" (p. 18).

If the compression effect of unions goes beyond their motivation to limit differentials among their own members, then evaluating the distributive impact of unions requires a theory that offers a more comprehensive definition of unionism and of its role in capitalistic societies. This is where power resources theory (PRT) offers an interesting avenue of analysis.

5.2.2 Power resources theory

PRT suggests that the balance of power between labour and capital is the main determinant of the allocation of resources in the labour market and of the redistribution of material resources through the welfare state (Becher and Pontusson, 2011; Bradley et al., 2003; Busemeyer, 2015; Kelly, 2008; Korpi, 1998, 2006, O'Connor and Olsen, 1998). Although capital owners will always have the upper hand in a capitalist system, the lower classes can limit their structural disadvantage through the collective mobilization of resources, which can lead to significant institutional reform and the reduction of inequality of all types (Korpi, 1998; Olsen and O'Connor, 1998).

In PRT, unions are defined as having a much larger role in capitalistic societies. They are seen as class representatives, which act as a vehicle for the actualization and amplification of labour power resources (LPRs) in both the private and political domain. Defining unionism as both an economic and political vehicle allows analysts to evaluate the broader distributive impact of unions. This means that studies do not need to focus on wages, a narrow "currency" of inequality,

but can also look at broader currencies such as income and wealth. Many studies have evaluated the union-inequality relationship using market income as a currency and have found that unionism does promote more equal societies by reducing market income inequality (Baccaro, 2011; Breau, 2007; Cousineau et Merrizi, 2015; Golden et Wallerstein, 2011; Jacobs and Myers, 2013; Jaumotte and Buitron, 2015; Kellermann, 2007; MacKenzie et Shillington, 2015; Pontusson, 2013; Visser et Checchi, 2012). How does PRT explain this?

Higher levels of unionization should produce a more equal distribution of economic resources on the labour market as higher coordination and cooperation amongst workers gives them more leverage over employers and capital owners. However, defining union power as a basic function of union density rates can be misleading. Declines in unionization rates do not necessarily equate with the weakening of unions. For example, French unions have long maintained that "membership was less important than the ability of unions to mobilize workers to support them when necessary, for example, in obeying strike calls or in voting for union candidates in works council elections" (Crouch, 2017: p. 5). It has nonetheless become routine in the study of unionism to "begin by citing declining union density figures as proof of labour's weakness" (Sullivan, 2010: p. 147). To correct for this bias and to complement the sometimes narrow lens of the density-as-power orthodoxy, endogenous sources of union power must be considered.

Strikes and political protest provide a channel through which unions can increase their influence in the labour market and the political sphere. While disruptive tactics in the work place are less frequent and less effective than they once were, militant actions, general strikes and mass protest still represent an important source of union power which can be harnessed internally (Sullivan, 2010). Recent evidence from Western Europe shows that even in a context of declining membership, density, strike action, and bargaining power, union-led general strikes have still managed to elicit concessions from governments wishing to pursue new policies or policy reforms (Hamann, Johnston and Kelly, 2013). In the same vein, Crouch (2017) finds evidence that the capacity of unions to reduce inequality does not operate as much through the powers provided by

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numbers as it does through union incorporation in the governing institutions. Conversely, evidence from the United States suggests that while "union presence within an industry still translates into higher wages compared to industries and regions lacking labor representation" (Rosenfeld, 2006: p. 257), strike activity "no longer positively influences worker pay at the industry-region level" (p. 257). Rosenfeld's results also suggest that strike activity "fails to translate into narrower wage distribution for workers within particular industries and regions" (p. 257). Hence, while internal union resources most definitely matter, the structural power offered by numbers remains important.

The distributive impact of unions is not limited to how they constrain employers in the labour market, but also extends to how they exert influence in the political domain. In capitalist democracies, the state can have a significant impact on the economic welfare of individuals. The nature of this impact on inequality will greatly depend on the "degree to which the state utilizes its legitimate use of force to protect current property holders as opposed to redistributing property of various types has important implications for the relative well-being of the rich and the poor" (Kelly, 2008 : p. 84). To influence the state's position within this dilemma, the members of the lower classes can mobilize their individual voting rights in an attempt to put into power a political party reflecting their egalitarian and solidaristic values. However, isolated voters from the lower classes can only have a limited impact on the results of democratic elections and, in turn, on the decisions of the party in power. To increase their influence individual voters can align collectively with political parties representing the interests of those at the bottom of the income distribution.

In PRT, political parties that form governments are seen as the actor having the greatest and most direct influence on public policies. However, putting left-leaning parties into power requires broad coalitions that are able to transcend the political domain and the labour market (Kelly, 2008). A close link between the two vehicles through which labour power resources can be combined is therefore needed. What speaks clearly to this link is the fact that unionized individuals have been found to have a higher propensity to exercise voting rights than non-unionized persons (Pontusson, 2013; Rosenfeld, 2014).

This review of literature leads to a set of testable hypotheses on the effect of unions on inequality:

> *Hypothesis 1: Higher levels of unionization are associated with less market income inequality.*
>
> *Hypothesis 2: Higher levels of union militancy are associated with less market income inequality.*
>
> *Hypothesis 3: Higher levels of left- and centre-party incumbency are associated with lower levels of market income inequality.*

5.2.3 Extensions to PRT

PRT is defined above in its classical formulation, which focuses exclusively on the power resources of labour. Proponents of PRT have mainly been concerned with the analysis and measurement of labour's power resources and their impact on society (Olsen and O'Connor, 1998: p. 21). This follows from the contention that the lower classes are the main protagonists of socioeconomic change in capitalist democracies. However, for a theory which postulates that the balance of power between socioeconomic actors explains the distributive outcomes of capitalistic democracies, PRT shows little interest in the power resources of the upper classes. Very few studies using this theoretical approach have attempted to measure the fluctuations in capital power resources (CPRs). Yet, Jacobs and Myers (2014) show that the increase in power resources of pro-capital right-wing coalitions contributed strongly to the increase of economic inequality in the United States since the early 1980s (Jacobs and Myers, 2014). The authors argue that the increased power resources of right-wing coalitions in the US can be explained by the cultivation of antiunion ideologies, the enactment of antiunion policies, the implementation of neoliberal policies promoting financialization via the deregulation of financial markets, and other structural changes such as the globalization of production which have the effect of increasing the power resources of the upper classes.

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Despite recent attempts to pay more attention to CPRs, it appears that this deficiency largely persists today. This bias is corrected here by conceptualizing and operationalizing the processes of globalization and financialization as capital power resources.

In most studies, globalization is defined as an exogenous processes that induces natural changes in the allocation of economic resources within capitalist democracies. International trade theory suggests that globalization increases inequality within advanced economies by reducing the demand and wages of unskilled labour while having an opposite positive effect on skilled wage earners (Freeman, 2009).

Viewed in this way, globalization becomes a deterministic process over which actors have little power. However, if globalization produces winners and losers, then these processes become a "social problem". If there are winners and losers, then it is likely that some groups may wish to perpetuate the process and other groups may wish to amend it. This brings us to consider questions of power when studying such a process.

It is likely that those who write the rules that govern globalization are the ones who benefit from it. A recent study forecasting the potential socioeconomic returns of the Trans-Pacific Partnership trade agreement (TPP) estimates that the agreement would have a negative impact on economic growth and employment while also increasing economic inequality in Canada (Capaldo, Izurieta and Sundaram, 2016). Public figures and the media have highlighted that TPP negotiations took place in secret and only involve corporate and government representatives, to the exclusion of labour and the general public (Reich, 2015b, Stiglitz, 2014). In Canada, even when public consultations were carried out, there has been some worry that most of the participants were directly invited by government officials and consisted for the most part of industry representatives or specialists from academia (Dey, 2016). If the rules that frame how globalization evolves only reflect the preferences and preoccupations of business, then globalization becomes a process through which the power of capital owners can be increased and the distribution of economic resources tilted evermore in their favour. Regarding the relationship between business and government in

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Canada, Coleman (2013) argues that business associations have much more access to government than labour with a select group of business chief executives having especially close ties to top ministers. This reality can be partly explained by the fact that "business leaders occup[y] a 'privileged position' in capitalist economies, because they 'do not appear simply as the representatives of a special interest', but as 'functionaries performing functions that government officials regard as indispensable'" (Lindblom, 1977, cited in Farrell and Newman, 2015: 529).

In seeing globalization as an endogenous process, many authors highlight how business gains structural power over labour from globalization and use this power to exacerbate the impacts of globalization on distributive outcomes in a way that favours capital. This increased power is derived from the ease with which firms can relocate their activities when the barriers to the exit and entry of capital are lowered. The power is defined as being structural because firms do not need to physically relocate to gain a bargaining advantage against labour or to influence government decisions regarding labour market regulations or fiscal policy (Berger, 2000).

Financialization is a "process whereby financial markets, financial institutions and financial elites gain greater influence over economic policy and economic outcomes" (Palley, 2007: p. 1). Through the "thesis of financialization", Palley (2007) argues that financial markets "should be seen as part of an economic system that distributes power and affects the character of production and the distribution of income" (p. 5). He adds that economic outcomes such as changes in the functional distribution of income, wage stagnation, and increased income inequality should be understood as the result of a new economic configuration promoted by financial interests. Many authors suggest that the rise of financialization and of the economic model it promotes is the result of a deliberate political agenda that gave rise to neoliberalism, a framework built on market-based ideas, which has become the dominant paradigm of global economic policy. Indeed, financialization accelerated following important financial market deregulation in 1980s and became over time "a core feature of neoliberalism" (Hyde *et al.*, 2017: p. 1) or even its "most fundamental product" (Tomaskovic-Devey and Lin, 2011: p. 556).

While studies concerned with the distributive impacts of financialization are relatively recent, the literature has started to offer a better understanding of the processes through which financialization affects inequality.

Financialization is said to have an impact on corporate behaviour by aligning the interests of management with those of shareholders, the result being a change in managerial priorities from the growth of market share to short-term profits (Palley, 2007). This means that rather than investing profits in research and development or fixed capital – the basis of long term profitability, real growth, and higher employment and wages – firms prefer to act upon short-term strategies relying on financial strategies. Such strategies can take the shape of firms using profits or debt to repurchase their own stocks (buybacks) to increase share value in the short run, while undermining productive reinvestments and wages (Lazonick, 2014). Such behaviours are exacerbate by the growth of stock-option pay for top executives, further aligning financial interests with corporate priorities (Palley, 2007; Lazonick, 2014).

Another way financialization is affecting inequality is by redefining power dynamics within non-financial firms whose earnings are increasingly generated through financial participation and investment. This is how, for example, nonfinancial firms such as General Motors and Ford have come to generate most their earnings through their auxiliary financial institutions, which were initially conceived to complement their productive ventures, but have expanded their portfolio over time so as to resemble financial firms (for detailed examples of such firm activities, see Lin and Tomaskovic-Devey, 2013: p. 1293). Lin and Tomaskovic-Devey (2013) argue that the financialization of nonfinancial firms has "decoupled the generation of surplus from production, strengthening owners' and elite workers' negotiating power relative to other workers", the result of which has been the "incremental exclusion of the general workforce from revenue-generating and compensation-setting processes" (p. 1284).

As the financial industry grows, financialization may also increase inequality simply because earnings in the the financial sector are higher and increasing, compared to other sectors. This is happening because the financial sector has been extracting rents from workers in nonfinancial firms

(Lin and Tomaskovic-Devey; 2013; Tomaskovic-Devey and Lin, 2011). This process, Hyde *et al.* (2017) explain, "increases compensation of financial sector workers, puts downward pressure on wages of nonfinancial workers, and increases the demand for low-wage service workers who cater to the needs of financial workers – all of which contribute to polarized income distributions" (p. 4). Through rent theory, Tomaskovic-Devey and Lin (2011) argue that politically and ideologically motivated institutional transformations, such as financial market deregulation, provided market power to financial actors, which allowed them to grasp a larger share of income at the expense of other actors in society.

Financialization and globalization have distributive consequences, which are the result of power dynamics. The increasing magnitude and effect of these processes are the result of political actions, are giving some actors – those located at the top of the income distribution – access to great economic gains, while others have dealt with job loss and wage stagnation. In this view, globalization and financialization are conceptualized here as capital power resources, which when amplified, should increase income at the top of the distribution and, by definition, economic inequality. More formally, from this discussion two more hypotheses are specified:

> *Hypothesis 4: Higher levels of globalization are associated with more market income inequality.*

> *Hypothesis 5: Higher levels of financialization are associated with more market income inequality.*

5.2.4 Other drivers of inequality

While the distributive impact of LPRs and CPRs is the main line of inquiry, there are other competing explanations on the drivers of inequality which must be taken into consideration. One common explanation is technological change.

Economists have for the most part explained the impact of technological change on inequality through the theory of skill-biased technological change. This theory suggests that the direction of technological change in the production of goods and services such as the introduction of new information and communication technology favours the economic fortunes of skilled workers, leaving unskilled workers behind, and increasing the income gap between these two groups (Acumoglu, 2002; Violante, 2008)

Technological change can also be seen, at least in part, as an endogenous process. Aktinson (2015) argues that states can influence the direction, nature and distributive consequences of technological change through public funding of research initiatives and the procurement objectives of government. Moreover, Green and Townsend (2013) argue that states can endogenously dictate the direction and distributive impact of technological change by favouring the development of certain skills. They show that policy strategies aimed at increasing the human capital of unskilled in Canada have resulted in a decrease of both skilled and unskilled workers' wages.

Thus, technological change is not purely an exogenous force. Actors can directly or indirectly change the way this process take place over time. However, because categorizing technological as a CPR is not as straightforward as with globalization and financialization, it is treated below as an economic control variable.

The literature on income inequality highlights many additional determinants of distributive outcomes. A long theoretical discussion of these other drivers of inequality goes beyond the scope of this paper, but many are taken into account in the analysis that follows.

5.3   Methodology

5.3.1   Variable selection

The dataset used in this study consists of 30 years (1984-2013) of observations for the ten Canadian provinces. This specific timeframe was chosen with two objectives in mind: first, capturing

the neoliberal era, which starts in the early 1980s; second, obtaining the broadest possible time-frame as permitted by available data. The result is a fully balanced 30 year dataset starting in 1984.

Looking at the union-inequality relationship within the neoliberal era using Canadian provinces as a laboratory is interesting at both the empirical and theoretical levels. First, in many provinces, the neoliberal era has been characterized by deunionization and increased inequality (see Figure 1 further below), which is in sharp contrast to the Postwar era. While these trends do not speak to causality between the two phenomena, they do evoke interest. Second, a provincial analysis provides a less commonly used dataset to evaluate theories of political economy, such as PRT, which are mostly tested on international level data (Kellermann, 2007; Kelly and Witko, 2012). In fact, Greafe (2015) argues quite simply that it is quite rare to see Canadian interprovincial comparison in the social, economic and political domains as analysts have been primarily engaged in national level theorization. Third, the Canadian provinces provide an attractive institutional environment for comparative research as the homogeneous legislative institutions and electoral systems, the shared interest and exchange rates, and a generally common capital market regime have the benefit of reducing the number of confounding variables in the analysis (Kellermann, 2007). Similarly, Haddow and Klassen (2006) argue that controlling for confounding variables is more feasible given that Canadian provinces are homogeneous insofar as they share common institutional underpinnings familiar to, but in no way an ideal type of, liberal welfare states and liberal market economy production regimes.

Most variables are constructed using survey estimates from Statistics Canada's publicly accessible Canadian socioeconomic database (CANSIM). Only the political partisanship variables use a different source – the Canadian Parliamentary Guide. CANSIM estimates rely on data from various government surveys such as the Labour Force Survey and the the Survey of Labour and Income Dynamics to provide longitudinal provincial data. Many studies similar to this one have used the CANSIM database (see Breau, 2007; Cousineau et Merizzi, 2015; Haddow, 2013; 2014;

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2015; 2016; Kellermann, 2007).[1]

To operationalize the outcome variable, economic inequality, four measures are retained : the Gini coefficient, two deciles ratios (D_9:D_5 and D_5:D_2) and the share of income held by the top 1 %. This set of dependent variables (DVs) is used in an attempt to assess the union impact on different parts of the distribution. The Gini coefficient is most sensitive to changes in the middle of the distribution. The D_9:D_5 ratio measures how well the top of the distribution does relative to the middle. The D_5:D_2 ratio measures how well the middle of the distribution does relative to the bottom.[2] Finally, the share of total income held by the top 1 % measures changes at the tail end of the distribution. Each of these measures are calculated using market incomes.[3] [4] [5]

The main independent variables (IVs) are those relative to the power resources of labour. First, union density is selected to proxy the "power in numbers" dimension of union influence. Second, to measure endogenous labour power resources, a measure of union militancy – workdays lost due to strikes and lockouts per 1,000 employees – is retained. Third, the political power resources of labour are measure by taking political partisanship into account. The common approach

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[1]The CANSIM estimates used to construct each variable are found in the following tables: Statistics Canada, CANSIM tables 206-0033 (Gini coefficient), 206-0032 (D_9:D_5 ratio and D_5:D_2 ratio), 204-0002 (Income share of top 1 %) 279-0025 and 282-0220 (union density), 278-0009 and 282-0087 (union militancy), 383-0038 (international trade and interprovincial trade), 379-0003 and 379-0030 (financialization and extractive sector), 384-0038 and 051-0001 (GDP per capita), 031-0007 and 384-0038 (technological change), and 282-0008 (employment rate).

[2]D_2 is used as opposed to D_1 as the upper income limit of the first decile in some provinces is zero for certain time points.

[3]Market income is defined as income generated from earnings and investments (Heisz, 2016). Statistics Canada's "plain language definition" of market income is the "total income before tax minus income from government sources". Market income represents the economic resources that individuals can derive directly from market sources. This does not mean, however, that the determination of the distribution of market income is purely a market process. For example, the distribution of market income can be greatly affected by political forces when governments choose to adopt labour-friendly legislation or increase minimum wages drastically. Market processes are not above the rules of the game written by government bodies (Stiglitz, 2015).

[4]In order to take into account the economies of scale present in larger households, CANSIM market income estimates used to calculate the Gini coeffcent, the D_9:D_5 ratio and the D_5:D_2 ratio are adjusted by dividing the household income by the square root of the household size. For the income share of the top 1 %, CANSIM market income estimates are unadjusted and include capital gains.

[5]Market income does not take into account the explicit redistribution of economic resources by the state through taxes and transfers. The distribution of after-taxes and transfers income represents a more realistic portrait of inequality, but evaluating the ways in which unionism affects redistribution of economic resources by the state is beyond the scope of this paper.

in Canadian research is to measure partisanship with dummy variables for left, centre and right incumbency (see Petry *et al.*, 1999; Tellier, 2006; Haddow, 2013; 2014; 2015; 2016; Noel and Deault Picard, 2015; Roy and Boychuk, 2016). While three categories of political incumbency are defined, only two dummy variables are constructed. This is done to avoid the dummy variable trap or, more technically, to reduce multicollinearity in the estimated models. In this case, no variable is constructed for right incumbency. The political right is used as the reference category.[6] As for the coding of provincial political parties into categories of left, center and right partisan orientation, the method proposed by Haddow (2014) is applied. This entails coding the New Democratic Party and the Parti Quebecois as the political left, the Liberal Party as the centre, and the Progressive Conservatives as the political right. The British Colombia Social Credit Party and the Saskatchewan Party are both classified as the political right. While one could argue that the British Colombia Liberal Party should be coded as the political right, Haddow (2014) finds no difference in outcomes in his empirical application when estimating an alternative model with the BC liberals coded as the political right. In Noel and Deault Picard (2015) as in Roy and Boychuk (2016), however, the BC Liberal Party is coded as the political right, but the authors do not justify this decision. As the dependent variables in Haddow's study are similar to the ones in this article, his categorization is used.

The analysis also includes a set of independent variables (IVs) to measure capital power resources. Two IVs are used to proxy globalization. They consists of total trade estimates (imports + exports) as a percentage of gross domestic product (GDP) for both the international level and the interprovincial level.[7] Also included is an indicator of the share of provincial GDP generated by the financial sector.[8] This variable is used to assess the distributive impact of the financialization

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[6]Deciding which category to exclude is an entirely theoretical decision. In this case, following power resources theory, it makes more sense to exclude the political right. This is because right-wing governments are not seen as equally important protagonists of socioeconomic change which effect distributive outcomes. Omitting a dummy variable for right incumbency does not mean the political right is not incorporated in the analysis. Rather, the impact of right incumbency is embedded within the intercept term.

[7]This is a common approach in macroeconomic comparative studies (see Breau, 2007; Cousineau and Merizzi, 2015; Haddow, 2014, 2015; Jacobs and Myers, 2014).

[8]As in other studies looking at the financialization-inequality relationship, the financial sector is defined here as

of the economy.

The analysis also controls for technological change, which is measured with estimates of investments in Software, research and development and computer and electronic products as a percentage of all non-residential investments. A set of standard control variables is also added to account for the economic context of each province. These economic IVs include a measure of GDP per capita and estimates of provincial unemployment rates. An indicator of the share of provincial GDP generated by the mining and energy sector is also added. Indeed, studies in the Canadian context show that the extractive-resource sector booms can have significant distributive impacts, namely by increasing the wages of less-educated and younger workers (Fortin and Lemieux, 2016).

As for the functional form of the variables, an analysis of histograms suggests that a linear form is preferred in most cases. However, a natural log form is preferred for the D_5:D_2 and the Income share of the top 1 % DVs. A natural log form is also used for the union militancy measure, and all economic control variables, save technological change, which is in linear form.[9]

5.3.2 Analytical strategy

The analysis that follows relies mostly on TSCS analysis using random-effects models that distinguish the between-province and the within-province effects. This type of random-effect model (REM), which is in fact a multilevel modelling approach, does not assume that the within- and between-unit effects of predictors are the same. This allows for a more substantive interpretation of results than would be possible using fixed-effects or classical random-effects models by modelling heterogeneity between provinces using meaningful variables (Bartels, 2015; Bell and Jones, 2015). While multilevel estimation for macro-level TSCS is new to comparative political economy, scholars have recently started to adopt this strategy (Haddow, 2016; Jacques and Noel, 2018).

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the combination of finance, insurance, and real estate (FIRE) economic activities. While, Hyde *et al.* (2017) use the proportion of total employment stemming from the sector FIRE to capture financialization, Van Arnum *et al.* (2013) use the percentage of value added to GDP by the FIRE sector. In the study proposed here, an arguably broader approximation is used: the percentage of GDP belonging to the FIRE sector.

[9]Because the militancy variable and the extractive-sector variable both include zero values, obtaining a natural log form of these variables requires adding one unit to each observations as the natural log of zero is undefined.

The effect of each predictor used in the analysis has two dimensions. The first dimension is the between-effect or the cross-sectional impact of variables. It estimates how varying average levels of a variable between provinces has an impact on the DVs. This impact is said to be long-term and time-invariant. The second dimension is the within-effect or the over time impact of predictors. This measures the impact how short-term changes to variables, year-to-year variations in this case, affect the DVs. While somewhat counterintuitive, the cross-sectional time-invariant impact of predictors is a measure of the long-term effect of predictor, while the time-series impact of a predictor gives estimates of its short-run effect. This is what Haddow (2016) refers to as the "paradox" of TSCS data.

The models estimated in this paper take the following form:

$$y_{i,t} = \beta_0 + \beta_1(x_{i,t} - \bar{x}_i) + \beta_2 \bar{x}_i + (u_i + \varepsilon_{i,t}) \tag{5.1}$$

where β_1 and β_2 respectively give direct estimates of the within- and between-effects of an independent variable or of a vector of such variables. u_i and $\varepsilon_{i,t}$ are the within-unit and between-unit component of the error term.

Beyond its technical appeal (see Bartels, 2015; Bell and Jones, 2015), this modelling strategy has practical advantages for the analysis proposed here. It allows a simultaneous estimation of the short-term and long-term impact of predictors, which makes it possible to compare, within one model, sets of variables which theory suggests should have predominant impact on the between or within dimensions.

Tests show that the data used to estimate the multivariate models is structured through time and space. The modified Wald test indicates the existence of heteroscedasticity for all models. The Breusch-Pagan Lagrange multiplier test for independence identifies contemporaneous correlation in all models. The Lagrange multiplier test additionally detects serial correlation in all models.

To model this data structure, the models in Table 2, Table 3 and Table 4 are estimated with panel-corrected standard errors (PCSEs) and first-order autocorrelation (AR1).

5.4   Results

The results are presented in two parts. Firstly, descriptive statistics are used to offer an initial understanding of labour power resources and inequality trends in Canadian provinces as well as how they relate to each other. Secondly, multilevel regression results are presented to assess the combined effect of key sets of variables.

5.4.1   Descriptive analysis

The descriptive analysis that follows focuses on trends of LPRs and of market income inequality measured by the Gini coefficient[10] in Canadian provinces. It does not cover all the DVs and IVs used in the multivariate regressions below. It serves as a first exploration to the union-inequality relationship in the provinces.

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[10]While more sensitive to changes in the middle of the distribution, the Gini coefficient provides the best overall approximation of inequality out of the four indicators used in this study.

Figure 5.1: Evolution of union density and income inequality (measured by the Gini coefficient) in Canadian provinces (1984-2013)
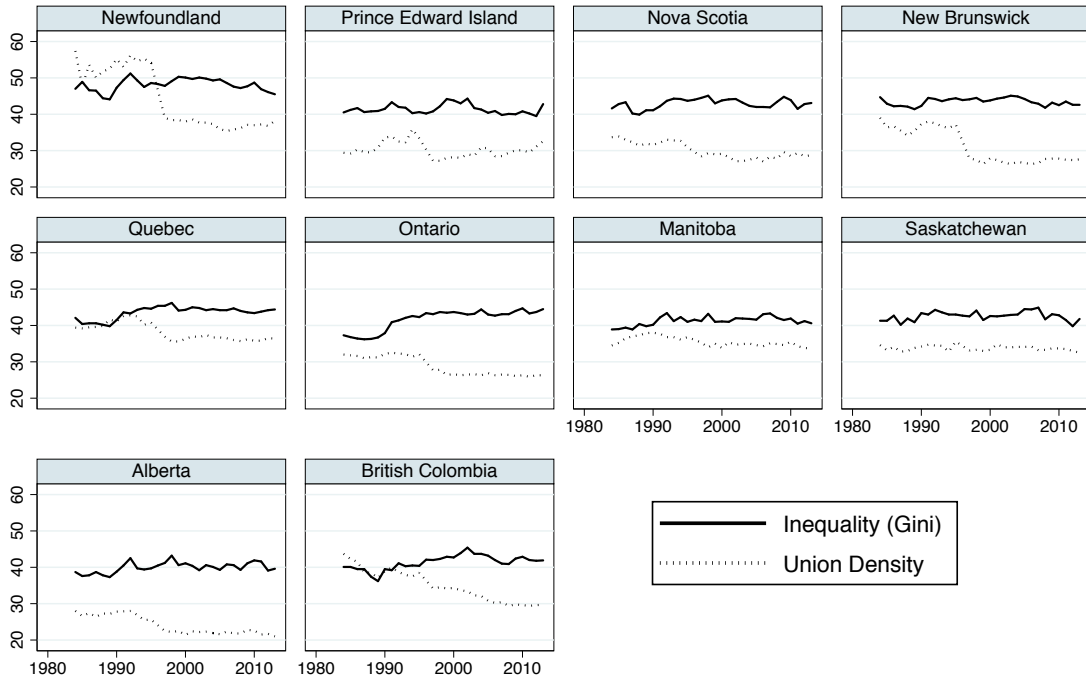
As the panels in Figure 5.1 above illustrate, in most provinces, market income inequality rose during the 1980s and 1990s then levels stabilized in the early 2000s. Unionization trends followed a different trajectory. Generally, union density levels were relatively stable (or slightly increased in some cases) in the 1980s and then declined in the early 1990s, and finally stabilized in the early 2000s. The most interesting development, however, is for the most part seen in the 1990s. In this period, the data shows that declines in union density coincided with increases in income inequality for most provinces. In the 2000s, as unionization levels settled, inequality also stabilized. However, this descriptive analysis is mostly valid for the more populated provinces. Coincidental evidence of a negative relationship between unionization and inequality is not as clear in the smaller provinces. In any case, the often contrasting evolution of unionization and inequality in the Canadian provinces does incite further investigation.

A better overall understanding of how LPRs relate to income inequality can be obtained by

comparing average levels of different labour power measures with average levels of inequality for the observed time period.

Figure 5.2 below plots average levels of union density with average levels of Gini values by province. The figure highlights a strong positive association between the two variable, meaning that when average levels of unionization are higher, average levels of inequality tend to also be higher. This is contrary to expectations derived from the earlier theoretical discussion. However, the observed relationship may depend on estimates from Alberta and Newfoundland, which visually appear as outliers.

Figure 5.2: Average income inequality (measured by the Gini coefficient) and average union density in Canadian provinces (1984-2013)

Statistics: r(10), = .7926 p < .01;
b = .3185, t(10) = 3.68, p < .01
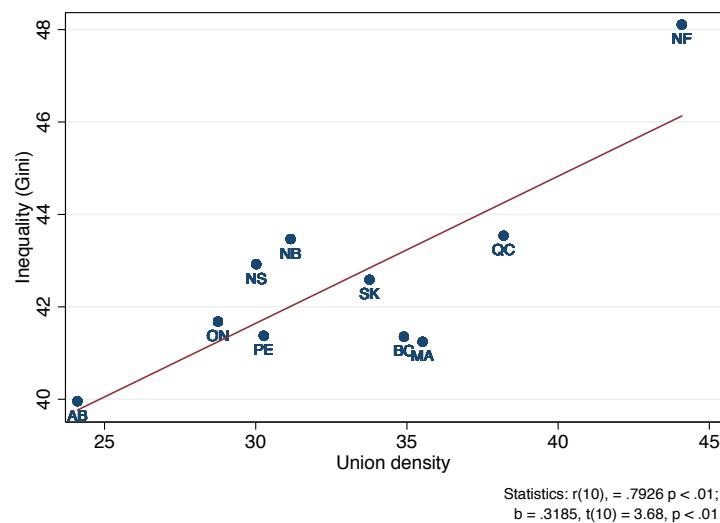
Figure 5.3 plots average levels of union militancy with average levels of Gini coefficients. Here again, the relationship appears to be quite strong and positive. Provinces with higher average levels of union militancy tend to have higher levels of inequality. This result also runs contrary to expectations. Like in Figure 5.2, Newfoundland appears as an outlier and may be responsible for much of the registered association.

Figure 5.3: Average income inequality (measured by the Gini coefficient) and average union militancy in Canadian provinces (1984-2013)

Statistics: r(10), = .7360 p > .10;
b = .0152, t(10) = 3.07, p > .10
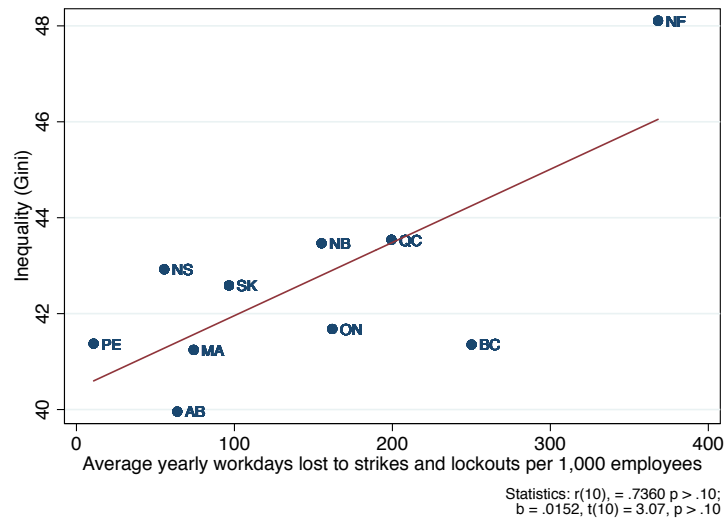
Figure 5.4: Average income inequality (measured by the Gini coefficient) and proportion of time spent in left party incumbency in Canadian provinces (1984-2013)

Statistics: r(10), = -.2214 p > .10;
b = -2.0584, t(10) = -0.64, p > .10
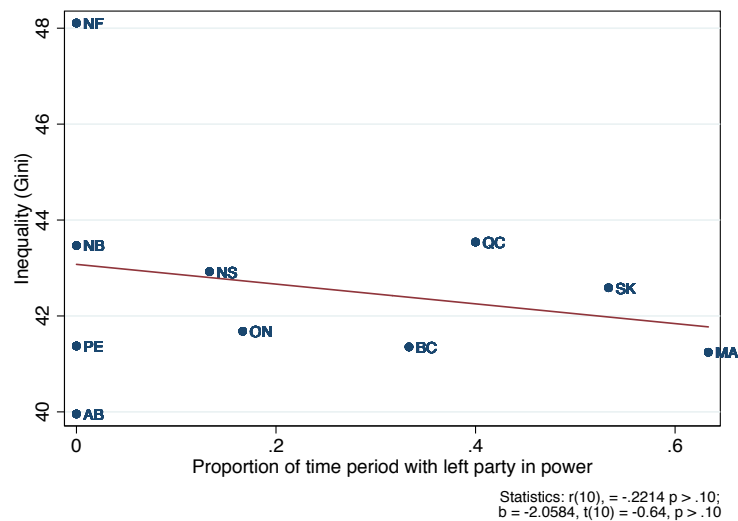
Finally, Figure 5.4 above plots average left-party incumbency (the proportion of years in which left political parties formed government in the total time period) against average Gini values. As expected, higher averages levels of left-party incumbency tend to be associated with lower average

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levels of inequality. This relationship, however, is rather weak. Alberta and Newfoundland appear here again as distinguishable cases. While the political left has never held office in both of these provinces, they are positioned at opposite ends of the inequality spectrum, Alberta showing the lowest average level of market income inequality and Newfoundland showing the highest average value.

Before turning to the multivriate analysis, the descriptive analysis is briefly expanded to include other key predictors and the full set of dependant variables. Table 5.1 shows the correlation results between the dependent variables and the two main groups of IVs; labour power resources and capital power resources. The estimates presented in Table 1 follow the modelling approach described earlier as the "between" (long-term) and "within" (short-term) dimension of each predictor is estimated separately.

Table 5.1: Correlations of income inequality and main independent variables

Independent Variable	Gini coefficient	D_9:D_5 ratio	Log D_5:D_2 ratio	Log 1 % share
Labour power resources				
Between (long-term)				
Union density	+.6269[***] (.3930)	+.6114[***] (.3738)	+.6408[***] (.4106)	−.2892[***] (.0836)
Union militancy	+.3339[***] (.1115)	+.1660[***] (.0275)	+.3206[***] (.1028)	+.4478[***] (.0331)
Left party incumbency	−.1751[***] (.0307)	−.2961[***] (.0877)	−.1594[***] (.0254)	−.0496 (.0025)
Centre party incumbency	+.2907[***] (.0845)	+.2485[***] (.0618)	+.2544[***] (.0647)	−.0814 (.0066)
Within (short-term)				
Union density	−.1841[***] (.0339)	−.1530[***] (.0234)	+.0762 (.0058)	−.4088[***] (.1671)
Union militancy	−.1181[**] (.0139)	−.0753 (.0057)	−.0054 (.0000)	−.2424[***] (.0588)
Left party incumbency	+.0601 (.0037)	+.0264 (.0007)	+.0812 (.0066)	+.0229 (.0005)
Centre party incumbency	+.0240 (.0006)	+.0447 (.0020)	+.0802 (.0064)	+.0841 (.0071)
Capital power resources				
Between (long-term)				
International trade	+.3047[***] (.0929)	+.1652[***] (.0273)	+.3035[***] (.0921)	+.0157 (.0002)
Interprovincial trade	+.1228[**] (.0151)	+.2002[***] (.0401)	+.2027[***] (.0411)	−.5308[***] (.2817)
Financialization	−.3231[***] (.1044)	−.4078[***] (.1663)	−.3285[***] (.1079)	+.1419[**] (.0201)
Within (short-term)				
International trade	+.2625[***] (.0689)	+.1991[***] (.0397)	−.0315 (.0010)	+.5726[***] (.3279)
Interprovincial trade	−.1257[**] (.0158)	−.0628 (.0594)	−.2521[***] (.0636)	+.0428 (.0018)
Financilialization	+.2457[***] (.0604)	+.1801[***] (.0324)	+.2854[***] (.0815)	+.1589[***] (.0252)

R^2 in paratheses
[*]$p < 0.10$, [**]$p < 0.05$, [***]$p < 0.01$

The correlation analysis of labour power resources focuses mostly on the between dimensions of the predictors. This is because political traditions and the nature of labour movements are path-dependent, implying that the impact of partisanship and union power should be more evident in the long run (Haddow, 2016). This is especially true for the political variables, which in many provinces, vary very little or not at all in some cases. Conversely, the analysis of capital power centers on the within dimension. It is the intensification of the processes of globalization and financialization that are said to impact income inequality, not their average levels across provinces. International and interprovincial trade are not new phenomena and finance has always played a functional role in capitalist democracies. It is their changing nature in the neoliberal era that is of interest here and which is said to increase inequality. The emphasis on the between-effects for LPRs and the within-effects for CPRs is continued in the multivariate analysis below.

Looking first at LPRs, correlation estimates for union variables run counter to expectations. Seven of eight between-dimension correlations for union density and militancy suggest a significant positive relationship, meaning that higher average levels of union power are associated with higher levels of inequality. One exception is the link between union density and the income share of the top 1 %, which is negative. While not the focus, it is worth noting that the within dimension of union variables also shows significant relationships, all of which are negative, implying that short-term gains in power are associated with short term reductions in inequality. As for the political variables, higher average time of left incumbency is, as expected, associated with lower average levels of inequality. As for CPRs variables, all but one within correlation estimates for international trade and financialization are statistically significant and positive. This is as anticipated. Results for interprovincial trade are less straightforward, the two significant estimates being negative. This is not all too surprising. Trade with other provinces should not have the same downward pressure on the wages of the unskilled as does trade with low-wage countries.

5.4.2 Multivariate analysis

The analysis now turns to the multilevel analysis in order to assess the simultaneous impact and relative importance of each predictor.

Table 5.2 below shows multilevel results for labour power resources IVs (Model 1, 3, 5 and 7) and the latter combined with capital power resources IVs (Model 2, 4, 6 and 8). For the most part, the interpretation of results focuses on models which include both LPR and CPR variables. Results for labour-power resource IVs are discussed first, followed by an examination of capital-power resource variables.

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Table 5.2: Regression of income inequality (four measures) on labour and capital power resources

	(1) Gini coefficient	(2) Gini coefficient	(3) D_9:D_5 ratio	(4) D_9:D_5 ratio	(5) D_5:D_2 ratio	(6) D_5:D_2 ratio	(7) 1 % share	(8) 1 % share
Union density (between)	0.363*** (8.63)	0.336*** (4.56)	0.031*** (9.31)	0.035*** (8.15)	0.025*** (4.65)	0.019** (2.52)	-0.016*** (-3.65)	-0.001 (-0.40)
Union militancy (between)	0.271 (1.53)	0.340 (0.64)	-0.008 (-0.75)	-0.0531* (-1.80)	0.018 (1.06)	0.085* (1.81)	0.058*** (3.00)	-0.0782*** (-3.08)
Left party incumbency (between)	-5.465*** (-5.48)	-4.682*** (-4.45)	-0.530*** (-7.89)	-0.492*** (-7.74)	-0.358*** (-2.96)	-0.337*** (-3.39)	-0.026 (-0.34)	-0.086* (-1.83)
Centre party incumbency (between)	-1.019 (-0.96)	-0.785 (-0.69)	-0.200*** (-4.63)	-0.242*** (-4.98)	-0.083 (-0.94)	-0.042 (-0.42)	0.006 (0.07)	-0.127** (-2.39)
International trade (between)		0.015 (0.38)		0.004** (2.26)		-0.003 (-0.93)		0.007*** (4.04)
Interprovincial trade (between)		0.023 (0.86)		-0.002 (-1.17)		0.006** (2.33)		-0.011*** (-8.72)
Financialization (between)		-0.041 (-0.56)		0.000 (-0.00)		-0.002 (-0.33)		0.003 (0.61)
Union density (within)	-0.056 (-1.02)	-0.044 (-0.89)	-0.005 (-1.48)	-0.004 (-1.01)	0.006 (1.28)	0.003 (0.73)	-0.011*** (-2.95)	-0.005* (-1.79)
Union militancy (within)	-0.035 (-0.66)	-0.036 (-0.62)	0.002 (0.35)	0.002 (0.47)	-0.003 (-0.78)	-0.004 (-0.96)	0.000 (0.07)	0.002 (0.63)
Left party incumbency (within)	0.178 (0.56)	-0.017 (-0.06)	0.027 (1.31)	0.008 (0.42)	0.036* (1.96)	0.026 (1.48)	0.009 (0.50)	0.005 (0.33)
Centre party incumbency (within)	0.167 (0.63)	-0.024 (-0.09)	0.023 (1.08)	0.008 (0.38)	0.016 (0.75)	0.009 (0.44)	0.017 (0.92)	0.025 (1.46)
International trade (within)		0.024 (1.32)		0.002 (1.57)		-0.001 (-1.02)		0.008*** (7.03)
Interprovincial trade (within)		-0.016 (-0.50)		-0.001 (-0.39)		-0.005** (-2.07)		0.001 (0.68)
Financialization (within)		0.357*** (3.33)		0.019*** (2.75)		0.024*** (3.41)		0.012* (1.73)
Cons.	30.99*** (29.77)	30.18*** (14.12)	1.464*** (17.47)	1.385*** (11.89)	0.212 (1.57)	0.040 (0.23)	2.602*** (20.68)	2.923*** (16.05)
N	300	300	300	300	300	300	300	300
R^2	0.887	0.895	0.784	0.787	0.516	0.601	0.772	0.817

Notes: Prais-Winsten regression with PCSEs; z statistics in parentheses; *$p < 0.10$, **$p. < 0.05$, ***$p < 0.01$.
The D_5:D_2 ratio, the 1 % share, and the union militancy variables are expressed in natural log form.

Contrary to theoretical expectations, the statistically significant estimates broadly suggest that union density is positively associated with market income inequality. The positive relationship is

strongest for the $D_5:D_2$ ratio. A one-unit (one percentage point) increase in average levels of union density increases this ratio by 2.5 % on average.[11] The density-Gini relationship may not appear as being particularly strong. However, across provinces, a one percentage-point increase in average union density is associated with an increase in average levels of Gini values of .336 percentage point, which is roughly the difference in average Gini scores between Nova Scotia (42.92) and Saskatchewan (42.59).

As for union militancy, the Model 6 estimate indicates a positive relationship with inequality in the bottom half of the distribution. It may be the case that firm-level activism may secure income for union members, who are located towards the middle of the distribution, while leaving the bottom (typically non-unionized) income earners behind. However, results in Model 3 and 4 suggest that higher averages levels of militancy are associated with lower average levels of income concentration at the top.

The political variables behave, on the whole, as anticipated. Estimates indicate statistically significant negative relationship between left-party incumbency and inequality in all models including both LPRs and CPRs variables. The strongest association is seen in Model 6 where the coefficients suggests that the income gap in the bottom half of the distribution would be reduced by 28.6 % in provinces where left parties governed through the 30 year period, compared to provinces where they never did. Long-term centre-party incumbency is also associated with lower average levels inequality. However, except for results in Model 8, the strength and significance of centre-party incumbency estimates are generally lesser than those for left-party incumbency.

As discussed earlier, the analysis of capital power resources coefficients focuses on the over time dimension (within dimension). With both LPRs and CPRs are taken into account, the trade variables have limited predictive value. Model 8 shows that a short-term (yearly) one-unit increase in international trade produces an immediate 0.8 % increase in top-earners' income share. Model

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[11]A percentage estimate of the impact of a one-unit increase of an independent variable on a logged dependent variable is obtained, as a general rule, by multiplying the coefficients by 100 when $b \leq 0.15$ and exponentiating the coefficients when $b > 0.15$. This is why an impact cited in the text can be different than the one shown in a regression table. For negative coefficients, the percentage change in Y for a 1-unit increase in X is obtained with the following equation: $exp(b1) - 1$.

6 suggests that a one-unit increase in interprovincial trade reduces the D_5:D_2 ratio by about 0.5 %. Financialization, however, is an important predictor of distributive outcomes. It has its strongest associations with the D_5:D_2 ratio and on top earners' share of income. For a given province, a short-term one-unit increase in financialization over time produces an immediate 2.4 % increase in the D_5:D_2 ratio. Similarly, a one-unit increase in financialization over time increases the 1 % share of income by approximately 1.2 %, although this relationship is not measured as precisely ($p < 0.10$). Financialization is also positively linked with the Gini coefficient and the D_9:D_5 ratio, but these relationships are more modest in strength.

Some partial conclusions can be drawn from the regression results in Table 2. First, the statistically significant estimates suggest that higher average levels of union density are generally associated with higher average levels market inequality. Second, results show that union militancy is associated with lower income concentration at the top of the distribution, but higher inequality at the bottom. Third, results overwhelmingly support the argument that left incumbency is linked with lower income inequality, compared to having right parties aligned with business in power. Fourth, out of all the CPRs, results show financialization to be the most robust predictor of market income inequality, over the trade measures. Finally, Wald tests (not shown here) indicate that removing either the labour or capital power resources variables from Model 2, 4, 6 and 8 does not substantially harm the fit of the models. This is a compelling result for theory as it suggests that either one of the two variable groups can explain the variance in income inequality as well on their own as put together. It indicates that CPRs variables are at least as important as LPRs in the understanding of market income inequality. This last point is further explored next, where labour power resource models and capital power resource models are assessed separately with the inclusion of economic controls.

Estimates in Model 2, 4, 6 and 8 of Table 5.3 below show regression results for LPRs variables combined with economic controls. The question here is how well the predictive value of LPR variables holds up to the inclusion of variables accounting for economic context. Again, the analysis

focuses on the between dimension of LPRs predictors.

Results show a generalized loss of statistical significance for estimates relative to union density when the economic context of each province is controlled for. This means that long-term changes in unionization rates have no significant association with income inequality. As for union militancy, results show negative relationships between militant action and inequality in the middle and upper half of the distribution, but no significant associations with changes in the bottom half and very top of the income ladder. Finally, earlier results showed overwhelmingly negative and often statistically significant associations between the two political predictors and the DVs. With the inclusion of economic variables, however, only one estimate – the relationship between left incumbency and the Gini index – is significant and, while it was previously negative, it is now positive.

Overall, our results show a general decline in the predictive value of LPRs variables when controlling for economic context; with the exception of union militancy, which retains a comparable amount of predictive value. More importantly, measures of union power are no longer linked with increases in inequality. In fact, the rare estimates that are significant show a negative relationship with inequality.

Table 5.3: Regression of income inequality (four measures) on labour power resources and economic controls

	(1) Gini coefficient	(2) Gini coefficient	(3) $D_9{:}D_5$ ratio	(4) $D_9{:}D_5$ ratio	(5) $D_5{:}D_2$ ratio	(6) $D_5{:}D_2$ ratio	(7) 1 % share	(8) 1 % share
Union density	0.363***	-0.121	0.031***	0.006	0.025***	-0.007	-0.016***	0.00371
(between)	(8.63)	(-0.94)	(9.31)	(0.66)	(4.65)	(-0.87)	(-3.65)	(0.38)
Union militancy	0.271	-0.783**	-0.008	-0.078***	0.018	-0.020	0.058***	0.0101
(between)	(1.53)	(-2.21)	(-0.75)	(-3.28)	(1.06)	(-0.74)	(3.00)	(0.25)
Left party incumbency	-5.465***	8.012**	-0.530***	0.235	-0.358***	0.429	-0.026	-0.215
(between)	(-5.48)	(2.01)	(-7.89)	(0.89)	(-2.96)	(1.60)	(-0.34)	(-0.66)
Centre party incumbency	-1.019	1.477	-0.200***	-0.018	-0.083	0.053	0.006	0.070
(between)	(-0.96)	(0.79)	(-4.63)	(-0.15)	(-0.94)	(0.39)	(0.07)	(0.53)
Employment rate		-0.995***		-0.057***		-0.057***		0.017
(between)		(-4.39)		(-3.69)		(-3.82)		(0.69)
GDP per capita		23.21***		1.561***		1.089***		0.064
(between)		(4.37)		(4.15)		(2.77)		(0.21)
Extractive sector share of GDP		-2.785***		-0.200***		-0.146***		0.075
(between)		(-4.50)		(-4.73)		(-3.12)		(0.80)
Technological change		-0.0636		-0.00467		-0.00793**		0.0106*
(between)		(-1.32)		(-1.62)		(-2.36)		(1.88)
Union density	-0.056	-0.055	-0.005	-0.003	0.006	0.001	-0.011***	-0.002
(within)	(-1.02)	(-1.16)	(-1.48)	(-0.88)	(1.28)	(0.37)	(-2.95)	(-0.69)
Union militancy	-0.035	-0.037	0.002	0.002	-0.001	-0.003	0.000	0.002
(within)	(-0.66)	(-0.69)	(0.35)	(0.44)	(-0.78)	(-0.86)	(0.07)	(0.67)
Left party incumbency	0.178	0.214	0.021	0.016	0.036*	0.046***	0.009	0.005
(within)	(0.56)	(0.79)	(1.31)	(0.93)	(1.96)	(2.87)	(0.50)	(0.28)
Centre party incumbency	0.167	0.122	0.023	0.014	0.016	0.031*	0.017	0.013
(within)	(0.63)	(0.52)	(1.08)	(0.76)	(0.75)	(1.74)	(0.92)	(0.77)
Employment rate		-0.455***		-0.018***		-0.043***		0.003
(within)		(-5.24)		(-3.69)		(-7.19)		(0.45)
GDP per capita		5.928***		0.172		0.509***		0.604***
(within)		(2.93)		(1.28)		(3.74)		(3.71)
Extractive sector share of GDP		-0.226		-0.004		-0.022		-0.008
(within)		(-1.01)		(-0.32)		(-1.47)		(-0.45)
Technological change		0.101***		0.010***		0.000		0.001
(within)		(2.92)		(4.32)		(-0.21)		(-0.43)
Cons.	30.99***	-133.8***	1.464***	-10.39***	0.212	-6.592**	2.602***	-0.184
	(29.77)	(-3.43)	(17.47)	(-3.70)	(1.57)	(-2.15)	(20.68)	(-0.04)
N	300	300	300	300	300	300	300	300
R^2	0.887	0.896	0.784	0.786	0.516	0.678	0.772	0.819

Notes: Prais-Winsten regression with PCSEs; z statistics in parentheses; *$p < 0.10$, **$p < 0.05$, ***$p < 0.01$.
The $D_5{:}D_2$ ratio, the 1 % share, the union militancy, the GDP per capita and the Extractive sector share of GDP;
variables are expressed in natural log form.

Model 2, 4, 6, and 8 in Table 5.4 below present results from regressing measures of income inequality measures on CPRs variables and economic controls. As before, it is the within component of CPRs estimates that is of particular interest here.

Table 5.4: Regression of income inequality (four measures) on capital power resources and economic controls

	(1) Gini coefficient	(2) Gini coefficient	(3) D_9:D_5 ratio	(4) D_9:D_5 ratio	(5) D_5:D_2 ratio	(6) D_5:D_2 ratio	(7) 1 % share	(8) 1 % share
International trade (between)	0.057*** (3.30)	0.039** (2.34)	0.001 (0.88)	-0.003*** (-2.62)	0.004** (2.49)	0.005*** (3.15)	0.000 (0.34)	-0.00423** (-2.52)
Interprovincial trade (between)	0.011 (0.69)	-0.137*** (-5.88)	0.001 (1.50)	-0.005*** (-4.24)	0.002 (1.23)	-0.010*** (-4.71)	-0.007*** (-5.14)	0.00595*** (2.74)
Financialization (between)	-0.249*** (-2.71)	-0.537*** (-8.00)	-0.026*** (-4.94)	-0.030*** (-8.51)	-0.015** (-2.32)	-0.037*** (-6.74)	0.000944 (0.16)	0.0332*** (5.71)
Employment rate (between)		-0.321*** (-4.17)		-0.042*** (-9.00)		-0.013** (-1.99)		-0.019*** (-3.06)
GDP per capita (between)		2.931 (0.81)		1.232*** (5.69)		-0.384 (-1.17)		1.340*** (4.34)
Extractive sector share of GDP (between)		-3.328*** (-4.63)		-0.358*** (-7.27)		-0.137** (-2.00)		-0.006 (-0.09)
Technological change (between)		-0.304*** (-5.46)		-0.022*** (-6.52)		-0.023*** (-4.77)		0.018*** (4.40)
International trade (within)	0.017 (0.79)	0.034* (1.76)	0.001 (0.93)	0.001 (0.47)	-0.002 (-1.34)	0.000 (-0.04)	0.008*** (5.83)	0.005*** (3.32)
Interprovincial trade (within)	-0.007 (-0.19)	0.014 (0.44)	-0.001 (-0.24)	0.000 (0.13)	-0.005* (-1.89)	-0.002 (-1.04)	0.002 (1.09)	0.002 (0.77)
Financilization (within)	0.333*** (2.68)	0.315*** (3.15)	0.019** (2.06)	0.017*** (2.69)	0.023*** (3.07)	0.027*** (4.27)	0.009 (1.21)	0.022*** (2.88)
Employment rate (within)		-0.466*** (-6.14)		-0.017*** (-3.81)		-0.041*** (-7.72)		0.001 (0.17)
GDP per capita (within)		5.599*** (2.85)		0.177 (1.32)		0.496*** (3.52)		0.507*** (3.39)
Extractive sector share of GDP (within)		0.022 (0.10)		0.011 (0.73)		0.002 (0.11)		-0.009 (-0.56)
Technological change (within)		0.058 (1.62)		0.007*** (3.28)		-0.003 (-1.37)		-0.005* (-1.77)
Cons.	43.46*** (19.32)	54.63 (1.63)	2.601*** (20.14)	-6.505*** (-3.35)	0.974*** (5.49)	7.356** (2.45)	2.639*** (15.07)	-11.63*** (-4.02)
N	300	300	300	300	300	300	300	300
R^2	0.875	0.895	0.745	0.788	0.483	0.715	0.810	0.839

Notes: Prais-Winsten regression with PCSEs; z statistics in parentheses; $^*p < 0.10$, $^{**}p. < 0.05$, $^{***}p < 0.01$.
The D_5:D_2 ratio, the 1 % share, the GDP per capita and the Extractive sector share of GDP;
variables are expressed in natural log form.

As before, the predictive value of the trade variables is generally limited. With the inclusion of economic controls, interprovincial trade shows no significant relationships. Short-term increases

in international trade are still positively linked with higher levels of income share for the top 1 %, but the strength of this relationship is less than that of the equivalent estimate in the simple CPR model (Table 5.4, Model 7) and LPR-CPR model (Table 5.2, Model 8). However, it is notable that international trade is now positively linked with short-term hikes in inequality in the middle of the distribution, although only at the 10 % significance level. As for financialization, estimates show a positive relationship with inequality at the 1 % significance level across the board. While the results with the first three DVs remain similar to previous estimates, the association between financialization and the income share of top income earners is increased in strength and significance when economic controls are included.

Looking at Table 5.3 and 5.4 together, it is apparent that the predictive value of CPRs variables remains generally intact when economic variables are included. This cannot be said for LPRs variables. This is a somewhat encouraging result for the inequality-reducing performance of unionism, as previously positive associations of union power with inequality measures disappear when economic context is controlled for. Another important observation is the positive association between financialization and inequality, which remains strong, whether one controls for LPR or economic variables.

5.5   Conclusion

The objective of this article was to provide evidence to contribute to the debate on whether unions promote more equal societies. When economic variables are controlled for, estimates show no significant relationship between union density and market income inequality. *Hypothesis 1*, which predicted a negative relationship between unionization and income inequality, is therefore rejected. However, results do provide some evidence supporting *Hypothesis 2*, positing a negative relationship between the militancy of unions and inequality. Indeed, higher average levels (long-term levels) of union militancy are linked with lower average levels of income inequality, but only in the middle- and upper-half of the distribution. As for the other dimension of labour power, polit-

ical power, estimates indicate that left- and centre-party incumbency are not linked with reductions in market inequality. *Hypothesis 3*, which predicted a negative relationship, is thus rejected.

More generally, the lack of overwhelming evidence supporting unions' ability to reduce market inequality may have a lot to do with union membership composition. Evidence suggests that Canadian union members are more likely to have full-time work, longer job tenure, better wages, and to reach higher educational attainment, compared to non-unionized workers (Galarneau et Sohn, 2013). Canadian families that have at least one member who is unionized are also 1.75 times more likely to be in the fifth to ninth deciles of the income distribution rather than in the bottom four deciles (Mackenzie and Shillington (2015). With this in mind, it may not come as a surprise that evidence of the inequality-reducing effect of unions is only found in the middle- and upper-half of the income distribution. The results in this study suggest that unions are still somewhat effective at fighting inequality, but only within the segment of the income distribution where union members are generally located.

This does not mean that Canadian union members have lost their egalitarian dispositions. International evidence shows that higher-income earners who are unionized have higher "other-regarding" propensities than their non-unionized counterparts (Mosimann and Pontusson, 2017). However, having relatively well-off members dampens unions' ability to fight inequality as their inequality-reducing actions must first counterbalance a growing inequality-increasing between-sector effect. With regards to the findings of this study, it may be that the lack of evidence of a union-inequality relationship is the result of unions' inequality-reducing and -increasing effects simly offsetting each other.

Although many measures of inequality are used in this study, the analysis is conducted on only one currency of inequality: market income. This limits the measurable scope of the distributive impact of unions. It may be the case that unions' inequality-reducing effect operates through their influence on the state's redistributive system; a relationship not investigated here, but which many

have found evidence of (Bradley et al., 2003; Haddow, 2013; 2014; 2015; Hogler et al., 2015; Iversen et Soskice, 2006; Jaumotte and Buitron, 2015; Kellermann, 2007; Kelly et Witko, 2012; Radcliff et Saiz, 1998) and which needs more attention. This relationship is the focus or Article 2 in this thesis

Another line of inquiry stemming from this research is the importance of understanding why and how unions coalesce with political parties and if and how they influence these parties to enact inequality-decreasing policies. This is a relationship that requires more attention, as this link is often assumed in PRT. Another promising line of research would be to evaluate if political partisanship matters for market income inequality in Canada's provinces or if all parties, regardless of partisan orientation, have drifted towards supply-side market policies, blurring the limits between the traditional philosophical space occupied by the left, centre, and right (Evans and Smith, 2015).

A key contribution of this article is to explicitly conceptualize capital power resources. This allows for a more complete evaluation of how the balance of power between labour and capital shapes distributive outcomes. Results show that CPRs are at least as useful as LPRs to explain variance in inequality. However, estimates suggest that the predictive value of CPR variables, especially financialization, holds up better than LPR variables when economic controls are included. Indeed, results overwhelmingly support *Hypothesis 5*, that the increasing structuring effect of finance on provincial economies is associated with short-term increases in inequality. As for globalization, findings partly support *Hypothesis 4* as short-term increases international trade are linked with increases in inequality, especially by increasing the income share of the top 1 %.

5.6   Appendix A: summary statistics

Table 5.5: Summary statistics, 1984-2013

	Mean	SD	Median	Min	Max
Income inequality					
Gini coefficient	42.62	2.68	42.6	36.1	51.2
D_9:D_5 ratio	2.27	0.18	2.24	1.91	3.02
D_5:D_2 ratio	2.84	0.65	2.71	1.92	6.06
1 % share	10.52	2.25	10	7	19.9
Independent variables					
Union density	33.08	6.43	33.15	21	57.4
Union militancy	143.59	247.94	70.23	0	2164.47
Left party incumbency	0.22	0.41	0	0	1
Centre party incumbency	0.34	0.47	0	0	1
International trade	51.32	16.36	49.8	17.64	101.36
Interprovincial trade	52.05	15.21	52.04	30.67	84
Financialization	17.45	3.03	17.32	8.54	23.65
Control variables					
Employment rate	58.86	6.12	60.05	42.6	72
GDP per capita	387116.21	11506.36	36668	20396.65	76814.41
Extractive sector share of GDP	6.37	10.53	1.11	0	49.87
Technological change	18.03	7.51	16.12	7.29	36.60

5.7 Appendix B: correlation matrix

Table 5.6: Correlation matrix, 1984-2013

	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)
Inequality, Gini (i)	1							
Inequality, D9D5 (ii)	***0.8843	1						
Inequality, D5D2 (iii)	***0.8272	***0.7528	1					
Inequality, 1 % share (iv)	-0.0341	*-0.1121	***-0.2418	1				
Union density (v)	***0.4097	***0.4147	***0.5667	***-0.488	1			
Union militancy (vi)	**0.115	***0.1602	***0.1742	**-0.148	***0.4263	1		
Left party incumbency (vii)	-0.0461	***-0.1407	-0.0492	-0.0412	**0.1465	-0.0629	1	
Let party incumbency (viii)	***0.1684	***0.1648	***0.2197	0.0241	**0.142	0.0337	***-0.3784	1
International trade (ix)	***0.4011	***0.2576	***0.1715	***0.3831	***-0.208	-0.0299	-0.0129	0.0246
Interprovincial trade (x)	0.089	***0.1793	*0.0981	***-0.5052	-0.0333	**-0.1306	**-0.1248	0.0133
Financialization (xi)	***-0.1575	***-0.2636	***-0.1584	***0.1701	*-0.1011	-0.0748	**0.125	***0.2544
Employment rate (xii)	***-0.6454	***-0.6411	***-0.7569	***0.5265	***-0.6284	***-0.2877	***0.2102	***-0.2981
GDP per capita (xiii)	***-0.1441	***-0.1183	***-0.2923	***0.7131	***-0.5069	***-0.154	-0.0103	***-0.2644
Extractive sector share of GDP (xiv)	0.0819	***0.1634	0.0146	***0.3319	***-0.2373	-0.0465	*-0.1061	***-0.2919
Technological change (xv)	*0.1019	*-0.0497	***-0.1623	***0.2947	***-0.211	**-0.1345	*0.0973	***0.2754

	(ix)	(x)	(xi)	(xii)	(xiii)	(xiv)	(xv)
International trade (ix)	1						
Interprovincial trade (x)	0.0481	1					
Financialization (xi)	*-0.112	***-0.3003	1				
Employment rate (xii)	0.048	***-0.2604	0.0279	1			
GDP per capita (xiii)	***0.3531	***-0.3601	***-0.3563	***0.6743	1		
Extractive sector share of GDP (xiv)	***0.2108	-0.0784	***-0.6864	***0.2731	***0.7754	1	
Technological change (xv)	***0.4007	***-0.2301	***0.4536	**0.1231	-0.0645	***-0.3584	1

Notes: $^*p < 0.10$, $^{**}p. < 0.05$, $^{***}p < 0.01$.

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Chapter 6

Do Unions Promote More Equal Societies? A Look at Income Redistribution in Canada's Provinces (Article 2)

Abstract: Using power resources theory (PRT) as a frame of analysis, this article looks at the relationship between trade union power and economic redistribution in Canadian provinces. Building from Becher and Pontusson (2011), the study also evaluates the PRT assumption of labour homogeneity by testing if the union-redistribution relationship is conditional on how inclusive unions are to lower income earners. Results from multilevel analysis of time-series cross-sectional data overwhelmingly support the argument that the relative affluence of union members matters for redistributive outcomes. Provinces with higher average levels of union constituents located under the median household income threshold tend to redistribute more on average. A positive relationship is also found between union organizational power (union density) and income redistribution. Further, estimates show that union institutional power is only positively linked with income redistribution when union inclusiveness is controlled for. This suggests a possible interaction effect between the quality of union institutionalization and levels of union inclusiveness. The implication for unions and governments concerned with shaping more equal societies is the need to favour collective representation for lower income earners.

Key words: Trade Union Power, Trade Union Composition, Economic Redistribution, Power Resources Theory

6.1 Introduction

Over the last few decades, as income inequality has increased in Canada, the effectiveness

of redistributive policies has faded (Heisz, 2016; Banting and Myles, 2016). Working from the power resources theory (PRT) perspective, it has been argued that partisan politics and trade unions play an important role in determining the level of economic redistribution in Canada's provinces (Haddow, 2013; 2014). The general narrative goes as follows: higher union density and longer periods of left- or centre-party incumbency – compared to right party political rule – produce higher levels of economic redistribution in the provinces. However, as it is often the case in PRT scholarship, the effect of unions on redistributive politics has been assessed under the assumption of union homogeneity, pushing aside how union composition may complicate the relationship between unions, support for redistribution, and levels of economic redistribution. This study builds from a growing literature that challenges this assumption (Becher and Pontusson, 2011; Ceron and Negri, 2018; Han and Castater, 2016; Nijhuis 2009; Pontusson, 2013).

Building more specifically from Becher and Pontusson (2011) and Pontusson (2013), whose arguments are derived from rational theories of redistributive preferences (i.e. Meltzer and Richard, 1981), it is argued in this article that union membership composition provides a key piece of the puzzle that is the relationship between trade unions and income redistribution. While standard PRT hypotheses predicting a positive link between trade union power and income redistribution are tested, this study also evaluates if the nature of union-redistribution relationship is conditional on the relative affluence of union members. The argument put forward is simple: it is expected that trade unions are more likely to effectively engage in political demands for income redistribution if a sizeable segment of their membership is located in the bottom of the general income distribution. In other words, it is anticipated that unions will be more supportive of redistribution if many of their members stand to gain from redistributive policies.

The quality of this argument is tested in a subnational comparison of Canadian provinces over a period ranging from 1996 to 2011 using bivariate and multilevel multivariate analyses. To anticipate, evidence suggests that union composition does matter. Provinces with higher average levels of union members located in the bottom half of the general income distribution tend to redistribution more on average.

Beyond data limitations, the 1996-2011 period is chosen because it is characterized by a decline for both trade unions and income redistribution in Canada's provinces. These trends reflect underlying transformations in the provinces produced by a neoliberal agenda, which have pushed the labour movement into crisis and shifted the political ideological "centre" to the right (Evans and Smith, 2015). The question then arises as to how much space is left for trade unions and partisan politics to influence income redistribution in the provinces. This article attempts to answer this question.

In addition to these substantive changes that make Canadian provinces an interesting laboratory, working with these subnational units provides many analytical advantages as shared institutional underpinnings make it easier to control for potential confounding variables in the relationships studied.

The article is organized as follows. It begins with an outline of the theoretical framework, which combines ideas from PRT and rational theories of redistributive preferences. This is followed by the description of data, the selection of variables, and the specification of the analytical approach. Results from a bivariate and multivariate analyses of key relationships are then presented. The article ends with a discussion of the results.

6.2   Theoretical Framework

6.2.1   Defining economic redistribution

Economic redistribution is a comparative concept. The first step to defining redistribution, is determining a basis for comparison, what Kelly (2008) calls a state of "pre-redistribution".

The most commonly used baseline from which to evaluate redistribution is the distribution of market income. Atkinson (2015: p. 30) defines market income as the sum of earnings (wages and salaries received by employees or the self-employed), income from capital (interest on bank accounts, or on bonds, dividends on shares, or rent on property owned) and transfer payments

from private bodies, such as a pension. Heisz (2016) defines it simply as income generated from earnings and investments. Statistics Canada's "plain language definition" is even more general: "total income before tax minus income from government sources." Definitions of market income do vary from one income survey to another. The general idea, however, is simple. It represents the economic resources that individuals can derive from interaction with the market alone.

Defining redistribution is a matter of assessing how government intervention reduces market inequality. There are many channels through which government redistribution happens. The first channel is what Kelly (2008) calls "explicit redistribution" and relates to the redistributive mechanisms of taxation and benefit transfers. The second way government redistributes economic resources is through the provision of public services such as education and health care. While these in-kind income transfers do have a significant distributive impact, they are not easily valued (Atkinson, 2015). The third way governments reduce inequality is by modifying or manipulating private decisions through what Kelly (2008) calls "market conditioning". It refers to what Stiglitz (2015) calls the "the rules of the game", that is, the laws and institutions that regulate employment relationships on the the labour market and legal frameworks that structure socioeconomic developments such as globalization and financialization.

This study focuses on the first dimension of economic redistribution. The magnitude of explicit redistribution by government is often defined empirically as the percentage change between market income inequality and income inequality after taxes and transfers, i.e. disposable income (see Banting and Myles, 2016; Bradley *et al.*, 2003; Heisz, 2007; Kelly, 2008; Ostry *et al.* 2014; Pontusson, 2005). More formally, if one uses the Gini coefficient (G) as a measure of inequality, redistribution (R) is defined as follows:

$$R = \left(\frac{G_M - G_{ATT}}{G_M} \right) \times 100 \tag{6.1}$$

Where G_M is the level of market inequality and G_{ATT} is the level of after-taxes and transfers inequality.

6.2.2   Trade union power and redistribution

Scholarship on how unions affect the redistribution of income in capitalistic democracies has a long tradition. This tradition is set mostly in power resources theory, an approach that contends that the balance of power between labour and capital is the main determinant of the distribution of economic resources (Korpi, 1978; 2006). In PRT, those belonging to the labour class have access to two mechanism of representation: trade unions and labour-aligned political parties. These vehicles provide channels through which labour can actualize and amplify their power resources and hold more leverage over the forces of capital. They are interconnected insofar as unions act as an intermediary organizational institution, between the individual and the political realm, where political ideas and civic participation can be cultivated. The higher voting propensity of union members, both in Canada (Bryson *et al.*, 2012) and internationally (Bryson *et al.*, 2014), gives credence to this link. In fact, some argue that the redistribution-increasing effect of unionism is a product of its strong relationship with leftist governments (Bradley *et al.*, 2003).

The standard application of PRT consists in evaluating how changing levels of labour power, typically approximated by unionization rates, and electoral support for social-democratic parties, explain differences in welfare-state development and generosity. Many studies find a positive relationship between unions and income redistribution (Bradley et al., 2003; Haddow, 2013; 2014; 2015; Hogler et al., 2015; Iversen et Soskice, 2009; Jaumotte and Buitron, 2015; Kellermann, 2007; Kelly et Witko, 2012). However, as the neoliberal era unfolds and unionization declines, some evidence suggests that the redistributive effect of unions is fading (Pontusson, 2013).

Following PRT and the evidence cited above, one would expect to find higher levels of economic redistribution in Canadian provinces where union power is higher. Defining union power,

however, is complex. Building from Schmalz and Dörres (2013), Müller and Platzer (2017) high-light four dimensions of union power resources (economic-structural power, organizational power, institutional power, and communicative power). While all four dimensions are important to the formation of overall union power, not all are practicable in a macroeconomic quantitative research design. For this reason the focus in this article is set on two dimensions: organizational and institutional power. On the one hand, organizational power is predominantly a numerical concept, focusing on membership and financial resources. On the other hand, institutional power "secures union participation and stabilizes or facilitates interest articulation by trade unions without a permanent 'duty to mobilize' " (Müller and Platzer, 2017: p. 291). Such power can be appreciated by the quality of the institutions unions rely on to reproduce their organizational power and bring credibility to their voice as a socioeconomic actors.

It is important to consider multiple sources of union power, as focusing on only one dimension may underestimate its actual effect on redistribution. A decrease in unionization, for example, may not reduce unions' ability to influence government policy. This, as Crouch (2017) suggests, may have more to do with the participation of unions in public governance. If institutions are defined as more or less stable compromises reflecting coalitional power dynamics (Mahoney and Thelen, 2010), it follows that more union-friendly labour statutes should proxy the political influence of unions. Indeed, institutional resources act as a platform for union influence, providing unions with the legitimacy to play a wider role in civil society (Rigby and Garcia Calavia, 2018).

This discussion leads to the first two hypotheses:

> *Hypothesis 1: Higher levels of union organizational power are associated with higher levels of income redistribution.*

> *Hypothesis 2: Higher levels of union institutional power are associated with higher levels of income redistribution.*

However, as the discussion below will show, the direction of these hypotheses may be conditional on other dimensions of unionism, namely union composition.

Unions, Individual Preferences, and Redistribution

A core issue with the classical formulation of PRT is that it assumes unions to be representatives of the lower classes. Building from Becher and Pontusson (2011) and Pontusson (2013), this study aims to explicitly acknowledge the possibility that this assumption may not hold. The main argument goes as follows:

> "Assuming that the policies favored by unions reflect the objective interest of union members, holding other things equal, changes in the income composition of union membership should lead to changes in the policies favored by unions. As the share of low-income workers increases (decreases), union support for redistributive policies should increase (decrease)" (Becher and Pontusson, 2011: p. 188).

Working with the assumption that general union interest is a simple reflection of the preferences of members is convenient, but reductive. It assumes that redistributive policy preference aggregation within a union movement is done through a type of majority rule democratic process, disregarding how institutional preferences may be shaped by political entrepreneurs (e.g. high ranking officers) within unions, by transformational projects or the bureaucratic nature of the institution itself. Moreover, it neglects how union structure itself may affect the way preferences are shaped within the union movement. Nijihuis (2009) demonstrated that countries where industrial unionism is prevalent tend to have union movements that are more favourable to redistributive policies, as institutional preferences are aggregated from an economically diverse membership. This contrasts with regions in which craft unionism dominates where union preferences may differ from one organization to the other as they represent economically distinctive workers. This last point is somewhat less problematic for this paper, as Canadian provinces tend to have very similar union structures, as unionization and collective bargaining structures are decentralized across the country. However, just like in Becher and Pontusson, this article must also set aside some of the complex-

ities of union preference formation by focusing solely on union composition. Recognizing these limits, the theoretical discussion now turns to evaluating how membership composition might affect union redistributive preferences.

Evidence suggests that union members in Canada are more likely to be located in the upper deciles of the income distribution (Mackenzie and Shillington, 2015) and to have better and higher paying jobs (Galarneau and Sohn, 2013) than non-union members. With this is mind, one may question what union members have to gain from redistribution? The answer requires a look a individual-level theories of preferences for redistribution.

For the most part, theoretical contributions towards understanding voter preferences for redistribution have built from Meltzer and Richard's (1981) rational model of the size of government. This model can be boiled down to a simple idea. The voter with the median income is decisive in determining the tax share and, by definition, the size of government redistribution. Voters with income below the median will support political parties that favour higher taxes and more redistribution; above median income earners will push for lower taxes and less redistribution. If union members are predominantly located above the median income, one would predict that unions may not be inclined to support redistribution.

Using a three-class structure, Iversen and Soskice (2006) show that societies with two-party majoritarian electoral system – which is the system in Canadian provinces[1] – have a higher tendency to be governed by centre-right governments. This is because the middle class has a higher incentive to avoid redistribution altogether, than to run the risk of being exposed to lower-class redistributive policies in left-centre governments. Following this logic, if union members are located in the middle and in the upper part of the income distribution in Canadian provinces, one would expect them to support centre-right parties, and by extension lower government redistribution. This

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[1]Some provinces have more than two parties, but, for the most part, the political arena of the provinces over the time period covered by this study has been defined by a two-party system.

runs counter to the PRT expectation that unions and their members unconditionally support and coalesce with left-leaning parties.

Other models show that support for government redistribution may be fading as inequality increases and labour markets become more segmented. On the one hand, the social-affinity model assumes that "people feel generous or altruistic toward the poor only if they have a sense of belonging or shared identity with them" (Alt and Iversen, 2017: p. 23). As pre-tax and transfer inequality increase, the social distance between groups becomes greater and shared lifestyles and experiences disappear (Lupu and Pontusson, 2011). The consequence is a loss of altruistic behaviour (support for redistribution) from the middle and upper classes. The implication for the union-redistribution relationship is that its strength and direction may be conditional on the economic position of the majority of union members within a province. If the social distance between union members and the rest of labour class increases, one may expect unionists to show lower preferences for redistribution. However, if a non-negligible portion of union members are low income earners, unionism may act as a vector of social affinity that increases the redistributive preferences of all union members, regardless of income. This refers to what Rueda (2018) calls an act of "parochial solidarity", where higher-income earners attach moral benefits towards redistribution when those who benefit from income transfers share similar characteristics, union status in this case. In a recent study, Mosimann and Pontusson (2017) find evidence supporting the concept of parochial solidarity. They show that altruism is more apparent in high income union members in countries where union membership is more inclusive to low income earners.

On the other hand, the 'insurance with segmented labor market model' proposed by Alt and Iversen (2017) contends that individual preferences for redistribution are determined by the distribution of risk on the labour market. They argue that support for redistribution in the middle class is higher when labour markets are less segmented. If risks (e.g. risk of job loss) are distributed evenly across segments, support for redistribution should be higher. Alternatively, if risks are concentrated in a few segments, then people facing low risk will be less inclined to support redistribution as the

likelihood of income loss is low. If union members are located in labour segments with low risks, one would expect union members to be less inclined to support redistribution through public insurance schemes.

All these models point to a common argument: the relative affluence and exposure to risk of individuals should condition their support for redistributive policies. While the underlying logic behind the impact of income and risk exposure on preference formation is different, Alt and Iversen (2017) show that the empirical implications are very similar. For simplicity's sake, the scope is limited to income in this study. From this discussion, an additional hypothesis is proposed:

> *Hypothesis 3: Income redistribution is higher when union membership is more inclusive to lower-income earners.*

Whereas *Hypothesis 1* presumes preference homogeneity across all union members, *Hypothesis 3* suggests that the egalitarian and solidaristic values inherent to the union movement may not translate into support for redistribution if union inclusiveness is low.

6.3   Methodology

6.3.1   Why Canada's provinces?

Looking at the union-redistribution relationship using Canadian provinces as a laboratory is interesting at both the empirical and theoretical level. First, a provincial analysis provides a less commonly used dataset to evaluate theories of political economy, such as PRT, which are mostly tested on international level data (Kellermann, 2007; Kelly and Witko, 2012). Second, Canada's provinces provide an attractive institutional environment for comparative research as the homogeneous legislative institutions and electoral systems, the shared interest and exchange rates, and a generally common capital market regime have the benefit of reducing the number of confounding

variables in the analysis (Kellermann, 2007). Similarly, Haddow and Klassen (2006) argue that controlling for "third variables" is more feasible given that Canadian provinces are homogeneous insofar as they share common institutional underpinnings familiar to, but in no way an ideal type of, liberal welfare states and liberal market economy production regimes. Third, as analysts have been primarily engaged in national-level theorization, there is a lack of Canadian interprovincial comparison in the social, economic and political domains (Greafe, 2015).

6.3.2 Data and variable selection

To operationalize the dependent variable, economic redistribution, three measures of inequality are retained: the Gini coefficient and two deciles ratios (D_9:D_5 and D_5:D_2). Following the definition given by Equation 6.1 earlier, redistribution is defined as the difference between market inequality and after-taxes and transfers inequality expressed in percentage change. This definition is applied to each inequality measure. The set of three dependant variables (DVs) is used in an attempt to assess the union-redistribution relationship in different segments of the distribution. The Gini coefficient is most sensitive to changes in the middle of the distribution. The D_9:D_5 ratio measures how well the top of the distribution does relative to the middle. The D_5:D_2 ratio measures how well the middle of the distribution does relative to the bottom.[2]

Union density is selected to proxy the organizational power of unions. The institutional power of unions is measured using Scott Legree, Tammy Schirle and Mikal Skuterud's (2017) labour relations index (LRI). The index is constructed on the assessment of laws governing 12 aspects of labour relations. For each of the 12 aspects, a score of 0 is given when a law is relatively unfavourable to unions and a score of 1 is assigned when a law is relatively supportive of unions. The composite index is obtained by calculating the unweighted average of the [0, 1] values. It is argued that the quality of unions' institutionalization can act as a proxy to the power of union influence in the political arena. Finally, following Becher and Pontusson (2011), the percentage

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[2]D_2 is used as opposed to D_1 as the upper-market income limit of the first decile in some provinces is zero for certain time points.

of union members with adjusted household incomes below the median is used to measure union inclusiveness.

The common approach in Canadian research is followed to operationalize the political variables. This approach measures political partisanship with dummy variables for left, centre and right incumbency (see Petry *et al.*, 1999; Tellier, 2006; Haddow, 2013; 2014; 2015; 2016; Noel and Deault Picard, 2015; Roy and Boychuk, 2016). While three categories of political incumbency are defined, only two dummy variables are used in the multivariate analysis to avoid multicollinearity. In this case, no variable is constructed for right incumbency. The political right is used as the reference category.[3] As for the coding of provincial political parties into categories of left, center and right partisan orientation, the method proposed by Haddow (2014) is applied. This entails coding the New Democratic Party and the Parti Quebecois as the political left, the Liberal Party as the centre, and the Progressive Conservatives as the political right. The British Colombia Social Credit Party and the Saskatchewan Party are both classified as the political right. While one could argue that the British Colombia Liberal Party should be coded as the political right, Haddow (2014) finds no difference in outcomes in his empirical application when estimating an alternative model with the BC liberals coded as the political right. In Noel and Deault Picard (2015) as in Roy and Boychuk (2016), however, the BC Liberal Party is coded as the political right, but the authors do not justify this decision. As the dependent variables in Haddow's study are similar to the ones in this article, his categorization is used.

Two control variables added to the multivariate analysis consider the economic context of each province. Provincial prosperity is controlled for with a measure of provincial GDP per capita. The economic climate is also controlled for with the unemployment rate. This last measure also serves to control for redistribution brought upon by the employment insurance program, which is a labour market policy operated by the federal government.

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[3]Omitting a dummy variable for right incumbency does not mean the political right is not incorporated in the analysis. Rather, the impact of right incumbency is embedded within the intercept term.

Most variables are constructed using survey estimates from Statistics Canada's publicly accessible Canadian socioeconomic database (CANSIM).[4] CANSIM estimates rely on data from various government surveys such as the Labour Force Survey (LFS) and the the Survey of Labour and Income Dynamics (SLID) to provide longitudinal provincial data. Many studies similar to this one have used the CANSIM database (see Breau, 2007; Cousineau et Merizzi, 2015; Haddow, 2013; 2014; 2015; 2016; Kellermann, 2005). Data for the political partisanship variables are drawn from a different source – the Canadian Parliamentary Guide. Estimates for the union inclusiveness variable are produced using SLID public use microdata files.[5] Finally, estimates for the LRI are taken from Legree, Schirle and Skuterud (2017).[6] As for the functional form of the variables, an analysis of histograms suggests that a linear form is preferred in most cases. However, a natural log form is preferred for the GDP per capita measure.

A perfectly balanced dataset spreading from 1996 to 2011 is constructed by integrating the variables defined above. Data for many variables are available for longer time frames. However, the union inclusiveness measure can only be constructed from 1996, the first usable year of the SLID, to 2011, after which it was replaced with the Canadian Income Survey, which has no question on trade union status.

6.3.3 Analytical strategy

The analytical strategy deployed in this study is twofold. First, univariate and bivariate analyses are used to explore and describe the data. Second, a multivariate analysis of time-series cross-sectional (TSCS) data is conducted to assess the predictive value of each IV.

Following recent methodological advances (Bartels, 2015; Bell and Jones, 2015), a multilevel

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[4]The CANSIM estimates used to construct each variable are found in the following tables: Statistics Canada, CANSIM tables 206-0033 (Gini coefficient), 206-0032 (D_9:D_5 ratio and D_5:D_2 ratio), 279-0025 and 282-0220 (union density), 384-0038 and 051-0001 (GDP per capita).

[5]STATA .do files for the construction of this variable are available upon request.

[6]The author would like to thank Scott Legree, Tammy Schirle and Mikal Skuterud for sharing their database.

random-effect modelling strategy is employed. This consists in using random-effect models that distinguish the between-province and the within-province effects of independent variables. This type of random-effects model does not assume that the within- and between-unit effects of predictors are the same. This allows for a more substantive interpretation of results than would be possible using fixed-effects or classical random-effects models by modelling heterogeneity between provinces using meaningful variables. This type of multilevel estimation for macro-level TSCS is new to comparative political economy, but scholars have recently started to adopt this strategy (Haddow, 2016; Jacques and Noel, 2018).

The effect of each predictor used in the analysis has two dimensions. The first dimension is the between-effects or the cross-sectional impact of variables. It estimates how varying average levels of a variable between provinces has an impact on the DVs. This impact is said to be long-term and time-invariant. The second dimension is the within-effect or the over time impact of predictors. This measures how short term changes to variables, year-to-year variations in this case, affect the DVs. With this in mind, the models estimated in this study take the following form:

$$y_{i,t} = \beta_0 + \beta_1(x_{i,t} - \bar{x}_i) + \beta_2\bar{x}_i + (u_i + \varepsilon_{i,t}) \tag{6.2}$$

where β_1 and β_2 respectively give direct estimates of the within- and between-effects of an independent variable or of a vector of such variables. u_i and $\varepsilon_{i,t}$ are the within-unit and between-unit component of the error term.

6.4   Results

6.4.1   Descriptive Analysis

Figure 6.1 below shows that income redistribution[7] increased through the 1980s and the beginning of the 1990s. Most provinces reached peak levels of redistribution in 1993; although estimates for Ontario, Saskatchewan and British Colombia peaked in 1994, and in 1992 for Manitoba. From this point on, redistribution progressively decreased in all provinces until they reached levels similar the beginning of the observed period.

Figure 6.1: Income redistribution (Gini) and union organizational power by province, 1982-2014

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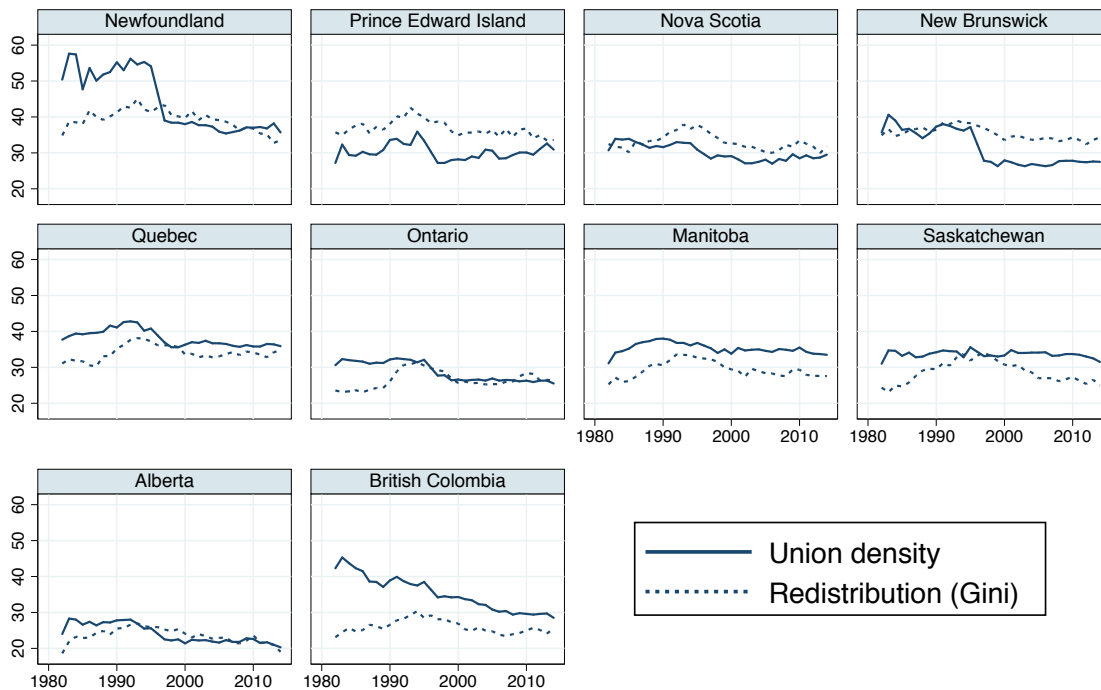
[7]While all three measures of income redistribution are used in the multivariate analysis below, only the Gini coefficient is used here as space is limited. Even if it is more sensitive to changes in the middle of the distribution, income redistribution as measured with the Gini coefficient is the most comprehensive measure out of the three indicators used in this study.

Other than its potential relationship with unionism, the trend reversal in redistribution may have other obvious reasons. First, it may be partly the result of a statistical artifact resulting from a survey change in 1993 – Statistics Canada moved from the Survey of Consumer Finances (SCF) to the Survey of Labour and Income Dynamics (SLID). Second, in the early 1990s, major changes (lowered coverage and smaller replacement rates) were made to the federal employment insurance and provincial social assistance programs. However, determining the main contributor to the reduction of redistribution between Ottawa and the provinces is quite difficult (Haddow, 2013). Third, others argue that the redistributive system in Canada and the provinces has remained relatively intact, but has failed to counteract rising market inequality levels from the 1990s onwards, pointing to a loss of redistributive efficiency (Banting and Myles, 2016; Heisz, 2016).

Figure 6.1 also shows the evolution of union organizational power, measured by union density, in Canadian provinces. As a general rule, much like redistribution, unionization rates have decreased since the mid-1990s. Prior to 1996, union data were collected through the Corporations and Labour Unions Returns Act (CALURA) which relied on self-reported estimates from unions. After 1996, union data were collected using the Labour Force Survey (LFS) relying on standard survey collection methods. This means that estimates prior to 1996 may be inflated. The sudden drop in the mid-1990s is likely exacerbate by the linear extrapolation used to fill missing data for 1996. Beyond this artifact, the broad causes of union decline that have been extensively discussed in the literature likely come into play. However, an overview of these determinants lie outside the scope of this article.

This univariate analysis suggests the decline of income redistribution and unionization to be contemporaneous to some extent. But do these trends actually relate? Focusing on the sub-period ranging from 1996 to 2011, the analysis now turns to an exploration of key bivariate relationships.

Union power and redistribution

Figure 6.2 shows average values of union organizational power (measured with union density) and economic redistribution for each province. The regression line suggests a positive relationship,

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meaning that provinces with higher average levels of unionization tend to redistribute more on average. This supports *Hypothesis 1*, predicting a positive link between both variables. However, it must be noted that this positive relationship may rely heavily on estimates from Alberta and Newfoundland, which represent the outlying cases at either extreme.

Figure 6.2: Average income redistribution and union organizational power, 1996-2011
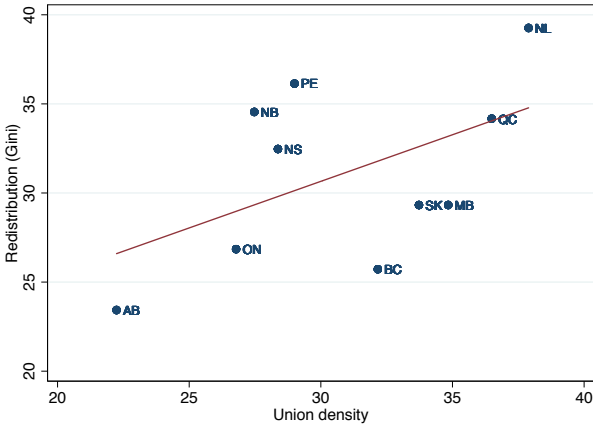
Figure 6.3: Average income redistribution and union institutional power, 1996-2011
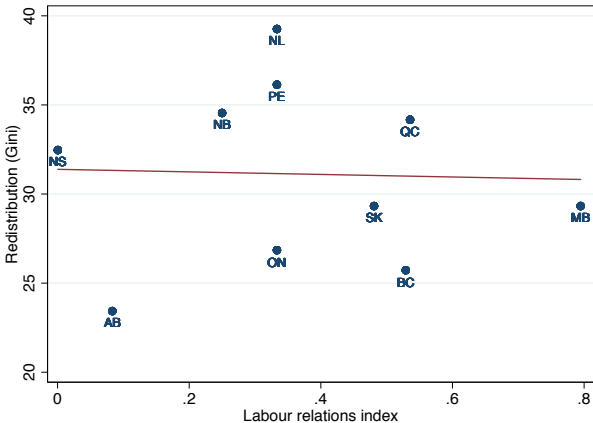
Figure 6.3 above explores the relationship between union institutional power (measured with the labour relations index) and redistribution. From 1996 to 2011, Nova Scotia and Alberta had

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the least union friendly labour statutes, whereas Manitoba clearly distinguished itself as having the most favourable institutional framework for unions.

Contrary to union organizational power, union institutional power appears to have a null relationship with income redistribution. Better institutional underpinnings for unions do not appear to be linked with higher redistribution. Results in Figure 6.3, therefore, give little support for *Hypothesis 2*, which anticipates a positive link. This may not be surprising as theory suggests that institutional power is 'secondary' to organizational power, meaning that institutions may only serve as a lever to organizational power or as an expression of organizational power (Müller and Platzer, 2017). Therefore, institutional power may be indirectly associated with more redistribution through its positive link with organizational power.

PRT contends that left-leaning political party incumbency should be associated with higher redistribution. Figure 6.4 below plots average economic redistribution with average time of party incumbency for each partisan perspective.

Figure 6.4: Average income redistribution and political incumbency, 1996-2011
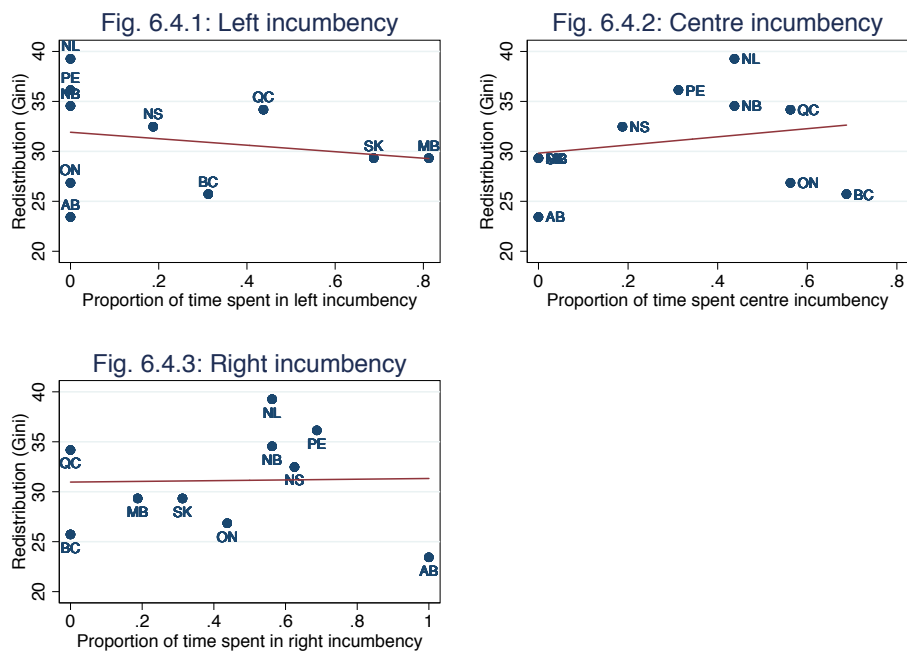
Figure 6.4.1 shows a surprising result. Left party incumbency appears to be associated with lower redistribution. In fact, three of the four provinces that have never had a left party in power over the period studied (Newfoundland, Nova Scotia and Prince Edward Island) show the highest levels of economic redistribution, while provinces with the highest average time spent in left incumbency (Saskatchewan and Manitoba) are in the middle of the pack in terms of income redistribution Alternatively, results shown in Figure 6.4.2 suggest that centre-party incumbency is associated with higher redistribution. This is not surprising on its own. It is expected that centre parties will be more redistributive than right parties. However, it is unexpected that centre incumbency would have a positive relationship, while left incumbency does not. As highlighted in Haddow (2013), this may be due to the fact that there is a more complex causal relationship between unionism, left incumbency and redistribution. As for Figure 6.4.3, results are not as anticipated. There appears to be little to no link between right incumbency and redistribution, whereas it was expected that the relationship would be negative. In fact, if one was to remove Alberta from Figure 6.4.3, the relationship would be positive.

Union power and political partisanship

Does union power vary with political partisanship? Figure 6.5 below plots union organizational power with average time of party incumbency for each partisan orientation. The three panels confirm expectations: while left and centre incumbency are associated with higher unionization, higher average levels of right incumbency are linked with lower average levels of union density.

Figure 6.5: Average union organizational power and political incumbency, 1996-2011

Fig. 6.5.1: Left incumbency

6.5.2: Centre incumbency

Fig. 6.5.3: Right incumbency
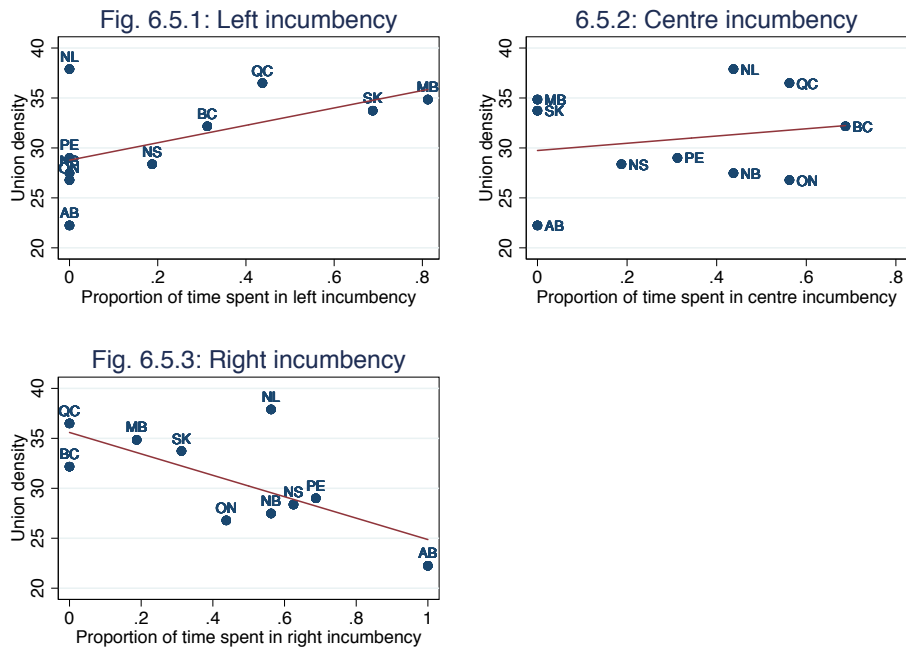
Figure 6.6 below plots a measure of union institutional power with average time of party incumbency for each partisan perspective. Figure 6.6.1 shows a strong positive relationship between collective labour rights that are favourable to unions and left party incumbency. Figure 6.6.2 shows a slight positive relationship between centre party incumbency and union institutional power. Finally, as expected, estimates show a strong negative relationship between right political incumbency and the strength of union institutions in Figure 6.6.3.

Figure 6.6: Average labour relations index and political incumbency, 1996-2011
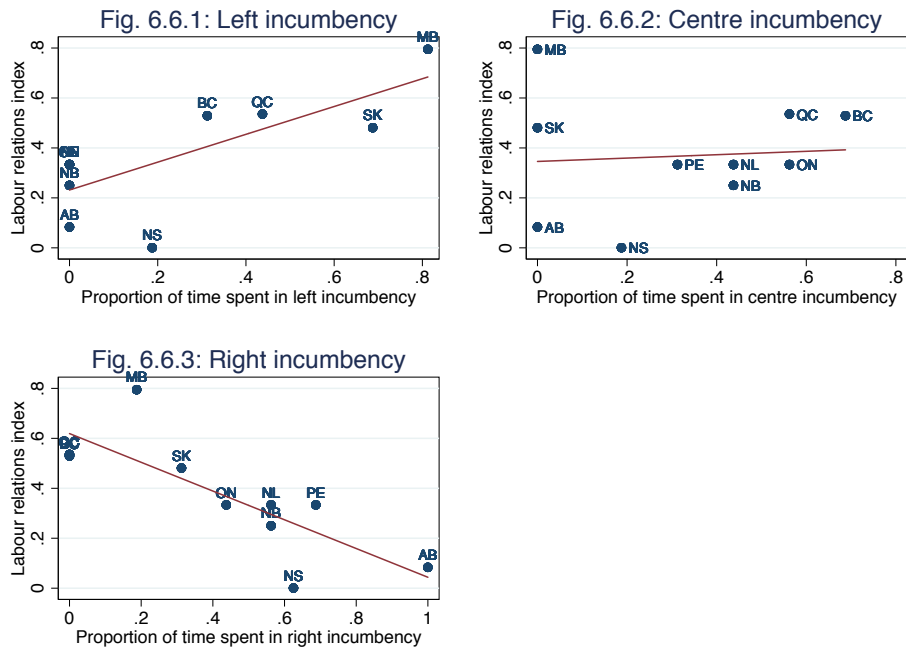
Looking at Figure 6.5 and 6.6 together, results suggest that union power, both organizational and institutional, is more effectively secured in periods of left- and centre-party incumbency, compared to periods of right incumbency. Moreover, the results in Figure 6.5.1 and 6.6.1 show that a positive relationship between left-party incumbency and income redistribution may in fact exist, whereas it is not apparent in Figure 6.4.1. This relationship would be indirect and mediated by trade union power.

Union organizational power and union institutional power

Figure 6.7 below plots average levels of union organizational and institutional power. This is done to evaluate if the unapparent relationship between union institutional power and income redistribution suggested by Figure 6.3 could in fact hide an indirect positive link between both variables mediated by union organizational power. Results indicate some dependency between

union organizational power and the nature of the institutional environment unions operate in. Indeed, provinces with higher average levels of union density tend to have higher average levels of the labour relations index. This offers some support for *Hypothesis 2*, which anticipates a positive relationship between institutional power and income redistribution.

Figure 6.7: Average union density and the labour relations index, 1996-2011
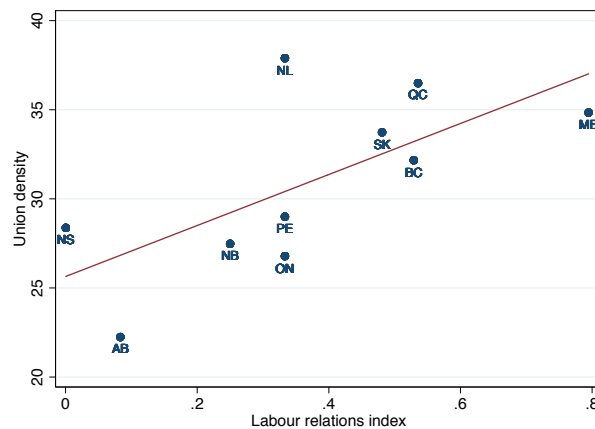
In a more in-depth examination of this relationship, Legree, Schirle and Skuterud's (2017) find that making legislation fully supportive of unions would increase unionization rates. However, they argue that this increase would be modest and would mostly benefit professionals employed in public services. With this in mind, they argue that increases in unionization through legal reform would be rather ineffective in addressing labour market inequality concerns. As for economic redistribution, assuming that public sector professionals are relatively affluent members of societies, it could be argued – following the earlier theoretical discussion – that adding more of them among union ranks may not motivate unions to increase their support for redistributive policies.

Union inclusiveness and income redistribution

Figure 6.8 plots the average levels of redistribution and average percentage of union members located under the median household income. This offers a rough test of *Hypothesis 3* predicting that the relative position of union members in the general income distribution will affect union

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preference for redistribution. The results support this argument. Where average levels of union-ization are stronger in the bottom half of the distribution, average levels of income redistribution tend to be higher. Newfoundland shows both the highest average level union inclusiveness and of income redistribution, while Alberta, Ontario and British Colombia combine the lowest average levels of both variables.

Figure 6.8: Average income redistribution and union inclusiveness, 1996-2011
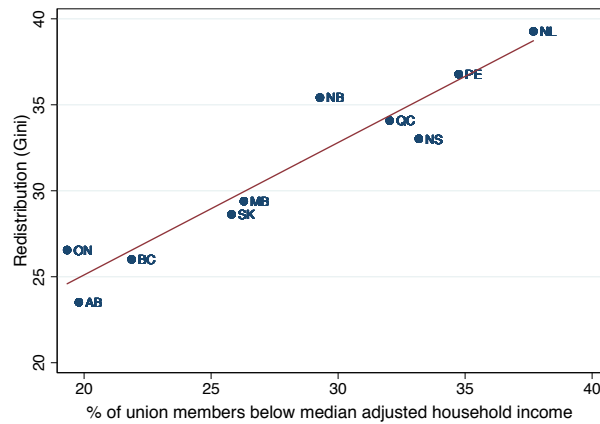
Does union inclusiness really provide additional substantive information or is it simply an alter-native way to communicate provincial differences in union organizational and institutional power? First, the union inclusiveness variable is statistically dependent on levels of union organizational power, which is measured by union density. However, as shown in correlation matrices in Ap-pendix B, the positive relationship between union density and the proportion of union members in the bottom of the general income distribution is by no means perfect $(r(160) = 0.422, p < .01)$. This suggests that union inclusiveness levels are determined at least in part by factors independent to those that determine union density levels.

Second, it could be argued that unionization at the bottom of the general income distribution depends on the constraints imposed by the institutional environment unions contend with. Union membership should be more prevalent in the bottom of the distribution where labour statutes make it easier for unions to unionize low income earners. However, the evidence provided in Figure

6.9 below does not support this idea. In fact, the relationship between union institutional power, measured by the labour relations index, and union inclusiveness appears to be negative. Newfoundland, which has the highest level of union inclusiveness among all provinces, ranks in the middle of the of the pact in terms of the union favourableness of its labour statutes. In contrast, Manitoba, which has the most union-friendly institutional environment out of all the provinces, is in the middle of the field with regards to union inclusiveness. This suggests that organizing the bottom of the income distribution may reflect objectives pursued by specific union movements and not simply a product of the environment in which unions operate.

Figure 6.9: Average union institutional power and union inclusiveness, 1996-2011
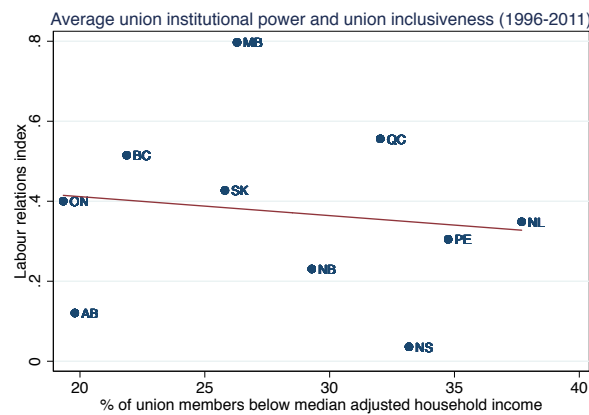
The results so far suggest a relatively complex picture as to how unions relate to economic redistribution. While organizational power appears to be positively associated with income redistribution, which is as predicted, institutional union power appears unrelated to inequality reduction through redistribution, which is not as anticipated. However, further evidence suggests that institutional power may have an indirect positive effect on redistribution by acting as a catalyst for organizational power. Evidence also suggests that the relationship between union power and redistribution may be affected by how inclusive unions are to bottom income earners. Adding to the complexity is the possibility that gains in institutional power may result in increased union membership in the upper parts of the income distribution (Legree, Schirle and Skuterud, 2017).

Over time, this could lead to a situation where more membership may not lead to more support for redistributive policy.

The results also show surprising evidence with regards to a classical power resources theory hypothesis. Left-party incumbency is not positively linked with redistribution; in fact, evidence points to a negative relationship. However, bivariate results also suggest that union power, at both the organizational and institutional level, is reliant on left-party incumbency. This is especially true for institutional power, which is much more easily secured in provinces with longer periods of time spent under left-party rule. It could be that left parties use their time in power to reinforce union institutional power rather than focus on explicit state redistribution.

Ranking the provinces

Table 6.1 ranks the provinces in ascending order on the basis of average levels of redistribution. Another column shows average provincial rankings for labour power resources as defined in classical PRT. These average rankings are obtained for each province by adding the ranks for organizational power, institutional power and total time spent in left- or centre-incumbency (not in right incumbency), and dividing them by three. Standard competition ranking is used in the occurrence of a tie. The last column gives the provincial ranks for union inclusiveness.

Table 6.1: Provincial rankings in income redistribution (Gini), average labour power resources and union inclusiveness (1996-2011)

Province	Income redistribution	Average labour power resources	Union inclusiveness
NL	1st	4th	1st
PE	2nd	7th	2nd
NB	3rd	8th	5th
QC	4th	1st	4th
NS	5th	9th	3rd
MB	6th	2nd	6th
SK	7th	5th	7th
ON	8th	6th	10th
BC	9th	3rd	8th
AB	10th	10th	9th

Notes: Average power resources are obtained by adding provincial rankings for organizational power, institutional power and combined time spent in left or centre incumbency, and then dividing them by three. Standard competition ranking is used in the occurrence of ties.

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Comparing the first two columns of rankings highlights important discrepancies between ranks for redistribution and ranks for labour power resources. Generally, Manitoba, British Colombia and Quebec redistribute relatively less than expected and the eastern provinces (New Brunswick, Newfoundland, Nova Scotia and Prince Edward Island) redistribute more than anticipated. It must be noted that the eastern provinces redistribute at relatively high levels despite the fact that left political parties have never held office in this region except for a small stint in Nova Scotia and regardless of relatively unfavourable labour statutes. Newfoundland distinguishes itself from the other eastern provinces with a high average level of organizational power (union density), which may explain why it manages to outrank its Maritimes counterparts in the area of redistribution. The high level of discrepancy for British Colombia may be due to an inflated assessment of labour power resources within this province. If one was to code the British Colombia Liberal Party as the political right – as it has been done elsewhere – BC's average labour power resources ranking would fall closer to its redistribution ranking. As for the three other provinces, Ontario and Saskatchewan redistribute slightly less than expected, while Alberta's redistributive effort is as anticipated.

Things fall more into place when comparing rankings for redistribution and union inclusiveness. The discrepancies are now much smaller, suggesting that who unions represent may matter more for redistribution across the provinces than a classical assessment of labour power resources. That said, while less pronounced, persisting mismatches in rankings indicate that other forces are also at work in the formation of economic redistribution across the provinces, which comes as no surprise and invites further investigation.

6.4.2 Multivariate Analysis

Tests show that the data used to estimate the multivariate models is structured through time and space. The modified Wald test indicates the existence of heteroscedasticity for all models. The Breusch-Pagan Lagrange multiplier test for independence identifies contemporaneous correlation in all models. The Lagrange multiplier test additionally detects serial correlation in all models. To

model this data structure, the models presented below are estimated with panel-corrected standard errors (PCSEs) and first-order autocorrelation (AR1). No weights are used to adjust for provincial population sizes. This is because the provinces are the unit of analysis. The objective is to generalize to provinces, not to the Canadian population as a whole. This allows for hypothesis testing in the following form: provinces with higher levels of union inclusiveness redistribute more on average. If one were to weight by population size, results from smaller provinces would have no relevance.

Table 6.2, 6.3 and 6.4 below present estimates from regressing three measures of income redistribution[8] – each of them based on a different measure of inequality – on four groups of IVs.[9] In each of these tables, the variables included in Model 1 relate to union power. Model 2 adds two political variables measuring the partisan orientation of government. Model 1 and 2 combine to provide a standard evaluation of labour power resources as defined in PRT. Model 3 adds economic controls and Model 4 includes the union inclusiveness measure, which takes into account the effect of membership composition. Following the modelling approach decribed earlier (See Equation 6.2), the "between" (long-term) and "within" (short-term) dimension of each predictor is estimated separately. A quick overview of estimates in Table 6.2, 6.3 and 6.4 shows that the variables of interests are predominantly associated with long-term changes in income redistribution. This is not entirely surprising. PRT contends that the effect of labour and its centre-left allies on redistributive policy requires strong and stable influence and control over government (Haddow, 2016). With this in mind, the presentation of regression results will focus on long-term cross-sectional estimates.

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[8]see Equation 6.1 for definition

[9]Note that the R^2 value is very high in some models. As the analytical objective here is to qualify the relationship between key predictors and the DVs – as opposed to trying to produce precise predictions of the outcome variables – the R^2 values are not of much interest. That being said, high R^2 values may suggest that some models are overfitted. The relative complexity of the modelling approach used in this study may be asking a lot out of a relatively small sample (160 observations). For this reason, results should be treated as tentative.

Table 6.2: Regression of income redistribution, measured by the Gini co-efficient, on four groups of IVs, 1996-2011

	(1) Redistribution, Gini ceofficient	(2) Redistribution, Gini ceofficient	(3) Redistribution Gini ceofficient	(4) Redistribution, Gini ceofficient
Union organizational power (between)	0.767*** (8.19)	0.686*** (9.79)	-0.047 (-0.37)	1.202*** (10.3)
Union institutional power (between)	-11.77*** (-5.88)	-9.654*** (-3.60)	-4.245*** (-2.81)	18.04*** (8.4)
Left party incumbency (between)		-1.185 (-0.44)	10.08*** (3.38)	-55.35*** (-10.73)
Centre party incumbency (between)		6.470*** (4.25)	-1.23 (-1.17)	-2.224*** (-2.75)
GDP per Capita (between)			-5.068*** (-3.80)	-12.20*** (-11.55)
Unemployment (between)			1.598*** (5.73)	-4.385*** (-10.01)
Union inclusiveness (between)				1.408*** (13.55)
Union organizational power (within)	0.151 (1.26)	0.248** (1.96)	0.0333 (0.35)	0.00129 (0.02)
Union institutional power (within)	3.404 (0.86)	7.445 (1.46)	3.457 (1.02)	-4.595 (-1.60)
Left party incumbency (within)		-0.224 (-0.40)	-0.119 (-0.25)	0.546 (1.44)
Centre party incumbency (within)		-0.0348 (-0.09)	-0.228 (-0.66)	0.0623 (0.22)
GDP per Capita (within)			-8.287*** (-3.40)	-8.530*** (-4.70)
Unemployment rate (within)			0.325** (2.3)	0.397*** (3.38)
Union inclusiveness (within)				-0.021 (-0.55)
Cons.	10.76*** (3.75)	10.94*** (5.64)	71.72*** (5.08)	129.7*** (11.84)
N	160	160	160	160
R^2	0.892	0.901	0.941	0.959

Notes: Prais-Winsten regression with PCSEs; z statistics in parentheses;
$^*p < 0.10$, $^{**}p. < 0.05$, $^{***}p < 0.01$. See Equation 6.1 for redistribution definition.

Table 6.3: Regression of income redistribution, measured by the D_9:D_5 ratio, on four IV groups, 1996-2011

	(1) Redistribution, D_9:D_5 ratio	(2) Redistribution, D_9:D_5 ratio	(3) Redistribution D_9:D_5 ratio	(4) Redistribution, D_9:D_5 ratio
Union organizational power (between)	0.871*** (9.81)	0.841*** (11.51)	0.299 (1.45)	1.134*** (4.76)
Union institutional power (between)	-12.94*** (-8.21)	-5.649** (-2.18)	-2.395 (-1.32)	12.84*** (4.59)
Left party incumbency (between)		-8.165** (-2.48)	0.819 (0.15)	-43.38*** (-4.72)
Centre party incumbency (between)		1.594 (1.04)	-2.974** (-2.27)	-3.844*** (-3.80)
GDP per Capita (between)			-3.46 (-1.33)	-8.655*** (-3.51)
Unemployment (between)			1.042** (2.16)	-2.984*** (-3.62)
Union inclusiveness (between)				0.947*** (6.82)
Union organizational power (within)	-0.00202 (-0.01)	0.202 (1.25)	-0.03 (-0.19)	-0.0638 (-0.50)
Union institutional power (within)	-2.627 (-0.43)	-0.226 (-0.04)	-6.18 (-1.29)	-14.67*** (-3.68)
Left party incumbency (within)		0.199 (0.23)	0.641 (0.88)	1.419** (2.41)
Centre party incumbency (within)		0.756 (1.22)	1.296** (2.5)	1.646*** (3.73)
GDP per Capita (within)			1.687 (0.52)	0.82 (0.33)
Unemployment rate (within)			0.549** (2.39)	0.549*** (3.0)
Union inclusiveness (within)				0.038 (0.6)
Cons.	-5.008** (-2.12)	-5.050*** (-2.83)	37.46 (1.36)	80.78*** (3.21)
N	160	160	160	160
R^2	0.607	0.668	0.782	0.867

Notes: Prais-Winsten regression with PCSEs; z statistics in parentheses;
*$p < 0.10$, **$p. < 0.05$, ***$p < 0.01$. See Equation 6.1 for redistribution definition.

Table 6.4: Regression of income redistribution, measured by the D_5:D_2 ratio, on four groups of IVs, 1996-2011

	(1) Redistribution, D_5:D_2 ratio	(2) Redistribution, D_5:D_2 ratio	(3) Redistribution D_5:D_2 ratio	(4) Redistribution, D_5:D_2 ratio
Union organizational power (between)	1.988*** (8.36)	1.938*** (9.33)	2.247*** (5.71)	3.774*** (8.09)
Union institutional power (between)	-30.06*** (-5.90)	-24.43*** (-3.46)	-17.43*** (-4.67)	9.997* (1.89)
Left party incumbency (between)		-5.309 (-0.77)	-24.22** (-2.39)	-104.4*** (-5.88)
Centre party incumbency (between)		3.12 (0.92)	-10.01*** (-3.83)	-11.88*** (-5.16)
GDP per Capita (between)			-17.57*** (-3.62)	-27.10*** (-5.86)
Unemployment (between)			-1.121 (-1.34)	-8.446*** (-5.25)
Union inclusiveness (between)				1.716*** (5.8)
Union organizational power (within)	0.723** (2.3)	0.835** (2.5)	0.229 (0.92)	0.129 (0.56)
Union institutional power (within)	6.851 (0.6)	4.537 (0.36)	-7.918 (-0.83)	-23.92*** (-2.65)
Left party incumbency (within)		0.688 (0.44)	1.21 (0.94)	2.551** (2.16)
Centre party incumbency (within)		-0.859 (-0.69)	-1.524 (-1.64)	-1.131 (-1.39)
GDP per Capita (within)			-13.53** (-2.47)	-16.79*** (-3.76)
Unemployment rate (within)			1.874*** (5.34)	1.880*** (6.11)
Union inclusiveness (within)				-0.005 (-0.05)
Cons.	-11.80* (-1.71)	-11.94** (-2.14)	180.8*** (3.62)	260.7*** (5.71)
N	160	160	160	160
R^2	0.734	0.759	0.861	0.892

Notes: Prais-Winsten regression with PCSEs; z statistics in parentheses;
$^*p < 0.10$, $^{**}p. < 0.05$, $^{***}p < 0.01$. See Equation 6.1 for redistribution definition.

Estimates for union organizational power in Table 6.2, 6.3 and 6.4 generally indicate a significant positive relationship between long-term unionization rates and long-term income redistribution. While this relationship is lost when economic controls are added in Model 3 of Table 1 (Gini coefficient) and Table 2 (D_9:D_5 ratio), the positive link reappears when union inclusiveness is taken into account. This suggests a potential moderation effect where the efficacy of union organizational power in favouring income redistribution in a province is conditional on the existence of a relatively sizeable union constituency in the bottom of the income distribution. Precisely, when all variable groups are included, the "between" coefficient for union organizational power in Model 4 of Table 1 indicates that, for a given province, a one percent point increase in the long-term unionization is associated with a 1.2 % point increase in income redistribution, as measured by the Gini coefficient. The same model also suggests that a one-percent point increase in the long-term level of unionized persons in the bottom half of the distribution is associated with a 1.4 % percent point long-term increase in redistribution. Similar interpretations can be made for the same coefficients in Table 3 and 4. Overall, the multivariate results support both *Hypothesis 1* – which expects a positive relationship between organizational power and redistribution – and *Hypothesis 3*, which posits this relationship to be conditional on membership composition.

Estimates in Model 1, 2 and 3 of each regression table show a negative relationship between union institutional power and income redistribution. However, when union inclusiveness is added to the analysis (Model 4 in each regression table), coefficients for institutional power become positive and are statistically significant. For example, when all variables are included, the long term coefficient in Model 4 of Table 6.2 suggests that long-term income redistribution measured with the Gini coefficient would be about 18 % percentage points higher in a province where legal statutes were at the highest possible level of union favourableness for the entire period covered (1996-2011), compared to a province where collective labour rights would be completely unsupportive of unions. Similar interpretations can be made for the same model in Table 6.2 and 6.4. The results therefore support theoretical expectations formalized in *Hypothesis 2*. What is less clear, however,

is how the relationship only becomes positive when union inclusiveness is taken into account.

Here again, results point to a moderation effect where higher average levels of union institutional power are only effectively leveraged to increase redistribution in provinces with higher average levels of unionized lower income earners. If the quality of collective labour statutes reflect the porosity of government to union demands and union inclusiveness mirrors the inclination of unions to support redistribution, a interaction between higher values of these two variables should be associated with higher levels of income redistribution. However, porosity of government to union influence need not be associated with higher income redistribution on its own if unions lack the incentive to engage in the politics of redistribution in the first place.

The "within" union institutional power estimates in Model 4 of Table 6.3 and 6.4 suggest that short-term changes from a situation where collective labour statutes are most unfavourable to unions to a completely union-friendly institutional environment – as measured by the LRI – are associated with immediate decreases in income redistribution. This result can be interpreted in light of Legree, Schirle and Skuterud's (2017) findings that suggest that making legislation fully supportive of unions would increase unionization rates, but that these membership gains would come from adding on higher income earners (professionals in the public sector). If short-term increases in institutional power translates into more unionized workers in the upper part of the distribution, union inclusiveness declines and so too does the inclination of unions to engage in redistributive politics.

Finally, results for the political variables are not as expected with regards to PRT. Model 4 in each regression table suggest that long-term left- and centre-party incumbency are associated with less income redistribution in the long run. However, short-term "within" estimates for left and centre incumbency in Table 6.3 and left incumbency in Table 6.4 indicate that short-term shift (from right to centre or right to left) in the partisan orientation of government is associated with immediate increases in income redistribution.

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A note on political partisanship

The negative long-term estimates for left- and centre-incumbency provided in Table 6.2, 6.3 and 6.4 indicate surprising results with regards to expectations drawn from PRT. These findings can be explained by both a common development in partisan politics in the provinces and provincial regional divides in political systems.

First, a question common to every province is whether left or centre parties unequivocally act as allies to the labour movement in an era of neoliberalism. After the high point of social democracy in the 1970s and the ascent of neoliberalism through the 1980s, every social democratic party that formed government in the provinces "abandoned core Keynesians policies and replaced them with supply-side policies on skill acquisition at the individual level, retreated from progressive taxation, and cut expenditures" (Evans and Smith, 2015: p. 387). Moreover, " [t]he New Democrats in Saskatchewan, BC, Ontario and Nova Scotia, as well as PQ governments in Quebec, have all imposed back-to-work legislation and other legislative strategies to discipline their public-sector workforce" (p. 386). These actions taken by the "left" indicate a shift in political philosophy that is not well reflected in the way partisanship is operationalized in this study. As political systems drift to the right in every province, the adequacy of positioning parties on a left-right spectrum is increasingly open to question if all governments, regardless of traditional partisan orientation, operate within the limited frame of zero-deficit politics.

Second, the regional uniqueness of political systems in the Maritimes is conditioning the direction and strength of the left and centre incumbency estimates. As Figure 6.4 presented earlier suggests, that the Maritime provinces (Newfoundland, New Brunswick, Nova Scotia and Prince Edward Island) have relatively high average levels of income redistribution despite the quasi absence of social-democratic party incumbency in the region. Indeed, in the history of the Atlantic provinces, the New Democrats held office for only on term in Nova Scotia. This suggests that the absence of a social-democratic party in a province should not be interpreted as reflecting a lack of collectivism. It has been argued elsewhere that the Atlantic provinces have a political culture based on a collectivist form of traditionalism, which can be explained by a mixture of factors such as the

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values of the first settlers, the communal nature of the economic stable of the region (fishing), and the relative poverty of the Maritimes (Wesley, 2015). While this collectivism may have translated in an acceptance of trade unions, the political system has remained relatively conservative. This shows the potential inadequacy or the operationalization of the political variables and of forcing PRT assumptions with regards to partisanship onto the Canadian provincial context. Additionally, this regional dynamic weighs heavily on the direction and strength of the relationships between left- and centre-party incumbency and income redistribution described by multivariate estimates above.

6.5   Conclusion

The main results of this study can be summarized as follows. First, bivariate and multivariate results support the idea that higher average levels of union organizational power are associated with higher average levels of economic redistribution (*Hypothesis 1*). However, when economic context of each province is controlled for, it is shown that this positive relationship is conditional on the existence of a relatively sizeable union constituency at the bottom of the income distribution. Therefore it is not the size of union membership that matters for redistribution, but rather the income composition of union membership. These results, it must be noted, rely on long-run estimates, meaning that they speak more to differences across provinces than changes within each political units.

Second, evidence from the bivariate analysis gives little credence to *Hypothesis 2*, which predicts higher union institutional power to be linked with higher levels of redistribution. However, multivariate results support this hypothesized relationship, although it is argued that this link is reliant on the interaction between the quality of union institutionalization and union inclusiveness. If institutions are defined as more or less stable compromises reflecting coalitional power dynamics (Mahoney and Thelen, 2010), it follows that relatively union-friendly labour statutes may proxy the political influence of unions. Indeed, institutional resources act as a platform for union influ-

ence, providing unions with the legitimacy to play a wider role in civil society (Rigby and Garcia Calavia, 2018). However, as shown in this study, institutional power on its own is not enough. To influence distributive outcomes, it must be combine with strong organizational power at the bottom of the income spectrum, which motivates union engagement in the politics of redistribution.

Third, results overwhelmingly supports the theoretical expectation that higher proportions of union membership in the lower half of the income spectrum are associated with higher levels of economic redistribution (*Hypothesis 3*). Mosimann and Pontusson (2017) offer some insight as to understanding why this is so. On the one hand, unions may act as information providers to their low income members, helping them to understand their political interests. If unions' low income constituency is large, this effect could be significant. On the other hand, unions might promote other-regarding support among their high-income members. Such altruistic behaviour is more pronounced when unions are more inclusive, as the norms or ideology cultivated in support for redistribution depend on the composition of membership. Whatever the rational at work, results highlight the importance of considering union composition. Assuming membership homogeneity, as it is often done in PRT scholarship, should be avoided.

As for the study's limits, the multivariate analyses rely on a small sample size (160 observations), which can be problematic given the relative complexity of the modelling approach used. This is because the union inclusiveness variable, a key variable, depends on SLID data, which is only available for the 1996-2011 period. Moreover, the empirical investigation does not control for other explanatory factors outlined in the literature such as predictors linked to the logic of industrialism perspective, which emphasizes structural changes such as deindustrialization and increases to the proportion of women on the labour market (see Myles and Quadagno, 2002). However, the objective of this article was not to be comprehensive, but rather to dig deeper into the complex processes at work in the broad relationship between unionism and economic redistribution. Too often is union power simply plugged in as a control variable amongst a wide range of other predictors. Other limits include assumptions made about the aggregation process behind union preference for-

mation. It is assumed in this study that union preferences in the provinces are derived from some type of majority rule democratic process greatly affected by union composition. This avoids any consideration of how union policy goals can be shaped by organizational factors that are removed from purely democratic top-down or bottom-up processes.

The findings generated in this study open up numerous future research perspectives. A first avenue would be a more robust investigation of the moderation (interaction) affects suggested above. As our results highlight the importance of a relatively sizeable union constituency in the lower portion of the income distribution, future research should also seek to understand the different conditions under which unionization gains in the bottom income segments are made possible. Further work is also needed to understand how unions relate to political parties and the importance of political systems more generally in explaining varying levels of income redistribution. These are areas of inquiry that this article only briefly investigates, but that have started to garner more interest (Haddow, 2013; 2014; 2016). It should be noted that future studies on the link between political systems and redistribution in Canada's provinces should also aim to move beyond the conventional operationalization of partisanship followed in this article.

The findings lead to a practical implication for unions. If union leaders and activists believe that tackling inequality through redistributive policy is a key part of their contribution to welfare in capitalist democracies, they should focus resources on organizing low-wage workers. This, however, may prove difficult. Through a survey of Canadian trade unions administered in 2001, Kumar and Murray (2006: pp. 94) evaluate that two thirds of respondents agreed that the primary recruitment/organizing effort of their union is focused on traditional areas of membership strength with a strong emphasis on the public services sector. The authors also show that most Canadian unions do not have set targets to spend on organizing and that the effective resources dedicated to this activity are modest (69.1 % of unions spent 5 % or less of total revenue). In fact, only a small fraction of unions (10.5 %) indicated that organizing was one of the highest priority at the time

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of the survey. These survey results, while somewhat dated, suggest that organizing lower-income earners will require a dramatic shift in how union go about increasing their membership.

Governments concerned with the policy needs of low income earners and with shaping more equal societies should favour labour institutions that give unions the institutional support to organize lower income-workers. However, making the legal statutes more favourable to union activity will likely not be enough to increase union inclusiveness substantially as Kumar and Murray find that only 23.2 % of unions reported that unfavourable public policy acts as a major obstacle to organizing campaigns.

6.6   Appendix A: summary statistics

Table 6.5: Summary statistics, 1996-2011

	Mean	SD	Median	Min	Max
Redistribution					
Gini coefficient	31.12	5.07	31.7	21.37	43.31
D9D5 ratio	19.99	4.99	18.42	10.24	34
D5D2 ratio	41.07	10.37	40.5	20.36	72.91
Independent variables					
Union organizational power	30.9	4.88	30.15	21.4	46.55
Union institutional power	0.38	0.22	0.33	0	0.83
Union inclusiveness	28	6.76	28.165	15.59	44.1
Left party incumbency	0.24	0.43	0	0	1
Centre party incumbency	0.32	0.47	0	0	1
GDP per capita	42331.93	11185.99	39116.18	26278.76	75003.48
Unemployment rate	8.62	8.15	3.47	3.5	18.9

6.7 Appendix B: correlation matrices

Table 6.6: Correlation matrix, variables used in Table 2 (income redistribution measured by the Gini coefficient), 1996-2011

	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)
Redistribution (i)	1							
Union organizational power (ii)	0.5045***	1						
Union institutional power (iii)	-0.0240	0.6497***	1					
Union inclusiveness (iv)	0.7946***	0.4220***	-0.0963	1				
Left party incumbency (v)	-0.0674	0.4112***	0.5713***	-0.1513*	1			
Centre party incumbency (vi)	0.1117	0.1026*	0.0037	0.1835**	-0.3883***	1		
GDP per capita (vii)	-0.6668***	-0.3325***	-0.1423**	-0.5014***	0.0603	-0.1855**	1	
Unemployment rate (viii)	0.8565***	0.3382***	-0.2247***	0.6666***	-0.3020***	0.2066***	-0.4885***	1

$^{*}p < 0.10$, $^{**}p. < 0.05$, $^{***}p < 0.01$

Table 6.7: Correlation matrix, variables used in Table 3 (income redistribution measured by the D_9:D_5 ratio), 1996-2011

	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)
Redistribution (i)	1							
Union organizational power (ii)	0.5098***	1						
Union institutional power (iii)	-0.0582	0.6497***	1					
Union inclusiveness (iv)	0.7731***	0.4220***	-0.0963	1				
Left party incumbency (v)	-0.1754**	0.4112***	0.5713***	-0.1513*	1			
Centre party incumbency (vi)	0.2527***	0.1026*	0.0037	0.1835**	-0.3883***	1		
GDP per capita (vii)	-0.4302***	-0.3325***	-0.1423**	-0.5014***	0.0603	-0.1855**	1	
Unemployment rate (viii)	0.8406***	0.3382***	-0.2247***	0.6666***	-0.3020***	0.2066***	-0.4885***	1

$^{*}p < 0.10$, $^{**}p. < 0.05$, $^{***}p < 0.01$

Table 6.8: Correlation matrix, variables used in Table 4 (income redistribution measured by the D_5:D_2 ratio), 1996-2011

	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)
Redistribution (i)	1							
Union organizational power (ii)	0.5913***	1						
Union institutional power (iii)	-0.0284	0.6497***	1					
Union inclusiveness (iv)	0.6289***	0.4220***	-0.0963	1				
Left party incumbency (v)	-0.0146	0.4112***	0.5713***	-0.1513*	1			
Centre party incumbency (vi)	0.0736	0.1026*	0.0037	0.1835**	-0.3883***	1		
GDP per capita (vii)	-0.4730***	-0.3325***	-0.1423**	-0.5014***	0.0603	-0.1855**	1	
Unemployment rate (viii)	0.8123***	0.3382***	-0.2247***	0.6666***	-0.3020***	0.2066***	-0.4885***	1

$^{*}p < 0.10$, $^{**}p. < 0.05$, $^{***}p < 0.01$

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Chapter 7

Trade Unions, Inequality, and Redistribution in Canada's Provinces: The Role of Membership Income Composition (Article 3)

Abstract: This article sets out to investigate how trade union composition effects the relationship between trade unionism and distributive outcomes. The study seeks to move beyond a simple formulation of power resources theory (PRT), which contends that higher union density produces more equal societies. Supplementing PRT with ideas from economic and rational-choice theories, it is hypothesized that the location of union members in the overall income distribution conditions trade unions' distributive impact. This hypothesis is tested on data from Canada's provinces for a period ranging from 1996 to 2011. time-series cross-sectional analyses show that market income inequality in the bottom and middle of the distribution is lower when the lower income deciles are more heavily populated by union members. However, increased proportions of union members in the top half of the distribution is not significantly linked with changes in income inequality in that segment, pointing to a saturation effect. As for income redistribution, unions favour policies that reduce inequality across the middle and upper income deciles of the distribution, segments where union members are predominantly located. This suggests that trade union redistributive preferences may be anchored in a "middle class" political frame, which stems from their income profile.

Key words: Trade Union Power, Trade Union Composition, Income Inequality, Income Redistribution

7.1 Introduction

Do trade unions provide an effective counterpower to the forces that shape economic inequality in our societies? Do they act as political vehicles promoting redistributive policies based on values of equality and solidarity? The answers to these questions have become less straightforward in the last few decades. International evidence suggests that deunionization – a trend in advanced economies (Pinto and Beckeld, 2011) – no longer provides a convincing explanation of changes in income inequality and income redistribution (Baccaro, 2011; Golden and Wallerstein, 2011; Pontusson, 2013). "[T]he egalitarian effects of unionization, for government redistribution as well as the distribution of earnings from employment, have diminished, possibly disappeared altogether, over the last two decades or so" (Pontusson, 2013: 814). These results prove to be problematic for power resources theory (PRT), a dominant approach in comparative political economy. PRT's core postulates predict that lower union density levels (lower labour power resources) should be strongly linked with more inequality and less income redistribution.

Building from Becher and Pontusson (2011) and Pontusson (2013), it is argued in this article that union membership composition provides a key to the puzzle that is the relationship (or lack thereof) between trade unions and distributive outcomes. This argument is constructed through a theoretical framework that combines ideas from economic theory, power resources theory, and rational theories of redistributive preferences. While PRT provides the dominant frame of analysis, the arguments concerning union composition are crafted using the other two theoretical perspectives. By combining these theoretical traditions, the article situates itself in a growing body of work that challenges the assumption of trade unions as representatives of a homogeneous labour-class (Becher and Pontusson, 2011; Ceron and Negri, 2018; Han and Castater, 2016; Nijhuis, 2009; Pontusson, 2013). Focusing on labour heterogeneity, this scholarship highlights the importance of accounting for union composition when examining union preferences towards various socioeconomic outcomes. This marks an important point of departure from a whole tradition of comparative political economic research based in PRT, which assumes labour unity.

The objective of this article is to explore how provincial differences and changes in the income

composition of trade union members affects distributive outcomes. The framing questions are as follows. What is the income profile of trade unionists? How does this profile condition the distributive impact of unions? Answers are provided through the quantitative analysis of Canadian provincial-level longitudinal data. The distributive outcomes considered are market income inequality and income redistribution through taxes and social transfers. As the theoretical discussion below will show, these two outcome variables relate to two different, but connected domains of trade union activity: the representation of workers as wage earners on the labour market and the representation of workers as citizens in the political realm (Murray and Verge, 1999).

The article is organized as follows. First, a review of literature provides formal expectations as to how union members' income composition affects distributive outcomes. Second, the methodological approach is outlined through a presentation of the interprovincial comparative research design, the operationalization of variables, and the specification of the analytical strategy. Third, the results are presented in two parts. Univariate and bivariate analyses first describe the income profile of union members and explore key relationships. This is followed by a presentation of multilevel regression estimates for market income inequality and income redistribution. The article ends with a discussion of key findings and their implications for future research and trade union strategy.

7.2   Theoretical framework

The theoretical discussion that follows is structured around two distinct relationships. The first object is the relationship between union members' income composition and market income inequality, where market income is defined as the sum of income generated from earnings and investments. The second object is the relationship between the income profile of unionists and income redistribution, defined as the percentage change between measures of market inequality and equivalent measures of income inequality after taxes and transfers. The distinction between these

two distributive outcomes is important as they are set in different arenas of distributive conflict – the labour market and the politics of redistribution. Moreover, treating both outcomes separately is necessary as they involve different trade union processes. On the labour market, unions use collective bargaining to affect the distribution of economic resources between labour and capital. In politics, unions can affect levels of redistribution by mobilizing voters, fostering civil participation within their ranks, lobbying and political action. These two streams of trade union activity – collective bargaining and participation in the political process – convey two fundamental union responsibilities: representing members' interest as wage earners and as citizens (Murray and Verge, 1999).

However, the distinction between the market and politics, while convenient, should not be exaggerated. Developments in labour and financial markets, such as changes to employment regimes (Fudge, 2017; Stone and Arthurs, 2014), globalization, and financialization (Peters, 2012; Streeck; 2014a), constrain the inclination and capacity of governments to engage in explicit income redistribution through taxes and social transfers. At the same time, increased competition for ever more mobile capital pushes governments to strip away at collective labour rights and employment standards to create more attractive institutional setups for employers (Berger, 2000; Streeck, 2014a), which weakens unions and their ability to reduce income disparities on the market. The point is that developments in private markets and in politics are not isolated, there is a constant feedback between distributive conflicts in both realms. While the discussion that follows treats both arenas of distributive conflicts separately, the underlying linkages must not be forgotten.

With the conceptual differences and commonalities between market income inequality and income redistribution in mind, the theoretical discussion now turns to the primary inquiry: the distributive implications of union members' income composition. The starting point of the review of literature is power resources theory. Central to PRT is the proposition that distributive outcomes in capitalist democracies reflect the balance of power between labour and capital (Becher and Pontusson, 2011; Bradley et al., 2003; Busemeyer, 2015; Kelly, 2008; Korpi, 1998; 2006; O'connor

and Olsen, 1998). Trade unions are defined as class representatives, acting as a medium on which labour's power resources can be actualized and amplified. They give otherwise isolated individuals collective representation before employers and governments, leveraging power in numbers to influence distributive outcomes in their favour.

Considered a dominant theory in comparative political economy, power resources theory has lately been criticized for its increasingly untenable assumption of labour unity, which has trade unions as representatives of a homogeneous labour class (Becher and Pontusson, 2011; Ceron and Negri, 2018; Han and Castater, 2016; Nijhuis, 2009; Pontusson, 2013). The problem is that union members, especially in a context of union decline, may increasingly consist of a selective segment of workers on the labour market and a distinctive group voters in politics, with preferences and capacities that may differ from other working-class individuals, and even more so from unemployed, unwaged, and marginalized persons. This is why taking union income composition into account may be crucial to understanding the contribution of unions in the struggle for more equal societies. By complementing PRT with economic theory and rational theories of preferences for redistribution, the aim is to produce more realistic expectations as to the distributive effects of trade unions.

The rest of this theoretical overview is organized as follows. Theories of the relationship between union members' income composition and market income inequality is discussed first. This is followed by an assessment of how the income profile of members may affect the way unions engage in the politics of income redistribution. The section ends by positioning these relationships within their broader social, political and economic context.

7.2.1 Trade union membership composition and market income inequality

The most important way trade unions affect market income inequality is by shaping the wage structure through collective bargaining. While wages are only one dimension of market income, they represent its most important component in Canada (Russell and Dufour, 2007), meaning that shifts to the wage structure can have a significant impact on overall market income inequality. The

discussion below therefore focuses on how union composition may condition the effects of collective bargaining on market income inequality. Before turning to the economic theory, which allows for such a link to be made, a brief overview of PRT is provided first.

Kelly (2008) offers the clearest formulation of PRT as regards of the relationship between unions and market income inequality. The idea is simple: when workers bargain collectively, their power towards employers is drastically increased. Assuming that union members and the working class in general are located in the lower segments of the income distribution, collective representation should reduce inequality as it affords workers with the power to extract more resources from employers and capital owners. It follows that higher levels of unionization should produce a more equal distribution of market income. The power provided by collective representation can be enhanced when cooperation is strong within the union movement. This happens when collective bargaining takes place at a high level (sectoral or national) and when union members are concentrated in large federations that cover multiple sectors and skill levels. Finally, union power on the labour market is legitimatized and reproduced through alliances with social-democratic (left-leaning) political parties, which create favourable institutional environments within which unions can more effectively reproduce their organizational power.

But what if union members are not located at the bottom of the income distribution? How would this affect the capacity of unions to reduce market income inequality? Economic theory provides some answers.

Economic theory does not prescribe a specific direction to the relationship between trade unions and market inequality. Rather, the nature of this relationship depends on whether the "within-sector effect" of unions outweighs their "between-sector effect" (Freeman, 1980; Freeman and Medoff, 1984; Card, Fortin and Riddell, 2004; Fortin, Green and Lemieux, 2012). The within-sector effect of unions reduces overall inequality in two ways. First, as uniformity takes wages out of competition, unions strive to standardize wage rates of comparable unionized workers across es-

tablishments of a same industry. Second, within establishments, unions tend to raise wages dispro-portionally at the bottom of the distribution. As unions are democratic organizations, it is expected that the majority of members would not allow wages to become concentrated in the hands of a few unionists and that that those located below the mean wage would favour union wage poli-cies guaranteeing greater gains at the bottom of the wage scale (Freeman, 1980). Moreover, great wage disparities between members of a same union would likely harm organizational strength, which relies heavily on solidarity. The between-sector effect increases inequality. The monopoly face of union representation raises wages in the unionized sector and drives down wages in the non-unionized sector. As wages go up in the unionized sector, the demand for labour falls. This creates a spillover of labour in the non-union sector, which puts a downward pressure on wages in that sector. However, Western and Rosenfeld (2011) argue that the union effect on wages in the non-unionized sector is not necessarily negative. Employers may increase wages of non-unionized workers to avoid unionization altogether, a rational they call the "union threat effect".

How do the within- and between-sector union effects help us understand how membership in-come composition effects distributive outcomes? If the unionized workforce is relatively small and concentrated in a narrow income segment, one would expect the within-sector effect of unions to be modest and the between-sector effect to be large. For example, if trade unions predomi-nantly represent upper-middle class workers, it is expected that the compression effect of unionism would only be felt in this segment of the distribution. More precisely, if unions membership is concentrated between the 5th and 9th income deciles (i.e. the upper half of the distribution), it is expected that collective bargaining and wage standardizing should reduce inequality within this income spectrum but increase inequality between the bottom half of the distribution and the more union-populated upper half. As trade unions in Canada generally represent a relatively small proportion of the workforce, and as those who benefit from collective representation tend to be generally well-educated (Galarneau et Sohn, 2013) and economically well-off (Mackenzie and Shillington, 2015), the overall effectiveness of collective bargaining and wage standardizing as

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inequality-reducing processes can be expected to be modest. Assuming that union decline concentrates remaining members in increasingly narrow segments of the distribution, it should increase inequality as the between-sector effect progressively outweighs the inequality-reducing within-sector effect. Indeed, Card, Lemieux and Riddell (2004) find that union decline explains roughly 15 percent of the rise of wage inequality in Canada in the 1980s and 1990s. In the United-States, Western and Rosenfeld (2011) estimate that union decline explains between one-fifth and one-third of the increase in wage disparities between 1973 and 2007.

The "union composition" argument made here resembles the "union structure" argument made by analysts who studied the wage-levelling effect of unionism in the first half of the 20th century. More than 70 years ago, Arthur Ross (1947) argued that looking at the structure of unionism – notably the difference between craft unions and industrial unions – was key to understanding union activities and their relationships with other actors in the American political economy. More closely related to the composition argument, Turner (1952) argued that the levelling of British wages in the 1930s and 1940s was caused by a general shift from craft to industrial unionism. As trades unionism extended from a "small "labour aristocracy" to the mass of manual workers" (p. 275) through industrial unions that widened the coverage of collective bargaining agreements – from single establishments and unique crafts to whole industries – the wage compression effect of union-preferred fat-rate wage demands grew considerably.

Complementing PRT with economic theory produces a more precise expectation as regards the impact of trade unions on market income inequality. This expectation is summarized in the following hypothesis:

> *Hypothesis 1: Trade unions reduce market income inequality within the income segments where trade union members are predominantly located.*

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7.2.2 Trade union membership composition and income redistribution

Standard PRT suggests that income redistribution through state intervention is higher when unions are strong and electoral support for social-democratic (left) political parties is important. Unions and left-leaning parties work together in large political coalitions that strive to form governments and enact redistributive policies favouring labour. While unions do not form governments, they cultivate political ideas and civic participation within their own membership, the effect of which is apparent in the higher voting propensity of union members both in Canada (Bryson *et al.*, 2012) and internationally (Bryson *et al.*, 2014).

Many studies have found a positive relationship between unionization and income redistribution in Canadian provinces (Haddow, 2013; 2014; 2015) and at the international level (Bradley *et al.*, 2003; Hogler et al., 2015; Iversen et Soskice, 2009; Jaumotte and Buitron, 2015; Kellermann, 2007; Kelly et Witko, 2012). However, from the 1990s onwards, in a context of generalized union decline, some international evidence suggests that the redistributive effect of unions is fading (Pontusson, 2013). Pontusson (2013) argues that the fading effect of unions on the politics of redistribution has a lot to do with the changing nature of union composition. As unions decline, he argues, the typical union member has become relatively better off and therefore less inclined to support redistribution. Becher and Pontusson (2011) offer a more in-depth evaluation of this argument and find that the strength of the positive relationship between unionization and income redistribution depends on union composition, the relationship being stronger when unions have more members in the lower income segments.

Predicting how unions will engage in redistributive politics – whether they will support or oppose solidaristic welfare policies – requires a careful understanding of who union members are and how they relate to each other. What Becher and Pontusson suggest is rather than looking at unions purely through a "class" perspective, which positions unions as unconditional supporters of redistribution, one should attribute policy preferences following an assessment of who stands to gain and who stands to lose from redistributive politics. This "winner-loser" framework is derived from ideas found in theories of preference formation based on material self-interest. Going beyond

the duality of class identification in PRT, these theories illuminate in different ways the complex rationales on which individual and group preferences for socioeconomic outcomes are based. The theoretical discussion now turns to a general appraisal of these theories.

Theories of individual preferences based on material self-interest are, for the most part, rooted in Meltzer and Richard's (1981) rational theory of the size of government. Meltzer and Richard argue that the voter with the median income is decisive in determining the tax share and, by definition, the size of government redistribution. As the mean income increases in relation to the median income, the median income earner will decide on increasingly higher levels of taxation and redistribution. As for winners and losers, the model suggests that voters with incomes below the median (winners) will support political parties that favour higher taxes and more redistribution, while above-median income earners (losers) will push for lower taxes and less redistribution. The implication for the study of union preferences is that the median income threshold consists of a benchmark separating winners and losers. As such, the proportion of union members on both sides of this marker could act as a proxy for general union support for redistribution. If union members are disproportionally located in the top half of the distribution, most union members stand to lose from redistribution and vice versa. This is the rationale used by Becher and Pontusson (2011), who construct a variable which measures the proportion of union members located under the general population median income to control for union composition. Again, they find that higher levels of union inclusiveness in the bottom deciles of the income distribution are associated with higher levels of redistribution.

Using a different approach within the material self-interest paradigm, Alt and Iversen (2017) find evidence that exposure to economic risk, not relative income, is the main determinant of voter preferences for redistribution. They formalize an "insurance with segmented labor market model", in which individual preferences for redistribution are determined by the distribution of risk on the labour market. If risks (e.g. risk of job loss) are distributed evenly across segments, support for redistribution should be higher. Alternatively, if risks are concentrated in a few segments,

then people facing low risk will be less inclined to support redistribution as the likelihood of income loss is low. In other words, those exposed to high economic risk stand to gain from more generous public insurance schemes (e.g. employment insurance and social assistance). While the comparative criterion is changed, this model suggests a similar implication for union preferences. If most union members are located in labour segments with low risks, one would expect unions to be less inclined to support redistribution through public insurance schemes.

Regardless of the material currency (income or risk) being studied, that union group preferences for redistribution are shaped by more complex processes than a simple statistical mean of individual preferences based on self-interest. Evidence suggests that the importance of income as a predictor of support for redistribution is highly variable across different political units (Beramendi and Rhem, 2016), which means that some of the variability is explained by other factors. Rueda (2018) argues that individual preferences are first formed on the basis of material self-interest, but then altered by the interaction of two factors: altruism and group identity. He argues that support for redistribution can be found in higher income groups, but that this altruistic behaviour is conditional on group identity. If the poor share many non-material characteristics with the rich (race, ethnicity, religion), the latter are more likely to support redistribution in a show of "parochial solidarity". Rueda argues that all individuals reap moral benefits from promoting equality between members of their own group, but that these benefits are more relevant for the preference formation of the rich as material concerns trump moral ones for the poor. Using proportions of foreign-born individuals as a proxy of ethnic diversity, he finds that the rich are more likely to support redistribution in countries with lower levels of immigration as the "moral" benefits from altruistic behaviour are more evident.

Rueda's argument can be adapted to the study of unions. Recent evidence suggests that being part of a union promotes altruistic support for redistribution by the internalization of distributive norms, and the union rhetoric on the relationship between inequality and economic growth (Mosimann and Pontusson, 2017). Mosimann and Pontusson (2017) find that altruism promoted by unions is especially apparent among high-wage members. However, the selflessness of high-wage

earners is not as marked in countries where unionists are predominantly located in the upper parts of the distribution, a growing trend in Western Europe. Interpreting Mosimann and Pontusson's evidence through Rueda's (2018) argument would suggest that the moral benefits of supporting redistribution are more evident to rich union members when some of their unionized peers are low income earners. This means that a union movement predominantly populated by higher-income earners may still support redistributive policies aimed towards the bottom of the distribution.

Union structure may also influence the ease with which higher-income earners within the union movement identify with and show solidarity to their lower-income peers. On the one hand, if workers are organized in large vertical industrial unions, which represent both unskilled and skilled workers across the income spectrum, it is expected that solidarity will be higher between members and that their socioeconomic preferences will converge (Nijhuis, 2009). One the other hand, if workers are organized in horizontal craft or occupational unions, it is expected that preferences will be divided along organizational lines. As the risk and income profile of members vary from one organization to the other, so too do the socioeconomic preferences voiced by each union. Unionism at a macro level, therefore, may resemble more a collection of small communities between which solidarity may be hard to cultivate.

Tu sum up, these rational theories of redistributive preferences highlight the importance of considering whether union members are winners (beneficiaries) or losers (funders) of income redistribution instead of assuming union policy preference. From this discussion, a second hypothesis is proposed:

> *Hypothesis 2: Income redistribution is higher when union membership is more inclusive to lower income earners.*

While membership composition may shape redistributive preferences, trade unions still need to influence the political process to actualize their interests. The common way to approximate the potential for union influence in the political domain is through a "power in numbers" perspective,

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which takes unionization rates as a key indicator. However, this provides a limitative appraisal of union influence as density rates do not always represent the militancy of unions and their capacity to mobilize broader citizen coalitions (see Sullivan, 2010). The institutional power of unions can provide a complementary approximation of union power and of government porosity to union demands. If institutions are defined as more or less stable compromises reflecting coalitional power dynamics (Mahoney and Thelen, 2010), it follows that union-friendly labour statutes may proxy the political influence of unions. Trade Unions' institutional resources can be seen as a platform for influence, providing them with the legitimacy to play a wider role in civil society (Rigby and Garcia Calavia, 2018). In fact, empirical evidence suggests that union participation in governing institutions is more important than the actual size of membership when it comes to the socioeconomic influence of trade unions (Crouch, 2017).

By looking first at market income inequality and then at income redistribution, the above theoretical discussion stresses the importance of union membership income composition for understanding the distributive impacts of unionism. The broader argument that is made is that one should not assume the distributive impact of unions by overextending a class perspective."The usage of the term "class" makes sense only when it delineates groups whose members are exposed to similar risks and have similar resources [. . .]" (Nijhuis, 2009: p. 325). If only a small proportion of labour has access to the economic and political representation offered by unions, expecting that collective bargaining will greatly equalize market incomes or that union positions on redistribution reflect the interest of all workers may be quite misleading. Understanding how the distributive position of union members differs from that of other workers and other members of civil society will, it is argued here, provide a much better understanding of the egalitarian effects of unions.

7.2.3 Tempering expectations: the distributive impact of unions in an era of neoliberalism

The theoretical expectations crafted above do not take into account the recent dramatic shifts in

the broader political economy of modern capitalist democracies, which weaken unions, consolidate their membership in increasingly narrow segments of the labour market, and limit their egalitarian distributive effects. These shifts can be summarized as neoliberalism, a new type of capitalism structured by three interconnected forces – declining growth, globalization and financialization – producing higher levels of inequality.

The emergence of neoliberalism is said to coincide with the decline of economic growth observed in the 1970s, which led governing bodies into finding new ways to grow the economy (Streeck, 2014a; Streeck, 2014b, Streeck *et al.*, 2016). The internationalization of production and trade, and the liberalization of the financial sector were two of the main strategies chosen to stimulate growth. For workers, the increased mobility of capital meant a downward pressure on wages as the competition for jobs becomes internationalized (Berger, 2000; Freeman, 2009). Financialization changed firm governance from long-term investments in physical capital and workers to increase product market share to short-term strategies aimed at increasing shareholder value, often at the expense of workers and their unions (Peters, 2011). Product market share is now increased through mergers and acquisitions, which usually means wage cuts, reduced working conditions or layoffs for workers. Overall, these policy decision greatly disturbed the balance of power between labour and capital, and affected distributive outcomes. Whenever weak growth did return throughout the neoliberal era, it was not equitably shared between workers and capital owners (Kochan, 2012; Lapointe, 2014; Rouillard and Rouillard, 2015).

Constrained by their support of globalization and financialization, governments offered little support to workers and their unions. As international competition for capital investments increased, governments sought to construct more attractive labour markets by lowering employment standards and cutting back social protection programs (e.g. employment insurance), which lowered labour's bargaining power. This reinforced firms' ability to find new ways of organizing work through increasingly complex production networks, which have lead-firms set prices and standards for output in dependent organizations, without taking responsibility or liability for employees (Weil, 2014). The consequences have been the transformation of the employment regime towards non-standard,

precarious and insecure forms of work (Cranford, Vosko and Zukewich, 2003; Fudge, 2017; Stone and Arthurs, 2014). At the same time, tax cuts aimed at increasing investments and growth reduced state revenue and produced public deficits. The solution for fighting deficits became fiscal austerity: cutting social expenditures and redesigning social programs to lower costs (Peters, 2012; Streeck, 2014a). These government strategies were made possible by a general partisan and voter shift to the right both internationally and at the subnational level in Canada, a result of growing inequality and the growing political influence of the wealthy (Evans and Smith, 2015, Peters, 2012).

All these major changes to the broader political economy have contributed to the decline of unions and their capacity to shape distributive outcomes. Put on the defensive, union members that remain struggle to maintain solidarities with other workers and to organize emerging and precarious segments of the labour market (Peters, 2012). In this context, it does not come as a surprise that analysts (Baccaro, 2011; Pontusson, 2013) are finding that the egalitarian effect of trade unions is fading. We should therefore temper our expectations with regards to the capacity of unions to reduce market income inequality through its labour market activities and their ability to constrain governments to enact redistributive policies.

7.3 Methodology

7.3.1 Research design

Contrary to many studies examining the distributive impact of unions, which rely on country-level data, this study focuses on subnational units: Canada's provinces. Over the last few decades, as income inequality has increased in Canada, the effectiveness of redistributive policies has faded (Heisz, 2016; Banting and Myles, 2016). However, important divergences persist across provinces, which some have explained by pointing to varying levels of trade union power (Breau, 2007; Card, Lemieux and Riddel, 2004; Cousineau and Merrizi, 2015; Haddow, 2013; 2014; Kellermann, 2007). This research tradition is continued here, but with less focus on union decline and more emphasis on membership composition.

Working with subnational units, as opposed to a standard international comparison, offers a set of advantages. First, a provincial analysis provides a less commonly used dataset to evaluate theories of political economy, such as PRT, which are mostly tested on international level data (Kellermann, 2007; Kelly and Witko, 2012). Second, Canada's provinces provide an attractive institutional environment for comparative research as the homogeneous legislative institutions and electoral systems, the shared interest and exchange rates, and a generally common capital market regime have the benefit of reducing the number of confounding variables in the analysis (Kellermann, 2007). Similarly, Haddow and Klassen (2006) argue that controlling for "third variables" is more feasible given that Canadian provinces are homogeneous insofar as they share common institutional underpinnings familiar to, but in no way an ideal type of, liberal welfare states and liberal market economy production regimes. Third, as analysts have been primarily engaged in national level theorization, there is a lack of Canadian interprovincial comparison in the social, economic and political domains (Greafe, 2015).

7.3.2   Variable selection and data source

Three indicators are used to operationalize both outcome variables. Market income inequality is measured using the Gini coefficient, the D_9D_5 ratio and the D_5D_2 ratio. The Gini coefficient, while particularly sensitive to changes in the middle of the distribution, offers the most comprehensive estimate of inequality among the three measures.[1] The D_9:D_5 decile ratio measures how well the top of the distribution does relative to the middle. The D_5:D_2 ratio measures how well the middle of the distribution does relative to the bottom.[2] Income redistribution is defined as the difference between market income inequality and after-taxes and transfers income inequality expressed in percentage change. The three indicators defined above are used to generate estimates of income redistribution. More formally, if one uses the Gini coefficient (G) as a measure of inequal-

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[1] The Gini ceofficient ranges from 0 to 1, where 0 is a situation of perfect equality (every person has the same income) and 1 is a state of perfect inequality (one person holds all the income). To make the interpretation of multivariate results easier, Gini scores are multiplied by 100.

[2] D_2 is used as opposed to D_1 as the upper market income limit of the first decile in some provinces is zero for certain time points.

ity, redistribution (R) is defined as follows:

$$R = \left(\frac{G_M - G_{ATT}}{G_M} \right) \times 100 \qquad (7.1)$$

Where G_M is the level of market inequality and G_{ATT} is the level of after taxes and transfers in-equality. This is a common approach in the measurement of income redistribution (see Banting and Myles, 2016; Bradley *et al.*, 2003; Heisz, 2007; Kelly, 2008; Ostry *et al.* 2014; Pontusson, 2005). Using multiple indicators to evaluate market income inequality and redistribution allows for a more precise analysis of the distributive impacts of unions and whether or not this effect is generalized across the distribution or targeted.

As for the main predictor variables, two measures of union power and two measures of union composition are used to assess unionism in the provinces. Union density is selected to proxy the relative size of the unionized workforce and overall union power. Legree, Schirle and Skuterud's (2017) Labour Relations Index (LRI) is used to assess union institutional power.[3] Union composi-tion is a measure of union inclusiveness assessing how union members are split between the lower and upper-half of the general income distribution. Specifically, following Becher and Pontusson (2011), the percentage of union members with adjusted household incomes below the median is used to measure union inclusiveness. We also construct a measure assessing how top heavy the union movement in each provinces. This is done by evaluating the proportion of union members located in the top two deciles of the overall income distribution. However, as there is very strong statistical dependency between union concentration at the top and union inclusiveness, only the latter measure (union inclusiveness) is used in the multivariate portion of the analysis.

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[3]This index is constructed by assessing laws governing 12 aspects of labour relations. For each of the 12 aspects, a score of 0 is given when a law is relatively unfavourable to unions and a score of 1 is assigned when a law is relatively supportive of unions. The composite index is obtained by calculating the unweighted average of the $[0, 1]$ values.

Following power resources theory, the multivariate analysis will include control variables for political partisanship. The common approach in Canadian research is followed to operationalize these political variables. This approach measures political partisanship with dummy variables for left, centre and right incumbency (see Petry *et al.*, 1999; Tellier, 2006; Haddow, 2013; 2014; 2015; 2016; Noel and Deault Picard, 2015; Roy and Boychuk, 2016). While three categories of political incumbency are defined, only two dummy variables are used in the multivariate analysis to avoid multicollinearity. In this case, no variable is constructed for right incumbency. The political right is used as the reference category.[4] As for the coding of provincial political parties into categories of left, center and right partisan orientation, the method proposed by Haddow (2014) is applied. This entails coding the New Democratic Party and the Parti Quebecois as the political left, the Liberal Party as the centre, and the Progressive Conservatives as the political right. The British Colombia Social Credit Party and the Saskatchewan Party are both classified as the political right. While one could argue that the British Colombia Liberal Party should be coded as the political right, Haddow (2014) finds no difference in outcomes in his empirical application when estimating an alternative model with the BC liberals coded as the political right. In Noel and Deault Picard (2015) as in Roy and Boychuk (2016), however, the BC Liberal Party is coded as the political right, but the authors do not justify this decision.

Control variables are added to the multivariate models to assess alternative explanations of changing levels of inequality and redistribution. These controls include measures for globalization (international trade as a percentage of GDP), financialization (the size of the financial sector as a percentage of GDP) and technological change (investments in software, research and development, and computer and electronics products as a percentage of all non-residential investments).

International trade theory suggests that globalization increases market income inequality within advanced economies by reducing the demand and wages of unskilled labour while having an oppo-

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[4]Omitting a dummy variable for right incumbency does not mean the political right is not incorporated in the analysis. Rather, the impact of right incumbency is embedded within the intercept term.

site positive effect on skilled wage earners (Freeman, 2009). Including a measure of international trade in the multivariate models for income redistribution controls for the possibility that increased insecurity stemming from globalization leads to welfare state expansion or, conversely, that mobile capital reduces governments' ability to supply social protection (Walter, 2010).

Financialization is said to increase market income inequality by many channels. First, it aligns the interests of management with those of shareholders, resulting in a shift in priorities from the growth of market share to short-term profits, which in turn reduces investments in research and development and fixed capital, the basis for real growth and higher employment and wages (Palley, 2007). Second, it redefines power dynamics within non-financial firms decoupling profits from production as earnings are increasingly generated through auxiliary financial participation and investment (Lin and Tomaskovic-Devey, 2013). Third, as workers in the financial sector increasingly extract rents from workers in non-financial firms, inequality grows between the two groups (Hyde *et al.*, 2017; Lin and Tomaskovic-Devey, 2013; Tomaskovic-Devey and Lin, 2011).

Technological change can also affect income inequality levels by altering the distribution of wages by increasing the demand for and wages of skilled workers and having the opposite effect on the unskilled. Indeed, the direction of technological change in the production of goods and services, such as the introduction of new information and communication technology, favours the economic fortunes of skilled workers, leaving unskilled workers behind, and increasing the income gap between these two groups (Acumoglu, 2002; Violante, 2008).

Three additional controls are added to take into account the economic context of the provinces. GDP per capita and employment rates are used to assess provincial prosperity. Unemployment rates are preferred to employment rates in the income redistribution multivariate models to partial out the redistributive impact of the federal employment insurance program and to assess varying overall demand for social protection linked with economic cycles.

Most variables are constructed using survey estimates from Statistics Canada's publicly ac-

cessible Canadian socioeconomic database (CANSIM).[5] CANSIM estimates rely on data from various government surveys such as the Labour Force Survey (LFS) and the the Survey of Labour and Income Dynamics (SLID) to provide longitudinal provincial data. Many studies similar to this one have used this data source (see Breau, 2007; Cousineau et Merizzi, 2015; Haddow, 2013; 2014; 2015; 2016; Kellermann, 2005). Data for the political partisanship variables are drawn from a different source – the Canadian Parliamentary Guide. Estimates for the union inclusiveness variable and union concentration in the top two deciles of the overall distribution are produced using SLID public-use microdata files.[6] Estimates for union institutional power (the Labour Relations Index) are taken from Legree, Schirle and Skuterud (2017).[7] As for the functional form of the variables, an analysis of histograms suggests that a linear form is preferred in most cases. However, a natural log form is preferred for the D_5D_2 market inequality indicator and the GDP per capita control variable.

A perfectly balanced dataset spreading from 1996 to 2011 is constructed by integrating the variables defined above. Data for many variables are available for longer time frames. However, the union inclusiveness measure can only be constructed from 1996, the first usable year of the SLID, to 2011, after which it was replaced with the Canadian Income Survey, which has no question on trade union status.

7.3.3 Analytical strategy

The analytical strategy deployed in this study is twofold. First, univariate and bivariate analyses are used to explore and describe the data. This portion of the analysis focuses especially on characterizing trade union density and composition and how they relate to market income inequality and income redistribution. Second, a multivariate analysis of time-series cross-sectional (TSCS)

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[5] The CANSIM estimates used to construct each variable are found in the following tables: Statistics Canada, CANSIM tables 206-0033 (Gini coefficient), 206-0032 (D_9:D_5 ratio and D_5:D_2 ratio), 279-0025 and 282-0220 (union density), 383-0038 (international trade), 379-0003 and 379-0030 (financialization), 031-0007 and 384-0038 (technological change), and 282-0008 (unemployment rate), 384-0038 and 051-0001 (GDP per capita).

[6] STATA .do files for the construction of these variables are available upon request.

[7] The author would like to thank Scott Legree, Tammy Schirle and Mikal Skuterud for sharing their database.

data is conducted to assess the predictive value of each of the union variables while controlling for alternative drivers of distributive outcomes and economic context.

Following recent methodological advances (Bartels, 2015; Bell and Jones, 2015), a multilevel random-effect modelling strategy is employed. This consists in using random-effect models that distinguish the between-province and the within-province effects of independent variables. This type of random-effect model, does not assume that the within- and between-unit effects of predictors are the same. This allows for a more substantive interpretation of results than would be possible using fixed-effects or classical random-effect models by modelling heterogeneity between provinces using meaningful variables. This type of multilevel estimation for macro-level TSCS is new to comparative political economy, but scholars have recently started to adopt this strategy (Haddow, 2016; Jacques and Noel, 2018).

The effect of each predictor used in the analysis has two dimensions. The first dimension is the between-effects or the cross-sectional impact of variables. It estimates how varying average levels of a variable between provinces has an impact on the DVs. This impact is said to be long-term and time-invariant. The second dimension is the within-effects or the over time impact of predictors. This measures how short term changes to variables, year-to-year variations in this case, affect the DVs. With this in mind, the models estimated in this study take the following form:

$$y_{i,t} = \beta_0 + \beta_1(x_{i,t} - \bar{x}_i) + \beta_2 \bar{x}_i + (u_i + \varepsilon_{i,t}) \tag{7.2}$$

where β_1 and β_2 respectively give direct estimates of the within- and between-effects of an independent variable or of a vector of such variables. u_i and $\varepsilon_{i,t}$ are the within-unit and between-unit components of the error term.

7.4 Descriptive analysis

7.4.1 Trade union density and composition

Figure 7.1 below shows provincial trends in union density from 1996 to 2011. These trends can be best described by modest decline or stability, depending on the province. While there is some diversity in the evolution of density rates from one province to the other, it's the provincial differences in average levels of unionization that stand out from Figure 7.1. For example, while trends in unionization are similar between Newfoundland and Alberta, the provinces are at opposite ends of the spectrum when it comes to average levels of union density, with Newfoundland having the highest level of average union density and Alberta having the lowest. Differences in average levels of unionization will be discussed in more detail below.

Figure 1 also shows trends in union membership income composition. Two measures are used. The first indicator measures how inclusive unions are to lower income earners. Following Becher and Pontusson (2011), the "union inclusiveness" measure is defined as the proportion of union members located below the general population median adjusted household income. The second measure approximates how top heavy provincial union movements are. This is done by estimating the proportion of union members located in the top two deciles of the overall income distribution.

These two composition indicators are statistically dependent. If the relative weight of union members at the bottom half of the distribution decreases, the relative weight of unionized individuals in the top half increases. This increase may not always be targeted in the top two deciles, but the correlation estimates between the two measures shows a strong relationship: $r(160) = -.9120, p < 0.01$. It is therefore not surprising to see that both composition indicators in Figure 7.1 generally trend in opposite directions. What is unexpected, however, is that Figure 7.1 shows a steady increase in union inclusiveness within the three most populous provinces: British Colombia, Quebec and Ontario. This runs counter to Pontusson's (2013) hypothesis that decline in density changes union composition in way that makes members relatively better off than other individuals. Rather, these results suggest that while the majority of union members remain relatively well-off in these

three provinces, the relative weight of membership in the bottom half of the distribution is increasing as union density falls. Evidence supporting Pontusson's argument is found in Newfoundland where union decline is accompanied by decreasing levels of union inclusiveness and increasing proportions of union members at the top of the distribution. The same can be said for Alberta until the mid 2000s and for Saskatchewan from the mid 2000s onward. As for the remaining provinces, trends are mostly steady, even if serrated.

Figure 7.1: Evolution of union density, union inclusiveness and union concentration in the top two deciles, 1996-2011
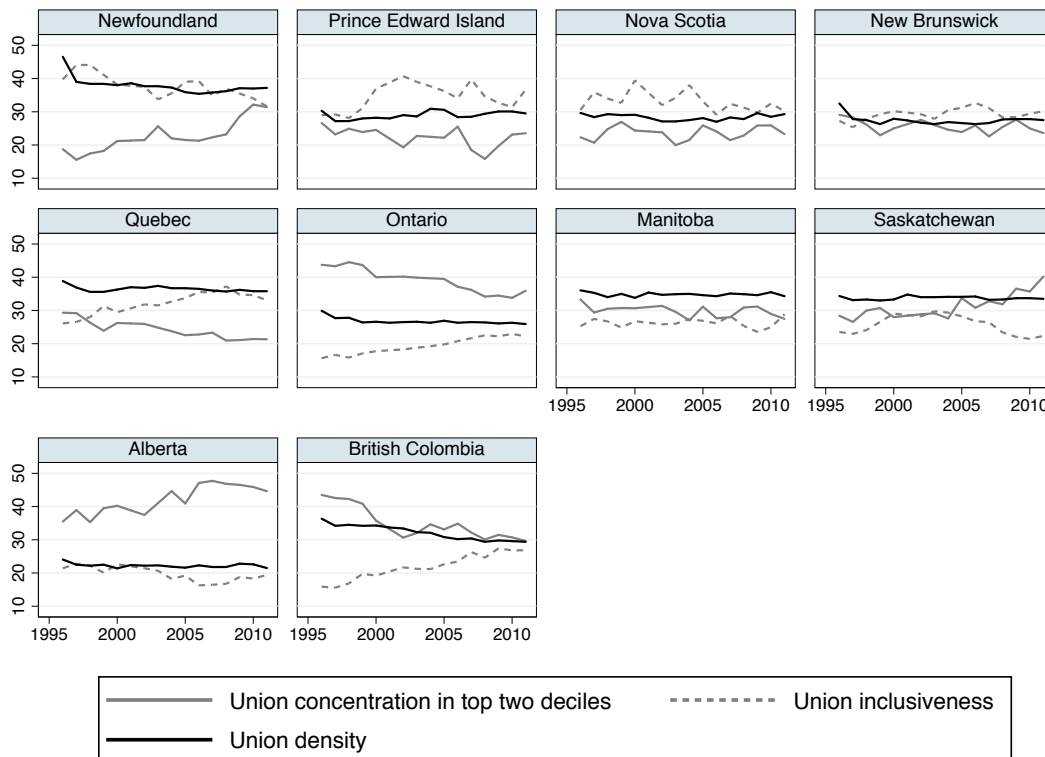
The composition measures have different relationships with union density. On the one hand, union density has a significant positive relationship with union inclusiveness ($r(160) = .4220, p < 0.01$) and, on the other hand, density is negatively associated with the relative weight of union members in the top two deciles of the distribution ($r(160) = -.4422, p < 0.01$). This means that when unionization is higher, so too is union inclusiveness; whereas lower density levels tend to be associated with more membership concentration at the top of the distribution.

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The contrasted relationships between union density and the two composition measures are illustrated in Figure 7.2 below. Due to the strong statistical dependence between the two composition measures, Figure 7.2.1 and Figure 7.2.2 are perfectly reflect one another. That said, plotting average scores in union density, union inclusiveness and membership concentration at the top allows for a broad understanding of the nature of provincial union movements through a process of a rough triangulation of these measures.

Figure 7.2: Average levels of union density, union inclusiveness and union concentration in the top two deciles, 1996-2011
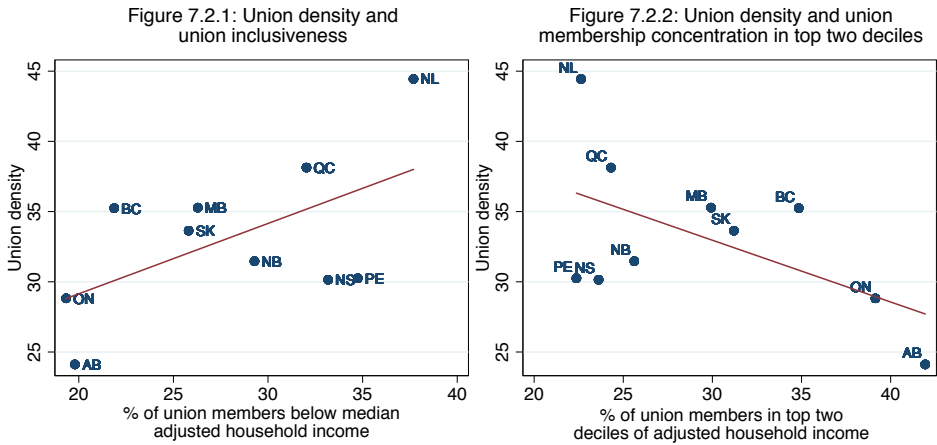
Being the two most extreme cases, Alberta and Newfoundland provide effective illustrations of contrasting union movements. As shown in Figure 7.2, Alberta has the lowest average level of union density, the lowest average level of union inclusiveness, and the highest proportion of union members located at the very top of the overall distribution. In contrast, Newfoundland has the highest average levels of union density and union inclusiveness, and the lowest average level of union concentration at the top.

Following the earlier theoretical discussion, one would expect trade unions to affect distributive

outcomes differently in these two provinces. It is expected that the egalitarian impact of unions on market income to be more modest in Alberta, where relatively few workers are unionized. If unions do reduce inequality, it is anticipated that this effect will be targeted in the upper half of the distribution, where a strong majority of Alberta's union members are located. The impact of Alberta unions on redistribution is also expected to be comparatively small as membership at the bottom of the distribution is low. A small constituency at the bottom of the distribution means that the incentive to support redistribution and to engage in its politics should be relatively weak. Inversely, due to its larger and more inclusive union membership, it is expected that the equalizing effect of unions in Newfoundland to be stronger.

7.4.2   Unions, inequality and redistribution

The evidence gathered so far suggests that there is significant diversity in union movements across Canada's provinces. The analysis now turns to exploring whether this diversity is related to provincial differences in distributive outcomes. The evaluation starts by looking at market income inequality and then moves on to assess income redistribution.

Market income inequality

Figure 7.3 shows average levels of union density plotted against average levels of market income inequality. Each subplot in Figure 7.3 points to a positive relationship between union density and inequality. However, it is readily apparent that this positive relationship relies heavily on estimates from Alberta[8] and Newfoundland. These results run counter to expectations drawn from power resources theory, which posits that higher unionization should increase labour power and thus be associated with less inequality. Following economic theory, it is argued here that looking at union membership composition is quite helpful in understanding this surprising result.

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[8]Figure 7.3 shows Alberta as having on average the most "equal" distribution of market income during the 1996-2011 period. This can be explained by Alberta's booming extractive resources sector during the covered period, which raised wages at the bottom of the distribution (Fortin and Lemieux, 2016). However, while Alberta has a relatively low level of market income inequality, the province does comparatively little to reduce income disparities through income redistribution (see Sharpe and Capeluck, 2012).

Figure 7.3: Average levels of union density and market income inequality, 1996-2011
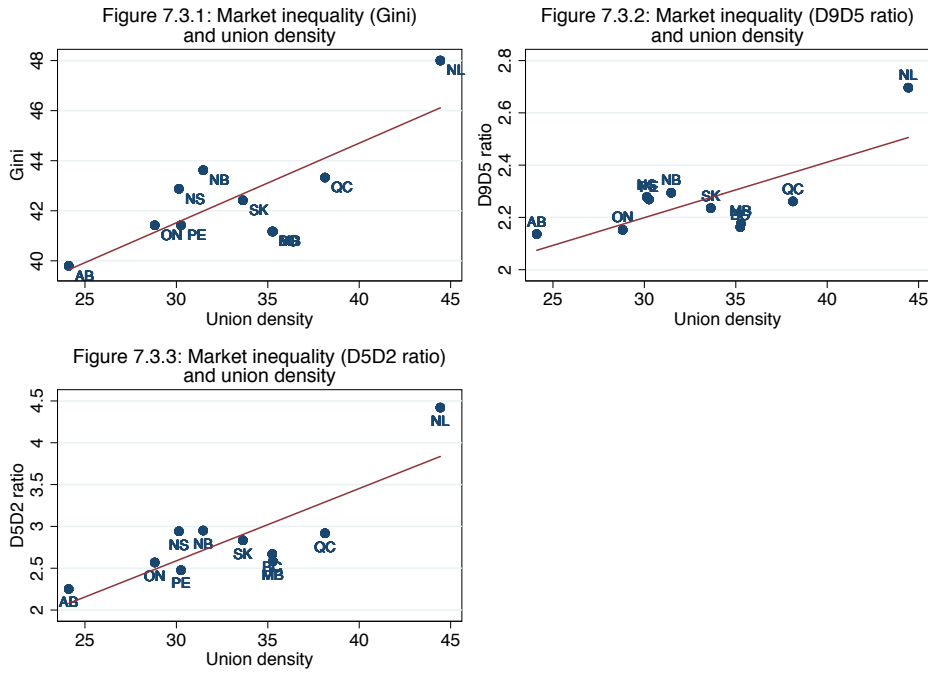
Figure 7.4 shows average levels of union inclusiveness plotted against average values of the three inequality measures. As before, union inclusiveness is defined as the extent to which union ranks are composed of individuals from the bottom half of the general income distribution. Figure 7.4.1 suggests that higher levels of unionization in the bottom half of the income distribution (union inclusiveness) is associated with higher overall inequality as measured by the Gini coefficient. Similarly, as shown in Figure 7.4.3, more union inclusiveness is also associated with more inequality in the bottom part of the distribution. These results come as a surprise as one would expect higher unionization among lower income earners to compress the distribution from the bottom up. Conversely, Figure 7.4.2 suggests that higher proportions of lower income members is positively associated with more inequality in top half of the distribution. This can be interpreted in a different way: higher levels of union membership in the top half of the distribution are linked with less market income inequality as measured with the $D_9:D_5$ decile ratio. Unionism, therefore, tends to limit inequality in the income segment where the majority of union members are located (the upper half of the distribution).

Figure 7.4: Average levels of union inclusiveness and market income inequality, 1996-2011
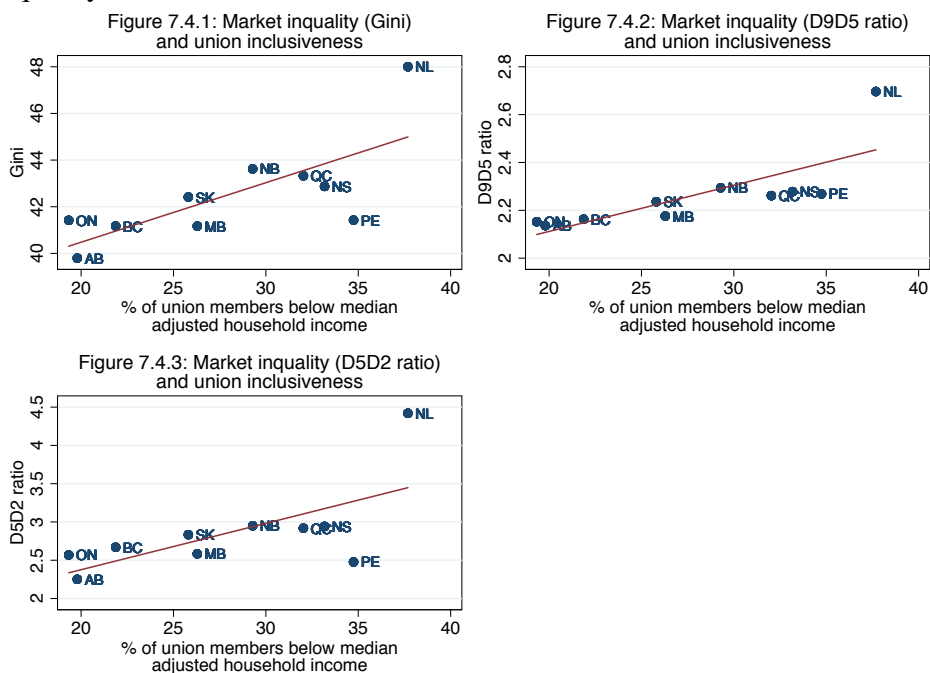
Further decomposing union membership by income deciles offers some insight as to why the membership-inequality relationship is negative in the bottom and middle parts of the distribution. Figure 7.5 and 7.6 show the proportion of union members located in each income decile.[9] As space is limited, the estimates consists of unweighted provincial averages.

As shown in Figure 7.5, roughly three-quarters of union membership in the bottom half of the distribution is concentrated in the D_4 and D_5 deciles. As membership is narrowly concentrated, the potential for the inequality-reducing "within-sector effect" of unionism is limited. However, the inequality-increasing "between-sector effect" is likely to be important as the monopoly face of union representation raises wages in the upper deciles of the bottom half of the income distribution, leaving the very lowest income earners behind. Put simply, as unionized workers make up the "top of the bottom", increased union power in the bottom half of the distribution may not translate in less overall inequality in this segment.

As for inequality in the middle of the distribution (measured by the Gini coefficient), estimates

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[9]Decomposition of membership distribution by income decile in Figure 7.5 and 7.6 is done using SLID microdata files, the same data source as the other composition measures presented above.

in Figure 7.5 and 7.6 indicate that the proportion of union members in the upper middle class (the 6$^{\text{th}}$, 7$^{\text{th}}$ and 8$^{\text{th}}$ income deciles) is much higher than the relative number of union members in the lower middle class (the 3$^{\text{th}}$, 4$^{\text{th}}$ and 5$^{\text{th}}$ income deciles). Therefore, it is likely that stronger union presence in the upper middle class would secure better overall income gains for individuals in this segment than those in the less union-populated lower middle class. Even if union inclusiveness is relatively high, this may not come at the expense of the relative number of union members located in the upper middle class (6$^{\text{th}}$, 7$^{\text{th}}$ and 8$^{\text{th}}$ income deciles). Indeed, there is no significant correlation between the proportion of union members located below the median adjusted household income and the proportion of unionists in the 6$^{\text{th}}$, 7$^{\text{th}}$ and 8$^{\text{th}}$ income deciles ($r(160) = .0320, p > 0.10$). This means that an increasingly union-populated lower middle class will not necessarily be able to close the income gap with the upper middle class.

Figure 7.5: Proportion of union members in the lower five income deciles (provincial average,1996-2011)
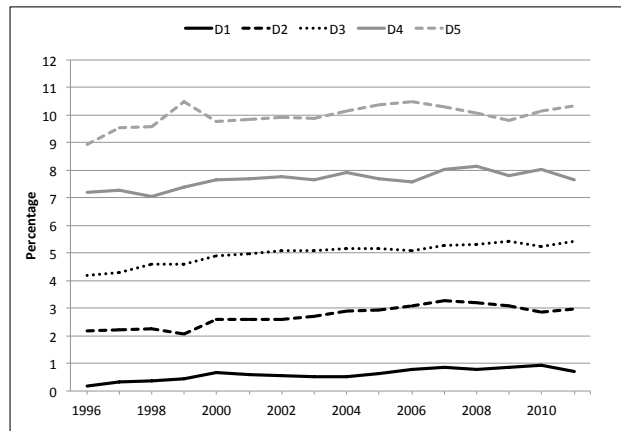
Figure 7.6: Proportion of union members in the top five income deciles (provincial average, 1996-2011)
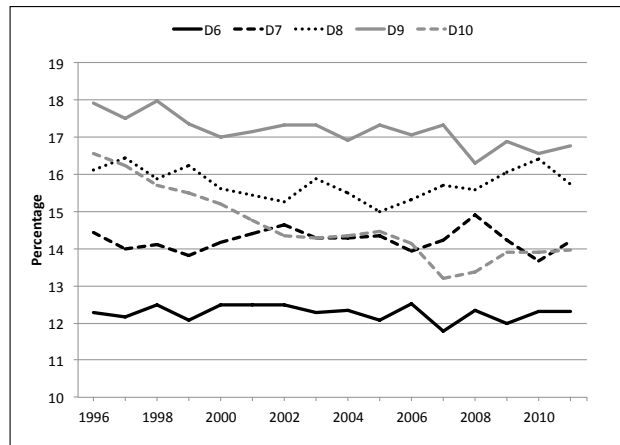
As for the top half of the overall distribution, Figure 7.6 shows that union membership is much more evenly split between the income deciles. This suggests, contrary to what's happening in the bottom and middle part of the distribution, that the within-sector effect of unions is more prevalent in the top half of the distribution and likely more than offsets the inequality-increasing between-sector effect of unionism in this segment. As it is more dispersed, more membership in the top half of the distribution should result in less inequality in that segment.

Decomposing the union movement into income deciles is quite informative when it comes to evaluating how unions relates to income inequality. The relationships described in Figure 7.3 suggest that higher levels of unionization are associated with more inequality across the distribution. However, by taking membership composition into account, Figure 7.4 shows that the union effect varies across the distribution depending on the location of members.

Income redistribution

Figure 7.7 shows average levels of union density plotted against average levels of income redistribution as measured by the Gini coefficient, the D_9:D_5 ratio and the D_5:D_2 ratio. All three relationships are positive meaning that high levels of unionization are associated with more in-

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come redistribution. This is as expected with regards to power resources theory, which suggests that more labour power overall should lead to more redistribution of economic resources from the top (capital) to the bottom (labour). However, these positive relationships appear to rely on the outlier estimates from Alberta and Newfoundland.

Figure 7.7: Average levels of union density and income redistribution, 1996-2011

Figure 7.7.1: Redistribution (Gini) and union density

Figure 7.7.2: Redistribution (D9D5 ratio) and union density

Figure 7.7.3: Redistribution (D5D2 ratio) and union density
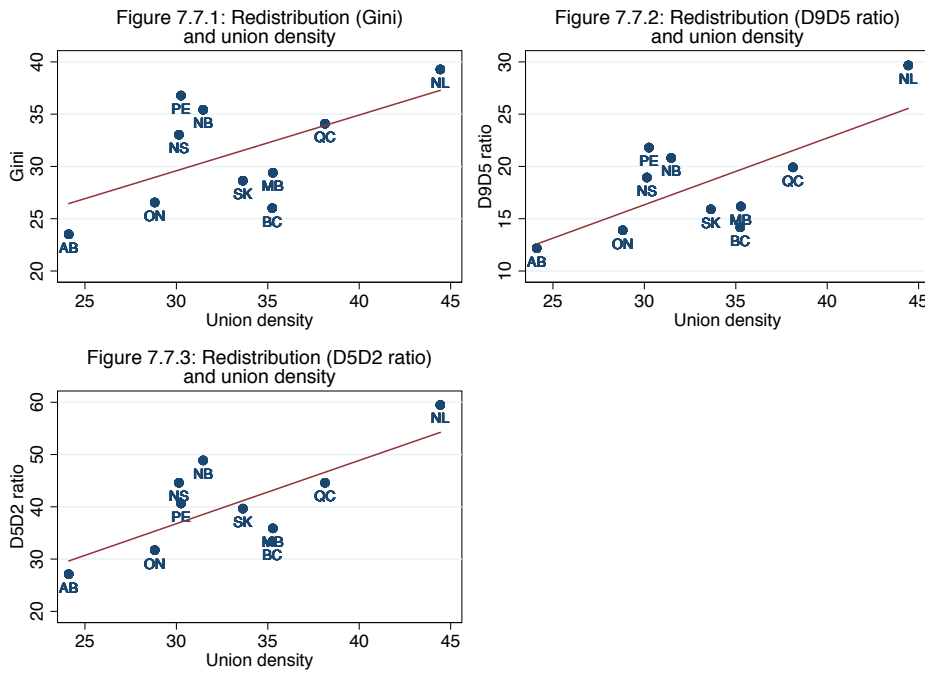
Figure 7.8 describes the relationships between union inclusiveness to lower income earners and redistribution. It serves as a test of rational-choice theories, which suggest that union support for redistribution will depend on whether union members are "winners" (beneficiaries) or "losers" (funders) of the redistributive process. Following the Meltzer-Richard model and work by Becher and Pontusson (2011), winners are defined as those in the bottom half of the distribution and losers those in the top half. As can be seen in Figure 7.7.1, 7.7.2, and 7.7.3, there is a strong positive relationship between union inclusiveness and income redistribution in all areas of the distribution. Contrary to the relationships described in Figure 7.7, which rely on estimates from Alberta and Newfoundland, estimates in Figure 7.8 do not appear to be dependent on these outlying cases. Beyond overall union power as measured by union density, union inclusiveness appears to be a

better predictor of redistribution. This suggests that union composition is key to understanding how unions engage in the politics of redistribution.

Figure 7.8: Average levels of union inclusiveness and income redistribution, 1996-2011

Figure 7.8.1: Redistribution (Gini) and union inclusiveness

Figure 7.8.2: Redistribution (D9D5 ratio) and union inclusiveness

Figure 7.8.3: Redistribution (D5D2 ratio) and union inclusiveness
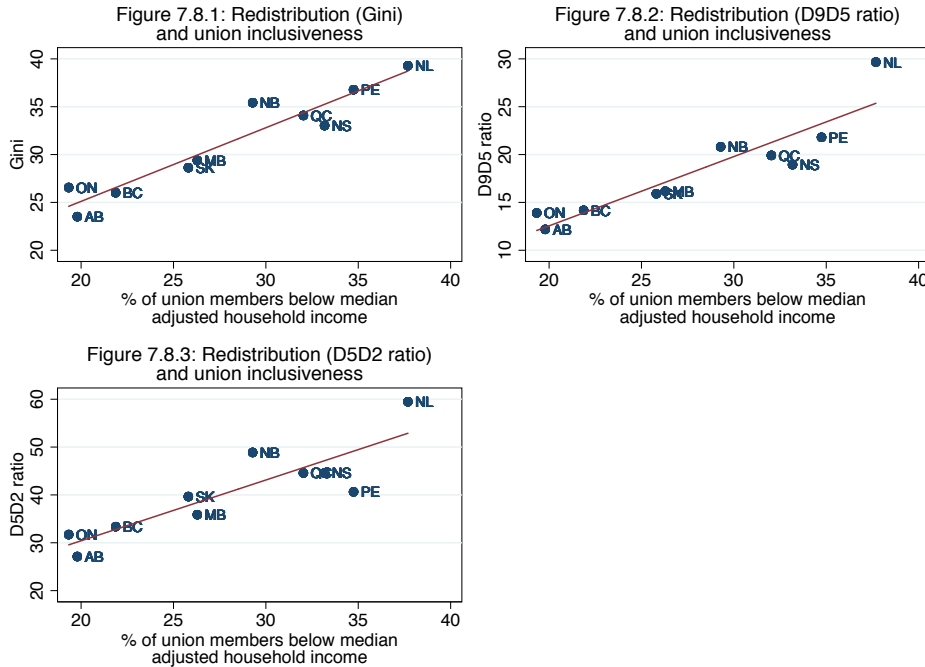
On the whole, results from the bivariate analyses indicate that the income profile of union members does matter for distributive outcomes. For market income inequality, it appears that the egalitarian effect of unions is limited to the top half of the distribution, where union members are mostly located and relatively evenly spaced out across the top income deciles. For income redistribution, union inclusiveness appears to be a more precise predictor of redistributive effort than union density.

7.5   Multivariate analysis

The analysis now turns to the presentation of multivariate results. Table 7.1 below shows regression estimates for models with market income inequality as the dependent variable. Table 7.2 shows results for models with income redistribution as the outcome variable. Following the

modelling approach decribed earlier (See Equation 7.2), the "between" (long-term) and "within" (short-term) dimension of each predictor is estimated separately. A quick overview of estimates in Table 7.1 and 7.2 shows that the variables of interest are predominantly associated with long-term changes in inequality and redistribution. This is not entirely surprising. PRT contends that the effect of labour and its centre-left allies on distributive outcomes requires strong and stable influence and control over labour markets and government (Haddow, 2016). With this in mind, the presentation of regression results will focus on the long-term cross-sectional estimates.

Tests show that data used to estimate the multivariate models in both Table 7.1 and Table 7.2 are structured through time and space. The modified Wald test indicates the existence of heteroscedasticity for all models. The Breusch-Pagan Lagrange multiplier test for independence identifies contemporaneous correlation in all models. The Lagrange multiplier test additionally detects serial correlation in all models. To model this data structure, the models presented below are estimated with panel-corrected standard errors (PCSEs) and first-order autocorrelation (AR1). No weights are used to adjust for provincial population sizes. This is because the provinces are the unit of analysis of interest here. The objective is to generalize to provinces, not to the Canadian population as a whole. If one were to weight by population size, results from smaller provinces would have no relevance.

Three regression models are presented in Table 7.1 below, one per each market income inequality indicator (Gini coefficient, D_9D_5 ratio and D_5D_2 ratio).[10] Each model has three sets of predictors. First, union density, left party incumbency and centre party incumbency are standard predictors of power resources theory. Second, union composition is controlled for with the union inclusiveness measure, which assesses the distribution of union membership below and above the halfway mark of the overall income distribution. Third, a set of control variables account for

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[10]Note that the R^2 values is Table 7.1 and 7.2 are high. As the analytical objective is to qualify the relationship between key predictors and the DVs – as opposed to trying to produce precise predictions of the outcome variables – the R^2 values are not of much interest. That being said, high R^2 values may suggest that some models are overfitted. The relative complexity of the modelling approach used in this study may be asking a lot of a relatively small sample (160 observations). For this reason, results should be treated as tentative.

alternative drivers of market income inequality and for the economic context of each province.

Results show that the long-term relationship between union density and market inequality as measured by the Gini coefficient is negative and significant. This means that for a given province a one-unit increase in average union density levels is associated with roughly a half-percent-point decline in the Gini coefficient. However, the two other models, which predict variations in income inequality in the bottom ($D_5 D_2$ ratio) and top half ($D_9 D_5$ ratio) of the distribution, show no significant relationship between density and market inequality. As the Gini indicator is most sensitive to changes in the middle of the income distribution, this means that the relative size of union membership has a fairly targeted impact on inequality. That said, in contrast to evidence provided in Figure 7.3 that highlighted a positive relationship between union density and inequality, the multivariate results are much more supportive of the effectiveness of unionization as an egalitarian force.

Table 7.1: Regression of market income inequality on union density, union inclusiveness, political partisanship, and control variables

	(1) Market income inequality, Gini coefficient	(2) Market income inequality, D_9D_5 ratio	(3) Market income inequality, D_5D_2 ratio
Union density (between)	-0.474** (-2.20)	0.00611 (0.25)	0.0125 (0.24)
Union inclusiveness (between)	-2.798*** (-3.32)	-0.102 (-1.16)	-0.360* (-1.86)
Left party incumbency (between)	9.513** (2.37)	-0.241 (-0.56)	-0.119 (-0.13)
Centre party incumbency (between)	-7.190*** (-3.12)	-0.584*** (-3.44)	-2.001*** (-4.43)
International trade (between)	-0.588*** (-3.22)	-0.0224 (-1.16)	-0.0717* (-1.67)
Financialization (between)	-3.559*** (-3.35)	-0.135 (-1.21)	-0.452* (-1.83)
Technological change (between)	0.642*** (3.89)	0.0278* (1.70)	0.0868** (2.34)
Employment rate (between)	-3.009*** (-3.74)	-0.0986 (-1.13)	-0.398** (-2.12)
GDP per capita (between)	-21.50*** (-2.66)	-1.035 (-1.30)	-2.983* (-1.66)
Union density (within)	-0.0623 (-0.74)	-0.00124 (-0.17)	0.0374 (1.61)
Union inclusiveness (within)	0.0304 (0.93)	-0.000733 (-0.25)	-0.00186 (-0.28)
Left party incumbency (within)	0.00980 (0.03)	0.0146 (0.62)	0.0690 (1.17)
Centre party incumbency (within)	-0.0501 (-0.21)	0.0443* (1.93)	0.0670 (1.04)
International trade (within)	0.0219 (0.84)	0.00306 (1.48)	0.00798 (1.31)
Financialization (within)	-0.0757 (-0.56)	0.00455 (0.43)	0.0278 (0.95)
Technological change (within)	-0.0159 (-0.39)	0.00106 (0.34)	-0.0120 (-1.59)
Employment rate (within)	-0.168 (-1.45)	-0.0152* (-1.80)	-0.0630*** (-2.67)
GDP per capita (within)	-1.348 (-0.46)	0.176 (0.87)	-0.440 (-0.72)
Cons.	622.0*** (3.36)	24.89 (1.29)	78.19* (1.84)
N	160	160	160
R^2	0.937	0.833	0.883

Notes: Prais-Winsten regression with PCSEs; z statistics in parentheses;
$^* p < 0.10$, $^{**} p. < 0.05$, $^{***} p < 0.01$.
The D_5:D_2 ratio and the GDP per capita variables are expressed in natural log form.

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As for the political variables, all the long-term estimates for centre-party incumbency are negative and significant, meaning that centre governments condition more egalitarian outcomes than right-leaning governments. However, this cannot be said for left-party incumbency for which the only statistically significant estimate is positive (Model 1), suggesting that left-leaning governments are less effective in fighting market inequality than their right-wing counterparts. This does not necessary come as a surprise as many of the provinces with the lowest average levels of market income inequality did not feature any (Alberta, Ontario, Prince Edward Island) or featured very little (British Colombia) time in left-party incumbency during the 1996-2011 period.

Estimates for union inclusiveness are negative and significant in Models 1 and 3. This means that higher average proportions of union members in the bottom half of the income distribution are associated with less inequality in the middle and lower segments of the income distribution. This contradicts results from the earlier bivariate analysis, which were surprising in that they suggested that higher average levels of union inclusiveness are associated with higher levels of inequality in the lower and middle part of the distribution. These bivariate results were rationalized by further decomposing union membership by income decile and suggesting that income gains in the more densely populated union deciles likely outweighed deciles where union members were less present (see interpretation of Figure 7.4, 7.5 and 7.6 above). The multivariate estimates suggest, however, that while holding other predictors constant, higher levels of unionists below the median adjusted household income – even if most of them are in the 4th and 5th deciles – favour income compression from the bottom up in the middle part of the distribution. This suggests that the "within-sector" inequality-reducing effect of unions, and specifically its within establishment wage compression component – which contends that unions tend to raise wages disproportionally at the bottom of the distribution – may heavily affect the union-inequality relationship in the bottom and middle of the distribution. It may also be that union inclusiveness has an inequality-reducing impact, which is only appreciable through an interaction with another key predictor included in Model 1. However, testing such an hypothesis lies outside the scope of this study.

As for the control variables in Table 7.1, coefficients for economic prosperity (GDP per capita)

and employment rates are, as expected, negatively linked with inequality when significant. Significant estimates for technological change are also as expected, as they suggest a positive relationship with inequality. Surprising, however, are the estimates for international trade and financialization, which indicate that higher average levels of both these variables are linked with less inequality in the middle (Model 1) and bottom (Model 3) parts of the distribution.[11]

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[11]One should not be overly concerned with long-term estimates of these variables as theory suggests it is the intensifying nature of globalization and financialization that are relevant to predicting changing levels of inequality, which should be captured by short-term (within) estimates (see Haddow, 2016), none of which are significant in Table 7.1. These estimates are significant in Table 7.1, which is likely caused by the small sample size used to generate them.

Table 7.2: Regression of income redistribution on union density, union inclusiveness, political partisanship, and control variables

	(4) Redistribution, Gini coefficient	(5) Redistribution, D_9D_5 ratio	(6) Redistribution, D_5D_2 ratio
Union density (between)	0.200 (0.55)	0.525 (0.94)	0.360 (0.31)
Union institutional power (between)	10.58*** (2.85)	7.842 (1.47)	-17.44 (-1.63)
Union inclusiveness (between)	0.996*** (5.13)	0.672** (2.48)	0.198 (0.36)
Left party incumbency (between)	-17.79 (-1.22)	-19.89 (-0.91)	26.56 (0.59)
Centre party incumbency (between)	-0.537 (-0.51)	-2.756* (-1.87)	-5.949** (-2.04)
Unemployment rate (between)	-1.109 (-0.88)	-0.920 (-0.48)	3.057 (0.79)
GDP per capita (between)	-3.210 (-0.95)	-3.021 (-0.56)	4.198 (0.40)
International trade (between)	0.0882*** (3.08)	0.0485 (1.03)	0.280*** (3.04)
Union density (within)	-0.00470 (-0.06)	-0.0576 (-0.45)	0.164 (0.71)
Union institutional power (within)	0.823 (0.21)	-9.741 (-1.61)	-0.210 (-0.02)
Union inclusiveness (within)	-0.0155 (-0.42)	0.0363 (0.57)	-0.00573 (-0.06)
Left party incumbency (within)	0.334 (0.85)	1.164* (1.78)	1.533 (1.29)
Centre party incumbency (within)	0.0623 (0.21)	1.695*** (3.63)	-0.894 (-1.08)
Unemployment rate (within)	0.322*** (2.64)	0.526*** (2.61)	1.760*** (5.39)
GDP per capita (within)	-7.875*** (-4.37)	0.617 (0.24)	-17.06*** (-3.85)
International trade (within)	-0.0477* (-1.67)	0.00403 (0.08)	-0.00548 (-0.07)
Cons.	38.10 (1.10)	23.45 (0.42)	-57.92 (-0.55)
N	160	160	160
R-sq	0.961	0.867	0.899

Notes: Prais-Winsten regression with PCSEs; z statistics in parentheses; $^*p < 0.10$, $^{**}p. < 0.05$, $^{***}p < 0.01$.
The D_5:D_2 ratio and the GDP per capita variables are expressed in natural log form.

Table 7.2 above presents regression results for income redistribution. Three models are tested,

one for each indicator. Here again, one set of predictors, which includes union density and two political partisanship variables, serves as a basic evaluation of power resources theory. Each model also includes the union inclusiveness variable, which approximates the proportion of union members that stand to gain from redistributive policies and thus the propensity of provincial union movements to engage in the politics of redistribution. The capacity of unions to influence policy is assessed with a measure of union institutional power. This means that both the inclination to participate in the politics of redistribution and the capacity to influence government policy decisions are considered. Finally, unemployment, economic prosperity (GDP per capita), and international trade are controlled for to assess shifts in overall demand for social protection, which may not stem from union or partisan sources.

Results in each model show no significant long-term relationship between union density and income redistribution. The relative size of union membership therefore does not appear to be linked with variations in redistribution through taxes and social transfers. Where union members are located in the overall distribution and whether or not they stand to gain from redistributive outcomes, however, appears to be a better predictor. Continuing with the standard power resources variables, none of the long-term estimates for left political incumbency are statistically significant. While the long-term estimates for centre-party incumbency are significant in two cases, the signs are negative, meaning that centre-party governance is negatively associated with income redistribution; compared to right-party rule. This is not entirely surprising as the Maritimes provinces have high levels of redistribution despite significant time spent in right-party incumbency over the period studied.[12] That said, this result does run counter to theoretical expectations. Short-term estimates suggest, however, that yearly changes from right-party incumbency to left- or centre-party incumbency increases income redistribution in the upper half of the distribution (D_9D_5 model).

Union inclusiveness is positively linked with higher long-term average levels of income redistribution across the provinces in the Gini coefficent and D_9D_5 ratio models. No significant

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[12]As can be seen in Figure 7.7, the four Maritime provinces rank in the top five in income redistribution. This is the case despite the strength of right political parties in these provinces where the proportion of time spent in right incumbency ranges from approximatively 45 % in Prince Edward Island to 64 % in Nova Scotia.

relationship was found in the model with the D_5D_2 ratio as the dependent variable. As the Gini and D_9D_5 ratio are sensitive to changes in the middle and top of the distribution respectively, this means that unions campaign for redistributive policies aimed at transferring income from the very top towards the middle. It is not surprising that no significant relationship was found between union inclusiveness and redistribution towards the very bottom as very few union members would stand to win from this process (see Figure 7.5). Nonetheless, results indicate that having a sizeable constituency of pure beneficiaries of redistribution – even if they are located in the upper segments of the bottom half of the overall distribution (the 4th and 5th income deciles) – produces a propensity to engage in redistributive politics, albeit strictly towards policies that benefit the middle class.

Higher union institutional power is significantly associated with more income redistribution as measured by the Gini coefficient. The estimate suggests that income redistribution would be 10.58 percentage points higher in a province where union institutions were perfectly supportive of trade unions (as measured by the LRI); compared to a province where labour statutes were perfectly unsupportive of unions. For income compression in the middle part of the distribution, government porosity to union demands appears to be an important predictor. However, institutional power is not a significant predictor of redistribution in the bottom and top halves of the distribution.

Overall, the results in Table 7.2 suggest that unions favour more income redistribution in the middle and, to a lesser extent, in the upper half of the distribution. No evidence indicates a union effect in the bottom part of the distribution. This may be explained by the fact that supporting policies that transfer income to the very bottom of the distribution may not be a union priority as very few union members would benefit from such transfers.

7.6   Discussion

This study aimed to explore how membership income composition may provide insight on the distributive effects of trade unions. In order to do so, the article extended the popular power

resources approach in comparative capitalism to include ideas from economic theory and rational-choice theories of preferences for redistribution to better conceptualize how the income profile of unions might affect market income inequality and income redistribution. While both outcomes are linked, looking separately at market inequality and income redistribution is important as it captures different arenas of union activity. Market income inequality concerns the actions (mostly collective bargaining) unions take to protect the interest of workers as wage-earners. Income redistribution concerns the actions of unions as political actors who represent the interest of workers as citizens through political action. Combining different theoretical perspectives, it was predicted that trade unions should reduce market income inequality within the income segments of the distribution where trade union members are predominantly located (*Hypothesis 1*). It was also hypothesized that income redistribution would be higher whenever unions membership is more inclusive to lower income earners (*Hypothesis 2*). The extent to which these expectations were confirmed by the empirical investigation of Canada's provinces from 1996 to 2011 is discussed next, starting with *Hypothesis 1* followed by *Hypothesis 2*. The discussion ends with a broad assessment of the egalitarian effect of unions within the constraining environment imposed by neoliberalism.

Results from the multilevel analysis of TSCS data (Table 7.1) show that higher levels of trade union power as approximated by union density are associated with less market income inequality as measured by the Gini coefficient, which is sensitive to variations in the middle part of the distribution. However, no significant relationship is found between unionization levels and inequality in the lower or upper part of the income distribution. That higher unionization does not affect levels of inequality as measured by the D_5D_2 ratio is not unexpected, as few members are located in the bottom three income deciles. However, it is surprising that higher levels of union density are not associated with lower levels of the D_9D_5 ratio as union membership is relatively important in the top half of the distribution and quite evenly dispersed throughout this segment.

The union inclusiveness measure was added to multivariate models to explicitly control for the distribution of union members in the overall income distribution. Estimates for this variable indi-

cate a negative relationship between the proportion of union members under the median adjusted household income and income inequality in the bottom and middle part of the distribution. This is consistent with the expectation from economic theory that unions reduce inequality in the areas of the market income distribution where membership is higher through the "within-sector" wage compression effect of collective bargaining (Freeman, 1980; Fortin, Green and Lemieux, 2012). A union "threat effect" (Western and Rosenfeld, 2011) may also be at work, as employers in the low- to middle-wage sectors of the labour market may raise the pay standards and working conditions of their workers as a way to avoid unionization altogether, reinforcing the wage compression effect of unions.

It was expected following results shown in Figure 7.4 that higher levels of union inclusiveness would be associated with higher levels of inequality in the upper half of the distribution, as this would mean that smaller proportions of union members would be located in that segment. However, the multivariate results indicate no significant relationship between the union inclusiveness measure and market income inequality in the upper part of the distribution. One way to understand this is through the "within-sector" inequality-reducing effect of unions, and specifically its within bargaining unit wage compression component, which suggests that unions tend to raise wages disproportionally at the bottom through flat-rate increases or other means (Freeman, 1980). Even if the majority of union members are located in the top five income deciles, it is likely that bargaining objectives of large units that include members from across the income spectrum are geared towards the betterment of the economic position of those located in the bottom five deciles. This income compression from the bottom would serve to reduce inequality, but would not be captured by the $D_9 D_5$ ratio. Another interesting consideration is the possibility that the union compression effect on market income has become saturated in the upper part of the distribution where unionization and collective bargaining are well established. Therefore, small provincial differences in the proportional distribution of unions members in the upper half of the distribution may result in very little change to the distribution in that segment. On the contrary, small provincial differences in the relative weight of union membership in the bottom half of the distribution, may have a much

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more significant effect, especially through the union threat effect. Trade union breakthroughs in the low-wage service sector[13] will likely have much broader distributive consequences than the unionization of a new group of industrial workers in the aerospace sector or of a new section of public service professionals.

As for income redistribution, the second dependent variable in this study, the bivariate analysis (Figure 7.7 and 7.8) suggested that both union density and union inclusiveness are associated with the reduction of income inequality through taxes and social transfers throughout the income distribution. However, multivariate results (Table 7.2) reveal more complex patterns. First, even if the sign of the estimates are positive (as expected), the analysis shows no evidence of a statistically significant relationship between the relative size of union membership (union density) and income redistribution. Second, as for union composition (union inclusiveness), results do suggest that greater proportions of union members in the bottom half of the distribution are linked with higher levels of income redistribution. This positive relationship, however, is limited to the upper and middle parts of the distribution. There is no significant relationship between union inclusiveness and redistribution in the bottom half of the distribution as assessed by the D_5D_2 ratio.

These results are consistent with the "winner-loser" rational-choice perspective, which predicts that unions are more likely to favour redistribution when a sizeable proportion of membership would stand to gain from it (Meltzer and Richard 1981; Becher and Pontusson, 2011). As Figure 7.5 and 7.6 suggest, union members are relatively absent from the bottom three deciles of the income distribution. Sizeable proportions of union membership are observed from the 4th income decile all the way through to the 10th. This means that income transfers from the middle towards the very bottom do not serve many union members; whereas moving income from the upper middle class to the lower middle class, or from the very top towards the middle reaches many union beneficiaries. That unions would support policies that see income redistributed within the limits

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[13]For example, in the province of Quebec, one may think of the unionization of day-care workers and employees of big players in the restaurant (St-Hubert), entertainment (Cineplex) and retail (Couch Tard) industries. Note that 5 of the 6 Couche-Tard stores unionized in 2013 are no longer organized. However, the wages and conditions bargained in 2013 have been extended to all Couche-Tard stores in Quebec.

of its own group is consistent with Rueda's (2018) idea of parochial solidarity. For the politics of redistribution, union membership may act as non-material characteristic that binds individuals together and fosters altruistic behaviour within the limits of the community defined by this attribute.

That the redistributive impact of unions is located in the middle and upper parts of the distribution provides some insight as to which types of policies unions may support and to which governments are likely to prove receptive. Given their relative economic position, trade unions may be actively engaged in "middle class" politics, an increasingly dominant political frame in the fight against inequality in Canada (Banting and Myles, 2016).

At the end of the earlier theoretical discussion, it was argued that expectations towards the egalitarian effects of unionism should be tempered in light of the broad changes imposed by neoliberalism. It was said that declining unions operating in an increasingly hostile environment would likely have little to no effect on macro-level distributive outcomes, as suggested in recent international studies (Baccaro, 2011; Pontusson, 2013). Results in this study suggests that unionism, especially inclusive unionism, is still associated with more equal societies by being linked with less market income inequality and more income redistribution. However, as just discussed, the egalitarian effects of unionism are targeted. Membership income composition, as it has been argued throughout this article, provides insight as to why that is.

7.7 Conclusion

The evidence provided in this study suggests that considering union income composition is key to understanding the nature of trade unions' distributive impacts. Combining multiple theoretical perspectives, this study aimed to test two working hypotheses: that unions reduce market income inequality in the segments of the distribution where union members are predominantly located (*Hypothesis 1*) and that unions which are more inclusive to lower income earners favour higher levels of income redistribution (*Hypothesis 2*).

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Despite the neoliberal turn, which started in the 1970s, the findings show that unions still favour equality, but that their egalitarian effect is targeted and better understood through the income profile of membership. For market income inequality, as expected, results suggest that higher proportions of union members in the lower- and middle-income deciles are associated with lower levels of inequality in those income segments. While the proportion of union membership is relatively high in the upper income deciles, increasing the relative weight of membership in these segments does not appear to favour inequality-reduction in the upper half of the distribution, which goes against *Hypothesis 1*. It was argued above that this may be explained by unions' preference to raise wages disproportionally at the bottom and by the union effect being saturated in the upper income deciles. As for income redistribution, results indicate that a more inclusive union movement favours income redistribution, which supports *Hypothesis 2*. This positive relationship, however, is limited to the upper and middle parts of the distribution. This is not surprising as most members in the bottom half of the distribution are located just under the median income, in the 3rd and 4th deciles. This means that very few unionized individuals would benefit from redistribution aimed at the very bottom, as capture by the D_5D_2 ratio. That said, the sizeable union constituency in the 3rd and 4th deciles appears to have enough weight to push unions to engage in the politics of redistribution aimed at middle class beneficiaries.

This study is limited by the relatively small number of observations on which the analysis is performed. This generates less precise regression estimates, especially for the short-term multivariate coefficients for variables of particular interest, which very rarely reach conventional levels of statistical significance. This means that the conclusions made here are only relevant for long-term effects and speak more to differences between provinces than changes over time within each province. That said, small sample sizes are common to studies comparing large political units over time (provinces in this case) using macro-level estimates.

Where it lacks in precision, this study makes up in the broadness of its approach and in its originality. First, this study looks at unions from multiple theoretical angles. This means, for

example, that concepts derived from functionalist economic and rational-choice theories, such as union composition, are combined with concepts derived from a more critical approach (power resources theory) such as labour power and partisan politics. This offers a broader overall assessment of the distributive impact of unions. Moreover, this study uses income as a "currency" of inequality. Income, as opposed to wages, which are often used in economic studies (see Card, Lemieux and Riddell, 2004; Western and Rosenfeld, 2011), provides a much broader and realistic "currency" upon which to measure the distributive impact of unions. Second, building from Becher and Pontusson (2011), this study innovates by linking the income profile of union members to the distributive outcome of unionism. Doing so contributes to a small, but growing body of work (Becher and Pontusson, 2011; Ceron and Negri, 2018; Han and Castater, 2016; Nijhuis, 2009; Pontusson, 2013) that stresses the importance of effectively measuring the quality of trade unions as working- or labour-class representatives, rather than operating from restricted assumptions of labour homogeneity.

The study opens up multiple areas for future research. First, with regards to market income inequality, additional work is needed to elucidate whether the absence of a union effect in the upper half of the distribution is due to union bargaining objectives being geared towards their lower-income members or to the saturation of the wage-standardizing effect. The organizational logics that push unions to prioritize wage increases for their lower-income members requires more attention. Second, for understanding the relationship between trade unions and income redistribution, more detailed work is needed on the effective position of union movements on key redistributive policies. Which public policies do unions support and why? Such a question would help clarify why no union effect was captured for redistribution in the bottom half of the distribution.

Finally, practical considerations can be drawn from this study. It is apparent that unions concerned with shaping more equal societies, should focus on offering the lowest of income earners collective representation at work and in politics. As discussed earlier, the results indicate that

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the wage compression and market income inequality-reducing potential of collective bargaining is much higher in the bottom-income deciles of the distribution than in the union-saturated upper deciles. A single union breakthrough in the low-wage service sector is likely to have a larger ripple effect than gains in traditional union sectors. In politics, a more inclusive union movement will likely be able to build solidarities and alliances with increasingly important non-government organizations (community organizations and emerging worker rights groups), who appear to have taken the lead on building an alternative social vision to neoliberalism (Gumbrell-McCormick and Hyman, 2013; Katz, Colvin and Kochan, 2017). Developing new alliances with other progressive organizations and groups may force unions away from an inward "middle class" frame in politics towards engaging more effectively in broader ideological debates that would serve not just their members, but labour more generally along with the unwaged and marginalized. However, this starts with unions becoming more inclusive themselves to the precarious and vulnerable, requiring a dramatic shift in union recruitment strategies, which for the most part are focused on consolidating traditional union bastions (Kumar and Murray, 2006).

7.8 Appendix A: summary statistics

Table 7.3: Summary statistics, 1996-2011

	Mean	SD	Median	Min	Max
Market income inequality					
Gini coefficient	43.35	2.34	43.15	39.2	50.3
D_9D_5 ratio	2.31	0.17	2.27	2.06	2.95
D_5D_2 ratio	2.86	0.65	2.73	2.05	5.65
Income redistribution					
Gini coefficient	31.12	5.07	31.7	21.37	43.31
D_9D_5 ratio	19.99	4.99	18.42	10.24	34
D_5D_2 ratio	41.07	10.37	40.5	20.36	72.91
Independent variables					
Union density	30.9	4.88	30.15	21.4	46.55
Union institutional power	0.38	0.22	0.33	0	0.83
Union inclusiveness	28	6.76	28.165	15.59	44.1
Left party incumbency	0.24	0.43	0	0	1
Centre party incumbency	0.32	0.47	0	0	1
International trade	59.00	13.60	57.17	24.19	94.06
Financialization	17.59	3.36	17.60	8.55	23.65
Technological change	20.69	7.60	20.32	8.48	36.60
GDP per capita	42331.93	11185.99	39116.18	26278.76	75003.48
Employment rate	60.05	5.77	60.20	42.6	72
Unemployment rate	8.62	8.15	3.47	3.5	18.9

7.9 Appendix B: correlation matrices

Table 7.4: Correlation matrix, market income inequality regression models, 1996-2011

	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)
Gini coefficient (i)	1						
D9D5 ratio (ii)	0.8472***	1					
D5D2 ratio (iii)	0.8616***	0.7985***	1				
Union density (iv)	0.541***	0.4522***	0.5905***	1			
Union inclusiveness (v)	0.4763***	0.6165***	0.5093***	0.422***	1		
Left party incumbency (vi)	-0.1066	-0.2076***	-0.0313	0.4112***	-0.1513*	1	
Centre party incumbency (vii)	0.1831**	0.2138***	0.1564**	0.1026	0.1835**	-0.3883***	1
International trade (viii)	0.3405***	0.1766**	0.1832**	-0.088	-0.0986	-0.1778**	0.1001
Financialization (ix)	-0.2879***	-0.3802***	-0.2714***	-0.159**	-0.2391***	0.0311	0.3245***
Technological change (x)	-0.021	-0.1553**	-0.2521***	0.0296	0.004	-0.0226	0.3642***
GDP per Capita (xi)	-0.215***	-0.157**	-0.2738***	-0.396***	-0.4953***	-0.1029	-0.2077***
Employment rate (xii)	-0.7738***	-0.7514***	-0.8202***	-0.4843***	-0.6714***	0.1826**	-0.2631***

	(viii)	(ix)	(x)	(xi)	(xii)
International trade (viii)	1				
Financialization (ix)	-0.28***	1			
Technological change (x)	0.1797**	0.4824***	1		
GDP per Capita (xi)	0.1113	-0.4969***	-0.3562***	1	
Employment rate (xii)	-0.1391*	0.0264	-0.0026	0.6046***	1

Notes: $^{*}p < 0.10$, $^{**}p. < 0.05$, $^{***}p < 0.01$.

Table 7.5: Correlation matrix, income redistribution regression models, 1996-2011

	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)
Gini coefficient (i)	1						
D9D5 ratio (ii)	0.8737***	1					
D5D2 ratio (iii)	0.8505***	0.8001***	1				
Union density (iv)	0.5045***	0.5098***	0.5913***	1			
Union institutional power (v)	-0.024	-0.0582	-0.0284	0.6497***	1		
Union inclusiveness (vi)	0.7946***	0.7731***	0.6289***	0.422***	-0.0963	1	
Left party incumbency (vii)	-0.0674	-0.1754	0.0146	0.4112***	0.5713***	-0.1513*	1
Centre party incumbency (viii)	0.1117	0.2527***	0.0736	0.1026	0.0037	0.1835**	-0.3883
Unemployment rate (ix)	0.8565***	0.8406***	0.8123***	0.3382***	-0.2247***	0.6666***	-0.302***
GDP per capita (x)	-0.6505***	-0.4338***	-0.4705***	-0.396***	-0.2149***	-0.4953***	-0.1029
International trade (xi)	0.0464	0.1219	0.1455*	-0.088	-0.0889	-0.0986	-0.1778**

	(viii)	(ix)	(x)	(xi)
Centre party incumbency (viii)	1			
Unemployment rate (ix)	0.2066***	1		
GDP per capita (x)	-0.2077***	-0.4885***	1	
International trade (xi)	0.1001	0.0001	0.1113	1

Notes: $^{*}p < 0.10$, $^{**}p. < 0.05$, $^{***}p < 0.01$.

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Chapter 8

Integrated Analysis of Trade Unions' Distributive Effect

8.1   Introduction

This chapter aims to provide an integrated and contextualized answer to the question asked at the beginning of this thesis: Do trade unions shape more equal societies? It does this by integrating the discussions and evidence produced thoughout this entire thesis into an overall assessment of the relationship between trade unions, market income inequality, and income redistribution.

The chapter is divided into two parts. The first part revisits and contextualizes the main research results produced in the empirical chapters concerning the distributive effect of trade unions. As each of the empirical chapters constitutes an article, chapters 5 (Article 1), 6 (Article 2), and 7 (Article 3) are referred to below as articles. The second part of this chapter links back to earlier chapters by assessing the theoretical implications of the research results. It also discusses what the results mean for understanding inequality and redistribution in Canada's provinces and for future trade union strategies.

8.2   Revisiting main research results

After reviewing the methodological approach and its implications for the conclusions drawn in this chapter, the following sections revisit key research findings describing the relationships between trade unionism, market income inequality, and income redistribution. The distributive

effect of trade unions is further appraised by taking into account the context in which unions operate. This means considering the effect of contextual variables (financialization, globalization, and political partisanship) on distributive outcomes and on the capacity of trade unions to act as vectors of equality and solidarity. It also means discussing the current contradictions of trade unionism to better assess the role unions play in modern societies.

8.2.1   A preliminary note on methodology

Before assessing the main findings, it is necessary to return to the methodological approach and its consequences. This will help establish limits to the conclusions drawn in this chapter. The main methodological approach in the articles presented in the previous chapters consists of multilevel analyses of TSCS provincial-level data using random-effect models. This strategy was chosen as it provides a simultaneous assessment of long-term (between) and short-term (within) estimates for each variable. It also permits the use of meaningful variables to act as fixed-effects – instead of "partialling out" macro-level long-run differences between the provinces – meaning that slow-moving variables (e.g. trade union and political variables) can be explicitly modeled and assessed. However, the deployment of this analytical strategy faced some difficulties, which have consequences for the interpretation of results. These are discussed next.

Data limitations represent a key issue. Sample sizes are relatively small, especially in Articles 2 and 3 where multivariate analyses are carried out on 160 observations. Samples in these two articles are limited by the union membership composition variables, which are constructed using the Survey of Labour and Income Dynamics, for which data is only available from 1996 to 2011. No other survey provides yearly information on both income level and union status. As for the analyses in Article 1, they are based on a considerably larger sample (300 observations), but evidence suggests that this is still somewhat problematic.

The issues stemming from the small sample sizes used in this thesis are evidenced in two ways. First, some models show a very high R^2 value. This is not necessarily a problem on its own as

the analytical objective in the articles is to characterize the relationship between key predictors and the dependent variables, and not to produce precise predictions of the outcome variables. That said, high R^2 values may suggest that some models are overfitted. The relative complexity of the modelling approach used throughout the thesis (multilevel random-effects models) may simply be asking a bit too much of the limited samples. For this reason, results should be treated as exploratory and tentative.

Second, some variables' short-term estimates rarely reach conventional levels of statistical significance. This has a great deal to do with sample size restrictions, which can be seen by comparing Article 1 estimates to those in Articles 2 and 3. With a sample almost twice the size as the one used in Articles 2 and 3, Article 1 short-term estimates reach statistical significance more often. It is not necessarily problematic or surprising that short-term estimates for some variables rarely reach statistical significance. It follows theoretical expectations that the impact of path dependent union movements and political traditions should be more appreciable in the long run (Haddow, 2016), which is what results in the articles indicate.[1] Still, one would have expected to see significant short-term results for some key trade union variables, especially considering that some show distinctive trends in some provinces (e.g. union density and union inclusiveness). Overall, the consequences for the interpretation of results is that the conclusions drawn from key estimates – those from trade union and political variables – speak more to the to long-term differences in inequality and redistribution between provinces, than short-term changes within them. For example, this means that the results produce an understanding of why higher levels of union inclusiveness in Quebec can explain, at least in part, why long-term average levels of income redistribution are higher there than in Alberta. However, results speak very little to how short-term changes to trade union power and composition affect distributive outcomes within the provinces. For example, it cannot be reliably concluded that the upward trends in union inclusiveness in British Colombia, Ontario, and Quebec are linked to increasing levels of redistribution within these provinces. This

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[1]However, even if they are of secondary importance, some variables that were expected to produce significant short-term estimates, such as measures of globalization, did not reach conventional levels of statistical significance in many models.

reflects results in Baccaro (2011), which suggest that key measures of trade unionism are no longer linked to over time distributive changes within countries, but still explain long-term differences between them.

To recapitulate, limited sample sizes produce estimates that must be treated as explanatory. Moreover, conclusions drawn from many key estimates in the multivariate analyses speak more to distributive differences between provinces, rather than short-term changes to levels of inequality and redistribution within provincial units.

8.2.2 Revisiting provincial inequality and redistribution

This section provides an overview of the state of inequality and redistribution in the provinces. This will help contextualize the distributive context in which the relationship between trade unionism, inequality and redistribution are studied throughout the empirical analysis in this thesis.

Research results regarding the relationship between trade unionism and market income inequality were produced over a period ranging from 1984 to 2013. Generally, market income inequality in the provinces increased in the 1980s and 1990s and stabilized in the early 2000s (see Figure 5.1).[2] This means that average long-term levels of income inequality increased over the period studied. As for income redistribution, main results were produced using a dataset extending from 1996 to 2011. Overall, data shows that income redistribution steadily decreased in the provinces over this time period, meaning that average long-term levels of redistribution declined (see Figure 6.1).[3]

Taken together, data for the dependent variables suggest that the distributive impact of trade

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[2]Figure 5.1 shows market income inequality measured by the Gini coefficient. This is because it is the most comprehensive measure of inequality used in this thesis. Producing the same figure with the D_5:D_2 ratio shows similar results, but suggests that inequality may have slightly declined in some provinces starting in late 1990s. As for the D_9:D_5 ratio, constructing the same figure shows here again similar results, but indicates that inequality may have slightly increased in some provinces in the 2000s.

[3]Figure 6.1 shows income redistribution measured by the Gini coefficient. This is because it is the most comprehensive measure of redistribution used in this thesis. Producing the same figure the D_5:D_2 ratio shows very similar results. However, the same figure constructed with the D_9:D_5 ratio shows that redistribution was much more stable during the 1996-2011 period.

unions was studied in this thesis for time periods when average levels of inequality increased and average levels of income redistribution decreased. Trade unions' egalitarian effect in the provinces is therefore being evaluated for societies that are becoming less equal. This conveys the argument that trade unions concerned with shaping more equal societies may be facing an uphill battle.

8.2.3   The distributive effects of trade unionism

This section of the chapter offers an assessment of the distributive impact of trade unionism. It focuses on the hypotheses derived in Chapter 2 specifying the relationships between trade union power and composition, on the one hand, and income inequality and redistribution, on the other hand. Table 8.1 below provides key findings for each trade union hypothesis, showing results for market income inequality first, followed by those for income redistribution. It also indicates in which article each hypothesis was tested, and the time period studied. The following discussion explores these main findings and their contribution to understanding trade unions' overall distributive impact.

Trade unions and market income inequality

Research results only moderately support the argument that stronger trade unions produce a more equal distribution of market income in the provinces. This is not surprising. Comparative studies of advanced economies are increasingly showing that unions are largely forfeiting their capacity to directly reduce inequality, keeping only a indirect effect on inequality through the size of the welfare state (Baccaro, 2011; Pontusson; 2013; Wallerstein, 2011). These studies mostly point to falling density levels to explain unions' dwindling impact on inequality.

Table 8.1: Trade union hypotheses and key findings

Article	Period	Hypotheses	Key Findings
Trade unions and market income inequality			
Article 1	1984-2013	*Higher levels of unionization are associated with less market income inequality.*	*False*: When the economic context is controlled for, estimates for union density are not statistically significant.
Article 1	1984-2013	*Higher levels of union militancy are associated with less market income inequality.*	*True*: Union militancy is associated with less market income inequality. However, this link is only negative and significant for the middle and upper segments of the distribution.
Article 3	1996-2011	*Trade unions reduce market income inequality within the income segments where trade union members are predominantly located.*	*Partially true*: Market income inequality in the bottom and middle of the distribution is lower when the lower income deciles are more heavily populated by union members. However, increased proportions of union members in the top half of the distribution are not significantly linked with changes in income inequality in that segment.
Trade unions and income redistribution			
Article 2 & 3	1996-2011	*Higher levels of union organizational power are associated with higher levels of income redistribution.*	*Partially true*: Union organizational power (union density) is positively associated with higher levels of income redistribution, but this relationship is conditional on levels of trade union inclusiveness to lower income earners. However, when the constraining effect of globalization on government is controlled for, the relationship is no longer statistically significant.
Article 2 & 3	1996-2011	*Higher levels of union institutional power are associated with higher levels of income redistribution.*	*Partially true*: Union institutional power is positively linked with income redistribution, but this relationship is highly conditional on levels of trade union inclusiveness to lower income earners. However, when the constraining effect of globalization on government is controlled for, the relationship is only statistically significant for middle segments of the distribution.
Article 2 & 3	1996-2011	*Income redistribution is higher when union membership is more inclusive to lower income earners.*	*True*: the positive relationship between union power and income redistribution is conditional on union inclusiveness. Higher levels of union inclusiveness are associated with higher levels of income redistribution, but this link is only significant for the middle and upper segments of the distribution.

Article 1 demonstrates that the dominant "power-in-numbers" perspective conveyed by measures of union density do not grasp unions' full impact on market income inequality. Long-term provincial differences in market income inequality cannot be reliably explained by differences in union density levels. However, provincial differences in trade union militancy are significantly associated with less inequality in the middle and upper segments of the distribution, as measured by the Gini coefficient and the $D_9:D_5$ ratio respectively. This highlights the importance of considering source of power endogenous to trade unions (Levesque et Murray, 2010; Sullivan, 2010).

Evidence suggests that the reason why the militancy-inequality relationship is targeted in the middle and upper income segments has much to do with the distribution of union membership across the income spectrum. As shown in Article 3, union members are predominantly located in the 4th to 10th income deciles.[4] Increased union militancy at the firm level therefore serves to reduce inequality in areas of the distribution where membership is more substantial. This targeted impact may also be caused by the measure of union militancy used in the empirical analysis – workdays lost due to strikes and lockouts per 1,000 employees – which is a firm-level indicator. This measure may not approximate broader union activism aimed at supporting the working-class more generally, such as campaigns to increase minimum labour standards (e.g. "The Fight for $ 15 and Fairness" in Ontario) of which the distributive effects would be felt in the lower income segments.

Article 3 shows how the income profile of union members matters for inequality. Provinces with higher proportions of union members located in the bottom half of the distribution tend to have lower levels of market income inequality in the lower and middle segments of the distribution, as measured by the $D_5:D_2$ ratio and Gini coefficient respectively. This is consistent with economic theory, which contends that trade unions reduce inequality in the areas of the distribution where membership is more substantial through sectoral wage standardization and wage compres-

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[4]Note that the evidence produced in Article 3 is based on data from 1996 to 2011, whereas Article 1 uses data from 1984 to 2013. However, as union membership income composition changes very slowly, evidence from Article 3 is used in the interpretations of results in Article 1.

sion within the bargaining unit (Freeman, 1980; Fortin, Green and Lemieux, 2012). It is also consistent with the theorized union "threat effect", which suggests that employers will raise wages in an attempt to avoid unionization as its likelihood increases.

In contrast, research results show that differences in the proportion of union membership in the upper half of the distribution are not significantly associated with changes to market income inequality as measured with the $D_9:D_5$ ratio. It was argued in Article 3 that this can be interpreted in two ways. First, unions may be disproportionally raising wages for lower-earning members within the bargaining unit (Freeman, 1980), an effect not captured by changes in the $D_9:D_5$ ratio. As shown in Article 3, while most union members are located in the upper-income deciles, sizeable proportions of union membership are located in the bottom half of the distribution. If unions disproportionally raise wages at the bottom through democratically selected solidaristic bargaining objectives geared towards wage-earners in the bottom-income deciles, inequality may decrease, without being captured by changes in the $D_9:D_5$ ratio. Second, there is also the possibility that the inequality-reducing effects of sectoral wage standardization and union "threat effect" have saturated in the upper-income deciles as membership concentration is high in these segments of the distribution. As such, small increases in the proportion of union members in the upper half of the income distribution are likely to have little impact on distributive outcomes in that segment.

Overall, provincial trade unions that are more inclusive to lower income earners tend to be more effective in fighting inequality in the long run, even if only in the bottom and middle segments of the distribution. This research result resonates with that of analysts of the early twentieth century, which argued that the move from craft to industrial unionism increased the compression effect of collective bargaining (Ross, 1947; Turner, 1952). As collective bargaining became more inclusive to unskilled low-wage workers through industrial unionism, the inequality-reducing effect of unions grew. The findings in this thesis are also consistent with new evidence (Farber *et al.*, 2018) highlighting that unions have had an equalizing effect on the income distribution over the last century, especially in periods of trade union expansion when they tended to draw in unskilled workers and raise their relative wages.

Trade unions and income redistribution

The evidence produced in Articles 2 and 3 generally support the proposition that unions favour income redistribution in the provinces. However, results show that this relationship is complex, notably by being conditional on how inclusive unions are to lower income earners, corroborating findings in Becher and Pontusson (2011) and arguments made in Pontusson (2013).

Bivariate analyses in Article 2 show that the income profile of union membership is a more precise predictor of income redistribution; compared to traditional measures of labour power resources. Trade union organizational power[5] is positively associated with income redistribution, but this relationship is reliant on the outlying cases of Alberta and Newfoundland. As for trade union institutional power – which it is argued approximates government porosity to union demands, as reflected by the quality of union institution – it appears unrelated to income redistribution. In contrast, the bivariate analysis shows a highly linear relationship between average provincial levels of union inclusiveness – the proportion of union members located under the median household adjusted market income – and income redistribution from 1996 to 2011.

Research results from multivariate analyses in Article 2 suggest that union power (organizational and institutional) is positively associated with income redistribution, but that union inclusiveness moderates the relationship between union power and income redistribution. Higher levels of inclusiveness provides the conditions under which trade union power will be engaged in the politics of redistribution. This supports theoretical expectations set in the winner-loser model of rational-choice theories of preferences for redistribution (Alt and Iversen, 2017; Becher and Pontusson, 2011; Meltzer and Richard 1981; Rueda, 2018). Indeed, results suggest that trade unions are more inclined to actively support redistributive policies when a sizeable portion of their constituency stands to win from redistribution, corroborating findings in Mosimann and Pontusson (2017). It also points to union membership as a framing characteristic of "parochial solidarity"

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[5]Trade union organizational power is measured by union density in Article 2. The label "organization power" is used in this article to better conceptually distinguish organizational from institutional union power. Organizational power and its measure, union density, are used interchangeably in this chapter.

(Rueda, 2018), indicating that the moral rewards from supporting redistribution are more evident to higher-earning members when many of their unionized peers directly benefit from higher taxes and transfers.

The multivariate analysis in Article 3 provides a more robust test of the relationship between trade unionism and income redistribution by controlling for the constraining effect of globalization on government revenue and spending. When globalization is controlled for, evidence suggests that unions' positive impact on redistribution is targeted in the middle- and upper-income deciles, as measured by the Gini coefficient and the $D_9{:}D_5$ ratio respectively. None of the trade union variables (power and composition) are significantly associated with income redistribution in the bottom deciles of the distribution, as measured by the $D_5{:}D_2$ ratio. Specifically, long-term differences in union institutional power and union inclusiveness are associated with higher long-term income redistribution across the middle-income deciles. As for the upper deciles, only union inclusiveness is significantly linked with income redistribution, this relationship being positive. It is surprising that higher levels of membership under the overall median income is linked with more redistribution in the upper deciles of the distribution. This suggests that union inclusiveness fosters altruistic support for redistribution, which is not specifically targeted at lower-income earners.

The reason unions' impact on redistribution is limited to the middle and upper parts of the distribution is better understood by further decomposing the income profile of income members by decile. As shown in Article 3, union members are relatively absent from the bottom three deciles of the income distribution, whereas sizeable proportions of union membership are observed from the 4th decile all the way through to the 10th. This shows that income transfers from the middle towards the bottom of the distribution (measured by the $D_5{:}D_2$ ratio) do not serve many union members. In contrast, income transfers from the upper middle class to the lower middle class (measured by the Gini coefficient), or from the very top towards the middle (measured by the $D_9{:}D_5$ ratio), concern many union beneficiaries.

Overall, our results show that trade unionism promotes more equal societies by being associ-

ated with higher taxes and income transfers, corroborating findings in other studies (Bradley *et al.*, 2003; Haddow, 2013; 2014; 2015; Iversen and Soskice, 2006; Jaumotte and Buitron, 2015; Kelly and Witko, 2012). However, like in Becher and Pontusson (2011), this thesis shows the importance of taking into consideration union income composition, as results indicate union inclusiveness conditions the exertion of union power in the politics of redistribution.

8.2.4 Revisiting contextual variables: neoliberalism and political partisanship

In the following discussion, unions' overall distributive effect is contextualized by situating it within the broader political economy of the last few decades. The objective is to provide a better understanding of limiting factors to unions' egalitarian effect. This is done by engaging with the literature describing major changes to capitalist democracies. It is also done reviewing key results from contextual variables, that is to say those relative to financialization, globalization, and political partisanship.

Fighting for solidarity in an era of neoliberalism

What should we expect of trade unionism in an era of neoliberalism? Crouch (2017) argues that unions' ability to fight inequality has become the foremost objective by which to evaluate their contribution to welfare in post-industrial societies characterized by insecurity and precariousness. This measuring stick presents a tall order for unions operating in an increasingly difficult environment.

Trade unions now operate within the constraints of neoliberalism, a system emerging from the need of economic elites to find the means for capital accumulation in a context of low and declining growth, and of which one of the main symptoms is increased inequality (Streeck, 2014a; Streeck, 2014b, Streeck *et al.*, 2016). Two of the main features of the neoliberal project are the globalization of production and trade, and the liberalization of the financial sector. While these strategies have lead many economies to recapture some level of economic growth, prosperity has not been shared equally between workers and capital owners (Kochan, 2012; Lapointe, 2014;

Rouillard and Rouillard, 2015). This is because globalization and financialization fundamentally change the economic configuration by affecting the balance of power between labour and capital (Berger, 2000; Freeman, 2009; Peters, 2011).

These neoliberal strategies have highlighted the complacency of governments, which have become functionaries of the process of capital accumulation by striving to create the most attractive institutional and financial infrastructure for investment (Peters, 2012; Streeck, 2014a). In the labour market, governments have failed to enact regulations offering basic levels of employment protection and labour standards in the face of increased non-standard, precarious, insecure, and non-unionized forms of work (Cranford, Vosko and Zukewich, 2003; Fudge, 2017; Stone and Arthurs, 2014) reflecting new ways of organizing production (Weil, 2014). At the same time, governments look to shape an attractive financial environment by lowering the tax burden of corporations, which directly affects public revenue and leads to zero-deficit politics, also known as fiscal austerity (Peters, 2012; Streeck, 2014a).

These major changes to the broader political economy have contributed to the decline of unions (see Part 1.5 of Chapter 1) and their capacity to fight inequality and push for more redistribution (Baccaro, 2011; Pontusson, 2013). On the defensive, union members struggle to maintain solidarities with other workers and to organize emerging and precarious segments of the labour market (Peters, 2012). Weakened, they also struggle to avoid integrating the logics of neoliberalism into their own strategies in an effort to consolidate their power resources (MacDonald, 2014).

The remainder of this section seeks to further contextualize the distributive effect of trade unionism in Canada's provinces through an integration of key research results regarding financialization, globalization, and political partisanship. In general, these results corroborate the idea that trade unions operate against the backdrop of powerful capital-driven inequality-increasing forces.

Drivers of inequality: financialization and globalization

In this thesis, the processes of financialization and globalization were conceptualized as power

resources for capital owners and employers. As such, it was theorized that these processes increased market income inequality and constrained income redistribution. Research results generally support this expectation. Table 8.2 summarizes the theoretical expectations and key research findings relative to the effects of financialization, globalization, and political partisanship. Results for financialization and globalization are discussed next.[6] Those for political partisanship are examined further below.

Looking first at financialization, results for market income inequality in Article 1 show that the increasing effect of finance on the economic configuration of the provinces is linked with higher levels of inequality. Short-term increases in financialization are positively and significantly linked with increases in market income inequality in all segments of the distribution. These relationships hold when controlling for sources of labour power and the economic context of the provinces. This is consistent with theoretical expectations and findings in other studies, which show that financialization allows financial elites to extract from workers in the "real economy" and changes the balance of power between labour and capital (Hyde et al., 2017; Lin and Tomaskovic-Devey, 2013; Palley, 2007; Tomaskovic-Devey and Lin, 2011). Short-term financialization estimates in Article 3 are not statistically significant. This is due to the smaller sample size of the dataset used in Article 3, which reflects the smaller time period covered.

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[6]As was done in the empirical articles, the following discussion regarding financialization and globalization focuses on short-term estimates.

Table 8.2: Key findings for contextual variables

Article	Period	Theoretical Expectations	Key Findings
Financialization			
Article 1	1984-2013	*Higher levels of financialization are expected to be associated with higher levels of market income inequality.*	The increased effect of finance on the economic configuration of the provinces is linked with higher levels of inequality throughout the income distribution.
Globalization			
Article 1	1984-2013	*Higher levels of globalization are expected to be associated with higher levels of market income inequality.*	Increasing levels of international trade are linked to higher levels of inequality at the very top of the distribution (the share of income held by the top 1%). Increasing levels of interprovincial trade are associated with less inequality at the bottom of the income distribution.
Article 3	1996-2011	*Depending on the process at work, higher levels of globalization can have either a positive or negative effect on income redistribution. Higher insecurity produced by globalization may increase demand for social security and more government spending. Alternatively, higher competition for mobile capital constrains government tax revenue and spending.*	Increasing levels of international trade are linked to lower levels of income redistribution in the middle of the income distribution.
Political Partisanship			
Article 1	1984-2013	*Higher levels of left- and centre-party incumbency are associated with lower levels of market income inequality.*	When the economic context of the provinces is controlled for, the explanatory power of the political variables is lost, save one estimate for left incumbency, which is positively associated with inequality.
Article 2 & 3	1996-2011	*Higher levels of left- and centre-party incumbency are associated with higher levels of income redistribution.*	When controlling for globalization, there is no evidence of a statistically significant relationship between left-party incumbency and income redistribution. However, higher levels of centre-party incumbency are associated with lower long-term levels of redistribution, in the bottom and upper halves of the income distribution.

As for globalization, research results in Article 1 show that international trade is linked with higher levels market income inequality. This relationship, however, is limited for the most part to the very top of the distribution, as short-term increases in international trade are linked with higher levels of the share of total income held by the top 1 %. These findings are consistent with theoretical expectations that the increased mobility of capital produces a downward pressure on wages as the competition for jobs becomes internationalized (Berger, 2000; Freeman, 2009). As for interprovincial trade, the one significant result shows a negative relationship with market income inequality in the bottom segment of the distribution, suggesting that increasing levels of trade within Canada results in income compression within the bottom part of the distribution. This also indicates that interprovincial trade's effect on market income inequality follows a different logic than interprovincial trade. Article 3 also looks at the relationship between globalization and market income inequality. However, no significant relationship is found. This is due to the smaller sample size and different time-period studied in this article.

As for evidence of globalization's effect on redistribution, the one significant estimate in Article 3 suggests that increasing levels of international trade are linked to short-term declines in income redistribution in the middle segments of the distribution. This is consistent with the theoretical expectation that globalization increases the pressure for competitive tax systems to attract capital investment, which limits government revenue, constraining spending in social protection (Peters, 2012; Streeck, 2014a).

In general, results for financialization overwhelmingly support the claim that the process is inequality-increasing in all segments of the income distribution. As for globalization, research findings suggest that international trade is positively associated with inequality by increasing the share of income held by top income earners, and has a constraining effect on income redistribution in the middle income segments. Contrary to theoretical expectations, findings indicate that the intensification of interprovincial trade is not linked to growing inequality.

Taken together, the evidence suggests that the intensification of financialization and globaliza-

tion (international trade), two key features of neoliberalism, are shaping increasingly less equal distributive outcomes in Canada's provinces. This effect may be even more important than evidenced in this thesis when one considers the negative impact these processes have on the power and capabilities of trade unionism (see Kochan, 2012; Peters, 2011).

The limited role of political partisanship

Power resources theory, as discussed throughout this thesis, suggests that left- or centre-party political incumbency should be associated with more egalitarian distributive outcomes; compared to right-party governance. However, research findings in this thesis, which are summarized in Table 8.2 above, show little support for these PRT hypotheses.[7]

Starting with market income inequality, models combining labour and capital power resources in Article 1 show negative long-term estimate for left-party incumbency in all segments of the distribution. The same models produce significant negative estimates for centre-party incumbency, but only in the upper income segments. When accounting for the economic context of each province, however, the political variables lose much of their explanatory power. The only significant political estimate that remains is left-party incumbency's positive relationship with long-term changes in inequality in the bottom of the distribution, which goes against theoretical expectations. As for income redistribution, the most robust evaluation of the political variables is provided in Article 3. Model estimates for left-party incumbency do not reach conventional levels of statistical significance. Two of the three estimates for centre-party governance are significant and negative. Higher levels of centre-party incumbency are associated with lower long-term levels of redistribution, in the bottom and upper halves of the distributions.

Overall, these multivariate estimates indicate that political partisanship may not play a major role in shaping distributive outcomes in Canada's provinces. However, the relationship is more complex. The bivariate results in Article 2 suggest that left party incumbency may be key to the reproduction of trade union power. Left party governance is significantly and positively linked

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[7]As was done in the empirical articles, the discussion that follows focuses on long-term estimates of political variables

with trade union organizational and institutional power. Comparatively, centre-party incumbency is weakly associated with trade union power, and the relationship is significant and negative for right-party governance. If trade unionism contributes to shaping – even in a limited capacity – more equal societies, it follows that left-and centre-party incumbency may have an indirect egalitarian impact by reinforcing union power.

In many ways, the research results regarding partisanship may also suggest that the traditional left-right spectrum used in this research and in many other empirical applications of PRT (see Haddow, 2014; 2015; 2016) is an inappropriate analytical frame to produce expectations on the distributive effects of political parties in the provinces. First, the lack of evidence supporting the egalitarian effect left- and centre-party incumbency – compared to right-party governance – may reflect an overall shift to the right in political ideology over the last few decades. This shift has been well documented internationally (Peters, 2012; Streeck, 2014a) and provincially (Evans and Smith, 2015), and is caused, among other factors, by increased competitive pressures to attract mobile capital through labour market reforms and tax breaks, which reduces public revenue and condemns governments of all partisan inclinations to zero-deficit politics.

Second, the left-right analytical frame from which the political variables are operationalized overly simplifies the complex political traditions that exist in different parts of Canada. One notable observation from the research results is that the absence or quasi-absence of strong social-democratic labour-aligned parties does not signal the non-existence of solidarity. The Maritime provinces (Newfoundland, New Brunswick, Nova Scotia and Prince Edward Island) provide a good example, where redistribution is highest among the provinces and left-party incumbency is at a minimal. Forcing a class perspective through a left-right frame of analysis of the political context in these provinces hides the true source of their solidaristic nature. Indeed, the Maritimes have a political culture based on a collectivist form of traditionalism, which can be explained by a mixture of factors such as the values of the first settlers, the communal nature of the economic stable of the region (fishing), and the relative poverty of the Maritimes (Wesley, 2015). This political culture

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resulted in an overall acceptance of the role of trade unions, but did not translate into the emergence of strong social-democratic political parties. Future research concerned with inequality and redistribution should seek out other means to assess the broad solidarities conveyed by the political culture of each province, beyond rough measures of political partisanship.

Third, partisan politics in the provinces may be dominated by issues far removed from distributive outcomes. This is particularly the case in Quebec, where the national question arguably separates the main political parties more than the nature of their social and economic policies.

Overall, research results show that trade unions' distributive impact must be understood as operating in an increasingly difficult political context. Traditional alliances and roles held by political parties are changing and the impact of which is not favourable to organized labour or to those concerned with solidarity more generally.

8.2.5 Exploring the modern contradictions of trade unionism

In this section, it is argued that trade unionism's limited egalitarian impact is connected to its modern contradictions. These contradictions contribute to illegitimating unions' role as working-class representatives, and restraining their ability to create large spaces for class solidarity. Given the significance of financialization as a driving of inequality – both in the results discussed above and in the literature more generally – union participation in "pension fund capitalism" provides a case in point of the conflicting nature of modern trade unionism.

As highlighted many times over in this thesis, unions' legitimacy as working-class representatives is increasingly being contested in the literature (Becher and Pontusson, 2011; Ceron and Negri, 2018; Culpepper and Regan, 2014; Dufour and Hege, 2010; Gumbrell-McCormick and Hyman, 2013; Han and Castater, 2016; Nijhuis 2009; Pontusson, 2013). Much of this scholarship points to a disconnect between unions and labour more generally as the distinctive characteristic of unionized persons sets them in a position of relative "privilege", especially in an era of increased

precariousness and insecurity. As for financialization's role in this disconnect, Grady and Simms (2018) argue that it produces "a context in which the interests of workers are pulled in different directions and their own wealth – if they have any – is increasingly financialised" (p. 16), creating "deeper divisions between workers with and without assets" (p. 16). As financialization erects new barriers to solidarity, trade union ventures in the financial market highlight the contradictory nature of unions' role in the political economy. By participation in large pension funds, union members are increasingly capital owners. This dual identity – wage-earner and investor – creates obstacles for fostering working-class solidarity (Fudge, 2017).

While some have argued that trade union control over investment through its leveraging of large pension funds and shareholder activism represents an underexploited power resource for labour (Webber, 2018), others highlight its limits. Even in their best formulation – such as the Solidarity Fund in Quebec, which gives workers' representatives comparatively high levels of control over investments and firm governance (MacDonald and Dupuis, 2018; McCarthy, 2014) – union-led investment funds produce unconvincing results. As "workers' capital" cannot escape the logic of financial markets – the maximization of returns through increasingly risky investments – its promotion of worker interest operates under the condition of compatibility with competitive capitalism. In an in-depth investigation of the Solidarity Fund, MacDonald and Dupuis (2018) find that:

> "The Fund may improve workplace standards in cases where this does not conflict with competitive practices, and the Fund will attempt to block forms of industrial restructuring that suppress collective bargaining. But Fund investment in a firm does not strengthen local union power or prevent firms in which the Solidarity Fund maintains a minority ownership stake from making commercial decisions that run counter to workers' interests" (pp. 29-30).

They conclude that "The advent of the Solidarity Fund was consistent with, and furthered, a larger ongoing shift towards a corporatist and partnership-oriented trade unionism in Quebec, as union critics at the time feared that it would" (p. 32), reflecting unions' integration of neoliberal logics.

The contradictions of "workers' capital" can be further described by considering the role of union-controlled pension funds, especially Canadian funds, in the predatory privatization of for-

eign public infrastructure and services (including not just roads, bridges, and seaports, but also energy, water, healthcare, child, and education-related infrastructure), highlighting a loss of international labour solidarities (Skerrett, 2018). The process of privatization is inequality-increasing as it undermines working conditions of otherwise public sector employees and relegates the provision of essential necessities to foreign private interests guided by a investor-fiduciary doctrine. Skerrett argues that trade unions contribute to this process by misunderstanding the nature of the power derived from pension funds, which results from "its character as capital, not as the property of workers" (p. 33). He adds that "privately-invested pension funds do indeed embody a form of class power, but it is not working class power but that of the capitalist class whose business it is to make the accumulation process work" (p. 33). As such, Skerrett deems unions' participation in financial markets a "strategic dead end" for the reconstruction of labour power.

Union participation in financial markets, reflects a broader reconstitution of organized labour along neoliberal lines, which is also observable in changing organizing strategies, bargaining outcomes and political strategies (MacDonald, 2014). As the contradictions of trade unionism grow with its integration of neoliberal logics, unions' legitimacy as working-class representatives suffers, and workers stand increasingly divided in the face of rising inequality.

8.2.6 Integrated analysis: do trade unions promote more equal societies?

This section offers an integrated analysis of key results to provide an contextualized and weighed answer to the framing question of this thesis: Do unions shape more equal societies?

What does the evidence produced in this thesis say about the distributive impact of trade unionism in Canada's provinces? For market income inequality, results suggest that trade unions' impact is negative (inequality-reducing), but targeted. This impact operates through militancy, and is limited to the middle and upper parts of the distribution. As for income redistribution, much of the results indicate a positive relationship conditional on levels of union inclusiveness. However, the

most robust estimate suggest, here again, that the union impact is confined to the middle and upper segments of the distribution. **Overall, the findings in this thesis indicate that the distributive impact of trade unionism in Canada's provinces over the last few decades should be understood as egalitarian, but moderate as it is limited to specific areas of the distribution and conditional on the income profile of membership.**

This thesis also shows that trade unions have conserved an egalitarian effect in an era of increasing inequality and declining redistribution, and despite the well documented issues and contradictions facing organized labour. The relatively moderate nature of this effect is likely linked to changes to the economic configuration of the provinces, which have altered the balance of power between actors striving to strengthen processes of accumulation and concentration of economic resources and those who work towards a more solidaristic distribution of the fruits of collective production. Some of these important changes are considered in this thesis – financialization and globalization (international trade) – and were showed to have inequality-increasing effects. These changes, the articles' results suggest, have also taken much of the direct effect of partisan politics out of the determination of distributive outcomes. This indicates that traditional affinities between trade unions and political parties to the left and in the centre that existed in some provinces have dissipated over the last few decades. This may mean that trade unions may now act as the only substantial organized egalitarian force in some provinces.

8.3   Broader implications of research results

8.3.1   Consequences for theory

In this second part of the chapter, the theoretical framework constructed in Chapter 2 is first re-examined in light of empirical results. For reference, the general theoretical framework presented at the end of the second chapter is reproduced in figure 8.1 below. The assessment starts by looking at power resources theory. This is followed by an examination of the explanatory power of

economic theory and rational-choice theories of preferences for redistribution.

The appropriateness of using power resources theory to frame the evaluation of distributive outcomes in Canada's provinces was made questionable by some research resuls. PRT is a European theory which provides much insight on why distributive outcomes in social-democratic Scandinavian countries are more egalitarian than in conservative or liberal societies. What separates Scandinavian countries form other advanced capitalist democracies are the broad progressive coalition combining powerful trade unions and dominant left-wing social-democratic political parties. Differences in inequality and redistribution levels between countries is therefore assessed by comparing the strength of these broad coalitions. As the provinces consist of liberal welfare states and market economies, trade unions are unsurprisingly weak, especially when compared to Scandinavian unions. Dominant left political parties are also rare in the provinces, and trade union support for these parties is not guaranteed and can change from one election to the next. This limits the usefulness of PRT as one is left comparing a group of political units absent the strong progressive coalitions integral to PRT. It therefore creates conditions for key PRT propositions to be falsified.

Figure 8.1: General theoretical framework
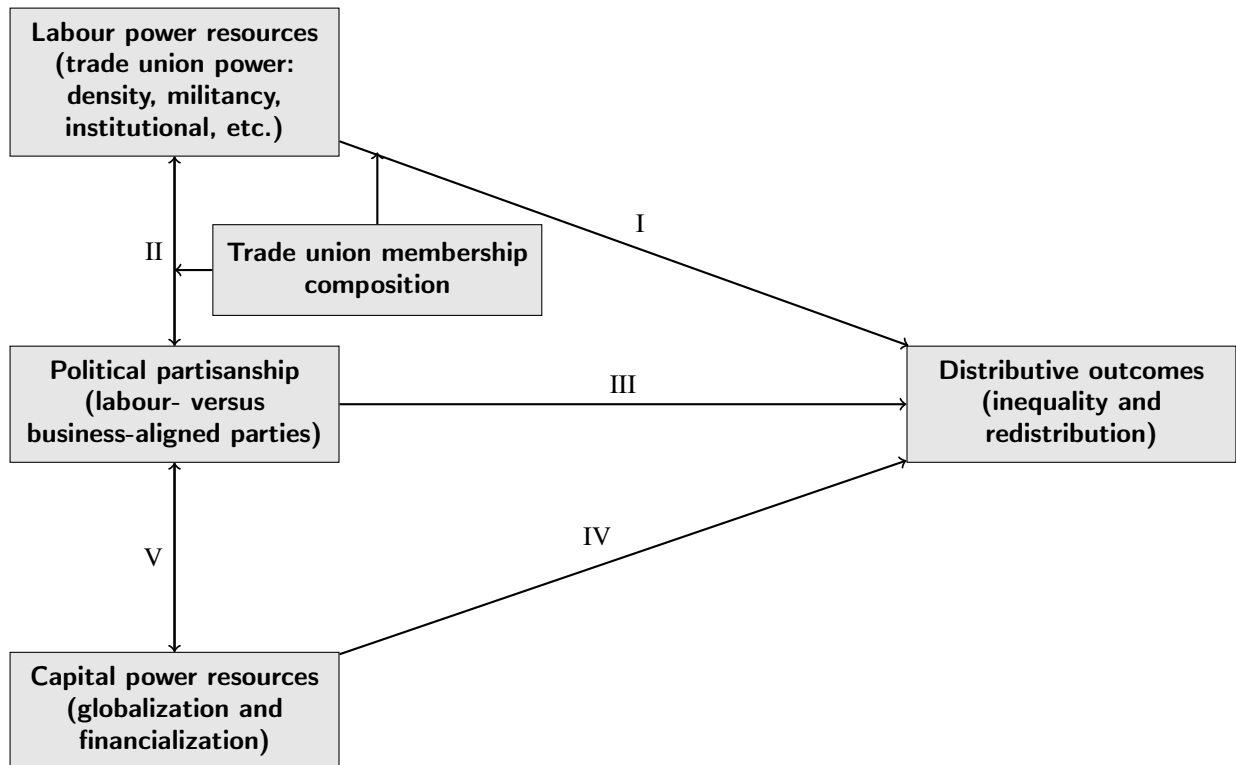
Some evidence produced in this thesis suggests that left and centre political parties appear to reinforce trade union power (see Article 2, Figure 6.6 and 6.5), supporting the proposition outlined in Chapter 2 and illustrated by pathway II in Figure 8.1 above. This indicates the possible existence of alliances between unions and parties on the left and in the centre. These alliances may increase trade union power, which can then be leveraged (depending on the income profile of membership) to favour more egalitarian outcomes (pathway I), a relationship supported by some research results. However, expectations regarding pathway III and V were not confirmed, as research estimates generally indicated that the direct distributive effect of left- and centre-party political incumbency is no different than right-party incumbency. It may be that the partisan nature of political systems in Canada's provinces is more divided on collective labour rights than distributive issues. This means, that left and centre parties may seek the support of unions during elections in exchange for a reaffirmation of union legitimacy, but do not distinguish themselves from right parties with regards to direct distributive politics.

Following the dominant approach in interprovincial studies and in power resources theory scholarship, political partisanship was operationalized by a set of binary indicators reproducing a left-right spectrum is reductive. The applicability of the left-right model to provincial politics is problematic. Some provinces may show high levels of solidarity (e.g. high levels of income redistribution) despite political systems dominated by right-wing parties. This is the case in the Maritimes where a traditional form of collectivism is deeply rooted in the economic foundations and cultural heritage of these provinces. It is therefore not surprising that the usage of left-, centre- and right-party incumbency as overall measures of provincial political context produced some surprising results. It also suggests that solidarity can arise from other factors than broad coalitions between unions and social-democratic parties, which are not captured by an application of PRT.

The argument here is that while PRT comfortably rationalizes why, for example, Canada (low unionization, weak social-democratic party) redistributes less than say Sweden (high unionization, strong social-democratic party), it much more awkwardly explains why Newfoundland (relatively high level of unionization, no credible social-democratic party) redistributes more than Manitoba or Saskatchewan (relatively high levels of unionization, relatively strong social-democratic party for much of the period examined). This means, that distributive outcomes in Canada's provinces are attributable to much more than coalition dynamics.

While the political coalition aspect of PRT is more or less applicable to Canada's provinces, some research results suggest that the theory's description of distributive outcomes as a function of power dynamics between labour and capital is adequate. Indeed, Article 1 provides evidence supporting the distinctive nature of pathways I and IV. Significant estimates associated with labour power resources are negative (inequality-reducing) and significant estimates associated with capital power resources are positive (inequality-increasing), save a lone estimate for interprovincial trade.

Overall, it can be argued that PRT represents a useful starting to point to frame the large processes at work in the determination of distributive outcomes in the provinces. However, future work on the provinces should look to refine the political partisanship dimension of the theory in order to incorporate a more nuanced understanding of provincial political systems and cultures.

The trade union membership composition aspect of the theoretical model was inspired by economic theory and rational-choice theories of preferences for redistribution. Evidence from Articles 2 and 3 support the general proposition that the income profile of trade union members matters for distributive outcomes. The broad conclusion that trade unions tend to reduce inequality and increase income redistribution within heavily union-populated income segments.

However, further work using these theories in the study of trade unions' macro-level socioeconomic effects would do well with some theoretical and empirical refinements. For economic theory, much of the insight provided by the literature stems from research on wage differentials. This thesis looked at income, a broader currency of inequality, which incorporates wages and other earnings such as returns on private investments. This means that some of the arguments derived from economic theory in this thesis provide only a partial account (collective bargaining's effect on wages) of unions' effect on the distribution of income. Examining links between union membership and other sources of income would likely provide further insight on the overall distributive effect of trade unionism.

Applying rational-choice theories of preferences for redistribution to the study of trade unions' socioeconomic preferences could also use some theoretical tightening up. The assumption that unions' redistributive preferences reflect the sum of individual member preferences based on income level is restrictive, as it excludes institutional dynamics and histories from the analysis. Even if individual member preferences are additive and produce overall trade union distributive preferences, the process by which this happens requires more attention. Overall, research results generally supported the arguments made with regards to membership composition, but these arguments will require some refinements in studies to come. A good starting point for future research would be to examine the types of collective identities that more inclusive unions produce and the socialization processes that shape collective interests in the area of inequality and redistribution (Levesque and Murray, 2010; 2013). Another key area of inquiry are the narrative resources – "the values, shared understandings, stories and ideologies that aggregate identities and interests"

(2010, p. 339) – put forward by trade unions to frame their role in the political economy. This would mean looking at how prioritized narratives affect the way unions engage with distributive issues; from positioning themselves as a narrow interest group framing action on tales of firm-level justice to defining their role in capitalist democracies as an historic countervailing power to inequality-increasing capital forces.

8.3.2 Inequality and redistribution in the provinces: making actors responsible

Beyond the distributive effects of trade unionism, what can be taken from this thesis to better understand income inequality and redistribution in Canada's provinces? This thesis set out to put power dynamics between actors at the forefront of the determination of distributive outcomes and by doing so make actors responsible for inequality and redistribution.

Power resources theory, the dominant approach in this research, pits labour and their representatives against capital owners, employers, and their representatives. While this dichotomous separation of opposing powers in capitalist democracies was showed to be overly restrictive (i.e. the arguments made on the implications of membership composition and comments made on the surprising results regarding political partisanship), the framework forces actors at the centre of the analysis. Even if this thesis' research design – a quantitative analysis of macro-level data – does not provide in-depth descriptions of actor preferences, actions, and strategies, it does produce evidence supporting the importance of power dynamics in the formation of income inequality and the politics of redistribution. This is made clear, for example, by the the contrasting effects on inequality of labour and capital power resources. It was also apparent in the evidence indicating that inclusive unions favour redistribution, while the intensification of international trade constrains government taxes and spending.

What this thesis contributes to the study of inequality and redistribution is highlighting how the forces that determine distributive justice in the provinces are actor-driven. Therefore, provincial political leaders and policymakers should recognize that decisions that affect the balance of power between key actors have important distributive consequences.

8.3.3 Projecting trade unionism's distributive effect and strategies

Much of the empirical portion of this thesis has focused on trade unions' long-term distributive effects, speaking more to average differences between provinces. As discussed in the articles, this is partly due to theory – which suggests that the effect of labour power resources should be more apparent in the long run (see Haddow, 2016) – and partly due to the quasi-absence of significant short-term estimates for key union variables, which has a lot to do with limited sample sizes. That said, some short-term changes to key union features provide insight for projecting the distributive effect of trade unionism in Canada's provinces.

The importance of membership composition in understanding the effect of trade unions on inequality and redistribution has been stressed throughout this thesis. This was done in a comparative fashion, contributing to the explanation of why income redistribution, for example, is higher in Newfoundland than in Alberta. One aspect of composition that has barely been discussed, however, is the way union members' income profile is changing progressively over time and how this shift will affect distributive outcomes in the future.

Figure 8.2: Trends in union inclusiveness in Canada, 1996-2011
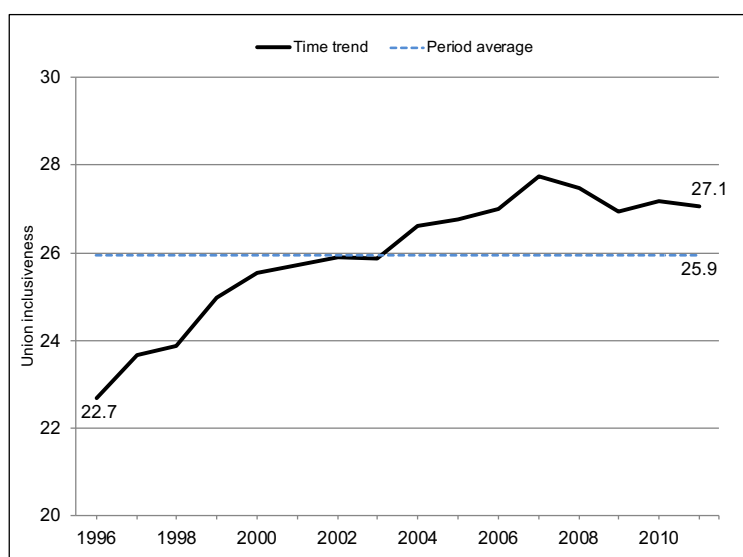
Source: SLID public-use microdata files.
Note: Author's compilation using same method as in Article 2 and 3.

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Figure 8.1 above shows an unweighed average of union inclusiveness – the proportion of union members located under the median household adjusted market income – from 1996 to 2011 in Canada. It shows that while unionized Canadians are generally well-off, their relative affluence is diminishing over time. However, as Figure 7.1 (in the previous chapter) suggests, this general upward trend in union inclusiveness is driven by increases in the three most populous provinces: British Colombia, Quebec and Ontario. In other provinces, such as Alberta and Newfoundland, union inclusiveness is declining.

The argument here is that the future of trade unions' distributive impact in the provinces will likely depend heavily of the direction of these progressive changes to composition of which the effects will compound over time and will become more discernible. Where union inclusiveness to lower-income earners is increasing, holding density levels constant, we may expect to see the inequality-reducing and redistribution-increasing effect of trade unionism become more apparent in the lower-income segments. Where union membership is becoming more concentrated in the top half of the overall income distribution, we can expect trade unionism's effect on the relative affluence of the lower income groups to dissipate over time.

Projecting diverging paths of union objectives and strategies

Beyond shaping different distributive effects in the future, these composition trends will likely condition the socioeconomic objectives pursued by trade unions in the future and the strategies which will be called on. In provinces where membership is becoming increasingly concentrated in the upper income segments – where it is expected that the "investor" dimension of members' identity will grow (Fudge, 2017), and the divide between workers with and without capital will deepen (Grady and Simms, 2018) – it is anticipated that trade unions will continue a slow trans-formation into functionaries of capitalism (MacDonald, 2014). As union members progressively become a distinctive socioeconomic group, unions' legitimacy as working-class representatives is further discredited (Nijhuis, 2009) and their inclination and capacity to offer a alternative, pro-gressive project to neoliberal capitalism becomes doubtful (Gumbrell-McCormick and Hyman,

2013). Indeed, increased division and segmentation on the labour markets allows employers to pit groups of workers against another, and undermines the "emergence of a more united workers' consciousness" (Stanford, 2008: p. 167).

In provinces where union inclusiveness is increasing, the narrative is expected to be different. As more and more members become lower-income earners, the traditional wage-earner identity will progressively predominate unions' frame of action. Growing shared experiences with other lower income earners – waged and unwaged – will also open up new spaces for solidarities and reorient unions towards a focus on class and society, and away from market objectives, to use Hyman's (2001) terminology. As the divide between the precarious and vulnerable, and those in organized labour diminishes, unions become more inclined to engage in social movement unionism built on a narrative of inequality through alliances with other actors such as community organizations and non-governmental organizations (Holgate, 2018; Robinson, 2001). Engaging in social movement unionism does not mean abandoning traditional union activities such as collective bargaining, but leveraging the organizational strength derived form these functions into broader coalitions for social and economic justice (Engeman, 2015). To sum up, the basic argument is that increased union inclusiveness may create the conditions for a class- and community-based social unionism, which, it is expected, will provide more justice in this distribution of income and may even act as a legitimate pathway for trade union renewal (Heery *et al.*, 2012).

Overall, considering the results presented in this thesis, it is argued in this final part of the chapter that different trajectories in union composition will shape unions' distributive impact in the future. It is also argued that distinctive trends in the income profile of union members will structure the nature – market-based or class-based – of trade unionism in coming times.

8.4   Conclusion

This chapter integrated discussions and research results from the preceding 7 chapters of this thesis. This was done, in the first part of the chapter, by trade unions' moderate egalitarian effect

within broader changes to the political economy and in light of the current contradictions of trade unionism. In the second part of the chapter, the discussion turned to the theoretical implications of research results through a reexamination of the general framework proposed in Chapter 2. This was followed by an assessment of the broader contribution of this research to the understanding of inequality and redistribution, and of the different ways forward for trade union movements concerned with shaping more equal societies.

Conclusion

In a context of declining distributive justice, this thesis aimed to answer a fundamental question: Do trade unions shape more equal societies? It sought to investigate whether, despite an increasingly hostile environment, trade unions still act as a countervailing power to capital, promoting equality and solidarity in the distribution of economic resources. Answers were provided through an assessment of the relationship between various dimensions of trade union power, market income inequality, and income redistribution in Canada's provinces over the last few decades. The thesis also examined whether various patterns of membership composition conditions the distributive impacts of trade unions.

The investigation was set in an original framework combining theories from many perspectives. Power resources theory – which posits that distributive outcomes reflect the balance of power between labour and capital – acted as the main frame of reference. To this frame were added many theoretical extensions such as those relative to endogenous sources of union power, the conceptualization of capital power resources, and to the income composition of trade union members. The membership composition argument, which was the most extensive addition to the dominant theory, was built from an integration of economic theory and rational-choice theories of preferences for redistribution. This argument suggest that the egalitarian effect of trade unions is moderated by the income profile of members.

The research design consisted of a quantitative analysis of provincial macro-level data from Canada's provinces over periods of time ranging from the early 1980s to the early 2010s. The subnational design, beyond providing a rare laboratory for studies of comparative trade unionism

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and capitalism, offered a sample in which key relationships would be arguably more easily isolated and studied. Drawing from recent methodological advancements, the bulk of analytical strategy relies on multilevel analyses of time-series-cross-sectional data using random-effects models. This strategy allows for the simultaneous analysis of predictors expected to affect distributive outcomes differently over time. It also opens up possibilities for a substantive evaluation of slow moving trade union and political variables.

Despite great changes to the political economy of the provinces, research results produced in this thesis suggest that the distributive impact of trade unionism over the last few decades should be understood as egalitarian, but moderate. The effect is moderate as trade unions appear to reduce inequality and favour redistribution only within the middle and upper income segments of the distribution. This targeted impact was found to have much to do with the income profile of unionized individuals. Unpacking the income composition of membership showed that members are disproportionally located in those income segments where the egalitarian impact of unions is significant, suggesting that union solidarity is bounded within the income limits of the unionized population. The results also showed that traditional measures of trade union power derived from a "power-in-numbers" perspective offers an incomplete assessment of union influence. If this thesis had limited its empirical study of union power to density levels, much of trade unionism's distributive impact would have gone unnoticed.

Research limits

The results produced in this thesis are subject to some research limitations of which many of them have been discussed throughout the empirical articles and in the previous chapter. Key issues are summarized here.

By restricting sample sizes, data limitations affect the quality of the estimates describing the relationship studied in this thesis. Relatively small sample sizes also limit what can be said about key relationships, as the short-term estimates of predictors rarely reached satisfying levels statisti-

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cal significance. This means that the broad conclusions regarding the distributive impact of trade unions speak more to long-term differences between provinces than trends within them.

Data limitations also create limits to variable operationalization and affect conceptual validity. For example, this thesis set out to analyze multiple dimensions of trade union power in an effort to move away from the limitative "power-in-numbers" perspective conveyed by density measures. Accounting for trade union militancy was a step in this direction. However, the measure of militancy is somewhat problematic as it is a firm-level indicator, which likely does not fully approximate broader union activism. A militancy measure based on quantitive data of union participation in or funding of broader progressive social movements (e.g. "The Fight for \$ 15 and Fairness" in Ontario) would likely provide a fuller assessment of trade union activism and influence. However, available data does not currently allow for the construction of such a measure. This example of the militancy measure reflects a more general issue faced throughout the operationalization process presented in Chapter 3, which was often constrained by limited provincial-level data.

More generally, the research design – a quantitative analysis of subnational macro-level data – also imposes broad restrictions to the substantiveness of results. The knowledge generated in thesis speaks to the nature of broad relationships between trade unionism, membership composition, and distributive outcomes. As such, it is informative on the overall role trade unions play in the determination of inequality and redistribution in capitalist democracies. It does not, however, provide an in-depth insight on the complex organizational processes determining the roles unions choose to embody and the narratives and strategies deployed in response to these decisions. In other words, this thesis' research results are indicative of what unions do to inequality and redistribution, but do not offer a profound understanding as to why and how they do it.

Implications for future research

Areas for future research have been flagged throughout the thesis following surprising research results and analytical issues. One issue that systemically became evident in the empirical portion

of this thesis is power resources theory's assumptions about coalitions between trade unions and political parties, and about political partisanship more generally. Research results do not consistently suggest the existence of coherent alliances between trade unions and parties to the left or in the middle of the political spectrum. While some evidence indicates that left and centre party incumbency reinforces union power, compared to right party governance, few results suggest that left and centre party rule is associated with inequality reduction or increases in redistribution. This means that solidaristic political cultures in the provinces can not be fully understood through a left-right spectrum analysis of power. Other key provincial historical features, some of which were briefly discussed in earlier chapters, must be considered. What is suggested here is that further work is needed to understand the nature of progressive coalitions in the provinces and the actors that are involved in them, moving beyond an analysis the roles of traditional players as prescribed by power resources theory.

As for the role played by trade unions more specifically, future research should aim to provide deeper insight on how organizational characteristics (collective action frames, demographics, institutional history, etc.) affect the way trade unions choose to prioritize broader societal issues, such as distributive justice. From this, analysts could move to investigate trade union positions, actions and strategies towards inequality and redistribution. Which types of inequality-reducing or redistributive policies do unions support? Which progressive social movements do they support? How and why do they support such policies or movements? These types of questions will likely be answered with different research designs than the one used here, such as those which engage with actors directly.

Given the convincing evidence produced with regards the distributive consequences of financialization, future studies of distributive justice and compared capitalism should make sure to consider the growing influence of finance. A compelling area of inquiry regarding financialization, which was briefly explored in Chapter 8, is trade unions' engagement with capital strategies. Indeed, the integration of such a key features of neoliberalism through the operation of large investment funds is indicative of the modern contradictions of trade unionism, which likely have some

important consequences for the unions' legitimacy to act as representatives of a unified working-class.

Implications for practice

The discussions and research findings presented in this thesis translate into practical implications for trade unions and governments concerned with shaping more equal societies. Given the compelling results with regards to the moderating role of membership composition, trade unions should prioritize offering collective representation to those most vulnerable and precarious workers. This would provide often marginalized individuals more power on the labour market and stronger voice in politics. When trade unions become more inclusive to all segments of the income spectrum, their legitimacy as working-class representatives undoubtedly grows and natural alliances with community organizations and emerging organized militant groups become more evident. This, it could be argued, would make the union movement more apt to propose and lead, in the words of Hyman and Gumbrell-McCormick (2013), a progressive alternative to neoliberalism. However, this will require drastic changes in how unions go about recruiting and organizing new members, making a shift from targeting traditional bastions of union power to focusing on increasingly insecure and precarious segments of the labour market a priority. This shift will require strategic alliances with political parties inclined to facilitate trade union organizing by maintaining and ameliorating the statutes on which it relies.

As for governments and policymakers, the implications of this research are that questions of power can not be excluded from political and policy decisions. Much of the evidence provided in this thesis highlights how the forces that determine distributive outcomes in the provinces are actor driven. Therefore, decisions that affect the balance of power between key actors have important distributive consequences. This is conveyed by the different effects on inequality of labour and capital power resources. It is also seen in the results indicating that inclusive unions favour redistribution, while the intensification of international trade constrains government revenues and spending. Before engaging in more liberalization of labour, product and financial markets, poli-

cymakers should keep in mind how these decisions alter the balance of power between those who benefit from the processes of accumulation and concentration of economic resources, and those who do not. Rising average levels of income inequality and declining levels of income redistribution suggest an important imbalance of power in the provinces. As results in this thesis suggest, a good starting place for policymakers concerned with finding balance, is to shape legal and institutional environments that favour collective representation in the lower income segments as a means to empower otherwise marginalized individuals.

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Appendices

Appendix A

Labour relations index

This appendix covers in greater detail the construction of the labour relations index (LRI) referred to in section 3.3.3 of Chapter 3. As explained in section 3.3.3, the LRI used in this thesis is identical to the one constructed by Legree, Schirle and Skuterud's (2014, 2016; 2017) which itself was inspired by the work of Johnson (2010). The index is constructed on the assessment of laws governing 12 aspects of labour relations. Each of these aspects, directly taken from Legree, Schirle and Skuterud (2014: p. 12), is listed below in no particular order.

1. Secret ballot certification vote: certification of new bargaining units requires majority support in a mandatory secret-ballot vote;

2. First contract arbitration: the union or employer can request that a third-party arbitrator be assigned to impose the terms and conditions of the collective agreement;

3. Anti-temporary replacement laws: prohibits employers from hiring temporary replacement workers during a work stoppage and limits use of existing employees;

4. Ban on permanent replacements: prohibits employers from hiring permanent replacement workers during a work stoppage;

5. Ban on strike-breakers: prohibits employers from hiring professional strikebreakers (individuals not involved in a dispute who are employed primarily to "interfere with, obstruct, prevent, restrain or disrupt" a legal strike);

6. Re-instatement rights: grants striking workers the right to reinstatement at the conclusion of a strike with priority over temporary replacement workers;

7. Compulsory dues check-off: permits, at the union's request, that a clause be included in the collective agreement that requires employers to automatically deduct union dues from employees' pay and remit them to the union;

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8. Mandatory strike vote: union must demonstrate, through a secret-ballot vote, that it has the majority support of the bargaining unit before it can legally strike;

9. Employer-initiated strike vote: employer may request that a secret-ballot vote be held to determine if bargaining unit is willing to accept the employer's last offer;

10. Compulsory conciliation: requires some form of third-party intervention to encourage a contract settlement before a legal work stoppage can occur;

11. Cool-off period: mandates a number of days, after other legal requirements have been fulfilled, before a legal work stoppage can begin;

12. Technology "re-opener": permits, at the union's request, that a clause be included in the collective agreement that allows the contract to be re-opened before its expiry in the event that the union is concerned about the consequences of technological change.

Formally, the index is constructed as follows. For each of the 12 aspects, a score of 0 is given when a law is relatively unfavourable to unions and a score of 1 is assigned when a law is relatively supportive of unions. In the year a law is introduced, a fraction representing the portion of the year the law was in place is assigned. The final composite index is obtained by calculating the unweighted average of the [0, 1] values in each province in each year.

Appendix B

STATA code: union inclusiveness variable

The following STATA code shows how to create the union inclusiveness variable as defined in Section 3.2.1 and Section 3.3.2 using public-use SLID microdata persons files. The same code can be used to generate all union composition estimates shown in Chapter 7 (Article 3).

```
1   ***********************************
2   ** Union inclusiveness measure ***
3   ***********************************
4
5
6   ***** Code for older public-use micro-data files from the Survey
    of Labour and Income Dynamics (SLID)
7
8
9   *** Step 1: giving each individual an adjusted household market
    income
10
11  * 1.1 Sum market incomes from same household to create hhincome
    variable
12
13  bys PUCHID25:egen hhincome=sum(MTINC42)
14
15  * 1.2 Drop negative values
16
17  drop if hhincome < 0
18
19  * 1.3 Ajust household size to take into account economies of scale
    using square root approach
20
21  gen ajdhhsize = sqrt(HHSZ25)
22
23  * 1.4 Divide total household income by scaled household size to
    give each individual an adjusted household income
24
25  gen ajdhhincome = hhincome/ajdhhsize
26
27
28  *** Step 2: Create income deciles with newly created individual
    adjusted household market income variable (ajdhhincome)
29
30  * 2.1 Make adjusted income deciles (10)
31
32  xtile ajdhhincomedecile = ajdhhincome, nq(10)
33
34
35  *** Step 3: Recoding union variable
36
37  * 3.1 Recoding the union status variable (UNCOLL1) to combine
    members and covered individuals (coded 1 and 2)
38
39  recode UNCOLL1 (2 = 1)
40
41
```

```
42   *** Step 4: Obtaining proportion of union members/covered
     individuals by income decile
43
44   * 2.1 Obtain frequency of union membership by total hh population
     income deciles
45
46   by UNCOLL1 PVREG25, sort : tabulate ajdhhincomedecile, nolabel
47
48
49   *** Step 5: Manually compute proportion of union members in bottom
     5 deciles
50
51
52   **************************************************
53
54
55   ***** Code for newer public-use micro-data files from the Survey
     of Labour and Income Dynamics (SLID)
56
57
58   *** Step 1: giving each individual an adjusted household market
     income
59
60   * 1.1 Sum market incomes from same household to create hhincome
     variable
61
62   bys puchid25:egen hhincome=sum(mtinc42)
63
64   * 1.2 Drop negative values
65
66   drop if hhincome < 0
67
68   * 1.3 Ajust household size to take into account economies of scale
     using square root approach
69
70   gen ajdhhsize = sqrt(hhsz25)
71
72   * 1.4 Divide total household income by scaled household size to
     give each individual an adjusted household income
73
74   gen ajdhhincome = hhincome/ajdhhsize
75
76
77   *** Step 2: Create income deciles with newly created individual
     adjusted household market income variable (ajdhhincome)
78
79   * 2.1 Make adjusted income deciles (10)
80
```

```
81   xtile ajdhhincomedecile = ajdhhincome, nq(10)
82
83
84   *** Step 3: Recoding union variable
85
86   * 3.1 Recoding the union status variable (UNCOLL1) to combine
     members and covered individuals (coded 1 and 2)
87
88   recode uncoll1 (2 = 1)
89
90
91   *** Step 4: Obtaining proportion of union members/covered
     individuals by income decile
92
93   * 2.1 Obtain frequency of union membership by total hh population
     income deciles
94
95   by uncoll1 pvreg25, sort : tabulate ajdhhincomedecile, nolabel
96
97
98   *** Step 5: Manually compute proportion of union members in bottom
     5 deciles
99
```

Appendix C

STATA code: statistical tests and regression procedures

The following STATA code shows how to apply the statistical tests used to select the modelling strategy in each article. Code for regression procedures is also provided, including commands for generating the "between" and "within" dimensions of variables.

```
1   *************************************
2   *** 1. Statistical test commands ***
3   *************************************
4
5
6
7   *** Modified wald test for heteroskedasticity. H0 = homoskedasticity
8
9   * Example with market income inequality (Gini coefficient) as
    dependent dariable:
10
11  xtreg ginimarket uniondensim log_militancy leftpart centrepart, fe
12
13  xttest3
14
15
16
17  *** Breusch–Pagan test for heteroskedasticity, H0 = no
    heteroskedasticity
18
19  * Example with market income inequality (Gini coefficient) as
    dependent dariable:
20
21  xtreg ginimarket uniondensim log_militancy leftpart centrepart, re
22
23  xttest0
24
25
26
27  *** Breusch–Pagan LM test for for cross–sectional
    dependence/contemporaneous correlation, H0 = no cross–sectional
    dependence
28
29  * Example with market income inequality (Gini coefficient) as
    dependent dariable:
30
31  xtreg ginimarket uniondensim log_militancy leftpart centrepart, fe
32
33  xttest2
34
35
36
37  *** Lagrange multiplier test for serial correlation. H0 = no
    serial correlation
38
39  * Example with market income inequality (Gini coefficient) as
    dependent dariable:
40
```

```
41   xtserial ginimarket uniondensim log_militancy leftpart centrepart
42
43
44
45
46   ******************************
47   *** 2. Regression commands ***
48   ******************************
49
50
51
52   *** Creating within- and between-unit variables using the
     clustergen command, see Bartels (2008;2015) online Appendix
53
54   * Step 1: making an "id" variable for the clustergen command to
     work. "Province" variable (provincial codes) is used:
55
56   gen id=province
57
58   * Step 2: using clustergen command, generate the "between" (_bw)
     and "within" (_wi) dimensions of each variable except for
     "province" and "year" (the xtset variables):
59
60   clustergen ginimarket d9d5market d5d2market log_d5d2market
     share1percentmarket log_share1percentmarket uniondensim militancy
     labourindex log_militancy inttrade iptrade leftpart centrepart
     leftcumpart centrecumpart rightcumpart immigration minwage
     techchange fempart deindus agestruct gdpcapita log_gdpcapita unemp
     log_unemp emp extractgdp log_extractgdp fingdp
61
62
63
64   *** setting the dataframe as TSCS. TS = year. CS = province = id.
65
66   xtset id year
67
68
69
70   *** Multilevel regression with TSCS data, Panel-corrected standard
     errors (PCSE) and a first-order autoregression process (AR(1)):
71
72   * Example of regression in Chapter 5 (Article 1), Table 5.2, Model
     2:
73
74   xtpcse ginimarket inttrade_bw iptrade_bw fingdp_bw techchange_bw
     log_unemp_bw log_gdpcapita_bw log_extractgdp_bw inttrade_wi
     iptrade_wi fingdp_wi log_unemp_wi log_gdpcapita_wi
     log_extractgdp_wi techchange_wi, corr(ar1)
```

```
75
76
77
78   *** Testing Nested models with a Wald test
79
80   * Example of testing the explanatory values of Capital Power
     Resources variables as a group (see Chapter 5, Article 1):
81
82   xtpcse ginimarket uniondensim_bw log_militancy_bw leftpart_bw
     centrepart_bw inttrade_bw iptrade_bw fingdp_bw uniondensim_wi
     log_militancy_wi leftpart_wi centrepart_wi inttrade_wi iptrade_wi
     fingdp_wi, corr(ar1)
83
84   test inttrade_bw iptrade_bw fingdp_bw inttrade_wi iptrade_wi
     fingdp_wi
85
86
```

Appendix D

Variable codebook

Table D.1 below presents the names, labels, and codes (when applicable) for each variable used in the empirical portion of this thesis. Variable names are shown as they appear in the .csv data file. When imported into STATA, the dots in the names are dropped, as can be seen in the code presented in the Appendix B and C. Variable labels are those used in the articles (e.g. union inclusiveness). Data files will be provided upon request.

Table D.1: Variable codebook

VARIABLE NAME	VARIABLE LABEL	VARIABLE CODE
Time-series-cross-sectional variables		
province	Province identifier	1 = Newfoundland and Labrador, 2 = Prince Edward Island, 3 = Nova Scotia, 4 = New Brunswick, 5 = Quebec, 6 = Ontario, 7 = Manitoba, 8 = Saskatchewan, 9 = Alberta, 10 = British Columbia
year	Year identifier	
Market income inequality and income redistribution		
gini.market	Market income inequality measured by the Gini coeffcient	
D9D5.market	Market income inequality measured by the D9D5 ratio	
D5D2.market	Market income inequality measured by the D5D2 ratio	
share.1percent.market	Market income inequality measured by the income share of top one 1 %	
gini.red	Income redistribution measured by the Gini coefficient	
D9D5.red	Income redistribution measured by the D9D5 ratio	
D5D2.red	Income redistribution measured by the D5D2 ratio	
Trade union variables		
union.den.sim	Trade union organizational power (union density)	
labour.index	Trade union institutional power (labour relations index)	
militancy	Trade union militancy	
mbelowhh2001	Trade union inclusiveness	
union.top.20	Trade union concentration in top 20 percent of income distribution	
Political variables		
left.part	Left party incumbency	0 = not left, 1 = left
centre.part	Centre party incumbency	0 = not centre, 1 = centre
Capital power resources		
int.trade	International trade	
ip.trade	Interprovincial trade	
fin.gdp	Financialization	
Economic controls		
gdp.capita	Gross domestic product by capita	
tech.change	Technological change	
unemp	Unemployment rate	
emp	Employment rate	
extract.gdp	Extractive sector share of GDP	