Unemployment Insurance and Unemployment -- Revisited

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In the ongoing debate on the connection between unemployment insurance and unemployment, there are three very different levels of evidence in use. (1)   The discussion of individual observations is called "case study analysis" by sociologists, but although samples of one are disparaged as "anecdotes" by economists, their constant reappearance in the dialogue testifies to their importance, in practice, in shaping attitudes on unemployment insurance.

(2)   The increasing availability of microdata on individuals has spawned a huge econometric literature on unemployment incidence and duration, in which unemployment insurance variables often appear. The cross- sectional variation in unemployment insurance parameters among individuals and the impact over time of changes in unemployment insurance on panels of respondents have been used as sources of non-experimental evidence on the impacts of unemployment insurance.

(3)   Analysis of macroeconomic time series data has often included measures of unemployment insurance generosity as explanatory predictors of aggregate unemployment.

Each of these research methodologies has its own problems. Small samples clearly purchase the virtues of vividness at the expense of statistical representativeness. Microdata can provide very large, statistically representative samples, but they are usually drawn as a sample of households selected from a census of residences. Since household samples can only provide crude information on the characteristics of employers (e.g. industry), the explanatory variables available in most microeconometric studies are limited to the supply-side characteristics of individuals, to the exclusion of any possible demand-side influences of UI on firm behaviours. Although unemployment insurance can plausibly be argued to offer incentives to firms to change their behaviour, most available microdata can only test hypotheses about the changed behaviour of workers.[1] Microdata analysis also suffers from the problem that large cross-sectional samples have often only been analyzed at a single point in the

business cycle, and their results cannot necessarily be generalized to behaviour at other phases of the macro-economic business cycle, when jobs are easier, or more difficult, to find.[2] On the other hand, the panels of microdata which could be used to track the behaviour of individuals over the business cycle have typically been too small to offer statistical reliability in the estimation of labour market behaviour. [See Gordon, Osberg & Phipps (1993)].

Although microeconometric work has typically been very unconvincing in its treatment of the demand side of labour markets, it does have the great virtue that microdata can link measures of particular behaviours by individuals to the particular incentives of unemployment insurance which are relevant to them. There is also a clear way of aggregating the behaviour (if correctly modelled) of different individuals. These virtues are lost in macroeconomic time series analysis. Although time series models may be capable of modelling, in a simultaneous equations structure, both the demand and the supply side of labour markets, they must, of necessity, use aggregate variables such as "average unemployment insurance generosity". People may care about the generosity of the UI system to themselves personally, but no real individual can be expected to care about "average" generosity. Measures of average generosity can change in perverse ways, for reasons unconnected to changed in unemployment insurance. There is no clear way to aggregate the presumed micro-behaviour of individuals into macro-economic aggregates and there are lots of examples of how aggregation may be invalid. Hence, the connection between microeconomic theorizing and macroeconomic hypothesis testing is, at best, tenuous.

In some quarters, the adverse impacts of unemployment insurance on unemployment are taken as large and self-evident.[3] However, although it is hard to imagine how one could construct a system as complex as Canadian unemployment insurance, spending as much as it now does (currently, approximately $20 billion a year) without affecting the economy, the very size and complexity of UI ensures that it will have <u>many</u> impacts on the economy -- some good, some bad and some ambiguous.

The ambiguity of recent research results on UI's impacts stands, moreover, in distinct contrast to the certainty of much popular opinion. How can one explain (a) the ambiguity of recent research results and (b) the coexistence of firmly held popular beliefs with such ambiguity?

The plan of this essay is to discuss the impacts of UI on unemployment at each of the three levels of analysis -- anecdotal, micro-econometric and macroeconometric. Section 1 presents a case study in which repeat usage of UI has no effect on behaviour, in contrast with the mathematical anecdote discussed in Section 3.4. Section 2 discusses why micro-econometric evidence on the impacts of UI may be incomplete. Section 3 assesses the meaning to be attached to the use of aggregate measures of UI generosity in macro- econometric times series analysis. Section 4 is a conclusion.

1. <u>A Case Study of Repeat Unemployment Insurance Usage</u>

   In documentary films of the mass unemployment in the 1930s, one sometimes sees footage of the "shape-up", in which scores of unemployed workers arrived at plant gates in time for the start of the day's shift, only to be picked over for the days work by the "boss" for the best of the lot, and the others sent on their way. In the 1990s, casual labour and day to day employment insecurity still exist, but one does not see similar scenes. Telecommunications, and the greater sophistication of market intermediaries, have sanitized the visuals. Today, casual labour needs are filled by the personnel department placing an order by phone or Fax to a temporary help agency, which sends an appropriately screened worker at the exact time and to the proper location.

   As part of a larger series of case studies of Nova Scotia employers, I interviewed workers at a major Temporary Help Agency, (a multi-national, with offices in Halifax). "Ron" is a "light industrial worker" in his early 20s with "almost" a grade 12 education. Working as a labourer at the flour mill, or setting up and taking down trade displays, he earns between $5.80 and $6.00 an hour, but works alongside permanent unionized workers making over twice his hourly wage rate. Ron observes that many of these permanent workers were hired on after initially working as temporaries, and his main objective is to get hired on full-time. He figures that if he can establish a good work reputation, employers will ask for him by name from the agency and when a permanent vacancy becomes available he may have some chance at the job. As things stand, he must make a remarkable effort to get to work, since he has no car and often must hitchhike to remote job sites, getting up very early in order to be there for a 7:00 a.m. job start.

   In the labour market of the 1960s, Ron might have been able to go directly into a permanent job. His work in setting up and taking down trade exhibitions is inherently subject to short-run surges in activity, and one can understand the need for temporary workers, but his work at the flour mill was steady and predictable. In both cases, however, the temporary help agency is functioning as a waiting room for permanent employment. A process of "double screening" is going on, since the agency selects temporary workers from the general pool of applicants, and firms get a chance to look over workers at length, with no fuss about terminating an individual worker and no presumption that employment rights are being established. Firms are also able to hire labour at substantially less than the hourly cost of their permanent employees. In a period of prolonged recession, firms are under increased

pressure to reduce the number of high cost permanent employees, and they can find a continual supply of low wage workers on a "temporary" basis.

Given that he often does not know from one day to the next whether work will be available tomorrow, Ron has also developed an interesting pattern of reliance on Unemployment Insurance. He has nothing in the bank to tide him over the two week waiting period at the start of a UI claim and often faces days when no work is available. Because of this, as soon as Ron establishes eligibility for UI, he opens a claim with the UIC, and then declares to the UIC any days of work which may become available at the temporary help agency. Although his earnings while on UI claim are taxed at an extremely high rate (currently earnings in excess of 25% of the benefit rate are deducted, dollar for dollar from UI payments), his earnings are also building up an entitlement to the next UI claim. Furthermore, at Ron's level of income, every dollar is worth having, and it is crucial for him to get immediate income replacement for the days when work is unavailable. Ron has weeks when he gets no work, and weeks when he gets one day, or two days work -- in those weeks, UI puts a floor to his weekly income. During weeks when he gets 3 to 5 days' work, he derives no current benefit from being on UI claim, (but does establish entitlement for a future claim, which protects him against low-demand weeks in the future) and the fundamental fact is that Ron is a quantity-constrained worker -- at his level of income, his cash needs are such that he will always accept work, if it is available.

If this were the only case, the story might be dismissed as unique but I also interviewed fish plant workers who follow the same pattern of use of UI. The long established custom in the fish processing industry is that workers bear the cost of any fluctuations in the supply of fish, since they are sent home, or not called in, when no fish is available for processing. Any available work is allocated by seniority. Poor catches, or the late arrival of trawlers, therefore mean that low seniority workers frequently face short- term lay-offs, on a day by day basis. However, both they and Ron have a long- term perspective -- by accepting work whenever it is available, they hope to work their way into greater job security (in Ron's case, by acquiring a reputation which will get him a permanent job, and in the fish plant case, by moving up in seniority, and thereby avoiding future lay-offs). In the meantime, these workers are repeatedly dependent on the Unemployment Insurance system -- but in a very real sense the UI

system is doing what it was originally intended to do, i.e. tiding a low income worker over short periods when no work is available.

Insecurity of employment is increasingly characteristic of the Canadian labour market. The Economic Council of Canada defined "non-standard employment" as consisting of work within the temporary help industry, own account self-employment, part-time and short term and temporary arrangements. They estimated that 28% of all employment in 1989, and 44% of all employment growth in the 1980s, was in non-standard employment forms (1991:81). The stories of Ron, or the fishplant workers, are therefore useful as more than simply "antidote anecdotes" which make the point that constraints on job availability and long-term returns to employment stability are characteristic of modern labour markets. These case studies are also useful in reminding us that unemployment insurance still does play its classic role of bridging financial need in a labour market characterized by short-term insecurity in labour demand.

Furthermore, interviews with low-wage workers are a useful way of reminding economic researchers that these can be quite "normal" people. The people I interviewed had relatively unattractive options to choose from, but they are not stupid. They can see clearly the long run implications of short- run behaviour -- in particular, they know that casual work has poorer pay and fewer fringe benefits than a permanent job, and that an unstable work history will destroy their chances of ever getting a reasonably good job. They know that a local reputation for dependability and effort, or the protections of seniority, are particularly important for people who lack educational credentials or specialized skills. And they have very standard aspirations for a better material standard of living -- they do not like living in crummy apartments and having nothing in the bank, and they know, from direct experience, that a lifetime of that is what a cycle of casual work and transfer dependence implies.

2.   <u>Microeconometric Evidence on the Relationship Between Unemployment Insurance and Unemployment</u>

Unemployment Insurance in Canada has become a very complex system, with a volume of detailed regulations, and a growing body of case law interpreted by a mini-industry of adjudicators and lawyers. The incentives, penalties and provisions of unemployment insurance also interact with the details of income tax legislation and the provisions of other social welfare programs, in ways which differ by jurisdiction and labour market across Canada. One of the underrated advantages of case study analysis is the fact that it can indicate how important the details of UI regulations can be, in ways that often might not have been apparent to academic analysts.[4]

One can, however, also easily drown in detail. Both academics and politicians would like to find simple answers to simplified questions, such as "Does a more generous unemployment insurance system cause increased unemployment?"[5] To answer such questions, one needs a theoretical framework (in order, for example, to define more clearly UI "generosity") and a data set which is representative of the broader population.

Micro data on individuals can come from administrative records or from surveys of the population. Since administrative records usually contain, naturally enough, only the information needed for administrative purposes, such data usually lack many of the variables (such as years of education) which are thought to be important as predictors of individual labour market outcomes. Internal UI administrative records have the advantage of a very large sample size, but are not easily accessible to outsiders.[6]

Economists have therefore tended to rely on public use micro data from cross sectional samples such as the Current Population Survey (US) or the Labour Force Survey (Canada), or panel studies, such as the Panel Study of Income Dynamics. In these surveys, a sample of households is selected from a census of residences and respondents are questioned about labour market outcomes (e.g., wage rate, unemployment experience, job tenure, search strategies used) and background social and demographic characteristics (e.g., education, age, number of dependents, spouse's labour force status, etc.). It is inherent in this methodology that one cannot obtain data which is beyond the knowledge of the individual respondent. Individual respondents cannot supply reliable data on the variability in their employers' sales or the capital intensity of the employer's production process. In a random sample of households, there is no way to identify whether other respondents are employed by the same firm and, as a consequence, there is no way to isolate employer specific effects on unemployment incidence or duration.

Although a wealth of detail can be gathered on the characteristics of individual respondents and the households to which they belong which might influence the decisions of individual workers, there is virtually no information available on the factors which might influence the decisions of firms.

Econometric analysis of micro data can, therefore, test hypotheses about the supply side behaviour of individual workers, but most micro data[7] cannot test hypotheses about the demand side behaviour of firms. Observed outcomes in the labour market always depend on both demand and supply -- after all, employment is the joint event that an individual accepts a job offer and that a firm makes a job offer. However, since demand side hypotheses on firm behaviour cannot be tested with standard micro data, economists have tended to emphasize models of individual supply-side behaviour, and to assume demand side problems out of existence. In the literature on unemployment insurance, the two most influential approaches have been labour/leisure choice models and search models.

2.1 Labour/Leisure Choice Models of Unemployment Insurance

The demand side of labour markets disappears entirely in labour/leisure models of the impact of unemployment insurance, of the sort represented in Figure 1. In this framework, weeks of work are assumed to be available to individuals in whatever amount they desire, at a constant weekly wage. It is assumed that interruptions in work history have no consequences, either now or in the future, for wages or job availability. Individuals are presumed either to be myopic, looking only one year into the future, or (equivalently) to choose perpetually recurring annual cycles of labour and leisure. There are presumed to be no constraints on individual choice, other than the unchanging weekly wage rate and the parameters of the UI system -- enforcement of the job search and job acceptance requirements of Unemployment Insurance legislation is presumed not to exist. Individuals are assumed to derive utility from the consumption of material goods and from leisure -- unemployment is presumed to be equivalent to leisure, with no stigma or disutility.

If one is willing to buy all this, the income/leisure alternatives open to an individual without unemployment insurance can be represented as line AF in Figure 1, while an unemployment insurance scheme similar to the Canadian system can be represented as the line ABCDEF. People who work less than the minimum period

required to qualify for unemployment insurance are unaffected by UI, and this situation can be represented by line

segment AB. Once an individual becomes eligible for unemployment insurance, they can

Figure 1

receive an amount equal to the benefit replacement rate (B/W) times the number of weeks worked (for workers who just qualify for UI benefits, this can be represented as the vertical distance BC in Figure 1) -- this creates an income effect on labour supply.

Substitution effects arise from the impact of unemployment insurance on the marginal return to a week of work. If individuals are acquiring additional weeks of UI entitlement at the rate of one week of additional entitlement for each week of work (line segment CD), the marginal return is (1 + B/W) x weekly wage, and the substitution effect of UI is positive. When individuals must give up a week of benefits for each week of additional work, (because weeks worked + weeks of UI entitlement >52) the marginal return is (1 - B/W) x weekly wage, and the substitution effect is negative. A two week waiting period for benefits, plus the assumption of an annual decision making horizon, implies that people who work more than 50 weeks per year are unaffected by the unemployment insurance system (line segment EF).

Since the whole point of this approach is that individuals respond to the incentives of the unemployment insurance system, it is essential to model correctly those incentives. If wages or job availability in the future are put at risk by a history of unstable employment, clearly Figure 1 is not a good model of the incentives facing individuals. Figure 1 also represents a simplified model of the Canadian Unemployment Insurance system, and it is essential to represent accurately the actual incentives facing individuals. Atkinson et al. (1984) remain a classic statement of the empirical importance of accurate representation of the unemployment insurance incentives facing individuals. As they conclude, (1984:25)

> "In the design of public policy, the use of empirical evidence on behavioral reactions is crucial -- the alternative being reliance on anecdote and prejudice. However, it is essential that the empirical evidence be robust. "Robustness" does not mean that all estimates with different data must be identical, nor that simplifying assumptions are ruled out, nor that all sources of bias must be eliminated .... In the present paper we have argued that the evidence about unemployment benefit and unemployment duration in Britain is far from robust. Despite the claims quoted at the beginning that the effect of benefits is "firmly established" the co-efficient turns out to be poorly determined -- even within the framework of the earlier studies. There is considerable variation in the estimated elasticity when we consider alternative benefit variables, different specifications of the replacement rates, different time periods, and the inclusion/exclusion of family circumstances. With some combinations of assumptions, it is possible to reproduce the earlier finding of an elasticity

around 0.6: with other -- quite reasonable -- formulations the estimated
elasticity is not significantly different from zero. There is, therefore,
substantial scope for the conclusions drawn to be influenced by prior beliefs."

The empirical importance of the incentives argument depends on accurate modelling of incentives, the

magnitude of labour supply elasticities, and the number of people affected by each characteristic of the system.

The UI system not only contains disincentives to work (line segment DE), it also contains incentives to <u>increased</u>

labour supply (line segment AB or CD)[8] as well as regions (line segment EF) where UI has no impact. The net

impact of UI depends on <u>how</u> <u>many</u> people are in each of these different situations and <u>how</u> <u>much</u> their behaviour

changes All the recent evidence on labour supply elasticities argues that income and substitution elasticities of

labour supply are very small.[9]

Phipps has demonstrated in a series of papers (see 1990, 1991, 1993) and in her contribution to this volume

that utility maximizing behaviour responds to incentives, but that such behaviour is also subject to constraints.

She uses the framework of Figure 1 to ask whether better estimates of labour supply behaviour can be obtained if

one allows for the possibility that individuals may be constrained in the weeks of work which are available to them

-- the answer is unambiguously "yes". She also asks whether the supply side incentives of the UI system make

much difference to individual behaviour, <u>given</u> that individuals may not be able to get all the weeks of work which

they might desire at the going wage, and may not be able to increase labour supply when 'incentives' increase -- the

answer is that UI incentives have little impact on labour supply. Phipps and Osberg (1991) demonstrate that

individuals respond in very different ways to the changed incentives created by UI and by income taxation. More

recently, Osberg and Phipps (1993) have reaffirmed the empirical importance of job availability as a constraint on

the labour supply of Canadians.[10]

2.2   <u>Search Models and the Impact of Unemployment Insurance on Unemployment</u>

In search models of unemployment, an unemployed individual is represented as receiving job offers at some

exogenous rate and as accepting those offers with some probability P_a.

(1) $P_a = 1 - F(w_r)$

F=the cumulative distribution function of the wage offer distribution relevant to the individual

w_r=the reservation wage chosen by the individual.

The probability of getting a job is then given by:

(2) $P_{ue} = \cdot P_a$

In some respects, search theory is an elaborate expansion on the truism that the probability of an unemployed individual getting a job is equal to the probability that the individual will receive an offer times the probability that the individual will accept the offer -- but it matters a good deal whether one emphasizes the determinants of the job offer arrival rate () or the job offer acceptance probability (P_a).

In their encyclopedic survey of the search literature, Devine and Kiefer (1991) note that most studies have taken the job offer arrival rate as exogenous and have concentrated their attention on the determinants of the reservation wage. Again, the demand side of the labour market disappears. (Devine and Kiefer in fact argue that since the available empirical evidence indicates that most unemployed workers accept the first job offer which they receive, the emphasis on supply side decision making has been unfortunate, and more effort in future research should be placed on an examination of the determinants of offer arrival rates).

Most analyses of the impact of unemployment insurance on the search process see a more generous UI system as decreasing the relative cost of remaining unemployed and thereby increasing the reservation wage, which implies an increase in the probability of remaining unemployed, an increase in the average post unemployment wage rate and an increase in the average duration of an unemployment spell.[11] Devine and Kiefer (1991:304) conclude, however, that:

"The difficult issue of the effect of unemployment benefits on unemployment durations is still unsettled. Estimates vary across samples and there is evidence that the benefit effect varies with labour market conditions (responsiveness declines with increases in local unemployment rates), elapsed duration, and age. Benefits also appear to have different effects on the behaviour of workers on temporary lay-off, relative to the effect on behaviour of workers on permanent lay- off. There is some empirical evidence that benefits affect search intensity and the choice of search method, on the supply side of the market. Estimates also vary with estimation techniques and this sensitivity suggests specification error in modelling the effect of benefits. In particular, the potential duration of benefits may be as important as the benefit level. Demand side analysis of benefit effects within the search framework has been rare, but limited evidence suggests that effects on firm behaviour are potentially more important.

To sum up, benefits appear to affect unemployment durations in a complicated way. There is probably no single number -- a "benefit effect" -- that applies to all workers and to each worker in all circumstances. Sharper modelling of the effects of benefit program parameters on the generation of offers (including lay-offs and recalls of workers by firms) would be a useful course for future research, especially in view of the finding that reservation wages are less important empirically than the arrival rate of offers."

Part of the reason for the ambiguity of research results may be the fact that most studies of the impact of unemployment insurance on unemployment have only been done once, at one particular point in the business cycle (but different studies have been done at different points in the cycle, with different results). However, one ought to expect that the influence of unemployment insurance would vary, at different points in the business cycle. After all, one of the constraints which each individual job seeker faces, in any point in time, is the state of the aggregate labour market -- and economists normally expect that behaviour will change, when constraints change.[12] Using Labour Force Survey data from 1981, 1983 and 1986, Osberg (1993) examined the search strategies of jobless Canadians at a business cycle peak, trough and mid-point. He found significant changes in job search strategies over the business cycle and, in related work, significant changes in inter-industry mobility patterns (Osberg, 1991).[13]

Many years ago, Hamermesh (1977) noted that although more generous unemployment insurance payments may lead some individuals to decline job offers, the implications of this vary dramatically with the business cycle. When there are many jobs, but few job seekers, a declined job offer means that the individual must search longer

for an acceptable job, and the firm searches longer for an employee -- hence more generous UI causes an increase in the aggregate unemployment rate.

However, when there are many applicants for each available position, the job offer which is turned down by one individual is quickly snapped up by the next individual in the job queue. Periods of excess supply of labour therefore imply that the UI-induced increases in unemployment duration of some individuals produce decreases in the unemployment duration of those other individuals who receive offers they would not otherwise have gotten. In a cross-sectional comparison, the recipients of UI may have longer durations of unemployment, relative to non-recipients, but this may be largely a relative effect on the composition of the pool of the unemployed, and not an aggregate effect on the level of unemployment.

In labour economics, analysts are often interested in the determinants of the relative position of some individuals compared to others. Econometric analysis of a cross-section of micro data on individuals at a particular point in time can provide such evidence e.g., one can discover whether people with more education, or more unemployment insurance income, find jobs faster (or slower) than people with fewer years of education or less unemployment insurance income. However, micro-econometric cross-sectional analysis can only explain the relative outcomes of some individuals compared to others. If our interest is in the determinants of the average level of all outcomes (e.g. in explaining the absolute level of aggregate unemployment over time), the analysis of cross-sectional micro data cannot do the job.[14]

In addition, Atkinson and Micklewright (1991) have recently surveyed international evidence on the connection between unemployment compensation and unemployment and have stressed the complexity of UI systems and the inadequacy of a simple story of UI disincentives. They argue that the cessation of search activity may be due to temporary withdrawal from the labour force, a return to school or other training or a permanent retirement. A transition to employment from unemployment may represent the acceptance of a permanent job or short duration, casual employment. These differing transitions have different causes, and different consequences -- and are influenced to differing degrees by the provisions (both incentives and administrative) of unemployment insurance schemes. They conclude (1991:1721) that:

"Our review began with the effect of unemployment benefit levels, or replacement rates, on the probability of exit from (and entry to) unemployment. This has been the principle focus of much of the literature, but we concluded that the findings are far from robust. One has to look carefully to find significant replacement rate coefficients, and their size is typically small. There is evidence that benefits may influence temporary layoff in the US but with the effect coming from the demand side rather than the supply side.

Our principle argument in this paper has been that it is essential in the analysis of unemployment compensation to (a) distinguish different labour market states and (b) treat the institutional features of different forms of unemployment benefit...

Our review of the evidence leads us to conclude that there may be adverse effects on the incentive for the unemployed to leave unemployment but that these are typically found to be small, and there is little ground for believing that much voluntary quitting is induced by the unemployment insurance system. Moreover, the richer view of the relationship between unemployment compensation and the labour market that we have urged in this paper allows to identify some of the ways in which it (unemployment compensation) may have a positive, rather than a negative, impact. This applies particularly to unemployment insurance, as opposed to unemployment assistance".

In general, Atkinson and Micklewright are highly sceptical that unemployment insurance can be blamed for the rising unemployment of the 1980s. Canada is not the only country where the increase in unemployment of the 1980s has coincided with a decrease in the generosity of unemployment compensation.

All these micro-econometric studies used standard micro data tapes which, as noted previously, contain only information on the responses of individual workers. Osberg et. al. (1986) report the results of a study of unemployment incidence and duration which started by interviewing a stratified random sample of employers, obtaining lists of workers from each, and then interviewing a sample of the workers employed at those establishments. Since workers were interviewed in 1979 and re-interviewed in 1981, and since worker characteristics could be exactly matched to the characteristics of their 1979 employer, it was possible to nest models of the determination of unemployment incidence and duration which relied solely on the supply side characteristics of workers within a more general model of unemployment which reflected both the supply side characteristics of workers and the demand side characteristics of firms. If one only used the information available from the worker interviews, "standard" econometric results on the impact of UI generosity on unemployment

incidence and duration over the period 1979 to 1981 could be obtained. However, if one allowed for the possible influence of firm level characteristics, such as sales variability or rigidity of job assignments, the adverse impacts of the benefit/wage ratio on unemployment incidence and duration disappeared. Although the sample is relatively small (119 employers, 1,563 employees) this study remains the only one which has attempted to use micro data evidence on both the demand and the supply side of labour markets - - and it appears that evidence from the demand side does make a difference to the presumed impact of UI on individual unemployment.

In principle, micro-data and micro-econometric evidence have the potential to model the complex structure of UI incentives and disincentives. However, theory has tended to ignore the potential role of demand side variables, perhaps partly because available microdata sets have generally not contained the variables which could convincingly test hypotheses about the influence of UI on firm behaviours. As well, there is good reason to expect the influence of UI on individual outcomes to vary over the business cycle and to be cautious about aggregating the impact of UI on relative outcomes in cross-sectional evidence. Better data, and sharper modelling, are clearly called for.

3.   Macro-Economic Time Series Evidence

Simultaneous equations models of the macro economy have the potential to model both the demand and the supply sides of labour markets. The original Grubel, Maki and Sax (1975) model of the impact of unemployment insurance on Canadian unemployment rates followed such a simultaneous equations approach.[15] However, recent literature on the macroeconomic impacts of unemployment insurance has tended to use a reduced form modelling strategy. Neither methodology gives a clear answer on the impacts of UI on unemployment. Myatt (1993) surveys 14 published studies which use macro time series evidence to assess the impact of the 1971 UI revisions on unemployment. Since seven found a significant positive effect, but five did not and two found a significant effect in only 3 of 10 provinces (not the same ones), he comments "A more evenly divided result could not be imagined." Myatt's discussion emphasizes the collinearity of major data series, the surfeit of possible explanatory theories (and their associated causal variables), the dangers of specification search given a very limited number of observed data points and the endogeneity of UI instruments. In addition, three issues deserve close attention:

(1)   What does the estimated relationship mean?

(2)   How robust is the estimated relationship?

(3)   How does the aggregate macroeconomic variable used reflect the microeconomic incentives facing

          individual participants in the labour market?

3.1 The NAIRU and the Natural Rate

In thinking about the impact of unemployment insurance on unemployment, it is crucial to be clear about whether one is estimating a model of the impact of unemployment insurance on the NAIRU (the non-accelerating inflation rate of unemployment) or a model of the "natural" rate of unemployment (the rate of unemployment one would expect to observe, given the institutional and demographic structure of the labour market). The distinction is crucial, because it goes to the heart of the policy debate on macroeconomics, but it is often not made.[16] In recent years, Fortin (1989) and Rose (1988) have estimated models of the NAIRU in Canada which included consideration of unemployment insurance generosity, while James (1991), Burns (1990, 1991) and Milbourne, Purvis and Scoones (1991) have discussed the impact of unemployment insurance on the "natural" rate of unemployment.

In a NAIRU model, an explicit link is made between the rate of change of money wages, aggregate unemployment and expected price inflation. Price inflation is derived as a mark-up from wage inflation, and the NAIRU equilibrium is defined as occurring when expected price inflation is equal to actual price inflation.   An unemployment rate in excess of the NAIRU has clear implications for inflation, since excess unemployment implies a decline in the rate of inflation in wages and prices. Conversely, there is a clear (negative) welfare consequence of unemployment rates less than the NAIRU -- wage and price inflation accelerate. Only at the NAIRU equilibrium can one expect a constant rate of wage and price inflation.[17]

Models of the "natural" rate of unemployment contain no explicit link between price inflation and unemployment. For example, James (1991) derives estimates of the natural rate of unemployment from an estimated employment rate, in which the quarterly employment rate 1971-1990 is regressed on a measure of unemployment insurance "generosity" (see discussion below), the average minimum wage ratio, the difference between actual output and potential output and the gap between current and trend real wages. Milbourne, Purvis and Scoones (1991) got a hysteretic 'natural rate' from a regression of the monthly unemployment rate on the previous month's unemployment rate, aggregate output and a measure of maximum UI benefits duration. In general terms, one has an estimated equation of the form of equation (3).

(3) $U_t = \beta_0 + \beta_1 \, UI_t + \beta_2 X_t + \epsilon_t$

UI_t = some measure of UI incentives

X_t = control variables

ϵ_t = stochastic error

The "natural" rate of unemployment at time T is calculated as the conditional expectation of unemployment, given the parameters of the UI system and the values of other control variables which existed at time T, as per equation (4).

(4) $U\!N = E[U_T \; UI_T, X_T]$

$= \hat{}_0 + \hat{}_1 \, UI_T + \hat{}_2 X_T$

The term "natural" has, in the English language, nice connotations. "Natural" is usually thought of as being both inevitable and, somehow, "good". However, it really would be more accurate to refer to equation (4) as a calculation of the <u>expected</u> rate of unemployment. After all, one could follow a similar methodology and regress the homicide rate on such variables as the average sentence for murder convictions, percentage of arrests in homicide cases, percentage of the population under 30 (and, perhaps, the unemployment rate). One could use the estimated coefficients from such a regression, and the current values of these variables, to calculate the expected homicide rate at any point in time, and one <u>could</u> also call this the 'natural rate'

However, what happens if there are fewer homicides, or less unemployment, than the expected rate? What happens if, in equation (3),

$\epsilon_t < 0$ - perhaps for purely stochastic reasons or perhaps because of a policy shift (such as a shift from capital intensive military expenditure to labour intensive social expenditures)? Presumably, this is socially desirable, since it is arithmetical that lower unemployment means more employment, while fewer murders mean more living people. In "natural" rate models of aggregate unemployment, however, there is <u>no link</u> to price inflation, or to

inflationary expectations. Hence, there are no adverse welfare implications to an actual rate of unemployment

which is less than the expected [so-called "natural"] rate of unemployment.

3.2 The Robustness of UI Impacts on the NAIRU

Because natural rate models of aggregate unemployment cannot validly be interpreted in terms of either

accelerating or decelerating price inflation, the impact of unemployment insurance generosity on the NAIRU is the

important issue for macroeconomic policy. However, estimates of the NAIRU in Canada are very imprecise,

depending very heavily on technical issues of estimation. Setterfield, Gordon and Osberg (1992) examined the

robustness of the NAIRU estimates of Rose (1988) and Fortin (1989) to alternative plausible specifications of the

underlying variables. (See also Setterfield's article in this volume.) In addition to examining the impacts of

alternative strategies of modelling unemployment insurance (whether UI should be modelled as a composite index

of generosity, or whether one should use a disaggregated measure of each component, either in rate of change or in

levels), the implications of alternative specifications of the measurements of the rate of unionization, price

expectations and the impact of wage/price controls in Canada were examined. They conclude that one can find a

NAIRU model with desirable econometric properties to recommend almost any feasible male unemployment rate as

the NAIRU in Canada in the mid-1980s.

3.3 The Meaning of Aggregate UI "Generosity"

The reason why unemployment insurance variables are entered in macroeconomic analyses of aggregate

unemployment is that they are supposed to

represent changes over time in the incentives which UI offers to individuals to become or to remain unemployed.

However, the incentives which actually face individuals are specified in legislation, which changes very

infrequently. How is it that measured "UI generosity" changes from year to year? How can one interpret a

correlation between such measures of aggregate "UI generosity" and total unemployment?

James (1991:6) defines as a measure of aggregate unemployment insurance generosity "the ratio of average weekly unemployment insurance benefits to the average weekly wage in the business sector". [Rose (1988) and Fortin (1989)

	Hours Per Week	$ Per Hour	$ Pay Per Week	UI Benefits Payable	Benefit/Wage Replacement Ratio
		TABLE 1			
		THE CALCULATION OF "AVERAGE" UI GENEROSITY			
A	14	5	70	0	0
B	40	5	200	120	.6
C	30	10	300	180	.6
D	40	10	400	237	.59
E	40	15	600	237	.395
F	40	20	800	237	.296

<u>Assume</u>:　　　　If hours per week greater than 15, replacement rate = .6,
　　　　MAXIMUM INSURABLE EARNINGS = $395

(I)　　　If A and C lose their jobs
　　　Average UI benefits paid (to A and C) = $90
　　　Average weekly wage of those remaining employed (B,D,E,F) = 500
　　　　　Ratio = .18 = (90/500)

(II)　　　If B and C lose their jobs
　　　Average UI benefits paid (to B and C) = $150
　　　Average weekly wage of those remaining employed (A,D,E,F) = $467.50
　　　　　Ratio = .32 = (150/467.50)

(III)　　　If F and C lose their jobs
　　　Average UI benefits paid (to F and C) = $208.50
　　　Average weekly wage of those remaining employed (A,B,D,E) = $317.50
　　　　　Ratio = .66 = (208.50/317.50)

use a more complex composite index of UI generosity, defined as the proportion of the labour force insured

multiplied by the average replacement rate multiplied by the benefit duration ratio.] Table 1 presents some

examples of the calculation of the James measure. To keep things simple, it assumes individuals are either

employed or unemployed for all of the current year, ignores the issue of wage inflation over time, and calculates

maximum insurable earnings, as in Canadian UI legislation, as the simple average of the previous year's weekly

earnings.[18] As in Canadian UI legislation, there is no UI coverage if hours worked per week are less than 15, and

the replacement rate is 60 percent of weekly earnings up to the maximum insurable earnings ceiling.

As one can see from Table 1, the James (1991) index of UI generosity can vary considerably, depending on

who it is that loses their jobs.[19] If employment loss is concentrated in the middle and low end of the earnings

distribution, UI "generosity" can be as low as 0.18. If job loss comes from the middle of the distribution of

earnings, the generosity index is .32. If lay-offs come from the middle and high end of the earnings distribution,

the denominator of the generosity index (average weekly wages) falls disproportionately. The numerator rises

because highly paid workers are at maximum insurable earnings and receive maximum benefit. When the

denominator falls and the numerator rises, a ratio (such as the UI generosity index) must increase. In this

example, the generosity index can be as high as .66. (Which is, in fact, higher than the legal replacement rate for

anyone).[20]

All this, despite the fact that there is <u>absolutely no change</u> in the generosity of the UI system to any particular

individual. All the variation in the UI generosity index is coming from changes in the composition of

unemployment. Indeed, since the replacement rate is defined in legislation, and has changed only once (in 1977)

over the period examined by James (1971- 1990), essentially all the identifying variation in the ratio measure of UI

generosity <u>can only come</u> from changes in the composition of the populations of unemployed and employed

individuals.

When the legislation which defines the benefit/wage replacement rate remains unchanged for many years

(e.g. 1977-1992), it is clear that the replacement rate generosity of UI to all individuals also remains unchanged. If

all individuals face a constant degree of UI generosity in benefit/wage replacement, the <u>only way</u> in which the

James' index of UI generosity can change over time is if changes in the composition of the populations of employed

and unemployed individuals change the ratio of average UI benefits received to average wages paid. As aggregate

unemployment increases, it penetrates further up the distribution of weekly earnings - average UI benefits paid

increase, and average weekly wages fall, hence their ratio rises. It is thus not surprising that, in times series

analysis, increased

aggregate unemployment is positively correlated[21] with an increase in the ratio of UI benefits paid to weekly wages

- despite the fact that there was no change at all in the replacement rate generosity of UI to any individual worker.

Higher unemployment causes a change in the composition of the employed and unemployed populations, which

causes an increase in the ratio of average UI benefits paid to average weekly wages - and which appears as a

positive coefficient in time series regressions.

3.4   Unemployment Insurance Benefit Duration and Aggregate Unemployment

What impact can one expect other aspects of UI generosity to have on aggregate unemployment? Milbourne, Purvis and Scoones (1991) have recently argued that by introducing regional unemployment rates into the calculation of extended benefit duration entitlement, the 1977 revisions to unemployment insurance increased the generosity of the UI system and established incentives to individuals to decrease labour supply. They argue that the 1977 revisions were responsible for much of the increased unemployment of the Canadian economy during the 1980s, and the greater persistence of high unemployment following the 1981/82 recession.

In MPS, the focus is on the change which the 1977 revisions to UI created for an "agent" who works the minimum weeks necessary to qualify for UI, and who claims for the maximum weeks of their entitlement. In a very real sense, this brings us back to the methodology of case studies, anecdotes and stereotypes which this essay discussed in Section 1. The mathematics which is used to derive the conclusion that those who are unemployed "will never choose to work more than the qualifying period n_q, nor collect benefits for less than the maximum number of weeks, n_b" (1991:810) should not blind us to the fact that we are considering an "ideal-type" individual. There is no attempt whatsoever made to provide evidence that such an "agent" is representative of the population of Canadian unemployed persons. The persuasiveness of the argument depends entirely on the degree to which the reader feels the case is intuitively plausible.

Christofides and McKenna (1992: Table 4.3) note that there is a "spike" in job duration at the ten weeks necessary to qualify for UI. However, the spike is relatively small, since 1,281 of the 58,458 jobs observed in the 1986/87 Labour Market Activity Survey were of ten weeks' duration, compared to 636 which were of 11 weeks duration. Ten-week jobs counted for 2.19 percent of all jobs, which is quantitatively small, but the difference in number of jobs (1.1%) is statistically significant. With a large data set, such as the LMAS, one can be statistically fairly certain about empirically small differentials.

However, one must also be cautious about the interpretation of such differentials. Christofides and McKenna do not examine the sequence of jobs held by an individual, but some fraction of 10-week jobs were followed by a subsequent job, not by unemployment. It is also clear that some 10-week jobs are of that duration for demand side reasons, -- e.g. because the tourist season, in many summer resort areas of Canada, lasts from the last week of June

to the end of August (i.e. for 10 weeks). A "spike" in job durations at 10 weeks might also be partly due to the fact that high school students who get a summer job will work 10 weeks or less. In short, the UI impact -- i.e. the voluntary 10-week UI claimant -- is some fraction of a fairly small (2.2%) percentage.

Corak and Jones (1992) have noted that the vast majority (approximately three-quarters) of UI claimants never reach the extended benefits phase. They calculate that "the exclusion of all regionally-extended benefit recipients above that prevailing during 1981 does not dramatically change the level or dynamics of the aggregate unemployment rate" (1992:4). They note that the number of regionally extended beneficiaries is not unusually persistent over time and that the pre-1977 legislation would also have mandated increases in the extended benefit phase of unemployment insurance, in the wake of the recession of 1981/82. They conclude that "there is no evident direct mechanism for regional extended UI benefits, as generated by the 1977 legislative changes, that could account for the increased persistence of Canadian unemployment in the 1980's" (1992:10).

Corak and Jones examined the evidence on the MPS hypothesis directly, by asking whether the data on regional-extended UI beneficiaries could possibly account for the increased aggregate unemployment experienced in Canada during the 1980s. McGuire (1993) follows a more indirect route, arguing that if the MPS hypothesis is correct, one should observe, following the 1977 revisions, a greater increase in the unemployment rate for demographic groups with a more marginal attachment to the labour force.[22] Since the 1977 revisions clearly had very different impacts on Canada's economic regions, the persistence of unemployment which MPS hypothesized to have been introduced the 1977 revisions should also be greatest in high unemployment provinces like Newfoundland and Nova Scotia. As well, the hold up by the Senate of Canada of Bill C-23 in 1990 produced a "natural experiment". When the Senate held up Bill C-23, the entrance qualification for UI suddenly increased, between January and October of 1990, to 14 weeks nation-wide from the ten weeks requirement in many regions, before being reduced again with the passage of Bill C-23. The MPS model should imply that persistence in aggregate unemployment would fall during this period, before rising again with the re-introduction of the amended variable entrance requirements across Canada -- but that such a change in unemployment persistence should be entirely accounted for by the variable measuring maximum weeks' benefit duration (which turn out not to be true).

MPS used data for the period 1966 to 1988, but extension of the estimating period to 1991, and examination of disaggregated demographic and   regional trends in unemployment are not kind to the MPS hypothesis. Using data to 1991, the introduction of maximum benefit entitlement into the regression does not imply that the co-efficient on past unemployment reverts to its pre-1977 levels, contrary to the MPS results. Although the MPS hypothesis should argue that demographic groups with marginal labour force attachment would show an increase in aggregate unemployment persistence, the youth unemployment rate showed a decrease in persistence after 1977. Persistence in aggregate unemployment in the 1980s appears to be strongest among males aged 25 to 54 (contrary to hypothesis) and it is clear that the relationship between the past unemployment rate and the current unemployment rate is not accounted for by the introduction of a variable measuring maximum benefit entitlement.

The MPS results can therefore be severely questioned, both on the basis of aggregate macroeconomic time series evidence and on the basis of data on the frequency of the pattern of minimum weeks UI qualifiers drawing maximum weeks of regionally extended benefits. Yet the stereotype of the "10/40 week worker" has an impact on perceptions (and on policy) which is far greater than its actual empirical significance. If dressed-up in mathematics, an anecdote about a utility-maximizing "agent" who works the minimum and draws the maximum can acquire a respectability in academic circles which real stories about real individuals do not possess, even if the mathematical anecdote is entirely hypothetical. As Corak and Jones (1992: 19) state "the empirical work of MPS makes essentially no use of the micro-economics" and there is no attempt made to show the stereotype to be statistically representative. Yet anecdotes and case studies have a vividness which transcends their empirical importance -- particularly if they reinforce existing prejudices. Anecdotes shape perceptions, and they reappear constantly in the dialogue which surrounds the debate on unemployment insurance -- even (perhaps especially) when the econometric evidence is complex and sometimes ambiguous.

To conclude, however:

(1)   In general, it is asking an enormous amount of a very limited number of observations to expect macro-economic time series data to reveal the influence of a system as complex as UI.

(2)   Aggregate measures of UI "generosity" hide the complexity of the actual system and do not correspond to any real person's incentive structure.

(3)   The empirically popular measures of UI generosity used in Canadian macro time series research are endogenous to measured unemployment, rather than causal.

(4)   The micro theory which motivates macro analysis depends heavily on mathematical anecdotes, of limited quantitative importance.

4.0 Overview

The reform of unemployment insurance in Canada in 1971 was a major public policy initiative. It has been argued that, with the subsequent failure of the 1973 Lalonde proposals for social assistance reform, the 1971 UI reforms marked the end of the post-war expansion of Canadian welfare state programs. Although the steady, cumulative impact of a series of subsequent revisions, from 1975 to 1993, has been to decrease the generosity of Canadian unemployment insurance, the magnitude of UI expenditures and the number of UI claimants continue to increase. Unemployment insurance reform in 1971 was controversial at the time, and the size and the complexity of the program ensure that it will continue to be controversial for many years into the future.

As a public policy initiative, however, unemployment insurance in Canada has attracted the attention of economists to an extent which is not fully explicable by its economic importance.[23] In part, UI reform in Canada attracted economic analysis because UI reform coincided with theoretical and empirical developments in economics which provided the conceptual framework and the empirical tools for its analysis. Microdata on individuals, and the low cost computer hardware which made microdata analysis possible, basically did not exist before the early 1970s. The job search approach to analysis of unemployment dates from the same period, and throughout the 1970s there was a new focus on analysis of the supply-side of labour markets. These influences combined to produce a series of studies of the impact on unemployment insurance [e.g. Jump and Rea (1975), Green and Cousineau (1976)] which emphasized the adverse impact of unemployment insurance on aggregate unemployment, and the perspective of these early studies has continued to be extremely influential.

Since the early 1970s, the unemployment insurance system in Canada has changed considerably - the benefits/wage replacement rate was cut from .66 to .60 (and will be cut further to .57), the minimum entrance requirement was increased from 8 weeks to between 10 and 20 weeks, penalties for voluntary quitting or discharge were increased, etc. The macroeconomic context of labour markets has also changed drastically, from the 6.2% unemployment rate of 1972 to the 11%+ unemployment rate of 1993. The institutional context of labour markets has also changed, with a rapid increase in part-time working, self-employment and contractual arrangements, which are often not eligible for unemployment insurance protection.

One can reasonably expect that such changes would diminish the impact of unemployment insurance on aggregate unemployment. New theoretical work, new econometric techniques and new data sources have also greatly increased the volume of research findings on the impacts of unemployment insurance. This article has quoted at length from several recent surveys in order to make the point that there is now a much more nuanced perspective on the impacts of UI. In many academic circles, there is now much greater awareness of the complexities of labour market transitions, and of unemployment insurance, and much greater caution in assertions about the adverse impact of unemployment insurance. However, as Keynes said:

> "... in the field of economic and political philosophy there are not many who are influenced by new theories after they are twenty-five or thirty years of age, so that the ideas which civil servants and politicians and even agitators apply to current events are not likely to be the newest. But, soon or late, it is ideas, not vested interests, which are dangerous for good or evil."

The models of the early 1970s had an easy-to-communicate simplicity, and represented the literature which was available in the early 1980s for the McDonald Royal Commission, Forget Commission of Inquiry and House Royal Commission to summarize.[24] Since it takes considerable time for new research to be published in academic journals, and much longer for it to be compiled as part of the literature review process of Royal Commissions, there can be long lags in the process by which new information filters into the public debate.

However, the objective of this article is to speed up the process a little. This article has not attempted a comprehensive review of unemployment insurance, or job search, or labour supply, such as those written by Devine and Kiefer (1991), Atkinson and Micklewright (1991) or Pencavel (1986). It has focused on the different types of evidence, and their strengths and weaknesses, and it has concentrated its attention on a selection from the Canadian literature.

Much more needs to be known about the impacts of unemployment insurance on the Canadian economy. There is lots of complexity in the Canadian unemployment insurance system and lots of incentive to improve it -- any system which (as in 1992) spends $19.3 billion on benefits (plus $1.3 billion on administrative costs) and has 3.8 million claimants in a single year is sure to have lots of ways in which it can be improved. However, the first

step in learning is to recognize the limits of current knowledge. Hence, this article is aimed at encouraging an

attitude of scepticism about current dogma on the magnitude of the causal role played by unemployment insurance

in increasing unemployment.

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1. One example of the incentives which UI provides to altered
    behaviour of firms is the minimum hours provision.
    Employers must pay an employers contribution to unemployment
    insurance premiums (at 4.2% of wages) on all hours worked by
    an employee, <u>but only if weekly hours worked exceeds 15</u>.
    This creates a "spike" in the marginal cost of labour, since
    the 16th hour worked costs the hourly wage plus UI premiums
    on all 16 hours worked (i.e. the marginal cost is 1.67 x
    wage).   Employers can avoid this spike in labour cost by
    sub-dividing full-time jobs into part-time employment (e.g.,
    offering two 7 hour "days" per week to each worker).

2. For exceptions, see Osberg et al. (1986) and Osberg
    (1991/1993), as discussed in Section 2.

3. For example, Milbourne, Purvis and Scoones (1991) or the
    Globe and Mail editorial page (any issue).

4. In Dave's case, the crucial details are (a) the two week
    waiting period of zero replacement of lost earnings, (b) the
    fact one can establish eligibility for a future claim while
    working and on claim; (c) the ceiling on earnings while on
    claim.

5.   From a public policy perspective the issue should be whether UI causes an <u>excessive</u> increase in unemployment. One of the objectives of UI is to improve the allocative functioning of labour markets by providing the liquidity to enable workers to search longer for the job which best matches their abilities. This necessarily implies an increase in aggregate unemployment, so the issue is whether the output foregone by increased UI induced unemployment exceeds the increment in output from better job/worker matching (usually proxied by the aggregate wage gain from increased search duration).

6.   In the Canadian literature, Ham and Rea (1987) and Corak (1992) are exceptions. Due to the limitations of the administrative data, the Ham and Rea measure of UI replacement rate generosity is relatively poor, but it is interesting to note that it was uncorrelated with unemployment duration. They did find a positive partial correlation between maximum benefit duration and unemployment duration. Corak (1992) did not find a benefit rate effect for males, but did for females. He emphasizes the role of aggregate demand as a determinant of spell duration for males.

7. The sole exception, to my knowledge, or tht of Hamermesh (1990), is the sample of workers selected from a sample of firms, reported in Osberg et.al. (1986).

8. Individuals who, prior to UI, were working less than Ab weeks face an unambiguous incentive to increase labour supply in order to gain access to benefits. This implies that the impact of UI on measured unemployment may come partly from its impact on increased supply of labour - i.e. increases in labour force participation. Card and Riddell (1993) argue that "the UI system itself is not the cause of the high level of unemployment at the close of the 1980's "but they do note a relative increase in the percentage of people who just qualify for UI. They argue that up to three quarters of the growth in the 1980's in the unemployment gap between Canada and the U.S. is due to more Canadians looking for work, rather than being counted as not-in-labour force. They conjecture that UI may entice some people into employment who would otherwise have withdrawn from the labour market. If so, the impact of UI is to <u>increase</u> aggregate output.

    Individuals who were working less than d weeks face a positive substitution effect from EY, but a negative income

effect (assuming leisure to be a normal good).

9.   A recent Canadian study is Osberg and Phipps (1993).
Surveys of the literature are contained in Killingsworth
(1983), Osberg (1986) and Pencavel (1986). All agree that
substitution and income elasticities are typically quite
small (i.e., 0.1 or less).

10.   See also Lin and Osberg (1992a and 1992b).

11.   These predictions are not, however, unambiguous. Since jobs
now come with an unemployment insurance entitlement
attached, an increase in the generosity of the UI system
increases the total economic benefits attached to a short
duration job offer -- thereby altering the wage offer
distribution facing individuals. If the wage offer
distribution shifts, but the reservation wage increases, the
net impact on probability of job acceptance is ambiguous.
[i.e. if $F^1(w) \neq F(w)$, the knowledge that $w_r^1 > w_r$ is
consistent with $F^1(w_r^1) \lessgtr F(w_r)$].

12.   If geographic identifiers are available, one can include the
local unemployment rate, or other measure of local labour
market conditions as a regressor in a regression using
micro-data. While better than nothing, controlling for

cross-sectional variation in labour market conditions is <u>not</u>
equivalent to controlling for time series variation, since
they will not have equivalent impacts on individual
behaviour. For example, one can always migrate from a high
unemployment region to a low unemployment area but
individuals cannot choose the phase of the business cycle
they prefer.

13. In all three years, 1991, 1983 and 1986, unemployment
     insurance variables were usually statistically insignificant
     as determinants of job-finding probability, or entered with
     "wrong" sign, from the point of view of the "incentives"
     argument.

14. To put it in terms of an estimated regression model of
     unemployment, cross-sectional microdata can test hypotheses
     about the sign and significance of the coefficients of
     particular variables, but cannot predict the magnitude of
     the constant term in the regression.

15. However, as Kaliski (1975) noted, Grubel, Maki and Sax
     ignored the fact that unemployment insurance benefits became
     taxable in 1971. Re-estimation of their model including the
     taxation of UI benefits considerably reduces the estimated

impact of the 1971 revisions to UI, from a 0.6% increase in the unemployment rate to 0.3%, or 0.0%, depending on the marginal tax rate assumption made.

16. Burns (1991:157), for example, totally confuses the two issues.

17. For a formal derivation, see Setterfield, Gordon and Osberg (1992: 121-124).

18. Table I also implicitly assumes the employment of A-F last year, in order to calculate maximum insurable earnings as the average of all worker's weekly earnings. Complicating the example (e.g. by allowing for partial years of employment/unemployment on the effect of unemployment last year on this year's maximum insurable earnings) would not materially affect the conclusions.

19. In the composite index of UI generosity of Fortin (1989) or Rose (1988), variation in index generosity does not come throuugh the replacement rte (which is fixed at its legal ratio) but instead comes through variation in the ratio of maximum weeks UI eligibility to minimum weeks to qualify. Since this ratio m;ust (by legislation) increase as aggregate unemployment increases, Myatt (1993) has argued

that variations in index generosity necessarily <u>reflect</u>
variations over time in the level of unemployment rather
than playing a causal role.

20. And it should also be noted that the ratio measure of UI
generosity goes up as the actual average replacement rate to
those unemployed goes down. When B and C are unemployed,
the average replacement rate facing unemployed individuals
is .6 but when F and C are unemployed, their average
replacement rate is .45 (=(.6 + .296) ÷ 2). The ratio
measure of James moves in a perverse direction because it is
the ratio of the average UI benefits of the unemployed to
the average wages <u>of those who remain employed</u>.

21. Since James (1991) runs a regression with <u>employment</u> as the
dependent variable, the "generosity"/employment correlation
will be negative, as he found.

22. MPS, themselves, refer to "students" or "those with working
spouses" in the verbal discussion preceding their formal
modelling (see 1991:809).

23. Primary and secondary education in Canada absorb
considerably more tax dollars than unemployment insurance
(in 1987, $24.3 billion compared to $10.5 billion). Since

most (94%) of the expenditures of the UI system are transfers to individuals, while almost all the financial costs of primary and secondary education represent the consumptive use of goods and services, the economic use of resources by primary and secondary education is <u>far</u> greater than the use of resources by the UI system. Arguably, the impact of primary and secondary education on the long-term productivity of the Canadian labour force is more important than the influence of unemployment insurance. Yet there is very little serious attention by Canadian economists to analysis of primary and secondary education - perhaps because it is hard to tell a simple story of utility maximization.

24. As someone who participated in all three, it is, however, noteworthy that the House Royal Commission (Newfoundland) relied entirely on anecdotal evidence on the impacts of unemployment insurance, while McDonald and Forget depended primarily on the published academic literature.