

**A Comparative Analysis of the Impacts of Twenty
Alternative Policies for Providing Temporary Macroeconomic Stimulation**

**A Report Submitted to the Program
Evaluation Division Canada
Mortgage and Housing Corporation**

by

Gregory V. Jump and D. Peter Dungan

**Institute for Policy Analysis
University of Toronto**

February 13, 1992

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Report Summary

This study uses a large-scale econometric model to stimulate the effects of twenty alternative policies designed to provide temporary stimulus to the Canadian economy within a historical context. The econometric model utilized is the FOCUS Model of the Canadian economy, developed and maintained at the Institute For Policy Analysis, the University of Toronto.

The methodology is relatively simple: the FOCUS Model is used to generate a counter-factual solution of how the Canadian economy might have performed over 1982 to 1990, had a particular, temporary economic policy been put into effect for the 2-year sub-period running from the start of the third quarter of 1982 through the end of the second quarter of 1984. The counter-factual solution provides a picture of how the economy might have performed during the two-year period over which the particular policy is assumed to have occurred and for five and one-half years following its assumed termination. A comparison of actual economic performance over 1982 to 1990 with the predicted values for economic variables in the counter-factual solution provides a basis for computing estimates of the net impacts of the particular policy on selected macroeconomic variables on a year-by-year basis.

A separate simulation exercise of the preceding sort is performed for each of the twenty alternative policies considered in the study. The net impact estimates for each are tabulated and compared on the basis of pre-selected criteria.

The use of common simulation period (1982 to 1990) and a common time period (mid-1982 through mid-1984) for each policy are devices to enhance the comparability of the net impact estimates. Comparability is further enhanced by assuming a common scale for all the alternative policies: Each is structured in a way that its direct or, program, costs to the sponsoring government or government agency have a present discounted value of \$777 million as of mid-year 1982. Thus, for example, a temporary increase in federal expenditures on current goods and services costing \$777 million in present discounted value terms is compared with a lump-sum reduction in federal personal income taxes yielding the

identical present discounted value in lost tax receipts over the same 1982:Q3 to 1984:Q4 interval. The value of \$777 million is chosen as the common scale factor because this was the present discounted value of the actual program costs of the CHOSP program

CHOSP is one of the twenty policies investigated as are the CHRP and CRSP programs. These were programs actually in effect during all or parts of 1982:Q3 to 1984:Q2. CHOSP and CHRP had as specific objectives the stimulation of increased rates of ownership and increased construction activity. CRSP had a specific objective of stimulating the construction of new rental housing. But in addition to their housing-specific objectives, each of CHOSP, CHRP and CRSP provided general stimulus to overall or macroeconomic, activity.

One of the prime objectives of this study is to compare the net impacts of these three measures on overall macroeconomic performance with the net impacts of alternative policy actions that might have been taken instead. The other seventeen policies examined here represent a collection of such alternatives.

In terms of program costs CHOSP was the largest of the three housing-specific policies actually undertaken. For this reason, CHOSP is selected as the benchmark policy. All alternatives are implemented with the same present discounted value of program costs as CHOSP. This includes the CHRP and CRSP alternatives, which are simulated here as up-scaled variants of the originals. As it turns out, CHOSP program costs were 3.45 times the program costs of both the original CHRP and CRSP policies; hence, the scale factor of 3.45 is used for both of these alternatives.

The remaining seventeen policy alternatives are listed in Table 1A at the end of the main body of the Report. These include:

- (i) various alternatives to CHOSP and CHRP for providing subsidies to home buyers;
- (ii) various alternative to CRSP for subsidizing builders of rental housing;
- (iii) a collection of policies aimed at reducing various selective tax rates or increasing transfer payments;

- (iv) increases in government expenditures on various categories of goods and services
- (v) a subsidy to new employment;
- (vi) a pair of monetary, monetary/fiscal policies

The simulation results provide year-by-year estimates for net impacts of each alternative policy on a range of aggregate economic variables, including real and nominal GDP, components of real GDP, various aggregative price indexes, employment and unemployment, interest rates, government budget balances, and a collection of residential housing indexes. This permits the alternatives to be compared across a broad range of criteria.

The study conducts a comparison based on only two criteria -- the cumulative net impacts from 1982 through 1985 on total real GDP and on total employment. The main findings of these comparisons are summarized in point form.

- The most stimulative of the twenty policies in terms of cumulative net impacts on real GDP is a policy that provides an income subsidy to buyers of new houses. Like all of the policies, this subsidy policy involves program costs of \$777 million. It stimulates a cumulative increase in real GDP estimated to be in excess of \$6.5 billion (in 1986 prices) during its two year duration and the following year and one-half. The \$777 million in program costs represent an outlay of \$843 million in 1986 prices; hence the effective "multiplier" here has a value of $6.5/0.843$ or, 7.7.
- The income subsidy to buyers of new houses is a variant of the original CHOSP program. CHOSP provided subsidies both to buyers of new houses and first-time buyers of existing houses. Subsidies to buyers of existing houses is the less effective stimulus to real GDP. The income subsidy policy differs from CHOSP by eliminating this feature. CHOSP is the third ranked policy with regard to its cumulative net impacts on real GDP, while the second ranked is a proportional cost subsidy to buyers of new houses. The message here is that subsidies to home buyers provide powerful stimuli to overall economic activity in comparison with alternatives.
- Other policies that rank highly in their cumulative net impacts on real GDP are the

combined monetary/fiscal policy and a variant of CRSP that provides a lump-sum cash subsidy to builders of rental housing.

- The policy that generates the greatest cumulative net impacts on employment is the policy that provides a subsidy to new hires. It is not surprising that the most effective way to stimulate employment is to subsidize this activity in direct fashion.
- The income subsidy to buyers of new houses, the cost subsidy to buyers of new houses, and CHOSP rank second, third, and fourth, respectively, in their stimulative impacts on employment.
- Reductions in corporation income taxes provide the least stimuli to both real GDP and employment. Investment tax credits to new investment in machinery and equipment or non-residential structures also rank low on both criteria.
- The housing-specific policies actually undertaken -- CHOSP, CHRP and CRSP -- compare quite favourably with the alternatives on both real GDP and employment criteria. It would be difficult on the basis of these results to argue that the Canadian economy would have been better served in the early to mid 1980's had some more traditional forms of temporary stimuli been undertaken in their stead.
- One criticism that might be made in principle of CHOSP, CHRP and CRSP is that the stimulative effects of these policies represented "borrowing from future economic activity". The post-1985 simulation results do support the "borrowing from the future" hypothesis. However, these policies appear to be neither worse nor better than the alternatives on this criterion. Economic performance in say, 1990, appears to have been little different from what might otherwise have occurred, had policies other than CHOSP, CHRP and CRSP been taken in the early to mid 1980's.

Résumé du rapport

Le modèle économétrique à grande échelle utilisé dans le cadre de la présente étude a pour but de simuler, sur une période donnée, les effets de 20 politiques destinées à stimuler temporairement l'économie du Canada. Conçu et géré par l'Institute for Policy Analysis de l'Université de Toronto, le modèle économétrique de l'économie canadienne FOCUS a été retenu par la présente étude.

La méthode est relativement simple : le modèle FOCUS produit des résultats hypothétiques sur la performance économique qui aurait pu être observée de 1982 à 1990 si une politique économique particulière avait été mise en oeuvre temporairement, soit durant la sous-période de 2 ans allant du début du troisième trimestre de 1982 à la fin du deuxième trimestre de 1984. On obtient ainsi un tableau de la situation économique qui aurait été enregistrée durant les 2 années d'application de la supposée politique et durant les 5 années et demi subséquentes. En comparant la performance économique réelle de 1982 à 1990 avec les variables économiques déterminées par l'analyse hypothétique, il est possible de calculer les effets nets d'une politique particulière sur certaines variables macro-économiques, d'une année à l'autre.

Chacune des 20 politiques visées par l'étude fait l'objet d'une simulation semblable à celle mentionnée ci-dessus. Les effets nets de chaque politique sont mis en tableaux, puis comparés en fonction de critères préétablis.

L'utilisation de périodes communes, pour ce qui est de la simulation (de 1982 à 1990) et de l'application (du milieu de 1982 au milieu de 1984) des diverses politiques, permet d'établir de plus justes comparaisons entre les effets nets de chaque mesure. Pour les besoins de la comparaison, en outre, toutes les politiques ont été soumises à une échelle commune; chacune est structurée de telle manière que les coûts directs (ou les coûts du programme), imputables au ministère ou à l'organisme concerné, aient une valeur actualisée de 777 millions de dollars au milieu de 1982. Par exemple, une augmentation temporaire de 777 millions de dollars en valeur actualisée des achats courants de biens et de services du gouvernement fédéral sera comparée avec une réduction globale de l'impôt fédéral sur le revenu des particuliers entraînant un manque à gagner d'un montant équivalent pour la même période (du troisième trimestre de 1982 au quatrième trimestre de 1984). La somme de 777 millions de dollars a été retenue comme point de référence, puisqu'il s'agit de la valeur actualisée des coûts réels du PCEAP.

Le PCEAP, le PCRM et le RCCLL sont au nombre des 20 politiques visées par l'étude. Ces programmes ont réellement été en vigueur durant l'ensemble ou une partie de la période allant du troisième trimestre de 1982 au deuxième trimestre de 1984. Le PCEAP et le PCRM avaient pour objectifs particuliers de favoriser l'accession à la propriété et la construction résidentielle. Le RCCLL encourageait pour sa part la construction de logements locatifs. Toutefois, au-delà des objectifs spécifiques liés à l'habitation, chacun de ces programmes a eu un effet positif sur l'activité économique dans son ensemble.

L'un des principaux objectifs de la présente étude est de comparer l'effet net de ces trois mesures sur l'économie avec l'effet net de divers programmes hypothétiques, c'est-à-dire les 17 autres mesures retenues pour l'étude.

Le PCEAP a été le plus coûteux des trois programmes d'habitation mentionnés ci-dessus. Pour cette raison, le PCEAP a été choisi comme programme de référence. Tous les programmes hypothétiques sont analysés en fonction des coûts du PCEAP, à leur valeur actualisée. Ainsi, pour les besoins de la simulation, les coûts du PCRM et du RCCLL ont été majorés par rapport aux données réelles. Comme les coûts du PCEAP sont de 3,45 fois les coûts d'origine du PCRM et du RCCLL, l'échelle est de 3,45 dans les deux cas.

Les 17 autres mesures sont énumérées dans le tableau 1A, à la fin du corps du rapport. Ce sont, entre autres :

- i) divers programmes de remplacement du PCEAP et du PCRM prévoyant des subventions aux acheteurs de logement;
- ii) divers programmes de remplacement du RCCLL prévoyant des subventions aux constructeurs de logements locatifs;
- iii) diverses politiques visant à réduire le taux de certaines mesures fiscales sélectives ou à accroître les paiements de transfert;
- iv) l'augmentation des sommes dépensées par le gouvernement pour diverses catégories de produits et de services;
- v) une subvention à la création d'emplois;

- vi) une politique monétaire, et une politique à la fois financière et monétaire.

La simulation permet de déterminer, pour chaque année, l'incidence nette approximative de chaque mesure hypothétique sur diverses variables macro-économiques, notamment le PIB réel et nominal, les composantes du PIB réel, les divers indices composés de prix, l'emploi et le chômage, les taux d'intérêt, les soldes budgétaires des gouvernements et divers indices ayant trait à l'habitation.

L'étude propose une comparaison des effets nets fondée sur seulement deux critères, soit le PIB réel total et l'emploi total, de 1982 à 1985. Voici, en résumé, les principaux résultats de cette comparaison.

- Des vingt politiques étudiées, celle prévoyant le versement de subventions fixes aux acheteurs de maison neuve a l'incidence cumulative nette la plus importante sur le PIB réel. Comme dans tous les autres cas, on suppose que les coûts de ce programme sont de 777 millions de dollars. Une telle mesure suscite une croissance cumulative du PIB évaluée à plus de 6,5 milliards de dollars (en dollars de 1986) pour les deux années de sa durée et l'année et demi suivante. Comme les coûts du programme, soit 777 millions de dollars, constituent une dépense de 843 millions de dollars par rapport aux prix de 1986, le multiplicateur est donc ici de 7,7 ($6,5/0,843$).
- Le versement d'une subvention fixe aux acheteurs de maison neuve constitue une variante du PCEAP original, qui accordait des subventions

tant aux acheteurs de maison neuve qu'aux accédants qui achetaient une maison existante. Les subventions consenties aux acheteurs de maison existante ont le moins d'effet sur le PIB réel. Cette caractéristique, d'ailleurs, n'est pas prévue dans la politique de subventions fixes. Le PCEAP vient au troisième rang parmi les mesures ayant l'incidence cumulative nette la plus forte sur le PIB réel; le mode de subvention proportionnée au coût, à l'intention des acheteurs de maison neuve, vient au deuxième rang. Ces résultats permettent de conclure que les subventions accordées aux acheteurs de maison ont un effet plus marqué, sur l'ensemble de l'économie, que les autres solutions possibles.

- Parmi les autres mesures dont l'incidence cumulative nette sur le PIB réel est élevée, on note la politique monétaire-financière ainsi qu'une variante du RCCLL. Cette mesure prévoit le versement d'une subvention forfaitaire en espèces aux constructeurs de logements locatifs.
- La politique ayant l'incidence cumulative nette la plus élevée sur l'emploi est celle qui prévoit une subvention à la création d'emplois. Ce résultat n'a rien de surprenant : la meilleure façon de stimuler l'emploi est d'offrir des subventions directes dans ce domaine.
- Le versement de subventions fixes pour les acheteurs de maison neuve, le versement de subventions proportionnées au coût pour les acheteurs de maison neuve et le PCEAP viennent respectivement au deuxième, troisième et quatrième rang pour ce qui est de leur incidence sur l'emploi.

- La réduction de l'impôt sur les sociétés est la mesure ayant la plus faible incidence, tant sur le PIB réel que sur l'emploi. De même, les crédits d'impôt sur les nouveaux investissements relatifs aux machines, au matériel ou aux bâtiments non résidentiels influent relativement peu sur ces deux facteurs.

- Les politiques de logement réellement mises en oeuvre (PCEAP, PCRM et RCCLL) se comparent avantageusement avec les solutions proposées, pour ce qui est des répercussions sur le PIB réel et sur l'emploi. À la lumière de ces résultats, on peut difficilement prétendre que la conjoncture économique canadienne aurait été plus favorable, durant la première moitié des années 80, si des mesures de redressement temporaires plus traditionnelles avaient été prises.

- En principe, on pourrait toujours reprocher au PCEAP, au PCRM et au RCCLL d'avoir constitué un emprunt sur l'activité économique future. Les résultats de la simulation postérieure à 1985 soutiennent d'ailleurs cette hypothèse. Tout indique cependant que les solutions de rechange, à cet égard, n'auraient été ni pires ni meilleures. La situation économique de 1990, par exemple, aurait été peu différente si d'autres politiques que le PCEAP, le PCRM et le RCCLL avaient été introduites dans la première moitié des années 80.



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1. Introduction

The Canadian economy suffered a number of difficulties during the early years of the past decade. A severe recession in 1981-82 was accompanied by double-digit rates of price inflation and the highest levels of interest rates experienced since Confederation. This combination of events bore particularly heavily on residential housing markets. Starts of new housing units declined in 1982 to their lowest levels in more than twenty years.

In an effort to provide some relief to housing markets and at the same time to provide stimulus to overall employment and economic activity, the Government of Canada initiated a series of special incentive programs between the start of 1982 and the end of 1984. Three of these programs that are of particular interest were

- (i) the Canada Home Ownership Stimulation Plan (CHOSP), which provided cash grants of \$3,000 to buyers of new houses or first-time buyers of existing houses between June 28, 1982 and June 30, 1983;
- (ii) the Canada Home Renovation Plan (CHRP), which provided cash grants of up to \$3,000 to assist the owner of an existing house in making alterations or improvements between May 1, 1982 and July 30, 1983;
- (iii) the Canada Rental Supply Program, which provided interest-free second mortgage loans of up to \$7,500 per unit over fifteen years to builders of rental apartments between the start of 1982 and the end of March 1985.

Separate previous studies of each of these three programs conducted by one of the authors, together with colleagues from the Institute for Policy Analysis at the University of Toronto [1], [2], [3] have suggested that both the recession of 1981/82 and the concurrent collapse of residential construction activity might have been considerably more severe in their absence. The Government of Canada scores high marks for having undertaken these programs at a critical phase in the business cycle.

The focus of each of the previous studies was to estimate and assess the macroeconomic impacts of one of the three programs. The objective of the present study is to make a comparison of the macroeconomic impacts of CHOSP, CHRP and CRSP and

to contrast these impacts with those of a wide range of alternative policies of macroeconomic stimulation.

Inclusive of CHOSP, CHRP and CRSP, a total of twenty distinct policies designed to promote temporary counter-cyclical stimulus to the Canadian economy are investigated. (See Table 1A for a listing of the twenty alternative policies.) The objective is to provide numerical estimates of how each of the twenty alternative policies might impact on various measures of aggregate employment, output and prices. Estimates of policy-specific impacts should provide useful information to aid policy makers in choosing among alternatives when (budgetary) resources are limited.

The methodology employed in the study is explained in detail in Section 2, but may be summarized briefly as follows. We begin by taking the actual performance of the Canadian economy from 1982 through 1990 as a matter of record. We then pose the question: How might macroeconomic performance have been different, had Policy *j* been put into effect for the two-year period from 1982:Q3 to 1984:Q2? (The two-year time interval is selected to correspond roughly with the actual durations of CHOSP, CHRP and CRSP.)

To provide answers to this question we perform a simulation exercise using the FOCUS Quarterly Econometric Model, developed and maintained at the Institute for Policy Analysis at the University of Toronto. The simulation exercise involves obtaining a solution of the FOCUS Model over the 1982 to 1990 time interval under the assumption that Policy *j* was initiated over the 1982:Q3 to 1984:Q2 sub-interval. This solution shows how Canadian economic performance might have evolved, had Policy *j* been undertaken. Numerical differences between the values of economic variables in this solution and corresponding values for actual economic performance provide year-by-year estimates of the quantitative impacts of Policy *j*. Observe that the impact estimates cover not only the sub-interval during which Policy *j* is assumed to have been in effect, but also the time period (up to the end of 1990) after Policy *j* is assumed to have been terminated.

The simulation exercise is conducted for each of the 20 alternative policies. In the cases of CHOSP, CHRP and CRSP, the time intervals during which the policies are assumed to have been in effect correspond with the actual durations of the respective programs. For CHOSP this was 1982:Q3 to 1983:Q2; for CHRP it was 1982:Q2 to 1983:Q3; and for CRSP it was 1982:Q1 to 1985:Q1. The other 17 policies are "hypothetical" in the sense that they did not actually occur. For these, the time interval each is assumed to have been in effect is 1982:Q3 to 1984:Q2. The rationale for using the same two-year time interval is to make each of the 17 hypothetical alternatives correspond as closely as possible in timing to the CHOSP, CHRP and CRSP programs. The ultimate rationale is, of course, to simulate over as close to a common time interval as possible in order to make the impact estimates directly comparable.

In order to further enhance comparability of the simulation results, each of the alternative policies is assumed to be of the same scale in terms of present discounted value of direct or, program, costs. The program costs of a particular policy are its costs to the sponsoring government department or agency, exclusive of any tax recapture by other governments or government agencies. For example, the program costs of the CHOSP program were the aggregate values of cash grants distributed under this program. These totalled \$361.8 mil. in 1982, \$416.9 mil. in 1983, \$20.5 mil. in 1984 and \$0.1 mil. in 1985. The present discounted value of CHOSP's program costs as of the start of 1982:Q3 was \$777 mil. based on a discount rate of 11 percent.

In selecting a common scale for the alternatives the \$777 mil. present discounted value of CHOSP's program costs was chosen as a benchmark. Each of the alternative policies was set at a scale to generate program costs with a \$777 mil. present discounted value at the start of 1982:Q3. For example, one of the policy alternatives is a lump-sum reduction in personal income taxes. This policy is simulated by assuming a \$415 mil. per year reduction in personal income taxes for the two-year time interval spanning 1982:Q3 to 1984:Q2. The reader may readily verify that the present discounted value of \$415 mil. per year for two years is \$777 mil., using a discount rate of 11 percent. (The discount rate is

based on the average value for Treasury Bill yields over the mid-1982 to mid-1984 period.)

The use of the present discounted value of CHOSP program costs as the common scale factor posed slight difficulties for the simulations of the CHRP and CRSP programs. Actual program costs for each of these programs were considerably smaller than those of CHOSP. To overcome these scale differences, both CHRP and CRSP are "scaled-up" in their respective simulation exercises. For example, CHRP is assumed to have been a program offering cash grants greater than the \$3,000 grants actually distributed. The effect is to generate a set of impact estimates for a program 3.45 times the actual size of CHRP and having program costs of \$777 mil. in present discounted value terms.

A similar scaling up was required for the CRSP simulation. As it turns out the requisite scale factor is also 3.45.

The use of a common scale of program costs and a common time interval over which the alternative policies are assumed to have been in effect go a long way toward making the simulation results comparable across the different policies. The reader may contrast the impacts of any two policies by comparing the impact estimates appearing in the appropriate two tables of results appearing at the end of the study. Comparisons may be made variable by variable and/or year by year.

An alternative method of comparing two policy alternatives would be to contrast estimates of multipliers. Some information regarding multipliers is presented in what follows, but this is not given heavy emphasis. Multiplier comparisons are not very revealing on a multi-year basis unless the two policies being compared are very similar (e.g., an increase in government non-wage expenditures versus an increase in government capital expenditures). In addition, the concept of a multiplier is ambiguous when temporary policies are being investigated. (How does one compute the multiplier for year 3 real GDP of a temporary personal income tax reduction that ends after year 2?)

The remainder of the study is as follows. The simulation methodology is described in more detail in Section 2. Section 3 presents a discussion of the individual policies -- what differentiates them and how they are assumed to be implemented in the simulation exercises. Much of the discussion here provides a useful explanation for the simulation results. For example, in describing how a mortgage interest rate subsidy to buyers of new homes could be simulated, it is useful to compare the incentive effects of such a subsidy with those provided by CHOSP. An understanding of how these incentive effects differ provides the basis for understanding where and why the estimates of net macroeconomic impacts differ between these two alternative policies. What remains to be said about the simulation results is presented in Section 4.

2. The Simulation Methodology in More Detail

The simulation exercises followed a three-step procedure.

Step 1: **Obtaining a Control Solution**

The term "control solution" is used to describe a model solution against which policy-specific alternative solutions are compared in order to compute numerical estimates of economic impacts. In these exercises the control solution is a dynamic solution of the FOCUS Model that exactly replicates the actual economic performance of the Canadian economy in every quarter from 1982:Q1 to 1990:Q4.

No econometric model, no matter how good, will perfectly replicate actual historical events on its own. Some "fine tuning" of the FOCUS Model was required to generate the appropriate control solution. How this was done is easily described with the aid of an equation of typical form:

$$Y_{1t} = a_0 + a_1 Y_{2t} + a_2 Y_{1t-1} + a_3 x_t (+R_{1t})$$

This equation determines endogenous variable Y_1 in time period t as a combination of parameters (the a_i 's) and three independent variables. (Ignore the R_{1t} term for now.) The independent variables consist of the contemporaneous value of another endogenous variable, Y_2 , the lagged value of the dependent variable, and some variable x that is exogenous to the model.

When actual values for Y_{2t} , Y_{1t-1} and x_t are inserted into the RHS of the equation, an estimate, \hat{Y}_{1t} , of the value for Y_{1t} is generated.

In general \hat{Y}_{1t} will not be equal to the actual value, Y_{1t}^A for variable Y_1 during time period t .

The variable R_{1t} is called an "add factor". Observe that if the value of R_{1t} is set equal to $(Y_{1t}^A - \hat{Y}_{1t})$, then the RHS of the equation will generate a value that is exactly equal to Y_{1t}^A .

Each equation in the FOCUS model has an add factor. In preparing the control solution every equation was first individually solved for each time period from 1982:Q1 to 1990:Q4 with its add factor set equal to zero. The results of this procedure were then used to re-calculate the add factors such that R_{it} was set equal to $(Y_{it}^A - \hat{Y}_{it})$ for all i and all t . With the add factors re-calibrated in this way, the model was re-solved in a simultaneous dynamic fashion over the same time interval. Because each equation now fitted the historical data perfectly, the resulting control solution exactly replicates history.

Step 2: Generating Policy-specific Alternative Solutions

With the add factors used to obtain the control solution kept in place, the FOCUS model was used to obtain 20 alternative solutions for the 1982:Q1 to 1990:Q4 simulation interval -- one alternative solution for each of the 20 policies being investigated. How this was done may be illustrated for the case of the CHOSP program.

The FOCUS model contains an exogenous (dummy) variable, DCHOSP, which appears in the estimated equations determining the average selling price of new single-family houses and new starts of single-detached housing units, respectively. This variable has a value of 1.0 during the 1982:Q3 to 1983:Q2 time period when CHOSP was in effect and has a value of 0.0 in all other time periods. Together with its estimated coefficients in the equations identified above, the DCHOSP variable identifies the direct impacts of the CHOSP program on single-family house prices and new single-detached starts.

In the alternative solution pertaining to CHOSP the value of the variable DCHOSP was set equal to 0.0 for the 1982:Q3 to 1983:Q2 sub-interval -- thereby "turning off" the CHOSP program. In addition, federal government transfer payments to persons were reduced, relative to actual values, by \$361.8 mil., \$416.9 mil., \$20.5 mil. and \$0.1 mil. in 1982 through 1985, respectively -- thereby removing the cash transfers paid under the CHOSP program.

A new dynamic solution of the FOCUS model was obtained for 1982:Q1 to 1990:Q4 with these changes to the values of the DCHOSP variable and government transfer payments to persons. This yielded a counter-factual solution that shows how the Canadian economy might have performed over the simulation interval, had CHOSP never occurred. The only differences in underlying assumptions between this counter-factual solution and the control solution are those having to do with DCHOSP and government transfer payments; hence, differences between values of endogenous variables in the control and counter-factual solutions may be unambiguously identified as resulting from the CHOSP program.

A different counter-factual solution of the FOCUS model was prepared for each of the other 19 specific policies. In each case only assumptions pertaining to the policy in question were altered relative to those of the control solution, so that each alternative is unambiguously identified with the removal or, shutting off, of a specific policy; e.g., the counter-factual solution pertaining to the lump-sum reduction in personal income taxes shows how the Canadian economy might have fared over 1982 to 1990, had personal income taxes been increased by \$415 mil. per year over the 1982:Q3 to 1984:Q2 sub-interval.

Step 3: Computing the Estimates of Macroeconomic Impacts

Estimates of the economic impacts of each alternative policy were computed for selected macroeconomic variables by taking simple numerical differences between control solution values and corresponding values in each counter-factual alternative solution. Thus, for example, the impact of CHOSP on real GDP in, say, 1984:Q1 was computed by subtracting the solution value for GDP in that quarter in the CHOSP counter-factual solution from the solution value (equal to actual value) for GDP in 1984:Q1 in the control solution.

Observe that by subtracting counter-factual solution values from control solution (actual) values, the estimate of economic impacts are stated in a way that shows the stimulative effects of each policy. That is, control values minus counter-factual values represent estimates of the impacts of implementing a CHOSP program or reducing personal income taxes, etc. This is appropriate, since a primary objective of the study is to compare the economic effects of alternative policies to

stimulate economic activity. In order to estimate the stimulation effects of CHOSP, we had to shut off this program and obtain a counter-factual solution showing how the Canadian economy might have fared in its absence. In order to determine the stimulative effects of other policies we have done the same thing; that is, we have produced counter-factual solutions showing economic performance in the absence of each. Then the differences between control solution and counter-factual solution values provide estimates of the stimuli associated with "turning on" each policy.

Annual values for selected economic variables in the control solution are reported in Table 1B. Estimates of the annual values for the economic impacts of each of the 20 policies are reported in Tables 1-20. These results reflect not only the specifics of each of the alternative policies as described in the next Section but also some assumptions regarding policy reactions that are common to each counter-factual solution. These policy reaction assumptions are as follows:

- (i) Government expenditures on real goods and services were maintained at actual historical values in all solutions, except for those in which the policy under investigation was a temporary increase in one form of government expenditures. Nominal values of government expenditures on goods and services and nominal values of government wage payments were permitted to endogenously respond to simulated changes in price levels and wage rates. Price and wage impacts of most of the policies were small, and so nominal government expenditures do not vary widely across the counter-factual solutions.
- (ii) Tax rates were maintained at actual historical values in all counter-factual solutions, except for those involving policies of explicit changes in tax rates.

- (iii) All simulated changes in government deficits were assumed to be financed by the issue or re-purchase of government bonds, except in the one counter-factual solution in which the policy under investigation is an increase in government capital formation financed by the issue of new (base) money.
- (iv) The narrowly-defined money supply, M1, was held at actual historical values in all counter-factual solutions, except the two that explicitly involve an expansion in the monetary base.
- (v) The \$US/\$Canadian foreign exchange rate was maintained at actual historical values in all solutions. The Bank of Canada was assumed to intervene in the foreign exchange market as required to maintain the exchange rate in this fashion. The effects of any such intervention were assumed to be fully sterilized so that no endogenous changes occurred to the monetary base.

Assumptions (i) - (iv) are more-or-less standard operating procedures for simulations using macro-econometric models. They are designed to isolate the specific policies being investigated without contamination by gratuitous policy reactions. Assumption (v) was deemed to be desirable here because Canadian monetary authorities do appear to have "managed" the foreign exchange rate on an unofficial basis over much of the simulation interval.

3. The Policies: What They Are and How They Differ

The 20 individual policies investigated in the study are listed in Table 1A and organized into groupings. Each grouping identified in Table 1A identifies individual policies with some commonality in implementation or objective. Sub-group A1, for example, consists of policies that encourage the construction of owner-occupied housing by providing subsidies to home owners or home-buyers in one form or another. The larger Group A, consisting of policies listed under A1 - A4, have in common that each is some form of subsidy to the undertaking of a new economic activity -- new owner occupied housing for A1, new rental housing for A2, new rental housing for A3 and new employment for the single policy listed under sub-group A4.

Policies listed under Groups B and C are more traditional kinds of fiscal stimuli. Group D includes a traditional monetary stimulus and a mixed monetary/fixed stimulus.

Classifying the various policies into groups and sub-groups is an aid both to describing the policies in detail and also to differentiating their economic impacts. In the remainder of this Section, the individual policies are described in the order in which they appear in Table 1. The descriptions serve as informative discussions of the factors that give rise to differences in their simulated net impacts on economic variables. Further discussion and comparisons of the simulation results appear in the following Section.

Before proceeding, it should be stated that except for policy 15 (Reduction in Provincial Sales Taxes), each policy is considered to be initiated by the federal government which alone is assumed to bear its full program costs. Thus, all subsidy costs, direct losses in revenues due to tax reductions, or increases in purchases of goods and services are assumed to fall upon the federal government.

The residential housing sector of the FOCUS Model does not identify the separate activities of homeowners versus renters. Deficiencies in the historical data base make it extremely difficult for econometric modellers to estimate relationships pertaining to

homeownership as distinct from those pertaining to renters. What the historical data base does permit is the modeling of residential housing activities that differentiate between single-detached housing and multiple housing units. Such a distinction is made in the FOCUS Model as described in detail in [1].

The relevance of this is that policies in sub-group A1, which represent subsidies to home ownership, take the form in the FOCUS Model of subsidies to the purchase and construction of single-detached housing units. That is, these policies have their initial or direct, impacts on single-detached housing, which proxies for owner-occupied housing in the FOCUS Model.

Additionally, policies in sub-group A2, which are subsidies to the construction of rental housing units, show up in the FOCUS Model as subsidies to multiple-unit housing starts. Multiple-unit housing proxies for rental housing in FOCUS.

In examining the simulation results, the reader should be prepared to find that the main impacts of policies in sub-group A1 fall upon single starts and prices while the main impacts of policies in sub-group A2 occur in multiple starts and vacancies.

The reader is referred to Appendix B for more complete details regarding the policies in sub-groups A1 and A2. This appendix contains a description of how the policies in these sub-groups were implemented to insure that each individual policy provides a level of subsidy that exactly exhausts a program budget totalling \$777 million in terms of present discounted value.

Sub-Group A1: Subsidies to Home Owners/Buyers

1. CHOSP

The CHOSP program was examined in an earlier study [2] and need not be discussed in detail except for features that pertain to its relative ranking as a policy providing economic stimulus.

CHOSP actually consisted of two separate sub-programs. The first provided \$3,000 cash grants to all buyers of new houses between June 28, 1982 and June 30, 1983. The second provided \$3,000 cash grants to first-time buyers of existing houses over this same interval.

The 236,342 recipients of CHOSP grants were almost equally divided between the two sub-programs. Thus, about one-half of CHOSP's program costs were spent in support of each sub-program.

Previous study [2] estimated that the two programs combined stimulated a (marginal) increase in new single-detached housing starts, totalling 24,535 units between 1982:Q3 and the end of 1985. It was not possible in [2] to allocate this total stimulus between the two sub-programs. However, in the present study such an allocation is both necessary and useful because Policies 3-5 provide subsidies to buyers of new houses but provide no subsidies to buyers of existing houses. The CHOSP program is the only experience in the recent past that can yield some historical evidence as to the stimulative effects of subsidies to buyers of new houses -- provided that the effects of the two sub-programs of CHOSP can be disentangled.

CMHC has provided some information that helps to separate the economic impacts of the two CHOSP sub-programs. CMHC conducted a questionnaire survey of CHOSP recipients and specifically asked each whether the existence of a CHOSP grant supported a house purchase that would not otherwise have been made. Responses to this question imply that the first sub-program (subsidies to the purchase of new houses) was by far the

more important stimulus.

Tabulation of the questionnaire responses indicated that there were somewhere between 22,842 and 46,139 marginal buyers of new houses under CHOSP; i.e., the number of households who would not have purchased in the absence of CHOSP lies in this range. Of these marginal buyers, only between 334 and 4,534 are attributable to the second sub-program.

What all of this means is that subsidies to buyers of new houses appear to provide a much greater stimulus to home buying (and, hence, new construction) than do subsidies to buyers of existing houses. Had the second sub-program been eliminated, CHOSP would have provided nearly the same stimulus at about one-half of actual program costs. This information is used in this study in performing simulations of Policies 3,4,5. (See appendix B for details.)

As for the original CHOSP program, simulation results appear in Tables 1 (Annual) and A1 (quarterly -- see Appendix A). The simulation details match those described in [2] and need not be restated. All that has been done here is to replicate the earlier study over a slightly longer time interval.

Figures for the impact estimates of CHOSP presented in Table 1 and A1 correspond with the "point estimates" figures in [2]. There are some small differences in the magnitudes of some of the impact estimates that are due to minor modifications of some of the behavioural equations in the FOCUS Model in the time that has elapsed since the earlier study was completed. These modifications are slight and do not occur in any of the equations in the residential housing sector of FOCUS.

One other change since the completion of [2] is that the price indexes in FOCUS have been re-based from 1981 to 1986. Components of real GDP are reported here in millions of dollars at 1986 prices, whereas 1981 prices were used in the earlier study.

2. CHRP x 3.45

CHRP was examined in detail in earlier study [3]. What is simulated here is a scaled-up variant of the original CHRP program.

CHRP provided owners of existing houses with cash grants of up to \$3,000 to fund expenditures for alterations and improvements. CHRP ran from May 1982 through July 1983 and distributed grants in present discounted values totalling \$225 million across 112,812 recipients. The average grant (in present discounted terms) was \$1,995.

Policy 2 is a program that is otherwise identical to CHRP except that the average grant is \$4,548. As detailed in Appendix B, a grant of this size is what is required to generate program costs of \$777 million, which is 3.45 times the program costs of CHRP.

Policy 2 is labelled as CHRP x 3.45 to reflect the re-scaling of the program budget. Observe, however, that the average grant in the scaled-up program is only 2.27 times the CHRP average. Because of this, Policy 2 may be expected to provide approximately 2.27 times the economic stimulus associated with CHRP in the earlier study.

3. Income Subsidy to Buyers of New Houses

This policy takes the form of a (non-taxable) lump-sum cash subsidy of \$3,005 to any buyer of a new house between the start of 1982:Q3 and the end of 1984:Q2. The size of the subsidy is set so as to generate program costs of \$415 million per year over this interval as described in Appendix B.

In view of the survey results described in connection with the CHOSP program, Policy 3 may expected to provide up to twice the economic stimulus of CHOSP. This is because the income subsidy here applies only to buyers of new houses -- unlike CHOSP which also provided apparently not very stimulative subsidies to first-time buyers of existing houses.

The chief mechanism through which the income subsidy stimulates new housing activity operates through its impacts on "down-payment constrained" homebuyers. A "down-payment constrained" homebuyer is a household that would like to purchase a house but has not yet accumulated sufficient savings to finance at least a minimum 10 percent downpayment. Many first-time buyers have to save for a downpayment over time and are down-payment constrained during this time period.

Policy 3 provides a \$3,005 cash grant that can be added to private saving to finance a downpayment. For a household saving to purchase an \$80,000 house, Policy 6 provides over 37.5 percent of the minimum downpayment. The effect of this subsidy is to permit down-payment constrained households to accelerate purchases, generating a bulge in homebuying over the 1982:Q3 to 1984:Q2 time period. Builders respond to this by accelerating the construction of new houses.

4. Mortgage Interest Subsidy for Buyers of New Houses

Policy 4 provides a mortgage interest rate subsidy of 1.1 percentage points for five years to all buyers of new houses between 1982:Q3 and 1984:Q2. For example, for a new house buyer with a first mortgage of \$100,000, Policy 7 provides a subsidy of $0.011 \times \$100,000$, or \$1,100 per year for five years following the initial purchase.

An interest rate subsidy of this type is not likely to be as stimulative as income subsidy (Policy 3) or a cost subsidy (Policy 4). Unlike these other forms of subsidy, an interest rate subsidy can not be used to help finance a down-payment. Consequently, Policy 7 does not directly enable down-payment constrained households to accelerate home purchases.

This is not to say that Policy 7 does not provides a stimulus to the purchase new houses. It does so by reducing the debt service costs associated with homeownership -- at least for a period of five years. This should appeal to households who might be indifferent between owning and renting in the absence of such a subsidy.

5. Cost Subsidy to Buyers of New Houses

Policy 5 provides a cash subsidy to buyers of new houses equal to 2.75 percent of the purchase price of the house. The reader is referred to Appendix B for a description of why a cost subsidy of this size may be expected to generate program costs of \$415 million per year over the 1982:Q3 to 1984:Q2 time period.

Policy 5 should appeal to down-payment constrained buyers because the proportional cost subsidy may be used to help finance a down-payment.

Our simulation results, reported in Table 5, show Policy 5 to be quite simulative but less so than the lump-sum income subsidy of Policy 3. An explanation for these comparative results appears to be that the proportional cost subsidy of Policy 5 provides a smaller cash transfer to buyers of below-average priced houses than does the lump-sum subsidy of Policy 3. Down-payment constrained marginal buyers are likely to buy houses of below-average prices; hence, Policy 5 stimulates a smaller response by this class of marginal buyer.

The actual mechanics of simulating Policy 5 with the FOCUS Model involved directly altering the purchase costs faced by an average new house buyer by 2.75 percent. In contrast, Policy 3 was simulated by treating it as a variant of CHOSP and altering the dummy variable, DCHOSP, that appears in FOCUS. In each case the Model was permitted to endogenously generate the consequences of the alternation on new starts, prices, real GDP, etcetera.

By and large the comparative simulation results conform with a prior expectations regarding overall stimuli as explained above. However, one small anomaly does arise; Policy 5 has the larger impact on average selling prices for new houses over the 1982:Q3 to 1983:Q4 sub-interval. One might expect the two policies to have roughly similar impacts on selling prices, and the small differences which do arise are probably explained by the differences in the mechanics by which each was simulated.

Our feeling is that the differences between net impacts on selling prices that appear in Tables 3 and 5 for 1982, 1983 and 1984 are too small to be of concern. They are worthy of comment only insofar as the careful reader might be curious as to their origins. Neither set of selling price impact estimates is implausible. Economic theory implies that each of Policies 3 and 5 should cause the selling price of an average house to rise from 0 to 2.75 percent during their respective durations. Both sets of estimates fall comfortably within this band.

Sub Group A2: Subsidies to Builders of Rental Units

6. CRSP x 3.45

Policy 6 is the CRSP program, with program costs scaled-up from the estimated present value of \$224 million (\$160 mil. federal and \$64 mil. provincial) for the original program to \$777 million -- a re-scaling by a factor of 3.45. All of the increased program costs for Policy 6 are assumed to be borne at the federal level.

The scaled-up policy provides interest-free second mortgage loans of up to \$16,750 per unit (\$19,750 in Ontario and British Columbia) for builders of new, rental apartment units not receiving other forms of public assistance between 1982:Q1 and 1985:Q1. Additional details appear in Appendix B.

7. Mortgage Interest Subsidy for New Rental Housing

This policy provides an interest rate subsidy to all builders of new private rental apartments between 1982:Q3 and 1984:Q2 at a cost to the federal government of \$11,354 per unit (in present discounted value).

The form of the subsidy is a commitment by the government to pay some fraction of the interest costs associated with a first mortgage on an eligible unit for a period of five years. The actual size of the subsidy in terms of an interest rate is an unknown here because we do not know the average size of a first mortgage for private rental units over this time interval. If, for example, the average mortgage was \$40,000, then a 7.5 percentage point interest rate subsidy for five years is what would generate program costs of \$11,354 per unit.

What matters to builders of apartments (and to the equations that model their behaviour in the FOCUS Model) is the present value of the after-tax subsidy they might receive. That is, builders respond to the after-tax value of a subsidy and are not particularly concerned with the form taken by the subsidy. On this criteria, Policy 7 provides a subsidy to builders that is somewhat smaller in terms of after-tax present discounted value than that offered under Policy 6. (See Appendix B) Given this, our expectation was that Policy 7 would provide slightly less stimulus than Policy 6.

What actually occurs in the simulation (Tables 6 and 7) is that Policies 6 and 7 have nearly similar overall impacts with some minor differences in timing. That Policy 7 provides essentially the same stimulus as Policy 6 appears to be explained by some differences in restrictions associated with eligibility requirements.

The interest rate subsidy of Policy 7 is available to all privately-financed apartment units started between 1982:Q3 and 1984:Q2. The interest-free loans provided under CRSP, on the other hand, were restricted to privately-funded units, provided that at least 33 percent of the units in any funded building were offered to provincial and local authorities for rent

supplements. In addition, builders had to reserve 5 percent of units for the disabled. The additional restriction probably account for why CRSP did not have a wider appeal. This is not to suggest that CRSP was not a successful policy; it is simply that a subsidy with less restrictive eligibility requirements is bound to appeal to a larger number of builders than subsidy with more restrictions.

8. Cost Subsidy to Builders of New Rental Housing

This policy provides a lump-sum cash grant of \$10,507 per unit to builders of privately-funded new rental apartments started between 1982:Q3 to 1984:Q2. Like Policy 7, no additional restrictions are placed on eligibility.

While the pre-unit subsidy is less here than for Policy 7, total program costs of this policy total the same \$777 million present discounted value as are incurred by all of the alternative policies under consideration. (See Appendix B.)

On an after-tax basis, Policy 8 actually provides a considerably larger subsidy to builders than do either Policies 6 or 7. Consequently, the cost subsidy may be expected to be the most stimulative of the three policies aimed at directly stimulating the construction of new rental housing. The simulation results appearing in Table 8 confirm this expectation.

To elaborate slightly on the after-tax values of the various subsidies to rental housing, every \$1 of program costs spent on a cost subsidy provides \$0.875 in after-tax benefits to the recipient. In contrast, \$1 of program costs spent under CRSP or under the interest rate subsidy of Policy 6 delivers only \$0.628 or \$0.546 in after-tax benefits, respectively. Additional details appear in Appendix B.

Sub-Group A3: Subsidies to Non-residential Capital Formation

9. Investment Tax Credit, Machinery & Equipment

This policy consists of a tax credit for all new (gross) investment in machinery and equipment. The amount of the credit claimed by any investor is assumed to reduce the investor's tax-deductible depreciation base by a like amount.

Calibration simulations with the FOCUS Model determined that a tax credit of about 1.5 percent was what was required to generate program costs of \$415 million per year over the 1982:Q3 to 1984:Q2 interval. Program costs here consist of direct losses in federal and provincial corporate and personal income tax revenues due to the existence of the tax credit.

Simulation results appear in Table 9.

10. Investment Tax Credit, Non-residential Structures

Similar to the preceding, this policy grants a 1.5 percent tax credit for all new (gross) investment in non-residential structures over the 1982:Q3 to 1984:Q2 interval. As with Policy 9, the size of the tax credit was determined by simulation exercises such that it yield program costs of \$415 million per year over its duration. That the appropriate size of the tax credit turned out to be 1.5 percent for both Policies 9 and 10 is coincidence.

Simulation results are reported in Table 10.

Sub-Group A4: Other Subsidies to New Economic Activity

11. Subsidy for New Employment

This policy provides a federal subsidy of \$5,000 per year to defray the wage costs of a new employee hired from the ranks of the medium-to-long term unemployed. The intent of the policy is to subsidize the hiring of persons who have been unemployed for six months duration or longer and who have or are about to exhaust their eligibility for unemployment

insurance benefits.

The \$5,000 subsidy is assumed to be paid to the employer and is to be used to defray the costs of the first year's wages. The subsidy is taxable income to the employer.

The policy applies to new hires of the medium-to-long term unemployed between the start of 1982:Q3 and the end of 1984:Q2. With total program costs of \$415 million per year over this time span, the policy supports 83,000 new hires per year. However, its net impacts on employment can be expected to be smaller than 83,000, because new hires of the medium-to-long term unemployed will displace new hires from the ranks of the short term unemployed and new entrants into the labour force.

Simulation results appear in Table 11.

Group B: Stimuli to Income

12. Personal Income Tax Reduction

This policy was simulated by imposing a \$415 million per year lump-sum reduction in personal income taxes over the 1982:Q3 to 1984:Q2 time period.

Results appear in Table 12.

13. Increase in Government Transfer Payments to Persons

This policy consists of a lump-sum increase in federal, non-unemployment insurance transfers to persons. The lump-sum amount is \$415 million in each of 1982:Q3 to 1983:Q2 and 1983:Q3 to 1984:Q2. These transfer payments are assumed to be taxable income to the recipients.

Results are shown in Table 13.

14. Corporate Income Tax Reduction

Corporate income tax liabilities to the federal government are reduced by \$415 million per year for 1982:Q3 to 1984:Q2. The reductions are effected by a reduction in the federal corporate income tax rate of 0.0135 points -- the magnitude having been determined by some calibration simulations.

Results appear in Table 14.

15. Provincial Sales Tax Reduction

The FOCUS Model contains a constructed variable that measures an average effective retail sales tax rate across all provinces. This rate was reduced by an amount sufficient to reduce direct collections of provincial sales taxes by \$415 million per year over the 1982:Q3 to 1984:Q2 interval. The magnitude of the reduction is equivalent to a reduction of 0.3 percentage points in average provincial sales tax rates.

Simulation results appear in Table 15.

16. Manufacturing Sales Tax Reduction

Based on calibration simulations, this policy was effected by lowering the federal manufacturing sales tax rate by 0.55 percentage points over 1982:Q3 to 1984:Q2. While the manufacturing sales tax no longer exists, it did exist during the two-year time period this policy is assumed to have been in effect.

Results are shown in Table 16.

Group C: Direct Stimuli to Expenditures

17. Increase in Government (Non-Wage) Current Expenditures

This policy consists of a \$415 million per year increase in the nominal value of current, non-wage expenditures by the federal government over 1982:Q3 to 1984:Q2.

Results are shown in Table 17.

18. Increase in Government Capital Expenditures

This policy consists of an increase in federal government expenditures on new capital formation for 1982:Q3 to 1984:Q2. The amount of the increase is \$415 million per year in nominal terms. Policy 18 is not to be confused with Policy 20. In the former the \$415 million per year increase in capital expenditures is assumed to be debt financed. Policy 20 combines an identical increase in government capital formation with a matching, temporary increase in the monetary base.

Results for Policy 18 appear in Table 18.

Group D: Monetary and Monetary/Fiscal Stimuli

19. Increase in the Monetary Base

This policy is a pure monetary stimulus to economic activity. It is not directly comparable to Policies 1-18 because there are no program costs associated with monetary policies. It is costless to the government to change the size of the money supply.

Policy 19 takes the form of a temporary increase in the monetary base in an amount of \$415 million over 1982:Q3 to 1984:Q2. That is, the monetary base is raised by \$ 4 1 5 million in 1982:Q3 and returned to its historical values after 1984:Q2.

The monetary base is the sum of currency in circulation and chartered bank deposits at the Bank of Canada. It is assumed to be raised in 1982:Q3 by way of a \$415 million purchase of Government of Canada bonds from the public by the Bank of Canada. A \$415 million open market sale bonds at the end of 1984:Q2 returns the monetary base to historical values for the remainder of the simulation period.

It should be remarked that a \$415 million increase in the monetary base is a sizable increase -- amounting to an increase of about 1.5 percent of the historical average value

over the 1982:Q3 to 1984:Q2 sub-period.

Simulation results appear in Table 19.

20. Increase in Government Capital Expenditures Financed by an Increase in the Monetary Base

This policy combines the temporary \$415 million per year increase in government capital formation of Policy 18 with the temporary \$415 million increase in the monetary base of Policy 19. The net effect is a policy that finances at least some portion of a temporary expenditure increase by temporarily "printing money". After the end of 1984:Q2 both government capital formation and the base money supply are set at historical values.

Results appear in Table 20.

4. The Simulation Results

With 20 alternative policies and simulations that span 9 years and numerous macroeconomic variables, there are simply too many results to describe each in detail. What we have opted to do is to provide a set of guidelines for interpreting and comparing the results of the alternative simulations. More specifically, we provide the following under a series of separate subheadings:

1. A discussion of the ways in which the economic policies in each group or sub-group effect economic activity, both from the prospective of economic theory and within the workings of the FOCUS Model.
2. Comparative analyses of the impacts of the various policies using two broad measures of overall economic performance--real GDP and total employment.

How Temporary Policies Effect Economic Activity

Let us begin with Group C: Direct Stimuli to Expenditures. Every elementary economic textbook describes the workings of an increase in government expenditures on overall economic activity, though the textbook descriptions are usually confined to the first-period effects.

An increase in government expenditures represents an increase in the aggregate demand for goods and services. In the short-run, prices are sticky and producers will accommodate an increase in aggregate demand by increasing the level of production. Prices may get bid up slightly, but the bulk of the response in the first year or two of an expenditure increase takes the form of production increases.

Employers must hire additional workers to increase production levels and so employment also rises in the short run. The additional incomes earned by new employees adds to aggregate demand in the form of increased consumption. This is the so called multiplier process so prominently displayed in the textbooks. It may be augmented by stimulated or, accelerated, increases in investment spending and blunted by import leakages or investment crowding out.

The textbook description is an appropriate description of what happens within the FOCUS Model in the first two years of an increase in government expenditures--such as those in the two policies labelled Group C.

What textbooks do not describe is what happens over time in the case of temporary increase in government expenditures. Part of the answer is that temporary policies can only have temporary impacts on economic activity. This is true of any temporary policy, not just of temporary changes in government expenditures. The impacts on output, employment, capital stocks, etc., of any temporary economic policy must eventually be zero at some point in time after the policy has terminated. However, it may take a long time for the impacts of a policy on these economic variables to disappear completely.

Economic theory provides some insights into post-policy dynamics. A policy of temporary increase in government expenditures will continue to effect economic activity after the policy lapses through three different avenues. The first is consumption behaviour. Empirical evidence suggests that consumers have preferences for consumption streams that change smoothly over time, rather than being erratic from year to year. An implication of this is that consumers react to temporary (transitory) increases in income by increasing contemporaneous consumption by only some fraction of the income change. That part of temporary income increases not contemporaneously consumed is saved and used to increase future consumption. A temporary policy like an increase in government expenditures gives rise to increases in consumption expenditures that may persist for a considerable period of time (10 years or more) before finally vanishing.

The second avenue of persistence works through stocks of capital goods and consumer durables. If a temporary policy of stimulus to economic activity leads to an acceleration of investment spending or expenditure on consumer durables, then stocks of capital or durables will be higher than would have otherwise been the case at the time the policy terminates.

Ultimately a temporary policy can have no impacts on the stocks of capital and consumer durables that investors/consumers desire. Consequently, any buildup stocks of these productive assets must be eliminated or "worked off" in years following the policy's termination. This may be a long or a slow process, but it will take the form of investment in new capital/durable goods being lower than would have otherwise been the case. In other words, a temporary policy of stimulus will invariably have negative net impacts on investment in capital and consumer durable goods after the policy has ended. In effect, a temporary policy of stimulus causes an acceleration of investment during its tenure that is, in reality, a borrowing from future investment. All temporary policies cause this to happen, some more than others.

The third avenue by which a temporary policy has residual economic impacts after

its cessation is through its impacts on production technology. By leaving the economy with higher stocks of capital, a temporary policy of stimulus is likely to cause the employment of labour to be lower than otherwise after its termination. Employers need not hire so many workers when substitute factors of production in the form of capital stocks are already in place. In addition, if there adjustment costs in producing output, the higher levels of production activity during the policy's tenure may make for prolonged adjustments of labour inputs after the policy ends. Finally, to the extent that a temporary policy alters relative factor prices during its existence, it can be expected to continue to affect employment demands until the price disturbances themselves ultimately vanish at some point in the future.

While economic theory tells us about the existence and directions of these three avenues of dynamic effects of temporary policies, theory does not tell us much about their magnitudes or durations. To learn about these things is one reason why economists construct large, dynamic macro-econometric models. The idea is that if the model conforms with theory and empirical experience on an equation by equation basis, putting it all together will reveal details regarding the dynamic behaviour of the macro-economy. In our case, we simply trust the FOCUS Model to reveal the magnitudes and duration of the post-policy effects of temporary stimuli.

Returning now to our discussion of the policies of Group C, the reader is directed to Table 17 which shows the impact estimates of a temporary increase in government, non-wage, current expenditures. Consider the year-by-year net impacts on real GDP near the top of the Table. These estimates of net impacts are uniformly positive in sign. The large values for 1982-84 reflect the multiplier effects earlier described during the policy's duration. The much smaller net impacts for the 1985-90 post-policy sub-period imply that--for this policy at least--the positive long-term consumption effects of the first avenue exceed the negative long-term investment effects of the second avenue. A glance at the net impacts on the components of real GDP confirms that the accelerator effects on investment over the 1982-84 sub-period are really quite small.

Looking now at the estimates of net impacts on employment in Table 17, sizeable positive net impacts for 1982-85 may be seen to be followed by a sequence of negative net impacts for 1986-90. Apparently the combination of post-policy effects operating on employment via the third avenue are relatively strong in the FOCUS Model.

A temporary stimulus to employment appears to behave, in part, like a borrowing from future employment. The primary mechanism that gives rise to this in FOCUS is a change (rise) in the real wage rate that is slow to vanish after the termination of the temporary policy. This feature of the FOCUS Model's dynamics shows up in the simulation results for almost all of the alternative policies and explains why the employment impacts are mostly negative for 1985-90.

Finally, in regard to Group C, a comparison of Tables 17 and 18 will reveal the net impacts of the increase in government current expenditures to be larger than those for government capital formation with regard to real GDP and employment in all years. There is a simple explanation for these results. Government current expenditures have a significantly lower import content than do government expenditures on capital formation. A dollar's increase in the former has a greater direct effect on aggregate demand than does a dollar's increase in the latter because the former has a smaller marginal propensity to import.

Ranking the Stimuli

The direct expenditure stimuli of Group C provide useful benchmarks to gauge the stimuli to overall economic activity provided by the alternative policies.

Consider the policies to stimulate incomes included as Group B. Policy 12 is a standard reduction in personal income taxes. Elementary economic textbooks explain why a lump-sum reduction in personal taxes is a less powerful stimulus to aggregate demand than an increase in government expenditures of equal magnitude. That explanation works here: Part of the income tax reduction is absorbed by increased personal saving, and so there is

an additional (first-round) leakage from the circular flow of income and expenditure that is not shared by government expenditure increases.

A comparison of the impact estimates for real GDP and employment between Tables 12 and 17 reveals that our simulation results conform with the textbook explanation.

Policy 13 is a lump-sum increase in federal, non-U.I. transfer payments to persons. This policy operates in much the same way as a personal income tax cut but is less expansionary here because federal transfer payments are taxable income to their recipients.

Policies 15 and 16--reduction in provincial and manufacturing sales taxes, respectively--act to directly augment after-tax personal disposable incomes. These policies operate much like a personal tax cut, with the added effect that each acts to directly reduce price levels. The price level effects provide added stimulus to consumer spending by increasing the purchasing power of disposable incomes. Each of these policies can be expected, therefore, to be more expansionary than Policy 13 and, perhaps, even more expansionary than the temporary increases in government expenditures.

Policy 14--a reduction in corporate income taxes--operates through two effects. The tax reduction increases the disposable income of shareholders to the extent that it finds its way into dividends. This can be expected to provide a mild stimulus to consumption spending.

The second effect is on investment. A reduction in the corporate tax rate increases the after-tax return to new investment. Any new investment stimulated by this must represent borrowing from future investment because the policy is a temporary one.

Examination of Table 14 reveals a modest impact on consumption and very small impacts on investment, albeit impacts in the expected direction. The results tend to confirm a widespread opinion that corporate tax reductions are not a particularly efficient means of

providing general economic stimulus.

Our expectation, prior to undertaking this study, was that the most efficient and effective stimuli to economic activity are policies that subsidize new or, marginal, economic activity in one form or another. Policies that collectively constitute the sub-groups A1-A4 are of this sort. Why these kinds of policies might be expected to be highly stimulative is easily explained.

Consider a subsidy to buyers of new houses in one form or another. The very worst that could happen if such a subsidy is introduced is that it provides absolutely no stimulus to the purchase and construction of new houses. In that case all recipients of the subsidy would be infra-marginal buyers; i.e., households that would have purchased even in the absence of the subsidy. For an infra-marginal buyer the subsidy represents an increase in after-tax income. This class of buyer will respond to the subsidy in the same manner that it would respond to a personal income tax reduction. Consequently, the very worst outcome produces an economic stimulus equivalent to Policy 12--and this is not a trivial stimulus.

But the worst case outcome is very unlikely to occur. A subsidy to buyers of new houses is bound to convince some marginal buyers to enter the market. These are households who would not have purchased a house during the tenure of the policy, had the subsidy not been available. The influx of marginal buyers will cause housing prices to be bid upwards somewhat and this will, in turn, stimulate some new housing starts. The magnitude of the macroeconomic stimulus will then exceed the stimulus of the worst case scenario, perhaps by a considerable amount. Of course any stimulus to new housing starts that does occur will represent borrowing from future starts in the case of a temporary subsidy policy.

All of the policies in Group A operate in a fashion similar to this example. Each subsidizes new economic activity in some form and is designed to induce a response from a marginal investor or employer (in the case of Policy 11).

Prior to performing the simulations it was impossible to predict which among the Group A policies was likely to be the most expansionary. Our previous experiences with CHOSP, CHRP and CRSP suggested that all were effective policies of temporary stimulus. CHOSP appeared to have been the most stimulative of the three. Indeed, the earlier study [2] concluded that CHOSP was an extremely effective policy of economic stimulus.

The monetary and monetary/fiscal policies of Group D operate in ways also described in most economics textbooks. While it is in effect, a temporary increase in the monetary base will generate an expansion in both the narrowly-defined and broadly-defined money supplies, M1 and M2, respectively. These increases, in turn, cause real and nominal rates of interest to decline and stimulate increases in the interest-sensitive components of aggregate demand--capital investment and consumer durable goods. The money supply increases can also be expected to put upward pressures on prices.

At the termination of these policies the economy is left with inflated stocks of capital and durable goods and with inflated price levels. The second and third avenues of post-policy propagation can be expected to be particularly important in propagating economic impacts in 1985-90. Our expectation--and it is confirmed in the simulation results shown in Tables 19 and 20--is that the post-policy sub-period will be characterized by significant declines in economic activity. The chief factor here operates through the third avenue; the legacy of inflated prices acts to severely depress aggregate demand after the monetary base returns to historical values.

Comparison of the Net Impacts on Real GDP

Table 21 summarizes our best attempt to make comparisons of the impacts of the alternative policies on overall economic activity as measured by real GDP (Gross Domestic Product). Figures in the Table show the cumulative net impacts on real GDP for each policy for each of 1982, 1983, 1984, 1985 and 1990. The figures for 1982 show the net impacts on real GDP for this first year of the simulation period. The figures for 1983 show the cumulative sum of net impacts on real GDP for 1983 and 1982. The figures for 1984

show the cumulated sum of net impacts for 1984, 1983 and 1982. And so on for 1985 and 1990. Cumulated values for 1986-89 are omitted to avoid clutter and also because these values yield little information not already contained in the figures that do appear in Table 21.

Comparison of their cumulative net impacts on real GDP is perhaps the best way to contrast the alternative policies with regard to their effects on overall economic activity. A policy that yields a larger cumulative net impact on real GDP by the end of its duration than an alternative with identical duration and program costs can be unambiguously said to provide the greater overall stimulus to aggregate production. An alternative would be to compare discounted sums of year-by-year impacts on real GDP, using some real rate of interest as a discount factor. We considered this but found it had little effect on the relative rankings of the alternative policies.

In what follows the criterion used to rank the alternatives is the relative magnitude of the cumulative impacts of each for the year 1985. 1985 is chosen rather than 1984 (in which all the temporary policies terminate) because a number of the policies are directed towards stimulating capital investment in one form or another. A policy that causes, say, an increase in housing starts will continue to affect investment expenditures for up to a year or more after the policy terminates. House construction is a lengthy process that may take many months to complete. Cumulative real GDP impacts through 1985 incorporate these kinds of lags for policy stimuli that end in 1984.

Based on this criterion, Table 21 reveals that the most stimulative policies are those which subsidize buyers of new houses in one form or another. The least stimulative policies are those for which the primary benefits work through corporations in the form of corporate tax cuts or investment tax credits.

The five most stimulative policies, in order, are:

- (1) the income subsidy for buyers of new houses (Policy 3)
- (2) the cost subsidy for buyers of new houses (Policy 5)

- (3) CHOSP (Policy 1)
- (4) the combined monetary/fiscal stimulus (Policy 20)
- (5) the interest rate subsidy for buyers of new houses (Policy 4)

The five least stimulative policies, in reverse order, are:

- (20) the corporation income tax reduction (Policy 14)
- (19) the investment tax credit for non-residential structures (Policy 10)
- (18) the increase in government transfer payments to persons (Policy 13)
- (17) the investment tax credit for machinery and equipment (Policy 9)
- (16) the increase in government capital expenditures (Policy 18).

The income subsidy to buyers of new houses has far and away the greatest cumulative net impacts on real GDP through 1985 (and also through each of 1982-84). These cumulative net impacts are almost 1.4 times as large as the second most stimulative policy, Policy 5. Policy 5 has cumulative net impacts in 1985 that are 1.3 times the size of those of the third ranked policy, CHOSP. Relatively small variations differentiate policies ranked from fourth through twentieth and last.

It is not surprising that the policies providing subsidies to new house buyers rank so highly on the cumulative real GDP criterion. These policies offer a sizeable subsidy relative to the price of new houses. The effect is to attract marginal buyers and cause house prices to be bid up while the subsidies are in effect. The price increases, in turn, provide builders of new houses with a premium that stimulates a sizeable number of new starts.

A caveat here is that the simulation results for both the income subsidy to buyers of new houses and CHOSP depend crucially upon the magnitudes of two econometrically-estimated parameters in the FOCUS Model. These are parameters associated with the variable DCHOSP referred to in Section 2. Neither parameter is estimated with great precision, so that confidence bands about the net impact estimates for Policies 3 and 1 would be wide in each case.

Some effort to determine the width of the confidence band for the estimates of the net impacts of CHOSP was undertaken in [2]. The simulations in that earlier study produced "Low Estimates", "High Estimates" and "Point Estimates" for the net impacts of CHOSP on macroeconomic activity. Figures in Tables 1 and 21 here correspond with the mid-range or, "Point Estimates", in [2], though they differ slightly because of subsequent modifications that have occurred in the FOCUS Model.

The "Low Estimates" for real GDP impacts in study [2] were about 1/4 the size of the "Point Estimates". Applying that same factor to the figures in Table 21 for Policies 3 and 1 would still leave these two policies with respectable rankings. In other words, lower bound estimates for the net impacts of the income subsidy and CHOSP would still show these two policies to be relatively effective stimuli to real GDP.

One surprise from Table 21 is the poor ranking of the investment tax credits, Policies 9 and 10. Our à priori expectations were that these would be among the most stimulative with regard to aggregate production. That this did not turn out to be the case is probably explained by the relatively small magnitudes of the tax credits required to generate program costs comparable to those of CHOSP.

A 1.5 percent investment tax credit apparently does not provide much stimulus to undertake new investment during a period of high interest rates and sluggish macroeconomic performance.

Comparison of Cumulative Net Impacts on Employment

Table 22 shows the cumulative net impacts on total employment from the start of 1982 of each alternative policy for 1982, 1983, 1984, 1985 and 1990.

Judged strictly on the basis of employment impacts, far and away the most stimulative policy is Policy 11, the subsidy to new employment. The cumulative impacts of Policy 11 are larger than those of any alternative in every year.

In one respect this finding is hardly surprising. If the objective of a stimulus is to create the maximum effects on employment, than a policy of direct subsidies for the hiring of new workers should be the most effective policy choice. However, what is surprising about the figures in Table 22 is the extent to which Policy 11 dominates the alternatives.

The sheer magnitude of this dominance prompts the following caveat.

The simulation associated with Policy 11 is an attempt to determine the net impacts of a \$5,000 subsidy to the hiring of an individual who had been unemployed for 6 months or longer. In implementing the simulation we were required to make two critical assumptions. First, we had to make an assumption regarding the productivity of a person who had been unemployed for 6-plus months versus that of a typical new hire. We assumed identical productivity, even though logic suggests that employers are likely to regard the medium-to-long term unemployed as less productive. Second, we had to make an assumption regarding the fraction of other new hires that might be displaced by the hiring of a worker with 6-plus months of unemployment. Lacking any clear guidelines, a we arbitrarily assumed a 50 percent rate of displacement. This assumption puts Policy 11 in a very favourable light.

The bottom line is that both of our critical assumptions act to make the employment impacts of Policy 11 at the high end of what might reasonably be expected. The caveat here is that the estimates of the employment impacts associated with Policy 11 in Tables 11 and 22 are likely to be close to the maximum conceivable impacts of this kind of policy.

This caveat having been stated, the five policies with the greatest stimulus to employment, based on cumulative net impacts through 1985, are:

- (1) the subsidy to new employment (Policy 11)
- (2) the income subsidy to buyers of new houses (Policy 3)
- (3) the cost subsidy to buyers of new houses (Policy 5)
- (4) CHOSP (Policy 1)

- (5) the combined monetary/fiscal stimulus (Policy 20)

The five least stimulative policies with regard to employment are:

- (20) the reduction in corporation income taxes (Policy 14)
- (19) the increase in transfer payments to persons (Policy 13)
- (18) the increase in government current expenditures (Policy 17)
- (17) the investment tax credit for non-residential structures (Policy 10)
- (16) the personal income tax reduction (Policy 12).

The rank-ordering of employment impacts differs slightly from the rank-ordering for real GDP impacts but the correlation across the two rankings is high. Policies that provide subsidies to buyers of new houses are highly ranked on both criteria. Policies that provide direct benefits to corporations are lowly ranked on both criteria.

Policy Multipliers

Some readers may be familiar with the practice of comparing alternative policies by comparing the values of their multipliers for specific variables such as real GDP. As stated in the introduction, multiplier comparisons are not undertaken in this study -- primarily because it is not entirely clear how to calculate multipliers for temporary policies in a multi-period analysis

In our view the multiplier concept that would be most useful in this setting would be the ratio of cumulative impacts on a variable to the present discounted value of a policy's program costs. This kind of multiplier is readily computable for each policy from the figures in Tables 1-22. For example, the cumulative net impacts of each policy on real GDP shown in Table 22 could be divided by a value of \$843 million (which is the present discounted value of the program costs of each of Policies 1-18 in 1986 prices).

We have not performed the computations to compute this multiplier concept because it would not provide any information not already contained in Table 21. However, we will

state the value for a couple of cases simply to illustrate the concept in better detail.

The value of the above multiplier concept for the cumulative real GDP impacts of CHOSP in 1985 is 4.33. The interpretation is as follows: Between 1982 and 1985 CHOSP stimulated a cumulative total increase in real GDP is \$4.33 (in 1986 prices) for every \$1 (in 1986 prices) incurred in program costs. In contrast, the cumulative real GDP multiplier in 1985 of increases in government current expenditures (Policy 17) is 1.55. The 1985 value of this multiplier for the cut in personal income taxes (Policy 12) is 1.41.

This multiplier concept may also be applied to employment effects by dividing the figures in Table 22 by the same \$843 million (in 1986 prices) that represent the present discounted value of real program costs. For example, the 1985 value of this multiplier for CHOSP is 51.14. The interpretation is: For every \$1 million (in 1986 prices) in program costs, CHOSP stimulated a cumulative total of 51.14 man-years in additional employment between 1982 and 1985. The contrasting value in 1985 for the increase in government current expenditures (Policy 17) is 11.94.

Some Additional Caveats

The following is a brief statement of only some of the caveats that should be attached to a study of the sort undertaken here.

First, virtually every one of the 20 policies considered is associated with a specific objective that is in addition to providing general economic stimulus of output and/or employment. For example, policies in sub-Group A1 have as an additional objective the stimulus of increased home ownership and house construction. The specific objectives of policies in sub-Group A2-A4 are readily identified. Policies in Group B target specific sectors of the economy for special relief or aid: Policies 12, 13, and 15 aim to improve the plight of consumers. Policy 14 benefits corporate shareholders, while Policy 16 provides stimulus to the manufacturing sector and aid to consumers. Even policies in Groups C and D target specific areas of the economy; e.g., the construction sector in the case of Policy 18

and borrowers/investors in the case of the monetary policies.

To compare and rank the alternatives on the basis of their net impacts on one or two macroeconomic variables is to ignore their specific objectives. Any one of the policies might be the best choice of action under a particular set of circumstances. While this may be obvious, we would be remiss in not stating it.

Second, the simulation results presented here are the product of one econometric model. The same study conducted with a different econometric model of the Canadian economy would surely yield different impact estimates and would likely yield some differences in the ranking of the alternative policies on the basis of some specific criterion such as cumulative impacts on real GDP.

A related point is that the parameters of any econometric model are estimates derived from historical experience and subject to sampling error. Since the parameters determine in large measure how the Model reacts to any policy stimulus, the impact estimates of Tables 1-22 are also subject to sampling error. In principal it would be feasible to prepare "high" and "low" alternatives to each simulation by altering the relevant estimated parameters of FOCUS in each case by plus or minus one standard deviation. This was done in each of studies [1], [2], [3] for the CRSP, CHOSP and CHRP policies, respectively. It would be prohibitively expensive to do this for the other 17 policies.

Impact Estimates on a Quarterly Basis

Estimates of the macroeconomic impacts of the alternative policies are provided on a quarterly basis for the 1982:Q3 to 1984:Q2 sub-period. These appear in Appendix A.

References

- [1] G. Fallis, A. Hosios, G. Jump, J.E. Pesando and L.B. Smith, The Economic Impacts of Federal Rental Housing Programs, a Report submitted to CMHC [Institute for Policy Analysis, University of Toronto] April 1989.

- [2] A. Hosios, G. Jump and J.E. Pesando, The Net Impacts of CHOSP on Residential Housing Activity and the Canadian Macro-economy: 1982 to 1989, a Report submitted to CMHC [Institute for Policy Analysis, University of Toronto] March 1990.

- [3] A. Hosios, G. Jump and J.E. Pesando, Simulating the Net Impacts of CHRP on the Residential Housing Market, a Report submitted to CMHC [Institute for Policy Analysis, University of Toronto] October 1990.

TABLE 1A
The Alternative Economic Policies
(all policies are temporary in duration)

Sub-Group A1: Subsidies to Homeowners / Homebuyers

- Policy 1. CHOSP
- Policy 2. CHRP x 3.45
- Policy 3. Income Subsidy for Buyers of New Homes
- Policy 4. Mortgage Interest Subsidy for Buyers of New Houses
- Policy 5. Cost Subsidy for Buyers of New Houses

Sub-Group A2: Subsidies to Builders of Rental Housing

- Policy 6. CRSP x 3.45
- Policy 7. Mortgage Interest Subsidy for New Rental Housing
- Policy 8. Cost Subsidy for New Rental Housing

Sub-Group A3: Subsidies to Non-Residential Capital Formation

- Policy 9. Investment Tax Credit, Machinery & Equipment
- Policy 10. Investment Tax Credit, Non-Residential Structures

Sub-Group A4: Other Subsidies to New Economic Activity

- Policy 11. Subsidy for New Employment

Group B: Stimuli to Incomes

- Policy 12. Personal Income Tax Reduction
- Policy 13. Increase in Government Transfer Payments to Person (non U.I.)
- Policy 14. Corporate Income Tax Reduction
- Policy 15. Provincial Sales Tax Reduction
- Policy 16. Manufacturing Sales Tax Reduction

Group C: Direct Stimuli to Expenditures

- Policy 17. Increase in Government (Non-wage) Current Expenditures
- Policy 18. Increase in Government Capital Expenditures

Group D: Monetary and Monetary/Fiscal Stimuli

- Policy 19. Increase in the Monetary Base
- Policy 20. Increase in Government Capital Expenditures Financed by an Increase in the Monetary Base

TABLE 1B Control Solution

FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS

CMHC Alternatives - History - Nov/91

	1982	1983	1984	1985	1986	1987	1988	1989	1990
Real Output and Components (\$ 86 Mill)									
Real Gross Domestic Product	425970	439448	467167	489437	505666	526730	551423	564990	567541
Real GDP (\$ 81 Mill)	344610	355513	377938	395955	409084	426125	446101	457077	459141
Consumption	250316	258904	270854	284923	297478	310453	323324	333791	338163
Government	104360	105171	107097	111294	112661	114669	119281	123549	128108
Business Fixed Investment - Total	74967	74742	75869	82863	88993	99693	110969	116717	111309
Residential Construction	21044	24619	24752	27184	30806	35843	36996	38294	35400
Non-Residential Construction	28695	26264	25780	27129	25626	26400	29177	30656	29994
Machinery and Equipment	25264	24223	25559	28694	32561	37450	44796	47767	45915
Exports	99637	106017	124785	132218	138119	142942	156151	157112	163141
Imports	89343	97395	114058	123935	133369	142678	160848	169157	170570
Nominal GDP (\$ Mill)	374442	405717	444735	477988	505666	551597	605147	649102	671577
Prices (86 or 81 =1.0)									
Implicit Deflator for GDP	0.88	0.92	0.95	0.98	1.00	1.05	1.10	1.15	1.18
Consumer Price Index, All Items	0.84	0.89	0.92	0.96	1.00	1.04	1.09	1.14	1.19
Consumer Price Index, Rent	1.09	1.17	1.23	1.28	1.34	1.38	1.45	1.54	1.62
Selling Price - Single Houses	0.99	0.97	0.97	0.99	1.10	1.27	1.38	1.49	1.54
Employment									
Employment ('000)	10621	10675	10933	11221	11532	11862	12245	12486	12572
Unemployment ('000)	1310	1433	1384	1310	1215	1150	1030	1017	1109
Unemployment Rate (%)	10.97	11.84	11.24	10.46	9.53	8.84	7.76	7.53	8.11
Interest Rates (%)									
90-day Paper Rate	14.15	9.45	11.19	9.56	9.16	8.39	9.66	12.21	13.03
Conventional Mortgage Rate	17.89	13.29	13.61	12.18	11.22	11.14	11.60	12.05	13.24
Foreign and Government Balances (\$ Mill)									
Bal of Payments - Curr Account (\$ Mill)	2823	3064	2697	-1990	-10156	-11602	-13883	-20723	-22035
Federal Surplus/Deficit (\$ Mill)	-20281	-24993	-30024	-31424	-23617	-20704	-19547	-21629	-25534
Federal Debt (\$ Mill)	87211	114843	147045	184283	215718	242037	264162	287406	311594
Provincial Surplus/Deficit (\$ Mill)	-5671	-6264	-1768	-4009	-7951	-3330	79	-1166	-1606
Housing Starts, Stocks and Vacancies									
Housing Starts - Singles ('000)	54	102	84	99	120	140	128	126	102
Housing Starts - Multiples ('000)	71	60	51	67	80	106	94	89	79
Housing Stock - Singles ('000)	4984	5042	5132	5209	5297	5408	5535	5655	5771
Housing Stock - Multiples ('000)	3628	3703	3766	3824	3884	3961	4047	4137	4227
Occupancy Rate (% Pts)	0.984	0.974	0.975	0.983	0.985	0.979	0.980	0.980	0.980

TABLE 1

FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
CMHC Alternatives - CHOSP - Nov/91

	1982	1983	1984	1985	1986	1987	1988	1989	1990
Real Output and Components (Changes in \$ 86 Mill)									
Real Gross Domestic Product	602	2028	657	367	33	-28	-109	-67	5
Real GDP (\$ 81 Mill)	487	1641	531	297	26	-22	-88	-55	4
Consumption	130	946	1006	370	-157	-185	-126	-73	-4
Government	0	0	0	0	0	0	0	0	0
Business Fixed Investment - Total	611	1564	28	-148	-194	-166	-126	-83	-45
Residential Construction	597	1411	-66	-124	-108	-86	-80	-78	-63
Non-Residential Construction	5	74	38	-14	-33	-30	-17	-6	-3
Machinery and Equipment	9	78	55	-10	-52	-50	-28	1	21
Exports	0	10	20	29	36	31	22	25	29
Imports	90	713	373	-155	-389	-321	-142	-78	-31
Nominal GDP (\$ Mill)	525	1758	496	90	-279	-265	-281	-320	-242
Prices (Change in per cent)									
Implicit Deflator for GDP	0.00	-0.03	-0.03	-0.06	-0.06	-0.04	-0.03	-0.04	-0.04
Consumer Price Index, All Items	-0.01	-0.15	-0.11	-0.09	-0.07	-0.04	-0.02	-0.03	-0.02
Consumer Price Index, Rent	0.00	-0.01	0.00	0.02	0.03	0.04	0.05	0.05	0.04
Selling Price - Single Houses	0.78	-0.08	-1.59	-1.80	-1.53	-1.20	-1.06	-0.96	-0.82
Employment									
Employment (Change in per cent)	0.05	0.21	0.11	0.03	-0.04	-0.06	-0.05	-0.04	-0.03
Employment (Change in persons)	4877	22577	12226	3430	-4151	-7359	-6054	-5097	-3916
Unemployment (Change in persons)	-3308	-14944	-7340	-1298	3651	5507	4172	3242	2345
Unemployment Rate (% Pts)	-0.03	-0.13	-0.06	-0.01	0.03	0.04	0.03	0.03	0.02
Interest Rates (Change in % Pts)									
90-day Paper Rate	0.03	0.09	0.03	0.01	-0.01	-0.01	-0.01	-0.01	-0.01
Conventional Mortgage Rate	0.00	0.04	0.05	0.03	0.02	0.00	-0.01	-0.01	-0.01
Foreign and Government Balances (Change in \$ Mill)									
Bal of Payments - Curr Account (\$ Mill)	-77.9	-638.1	-348.0	157.4	401.3	331.4	149.8	85.1	42.3
Federal Surplus/Deficit (\$ Mill)	-139.2	-5.9	159.5	56.4	-88.6	-142.4	-142.6	-144.3	-132.4
Federal Debt (\$ Mill)	29.4	120.4	112.6	-53.6	-41.5	97.4	281.3	466.5	649.3
Provincial Surplus/Deficit (\$ Mill)	144.3	472.5	170.7	3.2	-104.7	-121.9	-108.1	-95.6	-69.8
Housing Starts, Stocks and Vacancies									
Housing Starts - Singles (units)	12250	11360	-1734	-1868	-1636	-1344	-1267	-1157	-980
Housing Starts - Multiples (units)	-5	-33	-98	-66	0	76	89	101	91
Housing Stock - Singles (units)	550	15046	22920	21160	19333	17752	16413	15160	14029
Housing Stock - Multiples (units)	0	-4	-27	-91	-162	-187	-149	-73	18
Vacancy Rate (% Pts)	0.00	-0.03	-0.06	-0.06	-0.03	-0.01	0.00	0.00	0.00

Table 2
FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
CMHC Alternatives - CHRP - Feb/92

	1982	1983	1984	1985	1986	1987	1988	1989	1990
Real Output and Components (Changes in \$ 86 Mill)									
Real Gross Domestic Product	432	666	349	264	181	156	110	123	142
Real GDP (\$ 81 Mill)	350	539	282	213	147	127	89	99	115
Consumption	103	414	400	198	81	91	109	126	159
Government	0	0	0	0	0	0	0	0	0
Business Fixed Investment - Total	414	457	70	19	1	5	14	22	25
Residential Construction	401	396	42	24	21	23	23	22	20
Non-Residential Construction	5	30	11	-3	-7	-6	-4	-2	-2
Machinery and Equipment	8	31	18	-2	-13	-11	-5	2	7
Exports	0	4	7	11	13	10	6	7	6
Imports	75	293	114	-44	-98	-58	12	27	44
Nominal GDP (\$ Mill)	375	576	284	165	87	108	91	102	145
Prices (Change in per cent)									
Implicit Deflator for GDP	0.00	-0.01	-0.01	-0.02	-0.02	-0.01	0.00	-0.01	0.00
Consumer Price Index, All Items	-0.01	-0.06	-0.04	-0.04	-0.03	-0.02	-0.01	-0.01	-0.01
Consumer Price Index, Rent	0.00	0.00	0.00	0.01	0.02	0.03	0.03	0.03	0.04
Selling Price - Single Houses	0.06	0.13	0.05	-0.04	-0.06	-0.06	-0.06	-0.06	-0.05
Employment									
Employment (Change in per cent)	0.03	0.08	0.04	0.02	0.00	-0.01	-0.01	-0.01	-0.01
Employment (Change in persons)	3600	8273	4915	2100	-144	-1198	-1018	-1102	-843
Unemployment (Change in persons)	-2430	-5387	-2943	-1003	466	1085	819	791	571
Unemployment Rate (% Pts)	-0.02	-0.05	-0.03	-0.01	0.00	0.01	0.01	0.01	0.00
Interest Rates (Change in % Pts)									
90-day Paper Rate	0.02	0.03	0.02	0.01	0.00	0.00	0.00	0.00	0.01
Conventional Mortgage Rate	0.00	0.02	0.02	0.02	0.01	0.00	0.00	0.00	0.01
Foreign and Government Balances (Change in \$ Mill)									
Bal of Payments - Curr Account (\$ Mill)	-65.8	-262.0	-107.4	45.5	102.6	62.5	-7.9	-23.1	-40.4
Federal Surplus/Deficit (\$ Mill)	-263.7	-252.6	31.1	-29.2	-60.4	-75.1	-82.6	-102.5	-118.5
Federal Debt (\$ Mill)	59.6	498.6	605.6	595.6	646.4	729.3	826.6	942.5	1080.8
Provincial Surplus/Deficit (\$ Mill)	125.3	203.5	77.2	29.4	3.9	-0.9	5.0	11.1	22.5
Housing Starts, Stocks and Vacancies									
Housing Starts - Singles (units)	58	100	-13	-88	-90	-66	-83	-88	-85
Housing Starts - Multiples (units)	-5	-22	-46	-33	-10	15	20	21	13
Housing Stock - Singles (units)	56	523	1077	1423	1633	1790	1912	1984	2019
Housing Stock - Multiples (units)	0	-4	-19	-52	-87	-106	-104	-89	-71
Vacancy Rate (% Pts)	0.00	-0.01	-0.03	-0.04	-0.03	-0.03	-0.02	-0.02	-0.02

Table 3
FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
CMHC Alternatives - Income Subsidy to Buyers - Feb/92

	1982	1983	1984	1985	1986	1987	1988	1989	1990
Real Output and Components (Changes in \$ 86 Mill)									
Real Gross Domestic Product	547	2384	2536	1051	374	-62	-329	-412	-306
Real GDP (\$ 81 Mill)	443	1929	2051	851	303	-50	-266	-333	-247
Consumption	117	964	1804	1424	285	-328	-431	-423	-319
Government	0	0	0	0	0	0	0	0	0
Business Fixed Investment - Total	556	1981	1548	-69	-304	-332	-294	-223	-124
Residential Construction	543	1825	1307	-146	-200	-168	-156	-156	-128
Non-Residential Construction	4	73	103	27	-42	-61	-50	-29	-12
Machinery and Equipment	8	82	137	50	-62	-103	-88	-38	15
Exports	0	10	28	43	53	48	27	16	19
Imports	82	734	1015	302	-417	-620	-421	-259	-140
Nominal GDP (\$ Mill)	477	2087	2205	692	-77	-418	-500	-574	-503
Prices (Change in per cent)									
Implicit Deflator for GDP	0.00	-0.03	-0.05	-0.07	-0.09	-0.06	-0.02	-0.02	-0.02
Consumer Price Index, All Items	-0.01	-0.15	-0.24	-0.18	-0.14	-0.08	-0.01	0.00	0.00
Consumer Price Index, Rent	0.00	-0.01	-0.01	0.04	0.08	0.10	0.12	0.11	0.10
Selling Price - Single Houses	0.60	0.41	-1.64	-3.07	-2.85	-2.31	-2.04	-1.86	-1.60
Employment									
Employment (Change in per cent)	0.04	0.24	0.30	0.14	0.00	-0.09	-0.11	-0.10	-0.08
Employment (Change in persons)	4414	25046	32173	15749	257	-10490	-13635	-12239	-9917
Unemployment (Change in persons)	-2994	-16685	-20761	-8918	1602	8503	9964	8283	6248
Unemployment Rate (% Pts)	-0.03	-0.15	-0.18	-0.08	0.01	0.07	0.08	0.06	0.05
Interest Rates (Change in % Pts)									
90-day Paper Rate	0.03	0.10	0.12	0.04	0.01	-0.01	-0.01	-0.02	-0.02
Conventional Mortgage Rate	0.00	0.04	0.08	0.07	0.04	-0.01	-0.01	-0.02	-0.02
Foreign and Government Balances (Change in \$ Mill)									
Bal of Payments - Curr Account (\$ Mill)	-71.0	-657.0	-959.1	-285.3	431.0	632.8	424.4	261.4	144.3
Federal Surplus/Deficit (\$ Mill)	-21.3	96.0	342.9	325.9	66.1	-101.7	-180.1	-200.9	-170.0
Federal Debt (\$ Mill)	11.2	-19.6	-198.1	-645.8	-930.1	-908.3	-732.2	-478.2	-222.6
Provincial Surplus/Deficit (\$ Mill)	116.9	522.9	598.6	209.1	-70.9	-209.9	-251.3	-256.2	-221.3
Housing Starts, Stocks and Vacancies									
Housing Starts - Singles (units)	11143	21541	8832	-3279	-3163	-2648	-2482	-2317	-1964
Housing Starts - Multiples (units)	-5	-28	-116	-125	-34	133	171	186	175
Housing Stock - Singles (units)	500	14191	34614	40228	36969	33912	31281	28814	26553
Housing Stock - Multiples (units)	0	-4	-25	-100	-207	-268	-214	-75	97
Vacancy Rate (% Pts)	0.00	-0.03	-0.11	-0.17	-0.10	-0.03	0.01	0.03	0.04

Table 4
FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
CMHC Alternatives - Mortgage Interest Subsidy - Feb/92

	1982	1983	1984	1985	1986	1987	1988	1989	1990
Real Output and Components (Changes in \$ 86 Mill)									
Real Gross Domestic Product	171	749	837	414	206	71	-27	-77	-44
Real GDP (\$ 81 Mill)	138	606	677	335	167	58	-22	-62	-35
Consumption	44	330	628	543	199	10	-23	-41	-11
Government	0	0	0	0	0	0	0	0	0
Business Fixed Investment - Total	166	593	468	-8	-80	-93	-85	-70	-41
Residential Construction	162	544	390	-37	-54	-45	-43	-44	-36
Non-Residential Construction	1	23	33	10	-11	-17	-15	-10	-5
Machinery and Equipment	3	26	44	19	-16	-30	-28	-15	0
Exports	0	4	10	13	14	10	3	-1	-1
Imports	26	228	322	124	-95	-164	-94	-49	-17
Nominal GDP (\$ Mill)	150	651	726	314	102	18	-11	-47	-19
Prices (Change in per cent)									
Implicit Deflator for GDP	0.00	-0.01	-0.02	-0.02	-0.02	-0.01	0.00	0.01	0.00
Consumer Price Index, All Items	-0.01	-0.05	-0.08	-0.05	-0.04	-0.01	0.00	0.01	0.01
Consumer Price Index, Rent	0.00	0.00	0.00	0.02	0.03	0.04	0.05	0.05	0.05
Selling Price - Single Houses	0.63	1.06	0.01	-0.85	-0.79	-0.64	-0.57	-0.52	-0.44
Employment									
Employment (Change in per cent)	0.01	0.07	0.10	0.05	0.01	-0.02	-0.03	-0.03	-0.02
Employment (Change in persons)	1377	7812	10388	5627	841	-2486	-3706	-3539	-2807
Unemployment (Change in persons)	-934	-5207	-6719	-3250	34	2186	2815	2472	1805
Unemployment Rate (% Pts)	-0.01	-0.05	-0.06	-0.03	0.00	0.02	0.02	0.02	0.01
Interest Rates (Change in % Pts)									
90-day Paper Rate	0.01	0.03	0.04	0.02	0.01	0.00	0.00	0.00	0.00
Conventional Mortgage Rate	0.00	0.01	0.02	0.02	0.02	0.00	0.00	0.00	0.00
Foreign and Government Balances (Change in \$ Mill)									
Bal of Payments - Curr Account (\$ Mill)	-23.1	-204.0	-304.0	-117.7	99.6	167.6	94.6	48.2	15.9
Federal Surplus/Deficit (\$ Mill)	7.6	17.4	-1.3	-71.5	-166.7	-192.1	-148.1	-138.8	-148.0
Federal Debt (\$ Mill)	1.3	-29.1	-31.8	3.8	129.7	361.0	576.9	749.0	930.1
Provincial Surplus/Deficit (\$ Mill)	35.5	167.8	210.7	105.6	26.8	-16.2	-35.6	-48.1	-36.4
Housing Starts, Stocks and Vacancies									
Housing Starts - Singles (units)	3329	6415	2655	-907	-884	-750	-716	-675	-569
Housing Starts - Multiples (units)	-1	-6	-35	-44	-20	28	40	45	43
Housing Stock - Singles (units)	150	4237	10318	12027	11122	10266	9518	8804	8146
Housing Stock - Multiples (units)	0	-1	-6	-28	-64	-90	-84	-54	-15
Vacancy Rate (% Pts)	0.00	-0.01	-0.04	-0.07	-0.05	-0.03	-0.02	-0.01	0.00

Table 5
FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
CMHC Alternatives - Cost Subsidy - Feb/92

	1982	1983	1984	1985	1986	1987	1988	1989	1990
Real Output and Components (Changes in \$ 86 Mill)									
Real Gross Domestic Product	386	1693	1834	779	262	-38	-219	-268	-180
Real GDP (\$ 81 Mill)	313	1370	1484	630	212	-30	-177	-217	-145
Consumption	104	774	1397	1055	206	-220	-279	-265	-185
Government	0	0	0	0	0	0	0	0	0
Business Fixed Investment - Total	371	1324	1037	-39	-207	-229	-200	-148	-80
Residential Construction	362	1214	867	-94	-132	-111	-102	-103	-84
Non-Residential Construction	3	51	73	20	-30	-43	-35	-20	-8
Machinery and Equipment	6	58	97	35	-45	-75	-63	-27	10
Exports	0	7	19	27	32	28	14	7	11
Imports	58	524	738	237	-285	-431	-283	-166	-89
Nominal GDP (\$ Mill)	337	1484	1614	562	-3	-232	-284	-342	-300
Prices (Change in per cent)									
Implicit Deflator for GDP	0.00	-0.02	-0.03	-0.04	-0.05	-0.03	-0.01	-0.01	-0.01
Consumer Price Index, All Items	-0.01	-0.11	-0.16	-0.12	-0.08	-0.04	0.00	0.01	0.00
Consumer Price Index, Rent	0.00	0.00	0.00	0.03	0.06	0.08	0.09	0.08	0.08
Selling Price - Single Houses	1.45	2.46	0.00	-2.00	-1.88	-1.52	-1.35	-1.23	-1.06
Employment									
Employment (Change in per cent)	0.03	0.17	0.21	0.10	0.00	-0.06	-0.08	-0.07	-0.05
Employment (Change in persons)	3128	17752	23065	11471	132	-7529	-9687	-8556	-6540
Unemployment (Change in persons)	-2122	-11828	-14888	-6502	1214	6122	7092	5790	4069
Unemployment Rate (% Pts)	-0.02	-0.10	-0.13	-0.06	0.01	0.05	0.05	0.04	0.03
Interest Rates (Change in % Pts)									
90-day Paper Rate	0.02	0.07	0.09	0.03	0.01	-0.01	-0.01	-0.01	-0.01
Conventional Mortgage Rate	0.00	0.03	0.05	0.05	0.03	0.00	-0.01	-0.01	-0.01
Foreign and Government Balances (Change in \$ Mill)									
Bal of Payments - Curr Account (\$ Mill)	-50.9	-469.1	-696.3	-224.4	293.5	438.5	283.6	165.8	90.0
Federal Surplus/Deficit (\$ Mill)	-68.6	-44.9	172.5	206.7	17.8	-98.8	-155.6	-178.7	-162.7
Federal Debt (\$ Mill)	15.7	100.6	105.6	-162.1	-331.7	-282.4	-124.5	92.5	322.6
Provincial Surplus/Deficit (\$ Mill)	90.9	389.4	441.8	159.5	-43.1	-139.0	-163.1	-160.7	-134.3
Housing Starts, Stocks and Vacancies									
Housing Starts - Singles (units)	7431	14307	5863	-2145	-2093	-1744	-1636	-1530	-1298
Housing Starts - Multiples (units)	-3	-19	-88	-101	-37	84	113	123	119
Housing Stock - Singles (units)	334	9456	23011	26750	24614	22593	20859	19232	17739
Housing Stock - Multiples (units)	0	-2	-18	-74	-159	-214	-186	-97	16
Vacancy Rate (% Pts)	0.00	-0.02	-0.08	-0.13	-0.07	-0.03	0.00	0.02	0.02

Table 6
FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
CMHC Alternatives - CRSP - Upscaled - Feb/92

	1982	1983	1984	1985	1986	1987	1988	1989	1990
Real Output and Components (Changes in \$ 86 Mill)									
Real Gross Domestic Product	108	279	404	420	257	172	85	38	22
Real GDP (\$ 81 Mill)	87	225	327	340	208	139	69	30	18
Consumption	29	129	224	285	218	112	38	14	33
Government	0	0	0	0	0	0	0	0	0
Business Fixed Investment - Total	103	231	293	227	58	19	7	6	9
Residential Construction	99	212	261	193	46	26	22	18	14
Non-Residential Construction	2	9	13	13	4	-4	-6	-6	-5
Machinery and Equipment	2	11	19	20	8	-3	-9	-7	0
Exports	0	1	2	4	6	5	1	-3	-8
Imports	22	100	132	117	22	-45	-49	-31	4
Nominal GDP (\$ Mill)	96	257	373	380	218	159	117	128	154
Prices (Change in per cent)									
Implicit Deflator for GDP	0.00	0.00	0.00	-0.01	-0.01	0.00	0.00	0.01	0.02
Consumer Price Index, All Items	0.00	-0.02	-0.03	-0.04	-0.03	-0.02	-0.01	0.00	0.01
Consumer Price Index, Rent	0.00	0.00	-0.01	-0.07	-0.17	-0.27	-0.38	-0.47	-0.55
Selling Price - Single Houses	0.01	0.06	0.09	0.10	0.06	0.03	0.03	0.03	0.04
Employment									
Employment (Change in per cent)	0.01	0.03	0.04	0.04	0.02	0.00	-0.01	-0.02	-0.02
Employment (Change in persons)	937	2877	4329	4486	2229	89	-1503	-2285	-2534
Unemployment (Change in persons)	-630	-1896	-2803	-2811	-1193	264	1288	1724	1795
Unemployment Rate (% Pts)	-0.01	-0.02	-0.02	-0.02	-0.01	0.00	0.01	0.01	0.01
Interest Rates (Change in % Pts)									
90-day Paper Rate	0.01	0.01	0.02	0.02	0.01	0.01	0.00	0.00	0.00
Conventional Mortgage Rate	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00
Foreign and Government Balances (Change in \$ Mill)									
Bal of Payments - Curr Account (\$ Mill)	-19.4	-89.5	-125.3	-113.7	-20.3	46.5	49.1	32.5	-3.2
Federal Surplus/Deficit (\$ Mill)	20.8	25.2	14.5	18.7	-48.3	-89.4	-115.3	-149.0	-164.7
Federal Debt (\$ Mill)	-4.6	-35.1	-58.0	-79.2	-74.0	9.5	130.8	292.9	483.4
Provincial Surplus/Deficit (\$ Mill)	17.4	53.1	77.6	80.1	29.8	1.1	-18.7	-25.8	-21.9
Housing Starts, Stocks and Vacancies									
Housing Starts - Singles (units)	12	47	63	63	28	29	22	8	7
Housing Starts - Multiples (units)	5413	8408	9080	4138	129	-203	-304	-391	-459
Housing Stock - Singles (units)	1	20	67	130	186	216	240	259	267
Housing Stock - Multiples (units)	376	3457	9980	18133	24027	26112	26247	26000	25650
Vacancy Rate (% Pts)	0.00	0.06	0.20	0.38	0.53	0.59	0.58	0.56	0.53

Table 7
 FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
 CMHC Alternatives - Mortgage Interest Subsidy to Builders - Feb/92

	1982	1983	1984	1985	1986	1987	1988	1989	1990
Real Output and Components (Changes in \$ 86 Mill)									
Real Gross Domestic Product	102	269	403	440	299	219	130	88	80
Real GDP (\$ 81 Mill)	83	218	326	356	242	178	105	71	65
Consumption	27	128	237	325	284	194	122	97	114
Government	0	0	0	0	0	0	0	0	0
Business Fixed Investment - Total	98	221	281	220	61	25	11	5	7
Residential Construction	94	202	250	187	47	27	23	19	14
Non-Residential Construction	1	8	13	14	5	-2	-6	-6	-5
Machinery and Equipment	2	10	18	20	9	-1	-7	-8	-2
Exports	0	1	2	4	4	2	-4	-9	-14
Imports	21	97	133	130	48	-6	-10	-5	20
Nominal GDP (\$ Mill)	92	249	376	410	286	255	226	238	276
Prices (Change in per cent)									
Implicit Deflator for GDP	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.03
Consumer Price Index, All Items	0.00	-0.02	-0.03	-0.03	-0.03	-0.01	0.00	0.01	0.02
Consumer Price Index, Rent	0.00	0.00	-0.01	-0.07	-0.15	-0.25	-0.35	-0.43	-0.51
Selling Price - Single Houses	0.01	0.06	0.11	0.14	0.10	0.07	0.07	0.06	0.07
Employment									
Employment (Change in per cent)	0.01	0.03	0.04	0.04	0.02	0.01	-0.01	-0.02	-0.02
Employment (Change in persons)	894	2778	4305	4674	2724	658	-1074	-1944	-2006
Unemployment (Change in persons)	-600	-1831	-2791	-2940	-1521	-95	1044	1542	1466
Unemployment Rate (% Pts)	-0.01	-0.02	-0.02	-0.02	-0.01	0.00	0.01	0.01	0.01
Interest Rates (Change in % Pts)									
90-day Paper Rate	0.01	0.01	0.02	0.02	0.01	0.01	0.01	0.01	0.01
Conventional Mortgage Rate	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Foreign and Government Balances (Change in \$ Mill)									
Bal of Payments - Curr Account (\$ Mill)	-18.4	-86.3	-126.4	-126.9	-46.8	8.6	11.2	4.4	-21.5
Federal Surplus/Deficit (\$ Mill)	-24.2	-146.3	-144.1	-150.5	-176.6	-185.8	-120.6	-118.1	-161.5
Federal Debt (\$ Mill)	0.1	76.6	269.2	449.2	635.1	873.5	1071.0	1201.7	1372.1
Provincial Surplus/Deficit (\$ Mill)	17.3	54.6	89.4	99.4	64.2	37.2	23.2	18.5	23.4
Housing Starts, Stocks and Vacancies									
Housing Starts - Singles (units)	12	51	80	91	60	54	41	25	16
Housing Starts - Multiples (units)	5146	7993	8630	3931	117	-203	-301	-385	-451
Housing Stock - Singles (units)	1	20	73	155	238	298	347	382	406
Housing Stock - Multiples (units)	357	3286	9487	17236	22836	24814	24935	24689	24344
Vacancy Rate (% Pts)	0.00	0.05	0.18	0.35	0.50	0.55	0.54	0.52	0.49

Table 8
 FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
 CMHC Alternatives - Cost Subsidy to Builders of Rental Housing - Feb/92

	1982	1983	1984	1985	1986	1987	1988	1989	1990
Real Output and Components (Changes in \$ 86 Mill)									
Real Gross Domestic Product	164	440	694	769	536	394	231	152	139
Real GDP (\$ 81 Mill)	133	356	561	622	434	318	187	123	112
Consumption	44	205	439	620	535	351	201	144	172
Government	0	0	0	0	0	0	0	0	0
Business Fixed Investment - Total	155	349	449	356	101	38	12	3	9
Residential Construction	149	319	397	298	76	44	37	31	24
Non-Residential Construction	2	14	22	24	9	-3	-10	-11	-8
Machinery and Equipment	3	16	30	34	16	-3	-16	-17	-6
Exports	0	2	5	7	9	6	-2	-9	-16
Imports	32	141	226	249	106	-10	-34	-29	15
Nominal GDP (\$ Mill)	143	389	631	707	495	413	337	333	387
Prices (Change in per cent)									
Implicit Deflator for GDP	0.00	0.00	-0.01	-0.01	-0.01	0.00	0.01	0.02	0.03
Consumer Price Index, All Items	-0.01	-0.03	-0.05	-0.05	-0.04	-0.03	0.00	0.01	0.02
Consumer Price Index, Rent	0.00	0.00	-0.02	-0.11	-0.24	-0.40	-0.55	-0.68	-0.80
Selling Price - Single Houses	0.02	0.11	0.22	0.26	0.18	0.12	0.10	0.09	0.10
Employment									
Employment (Change in per cent)	0.01	0.04	0.07	0.08	0.05	0.02	-0.01	-0.02	-0.02
Employment (Change in persons)	1401	4618	7618	8488	5316	1855	-1066	-2555	-2620
Unemployment (Change in persons)	-941	-3055	-4964	-5371	-3042	-645	1276	2125	1972
Unemployment Rate (% Pts)	-0.01	-0.03	-0.04	-0.05	-0.03	-0.01	0.01	0.02	0.01
Interest Rates (Change in % Pts)									
90-day Paper Rate	0.01	0.02	0.03	0.03	0.02	0.01	0.01	0.01	0.01
Conventional Mortgage Rate	0.00	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.01
Foreign and Government Balances (Change in \$ Mill)									
Bal of Payments - Curr Account (\$ Mill)	-28.4	-126.5	-213.9	-242.0	-104.1	13.6	34.4	28.4	-16.2
Federal Surplus/Deficit (\$ Mill)	-178.9	-548.0	-352.3	-131.8	-62.5	-77.0	-136.0	-210.1	-260.4
Federal Debt (\$ Mill)	19.4	448.1	1052.8	1374.2	1488.3	1569.9	1691.8	1898.6	2185.4
Provincial Surplus/Deficit (\$ Mill)	28.5	93.8	159.0	180.9	123.2	70.6	36.7	24.6	32.5
Housing Starts, Stocks and Vacancies									
Housing Starts - Singles (units)	22	94	169	187	114	86	62	41	28
Housing Starts - Multiples (units)	8110	12597	13599	6192	182	-318	-468	-596	-698
Housing Stock - Singles (units)	2	35	139	311	482	592	670	724	761
Housing Stock - Multiples (units)	563	5179	14951	27162	35987	39102	39293	38911	38377
Vacancy Rate (% Pts)	0.00	0.09	0.29	0.54	0.77	0.86	0.85	0.82	0.77

TABLE 9

FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
CMHC Alternatives - Investment Tax Credits - M&E - Nov/91

	1982	1983	1984	1985	1986	1987	1988	1989	1990
Real Output and Components (Changes in \$ 86 Mill)									
Real Gross Domestic Product	75	340	383	165	-13	-48	-51	-28	7
Real GDP (\$ 81 Mill)	61	275	310	134	-10	-39	-41	-23	6
Consumption	25	200	385	306	61	-36	-14	27	70
Government	0	0	0	0	0	0	0	0	0
Business Fixed Investment - Total	74	301	291	62	-52	-58	-41	-23	-10
Residential Construction	1	9	14	4	-5	-3	-1	-1	-1
Non-Residential Construction	10	39	36	6	-12	-14	-9	-4	-1
Machinery and Equipment	64	253	242	51	-36	-41	-31	-17	-8
Exports	0	-1	-6	-13	-18	-21	-23	-23	-23
Imports	19	179	311	188	-12	-77	-32	7	29
Nominal GDP (\$ Mill)	68	342	471	332	183	161	181	204	241
Prices (Change in per cent)									
Implicit Deflator for GDP	0.00	0.01	0.02	0.04	0.04	0.04	0.04	0.04	0.03
Consumer Price Index, All Items	0.00	0.00	0.02	0.03	0.03	0.03	0.03	0.03	0.03
Consumer Price Index, Rent	0.00	0.00	0.00	0.01	0.02	0.02	0.03	0.03	0.03
Selling Price - Single Houses	0.03	0.16	0.25	0.13	0.04	0.04	0.04	0.05	0.06
Employment									
Employment (Change in per cent)	0.01	0.03	0.05	0.03	0.00	-0.01	-0.01	0.00	0.00
Employment (Change in persons)	628	3703	5221	3153	244	-1220	-1244	-594	23
Unemployment (Change in persons)	-426	-2461	-3343	-1783	220	1109	978	407	-73
Unemployment Rate (% Pts)	0.00	-0.02	-0.03	-0.02	0.00	0.01	0.01	0.00	0.00
Interest Rates (Change in % Pts)									
90-day Paper Rate	0.00	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.01
Conventional Mortgage Rate	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01
Foreign and Government Balances (Change in \$ Mill)									
Bal of Payments - Curr Account (\$ Mill)	-15.9	-157.0	-291.2	-185.7	4.9	67.4	22.2	-15.0	-36.9
Federal Surplus/Deficit (\$ Mill)	-176.5	-347.4	-169.1	-34.3	-89.2	-112.1	-123.3	-141.1	-154.0
Federal Debt (\$ Mill)	27.4	367.4	760.9	844.5	913.9	1036.5	1179.8	1341.3	1521.1
Provincial Surplus/Deficit (\$ Mill)	18.8	87.4	115.2	58.3	8.1	-4.6	9.7	22.2	38.6
Housing Starts, Stocks and Vacancies									
Housing Starts - Singles (units)	26	135	159	24	-46	-15	-13	-9	-5
Housing Starts - Multiples (units)	-1	-15	-54	-72	-59	-29	-21	-24	-28
Housing Stock - Singles (units)	1	46	186	321	331	291	274	261	254
Housing Stock - Multiples (units)	0	-2	-12	-47	-106	-166	-208	-235	-258
Vacancy Rate (% Pts)	0.00	-0.01	-0.03	-0.04	-0.03	-0.02	-0.02	-0.02	-0.02

TABLE 10

FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
CMHC Alternatives - Investment Tax Credits - Non-Res - Nov/91

	1982	1983	1984	1985	1986	1987	1988	1989	1990
Real Output and Components (Changes in \$ 86 Mill)									
Real Gross Domestic Product	26	153	256	203	70	-6	-54	-81	-80
Real GDP (\$ 81 Mill)	21	123	207	165	56	-5	-44	-66	-65
Consumption	15	139	315	322	158	46	12	4	33
Government	0	0	0	0	0	0	0	0	0
Business Fixed Investment - Total	17	71	82	43	6	-10	-13	-11	-6
Residential Construction	1	8	14	9	1	-2	-3	-4	-5
Non-Residential Construction	15	56	56	24	5	0	0	1	2
Machinery and Equipment	1	7	12	10	0	-8	-10	-8	-3
Exports	0	-1	-4	-10	-17	-24	-30	-36	-43
Imports	5	61	147	158	73	12	17	32	59
Nominal GDP (\$ Mill)	23	156	310	334	265	243	261	290	346
Prices (Change in per cent)									
Implicit Deflator for GDP	0.00	0.00	0.01	0.03	0.04	0.05	0.05	0.06	0.07
Consumer Price Index, All Items	0.00	0.00	0.01	0.03	0.04	0.04	0.05	0.05	0.06
Consumer Price Index, Rent	0.00	0.00	0.00	0.01	0.02	0.03	0.03	0.04	0.04
Selling Price - Single Houses	0.02	0.13	0.21	0.15	0.08	0.06	0.05	0.05	0.07
Employment									
Employment (Change in per cent)	0.00	0.02	0.04	0.04	0.03	0.01	0.01	0.01	0.01
Employment (Change in persons)	228	1945	4090	4344	2902	1594	993	1053	1434
Unemployment (Change in persons)	-155	-1301	-2678	-2723	-1651	-762	-412	-537	-864
Unemployment Rate (% Pts)	0.00	-0.01	-0.02	-0.02	-0.01	-0.01	0.00	0.00	-0.01
Interest Rates (Change in % Pts)									
90-day Paper Rate	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Conventional Mortgage Rate	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Foreign and Government Balances (Change in \$ Mill)									
Bal of Payments - Curr Account (\$ Mill)	-3.2	-50.3	-133.3	-154.6	-77.9	-20.1	-27.2	-43.1	-72.8
Federal Surplus/Deficit (\$ Mill)	-197.9	-397.2	-209.1	-35.9	-60.0	-78.8	-95.6	-127.2	-146.2
Federal Debt (\$ Mill)	29.6	415.7	867.3	981.0	1036.7	1120.5	1225.1	1358.9	1523.8
Provincial Surplus/Deficit (\$ Mill)	8.2	50.5	88.4	70.3	38.9	22.0	27.4	29.8	40.6
Housing Starts, Stocks and Vacancies									
Housing Starts - Singles (units)	20	118	160	68	0	-14	-28	-35	-37
Housing Starts - Multiples (units)	0	-8	-29	-47	-49	-38	-36	-41	-50
Housing Stock - Singles (units)	1	38	161	305	361	359	340	311	277
Housing Stock - Multiples (units)	0	-1	-6	-25	-62	-108	-149	-187	-226
Vacancy Rate (% Pts)	0.00	-0.01	-0.02	-0.04	-0.03	-0.02	-0.02	-0.02	-0.02

TABLE 11
 FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
 CMHC Alternatives - Employment Subsidy - Nov/91

	1982	1983	1984	1985	1986	1987	1988	1989	1990
Real Output and Components (Changes in \$ 86 Mill)									
Real Gross Domestic Product	351	660	436	80	-3	-8	-20	5	-1
Real GDP (\$ 81 Mill)	284	534	353	65	-3	-7	-16	4	-1
Consumption	520	1228	670	-329	-318	-76	-16	31	80
Government	0	0	0	0	0	0	0	0	0
Business Fixed Investment - Total	31	91	64	-64	-104	-44	-5	2	5
Residential Construction	12	27	18	-9	-5	1	3	3	0
Non-Residential Construction	11	19	-14	-29	-11	4	2	-2	-1
Machinery and Equipment	8	45	60	-25	-88	-48	-9	0	6
Exports	5	62	60	8	10	3	0	-6	-22
Imports	194	771	373	-491	-413	-115	-7	17	60
Nominal GDP (\$ Mill)	267	-39	69	-67	-192	-68	-39	129	287
Prices (Change in per cent)									
Implicit Deflator for GDP	-0.01	-0.16	-0.08	-0.03	-0.04	-0.01	0.00	0.02	0.04
Consumer Price Index, All Items	-0.01	-0.17	-0.07	-0.02	-0.03	0.00	0.00	0.02	0.04
Consumer Price Index, Rent	0.00	-0.01	0.00	0.02	0.02	0.02	0.02	0.03	0.03
Selling Price - Single Houses	0.23	0.12	0.06	-0.09	-0.06	-0.01	0.00	0.03	0.06
Employment									
Employment (Change in per cent)	0.21	0.40	0.23	0.05	0.03	0.01	-0.01	-0.02	-0.03
Employment (Change in persons)	21851	42484	24940	5398	2957	1676	-898	-3048	-3307
Unemployment (Change in persons)	-14790	-27871	-14986	-1863	-699	-214	1364	2702	2664
Unemployment Rate (% Pts)	-0.13	-0.24	-0.13	-0.02	-0.01	0.00	0.01	0.02	0.02
Interest Rates (Change in % Pts)									
90-day Paper Rate	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.01
Conventional Mortgage Rate	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01
Foreign and Government Balances (Change in \$ Mill)									
Bal of Payments - Curr Account (\$ Mill)	-170.9	-680.5	-316.9	484.2	419.0	117.3	8.7	-14.3	-62.0
Federal Surplus/Deficit (\$ Mill)	-74.0	-369.0	-109.9	-99.4	-96.0	-53.1	-58.1	-94.5	-133.0
Federal Debt (\$ Mill)	17.3	257.2	602.9	708.8	831.3	922.1	986.4	1074.3	1209.5
Provincial Surplus/Deficit (\$ Mill)	87.7	171.9	98.2	0.0	-23.6	-7.8	11.2	21.6	35.0
Housing Starts, Stocks and Vacancies									
Housing Starts - Singles (units)	242	253	79	-109	-53	-1	5	6	-15
Housing Starts - Multiples (units)	-1	71	35	-1	22	26	24	2	-31
Housing Stock - Singles (units)	13	277	539	557	450	403	400	405	408
Housing Stock - Multiples (units)	0	4	43	85	103	116	138	160	169
Vacancy Rate (% Pts)	0.00	-0.03	-0.03	0.00	0.00	0.00	0.00	-0.01	-0.01

TABLE 12
FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
CMHC Alternatives - Personal Income Tax - Nov/91

	1982	1983	1984	1985	1986	1987	1988	1989	1990
Real Output and Components (Changes in \$ 86 Mill)									
Real Gross Domestic Product	84	390	497	214	-3	-24	-23	12	61
Real GDP (\$ 81 Mill)	68	316	402	173	-3	-19	-19	10	50
Consumption	96	487	686	344	12	-48	-10	47	103
Government	0	0	0	0	0	0	0	0	0
Business Fixed Investment - Total	9	49	59	11	-32	-38	-23	-7	4
Residential Construction	8	28	24	1	-6	-4	-1	-1	0
Non-Residential Construction	1	9	16	6	-7	-10	-6	-1	1
Machinery and Equipment	1	11	19	4	-19	-24	-16	-4	3
Exports	0	-3	-10	-17	-22	-22	-22	-19	-16
Imports	18	157	258	125	-49	-93	-37	6	29
Nominal GDP (\$ Mill)	80	409	613	417	220	198	204	217	238
Prices (Change in per cent)									
Implicit Deflator for GDP	0.00	0.01	0.03	0.04	0.04	0.04	0.04	0.03	0.02
Consumer Price Index, All Items	0.00	0.01	0.03	0.04	0.04	0.03	0.03	0.03	0.02
Consumer Price Index, Rent	0.00	0.00	0.01	0.02	0.02	0.03	0.03	0.03	0.04
Selling Price - Single Houses	0.15	0.40	0.33	0.13	0.04	0.03	0.03	0.04	0.05
Employment									
Employment (Change in per cent)	0.01	0.04	0.05	0.02	-0.01	-0.02	-0.02	-0.01	-0.01
Employment (Change in persons)	662	3770	5505	2660	-932	-2529	-2548	-1628	-735
Unemployment (Change in persons)	-448	-2493	-3502	-1398	1050	1991	1824	1039	355
Unemployment Rate (% Pts)	0.00	-0.02	-0.03	-0.01	0.01	0.02	0.01	0.01	0.00
Interest Rates (Change in % Pts)									
90-day Paper Rate	0.00	0.02	0.03	0.02	0.01	0.00	0.00	0.01	0.01
Conventional Mortgage Rate	0.00	0.01	0.02	0.02	0.01	0.00	0.00	0.01	0.01
Foreign and Government Balances (Change in \$ Mill)									
Bal of Payments - Curr Account (\$ Mill)	-15.0	-138.4	-242.2	-125.3	41.8	82.7	27.1	-13.2	-34.7
Federal Surplus/Deficit (\$ Mill)	-186.8	-374.6	-193.0	-45.1	-99.8	-119.1	-134.7	-156.2	-171.6
Federal Debt (\$ Mill)	28.5	390.7	815.7	926.6	1006.3	1140.3	1294.1	1472.2	1672.9
Provincial Surplus/Deficit (\$ Mill)	15.2	82.6	129.1	74.6	14.3	0.5	12.2	25.4	43.9
Housing Starts, Stocks and Vacancies									
Housing Starts - Singles (units)	157	355	217	-5	-69	-30	-23	-18	-8
Housing Starts - Multiples (units)	-2	-25	-72	-90	-72	-33	-19	-19	-19
Housing Stock - Singles (units)	7	209	552	715	696	637	604	580	563
Housing Stock - Multiples (units)	0	-3	-20	-70	-146	-220	-269	-297	-317
Vacancy Rate (% Pts)	0.00	-0.02	-0.04	-0.05	-0.04	-0.03	-0.02	-0.03	-0.03

TABLE 13

FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
CMHC Alternatives - Gov't Transfers to Persons - Nov/91

	1982	1983	1984	1985	1986	1987	1988	1989	1990
Real Output and Components (Changes in \$ 86 Mill)									
Real Gross Domestic Product	64	295	382	176	13	-4	-6	19	58
Real GDP (\$ 81 Mill)	52	239	309	142	10	-3	-5	15	47
Consumption	74	370	526	276	27	-19	8	50	95
Government	0	0	0	0	0	0	0	0	0
Business Fixed Investment - Total	7	36	44	10	-22	-27	-17	-6	2
Residential Construction	6	22	19	2	-4	-2	-1	-1	0
Non-Residential Construction	0	6	11	4	-5	-7	-4	-1	0
Machinery and Equipment	1	8	14	3	-14	-18	-12	-4	2
Exports	0	-2	-7	-13	-17	-17	-17	-15	-14
Imports	14	119	196	97	-33	-66	-24	8	25
Nominal GDP (\$ Mill)	61	309	471	332	187	173	177	188	208
Prices (Change in per cent)									
Implicit Deflator for GDP	0.00	0.01	0.02	0.03	0.03	0.03	0.03	0.03	0.02
Consumer Price Index, All Items	0.00	0.01	0.02	0.03	0.03	0.03	0.02	0.02	0.02
Consumer Price Index, Rent	0.00	0.00	0.00	0.01	0.02	0.02	0.03	0.03	0.03
Selling Price - Single Houses	0.12	0.30	0.26	0.11	0.04	0.03	0.03	0.04	0.04
Employment									
Employment (Change in per cent)	0.00	0.03	0.04	0.02	-0.01	-0.02	-0.02	-0.01	0.00
Employment (Change in persons)	502	2829	4181	2096	-600	-1841	-1918	-1261	-581
Unemployment (Change in persons)	-339	-1871	-2661	-1112	730	1467	1384	817	293
Unemployment Rate (% Pts)	0.00	-0.02	-0.02	-0.01	0.01	0.01	0.01	0.01	0.00
Interest Rates (Change in % Pts)									
90-day Paper Rate	0.00	0.01	0.02	0.01	0.01	0.00	0.00	0.01	0.01
Conventional Mortgage Rate	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.01	0.01
Foreign and Government Balances (Change in \$ Mill)									
Bal of Payments - Curr Account (\$ Mill)	-11.6	-104.8	-184.2	-97.6	27.4	58.8	16.8	-13.1	-29.4
Federal Surplus/Deficit (\$ Mill)	-163.8	-329.6	-179.2	-45.6	-85.0	-99.3	-113.3	-133.9	-149.1
Federal Debt (\$ Mill)	24.9	342.6	721.9	829.5	902.0	1014.3	1142.6	1292.9	1465.4
Provincial Surplus/Deficit (\$ Mill)	35.2	112.3	124.2	60.9	16.1	5.5	14.6	24.7	39.8
Housing Starts, Stocks and Vacancies									
Housing Starts - Singles (units)	120	270	171	4	-45	-18	-14	-10	-3
Housing Starts - Multiples (units)	-2	-19	-55	-69	-56	-27	-17	-17	-17
Housing Stock - Singles (units)	6	159	421	551	544	505	484	469	459
Housing Stock - Multiples (units)	0	-2	-15	-53	-111	-168	-207	-231	-248
Vacancy Rate (% Pts)	0.00	-0.02	-0.03	-0.04	-0.03	-0.02	-0.02	-0.02	-0.02

TABLE 14

FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
CMHC Alternatives - Corporate Income Tax - Nov/91

	1982	1983	1984	1985	1986	1987	1988	1989	1990
Real Output and Components (Changes in \$ 86 Mill)									
Real Gross Domestic Product	5	91	211	204	106	52	29	35	60
Real GDP (\$ 81 Mill)	4	74	171	165	86	42	24	28	48
Consumption	10	104	262	290	163	74	55	71	110
Government	0	0	0	0	0	0	0	0	0
Business Fixed Investment - Total	-3	18	40	28	4	-9	-12	-9	-3
Residential Construction	1	7	13	9	3	1	1	1	1
Non-Residential Construction	-5	3	13	10	2	-2	-3	-2	-1
Machinery and Equipment	1	8	13	9	0	-8	-10	-7	-3
Exports	0	0	-2	-6	-10	-12	-14	-15	-16
Imports	1	30	96	115	51	-2	-3	11	31
Nominal GDP (\$ Mill)	5	93	240	281	218	185	186	208	245
Prices (Change in per cent)									
Implicit Deflator for GDP	0.00	0.00	0.01	0.02	0.02	0.02	0.03	0.03	0.03
Consumer Price Index, All Items	0.00	0.00	0.01	0.02	0.02	0.02	0.02	0.02	0.02
Consumer Price Index, Rent	0.00	0.00	0.00	0.01	0.02	0.02	0.03	0.03	0.03
Selling Price - Single Houses	0.02	0.11	0.19	0.13	0.07	0.05	0.04	0.05	0.06
Employment									
Employment (Change in per cent)	0.00	0.01	0.02	0.02	0.01	0.00	0.00	0.00	0.00
Employment (Change in persons)	29	743	2143	2418	1259	83	-521	-478	-51
Unemployment (Change in persons)	-20	-498	-1411	-1514	-656	142	506	404	48
Unemployment Rate (% Pts)	0.00	0.00	-0.01	-0.01	-0.01	0.00	0.00	0.00	0.00
Interest Rates (Change in % Pts)									
90-day Paper Rate	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.01	0.01
Conventional Mortgage Rate	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.01
Foreign and Government Balances (Change in \$ Mill)									
Bal of Payments - Curr Account (\$ Mill)	0.0	-22.6	-84.2	-111.6	-52.9	-1.5	-1.8	-15.1	-35.2
Federal Surplus/Deficit (\$ Mill)	-203.6	-412.1	-229.6	-55.1	-72.7	-87.5	-108.8	-139.9	-163.2
Federal Debt (\$ Mill)	29.8	419.5	899.6	1038.0	1113.2	1208.9	1324.3	1472.5	1654.1
Provincial Surplus/Deficit (\$ Mill)	4.7	38.3	76.3	65.5	41.1	25.9	28.6	35.0	49.1
Housing Starts, Stocks and Vacancies									
Housing Starts - Singles (units)	18	105	154	75	18	6	2	4	5
Housing Starts - Multiples (units)	0	-4	-18	-32	-33	-22	-17	-19	-24
Housing Stock - Singles (units)	1	34	145	286	350	364	368	370	375
Housing Stock - Multiples (units)	0	-1	-4	-16	-41	-71	-97	-116	-136
Vacancy Rate (% Pts)	0.00	0.00	-0.02	-0.04	-0.03	-0.03	-0.02	-0.02	-0.02

TABLE 15
 FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
 CMHC Alternatives - Provincial Sales Tax - Nov/91

	1982	1983	1984	1985	1986	1987	1988	1989	1990
Real Output and Components (Changes in \$ 86 Mill)									
Real Gross Domestic Product	164	583	779	511	247	133	23	-34	-55
Real GDP (\$ 81 Mill)	133	472	630	413	200	107	18	-28	-44
Consumption	180	631	750	374	41	-50	-68	-77	-71
Government	0	0	0	0	0	0	0	0	0
Business Fixed Investment - Total	17	96	141	74	-1	-21	-18	6	29
Residential Construction	6	22	34	22	8	9	6	3	0
Non-Residential Construction	5	36	50	25	2	-6	-3	3	7
Machinery and Equipment	7	38	57	27	-10	-24	-20	0	22
Exports	7	37	65	67	61	43	27	15	7
Imports	33	208	211	14	-153	-172	-94	-34	12
Nominal GDP (\$ Mill)	-149	-290	-94	-120	-282	-209	-181	-139	-89
Prices (Change in per cent)									
Implicit Deflator for GDP	-0.08	-0.20	-0.19	-0.13	-0.10	-0.06	-0.03	-0.02	0.00
Consumer Price Index, All Items	-0.10	-0.24	-0.21	-0.13	-0.10	-0.06	-0.03	-0.02	-0.01
Consumer Price Index, Rent	0.00	-0.01	0.00	0.02	0.03	0.04	0.05	0.05	0.04
Selling Price - Single Houses	0.00	0.01	0.09	0.02	-0.08	-0.05	-0.07	-0.07	-0.06
Employment									
Employment (Change in per cent)	0.02	0.07	0.09	0.06	0.02	-0.01	-0.02	-0.02	-0.01
Employment (Change in persons)	1930	7414	10326	7151	2303	-797	-2058	-2170	-1816
Unemployment (Change in persons)	-1334	-5092	-6944	-4485	-987	1129	1846	1715	1306
Unemployment Rate (% Pts)	-0.01	-0.04	-0.06	-0.04	-0.01	0.01	0.01	0.01	0.01
Interest Rates (Change in % Pts)									
90-day Paper Rate	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Conventional Mortgage Rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foreign and Government Balances (Change in \$ Mill)									
Bal of Payments - Curr Account (\$ Mill)	-37.4	-191.1	-178.2	17.1	179.8	192.5	106.6	41.6	-6.8
Federal Surplus/Deficit (\$ Mill)	65.6	149.3	237.0	208.2	103.0	61.7	59.6	65.5	81.5
Federal Debt (\$ Mill)	-9.2	-141.8	-370.6	-647.9	-849.5	-952.1	-1022.4	-1094.1	-1178.6
Provincial Surplus/Deficit (\$ Mill)	-234.0	-435.7	-155.2	48.1	-24.4	-50.3	-44.8	-52.5	-57.2
Housing Starts, Stocks and Vacancies									
Housing Starts - Singles (units)	109	256	290	127	12	28	-19	-39	-50
Housing Starts - Multiples (units)	35	157	167	111	107	104	89	75	57
Housing Stock - Singles (units)	6	133	409	672	769	785	799	778	738
Housing Stock - Multiples (units)	1	26	127	275	405	513	615	706	784
Vacancy Rate (% Pts)	0.00	-0.02	-0.03	-0.03	-0.01	0.01	0.02	0.03	0.03

TABLE 16

FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
CMHC Alternatives - Manufacturers Sales Tax - Nov/91

	1982	1983	1984	1985	1986	1987	1988	1989	1990
Real Output and Components (Changes in \$ 86 Mill)									
Real Gross Domestic Product	197	524	690	561	383	264	127	69	64
Real GDP (\$ 81 Mill)	159	424	558	454	310	213	102	56	52
Consumption	216	641	658	364	182	131	96	85	116
Government	0	0	0	0	0	0	0	0	0
Business Fixed Investment - Total	20	101	142	81	21	-2	-10	3	21
Residential Construction	6	21	33	25	15	14	9	6	4
Non-Residential Construction	5	29	38	21	6	-1	-2	1	4
Machinery and Equipment	10	51	71	35	0	-14	-17	-5	13
Exports	6	33	57	59	52	35	18	6	-4
Imports	36	282	193	-49	-126	-107	-34	13	61
Nominal GDP (\$ Mill)	-120	-307	-104	-1	-68	19	31	89	176
Prices (Change in per cent)									
Implicit Deflator for GDP	-0.08	-0.19	-0.17	-0.11	-0.09	-0.05	-0.02	0.00	0.01
Consumer Price Index, All Items	-0.09	-0.21	-0.18	-0.12	-0.09	-0.05	-0.02	0.00	0.01
Consumer Price Index, Rent	0.00	-0.01	0.00	0.02	0.04	0.05	0.06	0.06	0.06
Selling Price - Single Houses	0.01	0.03	0.12	0.10	0.03	0.03	0.01	0.01	0.02
Employment									
Employment (Change in per cent)	0.02	0.06	0.08	0.06	0.03	0.00	-0.01	-0.01	-0.01
Employment (Change in persons)	2095	6702	8941	6944	3386	593	-1083	-1630	-1363
Unemployment (Change in persons)	-1443	-4577	-5991	-4387	-1762	193	1247	1442	1088
Unemployment Rate (% Pts)	-0.01	-0.04	-0.05	-0.04	-0.02	0.00	0.01	0.01	0.01
Interest Rates (Change in % Pts)									
90-day Paper Rate	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.01
Conventional Mortgage Rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Foreign and Government Balances (Change in \$ Mill)									
Bal of Payments - Curr Account (\$ Mill)	-38.0	-255.6	-163.7	73.9	150.6	126.3	45.8	-6.3	-58.1
Federal Surplus/Deficit (\$ Mill)	-158.6	-343.9	-115.8	62.1	-3.3	-32.1	-56.9	-92.1	-114.8
Federal Debt (\$ Mill)	24.2	335.7	705.8	705.8	660.2	677.0	727.1	814.9	938.7
Provincial Surplus/Deficit (\$ Mill)	38.7	97.6	103.7	65.5	23.6	3.6	10.1	5.8	14.1
Housing Starts, Stocks and Vacancies									
Housing Starts - Singles (units)	104	249	296	184	94	70	18	-2	-12
Housing Starts - Multiples (units)	30	136	147	99	88	75	60	45	25
Housing Stock - Singles (units)	6	128	396	673	834	923	978	992	987
Housing Stock - Multiples (units)	1	23	111	240	355	447	525	589	637
Vacancy Rate (% Pts)	0.00	-0.02	-0.03	-0.04	-0.03	-0.02	-0.01	0.00	0.00

TABLE 17

FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
CMHC Alternatives - Gov't Current Spending - Nov/91

	1982	1983	1984	1985	1986	1987	1988	1989	1990
Real Output and Components (Changes in \$ 86 Mill)									
Real Gross Domestic Product	272	546	361	127	55	45	32	47	82
Real GDP (\$ 81 Mill)	220	442	292	103	45	36	26	38	66
Consumption	58	230	300	179	55	48	76	95	124
Government	246	463	223	0	0	0	0	0	0
Business Fixed Investment - Total	9	45	41	-10	-32	-24	-10	-1	3
Residential Construction	1	5	5	-2	-4	0	0	1	1
Non-Residential Construction	3	21	20	0	-7	-5	-2	0	0
Machinery and Equipment	5	19	16	-7	-21	-18	-9	-1	2
Exports	0	-3	-10	-15	-18	-19	-20	-17	-14
Imports	37	196	196	28	-52	-41	13	29	32
Nominal GDP (\$ Mill)	233	537	472	302	248	257	252	239	249
Prices (Change in per cent)									
Implicit Deflator for GDP	0.00	0.01	0.03	0.04	0.04	0.04	0.04	0.03	0.02
Consumer Price Index, All Items	0.00	0.01	0.03	0.03	0.03	0.03	0.03	0.02	0.02
Consumer Price Index, Rent	0.00	0.00	0.00	0.01	0.02	0.02	0.03	0.03	0.03
Selling Price - Single Houses	0.04	0.15	0.20	0.11	0.08	0.08	0.07	0.07	0.07
Employment									
Employment (Change in per cent)	0.02	0.06	0.04	0.01	-0.01	-0.02	-0.01	-0.01	-0.01
Employment (Change in persons)	2222	5898	4840	1012	-1240	-2008	-1634	-1039	-654
Unemployment (Change in persons)	-1501	-3844	-2904	-235	1215	1589	1171	649	352
Unemployment Rate (% Pts)	-0.01	-0.03	-0.03	0.00	0.01	0.01	0.01	0.01	0.00
Interest Rates (Change in % Pts)									
90-day Paper Rate	0.01	0.03	0.02	0.01	0.01	0.01	0.01	0.01	0.01
Conventional Mortgage Rate	0.00	0.01	0.02	0.02	0.01	0.01	0.01	0.01	0.01
Foreign and Government Balances (Change in \$ Mill)									
Bal of Payments - Curr Account (\$ Mill)	-31.5	-170.8	-182.9	-31.9	46.2	33.6	-20.1	-34.5	-35.8
Federal Surplus/Deficit (\$ Mill)	-137.6	-340.8	-194.5	-46.3	-88.5	-99.4	-110.6	-131.1	-150.3
Federal Debt (\$ Mill)	19.6	312.3	709.7	830.4	906.9	1023.8	1152.3	1301.3	1475.3
Provincial Surplus/Deficit (\$ Mill)	37.7	90.4	88.9	40.4	14.6	13.2	24.9	31.5	42.9
Housing Starts, Stocks and Vacancies									
Housing Starts - Singles (units)	27	83	60	-12	-17	17	13	15	18
Housing Starts - Multiples (units)	-5	-44	-90	-90	-69	-42	-31	-27	-24
Housing Stock - Singles (units)	2	39	119	165	151	141	154	166	183
Housing Stock - Multiples (units)	0	-5	-33	-99	-182	-256	-309	-345	-376
Vacancy Rate (% Pts)	0.00	-0.01	-0.02	-0.04	-0.03	-0.03	-0.03	-0.03	-0.03

TABLE 18
FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
CMHC Alternatives - Gov't Capital Spending - Nov/91

	1982	1983	1984	1985	1986	1987	1988	1989	1990
Real Output and Components (Changes in \$ 86 Mill)									
Real Gross Domestic Product	236	450	261	82	36	34	30	48	79
Real GDP (\$ 81 Mill)	191	364	211	66	29	28	25	39	64
Consumption	51	200	242	120	21	28	56	73	96
Government	221	431	210	0	0	0	0	0	0
Business Fixed Investment - Total	8	36	26	-19	-32	-22	-10	-1	1
Residential Construction	1	5	3	-3	-4	0	0	1	2
Non-Residential Construction	3	16	13	-5	-8	-6	-2	-1	-1
Machinery and Equipment	4	15	10	-11	-20	-16	-8	-2	1
Exports	0	-2	-8	-12	-13	-14	-13	-10	-6
Imports	44	218	205	7	-59	-41	3	14	14
Nominal GDP (\$ Mill)	209	463	369	219	180	186	174	157	159
Prices (Change in per cent)									
Implicit Deflator for GDP	0.00	0.01	0.03	0.03	0.03	0.03	0.02	0.02	0.01
Consumer Price Index, All Items	0.00	0.01	0.03	0.03	0.02	0.02	0.02	0.01	0.01
Consumer Price Index, Rent	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.02	0.02
Selling Price - Single Houses	0.03	0.13	0.16	0.07	0.06	0.06	0.05	0.05	0.05
Employment									
Employment (Change in per cent)	0.02	0.04	0.03	0.00	-0.01	-0.02	-0.01	-0.01	-0.01
Employment (Change in persons)	1920	4755	3305	86	-1572	-1980	-1512	-971	-671
Unemployment (Change in persons)	-1298	-3094	-1933	284	1324	1474	1023	569	350
Unemployment Rate (% Pts)	-0.01	-0.03	-0.02	0.00	0.01	0.01	0.01	0.00	0.00
Interest Rates (Change in % Pts)									
90-day Paper Rate	0.01	0.02	0.02	0.01	0.01	0.00	0.00	0.00	0.01
Conventional Mortgage Rate	0.00	0.01	0.02	0.01	0.01	0.00	0.00	0.00	0.01
Foreign and Government Balances (Change in \$ Mill)									
Bal of Payments - Curr Account (\$ Mill)	-38.2	-194.1	-194.3	-10.9	54.9	35.4	-8.6	-17.7	-15.9
Federal Surplus/Deficit (\$ Mill)	-139.1	-341.2	-187.5	-31.2	-62.5	-66.1	-71.9	-85.2	-98.2
Federal Debt (\$ Mill)	20.1	316.0	708.9	817.4	870.9	951.8	1037.4	1135.0	1249.7
Provincial Surplus/Deficit (\$ Mill)	38.9	85.5	70.2	24.5	5.8	6.5	16.4	21.9	30.8
Housing Starts, Stocks and Vacancies									
Housing Starts - Singles (units)	26	74	43	-24	-17	13	11	15	19
Housing Starts - Multiples (units)	-3	-36	-77	-72	-53	-31	-21	-16	-13
Housing Stock - Singles (units)	2	38	108	137	115	104	113	125	141
Housing Stock - Multiples (units)	0	-4	-28	-82	-151	-210	-250	-277	-296
Vacancy Rate (% Pts)	0.00	-0.01	-0.02	-0.03	-0.02	-0.02	-0.02	-0.02	-0.02

TABLE 19

FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
CMHC Alternatives - Base Money Temporary Change - Nov/91

	1982	1983	1984	1985	1986	1987	1988	1989	1990
Real Output and Components (Changes in \$ 86 Mill)									
Real Gross Domestic Product	260	818	899	-280	-1503	-1851	-1210	-519	-332
Real GDP (\$ 81 Mill)	210	662	727	-226	-1216	-1497	-979	-420	-268
Consumption	158	405	394	42	-509	-1000	-1011	-644	-336
Government	0	0	0	0	0	0	0	0	0
Business Fixed Investment - Total	179	911	1550	708	-979	-1829	-1120	-153	131
Residential Construction	29	142	222	116	-19	-80	-62	-63	-53
Non-Residential Construction	104	347	378	-5	-356	-389	-111	40	59
Machinery and Equipment	46	422	951	596	-604	-1360	-948	-132	124
Exports	4	1	-63	-160	-165	-112	-72	-40	-25
Imports	73	542	1061	867	-262	-1237	-1037	-269	150
Nominal GDP (\$ Mill)	179	944	1880	1478	-33	-1149	-903	-427	-307
Prices (Change in per cent)									
Implicit Deflator for GDP	-0.01	0.05	0.23	0.37	0.29	0.14	0.07	0.03	0.01
Consumer Price Index, All Items	-0.02	0.01	0.17	0.32	0.25	0.12	0.07	0.04	0.03
Consumer Price Index, Rent	0.00	0.00	0.02	0.05	0.03	-0.02	-0.07	-0.10	-0.13
Selling Price - Single Houses	0.25	0.62	0.70	0.18	-0.60	-0.79	-0.56	-0.41	-0.30
Employment									
Employment (Change in per cent)	0.00	0.05	0.12	0.11	-0.01	-0.11	-0.08	0.02	0.06
Employment (Change in persons)	-12	5030	13546	11838	-1717	-13170	-9552	1900	7383
Unemployment (Change in persons)	42	-3152	-8480	-6832	2319	9341	5838	-2596	-6099
Unemployment Rate (% Pts)	0.00	-0.03	-0.07	-0.06	0.02	0.07	0.05	-0.02	-0.05
Interest Rates (Change in % Pts)									
90-day Paper Rate	-0.30	-0.39	-0.18	0.10	0.02	-0.02	-0.01	0.01	0.01
Conventional Mortgage Rate	-0.05	-0.20	-0.28	-0.12	-0.05	-0.02	-0.01	0.01	0.01
Foreign and Government Balances (Change in \$ Mill)									
Bal of Payments - Curr Account (\$ Mill)	-68.2	-503.7	-1066.9	-944.6	169.9	1144.2	957.4	237.9	-157.9
Federal Surplus/Deficit (\$ Mill)	36.6	423.6	689.1	239.5	-114.0	-287.4	-180.4	65.4	267.9
Federal Debt (\$ Mill)	-123.4	-700.3	-1281.3	-1594.3	-1745.9	-1545.4	-1284.2	-1238.3	-1510.2
Provincial Surplus/Deficit (\$ Mill)	19.5	68.3	91.0	51.5	-145.3	-291.7	-187.6	-4.0	88.5
Housing Starts, Stocks and Vacancies									
Housing Starts - Singles (units)	558	1711	2041	540	-634	-933	-688	-623	-485
Housing Starts - Multiples (units)	129	695	1048	478	74	-3	-27	-125	-175
Housing Stock - Singles (units)	26	804	2618	4350	4653	3935	3098	2428	1835
Housing Stock - Multiples (units)	2	104	557	1353	2014	2293	2346	2329	2247
Vacancy Rate (% Pts)	0.00	-0.01	0.00	0.00	0.04	0.12	0.16	0.16	0.13

TABLE 20

FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
CMHC Alternatives - Gov't Capital Spending + Money Financing - Nov/91

	1982	1983	1984	1985	1986	1987	1988	1989	1990
Real Output and Components (Changes in \$ 86 Mill)									
Real Gross Domestic Product	495	1265	1160	-195	-1466	-1821	-1187	-478	-269
Real GDP (\$ 81 Mill)	400	1023	939	-158	-1186	-1473	-960	-387	-217
Consumption	209	603	636	168	-476	-960	-945	-558	-232
Government	221	431	210	0	0	0	0	0	0
Business Fixed Investment - Total	187	942	1567	684	-1011	-1849	-1128	-155	124
Residential Construction	30	146	224	113	-23	-80	-61	-62	-54
Non-Residential Construction	107	361	388	-10	-363	-394	-113	39	56
Machinery and Equipment	50	435	956	581	-626	-1375	-955	-133	121
Exports	4	-1	-71	-171	-178	-126	-85	-50	-32
Imports	117	756	1257	873	-311	-1259	-1015	-234	180
Nominal GDP (\$ Mill)	387	1401	2241	1693	145	-967	-733	-273	-163
Prices (Change in per cent)									
Implicit Deflator for GDP	-0.02	0.06	0.26	0.40	0.32	0.17	0.09	0.04	0.02
Consumer Price Index, All Items	-0.02	0.01	0.19	0.35	0.27	0.14	0.09	0.06	0.04
Consumer Price Index, Rent	0.00	0.00	0.02	0.06	0.04	-0.01	-0.05	-0.08	-0.10
Selling Price - Single Houses	0.28	0.76	0.86	0.26	-0.54	-0.74	-0.51	-0.36	-0.26
Employment									
Employment (Change in per cent)	0.02	0.09	0.15	0.11	-0.03	-0.13	-0.09	0.01	0.05
Employment (Change in persons)	1904	9778	16897	12033	-3166	-15064	-10953	1068	6880
Unemployment (Change in persons)	-1254	-6243	-10449	-6627	3561	10765	6793	-2116	-5860
Unemployment Rate (% Pts)	-0.01	-0.05	-0.09	-0.06	0.03	0.09	0.05	-0.02	-0.04
Interest Rates (Change in % Pts)									
90-day Paper Rate	-0.29	-0.37	-0.16	0.10	0.03	-0.02	-0.01	0.02	0.02
Conventional Mortgage Rate	-0.05	-0.19	-0.26	-0.11	-0.04	-0.02	-0.01	0.01	0.02
Foreign and Government Balances (Change in \$ Mill)									
Bal of Payments - Curr Account (\$ Mill)	-106.4	-693.7	-1252.1	-953.1	214.8	1160.9	931.0	200.1	-190.1
Federal Surplus/Deficit (\$ Mill)	-102.9	78.9	495.4	206.2	-175.9	-354.2	-252.5	-20.2	161.5
Federal Debt (\$ Mill)	-103.1	-379.8	-562.9	-763.2	-860.2	-578.6	-231.8	-87.5	-240.6
Provincial Surplus/Deficit (\$ Mill)	58.5	154.3	162.1	75.7	-139.3	-285.1	-171.2	18.6	121.0
Housing Starts, Stocks and Vacancies									
Housing Starts - Singles (units)	582	1777	2073	512	-651	-917	-676	-609	-492
Housing Starts - Multiples (units)	125	655	965	401	18	-34	-47	-142	-198
Housing Stock - Singles (units)	27	837	2712	4464	4743	4014	3190	2533	1951
Housing Stock - Multiples (units)	2	99	527	1264	1852	2068	2080	2037	1936
Vacancy Rate (% Pts)	0.00	-0.01	-0.02	-0.03	0.01	0.09	0.14	0.13	0.10

Table 21

Cumulative net impacts on real GDP (Mil of 86\$)
Cumulative Totals from 1982 to

Policy #	1982	1983	1984	1985	1990
1 (CHOSP)	602	2,630	3,287	3,654	3,488
2 (CHRP X 3.45)	432	1,098	1,447	1,711	2,423
3 (Inc. Subsidy)	547	2,931	5,467	6,518	5,783
4 (Int. Subsidy)	171	920	1,757	2,171	2,300
5 (Cost Subsidy)	386	2,079	3,913	4,692	4,249
6 (CRSP x 3.45)	108	387	791	1,211	1,785
7 (Int. Subsidy)	102	371	774	1,214	2,030
8 (Cost Subsidy)	164	604	1,298	2,067	3,519
9 (Credit M&E)	75	415	798	963	830
10 (Credit, Non-Res)	24	179	435	638	487
11 (Emp. Subsidy)	351	1,011	1,447	1,527	1,500
12 (P.I.T. cut)	84	474	971	1,185	1,208
13 (Transfer Pay.)	64	359	741	917	997
14 (Corp. Taxes)	5	94	307	511	793
15 (Prov. Sales Tax)	164	747	1,520	2,037	2,341
16 (Man Sales Tax)	197	721	1,411	1,972	2,879
17 (G. Current V.)	272	878	1,179	1,306	1,567
18 (G. Capital)	236	686	947	1,029	1,256
19 (Money)	260	1,078	1,977	1,679	-3,718
20 (Money/Fiscal)	495	1,760	2,920	2,725	-2,496

Table 22

Cumulative Net Impacts on Employment
(person years)

Cumulative totals from 1982 to					
Policy #	1982	1983	1984	1985	1990
1 (CHOSP)	4,877	27,454	39,680	43,110	16,533
2 (CHRP X 3.45)	3,600	11,873	16,781	18,888	14,583
3 (Inc. Subsidy)	4,414	29,460	61,633	77,382	31,358
4 (Int. Subsidy)	1,377	9,189	19,577	25,204	13,507
5 (Cost Subsidy)	3,128	20,880	43,945	55,416	23,236
6 (CRSP x 3.45)	937	3,814	8,143	12,629	8,625
7 (Int. Subsidy)	894	3,672	7,977	12,651	11,009
8 (Cost Subsidy)	1,401	6,019	13,637	22,125	23,055
9 (Credit M&E)	628	4,331	9,552	12,705	9,914
10 (Credit. Non-Res)	228	2,173	6,263	10,607	18,583
11 (Emp. Subsidy)	21,851	64,335	89,275	94,673	92,053
12 (P.I.T. cut)	662	4,432	9,937	12,597	4,225
13 (Transfer Pay)	502	3,331	7,512	9,608	3,407
14 (Corp. Taxes)	29	772	2,915	5,333	5,625
15 (Prov. Sales Tax)	1,930	9,344	19,670	26,821	22,283
16 (Man Sales Tax)	2,095	8,797	17,738	24,682	24,585
17 (G. Current)	1,920	6,675	9,980	10,066	3,360
18 (G. Capital)	2,222	8,120	12,960	13,981	7,406
19 (Money)	-12	5,018	18,564	30,402	9,283
20 (Money/Fiscal)	1,904	11,682	28,579	40,612	19,377

UNIVERSITY OF TORONTO
140 St. George Street, Suite 707
TORONTO, CANADA M5S 1A1

Mr. Liming Sun
Program Evaluation Division
Canada Mortgage and Housing Corporation
National Office
700 Montreal Road
Ottawa, Ontario
K1A 0P7

I have made two changes to our Report. I have added a technical Appendix D, describing the Policies 1-8. I have also added an insert in Appendix B (pages 10, 11) that provides some explanation for the relative sizes of the economic impacts of Policy 6 (CRSP x 3.45) and Policy 7 (Interest Rate Subsidy).

With these changes I consider the Report to be final and our contractual obligations to have been fully met. I will, of course be willing to verbally discuss the Report with you or other staff members of CMHC.

Within the Report there remains one area of possible ambiguity that I will point out within this letter. This has to do with the up-scaled CRSP program, Policy 6.

Data relating to the original CRSP program that were provided to us by CMHC for an earlier study appear to contain certain inconsistencies. Specifically, the total number of CRSP recipients is reported to have been 24,122 (multiple units), the average Federal CRSP loan is reported to have been \$5,485, and total Federal loans made under CRSP are reported to have been \$257.4 million.

It can readily be determined that these figures are not consistent: 24,122 times \$5,485 falls well short of \$256.4 million. One or more of these figures is likely incorrect.

The \$257.4 million loan total appears to be a fairly solid figure in that it matches quite nicely with the data reported in Canadian Housing Statistics for annual subsidy costs of CRSP. It seems likely, then, that either the number of CRSP recipients or the average loan per recipient were higher than the reported values.

In simulating the original CRSP program in an earlier study, the apparent discrepancies among these figures were not noticed had no bearing on the results. The only

figure used directly in those earlier stimulations was the loan total (and its associated annual subsidies). We were able to estimate in that study that CRSP stimulated a total of 10,803 marginal new starts.

However, in re-scaling CRSP to a level of program costs (and total loans) of 3.45 times the original, I require a solid figure for the number of infra-marginal recipients. Here the discrepancies do matter.

I have had to choose between two alternative interpretations of the data.

- (i) If the total CRSP recipients really was 24,122, then the number of infra-marginal recipients must have been 13,319. However, in this case the average federal loan must have been \$256.4 million ÷ 24,122 or, \$10,670, and the present discounted value of the average subsidy (federal plus provincial) must have been \$9,286. This combination implies that an up-scaled CRSP program should have an impact on marginal new starts of 2.23 times the original -- a total of 24,091 new starts.
- (ii) Alternatively, if the average federal loan of \$5,485 is correct, the original CRSP program must have had \$254.4 million ÷ \$5,485 or, 46,928 recipients. A total of 36,125 of these would have been infra-marginal. Based on program costs of \$224 million, the average subsidy per recipient (federal plus provincial) would have been \$4,773. This combination implies that an up-scaled CRSP program should have an impact on marginal new starts of 2.55 times the original for a total of 27,548 new starts.

In preparing the Report I decided to use option (i), which is the more conservative. The difference between the two options is not that large. Had I chosen option (ii) the relative rankings of Policy 6 on real GDP and employment criteria would likely be unaltered.

I am pleased to have been associated with you on this project and hope that we may have the opportunity to work together again at some time in the not too distant future.

Sincerely,



G. V. Jump

APPENDIX A

IMPACT ESTIMATES ON A QUARTERLY BASIS:

1982:Q3 TO 1984:Q2

FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
CMHC Alternatives - History - Nov/91

	1982:3	1982:4	1983:1	1983:2	1983:3	1983:4	1984:1	1984:2
Real Output and Components (\$ 86 Mill)								
Real Gross Domestic Product	424096	420716	427860	437488	444516	447928	455316	465812
Real GDP (\$ 81 Mill)	343094	340359	346139	353928	359613	362374	368351	376842
Consumption	250196	249360	253872	256972	261324	263448	267200	269888
Government	104772	105904	104356	104740	105928	105660	106256	106568
Business Fixed Investment - Total	70964	72664	72772	74652	75584	75960	75836	75300
Residential Construction	19880	21724	22928	25524	25652	24372	24492	24392
Non-Residential Construction	26756	27184	26568	26120	25904	26464	26052	25832
Machinery and Equipment	24308	23936	23576	23516	24444	25356	25504	25296
Exports	102164	96540	98768	104728	105640	114932	117820	123288
Imports	88244	86192	89164	91352	99456	109608	112748	113996
Nominal GDP (\$ Mill)	376184	379904	388648	401260	412472	420488	431320	442348
Prices (86 or 81 =1.0)								
Implicit Deflator for GDP	0.89	0.90	0.91	0.92	0.93	0.94	0.95	0.95
Consumer Price Index, All Items	0.85	0.86	0.87	0.88	0.89	0.90	0.91	0.92
Consumer Price Index, Rent	1.10	1.13	1.15	1.16	1.18	1.20	1.21	1.22
Selling Price - Single Houses	0.98	0.97	0.97	0.97	0.97	0.97	0.98	0.98
Employment								
Employment ('000)	10515	10464	10516	10637	10751	10796	10820	10867
Unemployment ('000)	1435	1515	1509	1480	1397	1345	- 1375	1399
Unemployment Rate (%)	12.01	12.65	12.55	12.22	11.50	11.08	11.28	11.41
Interest Rates (%)								
90-day Paper Rate	14.32	10.88	9.62	9.32	9.33	9.55	10.08	11.45
Conventional Mortgage Rate	18.48	15.05	13.70	13.13	13.51	12.83	12.63	14.10
Foreign and Government Balances (\$ Mill)								
Bal of Payments - Curr Account (\$ Mill)	5800	3108	4344	6968	532	412	-748	1100
Federal Surplus/Deficit (\$ Mill)	-24492	-26084	-24136	-21536	-29216	-25084	-28248	-31236
Federal Debt (\$ Mill)	89494	96214	104135	111259	118020	125959	133714	142300
Provincial Surplus/Deficit (\$ Mill)	-3444	-12044	-5228	-6264	-9372	-4192	-2676	-2780
Housing Starts, Stocks and Vacancies								
Housing Starts - Singles ('000)	55	79	61	178	91	80	50	110
Housing Starts - Multiples ('000)	51	69	47	77	57	61	50	52
Housing Stock - Singles ('000)	4989	5002	5015	5028	5046	5078	5104	5121
Housing Stock - Multiples ('000)	3636	3661	3678	3696	3710	3728	3745	3757
Occupancy Rate (% Pts)	0.983	0.979	0.976	0.973	0.973	0.973	0.973	0.973

TABLE A1
FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
CMHC Alternatives - CHOSP - Nov/91

	1982:3	1982:4	1983:1	1983:2	1983:3	1983:4	1984:1	1984:2
Real Output and Components (Changes in \$ 86 Mill)								
Real Gross Domestic Product	745	1665	2261	2565	2019	1267	802	610
Real GDP (\$ 81 Mill)	603	1347	1829	2075	1633	1025	649	493
Consumption	136	383	674	948	1057	1105	1112	1082
Government	0	0	0	0	0	0	0	0
Business Fixed Investment - Total	866	1579	1982	2186	1381	706	251	-8
Residential Construction	857	1532	1880	2032	1199	532	107	-117
Non-Residential Construction	0	18	48	74	91	85	66	45
Machinery and Equipment	9	29	54	80	90	89	78	64
Exports	0	2	5	10	11	16	17	19
Imports	97	261	516	787	763	788	639	457
Nominal GDP (\$ Mill)	655	1445	1968	2205	1779	1081	651	475
Prices (Change in per cent)								
Implicit Deflator for GDP	0.00	-0.02	-0.02	-0.04	-0.02	-0.03	-0.03	-0.02
Consumer Price Index, All Items	0.00	-0.05	-0.11	-0.18	-0.12	-0.17	-0.15	-0.12
Consumer Price Index, Rent	0.00	0.00	0.00	-0.01	0.00	-0.01	0.00	0.00
Selling Price - Single Houses	1.59	1.59	1.28	0.87	-1.10	-1.33	-1.44	-1.51
Employment								
Employment (Change in per cent)	0.05	0.13	0.20	0.25	0.22	0.18	0.14	0.12
Employment (Change in persons)	5598	13910	20785	26020	23915	19592	15528	12681
Unemployment (Change in persons)	-3807	-9424	-14001	-17419	-15753	-12603	-9688	-7653
Unemployment Rate (% Pts)	-0.03	-0.08	-0.12	-0.15	-0.14	-0.11	-0.08	-0.07
Interest Rates (Change in % Pts)								
90-day Paper Rate	0.04	0.07	0.09	0.10	0.09	0.06	0.04	0.03
Conventional Mortgage Rate	0.00	0.01	0.02	0.03	0.04	0.05	0.05	0.05
Foreign and Government Balances (Change in \$ Mill)								
Bal of Payments - Curr Account (\$ Mill)	-82.8	-228.7	-455.1	-708.1	-676.6	-712.7	-587.7	-428.2
Federal Surplus/Deficit (\$ Mill)	-393.7	-163.2	125.6	111.4	-73.2	-187.3	106.5	152.5
Federal Debt (\$ Mill)	0.0	117.5	163.4	122.1	86.9	109.3	169.1	141.0
Provincial Surplus/Deficit (\$ Mill)	201.0	376.2	472.0	560.1	459.2	398.6	255.0	188.0
Housing Starts, Stocks and Vacancies								
Housing Starts - Singles (units)	24491	24507	24229	23867	-1229	-1427	-1583	-1677
Housing Starts - Multiples (units)	-8	-13	-15	-10	-49	-57	-74	-100
Housing Stock - Singles (units)	0	2197	6673	12669	18606	22238	23495	23134
Housing Stock - Multiples (units)	0	0	-1	-3	-4	-7	-13	-20
Vacancy Rate (% Pts)	0.00	-0.01	-0.01	-0.02	-0.03	-0.04	-0.05	-0.05

Table A2
FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
CMHC Alternatives - CRRP - Feb/92

	1982:3	1982:4	1983:1	1983:2	1983:3	1983:4	1984:1	1984:2
Real Output and Components (Changes in \$ 86 Mill)								
Real Gross Domestic Product	662	903	946	965	466	285	321	363
Real GDP (\$ 81 Mill)	536	731	766	780	377	231	260	294
Consumption	136	249	350	441	433	432	438	431
Government	0	0	0	0	0	0	0	0
Business Fixed Investment - Total	700	761	779	793	142	113	95	79
Residential Construction	687	726	725	724	74	61	55	46
Non-Residential Construction	3	16	27	33	35	24	17	12
Machinery and Equipment	10	19	28	35	33	28	24	20
Exports	0	1	3	5	5	6	6	6
Imports	102	175	273	359	283	257	194	135
Nominal GDP (\$ Mill)	578	776	820	829	407	247	272	309
Prices (Change in per cent)								
Implicit Deflator for GDP	0.00	-0.01	-0.01	-0.01	-0.01	0.00	-0.01	-0.01
Consumer Price Index, All Items	-0.01	-0.04	-0.06	-0.08	-0.05	-0.05	-0.05	-0.04
Consumer Price Index, Rent	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Selling Price - Single Houses	0.09	0.14	0.13	0.14	0.12	0.13	0.12	0.10
Employment								
Employment (Change in per cent)	0.05	0.08	0.09	0.10	0.07	0.05	0.05	0.05
Employment (Change in persons)	5146	8036	9438	10614	7278	5763	5526	5251
Unemployment (Change in persons)	-3485	-5408	-6297	-7030	-4653	-3568	-3384	-3178
Unemployment Rate (% Pts)	-0.03	-0.05	-0.06	-0.06	-0.04	-0.03	-0.03	-0.03
Interest Rates (Change in % Pts)								
90-day Paper Rate	0.04	0.04	0.04	0.04	0.02	0.01	0.01	0.02
Conventional Mortgage Rate	0.00	0.01	0.01	0.02	0.02	0.02	0.02	0.02
Foreign and Government Balances (Change in \$ Mill)								
Bal of Payments - Curr Account (\$ Mill)	-88.2	-154.7	-242.1	-323.3	-251.1	-231.5	-178.0	-127.0
Federal Surplus/Deficit (\$ Mill)	-457.1	-428.1	-479.5	-512.3	-6.6	-11.9	20.7	50.0
Federal Debt (\$ Mill)	50.9	187.4	314.0	456.6	610.4	613.4	619.1	614.4
Provincial Surplus/Deficit (\$ Mill)	193.2	254.3	282.9	303.3	122.1	105.5	93.5	85.0
Housing Starts, Stocks and Vacancies								
Housing Starts - Singles (units)	76	138	120	134	64	81	56	25
Housing Starts - Multiples (units)	-9	-10	-13	-12	-29	-35	-40	-48
Housing Stock - Singles (units)	60	149	279	446	609	758	898	1026
Housing Stock - Multiples (units)	0	0	-1	-2	-4	-6	-10	-15
Vacancy Rate (% Pts)	0.00	0.00	-0.01	-0.01	-0.02	-0.02	-0.02	-0.02

Table A3
 FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
 CMHC Alternatives - Income Subsidy to Buyers - Feb/92

	1982:3	1982:4	1983:1	1983:2	1983:3	1983:4	1984:1	1984:2
Real Output and Components (Changes in \$ 86 Mill)								
Real Gross Domestic Product	677	1511	2050	2324	2549	2615	2743	2950
Real GDP (\$ 81 Mill)	548	1222	1658	1880	2062	2115	2219	2387
Consumption	124	345	605	851	1083	1316	1567	1812
Government	0	0	0	0	0	0	0	0
Business Fixed Investment - Total	788	1436	1803	1989	2076	2057	2079	2123
Residential Construction	780	1394	1710	1849	1898	1845	1842	1870
Non-Residential Construction	0	16	44	67	84	98	105	108
Machinery and Equipment	8	26	49	72	94	114	131	144
Exports	0	1	4	9	11	16	20	24
Imports	89	238	468	713	775	980	1068	1151
Nominal GDP (\$ Mill)	597	1313	1786	2000	2245	2318	2430	2630
Prices (Change in per cent)								
Implicit Deflator for GDP	0.00	-0.01	-0.02	-0.03	-0.03	-0.03	-0.04	-0.04
Consumer Price Index, All Items	0.00	-0.05	-0.10	-0.16	-0.15	-0.20	-0.22	-0.23
Consumer Price Index, Rent	0.00	0.00	0.00	-0.01	-0.01	-0.01	-0.01	-0.01
Selling Price - Single Houses	1.22	1.21	0.93	0.56	0.22	-0.07	-0.45	-0.85
Employment								
Employment (Change in per cent)	0.05	0.12	0.18	0.22	0.26	0.28	0.30	0.32
Employment (Change in persons)	5060	12600	18823	23563	27527	30273	32643	35058
Unemployment (Change in persons)	-3440	-8535	-12678	-15773	-18305	-19982	-21406	-22858
Unemployment Rate (% Pts)	-0.03	-0.08	-0.11	-0.14	-0.16	-0.17	-0.19	-0.20
Interest Rates (Change in % Pts)								
90-day Paper Rate	0.04	0.07	0.09	0.09	0.10	0.11	0.12	0.14
Conventional Mortgage Rate	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.08
Foreign and Government Balances (Change in \$ Mill)								
Bal of Payments - Curr Account (\$ Mill)	-76.0	-208.1	-413.2	-641.4	-689.2	-884.2	-984.3	-1082.4
Federal Surplus/Deficit (\$ Mill)	-150.3	65.0	93.7	80.1	74.0	136.3	144.3	208.7
Federal Debt (\$ Mill)	0.0	44.6	22.4	-9.0	-34.6	-57.1	-96.1	-137.4
Provincial Surplus/Deficit (\$ Mill)	155.0	312.6	430.6	510.4	547.9	602.7	647.0	682.9
Housing Starts, Stocks and Vacancies								
Housing Starts - Singles (units)	22279	22294	22041	21715	21332	21076	20695	20265
Housing Starts - Multiples (units)	-8	-12	-15	-10	-36	-51	-72	-113
Housing Stock - Singles (units)	0	1999	6070	11525	16926	22244	27482	32635
Housing Stock - Multiples (units)	0	0	-1	-2	-4	-7	-11	-18
Vacancy Rate (% Pts)	0.00	-0.01	-0.01	-0.02	-0.03	-0.04	-0.06	-0.07

Table A4
 FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
 CMHC Alternatives - Mortgage Interest Subsidy - Feb/92

	1982:3	1982:4	1983:1	1983:2	1983:3	1983:4	1984:1	1984:2
Real Output and Components (Changes in \$ 86 Mill)								
Real Gross Domestic Product	214	470	636	722	802	835	884	958
Real GDP (\$ 81 Mill)	173	380	514	584	649	675	716	775
Consumption	53	124	209	287	371	453	541	629
Government	0	0	0	0	0	0	0	0
Business Fixed Investment - Total	236	430	540	595	622	616	624	638
Residential Construction	233	416	510	551	565	549	548	556
Non-Residential Construction	0	5	14	21	26	31	33	34
Machinery and Equipment	3	8	16	23	30	36	42	47
Exports	0	1	2	3	4	6	7	8
Imports	30	76	147	221	239	303	333	361
Nominal GDP (\$ Mill)	193	406	551	616	702	734	776	847
Prices (Change in per cent)								
Implicit Deflator for GDP	0.00	0.00	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
Consumer Price Index, All Items	0.00	-0.02	-0.03	-0.06	-0.05	-0.07	-0.07	-0.08
Consumer Price Index, Rent	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Selling Price - Single Houses	1.29	1.29	1.21	1.10	1.01	0.93	0.82	0.70
Employment								
Employment (Change in per cent)	0.02	0.04	0.06	0.07	0.08	0.09	0.10	0.10
Employment (Change in persons)	1613	3896	5807	7294	8600	9550	10389	11237
Unemployment (Change in persons)	-1096	-2640	-3910	-4884	-5722	-6313	-6823	-7343
Unemployment Rate (% Pts)	-0.01	-0.02	-0.03	-0.04	-0.05	-0.05	-0.06	-0.06
Interest Rates (Change in % Pts)								
90-day Paper Rate	0.01	0.02	0.03	0.03	0.03	0.03	0.04	0.05
Conventional Mortgage Rate	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02
Foreign and Government Balances (Change in \$ Mill)								
Bal of Payments - Curr Account (\$ Mill)	-25.7	-66.6	-130.1	-199.2	-212.9	-273.6	-306.4	-339.4
Federal Surplus/Deficit (\$ Mill)	-17.6	48.0	56.7	52.8	-30.8	-9.0	-6.5	12.0
Federal Debt (\$ Mill)	0.0	5.2	-9.9	-27.7	-44.1	-34.9	-31.7	-29.2
Provincial Surplus/Deficit (\$ Mill)	46.1	95.9	132.2	156.7	182.0	200.6	216.2	229.0
Housing Starts, Stocks and Vacancies								
Housing Starts - Singles (units)	6665	6652	6570	6460	6356	6274	6154	6023
Housing Starts - Multiples (units)	-2	-3	-3	0	-8	-13	-19	-33
Housing Stock - Singles (units)	0	598	1815	3443	5052	6636	8195	9729
Housing Stock - Multiples (units)	0	0	0	-1	-1	-1	-3	-4
Vacancy Rate (% Pts)	0.00	0.00	0.00	-0.01	-0.01	-0.02	-0.02	-0.02

Table A5
FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
CMHC Alternatives - Cost Subsidy - Feb/92

	1982:3	1982:4	1983:1	1983:2	1983:3	1983:4	1984:1	1984:2
Real Output and Components (Changes in \$ 86 Mill)								
Real Gross Domestic Product	481	1065	1444	1642	1814	1873	1974	2127
Real GDP (\$ 81 Mill)	389	861	1168	1328	1468	1515	1597	1721
Consumption	120	295	496	685	868	1048	1241	1429
Government	0	0	0	0	0	0	0	0
Business Fixed Investment - Total	527	959	1205	1329	1387	1374	1389	1418
Residential Construction	521	929	1140	1230	1261	1224	1221	1238
Non-Residential Construction	0	11	30	47	59	69	74	76
Machinery and Equipment	6	19	35	51	66	81	93	103
Exports	0	1	3	6	8	12	14	17
Imports	64	170	333	508	552	702	770	835
Nominal GDP (\$ Mill)	423	924	1257	1413	1601	1666	1758	1910
Prices (Change in per cent)								
Implicit Deflator for GDP	0.00	-0.01	-0.01	-0.02	-0.02	-0.02	-0.03	-0.02
Consumer Price Index, All Items	0.00	-0.03	-0.07	-0.12	-0.11	-0.14	-0.15	-0.16
Consumer Price Index, Rent	0.00	0.00	0.00	0.00	0.00	-0.01	-0.01	-0.01
Selling Price - Single Houses	2.97	2.99	2.80	2.56	2.33	2.14	1.88	1.61
Employment								
Employment (Change in per cent)	0.03	0.09	0.13	0.16	0.18	0.20	0.22	0.23
Employment (Change in persons)	3613	8900	13272	16636	19532	21567	23338	25116
Unemployment (Change in persons)	-2457	-6030	-8940	-11138	-12992	-14241	-15311	-16380
Unemployment Rate (% Pts)	-0.02	-0.05	-0.08	-0.10	-0.11	-0.12	-0.13	-0.14
Interest Rates (Change in % Pts)								
90-day Paper Rate	0.03	0.05	0.06	0.07	0.07	0.08	0.09	0.10
Conventional Mortgage Rate	0.00	0.01	0.01	0.02	0.03	0.04	0.05	0.05
Foreign and Government Balances (Change in \$ Mill)								
Bal of Payments - Curr Account (\$ Mill)	-55.1	-148.5	-294.3	-457.3	-491.2	-633.6	-709.2	-784.6
Federal Surplus/Deficit (\$ Mill)	-210.4	-63.9	-43.9	-54.7	-63.7	-17.1	-13.7	25.0
Federal Debt (\$ Mill)	0.0	62.8	80.0	91.0	106.2	125.2	131.7	137.2
Provincial Surplus/Deficit (\$ Mill)	126.1	237.6	322.4	379.6	407.5	448.2	483.0	510.3
Housing Starts, Stocks and Vacancies								
Housing Starts - Singles (units)	14872	14852	14671	14429	14156	13971	13700	13405
Housing Starts - Multiples (units)	-5	-8	-9	-6	-25	-37	-54	-84
Housing Stock - Singles (units)	0	1334	4050	7684	11278	14811	18287	21702
Housing Stock - Multiples (units)	0	0	-1	-2	-3	-4	-7	-12
Vacancy Rate (% Pts)	0.00	-0.01	-0.01	-0.02	-0.03	-0.04	-0.05	-0.06

Table A6
FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
CMHC Alternatives - CRSP - Upscaled - Feb/92

	1982:3	1982:4	1983:1	1983:2	1983:3	1983:4	1984:1	1984:2
Real Output and Components (Changes in \$ 86 Mill)								
Real Gross Domestic Product	134	198	236	256	301	322	347	383
Real GDP (\$ 81 Mill)	109	160	191	207	243	260	281	310
Consumption	36	63	93	113	145	165	187	212
Government	0	0	0	0	0	0	0	0
Business Fixed Investment - Total	128	175	200	221	246	258	273	288
Residential Construction	123	166	187	203	226	233	244	257
Non-Residential Construction	2	4	6	8	10	11	12	13
Machinery and Equipment	3	5	7	9	12	14	16	18
Exports	0	0	0	1	1	1	1	2
Imports	28	45	74	100	102	125	132	136
Nominal GDP (\$ Mill)	119	177	216	229	285	299	321	356
Prices (Change in per cent)								
Implicit Deflator for GDP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Price Index, All Items	0.00	-0.01	-0.01	-0.02	-0.02	-0.02	-0.03	-0.03
Consumer Price Index, Rent	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01
Selling Price - Single Houses	0.02	0.03	0.04	0.04	0.07	0.07	0.08	0.09
Employment								
Employment (Change in per cent)	0.01	0.02	0.02	0.02	0.03	0.03	0.03	0.04
Employment (Change in persons)	1141	1783	2277	2627	3155	3452	3768	4125
Unemployment (Change in persons)	-766	-1194	-1515	-1736	-2075	-2256	-2450	-2673
Unemployment Rate (% Pts)	-0.01	-0.01	-0.01	-0.02	-0.02	-0.02	-0.02	-0.02
Interest Rates (Change in % Pts)								
90-day Paper Rate	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02
Conventional Mortgage Rate	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01
Foreign and Government Balances (Change in \$ Mill)								
Bal of Payments - Curr Account (\$ Mill)	-24.4	-39.3	-64.8	-89.4	-90.8	-113.1	-121.2	-128.7
Federal Surplus/Deficit (\$ Mill)	26.7	40.6	16.9	27.7	25.0	31.2	0.4	11.9
Federal Debt (\$ Mill)	-4.9	-13.1	-25.4	-30.5	-38.7	-45.8	-54.8	-54.6
Provincial Surplus/Deficit (\$ Mill)	22.2	34.6	42.1	50.4	55.3	64.7	67.8	73.5
Housing Starts, Stocks and Vacancies								
Housing Starts - Singles (units)	17	28	36	39	54	58	58	63
Housing Starts - Multiples (units)	6240	7114	7840	8306	8601	8886	9111	9122
Housing Stock - Singles (units)	1	3	8	14	23	34	47	60
Housing Stock - Multiples (units)	428	953	1714	2720	3965	5432	7099	8939
Vacancy Rate (% Pts)	0.00	0.01	0.02	0.04	0.07	0.10	0.13	0.17

Table A7
 FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
 CMHC Alternatives - Mortgage Interest Subsidy to Builders - Feb/92

	1982:3	1982:4	1983:1	1983:2	1983:3	1983:4	1984:1	1984:2
Real Output and Components (Changes in \$ 86 Mill)								
Real Gross Domestic Product	128	188	226	246	291	314	342	381
Real GDP (\$ 81 Mill)	103	152	183	199	235	254	276	308
Consumption	34	60	90	111	144	166	193	223
Government	0	0	0	0	0	0	0	0
Business Fixed Investment - Total	121	166	191	210	235	247	261	276
Residential Construction	117	158	178	193	215	222	233	246
Non-Residential Construction	2	4	6	8	9	11	12	13
Machinery and Equipment	3	4	7	9	11	14	16	18
Exports	0	0	0	1	1	1	1	2
Imports	26	43	70	95	99	122	130	137
Nominal GDP (\$ Mill)	113	169	206	220	276	293	318	356
Prices (Change in per cent)								
Implicit Deflator for GDP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Price Index, All Items	0.00	-0.01	-0.01	-0.02	-0.02	-0.02	-0.02	-0.03
Consumer Price Index, Rent	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01
Selling Price - Single Houses	0.02	0.03	0.04	0.05	0.07	0.08	0.09	0.11
Employment								
Employment (Change in per cent)	0.01	0.02	0.02	0.02	0.03	0.03	0.03	0.04
Employment (Change in persons)	1085	1700	2179	2526	3050	3361	3696	4079
Unemployment (Change in persons)	-728	-1139	-1448	-1669	-2008	-2199	-2405	-2648
Unemployment Rate (% Pts)	-0.01	-0.01	-0.01	-0.01	-0.02	-0.02	-0.02	-0.02
Interest Rates (Change in % Pts)								
90-day Paper Rate	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02
Conventional Mortgage Rate	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01
Foreign and Government Balances (Change in \$ Mill)								
Bal of Payments - Curr Account (\$ Mill)	-23.0	-37.5	-61.8	-85.7	-87.6	-110.0	-119.4	-128.7
Federal Surplus/Deficit (\$ Mill)	-60.0	-62.5	-107.3	-58.1	-198.8	-221.1	-147.1	-135.5
Federal Debt (\$ Mill)	-7.8	10.1	28.7	60.8	78.4	138.4	205.1	249.4
Provincial Surplus/Deficit (\$ Mill)	21.8	34.1	43.1	51.4	56.8	67.1	76.2	83.7
Housing Starts, Stocks and Vacancies								
Housing Starts - Singles (units)	16	28	38	42	58	65	71	79
Housing Starts - Multiples (units)	5932	6763	7453	7895	8176	8446	8661	8670
Housing Stock - Singles (units)	1	3	7	14	23	35	48	64
Housing Stock - Multiples (units)	407	906	1629	2586	3769	5163	6748	8497
Vacancy Rate (% Pts)	0.00	0.01	0.02	0.04	0.06	0.09	0.13	0.17

Table A8
 FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
 CMHC Alternatives - Cost Subsidy to Builders of Rental Housing - Feb/92

	1982:3	1982:4	1983:1	1983:2	1983:3	1983:4	1984:1	1984:2
Real Output and Components (Changes in \$ 86 Mill)								
Real Gross Domestic Product	204	298	358	401	474	524	583	654
Real GDP (\$ 81 Mill)	165	241	290	325	384	424	472	529
Consumption	55	92	134	178	227	281	343	408
Government	0	0	0	0	0	0	0	0
Business Fixed Investment - Total	192	262	301	331	372	390	415	440
Residential Construction	185	250	281	305	340	351	370	390
Non-Residential Construction	3	6	9	12	15	18	20	21
Machinery and Equipment	4	7	10	14	17	21	25	29
Exports	0	0	1	1	2	3	3	4
Imports	41	64	102	138	144	182	204	228
Nominal GDP (\$ Mill)	179	260	314	350	421	471	527	597
Prices (Change in per cent)								
Implicit Deflator for GDP	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	-0.01
Consumer Price Index, All Items	-0.01	-0.01	-0.02	-0.03	-0.03	-0.04	-0.04	-0.04
Consumer Price Index, Rent	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	-0.01
Selling Price - Single Houses	0.03	0.05	0.06	0.08	0.12	0.15	0.18	0.21
Employment								
Employment (Change in per cent)	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07
Employment (Change in persons)	1716	2670	3464	4175	5046	5791	6491	7193
Unemployment (Change in persons)	-1152	-1788	-2308	-2769	-3335	-3809	-4251	-4693
Unemployment Rate (% Pts)	-0.01	-0.02	-0.02	-0.02	-0.03	-0.03	-0.04	-0.04
Interest Rates (Change in % Pts)								
90-day Paper Rate	0.01	0.01	0.02	0.02	0.02	0.02	0.03	0.03
Conventional Mortgage Rate	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.02
Foreign and Government Balances (Change in \$ Mill)								
Bal of Payments - Curr Account (\$ Mill)	-35.6	-56.5	-89.8	-124.3	-128.2	-163.8	-187.4	-214.1
Federal Surplus/Deficit (\$ Mill)	-354.4	-402.6	-591.6	-380.5	-588.7	-631.4	-430.6	-398.8
Federal Debt (\$ Mill)	-12.6	93.5	213.9	391.2	505.3	682.0	871.9	1001.4
Provincial Surplus/Deficit (\$ Mill)	34.8	55.9	72.3	86.8	100.3	116.0	133.4	148.4
Housing Starts, Stocks and Vacancies								
Housing Starts - Singles (units)	25	47	59	81	107	129	148	168
Housing Starts - Multiples (units)	9348	10658	11746	12444	12887	13312	13649	13663
Housing Stock - Singles (units)	2	5	13	24	40	61	87	119
Housing Stock - Multiples (units)	641	1427	2568	4075	5940	8137	10635	13391
Vacancy Rate (% Pts)	0.00	0.02	0.03	0.06	0.10	0.15	0.20	0.26

Greg - here are the revised sims.

There is a problem with #3 (Income subsidy to buyers) in that I cannot replicate the original simulation. (I have replicated all the other ones before I changed them - and I can also replicate #1). I must have made some kind of mistake in doing this one but, although I have tried several combinations, I cannot replicate the mistake either.

Anyway, I have included a 'revised original' table for what I think should be #3 before the changes you gave me. The Table 3 in the set is then this revised original with the dummy rescaled as you showed me.

If this is going to cause a problem, I can look harder to see what the error was (and I do think it was an error since the 'revised original' I have given you is my best shot at following your original instructions).

I will be in by midday Monday. / Peter

TABLE A9

FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
CMHC Alternatives - Investment Tax Credits - M&E - Nov/91

	1982:3	1982:4	1983:1	1983:2	1983:3	1983:4	1984:1	1984:2
Real Output and Components (Changes in \$ 86 Mill)								
Real Gross Domestic Product	99	202	263	314	373	410	414	417
Real GDP (\$ 81 Mill)	80	163	213	254	302	331	335	338
Consumption	30	69	117	168	229	285	337	381
Government	0	0	0	0	0	0	0	0
Business Fixed Investment - Total	110	188	233	280	325	365	354	347
Residential Construction	1	3	5	8	11	12	14	14
Non-Residential Construction	15	24	30	36	42	47	44	43
Machinery and Equipment	94	161	197	236	273	306	297	290
Exports	0	0	0	0	-1	-1	-3	-4
Imports	21	54	101	154	196	264	302	329
Nominal GDP (\$ Mill)	90	183	247	305	381	437	466	498
Prices (Change in per cent)								
Implicit Deflator for GDP	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.02
Consumer Price Index, All Items	0.00	-0.01	-0.01	0.00	0.00	0.00	0.01	0.02
Consumer Price Index, Rent	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Selling Price - Single Houses	0.04	0.06	0.10	0.14	0.19	0.21	0.24	0.26
Employment								
Employment (Change in per cent)	0.01	0.02	0.02	0.03	0.04	0.04	0.05	0.05
Employment (Change in persons)	758	1757	2553	3306	4136	4816	5178	5429
Unemployment (Change in persons)	-516	-1189	-1716	-2208	-2746	-3176	-3380	-3509
Unemployment Rate (% Pts)	0.00	-0.01	-0.02	-0.02	-0.02	-0.03	-0.03	-0.03
Interest Rates (Change in % Pts)								
90-day Paper Rate	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02
Conventional Mortgage Rate	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01
Foreign and Government Balances (Change in \$ Mill)								
Bal of Payments - Curr Account (\$ Mill)	-17.5	-46.1	-88.1	-135.7	-170.6	-233.6	-274.6	-306.9
Federal Surplus/Deficit (\$ Mill)	-366.1	-339.7	-352.2	-345.8	-351.1	-340.5	-357.4	-372.4
Federal Debt (\$ Mill)	0.0	109.6	210.6	315.4	419.1	524.6	626.5	733.8
Provincial Surplus/Deficit (\$ Mill)	26.2	48.9	65.6	80.9	94.7	108.3	117.2	118.7
Housing Starts, Stocks and Vacancies								
Housing Starts - Singles (units)	41	63	92	122	159	169	178	175
Housing Starts - Multiples (units)	-1	-2	-5	-9	-18	-27	-38	-50
Housing Stock - Singles (units)	0	4	14	30	54	85	123	164
Housing Stock - Multiples (units)	0	0	0	-1	-1	-2	-5	-8
Vacancy Rate (% Pts)	0.00	0.00	0.00	-0.01	-0.01	-0.01	-0.01	-0.02

TABLE A10

FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
CMHC Alternatives - Investment Tax Credits - Non-Res - Nov/91

	1982:3	1982:4	1983:1	1983:2	1983:3	1983:4	1984:1	1984:2
Real Output and Components (Changes in \$ 86 Mill)								
Real Gross Domestic Product	34	68	97	126	176	210	231	250
Real GDP (\$ 81 Mill)	28	55	79	102	143	170	187	202
Consumption	18	41	73	110	163	209	256	300
Government	0	0	0	0	0	0	0	0
Business Fixed Investment - Total	28	41	52	64	78	91	89	93
Residential Construction	1	3	4	6	9	11	12	14
Non-Residential Construction	24	36	43	52	61	70	66	67
Machinery and Equipment	3	3	4	6	8	10	11	13
Exports	0	0	0	0	-1	-1	-2	-3
Imports	5	14	30	53	65	98	124	151
Nominal GDP (\$ Mill)	31	62	93	125	181	225	259	296
Prices (Change in per cent)								
Implicit Deflator for GDP	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
Consumer Price Index, All Items	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
Consumer Price Index, Rent	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Selling Price - Single Houses	0.03	0.05	0.08	0.11	0.16	0.17	0.19	0.21
Employment								
Employment (Change in per cent)	0.00	0.01	0.01	0.01	0.02	0.03	0.03	0.04
Employment (Change in persons)	260	657	1087	1567	2253	2879	3407	3881
Unemployment (Change in persons)	-176	-444	-731	-1051	-1507	-1915	-2252	-2551
Unemployment Rate (% Pts)	0.00	0.00	-0.01	-0.01	-0.01	-0.02	-0.02	-0.02
Interest Rates (Change in % Pts)								
90-day Paper Rate	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
Conventional Mortgage Rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Foreign and Government Balances (Change in \$ Mill)								
Bal of Payments - Curr Account (\$ Mill)	-3.3	-9.6	-23.9	-43.0	-52.0	-82.2	-107.4	-135.8
Federal Surplus/Deficit (\$ Mill)	-395.1	-396.6	-399.6	-397.2	-398.6	-393.4	-405.5	-420.7
Federal Debt (\$ Mill)	0.0	118.3	236.6	355.9	475.2	594.9	712.5	833.9
Provincial Surplus/Deficit (\$ Mill)	12.3	20.5	32.5	44.5	57.7	67.3	78.2	84.2
Housing Starts, Stocks and Vacancies								
Housing Starts - Singles (units)	34	48	75	103	145	148	158	166
Housing Starts - Multiples (units)	0	-1	-3	-5	-9	-13	-19	-26
Housing Stock - Singles (units)	0	3	11	24	44	71	104	141
Housing Stock - Multiples (units)	0	0	0	-1	-1	-1	-3	-4
Vacancy Rate (% Pts)	0.00	0.00	0.00	0.00	-0.01	-0.01	-0.01	-0.01

TABLE A11
 FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
 CMHC Alternatives - Employment Subsidy - Nov/91

	1982:3	1982:4	1983:1	1983:2	1983:3	1983:4	1984:1	1984:2
Real Output and Components (Changes in \$ 86 Mill)								
Real Gross Domestic Product	590	814	656	578	709	699	720	771
Real GDP (\$ 81 Mill)	478	658	530	468	573	565	583	624
Consumption	886	1193	1299	1184	1264	1164	1156	1174
Government	0	0	0	0	0	0	0	0
Business Fixed Investment - Total	51	73	102	95	65	104	99	109
Residential Construction	19	30	34	32	21	22	24	39
Non-Residential Construction	22	22	35	29	-5	16	5	-3
Machinery and Equipment	10	22	33	34	49	66	70	72
Exports	11	9	18	72	73	82	78	73
Imports	245	530	884	843	648	709	616	594
Nominal GDP (\$ Mill)	254	816	358	-1123	564	45	-38	98
Prices (Change in per cent)								
Implicit Deflator for GDP	-0.07	0.02	-0.06	-0.41	-0.02	-0.15	-0.17	-0.14
Consumer Price Index, All Items	-0.06	0.02	-0.07	-0.45	-0.02	-0.15	-0.17	-0.14
Consumer Price Index, Rent	0.00	0.00	0.00	-0.02	0.00	-0.01	-0.01	0.00
Selling Price - Single Houses	0.46	0.47	0.36	-0.17	0.08	0.20	0.19	0.55
Employment								
Employment (Change in per cent)	0.40	0.44	0.42	0.35	0.42	0.41	0.41	0.41
Employment (Change in persons)	41545	45858	44093	37112	45172	43561	43783	44642
Unemployment (Change in persons)	-28300	-30858	-29292	-24287	-29627	-28279	-28270	-28677
Unemployment Rate (% Pts)	-0.25	-0.27	-0.26	-0.21	-0.26	-0.25	-0.25	-0.25
Interest Rates (Change in % Pts)								
90-day Paper Rate	0.02	0.04	0.03	-0.02	0.02	0.01	0.01	0.02
Conventional Mortgage Rate	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Foreign and Government Balances (Change in \$ Mill)								
Bal of Payments - Curr Account (\$ Mill)	-225.9	-457.5	-789.8	-801.2	-519.8	-611.1	-547.1	-533.0
Federal Surplus/Deficit (\$ Mill)	-239.0	-57.1	-397.5	-438.8	-262.1	-377.4	-237.7	-202.6
Federal Debt (\$ Mill)	0.0	69.3	86.2	203.3	327.1	412.1	526.6	596.5
Provincial Surplus/Deficit (\$ Mill)	134.1	216.9	203.9	100.0	204.9	178.8	151.8	177.5
Housing Starts, Stocks and Vacancies								
Housing Starts - Singles (units)	543	425	395	250	61	307	302	625
Housing Starts - Multiples (units)	12	-14	-1	148	66	72	79	67
Housing Stock - Singles (units)	0	49	138	247	333	387	436	494
Housing Stock - Multiples (units)	0	1	0	0	5	13	23	36
Vacancy Rate (% Pts)	-0.01	-0.01	-0.02	-0.03	-0.03	-0.04	-0.04	-0.04

TABLE A12
 FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
 CMHC Alternatives - Personal Income Tax - Nov/91

	1982:3	1982:4	1983:1	1983:2	1983:3	1983:4	1984:1	1984:2
Real Output and Components (Changes in \$ 86 Mill)								
Real Gross Domestic Product	113	222	300	353	431	477	527	574
Real GDP (\$ 81 Mill)	92	179	243	286	349	386	426	465
Consumption	139	246	350	444	535	620	708	787
Government	0	0	0	0	0	0	0	0
Business Fixed Investment - Total	12	25	37	46	53	59	64	69
Residential Construction	10	20	25	28	30	30	31	32
Non-Residential Construction	0	2	6	8	11	13	15	16
Machinery and Equipment	1	4	6	9	12	15	18	20
Exports	0	-1	-1	-2	-3	-4	-6	-8
Imports	21	49	96	151	162	219	254	291
Nominal GDP (\$ Mill)	108	210	295	359	455	525	604	683
Prices (Change in per cent)								
Implicit Deflator for GDP	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.03
Consumer Price Index, All Items	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.03
Consumer Price Index, Rent	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Selling Price - Single Houses	0.29	0.33	0.36	0.38	0.41	0.43	0.47	0.49
Employment								
Employment (Change in per cent)	0.01	0.02	0.03	0.03	0.04	0.05	0.05	0.06
Employment (Change in persons)	846	1803	2629	3334	4221	4898	5504	6034
Unemployment (Change in persons)	-573	-1218	-1760	-2216	-2788	-3209	-3579	-3895
Unemployment Rate (% Pts)	-0.01	-0.01	-0.02	-0.02	-0.02	-0.03	-0.03	-0.03
Interest Rates (Change in % Pts)								
90-day Paper Rate	0.01	0.01	0.01	0.02	0.02	0.02	0.03	0.03
Conventional Mortgage Rate	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.02
Foreign and Government Balances (Change in \$ Mill)								
Bal of Payments - Curr Account (\$ Mill)	-17.9	-42.0	-83.6	-133.1	-142.1	-194.9	-230.7	-270.6
Federal Surplus/Deficit (\$ Mill)	-381.1	-366.1	-370.5	-376.8	-379.8	-371.4	-379.7	-388.0
Federal Debt (\$ Mill)	0.0	114.0	222.8	333.1	446.3	560.5	671.7	785.7
Provincial Surplus/Deficit (\$ Mill)	19.3	41.6	60.4	74.3	89.9	105.7	126.8	139.7
Housing Starts, Stocks and Vacancies								
Housing Starts - Singles (units)	300	327	346	353	358	361	377	375
Housing Starts - Multiples (units)	-2	-6	-12	-19	-30	-41	-54	-69
Housing Stock - Singles (units)	0	27	84	165	249	336	424	513
Housing Stock - Multiples (units)	0	0	-1	-2	-3	-5	-9	-15
Vacancy Rate (% Pts)	0.00	-0.01	-0.01	-0.02	-0.03	-0.03	-0.04	-0.04

TABLE A13
 FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
 CMHC Alternatives - Gov't Transfers to Persons - Nov/91

	1982:3	1982:4	1983:1	1983:2	1983:3	1983:4	1984:1	1984:2
Real Output and Components (Changes in \$ 86 Mill)								
Real Gross Domestic Product	87	169	226	264	327	364	402	441
Real GDP (\$ 81 Mill)	70	137	183	213	264	294	325	357
Consumption	106	188	265	333	408	473	539	603
Government	0	0	0	0	0	0	0	0
Business Fixed Investment - Total	9	19	27	33	39	44	48	52
Residential Construction	8	15	19	21	23	23	24	25
Non-Residential Construction	0	1	4	6	7	9	10	11
Machinery and Equipment	1	3	5	7	9	12	14	16
Exports	0	0	-1	-1	-2	-3	-4	-6
Imports	17	38	74	114	123	166	193	221
Nominal GDP (\$ Mill)	83	161	223	269	345	400	461	524
Prices (Change in per cent)								
Implicit Deflator for GDP	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02
Consumer Price Index, All Items	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.02
Consumer Price Index, Rent	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Selling Price - Single Houses	0.22	0.25	0.27	0.28	0.32	0.33	0.36	0.39
Employment								
Employment (Change in per cent)	0.01	0.01	0.02	0.02	0.03	0.03	0.04	0.04
Employment (Change in persons)	641	1367	1974	2476	3175	3694	4155	4581
Unemployment (Change in persons)	-435	-922	-1320	-1644	-2098	-2421	-2701	-2959
Unemployment Rate (% Pts)	0.00	-0.01	-0.01	-0.01	-0.02	-0.02	-0.02	-0.03
Interest Rates (Change in % Pts)								
90-day Paper Rate	0.00	0.01	0.01	0.01	0.01	0.02	0.02	0.03
Conventional Mortgage Rate	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01
Foreign and Government Balances (Change in \$ Mill)								
Bal of Payments - Curr Account (\$ Mill)	-14.0	-32.5	-63.8	-100.6	-107.4	-147.5	-174.8	-205.6
Federal Surplus/Deficit (\$ Mill)	-332.7	-322.4	-319.5	-325.3	-343.7	-330.1	-337.0	-352.9
Federal Debt (\$ Mill)	0.0	99.7	196.3	292.0	389.5	492.7	592.1	693.7
Provincial Surplus/Deficit (\$ Mill)	61.3	79.5	97.9	108.3	115.3	127.8	146.3	155.6
Housing Starts, Stocks and Vacancies								
Housing Starts - Singles (units)	228	250	257	262	282	278	288	295
Housing Starts - Multiples (units)	-2	-5	-10	-15	-22	-31	-41	-53
Housing Stock - Singles (units)	0	21	65	125	189	254	322	390
Housing Stock - Multiples (units)	0	0	0	-1	-2	-4	-7	-11
Vacancy Rate (% Pts)	0.00	-0.01	-0.01	-0.01	-0.02	-0.02	-0.03	-0.03

TABLE A14
 FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
 CMHC Alternatives - Corporate Income Tax - Nov/91

	1982:3	1982:4	1983:1	1983:2	1983:3	1983:4	1984:1	1984:2
Real Output and Components (Changes in \$ 86 Mill)								
Real Gross Domestic Product	2	18	42	69	111	144	173	198
Real GDP (\$ 81 Mill)	2	14	34	55	89	116	140	160
Consumption	12	26	49	79	124	163	204	245
Government	0	0	0	0	0	0	0	0
Business Fixed Investment - Total	-9	-2	6	12	21	31	38	41
Residential Construction	1	2	4	6	8	10	11	13
Non-Residential Construction	-11	-7	-2	1	4	10	14	14
Machinery and Equipment	0	3	5	6	8	11	13	14
Exports	0	0	0	0	-1	-1	-1	-2
Imports	1	4	11	23	33	54	74	95
Nominal GDP (\$ Mill)	3	18	42	69	112	150	187	222
Prices (Change in per cent)								
Implicit Deflator for GDP	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
Consumer Price Index, All Items	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
Consumer Price Index, Rent	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Selling Price - Single Houses	0.03	0.04	0.07	0.09	0.14	0.15	0.17	0.18
Employment								
Employment (Change in per cent)	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.02
Employment (Change in persons)	21	97	277	516	906	1275	1631	1962
Unemployment (Change in persons)	-14	-65	-186	-346	-608	-854	-1085	-1297
Unemployment Rate (% Pts)	0.00	0.00	0.00	0.00	-0.01	-0.01	-0.01	-0.01
Interest Rates (Change in % Pts)								
90-day Paper Rate	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
Conventional Mortgage Rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foreign and Government Balances (Change in \$ Mill)								
Bal of Payments - Curr Account (\$ Mill)	0.6	-0.6	-7.3	-16.5	-23.7	-42.7	-61.4	-82.5
Federal Surplus/Deficit (\$ Mill)	-397.3	-417.1	-386.6	-379.9	-430.4	-451.5	-414.4	-447.6
Federal Debt (\$ Mill)	0.0	119.0	243.5	359.0	473.1	602.3	737.1	861.1
Provincial Surplus/Deficit (\$ Mill)	7.2	11.8	22.3	32.8	44.8	53.2	64.1	70.7
Housing Starts, Stocks and Vacancies								
Housing Starts - Singles (units)	30	41	65	90	132	134	145	155
Housing Starts - Multiples (units)	0	-1	-1	-3	-5	-8	-11	-16
Housing Stock - Singles (units)	0	3	10	22	39	63	93	126
Housing Stock - Multiples (units)	0	0	0	-1	-1	-1	-2	-3
Vacancy Rate (% Pts)	0.00	0.00	0.00	0.00	-0.01	-0.01	-0.01	-0.01

TABLE A13
 FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
 CMHC Alternatives - Provincial Sales Tax - Nov/91

	1982:3	1982:4	1983:1	1983:2	1983:3	1983:4	1984:1	1984:2
Real Output and Components (Changes in \$ 86 Mill)								
Real Gross Domestic Product	240	415	480	500	636	719	795	879
Real GDP (\$ 81 Mill)	194	336	388	404	514	581	643	711
Consumption	293	425	522	589	672	744	816	890
Government	0	0	0	0	0	0	0	0
Business Fixed Investment - Total	21	49	69	84	104	125	142	156
Residential Construction	10	15	17	17	25	30	35	39
Non-Residential Construction	3	16	27	34	38	45	50	54
Machinery and Equipment	9	18	26	33	41	50	57	64
Exports	11	17	24	32	43	50	56	64
Imports	44	87	169	244	184	234	244	263
Nominal GDP (\$ Mill)	-342	-254	-257	-346	-289	-267	-271	-265
Prices (Change in per cent)								
Implicit Deflator for GDP	-0.15	-0.17	-0.18	-0.20	-0.21	-0.22	-0.24	-0.25
Consumer Price Index, All Items	-0.18	-0.20	-0.22	-0.24	-0.25	-0.26	-0.27	-0.28
Consumer Price Index, Rent	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
Selling Price - Single Houses	0.06	-0.05	-0.07	-0.10	0.09	0.10	0.10	0.10
Employment								
Employment (Change in per cent)	0.03	0.05	0.06	0.06	0.07	0.09	0.10	0.11
Employment (Change in persons)	2917	4803	5931	6724	7795	9209	10331	11403
Unemployment (Change in persons)	-2017	-3318	-4089	-4628	-5349	-6303	-7055	-7741
Unemployment Rate (% Pts)	-0.02	-0.03	-0.04	-0.04	-0.05	-0.05	-0.06	-0.07
Interest Rates (Change in % Pts)								
90-day Paper Rate	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Conventional Mortgage Rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foreign and Government Balances (Change in \$ Mill)								
Bal of Payments - Curr Account (\$ Mill)	-57.0	-92.7	-159.9	-226.3	-167.4	-210.6	-220.8	-236.3
Federal Surplus/Deficit (\$ Mill)	110.7	151.7	121.7	101.2	167.8	206.7	213.7	252.5
Federal Debt (\$ Mill)	0.0	-36.9	-85.3	-123.2	-154.0	-204.8	-267.1	-331.5
Provincial Surplus/Deficit (\$ Mill)	-473.8	-462.1	-440.6	-439.4	-442.0	-420.8	-418.2	-411.7
Housing Starts, Stocks and Vacancies								
Housing Starts - Singles (units)	263	171	160	151	347	367	368	377
Housing Starts - Multiples (units)	47	92	124	153	167	184	196	197
Housing Stock - Singles (units)	0	24	64	111	150	205	280	368
Housing Stock - Multiples (units)	0	2	7	17	31	52	77	108
Vacancy Rate (% Pts)	0.00	-0.01	-0.01	-0.01	-0.02	-0.02	-0.03	-0.03

TABLE A16
 FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
 CMHC Alternatives - Manufacturers Sales Tax - Nov/91

	1982:3	1982:4	1983:1	1983:2	1983:3	1983:4	1984:1	1984:2
Real Output and Components (Changes in \$ 86 Mill)								
Real Gross Domestic Product	293	495	497	418	552	630	694	784
Real GDP (\$ 81 Mill)	237	401	402	338	446	510	561	634
Consumption	354	508	587	617	659	702	732	788
Government	0	0	0	0	0	0	0	0
Business Fixed Investment - Total	27	55	77	91	108	128	145	159
Residential Construction	9	14	16	17	23	29	33	37
Non-Residential Construction	4	14	24	29	30	35	38	41
Machinery and Equipment	14	27	37	46	55	65	73	81
Exports	9	15	21	28	37	44	49	56
Imports	43	101	245	372	237	275	251	239
Nominal GDP (\$ Mill)	-304	-174	-214	-383	-313	-317	-292	-283
Prices (Change in per cent)								
Implicit Deflator for GDP	-0.15	-0.16	-0.17	-0.19	-0.20	-0.22	-0.22	-0.23
Consumer Price Index, All Items	-0.16	-0.18	-0.19	-0.21	-0.21	-0.23	-0.23	-0.25
Consumer Price Index, Rent	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
Selling Price - Single Houses	0.06	-0.01	-0.03	-0.07	0.10	0.11	0.12	0.12
Employment								
Employment (Change in per cent)	0.03	0.05	0.06	0.06	0.06	0.07	0.08	0.09
Employment (Change in persons)	3131	5251	5943	5946	6885	8036	8930	9923
Unemployment (Change in persons)	-2159	-3612	-4073	-4065	-4696	-5474	-6072	-6712
Unemployment Rate (% Pts)	-0.02	-0.03	-0.04	-0.04	-0.04	-0.05	-0.05	-0.06
Interest Rates (Change in % Pts)								
90-day Paper Rate	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Conventional Mortgage Rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foreign and Government Balances (Change in \$ Mill)								
Bal of Payments - Curr Account (\$ Mill)	-51.0	-100.8	-223.7	-336.9	-214.0	-247.7	-226.0	-214.6
Federal Surplus/Deficit (\$ Mill)	-336.6	-297.6	-320.4	-379.3	-338.7	-337.0	-317.2	-318.1
Federal Debt (\$ Mill)	0.0	96.9	182.6	276.9	390.8	492.5	592.8	687.5
Provincial Surplus/Deficit (\$ Mill)	58.2	96.5	88.0	80.5	102.2	119.9	107.7	119.9
Housing Starts, Stocks and Vacancies								
Housing Starts - Singles (units)	241	175	167	151	326	352	354	366
Housing Starts - Multiples (units)	41	79	107	132	145	161	171	173
Housing Stock - Singles (units)	0	22	60	106	146	200	271	356
Housing Stock - Multiples (units)	0	2	6	14	27	44	67	94
Vacancy Rate (% Pts)	0.00	-0.01	-0.01	-0.01	-0.02	-0.02	-0.02	-0.03

TABLE A17
 FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
 CMHC Alternatives - Gov't Current Spending - Nov/91

	1982:3	1982:4	1983:1	1983:2	1983:3	1983:4	1984:1	1984:2
Real Output and Components (Changes in \$ 86 Mill)								
Real Gross Domestic Product	526	563	538	521	559	567	564	583
Real GDP (\$ 81 Mill)	426	456	435	421	452	459	456	471
Consumption	90	140	182	213	248	278	308	337
Government	491	491	463	463	463	463	445	445
Business Fixed Investment - Total	8	27	37	43	48	52	53	52
Residential Construction	2	3	4	5	6	6	6	6
Non-Residential Construction	0	12	18	20	22	24	24	23
Machinery and Equipment	6	12	15	18	20	22	23	22
Exports	0	-1	-1	-2	-4	-5	-7	-9
Imports	53	96	154	209	191	231	238	246
Nominal GDP (\$ Mill)	442	492	493	496	561	598	624	667
Prices (Change in per cent)								
Implicit Deflator for GDP	-0.01	0.00	0.00	0.00	0.01	0.02	0.02	0.03
Consumer Price Index, All Items	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.03
Consumer Price Index, Rent	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Selling Price - Single Houses	0.06	0.08	0.12	0.14	0.17	0.19	0.21	0.23
Employment								
Employment (Change in per cent)	0.04	0.05	0.05	0.05	0.06	0.06	0.06	0.06
Employment (Change in persons)	3973	4915	5260	5584	6205	6547	6627	6741
Unemployment (Change in persons)	-2702	-3302	-3485	-3656	-4027	-4205	-4204	-4236
Unemployment Rate (% Pts)	-0.02	-0.03	-0.03	-0.03	-0.04	-0.04	-0.04	-0.04
Interest Rates (Change in % Pts)								
90-day Paper Rate	0.03	0.03	0.02	0.02	0.03	0.03	0.03	0.03
Conventional Mortgage Rate	0.00	0.01	0.01	0.01	0.01	0.02	0.02	0.02
Foreign and Government Balances (Change in \$ Mill)								
Bal of Payments - Curr Account (\$ Mill)	-44.7	-81.1	-132.5	-181.9	-165.5	-203.4	-214.5	-227.6
Federal Surplus/Deficit (\$ Mill)	-263.4	-286.9	-313.0	-351.5	-352.2	-346.5	-348.7	-361.7
Federal Debt (\$ Mill)	0.0	78.3	162.8	256.1	362.0	468.2	573.1	678.5
Provincial Surplus/Deficit (\$ Mill)	70.9	79.8	82.2	85.6	93.7	100.1	111.1	115.1
Housing Starts, Stocks and Vacancies								
Housing Starts - Singles (units)	51	56	71	76	94	91	93	87
Housing Starts - Multiples (units)	-5	-14	-26	-37	-49	-62	-76	-90
Housing Stock - Singles (units)	0	4	15	29	46	66	87	110
Housing Stock - Multiples (units)	0	0	-1	-3	-6	-10	-17	-26
Vacancy Rate (% Pts)	0.00	0.00	0.00	-0.01	-0.01	-0.01	-0.01	-0.02

TABLE A10
 FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
 CMHC Alternatives - Gov't Capital Spending - Nov/91

	1982:3	1982:4	1983:1	1983:2	1983:3	1983:4	1984:1	1984:2
Real Output and Components (Changes in \$ 86 Mill)								
Real Gross Domestic Product	463	479	458	437	455	450	447	465
Real GDP (\$ 81 Mill)	375	387	371	353	368	364	361	376
Consumption	83	123	160	186	216	237	259	280
Government	442	442	431	431	431	431	419	419
Business Fixed Investment - Total	8	24	31	35	39	40	39	36
Residential Construction	2	3	4	5	6	6	5	5
Non-Residential Construction	0	11	15	16	17	18	18	16
Machinery and Equipment	6	10	13	15	16	17	16	15
Exports	0	0	-1	-1	-2	-4	-5	-7
Imports	63	112	172	221	223	258	260	259
Nominal GDP (\$ Mill)	403	434	436	436	478	500	522	560
Prices (Change in per cent)								
Implicit Deflator for GDP	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.03
Consumer Price Index, All Items	-0.01	0.00	0.00	0.00	0.01	0.01	0.02	0.02
Consumer Price Index, Rent	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Selling Price - Single Houses	0.06	0.07	0.10	0.12	0.16	0.16	0.18	0.19
Employment								
Employment (Change in per cent)	0.03	0.04	0.04	0.04	0.05	0.05	0.05	0.05
Employment (Change in persons)	3510	4170	4429	4593	4941	5058	5033	5066
Unemployment (Change in persons)	-2389	-2802	-2936	-3004	-3200	-3234	-3175	-3162
Unemployment Rate (% Pts)	-0.02	-0.02	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03
Interest Rates (Change in % Pts)								
90-day Paper Rate	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03
Conventional Mortgage Rate	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.02
Foreign and Government Balances (Change in \$ Mill)								
Bal of Payments - Curr Account (\$ Mill)	-55.0	-98.0	-151.1	-197.0	-196.9	-231.4	-238.8	-244.4
Federal Surplus/Deficit (\$ Mill)	-269.7	-286.8	-320.9	-349.1	-352.1	-342.8	-342.4	-350.7
Federal Debt (\$ Mill)	0.0	80.4	165.0	260.7	365.9	472.1	575.8	679.3
Provincial Surplus/Deficit (\$ Mill)	76.1	79.5	81.1	82.0	88.5	90.5	97.9	100.6
Housing Starts, Stocks and Vacancies								
Housing Starts - Singles (units)	55	48	64	69	89	76	77	67
Housing Starts - Multiples (units)	-3	-11	-21	-31	-41	-53	-65	-77
Housing Stock - Singles (units)	0	5	15	29	44	62	81	101
Housing Stock - Multiples (units)	0	0	-1	-2	-5	-8	-14	-21
Vacancy Rate (% Pts)	0.00	0.00	0.00	-0.01	-0.01	-0.01	-0.01	-0.01

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TABLE A20

FOCUS MODEL - INSTITUTE FOR POLICY ANALYSIS
CMHC Alternatives - Gov't Capital Spending + Money Financing - Nov/91

	1982:3	1982:4	1983:1	1983:2	1983:3	1983:4	1984:1	1984:2
Real Output and Components (Changes in \$ 86 Mill)								
Real Gross Domestic Product	902	1077	1146	1182	1315	1418	1538	1725
Real GDP (\$ 81 Mill)	729	871	927	956	1064	1147	1244	1395
Consumption	385	451	552	596	610	653	733	834
Government	442	442	431	431	431	431	419	419
Business Fixed Investment - Total	336	411	628	815	1041	1286	1513	1784
Residential Construction	43	78	109	133	161	181	209	249
Non-Residential Construction	218	208	293	339	386	429	472	542
Machinery and Equipment	75	125	226	343	494	676	832	992
Exports	6	10	10	8	-6	-17	-31	-46
Imports	173	295	518	733	781	992	1139	1318
Nominal GDP (\$ Mill)	669	879	1036	1167	1639	1761	2109	2438
Prices (Change in per cent)								
Implicit Deflator for GDP	-0.03	-0.02	0.00	0.02	0.10	0.10	0.15	0.18
Consumer Price Index, All Items	-0.05	-0.05	-0.03	-0.02	0.06	0.04	0.09	0.12
Consumer Price Index, Rent	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Selling Price - Single Houses	0.68	0.47	0.65	0.66	0.84	0.89	1.09	1.27
Employment								
Employment (Change in per cent)	0.01	0.06	0.07	0.09	0.09	0.12	0.14	0.16
Employment (Change in persons)	1305	6314	7289	9339	9435	13053	15020	17098
Unemployment (Change in persons)	-822	-4194	-4750	-6049	-5920	-8253	-9412	-10668
Unemployment Rate (% Pts)	-0.01	-0.04	-0.04	-0.05	-0.05	-0.07	-0.08	-0.09
Interest Rates (Change in % Pts)								
90-day Paper Rate	-0.79	-0.36	-0.38	-0.36	-0.36	-0.38	-0.41	-0.57
Conventional Mortgage Rate	-0.08	-0.11	-0.15	-0.17	-0.21	-0.24	-0.27	-0.32
Foreign and Government Balances (Change in \$ Mill)								
Bal of Payments - Curr Account (\$ Mill)	-157.2	-268.3	-465.4	-668.6	-709.5	-931.3	-1093.1	-1304.2
Federal Surplus/Deficit (\$ Mill)	-274.7	-136.8	-68.3	27.8	126.2	230.0	305.5	404.0
Federal Debt (\$ Mill)	0.0	-412.3	-377.2	-357.3	-370.7	-414.1	-488.0	-584.1
Provincial Surplus/Deficit (\$ Mill)	109.6	124.5	137.3	150.0	165.7	164.4	202.3	193.9
Housing Starts, Stocks and Vacancies								
Housing Starts - Singles (units)	1183	1146	1491	1618	1898	2101	2420	2838
Housing Starts - Multiples (units)	167	332	481	604	709	826	933	1084
Housing Stock - Singles (units)	0	106	319	634	990	1404	1871	2402
Housing Stock - Multiples (units)	0	7	25	60	117	196	301	433
Vacancy Rate (% Pts)	0.00	-0.01	-0.01	-0.01	-0.02	-0.02	-0.02	-0.02

Appendix B

Additional Details Regarding
Policies in Sub-groups A1 and A2

(Subsidies to Homeowners/Homebuyers
and Builders of Rental Housing)

A government or a government agency has a fixed budget of size B with which to provide a tax/expenditure subsidy to stimulate a particular economic activity; e.g. the construction of new owner-occupied or rental housing, business investment in machinery and equipment. The problem is to determine the size of the subsidy, s , awarded to each recipient so as to exactly exhaust the budget.

The solution to this problem is to recognize that the budget constraint may be expressed as

$$(B1) \quad B = sI + sM$$

where I and M , respectively, denote the numbers of infra-marginal and marginal recipients of the subsidy.

The subsidy is received by all economic agents who undertake the designated activity. Infra-marginal recipients are agents who would have undertaken the activity even in the absence of the subsidy. Marginal recipients are agents who undertake the activity in the presence of the subsidy but would not have done so in its absence. The greater is the number of marginal recipients, the more successful is the policy in stimulating new economic activity.

Different kinds of subsidy policies will elicit different magnitudes of marginal recipients. However, it is reasonable to assume that the marginal response to any particular subsidy will be proportional to the size of the subsidy provided to each recipient. That is, a subsidy policy of type j will generate a marginal response described by

$$(B2) \quad M_j = \alpha_j s_j$$

where α_j is a policy specific parameter that describes the marginal response per dollar of subsidy provided by policy j .

Substituting equation (B2) into equation (B1) and recognizing that the number of infra-marginal recipients is also policy-specific permits us to solve for the value of the subsidy, s_j , that will exhaust the program budget, B_j , for policy j .

$$(B3) \quad s_j = \frac{-I_j \pm \sqrt{I_j^2 + 4\alpha_j B_j}}{2\alpha_j}$$

Observe that equation (B3) has two roots or, two solutions, for s_j . In all practical cases one of the roots will be positive and one negative. It is the positive root that represents the requisite subsidy that both exhausts the program budget and provides positive stimulus to the subsidized activity.

Equation (B3) is applied here to determine the respective sizes of the subsidies associated with alternative Policies 2-8, listed in Table 1A. In each case the program budget is the same size -- \$777 million when stated in present discounted value terms, or \$415 million per year for each of two consecutive years. In each case actual historical data are used to obtain an estimate for I_j , the number of infra-marginal recipients. Estimates for the α_j are obtained by "calibration" simulations using the FOCUS model. [In a "calibration" simulation for say, Policy j , an estimate is made for s_j and the FOCUS Model is used to estimate the marginal response to a subsidy of this magnitude. The simulation results are converted into a value for the proportionality parameter, α_j , which is used in equation (B3) to obtain a new, refined estimate for s_j .]

Policy 2 CHRP x 3.45

The original CHRP program provided cash grants of up to \$3,000 for alterations and improvements to an existing house by its owner. The program lasted for slightly more than one year and distributed grants total \$225 million (in present discounted value) across 112,812 recipients.

Some analysis included in the earlier study of CHRP [3] was based on the assumption that one-half of CHRP recipients were infra-marginal. The same assumption is used here, so that the simulation results for Policy 2 are based on an infra-marginal total of $I_2 = 56,406$ recipients.

Policy 2 is actually a scaled-up variant of the original CHRP program with a program budget set at \$777 million (in present discounted value), or 3.45 times the original CHRP outlay.

Simulations performed in the earlier study serve as calibration simulations, revealing the value for α_2 to be 29.96. This, plus the value for I_2 , yield $s_2 = \$4,548$ as the value of the subsidy that will exhaust the scaled-up budget. Policy 2 is, therefore, simulated as a variant of CHRP that provides an average subsidy of \$4,548 for alterations and improvements to owners of existing houses. An average subsidy of this magnitude exhausts a budget that is 3.45 x the original CHRP budget.

The present discounted value of the average subsidy distributed under the original CHRP program was \$1,995. The subsidy under the scaled-up variant, Policy 2, is 2.27 times this size -- indicating that Policy 2 ought to be expected to provide about 2.27 times more stimulus than the original CHRP program at an overall budget cost that is 3.45 times as large. The slippage between scaled-up stimulus and program costs arises because part of every dollar added to the program budget goes to subsidize infra-marginal recipients.

Policy 3 **Income Subsidy to Buyers of New Houses**

This policy takes the form of a (non-taxable) lump-sum cash grant at the time of purchase to any buyer of a new house between 1982:Q3 and 1984:Q2. Information regarding the effects of this kind of subsidy are derived from actual experiences with the CHOSP program.

CHOSP provided \$3,000 cash grants to new house buyers between June 28, 1982 and

June 30, 1983. CHOSP also provided \$3,000 cash grants to first-time buyers of existing houses over the same interval.

A total of 236,342 households received CHOSP grants and this total was almost equally divided between buyers of new houses and first-time buyers of existing houses.

A questionnaire survey of CHOSP recipients conducted by CMHC reveals that the number of marginal new house buyers stimulated by CHOSP was in the range 22,842 to 46,139. Of these, only 334 to 4,534 are attributable to the CHOSP feature that provided cash grants to first-time buyers of existing homes. The bulk of the marginal response of CHOSP on new home purchases appears, therefore, to have come from the CHOSP feature that provided grants to buyers of new houses.

Our previous study of CHOSP [2] puts at 24,535 a point estimate for the impact of CHOSP on new starts of single-detached houses. Given CMHC's survey questionnaire results, a conservative estimate for the impact on new starts of a \$3,000 cash grant to the buyers of new houses is $(24,535 - 4,534)$, or 20,000. This fixes a value for α_3 at $20,000 \div \$3,000$ or 6.67 (new starts per \$1 of subsidy).

This value for α_3 is used in equation (3B), along with $I_3 = 118,171$ and $B_3 = \$415$ million, to determine a value of \$3,005 for s_3 .

A subsidy of \$3,005 for each buyer of a new house over 1982:Q3 to 1984:Q2 would generate program costs of \$415 million per year, having a present discounted value of \$777 million at the start of 1982:Q3. Such a subsidy program should provide considerably more stimulus to new housing starts than CHOSP, because half of the program costs of the latter were spent on apparently non-stimulative grants to first-time buyers of existing houses.

Policy 4 Interest Subsidies to Buyers of New Houses

Interest rate effects on residential housing can be stimulated directly using the

FOCUS model. Calibration simulations indicate single housing starts increase by 1.846 units for every \$1 reduction in the present discount value of interest costs faced by a homeowner, i.e., $\alpha_4 = 1.846$.

Using the same 118,171 value for infra-marginal starts in 1982:Q3 to 1984:Q4 as in Policy 3 (This is the number of new houses actually sold over this interval) and $B_4 = \$415$ million, the value of s_4 computed from equation (3B) is \$3,338.

The \$3,338 figure represents the present discounted value of the subsidies received by the average recipient. To have provided a subsidy of this size to the average buyer of a new house between 1982:Q3 and 1984:Q2, the government would have had to provide an interest rate subsidy of about 1.1 percentage points over the five years.

Stated differently, the average first mortgage on a new single-detached house sold between 1982:Q3 and 1982:Q2 was about \$82,500. At a 10% mortgage rate with the government paying 1.1% for five years (and the homeowner 8.9%), the present discounted value of the government's subsidy is \$3,338.

Policy 5 **Cost Subsidy for Buyers of New Houses**

This policy provides a cash grant to the buyer of a new house that is proportional to the cost or, price, of the house -- unlike Policy 3 in which the grant is the same lump-sum amount to all buyers.

Policy 5 is likely to be less stimulative than Policy 3 because the marginal new house buyer is likely to be a first-time buyer seeking to purchase a house in the lower price range. With the same program budgets, a proportional subsidy delivers a smaller amount to the buyer of a below average priced house than will a lump-sum subsidy.

An explicit assumption is made here that the marginal buyer chooses a house priced at only 80% of the average price of a new single-detached house (which was \$114,000 over

the 1982:Q3 to 1984:Q2 time period). With this assumption the budget constraint (B1) for policy 5 may be written as

$$B_5 = s_5 I_5 + 0.8s_5 M$$

where s_5 denotes the dollar value of the subsidy received by the buyer of the average priced new house.

It also follows from the assumption that $\alpha_5 = 0.8\alpha_3$, since the marginal buyer receives only 80% of the dollar subsidy received by the average recipient.

Combining these results, and using values of 118,171 for I_5 and \$415 million for B_5 , yields $s_5 = \$3,141$ for the value of the subsidy associated with the average-priced new house. This translates into a proportional subsidy equal to 2.75 per cent of the selling price of new houses.

Policy 6 CRSP x 3.45

The original CRSP program provided interest-free second mortgage loans to builders of new rental apartment units between 1982:Q1 and 1985:Q1. Interest-free loans were limited to the lesser of \$7,500 per unit or 80 percent of the difference between the unit's cost and the principal value of any first mortgage on it. The loans were interest-free for 15 years or until the unit was re-sold, whichever occurred first. Units receiving other forms of government assistance were ineligible for CRSP loans.

Ontario and British Columbia provided interest-free provincial top-ups to federal CRSP loads that raised the effective loan ceiling to \$10,500 per unit in those two provinces.

A total of 24,122 apartment unit received CRSP loans. Earlier study [1] yielded an estimate of 10,803 for the number of marginal units and implies that the number of infra-marginal units was 13,319.

The original CRSP program is estimated to have cost \$224 million in present discounted value terms. Of this total, \$160 million was borne by the Federal Government and \$64 million by Ontario and British Columbia.

Policy 6 is a scaled-up variant of CRSP in which total program costs are \$777 million or 3.45 times the original. It is assumed that Ontario and British Columbia continue to bear \$64 million of these costs with the balance of \$713 million borne by the Federal Government.

In preparing the simulation for Policy 6 it is also assumed that builders are flexible in arranging first mortgages, so that the limit restricting interest-free second mortgage loans to no more than 80 percent of the difference between unit costs and first mortgages does not become binding. The effect of this assumption is to make I_6 for Policy 6 equal to the same number of infra-marginal units of the original CRSP program.

From earlier study [1] the value of the proportionality parameter, α_6 , for this kind of subsidy policy is determined to be 1.158 (marginal multiple starts per dollar of subsidy distributed). This value, together with $I_6 = 13,319$ and $B_6 = \$777$ million, yields a value of $s_6 = \$20,783$ from equation (3B). The interpretation here is that the interest free loans under Policy 6 deliver a per unit subsidy that costs federal and provincial governments \$20,783 in present discounted value terms.

The average subsidy distributed under the original CRSP program was \$9,286 per unit; so Policy 6 should provide a stimulus to new multiple unit starts that is roughly 2.23 times the stimulus of CRSP. In addition, Policy 6 offers interest-free loans of up to a maximum of 2.23 times the effective \$10,500 loan limit under CRSP.

An important consideration here is the after-tax value of this kind of subsidy program to builders of apartment buildings. An interest-free loan provides the recipient with a reduction in mortgage interest costs. But, since mortgage interest costs are tax-deductions

to owners of rental housing, an interest-free loan will also cause the recipients' tax liabilities to rise. The value to the recipient of an interest-free loan is the present discounted value of the after-tax subsidy it provides. The cost to the government of providing the loan is the present discounted value of the before-tax subsidy. These two values will diverge by an amount that depends on the size of the loan, the rate of interest, the loan's duration and the recipients' marginal tax rate.

Assuming a 10 percent interest rate, an average loan duration of 10 years and a 50 percent marginal tax rate, Policy 6 provides a 62.8¢ after-tax subsidy to a recipient for every \$1 in program costs incurred by government. The program cost of Policy 6 is \$20,783 per unit; the after tax value of this subsidy to the recipient is \$13,052 per unit.

Policy 7 Mortgage Interest Subsidy for New Rental Housing

This policy provides a mortgage interest rate subsidy on first mortgages in support of new rental housing units started over the interval 1982:Q3 to 1984:Q2. It differs from Policy 6 in terms of time period and in terms of the form of the subsidy. Under Policy 7 the Federal Government is assumed to pay some fraction of a recipient builder's first mortgage costs for a period of 5 years. All privately-financed apartment units started over the 1982:Q3 to 1984:Q4 interval are eligible to receive this subsidy.

There were approximately 57,000 privately-funded apartment units actually started between mid-1982 and mid-1984. The number of infra-marginal units here is, therefore, $I_7 = 57,000$.

To determine a value for the proportionality parameters, α_7 , we must compute the after-tax value to the recipient of a subsidy of this type that costs the government \$1 in terms of present discounted program costs. The answer for a 10% interest/discount rate and a recipient facing a 50% marginal tax rate is 54.6¢.

In the FOCUS Model the marginal response of new multiple-unit starts to a subsidy

depends on the after-tax value of the subsidy. Recall that this marginal response in the case of Policy 6 was given by $\alpha_6 = 1.158$. Recall, also that Policy 6 delivers 62.8¢ in after-tax subsidy for every \$1 in program costs. It follows from this that the appropriate value for α_7 is

$$\alpha_7 = \left(\frac{0.546}{0.628} \right) 1.156 = 1.007$$

Solution of equation (3B) with the values given above for I_7 and α_7 , and with $B_7 = \$777$ million, yields $s_7 = \$11,354$.

The \$11,354 figure is the present discounted value of the per unit subsidy cost to the government. [The per unit, after-tax value to the recipient is \$6199.] In order to provide a subsidy of this present value at a 10% interest rate, the government would have to pay mortgage interest costs of \$2,995 per year for each of 5 years. If the average first mortgage on a new apartment unit is \$40,000, the Policy 7 subsidy is a 7.5 percentage point interest rate subsidy for five years. If the average first mortgage is \$30,000 per unit, then Policy 7 amounts to a 10 percentage point subsidy.

In comparing the stimulative effects of Policy 7 with those of Policy 6 (up-scaled CRSP) the reader should keep two points in mind.

- (i) The value of the after-tax subsidy delivered is slightly larger with Policy 6. This means that Policy 6 will directly stimulate a slightly larger number of marginal new multiple starts.
- (ii) However, the actual delivery of subsidies occurs more rapidly under Policy 7. That is, the interest rate subsidies of Policy 7 are fully realized by builders within 5 years, whereas those of Policy 6 require a delivery time of up to 15 years. To an infra-marginal recipient a subsidy is equivalent to a transfer payment. An infra-marginal recipient will respond to a subsidy by increasing

consumption expenditures (and personal savings) as the subsidy is received. This consumption response represents part of the overall economic stimulus associated with any subsidy policy. It will be stronger for policy 7 because this policy delivers subsidies more quickly than Policy 6.

Point (i) implies that Policy 6 is likely to have the stronger direct impacts on multiple housing. Point (ii) implies that Policy 7 is likely to have stronger direct impacts on consumption spending. It is not clear, therefore, which of the two policies will have the greater impacts on real GDP and overall employment. Indeed, when multiplier and other "indirect" impacts are allowed for, it is not even clear which of these two policies will have the greater net impacts on housing activity and total consumption spending.

Policy 8 Cost Subsidy for New Rental Housing

This policy consists of a cash grant to all builders of new privately-funded, rental apartment units between 1982:Q3 to 1984:Q2. The grants are assumed to be lump-sum awards in equal amounts per unit that are delivered to builders at the start of construction. These cash grants are assumed to be non-taxable to the recipient but they do reduce the capital cost base used in computing capital cost allowances against future tax liabilities.

For a builder facing a marginal tax rate of 50% a depreciation rate of 5% (declining balance basis) and a 10% rate of interest, a cash grant of \$1 has an after-tax present discounted value of 87.5¢. This, together with considerations discussed for Policy 6, implies

$$\alpha_8 = \left(\frac{0.875}{0.628} \right) \alpha_6 = 1.613$$

The number of infra-marginal units under Policy 8 is the same 57,000 total as for Policy 7. Using these figures in equation (3B), yields a value of $s_8 = \$10,507$ for the value of the (before-tax) cash transfer per unit that will exhaust a program budget of $B_8 = \$777$ million. The after-tax value of this transfer to a recipient has a present discounted value of \$9,193 per unit.

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Appendix C

**Reconciling Program costs with Net Impacts of the Policies on
Governments' Budget Surpluses (+) / Deficits (-), and the Federal Debt.**

Table C1 shows year-by-year values for the nominal program costs of each alternative policy except Policy 19, which is strictly monetary in nature and involves no programs costs. At the bottom of the table are given values for the implicit price index for GDP which may be used to convert the nominal costs into real (1986 dollar) values.

The remainder of this Appendix provides a reconciliation between program costs and net impact estimates for each of government Budgetary Surpluses (+) / Deficits (-), and the Federal debt.

The net impacts of any policy on values of the Budgetary Surplus (+) / Deficit (-) for either the federal government or combined provincial governments originate from the effects of the policy on various government revenues and outlays. The following decomposition applies for any Policy j and any level of government g :

The Net Impact of Policy j on the Budgetary Surplus (+) / Deficit (-) of government g during time period t =

the negative of the programs costs of Policy j incurred by government g during the time period t (if any)

+ tax recapture, measured by the net impacts of Policy j on total tax collections by government g during time period t (exclusive of program costs, if any)

+ the net impacts of Policy j on investment income of government g during time period t .

- the net impact of Policy j on the nominal value of expenditures on goods and services (exclusive of program costs, if any) by government g during time period t .¹

- the net impacts of Policy j on the nominal value of transfer payments made

¹ Exclusive of program costs for policies 17, 18, and 20, the net impacts on the nominal value of governments' expenditures on goods and services arise because the various policies stimulate price and wage rate changes. The real values of expenditures on goods and services are assumed to be identical to actual or, control solution, values in all simulations except those involving changes in real government current or capital expenditures.

by government g during time period t .²

- the net impacts of Policy j on the value of interest payments incurred on the debt of government g outstanding during time period t .

It should be noted that our measure of governments' budgetary positions is stated in terms of budget surpluses. Program costs (for all except Policy 19 which has none) always contribute to a lower surplus by the sponsoring level of government. In all or virtually all cases the net impacts of a policy on the budget surplus of the sponsoring government are negative for 1982 to 1984. This indicates that net impacts on tax recapture, investment income, etc. are collectively smaller than the program costs. The sponsoring government does gain from the stimulative effects of its policy in revenues and outlays, but the gain does not fully compensate for the programs costs.

Tables 1-20 show the direct impacts of each alternative policy on the end-of-year values for publicly-held federal debt. The relationship between the net impacts on federal debt and the net impacts on the Federal Budget Surplus (+) / Deficit (-) satisfies the standard federal budget constraint:

Net impact of Policy j on Federal debt during quarterly time period $t =$

net impact of Policy j on Federal debt during quarterly time period $t-1$.

- net impact of Policy j on the Federal Budget Surplus (+) / Deficit (-) during quarterly time period t

- net impact of Policy j on the change in the value of Chartered Bank deposits at the Bank of Canada between quarters $t-1$ and t

-net impact of Policy j on the change in the value of currency Outside Banks between quarters $t-1$ and t .

The quarterly nature of this budget constraint is emphasized because it is applied within the Focus Model on a quarter-by-quarter basis. The two monetary items identified

² Net impacts on transfer payments arise through simulated changes in U.I benefits and simulated changes in prices, which affect the indexing of certain public pension benefits.

in the constraint together define the monetary base. Quarterly changes in these two monetary items are effectively zero in all simulations except those for Policies 19 and 20.³

The reader should be informed of two anomalies regarding reported simulation results concerning the Federal Surplus (+) / Deficit (-) and the Federal debt.

(i) The quarterly tables (Tables A1-A20) report net impacts on the Surplus/Deficit on a seasonally-adjusted basis at annual rates. The Surplus/Deficit values are four times the scale used to report quarterly impacts on the Federal debt -- for which there is no concept corresponding to annual rates.

(ii) The annual tables (Tables 1-20) report net impacts on the Federal debt in terms of annual averages. The effect of this is to cause debt movements to appear to lag behind movements in the Surplus (+) / Deficit (-).

The reader should also be informed that the "historical" values reported for the Federal debt in Tables describing the control solution do not precisely correspond with published data. The Federal debt series used in the FOCUS Model is a constructed data series that differs from published data by the exclusion of debt changes associated with the sporadic sale or purchase of non-monetary assets by the Federal Government.

³Actually, there are some small, non-zero impacts of Policies 1-18 on changes in Chartered Bank deposits at the Bank of Canada and Currency Outside Banks. These arise because the policy reaction function employed in the simulations keeps the narrowly-defined money supply, M1 (rather than the monetary base) at historical values. The Policies stimulate small changes in the demand for currency, which result in small compositional shifts between deposits at the BOC and Currency Outside Banks. These mostly have insignificant effects on the Federal Debt.

Table C1

***Nominal Program Costs on a Year-by-Year Basis**
 (\$ millions)

Policy #	1982	1983	1984	1985	1986	1987	1988	1989	1990
1 (CHOSP)	362	417	20	0	-	-	-	-	-
2 (CHRP X 3.45)	128	600	87	0	-	-	-	-	-
3 (Inc. Subsidy)	207	415	207	-	-	-	-	-	-
4 (Int. Subsidy)	0	99	198	198	198	198	99	-	-
5 (Cost Subsidy)	207	415	207	-	-	-	-	-	-
6 (CRSP x 3.45) ¹	4	19	52	53	81	83	83	83	83
7 (Int. Subsidy)	0	99	198	198	198	198	99	-	-
8 (Cost Subsidy)	207	415	207	-	-	-	-	-	-
9 (Credit M&E)	207	415	207	-	-	-	-	-	-
10 (Credit. Non-Res)	207	415	207	-	-	-	-	-	-
11 (Emp. Subsidy)	207	415	207	-	-	-	-	-	-
12 (P.I.T. cut)	207	415	207	-	-	-	-	-	-
13 (Transfer Pay)	207	415	207	-	-	-	-	-	-
14 (Corp. Taxes)	207	415	207	-	-	-	-	-	-
15 (Prov. Sales Tax) ²	207	415	207	-	-	-	-	-	-
16 (Man Sales Tax)	207	415	207	-	-	-	-	-	-
17 (G. Current)	207	415	207	-	-	-	-	-	-
18 (G. Capital)	207	415	207	-	-	-	-	-	-
19 (Money)	-	-	-	-	-	-	-	-	-
20 (Money/Fiscal)	207	415	207	-	-	-	-	-	-

* Unless otherwise indicated, all program costs are borne by the Federal Government. Values for the implicit price index for GDP that may be used to deflate these costs for 1982 to 1990, respectively are 0.89, 0.92, 0.95, 0.98, 1.00, 1.05, 1.10, 1.15, 1.18.

¹Figures shown are federal program costs. Provincial costs for 1982 to 1990 are estimated to be in \$millions, respectively, 0.5, 2.2, 6.0, 6.2, 9.3, 9.6, 9.8, 9.6, 9.6.

²Figures are for program costs to the provinces.

Appendix D

Technical Details Regarding Simulations with the FOCUS Model

The reader is referred to Appendix C of earlier study [1] for a complete listing of the equations that comprise the residential housing sector of the FOCUS model. That appendix also contains a complete list of definitions of the variables that appear in these equations.

What is presented here is description of the actual changes inputted into the FOCUS Model in performing the simulations for Policies 1 through 20.

Policy 1 CHOSP

Dummy variable DCHOSP set equal to 0.0 for 1982:Q3 to 1984:Q2.

Federal Government transfer payments to persons reduced by

\$362 million in 1982:Q3 to 1982:Q4

\$417 million in 1983:Q1 to 1983:Q4

\$20 million in 1984:Q1 to 1984:Q2

Policy 2 CHRP x 3.45

The stock of non-depreciated single-family houses was reduced for 1982:Q3 to 1990:4 by 2.27 times the reductions applied in previous study [3].

Federal Government transfer payments to persons were reduced by

\$128 million in 1982:Q3 to 1982:Q4

\$600 million in 1983:Q1 to 1983:Q3

\$87 million in 1984:Q1 to 1984:Q2.

Only one-half of the reductions in government transfers were permitted to affect personal consumption expenditures. The remaining one-half were assumed to represent reductions in personal savings that are directly invested in alterations and improvements, a component of residential capital formation. That is, new investment in alterations and improvements was reduced by one-half of the dollar totals shown above.

Policy 3 Income Subsidy

This policy was simulated as a variant of CHOSP. Dummy variable CHOSP was set at 0.18 for 1982:Q3 to 1983:Q2 and -0.82 for 1983:Q3 to 1984:Q2. (The effect is to create a stimulus equal to 82% of that of CHOSP for each of these two years.)

Federal Government transfer payments to persons were decreased by

\$207 million in 1982:Q3 to 1982:Q4

\$415 million in 1983:Q1 to 1983:Q4

\$207 million in 1984:Q1 to 1984:Q2

Policy 4 Interest Subsidy

A five-year mortgage rate variable appears in each of the FOCUS equations determining the average selling price for new single-family houses and new starts of single units. An add factor was applied to each of these equations that effectively increased the values of these interest rates by 1.1 percentage points over 1982:Q3 to 1984:Q2. In other words, the add factors were set so as to mimic the impacts of a 1.1 percentage point increase in rates for five-year mortgages on the price and supply of new single houses. Implicitly, these add factors also mimic the effect on demand for new houses because the price equation may be re-normalized as a demand equation.

Federal Government transfer payments to persons were reduced by

\$99 million in 1983:Q3 to 1983:Q4

\$198 million in 1984:Q1 to 1987:Q4

\$99 million in 1988:Q1 to 1988:Q2

Policy	Cost Subsidy
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
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37	37
38	38
39	39
40	40
41	41
42	42
43	43
44	44
45	45
46	46
47	47
48	48
49	49
50	50
51	51
52	52
53	53
54	54
55	55
56	56
57	57
58	58
59	59
60	60
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100	100

Add factors were introduced into the FOCUS equations for the average price of new single houses, and new single starts for 1982:Q3 to 1984:Q2. The add factors were set at values that mimic the effects on price (and demand) and supply of a 2.75 percent increase in the cost of the average new single family house.

Federal Government transfer payments to persons were reduced by

\$207 million in 1982:Q3 to 1982:Q4

\$415 million in 1983:Q1 to 1983:Q4

\$207 million in 1984:Q1 to 1984:Q2

Policy 6 CRSP x 3.45

A variable DCRSP appears in the FOCUS Model's equation determining multiple housing starts. This variable has a value equal to the after-tax present discounted value of an interest-free CRSP loan (at \$10,500 maximum) for 1982:Q1 to 1985:Q1. It has a value of zero in other time periods. (See Appendix A of [1].)

The value of DCRSP was set at -1.23 times its historical values for 1982:Q1 to 1985:Q2 in simulating Policy 6.

Federal (Provincial) Government Subsidies to Business were reduced by

\$4 million (\$0.5 mil.) in 1982:Q1 to 1982:Q4

\$19 million (\$2.2 mil.) in 1983:Q1 to 1983:Q4

\$52 million (\$6.0 mil.) in 1984:Q1 to 1984:Q4

\$53 million (\$6.2 mil.) in 1985:Q1 to 1985:Q4

\$81 million (\$9.3 mil.) in 1986:Q1 to 1986:Q4

\$83 million (\$9.6 mil.) in 1987:Q1 to 1990:Q4

Policy 7 Interest Rate Subsidy

In addition to DCRSP, the Focus Model's equation for multiple starts includes variables that measure the after-tax values of subsidies available to builders from an assortment of past programs of government assistance. All of these variables have the same coefficient in determining multiple starts. That is, an after-tax dollar of subsidy has the same effect on starts, irrespective of how it is delivered. Total after-tax subsidies were reduced by \$6,199 (per unit) for 1983:Q3 to 1984:Q2.

Federal Subsidies to Business were reduced by

\$99 million in 1983:Q3 to 1983:Q4

\$198 million in 1984:Q1 to 1987:Q4

\$99 million in 1988:Q1 to 1988:Q4

Policy 8 Cost Subsidy

After-tax subsidies appearing in the multiple starts equation were reduced by \$9,193 (per unit) for 1982:Q3 to 1984:Q2.

Federal Subsidies to Business were reduced by

\$207 million in 1982:Q3 to 1982:Q4

\$415 million in 1983:Q1 to 1983:Q4

\$207 million in 1984:Q1 to 1984:Q2

Policy 9 Investment Tax Credit, M & E

The exogenous variable, RCREDITIPDE, was decreased by 0.015 for the 1982:Q3 to 1984:Q2 interval. This variable is defined as the rate of CCA-deductible investment tax credit allowable on new investment in machinery and equipment; hence the effect here is to simulate the impacts of a 1.5% tax credit.

Policy 10 Investment Tax Credit, Non-Res

The exogenous variable, RCREDITICER, was decreased by 0.015 for the 1982:Q3 to 1984:Q2 interval.

Policy 11 Subsidy for New Employment

The exogenous variable, SUBGF, measuring federal subsidies to businesses at seasonally-adjusted annual rates was reduced by \$415 million for each quarter over the 1982:Q3 to 1984:Q2 interval. In addition, an add factor equal to -40,000 (persons) was put on endogenous variable EPRIV (private employment) over this same interval. This combination of model adjustments has the effect of causing one-half of the private-sector wage payouts supported by the subsidy to represent net new employment creation.

Policy 12 Personal Income Tax Reduction

A lump-sum increase of \$415 million (S.A.A.R.) was inputted into federal personal income tax accruals by way of an add factor in the equation determining TPYF (federal income taxes) over 1982:Q3 to 1984:Q2.

Policy 13 Increase in Government Transfers to Persons

The exogenous variable VGPERF (federal transfers to persons, non-taxable) was reduced by \$415 million (S.A.A.R.) per quarter over 1982:Q3 to 1984:Q2.

Policy 14 Corporate Income Tax Reduction

The maximum, federal, statutory rate of corporate income tax, RTDCHF, was exogenously raised by 0.0135 over 1982:Q3 to 1984:Q2.

Policy 15 Provincial Sales Tax Reduction

The effective, average rate of provincial sales tax, RTDSALES, was raised by 0.003 over 1982:Q3 to 1984:Q2.

Policy 16 Manufacturing Sales Tax Reduction

The federal manufacturing sales tax rate, RTXSALESMF, was exogenously raised by 0.0055 over 1982:Q3 to 1984:Q2.

Policy 17 Increase in Government (Non-Wage) Current Expenditures

Federal government current expenditures, GCRNTF, were exogenously lowered by \$415 million (S.A.A.R.) for each quarter over 1982:Q3 to 1984:Q2. No adjustments were made to federal employment; hence the effect here is to channel all of the changes in GCRNTF into non-wage expenditures.

Policy 18 Increase in Government Capital Expenditures

Federal capital expenditures, GIFLXF, were lowered by \$415 million (S.A.A.R.) for each quarter over 1982:Q3 to 1984:Q2.

Policy 19 Increase in Monetary Base

The monetary base is defined by the sum of chartered bank reserves and currency outside banks. The FOCUS model does not identify a variable for the monetary base but does identify separately the bank reserves (CBRESERVES) and currency (CURRAWNS) components. For this simulation CBRESERVES was decreased by \$415 million per quarter over 1982:Q3 to 1984:Q2.

Policy 20 Increase in Government Capital Expenditures Financed by an Increase in the Monetary Base

The changes described for Policies 18 and 19 were simultaneously under/taken in performing this simulation.