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**Worker
Adjustment
Policies**

**An Alternative
to Protectionism**

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WORKER ADJUSTMENT POLICIES:
AN ALTERNATIVE TO PROTECTIONISM

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Preface

Sherbrooke in the Eastern Townships in Quebec is one of the centres in Canada for the textile industry, an industry which has been experiencing intense competitive pressure from imports. Considerable adjustment has taken place within the industry; plants have been shut down and rationalized, new production processes and products have been introduced, and workers, inevitably, have been displaced.

This study looks at how these Sherbrooke workers have subsequently fared in the job market as a basis for indicating some ways that governments should respond to future plant layoffs and shut-downs. It sheds new light on two of the most topical and troublesome questions facing policy-makers today: when should governments intervene to avert a major closure and how can the re-employment of displaced workers best be encouraged and sustained?

To answer these questions, the authors, Graham Glenday and John Evans of York University and Glenn Jenkins, then at Harvard University, present valuable new information on the adjustment experience of permanently-displaced workers. They then analyze the resulting costs for the economy as a whole and the appropriateness of government intervention, and they assess the private losses of the workers and the need for compensation and assistance.

The research represents a major contribution in public policy knowledge and analysis, both in Canada and more widely. Among other things it moves beyond partial equilibrium analysis to obtain a better understanding of the overall impact of plant closures on regional economies. While not all of their work will be uncontroversial, it certainly provides both groundwork and stimulus for further much-needed research into the human and societal costs of economic dislocation. It will be of interest to readers that these authors have continued their pioneering work in this area, probing deeper into the unemployment experiences of individuals and looking more widely at layoffs in other communities and regions.

This study is one of several commissioned by the North-South Institute in conjunction with the World Bank as part of a multi-country investigation of contemporary trade and adjustment issues in the developed countries. It will appear in a forthcoming monograph Canada in a Developing World Economy-Trade or Protection?. A more technical version of this paper appeared earlier as a World Bank Staff Working Paper.

Our Institute is pleased to have had a hand in bringing forward such a useful contribution on adjustment issues in Canada and is releasing it in this form so that it can help to stimulate, even more than it has already, more extensive work in this area.

We gratefully acknowledge the help of the World Bank in sponsoring this research study. Its contents, of course, represent the views of the authors and not necessarily those of the North-South Institute's directors or supporters.

Bernard Wood
Executive Director

SUMMARY

Worker Adjustment Policies:

An Alternative to Protectionism

Faced with an imminent plant closure or major layoff, and appeals from affected groups for help, should policy-makers bail out an ailing firm, either by means of import controls or financial assistance? Are there other policy options that make more economic sense but also meet the compelling political and social concerns involved? As more and more industries and their workforces experience serious adjustment pressures of one sort or another, whether due to import competition, shifting consumer tastes or technological change, such questions have become increasingly common, and important.

In cases of disruptive import competition, from developing countries especially, it has come to be expected by many that the government should act to protect threatened firms and jobs. Import controls are often demanded by industry and labour; the government has complied in the case of textiles, clothing, footwear and, most recently, autos.

However there has been an increased awareness in Canada, and in other industrial states as well, of the costs associated with trade restrictive measures. A companion chapter in the forthcoming monograph for which this study was prepared estimates that the gross cost of tariffs and quotas on clothing imports amounted to \$500 million in 1979 or \$33,000 per job saved, with the burden falling disproportionately on low-income consumers.

Adjustment assistance has been proposed on numerous occasions as an alternative to either costly protectionism or the social costs and political risks of government inaction. In recent years the OECD has made a strong argument for what it calls "positive" adjustment measures, as have many other international and national bodies. Yet despite the emphasis which has been placed on adjustment measures in policy discussion, the economic analysis and methodology for designing "positive" adjustment policies has remained rela-

tively underdeveloped. A great deal has been said about minimizing adjustment costs and promoting economic efficiency, but such discussions have rarely contained operational definitions and procedures for assessing such vital factors as adjustment costs or economic efficiency. Until these basic conceptual and empirical matters are solved satisfactorily, the term adjustment assistance will remain an interesting, but not a very practical, policy solution.

Designing "Positive" Adjustment Measures

In this study, the authors have gone a considerable distance toward bridging the gap between the theory and practice of "positive" adjustment measures. They address four key policy questions:

- . How can policy-makers determine whether it makes economic sense to "bail out" a firm and prevent job loss?
- . If such financial aid is justified on economic grounds, how much should be given?
- . If such assistance is not warranted, should workers who are laid off be compensated and by how much?
- . How can their re-employment best be encouraged and sustained?

Behind these questions are two basic considerations: what is best for the economy overall - an economic efficiency issue - and what should be done for the workers involved - a welfare, or equity, concern. Much of this study focusses on how these two motivations can be distinguished, assessed and translated into policy instruments.

Economic efficiency, on the one hand, concerns the costs borne by (or the benefits accruing to) the overall economy resulting from the closing down of a firm's operation and workers losing their jobs. If these economic costs are greater than the benefits the government should provide financial

assistance to the firm in order to delay the shutdown from occurring. Otherwise the government should allow the closure and concentrate on encouraging the re-employment of the workers.

Equity, on the other hand, concerns the private costs (or benefits) which workers experience when they are displaced from their jobs. In particular workers are likely to suffer some loss of income and considerable emotional stress, not to mention potential losses on the housing market and in pension benefits. If the government determines that Canada as a whole would be better off allowing an inefficient plant to close down, then it is reasonable to expect that those who must pay the direct price for such change should be compensated and assisted in the most effective way possible.

At the heart of both equity and efficiency considerations, and thus the design of adjustment measures, is the severity of the adjustment problem facing workers. It is important to know how difficult it is likely to be for workers to find another job; whether they are likely to be able to keep their new jobs; and whether they will experience a drop in wage and income levels. Naturally some workers will have a more difficult time than others. Some of the factors affecting the ability of a worker to find and retain a new job are his or her previous employment record; an individual's ability to change jobs and location as determined by age, sex, marital status, education and skills; the size and heterogeneity of the local labour market and its proximity to an urban centre; and the prevailing regional economic conditions.

The Adjustment Process - Case Study of Sherbrooke, Quebec

For this study, the authors chose to investigate the adjustment experience of workers in the Sherbrooke region of Quebec, one of the centres for the textile industry in Canada and thus a region which is especially vulnerable to import competition (and probably an even more problematical labour market than urban Montreal where much of the clothing industry is located). Two data bases were employed: the

Federal Department of Industry, Trade and Commerce's Labour Force Tracking Survey which documented the re-employment experience of workers who suffered permanent job losses from 1974-1976, and regional unemployment insurance data from 1972-1976. In both cases, the study period spanned the 1974-75 recession and the sudden increase in import penetration in Canada's traditional industries in 1975-76.

Not unexpectedly, the study shows that the adjustment process is more difficult for some workers; women had a more difficult re-employment experience than men, older workers a harder time than younger ones. Also, as would be expected, adjustment was more difficult under adverse labour market conditions. However, the results show that the average displaced worker in the Sherbrooke region found new employment within a relatively short period of time and that previously permanently-employed workers in particular were able to keep their new jobs for a reasonable time period.

Re-Employment of Sherbrooke Workers Permanently Laid-off				
	Months of Unemployment (mean) (median)		Months of Subsequent Employment (mean) (median)	
Tracking Survey Data - Workers Previously Permanently Employed				
Male, 40, married	6.2	1.6	17.6	16.9
Male, 25, single	6.0	2.0	13.6	12.0
Female, 25, single	14.4	12.8	14.8	13.2
Female, 40, married	17.5	12.0	19.5	18.7
The difference between the mean and median averages in the unemployment statistics indicates that there is a relatively small number of workers which experience very long periods of unemployment compared to the others. Or put another way, more than half of those laid off find employment faster than the mean average suggests.				

The Economic Efficiency Test - Bail Out?

The study uses this information on the adjustment experience of workers to analyse the economic costs of a permanent layoff in Sherbrooke and to determine

when government is justified on economic grounds in helping a firm to stay in business. The economic cost of permanently laying off employees is considered to be the difference between the economic contribution of these workers in the economy with and without the closure. Looking narrowly at the economic value of only the workers directly affected, this difference is likely to be negative because of the lower probability of these workers being employed and a likely decrease in the wages they are able to earn. These costs are generally greater for females than for males, for older than for younger workers, and for previously-permanent employees than for temporary workers. For young, single males, though, there are likely to be gross economic benefits because they tend to secure employment at higher wage levels than are available in the declining industries.

For a fuller indication of the economic costs of adjustment and thus of the potential benefits from preventing a lay-off, the authors extended their analysis to take into account the wider impacts on the regional labour market, such as changes in secondary employment and overall unemployment levels. They provide estimates of the gross economic benefits from retaining an extra man-year of work for employees in Sherbrooke. For an average permanently employed worker this is equal to, at most, 45 percent of his present wage bill; for an average temporary worker it is much less - only 3.1 percent of his present earnings.

However, these calculations do not provide a complete picture of economic efficiency considerations. In order to determine whether the continued operation of the failing firm is economically justified and deserving of government intervention, consideration must also be given to the prevailing level of trade protection. Among other things, protection raises the market value of a workers' output above its real value to the economy. The economic costs of labour displacement discussed earlier must therefore be adjusted to take into account the economic costs of trade protection. Not surprisingly the net economic cost

of a layoff is lower, the higher the level of trade protection that is being provided. In fact, in the case of heavily protected industries, such as textiles and clothing, there might be no net economic cost and thus no economic justification for government intervention. (See box below.)

The economic benefits of delaying the layoff of an average vulnerable job in the Sherbrooke region, is at most 36 percent of a workers's present wage. With 1978 yearly wages estimated at about \$11,200, the benefits of maintaining this job over 5 years equals approximately \$20,000 in present value terms. The economic cost of protecting such a job in the clothing sector for 5 years by way of trade restrictions amounts to approximately \$30,400 in present value terms. Protecting employment by imposing trade restrictions therefore means a net loss to the economy of some \$10,400 per job. Any financial assistance to forestall layoffs over and above existing trade protection would only deepen this net economic loss. However in the absence of such trade protection, government financial aid to ailing firms is likely to be much less economically inefficient.

On a purely economic level, therefore, the key to any decision on whether to prevent a layoff or closure is an assessment of the net economic benefits which are likely to result from continued operation of the firm. If the government is able to establish that there are economic benefits to be had from helping the firm stay in business, but the private sector is not interested in taking it on, then the government can justify providing financial assistance directly to the company. This assistance should be in the form of direct grants or forgiveable loans and it should be based on the number of jobs being sustained.

The study is critical of existing industry assistance programs because their expenditures are not based upon this kind of economic efficiency analysis. The authors draw attention to the fact that not one existing government program alters the amount of its financial assistance to take into account the extra economic cost of using domestically produced goods that are heavily protected from international competition.

Compensating Workers

If the continued operation of a firm is not expected to be economically beneficial to the country, the authors argue that the government should act to the extent that it can to compensate displaced workers for their personal losses and also to minimize the costs to the economy of workers becoming unemployed. Two kinds of government programs are recommended — a compensation program for workers directly affected by a layoff and a re-employment promotion program.

Compensation payments to displaced workers can be justified on two grounds. First it is only fair to redistribute some of the benefits of industrial restructuring to those who have to pay the price. Second, compensation will help reduce political opposition and resistance to economic change.

This study focusses primarily on compensation to workers for any personal income losses they experience as a result of being laid off. Income losses are considered to be the main component of their "private costs," but ideally other elements such as a loss of pension benefits or a loss on housing sales would also be taken into account.

The difference between the income a worker would have received over time if he had not been laid off, and the income a worker will likely receive after being laid off, is taken in the study to represent his private income loss.

The extent of these private costs will depend primarily upon changes in the amount of time the worker is employed and in the wages he receives. (This is similar to the earlier description of the economic costs of workers being laid off except that the workers' personal losses will be cushioned somewhat by unemployment insurance.)

The study's analysis of the re-employment experience of laid off workers in the Sherbrooke region indicates that age is less important than sex in determining an individual's personal losses. Females experience approximately twice as much of a drop in time employed as their male counterparts, and in addition, relative wage decreases as opposed to wages gains for the males. Older workers (age 55) experience greater losses than younger workers, however, mainly because they have greater difficulty getting re-employed (not because of lower wage levels.) There is also a significant difference between temporary and permanent workers; for the former, private income losses are minimal mainly because they tend to obtain new jobs at higher rates of pay.

Private Income Losses of Workers in Sherbrooke						
	Relative changes in:		Relative Income Loss*			Maximum Income Loss
	Time employed (percent)	Wages (percent)	1 yr	3 yr	5 yr	(1978 \$)
Sample 1 (Permanent Workers)						
Male, 40, married	-22.2	7.1	4.9	0.3	-0.5	460
Male, 25, single	-26.1	4.1	7.5	3.8	3.1	1139
Female, 25, single	-45.8	-9.4	19.3	16.2	15.2	4779
Female, 40, married	-45.4	-6.8	15.4	13.6	12.9	4790
Sample 2 (Temporary Workers)						
Male, 40, married	-10.1	9.5	3.6	- 0.5	- 2.0	396
Male, 25, single	- 8.0	24.2	-7.1	-12.3	-14.0	26
Female, 25, single	-28.1	21.9	-5.3	- 9.3	-10.7	16
Female, 40, married	-39.1	7.5	5.4	3.1	2.6	940

* A negative sign indicates a gain

The authors argue that compensation payments should be designed to minimize any negative efficiency effects. They are critical of certain Canadian and American programs which provide regular payments only if a worker remains unemployed (i.e. which tax back payments if alternative employment is found), and which have overly restrictive eligibility criteria. Fewer work disincentives would be created according to the study, if lump sum severance payments were given and no tax-back provisions were applied.

Promoting Re-Employment

The authors then turn their attention toward re-employment programs such as job search, counselling and relocation assistance which aim to reduce both the private and economic costs of workers being laid off by helping to minimize the transitional period of unemployment. While the speed of re-employment is an important determinant of the costs of adjustment, the quality of subsequent employment, such as wage levels and job permanency, must also be considered. The effectiveness of re-employment promotion programs should therefore be judged according to both their short and long run effects.

For these reasons, the study proposes a portable wage subsidy which would not only help workers find a new job, but would also help them keep their jobs and obtain on-the-job training. However careful program planning would be required to ensure that subsidized workers do not just take other people's jobs or end up in other declining industries. And as with worker compensation programs, the authors believe that it is politically wise not to be too narrow or restrictive in the selection of beneficiaries.

RÉSUMÉ

Politiques d'adaptation de la main-d'oeuvre : une solution au protectionnisme

Lorsque des usines sont sur le point de fermer ou de procéder à des licenciements massifs et que les groupes touchés demandent de l'aide, les autorités doivent-elles venir au secours des entreprises en difficulté en imposant des contrôles sur les importations ou en octroyant une aide financière? Existrent-ils d'autres options qui soient plus raisonnables économiquement et qui répondent également aux préoccupations sociales et politiques pressantes des intéressés? La multiplicité des problèmes d'adaptation qui se posent de manière aigue à un nombre croissant d'industries et de travailleurs que ce soit du fait de la concurrence des importations, de changements dans les goûts des consommateurs ou de l'évolution technologique, confère à ces questions un caractère de brûlante actualité.

Dans les cas où les perturbations sont dues à la concurrence de produits importés, surtout s'ils viennent de pays en développement, il n'est pas rare que l'on attende du gouvernement qu'il intervienne pour protéger les entreprises et les emplois menacés. Patronat et syndicat réclament souvent le contrôle des importations et le gouvernement s'est exécuté dans le cas des textiles, du vêtement, de la chaussure et dernièrement de l'automobile.

On commence toutefois à mieux se rendre compte au Canada comme dans d'autres pays industrialisés des coûts que représentent ces mesures de restriction des échanges. Dans l'un des chapitres de la

monographie que nous présentons ici (à paraître prochainement) il est estimé que le coût brut cumulatif du contingentement des importations de vêtements et des droits de douane s'est élevé à 500 millions de dollars en 1979 soit 33 000 dollars par emploi préservé, les consommateurs à faible revenu en faisant plus particulièrement les frais.

On a mainte fois proposé l'aide à l'adaptation comme moyen d'éviter aussi bien un protectionnisme coûteux qu'un attentisme tout aussi onéreux sur le plan social et dangereux sur le plan politique de la part du gouvernement. Ces dernières années, l'OCDE a vigoureusement défendu ce qu'elle appelle des mesures d'ajustement "positif" et nombre d'organismes nationaux et internationaux ont fait de même. En dépit cependant de l'importance accordée aux mesures d'adaptation, l'analyse et la méthodologie économiques indispensable pour mettre au point ces politiques d'ajustement "positif" n'ont guère été développées. On a beaucoup parlé de minimiser le coût de la reconversion et de promouvoir l'efficacité économique mais rares sont ceux qui ont cherché à définir une méthode permettant d'évaluer ces facteurs fondamentaux que sont les coûts de reconversion ou l'efficacité économique. Tant que ces notions de base n'auront pas été éclaircies au niveau théorique et pratique de manière satisfaisante, l'aide à l'adaptation pourra bien rester une expression séduisante, mais elle n'en deviendra pas pour autant une politique susceptible d'application.

Élaboration de mesures d'ajustement "positif"

Dans cette étude, les auteurs ont fait beaucoup pour combler le fossé qui sépare la théorie et la pratique en matière de mesures

d'ajustement "positif". Ils posent quatre questions fondamentales :

- . Comment les autorités peuvent-elles déterminer s'il est raisonnable économiquement de "secourir" une entreprise et prévenir des pertes d'emplois?
- . Si une aide financière est justifiée économiquement parlant, quel devrait en être le montant?
- . Si l'aide n'est pas justifiée, les travailleurs licenciés devraient-ils recevoir une indemnité et de combien?
- . Comment assurer au mieux leur réinsertion durable dans la production?

Derrière ces questions se profilent deux impératifs, le premier, celui de l'efficacité économique à savoir la recherche de la meilleure solution pour l'ensemble de l'économie, le second, celui de la justice sociale c'est-à-dire la recherche des mesures à prendre en faveur des travailleurs touchés. La présente étude porte avant tout sur la manière de caractériser ces deux impératifs, de les évaluer, de les traduire dans des instruments de politique.

L'efficacité économique concerne le coût (ou les avantages) dérivant au niveau de l'économie globale de la cessation d'activités d'une entreprise et de la mise en chômage de travailleurs. Si ces coûts économiques sont supérieurs aux avantages, le gouvernement devrait accorder une assistance financière à l'entreprise afin de retarder le moment de la fermeture. Dans le cas contraire, le gouvernement devrait laisser s'opérer la fermeture et s'efforcer d'encourager la réinsertion des travailleurs.

La justice sociale d'autre part concerne les coûts privés (ou avantages) que subissent les travailleurs lorsqu'ils perdent leur emploi. Il est probable notamment que ces travailleurs subiront une perte de revenu et une profonde démoralisation pour ne rien dire des pertes potentielles en matière de logement et de prestations de pension. Si le gouvernement détermine que le Canada dans son ensemble se porterait mieux si on laissait fermer une usine inefficace, on peut alors raisonnablement escompter que ceux qui doivent faire directement les frais de ce changement soient indemnisés et secourus de la manière la plus efficace possible.

La gravité des problèmes de reconversion auxquels font face les travailleurs est au coeur de ces deux impératifs de justice sociale et d'efficacité économique et donc de l'élaboration des mesures d'adaptation. Il importe d'avoir une bonne idée de la difficulté qu'auront les travailleurs à retrouver un emploi, de savoir s'ils pourront le conserver et s'ils subiront ou non une perte de salaire et de revenu. Naturellement certains travailleurs auront plus de difficulté que d'autres. La capacité d'un travailleur de trouver et conserver un nouvel emploi est fonction entre autres de ses antécédents professionnels, de son aptitude à changer d'emploi et de lieu, aptitude qui varie suivant l'âge, le sexe, la situation de famille, la scolarité et les qualifications, et aussi de la taille et de la diversité du marché du travail local et de sa proximité d'un centre urbain de même enfin que de la conjoncture économique régionale.

Processus d'adaptation - étude de cas sur Sherbrooke (Québec)

Les auteurs ont choisi d'axer la présente étude sur l'expérience de reconversion des travailleurs de la région de Sherbrooke, au Québec, qui est l'un des centres de l'industrie textile canadienne et est à ce titre particulièrement vulnérable à la concurrence des importations (et dont le marché du travail est probablement encore plus difficile que dans un centre urbain comme Montréal qui accueille le gros de l'industrie du vêtement). Deux bases de données ont été utilisées : le Projet de dépistage de la main-d'oeuvre du ministère fédéral de l'Industrie et du Commerce (I&C) qui porte sur la réinsertion des travailleurs dont l'emploi a été supprimé en 1974-1976 et les données régionales sur l'assurance-chômage de 1972 à 1976. Dans les deux cas, la période à l'étude couvrait la récession de 1974-1975 et l'augmentation soudaine de la pénétration des importations dans les industries traditionnelles du Canada en 1975-1976.

Comme on pouvait s'y attendre, l'étude montre que le processus d'adaptation est plus difficile pour certains travailleurs. Les femmes ont eu plus de mal à retrouver un emploi que les hommes, les travailleurs plus âgés plus de mal que les jeunes. Comme de juste également l'adaptation a été plus difficile quand la situation du marché du travail était mauvaise. Les résultats montrent cependant que le travailleur moyen mis à pied dans la région de Sherbrooke a trouvé un nouvel emploi dans des délais relativement brefs et qu'en particulier les travailleurs occupant auparavant un emploi permanent ont pu conserver leur nouvel emploi pour un délai raisonnable.

Réinsertion des travailleurs de Sherbrooke licenciés				
	Chômage en mois (moyenne) (médiane)		Emploi subséquent en mois (moyenne) (médiane)	
Données du Projet de dépistage - Travailleurs qui avaient postes permanents				
Homme, 40, marié	6,2	1,6	17,6	16,9
Homme, 25, célibataire	6,0	2,0	13,6	12,0
Femme, 25, célibataire	14,4	12,8	14,8	13,2
Femme, 40, mariée	17,5	12,0	19,5	18,7
La différence entre la moyenne arithmétique et la médiane dans les statistiques sur le chômage indique que le nombre de travailleurs restant au chômage pendant de très longues périodes est relativement faible par rapport au total. Autrement dit, plus de la moitié de ceux qui sont mis à pied trouvent un emploi plus rapidement que ne le laisse supposer la moyenne arithmétique.				

Le test de l'efficacité économique - renflouer ou non?

L'étude se sert des données relatives à la reconversion des travailleurs pour analyser les coûts économiques d'une suppression d'emploi à Sherbrooke et pour déterminer quand le gouvernement pourrait justifier économiquement de secourir une entreprise qui autrement fermerait ses portes. On considère que le coût économique des licenciements est égal à la différence entre la contribution de ces travailleurs dans l'économie avec fermeture et sans fermeture. Si l'examen se borne à la valeur économique des seuls travailleurs directement touchés, il tendra à révéler une différence négative étant donné qu'il y a moins de chance que ces travailleurs occupent un emploi et plus de chance

qu'ils perçoivent des salaires inférieurs. Ces coûts sont en général plus élevés pour les femmes que pour les hommes, pour les travailleurs âgés que pour les jeunes et pour les employés qui avaient un poste permanent plutôt que pour les travailleurs temporaires. Pour les jeunes hommes célibataires en revanche, il est probable qu'il y ait des avantages économiques bruts parce qu'ils tendent à retrouver un emploi à un salaire supérieur au salaire versé dans des industries en déclin.

Afin de mieux cerner le coût économique de l'adaptation et par conséquent des avantages potentiels qu'il y aurait à prévenir un licenciement, les auteurs ont élargi le cadre de leur analyse pour tenir compte de phénomènes plus généraux au niveau du marché régional du travail et notamment des incidences sur le niveau d'emploi secondaire et le chômage global. Ils donnent une estimation des avantages économiques bruts que représente une année de travail supplémentaire pour les employés de Sherbrooke. Pour un travailleur moyen occupant un emploi permanent, cela représente 45 % de son salaire actuel, pour un travailleur temporaire moyen, c'est beaucoup moins, 3,1 % seulement de ses revenus actuels.

Ces calculs toutefois ne permettent pas à eux seuls de mesurer l'efficacité économique. Pour déterminer si la poursuite des activités d'une entreprise en difficulté se justifie économiquement et si le gouvernement devrait intervenir, il faut également savoir quelles mesures de protection sont en place. Ces dernières ont pour effet, entre autres, de gonfler artificiellement la valeur de marché

de la production d'un travailleur. Lorsqu'on calcule les coûts économiques des licenciements il faut par conséquent tenir compte du coût économique de la protection commerciale. Naturellement, le coût économique net des licenciements est d'autant moins grand que le niveau de protection commerciale est plus élevé. En fait, dans le cas d'industries fortement protégées, comme le textile et le vêtement, il se peut que le coût économique net soit nul et que par conséquent rien ne justifie économiquement parlant une intervention du gouvernement. (Voir encadré ci-dessous.)

L'avantage économique du report d'un licenciement d'un emploi moyen vulnérable dans la région de Sherbrooke équivaut au mieux à 36 % du salaire actuel d'un travailleur. Le salaire annuel en 1978 étant estimé à environ 11 200 dollars, on évalue à 20 000 dollars environ en valeur d'aujourd'hui l'avantage de maintenir cet emploi pendant cinq ans. Pour protéger un emploi dans le secteur de l'habillement pendant cinq ans au moyen de restrictions commerciales, il en coûterait environ 30 400 dollars en valeur actualisée. Par conséquent l'imposition de restrictions commerciales pour protéger l'emploi se traduit par une perte nette pour l'économie de 10 400 dollars par emploi. Toute assistance financière visant à conjurer ces licenciements, qui s'ajouterait aux mesures de protection commerciale en place, ne ferait qu'aggraver cette perte nette pour l'économie. Si toutefois il n'existe point de protection commerciale, l'aide financière du gouvernement aux entreprises en difficulté sera sans doute beaucoup moins inefficace sur le plan économique.

Par conséquent, au niveau strictement économique, toute décision d'empêcher un licenciement ou une fermeture d'usine doit se fonder sur une évaluation des avantages économiques nets que devrait normalement procurer la poursuite des activités de l'entreprise. Si le gouvernement peut établir qu'en aidant l'entreprise à se maintenir en activité il en résultera un avantage économique mais que le secteur privé n'est pas intéressé, alors le gouvernement peut justifier l'octroi d'une aide financière directement à la compagnie. Cette assistance devrait prendre la forme de subventions directes ou de prêts rémissibles et être fonction du nombre d'emplois soutenus.

Si l'étude critique les programmes d'assistance industrielle existants c'est précisément parce que ces dépenses ne sont pas fondées sur une analyse d'efficacité économique de ce type. Les auteurs font observer ce fait qu'aucun programme gouvernemental existant ne modifie le montant de ses concours financiers en considération du coût économique supplémentaire qu'entraîne l'emploi de biens produits au Canada lorsqu'ils bénéficient d'une forte protection contre la concurrence internationale.

Indemnisation des travailleurs

S'il est jugé que la poursuite des activités de l'entreprise n'apportera pas un avantage économique au pays le gouvernement devrait alors, selon les auteurs, faire tout ce qu'il peut pour indemniser les travailleurs mis à pied contre toute perte personnelle et également pour réduire au minimum le coût économique du chômage. Deux types de programmes gouvernementaux sont recommandés : un programme d'indemnisation pour les travailleurs directement frappés par les licenciements et un programme facilitant le reclassement professionnel.

Le paiement d'indemnités aux travailleurs licenciés se justifie pour deux raisons. Tout d'abord ce n'est que justice que de redistribuer une partie des avantages de la restructuration industrielle à ceux qui ont dû en payer le prix. En second lieu, une telle indemnisation permettra de réduire l'opposition politique et la résistance au changement économique.

C'est surtout de l'indemnisation des travailleurs qui subissent des pertes de revenu personnel du fait de leur licenciement qu'il est question dans cette étude. Ces pertes de revenu constituent l'élément principal de leurs "coûts personnels" mais ces derniers devraient, pour bien faire, tenir compte d'autres éléments comme les pertes relatives à des prestations de pension ou à la vente d'un logement.

C'est la différence entre le revenu qu'un travailleur aurait reçu s'il n'avait pas été licencié et le revenu qu'il peut escompter recevoir après licenciement, qui représente aux fins de l'étude la perte de revenu privé. L'ampleur de ces pertes sera essentiellement fonction des changements dans la durée de l'emploi et le niveau du salaire. (Même chose donc que pour les coûts économiques des licenciements, décrits ci-dessus, à ceci près que les pertes personnelles des travailleurs seront quelque peu amorties par l'assurance-chômage.)

L'analyse de la reconversion des travailleurs licenciés dans la région de Sherbrooke indique que l'âge est moins important que le sexe du point de vue des pertes individuelles des travailleurs. Les femmes chôment environ deux fois plus que leurs homologues hommes et voient en outre leur salaire baisser alors que ceux des hommes

augmentent. Les travailleurs âgés (55 ans) subissent des pertes plus importantes que les jeunes travailleurs cependant, surtout en raison du fait qu'ils ont plus de mal à retrouver un emploi (non pas que le salaire soit plus bas). On constate également une nette différence entre les travailleurs temporaire et permanent : pour ce dernier les pertes de revenu individuel sont minimes surtout du fait qu'il obtient généralement un emploi mieux payé.

Pertes privées de revenu des travailleurs de Sherbrooke						
	Variations relatives dans :		Pertes* relatives de revenu en :			Pertes de revenu maximum (\$1978)
	la durée d'emploi (en pourcentage)	le salaire (en pourcentage)	1 an (en pourcentage)	3 ans	5 ans	
Échantillon 1 (Travailleurs permanents)						
Homme, 40, marié	-22,2	7,1	4,9	0,3	0,5	460
Homme, 25, célibataire	-26,1	4,1	7,5	3,8	3,1	1139
Femme, 25, célibataire	-45,8	-9,4	19,3	16,2	15,2	4779
Femme, 40, mariée	-45,4	-6,8	15,4	13,6	12,9	4790
Échantillon 2 (Travailleurs temporaires)						
Homme, 40, marié	-10,1	9,5	3,6	- 0,5	- 2,0	396
Homme, 25, célibataire	- 8,0	24,2	-7,1	-12,3	-14,0	26
Femme, 25, célibataire	-28,1	21,9	-5,3	- 9,3	-10,7	16
Femme, 40, mariée	-39,1	7,5	5,4	3,1	2,6	940
* Un chiffre négatif indique un gain						

D'après les auteurs, le versement d'indemnités devrait viser à atténuer tout effet négatif sur le plan de l'efficacité. L'étude critique certains programmes canadien et américain qui ne versent de prestations régulières que si le travailleur demeure sans emploi, qui imposent rétroactivement ces prestations si le travailleur trouve un

autre emploi et qui adoptent des critères d'admissibilité par trop restrictifs. Il vaudrait mieux selon les auteurs verser une seule indemnité forfaitaire de licenciement et supprimer la taxation rétro-active ce qui réduirait l'effet de "désincitation au travail".

Favoriser la réinsertion professionnelle

Les auteurs tournent ensuite leur attention vers les programmes de reclassement, de recherche d'emploi, d'orientation et d'aide à la réinstallation notamment qui visent à réduire les coûts des licenciements tant pour les travailleurs que pour l'économie en aidant à abréger la période transitoire de chômage. Si la rapidité de la réinsertion compte pour beaucoup dans le coût de l'ajustement, il ne faut pas perdre de vue la qualité du nouvel emploi pour ce qui est du niveau du salaire et de la durée du poste. On ne devrait par conséquent juger de l'efficacité des programmes favorisant la réinsertion professionnelle qu'à la lumière de leurs résultats à court et à long terme.

Pour ces motifs, l'étude propose la création d'une allocation salariale transférable qui aiderait les travailleurs non seulement à trouver un nouvel emploi mais également à le conserver et obtenir une formation sur le tas. Une planification soigneuse des programmes serait toutefois indispensable si l'on veut s'assurer que les travailleurs percevant ces allocations ne prennent pas tout simplement des emplois occupés par d'autres ou ne se retrouvent dans des industries en déclin. Et de même que pour les programmes d'indemnisation des travailleurs, les auteurs estiment qu'il est sage politiquement de ne pas imposer de critères d'admissibilité trop rigoureux ou sélectifs aux éventuels bénéficiaires.

Worker Adjustment Policies:
An Alternative to Protectionism

1. Introduction

The issues which confront governments in developed countries like Canada concerning the choice between trade or protection are related to concerns in three distinct, yet inter-connected areas, namely: international development, national industrial development, and political exigencies and repercussions. The theoretical economics literature, as well as most policy analysis, tends to approach each of these issues in a different manner and often tends to ignore the essential interrelationships among them. As a result, policies which provide an optimal, combined solution to all three policy concerns tend to be overlooked or dismissed. This appears to be the case with worker adjustment assistance. The purposes of this paper are to indicate the potential usefulness of properly designed worker adjustment policies, to define the measurement and empirical issues which must be addressed in designing specific programs, and to point out critical considerations regarding their implementation. Estimates of the government financial assistance required for worker adjustment assistance are provided for one region in Canada in order to illustrate the magnitudes involved.

Before proceeding into the main body of the paper it may prove useful to sketch briefly the policy concerns mentioned above. The main questions facing governments in the area of international development are how to promote an efficient allocation of production and consumption between countries so as to make the best use of the world's scarce resources and how to promote a more equitable international distribution of income between countries, particularly between developed and developing countries. One of the traditional policy recommendations in this area has been the promotion of trade liberalization. It has been based on the theory that long run benefits can potentially accrue to all countries by increasing international trade and specialization according to comparative advantage. Indeed improved access to the industrialized countries'

markets has been a key component of the developing world's demand for a new international economic order.¹

It is interesting to note, however, that the theoretical arguments in favour of increased trade between the developed and developing countries have until fairly recently overlooked the adjustment problems faced by workers and the owners of productive facilities in trade-affected industries in the developed countries. Trade liberalization, for example, will not lead to an actual Pareto improvement in world wellbeing (i.e. some people are better off but none are worse off), unless displaced workers in developed countries are compensated and thus left as well off as they would have under continued protection (e.g. and income compensation program as part of a policy of worker adjustment assistance could serve to offset any income losses.) At the same time, from the perspective of the developed country as a whole, it is also possible that long-run economic efficiency considerations could argue for maintaining production levels higher than those that would prevail under freer trade.² In a second-best economy with price-distorted markets, the welfare gains associated with freer trade could in certain instances be more than offset by the economic costs resulting from the short-run dislocation of factors of production. However worker adjustment assistance aimed at reducing the economic costs of adjustment could effectively minimize the amount of protection which could be justified on economic efficiency grounds.

A second policy consideration which influences a government's choice between trade and protection is its national industrial development strategy. Over recent years, governments in market-oriented economies have tried to develop a broad range of industrial adjustment assistance programs, not only to cope with changing trade patterns, but also to achieve other domestic economic and social objectives. The primary focus of these programs is usually to create or to maintain employment opportunities.

To this end, capital grants are offered to firms which expand in slow-growth regions; financial assistance is made available to troubled firms in declining industries; subsidies are given to encourage research, development and innovation in expanding sectors; government procurement policies favour domestic over foreign produced goods; and last, but by no means least, a plethora of protectionist measures including tariffs, quotas, and other non-tariff barriers are mounted to insulate workers and the owners of domestic productive facilities from foreign competition.

The trouble with most industrial assistance programs, is that they are seldom designed to promote an economically efficient use of the country's resources. In the Canadian context, for example, there is not one government program which alters the amount of its financial assistance to take into account the extra economic costs of using domestically produced goods which are protected from international competition when less expensive imports may be available.⁴ Nor is there any recognition in the formulation of these programs that Canadians as a whole can be made worse off from industrial financial assistance intended to delay layoffs, if the economic benefits from retaining jobs in place are less than the economic costs of the continued operation of the firm.

Industrial adjustment assistance can improve the wellbeing of all Canadians only if the magnitude of the assistance is geared to the economic costs and benefits of the actions taken. The largest component of the economic benefits of delaying layoffs, for example, is usually the saving in economic costs from postponing worker displacement. When the latter is accurately estimated, it provides a benchmark for the amount of financial assistance the government should consider offering the firm to keep it in business.

By the same token, whatever subsidy or assistance is paid to encourage the re-employment of displaced workers should be based on the net economic benefits derived therefrom. These benefits will obviously be greater if re-employment occurs in expanding industrial sectors rather than in declining sectors which are reliant upon various protective measures for their continued survival. An economically efficient re-employment program ought to vary its incentives accordingly.

Not all the firms currently receiving industrial assistance or enjoying trade protection in Canada would qualify if the assistance were based on economic efficiency criteria. Other firms not currently being assisted, but nonetheless being forced to adjust as a result of technological innovations or increased foreign competition, could claim that the right kind of industrial assistance could improve economic wellbeing. The key policy questions which must be addressed are the following: how to decide which firms in the declining sectors ought to receive government financial assistance; how to determine the magnitude of that assistance so as to avoid wasting resources; how to compensate any displaced workers for their expected income loss; and how to reduce the overall economic costs of adjustment by encouraging the re-employment of displaced workers in an economically efficient manner.

Finally government decisions on trade and protection matters are also shaped by domestic political considerations. Elected governments need to retain office in order to implement their objectives, and to this end they pursue policies which are likely to improve the probability of re-election. Trade liberalization offers long-run benefits for consumers and workers in general, but at the short-run cost of higher unemployment for displaced workers and capital.

The simple fact is that these workers and the owners of capital all vote, and no elected politician can ignore the adjustment problems caused by trade liberalization or industrial realignment for his constituents. It is evident that the degree of trade liberalization a politician is willing to recommend is constrained by the potential income losses that workers and capital owners in his constituency perceive they will suffer.

In order to foster international development or to achieve economic efficiency objectives, therefore, politicians should adopt policies designed to mollify the lobbying efforts of organized labour groups and business associations who generally favour protectionist policies.⁵ Political strategists ought to recognize that well-designed worker adjustment assistance programs can be a useful plank in the party's platform. Problems can arise however, if only a veneer rather than a solid plank is utilized. The U.S. Trade Expansion Act of 1962, for example, had little political credibility because the eligibility criteria for worker adjustment assistance were made so strict that "in the first eight years of its life no workers or firms were found to be eligible."⁶ In Canada, some programs which are supposed to compensate laid-off workers provide assistance in an efficiency-negative manner; work disincentives are frequently built into these programs as a result of taxing back the compensation payments from employment earnings which are received while displaced workers are on the program.

However, if properly designed, adjustment assistance programs can minimize the economic costs imposed on import-competing groups and thus reduce, for politicians, the political risks of pursuing a policy of trade liberalization.

In addition, the availability of well-designed programs make the further lowering of trade barriers by a country both politically feasible and economically attractive. They similarly also provide politicians with an alternative to the use of non-tariff barriers, a policy approach which has been employed increasingly in recent years to forestall adjustment in industries such as clothing and footwear which have been experiencing declining international competitiveness.

Adjustment policies clearly represent an alternative policy option to protection and a means by which governments can reconcile international development objectives, national industrial development strategies and domestic political considerations. Indeed a great deal of emphasis has been placed on adjustment policies in various economic policy reports in recent years. For example, in June 1978, the Council of the Organization for Economic Cooperation and Development, meeting at a Ministerial level, approved a number of resolutions pertaining to "positive" adjustment policies. Eight of their resolutions, which are directly related to the problems being addressed in this paper, are summarized as follow:

- 1) There is a need for well-designed short-term, selective policies to cushion the impact on labour of industrial adjustment.
- 2) These policies should be designed to achieve their goals while minimizing the loss in reduced economic efficiency.
- 3) Adjustment assistance policies for labour must be short-term in nature and must not permanently preserve unviable industries or impede trade.
- 4) The emphasis of any special employment policies should be to assist those directly affected and prepare them for new types of employment.

- 5) Policies should be carefully designed to ensure that over time, they do not unduly affect attitudes to work and willingness to accept necessary change.⁷
- 6) Policies should facilitate the movement of labour and capital from inefficient productive activities to those which possess a comparative advantage.
- 7) In the absence of such policies externalities may exist in the labour market which could lead to a divergence between private and social costs and benefits and thus create distortions in resource allocation.
- 8) Adjustment assistance programs should operate to promote marginal firms in growth industries rather than support declining industries.⁸

These resolutions indicate a clear set of objectives for a "positive" adjustment policy and some general directions for policy formulation. However, these recommendations, like most discussions of adjustment policy, do not contain operational definitions for terms like economic efficiency, economic externalities, economic distortions, economic costs or economic benefits. Most economists, generally speaking, have a good theoretical idea of the meaning of such terms, but making them operational is essential if positive adjustment assistance is to become a reality.

This paper is directed at achieving this end. Its focus is exclusively on the adjustment process to which workers are exposed and on the private and economic costs of that adjustment. Worker adjustment assistance programmes should aim to reduce the overall economic costs of adjustment and to compensate individuals for the private costs of being laid off. To design such programmes estimates are required both of the costs borne by the economy as a result of worker adjustment and of the expected private income losses of workers directly displaced.

The magnitude of government financial assistance either to support troubled firms or to encourage re-employment should be based on the reduction in the economic costs of worker adjustment. "Positive" adjustment assistance of this kind is consistent with an efficient use of the country's resources and with a rational international trade policy. The appropriate magnitude of government financial assistance to compensate workers for being laid off is a separate calculation and relates to considerations of both equity and efficiency.

There are a number of important reasons for focusing on worker adjustment assistance. Foremost among them is the fact that workers experience private losses which owners of capital do not.⁹ Workers are also more numerous than capitalists and can create more serious political opposition to government policy changes. The likely costs of worker dislocation as a result of increased foreign competition, trade liberalization or industrial restructuring is frequently used as an effective political lever, not only by organized labour, but also by business firms and business association which have become dependent on protection and government largesse. A further reason for exploring worker adjustment assistance in particular is that the economic benefits derived from delaying layoffs or encouraging earlier re-employment have not been well defined empirically in the economics literature. Nor has the distinction between the private and the economic costs of laying off workers been made clear; this, of course, is crucial for defining considerations of equity versus efficiency. These issues pose challenging conceptual and empirical problems. If these problems are not solved satisfactorily, then the term worker adjustment assistance will remain an interesting, but not a very practical, means of furthering the objectives of both national and international development policies.

In order to design worker adjustment policies, the adjustment problem facing displaced workers must first be examined. To this end, Section 2 of this paper distinguishes between the private and economic costs of laying off workers, this distinction being essential to the subsequent policy discussion. Estimates of the duration of unemployment, employment and the long-run equilibrium probability of laid-off workers being subsequently at work are provided for one region in Canada to indicate the seriousness of the adjustment problem. Section 3 is concerned with the decision process the government should follow in choosing between alternative policies for providing worker adjustment assistance. Estimates are also provided of the economic and private costs of workers' losing their jobs and of the gross economic benefits of alternative worker adjustment assistance programs. Section 4 briefly examines some of the issues concerning the eligibility criteria and certification process required for effective assistance programs, and along with the material in section 5, provides a comparison of the proposals contained in this paper with existing programs in both Canada and the United States.

2. The Private and Economic Costs of Worker Adjustment

a) The Private Costs of Adjustment

When workers are permanently laid off for whatever reason, some retire and the rest are usually unemployed for a spell before finding subsequent employment. Their next job may be less permanent, may offer less favourable working conditions and may pay less than their previous employment. There may also be a loss of pension benefits. If their subsequent employment is temporary, then there will be another spell of unemployment, another job, and so on such that the probability of their being at work following layoff may be less than before layoff. The reduced probability of being at work

plus any reduction in wage rates combine to create expected income losses for displaced workers. These income losses constitute part of the private costs of being laid off, and their magnitude is specific to the workers directly affected.

The expected income losses can be estimated as follows. Before being permanently laid off, workers receive their net-of-income-tax earnings when employed, and if they are unemployed for part of the year, they receive their net-of-income-tax unemployment insurance payments plus the value of the time spent on non-market activities. This combination of net-of-tax earnings from employment, unemployment insurance benefits, and value of time in non-market activities is referred to as the workers' full private income before layoff. As the proportion of time spent employed and unemployed, and the wage rate earned, are altered after layoff, the expected full income also changes. The difference between the two full income streams before and after layoff measures the expected income loss over time.

The factors, affecting the change in wage rates and in the proportion of time at work, relate to the characteristics of the job lost, to the characteristics of the workers, the region, and the economic conditions at the time of layoff. The permanent workers in these firms are often in quasi-fixed supply. That is to say, they have become specialized in their jobs through lengthy and specific on-the-job training, and their productivity and wage rates are often higher in their current employment than in alternative employment. Because they are often older, moreover, their geographical and occupational mobility is more limited. The costs of adjustment for such displaced workers are likely to be positively related to their age. Other socio-economic characteristics like sex, marital status, the number of dependents, and skill level also influence the speed and extent of

adjustment and should be taken into account when estimating expected income losses.

The displacement of workers in large, heterogeneous labour markets generally results in shorter periods of unemployment and a smaller change in earnings. Proximity to an urban centre also ensures a greater demand for housing so that the prices of homes do not decline as much if a firm is forced to shut down and to lay off its workers. Hence workers in larger urban areas are less likely to face a capital loss on the sale of their homes if they have to move to find another job.

The private adjustment costs are usually larger in regions which are relatively more isolated from other large labour markets and which lack diversity in the type of skills demanded. If a major firm in the community shuts down, the number of alternative job opportunities is more limited, and workers may have to migrate in order to find employment. They then also incur the costs of moving. Potential migrants might suffer such a sizeable capital loss on their homes as a result of the decrease in the demand for housing, that they cannot afford to move to an urban centre where housing prices are substantially higher. These factors, combined with family relations and social ties to the community, discourage migration to other labour markets and raise the costs of adjustment for both workers and the economy.

Not every displaced worker need be worse off. Some workers who have been employed in declining firms might find more lucrative employment in expanding sectors elsewhere. It remains an empirical problem to determine the magnitude of the expected income loss. Even in more isolated communities not everyone need be worse off as a result of the decline in the demand for housing services. Individuals who rent their accommodations, on

the one hand, are better off if rental prices fall or do not rise as quickly; their landlords, on the other hand, suffer a capital loss. The timing of capital losses also varies from one home-owner to another. Those who decide to move out of the community soon after a firm shuts down must bear an immediate capital loss; their job prospects must be sufficiently good to offset the relatively more expensive housing costs which they will encounter elsewhere. Older workers who lack marketable skills are more likely to remain in the community. They do not bear an immediate capital loss, nevertheless at a future date they, or their heirs, will be worse off by the decrease in the value of their estates.

The private adjustment costs are also closely related to economic conditions in the region and the economy at large. If the unemployment rate is initially low and the demand for labour is growing rapidly, displaced workers can expect to experience a shorter duration of unemployment, a longer duration of subsequent employment, and to have a smaller income loss.

(b) The Economic Costs of Worker Displacement

The economic cost of permanently laying off workers is equal to the difference between the expected economic value of labour in the economy with and without the layoff. The economic value of employed time can be approximated by the gross-of-tax wage rate which in turn should be roughly equal to the marginal productivity of labour. The economic value of unemployed time is the value of time spent on non-market activities. While unemployment insurance payments are included in the private income of workers, these payments are considered transfers from the point of view of all persons in the economy, and hence, are not included in the economic value of unemployed time. By the same token personal income taxes are

excluded from the private income of workers, but are included in the economic value of employed time. The consistent treatment of taxes and transfers is an essential element of the methodology used in this paper and is crucial to the distinction between private and economic costs.

In a later section two models are used for the estimation of the economic costs of displacing workers and of the corresponding economic benefits from delaying that displacement. One is a partial equilibrium model which focuses on the change in the economic value of time of only the workers directly affected. When workers are permanently laid off, some will retire, others may find employment straight away, but most will experience some unemployment. As was indicated previously, it is possible to estimate the probability that displaced workers will be at work at any point in time following layoff. The changes in their employed and unemployed time can then be multiplied by their respective economic values to estimate the change over time in the economic value of the workers' time. In most cases, the lower probability of being at work and the decrease in wage rates after layoff will combine to reduce the economic value of labour below its value before layoff, and thus to create a negative labour externality which is the economic cost of worker adjustment.

The central weakness with the partial equilibrium model is its implicit assumption that there are no other externalities created in the rest of the labour market when these workers are laid off. This will occur only if the displaced workers do not affect the job prospects of other workers. Although such situations could arise, it is more likely that laid-off workers would compete with other members of the labour force and would thus increase their duration of unemployment as well. Even if all the displaced workers were immediately to find alternative employment, therefore, the private

costs of adjustment would be borne by others and the economic costs of adjustment would still exist.

In order to capture the overall response of the regional labour market to a disturbance like worker layoffs and to estimate the associated negative labour externality, a general equilibrium model has been constructed. This model simulates the changes in unemployment, net outmigration, labour force participation, the ability of other employers to fill existing vacancies, and secondary employment in the region compared to what would otherwise have happened without the disturbance.¹⁰ The economic value of the time of those workers who are finally induced to adjust their supply of labour to the region, thereby bringing the labour market back to equilibrium, determines the negative labour externality created by the layoffs and the economic cost of adjustment.

Although any decrease in housing prices as a result of shutting down a firm in a more isolated part of the country may create a financial loss for home-owners, it does not create an economic resource loss. Because the stock of housing is fixed in the short run, there is no release of resources into the economy. The only economic cost from a regional perspective would be the forgone labour externality which might have been generated in new housing construction, and this forgone externality would be captured by the induced change in secondary employment in the general equilibrium model.

(c) The Expected Durations of Unemployment and Employment and the Probability of Being at Work

In the estimation of both the expected private income loss to laid-off workers and the economic costs of adjustment using the partial equilibrium model, the expected durations of unemployment and employment in other jobs,

as well as the long-run equilibrium probability of displaced workers subsequently being at work, are important variables. Besides their use in estimating the private and economic costs of adjustment, these variables also indicate the seriousness of the adjustment problem. The estimates presented below suggest that although displaced workers certainly suffer some hardship, the overall adjustment problem is manageable.

Since the major concern of this monograph is with the choice facing the Canadian government between trade or protection, a region in Canada has been chosen for analysis which is especially susceptible to foreign competition from developing countries. The three policy considerations outlined at the outset all appear to be at work. First, the rate of growth and development in developing countries is often very sensitive to the level of their exports, so from the point of view of international development, the decision by the Canadian government to permit increased trade or to protect trade-sensitive industries can have serious implications. These same industries also pose problems for industrial development in Canada. This is particularly true for the weaker, more labour-intensive manufacturing sectors such as clothing, footwear, knitting and textiles, not only because they face increasing import competition from developing countries, but also because they frequently request financial assistance from the Canadian and provincial governments to maintain or to modernize their operations. In addition these industries are highly concentrated in Quebec which accounts for 50 per cent or more of Canadian employment in these sectors.¹¹ This concentration creates an obvious political problem.

The Sherbrooke region has been chosen for detailed analysis here and it can be taken as typical of those more vulnerable to import competition.¹² This region lies within the "eastern townships" of Quebec and is centred about 100 Km to the east and south-east of Montreal. The region contains numerous relatively small, though not

isolated, communities. It has an overall population of approximately 330,000 and a labour force of about 142,000.¹³

In examining the re-employment experience of individual workers in the Sherbrooke region, estimates are made of the duration of unemployment for four typical workers from two types of data. Samples are drawn from a labour force tracking survey (LFTS) and a regional data base for the Sherbrooke region based on records of employment and unemployment insurance data (ROE-UIC).¹⁴

The labour force tracking survey covered workers who had suffered a permanent job loss, while the unemployment insurance data included both permanent and temporary layoffs. In order to estimate the re-employment characteristics of only permanently displaced workers from the unemployment insurance data, therefore, the probability of a worker's resigning or being recalled was set at zero. The differences between the types of workers for which estimates are made arise out of the different socio-economic characteristics available for the workers in each data base.

Table 1 presents the re-employment characteristics, the estimated mean and median durations of unemployment and employment and the long-run equilibrium proportion of time at work for the four types of workers in the labour tracking data. First, notice that median durations of unemployment are considerably less than mean durations. The mean duration of unemployment measures the average length of unemployment spells experienced by all workers, whereas the median duration of unemployment measures the length of unemployment experienced by at least half of the workers who become unemployed. The median duration is thus a better estimate of the unemployment experience of the average worker. Because the mean is greater than the median duration, furthermore, it implies that the percentage of those laid off who find a job before the mean duration is much

greater than 50 percent. Second, females tend to have worse re-employment experiences than males. Although females take longer to become re-employed on average, their job stability once re-employed is better than that of males.

Table 2 presents the re-employment characteristics for the four types of workers in the unemployment insurance data. These results show large gaps not only between the mean and median durations of unemployment similar to the results for the labour tracking data, but also a relative probability distribution of durations of employment that is skewed to the right. This is not surprising given that most of the workers on the unemployment insurance data base tend to have temporary jobs, and hence, high job instability.

Older workers generally have more adjustment problems when permanently laid-off. Results from the LFTS in particular show the duration of unemployment to be highly sensitive to age amongst older workers. If the age of the four types of workers in Table 1 is set at 55, then the mean durations of unemployment are estimated to more than double. Estimates based on the ROE-UIC data base are less sensitive to age. At 55 years the mean durations of unemployment for the four types of workers are estimated to increase by approximately 30% over the values in Table 2. It is important to note, however, that the mean durations of employment of older workers are also expected to increase. This greater job stability tends to dampen the reduction in the proportion of time spent employed by older workers due to long unemployment spells.

These two data bases indicate that the process of adjusting to being laid off is more difficult for some types of workers than others, and it becomes more difficult under adverse labour-market conditions. At the same

Table 1: Re-employment Characteristics of Sherbrooke Workers (LFTS Estimates: Workers Permanently Employed)

Type of Worker	<u>Duration of Unemployment</u>		<u>Duration of Employment</u>	<u>Long-run equilibrium proportion of time employed</u>
	Mean (months)	Median (months)	Mean ^(a) (months)	
male, 40, married	6.2	1.6	17.6	.728
male, 25, single	6.0	2.0	13.6	.681
female, 25, single	14.4	12.8	14.8	.505
female, 40, married	17.5	12.0	19.5	.524

(a) Only the mean duration of employment is given as it deviates from the median by insignificantly small amounts.

Table 2: Re-employment Characteristics of Sherbrooke Workers (ROE-UIC Estimates: Workers Permanently and Intermittently employed)

Type of Worker	<u>Duration of Unemployment</u>		<u>Duration of Employment</u>		<u>Long-run equilibrium proportion of time employed</u>
	Mean (months)	Median (months)	Mean (months)	Median (months)	
male, 40, dependents	6.7	2.6	15.4	4.2	.687
male, 25, no dependents	6.6	3.5	10.7	3.4	.611
female, 25, no dependents	12.0	5.3	11.3	4.2	.485
female, 40, dependents	15.7	5.7	15.4	4.4	.472

(a) Permanent layoff cases estimated by setting the probability of being recalled to the same firm and the probability of resigning at zero

time, however, the data also indicate that the average displaced worker can expect to find subsequent employment and to retain that employment for a reasonable time period as well.

Having defined the private and economic costs of worker adjustment, and having a preliminary indication of the likely magnitude of the adjustment problem, attention can now be turned to developing a framework within which alternative policies can be analyzed.

3. Alternative Policies for Worker Adjustment Assistance

(a) A Framework for Government Decisions regarding Worker Adjustment Assistance

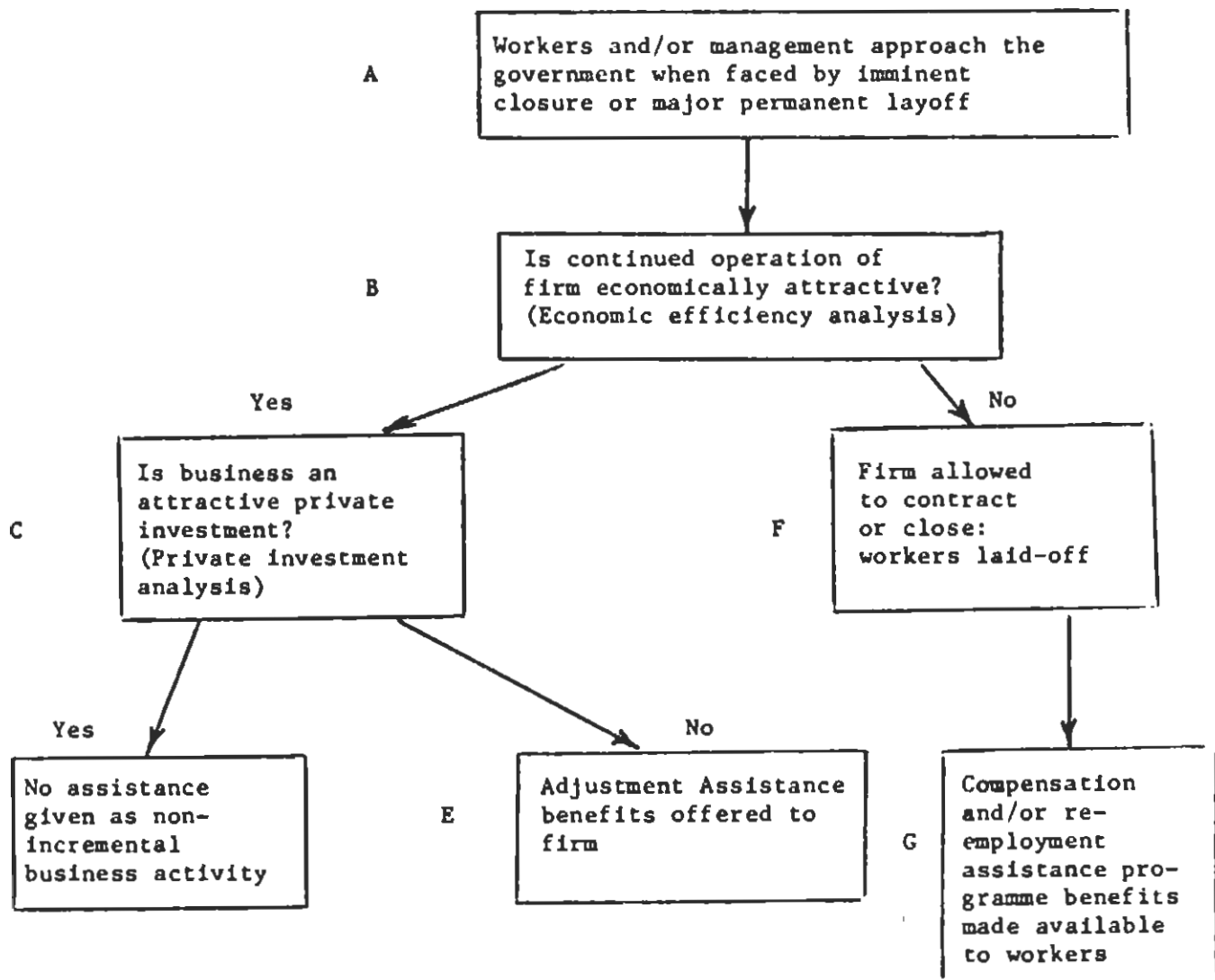
Increased foreign competition, a reduction in trade barriers, or industrial restructuring can reduce the profit margins of domestic producers, and accordingly, marginal firms may close down. Even if they continue to operate, however, a general contraction of employment in that sector is likely to take place. It is important to understand both the nature of the government decision to assist a firm affected by changes in trade or industrial development policy and how such a programme could be integrated with others to form a consistent and mutually reinforcing package. Refer to Figure 1. When the workers, management, or owners of a firm approach the government for assistance in order to avoid a major permanent layoff (Step A), the government should be concerned about two major questions: (i) whether the incremental employment of resources (labour, capital and material inputs) achieved by the continued operation of the firm (with or without any re-tooling or new investments) is expected to be economically beneficial to the country (Step B), and (ii) whether the proposed business activity is an attractive investment from a private-sector perspective (Step C). Step (B) requires an economic efficiency analysis whereas step

(C) involves a financial analysis from the point of view of the private investors. The government should be interested in achieving incremental economic benefits (Step D). Such incrementality depends upon avoiding the subsidization of firms, the continued profitability of which is not jeopardized by the changing market circumstances brought about by trade liberalization or increased foreign competition but rather by some other cause like poor financial or business management.¹⁵ If a firm closes down through bad management in an otherwise privately profitable industrial sector, then more technically efficient domestic producers can be expected to expand their output to supply the market.¹⁶ The workers laid off in such circumstances, however, should not be precluded from any worker adjustment assistance (Steps F and G).

If the government evaluation of the firm concludes that its continued operation would expand output and employment and that this would be economically beneficial, then an appropriate level of financial assistance could be offered (Step E). All possible economic externalities should ideally be included in such an evaluation. If, however, the focus is only on the added labour employment created, then a reasonable rule is to award assistance equal to the net labour externality.

It is worthwhile to distinguish here between gross and net labour externalities. The gross labour externality, on the one hand, is defined as the change in the economic value of workers' time, as a result of a disturbance like a layoff, without regard for the level of trade protection or other distortions in the product markets in which the workers' output is sold. The net labour externality, on the other hand, is lower the higher is the level of trade protection in the product markets, and any government financial assistance intended to promote economic efficiency should be reduced accordingly.¹⁷

Figure 1. Government Decisions and Programme Responses to Adjustment Situations



If continued operation of the firm is not expected to be economically attractive to the country, then allowing the firm to close is the preferable path (Step F). In such a situation, or if no adjustment assistance programme for firms exists, the laid-off workers would still be eligible for compensation and/or benefits available from a re-employment promotion programme (Step G). The latter type of programme helps to improve the income and re-employment prospects of workers, and as such, it helps to alleviate any political pressure the government might face when it decides not to offer assistance to a declining firm on general economic grounds, but where the workers nevertheless face potential hardships.

(b) The Design of Worker Adjustment Assistance Programmes

In this section three types of worker adjustment assistance programmes are considered:

- (i) Adjustment Assistance Programmes to provide financial assistance to specific firms to prevent or delay major permanent layoffs or plant closures, with the amount of assistance to be based on the combined short and long-run economic efficiency costs of the layoffs;
- (ii) Worker Compensation Programmes to cover the private income losses of workers directly affected by any layoffs;
- (iii) Re-employment Promotion Programmes to facilitate the finding of employment and improving the quality of new jobs for workers laid off following trade liberalization or a change in government policy, and hence, reducing the private and short-run economic costs of worker adjustment.

Any one, or all, of these programmes could be implemented by a country to deal with the different problems of worker adjustment. Even though they

can be implemented separately, it is worth emphasizing that they can also be structured as a consistent and mutually reinforcing package of programmes as described above in Section 3(a). Although each programme focuses on either the private losses or the economic costs of adjustment, each has both distributional and efficiency effects which should be taken into account. Empirical estimates of private income losses, and gross labour externalities are made for workers in the Sherbrooke region of Quebec to illustrate the likely magnitude of the assistance under these programmes.

(i) Adjustment Assistance Programmes for Specific Firms

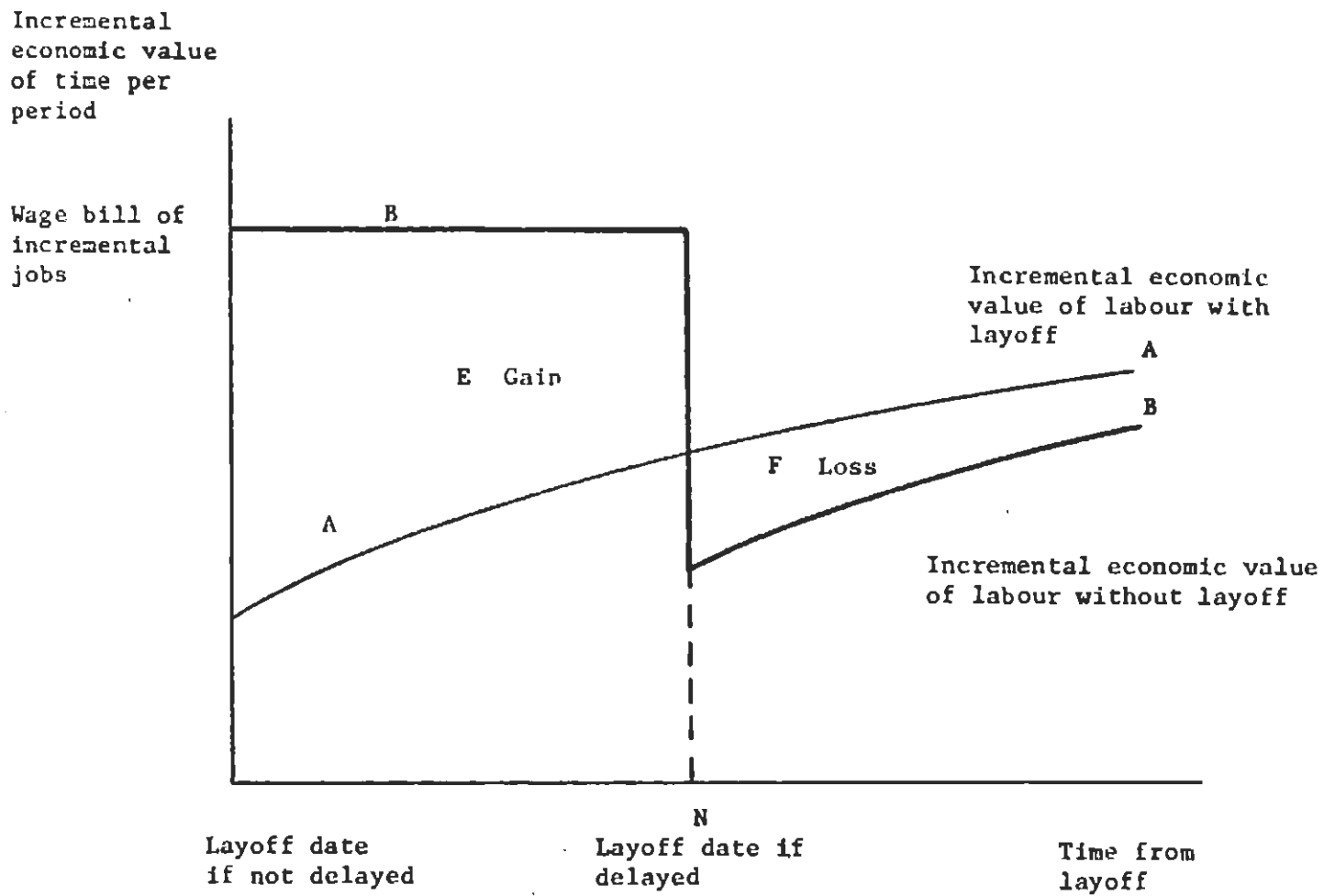
Improvements in economic efficiency can be gained through delaying or preventing layoffs. The most likely source of economic benefits is related to the positive labour externalities generated by the incremental employment created through keeping a firm in business. Government assistance programmes to such firms can take many forms: direct grants or forgivable loans based on the jobs maintained would be two examples. A firm could either continue operations in the same sector or retool to convert to some more attractive product line, and hence, maintain (or perhaps even expand) its employment level.

The partial equilibrium model for estimating the gross labour externality from saving jobs focuses only on the change in the economic value of time of the workers directly affected by the jobs saved. The model estimates the labour externality in a period as the economic value of the time of the workers with the added jobs less the economic value of their time in alternative activities (or the economic opportunity cost of employing the workers). This can be estimated from labour tracking data. The economic value of the time of a worker is taken as the sum of two components. The first component is the economic value or economic product of employed time which is taken

in a competitive market to be the gross-of-tax wage rate ignoring distortions in the product market.¹⁸ The second component gives the expected economic value of time while not employed.¹⁹ The net present value of the gross labour externality is estimated as the sum of the discounted differences between the economic values of the time of the workers with and without the jobs over some time horizon. The economic externality is discounted by the social discount rate.

A diagram can be used to depict the economic value of labour without a layoff and the economic opportunity cost of saving these jobs. In general, government assistance to an otherwise struggling firm would be expected to delay layoffs for some finite period depending on the persistence of the market conditions which otherwise would have resulted in the layoff. The gross labour externality of delaying a layoff for a period of N years is shown in Figure 2. Curve A gives the incremental economic value of the labour employed by the jobs without the delayed layoff, i.e. it gives the economic opportunity cost of saving the jobs. Curve B gives the incremental economic value of labour with the delayed layoff. For the first N years this equals the wage bill or the gross product of labour in these jobs. After N years these jobs are lost when assistance is discontinued, and the workers seek alternative employment resulting in a new adjustment path for the economic value of labour. The gross labour externality at any point of time is the difference between the values of B and A. The cumulative present value of the gross externality from saving the jobs for N years is the net present value of areas E (positive) and F (negative). The relative externality can be expressed as the ratio of the cumulative present value of the gross labour externality to the cumulative present value of the wages paid over the N years. This turns out to be a very useful summary

Figure 2. Gross Economic Gains
From a Delayed
Layoff



measure of the gross labour externality as under a number of reasonable assumptions the relative externality is independent of the expected number of years by which the layoff will be delayed.

Tables 3 and 4 give the partial equilibrium model estimates of the gross absolute and relative labour externalities that can be gained by delaying the layoff of the four types of workers for a period of five years by assisting the firms that are about to lay off these workers. In Table 3 the estimates are based on the LFTS data while those in Table 4 give the ROE-UIC data results. The former are uniformly higher than the latter which is consistent with the findings in Table 2 that most of the workers on the ROE-UIC data base tended to have temporary jobs and high job instability. The laid-off workers in the LFTS data base not only had greater job stability but also were more likely to lose firm-specific rents and to suffer a decrease in wage rates.²⁰ Further evidence of this is available in Table 4. Note first that the permanent layoff of 25 year-old males with no dependents actually created a positive labour externality because these workers found jobs with higher wage rates. This could easily occur if their previous employment had been with a firm which had been struggling to remain competitive and as a result had been paying below average wages; a worker thus experiences a wage rate increase when he finds new employment.²¹ Second, to control for the effect of wage rate changes, estimates of the gross labour externalities are given in Table 4 with the wage change set at zero. These estimates are higher than those for the permanent layoff cases where the workers generally experienced wage gains, but are still generally below those for the LFTS data base. In any case it is clear that the economic benefits from delaying layoffs are generally greater for females than for males, and for older than for younger workers.

Table 3: Gross Economic Gains from Delaying Layoff
of Sherbrooke Workers for Five Years (LFTS
Estimates: Workers Permanently Employed)

Type of Worker	Gross Labour Externality per Worker (a) (Constant 1978 \$)	Relative Labour Externality (b) (percent)
male, 40, married	6068	14.7
male, 25, single	7200	19.5
female, 25, single	14153	45.9
female, 40, married	14067	40.0

- (a) The gross labour externality per worker is the cumulative present value of the labour externality generated for 5 years of added employment. A growth in real wages of 2% per annum is assumed.
- (b) The relative labour externality is the gross labour externality per worker expressed as a percentage of the cumulative present value of the wages of the worker over the 5 years of added employment.

Table 4: Gross Economic Gains from Delaying Layoff
of Sherbrooke Workers for Five Years (ROE-
UIC Estimates : Workers previously
Permanently and Intermittently Employed)

Types of Worker	Gross Labour Externality per Worker (a) (Constant 1978 \$)	Relative Labour Externality (b) (percent)
<u>Permanent Layoff Cases</u> (c)		
male, 40, dependents	2084	4.9
male, 25, no dependents	-3773	-11.2
female, 25, no dependents	1567	7.0
female, 40, dependents	7073	23.1
 <u>No Change in Wages</u> (d)		
male, 40, dependents	6087	13.8
male, 25, no dependents	4096	12.6
female, 25, no dependents	5771	25.2
female, 40, dependents	8949	29.2

(a), (b) See Table 3 footnotes

(c) Permanent layoff cases are estimated by setting the probability of being recalled to the same firm and the probability of resigning at zero.

(d) All variables have the same values as the permanent layoff cases except the wage rates in alternative employment are the same as in the job before layoff.

As will become evident from examining Tables 5 and 6, the magnitudes of the gross labour externalities are considerably larger than the estimates of the expected private income losses. The reason for this is that income transfers among Canadians do not affect economic costs and benefits; therefore, the exclusion of the unemployment insurance payments received during the added unemployed time of the laid-off worker and the exclusion of the saving in income taxes from the reduction in his or her employed time increases the magnitudes of the gross labour externalities compared to the private income losses.

Estimates of the gross labour externalities are derived next using the general equilibrium model. These estimates are expected to be the more appropriate ones in most situations because in the long run an incremental loss or addition of jobs can be expected to affect the employment prospects of the marginal suppliers of labour to the region, not just of the workers actually laid off.

The relative gross labour externality from delaying layoffs in the Sherbrooke region has been estimated for an average permanent job and an average temporary job in the region.²² The relative labour externality generated by preserving an incremental man-year of average permanent employment is estimated to be 44.8% of the cumulative present value of the wages earned by the worker, while that for the average temporary employment is only 3.1%. Saving more productive, higher paying, permanent employment will naturally generate a larger labour externality.

If a firm seeking adjustment assistance employs workers with specialized skills that are in excess demand, then preserving employment in declining sectors results in jobs in other firms remaining unfilled during this time. In other words, the economic opportunity cost of retaining employment in

the declining firm is the value of the time of these workers in the other available jobs in each year their skills would be in excess demand. The reduction in the relative labour externality of delaying the layoff of workers in average permanent jobs in the Sherbrooke region, if these workers have skills that are in excess demand in the economy, can be as much as 18 percentage points if the excess demand is expected to persist for 5 years, which may well be the time required to train additional workers with such skills. To the extent that sectors that are likely to be affected by policy changes employ workers in short supply, the economic costs of displacing labour are significantly reduced.

(ii) Worker Compensation Programmes

A programme in which payments are made to workers who are laid off can have two motivations. First, on the basis of principles of equity or fairness a government may decide to redistribute some of the expected economic benefits of industrial restructuring or liberalized trade to those workers suffering major income losses as a result of the policy change.²³ The second motivation is to use compensation payments as a means of reducing political opposition to industrial development or liberalizing trade. Such payments may also make it easier for politicians and bureaucrats to resist increasing the level of protection when competition from foreign imports threatens Canadian jobs. To be politically effective an explicit linkage has to be made between the policy decision and the availability of compensation payments to those injured by the government action. This requires public announcements prior to the conclusion of any negotiations to inform those at risk of suffering income losses of the compensation programme that would be in place during the adjustment period. The second argument for a worker compensation programme appears more compelling than the first.

Inasmuch as there may not be another round of multilateral trade negotiations (MTNs) like the previous ones and given the political pressure for protectionism, the relevant policy question in most cases appears to be whether to protect an industry or to assist threatened firms in a way which is tantamount to protection. Compensation programmes are likely to raise the trigger point at which a government would respond to political pressure and institute economically damaging protectionist policies. The effectiveness of this political pressure is evident in the Canadian context. The more labour-intensive industrial sectors such as clothing, textiles, knitting and footwear, which are tending to lose their comparative advantage in international trade, were largely exempted from future tariff reductions in the Tokyo Round of GATT.²⁴ Furthermore, the clothing and footwear sectors have been the beneficiaries of global quotas and more recently bilateral quotas. A compensation programme might well have formed part of an adjustment assistance package that could have been used instead of this protectionist response to deal with the problems faced by these industries.

A compensation programme could offer payments to displaced workers equal to the present value as of the time of being laid off of the expected change in full income derived from labour-market and non-labour-market activities. This means that the value of the time of a worker while both employed and unemployed enters the full income estimate. When employed a worker is trading his time for net-of-tax monetary wages, but while unemployed a worker has the value of his time in non-market activities and receives any net-of-tax unemployment insurance benefits that he is able to claim.²⁵ The expected loss in full income can be interpreted as an estimate of the amount that the worker would want to receive in compensation for the loss of his job in order to be indifferent between the expected full income stream with and without a job loss.²⁶

The income loss is estimated in present value terms as the difference between the full income stream that the worker would have expected to receive without the layoff and the full income stream that the worker expects with the layoff. The estimation of the full income stream without layoff is based on the employment experience of a sample of workers before a permanent layoff, while that with layoff is based on the re-employment experience of a sample of workers after such a layoff. Full income is estimated as the expected employment earnings after taxes during any time period plus the sum of the unemployment insurance benefits after taxes plus the value of time in non-market activities while unemployed. The income loss suffered by a worker is expressed as the present value of the losses that a worker expects to incur in each period over some time horizon. A private discount rate or rate of time preference is used to discount the expected income streams. A useful summary measure of the expected income loss of workers is the relative loss suffered over some time horizon. This is the ratio of the cumulative present value of the expected income loss, to the present value of the expected income stream without job loss over the same time horizon. The relative income loss also allows useful summary measures of the sensitivity of the income loss, viz, the elasticity of the income loss with respect to changes in the wage rate or proportion of time working.

This model for estimating income losses is presented graphically in Figure 3. The income loss over some time period t from layoff is measured as the present value of the area between the curves I^b and I_t^a . This area can be divided into two: an area that represents an estimate of the transitional losses arising out of the excess unemployment the worker experiences before he regains some long-run equilibrium proportion of time employed,

and an area that indicates the change in income due to a new long-run equilibrium income stream being attained. The magnitude of the long-run loss reflects wage rate changes more than changes in employment permanency. Notice that while a long-run loss is generally expected due to the loss in rents previously earned from specialized, firm-specific skills, a long-run gain can also arise. A worker laid-off from a firm, which has been struggling to remain cost-competitive, may well experience a wage increase in alternative employment.

As a general rule the manner in which compensation payments are made should be such as to minimize any negative efficiency effects arising from the payment. A lump-sum severance payment (or its equivalent in installment payments) meets this requirement. Any attempt to tax-back these transfer payments based on the workers post-layoff re-employment experience (as is commonly done in many government welfare or income-maintenance programmes) provides work disincentives for the beneficiary, and hence, efficiency losses for the economy as a whole.²⁷ In fact, rather than attempt to limit a programme beneficiary's post-layoff employment earnings with tax-back provisions, in order to improve the political acceptability of a compensation programme, it may be preferable to over- rather than under-compensate workers as long as the programme is efficiency neutral.²⁸

Tables 5 and 6 present estimates of the expected private income losses of permanently laid-off workers in the Sherbrooke region from the LFTS and ROE-UIC data bases, respectively. The characteristics of the income loss are divided into percentage changes in the time spent employed and in wage rates, the relative income losses within a given time period from job loss, and the absolute maximum income loss and the time taken to reach this maximum.²⁹

The magnitude of the relative income loss, i.e., of the net present value of the absolute income loss expressed as a percentage of the net present value of the worker's full income before layoff, depends on both the percentage change in the proportion of time employed and the percentage change in wage rates after layoff. Both data bases indicate that female workers suffer roughly twice the percentage decreases in the proportion of time at work of male workers. Age appears to be a less important factor in this regard. The results using the LFTS data base suggest that females suffer wage losses whereas male workers enjoy wage gains, but from the ROE-UIC data base it would appear that all the laid-off workers enjoy wage rate increases (see note 21), but younger workers tend to benefit more than older workers. Estimates of income losses for old workers (age 55) show they tend to suffer larger losses than any of the younger age groups. This is particularly evident in the short run due to their difficulty in becoming re-employed. Old workers tend to suffer more severely from reduced employed time than an inability to maintain wage levels.

The combined effects of percentage changes in the proportions of time employed and in wage rate can be seen in some cases to produce relative income gains (indicated by negative values) instead of losses. This is especially true for workers in the ROE-UIC data base (Table 6). To control for the effect of wage rate changes, the income-loss estimates are given in Table 6 with the wage change set at zero. Comparison of this type of simulation with the permanent layoff case reveals the sensitivity of the income loss to changes in wage rates between jobs. Over the long run the sensitivity of the relative income loss of the Sherbrooke workers to a change in their wage rate of one percentage point averages about $-.8$, or in other words, if the wage rate of a laid-off worker drops by one percent

Table 5: Income Losses: Permanent Layoffs in
Sherbrooke (LFTS Estimates: Workers Previously
Permanently Employed)

Relative Changes (percent)

Type of worker	Time Employed(a)	Wages(b)	Relative Income Loss(c) within			Maximum Income Loss (Constant 1978\$)	Time to Reach Max. Loss (months)
			1 yr	3 yr	5 yr		
male, 40, married	-22.2	+7.1	4.9	.3	-.5	460	15
male, 25, single	-26.1	+4.1	7.5	3.8	3.1	1139	60
female, 25, single	-45.8	-9.4	19.3	16.2	15.2	4779	60
female, 40, married	-45.4	-6.3	15.4	13.6	12.9	4790	60

(a) Percentage change in time employed = $(PEQ - P^b) / P^b \cdot 100$, where PEQ is the long-run equilibrium probability of being at work after layoff and P^b is the probability of being at work before layoff.

(b) Percentage change in wage rates = $((W^a - W^b) / W^b) \cdot 100$, where W^a is the expected wage after layoff and W^b is the wage before layoff.

(c) The relative income loss is defined as the cumulative present value of the absolute loss in full income divided by the cumulative present value of the full income that would have been earned if the employment conditions before job loss were maintained. Income losses are defined as positive, gains as negative.

Table 6: Income Losses : Permanent Layoffs in
Sherbrooke (ROE-UIC Estimates: Workers Previously
Permanently and Intermittently Employed)

Type of Worker	<u>Relative Changes</u>		Relative Income			Maximum Income Loss (Constant 1978\$)	Time to Reach Max. Loss (months)
	Time Employed(a) (percent)	Wages(b)	<u>Loss (c) within:</u>				
			1 yr	3yr	5 yr		
<u>Permanent Layoff Cases</u> d)							
Male, 40 dependents	-10.1	+ 9.5	3.6	-0.5	-2.0	396	9
Male, 25 no dependents	- 8.0	+24.2	-7.1	-12.3	-14.0	26	1
female,25 " "	-28.1	+21.9	-5.3	- 9.3	-10.7	16	1
female,40 dependents	-39.1	+ 7.5	5.4	3.1	2.6	940	60
 <u>No Change in wages</u> e)							
male, 40 dependents	-10.1	0.0	9.1	5.8	4.5	2314	60
male, 25 no dependents	- 8.0	0.0	8.4	5.0	3.8	1452	60
female,25 " "	-28.1	0.0	9.8	7.5	6.6	1864	60
female,40 dependents	-39.1	0.0	10.4	8.6	8.3	2991	60

(a), (b) (c) See Table 5, footnotes (a), (b), (c).

(d) Permanent layoff cases are estimated by setting the probability of being recalled to the same firm and the probability of resigning at zero.

(e) All variables have the same values as the permanent layoff cases except wage rates in alternative employment are the same as in the job before layoff.

then his relative income loss increases by .8 percentage points.³⁰ In general, the relative income loss over 3 years has been found to range from 1 through 10 percent when no wage change occurs after layoff, up to 25 percent when there is a decrease in wages and a loss of firm-specific rents, and down to -20 percent when there is an increase in wage rates. Female workers generally suffer larger relative income losses, or enjoy smaller relative gains. They tend to suffer the same or higher absolute losses, however, because their expected full income before layoff is lower than that of male workers.

(iii) Worker Re-employment Promotion Programmes

In the event of a major layoff most manpower programmes aim at reducing the private and economic costs of the short-run increment in unemployment which follows. Such programmes cover a broad spectrum from job search and counselling to retraining and income maintenance programmes. The impact of these programmes is usually measured by the change in the speed of re-employment, or by changes in the duration of unemployment. Most of these programmes unfortunately fail to deal with some of the longer-run costs of worker displacement.

Analysis of the long-run effects of a programme requires not only an examination of the speed of re-employment, but also an appraisal of the variables that indicate the quality of subsequent employment, such as wage rates and permanency of subsequent jobs. In addition the second-round effects on the employment prospects of other workers as a result of assisting a limited number of displaced workers should be taken into account in an analysis of the programme from an economic perspective.

An example of these wider ranging effects can be found in the so-called "portable wage subsidy" programme that has been suggested for inclusion in

a trade adjustment assistance package in Canada.³¹ In this type of programme subsequent employers of laid-off workers, who have been designated as trade-affected, would receive wage subsidies for each week of employment provided over a three-year period, say, following layoff. From the perspective of the designated workers, the programme can be expected to have positive effects on his employment and income prospects in both the short and long runs. The worker achieves a competitive edge in finding a new job, and he also can anticipate greater job security because the subsidy payments would be conditional on continued employment. Employment stability is further reinforced if the subsidy payments are used to cover on-the-job training for the worker which increases his or her value to the firm.

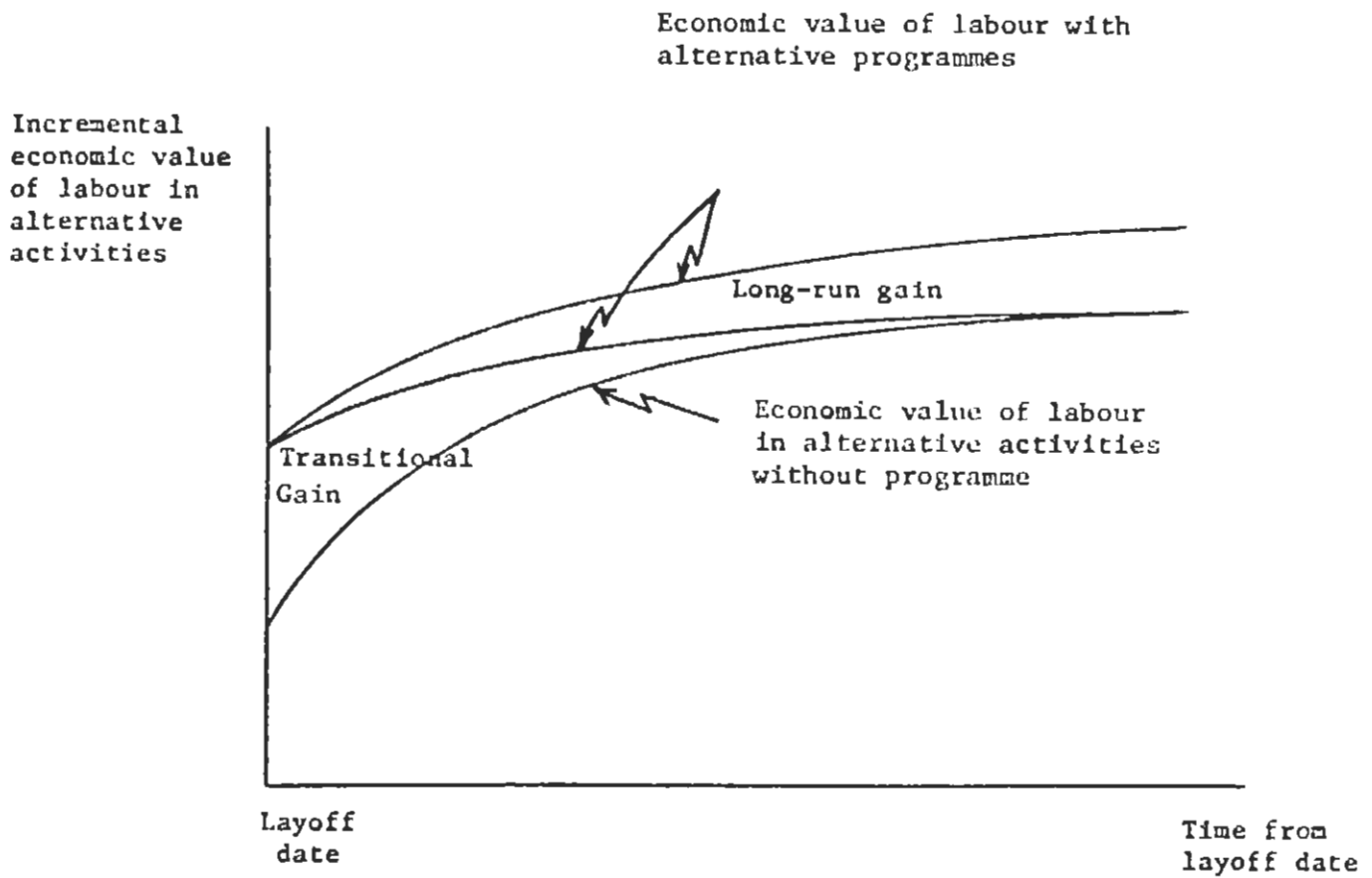
From an economic perspective, however, a number of indirect effects have to be considered in designing such a programme to ensure that it leads to long-run net economic benefits while still assisting those who lose their jobs. The first concern is the extent to which assisting some workers adversely affects the employment prospects of other workers. As long as the trade-affected workers are not close substitutes for other workers, the wage-subsidy programme can lead to increased employment for all workers through its expansionary effects. If they are close substitutes, however, then the adverse indirect effects are proportional to the relative size of the programme.³² A second concern would be the differential in the net labour externality that can be expected to occur in other sectors which offer alternative job opportunities. The higher the remaining level of trade protection available to other sectors, for example, the lower is the marginal economic product of labour in those sectors, and the lower is the net labour externality. This would justify making the level of the wage subsidy inversely related to the degree of remaining trade protection

received by potential new employers. Such provisions would thus not encourage employment expansion in the weaker import-competing sectors.

The gross economic benefits from re-employment promotion programmes can, in general, be measured as the cumulative present value of the increase in the economic value of the laid-off workers' time in alternative activities (i.e., by the increase in the economic opportunity cost of labour to the forgone jobs). The increase is estimated by the difference between the incremental economic value of labour in alternative activities with and without the re-employment promotion programme. See Figure 4. This incremental labour externality can be divided into short-run or transitional gains and the long-run gains that result from changing the structure of employment compared to what otherwise would have existed. Such labour benefits could be estimated using either the general or partial equilibrium model depending upon the nature of the expected programme effects.

Job counselling and search-assistance programmes tend to speed up the re-employment of displaced workers. If the programme being analyzed is an added effort directed only at displaced workers, then the transitional gains could be measured with the partial equilibrium model. Notice that such a programme would provide additional assistance to the laid-off workers to find jobs in their first unemployment spell; their long-run equilibrium employment prospects depend upon their ability to find and retain employment beyond this first job. If the job counselling and search assistance programmes increase the efforts of all unemployed workers, then the benefits could be captured in the general equilibrium model as a faster adjustment to a new labour-market equilibrium as a result of a layoff. Empirical evidence of the actual behavioural effect of such programmes on the rates of re-employment is required for realistic estimates of the economic benefits.

Figure 4. Gross Economic Gains from Re-Employment Promotion Programmes



Sensitivity analysis can be used as a short-run solution to show the range of the magnitudes of the potential gains.

The likely upper bound of the gross economic benefits that can be gained from a re-employment promotion programme can be measured as the difference in the gross labour externality with and without the programme which is able to provide laid-off workers with immediate re-employment. Table 7 gives the maximum absolute and relative economic gains available from such a programme for the four types of workers in the LFTS and ROE-UIC data bases using the partial equilibrium model. These gains appear to be limited to about \$2,000 through \$4,000 in constant (1978) dollars per worker assisted. These estimates indicate that only minimal gains can be obtained through programmes whose sole aim is to reduce the period between layoff and the next job.

Relocation assistance programmes can be analyzed in an analogous manner depending upon the extent of the coverage of the new programme: i.e., only the displaced workers or all workers. In the general equilibrium model the effects of a relocation programme could be captured by faster migration response rates to labour-market disturbances. Although migration forms the major mechanism by which regional labour markets regain their equilibrium relationships with other regional labour markets in the model, it is important to notice that there are limitations to the beneficial effects of relocation programmes that merely provide assistance to defray moving expenses. These limitations arise because at any point in time there is only a limited number of workers both inside and outside of a region who are marginal suppliers of labour to a particular region, and relocation programmes can be expected to affect the job-location decisions of only those at the margin. The inframarginal workers feel themselves

Table 7: Maximum Economic Benefits from Re-Employment
Promotion Programs for Sherbrooke Workers

Type of Worker	Gross Economic Benefit Over 5 years	
	Absolute Gain ^(a) per Worker (Constant 1978 \$)	Relative Gain ^(b) (percent)
<u>LFTS Cases</u>		
male, 40 married	2423	6.1
male, 25, single	2136	5.8
female, 25, single	2736	9.7
female, 40, married	3781	11.0
<u>ROE-UIC Permanent Layoff Cases</u>		
male, 40, dependents	2798	6.5
male, 25, no dependents	2414	7.5
female, 25, no dependents	2494	11.2
female, 40, dependents	3370	11.2

(a) Absolute gain equals the cumulative present value of the labour externality with no re-employment assistance minus that with re-employment assistance. This equals the increment in the cumulative present value of the value of the time of the worker in alternative activities. A growth rate in real wages of 2% p.a. is assumed.

(b) The relative gain is the difference in the relative labour externalities with no programme and with the programme. See Table 3, footnote (c).

better off in their home region given the perceived differentials in wages, employment prospects, costs of living and environmental attributes (physical and social) among regions. The key thing to notice is that these features that determine the indifference or otherwise of workers between regions are all recurrent costs or benefits, whereas mobility grants affect the fixed one-time costs of moving. For many, if not most workers, the present value of these one-time costs can be expected to be relatively small compared to the perceived differential in recurrent costs and benefits that results in their regional attachment. Mobility grants have to exceed the fixed costs of moving in order to encourage many inframarginal workers to move, and hence, substantially increase the net flows of migrants.^{33, 34}

The effects of a re-employment promotion programme that generally increases the geographic mobility of workers in and out of a region can be captured as the increased rate of the migration response of a regional labour market to a layoff. In a base-case simulation using the general equilibrium model, for example, it is estimated that 50 percent of the excess unemployment in the Sherbrooke region is reduced annually by net outmigration. If this were increased to 75 percent by a mobility programme, then the labour benefit would be a 3.2 percentage point increase in the relative labour externality for the average permanent job. If the migration response is increased to 80% and the rate at which existing job vacancies are filled is raised to 20% (from 10%) by means of a general geographic and occupational mobility programme, then the relative labour benefits would be only an additional 6.9 percentage points above the base-case level. These examples illustrate once again the limited economic effectiveness of programmes that impact only on the transitional costs of labour adjustment.

A portable wage subsidy programme is expected to result in both short-run and long-run labour externalities. The expected short-run externalities arise from a more rapid initial re-employment of the subsidized workers. These benefits would be measured in the same manner as the transitional gains of the counselling and job-search-assistance programmes using the partial equilibrium model. An additional expected benefit of the programme is the creation of a net increment in the man-years of employment offered.³⁵ These new jobs are expected to be spread across all types of employment and to last the duration of the programme (three years per subsidized worker, say). The long-run effects on the employment of the subsidized worker himself would be implicit in the general equilibrium estimates of the overall gross labour externality from the programme.

Using the "new job creation" version of the general equilibrium model, estimates of the relative labour externality can be made for incremental jobs lasting different lengths of time depending upon the period over which wage subsidies are to be paid. These estimates indicate that the relative benefits of incremental average employment in the Sherbrooke region increase rapidly over the first five years (to almost 30 per cent), but at a slower rate for additional years.³⁶ Recall that the absolute gross labour externality is the cumulative present value of the externalities in each year (i.e., the relative externality times the wage bill in each year) for which the incremental employment lasts.

As with job preservation, the creation of new jobs that require skills that are in excess demand reduces the economic benefits attributable to this new employment programme.³⁷ Such jobs would have to be filled by bidding workers with the necessary skills away from other activities where

jobs are available.³⁸ These reductions in labour externalities also indicate the potential labour benefits that can be achieved by training programmes that are aimed at reducing the excess demand in these skill categories by increasing the supply of skilled labour to fill the otherwise vacant positions. It is evident that the gross economic benefits can be considerable.

Institutional or on-the-job training programmes can also generate long-run social externalities by improving the quality of jobs (the wage rate and permanency of jobs) that trainees can expect. In order to be beneficial, the improvements in the marginal productivity of labour in subsequent jobs has to offset the forgone product of labour during a training period plus the economic costs of the resources devoted to the training programme. The largest potential gains from training programmes can be captured by directing the training towards increasing the supply of labour categories that are in short-run shortage. Increasing the supply of labour in a specific skill category which is in excess demand is equivalent to effectively creating a new job in all future periods during which the job vacancies requiring this specific skill are expected to remain unfilled.

Re-employment promotion programmes can also help to reduce the private income losses of laid-off workers. Most re-employment programmes, however, aim only at reducing the short-run costs of displaced workers by assisting them to find their first job after layoff and not at improving their prospects over the rest of the time they are in the labour force. Even without the specific behavioural characteristics of the effects of such programmes, it is possible to simulate the upper bound to the reduction in

the relative income loss of workers achieved by means of a re-employment programme which focuses on the period immediately following layoff, but which thereafter relies on generally available assistance. The best result such a programme can achieve is the immediate re-employment of all laid-off workers.³⁹ Table 8 presents estimates of the maximum reductions in the relative income losses of workers in the Sherbrooke region based on both data sets. It appears that in the long run such programmes can only reduce income losses by 2-4 percentage points at the most through the short-run gains may be greater (up to 12 percentage points). The reason for this small long-run effect is that these programmes concentrate on only the immediate problem and not on the longer term employment and earnings experience these workers must now face.

4. Eligibility Criteria and Certification Process for Worker Adjustment Assistance Programmes

Labour and capital are continually having to adjust to changing market conditions which may be the result either of government policy (changes in taxes, regulations, etc.) or of private actions (technological innovation or changes in tastes). Cost-effective government interventions in the labour market are, after all, justifiable to speed and direct displaced workers into more efficient allocations no matter what the reason for their being unexpectedly unemployed. Why is there a need then for special worker adjustment assistance programmes? The reason is that the economic and political constraints to more rapid industrial restructuring and the political pressures in favour of protectionism are usually sufficiently strong to justify the advocacy of limited and well-directed worker adjustment assistance programmes. Increased managerial and administrative efficiency also argue for special rather than general programmes.

Table 8: Maximum Reductions in Private Income
Losses from Re-employment Promotion
Programs

Type of Worker	Reduction in relative income loss ^(a) over:		
	1 yr	3 yr (percent)	5 yr
<u>LFTS Cases</u>			
male, 40, married	10.0	3.8	2.4
male, 25, single	8.2	3.0	1.9
female, 25, single	11.6	8.2	3.0
female, 40 married	9.4	5.1	3.1
<u>ROE-UIC Permanent Layoff Cases</u>			
male, 40, dependents	6.9	3.7	2.5
male, 25, no dependents	8.2	3.9	2.5
female, 25, no dependents	10.2	5.2	3.3
female, 40, dependents	8.1	5.1	3.7

(a) Reduction in relative income loss equals relative income loss with immediate re-employment minus relative income loss with no additional re-employment assistance.

While it is justifiable to have special worker adjustment assistance programmes to enhance the efficiency gains from industrial development and trade liberalization, a common fault with such programmes has been their attempts at excessive exclusiveness. It is difficult, if not impossible, to isolate tariff and other policy changes as the only cause for a layoff or plant closure. Eligibility criteria and certification procedures for a programme should aim at ensuring that affected workers are not excluded even if the target efficiency is lowered by including cases that are not genuinely "policy-affected." Compensation programmes, for example, can be expected to be more politically effective if they throw their nets wider rather than being narrowly targetted and overly selective (as long as they are designed to be at worst efficiency-neutral). With regard to assisting specific firms and to worker re-employment assistance programmes, as long as the incremental activity they generate produces positive net economic benefits, it is of lesser importance whether or not a policy-affected worker or firm is being assisted. Careful programme design is the key to ensuring that these measures are economically beneficial.

The potential dangers of overly stringent eligibility criteria can best be illustrated from the experience with the U.S. Trade Expansion Act of 1962. The provisions of this Act required firms or workers to prove that increased imports were the major cause of their unemployment and that the increased imports were primarily the result of prior trade concessions.⁴⁰ Because such "proof" is difficult to obtain, very few firms and workers were declared eligible. It is interesting to note that in the U.S. Trade Act of 1974, the eligibility criteria were relaxed somewhat to require that the firm or its workers demonstrate that "increases in imports . . . contributed importantly to the separation or threat of separation of the

workers and to a decline in sales or production. ('Contributed importantly' is defined . . . as a cause which is important but not necessarily more important than any other cause.)"⁴¹ By 1977, 161,000 workers had been declared eligible for adjustment assistance under the 1974 Act whereas during the entire fourteen year life of the 1962 Act only 47,000 workers received any assistance.⁴² It is very probable that workers and firms that were in fact eligible were excluded.

The certification process for determining eligibility also plays an important role in the overall effectiveness of worker adjustment assistance programmes. There are definite advantages, for example, to an ex ante over a post hoc certification process. First, the prior designation of workers in policy-affected industries limits the number who could potentially benefit from the programme and puts a lid on the programme budget. Second, the potential gains from re-employment promotion programmes will be greater the more quickly certification takes place. Even though ex ante certification will increase the probability of paying compensation to workers who do not in fact lose their jobs as a result of a change in government policy, it is felt that this is the lesser error both because of its favourable income distributional effects and because a more liberal compensation policy is more likely to reduce political opposition to the government action.⁴³

The bureaucratic machinery for delivering adjustment assistance benefits should also be operational before government policy changes are announced. Besides the problems of the eligibility criteria and post hoc certification process of the U.S. Trade Expansion Act of 1962, there was an average delay of fifty-five weeks between layoff and receipt of adjustment benefits.⁴⁴ A quick glance at the expected durations of unemployment of

laid-off workers in Tables 1 and 2 reveals that practically all the displaced workers in the Sherbrooke region, if the provisions of the U.S. 1962 Act were applied in Canada, would have found subsequent employment before the first adjustment assistance cheque would have arrived! As a means of mitigating political opposition and of compensating disadvantaged workers, the adjustment assistance provisions of the U.S. 1962 Trade Expansion Act must be judged a notable failure. ■

5. Comparison of the Estimates to Existing Programmes

Worker adjustment assistance programmes in Canada have focused mainly on worker training and manpower mobility grants. No attempt is made in this paper to assess the effectiveness of these programmes or to validate the estimates of the likely economic benefits which were made in the previous section.

Unemployment insurance benefits assist laid-off workers in Canada, but recall that any compensation based on the expected income losses estimated in the previous sections would be in addition to the regular unemployment benefits to which the worker is entitled. As was noted earlier (note 27), the Canadian government did establish a programme to provide continuing unemployment benefits for older workers released by declining firms in the textile industry. Initiated in 1971, and extended in 1974 to cover the footwear and tanning industry, the Labour Adjustment Benefits Program (LABP) programme now provides workers with two-thirds of their former wages after the expiration of unemployment insurance benefits and until the age of 65. The first point to be made concerning this programme is that it appears to be especially generous (relative to the income losses estimated in Tables 5 and 6) even after subtracting the unemployment insurance benefits which would have been paid during the fraction of the year that

these workers would likely have been unemployed. The second point worth noting is that the eligibility criteria are quite restrictive. To be eligible workers in the textile industry had to be employed in the industry for a minimum of ten out of the last fifteen years, and the layoff had to be certified by the Textile and Clothing Board as having resulted from import competition. To avoid assisting workers laid-off as part of an industry^{*} rationalization, a minimum of 50 employees or 10 percent of the firm's work force had to be affected for a period exceeding four weeks.⁴⁵ The third problem was mentioned previously (note 27), namely that employment earnings are subject to an effective minimum 2/3 marginal tax rate because assistance benefits are taxed-back at this rate when the beneficiary has earnings from alternative employment.⁴⁶ The combined effects of the restrictive eligibility criteria and work disincentives created by the tax-back provisions make the AAB programme much less generous than it first appears. The programme does provide a precedent for industry-specific assistance, however, and could be improved considerably by easing the eligibility criteria and reducing both the benefit and tax-back rates.

The U.S. Trade Act of 1974 not only relaxed the eligibility criteria and reduced the certification time but also provided more generous assistance than did the 1962 Trade Expansion Act. Worker adjustment benefits under the 1974 Act include the following:

- a weekly adjustment allowance of 70 percent of the workers' average weekly wage, but not to exceed 70 percent of the average weekly manufacturing wage, for up to 52 weeks with up to 26 weeks extension for workers in training or workers over 60 years old.
- training, testing, counseling, placement services and other services through cooperating state agencies.
- workers who wish to move to another area may receive a relocation allowance of 80 percent of the necessary relocation expenses plus a lump-sum payment of 3 times the worker's average weekly wage, up to \$500.

- job-search allowance of 80 percent of a worker's job-search expenses up to \$500.⁴⁷

There are a number of differences between the weekly adjustment allowance of 70 percent of the workers' average weekly wage and the income loss estimates made in this paper. First, the allowance is not paid in addition to state unemployment insurance benefits, but rather is intended either to raise these benefits from their usual rate of about 50 percent to 70 percent or to extend unemployment coverage for an additional time period. The income loss estimates made in this paper were in addition to unemployment insurance payments to workers. Second, unemployment insurance benefits and the "top-up" provided by trade adjustment allowances are not included in taxable income in the United States. Unemployment insurance benefits are counted as taxable income in Canada, hence only net-of-tax unemployment benefits were included in the estimates of the displaced workers' full income before and after layoff in order to calculate their expected income losses; the estimated losses presented in Tables 5 and 6 are also measured net of income tax. Third, like Canada's Labour Adjustment Benefits Program, the adjustment allowance creates a work disincentive because the allowance is received only while workers are unemployed.⁴⁸ The Worker Compensation Programmes advocated in this paper are careful to keep work disincentives to a minimum.

The relocation allowances of the U.S. 1974 Act may not be cost-effective and may generate relatively small economic benefits compared to the potential benefits from worker re-training programmes. The lump-sum payment is intended to compensate those living in single-industry communities for the unexpected decline in housing prices, but the ceiling of \$500 is likely to prevent full and adequate compensation from being made.

6. Other Considerations and Conclusions

For years economists have argued in favour of trade liberalization, and individuals and institutions have lobbied governments in developed countries like Canada to assist developing countries by encouraging increased trade flows. These efforts have sometimes been successful, but in general the rate of progress has been slow as governments in developed countries have been reluctant to dismantle existing trade protection and have failed to restrict the introduction of new protective policies. Witness, for example, how quickly the Government of Canada was prepared to adopt protectionist measures during the recent period when the Canadian dollar was overvalued and a number of import-competing industries were increasingly threatened by foreign competition. It is not unreasonable to expect, furthermore, that governments will continue to reach for the tools of protection unless alternative policies are available to deal with the adjustment problems that increased trade can entail.

At the same time governments in developed countries are more actively pursuing social and economic objectives like full-employment, regional growth and an improved balance of payments. Regional location grants, special government financial assistance and subsidies, along with the standard protective devices, are frequently used to maintain employment opportunities in declining industrial sectors. These measures have been dubbed the "new protectionism" because they also discourage trade.

Politicians and appointed government officials in developed countries have a choice between protective trade policies (old or new), which maintain domestic employment opportunities and forestall the private and economic costs of adjustment (albeit at an economic cost of their own to both domestic residents and the resident of developing countries), and increased trade with its accompanying dislocation for workers and owners of capital in

import-competing sectors. Given only this choice, it is not surprising that elected governments have been reluctant to abandon protection. Politicians ought to become informed, however, of another option, namely worker adjustment assistance. Properly designed worker adjustment assistance programmes can be used to mitigate political opposition to economic and policy changes, and to permit a more efficient use of the country's resources.

Adjustment assistance programmes are sometimes viewed as less desirable than the continued use of protection because they require government expenditures (and implicitly tax increases of uncertain magnitude and incidence) whereas protection generates tax and tariff revenue of certain incidence. At least two arguments can be made in reply. First, the growth of government financial assistance to troubled firms in declining industrial sectors and slow-growth regions is one indicator that continued protection could easily entail a net drain on government revenues, and one which is likely to get larger over time. Second, the amount of government expenditures can be tightly controlled through careful policy formulation and design and can be limited in magnitude to that which will yield incremental net economic benefits.

A major theme of this paper has been that economic welfare both at home and abroad can be improved by means of worker adjustment assistance programmes. To be politically and economically effective, however, careful estimation of the following variables is required:

- a) the private costs of adjustment of laid-off workers,
- b) the net economic benefits of delaying layoffs, and
- c) the net economic benefits of alternative re-employment promotion programs

If displaced workers are under-compensated, then their political

opposition to changes in government policy will remain unabated. If they are over-compensated, then the government can be made to look inept and irresponsible in its management of the public purse. If failing firms are propped up indiscriminately and indefinitely, then residents of the country are made worse off because other more beneficial activities are forgone elsewhere. Over time the competitive position of countries like Canada deteriorates and their ability to adapt to an ever-changing world environment is reduced. Lastly, the re-employment of laid-off workers can be encouraged in a number of ways, some more economically efficient than others.

In order to demonstrate how "positive" adjustment measures can be designed, a number of economic models and estimation techniques have been introduced in this paper. The parameters of these models have been statistically tested in previous studies and found to be highly significant. The methodology described in this paper offers policy analysts a way to approach the empirical problems which have to be solved before welfare efficient policies can be designed. The next steps must be taken by politicians and bureaucrats who still believe that the world can be made a better place in which to live.

Notes

1. Helleiner (1976)
2. Tariffs raise the domestic price for a good above its world price (c.i.f.). This tends to dampen domestic demand, but expand domestic production. Welfare gains are therefore available through tariff reduction by lowering the domestic price to consumers. Given the distortions in the factor markets (labour and capital, in particular), the optimal level of domestic production may well be above that which the world price would dictate. In such a case, a country can either not remove a tariff completely or replace the tariff with a production subsidy within a trade adjustment assistance programme. This latter option is preferable to tariff protection because there is a gain in consumer surplus and no loss of efficiency in production.
3. Organization for Economic Co-operation and Development (1976).
4. The term "economic cost" is used in this paper to refer to the economic efficiency or resource cost related to some incremental activity in the economy. The economic resource cost per unit of a domestically produced good, on the one hand, is less than its market price if there are positive labour and other externalities associated with its production. The economic cost of an imported good into Canada, on the other hand, must allow for the economic premium on foreign exchange because the economic cost of foreign exchange is greater than the market foreign exchange rate.
5. Many editorial writers in the daily newspapers also espouse protectionist measures. See, for example, Wayne Chevaldayoff, "Onus is on Ottawa to Spur Faster Growth," Report on Business, Globe and Mail (February 25, 1980): B2.
6. Bale (1979): 151.
7. Organization for Economic Cooperation and Development (1979): 3-7.
8. O.E.C.D. (1979): 76-116.
9. The adjustment costs of workers are considered more important than those of capital and capitalists because any change in the value of capital assets due to trade liberalization is a private, but not an economic loss. The only relevant private loss is due to an unexpected change in trade barriers. To the extent that trade liberalization is anticipated, the change in the expected profitability in a sector is then reflected in the asset purchase price. Although capital losses can be suffered even before a reduction in protection occurs, capital adjustment is expected to precede this date as well, e.g., reinvestment in other sectors or countries, use of rental equipment rather than purchasing new equipment, and so on.

10. Secondary activities in a region are those that are sensitive to changes in local expenditure levels. Base sector activities are not subject to local expenditure fluctuations. Their level is determined through trade with other regions and countries. Changes in jobs opportunities affect the level of local expenditures, and hence, the supply of secondary jobs.
11. In 1973 Quebec provided the following percentages of total Canadian employment in the following import-vulnerable sectors:

Leather	48.1%
Textiles	52.1%
Knitting	61.9%
Clothing	65.4%
Electrical Products	25.6%

See Matthews (1977), Table 3; Helleiner (1975).

12. Estimates have also been made for worker re-employment experiences in a number of other regions in Quebec and Ontario stretching from Quebec City in the east to Niagara Falls in the west. See Jenkins, Glenday, Evans and Montmarquette (1978), Glenday (1979) and Jenkins and Montmarquette (1979).
13. The major towns in the Sherbrooke region are Sherbrooke, Granby and Magog. The distributions of their labour forces across the five import-vulnerable industries (see footnote 12) in 1973 was as follows:

Town	Percentage of Labour Force in Industrial Sector				
	Clothing	Textiles	Electrical Products	Vulnerable Industries	Manufacturing
Sherbrooke ^(a)		4.2		7.1	33.2
Granby ^(a)	2.5	10.3	3.2	17.0	41.3
Magog ^(b)		10-20			

(a) Matthews (1977), pp. 17-18.

(b) Single textile plant, special survey information.

14. The Labour Force Tracking Survey (LFTS) was conducted by the Department of Industry, Trade and Commerce during the summer of 1977. This survey was designed to establish a data base on the reemployment experiences of a sample of workers who suffered permanent job losses from companies undergoing shutdowns or major employment cutbacks. Data were collected on both the time series of the labour force status of a worker as well as on the personal characteristics of each worker. The survey concentrated on collecting data on workers separated from firms in the weaker and the more labour-intensive industries that have been experiencing problems in maintaining their competitive positions. The vast majority of cutbacks and shut-downs that

generated the job losses occurred between January 1974 and December - 1976. Data on all employment-unemployment episodes of the worker between January 1972 and the survey date in 1977, however, were also collected so that the labour-market behaviour of the worker both before and after job loss from the firm identified for the survey is available for analysis.

The second data source is a regional Record of Employment - Unemployment Insurance Claim (ROE-UIC) data base for the Sherbrooke region. This data base is constructed from the UIC Longitudinal Data Base to give the time series of employment and unemployment episodes for a one-in-ten sample of all workers who established unemployment insurance claims in the Sherbrooke region from 1972 through 1976.

15. The government also has to guard against the firm seeking windfall gains from the programme by threatening the government with an imminent but unintended major layoff, unless financial assistance is forthcoming.
16. In such circumstances, the government may try to find a buyer for the struggling firm amongst the successful businesses in the sector. This would prevent the dislocation suffered by its existing labour force. Business mergers can be encouraged provided they do not violate anti-combines legislation.
17. Glenday, Jenkins and Evans (1980), Appendix B.
18. The wage bill should include all employer contributions to fringe benefits and payroll taxes.
19. The value of time in non-market activities is estimated from the trade-off a worker makes between labour-market and non-labour market activities. In a competitive labour market a worker can choose the amount of time he desires to work based on the net-of-tax wage rates he can command and the corresponding UIC benefits he can receive while unemployed. In such a labour market a worker would be expected to forgo his time in non-market activities up to the point his net-of-taxes wages offset the opportunity cost of his marginal time, viz., the value of his time in non-market activities plus the UIC benefits he would receive if unemployed during this marginal time. In some labour markets, however, workers are not able to choose voluntarily the amount of time they wish to work. Minimum wage laws and collective-bargaining agreements tend to raise wage rates above market-clearing rates. In consequence the value of employed time is higher than unemployed time, and hence, the net-of-taxes wage rate equals some multiple of the values of UIC benefits and time in non-market activities.
20. For an example of a case study of laid-off workers losing firm specific rents, see Jenkins, Glenday, Evans and Montmarquette (1978), Chapter 2.
21. Wage rate gains by laid-off workers are especially likely to occur during periods of rapid growth in real wages. In such circumstances wage rates in the struggling firm can fall rapidly behind the average

market wage rate. Over the sampling period of 1974-1976, for the LFTS and ROE-UIC data sets, real wages did in fact grow quite rapidly, and hence, the income gains by many workers are not surprising. The following data illustrates the growth rates in constant dollar earnings in the Sherbrooke region.

	Annual Earnings Growth Rates (percentage)	
	Period	
	1973-1977	1974-1976
Urban Area		
Sherbrooke	1.8	4.3
Granby	3.5	5.3
Magog	1.8	3.7

Statistics Canada, "Employment, Hours and Earnings," Catalogue 72-002.

22. In the permanent sector workers are employed in jobs that last continuously throughout a number of years, while the temporary sector offers employment lasting less than a year at a stretch. Seasonal and cyclical jobs would be classified as temporary. The marginal labour supply in a region is expected to be found in the temporary sector. Marginal workers (marginal migrants and non-participants) are willing to supply their labour to the region based on the job prospects (the wages and proportions of time spent employed) in the temporary sector. Ultimately it is the changes in labour flows into and out of the temporary sector that brings the regional labour market back to a dynamic equilibrium after a layoff, and hence, determines the economic opportunity cost of employment. The volumes of the net labour flows are not expected to be the same for all types of jobs created or saved. For example, creating a man-year of permanent labour provides a new job for a worker otherwise employed in the temporary sector. The improved temporary sector employment conditions would be expected to attract only one added worker into the region to fill the vacancy in temporary employment. If, however, an additional man-year of temporary employment is created in the region, this absorbs more than one worker of the existing workers in the temporary sector, and hence, can be expected to attract more than one additional worker into the region. (Jenkins and Kuo (1978)) Creating temporary jobs is expected, therefore, to both increase the amount of unemployment in the region and to have a higher economic opportunity cost per man-year of employment (and hence, lower gross labour externality) than creating permanent jobs, all else being the same.
23. Compensation payments to displaced workers can change trade liberalization from a potential to an actual Pareto improvement for the economy.
24. Government of Canada, "Multilateral Trade Negotiations 1979; Canadian Participation," briefing materials (July 11, 1979).

25. The full income loss estimates made in this study cover changes in only the time-related income of workers (wages, leisure and unemployment insurance). The major sources of private income loss for most workers are considered to be covered by this estimate. A number of other possible sources of income change have not been included:

- i) Unexpected decreases in property values resulting from a layoff. Such losses are only expected to be important when a major permanent layoff takes place in a small isolated community.
- (ii) Loss of fringe benefits. Such losses are most likely to affect salaried workers. Unfunded, non-transferable pensions can result in a loss of past pension contributions and future pension benefits.
- (iii) Moving expenses. Where a worker decides to relocate as a result of a layoff moving expenses are incurred. To the extent that these are not covered by the subsequent employer, mobility grants or tax deductions, they represent a loss of income.
- (iv) Psychological costs. Increased uncertainty concerning future income as well as mental anguish or illness resulting from a layoff add to the total income loss.
- (v) Part-time earnings. No account has been taken of part-time earnings during unemployment spells. Such earnings would reduce estimated income losses.
- (vi) Severance pay and supplementary unemployment benefits. These would naturally reduce expected income losses. In the presence of an income compensation programme employers would be under less pressure to offer generous severance pay settlements. Notice that the older and more experienced workers, who may be earning firm-specific rents and who would suffer larger income losses through layoff, tend to receive the higher severance payments. This tends to reduce some of the expected variance in income losses.
- (vii) Changes in working conditions may result in a worker accepting a job either at a higher or lower wage rate depending upon whether the working conditions decline or improve, respectively, between jobs. Such wage changes reflect the changing costs and benefits of working conditions, and hence, should be excluded from the income loss estimates.

It is implicitly assumed that job search time is valued by the worker at the same rate as the value of his time in non-market activities. The marginal benefit of job search is the present value of the increased time employed or wages received from new employment. The marginal cost is time foregone in non-market activities. At the margin, therefore, job search time has the same value as time in non-market activities!

26. To the extent that a layoff increases the uncertainty (or variance) in the expected income streams of the workers, the perceived income loss of risk-averse workers will exceed the expected (or actuarial) income loss. Adjustment assistance programmes can serve both to reduce the expected income loss and the uncertainty in future income streams.
27. In Canada the Labour Adjustment Benefits Programme provides certain workers over the age of 54, who have worked in the clothing, textiles or footwear industries for extended periods, with two-thirds of their former wages until the age of 65. Any employment earnings of beneficiaries, however, are subject to an initial 2/3 marginal tax-back rate so that their total net income with employment is unlikely to exceed their former income unless employment paying higher wages is found. As a result very few of the programme's beneficiaries have ever become re-employed. See Glenday (1978a); Jenkins, Glenday, Evans and Montmarquette (1978), Chapters 1 and 4; and Wohlfarth (1977).
28. Because it is difficult to predict the full variation in income losses due to trade liberalization as well as the added costs of risk faced by the affected workers (who may have increased variance in their future incomes), compensating workers at levels greater than the estimated average income losses may be appropriate in order to leave them indifferent to their prospects before liberalization.
29. Where the income level following a job loss is expected to exceed that which would be expected without the job loss, the maximum loss then gives the cumulative value of the loss over the period before the income loss starts to decline. This maximum loss is an estimate of the short-run income loss facing the worker about to be laid-off, and hence excludes any long-run gain.
30. The relative income loss of workers tends to be less sensitive to changes in the proportion of time spent working. A one percentage point decrease results in only around a .2 percentage point increase in the relative income loss.
31. See Jenkins, Glenday et al (1978), Chapter 4.
32. From a simple derived demand model for subsidized and unsubsidized labour in a region, it can be shown that under plausible assumptions a wage subsidy for the re-employment of laid-off workers can be expected to result in an overall increase in the demand for labour in the region. See Glenday, Jenkins and Evans (1980), note 30.
33. Moving costs are relatively small for the majority of migrants. Most migrants tend to move to neighbouring regions or regions within the same province, particularly in Quebec and Ontario. For example, in the Sherbrooke region during the 1974-76 period amongst unemployment insurance claimants in this region, at least 15% also established claims outside of the region: two-thirds of these in neighbouring regions, one-quarter in other regions in the same province and the remainder in other provinces. See Glenday (1979), Appendix D. See also "Migration in Canada: Profile Studies," 1971 Census, Statistics

Canada, Catalogue 99-705, for evidence of the prevalence of intra-provincial migration. Much of the migration flows is also return migration. (Vanderkamp, 1971). Mobility grants may therefore encourage short-term migration out of a region, but not necessary long-term net outflows to adjust the regional supply of labour.

34. For extra-marginal migrants (those who would have moved anyway) relocation assistance is a windfall gain.
35. See note 32 which indicates that an increment in the long-run demand for labour is the expected result of a portable wage subsidy.
36. The average job in the Sherbrooke region consists of 85% permanent employment and 15% temporary employment and pays an average gross wage of \$215 per week.
37. In Canada labour supply problems exist in certain skilled tradesmen categories such as machinists, millwrights and tool and die makers. See for example, Industrial Relations Centre, Queen's University, "The Current Industrial Relations Scene in Canada," Annual.
38. It is assumed that 50% of the workers with skills in excess demand are bid away from jobs in other regions which are estimated to pay wages running an average of 6 percent above those in the Sherbrooke region.
39. In the income loss simulation program it is normally assumed that all the laid-off workers initially enter a state of unemployment (even if only very briefly for many) and then pass through a process of finding, keeping, and losing jobs until some equilibrium employment level is reached. To simulate immediate re-employment all workers are assumed initially to enter a state of employment and then go through a process of keeping, losing and finding jobs until the same equilibrium level of employment is reached. See Glenday (1978c).
40. Bale (1979): 151-2.
41. Bale and Miller (1977): 15.
42. Bale and Miller (1977): 16. Neumann (1976) estimates the number of workers covered by the 1962 provisions at 51,140. See also Bratt (1974) and Fooks (1971). Because the international competitive position of the United States had also changed in the interim, not all of the increase in the number of eligible workers can be attributed to the relaxing of the eligibility criteria.
43. Jenkins, Glenday, Evans and Montmarquette (1978), Chapter 4.
44. Bale and Miller (1977): 14, and Fooks (1971).
45. Wohlfarth (1977).
46. When the LABP program provided benefits at 50 percent of previous wages and had a tax-back rate of 50 percent, about 12.5 percent of the

recipients reported other earnings. When the benefit and tax-back rates rose to 66 2/3 percent, this number dropped to 6 percent. Wohlfarth (1977).

47. Bale (1979): Table 2.
48. Neumann (1976) found that the readjustment allowances of the 1962 Trade Expansion Act increased the duration of unemployment. The higher implicit tax-back rate of the 1974 Act would reinforce the work disincentive.

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