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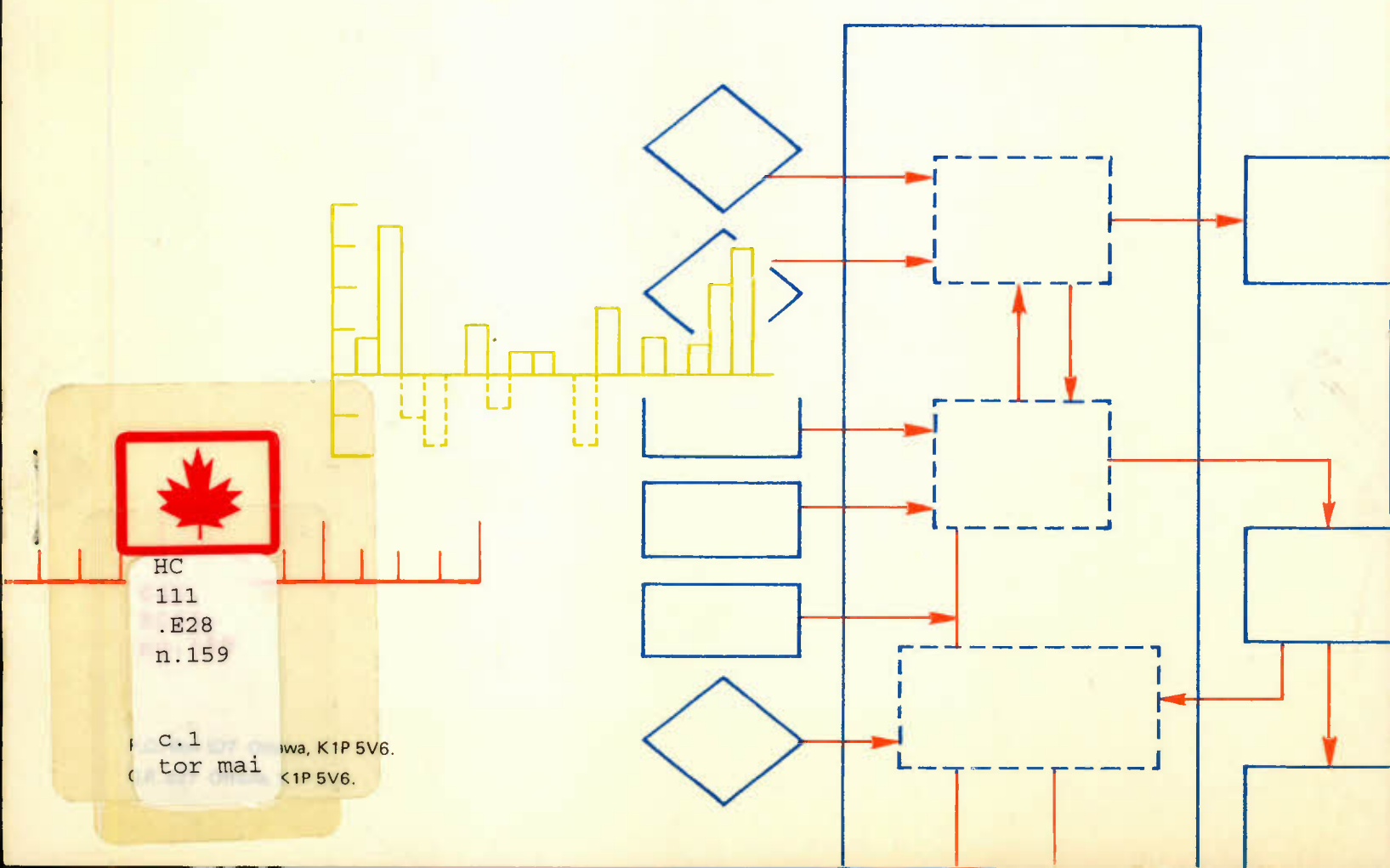

DISCUSSION PAPER NO. 159

# The Evaluation of an Alternative Unemployment Insurance Plan

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TABLE OF CONTENTS

## SUMMARY

In this discussion paper an alternative unemployment insurance program is introduced and the results of a simulation of the alternative plan on economic families are presented. The alternative consists of grouping individuals within a census family into one or more units, UI units, for unemployment insurance purposes. Unemployment insurance is provided to the unit rather than to individuals as is currently the case, such that the benefits paid to an unemployed individual may be affected by the earnings of employed members of the same UI unit. Three different levels of the alternative plan were simulated by successively broadening the definition of the UI unit to include more census family members.

The simulation was carried out using the Survey of Consumer Finances as a data base. The year chosen for the simulation was 1975, the most recent large sample year available, at the time of the simulation, and one for which the costs of Unemployment Insurance to economic families had previously been calculated. A cyclical downturn which began late in 1974 carried on into 1975, the period of the simulation, and caused an increase in deficient demand unemployment. Between November 1974 and April 1975 the seasonally adjusted unemployment rate increased by 1.7 percentage points.

The operation of the plan is conceptually simple. Insurable earnings for each UI unit member are calculated as currently done in the actual Unemployment Insurance program. Insurable earnings for the UI unit are then calculated as the

sum of the insurable earnings of unit members. When unemployment of a UI unit member occurs, benefits are paid at the standard rate on the difference of UI unit insurable earnings and the employment earnings of the employed UI unit members at that time. Thus, the earnings of individuals exceeding the individual insurable earnings ceiling are used first to cover the lost earnings of the unemployed unit member. Only when these earnings are insufficient are benefits paid. Where a UI unit has no individual earning in excess of the insurable earnings ceiling, benefits are unchanged from the existing program.

Under the alternative plan, insurable earnings for the UI unit depend upon both the number of earners, and the earnings of each employed individual. Unemployment Insurance contributions of employees would remain identical to those under the existing program; on a before-tax basis, a UI unit with twice the insurable earnings of another unit would pay twice the contribution.

In the spectrum of alternatives to the existing Unemployment Insurance program, the ones evaluated in this paper represent a shift in design with respect to the unit insured. Like the present system, they remain social insurance which replaces earnings. In operation, however, there is a fairly substantial shift from the current program, particularly with respect to the position of working wives.

While the results of the simulations are affected to some extent by assumptions required due to the nature of the data, they indicate total benefit reductions somewhere in the

order of 10 per cent could be achieved; the precise magnitude of these reductions depends upon the breadth of the definition of the UI unit. The reductions in before-tax benefits were zero for the first and second after-tax income quintiles, while the reduction for the fifth quintile ranged from one-quarter to one-third depending upon the UI unit definition. The direct costs allocated to families decline by a much smaller amount, due mainly to a decrease in the income tax paid on benefits, leaving the requirement for program funding from other sources, including the government deficit, reduced. On an economic family basis the reductions are highly progressive and shift the distribution of total benefits back towards what it was under the old Unemployment Insurance Act in 1971. While being progressive, the reductions in total benefits also shift the entire system more towards what one would expect from a private individual insurance system by lowering benefits to individuals associated with higher risk groups.

The benefit reductions are overwhelmingly concentrated on wives in middle and upper-middle income families, and to a lesser extent on other family members in upper-middle income families. To the extent that benefits to the heads of family are reduced, it is male heads that are affected; the benefits to female heads of family are virtually untouched. Yet, wives in middle-income families remain net beneficiaries of unemployment insurance.

The regional impact of the simulated plan with respect to the distribution of total benefit reductions, which depends upon the size of the program within a region to begin

with, is greatest for Ontario, and is followed by Quebec, British Columbia, the Atlantic region, and the Prairie region in declining size of reduction. The impact upon families within regions is better measured by the benefit reduction rates within regions. Once again the highest reduction rate is to be found in Ontario, with the Prairie region, British Columbia, Quebec, and the Atlantic region following in declining order of impact.

The industry impact of the simulated plan is found to be greatest upon families within the service sector, due to both the majority of reductions in benefits being concentrated among wives, and the high concentration of women in the labour force being in the service sector. Although this effect varies from one region to another in strength, it is evident in all regions.

## RÉSUMÉ

Le présent document propose une alternative au programme actuel d'assurance-chômage et présente les résultats de simulations des effets de ce nouveau programme sur les familles économiques. Il s'agit dans cette proposition de grouper les individus qui forment une famille de recensement en une ou plusieurs unités, dites unités d'assurance-chômage (unités A.C.). Contrairement à ce qui se fait actuellement, les prestations sont versées à l'unité plutôt qu'aux individus de sorte que les prestations versées à un individu sans emploi peuvent être modifiées par les revenus des autres personnes employées faisant partie de la même unité. Les simulations ont été faites à trois palliers différents en élargissant chaque fois la définition de l'unité A.C. pour englober plus de membres des familles de recensement.

Les simulations sont basées sur les données de l'Enquête sur les finances des consommateurs. L'année 1975 a été choisie parce qu'elle était la plus importante quant à la dimension de l'échantillon, et aussi parce que les coûts de l'assurance-chômage pour les familles économiques avaient déjà été calculés pour cette année. Une baisse conjoncturelle de l'activité économique, qui a commencé vers la fin de 1974 pour se poursuivre en 1975, période de la simulation, a causé une augmentation du chômage, attribuable à l'insuffisance de la demande. Le taux de chômage désaisonnalisé a augmenté de 1,7 point de pourcentage entre novembre 1974 et avril 1975.

Sur le plan théorique, le fonctionnement du programme proposé est simple. La rémunération assurable de chaque membre de l'unité A.C. est calculée de la même façon que dans le régime actuel d'assurance-chômage. On établit ensuite la rémunération assurable de l'unité elle-même, soit la somme des rémunérations assurables de ses membres. Lorsque l'un d'eux tombe en chômage, les prestations lui sont versées au taux courant et se fondent sur la différence entre la rémunération assurable de l'unité A.C. et les revenus d'emploi de ses membres qui travaillent à ce moment-là. Ainsi, le revenu gagné des individus, qui dépasse le plafond de leur rémunération assurable, est employé d'abord pour compenser la perte de rémunération du membre de l'unité qui est en chômage. C'est seulement lorsque ce revenu devient insuffisant que les prestations sont versées. Lorsque dans une unité A.C. aucun des revenus de travail ne dépasse le plafond de la rémunération assurable, les prestations restent les mêmes que dans le programme actuel.

Selon le régime proposé, la rémunération assurable de l'unité A.C. dépend à la fois du nombre de salariés et de la rémunération de chaque personne employée. Les cotisations des employés à l'assurance-chômage resteraient les mêmes que présentement; une unité A.C. dont la rémunération assurable avant impôt serait deux fois celle d'une autre unité paierait le double de la cotisation.

Parmi les possibilités de remplacement du régime actuel d'assurance-chômage qu'il serait possible d'envisager, celles qui sont évaluées dans ce document comportent une modification

de la conception de l'unité assurée. Comme dans le système actuel, il s'agit toujours d'une assurance sociale qui remplace un revenu. En pratique, cependant, il y a une différence assez importante par rapport au système actuel, notamment en ce qui concerne la situation des épouses qui travaillent.

Les résultats des simulations sont conditionnés dans une certaine mesure par les effets des hypothèses liées à la nature des données, mais ils n'en indiquent pas moins qu'il serait possible de réaliser une réduction d'environ 10 % des prestations totales payées; le montant exact dépendrait de la définition plus ou moins large que l'on donnerait à l'unité A.C. La réduction des prestations avant impôt était nulle pour les premier et deuxième quintiles de revenu calculés après impôt, tandis que, dans le cas du cinquième quintile, elle variait entre un quart et un tiers, selon la définition de l'unité A.C. Par contre, les coûts directs supportés par les familles baissent beaucoup moins, à cause notamment d'une diminution de l'impôt payé sur les prestations, d'où une réduction du financement du régime à partir d'autres sources, y compris le déficit gouvernemental. Si l'on prend comme base la famille économique, les réductions dans les prestations sont très progressives et ramènent celles-ci à leur répartition qu'elles avaient lorsque l'ancienne Loi sur l'assurance-chômage de 1971 était en vigueur. Tout en étant progressives, les réductions des prestations totales orientent davantage le système vers ce qu'on s'attendrait d'un système privé d'assurance personnelle qui abaisse les prestations destinées aux personnes qui font partie de groupes présentant des risques élevés.

Les réductions de prestations sont presque exclusivement concentrées sur les femmes faisant partie de familles à revenu moyen et moyen supérieur, et, dans une moindre mesure, sur d'autres membres des familles à revenu moyen supérieur. Les prestations versées aux chefs de famille sont réduites dans le seul cas des travailleurs de sexe masculin; les prestations allant aux femmes chefs de famille restent à peu près inchangées. Néanmoins, dans les familles à revenu moyen, les femmes demeurent les bénéficiaires nettes du régime d'assurance-chômage.

Les répercussions régionales du programme simulé quant à la répartition des réductions des prestations totales, laquelle dépend d'abord de la taille du régime dans une région, sont les plus fortes en Ontario, puis, en ordre décroissant, au Québec, en Colombie-Britannique, dans la région de l'Atlantique et dans les Prairies. La meilleure façon de mesurer les effets du programme sur les familles à l'intérieur d'une région est d'utiliser les taux de réduction des prestations dans les régions elles-mêmes. De nouveau, on trouve le taux de réduction le plus élevé en Ontario; viennent ensuite la région des Prairies, la Colombie-Britannique, le Québec et la région de l'Atlantique.

Du point de vue industriel, ce sont les familles du secteur des services qui subissent les effets les plus marqués, car la majorité des réductions de prestations visent surtout les femmes mariées, et la main-d'oeuvre féminine se concentre en grande partie dans le secteur des services. Même si ces répercussions, dans leur ampleur, varient d'une région à l'autre, elles sont notables dans chacune d'elles.

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We are indebted to individuals in several government departments and agencies who were sent drafts for their comments. While we have benefited from their criticism and comments, and have tried to accommodate such material in this discussion paper, it cannot in any sense be considered a consensus of opinion. Any views or opinions expressed in this paper must be considered those of the authors solely, who also remain responsible for any shortcomings, errors, or omissions.

LIST OF TABLES

## Section 1: Introduction

The origin of unemployment insurance in Canada as a safety net to provide financial assistance to lower income workers during periods of temporary unemployment, beyond the control of the individual, was a response to a well defined experience. The gradual evolution of the program up to 1970 from a strict emphasis on insurance principles to an increasing stress on other social and economic objectives has reflected the changing requirements and desires of society. In doing so it has re-enforced the view of unemployment insurance as a major cornerstone in the social security domain of social policy.

During the early period of the program (up to about the mid-1960s) the major goals of society dealt principally with economic phenomena and relatively little attention was given to the changing roles of individuals within the existing social structure. In such circumstances, unemployment insurance, as part of the income maintenance system for the existing social organization, could also reasonably be expected to reflect the goals of social policy as a statement of the desired evolution of society. The latter half of the 1960s ushered in the era of a greater awareness of changing roles in society and the desire for supportive social policy. The new Act, in 1971, formalized the evolution of the previous three decades towards a greater emphasis on income transfer aspects, and greatly widened the population over which this transfer was to take place.

The 1970s have seen increasing demands for major reforms to social goals, particularly on the part of women with respect to their role and status in society -- this being in response to their individual needs for self-esteem and economic independence, as well as the need of families for increased financial support. One clear manifestation of these needs has been the rapid growth in participation rates among women, with an attendant increase in the number of multiple earner families. At the same time as the market activities of women are increasing, their non-market responsibilities in the home with the care of children, the aged and disabled, and their husbands remain largely unchanged. The increasing dual nature of their role continues to mean accepting jobs that allow flexibility as well as withdrawing from the labour force when conflicts arise with their non-market function. These features, in no small measure, are responsible for the existence of women's job ghettos characterized by low pay, instability, and low status, as well as the incidence of unemployment among married women with someone dependent upon their unpaid services.

One of the features of unemployment insurance has been to provide women greater flexibility in meeting their dual role, serving not only family needs but also their own as individuals. To the extent that any modification to unemployment insurance removes some of this flexibility, such modifications might be interpreted as supporting the view that the proper status of women is that of economic dependency in the role of an unpaid housewife.

The purpose of this discussion paper is neither to question the trend of increasing participation of women in the paid work force, nor to question the value of non-paid activities performed in the home. There are many aspects of social policy with respect to the treatment of women which go well beyond the limited aspects which will be touched upon in this discussion paper. One has only to think of the poverty facing many married women if they become widows (which statistically they are destined to become) because of the extent of their economic dependence upon their husband; that is the lack of any income in their own right except for the minimum guarantees of government. To the extent that women attempt to provide for their economic independence through participating in the labour force they often find they are faced with preconceptions in the nature of the jobs they are expected to hold, generally lower wages, and smaller provision for deferred economic benefits; a condition also being faced by an increasing number of women through separation, divorce, and desertion.

To be realistic, changes in social policy should incorporate the requirement of individuals for greater flexibility in moving between paid and unpaid activities over the life cycle. If the equality of women who participate in the labour force is to be a realizable goal, then this flexibility will necessarily have to extend to men as well as women so that eventually there is a concomitant sharing of unpaid work within the family. If, as well, we do not want social policy to dictate a normative family structure but continue to wish to allow decisions on the sharing or specialization of roles

within the family to be left to the individuals concerned, social policy must also insure greater economic protection of those individuals who specialize in non-market activities, principally by those who benefit from home production. It is unfortunate but true that good intentions to this end within families fare poorly when competing with the other financial pressures on families.

The current decade has also brought into sharp focus the inability of instruments of social policy to reflect all the changing values of society without causing conflicts with traditional economic goals of growth and stability. Efforts to modify programs to reduce conflicts with macro-economic goals should not only consider restricting the roles of certain programs, but also consider integrating these roles in other more suitable instruments of social policy. In particular, it is increasingly apparent that most methods of reducing the size and scope of unemployment insurance, whether by "returning towards insurance principles" or by family based plans, will have a major impact on working women, particularly working wives. To the extent that such reductions, made in line with some notion of economic need, are highly concentrated on unemployed women, such reductions in unemployment insurance benefits may be viewed as a reduction in a subsidy to working women, not just for job search but also for performing the major share of work in the home. If such is the case, not only is the payment of such a subsidy inefficient from a labour market point of view, but perverse and self-perpetuating from

the point of view of women by subsidizing the wrong activity. If the labour market equality of working women is a goal worth subsidizing, then surely a serious alternative is to provide the subsidy to encourage women to participate in desired activities as opposed to an indirect subsidy on a substitute. A main element, however, remains the "subsidy" of time and possibly foregone wages of other family members; an element which no policy can ensure, but one which could be encouraged by policies to allow greater flexibility and protection of accrued interests in the work place.

One role in which unemployment insurance has, and continues to perform an effective function is in the relief of financial hardship caused by a loss of earnings through unemployment. The Economic Council in its Fifteenth Annual Review, in 1978, examined the relationship between unemployment and financial hardship; financial hardship being defined as where family unit income fell below the Statistics Canada low-income cutoffs. Overall, the number of family units with financial hardship, in 1975, was found to be highest among family units with no members in the labour force, followed by family units with at least one member in the labour force but no unemployment recorded by any family member, and lowest for family units with at least one member in the labour force and some unemployment. To quote from the Fifteenth Annual Review:[1]

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1 A Time for Reason, Fifteenth Annual Review, Economic Council of Canada, Ottawa, 1978, Chapter 6, pp. 91-92.

"In 1975, of all family units, only about one in thirty -- or 3.4 per cent -- experienced both unemployment and financial hardship, whereas the comparable figure in 1971 was 5.7 per cent. When only the unattached individuals and families experiencing unemployment in 1975 were considered, only about one in seven had incomes that fell below the hardship cutoffs. Clearly, broad social security schemes and growing numbers of multiple earner families have altered the relationship between employment, unemployment, and financial hardship. In addition to unemployment insurance, a foremost defence against the financial hardship caused by unemployment is the complementary earnings of other family members. (Of those who reported being unemployed at any time in 1975, 88 per cent were members of families of two or more persons. Those who were members of families and who experienced unemployment were, in roughly three out of five cases, other than the head of family.[2] Further, among those families experiencing unemployment, there was at least one member employed at the time in two-thirds of the cases.)

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2 The terminology "head of family" as used in this context follows the definition of the Survey of Consumer Finances. In such usage the husband is defined to be the head of family where both husband and wife are present in the family. We continue this usage in this discussion paper neither with a normative nor descriptive connotation but simply as an analytic convenience. Our motives were threefold: to preserve comparability with other published work; to reduce computer costs of the analysis, and; to present the results in a parsimonious but clear fashion. Naturally, we can make no such claims for the motives in other work.

"Of those individuals and families confronting poverty in 1975, over one-half were neither working nor looking for work, and about two-thirds of these were 65 years of age or over; about one-fifth were unattached individuals or families headed by females, who had been in the labour force some or all of the year and who, for the most part, had not experienced unemployment. Basically, then, the real problem of financial hardship tends to be concentrated among those family units that are not part of the labour force. Nonetheless, among working families headed by males -- by far the largest group of family units -- the incidence of hardship[3] was notably higher in 1975 among those families with unemployment (10.9 per cent) than those with none (5.7 per cent)."

Unfortunately, the fact of the existence of most of the financial hardship among families outside of the labour force is sometimes interpreted to mean that both unemployment insurance and the earnings of other family members are relatively unimportant in reducing hardship within the relevant populations. For the family units who do suffer, or could potentially suffer unemployment, unemployment insurance plays

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3 The incidence of hardship is the proportion of low income family units of a given type as a percentage of all family units of that type. Thus while the number of family units in hardship is smaller for units with unemployment, the incidence of hardship is higher because of the relative size of the two groups. For a more complete breakdown of the population and associated hardship see: Smith, Alister M.M., J. Eden Cloutier, and David W. Henderson, "Poverty and Government Income Support in Canada, 1971-1975: Characteristics of the Low Income Population", Discussion Paper No. 130, Economic Council of Canada, Ottawa, April 1979, Appendix I, Table I-2, pp. 43-48.

a significant role in the reduction of hardship, and for families in the labour force of two or more persons, the earnings of family members other than the head are an important feature in the reduction of hardship. Estimates indicate that without unemployment insurance benefits another 6.6 per cent of family units with unemployment, approximately 110 thousand family units, would have had incomes below the poverty levels and many more would have been among the nearly poor. This represents an increase in the incidence of financial hardship of over 40 per cent. While the incidence would remain highest for female headed families of two or more persons, the increase in the incidence of hardship would have been greatest for unattached individuals, both male and female.[4] Similar estimates indicate that without the earnings of other family members another 3.8 per cent of families in the labour force of two or more persons, approximately 190 thousand families, would have had incomes below the hardship lines. This represents an increase in the incidence of hardship of over 45 per cent.

There is, however, another form of hardship that is unmeasured but is nonetheless just as severe for family units with unemployment. It is the hardship caused by intra-year income fluctuations, as opposed to the insufficiency of annual income that we have discussed so far. It is more descriptively labeled as a cash flow problem. Hardship is the inability of families to meet minimally sufficient levels of expenditure on

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4 Fifteenth Annual Review, Economic Council of Canada, pp. 95-96, and Table 6-7.

the basic needs of food, shelter, and clothing. To the extent that these needs are met on a cash basis and on a cycle substantially shorter than one year, the occurrence of a disruption of cash inflow, caused by unexpected unemployment or unemployment with insufficient lead warning, will cause families hardship even when their nominal annual income is well above hardship lines. Added to this the fixed calendar year basis for calculating hardship, and the fact that people do become unemployed late in the calendar year should make one very wary of advocating modifications to unemployment insurance which are of the "stock adjustment" type, particularly lump sum adjustments through the income tax system. It is a concern of the current system, and a concern that we maintain in the alternative analyzed in this paper.

Clearly, such concerns do not apply with equal weight where, for example, unemployment is expected, as is the case in industries with a strong seasonal pattern. Even there, however, the problem is not one just of the employee, but also concerns the employer, and to an extent all of us, and it could be argued that any modifications might be more effective if applied to the financing of UI rather than to the benefit structure. It is a question that is not touched upon explicitly in the analysis in this paper.

An increasingly important aspect of cash flow hardship is the growth of the number of multiple earner families resulting from the increasing participation of women in the labour force. What this has meant is an increase in the number

of families with a continuing earnings inflow concomitant with unemployment within the family. While there is much controversy over the extent, or lack thereof, of full income sharing within families, hardship for individuals within families is reduced by sharing income on the basic needs of food, shelter, and clothing, provided that the family earnings flow is sufficient. This is one of the major motivating factors underlying the type of family based unemployment insurance analyzed in this paper; that is, the preservation of the role of unemployment insurance in the prevention of financial hardship, both measured and unmeasured cash flow hardship.

There are those who would disagree with the above role for unemployment insurance based upon the social insurance nature of unemployment insurance. For them, there appears to be some intrinsic value of having an unemployment insurance program that, as closely as possible, resembles a private insurance model. That such a goal is to be achieved by reducing benefits or disqualifying those who are most likely to be in greatest need, and by extending coverage to those least likely to need it, seems not to matter one whit. After all, they argue, we do have welfare programs to take care of the poor.[5] The argument extended to absurdity can achieve a "perfect" insurance plan by its virtual elimination, and we wonder why they stop where they do.

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5 See particularly: C. Kapsalis, "Unemployment Insurance: Insurance or Welfare? A Comment", Canadian Public Policy, Vol. V, No. 4, Autumn 1979, pp. 553-559.

There seems to be no logical reason why a goal of unemployment insurance cannot be the reduction of hardship caused by unemployment, constrained by other economic considerations, and implemented by an instrument that is partially contributory on the financing side. Surely the financing side of unemployment insurance should be dictated more by the temporary nature of the assistance extended, and the fact that most individuals, who at one time or another benefit from unemployment insurance, will be neither poor nor nearly poor over most of their working life by most conventional standards. In fact, we shall show that by explicitly considering hardship the resulting impact of unemployment insurance would be more like that expected from an insurance-like scheme. The very fact of the contributory nature of unemployment insurance supports its relative richness in relation to other social security programs and its role in subsidizing job search. Yet, the substantial funding from general revenues also means that it cannot entirely escape evaluation by the criteria applied to other non-contributory transfers.

While it is true that there are good aspects to a family based unemployment insurance plan, it is equally true that they are not free. Virtually half the population might view family based unemployment insurance as a calamity being visited upon them by the other half, in that, in 1975, the operation of such a plan would have meant a very high concentration of benefit reductions on wives in middle and upper-middle income families; sufficiently strong to be viewed as a

negative statement on the right of women to work. We cannot argue against such a statement, for we simply do not know to what extent the linkage between the level of benefits paid to clearly identifiable groups is associated with the right to work of those groups, nor the extent to which such a view is held. We shall demonstrate, however, that the reduction in benefits, while large in percentage terms, leaves those affected, as a group, in the position of net beneficiaries of unemployment insurance; that is, as a group they benefit more than they contribute directly to the costs, a position not shared by heads of family in the same income groups. Further, if the view is widely held, and in fact we have been making increasingly strong statements about the right of work for women over the current decade, the effect of that statement seems to have been rather minimal in terms of equality. A direct subsidy, in comparison, is an unequivocal statement about the right to work, and also has positive economic incentives for changing the reality. The only perceptual argument left would be to what extent such a subsidy was, or was not, conscience money or atonement; an argument that does not concern us here. To the extent that such a subsidy was also linked to notions of industrial strategy and occupational shortage, no matter how vague, a real problem could be that those who lost under reductions to unemployment insurance would not necessarily be those who gained through a direct subsidy, even though some improvement might be expected by reductions of excess labour supply. The major roadblock, of course, is the unknown cost

of such a subsidy, particularly if the desire for a direct subsidy were linked to the status quo in unemployment insurance.

We would now like to leave speculative matters aside and return to a more precise statement of what has been done in the remainder of this discussion paper. The purpose of this discussion paper is to present some results of a simulation of a family based unemployment insurance plan as it would have operated in 1975. In doing so, we wish only to establish a bench mark for the effects on individuals and families of this type of approach to unemployment insurance and indicate some of the most striking features of such a plan.

The results indicate only what the initial redistributional impact of such a plan would have been in 1975; there is no discussion of any subsequent reactions on the part of families to such a plan in the form of labour supply changes or family compositional changes, nor is there any estimate of the effect on families of any induced labour demand responses. It is not that these aspects are unimportant; in the medium-to-long term the effects could be significant, but rather that these aspects are experimental issues not readily answered by the data at hand. In both the United States and Canada these aspects have been at the core of income maintenance experiments, in the Seattle-Denver Income Maintenance Experiment (SIME-DIME) and the Manitoba Basic Annual Income Experiment (Mincome).

The SIME-DIME was the largest and most elaborately designed of the American experiments. The major research objective of SIME-DIME was the work effort and family stability responses of families to a variety of negative income tax plans in combination with manpower programs and training subsidies. The sample was stratified by race, number of family heads, and normal income, and was truncated to exclude families with incomes exceeding a given level (approximately $11,000). Preliminary results from the experiment do indicate a significant work disincentive associated with a negative income tax measured by a decrease in annual hours worked.

Mincome was the first large scale social experiment ever undertaken in Canada, and was jointly funded by Canada and Manitoba. It had as its objective the evaluation of the economic and social consequences of a negative income tax. Similar in design to the American experiments, Mincome also had as its focus the issue of labour supply response of households and individuals to a guaranteed income. The sample was stratified by family structure type (number of heads, one or two earners, single individuals), and normal income truncated at a pre-specified income level (approximately $13,000 for a double-headed family of size four). The experiment has just recently terminated and as yet no results have been published.

While the full results of these experiments will unquestionably be interesting, their relevance to the questions of labour supply effects and family stability raised by a family based unemployment plan, as simulated in this paper, is not

direct for a number of reasons. As will be seen in subsequent sections of this paper, the simulated family plan differs from the existing unemployment insurance program only at middle to upper family income levels, outside the family income range covered by the income maintenance experiments. The experiments were designed to test labour supply reactions to the existence of a program to augment total family income in line with some notion of an adequate income, relatively independently of the employment history of family members. Family based unemployment insurance, while reducing benefits to unemployed members of higher income families, remains a program whose benefits are determined in large part by previous labour market participation. As such, we should suspect that the impact of such modifications to an existing program on variables such as participation rates, voluntary unemployment, hours worked, and annual earnings could differ substantially from the experimental results of an income maintenance scheme.

In order to be able to simulate a family based unemployment insurance plan it is first necessary to define the specific characteristics of such a plan: the family composition for insurance purposes; and the operating rules for benefit adjustment or contribution adjustment. The specific details of the plan simulated are presented in the following section.

Section 2: A Family Based Unemployment Insurance Plan

The operation of Unemployment Insurance on a family basis described in this section is only one of many possible alternatives. Although the results presented in this paper refer strictly to the plan presented in this section, they could be adjusted to take into account certain modifications to such a plan.

In constructing a family plan for UI several factors must be taken into account, not least of which are the purposes for which the plan exists at present. Chief among these is to provide temporary and sufficient earnings replacement. While the current program defines "sufficient" earnings replacement on an individual basis, the proposal of this section is based upon replacement of family earnings. In all other respects the family plan is similar to the program that existed in 1975. Before going into detail on the operation of such a proposal a few definitions would be in order.

The term "UI unit" is used to denote an individual or a group of individuals that form a single unit for unemployment insurance purposes in the simulations presented in this paper. In the case of unattached individuals the UI unit consists only of the individual, while in the case of families, a subset of family members might be included in one UI unit while others might be treated as unattached individuals. Three different levels of a family plan are simulated by successively broadening the UI unit to include older unmarried children living at home. In Plan A the UI unit has its narrowest definition and includes the head, the wife (if one exists), and

any unmarried children under 18 years of age living at home. Any other members of the census family not belonging to the above defined UI unit are treated as unattached individuals and each form their own UI unit. Plan B is similar to Plan A except that unmarried children less than 21 years of age living at home are included in the UI unit with the head and wife, while in Plan C any unmarried children living at home, regardless of age, are included with the head and wife.

The UI units were derived using the Survey of Consumer Finances for the year 1975 starting with the sample divided by census family units. The details on the method used are contained in Appendix A. All results presented in this paper, however, are given on an economic family unit basis. Thus, while the simulation was done on the basis of UI units, the results were aggregated to the economic family unit, and not the census family unit used to derive the UI units.[6]

The next set of definitions are concerned with earnings, insurable earnings, and contributions. The coverage under the Unemployment Insurance program, in 1975, was almost universal with all regular members of the labour force involved in an employer-employee relationship and members of the Armed Forces being included in the plan. A small number of workers were not covered: employees working in inconsiderable employment (very low-paid work); the self-employed, other than self-employed

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6 An economic family is defined as a group of individuals sharing a common dwelling unit and related by blood, marriage or adoption. A census family is a more restricted classification consisting of the husband, wife and any unmarried children resident with them, or one parent and unmarried children.

fishermen; and persons employed in casual jobs not pertinent to their employer's regular trade or business. The income of the individuals covered by the plan which was subject to insurance were their wages or salaries from employment, other than self-employment. Income excluded from insurance consisted of self-employed earnings, investment income, transfers, and pension payments. An individual's insurable earnings, in 1975, were those earnings subject to insurance up to a ceiling of $9 620.

For the purposes of the simulation, UI unit earnings are calculated as the sum of individual earnings subject to insurance for all individuals belonging to a UI unit, while insurable earnings for the UI unit are defined as the sum of individual insurable earnings. Thus it is quite possible that certain UI units with substantial total income could have low earnings due to most of the income being excluded from insurance coverage. It is also possible that a high earnings unit could have lower insurable earnings than a moderate earnings unit due to the individual ceiling on insurable earnings. Since all we have done so far is to aggregate individual earnings and individual insurable earnings to a UI unit basis, the premiums paid, based on insurable earnings, were not changed from those calculated for the UI program in 1975.[7]

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7 The premiums paid should now be viewed as contributions towards insuring a specified level of UI unit earnings. The division of the UI unit premium among the members of the unit was not changed from the method used in the current individual system since it seemed to be the simplest and fairest method. This method of dividing the premium is reflected in subsequent calculations of contributions for individual unit members.

One of the critical factors in any earnings replacement plan is the accounting period over which earnings are accumulated. The Unemployment Insurance program is based upon earnings flow replacement. That is, when earnings are interrupted, and provided certain qualifying conditions are met, earnings are replaced, up to a limit, by UI benefits. The Survey of Consumer Finances, on the other hand, has the calendar year as the accounting period. In the simulation we have used the flow concept of earnings requiring the adjustment of the SCF data to a flow basis. The details of this procedure are contained in the appendix. In the procedure several assumptions have been made. First it is assumed that the earnings flow of an individual is uniform over the year during the periods of employment. The annual earnings flow is then calculated as reported earnings adjusted by the weeks worked during the year. It is further assumed that during periods of unemployment the earnings flow drops to zero. Second, in multiple person units, when more than one person is unemployed during the year it is assumed that all unemployment for different unit members coincides.[8] This is a conservative assumption in that if the unemployment of different members does not coincide, the simulated reduction of benefits is understated.

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8 We cannot give an exact measure of multiple unemployment since all our measures of multiple unemployment are based upon the economic family and not the UI unit needed in this respect. On an economic family basis, at least 37 per cent of all families of two or more, with unemployment in 1975, experienced multiple unemployment during the year.

## 2.1 The Operation of a Family Plan

The particular operation of a family plan we have simulated may best be described as an ex-ante procedure. The family earnings subject to insurance are determined when an individual in the UI unit becomes unemployed and the UI benefits are adjusted before payment is made. Alternatively, an ex-post plan could have been chosen. One variant of such a plan would be to maintain the current system of benefit payments and adjust the effective payment at the end of the year through the income tax system.[9]

The plan simulated is based upon the consideration of the earnings flow of employed members of the UI unit at the time that unemployment occurs. As such it avoids the disadvantage of having to select an arbitrary time period, such as a calendar year, over which earnings would be averaged. It also means, however, that in order to implement such a program there would have to be a record of current earnings for each unit member thus incurring additional administrative costs. The costs should not be prohibitive given the fact that currently Revenue Canada collects UI contributions, and income tax collected at source, which are calculated using the required income base. In addition, a record of UI unit composition would be required, but only when unemployment of a unit member occurred since premiums would be collected as is currently done.

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9 For a more exhaustive discussion of an ex-post plan see: Lars Osberg, "Unemployment Insurance in Canada: A Review of the Recent Amendments", Canadian Public Policy, Vol. V, No. 2, Spring 1979, pp. 223-235.

The actual operation of the plan is conceptually very simple. At the time that unemployment of a UI unit member occurs, benefits would be calculated in the following manner. UI unit earnings would be calculated as a rate by summing the individual earning rates. Insurable earnings for the UI unit would be calculated, and benefits paid on the balance of UI unit insurable earnings less UI unit earnings at the standard benefit rate (which currently has been set at 60 per cent, down from two-thirds) on a week-by-week basis.[10]

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10 For example, suppose that we have a two-person unit where both members are earners, one with an annual employment income of $9 000, and the other with annual earnings of $18 000. The insurable earnings, in 1975, would have been $9 000 for the lower income earner, and $9 620 for the higher earner, for a family insurable earnings total of $18 620. Under the individual Unemployment Insurance program that existed in 1975, benefits would have been paid to either individual independently of the status of the other provided all the qualifying conditions were met. Payments to the lower earnings individual would have been based upon an annual benefit of two-thirds of $9 000; while that of the higher earnings individual upon an annual benefit of two-thirds of $9 620. (A two rate system existed in 1975, whereby individuals with dependents were entitled to a benefit rate of 75 per cent during extended benefit periods, but during the initial period only if the dependents earned less than $50 per week. All other benefits were paid at the two-thirds of insurable earnings rate.)

Under the alternative analyzed in this paper, only the level of benefit is adjusted by unit earnings, the qualifying conditions remain attached to the individual who becomes unemployed. Suppose that the lower income earner becomes unemployed. In such an event, the unit insurable earnings are $18 620, while the unit employment income falls to $18 000, that of the higher earnings unit member. Benefits would then be based upon an annual amount of two-thirds of $620, the amount of insurable earnings left uncovered by earnings. In the case of the high income earner becoming unemployed, or both being unemployed at the same time, there would be no change in benefit level from the actual program existing in 1975 since unit earnings would be less than the individual insurable earnings ceiling of $9 620 in 1975.

Throughout this paper we speak as if benefits would be paid to the unemployed members within the unit. The reason for this is simply clarity of analysis and it is not the intent to rule out alternative arrangements, such as having a designated recipient as is the case with Family Allowances and the Dependent Child Tax Credit; however, we can see no objection to having the payment made to the unemployed individual, and treated as such for income tax purposes.

Characteristics of the above type of plan include: no reduction of benefits to single earner units, regardless of nominal annual income, for whom the occurrence of unemployment has substantial impact on income flow; no reduction of benefits to multiple earner units where the earning rates of the employed members are below the maximum level of insurable earnings for individuals; and a reduction of UI benefits to the unemployed members in a unit on a dollar-for-dollar basis with increasing employment income flow in the unit above the unit insurable earnings.[11] Thus, benefits are reduced only where a unit has an employed individual with earnings in excess of the individual insurable earnings maximum. The excess of earnings over the individual ceiling is used to cover the insurable earnings of unemployed unit members. Such a shift in the design of unemployment insurance raises some fundamental questions about moral hazard and the eventual cost of such a program.[12]

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11 In other words, the alternative analyzed in this paper incorporates an implicit tax back rate of 100 per cent with respect to UI unit earnings above the unit insurable earnings. The system as it existed in 1975 may be characterized as being identical to the UI unit alternative with an implicit tax back rate of zero per cent. Thus, the existing UI program and the alternative plan occupy polar positions, with the spectrum of plans between them being generated by varying the implicit tax back, and, in fact, the tax back rate could be used as a design variable in the plan.

12 Moral hazard refers to an individual choosing voluntary unemployment due to the availability of unemployment insurance benefits, where no other motive exists for that decision.

Consider again the example given in footnote 10. Let us suppose that the lower income individual in the unit is unemployed. In such a case the financial incentive for voluntary unemployment of the upper income individual is considerably strengthened under a family plan. In effect, that individual would now base a labour-leisure decision on an insurable earnings level of $18 000, the remaining insurable earnings for the unit, and not on the individual insurable earnings ceiling of $9 620 (in 1975). If this additional incentive were sufficient to cause voluntary unemployment, then for this unit, the introduction of a family plan would increase both unemployment and unemployment insurance benefits above the levels that existed under the actual program. If such examples are pervasive enough, and sufficient benefits are paid at the maximum rate, then the costs of the UI program could increase.

From a redistributional point of view the above simulated plan is less than ideal in that it does not take total income into account in benefit reductions, only earnings from other than self-employment. As such there exists the possibility of fairly high income families having little or no benefit reduction as they would if total income were considered. Given the underlying notion of the insurance aspect of the Unemployment Insurance program it would require a philosophical shift towards a greater emphasis on the welfare aspects of the program to make it totally income-tested by including in a test income not subject to insurance. Administratively such a plan would probably be best handled ex-post through the income tax system. In doing so, however, information on income flows is lost and the appropriateness of the calendar year accounting period for income replacement must be accepted.

The simulated plan does not require any change in philosophy towards a greater or lesser emphasis on welfare in design; however, this does not imply distributional neutrality in operation. What is required is an acceptance of a grouping of insurance to the level of a UI unit, rather than insuring individuals, as a design principle. In operation, such a grouping of insurance will be seen to operate more as insurance at the individual level for upper-middle and middle income families by reducing benefits to individuals identified with higher insurance risk groups and by shifting the first line of defence against poverty from Unemployment Insurance to the earnings of other family members. In doing so, however, it will also be

seen that the reductions in benefits are highly concentrated among wives in these families. Such a result is not due to any overt discrimination in design, but rather arises because of the less favoured status of women in the labour force.

There is little doubt that this type of plan, by reducing benefits to individuals because of family membership, could increase the financial strain on the cohesion of the family unit to some extent. While such aspects are beyond the scope of this discussion paper, to argue against the simulated plan on such grounds without equal consideration for lower income families induced to separate to qualify for social assistance is, at least implicitly, to value the utility of family cohesion differently for families at different income levels.[13]

While the design of alternatives to any existing social security program is interesting in its own right, more attention is likely to be focused on the results produced by the alternatives. Before passing to the presentation of results

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13 For example, the Canada Assistance Program, as administered in Ontario under the Family Benefits Act, provides assistance to a mother raising children on her own if she lives alone and has been abandoned by her husband for at least three months. Although the intent of the program is to provide financial assistance to an abandoned mother after the fact, the very existence of the program provides an incentive to abandonment for strictly family financial reasons.

We are not arguing that two "bads" make a "good", but simply that in other programs such a trade-off has been made and should not be rejected out-of-hand in the case of higher income families. There is the additional consideration of a disincentive to family formation that must also be considered in this case, among individuals who have a generally higher unemployment incidence.

from the simulation, a simple example of the operation of the program will be given. Hopefully this will clarify how the simulation was done, and will also raise some further problems that would have to be considered.

## 2.2 An Example of an Alternative Plan

Let us consider a census family with the following members: a husband, who is also defined by the Survey of Consumer Finances to be the head of the census family; a wife; and two children living at home, one aged 16 years and the other 23 years.

The first task is to construct UI units for the different levels simulated. According to the rules given in Appendix A the UI unit composition will be as follows: under Plan A the head, wife, and child of 16 years will form one UI unit, while the 23 year old will be considered as an unattached individual and form a separate UI unit; Plan B will have a UI unit composition identical to Plan A; under Plan C all four census family members will form one UI unit.

Let us now assume that the individual census family members have the labour force characteristics given in the following table, in the same form as they would be given in the Survey of Consumer Finances.

The second task is to calculate earnings rates and insurable earnings for each unit member. All the detailed rules used are contained in Appendix A. First, consider the head of the census family. In theory, that the head worked only 50 weeks and reported no unemployment indicates that he did not

Table 1

LABOUR FORCE CHARACTERISTICS FOR A HYPOTHETICAL[4] CENSUS FAMILY

| Family Member | Weeks Worked | Earnings[1] (Dollars) | Weeks Unemployed[2] | UI Benefits[3] (Dollars) |
|---|---|---|---|---|
| Head | 50 | 18 000 | 0 | 0 |
| Wife | 25 | 2 850 | 25 | 848 |
| Child 16 | 0 | 0 | 0 | 0 |
| Child 23 | 28 | 1 800 | 24 | 1 760 |

1 Earnings are given on a calendar year basis as they would be reported in the Survey of Consumer Finances. As such they represent earnings rates only when they correspond to 52 weeks worked. Non-insurable income is excluded.

2 Weeks unemployed are the total for the calendar year and could occur in one or more stretches. For the purposes of the simulation it is assumed to occur in one stretch, and that the unemployment of different unit members overlaps.

3 In some cases UI Benefits will be reported with no corresponding Weeks Unemployed. This can legitimately happen, for example, in the cases of maternity benefits, sickness benefits, and retirement benefits. The Survey of Consumer Finances does not break the benefit down by type, so that in the simulation we have treated all UI benefits in the same way. In 1975, 92.5 per cent of the benefits paid were for unemployment; the remaining 7.5 per cent were for sickness, maternity, retirement, fishing, and Adult Occupational Training.

4 This example is based on an actual family taken from a Survey of Consumer Finances test file. The actual numbers presented were slightly altered for demonstration purposes.

participate in the labour force for two weeks during the year.[14] In practice, what might have happened is that the individual in the household who responded to the survey might have excluded two weeks temporary layoff or unpaid sick leave. If unpaid time off the job is excluded from weeks worked, the earnings rates calculated should more closely reflect actual rates, while if unpaid time off is included the earnings rates will be too low. For the head the earnings rate is calculated as:

$$\frac{\$18\ 000}{50} \times 52 = \$18\ 720$$

The insurable earnings of the head are limited to $9 620, the insurable earnings ceiling in 1975.

The wife in the census family also appears to have been in the labour force for only 50 weeks. Her earnings rate is calculated as:

$$\frac{\$2\ 850}{25} \times 52 = \$5\ 928$$

for the period during which she was employed, and zero during unemployment. For purposes of the simulation, her earnings rate of zero and insurable earnings of $5 928 are used in the UI unit aggregates for benefit adjustment. Given insurable earnings of $5 928 and 25 weeks of unemployment one would expect the reported Unemployment Insurance benefits to be greater than $848. There are many reasons why this might not occur, and it does point out some shortcomings of the simulation.

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14 Weeks worked in the Survey of Consumer Finances includes time off the job, excluding unemployment, provided the individual is to return to the job. Thus unpaid sick leave, maternity leave, etc. should be counted in weeks worked.

The simplest explanation, of course, is that she might have exhausted her benefit entitlement and had a number of weeks of unemployment with no benefits. Since we are dealing with annual data we have no data on the employment-unemployment pattern; indeed the unemployment could have occurred before the employment, or could have alternated in a number of stretches. Although the number of stretches of unemployment are known, there is no way of calculating the applicable insurable earnings before each stretch or the benefit entitlement for each stretch of unemployment.[15] This leads quite naturally to questions about the insurable earnings calculation.

Insurable earnings as calculated above were also used to calculate Unemployment Insurance contributions by both employee and employer. In that role they produced results which appear to be reasonable for 1975. Thus, no attempt was made

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15 There is also another factor which must be considered. Under the current Act an unemployed individual who is in receipt of UI benefits is allowed to earn up to 25 per cent of the benefit level without reducing the benefits received. Excess earnings are deducted from benefits as are all earnings during the waiting period. Under a family plan, since it is family earnings that are being considered, this feature would reduce benefits even to lower income families, not otherwise affected, where a family member was employed at the time. Clearly, the criterion would have to continue to be applied to the individual who was unemployed and not on the family aggregates. Further, if it were desirable that such a feature extend to all unemployed individuals, regardless of family situation, then such a criterion should be applied to individual earnings and insurable earnings rather than benefits received on behalf of the unemployed individual. Only when individual earnings during unemployment exceeded some percentage of individual insurable earnings (for example 15 per cent; the 25 per cent criterion on benefits times the 60 per cent benefit rate) would family benefits be reduced.

to try to reconcile insurable earnings with reported Unemployment Insurance benefits for individuals, however, benefits were adjusted at the aggregate level for non-reporting (as distinct from under-reporting).[16]

The 16 year old showed no labour force activity during the year and had no earnings and no insurable earnings. The calculations for the 23 year old are the same as those for the wife. The earnings rate during employment is given by:

$$\frac{\$1\ 800}{28} \times 52 = \$3\ 343$$

while it is zero during periods of unemployment. Insurable earnings are $3 343. In this case Unemployment Insurance benefits are greater than would appear to be justified by insurable earnings. Many of the same reasons for this discrepancy as for the wife will apply.

The next step involves aggregating earnings flows and insurable earning to the UI unit basis. Since the UI unit may vary from one plan to the next each is done separately in the simulation. In our hypothetical example the UI unit composition is the same for Plan A and Plan B, hence these will be treated together. For the UI unit containing the head, wife, and 16 year old the period of interest is when the wife is unemployed. The unit earnings during that period are solely those of the head, $18 720. The unit insurable earnings are those of the

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16 See J.E. Cloutier, Economic Council of Canada Discussion Paper No. 108, Appendix C, pp. 64-68.

head and the wife, $15 548. In these plans, unit earnings completely cover insurable earnings and thus no UI benefits would be paid to the UI unit during the wife's unemployment. This situation could change if, for example, the head became unemployed. In such an event the unit insurable earnings of $15 548 become the basis for benefit payments. While the insurance is provided on the basis of UI units we can see no objection to having the duration of benefits being based upon individual labour force participation as at present, nor to having the payment made to the unemployed individual.

Under Plan A or Plan B the example census family would have a second UI unit comprising only the 23 year old. Since, in the simulation, earnings are assumed to be zero during unemployment, there would be no adjustment of benefits as would be the case for any unattached individual.

Under Plan C, the entire hypothetical census family would form one UI unit. All calculations of benefit reductions are made under the assumption that the unemployment of the wife and the 23 year old coincide. Under such circumstances the UI unit earnings would again be solely those of the head, $18 720, while insurable earnings for the UI unit would be given by the sum of insurable earnings for all three labour force participants, $18 891. In this case earnings are not sufficient to cover insurable earnings and so benefits would be paid upon the difference. In the simulation an adjustment was made to actual benefits reported, in a multiplicative fashion, in the following manner. First, for employed unit members, the excess of earnings

over insurable earnings is calculated. In the example, the head has an excess of $9 100 earnings above insurable earnings ($18 720 - $9 620). Second, for unemployed members the sum of insurable earnings is calculated. In the example the sum of insurable earnings for the wife and the 23 year old is $9 271, ($5 928 + $3 343). Third, adjusted insurable earnings are calculated as the difference of insurable earnings of unemployed members and the excess earnings of employed members. In the example adjusted insurable earnings are $171, ($9 271 - $9 100). Fourth, the ratio of adjusted insurable earnings to insurable earnings of unemployed members is calculated. In the example this ratio is 0.0184, ($171/$9 271). This is called the benefits adjustment ratio, and the final step consists of multiplying the reported Unemployment Insurance benefits of the unemployed individuals in the UI unit by this ratio. In the example the benefits paid to the wife would be about $16, ($848 x 0.0184), and those to the 23 year old about $32, ($1 760 x 0.0184). The results for the hypothetical census family are summarized in Table 2.

Table 2

SIMULATION RESULTS OF AN ALTERNATIVE UNEMPLOYMENT INSURANCE PROGRAM ON A HYPOTHETICAL CENSUS FAMILY

| Family Member | Reported Earnings | Earnings Rate | Unemployment Insurance Benefits | | | |
|---|---|---|---|---|---|---|
| | | | Reported | Plan A | Plan B | Plan C |
| | | (Dollars) | | | | |
| Head | 18 000 | 18 720 | 0 | 0 | 0 | 0 |
| Wife | 2 850 | 0 | 848 | 0 | 0 | 16 |
| Other | 1 800 | 0 | 1 760 | 1 760 | 1 760 | 32 |
| Total | 22 650 | 18 720 | 2 608 | 1 760 | 1 760 | 48 |

While the results presented above are for a hypothetical census family, the results in the next section are presented on an economic family basis. As such, the category of other family members is broader in the actual simulation results. Clearly, the simulation results incorporate some effects that would not be present in any actual operation of such a plan. If, for example, the unemployment of different unit members did not overlap whatsoever, the calculated benefits in Table 2 would be zero for the last simulation. It should be noted as well that in assuming the overlapping of unemployment no adjustment was made for the different duration of unemployment of individual unit members. If this were to be taken into account the adjusted benefits would be further reduced. Unfortunately, in a number of cases rather arbitrary rules had to be employed to try to screen out exceptional cases. These consisted of cases where the individual was not employed for the full year and where no Unemployment Insurance benefits were reported, for example, students who left summer employment to return to full-time studies. Inflating summer earnings to an annual basis could have greatly reduced benefits of other unit members collected during the balance of the year. Interested readers are referred to the detailed rules in Appendix A.

To complete this section a brief discussion of the costs allocated to families is given. The calculation and allocation of costs of the Unemployment Insurance program for 1975 was presented in a previous paper.[17] The analysis presented in

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17 See J.E. Cloutier, Economic Council of Canada Discussion Paper No. 108, Table 13, p. 40, Table 14 and Table 15, p. 41, Table 17, p. 45, and Appendix B, pp. 57-63.

that paper was essentially a marginal analysis in which the impact of Unemployment Insurance in a particular year on the finances of economic families was calculated. The costs allocated were the direct costs and included the following: the income tax paid on the Unemployment Insurance benefits received; employee contributions to Unemployment Insurance less the income tax saving due to the deductibility of contributions; the employer contribution to Unemployment Insurance paid on behalf of the employee less the income tax the employee would have paid had the contribution been received as earnings; and an income tax allocation from the individual's federal income tax, adjusted for the tax on benefits and tax reduction on contributions, representing Unemployment Insurance financing through the income tax portion of general revenue.

In the simulation, the only modification to the cost calculations occurred in the income tax paid on benefits received. Where an individual had benefits reduced in the simulation the income tax on benefits was reduced proportionately. In other words the individual's marginal income tax rate was assumed not to change with declining income and was not recalculated in detailed fashion. The marginal income tax rates used thus are slightly overstated and form an upper bound rather than a best estimate.

Section 3: Simulation Results

In this section we present the results of the simulations on the Survey of Consumer Finances data base for the 1975 income year. The benefits reported in the Survey of Consumer Finances have been adjusted upwards so that they are in correct proportion to the calculated Unemployment Insurance contributions as reported in published government finance statistics.[18] The adjustment procedure was such that the distribution of the adjusted before-tax benefits in the following tables was identical to the distribution of reported benefits in the Survey of Consumer Finances. Where necessary, the same adjustment was applied to the benefits calculated for the simulations.

Table 3 gives the percentage distribution of the size of different cost elements and benefits under the simulated plans relative to the adjusted benefits for 1975. In the first column of the table under the "1975 Actual" heading are results that are repeated from previous work and reflect the 1975 position with respect to benefits and costs under the actual Unemployment Insurance program.

The before-tax benefits are reduced increasingly as we move towards a broader definition of the UI unit: the reductions being 8.82 per cent for Plan A, 9.65 per cent for Plan B, and 11.80 per cent for Plan C. At the same time, the direct costs allocated to families are reduced at a much lower rate: 1.41 per cent for Plan A, 1.58 per cent for Plan B, and 2.07

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18 See J.E. Cloutier, Economic Council of Canada Discussion Paper No. 108, Appendix C, pp. 64-68.

Table 3

SIZE DISTRIBUTION OF BENEFITS AND COSTS OF UNEMPLOYMENT INSURANCE FOR THE ACTUAL PROGRAM AND FOR THE SIMULATED PLANS AS A PER CENT OF THE ACTUAL TOTAL BEFORE-TAX BENEFITS, CANADA, 1975

| | 1975 Actual[1] | Simulated Plans | | |
|---|---|---|---|---|
| | | A | B | C |
| | (per cent) | | | |
| Total Before-Tax Benefits Paid to Families | 100.00 | 91.18 | 90.35 | 88.20 |
| Total After-Tax Benefits Paid to Families | 83.47 | 75.71 | 75.01 | 73.23 |
| Income Tax Paid on Benefits[2] | 16.53 | 15.47 | 15.34 | 14.97 |
| Total Before-Tax Contributions Paid by Employees | 27.40 | 27.40 | 27.40 | 27.40 |
| Income Tax Savings on Employee Contributions Paid | 8.34 | 8.34 | 8.34 | 8.34 |
| Cost to Employee of Employer Contributions | 26.50 | 26.50 | 26.50 | 26.50 |
| Income Tax Allocation[3] | 13.32 | 13.32 | 13.32 | 13.32 |
| Total Cost Paid by Families[4] | 75.41 | 74.35 | 74.22 | 73.85 |

1 From Table 13, J.E. Cloutier, Economic Council of Canada Discussion Paper No. 108, p. 40. The before-tax benefits reported in the Survey of Consumer Finances have been adjusted upwards.

2 The individual marginal tax rates calculated for the original program have been used with no adjustment in the simulations.

3 The income tax allocation was originally calculated by applying the ratio of the net Unemployment Insurance deficit to total federal government expenditure to the federal income tax paid by all taxpayers in 1975. In the simulations the Unemployment Insurance deficit should decrease with decreasing benefits paid, and the income tax allocation should thus decrease. Because this would have taken an additional pass through the sample to calculate it was not changed. Since the income tax allocation came from each individual's income tax net of the income tax on benefits and tax savings on contribution deductibility, the adjustment because of the decline in the deficit of the program should be minor.

4 Total costs paid by families is the sum of income tax paid on benefits, total before-tax contributions paid by employees, cost to employees of employer contributions, the income tax allocation, less the income tax savings on employee contributions paid.

Source: Statistics Canada (Survey of Consumer Finances) and estimates by the authors.

per cent for Plan C. The total before-tax benefits received by families are thus increasingly directly reflected in the costs paid by families as we move from the individual insurance system through to the broadest definition of the UI unit in the simulation.

In a previous discussion paper[19] it was noted that over the period 1971 to 1975, the distribution of the before-tax benefits of the Unemployment Insurance program had become more regressive on an economic family basis. Over the same period the allocated costs of the program, which were progressively distributed, had increased in magnitude relative to the benefits paid, principally due to the taxation of benefits under the new Act, but had not changed noticeably in distribution among families. The net result was that the program had become less progressive when both benefits and direct costs were considered, despite the relative increase of costs to benefits, due to the increasing regressivity of benefits, although net benefits were progressively distributed in all years.

The analysis presented in that paper indicated that one of the reasons for the increase in regressivity of total benefits was to be found in the increasing proportion of benefits being paid to individuals in multiple earner families where the income of the employed individuals was substantial. It was suggested that, if income redistribution were an important aspect of unemployment insurance, a family based plan would be a worthy candidate for study in any benefit reduction alternatives.

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19 J.E. Cloutier, Economic Council of Canada Discussion Paper 108, pp. 36-49.

It is to the examination of this aspect which we now turn. Table 4 presents the distribution of unemployment insurance benefits across all economic families ordered by total after-tax income for the actual benefits in 1971 and 1975, and for the three simulated plans in 1975.[20] Table 5 presents the percentage reduction of benefits under the simulated plans by after-tax income quintiles.

Table 4 clearly demonstrates the declining regressivity of a family plan as the UI unit expands. The distribution of benefits given in Plan C is interesting in its relationship to the distribution of benefits of Unemployment Insurance in 1971, the last year covered by the old Act. That the rates of reduction in Table 5 are progressive can hardly be described as surprising given that to incur any reduction a UI unit must have a fully employed individual with an earnings rate above the individual insurable earnings ceiling. While it is undoubtedly true that a greater redistributional impact could be achieved using a total income test, such an approach would tend to fundamentally alter the nature of unemployment insurance. The interesting feature of the above results is the strength of redistributional impact that can be achieved while still adhering to the earnings replacement nature of unemployment insurance, albeit with a modified insured unit.

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20 The ordering of families was not changed by the reduction of UI benefits as would actually have happened. This was to enable us to calculate the percentage reductions presented in the following tables. Had the ordering been changed we suspect that the decline in regressivity would have been slightly greater.

Table 4

DISTRIBUTION OF TOTAL BEFORE-TAX BENEFITS OF UNEMPLOYMENT INSURANCE ACROSS ALL ECONOMIC FAMILIES ORDERED BY TOTAL INCOME AFTER TAX FOR THE ACTUAL PROGRAM AND SIMULATED PLANS, CANADA, 1975

| Quintile | 1971 Actual | 1975 Actual | Simulated Plans A | B | C |
|---|---|---|---|---|---|
| | | | (per cent) | | |
| First | 9.8 | 8.1 | 8.8 | 8.9 | 9.1 |
| Second | 24.5 | 22.0 | 24.3 | 24.5 | 25.1 |
| Third | 27.8 | 25.0 | 26.8 | 27.1 | 27.7 |
| Fourth | 22.0 | 22.6 | 21.3 | 21.3 | 21.6 |
| Fifth | 15.9 | 22.3 | 18.8 | 18.2 | 16.5 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Source: Statistics Canada (Survey of Consumer Finances) and estimates by the authors.

Table 5

PER CENT REDUCTION IN TOTAL BEFORE-TAX BENEFITS OF UNEMPLOYMENT INSURANCE BY TOTAL INCOME AFTER-TAX QUINTILES, CANADA, 1975

| Quintile | Plan A | Plan B | Plan C |
|---|---|---|---|
| | (per cent) | | |
| First | 0.0 | 0.0 | 0.0 |
| Second | 0.0 | 0.0 | 0.0 |
| Third | 1.5 | 1.5 | 1.6 |
| Fourth | 14.5 | 15.0 | 15.9 |
| Fifth | 23.0 | 26.2 | 34.9 |
| Total | 8.8 | 9.6 | 11.8 |

Source: Statistics Canada (Survey of Consumer Finances) and estimates by the authors.

Next, we turn to the implications of a family plan on the aspect of financial hardship. "Canada average" low income cutoffs for 1975, that varied by size of family, and which corresponded to the Statistics Canada low income cutoffs

for a size of place of residence of 30 000 to 99 999, were used in a previous discussion paper,[21] and will also be used as the poverty standard here. They were defined to be: $3 481 for an unattached individual; $5 046 for a family of two persons; $6 437 for three; $7 655 for four; $8 558 for five; $9 396 for six; and $10 301 for a family of seven or more persons.

In Table 5 we observe that the benefit reductions began, at a relatively modest rate, in the third quintile. In 1975, the third quintile consisted of economic family units with total family income before-tax ranging from $9 794 to $14 565, and thus were located above the low income cutoff for a family of six. The larger percentage reduction in benefits in the fourth quintile was to family units whose total income, in 1975, ranged from $14 566 to $20 598; while the largest percentage reduction in benefits in the fifth quintile was to family units whose total income exceeded $20 599. Because the actual UI benefits received in 1975 are included in the total income of family units, there will be some shifting of family units among income quintiles when the incidence of the benefit reductions under a family plan is taken into account.[22] However,

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21 A.M.M. Smith, J.E. Cloutier, D.W. Henderson, Economic Council of Canada Discussion Paper 130, Table 3, page 13.

22 There will also be some minor downward shift of the income levels which separate adjacent quintiles due to UI benefit reductions lowering family unit income in aggregate. The total income levels which separate quintiles given above were calculated on an income after tax ordering of economic family units. The income tax used was a calculated value. Linear interpolation was used on the total income of the income after tax group that separated adjacent quintiles. The largest range for an income after tax group was $1 000.

when it is recalled that in order to incur any benefit reductions it was necessary that: the family had at least one employed member earning in excess of $9 620 per annum; the earnings, and hence insurable earnings, of the unemployed family member(s) would have had to have been sufficient for unemployment insurance coverage, and hence benefits; and that even with benefit reductions, the family income flow would never have been less than the insurable earnings of the employed person, $9 620, plus an amount equal to the benefit rate times the insurable earnings of the unemployed person(s); it becomes apparent that benefit reductions, such as those simulated for 1975, would have been insufficient to cause families to drop below the minimum income level of the third quintile. To the extent that hardship, as measured by low income cutoffs, increased, it would have been restricted to families of seven or more persons.

It must be emphasized that we are in no way claiming that the hardship, as perceived by individuals or families affected by benefit reductions, would not be increased. Perceived hardship is a relative matter, probably related to the failure to achieve perceived needs. To the extent that perceived needs are determined by expectations of standard of living, indicates that most unemployment would result in perceived hardship even when full UI benefits are received. The reduction of benefits would simply aggravate this form of hardship. A question certainly exists as to the extent that a public unemployment insurance program should concern itself

with this type of hardship for certain individuals and families when, as we shall show, there exists a substantial risk of poverty for others, even under the current program. Other researchers and authors, while not explicitly stating so, must view the reduction of this form of hardship as equally important for a public plan as the reduction of unemployment induced poverty, when they propose increasing the limits of coverage for higher income individuals. It is not that we view such hardship as imaginary or frivolous to the families concerned, but rather question its treatment by a public program.

To the extent that perceived hardship increases with non-replaced (by UI benefits) earnings, perceived hardship will increase with increasing levels of nominal earnings. This, in turn, seems to indicate that affordability needs to be less of a concern than in a public program which attempts to cover a much broader low income range. Perceived hardship will also vary with the particular circumstances of individuals or families, even at the same income levels, because of differences in position in the life cycle, differences in wealth, and differences in other continuing income or earnings of other family members. This would indicate the need for flexibility and some self-selection of the amount of individual earnings coverage. Finally, the risk associated with this form of hardship will vary from one situation to the next. If one concedes that such coverage is mainly intended for middle and upper income families, aspects of income redistribution may be left to the income tax system, and it would be desirable to face individuals with the real costs when they decide on levels of coverage -- hence risk rating of premiums is indicated.

Taken together these arguments would appear to support increasing unemployment insurance coverage by a voluntary, flexible, private insurance supplement to a basic, public unemployment insurance program. Individuals then decide who should be covered, and the level of coverage, based upon their perceptions of hardship and risk when faced with a risk-adjusted real cost. Such a proposal is supported by the arguments of those who propose extending the current UI program based upon "a strict adherence to private insurance principles". To the extent that such arguments hold, the less the need of government intervention. To the extent that such arguments do not hold, the associated problems do not disappear, but rather are embedded with hidden costs into the basic public program. One clear area of concern relates to the solution of the relatively intractable problem of moral risk. Even here, however, a private insurance supplement would appear to have an advantage in being able to impose more stringent qualifying conditions on involuntary unemployment. It remains a subject which we have not investigated and upon which we are agnostic.

We now turn to a brief examination of financial hardship of those who would not have been affected, by the design of the evaluated program, through UI benefit reductions in 1975. Here we refer strictly to the hardship of poverty, as measured by low income cutoffs, and the hardship of insufficient cash flow during unemployment.

First, let us consider unattached individuals. In 1975, a two-thirds benefit rate existed for individuals without dependents. A fully qualified claimant, with maximum insurable

earnings of $9 620, regardless of earnings in excess of that level, would have received approximately $6 167 over a 52 week period of unemployment.[23] This level appears comfortably above the poverty level of $3 481. Even the current benefit rate of 60 per cent, when applied to 1975, would have meant maximum benefits of $5 550 per annum. In fact, a benefit rate of 40 per cent would have kept such an individual marginally out of poverty; but note we are considering the best possible case.

Before jumping to conclusions about adjustments to the benefit rate, the situation, as it existed in 1975, should be examined. For this we turn again to the Fifteenth Annual Review.[24]

"Among unattached breadwinners, the likelihood of being poor is notably greater than it is for families of two or more in each age-of-head category, despite the fact that the incidence of unemployment was lower among unattached individuals than among families. Among the working men and women living alone who experienced no unemployment in 1975, about one out of seven males and one out of five females had incomes below the hardship line; of those who experienced unemployment, about one in four males and one in three females were below the hardship line."

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23 In this calculation we have used the simplified benefit structure under Bill C-27 (September 1977). We assumed that the individual was fully qualified for the maximum benefits under both the labour force extended and regionally extended phases, and the total duration was limited by the maximum 50 weeks under all three phases, plus the initial two weeks waiting period. Since we wish to examine the effect of the benefit rate, we hold these assumptions constant in all calculations.

24 Fifteenth Annual Review, Economic Council of Canada, Chapter 6, page 92.

Given that these rates represent incidences that are among the highest, it would be hard to conclude that unattached individuals were too generously treated under unemployment insurance in 1975, despite the relative generosity of the maximum levels. This is a result of many factors, including the higher concentration of young earners at lower earnings among unattached individuals than families, and the lack of complementary earnings of other family members during unemployment.

Let us now consider single-earner families of two or more persons. Again let us assume that the earning individual is fully qualified, with dependents, and insurable earnings at the maximum $9 620 in 1975. The benefit rate for such an individual was 75 per cent under the two-tier system that existed up to the end of 1975. The maximum benefits received by such an individual over a 52-week period of unemployment would have been approximately $6 938, sufficiently high to keep a family of two or three above their poverty lines, but insufficient to prevent financial hardship for any larger sized families.

Suppose a two-tier system had not existed in 1975, and the benefit rate had been the uniform two-thirds rate of the subsequent year. Under such conditions the maximum UI benefits payable, in 1975, would have been approximately $6 167, sufficient only to support a family of two above the financial hardship line; while the maximum benefit using the current 60 per cent benefit rate would have been $5 550 per annum, regardless of the level of nominal earnings above $9 620.

Quite clearly, the assumption of 52 weeks unemployment is, on average, a gross exaggeration. Why, then, do we use it? Simply, we are also trying to address the aspect of cash flow hardship. Clearly, a high income individual, in a single earner family of more than two people, who is employed for the better part of the year will have an annual income in excess of any financial hardship level, but during the period of unemployment could have a cash flow insufficient to meet the minimum family requirements for food, shelter, and clothing. For many it is not a question of trying to sustain a cash flow to meet other fixed obligations, many of which they may have incurred in response to incentives to behaviour while employed, but rather how to liquidate to sustain a basic needs cash flow. At the same time there are limits as to the degree of protection that can be provided by any program without increasing other effects to undesirable levels and, also, there exist remedies that can be used by the families themselves to guard against such hardship. In two-adult single-earner families a most effective type of insurance, on the surface, is to become a two-earner family. However, one must not forget the increasing number of families headed by working mothers with dependent children for whom few alternatives are open, and for whom one in five experienced hardship with no unemployment, while one in three with unemployment had incomes below the hardship line.[25]

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25 *Ibid.*

As can be seen, the treatment of financial hardship, including cash flow hardship, by unemployment insurance, varies widely across different groups among the unemployed. While much concern is expressed about this condition, there are also strong indications of concern about the size and cost of the program, and about the level of work disincentive embedded in unemployment insurance. Depending upon the concern expressed, solutions are given in the form of adjustments to one or more of the control variables of the system (benefit rates, level of insurable earnings, special benefits, qualifying conditions, etc.), or in the nature of the instrument itself (differential benefit levels, family based plans, etc.). Before any question of solutions, however, must come a reasonably clear statement of what unemployment insurance is now expected to achieve, and what are to be its limitations. Currently, there appears to be as many goals and limitations as there are articles on the subject.

This paper does not deal with questions of the appropriateness of different levels of hardship, or costs, or work disincentive. Our concern has been to demonstrate that, were the insured unit extended to the UI unit, rather than the individual, such a program would reduce the cost of unemployment insurance, by reducing or eliminating benefits now paid to unemployed individuals in families with a continuing income in excess of the insurable earnings of employed individuals, and thus would increase neither the incidence of financial hardship as measured by low income cutoffs, nor the incidence of cash flow hardship. Whether or not the achieved levels of hardship, or costs, are appropriate goals of the program remains an unanswered question.

Clearly, it could be argued that it might be possible to both reduce costs and financial hardship by selectively adjusting benefit rates to different groups. We do not deny such a possibility, however, from the above analysis it would appear to require multiple benefit rates. The proposal of this paper can be viewed as an infinite benefit rate system, where the benefit rate may vary continuously between zero and 66 2/3 (or 60 currently) per cent depending upon an exact measure of hardship, the lack or the existence of continuing income. Such a plan cannot be expected to reduce hardship below existing levels, for it only allows reductions to benefits, not increases. To allow for both reductions and increases would have required increasing the maximum benefit rate above the upper limit that then existed, a feature which has not been evaluated in this paper.

One aspect upon which we have no measure is that of the change in work disincentive associated with a family based unemployment insurance program. Although we have mentioned this aspect previously (footnote 12), it is the aspect upon which most unemployment insurance modifications lack in measurement and abound in opinion. There are a growing number of studies which do try to directly bring measurement to bear on the topic,[26] however, there is no clear consensus of the size of the effect of unemployment insurance on participation rates and insurance induced unemployment at the aggregate level, much

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26 For a quick review of some such studies, see Lars Osberg, *op. cit.*, pp. 225-227.

less for smaller groups differentially treated. To the extent that insurance induced unemployment, for an individual, is probably related to what we have termed perceived hardship, and thus to effective replacement rates, it is a difficult concept to measure; however, where the effective benefit rate is reduced to zero, voluntary unemployment could hardly be called insurance induced.

A family based plan can destroy the independence of the benefit rates of individuals in the same UI unit, making them conditional upon the status of the unit, as well as affecting the status of the unit. In lower income families, where benefits are not reduced, or with single-earner families and unattached individuals, the incentives, as well as benefits, remain unchanged for insurance induced unemployment, although there could be a changed incentive for another earner joining the labour force in higher income families. In the case of a multiple earner family with an individual earning above the individual insurable earnings ceiling, the labour-leisure decision of lower income earners in the family would change, to the extent that such decisions were based upon UI benefits, provided they were the first to face such a decision. If no unemployment existed, the higher income individual would continue to face the same effective earnings replacement rate, lower than the benefit rate; but if unemployment already existed, and benefits had been reduced, then a higher income individual would face an earnings replacement rate above the current level but still below the benefit rate. The result of a family based plan is

not to reduce the total coverage of earnings of an insured UI unit, but to make the coverage effective at later stages of unemployment when possible. At the UI unit level the results will be mixed; with some units decreasing unemployment, others increasing unemployment, and others not changing, in response to the change in potential benefits. The question remains as to what would happen at the aggregate level, and indeed with any specific case. While we have discussed only the aspect of changing benefit levels on insurance induced unemployment, differential benefit levels also raise questions of family formation and decreased cohesion, caused by methods of breaking the dependence of benefits upon family structure established in the plan.

While the simulated plans are insurance plans in the same sense as the system that existed in 1975, the shift from individual insurance to UI unit insurance has different effects on different individuals within a unit depending upon unit earnings, and the individual's labour force characteristics. In the following tables we present the effects on individual economic family members for families divided by employment income after-tax groups. The lower group consists of economic families whose after-tax employment income was less than $8 000; the middle group has after-tax employment income between $8 000 and $18 000; while the upper group contains those at or above $18 000. In Table 6 the proportion of families and the distribution of employment income among family members are given. The total before-tax Unemployment Insurance benefits, total costs

of Unemployment Insurance allocated to families, and the Unemployment Insurance net benefits[27] are presented in Table 7 for the actual program in 1975, and in Table 8 for the Plan B simulation.

To further clarify the effects on individual family members, in Table 9 we present the reduction rates in moving from the actual program presented in Table 7 to Plan B presented in Table 8.

Table 7 and Table 8 clearly reflect the distributional shift in before-tax benefits of families towards lower incomes under Plan B. The distributional shift is caused, not by increasing benefits to anyone, but rather by reducing benefits to middle and upper-middle income families as indicated in Table 9. The incidence of the cuts falls heavily upon wives in the upper two income groups, and on other earners in the upper income group to a lesser extent. If the results for Plan A and Plan C had been presented those results would have been similar to Plan B except that under Plan A the reduction of benefits to wives is greater and under Plan C the reduction of benefits to wives is less, and that of other earners greater, than under Plan B. Thus, although total benefit reduction is greater as one moves to broader UI units, the sharing of the reduction among family members is also greater.

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27 Net benefits are the total before-tax benefits less the total direct costs allocated to families for each individual.

Table 6

DISTRIBUTION OF ECONOMIC FAMILY UNITS AND THE EMPLOYMENT INCOME OF FAMILY MEMBERS BY AFTER-TAX EMPLOYMENT INCOME CLASSES, CANADA, 1975

| | Family Employment Income After Tax | | | Total All Families |
|---|---|---|---|---|
| | < $8 000 | ≥ $8 000 and < $18 000 | ≥ $18 000 | |
| | (per cent) | | | |
| Proportion of All Family Units | 45.12 | 41.72 | 13.16 | 100.00 |
| Employment Income of: | | | | |
| Head | 10.00 | 43.25 | 24.17 | 77.42 |
| Wife | 0.79 | 7.19 | 6.02 | 14.00 |
| Other Members | 0.95 | 3.14 | 4.49 | 8.58 |
| Family Total | 11.74 | 53.58 | 34.68 | 100.00 |

Source: Statistics Canada (Survey of Consumer Finances) and estimates by the authors.

Table 7

DISTRIBUTION OF BEFORE-TAX BENEFITS, TOTAL COSTS AND NET BENEFITS OF UNEMPLOYMENT INSURANCE AMONG FAMILY MEMBERS FOR ECONOMIC FAMILIES BY AFTER-TAX EMPLOYMENT INCOME CLASS, CANADA, 1975

| | Family Employment Income After Tax | | | Total All Families |
|---|---|---|---|---|
| | < $8 000 | ≥ $8 000 and < $18 000 | ≥ $18 000 | |
| | (per cent) | | | |
| **Before-Tax Benefits** | | | | |
| Head | 39.43 | 15.85 | 1.83 | 57.11 |
| Wife | 6.67 | 17.05 | 2.96 | 26.68 |
| Other Members | 5.67 | 6.08 | 4.46 | 16.21 |
| Family Total | 51.77 | 38.98 | 9.25 | 100.00 |
| **Total Costs** | | | | |
| Head | 17.92 | 38.91 | 14.41 | 71.24 |
| Wife | 1.36 | 10.00 | 5.95 | 17.31 |
| Other Members | 1.78 | 4.28 | 5.39 | 11.45 |
| Family Total | 21.06 | 53.19 | 25.75 | 100.00 |
| **Net Benefits** | | | | |
| Head | 105.37 | -54.84 | -36.74 | 13.79 |
| Wife | 22.96 | 38.66 | - 6.19 | 55.43 |
| Other Members | 17.56 | 11.60 | 1.62 | 30.78 |
| Family Total | 145.89 | - 4.58 | -41.31 | 100.00 |

Source: Statistics Canada (Survey of Consumer Finances) and estimates by the authors.

Table 8

DISTRIBUTION OF BEFORE-TAX BENEFITS, TOTAL COSTS AND NET BENEFITS OF SIMULATED PLAN B AMONG FAMILY MEMBERS FOR ECONOMIC FAMILIES BY AFTER-TAX EMPLOYMENT INCOME CLASS, CANADA, 1975

| | Family Employment Income After Tax | | | Total All Families |
|---|---|---|---|---|
| | < $8 000 | ≥ $8 000 and < $18 000 | ≥ $18 000 | |
| | (per cent) | | | |
| **Before-Tax Benefits** | | | | |
| Head | 43.64 | 17.23 | 1.85 | 62.72 |
| Wife | 7.34 | 12.00 | 1.09 | 20.43 |
| Other Members | 6.27 | 6.39 | 4.19 | 16.85 |
| Family Total | 57.25 | 35.62 | 7.13 | 100.00 |
| **Total Costs** | | | | |
| Head | 18.21 | 39.47 | 14.58 | 72.26 |
| Wife | 1.38 | 9.28 | 5.63 | 16.29 |
| Other Members | 1.81 | 4.33 | 5.31 | 11.45 |
| Family Total | 21.40 | 53.08 | 25.52 | 100.00 |
| **Net Benefits** | | | | |
| Head | 160.61 | -85.08 | -56.71 | 18.82 |
| Wife | 34.73 | 24.51 | -19.78 | 39.46 |
| Other Members | 26.78 | 15.89 | - 0.95 | 41.72 |
| Family Total | 222.12 | -44.68 | -77.44 | 100.00 |

Source: Statistics Canada (Survey of Consumer Finances) and estimates by the authors.

Table 9

PER CENT REDUCTION IN BEFORE-TAX BENEFITS, TOTAL COSTS AND NET BENEFITS BETWEEN THE ACTUAL UNEMPLOYMENT INSURANCE PROGRAM AND PLAN B AMONG FAMILY MEMBERS, FOR ECONOMIC FAMILIES BY AFTER-TAX EMPLOYMENT INCOME CLASS, CANADA, 1975

| | Family Employment Income After Tax | | | Total All Families |
|---|---|---|---|---|
| | < $8 000 | ≥ $8 000 and < $18 000 | ≥ $18 000 | |
| | (per cent) | | | |
| Before-Tax Benefits | | | | |
| Head | 0.00 | 1.79 | 8.64 | 0.78 |
| Wife | 0.63 | 36.39 | 66.74 | 30.82 |
| Other Members | 0.00 | 5.09 | 15.09 | 6.06 |
| Family Total | 0.08 | 17.43 | 30.35 | 9.65 |
| Total Costs | | | | |
| Head | 0.00 | 0.15 | 0.40 | 0.16 |
| Wife | 0.00 | 8.61 | 6.87 | 7.33 |
| Other Members | 0.00 | 0.64 | 3.02 | 1.66 |
| Family Total | 0.00 | 1.78 | 2.45 | 1.58 |
| Net Benefits | | | | |
| Head | 0.00 | 1.79 | 1.27 | 10.48 |
| Wife | 0.75 | 58.41 | 109.68 | 53.29 |
| Other Members | 0.00 | 10.12 | 138.87 | 11.08 |
| Family Total | 0.12 | 540.22 | 22.97 | 34.40 |

Source: Statistics Canada (Survey of Consumer Finances) and estimates by the authors.

The change in the distribution of total costs is very slight and reflects declining total costs to those whose benefits were reduced due to a decline in the tax paid on benefits.

The change in the distribution of net benefits towards the lowest income group is quite dramatic (Tables 7 and 8) and reflects the sharp reduction of net benefits to the upper two income groups. Table 9 indicates that the reduction of net benefits has its greatest impact on wives in the two upper income groups and on other earners in the highest income group. What the simulated Plan B does is to reduce total benefits and net benefits to those individuals within a family whose cost allocation tends to be lowest, where unit earnings permit. In this sense, the simulated plans tend to be more like individual insurance, where the benefits are risk adjusted rather than the premiums, than the actual individual Unemployment Insurance program. It is not surprising that the costs allocated to wives are low, given the generally lower earnings rates of women and their higher unemployment rates. At the same time the earnings of wives and other family members have helped move many families up in the income scale. The benefit reduction of heads of families in the highest income group, while still the lowest among family members, indicates that someone in the family other than the head (generally the wife) has experienced full employment at an earnings rate above the individual insurable earnings ceiling.

The high level of benefit reduction of wives in middle and upper-middle income families is not the general rule for women in the labour force. In particular, female family

unit heads, be they unattached individuals or the head of a single-parent family, have essentially no reduction in the benefits they receive. Table 10 presents the distribution of the total benefit reduction and the benefit reduction rates where families are divided by the sex of the head. In the three simulated plans families with a male head incur more than 99 per cent of the total reduction, primarily through the reduction to wives (whose benefit reduction rate exceeds 30 per cent). Families who are headed by females incur less than one per cent of the total reduction, primarily through other family members and not the head. In 1975 families with male heads constituted 78.6 per cent of all families, while families with female heads 21.4 per cent. Male heads earned 71.1 per cent of all earnings while female heads earned 6.3 per cent. Additionally, wives and other earners in male headed families received 14.0 per cent and 7.1 per cent of all earnings, respectively, compared with 1.5 per cent of all earnings for other earners in female headed families. Not only did male headed families benefit from the greater earnings of more members than female headed families, they also received greater Unemployment Insurance benefits; 51.5 per cent of total benefits for the head, 26.7 per cent for the wife, and 13.4 per cent for other family members. In female headed families the head received 5.6 per cent of total benefits, and other members 2.8 per cent. In total, the 78.6 per cent of families with a male head earned 92.2 per cent of all earnings and received 91.6 per cent of all Unemployment Insurance benefits. The 21.4 per cent of families with a female head had 7.8 per cent of

Table 10

DISTRIBUTION OF THE BENEFIT REDUCTION AND BENEFIT REDUCTION RATES FOR TOTAL BEFORE-TAX BENEFITS AMONG FAMILY MEMBERS FOR ECONOMIC FAMILIES BY SEX OF HEAD AND SIMULATED PLAN, CANADA, 1975

| Plan and Family Member | Male Family Head | | Female Family Head | | All Families | |
|---|---|---|---|---|---|---|
| | Percent of Total Reduction | Benefit Reduction Rate | Percent of Total Reduction | Benefit Reduction Rate | Percent of Total Reduction | Benefit Reduction Rate |
| | (per cent) | | | | | |
| Plan A | | | | | | |
| Head | 4.75 | 0.81 | 0.00 | 0.00 | 4.75 | 0.73 |
| Wife | 93.83 | 31.01 | -- | -- | 93.83 | 31.01 |
| Other Members | 1.30 | 0.86 | 0.12 | 0.38 | 1.42 | 0.77 |
| Family Total | 99.88 | 9.62 | 0.12 | 0.13 | 100.00 | 8.82 |
| Plan B | | | | | | |
| Head | 4.59 | 0.86 | 0.00 | 0.00 | 4.59 | 0.78 |
| Wife | 85.23 | 30.82 | -- | -- | 85.23 | 30.82 |
| Other Members | 10.07 | 7.26 | 0.11 | 0.38 | 10.18 | 6.06 |
| Family Total | 99.89 | 10.53 | 0.11 | 0.13 | 100.00 | 9.65 |
| Plan C | | | | | | |
| Head | 5.92 | 1.36 | 0.05 | 0.10 | 5.97 | 1.23 |
| Wife | 69.59 | 30.78 | -- | -- | 69.59 | 30.78 |
| Other Members | 23.83 | 21.02 | 0.61 | 2.55 | 24.44 | 17.79 |
| Family Total | 99.34 | 12.80 | 0.66 | 0.92 | 100.00 | 11.80 |

Source: Statistics Canada (Survey of Consumer Finances) and estimates by the authors.

all earnings and 8.4 per cent of all Unemployment Insurance benefits. Given this situation in 1975 the results of the simulations cannot be described as surprising.

The results of the simulations also indicate a difference in regional impact of the operation of a UI unit plan for Unemployment Insurance. In Table 11 the distribution of the total benefit reduction by economic region and by simulated plan is given, while in Table 12 the benefit reduction rates, by region and simulated plan are given. In Table 11 we see quite clearly that a large part of the total benefit reduction comes from Ontario, about 44 per cent. Quebec, while receiving a greater proportion of the total benefit payments than Ontario, incurs slightly over 26 per cent of the total reduction, substantially less than Ontario. The total benefit payments in the Atlantic provinces in 1975 were roughly half of those in Quebec. The Atlantic provinces, however, contributed substantially less than half of the Quebec contribution to the total reduction. The total benefit payments in British Columbia were slightly less than those in the Atlantic provinces. The Prairies, while receiving the smallest amount in total benefit payments, contributed the least of the total reduction.

The effects on families within regions can be more easily seen in the benefit reduction rates given in Table 12. Here again Ontario is highest; however, the Prairie region has the second highest reduction rates, while Quebec and British Columbia are quite similar. The lowest benefit reduction rates are to be found in the Atlantic region where one would expect them, given the redistributive nature of the simulated plans.

Table 11

DISTRIBUTION OF THE BENEFIT REDUCTION FOR TOTAL BEFORE-TAX BENEFITS AMONG FAMILY MEMBERS FOR ECONOMIC FAMILIES BY ECONOMIC REGION AND SIMULATED PLAN, CANADA, 1975

| Plan and Family Member | Economic Region | | | | | Total Canada |
|---|---|---|---|---|---|---|
| | Atlantic | Quebec | Ontario | Prairies | B.C. | |
| | (per cent) | | | | | |
| Plan A | | | | | | |
| Head | 0.40 | 0.89 | 1.84 | 0.37 | 1.25 | 4.75 |
| Wife | 7.51 | 25.15 | 41.96 | 7.21 | 12.00 | 93.83 |
| Other Members | 0.17 | 0.38 | 0.49 | 0.02 | 0.36 | 1.42 |
| Family Total | 8.08 | 26.42 | 44.29 | 7.60 | 13.61 | 100.00 |
| Plan B | | | | | | |
| Head | 0.55 | 0.81 | 1.71 | 0.36 | 1.16 | 4.59 |
| Wife | 6.82 | 22.65 | 38.24 | 6.58 | 10.94 | 85.23 |
| Other Members | 1.13 | 2.68 | 4.36 | 0.27 | 1.74 | 10.18 |
| Family Total | 8.50 | 26.14 | 44.31 | 7.21 | 13.84 | 100.00 |
| Plan C | | | | | | |
| Head | 0.51 | 1.39 | 2.54 | 0.30 | 1.23 | 5.97 |
| Wife | 5.58 | 18.02 | 31.63 | 5.38 | 8.98 | 69.59 |
| Other Members | 2.11 | 8.27 | 9.30 | 1.12 | 3.64 | 24.44 |
| Family Total | 8.20 | 27.68 | 43.47 | 6.80 | 13.85 | 100.00 |

Source: Statistics Canada (Survey of Consumer Finances) and estimates by the authors.

Table 12

BENEFIT REDUCTION RATES FOR TOTAL BEFORE-TAX BENEFITS OF FAMILY MEMBERS IN ECONOMIC FAMILIES BY ECONOMIC REGION AND SIMULATED PLAN, CANADA, 1975

| Plan and Family Member | Economic Region | | | | | Total Canada |
|---|---|---|---|---|---|---|
| | Atlantic | Quebec | Ontario | Prairies | B.C. | |
| | (per cent) | | | | | |
| Plan A | | | | | | |
| Head | 0.39 | 0.44 | 0.99 | 0.91 | 1.09 | 0.73 |
| Wife | 19.79 | 27.27 | 36.77 | 34.73 | 31.98 | 31.01 |
| Other Members | 0.44 | 0.52 | 1.05 | 0.27 | 1.93 | 0.77 |
| Family Total | 4.50 | 7.19 | 12.76 | 11.12 | 7.95 | 8.82 |
| Plan B | | | | | | |
| Head | 0.58 | 0.44 | 1.00 | 0.98 | 1.10 | 0.78 |
| Wife | 19.67 | 26.86 | 36.66 | 34.69 | 31.92 | 30.82 |
| Other Members | 3.29 | 3.99 | 10.25 | 3.92 | 10.19 | 6.06 |
| Family Total | 5.17 | 7.78 | 13.96 | 11.54 | 8.85 | 9.65 |
| Plan C | | | | | | |
| Head | 0.66 | 0.92 | 1.82 | 0.99 | 1.43 | 1.23 |
| Wife | 19.65 | 26.15 | 37.09 | 34.69 | 32.03 | 30.78 |
| Other Members | 7.54 | 15.01 | 26.72 | 20.22 | 26.10 | 17.79 |
| Family Total | 6.10 | 10.08 | 16.75 | 13.31 | 10.83 | 11.80 |

Source: Statistics Canada (Survey of Consumer Finances) and estimates by the authors.

These results appear intuitively reasonable given the economic conditions prevailing within regions in 1975; whether or not they are acceptable is an entirely different unanswered question. Nonetheless the benefit reductions are such that they would not cause a direct increase in the welfare rolls of the provinces.

The last set of results presented shows the effects of the simulated plans on the reductions of family member benefits ordered by region and the industry group in which the head and the wife are employed. For this purpose we have created five industry groups to which we assign the head and wife in a family separately. The first industry group consists of those individuals who have either never worked or who in 1975 were not in the labour force. In addition, where the economic family does not have a wife, the wife's industry is arbitrarily given as group one. Thus, all unattached individuals, both male and female, families with a female head, and families with a male head with no wife, or where the wife has never participated in the labour force or did not participate in 1975 are all found in groups where the wife's industry group is one. In industry group two are those individuals whose participation was in the primary sector. Industry group three contains all the manufacturing industries; group four consists solely of the construction industry; and group five contains the service sector including transportation, trade and government. The formation of the groups by SIC classification is given in Appendix A.

In Table 13 we present the distribution of Unemployment Insurance benefits for Canada in 1975 as a basis from which to view the distribution of benefit reductions by industry group

contained in Table 14. While there are variations in the distribution of total benefits from region to region the patterns are similar to those given for Canada. The results of Table 14 are given on a regional basis in tables in Appendix B.

In Table 13 consider first all those families where the wife is in industry group five irrespective of the head's group. This combination represents 31.7 per cent of all families and receives 43.4 per cent of all benefits. The benefits paid to the head and wife comprise approximately 90 per cent of the family benefits and are evenly divided between the heads and wives. A division of this group by the industry group of the head reveals some underlying heterogeneity. In the subgroup where both the head and wife are in the service sector the benefits paid to the wife are substantially greater than those paid to the head indicating the greater instability of employment for wives in the service sector. An off-set to this is the subgroup where the head is in the construction industry and the wife in the service sector. In this subgroup representing nearly three per cent of all families and receiving about seven per cent of the benefits, the benefits of the head are approximately 2.4 times those of the wife. Intuitively one would expect higher than average rates of reduction for heads in this subgroup. The results of the simulation do not indicate this outcome. Although, in Table 14, the reduction rate for heads is highest in the segment with the wife in the service sector, the effect comes from the two largest subgroups, those with the head in the service sector or in manufacturing, both of which have benefit reduction

Table 13

DISTRIBUTION OF THE TOTAL BEFORE-TAX BENEFITS OF UNEMPLOYMENT INSURANCE AMONG FAMILY MEMBERS AND FOR THE ECONOMIC FAMILY BY THE INDUSTRY GROUP[1] OF THE HEAD AND THE WIFE, CANADA, 1975

| Head/Wife Industry Group | | Proportion of All Family Units | Distribution of Total Before-Tax Unemployment Insurance Benefits | | |
|---|---|---|---|---|---|
| Head | Wife | | Family | Head | Wife |
| | | | (per cent) | | |
| All | 1 | 59.89 | 41.98 | 31.10 | 0.26 |
| All | 2 | 1.63 | 1.91 | 0.65 | 0.77 |
| All | 3 | 6.33 | 12.42 | 5.67 | 5.85 |
| All | 4 | 0.45 | 0.28 | 0.11 | 0.14 |
| All | 5 | 31.70 | 43.41 | 19.57 | 19.67 |
| 1 | All | 15.94 | 4.40 | 0.75 | 0.51 |
| 2 | All | 7.06 | 9.89 | 6.04 | 2.19 |
| 3 | All | 18.90 | 24.78 | 13.84 | 7.50 |
| 4 | All | 7.55 | 16.75 | 12.51 | 3.07 |
| 5 | All | 50.54 | 44.19 | 23.97 | 13.40 |
| 5 | 5 | 19.15 | 21.19 | 7.87 | 11.05 |
| Total Canada | | 100.00 | 100.00 | 57.11 | 26.68 |

1 The five industry groups used in this table are broken out by 1970 SIC code in the Appendix.

Source: Statistics Canada (Survey of Consumer Finances) and estimates by the authors.

Table 14

DISTRIBUTION OF THE BENEFIT REDUCTION AND BENEFIT REDUCTION RATES FOR TOTAL BEFORE-TAX BENEFITS OF THE HEAD, WIFE AND FOR THE ECONOMIC FAMILY BY THE INDUSTRY GROUP OF THE HEAD AND THE WIFE FOR SIMULATED PLAN B, CANADA, 1975

| Head/Wife Industry Group | | Distribution of Total Reduction | | | Benefit Reduction Rate | | |
|---|---|---|---|---|---|---|---|
| Head | Wife | Family | Head | Wife | Family | Head | Wife |
| | | | | (per cent) | | | |
| All | 1 | 5.23 | 0.18 | 0.44 | 1.20 | 0.06 | 16.53 |
| All | 2 | 2.12 | 0.00 | 2.01 | 10.73 | 0.02 | 25.18 |
| All | 3 | 15.93 | 0.29 | 14.58 | 12.37 | 0.50 | 24.06 |
| All | 4 | 0.68 | 0.00 | 0.68 | 23.55 | 0.00 | 47.61 |
| All | 5 | 76.03 | 4.11 | 67.52 | 16.90 | 2.03 | 33.12 |
| 1 | All | 0.21 | 0.00 | 0.00 | 0.46 | 0.00 | 0.00 |
| 2 | All | 7.26 | 0.29 | 6.31 | 7.08 | 0.46 | 27.74 |
| 3 | All | 29.65 | 1.27 | 25.51 | 11.54 | 0.88 | 32.80 |
| 4 | All | 8.53 | 0.91 | 6.04 | 4.92 | 0.70 | 19.00 |
| 5 | All | 54.36 | 2.13 | 47.36 | 11.87 | 0.86 | 34.10 |
| 5 | 5 | 45.01 | 1.96 | 40.77 | 20.49 | 2.40 | 35.58 |
| Total Canada | | 100.00 | 4.59 | 85.23 | 9.65 | 0.78 | 30.82 |

Source: Statistics Canada (Survey of Consumer Finances) and estimates by the authors.

rates above the group reduction rate of 2.03 per cent. The subgroup with the head in construction has a benefit reduction rate substantially below the group rate. The first reason for this result is probably the assumption made in the simulation that the unemployment of different UI unit members coincides. This will tend to understate the reduction of heads, and also those of wives. In any actual application of such a plan this would not be a factor. However, even if the unemployment of different UI unit members does not coincide, the benefits of an unemployed member are reduced only to the extent that the earnings of other unit members exceed the individual insurable earning ceiling. This leads us to suspect that the reduction of benefits to wives is understated to a greater extent than is that of the heads in this particular subgroup.

This same problem is likely to occur whenever the head is in an industry with a fairly strong seasonal unemployment pattern and the wife is in the labour force. Fortunately, such cases are not that prevalent; however, it does appear that the understatement of reductions is probably not uniform across the industry structure.

Returning to Table 13 we can observe that where the head is employed in the service sector, irrespective of the industry group of the wife, the benefits paid to heads are substantially higher than those paid to wives. The largest subgroup with the head employed in the service sector is the one in which there is no wife or the wife has not participated in the labour force in 1975. This subgroup comprises 28.6 per cent

of the total families and receives 18.6 per cent of the total Unemployment Insurance benefits, of which 14.4 per cent of total benefits go to the head. The remaining 4.2 per cent of total benefits in the subgroup are collected by other family members. For any reductions of Unemployment Insurance benefits to the head, the other members in the economic family must belong to the same UI unit and have substantial earnings and no unemployment. This is generally not the case, producing a negligible reduction of benefits to the head. This also is the subgroup in which a significant proportion of female heads with labour force activity are to be found. These results may be compared to the second largest subgroup; that in which the wife, as well as the head, is employed in the service sector. This subgroup is given separately in the tables. As noted before, while having proportionately greater benefits than the largest subgroup with the head in the service sector, this subgroup has proportionately less benefits paid to the head than the largest subgroup and substantial benefits paid to the wife.

In total, roughly 63 per cent of all economic families, in 1975, participated in the service sector through the head, or the wife, or both.[28] The proportion would be higher if other family members were considered. The total Unemployment Insurance benefits paid to heads or wives in the service sector were

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28 From Table 13 add the proportion of families with the head in the service sector (50.54 per cent) to the proportion of families with the wife in the service sector (31.70 per cent) and deduct the proportion of families with both in the service sector (19.15 per cent) to avoid double counting.

43.6 per cent of all benefits,[29] while the total benefits paid to families with either the head, or wife, or both in the service sector were 66.4 per cent of all Unemployment Insurance benefits. Of the 57.1 per cent of benefits paid to heads, 24.0 per cent of total benefits were paid to heads in the service sector. Of the 26.7 per cent of benefits paid to wives, 19.7 per cent of total benefits were paid to wives in the service sector. Turning to the reductions for simulated Plan B in Table 14 we see that the total benefit reduction for Canada was 9.65 per cent. Of the total reduction 4.59 per cent came from heads of family, and 2.13 per cent from heads of family in the service sector. These reductions to the head were completely to male heads. Of the total reduction for Canada 85.2 per cent came from wives, and 67.5 per cent from wives in the service sector. The total reductions from heads and wives in the service sector amounted to 69.65 per cent of all reductions, while the total reductions to families with either the head, or the wife, or both in the service sector amounted to 85.38 per cent. Not only are the total reductions largest in the service sector, which is to be expected given the size of that sector, but the benefit reduction rates are generally the highest. While we have concentrated solely on the results for Canada, by and large they hold with slight variations within all the regions. The direct benefit reduction effect of a family unemployment insurance plan is thus seen to be concentrated on families with involvement in the service sector, including government.

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29 From Table 13 add 19.67 per cent for wives in the service sector and 23.97 per cent for heads in the service sector.

## Section 4: Conclusion

In this discussion paper we have formulated a specific type of family based unemployment insurance plan, and simulated three different levels of such a plan based on data from the Survey of Consumer Finances for 1975. The cyclical downturn which began in late 1974 carried on into 1975, the period of the simulation, and caused an increase in deficient demand unemployment. Between November 1974 and April 1975 the seasonally adjusted unemployment rate increased by 1.7 percentage points. These were the general unemployment conditions underlying the results presented.

The results of the simulations indicate that total benefit reductions somewhere in the order of 10 per cent could be achieved; the precise magnitude depends upon the breadth of the definition of the UI unit. The direct costs allocated to families decline by a much smaller amount, due mainly to a decrease in the income tax paid on benefits, leaving the requirement for program funding from other sources, including the government deficit, substantially reduced. On an economic family basis the reductions are highly progressive and shift the distribution of total benefits back towards what it was under the old Unemployment Insurance Act. While being progressive, the reductions in total benefits also shift the entire system more towards what one would expect from a private individual insurance system by lowering benefits to individuals associated with higher risk groups.

The benefit reductions are such that they do not increase the level of financial hardship, as measured by low income cutoffs, among family units with unemployment. By reducing benefits only to those individuals who are members of families with an employed higher income earner, the cash flow aspect of unemployment is taken into account. The results of the simulation indicate that even if such a plan were in operation, the resulting treatment of hardship among families with unemployment would remain uneven, mainly by virtue of the variability of employment income upon which unemployment insurance is based.

The benefit reductions are overwhelmingly concentrated on wives in middle and upper-middle income families, and to a lesser extent on other family members in upper-middle income families. To the extent that benefits to the heads of family are reduced, it is the male heads that are affected; the benefits to female heads of family are virtually untouched.

The regional impact of a family plan on total benefit reductions, which depends upon the size of the program within a region to begin with, is greatest for Ontario, and is followed by Quebec, British Columbia, the Atlantic region, and the Prairie region in declining size of reduction. The impact upon families within regions is better measured by the benefit reduction rates within regions. Once again the highest reduction rate is to be found in Ontario, with the Prairie region, British Columbia, Quebec, and the Atlantic region following in declining order of impact.

The industry impact of a family plan is found to be greatest upon families within the service sector, due to both the majority of reductions in benefits being concentrated among wives, and the high concentration of women in the labour force being in the service sector. Although this effect varies from one region to another in strength, it is evident in all regions.

Our research to date has concentrated primarily on redistributional aspects of unemployment insurance and has been silent on the labour market effects of alternative plans. To the extent that social security, in general, and unemployment insurance, in particular, create an incentive/disincentive system that influences labour markets, one acid test of any alternative unemployment insurance structure would be its effect on the operation of the labour markets when confronted with demographic changes occurring and expected over the medium term. Given the variability of the concentration of labour supply changes within the industrial structure induced by program modifications, there could conceivably be important indirect demand responses. Although we have concentrated on the benefit structure of unemployment insurance and some aspects of its impact upon families, this does not preclude modifications to the financing of unemployment insurance with direct incentive effects on the demand side; for example relating employer contributions to the unemployment experience within the firm, or within the industry.

In the spectrum of alternatives to the existing Unemployment Insurance program, the ones evaluated in this paper represent a shift in design with respect to the unit insured.

These alternatives are, like the present system, a form of social insurance which replaces earnings, but with a greater emphasis on the earnings of the unit. To the extent that the UI unit definition is perceived to be too broad, families might be expected to adapt by changing family composition. When viewed by the impact of outcomes on families affected, the alternatives evaluated are likely close to the part of the spectrum where one finds the alternatives of a total income tested plan, or the replacement of the current Unemployment Insurance program with a negative income tax plan.

# APPENDIX A

APPENDIX A

1. Construction of UI units

The UI units were constructed using the Survey of Consumer Finances work file for 1975. All individuals within the same census family were considered at the same time and assigned to a UI unit or else treated as an unattached individual forming a separate UI unit. The two data items used for each individual were the census family relationship (CFR), and the individual's age (AGE).

The following individuals were grouped into one UI unit for the plans indicated:

| | |
|---|---|
| CFR = Head | Plan A, Plan B, Plan C |
| CFR = Wife | Plan A, Plan B, Plan C |
| CFR = Child, and | |
| Age less than 18 | Plan A, Plan B, Plan C |
| Age less than 21 | Plan B, Plan C |
| Any Age | Plan C |

Any other individuals in the census family were treated as unattached individuals. (Plan C exhausts the census family)

2. Calculation of Earnings and Insurable Earnings

The earnings items for individuals from the SCF work file used in this calculation were wages and salaries, and military pay and allowances. The sum of the two items we define as total wages and salaries (TWS). The other data items used were the Unemployment Insurance benefits (UIB), and the individual's weeks worked (WW). Using these items, earnings were calculated which would correspond to a uniform annual earnings rate, and insurable earnings were calculated on the basis of annual

earnings flow. The following table gives the calculation procedure for the different possible cases that could be encountered. Where the individual collected benefits the earnings flow was set equal to zero, the rate during the period of interest.

Calculation of Earnings Flow and Insurable Earnings from SCF Data

| Case | TWS | WW | UIB | Earnings Flow | Insurable Earnings |
|---|---|---|---|---|---|
| 1 | = 0 | = 0 | = 0 | 0 | 0 |
| 2 | = 0 | = 0 | > 0 | 0 | \$9 620 |
| 3 | > 0 | = 0 | = 0 | TWS | min {TWS, \$9 620} |
| 4 | > 0 | = 0 | > 0 | 0 | min {TWS, \$9 620} |
| 5 | > 0 | > 0 | = 0 | $\frac{TWS \times 52}{WW}$ | $\min \{\frac{TWS \times 52}{WW}, \$9\ 620\}$ |
| 6 | > 0 | > 0 | > 0 | 0 | $\min \{\frac{TWS \times 52}{WW}, \$9\ 620\}$ |
| 7 | = 0 | > 0 | = 0 | 0 | 0 |
| 8 | = 0 | > 0 | > 0 | 0 | \$9 620 |

Case 1 generally involves individuals who are not in the labour force. In Case 2 are individuals whose only labour force activity during 1975 was unemployment. Since there is no data upon which to base any calculations, their insurable earnings were set as high as possible to minimize any benefit reduction. In Case 3 and Case 4 individuals have not reported their weeks worked during 1975. The alternative chosen in these cases was to treat the individuals as being fully employed, although this is clearly not the correct assumption for the calculation of insurable earnings in Case 4. Unfortunately, we might have overstated benefit reductions by understating insurable earnings for some individuals. Case 5 and Case 6 contain the large majority of individuals in the labour force. Case 7 was used to capture the self-employed, although it also contains earners who

did not report wages and salaries. Case 8 generally contains individuals not reporting wages and salaries and, in addition, special groups such as self-employed fishermen entitled to fishing benefits.

While the above categorization is exhaustive, two additional rules were adopted to treat certain instances in Case 5. These are:

Case 5A: If TWS $\leq \frac{1}{4}$ x Earnings Flow, then set Earnings Flow = TWS

Case 5B: If TWS $\leq$ Insurable Earnings, then set Earnings Flow = TWS

Case 5A has the effect of not inflating actual earnings to an annual earnings flow for any individual who worked less than 13 weeks during 1975 and who did not collect benefits. This rule was added to prevent the reduction of benefits to UI unit members by an individual who worked for a short period at a moderate salary; for example, a student. If, however, the individual earned more than $9 620 in one-quarter of the year or less, the excess of actual earnings above the insurable earnings ceiling was used to reduce benefits if there was another individual with UI benefits in the unit. The reduction of benefits would be overstated in such a situation if the unemployment of the one member coincided with the non-earning period of the other, or if in fact both unit members collected benefits and there existed the non-reporting of benefits.

There is considerable overlap between Case 5A and Case 5B. In Case 5B, individuals who worked less than a full year and who actually earned less than the insurable earnings ceiling had their earnings flow set equal to their actual earnings.

Thus, only individuals who earned over $9 620 could affect the UI benefits received by other UI unit members.

The result of the two cases together is that, if an individual earned over $9 620 during the period of employment and no UI benefits were reported, then that individual could affect the benefits of other unemployed unit members by:

A) the excess of actual earnings above the insurable earnings ceiling if employment were for less than 13 weeks, or;

B) the excess of earnings flow above the insurable earnings ceiling if employment were for more than 13 weeks but less than one year.

Benefit reductions will be overstated where unemployment coincides with non-earning periods of different members, or where there is a mis-classification due to the non-reporting of UI benefits and unemployment of UI unit members coincides.

3. Calculation of Benefits Adjustment Ratio

For every individual in the UI unit the following calculation was performed:

Excess = Earnings Flow - Insurable Earnings

If Excess <0, then set Excess = 0. In other words we calculate the earnings flow of each employed UI unit member above insurable earnings with a minimum value of zero.

Second, the insurable earnings of all UI unit members with unemployment were summed. The Benefit Adjustment Ratio was then calculated by the following formula for each UI unit.

$$\text{Benefit Adjustment Ratio} = 1 - \frac{\text{Excess}}{\text{Sum of insurable earnings for unemployed}}$$

This ratio was then used to multiply all reported UI benefits within the UI unit.

4. Industry Group Composition by the 1970 Standard Industrial Classification of Industries

The five industry groups used in the body of the text are broken down by the 1970 SIC grouping in the following table.

| Industry Group | 1970 SIC Industry Description |
|---|---|
| 1 | - no wife (for the wife's industry group)<br>- not in the labour force<br>- never worked |
| 2 | - agriculture<br>- forestry<br>- fishing and trapping<br>- mines, quarries and oil wells |
| 3 | - food and beverages<br>- tobacco products<br>- rubber industries<br>- leather industries<br>- textile industries<br>- knitting mills<br>- clothing industries<br>- wood industries<br>- furniture and fixture industries<br>- paper and allied industries<br>- printing, publishing and allied industries<br>- primary metal industries<br>- metal fabricating industries (excluding machinery and transportation equipment)<br>- machinery industries (excluding electrical)<br>- transportation equipment<br>- electrical products<br>- non-metallic mineral products<br>- petroleum and coal products<br>- chemical and chemical products<br>- miscellaneous manufacturing industries |
| 4 | - construction industries |

| Industry Group | 1970 SIC Industry Description |
|---|---|
| 5 | - transportation, storage and communication<br>- post office<br>- electric power, gas and water utilities<br>- wholesale trade<br>- retail trade<br>- finance, insurance and real estate<br>- education and related services<br>- hospitals<br>- offices of physicians and dentists<br>- other health services and welfare organizations<br>- religious organizations<br>- motion picture and recreational services<br>- services to business management<br>- shoe repair, barber and beauty shops<br>- private households<br>- other personal services<br>- miscellaneous services<br>- federal administration<br>- provincial administration<br>- local administration<br>- other government services |

# APPENDIX B

Table B-1

DISTRIBUTION OF THE BENEFIT REDUCTION[1] AND BENEFIT REDUCTION RATES FOR TOTAL BEFORE-TAX BENEFITS OF THE HEAD, WIFE AND FOR THE ECONOMIC FAMILY BY THE INDUSTRY GROUP OF THE HEAD AND THE WIFE FOR SIMULATED PLAN B, ATLANTIC REGION, 1975

| Head/Wife Industry Group[2] | | Distribution of Total Reduction | | | Benefit Reduction Rate | | |
|---|---|---|---|---|---|---|---|
| Head | Wife | Family | Head | Wife | Family | Head | Wife |
| | | | | (per cent) | | | |
| All | 1 | 1.05 | 0.18 | 0.00 | 1.40 | 0.38 | 0.00 |
| All | 2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| All | 3 | 0.79 | 0.00 | 0.74 | 3.80 | 0.02 | 8.75 |
| All | 4 | * | * | * | * | * | * |
| All | 5 | 6.65 | 0.37 | 6.07 | 10.41 | 1.09 | 24.82 |
| 1 | All | 0.11 | 0.00 | 0.00 | 0.82 | 0.00 | 0.00 |
| 2 | All | 0.85 | 0.12 | 0.63 | 3.08 | 0.64 | 13.91 |
| 3 | All | 1.83 | 0.01 | 1.40 | 6.20 | 0.03 | 19.91 |
| 4 | All | 0.63 | 0.19 | 0.37 | 1.88 | 0.75 | 7.05 |
| 5 | All | 5.07 | 0.24 | 4.42 | 8.46 | 0.74 | 26.02 |
| 5 | 5 | 4.29 | 0.24 | 3.95 | 14.79 | 1.92 | 28.92 |
| Total Atlantic | | 8.50 | 0.55 | 6.82 | 5.17 | 0.58 | 19.67 |

1 The distribution of the benefit reduction is given as a per cent of the total reduction for Canada.

2 Where a particular industry group combination did not contain a sufficiently large sample the table entries are given by asterisks.

Source: Statistics Canada (Survey of Consumer Finances) and estimates by the authors.

Table B-2

DISTRIBUTION OF THE BENEFIT REDUCTION[1] AND BENEFIT REDUCTION RATES FOR TOTAL BEFORE-TAX BENEFITS OF THE HEAD, WIFE AND FOR THE ECONOMIC FAMILY BY THE INDUSTRY GROUP OF THE HEAD AND THE WIFE FOR SIMULATED PLAN B, QUEBEC, 1975

| Head/Wife Industry Group[2] | | Distribution of Total Reduction | | | Benefit Reduction Rate | | |
|---|---|---|---|---|---|---|---|
| Head | Wife | Family | Head | Wife | Family | Head | Wife |
| | | | | (per cent) | | | |
| All | 1 | 1.15 | 0.00 | 0.00 | 0.73 | 0.00 | 0.00 |
| All | 2 | 0.59 | 0.00 | 0.56 | 11.03 | 0.00 | 30.87 |
| All | 3 | 3.45 | 0.00 | 3.28 | 8.89 | 0.00 | 21.01 |
| All | 4 | * | * | * | * | * | * |
| All | 5 | 20.79 | 0.81 | 18.64 | 15.57 | 1.55 | 28.22 |
| 1 | All | 0.10 | 0.00 | 0.00 | 0.56 | 0.00 | 0.00 |
| 2 | All | 1.70 | 0.00 | 1.62 | 5.64 | 0.00 | 32.14 |
| 3 | All | 7.21 | 0.66 | 6.06 | 9.05 | 1.49 | 26.83 |
| 4 | All | 2.95 | 0.08 | 2.04 | 6.10 | 0.23 | 22.36 |
| 5 | All | 14.19 | 0.06 | 12.92 | 8.83 | 0.07 | 27.52 |
| 5 | 5 | 11.92 | 0.06 | 11.37 | 16.08 | 0.27 | 27.97 |
| Total Quebec | | 26.14 | 0.81 | 22.64 | 7.78 | 0.44 | 26.86 |

1 The distribution of the benefit reduction is given as a per cent of the total reduction for Canada.

2 Where a particular industry group combination did not contain a sufficiently large sample the table entries are given by asterisks.

Source: Statistics Canada (Survey of Consumer Finances) and estimates by the authors.

Table B-3

DISTRIBUTION OF THE BENEFIT REDUCTION[1] AND BENEFIT REDUCTION RATES FOR TOTAL BEFORE-TAX BENEFITS OF THE HEAD, WIFE AND FOR THE ECONOMIC FAMILY BY THE INDUSTRY GROUP OF THE HEAD AND THE WIFE FOR SIMULATED PLAN B, ONTARIO, 1975

| Head/Wife Industry Group[2] | | Distribution of Total Reduction | | | Benefit Reduction Rate | | |
|---|---|---|---|---|---|---|---|
| Head | Wife | Family | Head | Wife | Family | Head | Wife |
| | | | | (per cent) | | | |
| All | 1 | 1.99 | 0.00 | 0.21 | 1.83 | 0.00 | 25.54 |
| All | 2 | 1.39 | 0.00 | 1.30 | 19.68 | 0.00 | 44.04 |
| All | 3 | 9.77 | 0.29 | 8.64 | 17.61 | 1.31 | 29.12 |
| All | 4 | * | * | * | * | * | * |
| All | 5 | 30.89 | 1.41 | 27.80 | 21.28 | 2.29 | 39.60 |
| 1 | All | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | All | 1.96 | 0.05 | 1.88 | 11.40 | 0.57 | 30.18 |
| 3 | All | 16.01 | 0.55 | 14.18 | 15.60 | 1.06 | 37.63 |
| 4 | All | 3.48 | 0.17 | 2.79 | 6.93 | 0.48 | 27.32 |
| 5 | All | 22.85 | 0.93 | 19.39 | 16.55 | 1.33 | 40.99 |
| 5 | 5 | 17.58 | 0.76 | 15.73 | 26.72 | 3.34 | 44.24 |
| Total Ontario | | 44.31 | 1.71 | 38.24 | 13.96 | 1.00 | 36.66 |

1 The distribution of the benefit reduction is given as a per cent of the total reduction for Canada.

2 Where a particular industry group combination did not contain a sufficiently large sample the table entries are given by asterisks.

Source: Statistics Canada (Survey of Consumer Finances) and estimates by the authors.

Table B-4

DISTRIBUTION OF THE BENEFIT REDUCTION[1] AND BENEFIT REDUCTION RATES FOR TOTAL BEFORE-TAX BENEFITS OF THE HEAD, WIFE AND FOR THE ECONOMIC FAMILY BY THE INDUSTRY GROUP OF THE HEAD AND THE WIFE FOR SIMULATED PLAN B, PRAIRIE REGION, 1975

| Head/Wife Industry Group[2] | | Distribution of Total Reduction | | | Benefit Reduction Rate | | |
|---|---|---|---|---|---|---|---|
| Head | Wife | Family | Head | Wife | Family | Head | Wife |
| | | | (per cent) | | | | |
| All | 1 | 0.05 | 0.00 | 0.00 | 0.21 | 0.00 | 0.00 |
| All | 2 | 0.00 | 0.00 | 0.00 | 0.14 | 0.27 | 0.00 |
| All | 3 | 0.70 | 0.00 | 0.70 | 12.87 | 0.00 | 32.01 |
| All | 4 | * | * | * | * | * | * |
| All | 5 | 6.41 | 0.36 | 5.84 | 20.67 | 2.71 | 36.06 |
| 1 | All | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | All | 0.82 | 0.13 | 0.69 | 11.07 | 2.81 | 33.45 |
| 3 | All | 1.00 | 0.00 | 0.99 | 14.01 | 0.00 | 46.64 |
| 4 | All | 0.68 | 0.04 | 0.61 | 5.44 | 0.43 | 22.88 |
| 5 | All | 4.71 | 0.19 | 4.29 | 14.19 | 1.90 | 35.74 |
| 5 | 5 | 4.39 | 0.19 | 4.02 | 22.43 | 2.64 | 35.62 |
| Total Prairies | | 7.21 | 0.36 | 6.58 | 11.54 | 0.98 | 34.69 |

1 The distribution of the benefit reduction is given as a per cent of the total reduction for Canada.

2 Where a particular industry group combination did not contain a sufficiently large sample the table entries are given by asterisks.

Source: Statistics Canada (Survey of Consumer Finances) and estimates by the authors.

Table B-5

DISTRIBUTION OF THE BENEFIT REDUCTION[1] AND BENEFIT REDUCTION RATES FOR TOTAL BEFORE-TAX BENEFITS OF THE HEAD, WIFE AND FOR THE ECONOMIC FAMILY BY THE INDUSTRY GROUP OF THE HEAD AND THE WIFE FOR SIMULATED PLAN B, BRITISH COLUMBIA, 1975

| Head/Wife Industry Group[2] | | Distribution of Total Reduction | | | Benefit Reduction Rate | | |
|---|---|---|---|---|---|---|---|
| Head | Wife | Family | Head | Wife | Family | Head | Wife |
| | | | | (per cent) | | | |
| All | 1 | 0.99 | 0.00 | 0.22 | 1.43 | 0.00 | 26.85 |
| All | 2 | * | * | * | * | * | * |
| All | 3 | 1.23 | 0.00 | 1.23 | 14.72 | 0.00 | 26.05 |
| All | 4 | * | * | * | * | * | * |
| All | 5 | 11.29 | 1.16 | 9.15 | 14.79 | 2.76 | 34.00 |
| 1 | All | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | All | 1.93 | 0.00 | 1.48 | 9.57 | 0.00 | 30.59 |
| 3 | All | 3.60 | 0.05 | 2.89 | 9.49 | 0.19 | 34.45 |
| 4 | All | 0.78 | 0.42 | 0.22 | 2.72 | 1.81 | 5.01 |
| 5 | All | 7.53 | 0.69 | 6.35 | 11.40 | 1.62 | 40.44 |
| 5 | 5 | 6.83 | 0.69 | 5.69 | 21.94 | 4.65 | 42.48 |
| Total British Columbia | | 13.84 | 1.16 | 10.94 | 8.85 | 1.10 | 31.92 |

1 The distribution of the benefit reduction is given as a per cent of the total reduction for Canada.

2 Where a particular industry group combination did not contain a sufficiently large sample the table entries are given by asterisks.

Source: Statistics Canada (Survey of Consumer Finances) and estimates by the authors.