Racing to the Middle:
Minimum Wage Setting and Standards of Fairness

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A common preoccupation in the literatures on both federalism and globalization is the prospect of a race to the bottom in which jurisdictions compete either to attract scarce investment or to rebuff welfare migration by lowering their taxes, labor standards, welfare benefits, or environmental standards (Oates 1972; Peterson and Rom 1990; Markusen, Morey and Olewiler 1993, 1995).[1] Formal models of such strategic behavior predict an outcome in which intergovernmental competition leaves citizens in all jurisdictions worse off than they would be in a hypothetical "island state."[2] The threat of a race to the bottom rests on the assumed mobility of key goods or actors, including investment, taxpayers, and welfare recipients. However, money, goods, and individuals are not the only thing that crosses borders in a federation: so too do ideas and information. In this paper, we explore a very different intergovernmental dynamic that can arise as a result of the transmission of information between jurisdictions

There is a substantial political science literature on policy diffusion (Walker 1969, Berry and Berry 1992), emulation (Rose), and learning (Bennett and Howlett 1992, Hall 1993), much of which focuses on the spread of novel policies. However, our concern in this paper is not innovation so much as the flow of information about longstanding policies, like taxes and labor standards. While the policy example set by other jurisdictions could in theory prompt interjurisdictional competition downward (in taxes, for instance) or upward (in government services), it is also conceivable that voters will be aware of potential tradeoffs in their own or others' interests and thus wary of such competition.[3] If voters are uncertain of the magnitude of tradeoffs in their own interest, they may look to other jurisdictions' standards as a measure of what's "reasonable," a dynamic modeled by Besley and Case (1995).

In this paper, we consider a different intergovernmental dynamic induced by the flow of information. Many policies do not affect most voters directly, or affect them so indirectly, for instance through infinitesimal increases in their taxes, that they may look to their governments merely to strike a "reasonable" balance between various societal interests. Examples of such policies could include public sector wages, welfare benefits, and investments in public housing.

Again, a potentially important source of information for voters seeking to evaluate the reasonableness of their own government's standards is what other jurisdictions are doing. We argue that this inclination to intergovernmental benchmarking will tend to yield a much less troubling *race to the middle* rather than a race to the bottom.

Previous studies of minimum wage policymaking in Canada and the US have focused on the influence of such factors as business and union pressures, economic conditions, and partisanship (Silberman and Durden 1976; Bloch 1993; Sobel 1999; Blais, Cousineau, and McRoberts 1989, Dickson and Myatt 2002), but have not considered the possibility that governments look to each other in setting their minimum wage standards. However, the setting of minimum wage policies at the subnational level within the Canadian federation offers an ideal opportunity to test for intergovernmental benchmarking for two reasons. First, the preponderance of minimum wage jobs in the tourism and service sectors (Battle 2003) means that minimum wage jobs are not highly mobile. Thus, to the extent that subnational governments do react to each other's policies, it will be a result of the flow of information across borders rather than fear of business relocation. Second, the high level of support for minimum wage increases across all income levels and party affiliations (sources) suggests that voters are not attentive to their own interests with respect to minimum wages, but instead view minimum wages as a question of fairness. We thus anticipate that minimum wages will exemplify the fairness-driven benchmarking dynamic described above.

This paper examines the degree to which Canadian provincial governments react to each other in setting their minimum wages. We consider documentary evidence and conduct interviews with provincial policymakers to explore the factors that influence minimum wage setting. Drawing on those insights and the literature on social psychology, we offer a formal model of how voters in a federation, and in response their governments, deliberate about appropriate standards of redistribution via minimum wages using benchmarks such as median wages within their own province and minimum wages in other provinces. We test the explanatory power of our intergovernmental benchmarking model using data on provincial minimum wages from 1969 to 2000. We find that as provinces look to each other as benchmarks, what emerges is indeed a race to the middle than the proverbial race to the bottom.

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The evidence of a race to the middle challenges the assumption implicit in both the economic and political science literatures that governments invariably compete – whether in response to threats of mobility or pressures for emulation of novel policies – either to outdo or undercut each other. It is noteworthy, however, that the empirical evidence of intergovernmental benchmarking, if not the normative implication, is very similar to that one would expect from a race to the bottom. At a minimum, statistical evidence that one jurisdiction reacts to another jurisdiction's policy settings can no longer by accepted unquestioningly as evidence of a race to the bottom. Moreover, even in a race to the middle, the influence of factors other than intergovernmental benchmarking can yield upward or downward trends that could easily be misinterpreted as a race to the bottom. For instance, following recent developments in the political economy literature (Roemer, Dixit and Londregan), we allow the political parties in our model to be motivated not only by reelection, but also to have ideological preferences that they seek to implement. Left wing or right wing governments may set somewhat higher or lower values for the policy parameter in question (minimum wages in our case) relative to what is observed in other jurisdictions, bearing a cost in terms of voter perceptions of reasonableness in order to implement their own ideology. However, their doing so will change the distribution of existing parameter values and, as a result, shift the middle to which other, less ideologically-motivated, jurisdictions aspire. If a series of right wing governments get elected in various jurisdictions at the same time, the resulting downward trend across all jurisdictions may look very much like a race to the bottom, even in the absence of competition for mobile investment. We show that this implication is also present in our data.

The Conceptual Model

Our approach to trying to understand intergovernmental benchmarking for fairness is to try to isolate it. To that end, we present a simple model, based to some extent on the models in Dixit and Londregan (1999) and Besley and Case (1995), of the setting of a redistributive policy in which subnational governments in a federation set a parameter – in this case the minimum wage – which has direct effects only on a small subset of the population consisting of a group who fund the transfer and another group who receive it. The rest of the population, consisting of

voters not directly affected by the minimum wage, compare the minimum wage against their own standards of fairness using benchmarks to determine what is reasonable. The notion of relative standards of fairness is consistent with social psychology research on relative deprivation, which finds that individuals use benchmarks to assess how fairly they themselves are treated relative to others (Tyler et al. 1997). However, the primary focus of that literature is on perceptions of voters' own interests. Mutz and Mondak (1997, 288) extend that insight and find that, quite apart from their own interests, voters' political judgments are heavily influenced by their perceptions of the relative well-being of societal groups. The authors argue that, "individuals may make group-to-group comparisons that are not driven by concern with personal economic well-being. Here what we are suggesting is a unique form of sociotropic behavior: people consider whether various groups have been treated fairly *relative to one another.* We define *sociotropic fairness* as people's concern with whether economic gains and losses have been distributed equitably among the nation's groups." With respect to the minimum wage, we argue that few voters will have a particular dollar figure in mind for what reasonable. Rather, we anticipate that they will gauge what is fair against two different benchmarks. The first concerns wages within the voter's own jurisdiction. Voters may, for example, have a notion of a fair ratio of the minimum wage to the median wage, with too low a ratio implying that the lowest paid workers are being left too far behind others in society but too high a ratio being unfair to other workers who have made sacrifices to invest in earning a higher wage. The second is an intergovernmental benchmark. Voters may consider what minimum wages have been set in other jurisdictions.

Finally, even if standards are to a considerable degree relative, people differ in their ideologies in ways that affect standards of fairness (e.g., Dixit and Londregan (1998), Roemer (1998, 1999)). Thus, people situated to the left in the spectrum of political ideas (to whom we will refer by the short hand term, left wing ideologues) may add to this relative notion of fairness an element reflecting a pure preference for higher incomes for the poor. On the other hand, right wing ideologues may have a libertarian distaste for any redistribution.

While voters have tastes over minimum wages, it is the state that actually selects and implements a minimum wage. In a parliamentary system like Canada's, the state apparatus is

controlled by a party with a majority in the legislature. We consider three idealized political parties: Left (L), Right (R), , and Centre (C). While all three parties seek election by the same electorate, and in a Downsian world would thus be drawn to the centre of the political spectrum, following Aldrich (1983) we assume that the left- and right-wing parties will be pulled toward the ideological poles by their activists, who are more ideological than the median voter, in contrast to the centrist party, which has no strong ideology and seeks only electoral success. The party in power will set the minimum wage partly in order to satisfy the ideological preferences of their core group of supporters and partly to improve their probability of being re-elected. Assuming that swing voters in the middle of the distribution do not have strong ideological positions, the latter means making sure the minimum wage is not seen as unfair to the average voter, i.e., as too far out of step with other provinces.

With this model, C parties will simply set their minimum wage in order to stay in the middle of the existing distribution of minimum wages. L parties will set higher minimum wages, as they attempt to balance their ideology with the fairness standards of the centrist voters they need to attract, and R parties will set lower minimum wages for analogous reasons. Given the concern of all governments to appear fair (i.e., not too extreme), minimum wage setting in any particular province can affect the location of the overall distribution of minimum wages.

The model has several key empirical implications for the setting of minimum wages. First, minimum wages should be set as a function of characteristics of the wage distribution. Second, the social component of the standards of fairness imply that governments will want to set their minimum wages to stay in the middle of the pack of provincial minimum wages across the country: there will be a race to the middle rather than to the bottom or top. As a direct result of this, provincial reaction functions, expressing a province's own minimum wages as a function of those set in other provinces, will be symmetric in the sense of reacting equally to movements up or down in other provinces' minimum wages. As both Bailey and Rom (2004) and Figlio et al. (1999) point out, this contrasts with races to the bottom which imply greater reactions to decreases in the redistributive parameters set in other provinces than to increases. Third, this race to the middle will be violated to some extent when L or R parties are in power since they balance this tendency toward the middle with their ideological positions, and are thus willing to diverge

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to a greater degree from the provincial norm. Fourth, the combination of the second and third points imply that we can get what looks like a race to the bottom if R parties take power in a set of provinces at the same time since even L governed provinces will be forced to adjust their minimum wages downward in order not to appear too out of step with the other provinces. Thus, there are externalities to parameter setting in terms of shifting the standards of fairness.

Data and Basic Patterns

The main data we examine are nominal minimum wages for Canadian provinces for the years 1969 through 2000. Minimum wages are set at the provincial level in Canada. There is a federal minimum wage that covers workers moving across provincial borders and employees of the federal government but unlike in the United States, the federal minimum is relevant for a small minority of workers. There is not always one minimum wage for each province and time period. At different times, several of the provinces maintained separate minima for younger workers, students and workers deemed to be training. In the early part of our sample there are even a few cases of separate minima for men and women. Throughout this paper we use the main minimum wage for men. We view this as the relevant parameter, in part, because of evidence that firms do not make substantial use of special sub-minima even when they are available (Card and Krueger(1996)). In order to match our other data, we work at an annual frequency, taking the minimum wage for a province in a given year to be the minimum wage in place on March 1 of a given year. We chose March because it is closest to the time when some of our other data are collected.

As discussed in the introduction, we wish to investigate movements of the minimum wage in relation to movements in wages in general. We view the relevant comparison as the median wage of low skilled workers. In judgements on fairness, these are the wages that minimum wage workers might reasonably be expected to be able to earn given their levels of investment in human capital. Comparisons to higher skilled workers would involve making judgements about individual responsibility in investing in skills. For this reason, we use the median wage of males with high school or less education in each province. We obtain this from the Survey of Consumer Finances (SCF) for the years 1969, 1971, 1973, 1975, 1977, 1979, 1981,

1982 and 1984-1997, and from the Labour Force Survey (LFS) for the years 1998-2000. The LFS is a large survey collected to ascertain labour force status data such as unemployment rates. The SCF was an add- on to the LFS. We calculate the median wage by first obtaining average weekly earnings for high school or less educated males working full time and dividing those by 40. We have data on earnings from both the LFS and SCF in 1997 and we use the ratio of the median values in those years to adjust the LFS data to make the series smoother. We interpolate values for the years for which there are not surveys using a simple average of the median wages for the province in the years that bracket the gap. Finally, we use the median wage in an attempt to get a measure of the location of the wage distribution that is not affected by the minimum wage. The mean would move around with movements in the left tail caused by movements in the minimum wage even if changes in the minimum wage do not alter above-minimum wages. We investigate whether this median wage can be viewed as exogenous with respect to the minimum wage below.

The patterns we are interested in are captured in figures 1a-c, which portray the real minimum wages for (respectively) the Atlantic provinces (Newfoundland, Prince Edward Island, Nova Scotia, and New Brunswick), the Central provinces (Ontario and Quebec), and the Western Provinces (Manitoba, Saskatchewan, Alberta and British Columbia). For each province, we plot a solid square at a point in time if the minimum wage was set by a right wing party and a triangle if it was set by a left wing party. We deflate the nominal minimum wages using province specific CPIs.

Five main patterns jump out from these figures. The first is the long swings in the real minimum wage, with the real minimum rising substantially from the start of our sample (1969) through to about 1980 in all provinces then declining strongly until the end of the 1980s. The 1990s is more of a mixed bag but is roughly characterized by flat trends in most provinces with a break away group consisting of Ontario, Quebec and British Columbia. The second feature is the extent to which the real minimums move together, especially within the regions. In Atlantic Canada, for example, the difference between the maximum and minimum real wage is never more than $1 and is often substantially less. Third, the highest minimum wages tend to be associated with left wing parties. Notice, for example, that the peak in the late 1970s corresponds

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to a time when left wing parties were setting minimum wages in most Western provinces and Quebec. In contrast, the periods of declining real minimum wages (particularly the 1980s) are associated with right wing parties being in power. However, this is by no means a universal rule. Two right wing parties in BC and Alberta implemented substantial increases in their minimum wages in 1988, and a left wing government was behind the substantial decline in the real minimum wage in Quebec in the first half of the 1980s. This leads to our fourth point, that differences between outlier provinces (with minimum wages either above or below the other provinces) and the rest of the pack tend to be reduced over time. This fits with the second observation that the set of provincial minimum wages tend to move together. Finally, minimum wages tend to be lower in the Atlantic provinces and, to some extent, Manitoba and Saskatchewan. These are poorer provinces where both wages and cost of living tend to be lower. Our goal in this paper is to understand what underlies these patterns. In particular, we are interested in explaining the dynamics of the movements in minimum wages and the role played by interactions among governments.

For readers who have studied low skilled wages in either Canada or the United States, the general time pattern in the real minimum wage may seem familiar. In figure 2 we plot the median weekly real wage for males with a high school or less education along with the simple average of the provincial minimum real wages. We normalize both series to their values in 1969. Both series show substantial increases over the course of the 1970s and declines over the 1980s, though they part company to some extent in the 1990s. The periods when the real minimum wage is persistently high relative to the median wage (the late 1970s and the 1990s) correspond to periods when there are a substantial number of left wing governments in power while the period when the minimum wage is relatively low (the late 1980s) is one with a considerable number of right wing governments in power.

Qualitative Evidence: What Policymakers Say

In this paper, we employ two complementary research strategies to test the model of minimum wage policymaking introduced above. In the next section, we develop a formal model and thereafter test the model against provincial minimum wage data over roughly four decades.

In this section, we consider qualitative evidence drawn from documentary reviews and confidential interviews with provincial policymakers.[4]

Groups representing small businesses, particularly provincial Chambers of Commerce and the Canadian Federation of Independent Business, routinely argue that increases in minimum wages will hurt business and result in job losses to minimum wage workers. Not surprisingly, unions and their allies challenge the business mantra that minimum wage increases result in job losses.[5] However, a review of Canadian small business groups' websites and position statements does not reveal any reliance on the argument that minimum wage jobs will relocate to jurisdictions with lower wages.[6] Nor is there any evidence that provincial governments fear migration of jobs to jurisdictions with lower minimum wages. A former British Columbia Minister interviewed for this paper explained, "not too many workers are going to drive across the border to earn the minimum wage. And not too many companies will relocate to Alberta over the minimum wage," while his Cabinet colleague bluntly stated, "Minimum wage jobs are not mobile." The provincial government's regulatory impact statement in support of a minimum wage increase in 2000 stated that "Competitiveness concerns industries that compete in foreign or inter-provincial markets. Industries that provide a domestic service, such as fast food restaurants, would be less affected because they do not export their product or compete with imports. Any minimum wage increase would be applied to all employers in the domestic market, and therefore puts no single business at a disadvantage" (Province of British Columbia 2000).[7]

Despite this, interest groups, the media, and, in response, politicians are clearly attentive to interprovincial comparisons. Employer organizations in provinces with relatively high minimum wages cite the example of provinces with lower minimum wages to reinforce their argument that those standards are unreasonable.[88] In turn, those seeking higher minimum wages seek to publicly shame their governments into raising the minimum wage by drawing comparisons with more generous provinces. Thus, a left-leaning think tank opened their brief to Nova Scotia by asserting that the province's minimum wage was the second lowest in Canada.[99] Similarly, the National Council of Welfare complained that Alberta has the lowest minimum wage in Canada.[1010] Opposition parties follow a similar strategy. For instance, the leader of the Alberta NDP complained that "It is pretty embarrassing that rich Alberta has a minimum wage

the same (or near) that of Atlantic Canada where the cost of living is so much less."[11] During a recent election campaign, the Nova Scotia NDP was critical that their province's minimum wage was the lowest in Canada outside Newfoundland.[12] Similarly, the Ontario Liberals made hay of comparisons between Ontario's minimum wage and those of other jurisdictions during the 2003 election campaign in that province.[13] Reflecting comparisons from both sides, press coverage of provincial minimum wage increases routinely offers comparisons among the provinces, even on occasion providing tables to help voters benchmark their own provinces.[14] Provinces ranking first or last can pretty much count on that fact making the headlines in any news coverage.[15]

Although several government officials interviewed noted that only a small fraction of workers earn the minimum wage, they did not dismiss its significance. A public servant in the Manitoba government explained, "The minimum wage is mostly symbolic," a sentiment echoed with almost identical language by an Ontario official. Provincial governments go to some lengths to make the case that they are treating both minimum wage workers and their employers fairly. Indeed, of the six most recent provincial government press releases announcing minimum wage increases that we were able to locate, four explicitly use the word "balance" in referring to business and workers, while two others used other terms to convey the same sentiment.[16]

As further evidence of balance, provincial governments routinely draw comparisons between their minimum wages and those of other provinces. It is striking that the only provinces that actually post comparisons of their own and other provinces' minimum wages on their websites are Saskatchewan and Manitoba, whose minimum wages rank in the middle of the provincial pack.[17] Announcing its minimum wage increase in 2003, the Manitoba government stressed that "The increase [would] retain Manitoba's ranking in the middle of rates among Canadian jurisdictions."[18] Similarly, the Saskatchewan government appended a table summarizing other provincial and territorial minimum wages to its press release in March 2002. A former senior official with the Manitoba government explained, "We always looked at what other provinces were doing with respect to the minimum wage. You wanted to understand where you were."

Atlantic provinces appear to be focused primarily on regional comparisons.

Newfoundland, Nova Scotia, and Prince Edward Island all explicitly stressed in their most recent minimum wage announcements that they were in line with other Atlantic provinces.[1919] A senior public servant in the New Brunswick government explained, "whenever we go to Cabinet, one of the first questions we're asked is where we stand [relative to other provinces]." Similarly a Nova Scotia public servant stated, "there's sort of an unwritten policy to try to achieve uniform minimum wages in the region. We like to look at other Atlantic provinces to see where they're at. ... We don't want to be the lowest or the last to announce." His colleague in Prince Edward Island concurred: "the [Atlantic] Ministers get together annually and one of the items discussed is always minimum wages. There's a concerted effort to stay within $0.25-$0.30 of each other." Nor are larger provinces immune to this dynamic. It is noteworthy that for a period of four years in the late 1980s Ontario and Quebec moved in lockstep, as illustrated by Figure 1b. The fact that identical minimum wage increases not only took effect on the same date, but were also announced months earlier on the same day, suggests a conscious effort to harmonize minimum wages.

While most provinces seem intent to stay in the middle of the pack, New Democratic governments appear more willing to diverge in the pursuit of redistribution. Indeed, early in the BC NDP's first term in the early 1990s, the Labour Minister boasted to organized labour that his government would make BC's minimum wage "the highest in the country."[2020] A Cabinet colleague interviewed for this paper stated that the business community's interprovincial comparisons are "a smoke screen. The minimum wage discussion is about where your government wants to render decisions and for whom. There are increasingly few areas where government can influence the distribution of wealth; even tax policy is disappearing. The minimum wage is one way to do that." However, even NDP governments are only willing to get so far ahead of their neighbours. Three years after the Labour Minister's boast, by which time BC did have the highest minimum wage in the country, the Premier stated, "I think we have to be careful to make sure [our minimum wage] isn't a lot higher than everywhere else in the country."[2121]

At the other end of the political spectrum, neoconservative governments have been willing to diverge from other provinces at the low end of the distribution. A Minister in the

Alberta government, which as of 2004 had not increased its minimum wage in six years, during that time falling $1 to $2/hour behind its neighbours, insisted that the comparison to other provinces "is not a factor [in our deliberations concerning the minimum wage]. That just becomes a popularity contest or horse race." Alberta's ideological sibling, the Conservative government in Ontario in the 1990s, also held the line on minimum wages, resisting an increase for almost decade until it was defeated in the fall of 2003. That government had inherited the highest provincial minimum wage in Canada from their immediate predecessors, a left-wing NDP government. In response, they used divergence from provincial norms as a rationale to forgo further increases. One Cabinet Minister announced that, "We are committed to [freezing the minimum wage] for a period of time or at least until other minimum wages across Canada reach where we are."[22] Several years later, the Premier continued to reject calls for a minimum wage increase, stressing "In the case of minimum wage, we're very competitive. We're still ahead of most provinces and well ahead of other jurisdictions that we have to compete with."[23]

The message from this qualitative analysis of factors influencing provincial minimum wages is that while business groups predictably oppose minimum wage increases, they do not predicate their arguments on the threat of capital mobility. However, both pro- and anti-minimum wage increase groups, opposition parties, and the media nonetheless benchmark by drawing comparisons between provinces' minimum wages. In response, even though policymakers are unconcerned by the prospect of capital mobility, they are nonetheless keenly aware of and sensitive to the minimum wages of other jurisdictions. While NDP and Conservative governments seem more willing to get "out of line" with their neighbours' minimum wages, it appears that other provinces deliberately stay in the middle of the pack.

An Illustrative Model of Interactions in Minimum Wage Setting

In this section we set out a stylized version model of the effects of fairness standards on the setting of a redistributive parameter. Our main goal in this exercise is to generate precise implications for our empirical specification. The model builds on the model of redistribution in Dixit and Londregan(1998) and, to some extent, the model of inter-jursidictional yardstick effects in Besley and Case(1995). Like Dixit and Londregan(1998), we assume that tastes for redistribution enter utility functions directly and affect political outcomes, including

governing parties' choices over redistribution. However, we focus less on voter choices and more on the interplay of the policy choices of governments in different states or provinces in the same country. This is similar to Besley and Case(1995). We differ from the latter paper in that we do not model directly any issues of asymmetric information between voters and governors (though one could include that element in the model) and we focus on a situation where standards of comparison across provinces are endogenously determined.

The basic building block of the model is the specification of individual preferences. In particular, we assume that individual, i, living in province, A, in year, t, has an indirect utility function given by,

$$1) \quad U_{it} = w_{it} - \lambda_1 \left(\left(\frac{m_t^A}{\bar{w}_t} \right) - \rho_t \right)^2 + \lambda_2 \left(\frac{w_{pt}}{\bar{w}_t} \right) + \lambda_3 \left(-\delta \left(\frac{m_t^A}{\bar{w}_t} \right) \right)$$

where,

$$2) \quad \rho_t = \left(\theta \rho_0 + (1-\theta) \left(\frac{m_t^B}{\bar{w}_t} \right) \right)$$

In equations 1) and 2) , w_{it} is the income for person i, m_t^A is the minimum wage in province A, m_t^B is the average minimum wage in all other provinces, $\bar{w}_t$ is the median wage (which, for simplicity, we will assume is the same in all provinces), w_{pt} is the wage for a poor person in i's province, $\lambda_1, \lambda_2, \lambda_3, \rho$ and δ are all parameters taking values greater than zero and $0 \leq \theta \leq 1$.

After tax income is determined as follows. Everyone has one unit of labour which they sell in the labour market and there are no labour supply responses in the model. All poor people (who make up a proportion π_p of the population) have income equal to the minimum wage, m_t^A .

All business owners (who make up a proportion π_b of the population) have income equal to w_{it} - δm_t^A. Thus, the minimum wage acts as a straight redistribution from business owners to the poor. The middle class (i.e., everyone who does not own a business and does not receive the minimum wage) is not affected by the minimum wage. This is obviously quite stylized but is meant to capture the idea that the main group of voters probably doesn't view the minimum wage

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as affecting them directly (apart from their teenage sons and daughters, and they may not be ready to vote based on the wage their children get paid). Note that we assume that no one works out the actual incidence issues, i.e., the middle class does not perceive that the minimum wage is passed on to them through price changes, and the business owners think they bear the complete incidence of a minimum wage hike. Dividing the population into groups in this way is reminiscent of the model in Dixit and Londregan(1998). However, while they focus on understanding the conditions under which one group benefits relative to others from the political contest, we will simply assume that the centre group is the largest and most influential.

The utility specification in 1) incorporates two main elements. The first is own income, w_{it} . Movements in this component can reflect broad changes in the economy and in policies, including but not restricted to the minimum wage, which affect an individual's income. The second main element in the utility function is the person's ideological stance on the minimum wage (we set aside ideological stances on other policies for the moment). It, in turn, has three components which capture different fairness ideals. The first component is a quadratic term which reflects a relative notion of fairness, which we assume forms the basis of decisions on the fairness of the minimum wage for all individuals in the economy. Individuals judge the fairness of the minimum wage in comparison to the income distribution as a whole. Thus, each person has a target ratio of the minimum wage to the median wage in the province. For people who do not have a strong ideological stance on the minimum wage (people in the centre), this quadratic component completely captures their notion of the fairness of the minimum wage and their target ratio is simply ρ_t . λ_1 represents their disutility from a minimum wage they feel is unfair. People to the left in the political spectrum(left wing ideologues, for short) combine this relative notion of fairness with a belief that poor people should have a higher absolute standard of living. This is captured in the w_p component of the utility function, which we put in real terms by normalizing using $\bar{w}_t$. The result is a preferred ratio for left wing ideologues of $\rho_t + (\lambda_2/2\,\lambda_1)$, with λ_2 capturing the strength of their ideological stance. In contrast, right wing ideologues combine relative comparisons to other provinces with a libertarian notion that higher levels of taxes are bad since they represent something akin to theft by the state. This position is represented in the $-\delta\ m_t^A$ component of the utility function, which we again put in real terms by

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normalizing with $\bar{w}_t$. Right wing ideologues have a preferred ratio of the minimum to the median wage of $\rho_t + (-\delta\lambda_3/2\,\lambda_1)$. The δ parameter partly insures that the total "tax" collected from the business owners equals the "transfer" received by minimum wage workers and partly reflects inefficiencies generated by the minimum wage. Thus, δ is larger the larger is the ratio of minimum wage workers to business owners (i.e., the greater the tax paid by any one owner) and the larger is the deadweight loss of the tax.[24] It is possible that people will hold some mixture of these opinions, with their relative ideology being reflected in the relative size of their personal values for the λ_2 and λ_3 parameters (making the specification is similar to that used in Dixit and Londregan (1998)). However, we will assume, for simplicity, that there are only three notions of fairness in the population (left, right and centre).[25] Also, it is worth noting that both left and right wing ideologues only care directly about the minimum wage in their own province. That is, the left wing ideologues do not care about the poor in other provinces.

Equation 2) depicts the formation of the relative standard of fairness. We assume that individuals in any given province are not completely sure of the fairest target ratio and so look to what is happening in other provinces to provide context for their decision. Thus, they form a notion of a fair ratio as a weighted average of an underlying, time invariant opinion and what is currently happening in other provinces. This is the route through which actions in other provinces will ultimately affect minimum wage setting in a given province. It represents what is different about our model compared to earlier ones. We do not assume that voters look to other provinces to the true value of a parameter (e.g., the cost of providing services in the Besley-Case model), nor do provincial interactions arise out of concerns about induced mobility of capital or labour. Instead, interactions arise as individuals recognize the inherent trade-offs in redistribution and look to other jurisdictions to help decide on what is fair. The minimum wage example makes this form of interaction particularly apparent since voters are deciding on a redistributive parameter that does not affect most of them and no one appears to think that changes in minimum wages will affect the national distribution of capital or labour. However, even in other situations involving redistribution where mobility of factors likely plays a key role, such as in setting capital taxes, this type of "fairness normalizing" may also be a part of what we observe. The size of the θ parameter determines the extent to which they look outside their own province

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for guidance.

The Political Game

We will begin by assuming that there are only two provinces, A and B. In each province there are three potential parties: L(left), R (right) and C (centre). Each party, when in power, has a single period value function which is a combination of the utility of the representative politician in the party and a function of the probability of re-election in the next election. Thus, the single period value function for the L party is given by,

$$3) \quad V_{Lt} = w_{Lt} - \lambda_1 \left(\left(\frac{\overline{m_t^A}}{w_t} \right) - \rho_t \right)^2 + \lambda_2 \left(\frac{w_{pt}}{w_t} \right) + \gamma P_{te}$$

where, P_{te} is the probability of re-election in the election period, te. The value function for the R party is given by,

$$4) \quad V_{Rt} = w_{Rt} - \lambda_1 \left(\left(\frac{\overline{m_t^A}}{w_t} \right) - \rho_t \right)^2 + \lambda_3 \left(-\delta \left(\frac{\overline{m_t^A}}{w_t} \right) \right) + \gamma P_{te}$$

and the value function for the C party is given by,

$$5) \quad V_{Ct} = w_{Ct} - \lambda_1 \left(\left(\frac{\overline{m_t^A}}{w_t} \right) - \rho_t \right)^2 + \gamma P_{te}$$

Essentially, we assume that the L party is controlled by left wing ideologues, the R party is controlled by right wing ideologues and the centre party has no ideologues. Following Dixit and Londregan(1998), all three parties want to maximize their probability of being re-elected. Dixit and Londregan argue that this is a more reasonable representation of the way parties choose policies than one in which they simply maximize their expected benefits from re-election, implicitly setting policy parameters at levels just high (or low) enough to get them elected by the

barest minimum. In this specification, instead, parties try for as high a probability of election as they can attain since they do not know for sure what random events during the next election might eat into their lead.

Notice that we described 3) -5) as the value functions when the party is in power. Since we want to focus on interactions among governments in power in different provinces, we assume that non-incumbents are passive players in an election, getting a proportion, $(1 - P_{te})$ of the vote on election day. We will also assume that $w_{Lt} = w_{Rt} = w_{Ct}$. That is, that politicians in all the parties make the same income (the income of a member of parliament) and none are directly affected by the minimum wage. Alternatively, one could interpret this as assuming that politicians are able to altruistically ignore the impact of policies on their own incomes but not to ignore their own ideologies.

The probability of re-election in province A in period t is given by,

$$6) \quad P_t = \Phi(x_t \alpha - \xi_1 \left(\frac{m_t^A}{w_t} - \rho_t\right)^2 + \xi_2 (\pi_P - \pi_B) m_t^A)$$

where, Φ is a cumulative distribution function, x_t is a vector of policy variables and provincial outcomes such as unemployment, α is a parameter vector, and β_1 and β_2 are parameters. Equation 6) says that the probability of re-election depends on the minimum wage but also depends on other factors reflected in the index $x_t \alpha$. These factors could include policies other than the minimum wage and factors that relate to how voters feel about the incumbent party such as political scandals, the state of the economy and, possibly, how long the party has been in power. The minimum wage impact on re-election has two components. The first is how far the relative minimum wage is from the fair level as seen by centrist voters. This assumes that centrist voters form either the largest block of voters or are the "swing" votes in an election. The last term reflects the fact that poor voters directly benefit from and business owners directly pay for the minimum wage. Thus, a higher minimum wage increases the probability of re-election if there are more poor than business owner voters.

In each province, we will assume there are C, R and L parties. However, we will

also assume that the incumbent is only concerned with one of the other two parties in the period from just after an election to just after the ensuing election. That party will be the official opposition during the incumbent's term and the party that will win the next election if the incumbent loses. This will greatly simplify our analysis of the elections and fits with what appears to happen in reality. In particular, all provinces have parties from each part of the ideological spectrum but there is only very rarely a situation in which all three have realistic chances of forming the next government. Which parties are in contention in a given province do change from time to time, though, for simplicity, we will not allow them to do so. Finally, notice that the C party might be slightly left or right of centre (as required by political science models which argue that parties can only operate if they take enough of a stance to motivate the grass roots workers) but, for simplicity, we just define it as exactly in the middle. It is the position relative to the L and R parties that matters in what follows.

Model Without Elections

We can learn quite a bit about minimum wage setting in this model by considering the simplest version: one where neither of the parties in power in provinces A or B are concerned with re-election. This could be seen as the equivalent of the lame duck period in the Besley and Case model. There are no term limits and hence no real lame ducks in Canadian politics, but acting as if there are allows us to simplify the model, making it easier to see some of the main insights.

To begin, assume that the C party holds power in both provinces. Both governments set their minimum wages simultaneously in the same period. Thus, their policies can be summarized with their reaction functions, which for province A looks like:

$$7) \quad m_t^A \quad = \quad \theta \, \rho_0 \, \overline{w_t} \quad + \quad (1 - \theta) \, m_t^B$$

with the reaction function for the C government in province B being directly analogous. With the two C governments implementing these reaction functions, we get an equilibrium:

$$8) \quad m_t^{Ae} \quad = \quad m_t^{Be} \quad = \quad \rho_0 \overline{w_t}$$

where the e superscript denotes an equilibrium value.

Suppose, instead, that there is a C government in place in province A and an R government in province B. It is simple to show that province A's reaction function is still given by 7). On the other hand, the reaction function for B's government is now:

$$9) \quad m_t^B = \theta \rho_0 \overline{w_t} + (1-\theta) m_t^A - \frac{\lambda_3 \delta}{2\lambda_1} \overline{w_t}$$

The equilibrium wages in the two provinces are now given by,

$$10a) \quad m_t^{Ae} = \rho_0 \overline{w_t} - \frac{(1-\theta)}{\theta(2-\theta)} \frac{\lambda_3 \delta}{2\lambda_1} \overline{w_t},$$

and

$$10b) \quad m_t^{Be} = \rho_0 \overline{w_t} - \frac{1}{\theta(2-\theta)} \frac{\lambda_3 \delta}{2\lambda_1} \overline{w_t}$$

Several interesting conclusions arise even from this simple model. First, reaction functions do not change according to who is in power in other provinces but equilibrium solutions do. This is potentially important for empirical work. Econometrically, identifying the effects of group characteristics on members of a group is complex. Manski() and Moffitt(), among others, discuss this problem in relation to measuring the impact of neighbourhood characteristics on individual outcomes. In that problem, one has to worry about selection into the neighbourhood, which is not an issue in our case since the "neighbourhood" is effectively all the provinces in Canada and though some in Quebec have tried to select out, they have not succeeded yet. On the other hand, the issue that actions by the individual can affect the equilibrium "neighbourhood" values does arise in our context. This is a standard endogeneity problem of the kind seen in trying to identify supply and demand. Moffitt() argues that identification would be achieved in this situation if there were exogenous changes in neighbourhood composition. In our case, such a change corresponds to a change in government in another province to one with a different political orientation. This can be seen in equations 8) and 10a), where the equilibrium minimum wage decreases in province A because the government in B changes from being C to being R. In other words, changes in governments in other

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provinces serve to allow us to trace out the reaction function in a given province. This suggests using the political orientation of governments in other provinces as an instrument in estimation of the reaction functions, though we will question this conclusion to some extent when we introduce elections.

The second conclusion from this exercise is that interactions with other provinces generate a convergence in minimum wages, with the extent and nature of the convergence depending on differences in political orientation between governments in different provinces. Thus, when two C governments are in power, there is complete convergence of minimum wages. Switching the B government to the R party generates a decline in the equilibrium wage in A in order to move it closer to the lower wage that the R party in province B wants to choose. In fact, A's government chooses a minimum wage value that sets the quadratic term in 5) to zero given the lower wage that it knows the right wing government in B will choose. The R government in province B sets an equilibrium value such that it essentially accepts some penalty for being out of line with province A in order to be closer to its desired, lower level. However, it still compromises. It turns out that, in this simple set up, the reduction in A's equilibrium minimum wage from the one that would hold if two C governments were playing to the one in 10a) is equal to the increase in the equilibrium minimum wage we would observe in B moving from a situation where two R governments were playing to the one in 10b). Thus, ultimately, C governments follow right (left) wing governments down (up) in their minimum wage setting but they also act to mediate the extent of the cuts (increases) that those governments make. This means that one would obtain dynamics in this model from two sources: 1) movements in $\bar{w}_t$; and 2) changes in the set of political orientations of provincial governments. A period in which R governments are elected in many provinces (such as the late 1980s) would be one in which the minimum wage would fall relative to movements in $\bar{w}_t$, even in provinces where C and L governments are in power. Thus, one can generate dynamics that look like races to the bottom even though the underlying reaction functions are symmetric. One of our questions will be whether we can describe the dynamics of minimum wage setting in Canada just with this simple model.

Introducing Other Forms of Dynamics

Dynamic Norms

Since we are ultimately interested in the patterns of minimum wage setting over time, we turn next to introducing additional, plausible forms of dynamics into the model. The first of these is to allow dynamics in the setting of norms. The idea is that when an institution such as a minimum wage is in place for a while, social norms may start to adjust to it. Inhabitants of provinces with habitually high minimum wages may come to define themselves as inherently "socially conscious". Those in provinces with lower levels may, instead, adopt a mythology that focuses on the ideas of "free enterprise". To capture this, we replace 2) with the following:

$$2') \qquad \rho_t = \left(\theta\left(\frac{m_{t-1}^A}{w_{t-1}}\right) \;+\; (1-\theta)\left(\frac{m_t^B}{w_t}\right)\right)$$

Consider a three period model with a C government in province A and an R government in province B. Suppose that there is common agreement on an original preferred ratio in period 0, ρ_0, but that the standard of fairness is updated according to 2) in subsequent periods. Then, in the last period (period 2), the reaction functions will be:

$$11a) \qquad m_2^A = \theta m_1^A \frac{\overline{w_2}}{w_1} \;+\; (1-\theta)\, m_2^B$$

and,

$$11b) \qquad m_2^B = \theta m_1^B \frac{\overline{w_2}}{w_1} \;+\; (1-\theta)\, m_2^A \;-\; \frac{\lambda_3 \delta}{2\lambda_1}\overline{w_2}$$

Thus, when we incorporate updating of norms, the reaction function includes the own lagged minimum wage. Notice that now, even two C governments will not necessarily choose identical minimum wages since each province's norms will depend on a different set of past minimum wages. The model thus allows for path dependence (Pierson, 2004).

If we go back to period 1, the R government in province B will have a reaction function given by,

$$12) \quad m_1^B = \theta\, m_0^B \frac{\overline{w_1}}{w_0} + (1-\theta)\, m_1^A - \frac{\lambda_3 \delta}{2\lambda_1}\overline{w_1} - \frac{1}{(2-\theta)}\frac{\lambda_3 \delta}{2\lambda_1}\overline{w_1}$$

This differs from what would arise if the norm dynamics were given by 2) rather than 2') by the last term in 12). Essentially, in a world where basic notions of the appropriate ratio of minimum wages to the median wage are updated, a right wing government will implement a larger minimum wage cut in order to push future equilibria toward the lower values it prefers. Moreover, the larger is the relative importance of own province lagged minimum wages in establishing norms (i.e., θ) the larger is the last term in 12). It is easy to show that L governments will take similar actions but in terms of additional increases in the minimum wage. In other words, ideologues from both sides set redistributional parameters both to satisfy their short term goals within their province and to influence social norms. Given our model, this is not true for C governments. C governments do not have preferences over the level of the minimum wage and therefore have no incentive to try to induce higher or lower future equilibria. They know that in future periods they will just adjust to stay close to whatever other provinces choose. In terms of our empirical work, the fact that L and R governments set minimum wages today with an eye to future equilibria means that lagged minimum wages set by those governments cannot be treated as exogenous. In fact, even the lagged minimum wages generated in C ruled provinces must be taken to be endogenous since observed minimum wages in provinces ruled by C governments represent the equilibria of games played with R or L governments who are acting with an eye to the future.

Nominal Rigidities

Another important source of dynamics arises from the fact that nominal minimum wages are rigid downward. For Canada, not only are there no cuts to nominal minimum wage in any province in the period we examined (1965 to 2001), but in every instance where a newly elected right wing government faced an upcoming minimum wage increase announced but not yet implemented by a previous government, the right wing government did not rescind the increase, even though doing so would obviously not imply an actual wage cut for anyone. The exact source of the apparent norm that one does not cut nominal minimum wages is not clear.

Figure 1 indicates there is no norm against cutting real minimum wages. Rather than try to model the source of the norm, we take it as given and ask about its implications for the observed patterns in minimum wages.

The stricture not to cut the nominal minimum wage might initially seem most relevant for R parties since they are the ones who typically want lower minimum wages. However, the problem they typically face in this regard is simple and uninteresting analytically: they face problems when they inherit a nominal minimum wage that is above their preferred value. Their best response is then to simply hold the nominal minimum wage constant until increases in w_t^*

caused either by inflation or productivity increases bring their preferences and the actual minimum wage back into line. The nominal minimum wage restriction plays a more active role in decision making for L governments which know they are going to be succeeded in the next period by either C or R governments. The L government may want to set a particularly high minimum wage in period 1, knowing that this would tie the hands of the government that follows, even if there is growth in the nominal median wage.

To derive the implications of this situation, consider an example with a C government in A and an L government in B in period 1 but C governments in charge in both provinces in the second period. To focus the discussion, we will also return to the assumption that the relative norm is determined by 2). Given that model, the equilibrium minimum wages that would hold in periods 1 and 2 in province B in the absence of the norm against cutting minimum wages are given by,

$$13a) \quad m_1^{B*} = \rho_0 \overline{w_1} + \frac{1}{\theta(2-\theta)} \frac{\lambda_2}{2\lambda_1} \overline{w_1},$$

and ,

$$13b) \quad m_2^{B*} = \rho_0 \overline{w_2}$$

Note, first, that if $m_2^{B*} \geq m_1^{B*}$ then the no cutting norm does not impose any restrictions and, therefore, will not change the results derived thus far. Suppose, instead, that $m_2^{B*} < m_1^{B*}$. In that case, the observed equilibrium minimum wages in period 2 will be,

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$14a)\quad m_2^{Be} \;=\; m_1^{Be}$

and,

$14b)\quad m_2^{Ae} \;=\; \theta\rho\overline{w_2} \;+\; (1-\theta)m_1^{Be}$

Now consider minimum wage setting in period 1. For the C government in province A, there is no change from before because the government knows it will simply adjust to whatever happens in the other province next period, making future considerations irrelevant in period 1 wage setting. The L government in B, however, will choose m_1^B with an eye to its impact on minimum wage setting in period 2. Again, consider the interesting case where the government recognizes that the unrestricted minimum wage it would choose in period 1 is higher than the one the ensuing government would choose in 2. In period 1, the L government chooses m_1^B to maximize,

$$15)\quad V_{R1} = w_1 - \lambda_1\left(\left(\frac{m_1^B}{\overline{w_1}}\right) \;-\; \theta\rho_0 - (1-\theta)\left(\frac{m_1^A}{\overline{w_1}}\right)\right)^2 + \lambda_2\left(\frac{m_1^B}{\overline{w_1}}\right)$$

$$+\; w_2 - \lambda_1\left(\left(\frac{m_1^B}{\overline{w_2}}\right) \;-\; \theta\rho_0 - (1-\theta)\left(\frac{m_2^A}{\overline{w_2}}\right)\right)^2 + \lambda_2\left(\frac{m_1^B}{\overline{w_2}}\right)$$

where we have assumed no discounting of the future for simplicity. The reaction function obtained from maximizing 15) is given by,

$$16)\quad m_1^B \;=\; \frac{\overline{w_1}\,\overline{w_2}\,[\overline{w_2}\,\theta + \overline{w_1}\,(\theta(2-\theta))^2]}{[\overline{w_2}^2 + \overline{w_1}^2\,(\theta(2-\theta))^2]}\,\rho_0 \;+\; \frac{\overline{w_2}^2}{[\overline{w_2}^2 + \overline{w_1}^2\,(\theta(2-\theta))^2]}(1-\theta)\,m_1^A$$

$$+\; \frac{\overline{w_1}\,\overline{w_2}}{[\overline{w_2}^2 + \overline{w_1}^2\,(\theta(2-\theta))^2]}\,\frac{\lambda_2}{2\lambda_1}\,(\overline{w_1} + \overline{w_2})$$

Note that in this simple world, the reaction function for the L government in the absence

of nominal rigidities or when they are perceived as non-binding is given by equation 9) but with λ_2 replacing $-\lambda_3\delta$. Thus, in periods when it believes it is setting the minimum wage for the current and future periods, the L government's reaction function changes both in its intercept and slope. Note, in particular, that the slope becomes flatter, implying that when the government is concerned about the nominal rigidity next period it reacts less to what is occurring in the current period because of its need to take future periods into account.

More interestingly, it is simple to show that the L government will choose a higher minimum wage than it would if it were just playing against a C government in a single period game as long as w_2* is not too much smaller than w_1*.[26] In effect, the nominal rigidity allows the L party to credibly choose a definite value for the ensuing period. In the maximization of 15), this means it doesn't have to incorporate otherwise standard considerations about accommodating the other province in next period's game since it will have credibly established a specific wage and the other province will have to adjust to it. This means the ideological party can be more extreme in its wage setting. Note that this happens even if $\bar{w}_2 = \bar{w}_1$. The more likely scenario (given that these are nominal wages) is that $\bar{w}_2 > \bar{w}_1$. That will add further impetus to the L government setting a higher minimum wage in period 1 since it knows that its preferred minimum wage in period 2 will be higher. Empirically, these arguments imply that we should expect to see minimum wage increases by L governments just before they lose elections, assuming they put any positive probability on the outcome that they will lose the election. This will not be the case for C governments who anticipate losing to an R government, however, even though the R government will set a minimum wage lower than what the C government would set. This is because the C government does not care about the level of the minimum wage, only the relative position of the province.

Model With Elections

We now make the model more realistic by including the effects of an upcoming election on minimum wage setting in a province. Consider a 2 period model with a C government in power in province A and an R government in province B in period 1. At the end of period 1 there will be an election in province B with the R incumbent competing with an L

challenger. To focus attention on the impact of elections, we will return to the simplest form of our model, ignoring the nominal wage cut restriction and dynamics in norm setting. The reaction functions and outcomes in period 2, since it is the end of the game, will take the forms we discussed earlier. What is of interest is the reaction functions in the pre-election period (1).

The first point is that the C government in A does not care who wins the election in B: its reaction function in period 1 is still given by 1). As in our earlier discussions, this arises because the C government knows it will accommodate whomever wins the B election next period and has no specific interest in the actual level of the minimum wage that emerges from this process.

The same is not true of the R incumbent in province B. They will set the minimum wage in period 1 to maximize:

$$17) \quad V_{R1} = w_1 - \lambda_1 \left(\left(\frac{m_1^B}{w_1} \right) - \rho_t \right)^2 + \lambda_3 \left(-\delta \left(\frac{m_1^B}{w_1} \right) \right) + \gamma P + P V_{R2,R} + (1-P) V_{R2,L}$$

where ρ_t is determined by 2) and $V_{R2,j}$, j=L,R is the ideologues in the R party's value function next period if party j wins the election and, hence, gets to set the minimum wage. We have again assumed no discounting of the future for simplicity. In this version of the model, the $V_{R2,j}$'s are not functions of m_1^B, and thus the government sets m_1^B taking into account a combination of its impact on period 1 "fairness" and on the probability of re-election. The probability of re-election enters both directly (since the party values holding office and wants to maximize its probability of doing so) and because it affects the expected payoffs in period 2 by determining who gets to set the minimum wage in that period.

If the Φ function in equation 6) (the equation determining the probability of the incumbent winning the election) is linear then the R party's reaction function in period 1 is given by:

$$18) \quad m_1^B = \theta \rho_0 \overline{w_1} + (1-\theta) m_1^A - \frac{\lambda_3 \delta}{2\lambda_1 + 2\xi_2 \psi} \overline{w_1} + \frac{\xi_3 (\pi_P - \pi_B) \psi}{2\lambda_1 + 2\xi_2 \psi}$$

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where,

$$\psi = y - \frac{(\lambda_1 \theta)^1 - (\lambda_1)^1}{4\lambda_1} + \frac{\lambda_1 \theta}{2\lambda_1}\left(\frac{\lambda_1 \theta + \lambda_1}{\theta(2-\theta)}\right)$$

Several points follow from this reaction function. First, it is easy to show that ψ is positive as long as left wing ideologues place at least as much weight (in absolute value) on the minimum wage terms in their preferences as right wing ideologues.[27] Given this, 18) implies that the right wing government will tone down its extremism in the sense of not choosing as low a minimum wage, particularly if it thinks the left wing ideologues will take very extreme positions. It does this to increase its chances of wining the election by looking less extreme and, thus, getting a chance to set the minimum wage in the post-election period. Second, the ψ term changes if the R government's opponent in the next election is a C party instead of an L party. In particular, ψ becomes smaller. The R government is less concerned about losing to a C party than an L party because the minimum wage that is set by the former will not cause the R party's ideologues as much disutility. As a result, the R government will not temper its minimum wage setting in order to get re-elected as much when it faces a C opposition as when it faces an L opposition. Empirically, the implication is that minimum wages set by both L and R governments should be affected by the ideological nature of the main opposition party in their province. The third point from equation 18) is that the relative importance of minimum wage earners versus business owners affects the minimum wage level. This is a standard political economy type effect. In this simple model, what matters are the proportions of the population who are either minimum wage earners or minimum wage payers, however one could, instead, interpret the last term in equation 18) as reflecting relative political power.

Empirical Specification

The complete derivation of our main estimating equation is given in Appendix A. Essentially, we begin with the optimization function from the world with elections, given by 17) but use the dynamic norm specification given by 2') and allowed for different median wages in

each province. Further, we add an error term ϵ_{it}, where i indexes province and t indexes year, to 2' to capture the notion that tastes in redistribution may vary over time, perhaps as the minister in charge of the minimum wage changes. Finally, instead of assuming that 6) is linear, which we view as an overly restrictive assumption, we use a linear approximation to the derivative of Φ with respect to $(m^B/ \bar{w})$. The resulting regression determining the preferred minimum wage for province i in period t is then given by,

$$19) \quad \frac{m_{it}^{*}}{w_{it}} = \beta_0 + \beta_1 \frac{m_{it-1}}{w_{it-1}} + \beta_2 \frac{m_{-it}}{w_{-it}} + \beta_3 DR_{it} + \beta_4 DL_{it} + \beta_5 PP_{it} + \beta_6 PB_{it} + x_{it}\pi + u_{it}$$

where, the * denotes the government's preferred minimum wage, the -i index refers to the average for all provinces other than i, DR_{it} is a dummy variable equalling 1 if the governing party is right wing, DL_{it} is a dummy variable equalling 1 if the governing party is left wing, PP_{it} is a measure of the political power of those who support higher minimum wages (e.g., unions), PB_{it} is a measure of the political power of the small business community, x_{it} is a vector of factors affecting the probability of re-election, such as the unemployment rate, u_{it} is an error term, the β's are parameters and π is a parameter vector. We have written the equation in terms of ratios of nominal minimum wages to median wages because the derivation in Appendix A reveals that having the nominal minimum wage as the dependent variable would mean the error term would be multiplied by w*. Working in terms of wage ratios eliminates the heteroskedasticity that would imply.

Equation 19) corresponds to the reaction function for province i's government without taking into account the restriction that nominal minimum wages cannot be cut. To take account of that restriction, we will approach the estimation of 19) using a standard Tobit model. More specifically,

$$20) \quad \left(\frac{m_{it}}{w_{it}}\right) = \left(\frac{m_{it}^*}{w_{it}}\right), \quad if \ m_{it} > m_{it-1},$$

$$\left(\frac{m_{it}}{w_{it}}\right) = \left(\frac{m_{it-1}}{w_{it-1}}\right), \quad if \ m_{it} = m_{it-1}$$

and we treat $m_{it}/\bar{w}_{it}$ as left censored at its observed value if the nominal minimum wage does not change between periods t and t-1. The estimator is then implemented using standard maximum likelihood techniques under the assumption that u_{it} is normally distributed.

Empirical Results

Basic Specification

We turn now to implementing our empirical specification, given in equation 19). We present results from variants on this basic model in Table 1. In the first four columns in the Table we present results based on simple OLS in order to show the basic patterns in the data, then turn to Tobit results in the second set of columns.

The first specification consists of a simple regression of the log of the ratio of the minimum wage to the median low skilled wage on a variable corresponding to the proportion of workers who are unionized, a variable corresponding to the proportion of workers employed in the retail sector, and the growth rate of provincial GDP over the previous year. All variables vary by province and year. Unions are often vocal supporters of minimum wage increases and the proportion unionized variable is meant to represent the political power of such support and, thus, is expected to have a positive sign. On the other side, a larger retail sector will correspond to a larger group of affected employers and thus we interpret the retail sector as capturing the size of political opposition to the minimum wage with an associated negative sign. Of course, it also implies a larger set of affected workers, which could imply an effect in the opposite direction. The GDP growth rate variable is intended to capture factors that might correspond to the deadweight loss associated with a minimum wage increase: that is, in good economic times that loss would be perceived as lower and, as a result, more generous minimum wage increases would

be observed.

The median low skilled wage used in constructing the dependent variable is the same as the one described in section 2. The minimum wage variable used in these regressions includes some adjustments. In particular, minimum wage increases are often phased in with governments announcing an overall increase along with a series of steps with associated enactment dates to reaching that overall increase. This is often justified as being a way of implementing an increase that gives employers time to adjust. Empirically, it creates a challenge in matching minimum wage increases to the events that generated them. Our approach, rather than using the increments in the minimum wage when they are implemented, is to use the full announced increases in the minimum wage and assign their timing according to the announcement date. Thus, if a minimum wage increase of $1 is announced in 1998 but is to be phased in using 25 cent steps over the ensuing 4 years, we record this as a $1 increase in 1998. This insures that it is the events, such as the GDP growth rate, at the time that the actual decision is made that is related to the minimum wage increment. As we described earlier, there are no examples in our data of governments turning back pre-announced increments, even in cases where new right wing governments inherited those increments from a previous government.[28] Finally, the sample mean of our constructed minimum wage/unskilled wage ratio is 0.5.

The first column of Table 1 contains results from a specification in which the covariates are the proportion of workers who are unionized, the proportion employed in the retail trade industry, the growth rate of GDP in the previous year for the province, and dummy variables corresponding to four regions: Atlantic Canada (Newfoundland, Prince Edward Island, Nova Scotia and New Brunswick); Quebec; the Prairies (Manitoba and Saskatchewan); and BC/Alta (British Columbia and Alberta). The omitted region is Ontario. We use regional controls because of concern that there are both correlated economic shocks and unobservable political factors at the regional level. A test of the implied restrictions on a model with a complete set of provincial dummy variables in our preferred specification cannot reject those restrictions at any conventional significance level. Our results are virtually unchanged when we use a full set of provincial dummies instead of the regional variables. The proportion retail takes the expected

negative sign but is very poorly defined. The unionization rate also has a negative effect, which is the opposite of what one might predict, but may reflect a positive relationship between unionization and the denominator of the dependent variable, the unskilled wage. For this reason, we are suspicious of the estimated union effects and drop both the union and retail trade variables from the ensuing specifications. Including these variables has very little impact on the estimates of the remaining effects. Good economic growth has positive effects on the minimum wage, with fits with the idea that it is easier to redistribute when the pie is growing, but these effects are also poorly defined.

The estimated regional effects indicate that the Atlantic provinces and Quebec tend to have more generous minimum wage levels. Notice that this generosity is relative to their median wages. Figure 1 shows that real minimum wages tend to be lower in Atlantic Canada than the rest of the country. Higher relative minimum wages in Atlantic Canada may be a reflection of a different notion of fairness in those provinces or may reflect the type of attempt to balance comparisons with local median wages with comparisons with the nominal minimum wages set in other provinces emphasized in our model. On the other end of the spectrum (and the country) relative minimum wages are significantly lower in Alberta and BC than the rest of the country. Since median wages in those provinces are very similar to the wages in Ontario, the difference relative to Ontario likely reflects a pure ideological difference rather than the kind of balancing act we proposed for the Atlantic region.

It is worth re-iterating that we have consciously chosen not to include year effects in this or any of the ensuing specifications. We are attempting to explain the long swing pattern in minimum wages and, hence, do not want it absorbed by year dummies.

The first specification is intended to correspond to what has been done in the (small) existing empirical literature on minimum wage setting. That literature tends to emphasize interest group based models (Becker(1983)), with minimum wages regressed on variables taken to represent the relative political power of groups with competing interests in the minimum wage. For example, Sobel(1999) examines the setting of the US minimum wage. He argues that the rhetoric surrounding minimum wage setting suggests that there are two main policy goals (and associated targets) for the minimum wage: 1) making sure no family with a full time full

year worker is below the poverty line; and 2) maximizing the income of low wage workers. However, he shows that the actual minimum wage is more often away from than close to these targets and takes this as evidence for rejecting a fairness based explanation of minimum wage setting. Instead, he argues that a simple interest group model, in which he relates Congressional voting records on minimum wages to variables in the member's jurisdiction, does a much better job in explaining movements in the minimum wage. The explanatory variables he uses include a measure of the relative influence of unions and business, which was positively correlated with support for a higher minimum wage (Sobel 1999).

Other empirical studies use a similar set of variables to those in our specification, with mixed results. Thus, Silberman and Durden found a significant relationship between campaign contributions from small businesses and Members of Congress' opposition to increases of the US national minimum wage (Silberman and Durden 1976). In Canada, Blais et al found that the larger the share of employment accounted for by firms with less than 20 employees, the lower a province's minimum wage (Blais, Cousineau et al. 1989). However, using share of provincial GDP as a measure of the influence of small business, Dickson and Myatt found the opposite effect (Dickson and Myatt 2002). The effects of union power are, similarly, clear and consistent with simple theories of political pressure in the US but less clear in Canada.. Silberman and Durden (1976) report that campaign contributions by unions to individual Members of Congress was the strongest factor in explaining their support for minimum wage increases. Consistent with this, Bloch found a statistically significant correlation between the fraction of workers that are unionized in a member of Congress' constituency and the member's support for a higher minimum wage (Bloch 1993). However, for Canada, Dickson and Myatt (2002) found a positive but weak correlation between the fraction of a province's workforce that is unionized and the province's minimum wage. Blais et al (1989) found the opposite sign, though it, too, was not significant. These results are similar to what we find in our first specification. It is noteworthy that both studies used the ratio of the minimum wage to the average manufacturing wage as the dependent variable. To the extent that the latter is correlated with unionization, it would be more difficult to find an independent effect of union pressure. Blais et al. (1989) argue, given the salience of unemployment with voters, politicians may be less

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willing to take the risk of a negative employment effect if the unemployment rates is already high. Consistent with this, both Blais et al (1988) and Dickson and Myatt (2002) both found a significant negative correlation between a province's unemployment rate and minimum wage. We implemented specification including the adult unemployment rate and also obtained negative signed effects but we decided to use the growth rate of GDP instead since we view it as less likely to be endogenous than the unemployment rate.

An interesting paper from our perspective is Kau and Rubin(1978), who study minimum wage support in the US Congress, because they include the average manufacturing wage as a regressor in their specification. Their rational for this is .. . Interestingly, in contrast to the other US studies, they do not find a significant relationship between unionization and support for the minimum wage, which may mean that the positive effect in the other studies is really picking up a relative wage effect rather than a union power effect. This could also help reconcile the different results on union power in the US and Canadian studies since the latter control for relative wage effects by deflating the dependent variable (the minimum wage) by the average manufacturing wage. One noteworthy point from all of these studies is that, with the exception of either unionization or the average wage, the regressors offer little explanatory power. Our results are no different in this regard. This lends support to the claims made in recent papers that models of rational choice need to be augmented to take account of ideological differences across parties rather than just focusing on narrow self-interest. The idea that ideology matters in politics is, of course, an old idea in political science, even if it is not always formally modeled.

In the second column of the table we introduce variables predicted to be of importance in our model. In particular, we introduce a dummy variable taking a value of one if the party responsible for enacting a given minimum wage is a left wing party and another dummy variable corresponding to right wing parties. We define all provincial NDP parties as left wing along with the Parti Quebecois, which has a history as both a separatist and a social democratic party, in Quebec. The right wing parties are more difficult to identify. The Social Credit in the western provinces, the recent Liberal Party in BC and the recent Conservatives in Alberta all seem clearly right wing. However, other provincial Conservative parties, particularly in the early part of our period often seem more centrist than purely right wing. We tried two different

definitions of right wing. In one, we declared all Liberal governments (with the exception of the most recent BC government) to be Centrist and all Conservative governments to be right wing. In the second, we declared either Liberal or Conservative governments to be right wing if the main opposition party was clearly left wing and defined them to be left wing if the main opposition party was clearly right wing. The approach we use has very little impact on our results. We present results using the first definitional approach because it is more straightforward and, thus, less prone to the accusation that the definitions of left and right are being chosen to obtain a particular result.

The results in the "OLS Full" column in Table 1 correspond to an OLS regression with the same variables as in the previous column plus the left and right wing ideology variables and a variable which, for year t and province j, equals the log of the average ratio of minimum wages to the median unskilled wage in all provinces other than j in year t. This is the variable intended to capture the strategic interactions among provinces in our model and, thus, this regression corresponds to the provincial reaction function in the model. The introduction of these variables does not generate particularly substantial changes in the other variables. What we do see is that having a left wing government is associated with a minimum wage/median unskilled wage ratio that is approximately 12% higher than what would be observed with a centrist party in power. This corresponds to a bit three-quarters of the inter-quartile range of the dependent variable (.16). In contrast, the coefficient on the right wing dummy variable is neither economically substantially nor statistically significantly different from zero. This may reflect our inability to generate a clearly delineate right wing from centrist governments in our data. It might also reflect the impact of censoring in the data: right wing governments cannot cut nominal minimum wages even if they would like to. The other key variable in the specification is the average minimum wage/median wage ratio in other provinces. This is strongly significant and equal to 0.62, implying that a 1% increase in the mean ratio in other provinces corresponds to a 0.62% change in the minimum wage - median wage ratio for this province. In the simplest version of our model, without effects due to elections, .62 would correspond to the weight placed on external comparisons (to other provinces) as opposed to the own-province median wage in determining standards of fairness. The estimate implies that provincial governments react

strongly to what everyone else in the federation is doing in setting the minimum wage.

Nominal minimum wages are never cut. As we discussed earlier, this implies that the correct framework for estimating true reaction functions is a Tobit type estimator where we treat observations where the nominal minimum wage in a province takes the same value as in the preceding year as potentially censored. If we do not do this then we risk attributing slow movements in minimum wages to low reaction function elasticities when in fact they are due to the societal constraint that nominal minimum wages cannot fall. We implement the standard Tobit estimator set out in equations 19) and 20), with the likelihood function based on the assumption that the disturbances are normally distributed. [29] [30]Typically, in discussions of consistency in Tobit estimators, fixed effect estimators are argued to be inconsistent because of nuisance parameter arguments based on the fact that the number of fixed effects grows at the same rate as the cross-sectional dimension of the data. This creates a problem because the asymptotics are discussed in terms of N (the cross-sectional dimension of the data) going to infinity. However, in our case there are a fixed number of political units and consistency issues must be discussed in terms of T (the time dimension) going to infinity. In that situation, and in particular in a case like ours where we do not introduce time effects, there are no nuisance parameter problems and estimating the Tobit specification with regional fixed effects provides consistent estimates of the parameters of interest.

In the column entitled "Tobit Full" in Table 1 we recreate the results from the "OLS Full" specification using the Tobit estimator. Notice from the bottom of the table that almost half the dependent variable observations are censored (i.e., involve a nominal minimum wage value that has not changed from the previous year). Nonetheless, using the Tobit estimator has only minor effects on our estimates. The GDP growth rate effects are doubled but are still not statistically significant. The average ratio in other provinces has an effect that is only slightly larger than was estimated using OLS. The effect of having a left wing party in power becomes slightly larger but the right wing party effect, which we thought might have been particularly affected by the censoring, is still small. The smallness of the right wing effect may reflect an imperfect definition of what constitutes a right wing party, but it might also imply that right wing governments view minimum wages as a low cost sop to workers. Recall that Mike Harris (whose

Ontario conservative government was counted by most observers as very right wing by Canadian standards) did not say that he wanted to slash the minimum wage, only that he wanted to let Ontario's real minimum wage fall until it was in line with other provinces.

In the fourth column of the table we introduce the lagged dependent variable into the Tobit specification. In our model, we argue that the lagged dependent variable should enter to capture gradual adjustments in values in response to movements in distributional parameters themselves. Of course, there are other possible interpretations for lagged dependent variable effects. One such interpretation might be that it is capturing adjustment costs in minimum wage setting, though governments appear to deal with those directly by implementing minimum wage increases in stages. In any case, the lagged dependent variable enters very strongly and has a direct effect on the estimated effects of other variables. Thus, there is a reduction in the estimated effect of having a left wing party in power, though this effect is still sizeable. More notably, introducing the lagged dependent variable results in the coefficient on the minimum wage ratio in other provinces being cut almost in half. This suggests that part of what, in the previous specification, we would interpret as responses to actions in other jurisdictions may instead be capturing general movements up (in the late 1970s) and down (in the late 1980s) in the ratio. Those tendencies for provinces to move in one direction or the other for extended periods of time are captured by the lagged dependent variable. Nonetheless, the coefficient on the average ratio in other provinces is still highly significant and indicates that provincial reaction functions incorporate very strong reactions to movements in other provinces.

Finally, in the last column, we present results from a specification which is the same as in column four apart from the exclusion of regional dummy variables. We do this because the argument in favour of including these regional controls is not clear cut. The significant negative estimated effects for the western region (Alberta and BC), for example, likely captures a public attitude that puts more emphasis on free enterprise and personal effort. It is not clear whether we should hold this effect aside or count it as something which should be revealed in the political variables, such as the effect of having a right wing party in power. When we exclude the regional dummies, the right wing variable becomes both larger in absolute value and statistically significant. This reflects the fact that the differences between Alberta (which

only elects right wing governments in our time period) and the rest of Canada are now loaded onto the right wing variable. At the same time, the left wing effect is greatly attenuated. This is likely because centrist governments look more generous on average when there is no specific effect for Atlantic Canada, which has relatively generous minimum wages, many centrist governments, and no left wing governments. In the end, we prefer the specification which includes the regional dummy variables because we are trying to capture the net impact of political parties and the process of interactions among provinces rather than on-going ideological differences across provinces.

Instrumental Variables Estimation

The theoretical model presented earlier in the paper is clear in its implication that the wage ratio in other provinces is an endogenous variable: other provinces are setting their minimum wages relative to province j at the same time province j is setting its minimum wage relative to theirs. To address this, we employ an instrumental variables strategy. Based on the discussion in the model, we can identify the reaction function of one province if we have variables that shift the reaction functions of other provinces. We argue in that discussion that the prime candidates for such variables are changes in the ideological positions of governments in other provinces (which lead to parallel shifts in the reaction functions in those provinces). Also, other province specific driving forces are valid instruments and we use the growth rates in provincial GDP in other provinces this way. Finally, the nature of the theoretical model suggests that inflation rates in other provinces can act as good instruments. According to the model, what governments in a given province care about are the actual minimum wages in other provinces since this is what their constituents will be able to observe and use as a benchmark. However, those observed minimum wages will reflect both the desires of the other governments and the restrictions imposed by the stricture against cutting nominal minimum wages. Thus, in low inflation times we should observe less downward movement in the average minimum wage/median unskilled wage ratio in other provinces. Given that we normalize with the median unskilled wage, it is actually wage inflation that matters but, to avoid any potential endogeneity, we actually use price inflation as represented by province specific CPI's.

We implement instrumental variables (IV) estimators of our model using the control function approach of Smith and Blundell(1986). This is a two step procedure in which the first step consists of regressing the right hand side potentially endogenous variable on covariates and instruments. In our case, this consists of regressing the average of the minimum wage/median unskilled wage ratio in other provinces on own province GDP growth rate, the own province left and right wing variables, the average GDP growth rates in other provinces, the average of the left and right wing variables across all other provinces in a year, and the average of the inflation rates across all other provinces in a year. We run this as a pooled regression, stacking the "other province" averages for each of the ten provinces on top of one another and include the region dummy variables in the regression. In the second stage, we run our Tobit specification including the residual from the first stage regression. Assuming the instruments are valid and enter the first stage significantly, this yields both consistent estimates of the coefficients in our minimum wage determination equation and a test of the exogeneity of the average minimum wage ratio regressor. The latter consists simply of examining the statistical significance of the constructed residual variable in the second stage regression. If it is statistically significantly different from zero then exogeneity is rejected. In that case, again assuming the instruments are valid, the second stage estimation provides consistent estimates of the parameters of interest, though we would need to make corrections to the standard errors of these estimates.

Our first stage regression implies a reasonably good fit, with an adjusted R^2 of 0.52 . More importantly, the main instruments - average values of GDP growth rate, left and right variables in other provinces - enter significantly and with predicted signs, with t-stats of 2.2, 12.2 and -7.1, respectively. The average inflation rate in other provinces does not enter significantly. Thus, in general, the instruments suggested by our theory perform well, lending credence to our second stage testing and estimation results.

The first column of Table 2 contains second stage estimates using OLS and not including the lagged dependent variable. The residual term from the first stage estimation is not significantly different from zero at any conventional significance level, implying that the mean minimum wage ratio in other provinces is not an endogenous regressor. Recall that the potential endogeneity arose because while province A's minimum wage was being adjusted in response to

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the minimum wage in other provinces, the minimum wages in those other provinces were also being adjusted in response to the minimum wage in province A. However, when those other provinces are responding to an average, to which province A only contributes 1/9th part, the impact of A's minimum wage changes on any other province might be minimal. This could be the source of the result that there is limited evidence of an endogeneity problem in A's response function. Not surprisingly given this result, the estimated effects of the remaining variables are very similar to those observed in the simple OLS estimation reported in column 2 of Table 1. The only noticeable impact is that the estimated effect of changes in the average minimum wage in other provinces is now larger. The same is true of the estimates from the Tobit specification without a lagged dependent variable: the coefficient on the first stage residual is not statistically significant; the estimates of most of the coefficients are quite similar to those in the simpler non-control function specification in Table 1; and the estimate of the other province mean effect is larger than when the first stage residual is not included.

In the third column of Table 2 we introduce the lagged dependent variable into the Tobit specification. We once again include the residual from the first stage regression of the other province mean minimum wage on the instruments listed earlier. However, the model is now a standard dynamic fixed effect specification and, as such, yields inconsistent estimates without further adjustments. In particular, we can obtain consistent estimates by instrumenting for the lagged dependent variable. We use lagged values of the GDP growth rate for the province and of the left and right wing variables as instruments under the assumption that the GDP growth rate is a strictly exogenous variable (i.e., innovations in the province's minimum wage are independent of both past and future values of GDP growth) and that the left and right wing variables are sequentially exogenous (i.e., that innovations in the minimum wage are independent of past values of the left and right wing variables). The assumption of sequential exogeneity for the left and right wing variables hinges critically on the fact that we are estimating "desired" reaction functions. Actual innovations in the minimum wage can be related to past realizations on the extremism of the government because of the way that downward nominal rigidity restricts future minimum wage choices. We once again use these instruments in a control function specification, regressing the lagged dependent variable on these province specific lagged

covariates. Note that since we assumed that the lagged dependent variable enters the reaction functions because of updating of notions of fairness, it is the actual lagged minimum wage rather than some desired value on the part of the government that is relevant. This, in turn, means that the first stage can be specified as a simple regression and does not require the use of Tobit techniques. Given the estimation results in Table 1, it is not surprising that the first stage estimation has an adjusted R^2 of .51 and the left wing variable is significant at any conventional significance level. The residual from this first stage regression has an effect that is significant at the 10% significance level in the second stage Tobit regression. However, the estimation results generally remain quite similar to the non-control function estimates in the fourth column of Table 1. The only real exception is the now larger size of the lagged dependent variable effect. As before, the introduction of the lagged dependent variable reduces the size of the effect of movements in the mean of other provincial minimum wages. In the context of our model, this implies that notions of fairness dependent more heavily on what the values the minimum wage has taken in the given province in the past than on values in other provinces. The latter still matter, however.

Testing the Implications of the Model

We now turn to testing the implications and assumptions of the theoretical model specified earlier. These tests fall into three groups: tests of symmetry of response to other provinces' minimum wages; tests of opposition party and election effects; and tests of the assumption that minimum wages respond to movements in the median wage.

Symmetry Tests

One key implication of our model is that provinces are racing to the middle of the distribution of minimum wages rather than either the top or the bottom. This is a dynamic we argue is likely to be present in the setting of any policy parameter involving notions of fairness as well as in situations where politicians are unsure of public opinion and seek not to appear too extreme. In terms of our empirical specification, this implies that provinces should with equal strength to movements up and down in the minimum wages of other provinces. This contrasts with races to the bottom and the top in policy parameter setting. Both Figlio(1999) and Bailey

and Rom (2004) argue that in races to the bottom the provincial reaction functions should show stronger responses to downward than upward movements in other provinces' parameters. Indeed, in a strict race to the bottom, the response to upward movements in other provinces' parameters should be zero.

We investigate whether minimum wage setting satisfies the symmetry restrictions from our model in a variety of ways. First, we interact the average wage ratio in other provinces variable with a dummy variable equaling one if the province was below the average in the previous period. In a race to the bottom, provinces which are below the average should respond less to movements in other province minimum wages than provinces with an above average minimum wage. The opposite would be the case for a race to the top. The specification including this interaction term is reported in the first column of Table 3. The specification also includes the dummy variable for being below average in the previous period in its own right since low minimum wage provinces last period will tend to be low provinces in the current period regardless of any reaction effects and without including this dummy variable that tendency may be picked up by the interaction in which we are interested. Notice that we do not include the lagged minimum wage ratio in this specification. The concept of a below average province conditioning on its minimum wage ratio makes little sense. We do include the region dummy variables but do not report on their effects here for brevity.

The main coefficient of interest in column one is that on the interaction term in the 7th row. That coefficient is both economically insubstantial and not statistically significant at any conventional significance level. Thus, according to this first test of symmetry there is no evidence that provinces above or below the overall average are more sensitive to movements in minimum wages in other provinces.

In the second column, we take a different approach based on the idea that in a race to the bottom, provinces should be more sensitive to downward movements in the minimum wages in other provinces than to upward movements. Again, the opposite would be true in a race to the top. To test this, we introduce an interaction between the average minimum wage ratio in other provinces variable and a dummy variable equaling one if the average ratio in the other provinces declined between the previous year and the current year. The estimated coefficient on

this interaction term is small relative to the size of the effect of the average ratio in other provinces variable and is not statistically significantly different from zero. Again, this fits with a symmetry in response.

In the third column, we replace the average minimum wage ratio in other provinces with the smallest minimum wage value and the largest value. This is intended to uncover whether a province's minimum wage responds more to movements of the lowest minimum wages elsewhere than to the highest minimum wages (as one would predict in a race to the bottom). We reintroduce the lagged minimum wage and address the related inconsistency problems in this specification because, unlike in the previous two specifications, there are no interpretation problems arising from conditioning on the lagged dependent variable in this case. The estimates show very similar reactions to movements in the smallest and the largest minimum wage ratios.

In fact, a test of whether these coefficients are equal fails to reject the equality restriction at any conventional significance level. Interestingly, these effects are smaller than those estimated for the average wage ratio in other provinces (Table 2, Column 3), suggesting that provinces react less strongly to movements in the extremes than movements in the middle of the minimum wage distribution.

The results from these first three tests all indicate a lack of a race to the top or bottom in our data. Minimum wages seem to be set in a way that most strongly tracks the middle of the distribution of minimum wages in other provinces. We are also interested in whether this symmetry just indicates that provinces move in a pack or whether they reflect a race to the middle. By a race to the middle we mean that provinces that find themselves on the extreme of the distribution of the ratio of minimum wages to the median unskilled wage tend to change their minimum wages in order to move to the middle of the pack. Earlier, we provided quotes from policy makers that suggested the latter is true: that governments do not want to just move with the pack but actually try to stay in the middle of it. Several of the real minimum wage movements we saw in the raw data (for example the real minimum wage increases instituted by right wing governments in BC and Alberta in the late 1980s and declines in the real minimum wage instituted by a left wing government in Saskatchewan in the early 1980s) also point to this type of

conclusion. Finally, our model implies such a race to the middle.

To check out whether there is a race to the middle, we take first differences of our minimum wage ratio model, again using Tobit techniques in which censoring is assumed to occur in situations where the nominal minimum wage does not change between periods.[31] We replace our average minimum wage ratio in other provinces variable with a variable equaling the difference between the log of the province's minimum wage ratio and the log of the average minimum wage ratio in the previous period and the interaction of that variable with a dummy variable equaling one if the province was below average in the previous period. The difference from the mean variable takes positive values for above average provinces and negative values for below average provinces. Its estimated effect is negative and highly significant, indicating that the farther a province was away from the mean in the previous period, the larger the change in the minimum wage it institutes. Further, the change is in the direction of a movement toward the mean. The small size and lack of statistical significance of the interaction term indicates that below average provinces are no more or less responsive to their distance from the mean than above average provinces. This, again, supports the findings of symmetry in response depicted in the previous three columns. The results in the fourth column indicate, further, that provinces actually race to the middle in minimum wage setting.

Election and Opposition Effects

The model also has implications for minimum wage setting related to the timing of elections and the nature of the opposition in parliament. In particular, we argued earlier that both left wing and right wing governments ought to temper their tendencies toward extremism when facing an extremist versus a centrist opposition. Setting less extreme values for the minimum wage increases the incumbent's probability of re-election, which is more important to them when facing an opposition from the opposite extreme, who they know will institute policies they find particularly distasteful. Thus, left wing governments should set lower minimum wages when facing a right wing opposition and right wing governments should set higher minimum wages when facing a left wing opposition. In the specification reported in column 1 of Table 4, we include dummy variables corresponding to these two scenarios. We also include a dummy variable referring to situations in which a centrist government faces a left wing opposition. The

left wing government/right wing opposition variable has an economically insubstantial and statistically insignificant effect. The right government/left wing opposition variable has a larger effect and is closer to statistical significance at the 5% level but has a negative rather than the predicted positive sign. This may be a reflection of ideological wars in provinces with alternating extremist governments. The dummy variable representing centrist governments facing left wing oppositions has an effect that is positive and significant at the 10% level relative to the base case of a centrist government facing a right wing opposition. This is not a prediction of the model but makes some sense in Canadian politics where the centrist Liberal party is commonly viewed as stealing votes by moving its policies to the left when facing a left wing opposition and to the right when facing a right wing opposition.

  The model also implies that left wing governments should set higher minimum wages in pre-election periods in order to take advantage of the stricture against cutting minimum wages, thus tying the hands of future governments. To investigate this we introduce a dummy variable indicating whether an election occurred in a province in the twelve months directly following a given observation and the interaction of this variable with the left wing dummy variable. The effect of the upcoming election variable is neither economically substantial nor statistically significant. The interaction term effect indicates that left wing governments set a 4% higher minimum wage/median unskilled wage ratio in pre-election years. This is a substantial effect but it is poorly defined, indicating that the election year predictions of the model are only weakly supported by the data.

The Role of the Median Unskilled Wage

  We assumed in our model that the median unskilled wage was an exogenous factor driving minimum wage setting through concerns about fairness. Based on this assumption, we derived as specification in which we normalized our minimum wage variables by the median unskilled wage in a province. However, it is worth investigating this assumption and the accompanying implication that policy parameters are set relative to existing wage distributions. In the first column of Table 5, we present the results from a specification in which we regress the CPI deflated real minimum wage on the real median unskilled wage and the regional dummy variables. We implement the specification using a Tobit model in which censoring is again

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assumed in periods in which the nominal minimum wage remains at the same value as the previous period. The coefficient on the median unskilled wage is large (.59) and highly statistically significant. In the second column, we repeat this estimation but introduce the other variables suggested by our model. In this case, we use the average of the real minimum wage in other provinces and the lagged real minimum wage as covariates rather than normalizing these wages by the median unskilled wage as we did in Table 2. The estimated effects of these covariates are remarkably similar to what is observed in Table 2: the left wing variable is again significant and negative while the right wing variable is negative, small and insignificant; and both the mean minimum wage in other provinces and the lagged real minimum wage effects are substantial and significant. The real median unskilled wage still has a sizeable and statistically significant effect, though its impact is quite scaled down relative to the first column. The implication is that the general level of unskilled wages has a substantial impact on the level of the real minimum wage that governments set. Moffitt() reaches a similar conclusion in terms of welfare generosity in the US, though he argues that the impact of unskilled wages on this generosity stems from voter concerns over incentive effects that might arise if welfare paid better than work. We get the same type of result in a situation where such incentive effects are not present. But whatever the explanation, these findings imply that redistributive parameters track movements in the distribution they are intended to affect. To the extent that the relevant comparison group for thinking about the fairness of a transfer is taken to be workers who might be viewed as potential candidates to receive the transfer, this has the troubling implication that transfers will be reduced precisely when earnings for those at the bottom end of the distribution are falling.

The main potential difficulty with this conclusion, of course, is that the causality may run in the opposite direction to what we have assumed: movements in the minimum wage may determine the median unskilled wage rather than the opposite. A natural way to examine this possibility is to regress median wages on minimum wages, instrumenting for the latter. The natural instruments for the minimum wage are the political variables suggested in our model. Using these variables as instruments in this case is somewhat problematic since right wing provinces and time periods tend to be associated with high low skilled wages, which may

indicate a political impact from feelings of relative well being on the part of low skilled workers. Instead, we use a strategy in which we use the changes in the minimum wage that are associated with the introduction of a left or right wing government and see whether those innovations are themselves associated with changes in the median unskilled wage. This assumes that changes in the median unskilled wage are not responsible for changes in government.

In the third column in Table 5, we present a regression of the change in the real minimum wage on the change in the left and right wing variables and the change in the median unskilled wage. This is to demonstrate that innovations in the unskilled wage tend to be associated with changes in the real minimum wage. To implement our endogeneity test, we re-run this regression excluding the real median wage variable and save the residuals. The change in the left wing variable enters this regression with a t-stat over 3, implying that the data variation we will use in our instrumental variables estimator is the increases in the minimum wage instituted by new left wing governments. Column 4 of Table 5 contains the results from the second stage regression in which we regress the change in the median unskilled wage on changes in the minimum wage and the residual from the first stage. The significance of the coefficient on the last variable constitutes a test of the endogeneity of the change in the minimum wage. The coefficient is not significant at any conventional significance level, indicating a lack of endogeneity. Moreover, the first difference in the minimum wage variable does not enter significantly, indicating that it is not the minimum wage that is driving the unskilled wage. This is a reasonable conclusion given other evidence in the literature. Green and Paarsch(1997) examine the Canadian wage distribution for spillover effects of the minimum wage on above-minimum wages and conclude that there are impacts on wages below $3 above the minimum wage but not above that point. This is well below the median unskilled wage. Other papers find even less evidence of spill-over effects. Finally, it is worth re-iterating that we chose to work with the median wage to make sure that tail truncation effects induced by minimum wage changes did not affect our unskilled wage measure as they would if we had used average wages. Overall, we conclude that the relationship between minimum wages and median unskilled wages reflects a causal impact of movements in the central tendency of the unskilled wage distribution on minimum wage setting. Again, this has implications in terms of reductions in redistributional

generosity just when one might assume it is most needed.

Conclusions

This paper challenges the common assumption that subnational governments in a federation are trapped in welfare reducing competition, whether to lower or increase their standards. In contrast, we consider an intergovernmental dynamic in which governments react to other jurisdictions by seeking to *match* those governments' standards. Unlike a race to the bottom, which is predicated on mobility of key factors (investment, goods, taxpayers, welfare recipients), this race to the middle is predicated on the mobility of information across borders. If governments may merely seek to establish a *reasonable* policy – whether in response to politicians' uncertainty about voters' preferences, voters' uncertainty about their own interests (Besley and Case), or voters' desire to balance others' interests – policies of comparable jurisdictions offer an important benchmark.

It is the last of these that is our concern in this paper. We argue that the ethical component of redistributive parameter setting implies an intergovernmental race to the middle. That is, it pushes provinces or states to emulate one another even in the absence of concerns about factor mobility, uncovering best practices, or asymmetric information problems related to rent seeking by politicians. The case of minimum wage setting offers a unique opportunity to explore this dynamic. Since neither minimum wage jobs nor workers are mobile in a highly industrialized country, any evidence that provinces react to each other is highly suggestive of emulation. Moreover, minimum wages affect a relatively small fraction of the electorate, and thus exemplify a situation where voters seek to weigh *others'* interests, rather than their own. However, while we view the minimum wage as a special case in the realm of redistributive parameters, it is

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plausible that fairness concerns underlie many policy decisions, such as welfare standards, public sector wages, and expenditures on social housing, not least because redistribution typically is funded by highly diffuse taxes. Thus, the race to the middle dynamic may be at play in a broad range of policy fields.

We find support for key implications of our formal model of intergovernmental benchmarking in the data on Canadian provincial minimum wages for the period 1969 – 2000. In particular, minimum wages track the movements in the median wage for low skilled workers. We find that this is because of the minimum wage follows the median wage rather than because direct effects of the minimum wage effects on the wage distribution. We find that provinces react strongly to other provinces' minimum wages, with relatively symmetrical reactions to higher and lowers standards set by other jurisdictions, thus suggesting a race to the middle rather than a race to the bottom (or top). We also support this finding, as well as our claim that the minimum wage can be seen as an essentially ideologically-driven parameter, using evidence from interviews with politicians and bureaucrats who were directly involved in setting minimum wages and with public statements made by governments at the time when minimum wages were set.

The finding that provincial governments react to each other even in the absence of factor mobility is a cautionary lesson for students of the race to the bottom. The mere fact of an intergovernmental reaction function can not longer be accepted as proof of a race to the bottom. Indeed, even a downward movement in response to other jurisdictions need not be a race to the bottom, since an emulation dynamic could yield a similar trajectory as a result of external perturbations, including changes in the ideological predisposition of neighbouring governments.

Normatively, a race to the middle is less troubling than a race to the bottom. Certainly it is reassuring that Canadian provincial governments are not trapped in a downward spiral in labour standards. The flow of information is healthy for democracy, and it is thus helpful that voters can look to the example of other provinces to assess their own governments' performance. In a race to the middle, governments' track each other because that is what voters' *want* them to do, in contrast to a race to the bottom where each jurisdiction's attempts to to satisfy its own voters render voters in all jurisdictions worse off. On the other hand, voters' reliance on simple quick and simple benchmarks can also yield perverse results. For instance, in a race to the middle, a change in government in one province can lead to a change in policy in another province even though voters' preferences in the latter have not changed. Voters' reliance on the wage distribution in their own jurisdiction as a benchmark can also yield perverse results. To the extent that the relevant comparison group for thinking about the fairness of a transfer is taken to be workers who might be viewed as potential candidates to receive the transfer, this has the troubling implication that transfers will be reduced precisely when earnings for those at the bottom end of the distribution are falling.

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Table 1
Basic Regression Results
Dependent Variable: Log of (Minimum Wage/ Median Unskilled Wage)

Variable	OLS	OLS Full	Tobit Full	Tobit, Full plus Lag	Tobit, No Region
Constant	- .58 (.097)**	- .36(.062)**	- .39 (.088)**	-.16 (.080)**	-.071 (.079)
Proportion Union	- .37 (.092)**	-	-	-	-
Proportion Retail	- .55 (.56)	-	-	-	-
GDP Growth Rate	.20 (.12)	.12 (.11)	.24 (.15)	.072 (.13)	-.0075 (.14)
Left	-	.12 (.019)**	.16 (.027)**	.096(.024)**	.038 (.020)*
Right	-	-.009 (.015)	-.015 (.021)	-.015 (.018)	-.048 (.018)**
Average of Other Provs	-	.62 (.084)**	.66 (.12)**	.37 (.11)**	.21(.11)*
Lagged Min. Wage Ratio	-	-	-	.52 (.068)**	.73(.054)**
Regional Dummies					
Atlantic	.15 (.025)**	.16 (.020)**	.16 (.028)**	.064 (.027)**	-
Quebec	.19 (.030)**	.12 (.026)**	.14 (.034)**	.064(.032)**	-
Prairies	.096 (.026)**	.037 (.023)	.011 (.032)	-.013 (.028)	-
BC/Alta	-.071 (.026)**	-.089 (.022)**	-.11 (.031)**	-.067 (.027)**	-
No. of Obs	330	330	330	320	320
# Censored Obs	-	-	151	147	147
Adjusted R^2	.37	.53	-	-	-

Standard errors in parentheses. ** significantly different from zero at 5% level of significance, * significantly different from zero at 10% level of significance.

Table 2
Instrumental Variable Results
Dependent Variable: Log of (Minimum Wage/ Median Unskilled Wage)

Variable	OLS Full	Tobit Full	Tobit Full plus Lag
Constant	-.30 (.083)**	- .34 (.12)	-.067 (.12)
GDP Growth Rate	.082 (.10)	.44 (.14)**	.27 (.12)**
Left	.12 (.019)**	.15 (.026)**	.075 (.026)**
Right	-.0092 (.015)	-.021 (.021)	-.018 (.018)
Average of Other Provs	.72 (.12)**	.77 (.16)**	.31 (.16)**
Lagged Min. Wage Ratio	-	-	.72 (.13)**
Regional Dummies			
Atlantic	.16 (.020)**	.16 (.028)**	.033 (.032)
Quebec	.12 (.027)**	.15 (.035)**	.039 (.035)
Prairies	.038 (.023)**	.015 (.032)	-.018 (.028)
BC/Alta	-.089 (.022)**	-.12 (.031)**	-.054 (.028)*
Residual: Other Prov. Average	-.19 (.17)	-.24 (.24)	-.044 (.21)
Residual: Lagged Dep. Variable	-	-	-.27 (.15)*
No. of Obs	330	330	320
No. of Censored Obs	-	151	147
Adjusted R^2	.53	-	-

Standard errors in parentheses. ** significantly different from zero at 5% level of significance, * significantly different from zero at 10% level of significance.

Table 3
Specifications for Testing Symmetry
Dependent Variable: Log of (Minimum Wage/ Median Unskilled Wage)

Variable	Symmetry 1	Symmetry 2	Symmetry 3	Symmetry 4 First Diff.
Constant	-.14 (.099)	- .44(.090)**	-.63 (.19)**	-.053(.025)**
GDP Growth Rate	.36 (.12)**	.44 (.14)**	.21 (.12)**	.039(.12)
Left	.095 (.023)**	.16 (.027)**	.057(.028)**	.12 (.039)**
Right	-.023 (.017)	-.020 (.021)	-.0055 (.017)	.0096(.033)
Avg of Other Provs	.85 (.14)**	.62 (.16)**	-	-
Lagged Min. Wage Ratio	-	-	1.16 (.29)**	-.054 (.083)
(Avg of Other Provs) *(Below Avg Last Period)	-.00033 (.20)	-	-	-
Below Avg Last Per.	-.14 (.14)	-	-	-
(Avg of Other Provs) *(Drop in Avg Last Per.)	-	.029 (.023)	-	-
Largest Min. Wage	-	-	.17 (.059)**	-
Smallest Min. Wage	-	-	.19 (.060)**	-
(Min Wage Ratio) - (Avg. Ratio), Last Period	-	-	-	-.29 (.11)**
[(Min Wage Ratio) - (Avg. Ratio), Last Period] *(Below Avg Last Period)	-	-	-	-.010 (.17)
Residual: Lagged Dep. Variable	-	-	-.77 (.30)**	-
Regional Dummies	Yes	Yes	Yes	Yes
No. of Obs	330	330	320	310
No. of Censored Obs	151	151	147	141
Log Likelihood	72.04	39.25	70.12	45.49

All estimates based on Tobit specification. Standard errors in parentheses. ** significantly different from zero at 5% level of significance, * significantly different from zero at 10% level of significance.

Table 4
Specifications for Testing Other Model Implications
Dependent Variable: Log of (Minimum Wage/ Median Unskilled Wage)

Variable	Opposition Effects	Election Year Effects
Constant	-.80 (.20)**	- .78 (.20)**
GDP Growth Rate	.24 (.12)**	.26 (.12)**
Left	.066 (.036)*	.034 (.030)
Right	.0039 (.022)	-.011 (.018)
Avg of Other Provs	.26 (.11)**	.25 (.11)**
Lagged Min. Wage Ratio	1.44 (.30)**	1.41 (.29)**
C govt, L Opposition	.068 (.037)*	-
L govt, R Opposition	.0064 (.031)	-
R govt, L Opposition	-.065 (.042)	-
Pre-Election Year	-	.0053 (.017)
(Pre-Election Year)*Left	-	.043 (.035)
Residual: Lagged Dep. Variable	-1.00 (.31)**	-.98 (.31)**
Regional Dummies	Yes	Yes
No. of Obs	320	320
No. of Censored Obs	147	147
Log Likelihood	64.56	63.99

All estimates based on Tobit specification. Standard errors in parentheses. ** significantly different from zero at 5% level of significance, * significantly different from zero at 10% level of significance.

Table 5
Specifications for Examining the Role of the Median Wage

Variable	Tobit: Log of Real Min. Wage	Tobit: Log of Real Min. Wage	OLS: 1st Diff of Log Real Min. Wage	2SLS: 1st Diff. of Log Med. Wage
Constant	.22 (.18)	- .16 (.11)	.011 (.012)	.0021(.013)
GDP Growth Rate	-	.16 (.10)	-	-
Left	. -	.099 (.019)**	.071 (.023)**	-
Right	-	-.0060 (.014)	.021 (.018)	-
Avg of Other Provs	-	.53 (.081)**	-	-
Lagged Min. Wage	-	.35 (.065)**	-	-
Log of Real Median Unskilled Wage	.59 (.069)**	.15 (.052)**	.16 (.055)**	-
Log of Real Minimum Wage	-	-	-	-.22 (.30)
Residual from 1st Stage	-	-	-	.38 (.30)
Regional Dummies	Yes	Yes	Yes	Yes
No. of Obs	330	320	320	320
No. of Censored Obs	151	147	-	-
Log Likelihood	4.45	102.46	-	-

All estimates based on Tobit specification. Standard errors in parentheses. ** significantly different from zero at 5% level of significance, * significantly different from zero at 10% level of significance.

Appendix A
Derivation of Estimating Equation

In this appendix, we derive the basic estimating equation (19) from the model discussed in the text. In particular, we take the case of an R government in province B facing an election and a C government in province A. The government in B selects a minimum wage in the first (pre-election period) to maximize equation 17) in the text, with,

$$A1) \qquad \rho_t = (\theta(\frac{m_0^B}{w_0^{B}*}) + (1-\theta)(\frac{m_1^A}{w_1^{A}*})) + \epsilon_t^B$$

where, ϵ_t^B is an error term. This re-introduces dynamics in the setting of norms and also introduces potential taste differences in notions of fairness. Thus, the target minimum wage could change if, for example, a different minister with somewhat different fairness ideals took over the portfolio that included the minimum wage. Note, also, that we allow for differences in the median wage across provinces and over time.

The first order condition related to optimizing 17) through the choice of m_1^B is given by,,

$$A2) \quad -\frac{2\lambda_1}{w_1^{B}*}((\frac{m_1^B}{w_1^{B}*}) - \theta(\frac{m_0^B}{w_0^{B}*}) - (1-\theta)(\frac{m_1^A}{w_1^{A}*}) - \epsilon_t^B) - \lambda_3\delta\frac{1}{w_1^{B}*} + \frac{\partial\Phi}{\partial m_1^B}\psi = 0$$

where ψ is defined in the text, below equation 18. To get a closed form solution, we will use the following linear approximation:

$$A3) \quad \frac{\partial\Phi}{\partial(\frac{m_1^B}{w_1^{*}})} \approx \phi_0 + \phi_1\frac{m_1^B}{w_1^{*}} + \phi_2\frac{m_1^A}{w_1^{*}} + \phi_3(\pi_P - \pi_B) + \phi_4(x_1\alpha)$$

Rearranging A2), using A3), leads to:

$$A4) \quad m_1^B = \frac{\phi_0\psi}{2\lambda_1 - \phi_1\psi}w_1^{B}* + \frac{2\theta\lambda_1}{2\lambda_1 - \phi_1\psi}m_0^B(\frac{w_1^{B}*}{w_0^{B}*}) + \frac{2(1-\theta)\lambda_1 + \phi_2\psi}{2\lambda_1 - \phi_1\psi}m_1^A(\frac{w_1^{B}*}{w_1^{A}*})$$

$$- \frac{\lambda_3\delta}{2\lambda_1 - \phi_1\psi}w_1^{B}* + \phi_3\psi(\pi_P - \pi_B)w_1^{B}* + \phi_4\psi(x_t\alpha)w_1^{B}* + \frac{2\theta\lambda_1}{2\lambda_1 - \phi_1\psi}w_1^{B}*\epsilon_t^B$$

To get to the empirical specification in the paper, divide both sides of A4) by w_1^{B*}. Without doing this, the error term would be heteroskedastic. Note that the first term on the second line of A4) is specific to an R government. An L government would have a similar term but with λ_2 replacing $-\lambda_3\delta$, while a C government would have no such term. Thus, in the empirical specification, we capture these terms using dummy variables corresponding to right and left wing governments. The structural parameters in A4) are not identified from estimating equation 19) in the text without imposing extra restrictions. We are not ultimately interested in the structural parameters themselves and so will not search for such restrictions.

1. Alternatively, jurisdictions might engage in an equally problematic (from a welfare perspective) race to the top to deter siting of noxious facilities like hazardous waste incinerators and nuclear power plants (Markusen, Morey, and Olewiler 1993, 1995).

2. Although there are also models of welfare enhancing interjurisdictional competition to be sure (Tiebout 1956, Oates and Schwab 1988, Weingast 1995), such models rely on a host of rather extreme assumptions including an infinite number of jurisdictions, homogeneity of the population, and full employment (Wilson 1996, Levinson 2003, Harrison forthcoming).

3. It is noteworthy that even in a case of mobility of key actors, which thus presents the possibility of a race to the bottom, the likelihood that such a race will occur will depend on voters' weighting of competing policy goals – such as environmental quality and job-creating investment (Harrison 1996, Basinger and Hallerberg 2004).

4.Interviews were conducted with 4 current or former Cabinet Ministers from Ontario, British Columbia, and Alberta, and 5 senior bureaucrats from Ontario, Manitoba, New Brunswick, Nova Scotia, and Prince Edward Island. Interviews were unstructured, but in all cases, subjects were first asked an open-ended question asking what factors are taken into account in setting minimum wages in their province. They were given no advance indication that the project was interested in interprovincial effects. Yet in all * of * cases, subjects volunteered that other provinces' minimum wages were a consideration.

5.Canadian Centre for Policy Alternatives, "New CCPA Study Calls for Increase in the Minimum Wage," 2 September 1999.

6.See, for instance, reports of a study of the impact of an increase in BC's minimum wage commissioned by the Canadian Restaurant and Foodservices Association (Daphne Bramham, "Increase threatens 1,700 jobs, study says," Vancouver Sun, 25 September 1995, A1), and CFIB's position on a proposed minimum wage increase in Manitoba (Canadian Federation of Independent Business, "Presentation to Minimum Wage Board of Manitoba," 20 October 1998.)

7.See also similar statements by BC Finance Minister, Dan Miller, reported in Canadian Press, "BC minimum wage rises by 50 cents on October 1," Sept 21, 1995.

8. Canadian Press, "Decision on raising BC minimum wage by month's end, MacPhail says," 15 August 2000.

9. W. Thom Workman, John Jacobs, "Undermining Wages in Nova Scotia: The Minimum Wage from 1976-2002," Halifax: Canadian Centre for Policy Alternatives- Nova Scotia, May 2002. See also, John Jacobs and Stephanie Hunter, "Low Income Earners in Nova Scotia Need a Riase," Canadian Centre for Policy Alternatives, March 2003.

10. Lorraine Locherty and Carol Harrington, "Alberta Trailing last in the country on minimum wage," Calgary Herald, 18 March 1988, A5.

11. Canadian Press, "Alberta is 'starving the working poor' with an embarrassingly low minimum wage, New Democrat leader Pam Barrett charged Wednesday," 6 Jan 2000.

12. NDP Nova Scotia, "NS Minimum Wage Falls Further Behind – Increase Needed," Press Release, December 5 2000.

13. Dalton McGuinty, "Skills training, child care are the keys," Ottawa Citizen, 23 September 2003, A17.

14. See, for instance, Marian Stinson, "Minimum Wages to Rise," Globe and Mail, 3 july 1990, B3.

15. See, for instance, Craig McInnes, "Minimum wage in B.C. to be highest in Canada," Globe and Mail, 22 November 1994, A4; Craig McInnes, "B.C. minimum wage hits national high of $7," Globe and Mail, 2 October 1995, C6; and Larry Johnsrude, "Labor Standards reviewed," Calgary Herald, 16 Jan 1998, A15.

16. Provinces that explicitly use the word "balance" were Newfoundland (19 November 2001), Saskatchewan (7 March 2002 and 25 October 2002), Ontario (2004) and New Brunswick (23 July 2002). Provinces that implicitly stressed the need for balance were Nova Scotia and Manitoba (2003, though the word "balance" was used in that province's prior announcement on 28 December 2001). Although we could not find the most recent press releases for Quebec, that province's release on 1 May 2002 also explicitly used the word "balance" (in French), while PEI's press release announcing a 1999 increase implied the same.

17. See http://www.labour.gov.sk.ca/MINWAGE.HTM and http://www.gov.mb.ca/labour/labmgt/resbr/wages/minwage.html.

18. Manitoba, News Media Services, "Manitoba to raise minimum wage," 4 December 2003.

19. The province of Newfoundland and Labrador stated that their increase brought "Newfoundland and Labrador's rate in line with other Atlantic provinces" (19 November 2001). Nova Scotia stressed that their announcement "[kept] the minimum wage competitive with those of other Atlantic provinces" (10 April 2003). Prince Edward Island's government claimed that their increase "protects low income workers while advancing the PEI economy in comparison to other Atlantic Canada provinces" (21 September 1999).

20. Justine Hunter,"B.C. will get highest rate in country, Sihota vows," Van Sun, 12 June 1993, A1.

21. Tom Barrett, "Minimum wage plan draws fire," Vanc Sun 21 May 1996, A1.

22. Toronto Star, "Ontario minimum wage to be frozen, Tories say," 5 July 1995, A12. Similarly, Premier Harris announced that Ontario would not increase its minimum wage until US border states caught up (Ottawa Citizen, Sept 12, 2001, B3). See also statements by the Labour Minister in Toronto Star, "BC Surpasses Ontario for top minimum wage," 1 October 1995, A12.

23. Robert Benzie, "Harris says 'no' to increasing $6.85 minimum wage: Province under pressure after MPPs' salary hike" National Post, 30 August 2001, A16. Similarly Labour Minister Chris Stockwell stated, "we are at the top and we consider that, at this point in time, to be acceptable. You'd be hard-pressed to argue that we aren't competitive." Colin Perkel, "Labour Minister rejects call for higher minimum wage," National Post, 6 April 2000, A23.

24.   Specifically, for consistency, the minimum wage will have to meet the restriction,

$$2)\ N\pi_p m = N\pi_r \kappa \delta m$$

where N is the number of people in the province and κ is a factor capturing the proportion of the payments by the rich that are actually transferred to the poor (i.e., $(1 - \kappa)$ is the loss in the redistribution system). The left hand side shows the total minimum wage income paid to the poor. The right hand side shows total payments by the rich that are not lost in transferal. Rearranging 2),

$$\delta = \frac{\pi_p}{\pi_\gamma} \frac{1}{\kappa}$$

Thus, each rich person pays a factor, δ, times the minimum wage and the size of δ is determined by the relative size of the receiving versus the taxed population and the inefficiencies in the transferal. Standard arguments from the Right that minimum wages actually provide little benefit to the poor would be captured by small values of κ. From here forward, though, we will just use δ without considering further what is behind it.

25. An alternative justification of this specification can be built on the idea that extremism on the part of the government creates labour unrest (if the income of the poor is set too low) on one end and business disruption (if the owners of capital believe they are being taxed too highly) on the other. If that unrest and disruption has negative effects on the income of all individuals in society, or is just the cause of a loss of utility by everyone in society, then we might represent it as a quadratic penalty function, as in 1). This generates an alternative interpretation of the game that follows with voters penalizing parties that they interpret as being too extreme. This is similar in nature to Besley and Coates(1995), with voters trying to figure out the true nature of the incumbent before voting and using, in this case, the minimum wage as a signal for that. In contrast, with the interpretation used here, the implication is that voters penalize parties for straying too far from their notion of fairness.

26. Specifically, as long as $w_2^* > w_1^* (\theta(2-\theta))^2$.

27. In particular, for ψ will be positive if $\lambda_2 \geq \lambda_3 \delta$. A reasonable assumption, failing other information, would be $\lambda_2 = \lambda_3 \delta$.

28. This potentially raises issues about relating movements in covariates to movements in the dependent variable since actions during the implementation periods seem to be essentially frozen: governments who want lower minimum wage/weekly wage ratios cannot even move in that direction by leaving the nominal minimum wage unchanged because they are committed to increments in the minimum wage; and governments do not, as far as we can tell, ever implement even larger increases in the minimum wage during a period when pre-announced increments are being implemented. In our empirical work, we have estimated specifications including controls for these implementation periods. The results from those specifications are extremely similar to those presented here and are omitted from this paper for brevity.

29. In fact, tests on the dependent variable strongly reject normality, even though the distribution itself is approximately symmetric and looks roughly normal. The distribution of the dependent variable has a mean of -0.70, a median of -.69, a 5th percentile of -.96 and a 95th percentile of -.48. We work with the normality assumption for tractability reasons and because we do not believe, given the shape of the actual distribution that it does great damage to the data.

30. We also experimented with a more general Tobit model in which the equation determining whether an observation was censored and the equation determining the desired minimum wage were allowed to be different. The estimator repeatedly tried to set the correlation between the censoring and minimum wage determination processes very close to 1 and we concluded that a simple Tobit adequately captures the forces determining the data.

31. The covariate included in the estimation actually correspond to the first differences of the variables listed in the first column of the table. We include regional dummy variables. Dropping the regional dummies causes little change in the coefficient on the distance to the mean variable. It leads to an increase in the interaction effect but that effect is still not statistically significant at any conventional significance level.

Figure 1a
Real Minimum Wages, January 1965 – April 2002
Atlantic Provinces
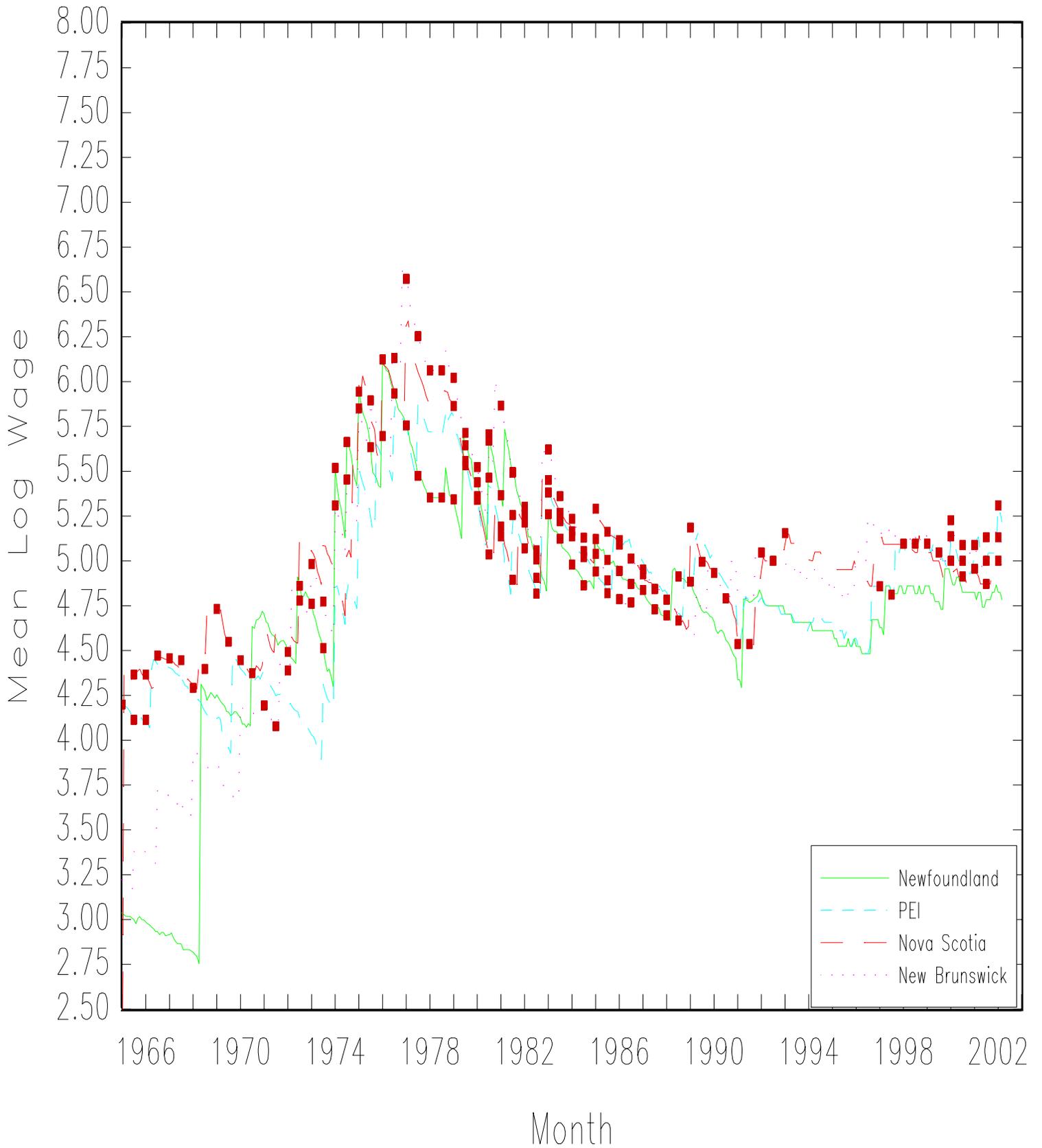
Figure 1b
Real Minimum Wage,
January 1965 – April 2002, Ontario and Quebec
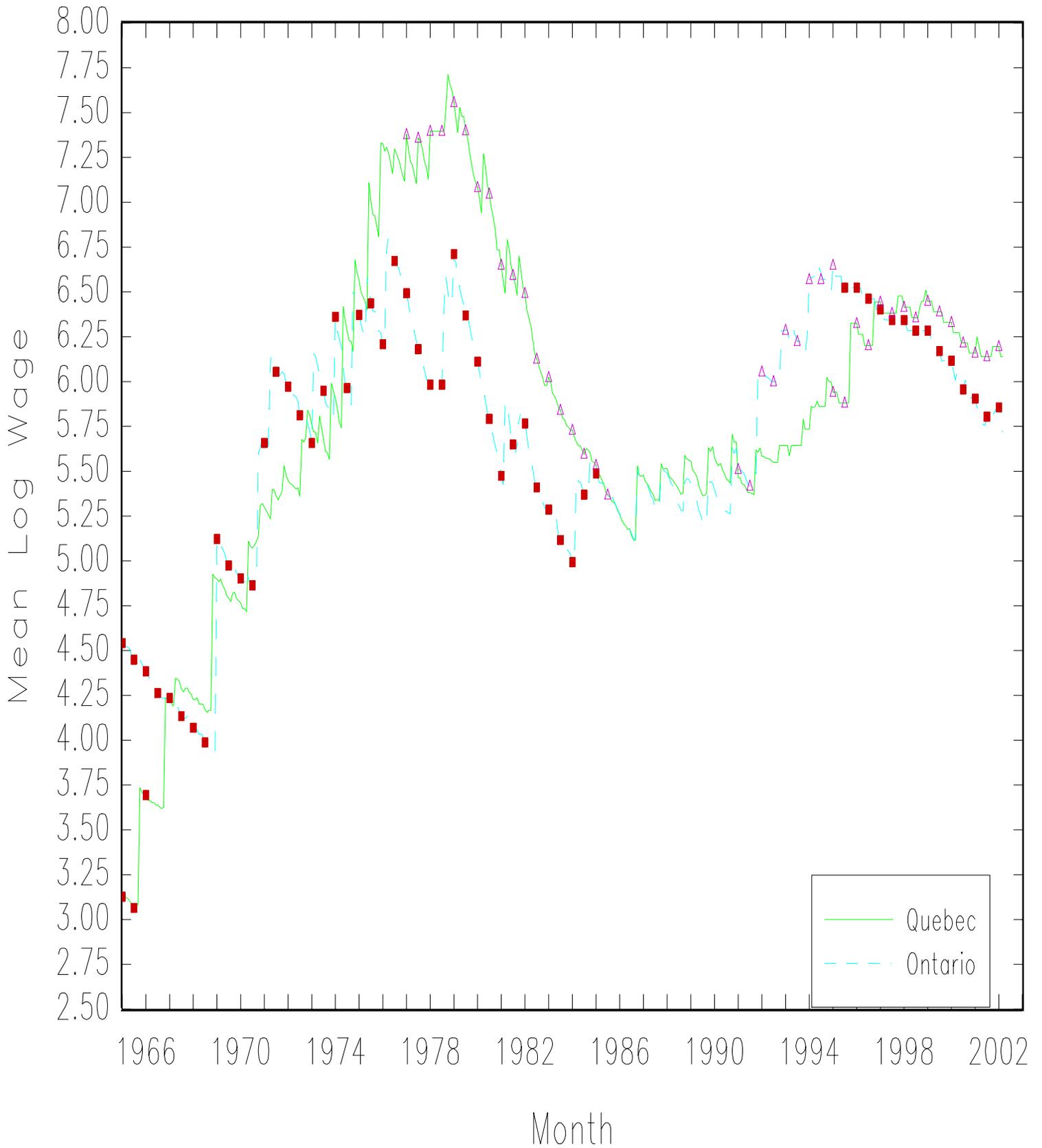
Figure 1c
Real Minimum Wage
January 1965 – April 2002, Western Provinces
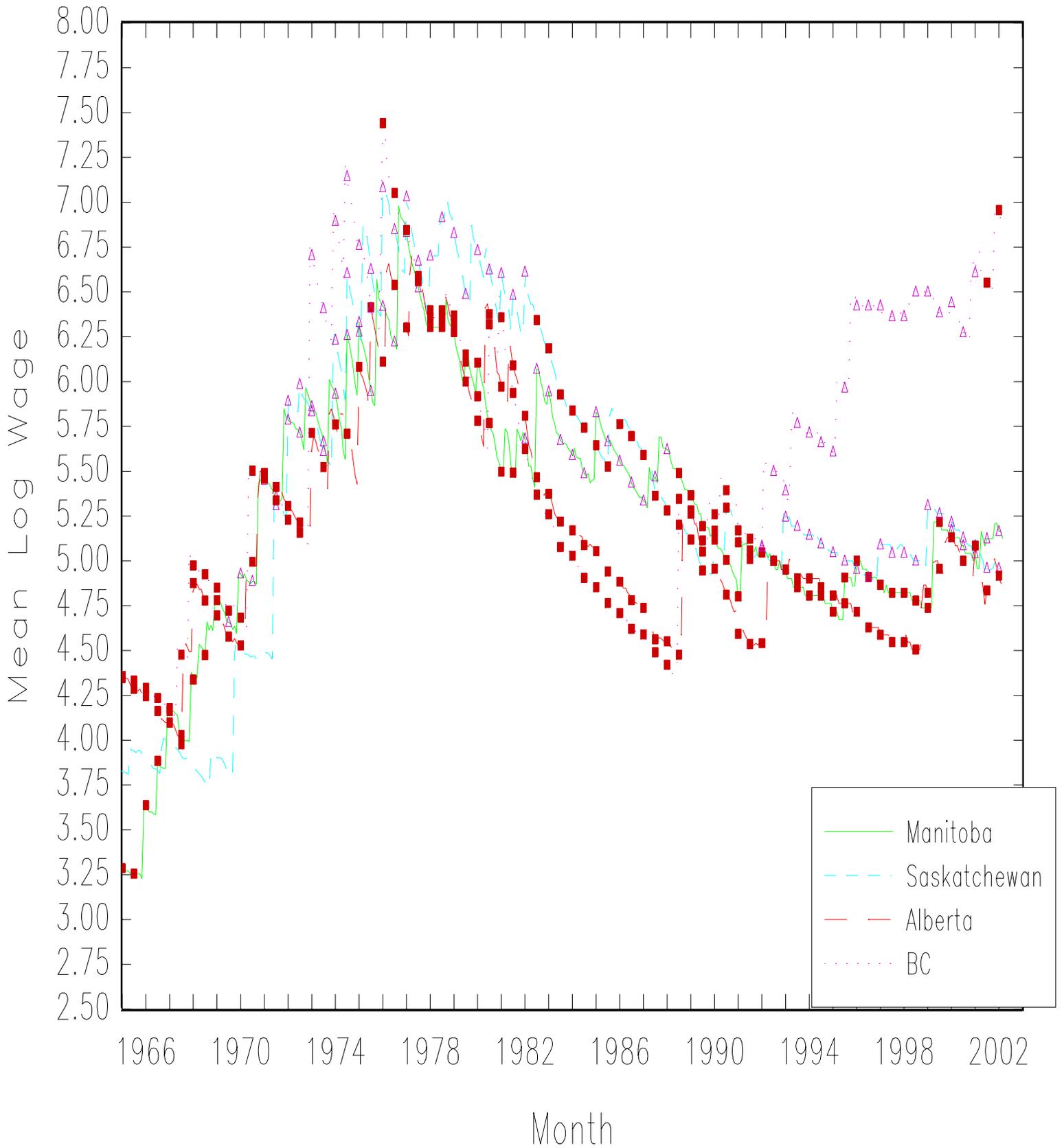
Figure 2
Real Minimum and Median Wages, 1969 – 2001
All Provinces