Canadian International Labour Network

Labour Market Outcomes:

A Cross-National Study

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Canada and the "OECD Hypothesis":

Does Labour Market Inflexibility Explain Canada's High Level of Unemployment?

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1. INTRODUCTION.

One of the most remarkable features of international economic performance in the last decade has been the employment performance of the United States. While unemployment rates in almost all other developed countries remain high by postwar standards, the U.S. unemployment rate has fallen to levels not seen in decades.[1] Even more spectacular than the decline in unemployment is the increase in the fraction of the U.S. population employed, which has exceeded that in almost all developed countries.[2]

A phenomenon of such magnitude of course calls out for an explanation. Probably more than any other single factor, some form of "labour market inflexibility" has recently been blamed for the high unemployment rates outside the United States. In a number of forums, including the policy recommendations of the Organization for Economic Cooperation and Development (OECD), "rigid" labour markets, with considerable government and/or union involvement in wage-setting, and considerable restrictions on firms' abilities to adjust the size of their work forces, are commonly seen as more prone to unemployment and less conducive to employment growth than more flexible ones.[3]

The purpose of this paper is to provide a critical assessment of the popular notion that differences in labour market "flexibility" explain the recent differences in employment and unemployment rates between the U.S. and other developed countries. In addressing this issue I shall focus particular attention on a comparison between two countries, the United States and Canada. On the surface, the recent experience of these two countries would appear to support the hypothesis, with the more "rigid" country --Canada, where unions have much more influence on the wage-setting process and employment protection is stronger-- experiencing much worse unemployment performance since the early 1980's. Indeed the proximity of the countries and their similarity along other dimensions may yield an ideal comparison for assessing the labour market flexibility hypothesis.

I shall proceed as follows. First, I argue that the "labour market flexibility hypothesis" is not one, but (at the very least) two hypotheses, both of which appear frequently in public discussion, but which have little in common except a notion that governments and/or unions are the source of the problem. I next consider each of these hypotheses in turn, considering first some theoretical issues and then the evidence regarding the relevance of each hypothesis to the case of high Canadian unemployment.

2. ONE HYPOTHESIS OR (AT LEAST) TWO?

When one hears talk of "labour market flexibility", one can usually be sure that it means less intervention in labour markets by governments and/or unions. But precisely what kind of intervention is seen as problematic can differ. According to some discussions, lack of flexibility in firms' abilities to hire and fire labour (a "quantity" variable in economists' parlance) is the main obstactle to full employment; according to others it is lack of flexibility in real wages (a "price" variable). I outline these two main arguments in turn below.

The "quantity" version of the "labour market flexibility hypothesis" (e.g. Lazear 1990) is sometimes referred to as the problem of "Eurosclerosis" (Bentolila and Bertola 1990).

According to this argument, high levels of employment protection laws (i.e. EPLs, or restrictions on firms' abilities to shed workers) give rise to Europe's poor unemployment performance. While at first glance the argument may seem paradoxical --if firms can't lay workers off, won't this *reduce* the ranks of the unemployed?--, the argument is made that, in an uncertain world, the inability to reduce the workforce raises firms' expected costs of production, and that this long-term, *indirect* negative effect on employment outweighs the shorter-run positive effect. If so, this would lead to lower long-run employment rates in countries with stringent firing restrictions, and (presumably combined with some other mechanism that rations access to new jobs) possibly higher involuntary unemployment as well.

According to the second, or "price" version of the "labour market flexibility hypothesis", an important source of the recent increase in unemployment outside the U.S. may be the interference in the wage-setting process by minimum wage laws and unions.[4] According to this hypothesis, all developed countries have been confronted by a technology- and/or trade-induced decline in demand for unskilled labour. In countries with (downward) flexible wages, like the U.S., this decline in demand has led to a substantial decline in the real wages of unskilled workers, particularly if they are young men. In other countries, where unions and/or minimum wages act to prohibit real wage declines among the unskilled, the decline in demand for the unskilled manifests itself in an increase in unemployment among these groups.

In what follows I provide critical assessments of the "inflexible quantities"and "inflexible wages"stories in turn, with particular attention to their relevance to unemployment in Canada, and to how Canadian unemployment compares to that in the United States. In the discussion of each hypothesis, I first outline the relevant institutional differences between Canada and the U.S., together with some discussion of how the two countries compare with other OECD members. I then consider a variety of theoretical perspectives on what one might expect the effects of these institutions to be, and conclude by assessing the evidence on whether those institutional differences provide convincing explanations of international unemployment differences, in particular those between the U.S. and Canada.

3. EMPLOYMENT PROTECTION: CAUSE OF CANADIAN UNEMPLOYMENT?

(a) Are Employment Protection Laws Stronger in Canada than the United States?

Employment protection laws (EPLs) are usually defined to include any legal restrictions on firms' rights to reduce their work forces for "economic" reasons.[5] In Canada such restrictions are embedded in two main bodies of law. The older of these is the Common Law, according to which most labour contracts can be discontinued in two ways; either by letting an employee go for cause or by giving the employee a 'reasonable' amount of notice (Arthurs et al., 1981).[6] Thus, in Canada it is possible for individual employees with no specific employment guarantee to sue their former employer for insufficient notice of layoff. In practice this option is exercised only by relatively highly paid workers.[7]

In addition to the common law, Canada also has minimum mandatory notice statutes for permanent layoffs in each of the thirteen jurisdictions which regulate employment contracts.[8]

These are summarized in Table 1, which shows the state of legislation as at November 1, 1996. In most cases, mandatory notice depends on the duration of employment, ranging from 1 week for relatively new workers to 8 weeks for workers with 10 or more years of experience. Generally, an employee can be given pay in lieu of notice. Interestingly, a number of Canadian jurisdictions require *workers* to notify their employers of their intent to quit, though it is unclear whether this provision has ever been enforced.

Separate regulations also exist for mass termination in eleven of the thirteen jurisdictions. The number of workers necessary to constitute a mass termination is usually fifty or more employees in a period of four weeks. The amount of notice that must be given ranges from 8 weeks to 18 weeks depending on the number of workers let go. Exceptions are provided for unforeseeable circumstances such as natural disasters.

Employment protection legislation in two Canadian jurisdictions also includes severance pay. In the Federal jurisdiction the amount of compensation is not large, consisting of two days wages to be paid per year of service. In Ontario severance packages only apply to employees with 5 or more years of service; however the amount of compensation given is quite high, at one week of severance pay for each year of service to a maximum of 26 weeks. An ongoing bone of contention between the Ontario and federal governments is that employees are not considered eligible for (federally provided) Employment Insurance (formerly Unemployment Insurance) for periods of unemployment during which they are deemed to be receiving severance payments from their previous employer. Finally, most Canadian jurisdictions with mass termination laws compel employers to establish and finance a "manpower adjustment committee" with worker representation to develop an adjustment program for workers, and to help workers in finding new employment opportunities. Further, the firms must advise and cooperate with local governments regarding the closure procedure.

Unlike the common law, which requires the employee to launch a civil suit against his or her former employer, employee remedies for non-compliance with minimum notice statutes are relatively fast and costless in most Canadian jurisdictions. In part, this is because mandatory notice laws are generally administered under the provinces' Fair Labour Standards Acts, which assign minimum standards for a wide variety of working conditions, and which are policed by a set of local offices. For example, in Ontario an employee only has to notify the Employment Standards office; this can be done by telephone. The claim is then investigated and if the employer is found liable, he or she may be ordered by a judge to reimburse wages for the required notice period.

The current mix of employment protection legislation in Canada has resulted from a series of province-by-province increases in legislated notice starting in the 1960's. These changes are summarized in Tables 2 and 3, where the former focuses on individual terminations and the latter looks at mass terminations. An interesting feature of the evolution of Canadian employment protection laws is that, despite the recent move to the political right in a number of jurisdictions, and despite significant retrenchment in a number of social programs and in labour relations legislation, as of November 1996 the trend in employment protection has seen not one instance of a reduction in employment protection law in Canada. This may suggest that current levels of EPL are not perceived as a major obstacle to business, and are suffciently valued by middle-class voters in a time of greater perceived job insecurity, to make any attack thereon

politically unprofitable.

As in Canada, both common law and more recent, explicit statutes regulate the dissolution of employment contracts in the United States. The U.S. common law tradition, summarized in the "employment at will" doctrine, differs markedly from the Canadian one, in that it views all employment contracts that are not of a fixed, definite duration as subject to immediate cancellation by either party. Thus, there is no notion of "reasonable" notice for economically-motivated layoffs in U.S. common law at all.

Turning to legislation, the United States also imposes no minimum notice or severance requirements on layoffs involving a single worker, or relatively small numbers of workers. Plant-closing legislation in the form of the Worker Adjustment and Retraining Notification Act (WARN), did however come into existence on August 4, 1988, and went into effect six months later.[9] WARN requires firms with 100 or more full-time workers to give 60 days written notice of a plant closing or mass layoff to agents of the affected workers (or the workers themselves if no union exists), to the local government, and to the state dislocated worker unit. WARN defines a "plant closing" as the closing of a single location of a firm involving 50 or more employees; a "mass layoff" is defined as a layoff of more than 6 months' term that influences at least one third of the workforce (but not less that 50 employees) at a single location of employment. The one-third rule however does not apply if 500 or more workers are laid off, in which case notification must automatically be given.

WARN not only relieves small firms of the responsibility of giving notice; it also includes a number of exemptions, exceptions, and exclusions. While some of these are unsurprising and similar to Canadian laws (e.g. destruction of the plant due to a natural disaster), others seem quite open to interpretation and manipulation by the firm. For example, required notice can be decreased or eliminated for companies who are trying to prevent closure by "actively pursuing capital or business", or due to business conditions that arose unexpectedly at the time notice would have been required.

Unlike in Canada, enforcement of the provisions of WARN is not overseen by any government enforcement agency. Instead, the ruling that a firm is in breach of WARN must be established through individual or class action suits instigated by the wronged parties in federal district courts. Penalties for noncompliance are limited to back pay for the notice period, plus a single (not per-worker) civil fine of up to $500 for each day of violation.

Overall, it seems clear from the above discussion that employment protection is considerably more substantial in Canada than in the U.S., both in the level of protection that is provided by law and in the prospects of having those legal guarantees enforced. Despite this difference, it is worth noting that --while many rankings of the degree of employment protection (e.g. Bertola 1990, Lazear 1990, Grubb and Wells 1993) do not include Canada--, those that do (e.g. OECD 1994b, p. 73) tend to rank both it, together with the U.S., as very low relative to the European countries. While some of this is genuine, to some extent it may reflect a failure of those indices to incorporate much of the legislated notice requirements on the provincial level in Canada, as well as a failure to incorporate the consultative requirements that apply in cases of mass dismissals.[10] Still, Canadian employment protection levels almost certainly fall short of those in the more stringent European countries, several of which (Greece, Ireland, Italy, Portugal, and Spain) have maximum severance pay requirements of a year or more for long-tenured

workers.

(b) Theoretically, what effects might we expect EPL to have on employment and unemployment?

The simple intuition behind the expected negative employment effects of employment protection laws is that, because workers hired today might someday have to be terminated, and because EPL's raise the cost of termination, EPL's raise the expected cost of hiring workers in the first place. Essentially, firms will be less likely to take chances on marginal workers, or on hiring workers in uncertain times, if they know it will be hard to "dispose" of those workers should the need arise later.[11] The thrust of this argument is therefore that "Employment Protection" Laws are misnamed: what they really mandate is greater *job protection* (i.e. greater attachment of incumbent workers to their existing jobs), which could have the unintended consequence of *reducing* employment protection (i.e. the probability that a randomly selected individual can find work). Indeed, one can imagine an economy where the labour market is tight and job skills are portable, where workers have very little job security but a high degree of employment security.

What is perhaps most interesting about this very intuitive story is that (a) it tends to be the first one that economists think of when considering the possible effects of EPL's, but that (b) even in a standard dynamic labour demand model, it is not the most direct way in which EPL's affect employment. The more direct effect of EPL's on employment is that, by making layoffs more expensive, they raise employment levels during downturns in demand relative to what they would be otherwise. Of course this distinction between direct and indirect effects has been noted and analysed in the theoretical literature on EPL's. Not surprisingly, the result is that, due to these opposing direct and indirect effects, EPL in general has an ambiguous overall effect on average employment levels across states of demand at the firm level.[12] More specifically, however, if firms' discount rates, or "natural" employee attrition, are sufficiently high, or if the expected time between hiring and firing periods is fairly long, higher "firing costs" are likely to *raise* average labour demand (Bertola 1992). This is because, when hiring, firms discount the expected costs of having to fire the new employee, but when laying workers off, firms pay firing penalties immediately; thus the direct effects on firing outweigh the indirect ones on hiring. Also, the greater is the exogenous attrition rate, the lower is the likelihood that a new hire will ever have to be laid off involuntarily. In such situations, then, job-security provisions will improve the long-run employment prospects of all workers, whether they currently have a job or not. Results are more complex when the state of demand is uncertain (Bentolila and Bertola 1990), but the same intuition applies.[13]

In general, a fair summary of the predictions of standard labour demand theory about EPL is Bertola's: "[standard dynamic labour demand] theory predicts that job security provisions should have relatively small, functional-form dependent effects on average labour demand" (Bertola 1992, p.405). For a number of reasons, however, standard dynamic labour demand theory, which generally models firms as passive price takers in labour markets, and generally treats EPL's as a fixed cash cost paid by the firm when laying workers off, may not be the most

appropriate way to conceptualize the effects of EPL's on firms' uses of labour. One such reason is is related to the partial-equilibrium nature of these models, and is the same reason why (despite the possibility of a large negative effect at fixed wages) payroll taxes may have few, or no, disemployment effects: In equilibrium, at least some of the "burden" of these taxes will be passed on to workers in the form of lower wages. While this does not mean EPL's are good for workers, it suggests that --especially in the long run-- one might expect their major effects to be on wages, and *not* on employment or unemployment rates. Further, the literature on the incidence of mandated benefits (Summers 1989) suggests that the effects of EPL's on employment are likely to be muted because (relative to a pure tax which does not provide an employment-contingent benefit) these laws provide something of value to workers. Essentially, the mandated, employment-contingent benefit raises workers' willingness to work at any given wage, undoing much or all of the disemployment effects of its cost to firms. Overall, then, general equilibrium considerations reduce the expected effects of EPL's on employment and unemployment.

A second limitation of simple labour demand models in analysing the effects of EPL's revolves around the central idea of the theory of employment contracts: the possibility that the whole process of hiring and firing is governed not by firms' responses to fixed market prices, but by the rules of explicit or implicit contracts between firms and employees (e.g. Rosen 1985). For example, as pointed out by Lazear (1990), any mandatory transfer between firms and workers, such as a severance payment, can easily be undone by changes in private employment contracts. For example, workers in North America often receive substantial amounts of voluntary severance pay and/or pension adjustments when involuntarily terminated. Adding a legally required amount of severance could have no effect at all on worker or firm behaviour if it is "undone" by a compensatory change in firms' pension plans or private severance pay provisions, as would be expected if the original contract had been designed to be Pareto optimal. While Lazear's empirical analysis goes on to dismiss this possibility, it would be very interesting to know whether firms in countries (or jurisdictions within countries) which have high levels of *mandatory* severance pay tend to offer less generous private early-retirement and severance packages to their laid-off workers. To my knowledge this issue has not been addressed empirically, yet if it is true, mandatory severance pay laws may not have any effects on labour markets at all.

A third important reason why existing labour demand models may not be the most appropriate way to model the expected effects of EPL's is that not all EPL's are fixed cash taxes that firms must pay when involuntarily terminating workers. In fact, with the possible exception of mandatory severance pay (though this is paid to workers, not the Receiver General, with important implications noted above) no EPL's take this form. Indeed the most common form of EPL, and by far the dominant form of EPL in North America, is mandatory advance notice, which could operate very differently from a cash tax on layoffs.[14] For example, to the extent that firms have private information about their closure or layoff plans that they would not voluntarily share with workers otherwise, mandatory notice laws are mainly about the sharing of private *information*, which is very different from a cash tax. Laws mandating the sharing of such information are best analysed in an asymmetric information context, as has been done by Deere and Wiggins (1991), Kuhn (1992, 1994) and most recently Chilton and Addison (1997).

Although the results of these models vary depending on assumptions that are made regarding firms' abilities to precommit to advance notification, they raise the important possibility that, rather than simply imposing a tax on otherwise competitive markets, advance notice laws may correct pre-existing distortions in labour markets. Rather than delaying layoffs or plant closures, and hence slowing down the reallocation of labour, notice laws may lead firms to disclose their layoff or closure plans earlier, thus *speeding up* the economic adjustment process. Much in the way that occupational licensing may increase demand for a service by guaranteeing a minimum level of honesty among suppliers, it is even possible for such laws to reduce the *ex ante* costs of employment, thus raising hiring rates.[15]

A final important difference between mandatory notice laws and cash taxes is that these laws have an almost mechanical, direct negative effect on measured unemployment that does not arise from cash firing costs: They provide for a period of predisplacement, employed job search, during which workers can locate new jobs without any intervening spell of unemployment. By substituting employed for unemployed search, mandatory notice directly *reduces* unemployment. This predisplacement search effect is a very robust finding in the large empirical literature on advance notice in both Canada and the U.S. (see for example Addison and Portugal 1987; Ehrenberg and Jakubson 1988; Swaim and Podgursky 1990; Ruhm 1992; Jones and Kuhn 1995; Friesen 1997; Benos et al 1997).

Theoretical predictions about the likely effects of EPL's also change when we recognize the fact that EPL's may not be the only intervention, or distortion in labour markets. As noted earlier, in a world with no other distortions, and no asymmetric information, EPL's raise employment costs and lead to a loss in economic efficiency by slowing the redeployment of labour into its most efficient uses. If there are other, pre-existing distortions in labour markets however, some of these distortions may be *mitigated* by EPLs. One such example, suggested by Chilton and Addison (1997) is the subsidization of unemployment by the unemployment insurance system. If as suggested by Feldstein (1976) UI makes firms too willing to lay workers off, then EPL might offset this problem while continuing to maintain income security for unemployed workers.

A related example, recently suggested by Bertola and Rogerson (1996), is the centralized, standardized wage setting that reputedly characterizes several European economies. Interestingly, in Bertola and Rogerson's model, standardized wage setting [i.e. a kind of "price rigidity" in the current paper's terminology] leads to *excessive* labour reallocation across firms [i.e. *too much* quantity flexibility], essentially because firms in contracting industries cannot cut wages to keep workers.[16] EPL's undo this excessive mobility by raising the costs of moving. Together, the two policies work together to allow the "right" amount of labour reallocation while (because workers are less likely to pass through an unemployment spell on their way to a new job) reducing the amount of unemployment incurred. Indeed, Bertola and Rogerson use this argument to explain why overall job turnover is similar in Europe and the U.S. despite stronger EPL's in Europe. Bertola and Rogerson's argument also points out the need to be clear about what kind of "rigidity" (prices versus quantities) one is worried about, since less of one may in fact cause more of the other.

Finally, and perhaps most importantly given the current interest of policymakers worldwide in labour market training, are potential interactions of EPL with the market for

employer-provided training, considered by Booth and Zoega (1995). In their model, firms will provide less than the socially optimal amount of training if their employees may leave in the future. If firms find it costly to lay off workers, then there is less chance of separation and the benefit to them of training rises; consequently they provide more. Thus one market failure (the underprovision of training) may be partially overcome by another-- appropriate EPL. Additionally, in the model, the presence of firing costs reduces the loss of specific and general skills (which are assumed to degenerate during an unemployment spell). Once again, there is a long run social gain from EPL which outweighs its immediate costs to employers. More generally, the issue of EPL and training is closely related to the employment contracting literature on the tradeoff between separation efficiency and maintaining incentives for investment in specific skills (see Hall and Lazear 1984 for an early example). Contracts which make it hard to separate encourage both firms and workers to make relationship-specific investments, but of course mean that sometimes the pair stay together when better matches are available elsewhere. There is, despite considerable attention by economic theorists, no simple solution to this dilemma, and it is in fact not implausible that under parameter values that place sufficient importance on investment incentives, the "Catholic" marriage contract --where "voice" must take complete precedence over "exit"-- may sometimes be the optimal one.

(c) How large are the costs imposed by EPL's on firms?

Despite the large literature on EPL's, it is surprising to note that very little attention has yet been paid to estimating the actual magnitudes of the costs imposed by these laws on firms. Most analysts seem to assume that, relative to more commonly-analysed policies like (say) a payroll tax, the costs to employers of EPL's are significant. Yet this is not obvious: at the worst, Canadian mandatory notice laws force firms to keep unprofitable workers on the payroll for 2 to 4 months longer than they otherwise would; in Europe this period ranges up to 8.5 months (OECD 1994c, p.73), though severance payments of slightly more than a year are required for high tenure employees in a small number of countries.

One way to get an idea of the size of costs imposed by EPL's on firms is just to do some "back of the envelope" calculations that convert EPL's into equivalent amounts of a more familiar policy: a uniform percentage payroll tax on labour. This is done in Table 4, which considers the following situation: a firm faces a wage rate of 15 dollars per hour for all its workers.[17] But some, or all of those workers now have a marginal revenue product (MRP) of less than 15 dollars, so the firm would like to lay them off. Both the wage rate and the worker's productivity are expected to stay at their current levels indefinitely.[18] For three different values of the "redundant" worker's productivity, the Table presents the value of the permanent wage increase to a single (presumably profitable) worker that would result in the same amount of lost profits as retaining a redundant worker for three possible mandatory notice periods: 2, 6 and 12 months. The most extreme assumption made about the redundant worker's productivity (zero) can be taken to represent either a totally unproductive worker, or a severance pay requirement: the firm is forced to pay the worker his or her regular wage ($15 per hour) even though the worker does not come in to work.

The numbers in Table 4, which assumes a real discount rate of 3 percent, make the costs of most real-world notice requirements look fairly trivial. Even at the high end of the range of notice for workers laid off individually in Canada (2 months: the vast majority of job losers in Canada do not lose their jobs in mass layoffs), the cost of giving notice to a worker whose productivity is only half of the breakeven level is equivalent to a payroll tax of one quarter of one percent on a single employed worker. Further, since the notice requirement must only be met when firms are actually laying off workers [which is far from all the time], and since it only applies to those workers that are actually laid off rather than the whole work force, it is clear that the economic cost of Canadian advance notice requirements, relative to any policy that raises wages across the board, are almost certainly trivial. Notice or severance pay requirements at the upper end of the "European" range (6 to 12 months) cost more, but --again given the proviso that they apply only to the small number of workers who are actually laid off-- are likely small compared to other policies affecting firms in those countries as well.

Table 5 presents the results of Table 4 in a slightly different way, and also gives some idea of the sensitivity of these calculations to the assumed real interest rate of 3 percent. In that Table, I show the productivity level a "redundant" worker would need to have, to make a given notice requirement equivalent in cost to a one percent, permanent real wage increase [again to a single "profitable" employee]. The table shows, for example, that when the real discount rate is 3%, for a 2 month notice requirement to be as costly as a one percent wage increase, the notified employee would need to be extremely unproductive indeed: his or her hourly productivity would need to equal *minus* 15 dollars (i.e. he or she would need to cause *damage* to the firm equal in value to his or her wage).[19] Again, these productivity levels are higher when the discount rate and notice requirements are raised, but even in the extreme case of 12 months notice and a 4 percent discount rate, a firm would need to lose 26 percent (100-74) on an employed redundant worker (who, remember, must have been profitable to employ in the recent past --otherwise he/she would not have been there in the first place), to incur a cost equivalent to a one percent real wage increase for a *single* permanent employee.

Of course, these quantitative estimates of the costs of EPL's do not incorporate the possibility that, like consumers faced with price increases, firms may be able to make changes that reduce, or minimize these costs. Aside from the possibility, already noted by Lazear, that firms may be able to contract their way out of these obligations completely, there are a number of important alternatives to shedding workers in demand downturns. Clearly, one alternative to layoffs, at least for temporary declines in product demand, is a reduction in the hours of all employees, or worksharing. Among others, this alternative has been studied by Abraham and Houseman (1993), and Van Audenrode (1994). Abraham and Houseman compare industry-level adjustments in labor utilization in the U.S. and Germany, finding similar overall adjustments in total hours worked, but with greater reliance on hours variation in Europe versus layoffs in the US. Similar conclusions are reached in Houseman (1995), who compares labour market adjustments in Europe, Japan and the US. Interestingly, Van Audenrode (1994) found that when short time working was supported by a generous, publicly funded, short-time compensation system, adjustment in total hours worked to labour demand shocks was even greater than in the U.S.

In addition to worksharing, firms can minimize the costs of employment protection laws

in other ways too. One of these, especially in European countries, is to hire workers on temporary employment contracts, where EPL's are either much weaker or totally inapplicable. While this might have other indesirable consequences, such as creating a two-tier work force, it does mean that the supposedly costly restrictions of EPLs on firms' abilities to shed labour can be largely undone. Since there is often a minimum firm size threshold for EPL's to apply, another way is to stay small (at least on paper). It has been asserted, for example, that this explains why there are so many Italian firms with 19 employees.[20] Mass layoffs can sometimes be timed to avoid group notice requirements, by making sure that no more than the threshold number of workers (usually 50) leave the firm in any given four-week period. Firms can also claim an exemption from the law or simply fail to comply, which seems to have been the response of U.S. firms to the introduction of mandatory notice there (Addison and Blackburn 1994). Other, potentially very important adjustment mechanisms include relying on "natural" workforce attrition via quits and retirements, early retirements, and internal transfers of workers.

A final and perhaps most fundamental alternative to layoffs is the fact that *firms can change what they produce*. It is an old tradition in economics that firms are identified with products, so that when demand or technology changes, workers need to switch firms (or "islands" in another economic cosmology). But is worth reminding ourselves that this is only a convention, and that --to the extent that what makes firms "work" as a form of organization is not a particular product but the shared knowledge about the characteristics and abilities of its employees (e.g. Prescott and Visscher 1980)-- the most efficient way for an economy to adjust to demand and technology changes may be *within* the nexus of formal and informal contracts that constitutes a firm, a practice for which Japanese firms are particularly well known (e.g. Carmichael and MacLeod 1993).

In addition to "back of the envelope" calculations, and to taking account of the potentially large number of low-cost substitutes to layoffs, a final source of evidence about the costliness of EPL to firms comes from data on the actual amount of hiring and firing that firms do. If firing costs are truly high, one would expect that firms would economize on employee turnover, tending to screen workers carefully when hired and avoiding excessive "churning" of workers. Interestingly, however, a broad consensus in all recent examinations of this issue is that, in some absolute sense, both job and worker turnover are very large in all countries, even those where EPL is very strict. For example, in a sample of six countries, some of which have quite stringent employment protection, Bertola and Rogerson (1996) report annual job turnover rates (the sum of establishment-level employment increases and employment decreases) of about ten or more times the level of net employment change in all of them. Even in highly "protected" countries, a large amount of employment is reallocated across firms each year, making the claim that EPL's substantially inhibit structural adjustment a hard one to justify. Further, there is no tendency for countries with high levels of employment protection to have lower turnover: strikingly, Italy, France and Canada all have higher turnover rates than the United States in their analysis. Examining the same issue in a larger sample of countries, the OECD (1996) finds that overall job turnover is negatively correlated with indices of EPL, but that this correlation is confined to the much less stringent EPL regulations covering *temporary* workers only. Citing two recent legislative changes in France and one in Germany, they also find that no detectable changes in turnover occured as a result of substantial changes in EPL provisions. Finally, Leonard and Van

Audenrode (1995), looking at job turnover Belgium, whose job protection laws are reputed to be among the strongest in Europe, one in five workers separates from their previous employer each year, and about the same number are hired each year.[21] Moreover, in contrast to any existing model of dynamic labor demand with adjustment costs, many firms hire and fire employees at the same time: indeed the correlation between hiring and firing rates across firms is *positive*, with 45 percent of all firings occurring in growing firms. Somehow, therefore, even in labour markets with much more stringent EPL than Canada, firms do not find it prohibitively expensive to undertake large simultaneous inflows and outflows of workers, and reallocation of labour across firms and industries occurs at about the same pace as in the U.S. or Canada.

(d) What is the evidence that EPL's explain international unemployment differences, and Canada-US differences in particular?

To my knowledge, the only empirical studies that claim to demonstrate a negative effect of EPL's on employment, or a positive one of EPL's on unemployment, are Lazear (1990) and Addison and Grosso (1996). Both are cross-national studies (which is appropriate if one is looking for general-equilibrium effects of these policies, but of course carries a price in terms of the number of observations), but given the preceding discussion I believe the interpretation of the correlations found in these studies as causal effects of EPL's needs to be seriously questioned. Theoretically, there are as many reasons to expect EPL's to raise long-run employment as to lower it, and their effects can be easily offset by other policies. Empirically, the costs imposed by most EPL's on firms' use of labour are likely trivial compared to other policies like payroll taxes, and these costs are easily avoided by choosing from a number of alternative means of adjustment. As well, EPL's do not seem to have had a major inhibiting effect on the reallocation of labour across industries, or on the overall level of worker turnover. For all these reasons, it seems highly likely that the cross-national association between unemployment and EPL seen in the above two studies is driven by other, more economically significant factors which are correlated with both.[22]

Prime candidates among other factors that might account for the (after all, relatively weak) cross-national correlation between EPL and unemployment are unemployment insurance and short-time compensation systems: do they subsidize layoffs more than hours reductions, or vice versa (Burdett and Wright 1989, Van Audenrode 1994)[23]? Other aspects of a country's social safety net, such as the decline in welfare benefits in the U.S., may also be correlated with EPL, and have important effects on unemployment. If any combination of these other factors is the main determininant of cross-national differences in firms' adjustment strategies, then the adoption of policies which (say) reduce EPL with a view to increasing labour market "flexibility" may have little or no effect on unemployment rates, except perhaps via the direct, "mechanical" effect of substituting employed for unemployed search during an advance notice period.

More fundamentally, there may be other factors which *predate* both EPL and other kinds of legislation or social policy that are the prime causes of international differences in adjustment mechanisms. For example, Lacroix and Huberman (1995) argue that the difference between

Europe and North America in the use of worksharing predates any unemployment insurance or short-time compensation systems. Instead, a combination of labour market conditions and existing private institutional arrangements made different adjustment modes profitable in the two continents; when legislation was drafted to assist the unemployed it was built to accomodate these different practices. The argument that legislated factors are not the primary, exogenous factors determining the dominant mode of adjustment to demand changes is supported by the case of Japan: despite one of the lowest employee turnover rates in the world, Japan has almost no legal restrictions on terminations.

Indeed, I believe it is fair to state that the only robust evidence found to date concerning the effects of EPL's on unemployment is that found in the large empirical literature on advance notice. This effect, now well documented in more than a dozen microdata-based studies, demonstrates a direct, unemployment-reducing effect of EPL: unemployment is reduced because workers are given a period of employed, predisplacement search during which to locate a new job without ever becoming unemployed. Interestingly, in three quite disparate sources (Jones and Kuhn 1995; Bertola and Rogerson 1996; and OECD 1996) I also detect the very beginnings of an emerging consensus on EPL that incorporates both the insights of the micro-level advance notice literature and the broader cross-national literature: Because their overall costs are small, and perhaps because of offsetting factors like compressed interindustry wage differentials in Europe, EPL's do not have a measurable inhibiting effect on the amount or speed of labour reallocation among firms or industries, or even on the overall level of employment. They do, however, have a direct and measurable effect on unemployment, by eliminating the need for some workers to pass through an unemployment spell on their way to new jobs. Unfortunately, however, the benefits this confers on workers are limited by the fact the spells of unemployment that are eliminated by notice requirements tend largely to be the shortest ones (Jones and Kuhn 1995). This *selection* effect may however explain the well-known result that inflows into unemployment are smaller, but durations of unemployment are longer, in Europe than in North America (Bertola and Rogerson 1996).

4. INFLEXIBLE WAGES: CAUSE OF CANADIAN UNEMPLOYMENT?

The two institutional sources of wage "inflexibility" mentioned most often in the flexibility debate are unions and minimum wages. I therefore begin my discussion in this section by briefly describing the state of unions and minimum wages in the U.S. and Canada, and by discussing some theoretical issues connecting unions, minimum wages, and wage flexibility.

(a) Are Unions and Minimum Wages "Stronger" in Canada than the United States?

It is well known that both union membership and coverage are greater in Canada than the U.S. In 1990, 18 percent of American workers were covered by a collective bargaining agreeement, compared to 38 percent of Canadian workers, with marginally smaller numbers actually belonging to unions (OECD, 1994, p.173). As is also well known, these unionization rates are substantially below those of previous decades in the U.S., but only marginally so for

Canada. Both Canadian and U.S. union coverage rates are low compared to almost all other developed countries, where, even in cases --such as France-- where union membership is low, mandatory extension of union bargaining agreeements typically means that a large majority of workers are covered by union contracts. I shall take it as given that unions have more influence on wage setting in Canada than the United States, and that their influence has declined less rapidly in the past decade as well.

Are minimum wages higher, and/or more pervasive in Canada than the United States? This issue is complicated by the fact that Canadian minimum wages are set by the provinces, while in the U.S., federal legislation sets the effective minimum in the vast majority of states. An overall indication is however provided Figures 1 and 2, which compare measures of the U.S. federal minimum to a labour-force weighted annual average of Canadian provincial minima. As Figure 1 shows, real minimum wages declined in both countries throughout most of the 1980's, due to a combination of inflation and a lack of increases in the nominal minimum. The decline however appears to be smaller, and to be reversed earlier, in Canada. Figure 2 compares the minimum wage to a measure of an economy-wide average hourly wage, taken from comparable surveys in the U.S. (CPS) and Canada (SCF). Interestingly, the U.S. series now shows a sharper decline relative to the Canadian one, though much of this is because it starts from a higher base. Still, even relative to a declining average real wage, the Canadian minimum wage series shows some downward adjustment.

(b) Theoretically, how do we expect unions and minimum wage laws to affect wage "rigidity"?

This basic idea behind the "wage rigidity and unemployment" hypothesis is the following. If a country has a centralized collective bargaining system with the power to maintain a high, and compressed distribution of wages, or if it has high and binding minimum wage laws, then technology- and/or trade-based reductions in the demand for unskilled workers may not be allowed to translate into wage reductions for those groups. An unfortunate byproduct of this system is that these groups may then end up being priced out of the labour market, and thus unemployed, sometimes for long periods of time.

Of course, while it is widely accepted that unions raise wages above market levels, and increasingly accepted that they compress wage differentials between the skilled and unskilled, (e.g. Card 1996), the central empirical issue for the "wage rigidity" explanation of recent unemployment trends is a different one: how responsive are union wages (and for that matter legislated minimum wages) to labour demand shocks, relative to equilibrium wages in an unregulated market? As this is not a question on which there is an established empirical consensus (or even much empirical evidence) it may be worth considering what one might expect based on some simple theoretical models.

Interestingly, existing theoretical perspectives on this issue embody a number of intuitively likely possibilities, with however very different predictions regarding the relative responsiveness of union versus nonunion wages to demand shocks. For example, Grossman (1984) develops a model of trade impacting a unionized sector where the union is characterized

by a seniority layoff system and majority rule. His model, like the OECD hypothesis, predicts wage *inflexibility*. Freeman and Katz (1990) on the other hand argue that union wage differentials will act as a buffer, absorbing trade shocks with wage changes, thus reducing employment effects. Essentially, theirs is a partial-equilibrium argument that union wages can adjust to demand declines because union workers are earning rents; nonunion firms cannot cut wages because they are already paying market wages. Lawrence and Lawrence (1985) present a model of "endgame bargaining". A union, seeing no future for a declining industry, tries to extract as much as possible in the short run. Their model goes beyond union real wage rigidity to predict *increased* union wage demands in the face of rising international competition. Finally, Abowd and Lemieux (1991) propose that changes in demand or import prices will change the quantity of quasi-rents available in an industry. Quasi-rents are divided between firms and unions through an efficient bargaining solution. They predict that a decrease in quasi-rents will increase employment. Wage effects will be determined by the change in quasi-rents per worker. In general, we can think of plausible models that generate opposite results for the relative responsiveness of union versus nonunion wages to negative demand shocks.[24]

Surely, while union wages may in fact respond as much to labour demand shocks as nonunion wages, it must still be the case that minimum wage laws limit an economy's ability to cut wages, especially among unskilled workers? While this is the case for a fixed real minimum, as Figures 1-2 show, it may not be the case in the real world, where inflation cuts the real value of nominal minima, and where governments decide on a regular basis whether the market for unskilled workers is strong enough to support another hike in the nominal minimum. Clearly Canadian governments responded less to demand declines for unskilled workers in the 1980's, but this may be a result of changes in the parties in power in the three most populous provinces. The possibility that, holding the party in power fixed, minimum wages are just as responsive to labour demand shocks as "equilibrium" wages has not been refuted by any analysis I know of.

In sum, the relevant issue for the "wage flexibility" hypothesis as it is currently posed is not whether the high wages caused by unions and/or minimum wage laws lead to a higher level of national unemployment.[25] Instead it is about how much these institutionally-determined wages respond to negative demand shocks, which is an issue we know relatively little about. Evidence on the minimum wage suggests that it may, in fact, be quite responsive to demand conditions for unskilled workers, and the same may be true of union wages as well.

(c) Is Canada a "Rigid Wage" Economy?

Until very recently, there has been considerable consensus regarding trends in the distribution of real wages in Canada since the early 1980's. According to a number of authors and data sources, real wages of both men and women became more unequal during this period. Further, since this was a period of declining real wages for men, there were substantial decreases in the real wages of unskilled men in Canada (see, for example, Kuhn and Robb 1997a,b).[26] Overall, however, most analysts agree that the increase in wage inequality has been less than in the United States (e.g. DiNardo and Lemieux 1997).

Recently, however, this consensus has been challenged in at least two ways. First, the

emergence of data on earnings in the late 1980's and early 1990's appear to show a continuing increase in weekly earnings inequality in Canada, while the U.S. increase levelled off. Thus, some recent indicators seem to show similar increases in inequality in Canada as the U.S (e.g. Kuhn and Robb 1997b). In contrast, while most analysts of Canadian data have been content to treat average weekly earnings as a reasonable measure of the wage rate, recent work by Morissette (1995) and Picot (1996) using a series of special surveys with information on hourly wage rates paints a picture of a relatively *stable* wage distribution, with changes in weekly hours of work playing the major role in the weekly earnings declines of unskilled men. Thus the issue of whether Canada, especially relative to the U.S., is a "rigid wage" or a "flexible wage" economy is once again an open one.

In Tables 6 and 7 I provide some new and preliminary evidence that may be relevant to this issue. To maximize international comparability, the numbers in those Tables are taken from very similar surveys (the Canadian Survey of Consumer Finances (SCF), and the U.S. Current Population Survey (CPS)), and have been constructed from the relevant microdata sources in the most similar way possible. Indeed the only substantive difference in the calculation of the Canadian and US numbers relates to a well-known shortcoming in the Canadian data: usual hours of work are known only for the job held in the week the survey was conducted, not in the previous calendar year, which is the period for which earnings information is available.

In Tables 6 and 7 I do two things: first, I provide relatively up-to-date information on the change in weekly earnings inequality in the U.S. and Canada. Clearly, the message, as in Kuhn and Robb (1997) is *not* one of downward inflexibility in Canadian labour markets: real weekly earnings in the bottom quintile fell more in Canada than the U.S. Second, I decompose these changes in weekly earnings into portions due to changes in hours worked per week, and changes in the average hourly rate of pay. To do so, I rely on the fact that, for each individual:

(1) $\log (E) = \log w + \log h.$

where E is weekly earnings, w is the individual's hourly wage, and h is hours worked per week. In Tables 6 and 7 I first compute log E, the log of weekly earnings in the calendar year, in an identical fashion for both countries, and use it to rank individuals into 5 quintiles. Taking within-quintile means of both sides of (1) preserves the identity, as does differencing between 1981 and the most recent year for which I currently have comparable data, 1992. Finally, note that the hours measure used is different in the two countries (current hours in Canada, usual hours last year in the U.S.), but --due to the linearity of the decomposition in (1)-- this should not bias our results as long as current hours are an unbiased estimate of mean hours in the survey year.[27]

According to Tables 6 and 7, both Canada and the U.S. have seen increased polarization in weekly hours worked, with unskilled workers reducing their weekly hours and skilled workers increasing theirs. However, with the exception of the bottom quintile in Canada, where hours declines explain (.086/.238=) 36 percent of the decline in weekly earnings, changes in hours play a very small role in explaining the decline in real weekly earnings among unskilled males. Interestingly, increases in hours worked have however played a significant role in maintaining the real earnings of more highly skilled men in both countries. Most importantly from the point

of view of the “wage flexibility” hypothesis, hourly real wage declines (or, perhaps more accurately since all we observe directly are weekly earnings and weekly hours, declines in weekly earnings that cannot be explained by the observed declines in weekly hours) among the bottom quintile of Canadian men are comparable to those in the U.S., at about 15 percent in both countries over this 11 year period.

In further research on this data, I hope among other things to extend the analysis to more recent years, to provide more information on intervening years, to understand why these results are so different from Picot's (1996), and to use the U.S. information on average hours in the current job to see whether using current hours makes much difference to these kinds of calculations. If the numbers in Tables 6 and 7 are substantiated by such research, then they paint a very different picture of the Canadian economy than one in which unions, minimum wages, and other institutional forces prevent the downward adjustment of unskilled workers' real wages. Between 1981 and 1992 those wages fell by about the same amount in both countries, despite Canada's higher level of unionization, and despite the more-rapid erosion of real minimum wages in the U.S.[28]

(d) What is the Evidence that Differences in Wage Rigidity Explain International Unemployment Differences, especially between Canada and the U.S.?

Given a considerable amount of recent evidence suggesting that Canadian wages are more rigid than U.S. wages (e.g. Picot 1996), given the emergence of studies linking a smaller increase in Canadian wage inequality to the relative health of its unions (DiNardo and Lemieux 1997), and given the fact that the recent increases in Canadian unemployment have been highly concentrated among the unskilled (Kuhn and Robb 1997a, b), it may be tempting to draw a link between the maintenance --in the face of declining demand-- of high wages for unskilled workers by Canadian unions and governments and the recent increase in Canadian unemployment relative to the U.S.

The evidence reviewed in this section suggests however that such a conclusion would be premature. While real minimum wages did not fall as much in Canada as the U.S., it is clear that they were far from static in Canada, certainly allowing some adjustment to declining demand at the very bottom of the wage distribution. Also, much of the decline in real wages of unskilled workers occurred at wage levels that are well above the minimum, so it is unlikely that minimum wages could have moderated much of this decline. Regarding the responsiveness of union wages to demand declines in Canada, I am aware of no direct evidence, but it is at least plausible that they responded to demand declines by falling as well. Most importantly, however, based on data presented in this paper, it is no longer clear whether the hourly wages of unskilled Canadian men have held up any better than those of American men into the 1990's.[29] While this question requires further scrutiny, it raises the disturbing possibility that Canadian wages have been as strongly hit by technology and demand shocks as U.S. wages, with the tremendous attendant strain on our more generous social programs that such a decline may bring.[30]

5. THEN WHY IS CANADIAN UNEMPLOYMENT SO HIGH?

This is hardly the place to answer one of the central questions facing Canadian economists this decade, but --having questioned the role of EPL's, minimum wages and unions-- it is important to mention a number of alternative explanations for the well-known Canada-US "gap". Perhaps most importantly, it pays to question a maintained assumption of both the "OECD" wage flexibility hypothesis and some other hypotheses on this point as well: that both countries were subject to the same (trade- or technology-induced) demand shocks for unskilled labour. The countries do not produce the same mix of goods, which makes it unlikely that they will be affected by either kind of shock the same way.[31]

Another key potential contributor to Canada-U.S. differences is the Canadian social safety net, a central element of which is the unemployment insurance system. At least in the 1980's, an important contributor to the gap may have been the increasing tendency of nonworking Canadians to label themselves as "unemployed" in order to qualify for benefits (e.g. Card and Riddell, 1993). At the same time, sharp cuts in the U.S. social safety net may have simply eliminated any feasible alternatives to very-low-wage work in that country.[32] Freeman (1994) has attributed some of the current low U.S. unemployment to sharply rising incarceration of unskilled young men in that country. All told, a number of good suspects for the explanation of the Canada-US gap remain; a number of these are discussed in a recent report of the Centre for the Study of Living Standards (1996).

6. CONCLUSIONS.

In this paper I provide a critical review of some evidence that is relevant to a recently popular hypothesis: that the absence of labour market "rigidities" explains an important part of the current unemployment differential between the U.S. and other countries, Canada included. I began by noting there are two common, but quite unrelated conceptions of "rigidities" in current policy discussions, one concerning restrictions on firms' abilities to adjust **quantities** of labour (e.g. employment protection laws), the other concerning restrictions on the **price** of labour (minimum wage laws and unions). Reviewing the evidence on each of these in turn, I conclude that neither is likely to explain a large fraction of the current unemployment gap between Canada and the U.S. Employment protection laws, especially at levels currently prevalent in Canada, are simply not costly enough to have much of an effect. At the same time, --according to new evidence presented in this paper-- by 1992, it may have been the case that neither unions nor minimum wage laws prevented Canadian wage inequality from increasing as much as it had in the U.S. I conclude that other factors, including the possibility of different demand shifts, and other aspects of social policy, are more promising explanations of the increase in Canadian unemployment relative to that in the U.S.

More fundamentally, it is important to bear in mind that the current emphasis on emulating the U.S. in labour and macro policy could be part of a common and recurrent hysteria among observers of national economic performance. This hysteria attributes fundamental and long-lasting virtue to the institutional features of those countries whose macroeconomic performance in the current year, or even decade, happens to be above average. Not long ago, the paragon of virtue in this regard was Japan, whose very rigid practice of lifetime employment was

seen as one to be emulated. Currently on the pedestal is the United States, whose hands-off policy and social Brazilianization are sometimes seen as a necessary price to pay to get people back to work again. Next in line, based on recent popular literature, may be the emerging South East Asian economies; indeed we may soon be told that, in order to match their performance we must adapt the Confucian values of the ethnic Chinese, who figure so prominently in the success of those economies (Naisbitt 1997).

While each of the features of these successful economies may be worth studying as possible ways to improve our own economic performance, the analysis in this paper suggests that any conclusion that Canada's, or Europe's, unemployment situation could be substantially improved by reducing minimum wages, cutting union power, or scaling back our relatively weak employment protection laws, is premature. As is made clear in this paper, apparently costly regulations on firms' abilities to shed workers may not cost very much at all, and may well reduce unemployment. Institutions widely seen as impediments to real wage changes may allow for substantial wage adjustments after all. More generally, "rigid" economies *do* adapt to economic shocks, and may do so as quickly and with much less social costs than would occur otherwise.

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NOTES

1.Internationally standardized unemployment rates show a decrease from 9.5 to 5.5 percent in the United States between 1983 and 1995. Over the same period, Canada’s unemployment rate decreased frin 11.9 to 9.5 percent, while that of Central and Western Europe decreased from 9.8 to 9.2 percent of the labour force (OECD, 1996, p. 198).

2.Between 1973 and 1995, the U.S. employment to population ratio for individuals aged 15 to 64 increased from 65.1 to 73.5 percent. Over this same period, Canada’s employment to population ratio increase from 63.1 to 67.7 percent, and that of OECD Europe fell from 65.1 to 60.1 percent. (OECD, 1996, p. 186).

3. See, for example OECD (1994a), and Lazear (1990).

4.Authors who have made or examined this claim include Wood (1994); Nickell and Bell (1995); Katz, Loveman and Blanchflower (1995); and Abraham and Houseman (1995).

5. The restriction to terminations for economic reasons is generally made to distinguish them from “unjust dismissal” laws, which prevent dismissals for discriminatory reasons, or for such activities as union organizing and jury duty, separately. Restrictions on dismissals for cause are contained in provincial Labour Relations Acts, Human Rights Acts, and other bodies of law. For

an analysis of recent U.S. trends in unjust dismissal law, see Krueger (1991).

6.The exception is labour contracts that are made for a specific term. In Quebec, similar restrictions are found in its Civil Code. In all cases, what is reasonable is determined by a judge, who is expected to consider such factors as existing practice in the industry and the ease or difficulty with which the employee is likely to find a new job.

7. See for example Downey (1989).

8. In most cases layoffs are classified as temporary, and hence not subject to notice requirements, if they are for less than 13 weeks, or (in cases of mass layoffs) if the employer advises the Director of Employment Standards that he or she expects to recall the workers within a period of time approved by the Director. Some jurisdictions however require notice of all large-scale layoffs, whether permanent or not.

9. Before WARN, a handful of states had relatively minimal advance notice laws. Many unsuccessful attempts were however made to pass such laws, however. From 1975 until 1983, 125 plant closing bills were introduced in the 30 state legislatures, and over 40 bills were introduced in the federal Congress since 1979. (Kuhn, 1993).

10. The OECD's Table lists Canada as having a maximum notice period for an individual dismissal of .25 months in the late 1980's. As the OECD reports taking an average of notice requirements across layoffs for economic and "personal" reasons, they could have arrived at this number using the federal notice requirement of 2 weeks, averaged with a zero requirement for "personal" dismissals.

11. The issue should be familiar to anyone involved in the academic labour market: the ease with which one can deny tenure has important effects on the risks one is willing to take in the initial hiring decision.

12. In the standard model, EPL does however have an unambiguously positive effect on job tenures (preserving high-tenure jobs at the expense of new ones), and causes an unambiguous decline in the (cyclical and/or seasonal) amplitude of employment fluctuations (Anderson 1993).

13. Uncertainty matters somewhat more if EPL is modelled as an advance notice requirement than the more conventional "cash tax" formulation. For example, in Bertola's (1992) model with no uncertainty, a mandatory notice law will have no effect at all: firms will just make layoff announcements far enough of each (fully anticipated) layoff date to comply with the legislation. Whether workers benefit from this depends on whether they are as well informed as firms about future demand conditions.

14. An interesting illustration of the importance of the precise form taken by EPL's is a model by Garibaldi (1995) in which EPL's have no effect unless they are stochastic. Garibaldi justifies this stochastic element by reference to the behaviour of Italian bureaucrats.

15. This is far from a necessary result, however, as asymmetric information models can lead to quite counterintuitive policy implications. For example, in Kuhn's (1992) model, mandatory notice can benefit firms while hurting workers, and in Chilton and Addison's model it can hurt both parties. The main point is that mandatory notice is much more than a simple tax on layoffs, and as such can have quite different effects from such a tax.

16. It is interesting to note the similarity of this argument to the Rehn-Meidner case for centralized wage setting in post-war Sweden: use standardized wages to shut down inefficient firms and encourage the growth of efficient ones.

17. If firms had the power to change wages, then the whole notion of mandatory notice would be pointless: firms could just cut wages and induce workers to quit. Most analysts of EPL's therefore assume some kind of wage inflexibility. Note also that the absolute dollar costs of EPL's presented in Tables 4 and 5 are independent of the assumption of $15. for a "base" productivity level. This number is assumed only to derive some representative percentage amounts.

18. Clearly, however, the productivity of the about-to-be-laid-off workers must have been greater than $15. in the recent past; otherwise they would not be in the firm to begin with.

19. In practice, one would expect employees with negative productivity, or employees who pose a significant risk of sabotaging the firm's operations, to be given severance pay in lieu of notice. The option of severance in lieu thus effectively puts a lower bound on how "unproductive" a redundant worker can be.

20. Conversation with Pietro Garibaldi, fall 1995.

21. See also Hamermesh, Hassink and Van Ours (1994) and Leonard and Van Audenrode (1993) for related evidence on the Netherlands and Belgium.

22. Another problem with the notion that stringent EPL's cause unemployment to rise, or employment to fall, is timing: many European countries maintained a combination of low unemployment rates and high EPL until recently, and it is not at all clear that the recent rise in unemployment coincided with an increase in EPL. This is probably why the "differenced" estimates in Lazear's paper perform so much worse than the cross-sectional ones.

23. Addison and Grosso do include a single variable which summarizes the generosity of a country's unemployment insurance system in their (necessarily short) list of controls.

24. Another issue that is relevant to the responsiveness of union wages to shocks that is particularly relevant in the European context is the degree of union centralization. The basic idea is that, if a union is big enough relative to the economy, and particularly if it includes the unemployed in its membership, then it internalizes all the externalities caused by raising wges, and responds to shocks efficiently. This has led some authors (e.g. Calmfors and Driffill 1988) to propose a U-shaped relation between nation union power and economic performance, with

partially-unionized countries like Canada performing the worst.

25. This is not to say that that such a “levels” debate is uninteresting, only that I will not address it here. It is interesting to note, however, that in most of the current literature, the debate about inflexible quantities (EPL's) is typically phrased in terms of levels (high EPL cause high unemployment), while that about inflexible wages is phrased in terms of responsiveness to shocks.

26. A source of some confusion is that *family income* did not become substantially more unequal over this period. This is partly a result of the offsetting increases in male and female earnings, but more importantly, the result of the increased importance of public transfers to low-income families. See for example Blackburn and Bloom (1993); Beach and Slotsve (1996).

27. Suppose that log hours in the current week, log h, equals the “true” measure of hours we are interested in (log h*, or hours last year), plus an error term with mean zero. Then because our ranking of workers into quintiles is based on a variable that is measured independently of log h (weekly earnings last year), the expected value of log h and log h*, conditional on weekly earnings quintile, should be the same. In terms more familiar to economists, the expected value of the regression coefficient of log h on weekly earnings quintile should be unaffected by measurement error in the dependent variable, log h.

28. Recently, the size of the real wage declines shown in Tables 6 and 7 has been put into question by the report of the U.S. Advisory Commission to Study the Consumer Price Index (1996), or “Boskin Commision”. According to the commission, the Consumer Price Index overstates U.S. inflation by 1.1 percent a year, largely due to a failure to adjust adequately for improvements in product quality. For a critical review of the Commission’s findings, see Madrick (1997). Among other things, Madrick notes that the the Commission’s proposed adjustments for quality changes are highly subjective, and that the BLS already makes substantial adjustments for quality improvements, some of which may in fact be excessive. The Boskin Commission's findings of course have no impact on our findings regarding the flexibility of the relative wages of skilled versus unskilled workers, only on the overall upward or downward trend of wage levels per se.

29. DiNardo and Lemieux's (1997) very useful study covers the period 1981-1988 only.

30. The appropriateness of the wage-inflexibility hypothesis has been examined for other sets of countries by Card, Kramarz, and Lemieux (1995) and Nickell and Bell (1995). Card et al. compare Canada, the U.S. and France; their main finding is that increases in unemployment, which --according to the hypothesis-- should have been more concentrated among the unskilled in France than anywhere else, were instead quite evenly distributed there. Nickell and Bell, using at summary statistics from a larger number of OECD countries, attribute only a small share of increased unemployment to relative demand shifts between skilled and unskilled workers.

31. Leamer (1995) explores this hypothesis in the European context for a set of OECD countries by computing the relative “exposure” of different countries to trade shocks.

32. This possibility is supported by the observation that, in contrast to North America, unemployment in countries without unemployment insurance systems like India is higher among educated than uneducated workers. With no real safety net, the unskilled simply cannot afford not to work. It is also supported by Kuhn and Robb's (1997b) observation that, *at fixed real wages*, labour supply of U.S. men has increased in the past decade and a half.

Table 1: Notice requirements for termination of employment, various jurisdictions in Canada, 1996.

Individual				Mass	
Jurisdiction	Length of service	Employer notice (wks.)	Employee notice	Number of employees	Notice (wks.)
Federal	3 months +	2	none	50 +	16
Alberta	3 mos - 2 yrs 2 yrs - 4 yrs 4 yrs - 6 yrs 6 yrs - 8 yrs 8 yrs - 10 yrs 10 yrs +	1 2 4 5 6 8	2 wks.	No special provision	
British Columbia	3 mos - 1 yr 1 mos - 3 yrs 3 yrs 1 addit. wk for each addit. yr of employ.- max 8 wks.	1 2 3 8	none	50 - 100 101 - 300 300 +	8 12 16
Manitoba	1 month +	1 pay period	same	50 - 100 101 - 300 300+	10 14 18
New Brunswick	6 mos - 5 yrs 5 yrs +	2 4	none	10 or more, if they represent 25% of the employer's workforce	6
Newfoundland	1 mo - 2 yrs 2 yrs +	1 2	same	50 - 199 200 - 499 500 +	8 12 16
Nova Scotia	3 mos - 2 yrs 2 yrs - 5 yrs 5 yrs - 10 yrs 10 yrs +	1 2 4 8	same	10 - 99 100 - 299 300 +	8 12 16
Ontario	3 mos - 1 yr 1 yr - 3 yrs 3 yrs - 4 yrs 4 yrs - 5 yrs 5 yrs - 6 yrs 6 yrs - 7 yrs 7 yrs - 8 yrs 8 yrs +	1 2 3 4 5 6 7 8	if employed less than 2 yrs, 1 wk if employed 2+ yrs, 2 wks	50 - 199 200 - 499 500 +	8 12 16

Table 1 contd.

Individual				Mass	
Jurisdiction	Length of service	Employer notice (wks.)	Employee notice	Number of employees	Notice (wks.)
Prince Edward Island	6 mos - 5 yrs 5 yrs +	2 4	if employed 6 mos - 5 yrs, 1 wk if employed 5 + yrs, 2 wks	no special provision	
Quebec	3 mos - 1 yr 1 yr - 5 yrs 5 yrs - 10 yrs 10 yrs +	1 2 4 8	none	10 - 99 100 - 299 300 +	2 mos 3 mos 4 mos
Saskatchewan	3 mos - 1 yr 1 yr - 3 yrs 3 yrs - 5 yrs 5 yrs - 10 yrs 10 yrs +	1 2 4 6 8	none	10 - 49 50 - 99 100 +	4 8 12
Northwest Territories	90 days - 3 yrs 1 addit. wk. for each addit. yr. of employment - max 8 weeks	2 8	none	25 - 49 50 - 99 100 - 299 300 +	4 8 12 16
Yukon	6 mos -1 yr 1 yr - 3 yrs 3 yrs- 4 yrs 4 yrs - 5 yrs 5 yrs - 6 yrs 6 yrs - 7 yrs 7 yrs - 8 yrs 8 yrs +	1 2 3 4 5 6 7 8	same	25 - 49 50 - 99 100 - 299 300 +	4 8 12 16

Source: Labour Canada, Employment Standards Legislation in Canada; latest figures are now available at: http://labour-travail.hrdc-drhc.gc.ca/policy/leg/e/

Table 2: Notice requirements in Canadian Jurisdictions for individual terminations, 1970-1996* (in weeks)

Year: 19--																									
Jurisdiction	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	93	95	96
1. Federal		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
2. Alberta				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	8	8	8	8	8	8	8
3. BC												8	8	8	8	8	8	8	8	8	8	8	8	8	8
4. Manitoba[x]	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5. NB																4	4	4	4	4	4	4	4	4	4
6. Nfld.[x]	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
7. N.S.	1	1	1	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
8. Ontario	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
9. PEI		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	4	4
10. Quebec[x]	1	1	1	1	1	1	1	1	1	1	1	8	8	8	8	8	8	8	8	8	8	8	8	8	8
11. Sask.	1	1	1	1	1	1	1	1	1	1	1	8	8	8	8	8	8	8	8	8	8	8	8	8	8
12. NWT																				8	8	8	8	8	8
13. Yukon																	1	1	1	1	1	1	1	1	8

Sources: Labour Canada; *Labour Standards Legislation in Canada*, various years. (Note this publication became biennial in the early 1990's) *Canadian Labour Law Reporter*.

* Notice is calculated as the number of weeks of notice for a worker with 10 or more years of service, paid weekly.

[x] Prior to 1979 and 1981 respectively, and in Manitoba's case for the entire period, Newfoundland and Quebec's notice requirements were determined by worker's pay period.

Table 3: Notice requirements in Canadian Jurisdictions for mass terminations, 1970-1996* (in weeks)

	Year: 19--																							
Jurisdiction	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	93	95	96
1. Federal		16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
2. Alberta																									
3. BC																							18	18	16
4. Manitoba[x]				16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	18	18	18
5. NB																6	6	6	6	6	6	6	6	6	6
6. Nfld.[x]							16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
7. N.S.				16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
8. Ontario	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
9. PEI																									
10. Quebec[x]	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	16	16
11. Sask.																								12	12
12. NWT																				16	16	16	16	16	16
13. Yukon																	16	16	16	16	16	16	16	16	16

Sources: Labour Canada; `Labour Standards Legislation in Canada', various years (Note this publication became biennial in the early 1990's). *Canadian Labour Law Reporter*.

* Notice is calculated as total weeks required for layoffs involving 500 or more workers.

x After 1970, Quebec's notice requirements is actually 4 months.

Table 4: Equivalent Wage Increases to Selected Notice Requirements

Hourly Productivity of "Redundant" worker		Notice Requirement (months)					
		2		6		12	
$	% of breakeven	$	% of breakeven	$	% of breakeven	$	% of breakeven
13.50	90	0.007	0.05	0.02	0.15	0.04	0.30
7.50	10	0.037	0.25	0.11	0.74	0.22	1.48
0.00	0	0.074	0.50	0.22	1.49	0.44	2.95

Assumptions: -Real Interest Rate: 3% per annum
-Worker's Productivity, and base for all percentages: $15.00 per hour

Table 5: Productivity Levels of Redundant Workers Equivalent to a One Percent Permanent Wage Increase, under Selected Notice Requirements

Real discount rate (annual)	Notice Requirement (months)					
	2		6		12	
	$	% of breakeven	$	% of breakeven	$	% of breakeven
2%	-30.11	-201	-0.09	-1	7.41	49
3%	-15.11	-101	4.91	33	9.92	66
4%	-7.61	-51	7.41	49	11.16	74

Assumptions: -Worker's Productivity, and base for all percentages: $15.00 per hour

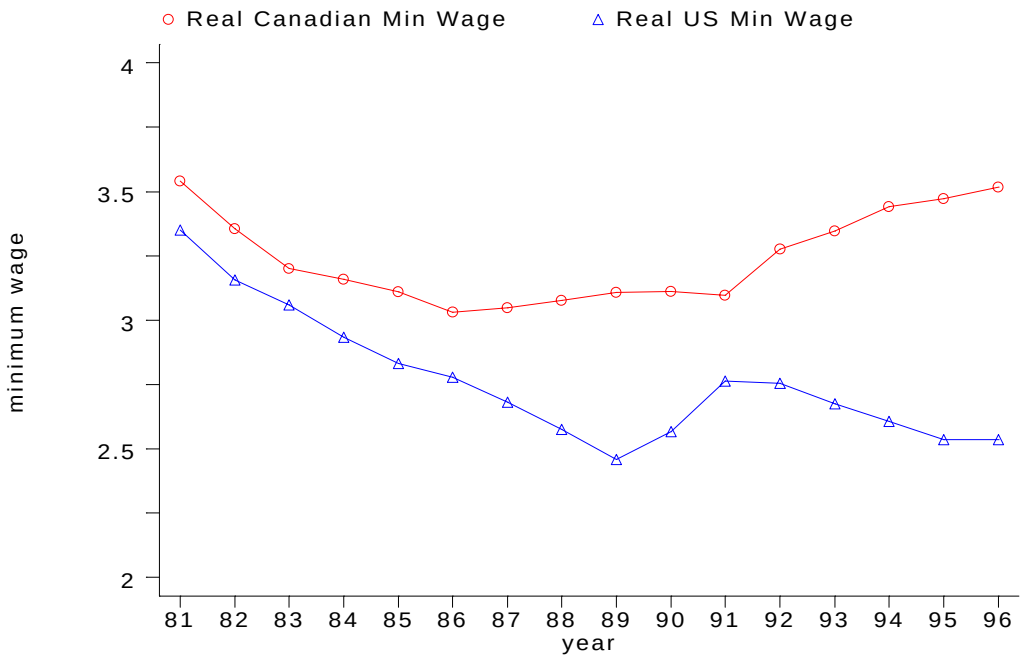
Table 6: Decomposition of the Growth in Mean Weekly Earnings, 1981-1992 Males 24-60, Canada*			
Quintile	**Change in Log Weekly Earnings**	**Change in Log Hourly Wage**	**Change in Log Hours per Week**
1	-23.8	-15.2	-8.6
2	-8.7	-8.2	-0.6
3	-3.0	-3.8	0.8
4	-0.1	-2.8	2.7
5	2.8	-1.0	3.7
All Workers	-6.6	-6.2	-0.4

Notes: Data from the Survey of Consumer Finances, various years. Includes all males with positive earnings and weeks worked in the survey year, and positive usual hours worked in the reference week. Self employed individuals are excluded from the calculations. "Log Hourly wage" is calculated as the difference between log weekly earnings in the reference year and usual weekly hours in the job held during the survey week.

Table 7: Decomposition of the Growth in Mean Weekly Earnings, 1981-1992 Males 24-60, USA*			
Quintile	**Change in Log Weekly Earnings**	**Change in Log Hourly Wage**	**Change in Log Hours per Week**
1	-18.2	-14.9	-3.3
2	-13.1	-13.5	0.4
3	-8.0	-10.3	2.3
4	-2.3	-4.9	2.6
5	4.1	0.2	3.9
All Workers	-7.5	-8.7	1.2

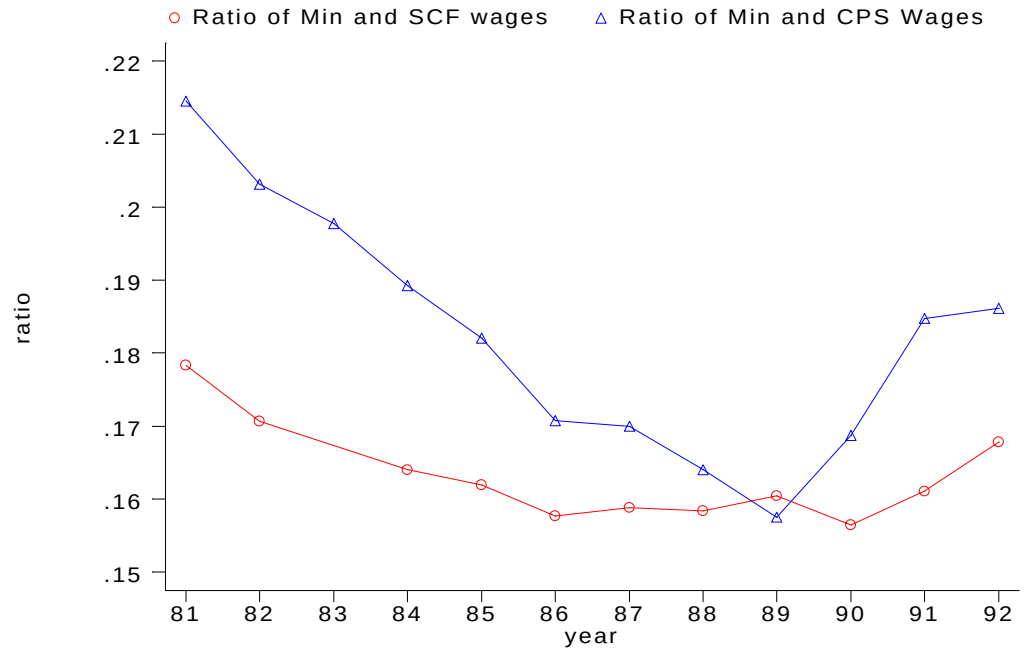
Notes: Data from the Current Population Survey, various years. Includes all males with positive earnings, weeks worked, and usual weekly hours in the survey year. Self employed individuals are excluded from the calculations. "Log Hourly wage" is calculated as the difference between log weekly earnings in the reference year and usual weekly hours in the reference year.

Figure 1: Real Minimum Wages, Canada and U.S., 1981-1996



Notes:
- Canadian minimum wages are a labour-force-weighted average of provincial minima
- US minimum wage is the federal minimum wage
- Canadian minimum wages in Canadian dollars: U.S. in U.S. dollars
- Series deflated using the all-items Consumer Price Index

Figure 2: Ratios of Minimum Wages to Average Male Wages, Canada and U.S., 1981-1992



Notes:
- Canadian minimum wages are a labour-force-weighted average of provincial minima
- US minimum wage is the federal minimum wage
-Average male wage is computed as average hourly earinings from SCF and CPS files (see Tables 6 and 7)

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