



Algorithm Guide

This guide is designed primarily to provide SPSPD/M users with an understanding of the specific personal tax and cash transfer programs which are simulated, together with specific information on how each program was implemented. The guide is intended for both black box and glass box users.



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Introduction

The Algorithm Guide provides SPSD/M users with a description of the specific personal tax and cash transfer programs which are simulated and the specific way in which this is done. An attempt is also made to guide and caution the user, where necessary, as to the interpretation of the results. Also included in this guide are descriptions of processing and utility algorithms which have a significant effect on the results. The guide is intended for both black box and glass box users.

The guide is organized into three main sections. After the first section (this Introduction), there is a section describing the algorithms organized into logical groupings. This is followed by an alphabetically-arranged encyclopaedic section that lists all algorithms in the SPSM.

These modules are referred to as functions. Function names are printed in lower case (e.g. `txinet`, `txcalc`). Sub-functions are defined within the function that calls them and are also shown in lower case (e.g. `uiclm`, `gissub`). Both regular and local variables are shown as usual in lowercase (immicons). These local variables may not be used for reporting purposes unless modifications are made in glass box mode.

These functions tend to have a one-to-one correspondence with actual social and tax programs. In some cases however, two functions are required for one social program (Eg. the child care expense deduction is calculated in one function and allocated to a particular family member in another), or many programs may be simulated in one function (e.g. federal and provincial family allowances are both calculated by one routine).

Subject Reference

1 Algorithm by Program

1.1 Introduction

This guide is designed primarily to provide SPSD/M users with an understanding of the specific personal tax and cash transfer programs which are simulated, together with specific information on how each program was implemented. The guide is intended for both black-box and glass-box users.

1.2 Pre-simulation Functions

The functions in this group are executed prior to the simulation of taxes and transfers. The database is first adjusted to the users specifications, by `adj`. This adjusted database will form the basis of all base/variant combinations executed in a single program run. Parameter edit checks and the calculation of derived parameters are performed next in `mpc`. This is done based on `.apr` parameters and rules embodied in the function. Finally, calls to the tax/transfer algorithms are made for each requested base and/or variant simulation as controlled by the `drv` function.

1.2.1 Adjust Database

Three functions perform certain adjustments to the database variables prior to the execution of the tax/transfer algorithms. These adjustments can be used to increase the potential applications of the database.

<code>fmspopen</code>	Routines to read SPSD file (<code>.spd</code>)
<code>fmxopen</code>	Routines for reading SHS (<code>.fxv</code>) file
<code>adj</code>	Perform SPSD database adjustment

1.2.2 Calculate Derived Parameters

The `mpc` function calculates derived model parameters and performs edit checks on input tax/transfer algorithm parameters.

<code>mpc</code>	Calculate derived model parameters and do edits
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1.2.3 Tax/Transfer Calculator

Two functions are responsible for invoking the algorithms which calculate all taxes and transfers.

call Call tax/transfer calculator

drv Tax/transfer calculator

1.3 Government Cash Transfers

1.3.1 Employment Insurance Benefits

Employment Insurance benefits are calculated by a set of functions which mimic application of EI regulations to individual employment and claim histories. These functions are contained within the ui function

ui Compute UI benefits

1.3.2 Family Allowances

The famod function calculates the Quebec family allowance, the Quebec new born allocation and the Quebec availability allowance. The famod function also calculates the Federal Universal Child Care Benefit program, which is a monthly payment designed to help all families with the cost of child care for children under age 6.

famod Compute family allowance

1.3.3 Federal Child Tax Benefit/Credit

This function is used to calculate the federal child tax benefit. This program is intended to provide benefits to help low and middle income families meet the costs of raising children under the age of 18.

txctc Compute child tax credit

cceopt Multiple calls of tax/transfer calculator

1.3.4 Federal Sales Tax Credits

The refundable federal Sales Tax Credit provides benefits to help low income families offset the costs of federal sales taxes. The txfstc function calculates benefits from the federal Sales Tax Credit (STC) program based upon the number and type of persons in a family and the net income of the head and spouse.

txfstc Compute federal sales tax credit

1.3.5 Elderly Programs

1.3.5.1 Old Age Security

The Old Age Security program provides taxable monthly benefits to all Canadians age 65 and over who meet the Canadian residency requirements. The SPSM calculates OAS based on the age of the individual and, for immigrants, the years since immigration. The clawback of OAS is performed in the txitax function.

oas Compute OAS for elderly

1.3.5.2 Guaranteed Income Supplement/Spouses Allowance

The Guaranteed Income Supplementation and Spouse's Allowance programs provide non-taxable monthly benefits to all Canadians age 65 and over who apply and meet the Canadian residency requirements. The program is income tested.

gis Compute GIS/SPA for elderly

1.3.5.3 Provincial GIS Supplementation Programs

The gist function calculates benefits for provincial GIS supplementation programs in Newfoundland and Labrador, New Brunswick, Ontario, Manitoba, Saskatchewan, Alberta, and British Columbia. All modelled provincial senior's programs within SPSM are in this function.

gist Compute Provincial GIS top-ups for elderly

1.3.6 Social Assistance Benefits

This function is currently used to create a variable for social assistance by manipulating social assistance payments reported by the elderly (idisa) and GIS supplementation programs and other forms of social assistance (imigist).

samod Compute social assistance or guarantees

1.4 Federal Income and Payroll Taxes

1.4.1 Calculate Net Income

The txinet function contains several algorithms which are required to calculate net income. The algorithms calculate the following specific tax measures.

- Employment Expense Deduction
- Other Allowable Employment Expenses
- Taxable Dividends

- Taxable Capital Gains
 - Total Income
 - CPP/QPP Contributions (Deduction or Tax Credit)
 - EI Contributions (Deduction or Tax Credit)
 - Tuition Fees (Deduction or Tax Credit)
 - Calculate all deductions from total income
 - Assign Taxable portion of Family Allowance to head or spouse
 - Calculate Net Income
- txinet Compute net income

1.4.2 Calculate Taxable Income

The process of computing taxable income is divided into two separate routines. Exemptions, deductions and tax credits which are not dependent upon information from other members of the family (e.g., the Basic Personal Exemption or Basic Personal Tax Credit) are collected together in txitax. Algorithms which require information on the age, income or deductions of a spouse or dependant are in txhstr. txitax calculates a provisional value for taxable income (imitax) which may be further adjusted by txhstr.

- txitax Compute taxable income and individual credits
- txhstr Compute family-related deductions or credits

1.4.3 Child Care Expense Allowance

The txceea function calculates the value of the child care expense deduction. The calculation may be optionally converted to a tax credit basis rather than a deduction.

- txceea Compute child care expense allowance

1.4.4 Calculate Federal Tax

This function incorporates algorithms for the following tax measures to complete the calculation of federal taxes payable:

- Federal Dividend Tax Credit
- Basic Federal Tax (including credit transfers)

- Federal Tax Reduction (including transfer to spouse)
- Federal Surtax
- Federal Taxes Payable
- Alternate Minimum Tax
- Quebec Tax Abatement

txcalc Calculate federal income tax

1.5 Calculate Provincial Taxes

Provincial income taxes are collected by the federal government on behalf of most provinces. Quebec collects its own income tax. Algorithms for computing provincial tax range from taking a proportion of Basic Federal Tax to a parallel of the federal system in Quebec. Most provinces begin with a proportion of federal taxes but have their own systems of tax credits, surtaxes and reductions.

1.5.1 All Provinces except Quebec

txprov	Compute provincial taxes
txnfld	Compute provincial taxes for Newfoundland
txpei	Compute provincial taxes for P.E.I.
txns	Compute provincial taxes for Nova Scotia
txnb	Compute provincial taxes for New Brunswick
txont	Compute provincial taxes for Ontario
txman	Compute provincial taxes for Manitoba
txsask	Compute provincial taxes for Saskatchewan
txalta	Compute provincial taxes for Alberta
txbc	Compute provincial taxes for British Columbia

1.5.2 Quebec

txque	Compute provincial taxes for Quebec
txqinet	Compute net income (Quebec)
txqitax	Compute taxable income and individual credits (Quebec)
txqhstr	Compute family-related deductions or credits (Quebec)
txqcalc	Calculate income tax (Quebec)

1.6 Calculate and Assign Commodity Taxes

Sales & excise taxes are calculated by applying Input/Output based effective sales tax rates to observed family expenditures at the spending unit level of analysis in the following function.

ctmod	Compute commodity taxes for individuals and households
txhhexp	Compute and pro-rate household taxes, rent, etc.

1.7 Aggregation Routines

Two aggregation functions are used to calculate several reporting variables as aggregates of other modeled variables. The functions calculate all dollar denominated reporting variables up to the level of consummable income. In addition taxable filer status is determined.

memo1	Compute memo items for reporting
memo2	Compute consumable income, etc.

1.8 Glass Box Stub Routines

There are two empty functions in both the standard and alternate drivers (drv) that are available to allow completely new tax or benefit programs to be developed by glass box users.

dem	Compute new taxable demogrants
gai	Compute new refundable credits or guarantees

1.9 Auxiliary Functions

There are a number of auxiliary functions which are used by the functions containing the tax/transfer algorithms. These functions perform routine tasks required in simulating the tax/transfer system such as table look-ups and benefit reduction functions. The description of these functions is of use to anyone attempting to fully understand or modify the C-language source code for the tax/transfer algorithms.

classu	Compute user-defined reporting variables
isneg	Is argument negative ?
isnneg	Is argument non-negative?
isnzero	Is argument non-zero?
iszero	Is argument zero?

lkup1	Table look-up with interpolation/extrapolation
lkup2	Table look-up without interpolation
maxn	Find the maximum of two numbers
minn	Find the minimum of two numbers
nneg	Change negative numbers to zero
pmaddent	Define and add a parameter
randrnd	Randomly round a floating point number to an integer
round	Round to nearest integer
strn	Retrieve string by string number
taxbak1	One level tax-back function
taxbak2	Two level tax-back function
vardef	Define structure member as an SPSM variable

Alphabetic Reference

adj Perform SPSD database adjustment

SUMMARY

The `adj` function performs certain adjustments to the database variables prior to the execution of the tax/transfer algorithms. These adjustments can be used to increase the potential applications of the database. The function may currently be used to adjust the amount of RRSP contributions claimed and to adjust the months of education for students aged 16 to 18. A brief description of the database adjustment in general is also included.

SPSM Implementation

The SPSD is based on surveys and administrative data collected for a certain calendar year. Adjustment of this data may be required for several reasons.

The scaling of money items is performed in two functions inaccessible to the glass box user. Prior to the calculation of any taxes or transfers each dollar denominated database variable is multiplied by a single corresponding database adjustment parameter. There are two key exceptions to this. Employment income, comprising about 70% of total income is given more rigorous treatment due to its relative importance in the overall tax/transfer system. Employment income may be adjusted by industry specific growth rates. CPP/QPP income may be adjusted by differential rates according to age groups which allows for the phasing in of that program. Users should refer to the *Parameter Guide* in this manual for further details on specific adjustment parameters.

The `adj` function is a means for glass box users to affect the adjustment of the database in ways not currently possible. The user may add their own adjustment routines to augment or even offset current means of adjustment. For example if the user wished to grow employment income by age and sex they would set the existing employment parameter to one and enter a new algorithm in this function. Two such specific database adjustments are currently available in black box mode: an adjustment of RRSP contributions and an adjustment of months of education.

The RRSP contribution adjustment (which will change the value of the `idrrsp` variable) is designed to allow the user to simulate the increase in RRSP contribution limits in a rough fashion. It allows the user to increase the RRSP contributions of individuals who are near to the current contribution limits. The facility is activated by setting the `RRSPIFLAG` parameter to 1. Two cases are distinguished, those who are not covered by a employer-contributed pension plan, and those who are.

If individuals had RRSP contributions but had no RPP contributions, and their RRSP contributions fell between `RRSPSMIN` and `RRSPSMAX` inclusive, their RRSP contributions will be increased by `RRSPSINC`.

If individuals had RPP contributions, then, for those individuals whose total pension contributions (RRSP plus RPP) fell between RRSPMIN and RRSPMAX, their RRSP contributions will be increased by RRSPEINC.

The educational adjustment is designed to replace the values for months in school for post-secondary students under the age of 19. When EDUCADJFLAG is turned on, an adjustment is made to the months of education (ideducfm and ideducpm) for students in post-secondary school aged 16 to 18. As few of these people file income taxes, their months of education would otherwise be under-reported. The months of education for these students is drawn from the EDUCMPQ and EDUCMROC distributions when EDUCADJFLAG is turned on.

Relation to Other SPSM Routines

The `adj` function is called before `drv` and as such is only executed once for every program run. This means that database adjustments will apply to both the base and variant scenarios. The function is called after the other database adjustment routines.

CROSS REFERENCE

Function Description

INPUT PARAMETERS:

EDUCADJFLAG	Adjust education months activation flag
EDUCMPQ	Distribution of months in school by age for Quebec
EDUCMROC	Distribution of months in school by age for provinces other than Quebec
PROVMAP	Provincial remapping [prov]
RRSPEINC	Increment to rrsp if conditions & rpp>0
RRSPEMAX	Maximum (rpp+rrsp) for increment if rpp>0
RRSPEMIN	Minimum (rpp+rrsp) for increment if rpp>0
RRSPIFLAG	RRSP increment activation flag
RRSPSINC	Increment to rrsp if conditions & rpp=0
RRSPSMAX	Maximum (rrsp) for increment if rpp=0
RRSPSMIN	Minimum (rrsp) for increment if rpp=0

INPUT VARIABLES:

hhnin	Number of individuals in household
idage	Age
idestat	Educational status
idrann	Random numbers [array]
idrpp	Registered pension plan contributions (207)
idschtp	School type

OUTPUT VARIABLES:

hdprov	Province
ideducfm	Eligible full-time months of education
ideducpm	Eligible part-time months of education
idrrsp	RRSP calculated amount (208)

call Call tax/transfer calculator

SUMMARY

Stub function for use by glass box users who wish to modify database variables either before and/or after tax/transfer calculation. This function calls the standard driver -- drv.cpp.

ccept Multiple calls of tax/transfer calculator

SUMMARY

The ccept function controls multiple calls to the tax transfer calculator drv.

Program Description

There are three instances in which the entire calculation of the tax/transfer system for household is necessary. The ccept function controls such recalculations. Each case is discussed under separate headings below:

Pre-calculation of various variables

The tax and transfer system in the SPSM is run in a specified order (drv). In some cases, a variable is required which hasn't yet been calculated. For example, the calculation of Employment Insurance depends in part upon an individual's Child Tax Benefit entitlement. However, Employment Insurance is calculated prior to the Child Tax Benefit. ccept is used to calculate a preliminary value for the child tax benefit which can then be used in the calculation of Employment Insurance. The final value for a family's child tax benefit may differ from the preliminary estimate used for this calculation of Employment Insurance. This is done for other programs, as needed.

Splitting of pension income

Beginning in 2007, pension income was allowed to be split between spouses in order to lower the tax burden of the family.

Optimization of the Child Tax Credit/Child Tax Benefit

Beginning in 1988 the rules for calculating the child tax credit/child tax benefit and the child care expense credit were altered to ensure that middle income families could not receive the full benefits from both programs. In practice this is done by reducing maximum child tax credit benefits by 25% of claimed child care expenses. The resulting situation is that below a certain income level it is advantageous not to claim any child care expenses incurred. The ccept function can locate this level and thus maximize the combined benefits from the child care expense credit and the child tax credit/child tax benefit.

SPSM Implementation

ccept performs the re-calculations and optimizations in a specific sequence. The pre-calculation of the programs for the calculation of other programs (such as pre-calculating the federal Child Tax Benefit in order to model Employment Insurance) is performed first. Next, the optimization of pension income splitting is done. Finally, the optimization of the child care expense deduction and the federal Child Tax Benefit is performed. The SPSM implementation of each type of optimization are described separately below:

Pre-calculation of various variables.

The first time drv is called, certain variables in the code will have a zero value. If necessary, the tax system will be called a second time in order to populate these values.

For example, Employment Insurance is calculated with a zero value for the federal Child Tax Benefit. This will result in no EI family supplement benefits being assigned. The first time ccept is called by drv, it first determines if a family is eligible for both EI and the Child Tax Benefit. If so, that household has its entire tax/transfer entitlements/liabilities re-calculated using the value for the federal child tax benefit calculated in the first pass.

Note that there is a circularity between the two programs in that the federal Child Tax Benefit is based, in part, on Employment Insurance benefits to the extent that they are included in the definition of net income which is used to clawback the child benefits.

Splitting of pension income

The tax system is first run without splitting pension income. When SPLTPNSFLAG or QSPLTPNSFLAG is turned on, pension income can be split between spouses. drv will be called multiple times in order to find the optimal split of pension income. Please see SPLTPNSFLAG for more details about this implementation.

Optimization of the Child Tax Credit/Child Tax Benefit

The default calculation first performed in txceca makes use of any child care expenses associated with the children in the family. In the ccept function cases subject to optimization are first identified as families having children aged 0-6 with associated child care expenses.

The complexities of the tax reform situation in Canada make it difficult to know how to optimize many of this type of case. Consequently, once these families have been identified,

the entire tax/transfer system is recalculated, setting child care expenses for young children to zero. The value of consumable income for both runs is then compared. If the family benefits from this change, the scenario with no child care expenses is kept. Otherwise, the previous scenario is restored by again re-running the entire tax transfer system.

The algorithm is controlled by the parameter CCEZOPT.

CROSS REFERENCE

Function Description

INPUT PARAMETERS:

CCEZOPT CCE young kid optimization rules [1=use, 2=zero, 3=optimize]
 PENSPLTINCR Increment by which to split pension income
 QPENSPLTINCR Quebec increment by which to split pension income
 QSPLTPNSFLAG Quebec flag to split pension income
 QSPLTPNSOPT Quebec option for income concept to optimize split pension income
 SPLTPNSFLAG Flag to split pension income
 SPLTPNSOPT Option for income concept to optimize split pension income
 UITARGET EI target for the number of cases

INPUT VARIABLES:

cfin First person in census family [pointer]
 cfnkids Number of children in census family
 cfnpers Number of persons in census family
 hdageeld Age of eldest in household
 hdnkids Number of children in household
 hdprov Province
 hhncf Number of census families in household
 hhnin Number of individuals in household
 idage Age
 idcfrh Relationship to census family head
 idipens Pension income (115)
 idspoflg Person has spouse
 iduirank Predicted ranked likelihood of getting EI
 imccecc Child care expenses claimed on behalf of child
 immdisp Disposable income
 immicons Consumable income
 imqpicbn Quebec parental insurance plan calendar year benefits

ucstat Claim status flag

OUTPUT VARIABLES:

imcceni Consumable income with CCE not zeroed
imccez Is CCE zeroed?
imccezi Consumable income with CCE zeroed
imfcben Total Federal Child Benefits
imfcbene Total Federal Child Benefit Supplement
imgistsa Amount of GIST which goes into SA
imicnet Net Income (line 236)
imigis GIS benefits
iminet Net income
imisa Social assistance (or replacement program)
imispa Spouse's allowance
imiuccbc Universal Child Care Benefit amount claimed
imiuccbr Universal Child Care Benefit amount received
impnsph Pension income split for head
impnsp Pension income split for spouse
imqinet Quebec net income
imqpnsph Quebec pension income split for head
imqpnsps Quebec pension income split for spouse
imscb Saskatchewan Child Benefit

classu Compute user-defined reporting variables

SUMMARY

The classu function is a stub routine which allows the glass-box user to compute and assign values to new or re-defined variables. Variables first must be defined appropriately in vsdu.c and vsu.h. Since this function is normally called by both the standard and alternate model drivers, assignments made in classu will be effective in both cases.

Users should note that classu should only be used when the user is unable to create the desired classification with the User Defined Variable Facility. Please see the *User's Guide* for more information on this alternative facility.

Note that classu is called at the end of drv so that variables defined in classu are not available for use in other tax/transfer algorithms. See the *Programmer's Guide* for more information.

SUMMARY

Sales & excise taxes are calculated by applying Input/Output based effective sales tax rates to observed family expenditures at the spending unit level of analysis. The resulting federal government taxes span 48 consumer expenditure (CE) categories while provincial government taxes have both CE category and provincial dimensions. Commodity taxes are also estimated for other levels of analysis such as economic families and individuals.

Program Description

The federal government has a variety of taxes which are levied on goods used in production and for final demand consumption. Some of the major federal tax types are: custom import duties, alcohol and tobacco excise taxes and excise duties, goods and services tax, gasoline excise tax, and air transportation tax. The provincial governments also levy taxes but with more of an emphasis on consumer goods. Major taxes include liquor commission mark-ups, gasoline taxes, tobacco taxes, and retail sales taxes.

An important characteristic of this tax system is the cascading effect. Tax cascading occurs when a tax rate is applied to the value of a commodity inclusive of another tax type. For example, when an individual makes a long distance call a federal telecommunications tax of 10% is applied to the price of the call. Provincial governments then levy their retail sales tax rates to the value of the call inclusive of the federal tax.

SPSM Implementation

Input/Output Estimation of Tax Rates

Tax costs associated with domestic production are passed to the domestic consumers is the fundamental I/O modeling assumption. For example, alcohol producers require raw materials such as grains, water, energy source etc. If these inputs are produced themselves in other industries, then their selling price may include a tax component. Through Input/Output (I/O) techniques we are able to associate the implicit tax share of the production process to the correct final demand good.

The macroeconomic I/O system is used to construct effective tax rates by tax type, final demand good, and by province. This enables the calculation of the tax burden implicit in each household's reported final demand expenditures.

The federal tax rates have been grouped into four tax types: custom import duties; excise duties; goods and services tax; and excise taxes. The array of provincial tax rates has also been reduced to six tax types: profits on liquor commissions; liquor gallonage tax; gasoline tax; amusement tax; tobacco tax; retail sales tax.

The above rates are defined as the ratio of a particular tax to the expenditure net of all commodity taxes for a given good in a given province. Therefore, an additional input

parameter rate is applied to the SHS observations to net out the commodity taxes implicit in the base year.

For a more complete description of the I/O methodology, calculation procedures, tax type composition, etc. see *Commodity Tax User's Guide*.

Notes Regarding Expenditure Adjustments

Prior to the execution of the ctmof function, two modifications of the SHS data have been performed by the SPSM.

The first is made necessary because of the way SNA and SHS treat the expenditures on motor vehicles as net expenditures. If the trade-in exceeds the value of the purchase, or a household sells a vehicle outright, then the expenditure category will contain a negative value. In this case the SPSM treats the net expenditure as an income item (net sale of durables) and it is incorporated into the income calculation. The expenditure category is then set to zero. This procedure is conducted in the two consumer expenditure categories where net sales can occur: New & used automobiles; Recreation, sporting goods, and camping equipment. This modification is not accessible to the user.

The second data modification involves correcting for under-coverage of some SHS expenditure components. For example, sales of alcohol and tobacco are monitored very carefully by government agencies and their data indicate roughly twice as much consumption of these two goods as reported on the SHS. Two other SHS categories report substantially lower consumption than other information sources would indicate. They are semi-durables and expenditures for restaurants & hotels. The GFFMX parameter in the .APR file enables the adjustment of raw SHS values to the levels of other sources. We provide users with factors to inflate expenditures to known levels.

Estimation of commodity taxes

The ctmof function initially calls the ctfx sub-function to calculate the taxes based on the expenditure patterns of SHS spending units. The ctmof function then computes the taxes for other levels of analysis such as individuals or economic families.

The SHS expenditure categories must be stripped of their original tax component before the commodity tax calculation can be performed. This is accomplished in the ctfx sub-function by applying the I/O computed CTTXRM parameter (database adjustment parameter) to the expenditure observations.

The effective commodity tax rates are then multiplied by the net expenditures to produce commodity tax levels for each spending unit. Provincial taxes applied are defined in the following input parameters:

- CTPAMU Provincial amusement tax
- CTPGAS Provincial gasoline tax
- CTPLGL Provincial liquor gallonage tax
- CTPPLQ Provincial profits on liquor commissions

- CTPRST Provincial retail sales tax
- CTPTOB Provincial tobacco tax

The model ensures that both options will produce identical results in the aggregate.

Commodity taxes are then allocated to individuals in the SHS spending unit via personal income shares in the `ctmod` function. The income of the household's head is derived by adding four variables from the SHS income concept not surveyed elsewhere to his/her SPSD income concept variables. These variables are: savings; other money receipts; net sales of durables and account balancing difference. The shares reflect the income distribution after this modification.

The `CTOPT` parameter controls which income concept is used in the simulation. If the parameter is set to 1 then the SHS income concept is used. This measure of income is not linked to other SPSD variables in any way. Therefore, if the user wishes to examine the implications to commodity tax outflows based upon changes in SPSD income variables (i.e. OAS, GIS, income tax changes) then this option should never be specified. Its use should be restricted to pure SHS analyses.

If `CTOPT` is set to 2 then the SPSD income concept is used. This income measure has been corrected for an income bias inherent in Survey of Labour and Income Dynamics (SLID) data using Department of Revenue Greenbook tax data. This income adjustment is described in detail in the *Database Creation Guide*. The result is a substantial increase in household income for observations in the extreme upper tail.

The SHS data suffers from the same under-coverage as the SLID so the reported spending unit expenditure can be out of synch with the Greenbook adjusted income. For example, the largest total expenditure observation is around \$150,000 while a large tax adjusted household income exceeds \$5,000,000.

Setting the `CTOPT` parameter to 2 scales the commodity tax calculated conditioned on SHS spending unit income by the ratio of the SPSD "shared" income concept to an equivalent SHS "shared" income concept. In this way tax outlays bear closer relation to the SPSD income levels. However, this leads to some outlay distortions for the extremely wealthy which are described in the Interpretation Section.

Calculating the Ontario Clean Energy Benefit (OCEB)

The calculation of the Ontario Clean Energy Benefit has been added to the `ctmod` algorithm because the benefit requires the calculation of commodity taxes. Once commodity taxes are available the benefit is calculated by multiplying the rebate rate by each household's total spending on electricity (including taxes).

Interpretation

There are some other discrepancies between the system of national accounts (SNA) definition of consumer expenditure and that of SHS. Generally, SNA includes the entire personal sector whose components are households, self-employed professionals, and universities. SHS tracks only households and, therefore, tax levels by commodity are

generally lower. For a detailed description of these differences see the *Commodity Tax User's Guide*.

In the aggregate, differences between income SPSM income concept (CTOPT=2) and the SHS income concept (CTOPT=1) are almost negligible. Using 1984 base case parameters the SHS option produced a \$20.997 billion tax burden on Canadian families while the scaled option generated \$21.048 billion. These compare favourably with the SNA estimate of \$22.5 billion. However, the differences for the highest income households are greater. The top three households show differences of over \$200,000. This implies some caution when interpreting commodity tax values for high income observations.

Relation to Other SPSM Routines

The ctmod function calls the ctfx sub-function in order to calculate spending unit commodity taxes. The ctmod function itself is called by the drv function. The ctmod function makes use of parameters derived in the mpc function. The mpc function also ensures that the ctmod function is not executed if the SHS data vector is not being read (i.e. if FXVFLAG=0). The calculation of commodity taxes is highly dependent on the parameters applied to the database expenditure items during the database adjustment phase of the simulator.

CROSS REFERENCE

Function Description

INPUT PARAMETERS:

CTFAMSNA	SHS->SNA conceptual conversion factor [com]
CTCAPTOBFLG	Flag to cap tobacco expenditures
CTFABD	Account balancing difference
CTFCID	Federal custom import duties [com]
CTFEXD	Federal excise duties [com]
CTFEXT	Federal excise taxes [com]
CTFGST	Federal GST [com]
CTFGSTHOUSE	Gst on housing to be allocated [prov][tenure]
CTFLAG	Commodity tax activation flag
CTFNEW	New federal commodity tax [com]
CTLPROP	Local property taxes
CTNES	Expenditures NES
CTOPT	Commodity tax calculation method [1=SHS,2=SPSM]
CTPAMU	Provincial amusement tax [prov]
CTPCAR	Provincial carbon tax [com x prov]
CTPGAS	Provincial gasoline tax [com x prov]
CTPLGL	Provincial liquor gallonage tax [prov]
CTPNEW	New provincial commodity tax [com x prov]
CTPPLQ	Provincial profits on liquor commissions [prov]

CTPRST	Provincial retail sales tax [com x prov]
CTPTOB	Provincial tobacco tax [prov]
CTSAVE	All positive savings
CTTOBMAX	Maximum value of tobacco expenditures
OOCEBFLG	Ontario Clean Energy Benefit activation flag
OOCEBRATE	Ontario Clean Energy Benefit rebate rate

INPUT VARIABLES:

ctfabdn	Negative account balancing difference
ctnexp	Household expenditure net of taxes
ctothmon	Household money from other sources
cttxfc	Federal commodity taxes (total)
cttxpc	Provincial commodity taxes (total)
fxalimo	Alimony and child support
fxanncon	Annuity contracts and transfers to RRIFs
fxfabd	Account balancing difference
fxfomr	Other money receipts
fxgstidx	Index for distributing GST on housing
fxgvpen	Gvt pension plan contributions
fxhomexp	Expenses assoc with principal residence
fxio	I/O expenditure categories [array]
fxnes	Not elsewhere stated
fxnsave	Negative savings
fxprtax	Property tax
fxpsave	Positive savings
fxpvpen	Private pension plan contributions
fxrepr	Repairs paid
fxsaldur	Sale of durables
fxseqhv	SHS record sequence number
fxtptax	Transfer of Property taxes
hdprov	Province
hdtenur	Tenure
hhnin	Number of individuals in household
idhhrh	Relationship to head of household
idicapg	Capital gains (actual)
immdisp	Disposable income

OUTPUT VARIABLES:

ctfabdn	Negative account balancing difference
ctfabdp	Positive account balancing difference
ctfcid	Federal custom import duties
ctfcid_	Federal custom import duties [array]
ctfexd	Federal excise duties
ctfexd_	Federal excise duties [array]
ctfext	Federal excise taxes
ctfext_	Federal excise taxes [array]
ctfgst	Federal GST

ctfgst_	Federal GST [array]
ctfgsths	Federal GST on housing
ctfnew	New federal commodity tax
ctfnew_	New federal commodity tax [array]
ctishrh	Shared income concept (SHS)
ctlprop	Local property taxes on owned dwellings
ctnes	Household expenditure not elsewhere specified
ctnexp	Household expenditure net of taxes
ctnexp_	Household expenditure net of taxes [array]
ctnsna	Household expenditure net of taxes -SNA adjusted
ctnsna_	Household expenditure net of taxes [array] -SNA
adjusted	
ctothmon	Household money from other sources
ctpamu	Provincial amusement tax
ctpcar	Provincial carbon tax
ctpcar_	Provincial carbon tax [array]
ctpgas	Provincial gasoline tax
ctpgas_	Provincial gasoline tax [array]
ctplgl	Provincial liquor gallonage taxes
ctpnew	New provincial commodity tax
ctpnew_	New provincial commodity tax [array]
ctpplq	Provincial profits on liquor commissions
ctprov	Province for COMTAX calculations
ctprst	Provincial retail sales tax
ctprst_	Provincial retail sales tax [array]
ctptob	Provincial tobacco tax
ctsave	Household savings
ctseqhv	SHS record sequence number
cttxfc	Federal commodity taxes (total)
cttxfc_	Federal commodity taxes [array]
cttxpc	Provincial commodity taxes (total)
cttxpc_	Provincial commodity taxes [array]
imishri	Shared income concept (SHS & SPSD)
imooceb	Ontario Clean Energy Benefit
intxfc	Federal commodity taxes
intxpc	Provincial commodity taxes

dem Compute new taxable demogrants

SUMMARY

This is a stub function for use by glass box users who wish to incorporate a new program which interacts with the tax system (i.e. taxable benefits).

CROSS REFERENCE

Function	Description
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INPUT VARIABLES:

hhnin	Number of individuals in household
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OUTPUT VARIABLES:

imiotg	Other taxable demogrants
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drv	Tax/transfer calculator
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SUMMARY

The calculation of taxes and cash transfers for any base or variant run is controlled by a function whose only task is to call all other individual tax/transfer algorithm functions. The sequence of calls is critical to the simulation due to the informational requirements of the tax/transfer functions. For example net income must be known before gis can be calculated. The following list gives the functions called by drv in the order in which they are called.

Function	Description
ui	Compute UI benefits
famod	Compute family allowance
oas	Compute OAS for elderly
dem	Stub routine for new pre-tax system programs
txinet	Compute net income (including payroll taxes)
gis	Compute GIS/SPA for elderly
gist	Compute Provincial GIS top-ups for elderly(GAINS-A, SIP, etc)
samod	Compute social assistance or guarantees
txitax	Compute taxable income
txhstr	Apply tax transfers between head and spouse
txcalc	Calculate federal income tax
txctc	Compute child tax credit
txfstc	Compute federal sales tax credit
txprov	Compute provincial taxes and credits
gai	Stub routine for new post-tax system programs
memo1	Compute memo items for reporting
ctmod	Compute commodity taxes
memo2	Compute consumable income, etc.

concept
class

Multiple calls of tax/transfer calculator
Stub routine to compute user defined reporting variables

The calling order of the component functions of drv reflects the logical precedence between them.

- The first functions, ui, famod and oas, simulate programs whose benefits are determined by factors other than income and as such are called first.
- dem is a stub routine for glass box applications that require calculations to occur before entering the tax system routines.
- txinet calculates net income prior to certain transfers.
- gis calculates transfers to the elderly.
- gist, txctc, and txfstc calculate income tested transfer programs.
- samod calculates social assistance or guaranteed income transfers.
- Federal and provincial taxes are calculated next in the next six functions with the tx prefix (txitax, txhstr, txcalc, txprov, txctc, and txfstc).
- gai is another stub routine that is intended for use by glass box users who wish to simulate options requiring information on all personal income taxes and cash transfers. For example users may use this function to simulate an income supplementation program.
- The memo1 and memo2 functions create aggregate variables for reporting.
- In the ctmod function, sales & excise taxes are calculated by applying Input/Output based effective sales tax rates to observed family expenditures.
- ccept optimizes income by maximizing the child care expense credit and the child tax credit, optimizes pension income splitting, and pre-calculates variables.
- classu is a stub routine which allows the glass box user to compute and assign values to new or re-defined variables.

The functions called by drv call other functions and sub-functions in order to complete their calculations. The following page contains a complete list of the names of functions and sub-functions along with a short description in the order in which they are called by drv. Please refer to the specific function in this guide for a more detailed description. Sub-functions (in italic) can be found listed under the function which calls them. Thus for a complete understanding of the calculation of net income one would have to consult both the txinet and txcea functions.

As mentioned earlier, function names are printed in lower case, bold, courier font (E.g. txinet, txcalc) and correspond to a single C++ language source code file (E.g. txinet.cpp, txcalc.cpp). Sub-functions are defined within the function (file) that calls them and are shown in lower case, courier font, italic (e.g. uisqz, gissub). All multiple calls to the same sub-function have been shown here. All functions directly called by drv begin in the first column below, other function calls are indented.

In ccept all the functions are called multiple times by drv.

ui		Compute UI benefits
	<i>qpclm</i>	Simulate a QPIP claim
	<i>uiclm</i>	Simulate an EI claim
	<i>uisqz</i>	Squeeze EI phases into time window
	<i>uitrnclm</i>	tack on a training claim for those eligible

	<i>uiclm</i>		Simulate an EI claim
		<i>uisqz</i>	Squeeze EI phases into time window
	<i>uitrncml</i>		tack on a training claim for those eligible
famod			Compute family allowance
oas			Compute OAS for elderly
dem			Stub routine for new pre-tax system programs
txinet			Compute net income
	<i>txcea</i>		Compute child care expense allowance
gis			Compute GIS/SPA for elderly
	<i>gissub</i>		Compute income used to tax back GIS/SPA
gist			Compute Provincial GIS top-ups for elderly
	<i>txhhexp</i>		Compute and pro-rate household taxes, rent, etc.
samod			Compute social assistance or guarantees
txitax			Compute taxable income
txhstr			Apply tax transfers between head and spouse
txcalc			Calculate federal income tax
txctc			Compute child tax credit
txfstc			Compute federal sales tax credit
txprov			Compute provincial taxes
	<i>txnfld</i>		Compute Newfoundland provincial taxes
	<i>txpei</i>		Compute PEI provincial taxes
	<i>txns</i>		Compute Nova Scotia provincial taxes
	<i>txnb</i>		Compute New Brunswick provincial taxes
	<i>txque</i>		Compute Quebec provincial taxes
		<i>txqinet</i>	Compute net income (Quebec)
		<i>txqitax</i>	Compute taxable income (Quebec)
		<i>txqhstr</i>	Apply tax transfers between head and spouse (Quebec)
		<i>txqcalc</i>	Calculate Income Tax (Quebec)
		<i>txhhexp</i>	Compute and pro-rate household taxes, rent, etc.
	<i>txont</i>		Compute Ontario provincial taxes
		<i>txhhexp</i>	Compute and pro-rate household taxes, rent, etc.
	<i>txman</i>		Compute Manitoba provincial taxes
		<i>txhhexp</i>	Compute and pro-rate household taxes, rent, etc.
	<i>txsask</i>		Compute Saskatchewan provincial taxes
	<i>txalta</i>		Compute Alberta provincial taxes
	<i>txbc</i>		Compute BC provincial taxes
		<i>txhhexp</i>	Compute and pro-rate household taxes, rent, etc.

gai		Stub routine for new post-tax system programs
memo1		Compute memo items for reporting
ctmod		Compute commodity taxes
	<i>ctfx</i>	Compute commodity taxes for SHS spending unit
		<i>ctfxd</i>
		Compute commodity taxes for SHS spending unit (detailed)
memo2		Compute consumable income, etc.
cceopt		Multiple calls of tax/transfer calculator recalculate programs
	<i>pass2</i>	
		<i>drv</i>
		Conditional execution of the Tax/Transfer Calculator
	...	Repeat if necessary for optimizing
classu		Compute User Defined Reporting Variables

famod Compute family allowance

SUMMARY

The famod function calculates federal Family Allowance benefits based upon the number of children in a family and their ages. The function allows for the Alberta and Quebec variations on family allowances as well as the Quebec supplementation of federal family allowances.

Following 1997 reform, starting in 1998 in the model, the Quebec family allowance, the Quebec new born allocation and the Quebec availability allowance are now calculated only if QFATCOPT is set to 1, otherwise the Quebec Family Allowance Tax Credit is calculated in txqcalc.

Program Description

The federal Family Allowances program was designed to provide taxable benefits to help meet the costs of raising children under the age of 18 who are resident in Canada and are maintained by their parent(s) or guardian. At least one parent or guardian must be either a Canadian citizen or a permanent resident, visitor or holder of a Minister's Permit under the Immigration Act and have been legally admitted into Canada. The parent(s) or guardian must make application for benefits and their income must be subject to Canadian income tax. Benefits cease to be payable with regard to self-supporting children (i.e. children who begin to earn a taxable income).

Family allowance benefits are generally paid at a uniform rate across Canada. However, provinces may, within certain limits, vary the amount of Family Allowances that the federal

government pays to their residents according to the age and/or number of children in a family. Alberta and Quebec are the only provinces that vary the rate. Alberta varies payment based on the age of the child while Quebec varies payment based on the number of children in the family and then adds a supplement based on the age of the child.

The province of Quebec maintains a separate but linked program under the Quebec Family Allowances Act which provides for benefits to the parent or guardian of an unmarried child under the age of 18 who is not a ward of the province. The applicant must have resided in Quebec for at least one month or be paying Quebec income tax. In 1984 benefits payable were not subject to Quebec income tax, however benefits paid with respect to children aged 16 and 17 were subject to federal tax. Persons in receipt of federal family allowances automatically receive the provincial benefits without application. This program also has a supplement for handicapped children; however, this is not modeled in the SPSM.

The Quebec Newborn Allowance was implemented in 1988 and is modeled in famod from that year. Benefits are paid per child and rise from \$500.00 for each of the first two children to \$3000.00 for each subsequent child.

An option permit the user to randomly increase the rank of first and second child in order to reflect the rank distribution of child observed by the RRQ. The program end in October 1997 and is replaced by a Child tax allocation not modeled yet.

SPSM Implementation

The famod function calculates provincial family allowances based on the age of children and number of children in a family. Residency requirements are deemed to have been met in all cases as is the requirement of non self-sufficiency. The function always allocates family allowances as income of the mother unless one is not present in the nuclear family. This temporary allocation is subsequently assigned to the spouse having the higher net income in txinet and txqinet. The function outputs values for provincial (impfa) family allowances. The function loops through each nuclear family in a household.

The function first calculates provincial family allowances for residents of Quebec. Counts of numbers of children by age group are calculated and used to index into a look-up table for provincial programs.

The calculation of Quebec allowances in famod includes the calculation of the Quebec Newborn Allowance, represented by the variable imqnbfa. This benefit is calculated on the following schedule for 1988:

Child Number	Birth	Age 1	Age 2	Total
1	500	0		500
2	500	0		500
3+	375/Quarter	375/Quarter		3,000

Interpretation

Results obtained from the SPSM with respect to family allowance benefits differ from Health and Welfare Canada administrative data. Overall the SPSM reports 96.7% of the 1984

calendar year average health and welfare total dollars and 97.3% of children for whom benefits are received.

The SPSM has few children in part due to the non-coverage of Yukon, N.W.T., and native reservations, all of which have younger than average populations and larger than average family sizes (approximately 1.5% of children). A second source of underestimation is the special allowances for foster children and children in welfare agencies. The SPSD does not include these children or their benefits which account for .7% of total family allowances. Further, the SPSM does not take into account payments made outside Canada, although the effect of these on the total is insignificant (less than .1%).

The family allowance program requires parents of 'self-supporting' children to notify Health and Welfare Canada and have the benefits with respect to these children suspended. There are about 52,000 of such children aged 16 and 17 on the SPSD with respect to whom benefits are allocated. It is unknown how many of the parents of these children actually report their situation to Health and Welfare Canada. Lastly, no residency check is imposed on the parents and this will have an insignificant effect. It is assumed that the number of children turning age 18 during the calendar year is balanced by the number of new births. That is, full year family allowance benefits paid with respect to children born during 1984 will be overestimates to the same degree that an underestimate arises for benefits not given to 18 year olds who were 17 during calendar 1984.

Universal Child Care Benefit

The UCCBFLAG parameter turns on and off the Federal Universal Child Care Benefit (UCCB) program, which is a monthly payment designed to help all families with the cost of child care for children under age 6. The program was implemented in July 2006.

This amount will be taxable for the lower-income spouse. This amount will not be taken into account for the purposes of calculating income-tested benefits delivered through the income tax system. Nor will they reduce Old Age Security or Employment Insurance Benefits, and will not reduce the amount of expenses claimable under the child care expense deduction.

When UCCBSPFLG is activated, single parents may transfer the amount of UCCB received (imiuccbr) to a dependent, who then can claim the UCCB amount on their income. In the case of 2 parent families, the amount of UCCB claimed (imiuccbc) will be equal to the amount received (imiuccbr).

CROSS REFERENCE

Function	Description
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INPUT PARAMETERS:

FAFLAG	Family allowance flag
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QFATCOPT	Quebec Family Allowance Tax Credit Option
QFPSL	Quebec provincial family allowance [parity,\$]
QNBFA	Quebec newborn family allowance [parity,age]
QNBFAFLAG	Quebec newborn family allowance flag
QNBPOFLAG	Quebec newborn family allowance phase out flag
QNBPOPYR	Quebec newborn family allowance phase-out year
proportion	
QNBPOYR	Quebec newborn family allowance phase out year
QNBFRFLAG	Quebec newborn family random increase of child
rank	
TARGETYEAR	Year of analysis
UCCBAMT	Universal child care benefit amount for each
child < 6	
UCCBFLAG	Universal child care benefit activation flag

INPUT VARIABLES:

hdprov	Province
hnnf	Number of nuclear families in household
idage	Age
idrand	Random numbers [array]
idsex	Sex
nfinch	First child in nuclear family [pointer]
nfnkids	Number of children in nuclear family
nfspoflg	Nuclear family contains married couple

OUTPUT VARIABLES:

imiuccbr	Universal Child Care Benefit amount received
innfach	Number of under 18 children claimed for tax
reduction	
impfa	Provincial family allowance
imqnbfa	Quebec newborn Allowance
nfineld	Eldest person in nuclear family [pointer]
nfinspo	Spouse of eldest [pointer]

fmfxopen Routines for reading SHS (.fxv) file

SUMMARY

The purpose of this maintenance function is to load the SHS variables and to grow them by the corresponding database adjustment parameter.

CROSS REFERENCE

Function	Description
INPUT PARAMETERS:	
CTCFALC	SHS reporting error adjustment: Alcohol [prov]
CTCFGAS	SHS reporting error adjustment: Gasoline [prov]
CTCFTOB	SHS reporting error adjustment: Tobacco [prov]
CTTXRM	Base year commodity tax removal factor [com x prov]
EXPADJ	Adjustment Factor: All expenditure adjustment
GFALIMO	Adjustment Factor: Alimony and child support
GFANNCON	Adjustment Factor: Annuity contracts and transfers to RRIFs
GFCQP	Adjustment Factor: CPP/QPP contributions
GFFABDN	Adjustment Factor: Negative account balancing difference
GFFABDP	Adjustment Factor: Positive account balancing difference
GFFMX	Adjustment Factor: consumer expenditure categories [commodity]
GFFOMR	Adjustment Factor: Other money receipts
GFGSTIDX	Adjustment Factor: GST on housing index [province][tenure]
GFGVPEN	Adjustment Factor: Government pension plan contributions
GFHOMEXP	Adjustment Factor: Expenses associated with principal residence
GFHRTCPR	Adjustment Factor: Home Renovation Tax Credit eligible expenses on principal residence
GFHRTCVMH	Adjustment Factor: Home Renovation Tax Credit eligible expenses on vacation homes
GFINTAX	Adjustment Factor: Income taxes
GFIPAC	Adjustment Factor: Life insurance premiums and annuity contributions
GFNCALN	Adjustment Factor: Negative change in assets and liabilities
GFNCALP	Adjustment Factor: Positive change in assets and liabilities
GFNES	Adjustment Factor: Not elsewhere stated
GFPR TAX	Adjustment Factor: Property tax
GFPURPRC	Adjustment Factor: Purchase price of home
GFPVPEN	Adjustment Factor: Private pension plan contributions

GFRECOM	Adjustment Factor: Real estate commissions
GFREPR	Adjustment Factor: Repairs paid
GFRFEES	Adjustment Factor: Registration and license fees
GFRRSPT	Adjustment Factor: Total RRSP contributions (SHS)
GFSELPRC	Adjustment Factor: Selling price of home
GFTPTAX	Adjustment Factor: Transfer of property taxes
GFUIC	Adjustment Factor: EI contributions
KEEPNEGEXP	Retain negative expenditures in SHS
DBVERSION	Version of the database (x100)
INPFVX	Name of SHS vector file (in) [string]
INSPD	Name of SPSD file (in) [string]

INPUT VARIABLES:

fhbfver	SPSD/M binary format version (x100)
fhdbver	SPSD/M database/year version (x100)
fhfiltyp	File type (extension) [string]
fhnum	Number of numbers in the file
fralimo	Alimony, separation allowance, child support
payments	
franncon	Annuity contracts and transfers to RRIFs
frclohhv	Cloning factor for SHS exp. vector
frcloshs	SHS cloning factor
frcqp	Cpp - qpp contributions
frfabd	Account balancing difference
frfomr	Other money receipts
frgstidx	Index for distributing GST on housing
frgvpen	Gvt pension plan contributions
frhomexp	Expenses associated with operation of principal
residence	
frhrtcpr	Home renovation tax credit eligible expenses on
principal residence	
frhrtcvh	Home renovation tax credit eligible expenses on
vacation home	
frintax	Income taxes
frio	Expenditure on the 40 I/O categories [array]
fripac	Life ins prems and annuity contributions
frncal	Net change in assets and liabilities
frnes	Not elsewhere stated
frprtax	Property tax
frpurprc	Purchase price of home
frpvpen	Private pension plan contributions
frrecom	Real estate commissions
frrepr	Repairs paid
frrfees	Registration and license fees
frrrspt	Total RRSP contributions (SHS)
frselprc	Selling price of home
frtptax	Transfer of Property taxes

fruc	UI contributions
hdprov	Province
hdtenu	Tenure

OUTPUT VARIABLES:

fhash	Hashed code of header information
fxalimo	Alimony and child support
fxanncon	Annuity contracts and transfers to RRIFs
fxclohhv	SHS cloning factor
fxclshs	SHS cloning factor
fxcqp	Cpp - qpp contributions
fxfabd	Account balancing difference
fxfomr	Other money receipts
fxgstidx	Index for distributing GST on housing
fxgvpen	Gvt pension plan contributions
fxhomexp	Expenses assoc with principal residence
fxhrtcpr	Home Renovation Tax Credit eligible expenses on principal residence
fxhrtcvh	Home Renovation Tax Credit eligible expenses on vacation home
fxintax	Income taxes
fxio	I/O expenditure categories [array]
fxipac	Life ins prems and annuity contributions
fxncal	Net change in assets and liabilities
fxnes	Not elsewhere stated
fxnsave	Negative savings
fxprtax	Property tax
fxpsave	Positive savings
fxpurprc	Purchase price of home
fxpvpen	Private pension plan contributions
fxrecom	Real estate commissions
fxrepr	Repairs paid
fxrfees	Registration and license fees
fxrrspt	Total RRSP contributions (SHS)
fxsaldur	Sale of durables
fxselprc	Selling price of home
fxseqhv	SHS record sequence number
fxtptax	Transfer of Property taxes
fxuic	EI contributions
hdfrstfx	First household in SHS group flag
hdlastfx	Last household in SHS group flag
hdwgtfx	Sum of household weight for SHS group

SUMMARY

The purpose of this maintenance function is to load the SPSD variables and to grow them by the corresponding database adjustment parameter. In addition the method of conversion for converted variables is applied. The logic for differential growth of CPP is also applied in this function. The actual code in this function is proprietary and is not released with the SPSD/M product.

CROSS REFERENCE

Function	Description
INPUT PARAMETERS:	
GFADDED	Growth Factor: Additional deductions from net income (256)
GFALEXP	Growth Factor: Other allowable employment expenses (229)
GFCAPGEX	Growth Factor: Capital gains exemptions (254)
GFCARRY	Growth Factor: Carrying charges (221)
GFC CET	Growth Factor: Child care expenses associated with child
GFC CETT	Growth Factor: Child care expenses (Limit A, Form T778)
GFCGTC	Growth Factor: Caregivers tax credit (315)
GFCCHARIT	Growth Factor: Charitable donations (340)
GFCCLERGY	Growth Factor: Clergy residential deduction
GFCLOSS	Growth Factor: Allowable other years capital loss (253)
GFCPP65	Growth Factor: CPP for age 65
GFCPP66	Growth Factor: CPP for age 66
GFCPP67	Growth Factor: CPP for age 67
GFCPP68	Growth Factor: CPP for age 68
GFCPP69	Growth Factor: CPP for age 69
GFCPP70	Growth Factor: CPP for age 70
GFCPP71	Growth Factor: CPP for age 71
GFCPP72	Growth Factor: CPP for age 72
GFCPP73	Growth Factor: CPP for age 73
GFCPP74	Growth Factor: CPP for age 74
GFCPP75	Growth Factor: CPP for age 75
GFCPPG75	Growth Factor: CPP for age > 75

GFCPPL65	Growth Factor: CPP for age < 65
GFDALIMO	Growth Factor: Alimony paid (220)
GFDISOTH (318)	Growth Factor: Disability amount for dependants
GFDISSLF	Growth Factor: Disability amount for self (316)
GFDUES	Growth Factor: Union and professional dues (212)
GFEMPLO (248)	Growth Factor: Employee home relocation loan dedn
GFEXPLOR expenses (224)	Growth Factor: Exploration and development
GFFITEXP	Growth Factor: Fitness Expenses for children
GFFORINC	Growth Factor: Net foreign income (508)
GFFORTX	Growth Factor: Foreign tax paid (507)
GFGIFTS (342)	Growth Factor: Gifts to Canada/provinces/culture
GFGSTREB	Growth Factor: GST rebate (457)
GFHOMSTU homeowner assistance (558)	Growth Factor: College residence/resident
GFIALIMG	Growth Factor: Gross Alimony Income
GFIALIMO	Growth Factor: Alimony Income
GFICAPG	Growth Factor: Capital gains (actual) (127 * 1.5)
GFIDIV 1.5)	Growth Factor: Dividend income (actual) (120 /
GFIDIVE eligible)	Growth Factor: Dividend income (actual -
GFIDIVIE than eligible)	Growth Factor: Dividend income (actual - other
GFIEMP	Growth Factor: Employment income [province,sex]
GFIIINVND dividend)	Growth Factor: Investment income (excluding
GFIFLOSS	Growth Factor: Business investment losses (217)
GFINTSTU (319)	Growth Factor: Interest paid on student loans
GFIPENS	Growth Factor: Pension income (115)
GFIQPIP	Growth Factor: Original QPIP
GFISA	Growth Factor: Social assistance income
GFISE	Growth Factor: Self-employment income
GFITC (412)	Growth Factor: Federal investment tax credits
GFITOTH (taxable)	Growth Factor: Other non-government income
GFITRRSP	Growth Factor: Taxable RRSP withdrawals
GFIIWORKC	Growth Factor: Worker's compensation
GFLABTXG	Growth Factor: Labour funds tax credit (414)
GFMEDGRO	Growth Factor: Medical expenses, gross (330)
GFMINCAR	Growth Factor: Minimum tax carryover (504)
GFMOVEXP	Growth Factor: Imputed moving expenses (219)

GFMSCHPD Growth Factor: Manitoba school taxes paid
 GFNCLOS Growth Factor: Allowable other years non-capital
 loss (252)
 GFNORTH Growth Factor: Northern deductions (255)
 GFOTHDED Growth Factor: Other deductions from total income
 (232)
 GFOTHPE Growth Factor: Other dependant exemptions (305)
 GFPARTLO Growth Factor: Limited partnership losses (251)
 GFPOLCON Growth Factor: Federal political contributions
 (409)
 GFPROPTX Growth Factor: Net property taxes paid (556)
 GFPRVFTC Growth Factor: Provincial foreign tax credit
 (Form T2036)
 GFPRVPOL Growth Factor: Provincial political contributions
 (565)
 GFQPERN Growth Factor: Weekly earnings to qualify for
 QPIP
 GFRENTPD Growth Factor: Total rental payments (555)
 GFRPP Growth Factor: Registered pension plan
 contributions (207)
 GFRRSP Growth Factor: RRSP contributions (208)
 GFSAPRED Growth Factor: Predicted benefits from Social
 Assistance
 GFSPRECPR Growth Factor: Children's Sport & Recrn
 Expense (Prov)
 GFSTKDED Growth Factor: Stock option deduction (249)
 GFTRANSIT Growth Factor: Public Transit
 GFTUITN Growth Factor: Tuition fees (320)
 GFUIPRED Growth Factor: Predicted benefits from EI
 IEMPADJ Adjustment Factor: Employment income [employment
 income breaks, province]
 IEMPBRK Adjustment Factor: Income breaks for income
 adjustment [employment income breaks]
 IMPCQPOPT Imputation method, CQP [1=none 2=rank]
 IMPSAOPT Imputation method, SA [1=none 2=rank]
 IMPUIBOPT Imputation method, EI [1=none 2=rank]
 PURR Ratio current:base unemployment rate [prov]
 UIBASEYRMAX Maximum insurable earnings for base year
 UITARGYRMAX Maximum insurable earnings for target year
 FXVFLAG Read SHS expenditure vector file
 INSPD Name of SPSD file (in) [string]
 WGTFLAG Read weight file

INPUT VARIABLES:

fhbfver SPSD/M binary format version (x100)
 fhdbver SPSD/M database/year version (x100)
 fhfiltyp File type (extension) [string]

fhnhh	Number of households in the file
hrclohh	Number of SLID clones
hrevmv	Expenditure vector matching variable
hrprov	Province
hrtenur	Tenure
hrurb	Size of urban area
idage	Age
idccqp	Converted CPP/QPP benefit
idcsa	Converted social assistance
idsex	Sex
irage	Age
iralhrs	Total Hours Worked Last Year
irccqp	Converted CPP/CQP
ircfrh	Relation to census family head
ircfseq	Census family sub-sequence number
ircsa	Converted social assistance
ircuib	Converted UI benefit
irdisab	Disability status (age 16+)
iredlev	Educational level
irefrh	Relation to economic family head
irefseq	Economic family sub-sequence number
irestat	Educational status
irhhrh	Relation to household head
iriefalg	Institutionalized elderly flag
irimmi	Years since immigrant arrival
irind	Industry
irinseq	Individual sub-sequence number
irlfst	Labour force status
irlyfp	Full or part-time last year
irlyun	Weeks unemployed last year
irlyww	Weeks worked last year
irmarst	Marital status
irocc	Occupation
irqpfrst	First type of QPIP
irqpstrt	Start of QPIP
irqptype	Type of QPIP
irqpweek	Weeks of QPIP
irrklyun	Raking foundation: weeks worked
irrklyww	Raking foundation: weeks unemployed
irsamths	Number of Months in receipt of SA
irschtp	School type
irseqino	Slid sequence number
irsex	Sex
irsynthi	Synthetic high income person
m0val	Money item value
m1val	Money item value
m2val	Money item value

m3val	Money item value
urbtyp	Claim type
urdivwk	New EI Variable
ureff	Base year effective weekly benefit
urern	Base year insurable weekly earnings
urexhas	Exhaustee flag
urgotpa	Received parental benefits
urhrwk	New EI Variable
urmtyp	Claim type
urnere	New EI Variable
urothbr	New EI Variable
urothwk	New EI Variable
urrpeat	Repeat claim flag
urstart	Week claim established
urtpcng	Type change flag
urtrnbr	Training benefit weekly rate
urtrnwk	Weeks of training benefits
uruer	Local unemployment rate (x10)
urweeks	Claim weeks of benefits
urwork	Weeks of work prior to claim
ury1	
ury2	
ury3	
ury4	
ury5	
wrwgt	Household weight (float)
CANCELFLAG	Cancellation request flag
DBVERSION	Version of the database (x100)
WGTTOT	Sum of weights on tax file

OUTPUT VARIABLES:

fhash	Hashed code of header information
hdclohh	Number of SLID clones
hdevmv	Expenditure Vector Matching Variable
hdnpers	Number of persons in household
hdprov	Province
hdseqhh	Household sequence number
hdtenur	Tenure
hdurb	Size of urban area
hdwgthh	Household weight
hhnin	Number of individuals in household
idadded	Additional deductions from net income (256)
idage	Age
idalexp	Other allowable employment expenses (229)
idalhrs	Total Paid Hours of Work Last Year (imputed)
idcapgex	Capital gains exemptions (254)
idcarry	Carrying charges (221)

idccet	Child care expenses associated with child
idccett	Child care expenses (Limit A, Form T778)
idccqp	Converted CPP/QPP benefit
idcfrh	Relationship to census family head
idcfseq	Census family sub-sequence number
idcgtc	Caregivers tax credit (database) (315)
idcharit	Charitable donations
idclergy	Clergy residential deduction
idcross	Allowable other years capital loss (253)
idcsa	Converted social assistance
idcuib	Converted EI benefit
iddalimo	Alimony paid (220)
iddisab	Disability status (age 16+)
iddisoth	Disability amount for dependants (318)
iddisslf	Disability amount for self (316)
iddues	Union and professional dues (212)
idedlev	Educational level
ideducfm	Eligible full-time months of education
ideducpm	Eligible part-time months of education
idefrh	Relationship to economic family head
idefseq	Economic family sub-sequence number
idemplo	Employee home relocation loan dedn (248)
idestat	Educational status
idexplor	Exploration and development expenses (224)
idext	Extra numbers [array]
idfitexp	Fitness expense amount for children
idforinc	Net foreign income (508)
idfortx	Foreign tax paid (507)
idgifts	Gifts to Canada/provinces/culture (342)
idgstreb	GST rebate (457)
idhhrh	Relationship to head of household
idhomstu	College res/resdnt homeowner assist (558)
idialimg	Alimony income received (gross)
idialimo	Alimony income received
idicapg	Capital gains (actual)
idicqp	CPP/QPP income (114)
ididiv	Dividend income (actual)
ididive	Amount of eligible dividend income
ididivie	Amount of other than eligible dividend income
idieflag	Cloned institutionalized elderly person
idiemp	Wages & salaries
idiinvnd	Interest and other investment income
idiloss	Business investment losses (217)
idimmi	Years since immigration
idind	Industry
idinseq	Individual sub-sequence number
idintstu	Interest paid on student loans (319)

idipens	Pension income (115)
idipqip	Original amount of QPIP
idisa	Social assistance income
idise	Self-employed income
iditc	Federal investment tax credits (412)
iditoth	Other taxable income (130)
iditrrsp	Taxable RRSP withdrawals
idiworkc	Workers compensation benefits
idlabtxg	Gross Labour funds bought (413)
idlfst	Labour force status
idlyfp	Last year full/Part time
idlyun	Weeks unemployed
idlyww	Weeks worked
idmarst	Marital status
idmedgro	Medical expenses, gross (330)
idmincar	Minimum tax carryover (504)
idmovexp	Imputed moving expenses (219)
idmschpd	Manitoba school taxes paid
idnage	Age
idnclos	Allowable other years non-capital loss (252)
idnorth	Northern deductions (255)
idocc	Occupation
idothded	Other deductions from total income (232)
idothpe	Amounts for Infirm Dependents (306)
idpartlo	Limited partnership losses (251)
idpolcon	Federal political contributions (409)
idproptx	Net property taxes paid (556)
idprvftc	Provincial foreign tax credit (Form T2036)
idprvpol	Provincial political contributions (565)
idqpern	Weekly earnings to qualify for QPIP
idqpfrst	First type of QPIP claim
idqpstrt	Week of QPIP start
idqpstype	Type of QPIP claim
idqpweek	Weeks of QPIP
idrentpd	Total rental payments (555)
idrkyun	Raking foundation: weeks unemployed
idrkyww	Raking foundation: weeks worked
idrpp	Registered pension plan contributions (207)
idrrsp	RRSP calculated amount (208)
idsamths	Imputed number of months on SA
idsapred	Predicted amount of SA received
idsarank	Predicted ranked likelihood of getting SA
idschtp	School type
idseqino	SLID Individual Identifier (Original)
idsex	Sex
idsprecpr	Children's Sport & Recrn Expense(Prov)
idstkded	Stock option deduction (249)

idsynthi	Synthetic high income person
idtransit	Public Transit
idtuitn	Tuition fees (320)
iduiپرد	Predicted amount of EI received
iduirank	Predicted ranked likelihood of getting EI
ucbtyp	Claim type
ucdivwk	Minimum divisor weeks
uceff	Effective weekly rate
ucern	Insurable weekly earnings
ucexhas	Exhaustee flag
ucgotpa	Received parental benefits
uchrwk	Hours worked prior to claim
ucmtyp	Main Claim type (majority of weeks)
ucnere	New entrant re-entrant flag
ucothbr	Other benefits weekly rate
ucothwk	Weeks of other benefits
ucrpeat	Repeat claim flag
ucstart	Week claim established
ucstat	Claim status flag
uctpcng	Also received regular benefits
uctrnbr	Training benefit weekly rate
uctrnwk	Weeks of training benefits
ucuer	Local unemployment rate (x10)
ucuro	Local unemployment rate (x10)-original value
ucweeks	Weeks of benefits
ucwork	Weeks of work prior to claim
ucy1	Weeks on EI in first year before claim
ucy2	Weeks on EI in second year prior to claim
ucy3	Weeks on EI in third year prior to claim
ucy4	Weeks on EI in fourth year prior to claim
ucy5	Weeks on EI in fifth year prior to claim

gai Compute new refundable credits or guarantees

SUMMARY

This is a stub function for use by glass-box users who wish to incorporate a new program that does not affect current programs in the tax system (i.e. a new refundable tax credit). It is called by drv after all taxes have been calculated.

CROSS REFERENCE

Function	Description
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INPUT VARIABLES:

hhnin	Number of individuals in household
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OUTPUT VARIABLES:

imiosa	Other SA or guarantees
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gis	Compute GIS/SPA for elderly
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SUMMARY

The Guaranteed Income Supplementation and Spouse's Allowance programs provide non-taxable monthly benefits to all Canadians age 65 and over who apply and meet the Canadian residency requirements. The program is income tested. The SPSM gis function is based on the age of the individual and the years since immigration as well as family net income and family type. The function can calculate GIS, SPA, Extended SPA, and Widowed SPA benefits. The functions contain one sub-function, gissub, which calculates the income on which GIS/SPA benefits are tested.

Program Description

The Guaranteed Income Supplement is a monthly, non-taxable, income tested benefit paid to residents of Canada who are in receipt of a basic Old Age Security pension. Recipients must re-apply annually. The Guaranteed Income Supplement is not payable outside of Canada for periods of longer than six months. Income testing is based on net income as defined for income tax purposes with the exception of Old Age Security benefits. In the case of a married couple, including common-law, the combined income of the pensioner and his or her spouse is taken into account. Where the individual or couple have an income above a specified amount, the Guaranteed Income Supplement is reduced at a rate of either \$1 for every \$2 of income, or \$1 for every \$4 of income, dependent upon the individuals' marital status and the benefit status of their spouses (if present).

The Guaranteed Income Supplement was established in 1966 to provide monthly benefits to OAS pensioners born on or before December 31, 1910, whose income is below a specified amount. For 1967, the monthly benefit was \$40 and set at 40 percent of the OAS pension thereafter. The Guaranteed Income Supplement has been changed on various occasions, the

most important of which were as follows: 1970, which extended GIS to all OAS beneficiaries who met the income criterion; 1972, provided for annual indexation of GIS based on the CPI; 1973, changed indexation to quarterly from annual; 1977, provided the payment of GIS to partial OAS recipients; 1984, provided an increase in maximum GIS benefits to recipients of partial OAS pensions in the amount of the difference between full and partial OAS benefits.

The Spouse's Allowance is a monthly benefit designed to recognize the difficult circumstances faced by those couples living on the pension of only one spouse, and by many widowed persons. The Allowance is payable to the 60 to 64 year old spouse of an Old Age Security pensioner as well as to any low-income widow or widower age 60 to 64, providing the potential recipient has been a resident of Canada for at least 10 years after reaching age 18. This benefit is income-tested based upon the combined income of both the beneficiary and his/her spouse and must be re-applied for annually. Benefits are not considered as income for income tax purposes and are not payable outside Canada for periods of more than six months.

The Spouse's Allowance came into effect October 1, 1975 and provided for the payment of benefits to persons aged 60 to 64 inclusive who are married to and living with an OAS pensioner. The amount was set at a sum equal to the monthly OAS pension plus the maximum monthly GIS at the married rate. Significant changes to the Spouse's Allowance were made in 1977 with the provision for partial Spouse's Allowance using the same criterion as for OAS; 1979, the extension of the Spouse's Allowance to include surviving spouses of deceased Old Age Security pensioners; 1985, with the provision for Spouse's Allowance to be paid to all widows/widowers age 60 to 64 regardless of deceased spouse's prior pension status.

The GIS, and SPA programs have been designed with the overall income of elderly Canadians in mind and ensure that no OAS pensioner, full or partial, will receive benefits less than the equivalent of a full OAS pension. Because the programs are interrelated, a better understanding is facilitated by discussing them together across the five different family types listed below and discussed in turn. These categories define the basic structure of the SPSM implementation of these programs. In these descriptions pensioner is understood to mean a recipient of either full or partial OAS benefits.

GIS/SPA Type	Family Status
1. Single Pensioner:	Unattached Individual, OAS Pensioner
2. Widowed Pensioner:	Unattached Individual, Age 60-64, Widowed
3. Married 2 Pensioner:	Married Couple, Both OAS pensioners
4. Married pensioner with SPA spouse:	Married Couple, OAS Pensioner with SPA recipient
5. Married pensioner with non-pensioner spouse:	Married couple, 1 OAS pensioner, spouse ineligible for OAS or SPA

Single Pensioner

If an individual is receiving a full Old Age Security Pension he or she may be eligible for the federal Guaranteed Income Supplement (GIS). GIS is an income tested benefit payable to OAS beneficiaries with little or no income beyond to the basic OAS benefit. In the case where a beneficiary of a full OAS pension has no additional income or income of up to a maximum of \$24 per year, his/her GIS benefit will be the maximum. For every two dollars of income in excess of \$24 annually, the GIS benefit is reduced by one dollar until the benefit is reduced to zero.

In the case where the beneficiary is eligible for only partial OAS benefits, but has little or no other income (again, to a maximum of \$24 per year), supplementary GIS is available. Supplementary GIS makes up the difference between the partial OAS benefit that the beneficiary is receiving and full OAS benefits. Thus, a beneficiary with 20 years of residence in Canada would receive 30/40 of a full OAS pension and supplementary GIS benefits up to an amount equivalent to 10/40 of a full OAS pension. This ensures that no OAS pensioner, full or partial, will receive benefits less than the equivalent of a full OAS pension. In addition to the partial OAS pension and the supplementary GIS benefits, an individual may also receive the regular GIS benefit. Both the regular and the supplementary GIS benefits are income tested and reduced at a rate of one dollar for every two dollars of income in excess of \$24 per year.

Widowed pensioner

The Spouse's Allowance is an income-tested benefit payable to individuals who are between 60 and 65 years of age and are spouses of Old Age Security beneficiaries. In order to qualify for this benefit, the applicant must meet the same residence requirements set out for the basic Old Age Security Pension. The guarantee for the benefit is equivalent to the sum of the full basic Old Age Security Pension plus the Guaranteed Income Supplement at the married rate. This benefit is reduced by \$3 for every \$4 of the beneficiary's monthly income or the couple's combined monthly income until the OAS-equivalent is reduced to zero. At that point the GIS portion reduces at the rate of \$1 for every \$4 of combined income until benefits are reduced to zero.

If an individual receiving Spouse's Allowance becomes a widow or widower, they are then eligible for an Extended Spouse's Allowance until they reach the age of 65 at which time they will become eligible for a basic Old Age Security Pension and the Guaranteed Income Supplement. The amount of the Extended Spouse's Allowance is somewhat higher than the regular Spouse's Allowance to account for the fact that the beneficiary is now in a single income family.

In addition to the regular and Extended Spouse's Allowances, benefits exist for widows and widowers between 60 and 65 years of age whose spouse died prior to becoming a pensioner. The Widowed Spouse's Allowance pays benefits at the same rate as the Extended Spouse's Allowance. Both the Extended and Widowed Spouse's Allowances are reduced by \$3 for every \$4 of monthly income until the OAS-equivalent portion is reduced to zero and then by

\$1 for every additional \$2 of monthly income until the GIS-equivalent portion is reduced to zero.

The Spouse's Allowance is not considered as income for income tax purposes but may, however, affect taxes indirectly via the spousal exemption amount.

Married Couple, Both Pensioners

GIS eligibility for couples is first based upon receipt of OAS. If the applicant is not eligible for OAS, then he or she is not eligible for GIS. Once eligibility for GIS has been established, then the rate of recovery or rate at which GIS is reduced because of additional income, must be established. For two pensioner couples, where both are OAS beneficiaries, GIS is reduced by one dollar for every four dollars of the couple's combined monthly income in excess of \$48 per year. In 1984, the maximum regular GIS payable to a married beneficiary was less than that payable to a single beneficiary. As in the case of a single beneficiary receiving only partial OAS benefits, a supplementary GIS benefit is available which makes up the difference between partial and full OAS benefits.

Married Pensioner with SPA Spouse

GIS is payable to the pensioner at the same rate as is paid to an individual in married couple where both spouses are pensioners. The amount of SPA benefit is equivalent to the combination of the full basic Old Age Security Pension and Guaranteed Income Supplement at the married rate. This benefit is reduced by \$3 for every \$4 of combined monthly income (75%) until the OAS-equivalent is reduced to zero. At that point both the remaining portion of the Spouse's Allowance, and the pensioner's Guaranteed Income Supplement are each reduced by \$1 for every additional \$4 (50%) of the couple's combined monthly income.

The benefits payable to a pensioner with a given income could vary depending on whether the couple had applied for SPA; the benefit being higher for single pensioner couples. To ensure benefits are equal in these cases the SPA couple's benefits begin to be reduced at the effective rate of 25%, \$1 for each \$4 of family income after the crossover point. This is done by holding the pensioner's benefits fixed from the crossover point until the SPA benefits are reduced to zero; then the pensioners benefits continue to be reduced at the same married rate (see following figure).

GIS and SPA For Married Couples, 1 is not an OAS Pensioner

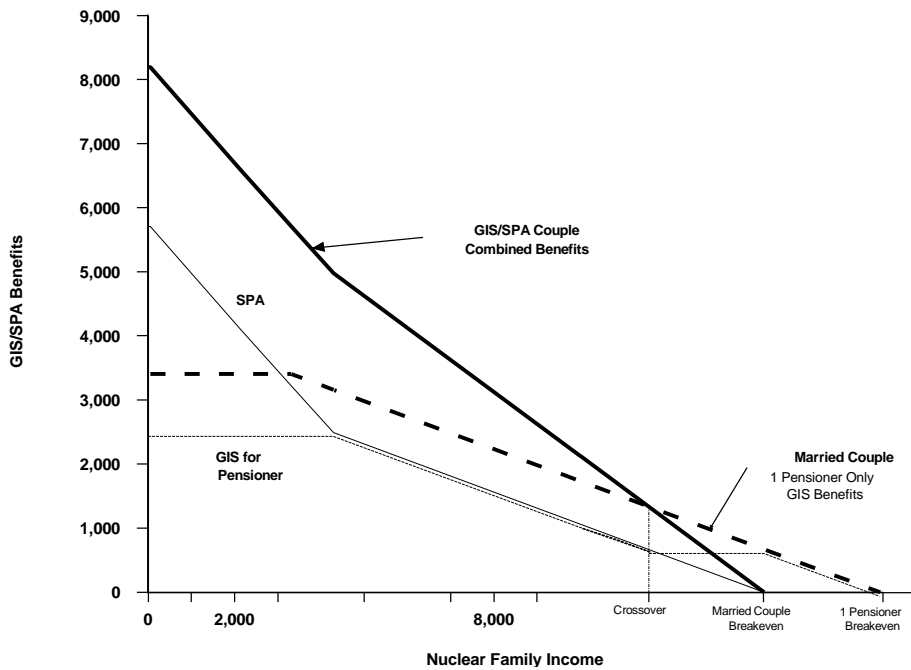


Figure 2 GIS/SPA Benefits for Married Pensioner with Non-Pensioner Spouse

Married Pensioner with Non-Pensioner Spouse

In the case of a pensioner whose spouse is under 60 years of age or is a recent immigrant, and therefore not eligible for OAS, GIS or SPA, the pensioner receives GIS at the higher single rate and benefits are reduced \$1 for every \$4 of the couple's combined monthly income with the first reduction being made only when their combined monthly income exceeds an amount equivalent to basic OAS plus \$4 per month. (see figure above)

SPSM Implementation

The gis function determines benefits based on the age of the individual, the years since immigration as reported at the time of the survey, combined family income, and family type. The function makes use of the imoasres, imoaspar variables created in the oas function to determine residential eligibility.

The function initially performs some screenings and pointer assignments for efficiency, and then makes a call to the gissub function to determine the previous years' income, which will be used when calculating GIS/SPA benefits. This sub-function adds together all the components of total income listed below and multiplies them by a deflator PYINC to estimate the value of the previous year's income.

Net Income = PYINC *	Deflator To Simulate Previous Years Income
imicapgt	Taxable Capital Gains
+ imidivt	Dividends Received
+ idiinvnd	Interest and Investment Income

+ neteinc (see note)	Net adjusted employment income (see note)
+ idise	Self Employment Income
+ idith	Other Income
+ idicqp	CPP/QPP Benefits
+ imipnst	Taxable pension Income (after splitting)
+ iditrsp	Taxable RRSP Withdrawals
+ idiworck	Workers compensation benefits
+ imiuib	Employment Insurance Benefits
+ imqpipebn	Quebec parental insurance plan calendar year benefits
- imcqppc	CPP/QPP Contributions
- imuic	Employment Insurance Contributions
- imqpipp	Quebec parental insurance plan premiums for paid workers
- nneg(imdedft-idalexp – idclergy – impentrd)	Other deductions

Note: net adjusted employment income is calculated as:

idiemp (employment income) less idalexp (other allowable employment expenses) and idclergy (clergy residential deduction) and, then this amount is reduced by the minimum of (adjusted employment income times GISEMPEXP) and GISEMPEXM.

Benefits are then calculated in each of the five groups discussed above. Every individual is assigned a value for the variables imoldtyp and imgistyp which define the type of pensioner couple and are used in the gist function.

The GIS supplement for the OAS shortfall for immigrants is calculated conditional on the setting of GISOASFLAG in all cases except the SPA recipient in a married couple. This should be set to one in years 1984 and later. No adjustment is made to account for the first quarter in 1984 for which no shortfall adjustment was made.

Take-up rates for GIS and SPA benefits are optionally applied depending on the value of the GISTURFLAG parameter. The rates are applied to individuals and to one spouse of a married couple. The algorithm assumes that the take-up rate look-up table margins are all dollar denominated GIS or SPA benefit levels.

GIS/SPA Top-up

When GISTOPFLG is set to one, eligible GIS and SPA recipients may receive a top-up to their benefits depending on their income. For single GIS or SPA recipients the maximum top-up is GISTOPSNG provided their annual income (other than OAS, GIS and SPA) is less than GISTOPSIN. Single recipients with annual income greater than GISTOPSIN may get a reduced top-up, where the benefit is reduced by GISTOPSR for each dollar of income in excess of GISTOPSIN. GIS and SPA recipients in a couple may receive a maximum top-up of GISTOPMAR if their annual income (other than OAS, GIS and SPA) is less than GISTOPMIN. Recipients in a couple may receive a reduced top-up, where the benefit is reduced by GISTOPMRR for each dollar of income in excess of GISTOPMIN.

The annual top-up begins in July 2011. The calculated top-up is multiplied by the phase in rate GISTOPPI, which is set to 0.5 for 2011 and 1.0 for 2012 and onwards.

Relation to Other SPSM Routines

GIS and SPA depends on the input parameters for basic GIS/SPA benefits and various variables calculated in the oas function. The function also makes use of parameters derived in the mpc function. The mpc function also ensures that GIS is not calculated without OAS being calculated first. The calculation of OAS and other modeled variables occurs prior to and effects the calculation of GIS and related GIS 'top-up' programs in the gist function. The gist function is called after txprov (calculation of provincial income taxes) by drv and as such has no impact on the personal income tax system.

CROSS REFERENCE

Function	Description
INPUT PARAMETERS:	
BESPA	Basic GIS portion of extended SPA
BGISM	Basic GIS - married
BGISS	Basic GIS - single
BOAS	Basic OAS
ESPAT	Extended SPA take-up rate by benefit level [benefit,rate]
GISBE2	Breakeven for GIS/SPA couple
GISCT	GIS take-up rate: pensioner couple by benefit level [benefit,rate]
GISEMPEXM	GIS employment income exemption - maximum
GISEMPEXP	GIS employment income exemption - percentage of earnings
GISFLAG	Federal GIS/SPA/ESPA flag
GISOASFLAG	1984 GIS top-up to OAS residence shortfall flag
GISOT	GIS take-up rate: one pensioner couple by benefit level [benefit,rate]
GISRLM	Basic GIS reduction level: married pensioners
GISRLS	Basic GIS reduction level: single pensioners
GISRRM	Basic GIS reduction rate: married pensioners
GISRRS	Basic GIS reduction rate: single pensioners
GISST	GIS take-up rate: single pensioner by benefit level [benefit,rate]
GISTOPFLG	GIS Top Up Activation Flag
GISTOPMAR	GIS Top Up Maximum amount per married pensioners
GISTOPMIN	GIS Top Up Income Turndown for married pensioners
GISTOPMRR	GIS Top Up Reduction Rate for married pensioners

GISTOPPI	GIS Top Up Phase in rate
GISTOPPIN	GIS Top Up Income Turndown for single pensioners
GISTOPPING	GIS Top Up Maximum amount per single pensioners
GISTOPPSRR	GIS Top Up Reduction Rate for single pensioners
GISTURFLAG	GIS take-up flag: apply 5 take-up tables
PYINC	Deflator to calculate previous year income
SPAOASRR	OAS portion of SPA taxback rate
SPARL	SPA reduction point: one married/ widowed
SPAT	SPA take-up rate by benefit level [benefit,rate]
SPAXO	Benefit Cross-over GIS/SPA vs GIS one pensioner couple

INPUT VARIABLES:

hhnnf	Number of nuclear families in household
idage	Age
idalexp	Other allowable employment expenses (229)
idclergy	Clergy residential deduction
idicqp	CPP/QPP income (114)
idiemp	Wages & salaries
idiinvnd	Interest and other investment income
idise	Self-employed income
iditoth	Other taxable income (130)
iditrrsp	Taxable RRSP withdrawals
idiworkc	Workers compensation benefits
idmarst	Marital status
idrand	Random numbers [array]
imcqpcc	CPP/QPP contributions
imdedft	Deductions from total income
imicapgt	Capital gains (taxable)
imidivt	Dividend income (taxable)
imioas	OAS benefits
imipnst	Taxable pension income (after splitting)
imiuib	Employment Insurance benefits
imoaspar	Partial OAS residency flag
imoasres	Partial OAS fraction
impentrd	Pension income deduction from transfer to spouse
imqpicbn	Quebec parental insurance plan calendar year benefits
imqpipp	Quebec parental insurance plan premiums for paid workers
imuic	Employment Insurance contributions
nfageeld	Age of eldest in nuclear family
nfineld	Eldest person in nuclear family [pointer]
nfinspo	Spouse of eldest [pointer]
nfspoflg	Nuclear family contains married couple

OUTPUT VARIABLES:

imgisinc	Individual's income for GIS/SPA reduction
imgismax	Maximum amount of GIS
imgistyp	Type of GIS entitlement
imigis	GIS benefits
imigistop	GIS/SPA Top Up Amount
imisp	Spouse's allowance
imoldtyp	Type of GIS/SPA nuclear family
imspamax	Maximum amount of SPA
imspatyp	Type of SPA entitlement

gist Compute Provincial GIS top-ups for elderly

SUMMARY

The gist function calculates benefits for provincial GIS supplementation programs in seven provinces; Newfoundland, New Brunswick, Ontario, Manitoba, Saskatchewan, Alberta, and British Columbia. The function requires that both OAS and GIS be calculated first. All provincial senior's programs within SPSM are in this function. Please note that the provincial programs here are not exhaustive, but all major benefits are covered.

Program Description

Seven provinces provide cash benefits to pensioners in receipt of federal OAS, GIS, and in some cases, SPA benefits. The seven programs differ in terms of the level of benefits payable, eligibility requirements, etc. Each program listed below is modeled and documented independently.

Newfoundland	Low-income Seniors Benefit
New Brunswick	Low-income Seniors Benefit
Ontario	Guaranteed Annual Income System (GAINS-A)
Manitoba	Manitoba Fifty Five Plus Program (55+)
Saskatchewan	Income Plan (SIP)
Alberta	Alberta Seniors Benefit
British Columbia	GAIN for Seniors Supplement (Guaranteed Available Income for Need)

Newfoundland Low-Income Seniors Benefit

All single seniors aged 65 and over, with a previous years' individual net income less than NFSBTD are eligible to receive the maximum benefit NFSBBAS. This benefit will be reduced by NFSBRR for each dollar of net income over NFSBTD. For seniors married to non-seniors, the maximum benefit NFSBBAS is reduced by NFSBRR for each dollar of family net income over NFSBCTD.

New Brunswick Low-Income Seniors Benefit

A benefit is given to seniors who receive GIS. If both spouses received GIS, the benefit is given to the spouse with the lower net income.

Ontario Guaranteed Annual Income System (GAINS-A)

GAINS-A provides a monthly benefit to Ontario residents in receipt of GIS who meet certain income and residence requirements. A person must have lived in Ontario for the year prior to applying for GAINS-A or for at least 20 years after turning 18 years of age. GIS recipients need not apply since their eligibility is reviewed automatically. SPA recipients are not eligible. There are two levels of benefits, single and married. Benefits are reduced at the same rate as GIS.

Manitoba Fifty Five Plus Program (MFFP)

The MFFP provides quarterly benefits to Manitoba residents who are in receipt of certain levels of GIS and SPA benefits, including extended and widowed SPA recipients (the senior component). MFFP also provides benefits to persons aged 55 and over who do not qualify for OAS (the junior component). Eligibility is renewed automatically for GIS and SPA recipients, but non-GIS/SPA pensioners 55 years of age and over must apply.

In the case of GIS/SPA recipients there the maximum benefit is MFFPSBEN and it is reduced by MFFPSRR. In the case of people who are not recipients, the maximum benefit is MFFPJBEN which is reduced at a rate of MFFPJRR for income over MPPFJTD.

Saskatchewan Income Plan

SIP provides monthly benefits to Saskatchewan residents in receipt of GIS and whose incomes don't exceed specified levels. SPA recipients are not eligible for SIP benefits. There are two levels of benefits, single and married. There are four different reduction rates. Unattached Individuals who are GIS pensioners, SIP benefits are reduced by a proportion (SASKRR1) for each \$1 reduction in GIS. Married Couples where both are GIS pensioners, SIP benefits are reduced by a proportion (SASKRR4) for each \$1 reduction in GIS. For a pensioner whose spouse is not eligible for OAS/GIS/SPA the benefit is reduced by a proportion (SASKRR2) for each \$1 reduction in GIS benefits. The pensioner spouse of an SPA recipient has their benefit reduced by a proportion (SASKRR3) for each \$1 reduction in their spouse's SPA. There are monthly minimum benefits at both single and married levels.

Alberta Seniors Benefit

Starting in 1994, the Alberta Seniors Benefit is calculated. Seniors are split into six categories:

- single seniors who rent their home,
- single seniors who own their home,
- seniors married to non-seniors who rent their home,
- seniors married to non-seniors who own their home,
- two senior couples who rent their home,
- and two senior couples who own their home

When ASBSSOPT is set to 2, seniors married to non-seniors are treated in the same manner as two senior couples. Benefits and reduction rates vary by these categories (ASBBASIC, ASBRENT, ASBSS, ASBNSS, ASBRR). Maximum benefits are phased out using non-deductible income which is defined as last year's total income (imitot) minus OAS benefits (imioas), registered pension plan contributions (idrpp), RRSP contributions (idrrsp), and ASBEMP times idiemp.

For persons who do not qualify for OAS because of residency requirements, a proportion of the total benefit is assigned depending on marital status and household tenure (ASBNOAS). For these persons, BOAS is deducted from their non-deductible income. When ASBSSOPT is set to 1, a two senior couple in which one of the seniors does not meet the OAS eligibility requirement is treated as 1 senior couple.

British Columbia GAIN for Seniors Supplement

GAIN provides a monthly benefit to British Columbia residents in receipt of GIS or SPA who meet certain income and residence requirements. GIS/SPA recipients need not apply since their eligibility is reviewed automatically. There are two levels of benefits, single and married. Benefits are reduced at the same rate as GIS.

SPSM Implementation

The user is invited to read the source code in order to examine the implementation of these programs.

Interpretation

In general the problems of coverage, including take-up, discussed in the interpretation of OAS and GIS are also present here. Specifically there are no tests made for residential eligibility applied on Ontario GAINS-A.

Note that in some cases, GIST is included in social assistance. In order to avoid double counting benefits, the SAELDOPTPR parameter controls how social assistance and GIST are related. See SAELDOPTPR for more details

Relation to Other SPSM Routines

Provincial GIS supplement programs depend on various program specific input parameters as well as variables calculated in the oas and gis functions. The mpc function ensures that provincial GIS supplements are not calculated without GIS being calculated first. The calculation of OAS and GIS occurs prior to and effects the calculation GIS 'top-up' programs in the gist function. The gist function is called after gis by drv and as such has no impact on the personal income tax system.

CROSS REFERENCE

Function	Description
INPUT PARAMETERS:	
ASBBASIC	Alberta seniors benefit annual basic benefit
ASBBASICP	Alberta seniors benefit annual basic benefit for 1st half of year
ASBBOASP	Alberta seniors benefit Basic OAS from previous year
ASBCYFLG	Alberta seniors benefit calendar year calculation flag
ASBEMP	Alberta seniors benefit employment inclusion rate
ASBEMPDD	Alberta seniors benefit employment income maximum deduction
ASBEMPDDP	Alberta seniors benefit employment income maximum deduction for 1st half of year
ASBEMPOPT	Alberta seniors benefit employment income option [1=ASBEMP,2=ASBEMPDD]
ASBEMPOPTP	Alberta seniors benefit employment income option for 1st half of year [1=ASBEMPP,2=ASBEMPDDP]
ASBEMPP	Alberta seniors benefit employment inclusion rate for 1st half of year
ASBFLAG	Alberta seniors benefit activation flag
ASBNOAS	Alberta seniors benefit reduction if no OAS [senior type]
ASBNOASP	Alberta seniors benefit reduction if no OAS for 1st half of year [senior type]
ASBNSS	Alberta seniors benefit non-senior spouse supplement
ASBNSSP	Alberta seniors benefit non-senior spouse supplement for 1st half of year
ASBRENT	Alberta seniors benefit renter supplement
ASBRENTP	Alberta seniors benefit renter supplement for 1st half of year
ASBRR	Alberta seniors benefit reduction rate [senior type]
ASBRRP	Alberta seniors benefit reduction rate for 1st half of year [senior type]
ASBSAB	Alberta seniors benefit supplemental accommodation benefit
ASBSABP	Alberta seniors benefit supplemental accommodation benefit for 1st half of year

ASBSABRR Alberta seniors benefit supplemental
accommodation reduction rate
ASBSABRRP Alberta seniors benefit supplemental
accommodation reduction rate for 1st half of year
ASBSS Alberta seniors benefit senior spouse supplement
ASBSSOPT Alberta seniors benefit 1 senior couple option
[1=model separately,2=model as senior couples]
ASBSSOPTP Alberta seniors benefit 1 senior couple option
for 1st half of year
ASBSSP Alberta seniors benefit senior spouse supplement
for 1st half of year
BCC British Columbia GIS supplement: married
pensioners
BCS British Columbia GIS supplement: single
pensioners
BOAS Basic OAS
GISRLM Basic GIS reduction level: married pensioners
GISTFLAG Provincial GIS top-up flag
MFFPJ BEN Manitoba GIS supplement: maximum benefit for
junior component
MFFPJRR Manitoba GIS supplement: reduction rate for
junior component
MFFPJTD Manitoba GIS supplement: turndown for junior
component
MFFPS BEN Manitoba GIS supplement: maximum benefit for
senior component
MFFPSRR Manitoba GIS supplement: reduction rate for
senior component
MFFSAFLAG Manitoba GIS supplement: flag that only people
without SA can apply
NBSB New Brunswick Low-Income Seniors' Benefit
NBSBSPA N.B. Low-Income Seniors' Benefit - SPA
eligibility
NFSBBAS NFLD Low-Income Seniors' Benefit base amount
NFSBCBAS NFLD Low-Income Seniors' Benefit base amount for
senior couples
NFSBCRR NFLD Low-Income Seniors' Benefit reduction rate
for senior couples
NFSBCTD NFLD Low-Income Seniors' Benefit turndown for
senior couples
NFSBRR NFLD Low-Income Seniors' Benefit reduction rate
NFSBTD NFLD Low-Income Seniors' Benefit turndown
ONTC Ontario GIS supplement: married pensioners
ONTS Ontario GIS supplement: single pensioners
PYINC Deflator to calculate previous year income
PYINCP Deflator to calculate income from 2 years prior
SAELDOPTPR SA for elderly calculation method [prov]

SAPFLAG	Social assistance predicted value flag
SASKC	Saskatchewan GIS supplement: married pensioners
SASKMINC	Saskatchewan GIS supplement minimum benefits:
married	
SASKMINS	Saskatchewan GIS supplement minimum benefits:
single	
SASKRR1	Saskatchewan GIS supplement reduction rate:
single	
SASKRR2	Saskatchewan GIS supplement reduction rate: 1 GIS
SASKRR3	Saskatchewan GIS supplement reduction rate: SPA
SASKRR4	Saskatchewan GIS supplement reduction rate:
married	
SASKS	Saskatchewan GIS supplement: single pensioners
SASKTECA	Saskatchewan GIS supplement temporary energy cost
allowance	
SATARGET	Social assistance target for predicted SA

INPUT VARIABLES:

hdageeld	Age of eldest in household
hdprov	Province
hdtenu	Tenure
hhnin	Number of individuals in household
idage	Age
idialimo	Alimony income received
idieflag	Cloned institutionalized elderly person
idiemp	Wages & salaries
idinspo	Person's spouse [pointer]
idisa	Social assistance income
idrpp	Registered pension plan contributions (207)
idrrsp	RRSP calculated amount (208)
idsapred	Predicted amount of SA received
idsarank	Predicted ranked likelihood of getting SA
idspoflg	Person has spouse
imgisinc	Individual's income for GIS/SPA reduction
imgismax	Maximum amount of GIS
imgistyp	Type of GIS entitlement
imicnet	Net Income (line 236)
imigis	GIS benefits
imioas	OAS benefits
imispa	Spouse's allowance
imitot	Total income
imiuccbc	Universal Child Care Benefit amount claimed
imoasres	Partial OAS fraction
imoldtyp	Type of GIS/SPA nuclear family
impsamax	Maximum amount of SPA

OUTPUT VARIABLES:

imgistsa Amount of GIST which goes into SA
imiasb Alberta seniors benefit
imigist GIS provincial top-up

isneg Is argument negative ?

SUMMARY

```
int isneg(var);
```

NUMBER var

The isneg function (actually a C-language macro) takes as argument a floating point variable name (i.e. something declared as a NUMBER), and returns a non-zero value if the argument contains a negative value. If the argument is zero or positive, a value of zero is returned. Note that, unlike a function, the isneg macro cannot take an expression as an argument. The expression isneg(var) is functionally equivalent to an expression of the form $(var < 0)$ but for reasons that are beyond the scope of this manual, the macro is considerably more efficient than the corresponding expression.

isnneg Is argument non-negative?

SUMMARY

```
int isnneg(var);
```

NUMBER var;

The isnneg function (actually a C-language macro) takes as argument a floating point variable name (i.e. something declared as a NUMBER), and returns a non-zero value if the argument contains a non-negative value. If the argument is negative, a value of zero is returned. Note that, unlike a function, the isnneg macro cannot take an expression as an argument. The expression isnneg(var) is functionally equivalent to an expression of the form $(var > 0)$ but for reasons that are beyond the scope of this manual, the macro is considerably more efficient than the corresponding expression.

isnzero Is argument non-zero?

SUMMARY

```
int isnzero(var);
```

NUMBER var;

The `iszero` function (actually a C-language macro) takes as argument a floating point variable name (i.e. something declared as a `NUMBER`), and returns a non-zero value if the argument contains a non-zero value. If the argument is zero, a value of zero is returned. Note that, unlike a function, the `iszero` macro cannot take an expression as an argument. The expression `iszero(var)` is functionally equivalent to an expression of the form `(var != 0)` but for reasons that are beyond the scope of this manual, the macro is considerably more efficient than the corresponding expression.

iszero Is argument zero?

SUMMARY

```
int iszero(var);
```

```
NUMBER var;
```

The `iszero` function (actually a C-language macro) takes as argument a floating point variable name (i.e. something declared as a `NUMBER`), and returns a non-zero value if the argument contains the value zero. If the argument is non-zero, a value of zero is returned. Note that, unlike a function, the `iszero` macro cannot take an expression as an argument. The expression `iszero(var)` is functionally equivalent to an expression of the form `(var == 0)` but for reasons that are beyond the scope of this manual, the macro is considerably more efficient than the corresponding expression.

lkup1 Table look-up with interpolation/extrapolation

SUMMARY

```
NUMBER lkup1(tbl, tblnum, input);
```

```
NUMBER tbl[][3];
```

```
int tblnum;
```

```
NUMBER input;
```

The `lkup1` function is used to perform table look-ups with interpolation. Expressed another way, `lkup1` evaluates continuous piecewise linear functions.

The first argument (`tbl`) is the address of an SPSM look-up table, which is an $n \times 3$ array of floating point numbers. The first two columns of `tbl` contain the (X,Y) pairs that define the piece-wise linear function. The third column of `tbl` contains the slope of the segment that starts at the (X,Y) pair. SPSM look-up tables are defined in parameter input files, and come in two varieties, as perceived by the user. One variety allows the user to specify the (X,Y) pairs, and computes the slopes automatically. The other variety allows the user to specify all the X values, the first Y value, and the slopes, and computes the remaining Y values automatically. In both cases the internal representation of the lookup table is identical and is the same as that expected by the `lkup1` function.

The second argument of lkup1 is an integer giving the number of rows in tbl. Generally this value is another member of the same parameter structure in which the tbl is defined.

The third argument of lkup1 is the X value whose corresponding Y value is to be determined. lkup1 returns the corresponding Y value.

lkup2 Table look-up without interpolation

SUMMARY

```
NUMBER lkup2(tbl, tblnum, input);
```

```
NUMBER tbl[][3];  
int tblnum;  
NUMBER input;
```

The lkup2 function is used to perform table look-ups without interpolation. Expressed another way, lkup2 evaluates step functions.

The first argument (tbl) is the address of an SPSM look-up table, which is an n x 3 array of floating point numbers. The first two columns of tbl contain the (X,Y) pairs that define the left-most point of each step in the step function. The third column of tbl contains the slope of the segment that starts at the (X,Y) pair, but the lkup2 function only makes use of the (X,Y) pairs in the look-up table. The slopes, though always present in look-up tables, are not used.

The second argument of lkup2 is an integer giving the number of rows in tbl. Generally this value is another member of the same parameter structure in which the tbl is defined.

The third argument of lkup2 is the X value whose corresponding Y value is to be determined. lkup2 returns the corresponding Y value.

maxn Find the maximum of two numbers

SUMMARY

```
NUMBER maxn(x, y);
```

```
NUMBER x;  
NUMBER y;
```

The maxn function returns the value of the larger of its two input arguments.

SUMMARY

The memo1 function is used to calculate several reporting variables as aggregates of other modeled variables. The function calculates all dollars denominated reporting variables up to the level of disposable income. In addition taxable filer status is determined.

SPSM Implementation

The memo1 function operates at the individual level of analysis and skips individuals with no income. The algorithm first assigns filer status as relevant/non-relevant and taxable/non-taxable based on taxes paid and credits received. The function then calculates several reporting variables as follows.

Reporting Variable	Formula
imiemp =	idiemp;
imisef =	idise;
impoth =	idiworkc + impheatr + imresreb + imclimdv + imoshptg + imotxtgr;
imicqp =	idicqp;
immemp =	idiemp + idise;
imminv =	idiinvnd + ididiv + idicapg;
immoth =	impnst + iditoth + idialimg;
immmkt =	immemp + imminv + immoth;
imftran =	imioas + imiotg + imigis + imispa + imfcben + imicqp + imiuib + imfstc + imqtar + imiosa + imfortc + imiucbr + imheatrl + imfecb;
imfnewpg =	imiotg + imiosa;
imfothtr =	imfortc + imheatrl + imfecb + imqtar + imfnewpg;
imigispa =	imigis + imispa;
impfp =	impfa + imqnbfa + imqfatc + imiafetc + imnbcben + imibcfb + imoccea + imoccect + imscb + imnscb + imibceib + imncb + imnmbns + imqca + imocb + immcb + imnpfgb + imnpsb;
imptran =	impfp + imigist + imptc + impsa + importc + iminsda + imnstxrf + impoth + imqipcbn;
impotran =	imqipcbn + importc + iminsda + imnstxrf + impheatr + imresreb + imclimdv + imoshptg + imotxtgr;
importxc =	impehtc + imqhptc + imqncgtc + imqmedrc + imqccetc + imqwrkpr + imqawrkpr + imotxdv + immanltc + immcoltc + imvsrtxrf + impptc (when OPTCFLAG is set to 1 and hdprov = Ontario) + impptc (when CPTCREF is set to 1 and hdprov = British Columbia);

imppstc = imnste + imvaltc + imqptr + imqstr + imqste + imopste +
 imoprxc + imoste + imosttb + impptxc + imsstc + imslite
 + imcate + imbchste + imcste;
 impotax = imqpipp + imqipppse;
 impalltc = imptc + importc;
 immtran = imptran + imftran;
 immtot = immmkt + immtran;
 imftax = imuic + imcqppc + imrepay + imtxf + imsaclaw (when
 SACLAWOPT is set to 1);
 imfotax = imrepay + imsaclaw (when SACLAWOPT is set to 1);
 imptax = imtxp + imphp + imqpipp + imqipppse;
 immtax = imftax + imptax;
 immdisp = immtot – immtax + imsaclaw (when SACLAWOPT is set
 to 1);
 immicons = immdisp; (initial assignment, may be re-assigned in
 memo2)

Relation to Other SPSM Routines

The memo1 function is called by drv immediately after the income tax and cash transfer algorithms have executed. It is called just before the execution of the commodity tax model (ctmod) which makes use of some of the aggregated output variables. The memo2 function follows ctmod to add information to the reporting variables calculated in the memo1 function.

CROSS REFERENCE

Function Description

INPUT PARAMETERS:

CPTCREF British Columbia political tax credit refundable flag
 OPTCFLAG Ontario political contribution refundable tax credit flag
 SACLAWOPT Social assistance NCBS clawback include in tax/income flag

INPUT VARIABLES:

hdprov Province
 hhnin Number of individuals in household
 idialimg Alimony income received (gross)
 idicapg Capital gains (actual)
 idicqp CPP/QPP income (114)
 ididiv Dividend income (actual)

idiemp	Wages & salaries
idiinvnd	Interest and other investment income
idipens	Pension income (115)
idise	Self-employed income
iditoth	Other taxable income (130)
idiworkc	Workers compensation benefits
imbchstc	B.C. HST Low Income Credit
imbft	Basic federal tax
imcatc	B.C. Refundable Climate Action Tax Credit
imclimdv	B.C. Climate Action Dividend
imcqppc	CPP/QPP contributions
imcstc	British Columbia Sales Tax Credit
imfcben	Total Federal Child Benefits
imfecb	Federal Energy Cost Benefit
imfortc	Federal other refundable tax credits
imfstc	Federal sales tax / GST credit
imheatrl	Federal relief for heating expenses
imiafetc	Alberta Family Employment Tax Credit Benefits
imibceib	B.C. Earned Income Benefit
imibcfb	B.C. Family Bonus
imigis	GIS benefits
imigist	GIS provincial top-up
iminet	Net income
iminsda	NS Direct Assistance Program
imioas	OAS benefits
imiosa	Other SA or guarantees
imiotg	Other taxable demogrants
imispa	Spouse's allowance
imiuccbr	Universal Child Care Benefit amount received
imiuib	Employment Insurance benefits
immanltc	Manitoba learning tax credit
immcb	Manitoba Child Benefit
immcoltc	Manitoba Cost of Living Tax Credit
imnbcben	Total NB child tax Benefits
imncb	Newfoundland Child Benefit
imnmbns	Newfoundland Mother-Baby Nutrition Supplement
imnpfgb	Newfoundland Progressive Family Growth Benefit
imnpsb	Newfoundland Parental Support Benefit
imnscb	Nova Scotia Child Benefit
imnstc	Newfoundland and Labrador Sales Tax Credit
imnstxrf	Nova Scotia Taxpayer Refund
imocb	Ontario Child Benefit
imoccea	Ont. Child Care Exp. credit allowed (Family)
imoccext	Ont. Child Care Supplement one-time extra benefit
imoprtxc	Ontario Property Tax Credit
imopstc	Ont. Property and Sales Tax Credit
imoshptg	Ontario Senior Homeowners' Property Tax Grant

imostc	Ontario Sales Tax Credit
imosttb	Ontario Sales Tax Transition Benefit
imotxdv	Ontario Taxpayer Dividend
imotxtgr	Ontario Textbook and Technology Grant
impehtc	Provincial elderly health tax credit
impfa	Provincial family allowance
impheatr	Provincial Home Heating Fuel/Energy Rebate
imphp	Provincial Health Premium
importc	Other refundable provincial tax credits
impptc	Provincial Political Contrib Tax Credit
impptxtc	Provincial Property tax tax credit
impsa	Provincial social assistance
imptc	Refundable provincial tax credits
imqawrkpr	Quebec Adapted Work Premium for Disabled
refundable	tax credit
imqca	Quebec Child Assistance refundable tax credit
imqccetc	Quebec refundable child care expenses Tax Credit
imqfatc	Quebec Family Allowance Tax Credit
imqhptc	Quebec Home Parent Tax Credit level
imqmedrc	Quebec refundable tax credit for medical expenses
imqnbfa	Quebec newborn Allowance
imqncgtc	Quebec Refundable Natural Caregivers Tax Credit
imqpipcbr	Quebec parental insurance plan calendar year
benefits	
imqpipp	Quebec parental insurance plan premiums for paid
workers	
imqpippse	Quebec parental insurance plan premiums for self-
employed	
imqptr	Quebec property tax refund
imqstc	Quebec Solidarity Tax Credit amount
imqstr	Quebec sales tax refund
imqtar	Quebec tax abatement (refundable)
imqwrkpr	Quebec Work Premium refundable tax credit
imrepay	Social Benefits Repayments
imresreb	Alberta Resource Rebate Amount
imsaclaw	Social Assistance NCB Clawback Amount
imscb	Saskatchewan Child Benefit
imslitc	Saskatchewan refundable low income tax credit
imsstc	Saskatchewan refundable sales tax credit
imtxf	Federal income tax payable
imtxp	Provincial income tax payable
imuic	Employment Insurance contributions
imvaltc	N.S. Affordable Living Tax Credit
imvsrtxrf	Nova Scotia Seniors' with GIS tax Refund

OUTPUT VARIABLES:

imfiler	Taxable filer status
---------	----------------------

imfnewpg	Federal new programs
imfotax	Other Federal Taxes
imfothtr	Federal other trans income and ref. credits
imftax	Federal taxes
imftran	Federal transfer income
imicqp	CPP/QPP payable
imiemp	Wages and salaries
imigispa	GIS and spouse's allowance
imiself	Total self-employment income
immdisp	Disposable income
immemp	All employment income
immicons	Consumable income
imminv	Investment income
immmkt	Market income
immoth	Other income
immtax	All taxes
immtot	Total income
immtran	All transfer income
impalltc	All refundable provincial tax credits
impfp	Provincial family programs
importxc	Provincial Other Refundable Tax Credits
impotax	Provincial Other Taxes
impoth	Provincial other government income
impotran	Provincial Other Transfers
imppstc	Provincial Property and Sales Tax Credits
imptax	Provincial taxes
imptran	Provincial transfer income

memo2 Compute consumable income, etc.

SUMMARY

The `memo2` function is used to calculate several reporting variables as aggregates of other modeled variables. The function calculates all dollar denominated reporting variables up to the level of consumable income.

SPSM Implementation

The `memo2` function operates at the individual level of analysis and skips individuals with no income. Aspects of the function are not executed if the commodity tax model has not been run (`CTFLAG=0`). The function first adjusts several reporting variables calculated in `memo1` as follows.

Reporting Variable	Formula
--------------------	---------

imftax =	imftax + imtxfc
imptax =	imptax + imtxpc
immtax =	immtax + imtxfc + imtxpc
immicons =	immdisp - imtxfc - imtxpc
immtran =	immtran + imooceb
imptran =	imptran + imooceb
impotran =	impotran + imooceb
immtot =	immtot + imooceb

The function next calculates additional reporting variables as follows.

Reporting Variable	Formula
imnettr =	immtran - immtax
imothrep =	imrepay - imuibr
imqta =	imqtaa + imqtar
imfedbal =	imftax - imftran
imprvbal =	imptax - imptran
impovinc =	immtot
imatpinc =	immicons

Relation to Other SPSM Routines

The memo2 function is called by `drv` immediately after the commodity tax algorithms (ctmod) have executed. The function adds information to the reporting variables calculated in the memo1 function.

Please refer to the [Variable Guide](#) for detailed descriptions of the variables listed above.

CROSS REFERENCE

Function Description

INPUT PARAMETERS:

CTFLAG Commodity tax activation flag

INPUT VARIABLES:

hhnin Number of individuals in household
imftran Federal transfer income
immdisp Disposable income
imooceb Ontario Clean Energy Benefit
imqtaa Quebec tax abatement (applied)
imqtar Quebec tax abatement (refundable)
imrepay Social Benefits Repayments
imtxfc Federal commodity taxes
imtxpc Provincial commodity taxes

imuibr EI benefit recovery

OUTPUT VARIABLES:

efin First person in economic family [pointer]
idef Person's economic family [pointer]
imatpinc After tax Income for low income measurement
imfedbal Federal taxes less transfers
imftax Federal taxes
immicons Consumable income
imntax All taxes
immtot Total income
immtran All transfer income
imnettr Net transfers to person
imothrep Other federal repayments
impotran Provincial Other Transfers
impovinc Before Tax Income for low income measurement
imprvbal Provincial taxes less transfers
imptax Provincial taxes
imptran Provincial transfer income
imqta Quebec tax abatement (total)

minn Find the minimum of two numbers

SUMMARY

NUMBER minn(x, y);

NUMBER x;

NUMBER y;

The minn function returns the value of the smaller of its two input arguments.

mpc Calculate derived model parameters and do edits

SUMMARY

The mpc function calculates derived model parameters and performs edit checks on input tax/transfer algorithm parameters. The function currently calculates derived parameters for use in the commodity tax (ctmod) function, the Guaranteed Income Supplement (gis) function, the head/spouse transfer (txhstr) function, the Quebec Work Premium (txqcalc), and the refundable Working Income Tax Benefit (txcalc). Performing the calculations in mpc increases the efficiency of the program by avoiding multiple calculations for every household. Edit checks are performed for aspects of the commodity

tax model and the old age income system. Please refer to the appropriate section in the *Algorithm Guide* for details of the specific social and tax programs.

SPSM Implementation

Calculation of Derived Parameters

A single derived parameter, UIBRA, is calculated for use in the `txitax` function. This parameter contains the individual's EI repayment base amount and is derived from two further parameters: UIBAF, the EI benefit recovery base amount factor, and UIERNMAX, the dollar value of maximum insurable earnings. Please refer to section in this manual for further information on the `txitax` function.

Three derived parameters are calculated for use in the `gis` function. The income breakeven points for GIS/SPA couples and married 1 pensioner couples are calculated here as GISBE1 and GISBE2 respectively. The breakeven points represent the level of family income at which combined GIS/SPA benefits are reduced to zero based on combined family income. They in turn are used to calculate an income crossover point (SPAXO) for the two types of pensioner couples (see following Chart).

GIS and SPA For Married Couples, 1 is not an OAS Pensioner

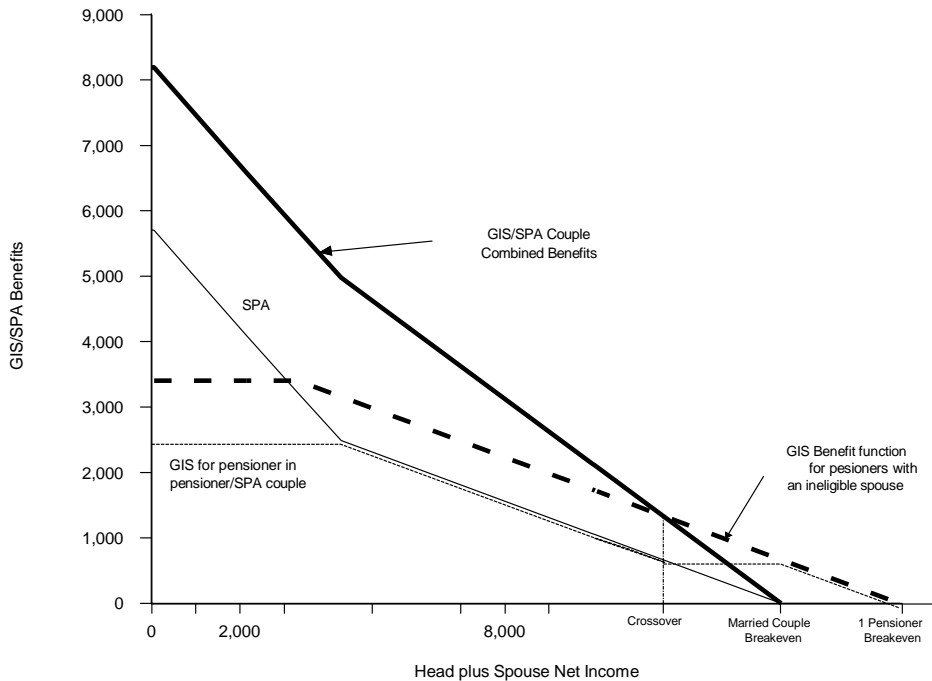


Figure 1 GIS/SPA Benefits for One OAS Pensioner Couples

GISBE1 represents the level of family income at which the GIS benefits of a pensioner married to a non pensioner have been reduced to exactly zero. On the figure above this is the point on the X axis labelled "1 Pensioner Breakeven". The value is calculated as a fixed relationship to other input parameters as follows.

$$\text{GISBE1} = \text{BGISS}/\text{GISRRM} + \text{BOAS} + \text{GISRLS}$$

GISBE2 represents the level of family income at which the combined GIS and SPA benefits of a pensioner married to a SPA recipient have been reduced to exactly zero. On the figure above this is the point on the X axis labelled "Married Couple Breakeven".

$$\text{GISBE2} = (\text{BGISM} * 2) / (\text{GISRRM} * 2) + \text{BOAS} / \text{SPAOSRR} + \text{GISRLM}$$

SPAXO represents the level of family income at which the dollar benefits for GIS to a single pensioner married to a non-pensioner spouse exactly equal the combined GIS/SPA dollar benefits payable to a GIS/SPA married couple. On the figure above this is the point on the X axis labelled "Crossover". The value is calculated as a fixed relationship to other input parameters as follows.

$$\text{SPAXO} = 2 * \text{GISBE2} - \text{GISBE1}$$

Please refer to the Guaranteed Income Supplement Section of this guide for further details on the use of these derived parameters.

A number of parameters for the Working Income Tax Benefit for Quebec residents are derived, based on the legislated design of this program. The minimum earnings threshold is set to be the same earnings thresholds used in the Quebec Work Premium program, based on family type – family types in order for these programs are person living alone, couple without children, single parent family and couple with children.

$$\text{QWITBMINE}[\text{family type}] = \text{QWPEIPI}[\text{family type}]$$

The maximum WITB amount for Quebec residents is also calculated by multiplying the Quebec WITB phase-in rate to the difference of the Quebec Work Premium Income Turndown level less the Quebec Work Premium minimum earnings threshold, by family type.

$$\text{QWITBAMT}[\text{family type}] = \text{QWITBPIR}[\text{family type}] * (\text{QWPTD}[\text{family type}] - \text{QWPEIPI}[\text{family type}])$$

The net income phase-out threshold for the Quebec WITB program is derived as the minimum of the Quebec Work Premium net income threshold divided by the difference of 1 less the percent of income allowed for the Quebec Earned Income Deduction, and the Quebec Work Premium net income threshold less the maximum allowable Quebec Earned Income Deduction, for each of the 4 family types.

$$\text{QWITBPOT}[\text{family type}] = \text{minn}((\text{QWPTD}[\text{family type}] / (1 - \text{QEMPDEDP})), (\text{QWPTD}[\text{family type}] + \text{QEMPDEDM}))$$

The net income phase-out threshold for the Quebec WITB Supplement for Disabilities is derived as the maximum Quebec WITB amount divided by the WITB reduction rate, which is then added to the net income phase-out threshold for the Quebec WITB program, by family type. This threshold will only be calculated if the Quebec WITB reduction rate is greater than 0.

$$QWITBSPOT[\text{family type}] = QWITBAMT[\text{family type}] / QWITBRR + QWITBPOT[\text{family type}]$$

The maximum allowable amounts for the Quebec Work Premium by family type are calculated by multiplying the Quebec Work Premium phase in credit rate to the product of the Quebec Work Premium Phase-out Income Threshold less the Quebec Work Premium minimum earnings threshold.

$$QWPMAX[\text{family type}] = (QWPTD[\text{family type}] - QWPEIPI[\text{family type}]) * QWPCR[\text{family type}]$$

Similarly, the maximum allowable amounts for the Quebec Adapted Work Premium for the disabled by family type are calculated by multiplying the Quebec Adapted Work Premium phase in credit rate to the product of the Quebec Adapted Work Premium Phase-out Income Threshold less the Quebec Adapted Work Premium minimum earnings threshold.

$$QAWPMAX[\text{family type}] = (QAWPTD[\text{family type}] - QAWPEIPI[\text{family type}]) * QAWPCR[\text{family type}]$$

For all of the parameters described above users may refer to the [*Parameter Guide*](#) for further information.

Edit Checks

Parameter edit checks are currently implemented in the `mpc` function.

- A check is made to ensure that the tax credit rate parameter `FNTCR` is non-zero. If zero, an error message is issued but processing continues.
- A similar check is made to ensure that the tax credit rate is non-zero. Error handling is also the same as above.
- If the `CTFLAG` parameter is set to 1 (thereby specifying that commodity taxes will be calculated) and the `FXVFLAG` parameter is set to 0 (indicating no SHS expenditure data is to be read) then an error message will result and `CTFLAG` will be reset to 0 and no commodity taxes will be calculated.
- If the OAS algorithm is switched off (`OASFLAG=0`) and the GIS algorithm is switched on (`GISFLAG=1`) GIS benefits will be incorrectly calculated as they depend on variables calculated in the `oas` function. If this condition is met an error message will result and `GISFLAG` will be set to 0 and consequently no GIS benefits will be calculated.
- If the GIS algorithm is switched off (`GISFLAG=0`) and the provincial GIS supplement algorithm is switched on (`GISTFLAG=1`) provincial GIS supplement benefits will be

incorrectly calculated as they depend on variables calculated in the `gis` function. If this condition is met an error message will result and `GISTFLAG` will be set to 0 and consequently no provincial GIS supplement benefits will be calculated.

- If `SPLTPNSFLAG` or `QSPLTPNSFLAG` is turned on, a check is made to ensure that the corresponding increments (`PENSPLTINCR` and `QPENSPLTINCR`) are greater than zero.
- If the Quebec WITB reduction rate is zero and the Quebec WITB maximum allowable amount is greater than zero, an error message regarding the derived parameter for the net income thresholds is issued but processing continues. If both the Quebec WITB reduction rate and the Quebec WITB maximum amount are both zero, the net income thresholds by family type for the Quebec WITB program are set to 0.
- If the `CTFLAG` parameter is set to 0 (thereby specifying that commodity taxes will not be calculated) and the `OOCEBFLG` parameter is set to 1 (indicating that the Ontario clean energy benefit will be calculated) then a warning will result informing the user that the Ontario clean energy benefit cannot be calculated without commodity expenditures and taxes.

Relation to Other SPSM Routines

The `mpc` function is called before `drv` and as such is only executed once for every program run. The function currently calculates parameters and performs edits which can effect a number of functions directly; the `ctmod` function, the `gis` function, the `gist` function, the `txitax` function, the head/spouse transfer `txhstr` function, the `txqcalc` function, and the `txcalc` function.

CROSS REFERENCE

Function	Description
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INPUT PARAMETERS:

<code>FXVFLAG</code>	Read SHS expenditure vector file
<code>BGISM</code>	Basic GIS - married
<code>BGISS</code>	Basic GIS - single
<code>BOAS</code>	Basic OAS
<code>FNTCR</code>	Federal non-refundable tax credit rate
<code>GISRLM</code>	Basic GIS reduction level: married pensioners
<code>GISRLS</code>	Basic GIS reduction level: single pensioners
<code>GISRRM</code>	Basic GIS reduction rate: married pensioners
<code>OASFLAG</code>	Old age security flag
<code>PENSPLTINCR</code>	Increment by which to split pension income
<code>QAWPCR</code>	Quebec Adapted Work Premium for Disabled Credit Rate [family type]

QAWPEIPI Quebec Adapted Work Premium for Disabled
 Employment Income Phase In [family type]
 QAWPTD Quebec Adapted Work Premium for Disabled Income
 Turndown [family type]
 QEMPDEDM Quebec earned income deduction for workers
 maximum
 QEMPDEDP Quebec earned income deduction percent of income
 QNTCR Quebec nominal tax credit rate
 QPENSPLTINCR Quebec increment by which to split pension
 income
 QSPLTPNSFLAG Quebec flag to split pension income
 QWITBPIR Quebec Working Income Tax Benefit Phase in Rate
 [family type]
 QWITBRR Quebec Working Income Tax Benefit Reduction Rate
 QWITBSAMT Quebec WITB Supplement for Disabilities Amount
 QWPCR Quebec Work Premium Credit Rate [family type]
 QWPEIPI Quebec Work Premium Employment Income Phase In
 [family type]
 QWPTD Quebec Work Premium Income Turndown [family type]
 SAELDOPTPR SA for elderly calculation method [prov]
 SPAOASRR OAS portion of SPA taxback rate
 SPLTPNSFLAG Flag to split pension income
 UIBAF EI benefit recovery base amount factor
 UIBAFNR EI benefit recovery base amount factor for non-
 repeaters
 UIERNMAX Maximum insurable earnings

OUTPUT PARAMETERS:

CTFLAG Commodity tax activation flag
 GISBE1 Breakeven for GIS one pensioner couple
 GISBE2 Breakeven for GIS/SPA couple
 GISFLAG Federal GIS/SPA/ESPA flag
 GISTFLAG Provincial GIS top-up flag
 OOCEBFLG Ontario Clean Energy Benefit activation flag
 QAWPMAX Quebec Adapted Work Premium for Disabled Maximum
 [family type]
 QWITBAMT Quebec Working Income Tax Benefit amount [family
 type]
 QWITBMINE Quebec Working Income Tax Benefit Minimum
 Earnings Threshold [family type]
 QWITBPOT Quebec WITB Net Income Phase-out Threshold
 [family type]
 QWITBSPOT Quebec WITB Supplement for Disabilities Net
 Income Phase-out Threshold [family type]
 QWPMAX Quebec Work Premium Maximum [family type]
 SPAXO Benefit Cross-over GIS/SPA vs GIS one pensioner
 couple

UIBRA EI repayment base amount
UIBRANR EI repayment base amount for non-repeaters (EI
only)

nneg Change negative numbers to zero

SUMMARY

NUMBER nneg(arg);

NUMBER arg;

The nneg function returns either zero or the value of arg, whichever is larger. In other words, nneg changes negative values to zero, leaving positive values unchanged.

oas Compute OAS for elderly

SUMMARY

The Old Age Security program provides taxable monthly benefits to all Canadians age 65 and over who meet the Canadian residency requirements. Benefits are either full or partial depending on a person's history of residency in Canada. The program is not income tested. The SPSM oas function is based on the age of the individual and, for immigrants, the years since immigration as reported at the time of the survey.

Program Description

As amended in 1957 and 1965 the OAS program provides full benefits to persons born in Canada or those having immigrated to Canada more than 10 years before their 65th birthday with no provisions for partial benefits. In June 1977 the program was modified to provide partial benefits to immigrants having resided in Canada for between 10 to 39 years at the time of their 65th birthday. These individuals are eligible for benefits in proportion to the number of years in Canada at age 65 divided by 40. Note that years of eligibility do not increase after the year of the beneficiary's 65th birthday. Thus an immigrant of twenty years at his/her 65th birthday would be eligible for 20/40 or 50% of full OAS benefits. Persons having immigrated to Canada less than ten years prior to their 65th birthday were ineligible for OAS until 1987. In that year the OAS program was modified to allow for immigrants from certain countries having reciprocal arrangements with Canada to use years of residency in the country of emigration to count towards meeting the minimum 10 years residency requirement. However, in these cases it is only the years of residence in Canada which are used to determine the rate of partial benefits.

SPSM Implementation

The oas function determines benefits based on the age of the individual and the years since immigration as reported at the time of the SLID survey. Because OAS provides an individually determined benefit, the simulation operates at the level of a household, assigning benefits to all eligible individuals. The model first adjusts years since immigration in two ways:

1. It determines the years since immigration at the time of the potential beneficiary's 65th birthday. This is done by subtracting the difference between the individual's age and 65 years from the reported years since immigration. [immi = immi - (idage-65)]
2. It adjusts the immigration status of persons who were eligible for Full OAS under the original program specifications but would qualify for only partial benefits since 1977. This is done by setting the years since immigration to 40 for persons having 10 or more years since immigration at the time of their 65th birthday if that birthday was in 1977 or earlier. [immi =40 if(immi >=10 and TARGETYEAR- idage <= 12)]

Notice that the years since immigration for any given individual after adjustment number 1 will remain the same regardless of the year for which the simulation is being run. For example an immigrant of 38 years, age 73, would have an adjusted years since immigration of 30 years, (immi = (38-(73-65)=30). Because of adjustment 2 above that individual would receive full OAS benefits in simulations run for 1984 but would receive 75% partial benefits in simulations run for 1988. In other words, a pensioner who is 73 years old in 1984 would have been 65 years old in 1976; the year before partial benefits were introduced. However a 73 year old in 1988 would have been age 65 in 1980; after partial benefits were introduced.

The model next determines if full eligibility requirements have been met for benefits and if so the full year equivalent of maximum OAS benefits are assigned (see BOAS in the *Parameter Guide*). Next, persons ineligible for OAS are screened out. Lastly, the model assigns partial benefits to persons with an adjusted years since immigration of between 10 and 39 years.

Interpretation

The results of the model are not directly comparable with and thus will not match administrative OAS expenditure figures. The discrepancy arises due to administrative irregularities as well as survey data deficiencies.

There are five major sources of underestimation by the oas function. The benefits of persons having received benefits during the survey calendar year, yet who had died before the date of the survey, will not be accounted for in the SPSD/M. The survey coverage excludes native Canadians on reservations as well as persons living in the Yukon and North West Territories; thus the OAS benefits of these persons are excluded from SPSM totals. Published figures include payments to persons not residing in Canada as well as retroactive lump-sum payments for late applicants. A further provision not accounted for in this algorithm is the use of years of residence in another country to meet minimum residency requirements. This will not affect the model results if run in years before 1988. The effect is small in any case.

Relation to Other SPSM Routines

OAS depends on the input parameters for basic OAS benefits and years since immigration. The calculation of OAS and other modeled variables occurs prior to and affects the calculation of net income and related GIS and GIS 'top-up' programs. The modeled benefits are reported in net income, elderly income, disposable income, transfer income, total income, consumable income. The oas function is called before txinet (calculation of individual net income) by drv.

CROSS REFERENCE

Function	Description
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INPUT PARAMETERS:

BOAS	Basic OAS
OASFLAG	Old age security flag
TARGETYEAR	Year of analysis

INPUT VARIABLES:

hdageeld	Age of eldest in household
hdseqhh	Household sequence number
hhnin	Number of individuals in household
idage	Age
idimmi	Years since immigration

OUTPUT VARIABLES:

imioas	OAS benefits
imoaspar	Partial OAS residency flag
imoasres	Partial OAS fraction

<u>pmaddent</u>	Define and add a parameter
------------------------	----------------------------

SUMMARY

The pmaddent function is used to define a new parameter to the SPSM parameter manipulation facilities. Please see the *Programmer's Guide* for more information.

randrnd Randomly round a floating point number to an integer

SUMMARY

The `randrnd()` function can be used to round fractional quantities to integer values in such a way that the sum of the values will remain (virtually) unchanged. Conventional rounding techniques do not have this property. For example, say that we have a set of 1000 numbers, each of which has the value 0.1. The sum of this set of numbers is 100.0. If we round each member of this set to the nearest integer, the sum of values would become 0.0. If we rounded randomly up or down, the sum would be 500. Neither of these rounding processes preserve the original sum. What we wish to do is to round 100 of the values up to 1.0 and 900 of the numbers down to 0.0. The `randrnd()` function simplifies this process.

The first argument to `randrnd()` is the value which is to be integerized, while the second is a uniformly distributed random number between 0.0 and 1.0 used to perform the rounding. The second argument is normally one of the built-in random number streams created by the SPSM Random Number Facility (see the [Users' Guide](#) for more details on this facility). The result of `randrnd()` is an unbiased, randomly rounded integerized value. In the following example, the variable `intval` has the value 2.0 for 30% of the time and 3.0 for 70% of the time.

```
intval = randrnd(2.7, idrand0);
```

The `randrnd()` function can be used to simplify operations such as the production of alternate weight files. For a specific example, see the description of the `bldwgt.exe` utility found in the [Tools User's Guide](#).

The `vardef` function (actually a macro) is used to define a new variable to the facilities of the SPSM that make use of variables. Please see the [Programmer's Guide](#) for more information.

round Round to nearest integer

SUMMARY

```
NUMBER round(arg);
```

```
NUMBER arg;
```

The `round` function converts its argument to the nearest whole number.

SUMMARY

Social assistance payments are not currently modeled by the SPSM. Data requirements are too great for a detailed micro-simulation. For example, the database contains no information on the holding or recent sale of liquid or fixed assets. This function is currently used to create a variable for social assistance by manipulating social assistance payments reported by the elderly (idisa) and GIS supplementation programs and other forms of social assistance (imigist). In addition, the splitting of Social Assistance payments between the federal and provincial governments is performed here. It is also intended as a function in which algorithms for social assistance or other guarantees can be developed by glass box users.

Program Description

There are a number of federal, provincial and municipal programs which provide some form of social assistance payments to various target groups. The SPSM simulates GIS supplementation programs (see the description of the gist function). Some of these are classified with the other social assistance programs by the SLID. In fact the SLID records benefits received from over 30 provincial and municipal social assistance programs under one title of which six are simulated by the SPSM. This algorithm is designed to ensure no double counting of provincial GIS supplement program benefits occurs between simulated social assistance (imisa) and the provincial GIS supplement programs (imigist).

SPSM Implementation

If the function is deactivated with SAFLAG, no social assistance benefits are reported for any individual. If the function is turned on the database values of reported Social Assistance payments is used as the reported value of social assistance for all persons under the age of 65. For persons aged 65 and over there are five possible means of calculating social assistance which are controlled by the SAELDOPTPR parameter. It allows for different values for each province. These options are as follows.

1. Social assistance is set to zero for all persons aged 65 and over.
2. For individuals over age 64 who received simulated Provincial GIS supplementation benefits Social Assistance benefits are set to zero. If no Provincial GIS supplement is assigned to an individual over age 64, the simulated social assistance reported by the SPSM is the same as the reported value on the database.
3. For all individuals over the age of 64 the value of simulated social assistance is set to the positive difference between reported and simulated social assistance.
4. For all individuals over the age of 64, the value of simulated social assistance is zeroed out if the person received provincial GIS supplementation of 500 or more. This is done since the

provinces only give T5007 slips for social assistance which is worth more than 500. Thus only these amounts should be on the T1, and thus in scope for SLID.

5. Give the amount of social assistance found on SLID to people over the age of 65.

Relation to Other SPSM Routines

The samod function is called by drv after the calculation of provincial GIS supplements in gist.

CROSS REFERENCE

Function Description

INPUT PARAMETERS:

ANCBSFT1	Alberta social assistance NCBS flow-through amount for first child
ANCBSFT1P	Alberta SA NCBS flow-through amount for first child for 1st half of year
ANCBSFT2	Alberta social assistance NCBS flow-through amount for second child
ANCBSFT2P	Alberta SA NCBS flow-through amount for second child for 1st half of year
ANCBSFT3	Alberta social assistance NCBS flow-through amount for third (or more) child
ANCBSFT3P	Alberta SA NCBS flow-through amount for third (or more) child for 1st half of year
ASHELTER	Alberta Shelter Increase by number of persons in household
ASHELTERP	Alberta Shelter Increase by number of persons in household for 1st half of year
ASHELTFLG	Alberta Shelter Increase under NCBS clawback flag
ASHELTFLGP	Alberta Shelter Increase under NCBS clawback flag for 1st half of year
FCBENCAL	Calculate child benefits for calendar year flag
MCLAWPCT	Manitoba SA Clawback percentage kids over flow through age in families [#kids][#kids<age]
MCLAWPCTP	Manitoba SA Clawback percentage kids over flow through age for 1st half of year [#kids][#kids<age]
MCLAWSA12	Manitoba Social assistance NCBS clawback for children 12 and under
MCLAWSA12P	Manitoba SA NCBS clawback for children 12 and under for 1st half of year

MCLAWSA6 Manitoba Social assistance NCBS clawback for children 6 and under
MCLAWSA6P Manitoba SA NCBS clawback for children 6 and under for 1st half of year
NCLAWSA1 Newfoundland social assistance clawback amount for first child
NCLAWSA1P Newfoundland SA clawback amount for first child for 1st half of year
NCLAWSA2 Newfoundland social assistance clawback amount for each additional child
NCLAWSA2P Newfoundland SA clawback amount for each additional child for 1st half of year
ONCBSFT1 Ontario social assistance NCBS flow-through amount for first child
ONCBSFT1P Ontario SA NCBS flow-through amount for first child for 1st half of year
ONCBSFT2 Ontario social assistance NCBS flow-through amount for second child
ONCBSFT2P Ontario SA NCBS flow-through amount for second child for 1st half of year
ONCBSFT3 Ontario social assistance NCBS flow-through amount for third (or more) child
ONCBSFT3P Ontario SA NCBS flow-through amount for third (or more) child for 1st half of year
PNCBSFT P.E.I. social assistance NCBS flow-through amount per child
PNCBSFTP P.E.I. SA NCBS flow-through amount per child for 1st half of year
QNCBSFT1 Quebec social assistance NCBS flow-through amount for first child
QNCBSFT1P Quebec SA NCBS flow-through amount for first child for 1st half of year
QNCBSFT2 Quebec social assistance NCBS flow-through amount for second child
QNCBSFT2P Quebec SA NCBS flow-through amount for second child for 1st half of year
QNCBSFT3 Quebec social assistance NCBS flow-through amount for third (or more) child
QNCBSFT3P Quebec SA NCBS flow-through amount for third (or more) child for 1st half of year
SACLAWFLAG Social assistance NCBS clawback flag
SACLAWPR Social assistance clawback flag [prov]
SAELDOPTPR SA for elderly calculation method [prov]
SAFLAG Social assistance flag
SAPFLAG Social assistance predicted value flag
SATARGET Social assistance target for predicted SA
SFAOUT Proportion of social assistance to eliminate

INPUT VARIABLES:

cfin	First person in census family [pointer]
cfnkids	Number of children in census family
cfnpers	Number of persons in census family
hdprov	Province
hhncf	Number of census families in household
idage	Age
idisa	Social assistance income
idsamths	Imputed number of months on SA
idsapred	Predicted amount of SA received
idsarank	Predicted ranked likelihood of getting SA
imfcbene	Total Federal Child Benefit Supplement
imigist	GIS provincial top-up
imscb	Saskatchewan Child Benefit

OUTPUT VARIABLES:

imashelt	Alberta shelter increase under NCBS clawback
imisa	Social assistance (or replacement program)
impsa	Provincial social assistance
imsaclaw	Social Assistance NCB Clawback Amount

strn Retrieve string by string number

SUMMARY

The `strn` function is used by the SPSM to print prompts and error messages in a language-independent way. The argument to the function identifies which string is to be retrieved. `strn` retrieves the string from a language-specific database of strings into an internally-maintained buffer and returns a pointer to the retrieved string. This function is not intended to be used by the SPSM user, and is documented here for reference purposes only.

taxbak1 One level tax-back function

SUMMARY

```
NUMBER taxbak1(inc, exmpt, lvl1, rrl);
```

```
NUMBER inc;          /* income subject to tax back          */
NUMBER exmpt;        /* exemption on income for tax back    */
NUMBER *lvl1;        /* level of benefit                    */
NUMBER rrl;          /* reduction rate for tax-back         */
```

The taxbak1 function is used to reduce a benefit at a fixed rate based on income in excess of a specified exemption level. If the benefit (*lv11) is reduced to zero, taxbak1 returns the amount of income 'unused' in the reduction process. In other words, the return value represents the income in excess of the break-even income for the benefit.

taxbak2 Two level tax-back function

SUMMARY

```
NUMBER taxbak2(inc, exmpt, lv11, rr1, lv12, rr2)

NUMBER inc;          /* income subject to tax back      */
NUMBER exmpt;        /* exemption on income for tax back */
NUMBER *lv11;        /* level (#1) of benefit            */
NUMBER rr1;          /* reduction rate (#1) for tax-back */
NUMBER *lv12;        /* level (#2) of benefit            */
NUMBER rr2;          /* reduction rate (#2) for tax-back */
```

The taxbak2 function is used to reduce a two-tiered benefit at a fixed rates based on income in excess of a specified exemption level. The first tier benefit (*lv11) is first reduced at rate rr1 based on income (inc) in excess of the specified threshold (exmpt). If the first tier benefit is reduced to zero, the second tier of benefit (*lv12) is reduced at rate rr2 based on remaining income. If the second tier benefit (*lv12) is reduced to zero, taxbak2 returns the amount of income 'unused' in the reduction process. In other words, the return value represents the income in excess of the break-even income for the benefit.

txalta Compute provincial taxes for Alberta

SUMMARY

Program Description

Calculation of the Alberta taxes.

When ATXFLG is off, Basic Alberta Tax (imbpt) is a proportion (APTF) of Basic Federal Tax (imbft). A tax reduction is calculated as a basic amount (ATRBC) minus a proportion (ATRF) of Basic Alberta Tax (imbpt). Alberta Tax Payable (imtxp) is calculated as Basic Alberta Tax (imbpt) minus the tax reductions.

The 2000 budget stated that Alberta would convert to a tax on taxable income starting in 2001. When the tax on taxable income flag is turned on (ATXFLG), a provincial tax table (APTX) is applied on taxable income (imitax) in order to get the gross provincial tax (imprvtax). Non-refundable tax credits are calculated using the non-refundable tax credit rate (APNTRC) and are applied against gross provincial tax in order to get the basic provincial income tax (imbpt).

The non-refundable credits which are calculated are:

impbtc	Basic amount	(ABXM)
impatxc	Age amount tax credit	(AAXM, AAXRR, AAXTD)
impmartc	Married and equivalent-to-married tax credit	(AMXM, AMXMT, AEMXM, AEMXMT)
impcgtc	Caregiver tax credit	(ACGTC, ACGTCFLG)
impchrctc	Charitable donations	(ACHATL1, ACHATR1, ACHATR2)
impcpptc	CPP/QPP contribution	(ACPPCTXC)
impdistc	Disability tax credit	(AMAXDX)
impothpe	Infirm dependents 18 or older tax credit	(AODISTC)
impdtxc	Dividend tax credit	(ADTCR, ADTCRLC)
impedtxc	Education tax credit	(AEDXPM, AEDXPMPT, AMAXET)
impmedtc	Medical expenses tax credit	(AMEDEXFLG, AMEDANF, AMEDALL)
imppentc	Pension income tax credit	(AYPNDL)
imptutxc	Tuition Tax credit	(ATUITFLG, AMAXET)
impuictc	EI contributions tax credit	(AEICTXC)
impintsl	Interest on Student Loans tax credit	(AINTSLFLG)
impminco	Minimum tax carryover	(AAMTOPT, AAMTPCTF, AAMTTX, AAMTPCTM)

Calculation of the Alberta Family Employment Tax Credit.

When the parameter AFETCFLAG is set to 1, the value of imiafetc variable is calculated as a percentage (AFETCBR) of nuclear family employment income above a threshold (AFETCCI) to a maximum dollar level which is calculated using AFETCAPC, which is based on the number of eligible children (nfnkids) up to a maximum number of children of AFETCNC. The maximum benefit is reduced by a percentage (AFETCRR) of nuclear family net income in excess of the threshold AFETCTD.

Alberta Health Care Insurance Plan

When AHCIPFLG is turned on, the Alberta Health Care Insurance Plan premiums are calculated. AHCIPIT represents the income threshold amounts for the Alberta Health Care Insurance Plan subsidy, based on family type. The value of the health premium is determined by family size, AHCIPS for unattached individuals and AHCIPF for families. Lower income individuals and families may be eligible for a premium subsidy based on income. For non-seniors, the income threshold is based on taxable income for the head and spouse if applicable. For senior or couples with at least one senior, the income test is based on the non-deductible income used for the Alberta Seniors Benefit. If the income is less than the threshold then a full subsidy of the health premium is granted. Where the income is greater than the threshold, a partial subsidy may be granted. The health premium is

determined by subtracting the income threshold from family income and multiplying the result by the subsidy rate AHCIPSR without exceeding the base premium amounts.

For non-senior individuals and couples/families, this parameter is only in effect when AHCIPSOPT is set to 2. The value of the calculated health premium (imphp) is assigned to the eldest in the census family.

Alberta Energy Tax Refund

When AHEATFLG is turned on, persons aged 16 or over will receive an Alberta Energy Tax Refund (AHEATREB) from the Alberta government for assistance with home heating expenses. The value of the refund is held in impheatr.

CROSS REFERENCE

Function	Description
INPUT PARAMETERS:	
AAMTOPT	Alta alternative minimum tax option
AAMTPCTF	Alta amt rate as pct of additional fed tax due to minimum tax
AAMTPCTM	Alta amt rate as pct of federal minimum tax amount
AAMTTX	Alta amt rate as tax on adjusted income
AAXM	Alta Age Amount
AAXRR	Alta Age Amount credit reduction rate
AAXTD	Alta Age Amount net income turndown
ABXM	Alta Basic Personal Exemption/amount
ACGTC	Alta Caregiver Tax Credit
ACGTCFLG	Alta Caregiver Tax Credit activation flag
ACGTCOPT	Alta Caregiver Tax Credit Option (1=max, 2=greenbook, 3=model)
ACGTCTD	Alta Caregiver Tax Credit income turndown
ACHATL1	Alta Charitable Donations amount level 1
ACHATR1	Alta Charitable Donations tax credit rate 1
ACHATR2	Alta Charitable Donations tax credit rate 2
ACPPCTXC	Alta CPP Contribution Tax Credit activation flag
ADTCR	Alta dividend tax credit rate
ADTCRLC	Alta dividend tax credit rate from large (eligible) corporations
AEDXPM	Alta Education Amount per month of full-time studies
AEDXPMP	Alta Education Amount per month of part-time studies

AEICTXC Alta EI Premium Tax Credit activation flag
 AEMXM Alta equivalent to married amount
 AEMXMT Alta equivalent to married turndown level
 AFETCAPC Alberta Family Employment Tax Credit Amount Per
 Child [number of children]
 AFETCAPCP Alberta Family Employment Tax Credit Amount Per
 Child for 1st half of year
 AFETCBR Alberta Family Employment Tax Credit Benefit Rate
 AFETCBRP Alberta Family Employment Tax Credit Benefit Rate
 for 1st half of year
 AFETCCI Alberta Family Employment Tax Credit Benefit Cut-
 in Level
 AFETCCIP Alberta Family Employment Tax Credit Benefit Cut-
 in Level for 1st half of year
 AFETCFLAG Alberta Family Employment Tax Credit Activation
 Flag
 AFETCNC Alberta Family Employment Tax Credit Maximum
 Number of Children
 AFETCNCP Alberta Family Employment Tax Credit Maximum
 Number of Children for 1st half of year
 AFETCPI Alberta Family Employment Tax Credit phase in
 AFETCPIP Alberta Family Employment Tax Credit phase in for
 2nd half of year
 AFETCRR Alberta Family Employment Tax Credit Reduction
 Rate
 AFETCRRP Alberta Family Employment Tax Credit Reduction
 Rate for 1st half of year
 AFETCTD Alberta Family Employment Tax Credit Turndown
 Level
 AFETCTDP Alberta Family Employment Tax Credit Turndown
 Level for 1st half of year
 AFTAX Alberta flat surtax rate on taxable income
 AHCIPF Alberta Health Care Insurance Plan Family Premium
 AHCIPFLG Alberta Health Care Insurance Plan activation
 flag
 AHCIPFSB Alberta Health Care Insurance Plan Family Subsidy
 Table
 AHCIPINFLG Alberta Health Care Insurance Plan flag to give
 to highest earner
 AHCIPIT Alberta Health Care Insurance Plan Income
 Threshold [family type]
 AHCIPS Alberta Health Care Insurance Plan Single Premium
 AHCIPSOPT Alberta Health Care Insurance Plan Subsidy option
 (1=table, 2=flat rate)
 AHCIPSPI Alberta Health Care Insurance Plan Senior
 Exemption Phase In
 AHCIPSR Alberta Health Care Insurance Plan Subsidy Rate

AHCIPSSB	Alberta Health Care Insurance Plan Single Subsidy Table
AHEATFLG	Alberta Energy Tax Refund activation flag
AHEATREB	Alberta Energy Tax Refund amount
AINTSLFLG	Alta Interest on Student Loans Tax Credit activation flag
AMAXDX	Alta Maximum Disability deduction/amount
AMAXET	Alta maximum on transfer of education and tuition amount
AMEDALL	Alta Medical allowance maximum lower limit
AMEDANF	Alta Medical allowance lower limit net income fraction
AMEDEXFLG	Alta Medical Expense Tax Credit activation flag
AMXM	Alta married amount
AMXMT	Alta married amount turndown level
AODISTC	Alta Maximum infirm dependent 18 or older tax credit
APNTRC	Alta provincial non-refundable tax credit rate
APTC	Alberta political contribution table [total donations, donation allowed]
APTCBEN	Maximum Alberta political tax credit allowed
APTF	Alberta provincial tax fraction
APTXX	Alta tax table [taxable income, basic provincial tax]
ARESREB	Alberta Resource Rebate Amount
ASBEMP	Alberta seniors benefit employment inclusion rate
ASBFLAG	Alberta seniors benefit activation flag
ASCI	Alberta surtax cut-in
ASF	Alberta surtax fraction
ATRBC	Alberta tax reduction basic claim
ATRF	Alberta tax reduction fraction
ATUITFLG	Alta Tuition Tax Credit activation flag
ATXFLG	Alta tax on taxable income activation flag
AYPNDL	Alta Pension Income Deduction Amount
FCBENCAL	Calculate child benefits for calendar year flag
PYINC	Deflator to calculate previous year income
PYINCP	Deflator to calculate income from 2 years prior

INPUT VARIABLES:

cfin	First person in census family [pointer]
cfinch	First child in census family [pointer]
cfineld	Eldest person in census family [pointer]
cfinspo	Spouse of eldest [pointer]
cfnchild	Number of children (including 18+)
cfnpers	Number of persons in census family
cfspoflg	Census family contains married couple
efin	First person in economic family [pointer]

efnpers	Number of persons in economic family
hhncf	Number of census families in household
hhnef	Number of economic families in household
hhnin	Number of individuals in household
hhnnf	Number of nuclear families in household
idage	Age
idcfrh	Relationship to census family head
idcgtc	Caregivers tax credit (database) (315)
iddisab	Disability status (age 16+)
iddisoth	Disability amount for dependants (318)
iddisslf	Disability amount for self (316)
ideducfm	Eligible full-time months of education
ideducpm	Eligible part-time months of education
idestat	Educational status
idialimo	Alimony income received
ididiv	Dividend income (actual)
idiemp	Wages & salaries
idinspo	Person's spouse [pointer]
idintstu	Interest paid on student loans (319)
idise	Self-employed income
idmedgro	Medical expenses, gross (330)
idmincar	Minimum tax carryover (504)
idothpe	Amounts for Infirm Dependants (306)
idprvftc	Provincial foreign tax credit (Form T2036)
idprvpol	Provincial political contributions (565)
idrpp	Registered pension plan contributions (207)
idrrsp	RRSP calculated amount (208)
idsex	Sex
idspoflg	Person has spouse
idtuitn	Tuition fees (320)
imamtfg	Minimum tax flag
imamtinc	Net adjusted income used for minimum tax
imamtprv	Federal minimum tax concept used for provincial
minimum tax	
imbft	Basic federal tax
imchara	Allowable charitable donations and gifts
(calculated)	
imcppse	CPP contributions deduction for self-emp
imcqqpc	CPP/QPP contributions
imdedfn	All deductions from net income
imdepni	Dependant's net income
imiasb	Alberta seniors benefit
imicnet	Net Income (line 236)
imildivt	Dividend income from large (eligible)
corporations	(taxable)
imioas	OAS benefits
imipnst	Taxable pension income (after splitting)

imisdivt	Dividend income from small corporations (taxable)
imitax	Taxable income
imitot	Total income
imiuccbc	Universal Child Care Benefit amount claimed
imminamt	Minimum Amount due to Federal Minimum Tax
imuic	Employment Insurance contributions
nfineld	Eldest person in nuclear family [pointer]
nfinspo	Spouse of eldest [pointer]
nfnkids	Number of children in nuclear family
nfspoflg	Nuclear family contains married couple

OUTPUT VARIABLES:

imbpt	Basic provincial tax
imiafetc	Alberta Family Employment Tax Credit Benefits
imnptc	Non-refundable provincial tax credits
impatxc	Prov Age amount tax credit
impatxcr	Prov total tax credits applied
impbtc	Prov Basic amount
impcgtc	Prov Caregiver Tax Credit Level
impcgtcp	Provincial Dependent Caregiver Tax Credit Amount
impchrtc	Prov Charitable Donations tax credit
impcpptc	Prov CPP/QPP contributions tax credit
impctxct	Prov tax credits transferred from children
impdistc	Prov Disability tax credit
impdtxc	Provincial dividend tax credit
impedtxc	Prov Education tax credit
impheatr	Provincial Home Heating Fuel/Energy Rebate
imphp	Provincial Health Premium
impintsl	Provincial interest on student loans tax credit
impmartc	Prov Married and Equivalent to Married tax credit
impmeda	Prov Medical expenses allowed (computed)
impmedtc	Prov Medical Expenses tax credit
impminco	Prov Minimum tax carryover
impnit	Provincial net income tax
impothpe credit	Provincial infirm dependents 18 or older tax credit
imppentc	Prov Pension Income tax credit
impptc	Provincial Political Contrib Tax Credit
imprvtax	Prov gross provincial tax
impstxct	Prov tax credits transferred from spouse
impsur	Provincial surtax
imptaxcr	Prov total tax credits
imptr	Provincial tax reduction
impttxct	Prov total tax credits transferred
imptutxc	Prov Tuition tax credit
impuictc	Prov EI contributions tax credit
imresreb	Alberta Resource Rebate Amount

imtxp Provincial income tax payable

txbc Compute provincial taxes for British Columbia

SUMMARY

When CTXFLG is turned off, the Basic British Columbia Tax (imbpt) is a proportion (CPTF) of Basic Federal Tax (imbft). British Columbia Tax Payable (imtxp) is the Basic Tax plus the BC Surtax plus the BC Health Care Maintenance Surtax.

The BC Surtax is a proportion (CSF) of Basic BC Tax (imbpt) exceeding the surtax level (CSCI).

The 2000 budget announced that British Columbia would convert to a tax on taxable income starting in 2000. When the tax on taxable income flag is turned on (CTXFLG), a provincial tax table (CPTX) is applied on taxable income (imitax) in order to get the gross provincial tax (imprvtax). Non-refundable tax credits are calculated using the non-refundable tax credit rate (CPNTRC) and are applied against gross provincial tax in order to get the basic provincial income tax (imbpt).

The non-refundable credits which are calculated are:

impbtc	Basic amount	(CBXM)
impatxc	Age amount tax credit	(CAXM, CAXRR, CAXTD)
impmartc	Married and equivalent-to-married tax credit	(CMXM, CMXMT, CEMXM, CEMXMT)
impcgtc	Caregiver tax credit	(CCGTC, CCGTCFLG)
impchrctc	Charitable donations	(CCHATL1, CCHATR1, CCHATR2)
impcpptc	CPP/QPP contribution	(CCPPCTXC)
impdistc	Disability tax credit	(CMAXDX)
impothpe	Infirm dependents 18 or older tax credit	(CODISTC)
impdtxc	Dividend tax credit	(CDTCR, CDTCLC)
impdtxc	Education tax credit	(CEDXPM, CEDXPMPT, CMAXET)
impmedtc	Medical expenses tax credit	(CMEDEXFLG, CMEDANF, CMEDALL)
imppentc	Pension income tax credit	(CYPNDL)
imptutxc	Tuition Tax credit	(CTUITFLG, CMAXET)
impuictc	EI contributions tax credit	(CEICTXC)
impintsl	Interest on Student Loans tax credit	(CINSFLG)
impfitexp	Fitness tax credit	(CFITEXPFLG, CFITEXPMAX)
impminco	Minimum tax carryover	(CAMTOPT, CAMTPCTF,

The British Columbia labour-sponsored venture capital credit is modeled (implvctc). A study was made showing that the majority of Canadians who contribute to labour-sponsored funds claim both federal and provincial credits. Therefore the gross contributions from the Greenbook are imputed onto the database. The BC provincial credit is modelled as CLVCRT times the gross amount up to CLVCMAX. The credit cannot be more than provincial taxes (imtxp).

B.C. Family Bonus

Total benefits received under the British Columbia Family Bonus program commencing in July 1996.

When the parameter BCFBFLAG is set to one the value of this variable is calculated as BCFBBAS times the number of children in the nuclear family (nfnkids) reduced by a proportion of head plus spouse net income (iminet + imisa) above the turndown of BCFBTD. This proportion for families with one child is BCFBRRS and for multiple child families is BCFBRR.

B.C. Family Bonus benefits (imibcfb) are assigned to the mother if present, or if not to the head of the nuclear family.

The calculation of the B.C. Family Bonus was changed to include the level of the National Child Supplement beginning in 1998. The flag BCFBIFS was added to turn on or off the inclusion of the National Child Supplement in the calculation of the B.C. Family Bonus.

The British Columbia Earned Income Benefit which was also introduced in 1998, was added to the code. When BCEIBFLG is assigned a value of 1, the calculation of the British Columbia Earned Income Benefit is activated, depending on the presence of children in the family. For families with lower incomes, the benefit starts to be phased in at BCEIBPI, and reaches its maximum at incomes of BCBEMX. The slope of the phase in is therefore calculated as the maximum working income supplement a family can receive divided by (BCBEMX – BCEIBPI).

British Columbia HST Low Income Tax Credit

The proposed British Columbia HST Low Income Tax Credit has been implemented. This credit will provide annual relief of up to CHSTCA for each adult and CHSTCC for each child aged 18 or younger. It would be reduced by CHSTCRR of adjusted family net income over CHSTCTDS for single people and over CHSTCTDF for families and single parents. This is a July to June program, beginning in July 2010. It is calculated when CHSTCFLG is set to 1 and the calculated value is saved in imbchstc.

British Columbia Climate Action Dividend

The British Columbia one-time Climate Action Dividend has been added. In 2008, all B.C. residents will be entitled to this one-time payment of \$100 (CCLIMDIV) to help them make changes to reduce their use of fossil fuels. Children under 18 will also be entitled to this amount which will be allocated to a parent.

British Columbia Low Income Climate Action tax credit

The British Columbia Low Income Climate Action has been implemented. This is a refundable tax credit starting in July 2008. It is activated by setting the flag CCATCFLG to 1. This credit consists of an amount per adult (CCATCA) and amount per dependent under 19 years of age (CCATCC). For single parent families, the first dependent may claim the amount for adults. The value of the credit is then income tested using net income less any UCCB payments from the prior year for the head and spouse, if applicable. The credit is reduced by the reduction rate (CCATCR) for family income in excess of the threshold for couples and single parents (CCATCFL). The income threshold is lower for single individuals (CCATCSL). This is a July to June program that may also be calculated for the calendar year if GSTCYFLG is also activated.

British Columbia Refundable Energy credit

In 2001, persons will receive a Refundable Energy Credit (impheatr) from the British Columbia government for assistance with heating expenses. In order to receive it, a person has to have received a GST credit (imfstc). Qualifying persons who live with a spouse or children receive CHEATFAM and others receive CHEATSNG.

CROSS REFERENCE

Function	Description
INPUT PARAMETERS:	
BCBEIS1	B.C. Earned Income Benefit for first child
BCBEIS1P	B.C. Earned Income Benefit for first child for 1st half of year
BCBEIS2	B.C. Earned Income Benefit for second child
BCBEIS2P	B.C. Earned Income Benefit for second child for 1st half of year
BCBEIS3	B.C. Earned Income Benefit for each additional child
BCBEIS3P	B.C. Earned Income Benefit for each additional child for 1st half of year
BCBEITD	B.C. Earned Income Benefit Turndown

BCBEITDP B.C. Earned Income Benefit Turndown for 1st half of year
 BCBEMX B.C. Earned Income Benefit Income Reduction
 BCBEMXP B.C. Earned Income Benefit Income Reduction for 1st half of year
 BCBERR1 B.C. EIB reduction rate for families with 1 child
 BCBERR1P B.C. EIB reduction rate for families with 1 child for 1st half of year
 BCBERR2 B.C. EIB reduction rate for families with 2 children
 BCBERR2P B.C. EIB reduction rate for families with 2 children for 1st half of year
 BCBERR3 B.C. EIB reduction rate for families with 3+ children
 BCBERR3P B.C. EIB reduction rate for families with 3+ children for 1st half of year
 BCEIBFLG Activate B.C. Earned Income Benefit Program
 BCEIBFLGP Activate B.C. Earned Income Benefit Program for 1st half of year
 BCEIBPI B.C. Earned Income Benefit Income Phase In
 BCEIBPIP B.C. Earned Income Benefit Income Phase In for 1st half of year
 BCFBBAS B.C. Family Bonus amount per child
 BCFBBASP B.C. Family Bonus amount per child for 1st half of year
 BCFBFLAG Activate B.C. Family Bonus Program
 BCFBIFS Activate B.C. Family Bonus to include Federal NCS
 BCFBIFSP Activate B.C. Family Bonus to include Federal NCS for 1st half of year
 BCFBNCS1 B.C. Family Bonus National Child Supplement for first child
 BCFBNCS1P B.C. Family Bonus National Child Supplement for first child for 1st half of year
 BCFBNCS2 B.C. Family Bonus National Child Supplement for second child
 BCFBNCS2P B.C. Family Bonus National Child Supplement for second child for 1st half of year
 BCFBNCS3 B.C. Family Bonus National Child Supplement for each additional child
 BCFBNCS3P B.C. Family Bonus National Child Supplement for each additional child for 1st half of year
 BCFBNCSRR1 B.C. Family Bonus NCS reduction rate for families with 1 child
 BCFBNCSRR1P B.C. Family Bonus NCS reduction rate for families with 1 child for 1st half of year
 BCFBNCSRR2 B.C. Family Bonus NCS reduction rate for families with 2 children

BCFBNCSSRR2P B.C. Family Bonus NCS reduction rate for families with 2 children for 1st half of year

BCFBNCSSRR3 B.C. Family Bonus NCS reduction rate for families with 3+ children

BCFBNCSSRR3P B.C. Family Bonus NCS reduction rate for families with 3+ children for 1st half of year

BCFBNCSTD B.C. Family Bonus National Child Supplement Turndown

BCFBNCSTD P B.C. Family Bonus National Child Supplement Turndown for 1st half of year

BCFBRR B.C. Family Bonus multiple child reduction rate

BCFBRRP B.C. Family Bonus multiple child reduction rate for 1st half of year

BCFBRRS B.C. Family Bonus single child reduction rate

BCFBRRSP B.C. Family Bonus single child reduction rate for 1st half of year

BCFBTD B.C. Family Bonus Turndown

BCFBTDP B.C. Family Bonus Turndown for 1st half of year

CAMTFTCFLG B.C. amt flag for provincial foreign tax credit

CAMTOPT B.C. alternative minimum tax option

CAMTPCTF B.C. amt rate as pct of additional fed tax due to minimum tax

CAMTPCTM B.C. amt rate as pct of federal minimum tax amount

CAMTTX B.C. amt rate as tax on adjusted income

CAXM B.C. Age Amount

CAXRR B.C. Age Amount credit reduction rate

CAXTD B.C. Age Amount net income turndown

CBXM B.C. Basic Personal Exemption/amount

CCATCA B.C. Climate Action Tax Credit amount for adults

CCATCAP B.C. Climate Action Tax Credit amount for adults for 1st half of year

CCATCC B.C. Climate Action Tax Credit amount for children

CCATCCP B.C. Climate Action Tax Credit amount for children for 1st half of year

CCATCFL B.C. Climate Action Tax Credit family reduction level

CCATCFLG B.C. Climate Action Tax Credit activation flag

CCATCFLP B.C. Climate Action Tax Credit family reduction level for 1st half of year

CCATCR B.C. Climate Action Tax Credit reduction rate

CCATCRP B.C. Climate Action Tax Credit reduction rate for 1st half of year

CCATCSL B.C. Climate Action Tax Credit individual reduction level

CCATCSLP B.C. Climate Action Tax Credit individual
 reduction level for 1st half of year
 CCGTC B.C. Caregiver Tax Credit
 CCGTCFLG B.C. Caregiver Tax Credit activation flag
 CCGTCOPT B.C. Caregiver Tax Credit Option (1=max,
 2=greenbook, 3=model)
 CCGTCTD B.C. Caregiver Tax Credit income turndown
 CCHATL1 B.C. Charitable Donations amount level 1
 CCHATR1 B.C. Charitable Donations tax credit rate 1
 CCHATR2 B.C. Charitable Donations tax credit rate 2
 CCLIMDIV B.C. Climate Action Dividend
 CCPCTXC B.C. CPP Contribution Tax Credit activation flag
 CDTCR B.C. dividend tax credit rate
 CDTCRLC B.C. dividend tax credit rate from large
 (eligible) corporations
 CEDXPM B.C. Education Amount per month of full-time
 studies
 CEDXPMPT B.C. Education Amount per month of part-time
 studies
 CEICTXC B.C. EI Premium Tax Credit activation flag
 CEMXM B.C. equivalent to married amount
 CEMXMT B.C. equivalent to married turndown level
 CFITEXPFLG B.C. Fitness Tax Credit activation flag
 CFITEXPMAX B.C. Fitness Tax Credit maximum claim
 CHEATFAM British Columbia Refundable Energy Credit for
 families
 CHEATFLG British Columbia Refundable Energy Credit
 activation flag
 CHEATSNG British Columbia Refundable Energy Credit for
 singles
 CHSTCA B.C. HST Low Income tax credit amount per adult
 CHSTCAP B.C. HST Low Income tax credit amount per adult
 for 1st half of year
 CHSTCC B.C. HST Low Income tax credit amount per child
 CHSTCCP B.C. HST Low Income tax credit amount per child
 for 1st half of year
 CHSTCFLG B.C. HST Low Income Tax Credit activation flag
 CHSTCRR B.C. HST Low Income tax credit reduction rate
 CHSTCRRP B.C. HST Low Income tax credit reduction rate for
 1st half of year
 CHSTCTDF B.C. HST Low Income tax credit income turndown
 level for families
 CHSTCTDFP B.C. HST Low Income tax credit income turndown
 level for families for 1st half of year
 CHSTCTDS B.C. HST Low Income tax credit income turndown
 level for single persons

CHSTCTDSP B.C. HST Low Income tax credit income turndown level for single persons for 1st half of year
 CHSTPO B.C. HST Low Income tax credit phase out rate
 CHSTPO1P B.C. HST Low Income tax credit phase out rate for 1st half of year
 CHSTPO2P B.C. HST Low Income tax credit phase out rate for 2nd half of year
 CINTSLFLG B.C. Interest on Student Loans Tax Credit activation flag
 CLITR B.C. Low Income Tax Reduction Credit
 CLITRRR B.C. Low Income Tax Reduction Credit reduction rate
 CLITRTD B.C. Low Income Tax Reduction Credit net income turndown
 CLVCMAX Maximum B.C. labour-sponsored funds tax credit allowed
 CLVCRT Percent of B.C. labour-sponsored funds cost allowed as credit
 CMAXDX B.C. Maximum Disability deduction/amount
 CMAXET B.C. maximum on transfer of education and tuition amount
 CMEDALL B.C. Medical allowance maximum lower limit
 CMEDANF B.C. Medical allowance lower limit net income fraction
 CMEDEXFLG B.C. Medical Expense Tax Credit activation flag
 CMSP B.C. Medical Services Plan Premium [family size, amount]
 CMSPADED B.C. Medical Services Plan Age 65+ Deduction
 CMSPCEDD B.C. Medical Services Plan Child Deduction
 CMSPDDED B.C. Medical Services Plan Disability Deduction
 CMSPFLAG B.C. Medical Services Plan activation flag
 CMSPINCFLAG B.C. Medical Services Plan flag to give to highest earner
 CMSPRATE B.C. Medical Services Plan Subsidy Rate [income, rate]
 CMSPSDED B.C. Medical Services Plan Spouse Deduction
 CMXM B.C. married amount
 CMXMT B.C. married amount turndown level
 CODISTC B.C. Maximum infirm dependent 18 or older tax credit
 CPNTCR B.C. provincial non-refundable tax credit rate
 CPTCBEN Maximum B.C. political tax credit allowed
 CPTCREF British Columbia political tax credit refundable flag
 CPTCT B.C. political contribution table [total donations, donation allowed]
 CPTF British Columbia provincial tax fraction

CPTX	B.C. tax table [taxable income, basic provincial tax]
CSCI	British Columbia surtax first cut-in level
CSCI2	British Columbia surtax second cut-in level
CSDC	British Columbia provincial surtax dependant credit
CSF	British Columbia surtax first level rate
CSF2	British Columbia surtax second level rate
CSTC	British Columbia stc amount
CSTCFLAG	British Columbia sales tax credit flag
CSTCKID	British Columbia stc amount for children
CSTCR	British Columbia stc reduction rate
CSTHINC	British Columbia family head income threshold (stc)
CSTKINC	British Columbia kid income threshold top-up (stc)
CSTSINC	British Columbia spousal income threshold top-up (stc)
CSUPCR	British Columbia supplemental tax credit
CTCINC	Family income scaling factor
CTUITFLG	B.C. Tuition Tax Credit activation flag
CTXFLG	B.C. tax on taxable income activation flag
CYPNDL	B.C. Pension Income Deduction Amount
FCBENCAL	Calculate child benefits for calendar year flag
GSTCYFLG	GST credit calendar year calculation activation flag
HEATSNG	Federal relief for heating expenses for singles
PYINC	Deflator to calculate previous year income
PYINCP	Deflator to calculate income from 2 years prior

INPUT VARIABLES:

cfageeld	Age of eldest in census family
cfin	First person in census family [pointer]
cfinch	First child in census family [pointer]
cfineld	Eldest person in census family [pointer]
cfinspo	Spouse of eldest [pointer]
cfnchild	Number of children (including 18+)
cfnkids	Number of children in census family
cfnpers	Number of persons in census family
cfspoflg	Census family contains married couple
efin	First person in economic family [pointer]
efnpers	Number of persons in economic family
hhncf	Number of census families in household
hhnef	Number of economic families in household
hhnin	Number of individuals in household
hhnnf	Number of nuclear families in household
idage	Age

idcf	Person's census family [pointer]
idcfrh	Relationship to census family head
idcgtc	Caregivers tax credit (database) (315)
iddisab	Disability status (age 16+)
iddisoth	Disability amount for dependants (318)
iddisslf	Disability amount for self (316)
ideducfm	Eligible full-time months of education
ideducpm	Eligible part-time months of education
idestat	Educational status
idfitexp	Fitness expense amount for children
ididiv	Dividend income (actual)
idiemp	Wages & salaries
idinspo	Person's spouse [pointer]
idintstu	Interest paid on student loans (319)
idise	Self-employed income
idlabtxg	Gross Labour funds bought (413)
idmedgro	Medical expenses, gross (330)
idmincar	Minimum tax carryover (504)
idnf	Person's nuclear family [pointer]
idothpe	Amounts for Infirm Dependants (306)
idprvftc	Provincial foreign tax credit (Form T2036)
idprvpol	Provincial political contributions (565)
idsex	Sex
idspoflg	Person has spouse
idtuitn	Tuition fees (320)
imamtfg	Minimum tax flag
imamtinc	Net adjusted income used for minimum tax
imamtprv	Federal minimum tax concept used for provincial
minimum tax	
imbft	Basic federal tax
imccea	Child care expenses allowed
imchara	Allowable charitable donations and gifts
(calculated)	
imchclm	Number of dependent children claimed
imcppse	CPP contributions deduction for self-emp
imcqppc	CPP/QPP contributions
imdedfn	All deductions from net income
imdepni	Dependant's net income
imfcbene	Total Federal Child Benefit Supplement
imheatrl	Federal relief for heating expenses
imicnet	Net Income (line 236)
imildivt	Dividend income from large (eligible)
corporations	(taxable)
imipnst	Taxable pension income (after splitting)
imisdivt	Dividend income from small corporations (taxable)
imitax	Taxable income
imiuccbc	Universal Child Care Benefit amount claimed

immartxc	Married tax credit claimed
imminamt	Minimum Amount due to Federal Minimum Tax
imuic	Employment Insurance contributions
nfineld	Eldest person in nuclear family [pointer]
nfinspo	Spouse of eldest [pointer]
nfnkids	Number of children in nuclear family
nfspoflg	Nuclear family contains married couple

OUTPUT VARIABLES:

imbchstc	B.C. HST Low Income Credit
imbpt	Basic provincial tax
imcatc	B.C. Refundable Climate Action Tax Credit
imclimdv	B.C. Climate Action Dividend
imcstc	British Columbia Sales Tax Credit
imibceib	B.C. Earned Income Benefit
imibcfb	B.C. Family Bonus
imnptc	Non-refundable provincial tax credits
impatxc	Prov Age amount tax credit
impatxcr	Prov total tax credits applied
impbtc	Prov Basic amount
impcgtc	Prov Caregiver Tax Credit Level
impcgtcp	Provincial Dependent Caregiver Tax Credit Amount
impchrtc	Prov Charitable Donations tax credit
impcpptc	Prov CPP/QPP contributions tax credit
impctxct	Prov tax credits transferred from children
impdistc	Prov Disability tax credit
impdtxc	Provincial dividend tax credit
impedtxc	Prov Education tax credit
impfitexp	Provincial fitness tax credit
impheatr	Provincial Home Heating Fuel/Energy Rebate
imphp	Provincial Health Premium
impintsl	Provincial interest on student loans tax credit
implvctc	Provincial labour-sponsored funds tax credit
impmartc	Prov Married and Equivalent to Married tax credit
impmeda	Prov Medical expenses allowed (computed)
impmedtc	Prov Medical Expenses tax credit
impminco	Prov Minimum tax carryover
impothpe	Provincial infirm dependents 18 or older tax
credit	
imppentc	Prov Pension Income tax credit
impptc	Provincial Political Contrib Tax Credit
imprvtax	Prov gross provincial tax
impstxct	Prov tax credits transferred from spouse
impsur	Provincial surtax
imptaxcr	Prov total tax credits
imptc	Refundable provincial tax credits
imptr	Provincial tax reduction

impttxct	Prov total tax credits transferred
imptutxc	Prov Tuition tax credit
impuictc	Prov EI contributions tax credit
imtxp	Provincial income tax payable

txcalc Calculate federal income tax

SUMMARY

This function incorporates algorithms for the following tax measures to complete the calculation of federal taxes payable:

- Federal Dividend Tax Credit
- Federal Labour Sponsored Venture Capital Tax credit
- Basic Federal Tax (including tax credits transfers from dependants or spouse)
- Federal Tax Reduction (including transfer to spouse)
- Federal Surtax
- Federal Taxes Payable
- Alternate Minimum Tax
- Quebec Tax Abatement
- Federal refundable medical expense supplement
- Caregiver Tax Credit
- Working Income Tax Benefit

Federal Dividend Tax Credit

If the filer declared dividends from taxable Canadian corporations, he or she is eligible to claim the Dividend Tax Credit which amounts to a fixed proportion of taxable dividends. This credit is non-refundable, i.e., it may be used to reduce Basic Federal Tax, but an unused portion is not refunded.

SPSM Implementation

The Federal Dividend Tax Credit (imfdtxc) is calculated as a proportion (FDTCR) of Net Taxable Dividends (imidivt). The amount is added to Total Non-transferable Tax Credits (imtaxcr) which is applied to reduce Basic Federal Tax (imbft).

Federal Dividend Tax Credit

The Labour-sponsored venture capital funds tax credit is modeled from the imputed gross amount purchased (idlabtvg). The credit (imlabtxc) is equal to FLVCRT times the gross amount (idlabtvg) up to a maximum (FLVCMAX). The rate is provincially based.

Basic Federal Tax

Basic Federal Tax is defined as Federal Tax Payable on Taxable Income minus certain tax credits.

SPSM Implementation

Basic Federal Tax (imbft) is calculated the same way whether or not the tax credits proposed by the White Paper are applied. First, Federal Tax Payable on Taxable Income (imfedtax) is calculated using the interpolating lookup function lkup1 to determine taxes payable on Taxable Income (imitax) from the table FTX.

Dependants are treated separately from the head and spouse since the rules applying to the transfer of deductions from dependant to parent differ from those applying to the transfer of deductions from the spouse.

Transfers from Dependant to Parent

In calculating the dependant's Basic Federal Tax, the following nontransferable credits are subtracted from imbft:

- Basic Personal Tax Credit (imbtc)
- Age Tax Credit (imatxc)
- Charitable Donations Tax Credit (imchartc)
- CPP/QPP Contributions Tax Credit (imcppctc)
- Federal Dividend Tax Credit (imfdtxc)
- Medical Expense Tax Credit (immedatc)
- Pension Income Tax Credit (impentxc)
- UI Contributions Tax Credit (imuictc)

A dependant may transfer an unused portion of certain tax credits to a supporting parent. Since a limit may be imposed on the amount of the combined Education Tax Credit and Tuition Tax Credit, these are treated separately from the Disability Tax Credit.

If a dependant requires all transferable tax credits to further reduce Basic Federal Tax, i.e., Basic Federal Tax (imbft) exceeds Total Transferable Tax Credits, then the tax credits are subtracted from imbft and no transfer occurs.

If the dependant's Total Transferable Tax Credits (txcrt) exceeds Basic Federal Tax, imbft is reduced to zero and the amount potentially transferable to a supporting parent is calculated as the amount of Disability Tax Credit (imdisatc) not required to reduce Basic Federal Tax plus the lesser of:

the combined Education and Tuition amount not required to reduce Basic Federal Tax to zero, and
the maximum transferable of the combined Education and Tuition amount (MAXET)

The actual amount transferred (imttxcrt) is calculated by reducing the amount potentially transferred (txcrt) by a proportion (FNTCR) of Net Income (iminet) exceeding the Tax Credit Transfer Reduction Level (BXM).

The total amount of tax credits transferable from all dependants is accumulated in the variable `ctxcrt` which is subsequently used to reduce Basic Federal Tax for the parent with the higher Net Income (`iminet`).

These algorithms do not allow the partitioning of the dependant's tax credits between both supporting parents and, therefore, in some cases, the total taxes paid by the family may not be minimized.

Transfers From Spouse

In calculating the Basic Federal Tax of the head and spouse, the following non-transferable credits are subtracted from `imbft`:

- Basic Personal Tax Credit (`imbtc`)
- Charitable Donations Tax Credit (`imchartc`)
- CPP/QPP Contributions Tax Credit (`imcppctc`)
- Federal Dividend Tax Credit (`imfdtxc`)
- Married Tax Credit (`immartxc`)
- Medical Expense Tax Credit (`immedatc`)
- UI Contributions Tax Credit (`imuictc`)

An unused portion of certain transferable tax credits may be transferred from the spouse. The transferable tax credits are:

- Age Tax Credit (`imatxc`)
- Disability Tax Credit (`imdisatc`)
- Pension Income Tax Credit (`impentxc`)
- Education Tax Credit (`imedtxc`)
- Tuition Tax Credit (`imtutxc`)

Since a limit may be imposed on the amount of the combined Education and Tuition Tax Credits, these are treated separately from the others.

If the filer requires all Transferable Tax Credits (`txcrt`) to reduce Basic Federal Tax (i.e., `imbft` exceeds `txcrt`) then the tax credits are subtracted from Basic Federal Tax and no transfer occurs.

If the filer's Transferable Tax Credits (`txcrt`) exceed Basic Federal Tax, then `imbft` is reduced to zero and the remainder of the Potentially Transferable Tax Credits (`ttxcrt`) is calculated as the sum of:

- Disability Tax Credit (`imdisatc`)
- Age Tax Credit (`imatxc`)
- Pension Income Tax Credit (`impentxc`)

which is not required to reduce Basic Federal Tax to zero plus the lesser of:

- a) the combined Education and Tuition amount not required to reduce Basic Federal Tax to zero, and
- b) the maximum transferable of the combined Education and Tuition amount (`MAXET`)

The actual amount transferred (imttxcrt) is calculated by reducing the amount potentially transferred (ttxcrt) by a proportion (FNTCR) of Net Income (iminet) exceeding the Tax Credit Transfer Reduction Level (BXM).

Although this value is calculated for both head and spouse, the one with the higher Net Income (iminet) actually receives the transfer. The amount transferred from the spouse is stored in the variable imstxcrt. The amount transferred from all dependants is stored in imctxcrt.

Federal Surtax

In 1985 a Federal Surtax was introduced as an additional tax based on Basic Federal Tax payable.

SPSM Implementation

The model allows for two surtax levels and two surtax rates. The total Federal Surtax (imfsur) is calculated as:

- a proportion (FSURR1) of Basic Federal Tax exceeding Surtax Level 1 (FSURL1), plus
- a proportion (FSURR2) of Basic Federal Tax exceeding Surtax Level 2 (FSURL2).

The result is then added to Federal Taxes (imftax) (minus certain federal tax credits) to derive Federal Taxes Payable (imtxf).

Federal Surtax Reduction

The Federal Surtax reduction (imfsurtr) announced in the 1998 federal budget is calculated. The maximum value that the reduction may reach is FSURTRMX. The reduction is reduced by a proportion (FSURTRRR) of basic federal tax (imbft) which exceeds a certain level (FSURTRRL). This reduction is then subtracted from the federal surtax (imfsur).

Federal Taxes Payable

Federal Taxes Payable (imtxf) is defined as Federal Tax (imftax) plus the Federal Surtax (see above) minus the following tax credits:

- Federal Other Tax Credits
- Federal Political Contribution Tax Credit (imfptc), and

Alternate Minimum Tax

In 1986, a minimum tax on individuals was introduced with the intention of increasing the tax liability of those high income individuals who use the tax incentives provided by the current law to structure their affairs so as to pay little or no tax.

The Alternative Minimum Tax requires the calculation of an adjusted taxable income disallowing certain deductions, a list of which follows, which are added back to taxable income.

- Pension Income Deduction
- Interest and Dividend Income Deduction
- Disability Deduction Transferred from Dependant
- Education Deduction Transferred from Dependant
- Deductions Transferred from Spouse
- Employee Home Relocation Loan Deduction
- Stock Option and Shares Deduction
- Contribution to Deferred Income Plans (RPP and RRSP contributions)
- non-taxable portion of capital gains
- capital cost allowance on MURBS and Canadian Films

The grossed-up portion of taxable dividends and Allowable Business Investment Loss are subtracted from taxable income.

The minimum tax is then calculated as a proportion of this adjusted taxable income exceeding the exemption level.

SPSM Implementation

If the Minimum Tax Rate (AMTTX) is not set to zero, the minimum tax algorithms are executed.

The first step recalculates an adjusted taxable income for minimum tax purposes (imamtinc) by adding the following items to imitax:

- RPP Contributions (idrpp) when AMTRPFLG is set to 1
- RRSP Contributions (idrrsp) when AMTRPFLG is set to 1
- Other Deductions from Total Income (idothded, representing Capital Cost Allowances)
- the non-taxable portion of Capital Gains (idicapg * (AMTINCRT - CAPGIR))
- exploration and development expenses (idexplor)
- employee home relocation loan deduction (idemplo)
- stock option and shares deduction when AMTSTK is set to 1
- limited partnership losses (idpartlo)
- allowable other years non-capital losses (idnclos)

The taxable portion of dividends (imividvt) times AMTDIV, net non-deductible capital losses, the allowable portion of business investment losses (imiloss) times the applicable rates defined as ((AMTINCRT – CAPGIR)/CAPGIR) and the basic exemption (AMTEX) are subtracted from this value.

The Basic Minimum Tax (amtbf) is calculated as a proportion (AMTTX) of Adjusted Taxable Income (imamtinc).

The second step in this process adjusts the Basic Minimum Tax (amtbf) to account for allowable tax credits. This requires subtracting the following tax credits from Basic Minimum Tax:

- Basic Tax Credit (imbtc)

- Spouse or Equivalent Tax Credit (immartxc)
- Age Tax Credit (imatxc)
- Education Tax Credit (imedtxc)
- Tuition Tax Credit (imtutxc)
- Textbook Tax Credit (imtxttxc)
- Medical Expense Tax Credit (immedatc)
- Charitable Donations Tax Credit (imchartc)
- Disability Tax Credit (imdisatc) for self
- Other Dependent Tax Credit (imothpe)
- CPP/QPP Contribution Tax Credit (imcppctc)
- UI Contribution Tax Credit (imuictc)
- Basic Personal Amount Supplement (imbtes)
- Caregiver Tax Credit (imcgtc)
- Canada Employment Credit (imemptxc)
- Federal interest on student loans tax credit (imintsl)
- Non-refundable Child Tax Credit (imchdtxc)
- Public Transit Tax Credit (imtransit)
- Home Renovation Tax Credit (imfhrtc)
- Fitness Tax Credit (imfitexp)

If the value of the Basic Minimum Tax (ambft) exceeds Basic Federal Tax (imbft), Federal Tax Payable (imtxf) is recalculated as Basic Minimum Tax (ambft) plus any federal surtaxes on ambft. The federal surtax is calculated in the same manner as on Basic Federal Tax, previously described.

The database does not contain sufficient detail to accurately represent some of the deductions specified in the regulations concerning the calculation of the Minimum Tax. The Disability Deduction and Education Deduction transferred from dependants are not differentiable from those deductions claimed on behalf of the filer. The variable idothded (Other Deduction's from Total Income) includes Capital Cost Allowances on MURBS and Canadian Films but it also contains amounts for moving expenses and alimony payments. It is difficult to estimate the impact of these inaccuracies except to say that they are likely small compared to the large amounts of income and other deductions for the high income persons for whom the Minimum Tax is intended.

Quebec Tax Abatement

The Quebec Tax Abatement is a refundable credit on federal taxes provided to Quebec residents in lieu of direct cost-sharing by the federal government under the federal-provincial fiscal arrangements. It reduces the federal income tax payable by Quebec residents and may provide a refund. The abatement amounts to 16.5% of Basic Federal Tax.

SPSM Implementation

If the filer resides in Quebec, the full Quebec Tax Abatement (qta) is calculated as a proportion (QTAP) of Basic Federal Tax (imbft). This is divided into two portions for accounting purposes:

- imqtaa is the Quebec Tax Abatement Applied to reduce federal taxes
- imqtar is the Quebec Tax Abatement Refunded

If the Quebec Tax abatement exceeds the Federal Tax payable then a refund is made for the balance of the abatement (imqtar) and the amount of Federal tax payable is reduced by the amount of the abatement. Users may wish to note that this abatement refund was an interesting side effect of the Federal Tax reduction in effect prior to 1986 (see notes in this section).

Federal Refundable Medical Expense Supplement

SPSM Implementation

The refundable medical expense supplement (immedref) was added to imfortc. The program is only available to persons aged 18 and over who have earnings over MEDREMIN and who had allowable medical expenses (immeda). The maximum supplement is calculated as the minimum of MEDRRATE times the allowable medical expenses and MEDRMAX. The benefit is reduced by MEDRRR times the family income over the turndown which is the sum of the basic exemption (BXM), the married exemption (MXM) and the maximum disability amount (MAXDX).

Caregiver Tax Credit

The calculation of the Caregiver Tax Credit (imcgtc) is activated by the flag CGTCFLG. The credit reduces federal taxes and started in 1998. The base level of the credit is CGTC.

Working Income Tax Benefit

The Federal Refundable Working Income Tax Benefit (WITB) program was implemented in 2007.

SPSM Implementation

WITBFLAG turns on and off the Federal Refundable Working Income Tax Benefit (WITB) program.

The WITB will provide a refundable tax credit equal to WITBPIR of each dollar of earned income in excess of WITBMINE to a maximum credit of WITBSNG for single individuals (at least 19 years of age) without dependants and WITBFAM for families (couples and single parents).

To target assistance to those with low income, the credit will be reduced by WITBRR of net family income in excess of WITBSPO for single individuals and WITBFPO for families, where net family income represents head/spouse net income less UCCB amounts claimed.

Students (as defined for the purpose of the education tax credit), with no dependent children, who are enrolled as full-time students for more than three months in the taxation year will not be eligible for the WITB. If a couple without dependents consists of only one person eligible for the WITB, based on student and/or age eligibility rules, then the income threshold used in the turndown will be that for individuals and the income tests would only include that of the eligible individual.

The amount of the benefit is saved in the variable imwitb. It is also added to other federal refundable credits (imfortc).

WITBFLAG also turns on the Working Income Tax Benefit Supplement for Persons with Disabilities. Individuals eligible for the Disability Tax Credit who are also eligible for the WITB, will be granted an amount equal to WITBSPIR for each dollar of individual earned income in excess of WITBSMINE to a maximum credit of WITBSAMT. This amount will then be reduced by WITBSRR of net family income in excess of WITBSSPO for single individuals and WITBSFPO for single parents and couples, where both are eligible for WITB. The amount of the disability supplement is saved in the variable imwitbs and is also added to other federal refundable credits (imfortc).

Note that the rules for Quebec, Alberta and British Columbia are different than those described above.

CROSS REFERENCE

Function	Description
INPUT PARAMETERS:	
AMTDIV	Alternative minimum tax: percentage of taxable dividends
AMTDIVLC	Alternative minimum tax: percentage of eligible taxable dividends
AMTEX	Alternate minimum tax: exemption level
AMTFORTX	Alternative minimum tax: Foreign Income Tax Rate
AMTINCRT	Alternative minimum tax: Inclusion Rate
AMTNEGTI	Alternative minimum tax: Allow Negative Taxable Income Flag
AMTPRVDF	Alternative minimum tax: prov. tax difference definition[prov]
AMTRPFLG	RRSP/RPP included in Alternate minimum tax (1=included)
AMTSTK	Alternative minimum tax: Stock Option Proportion
AMTTX	Alternate minimum tax rate
AWITBFAM	Alberta Working Income Tax Benefit amount for couples/single parents

AWITBFPO Alberta WITB Family Net Income Phase-out
 Threshold
 AWITBMINE Alberta Working Income Tax Benefit Minimum
 Earnings Threshold
 AWITBPIR Alberta Working Income Tax Benefit Phase in Rate
 AWITBRR Alberta Working Income Tax Benefit Reduction Rate
 AWITBSAMT Alberta WITB Supplement for Disabilities Amount
 AWITBSCRR Alberta WITB Supplement for Disabilities
 Reduction Rate for eligible couples
 AWITBSFPO Alberta WITB Supplement for Disabilities Family
 Net Income Phase-out Threshold
 AWITBSMINE Alberta WITB Supplement for Disabilities Minimum
 Earnings Threshold
 AWITBSNG Alberta Working Income Tax Benefit amount for
 singles
 AWITBSPIR Alberta WITB Supplement for Disabilities Phase in
 Rate
 AWITBSPO Alberta WITB Single Net Income Phase-out
 Threshold
 AWITBSRR Alberta WITB Supplement for Disabilities
 Reduction Rate
 AWITBSSPO Alberta WITB Supplement for Disabilities Single
 Net Income Phase-out Threshold
 BXM Basic personal exemption/amount
 BXMEXT Basic personal amount extra top-up
 CAPGIR Capital gains inclusion rate
 CGTC Caregiver Tax Credit
 CGTCFLG Caregiver Tax Credit activation flag
 CGTCOPT Caregiver Tax Credit option (1=max, 2=greenbook,
 3=model)
 CGTCTD Caregiver Tax Credit income turndown
 CWITBFAM B.C. Working Income Tax Benefit amount for
 couples/single parents
 CWITBFPO B.C. WITB Family Net Income Phase-out Threshold
 CWITBMINE B.C. Working Income Tax Benefit Minimum Earnings
 Threshold
 CWITBPIR B.C. Working Income Tax Benefit Phase in Rate
 CWITBRR B.C. Working Income Tax Benefit Reduction Rate
 CWITBSAMT B.C. WITB Supplement for Disabilities Amount
 CWITBSCRR B.C. WITB Supplement for Disabilities Reduction
 Rate for eligible couples
 CWITBSFPO B.C. WITB Supplement for Disabilities Family Net
 Income Phase-out Threshold
 CWITBSMINE B.C. WITB Supplement for Disabilities Minimum
 Earnings Threshold
 CWITBSNG B.C. Working Income Tax Benefit amount for
 singles

CWITBSPIR B.C. WITB Supplement for Disabilities Phase in Rate
 CWITBSPO B.C. WITB Single Net Income Phase-out Threshold
 CWITBSRR B.C. WITB Supplement for Disabilities Reduction Rate
 CWITBSSPO B.C. WITB Supplement for Disabilities Single Net Income Phase-out Threshold
 FAMCGTC Family Caregiver Tax Credit Amount
 FAMCGTCFLG Family Caregiver Tax Credit activation flag
 FDTCR Federal dividend tax credit rate
 FDTCRLC Federal dividend tax credit rate from large (eligible) corporations
 FITEXPFLG Federal Fitness Tax Credit activation flag
 FITEXPMAX Federal Fitness Tax Credit maximum claim
 FLVCMAX Maximum labour-sponsored funds tax credit allowed
 FLVCRT Percent of labour-sponsored funds cost allowed as credit [prov]
 FNTCR Federal non-refundable tax credit rate
 FPTC Federal political contribution table [total donations, donation allowed]
 FPTCBEN Maximum federal political tax credit allowed
 FSURL1 Federal surtax level 1
 FSURL2 Federal surtax level 2
 FSURR1 Federal surtax rate 1
 FSURR2 Federal surtax rate 2
 FSURTRMX Maximum federal surtax reduction
 FSURTRRL Federal surtax reduction reduction level
 FSURTRRR Federal surtax reduction reduction rate
 FTX Federal tax table [taxable income, basic federal tax]
 GSTREBFLAG Database variable(gstreb) activation flag
 HRTCFLAG Home Renovation Tax Credit Activation Flag
 HRTCMAX Home Renovation Tax Credit maximum eligible expenses
 HRTCMIN Home Renovation Tax Credit minimum eligible expenses
 MAXDX Maximum disability deduction/amount
 MAXET Maximum on transfer of education and tuition amount
 MEDREMIN Minimum earnings for refundable medical expense supplement
 MEDRMAX Maximum expenses allowed for medical expense supplement
 MEDRRATE Proportion of expenses allowed for medical expense supplement
 MEDRRR Reduction rate for the medical expense supplement

MEDRTD Refundable medical expense supplement income
 turndown
 QTAP Quebec tax abatement proportion of basic federal
 tax
 QWITBAMT Quebec Working Income Tax Benefit amount [family
 type]
 QWITBMINE Quebec Working Income Tax Benefit Minimum
 Earnings Threshold [family type]
 QWITBPIR Quebec Working Income Tax Benefit Phase in Rate
 [family type]
 QWITBPOT Quebec WITB Net Income Phase-out Threshold
 [family type]
 QWITBRR Quebec Working Income Tax Benefit Reduction Rate
 QWITBSAMT Quebec WITB Supplement for Disabilities Amount
 QWITBSCRR Quebec WITB Supplement for Disabilities Reduction
 Rate for eligible couples
 QWITBSMINE Quebec WITB Supplement for Disabilities Minimum
 Earnings Threshold
 QWITBSPIR Quebec WITB Supplement for Disabilities Phase in
 Rate [family type]
 QWITBSPOT Quebec WITB Supplement for Disabilities Net
 Income Phase-out Threshold [family type]
 QWITBSRR Quebec WITB Supplement for Disabilities Reduction
 Rate
 WITBFAM Working Income Tax Benefit amount for
 couples/single parents
 WITBFLAG Working Income Tax Benefit activation flag
 WITBFPO WITB Family Net Income Phase-out Threshold
 WITBMINE Working Income Tax Benefit Minimum Earnings
 Threshold
 WITBPIR Working Income Tax Benefit Phase in Rate
 WITBRR Working Income Tax Benefit Reduction Rate
 WITBSAMT WITB Supplement for Disabilities Amount
 WITBSCRR WITB Supplement for Disabilities Reduction Rate
 for eligible couples
 WITBSFPO WITB Supplement for Disabilities Family Net
 Income Phase-out Threshold
 WITBSMINE WITB Supplement for Disabilities Minimum Earnings
 Threshold
 WITBSNG Working Income Tax Benefit amount for singles
 WITBSPIR WITB Supplement for Disabilities Phase in Rate
 WITBSPO WITB Single Net Income Phase-out Threshold
 WITBSRR WITB Supplement for Disabilities Reduction Rate
 WITBSPO WITB Supplement for Disabilities Single Net
 Income Phase-out Threshold

INPUT VARIABLES:

cfin	First person in census family [pointer]
cfinch	First child in census family [pointer]
cfineld	Eldest person in census family [pointer]
cfinspo	Spouse of eldest [pointer]
cfnchild	Number of children (including 18+)
cfnkids	Number of children in census family
cfnpers	Number of persons in census family
cfspoflg	Census family contains married couple
efin	First person in economic family [pointer]
efnpers	Number of persons in economic family
fxhrtcpr	Home Renovation Tax Credit eligible expenses on principal residence
fxhrtcvh	Home Renovation Tax Credit eligible expenses on vacation home
hdprov	Province
hhncf	Number of census families in household
hhnef	Number of economic families in household
idage	Age
idalexp	Other allowable employment expenses (229)
idcfrh	Relationship to census family head
idcgtc	Caregivers tax credit (database) (315)
idclergy	Clergy residential deduction
idcross	Allowable other years capital loss (253)
iddisab	Disability status (age 16+)
iddisslf	Disability amount for self (316)
iddues	Union and professional dues (212)
ideducfm	Eligible full-time months of education
idefrh	Relationship to economic family head
idemplo	Employee home relocation loan dedn (248)
idexplor	Exploration and development expenses (224)
idfitexp	Fitness expense amount for children
idforinc	Net foreign income (508)
idfortx	Foreign tax paid (507)
idgstreb	GST rebate (457)
idicapg	Capital gains (actual)
ididiv	Dividend income (actual)
idiemp	Wages & salaries
idinspo	Person's spouse [pointer]
idise	Self-employed income
iditc	Federal investment tax credits (412)
idiworkc	Workers compensation benefits
idlabtsg	Gross Labour funds bought (413)
idmincar	Minimum tax carryover (504)
idnclos	Allowable other years non-capital loss (252)
idothded	Other deductions from total income (232)
idpartlo	Limited partnership losses (251)
idpolcon	Federal political contributions (409)

idrpp	Registered pension plan contributions (207)
idrrsp	RRSP calculated amount (208)
idspoflg	Person has spouse
imatxc	Age tax credit
imbtc	Basic personal tax credit
imbtcS	Basic personal tax credit supplement
imcagpex	Modelled capital gains deduction (254)
imchartc	Charitable donations tax credit
imchdtxc	Non-refundable Child Tax Credit
imcppctc	CPP contributions tax credit
imcppse	CPP contributions deduction for self-emp
imcqpcc	CPP/QPP contributions
imdedfn	All deductions from net income
imdepmi	Dependant's net income
imdisatc	Disability tax credit
imedtxc	Education allowance tax credit
imemptxc	Canada Employment Credit
imfamcgcl	Family Caregiver Amount claimed 0=no 1=yes
imgistsa	Amount of GIST which goes into SA
imicnet	Net Income (line 236)
imigis	GIS benefits
imildivt	Dividend income from large (eligible)
corporations	(taxable)
imiloss	Modelled Business investment losses (217)
imintsl	Federal interest on student loans tax credit
imisa	Social assistance (or replacement program)
imisdivt	Dividend income from small corporations (taxable)
imispa	Spouse's allowance
imitax	Taxable income
imiuccbc	Universal Child Care Benefit amount claimed
immartxc	Married tax credit claimed
immeda	Medical expenses allowed (computed)
immedatc	Medical expenses allowed tax credit
imothpe	Other dependant tax credit (306)
impentxc	Pension income tax credit
imqpiptc	Quebec parental insurance plan premium tax credit
for paid workers	(federal)
imqpsetc	Quebec parental insurance plan premium tax credit
for self-employed	(federal)
imstkded	Modelled Stock option deduction (249)
imtransit	Public Transit Tax Credit
imtutxc	Tuition tax credit
intxttxc	Federal textbook tax credit
imuic	Employment Insurance contributions
imuictc	EI contributions tax credit

OUTPUT VARIABLES:

imamtdf	Difference due to minimum tax
imamtfg	Minimum tax flag
imamtinc	Net adjusted income used for minimum tax
imamtprv	Federal minimum tax concept used for provincial
minimum tax	
imatxcrt	Total tax credits applied
imbft	Basic federal tax
imcgtc	Caregiver Tax Credit Level
imcgtcp	Dependent Caregiver Tax Credit Amount
imctxcrt	Tax credits transferred from children
imedrcv	Education and tuition transferred from others
imedtrf	Education and tuition transferred to others
imfamcgtc	Family Caregiver Amount
imfcgtcp	Family Caregiver potential amount through
caregivers	tax credit
imfdtxc	Federal dividend tax credit
imfedtax	Federal tax before tax credits
imfhrtc	Home Renovation Tax Credit
imfitexp	Fitness tax credit
imfortc	Federal other refundable tax credits
imfortxc	Federal foreign tax credit (509)
imfptc	Federal Political Contribution Tax Credit
imfsur	Federal surtax
imfsurtr	Federal surtax reduction
imlabtxc	Federal labour-sponsored funds tax credit
immedref	Refundable medical expense supplement (452)
imminamt	Minimum Amount due to Federal Minimum Tax
imoftca	Other federal tax credits applied (416)
imqtaa	Quebec tax abatement (applied)
imqtar	Quebec tax abatement (refundable)
imstxcrt	Tax credits transferred from spouse
intaxcr	Total tax credits
imttxcrt	Total tax credits transferred
imtxf	Federal income tax payable
imwitb	Working Income Tax Benefit
imwitbs	Working Income Tax Benefit Supplement for
Disabilities	

txccea Compute child care expense allowance

SUMMARY

The txccea function calculates the value of the child care expense deduction.

Description of tax measure

Child care expenses are amounts paid for child care services to allow the parent or "supporting person" to:

- a) earn income from employment or self-employment, (this does not include a period of unemployment) or
- b) take an occupational training course for which the person received an adult training allowance, or
- c) carry on research or similar work for which the person received a grant.
- d) go to school full-time

A filer is eligible to claim child care expenses if:

- a) there is no other supporting person
- b) there is a supporting person with a higher net income (excluding child care expenses) than the filer
- c) there is a supporting person with a net income lower than the filer but
 - i. the filer and supporting person were separated for at least 3 months, or
 - ii. the supporting person was in full-time attendance at a designated educational institution, or
 - iii. the supporting person was infirm or in prison for at least 2 weeks.

A combination of limitations is applied to the amount claimable:

- 1. Two-thirds of earned income, and
- 2. a fixed amount per eligible child up to a fixed maximum is applied if the net income of the filer is less than that of a supporting person (conditions (a) and (b) above).

Under condition (c) above, i.e., the income of the supporting person is lower than that of the filer, the following additional limitation applies:

- 3. fixed weekly amount per child up to a maximum, multiplied by the number of weeks of separation, attendance at an educational institution, infirmity or imprisonment.

In 1982, the Child Care Expense Deduction was always taken by the mother of the child if she was present. Since then, the deduction or tax credit is normally allocated to the spouse with the lower net income, exclusive of the child care expense deduction, unless that person is separated, in school, infirm or in prison.

SPSM Implementation

The amount of Child Care Expenses Allowed is derived from income tax records during the database creation process (see the *Database Creation Guide*). This value represents the amount allowed according to the base year regulations. Though this amount may be grown or diminished by a fixed factor (GFC CET), the rules described above cannot be easily altered in the current version of SPSM.

The parameter CCEROPT determines which spouse in a two-parent family claims the Child Care Expense Deduction. If CCEROPT is given a value of 1, the deduction is always taken

by the mother. With a value of 2, the deduction is taken by the parent with the lower Net Income (imicnet).

The condition for a temporarily absent, lower income spouse (condition c. above) is not checked.

On the database, only one spouse of a two-parent family will have been attributed a value for Child Care Expense Deduction Allowed. The assignment of this value is done before we have complete information about the relative net incomes and may therefore be given to an inappropriate person. The model uses the current value of Net Income (imicnet) to re-allocate the deduction if necessary.

CROSS REFERENCE

Function Description

INPUT PARAMETERS:

BXM	Basic personal exemption/amount
BXMEXT	Basic personal amount extra top-up
CCEAEMPF	CCEA fraction of employment income (Limit `B')
CCEAOAGE	CCEA Maximum eligible age for oldest child
CCEAOLD	CCEA old child limit
CCEATFLG	CCEA eligible->claimable transformation activation flag
CCEATFR	CCEA eligible->claimable fraction
CCEATLL	CCEA eligible->claimable lower limit
CCEAYNG	CCEA young child limit
CCEPTFLG	CCE part-time student flag
CCEROPT	Child care expense deduction recipient [1=mother,2=lower income]
CCESFLAG	CCE full-time student flag
CCESOLD	CCEA old child limit for full-time students
CCESYNG	CCEA young child limit for full-time students
CCEZOPT	CCE young kid optimization rules [1=use, 2=zero, 3=optimize]

INPUT VARIABLES:

cfinch	First child in census family [pointer]
cfinedl	Eldest person in census family [pointer]
cfinspo	Spouse of eldest [pointer]
cfnkids	Number of children in census family
cfspoflg	Census family contains married couple
hhncf	Number of census families in household
idage	Age

idccet	Child care expenses associated with child
idccett	Child care expenses (Limit A, Form T778)
ideducfm	Eligible full-time months of education
ideducpm	Eligible part-time months of education
idiemp	Wages & salaries
idise	Self-employed income
idsex	Sex
imccez	Is CCE zeroed?
imictot	Total Income (line 150)

OUTPUT VARIABLES:

imccea	Child care expenses allowed
imccez	Child care expenses claimed on behalf of child
imdedft	Deductions from total income
imicnet	Net Income (line 236)
iminet	Net income

txctc Compute child tax credit

SUMMARY

The Child Tax Benefit provides benefits to help low and middle income families meet the costs of raising children under the age of 18. The txctc function calculates benefits from the federal Child Tax Benefit (CTB) program based upon the number of children in a family and the net income of the family. The level of benefits varies with the number of children.

Program Description

In 1993, the Child Tax Credit was replaced by the Child Tax Benefit. This program is comprised of two parts: the basic Child Tax Benefit, and the Earnings supplement (also called the Working income supplement). The basic child tax benefit consists of \$1,020 per child, plus \$75 for the third child and subsequent children. There is an additional \$213 for each child under 7 with no child care expenses. The benefit is reduced at family incomes over \$25,921 at a 5% rate (or 2.5% if only 1 child).

The Working Income Supplement was a maximum of \$500 per family. It started at earnings of \$3,750, reached the maximum at earnings of \$10,000, and was then reduced, reaching \$0 at family incomes of \$25,921.

In 1997, the Working Income Supplement was enriched. Instead of \$500 per family, the benefit was \$605 for the first child, \$405 for the second child, and \$330 for the third and subsequent children. It was phased in at family earnings of \$3,750, reached a maximum at \$10,000, and was phased out starting at family incomes of \$20,921. The reduction rates were

12.1% for families with 1 child, 20.2% for families with 2 children, and 26.8% for families with 3 or more children.

In 1998, the program was renamed the Canada Child Tax Benefit (CCTB). The basic benefit has the same level and structure of the Child Tax Benefit. The Working Income Supplement was replaced by the CCTB National Child Benefit Supplement. It is no longer dependent on earnings, and therefore is not phased in. Otherwise, it follows the same rules as the 1997 Working Income Supplement.

SPSM Implementation

When the FCBEIE flag is turned on, the Working Income Supplement has a different rate according to the number of children in the household, FCBEIS1, FCBEIS2, FCBEIS3 and is also reduced at varying rates, FCBERR1, FCBERR2, FCBERR3. The enriched WIS is phased in starting at family incomes FCBEI and reaches its maximum at FCBEMX. The phase in rate is linear and depends again on the number of children in the family.

Relation to Other SPSM Routines

The txctc function is called by drv. The function outputs dollar value variables that are used in memo1 for reporting purposes.

CROSS REFERENCE

Function	Description
INPUT PARAMETERS:	
ACBC1	Alberta Child benefit per child aged 0 - 6
ACBC1P	Alberta Child benefit per child aged 0 - 6 for 1st half of year
ACBC2	Alberta Child benefit per child aged 7 - 11
ACBC2P	Alberta Child benefit per child aged 7 - 11 for 1st half of year
ACBC3	Alberta Child benefit per child aged 12- 15
ACBC3P	Alberta Child benefit per child aged 12- 15 for 1st half of year
ACBC4	Alberta Child benefit per child aged 16- 17
ACBC4P	Alberta Child benefit per child aged 16- 17 for 1st half of year
CTCINC	Family income scaling factor
FCBBAS	Basic child benefit (per child)
FCBBASP	Basic child benefit (per child) for 1st half of year
FCBEI	Child benefits earning supplement cut-in level

FCBECIP Child benefits earning supplement cut-in level
 for 1st half of year
 FCBEIE Flag for WIS dependent on number of children
 FCBEIEP Flag for WIS dependent on number of children for
 1st half of year
 FCBEIS Child benefits earned income supplement
 FCBEIS1 WIS/NCBS for first child
 FCBEIS1P WIS/NCBS for first child for 1st half of year
 FCBEIS2 WIS/NCBS for second child
 FCBEIS2P WIS/NCBS for second child for 1st half of year
 FCBEIS3 WIS/NCBS for each additional child
 FCBEIS3P WIS/NCBS for each additional child for 1st half
 of year
 FCBEISP Child benefits earned income supplement for 1st
 half of year
 FCBEMX Earnings where WIS phase-in is at maximum
 FCBEMXP Earnings where WIS phase-in is at maximum for 1st
 half of year
 FCBENCAL Calculate child benefits for calendar year flag
 FCBERR Child benefits earning supplement reduction rate
 FCBERR1 WIS/NCBS reduction rate for families with 1 child
 FCBERR1P WIS/NCBS reduction rate for families with 1 child
 for 1st half of year
 FCBERR2 WIS/NCBS reduction rate for families with 2
 children
 FCBERR2P WIS/NCBS reduction rate for families with 2
 children for 1st half of year
 FCBERR3 WIS/NCBS reduction rate for families with 3+
 children
 FCBERR3P WIS/NCBS reduction rate for families with 3+
 children for 1st half of year
 FCBERRP Child benefits earning supplement reduction rate
 for 1st half of year
 FCBESR Child benefits earned income supplement rate
 FCBESRP Child benefits earned income supplement rate for
 1st half of year
 FCBETD WIS/NCBS turndown level
 FCBETDP WIS/NCBS turndown level for 1st half of year
 FCBFLAG Federal Child Tax Benefit activation flag
 FCBLRG Supplement for 3rd and subsequent kids
 FCBLRGP Supplement for 3rd and subsequent kids for 1st
 half of year
 FCBPI Federal Child Tax Benefit phase-in rate
 FCBPIP Federal Child Tax Benefit phase-in rate for 2nd
 half of year
 FCBRR Multi-children family income reduction rate

FCBRRP Multi-children family income reduction rate for
 1st half of year
 FCBRRS Single-child family income reduction rate
 FCBRRSP Single-child family income reduction rate for 1st
 half of year
 FCBTD Federal child benefits family income turndown
 FCBTDP Federal child benefits family income turndown for
 1st half of year
 FCBUCCB Flag for Supplement for children age 6
 FCBUCCBP Flag for Supplement for children age 6 for 1st
 half of year
 FCBYNG Supplement for children under age 7
 FCBYNGP Supplement for children under age 7 for 1st half
 of year
 FCBYNGR Child care expense reduction rate
 FCBYNGRP Child care expense reduction rate for 1st half of
 year
 PYINC Deflator to calculate previous year income
 PYINCP Deflator to calculate income from 2 years prior
 QCBC1 Quebec Child benefit for 1st child
 QCBC1P Quebec Child benefit for 1st child for 1st half
 of year
 QCBC2 Quebec Child benefit for 2nd child
 QCBC2P Quebec Child benefit for 2nd child for 1st half
 of year
 QCBC3 Quebec Child benefit for 3rd child
 QCBC3P Quebec Child benefit for 3rd child for 1st half
 of year
 QCBCFLG Quebec Child benefit flag for Quebec calculation
 methodology
 QCBCFLGP Quebec Child benefit flag for Quebec calculation
 methodology for 1st half of year
 QCBCS Quebec Child benefit supplement child aged 12- 17
 QCBCSP Quebec Child benefit supplement child aged 12- 17
 for 1st half of year

INPUT VARIABLES:

hdprov Province
 hhnnf Number of nuclear families in household
 idage Age
 idiemp Wages & salaries
 idise Self-employed income
 idsex Sex
 imccecc Child care expenses claimed on behalf of child
 imicnet Net Income (line 236)
 imiuccbc Universal Child Care Benefit amount claimed
 nfinch First child in nuclear family [pointer]

nfineld	Eldest person in nuclear family [pointer]
nfinspo	Spouse of eldest [pointer]
nfnkids	Number of children in nuclear family
nfspoflg	Nuclear family contains married couple

OUTPUT VARIABLES:

imfcben	Total Federal Child Benefits
imfcbenb	Total Federal Child Benefits Base
imfcbene	Total Federal Child Benefit Supplement

txfstc Compute federal sales tax credit

SUMMARY

The refundable federal Sales Tax Credit provides benefits to help low income families offset the costs of federal sales taxes. The txfstc function calculates benefits from the federal Sales Tax Credit (STC) program based upon the number and type of persons in a family and the net income of the head and spouse. The function has a parameterized option for including GIS/SPA and social assistance benefits in the definition of net income.

Program Description

The refundable federal Sales Tax Credit provides benefits to help low income families offset the costs of federal sales taxes. It was implemented for the 1986 and subsequent tax years and is administered by Revenue Canada, Taxation, through the income tax system.

Upon application, through the filing of an income tax return, the federal sales tax credit is available to any individual who at the end of the year was married, had a child, or was over 18 years of age. Eligible individuals may claim the credit for themselves, their qualified relations, and one spouse. Individuals who are not subject to tax in Canada or who were confined to a prison or similar institution for a period of over six months in the year for which a claim is made may not claim the credit. A married couple may make only one claim.

Maximum family benefits are a function of the type and number of individuals in the family as well as the net income of the family. There are three individual credit maximums; one for the filer; one for a spouse with whom the filer resided at the end of the year; and one for any other person under the age of 18 at the end of the year who was a child of the individual or their spouse or was a person in respect of whom the individual or his spouse has claimed a personal deduction. Family net income is the net income, for tax purposes, of the head of the family and their spouse if present.

The maximum annual credit is payable if net family annual income is less than a specified level of income (called turndowns, exemptions, or benefit reduction levels). Families with net incomes above this reduction point are entitled to the maximum credit minus a specified

percentage (reduction rate) of their net income in excess of the reduction point. The minimum STC is zero. In 1986 the maximum credit was \$50 per adult and \$25 per dependent child, the reduction point was \$15,000 and the reduction rate was 5%. So, for example, a family with a spouse and two eligible children and a net income of \$17,000 would receive a tax credit of \$100.00. (The 1986 credit becomes zero for families of this type with a net income at or above \$18,000.)

SPSM Implementation

The `txfstc` function calculates the federal Sales Tax Credit based on the number, age, and type of persons in a family and the net income of the family. The function always allocates the Sales Tax Credit to the spouse with the higher net income in the nuclear family. The function outputs values for the federal Sales Tax Credit and these reflect the total value of the credit, whether used to reduce taxes, or received as a cash lump sum amount, or some mix of the two.

The `txfstc` function operates at the nuclear family level. It first increments two local variables based on information on the eldest member of the nuclear family; one for the family's net income by adding the eldest member's net income; and one for the maximum family benefits by adding the maximum entitlement for a filer. The program next increments both local variables for the spouse (married or common-law) if present. The function also adds GIS, SPA, and Social Assistance benefits to family net income. The maximum benefits for the family are incremented last by multiplying the number of children in the nuclear family by the maximum benefit per child (`nfnkids * FSTCC`). The maximum STC is then reduced at the specified reduction rate (`FSTCR`) applied to family net income in excess of the STC reduction point (`FSTCL`). This reduction is performed using the `taxbak1` function. Finally the federal Sales Tax Credit is assigned to the mother if present and otherwise to the eldest member of the nuclear family.

The federal sales tax credit is claimable at age 19. Parents may claim additional amounts for children aged 18 and younger. When calculating the GST credit, the income concept used is the previous year's incomes. The GST credit for a given year, say 1992, would represent the amounts paid from July 1992 to July 1993.

Interpretation

Results obtained from the SPSM with respect to Sales Tax Credit benefits have no valid Revenue Canada administrative data with which to compare the results. In general, the SPSM should be slightly low due to certain coverage issues. Further analysis will be required to correctly estimate who in a married couple is claiming the benefit. Take-up issues may also be relevant.

Relief for Heating Expenses

When `HEATRLFLG` is turned on, persons will receive a transfer from the federal government for the relief of heating expenses (`imheatrl`). In order to receive it, a person has to have received a GST credit (`imfstc`). Qualifying persons who live with a spouse or children receive `HEATFAM` and others receive `HEATSNG`.

Note that, as indicated in the federal economic statement 2000, in order to receive a check in 2001 a person had to qualify for the GST credit in January 2001 or June 2000. In the SPSM this is the modeled GST credit for 2000 (we assume that the entire check is given in June), based on 1999 income. In order to simplify the code, we used receipt of the 2001 GST credit as a proxy for receipt of the 2000 GST credit. Given the fact that there was no change in the rules governing the GST credit in these two years, this should have a small effect.

Relation to Other SPSM Routines

The txfstc function is called by drv. The function outputs one variable that is used in memo1 for reporting purposes. The function makes use of (calls) the taxbak1 function.

CROSS REFERENCE

Function	Description
INPUT PARAMETERS:	
FECBFLAG	Federal Energy Cost Benefit activation flag
FECBGIS	Federal Energy Cost Benefit for GIS recipients
FECBNCBS	Federal Energy Cost Benefit for NCBS recipients
FSTCC	Federal sales tax credit amount for dependant
FSTCCP	Federal sales tax credit amount for dependant for 1st half of year
FSTCF	Federal sales tax credit amount for filer
FSTCFP	Federal sales tax credit amount for filer for 1st half of year
FSTCL	Federal sales tax credit reduction level
FSTCLP	Federal sales tax credit reduction level for 1st half of year
FSTCR	Federal sales tax credit reduction rate
FSTCRP	Federal sales tax credit reduction rate for 1st half of year
FSTCS	Federal sales tax credit amount for spouse
FSTCSP	Federal sales tax credit amount for spouse for 1st half of year
GSTAC	GST additional credit amount
GSTACP	GST additional credit amount for 1st half of year
GSTAR	GST additional credit rate of net income
GSTARP	GST additional credit rate of net income for 1st half of year
GSTASPFLAG	Maximum GST additional credit for single parents flag
GSTASPFLAGP	Maximum GST additional credit for single parents flag for 1st half of year

GSTAXM	GST additional credit exemption
GSTAXMP	GST additional credit exemption for 1st half of year
GSTCTUNC	GST credit take up by number of children
GSTCYFLG	GST credit calendar year calculation activation flag
GSTFLAG	GST credit activation flag
HEATFAM	Federal relief for heating expenses for families
HEATRLFLG	Federal relief for heating expenses activation flag
HEATSNG	Federal relief for heating expenses for singles
PYINC	Deflator to calculate previous year income
PYINCP	Deflator to calculate income from 2 years prior

INPUT VARIABLES:

cfageeld	Age of eldest in census family
cfinch	First child in census family [pointer]
cfineld	Eldest person in census family [pointer]
cfinspo	Spouse of eldest [pointer]
cfnchild	Number of children (including 18+)
cfspoflg	Census family contains married couple
hhncf	Number of census families in household
hhnin	Number of individuals in household
idage	Age
idrand	Random numbers [array]
imfcbene	Total Federal Child Benefit Supplement
imicnet	Net Income (line 236)
imigis	GIS benefits
imispa	Spouse's allowance
imitax	Taxable income
imiuccbc	Universal Child Care Benefit amount claimed

OUTPUT VARIABLES:

imfecb	Federal Energy Cost Benefit
imfstc	Federal sales tax / GST credit
imheatrl	Federal relief for heating expenses

txhhexp Compute and pro-rate household taxes, rent, etc.

SUMMARY

When IMSHTOPT is set to 1, imputation of provincial paid rents and property taxes are calculated based on Greenbook data, when set to 2 they are based on SHS. The rent and

property tax are imputed to heads of census families and census family spouses reporting positive net income.

CROSS REFERENCE

Function	Description
INPUT PARAMETERS:	
CTFAMSNA	SHS->SNA conceptual conversion factor [com]
CTFCID	Federal custom import duties [com]
CTFEXD	Federal excise duties [com]
CTFEXT	Federal excise taxes [com]
CTFGST	Federal GST [com]
CTPGAS	Provincial gasoline tax [com x prov]
CTPRST	Provincial retail sales tax [com x prov]
IMSHTOPT	Paid rent and property tax imputation option

INPUT VARIABLES:	
fxio	I/O expenditure categories [array]
fxprtax	Property tax
fxtptax	Transfer of Property taxes
hdprov	Province
hhnin	Number of individuals in household
idcfrh	Relationship to census family head
idhhrh	Relationship to head of household
idproptx	Net property taxes paid (556)
idrentpd	Total rental payments (555)

OUTPUT VARIABLES:	
improptx	Imputed property tax paid
imrentpd	Imputed rent paid

txhstr Compute family-related deductions or credits

SUMMARY

This function calculates exemptions or tax credits for dependants as well as performing transfers of deductions between spouses. The algorithms included in this function are:

- calculate and allocate Spouse (or Married) Tax Credit
- calculate Spouse (or Married) Equivalent Tax Credit

- calculate Deductions Transferred from Spouse
- calculate Child Tax Credit

Spouse Tax Credit

Persons legally married during the taxation year are eligible to claim a non-refundable Spouse Tax Credit. The tax credit amounts to a fixed amount reduced by a proportion of the spouse's net income exceeding a specified level. Net income for this purpose includes the spouse's GIS/SPA benefits.

SPSM Implementation

The Spouse Tax Credit (`immartxc`) amounts to a fixed value (`MXM`) reduced by the amount of the spouse's Net Income (`imdepni`) exceeding the reduction level (`MXMT`). This is calculated only for the spouse with the higher Net Income.

The Spouse Tax Credit (`immartxc`) is used to reduce Basic Federal Tax in the function `txcalc`.

Although the regulations allow special considerations for persons who changed marital status during the taxation year, they are not implemented in the model.

Equivalent-to-Spouse Tax Credit

Filers who are single, divorced, separated or widowed and supported a relative related by blood, marriage or adoption are eligible to claim that relative for the Equivalent-to-Spouse Tax Credit, amounting to a fixed value reduced by a proportion of the relative's net income exceeding a reduction level.

SPSM Implementation

The SPSM calculates the Equivalent-to-Spouse Tax Credit on behalf of dependant children, not other relatives who may be eligible. If a non-claimable dependant is present, he or she is chosen to be claimed for the credit. If there is no such dependant, then the one with the lowest Net Income (`imicnet`) is claimed.

The credit is calculated as a fixed amount (`EMXM`) reduced by the amount of the dependant's Net Income (`imdepni`) exceeding the reduction level (`EMXMT`).

The Spouse Equivalent Tax Credit is added to Total Nontransferable Tax Credits (`imtaxcr`) which is subtracted from Basic Federal Tax (`imbft`) in the function `txcalc`.

Calculate supplement to the basic personal tax credit

The supplement to the basic personal tax credit announced in the 1998 federal budget is calculated by reducing the maximum supplement (`BXMS`) by a proportion (`BXMSRR`) of taxable income above the level of the basic exemption (`BXM`) plus the maximum supplement (`BXMS`). The supplement is added to the basic personal tax credit (`imbtc`). Persons who claim the married amount or equivalent-to-spouse amount get an additional supplement. This program was cancelled in the 1999 federal budget.

Child Tax Credit

The parameter CTCAMTPC contains the amount for the Federal non-refundable Child Tax Credit that will be granted to a parent for each child under age 18. The credit was introduced in 2007. This amount is multiplied by the non-refundable tax credit rate (FNTCR) and saved in the variable imchdtxc. The value of the credit is transferable between parents.

CROSS REFERENCE

Function	Description
INPUT PARAMETERS:	
BXM	Basic personal exemption/amount
BXMS	Basic personal exemption supplement
BXMSPI	Basic personal exemption supplement phase in
BXMSRR	Basic personal exemption supplement reduction rate
CTCAMTPC	Child Tax Credit amount per child
EMXM	Married equivalent exemption/amount
EMXMEXT	Married equivalent amount extra top-up
EMXMT	Married equivalent exemption/amount turndown level
EMXMTEXT	Married equivalent amount turndown level extra top-up
FAMCGTC	Family Caregiver Tax Credit Amount
FAMCGTCFLG	Family Caregiver Tax Credit activation flag
FAMCGTCTU	Family Caregiver Tax Credit Take Up
FNTCR	Federal non-refundable tax credit rate
MXM	Married exemption/amount
MXMEXT	Married amount extra top-up
MXMT	Married exemption/amount turndown level
MXMTEXT	Married amount turndown level extra top-up
UCCBSPFLG	Universal child care benefit single parent transfer to dependent activation flag

INPUT VARIABLES:

cfinch	First child in census family [pointer]
cfineld	Eldest person in census family [pointer]
cfinspo	Spouse of eldest [pointer]
cfnchild	Number of children (including 18+)
cfspoflg	Census family contains married couple
hhncf	Number of census families in household
hhnin	Number of individuals in household
idage	Age

iddisab	Disability status (age 16+)
iddisslf	Disability amount for self (316)
idrand	Random numbers [array]
imicnet	Net Income (line 236)
imiuccbr	Universal Child Care Benefit amount received

OUTPUT VARIABLES:

imbtcs	Basic personal tax credit supplement
incemc	Child's equivalent to married credit
imchclm	Number of dependent children claimed
imchdtxc	Non-refundable Child Tax Credit
imdepmi	Dependant's net income
imfamcgcl	Family Caregiver Amount claimed 0=no 1=yes
imfamcgtc	Family Caregiver Amount
imiuccbc	Universal Child Care Benefit amount claimed
immartxc	Married tax credit claimed

txinet Compute net income

SUMMARY

The txinet function contains several algorithms which are required to calculate net income. The algorithms calculate the following specific tax measures which are discussed in order in terms of the description of the tax measure and its SPSM implementation.

- Split pension income
- Employment Expense Deduction
- Other Allowable Employment Expenses
- Calculate Taxable Dividends
- Calculate Taxable Capital Gains
- Calculate Total Income
- CPP/QPP Contributions Tax Credit
- Employment Insurance Contributions Tax Credit
- Tuition Fees Tax Credit
- Calculate all deductions from total income
- Calculate Net Income

Splitting of pension income

When SPLTPNSFLAG is turned on, pension income can be split between spouses. See SPLTPNSFLAG for more details

Other Allowable Employment Expenses

Certain special employment expenses not claimable elsewhere are allowed.

According to the 1984 definition, these expenses include:

- employee's expenses for travel, office and wages to assistants,
- commission sales employees may claim certain expenses paid to earn their income,
- transport employees may deduct the cost of meals and lodging while away from home, and
- power saw operators may claim expenses incurred in operating the power saw.

This is a special deduction from employment income and is not available to most employees.

SPSM Implementation

The value for Other Allowable Employment Expenses (idalexp) already exists on the database. This value is derived from actual taxation statistics. For more details, please see the *Database Creation Guide*. This value is multiplied by the parameter ALEXPP (Proportion of Other Allowable Expenses to Use as a Deduction) to obtain imalexp, the modeled amount for Other Allowable Expenses.

Calculate Taxable Capital Gains

Capital Gains arise when an individual sells a property for more than it originally cost. If a property is sold for less than it cost, a capital loss may be claimable.

Only a portion of Capital Gains received are considered taxable. Similarly only a portion of capital losses may be claimed as a loss. The value of idicapg represents the actual amount of the Capital Gain or Loss Allowed. Losses, in 1984, were limited to \$2,000. This represents the lower limit of the variable idicapg. Modeled Taxable Capital Gains or Losses imicapgt are calculated by multiplying idicapg by the Capital Gains Inclusion Rate (CAPGIR).

Calculate Taxable Dividends

To avoid double taxation of dividends earned in Canadian business, the dividends from taxable Canadian corporations are treated differently from other sources of income. Before taxation, these dividends are "grossed-up" or increased to an amount which approximates the underlying corporate tax already paid on these earnings. A Dividend Tax Credit is paid based on the grossed-up amount and approximated the corporate taxes already paid.

The gross-up tax credit system ensures that income earned by Canadian corporations and then distributed in the form of dividends bears the same amount of total tax as if the income were earned directly by the shareholders.

SPSM Implementation

Total Dividends Received is represented on the database by the variable idivid. The taxable amount (imidivt) which is added to total income is calculated by multiplying idivid by the Federal Dividend Gross-up Rate (FDGUR).

Calculation of Total Income

At this point, the SPSM is able to calculate a first approximation of total income for tax purposes. This is not a final value since Family Allowances cannot be allocated to the mother or father until the Net Income of both is known. This temporary value of Total Income (itot) is the sum of:

idiemp:	Earnings From Employment
idise:	Self-employment Earnings, optionally scaled by the parameter FACTISENF
idiinvnd:	Interest and Other Investment Income
iditrsp:	Taxable RRSP Withdrawals
idicqp:	CPP/QPP Benefits Received
idialimo:	Alimony and Support Payments Received
idipens:	Pension Income
impentr:	Pension income transferred from spouse
iditoh:	Other Taxable Income
imiuib:	Modeled Employment Insurance Benefits Received
imiotg:	Modeled New Taxable Demogrants
imioas:	Modeled OAS Benefits
imidivt:	Modeled Taxable Amount of Dividends
imicapgt:	Modeled Taxable Capital Gains and Losses
imqipcbn:	Quebec Parental Insurance Plan calendar year benefits
imiucbc:	Universal Child Care Benefit amount claimed

Calculate CPP/QPP Contribution Tax Credit

All Canadians aged 18 to 64 and in the labour force are covered by either the Canada Pension Plan (CPP) or the Quebec Pension Plan (QPP). The pension plans provide retirement benefits as well as survivor benefits for a widow or dependant when the contributor dies prematurely, a death benefit and disability benefits. The plans are publicly funded, based on contributions from all employed persons aged 18 to 70 with pensionable earnings.

Contributions to the Canada and Quebec Pension Plans are based on employment income and are usually made through payroll deductions. Self-employed persons make their contribution through the tax system, the amount of the contribution is added to federal taxes payable.

The amount contributed is not subject to taxation and is therefore either deducted from total income or treated as a tax credit.

In most cases, an employee and his or her employer will contribute the same amount to the employee's pension plan. Self-employed persons contribute twice the rate of employees.

Although employees have their CPP/QPP contribution deducted from their paycheque, refunds for overpayment are made through the personal income tax system.

SPSM Implementation

CPP/QPP Contributions are calculated separately on employment and self-employment earnings. Employment earnings subject to contribution are calculated by subtracting the amount of exemptable earnings (CPPXM) from Earnings from Employment (idiemp). This amount cannot exceed the Maximum Earnings Subject to Contribution (YMPE minus CPPXM). Earnings Subject to Contribution are then multiplied by the CPP/QPP contribution rate (QPPWSCF for Quebec residents, WSCF for all other provinces) to derive the amount of the contribution (wscon).

Contributions from self-employment earnings (secon) is a proportion (QPPSECF for Quebec residents, SECF for all other provinces) of Earnings from Employment (idiemp) plus Earnings from Self-employment (idise) that are in excess of the Annual Exemption Level (CPPXM) and less than the year's Maximum Pensionable Earnings Level, less a multiple (WSCM) of contributions made on Earnings from Employment (wscon). WSCM is the ratio of the contribution rate on earnings from self-employment to the rate on earnings from employment.

The total CPP/QPP Contribution is the sum of the Contribution Payable on Earnings from Employment (wscon) plus the Contribution Payable on Earnings from Self-employment (secon).

There is no information in the database concerning the actual amount deducted through payroll deductions; therefore, refunds for overpayment cannot be calculated.

The CPP/QPP Contribution tax credit (`imcppctc`) is calculated as a proportion (`FNTCR`) of the total contributions (`imcqppc`). The tax credit is applied in the function `txcalc`.

When `CPPSEDEDFLG` is turned on, a fraction (`CPPSEDFRC`) of a person's contributions to the CPP/QPP in regards to their self employment earnings are treated as an exemption (`imcppse`) and is added to `imdedft`. The rest, along with the contributions on wages and salaries, can still be claimed as a tax credit (`imcppctc`).

Employment Insurance Contributions

Employment Insurance is intended to provide short-term financial support to the unemployed. It also provides benefits for those suffering from extended sickness, for women leaving the labour force temporarily because of pregnancy and childbirth, and supplementary benefits to unemployed fishermen and to persons undertaking manpower training courses. The program is given its mandate by the Unemployment Insurance Act (1971). The act covers nearly all members of the labour force except self-employed persons and those who earn less than the minimum insurable earnings. The program is funded by employee and employer contributions as well as additional revenue from the consolidated revenue fund.

Contributions are calculated as a proportion of weekly earnings. Only earnings above the minimum insurable earnings and less than the maximum insurable earnings are subject to contribution.

Unemployment Insurance premiums are deducted from the employee's paycheque by the employer. Reimbursements for overpayment are made through the tax system. The amount contributed is not subject to tax. Before 1988, UI contributions were deducted from total income. The June 1987 White Paper on Tax Reform proposed the conversion of this deduction into a non-refundable tax credit.

Two major Employment Insurance Reforms were added, the difference in contributions, and the benefits repayable.

SPSM Implementation

The database contains no detail on an individual's weekly distribution of earnings throughout the year. Weekly earnings are estimated by dividing the annual Earnings from Employment (`idiemp`) by the Number of Weeks Worked (`idlyww`). This assumes that the earnings were evenly distributed throughout the year. It also assumes that the earner worked at least 20 hours during each week.

The annual EI Contribution (`imuic`) are calculated as a proportion (`UIPF`) of average weekly earnings not exceeding the Maximum Weekly Earnings Subject to Contribution (`UIERNMAX`), multiplied by the number of weeks worked.

The EI Contribution Tax Credit (`imuictc`) is calculated as a proportion (`FNTCR`) of the contributions. This tax credit is later applied to reduce Basic Federal Tax in the function `txcalc`.

When Employment Insurance is activated (UIFLAG = 1), then the EI contributions (imuic) are calculated using the UI contribution rate on earnings (UIPF) with no weekly maximums and no exemptions for low income. The EI contribution refund (imuicrf) is then calculated and subtracted from the contributions.

When UIEIREPOPT is set to 1, EI benefit recovery (imuibr) now depends on the amount of previous weeks of EI received. If employment insurance benefits (imiuib) have been received and net income is in excess of: (a) UIBRA for persons with previous EI receipt, or (b) UIBRANR for persons with little previous benefits or for persons not on regular EI claims; UIEIRPR is applied to the lower of (a) total EI benefits and (b) the excess net income up to a maximum percent of their total benefits (UIEIBRP), to calculate the repayment.

When UIEIREPOPT is set to 2, sickness, maternity, and parental benefits are exempt from benefit repayment. Persons who claim EI for the first time are also exempt from benefit repayments. For the rest, the repayment is equal to the UIEIRPR times the minimum of net income in excess of UIBRANR and EI benefits.

See UIEIRPR, UIBRANR, UIEIBRP, UIBRA, and UIEINRT for more details.

Tuition Fees

Tuition fees paid to an educational institution may be claimed as a tax credit by the student or may be transferred to a spouse or supporting parent.

SPSM Implementation

A value for Tuition Deduction Allowed in the base year (idtuittn) exists on the database. This value is imputed from income tax records (see the *Database Creation Guide*). To calculate the Tuition Tax Credit, idtuittn, is multiplied by the Federal Non-Refundable Tax Credit Rate FNTCR and the result (imtutxc) is later applied as a tax credit in the function txcalc.

Calculate Net Income

Net Income (iminet) is calculated as Total Income (imitot) minus All Deductions from Total Income (imdedft). imdedft is the sum of:

idrpp:	Registered Pension Plan Contributions
idrrsp:	Registered Retirement Savings Plan Contributions
impentrd:	Pension income deduction from transfer to spouse
iddues:	Union and Professional Dues
imiloss:	Allowable Business Investment Loss
idothded:	Other Deductions from Total Income (includes Moving Expenses, Alimony Paid, Repayment of Income Amounts, Legal and Accounting Fees, Petroleum Exploration Ventures, Capital Cost Allowance on Canadian Motion Picture Films and Video Tapes)

idcarry:	Carrying Charges (interest on money borrowed to earn investment income)
imcppse:	optionally, CPP/QPP Contributions deduction for self-employed
idexplor:	Exploration Expenses
imalexp:	Other Employment Allowable Expenses
iddalimo:	Alimony Allowance Paid Out
idmovexp:	Moving Expenses
imcceca:	optionally, Child Care Expense Deduction Allowed (calculated separately in function txcceca)
idclergy:	Clergy residential deduction
imqpsedd:	Quebec parental insurance plan premium deduction for self-employed (federal)
imrepay:	Social Benefits Repayment if REPNETFLAG is set to 1

The tax form concept of net income (imicnet) is calculated as Total Income (imictot) minus all deductions from total income (imdedft).

CROSS REFERENCE

Function	Description
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INPUT PARAMETERS:

ALEXPP	Proportion of other allowable employment expenses to use as deduction
CAPGIR	Capital gains inclusion rate
CPP60T64	CPP/QPP Contributions Take up (60 - 64) by earnings with CPP income
CPPGT64	CPP/QPP Contributions Take up (over 64) by earnings with CPP income
CPPLT60	CPP/QPP Contributions Take up (under 60) by earnings with CPP income
CPPSEDEDFLG	CPP/QPP contribution deduction for self-employed earnings flag
CPPSEDFRC	CPP/QPP contribution deduction fraction for self-employed earnings
CPPXM	CPP/QPP exemptible earnings
FACTISENF	Scale-up factor for non-farm self-employment income
FCPPCTXC	CPP Contributions Tax Credit activation flag
FDGUR	Federal dividend gross-up rate
FDGURLC	Federal dividend gross-up rate from large (eligible) corporations

FNTCR Federal non-refundable tax credit rate
 NETOASFLG Net the clawback from Old Age Security
 OASRR OAS reduction rate
 OASTD OAS turndown income
 QPIPEMAX Quebec parental insurance plan maximum insurable earnings
 QPIPEMIN Quebec parental insurance plan minimum insurable earnings
 QPIPF Quebec parental insurance plan contribution rate for paid workers
 QPIPFLAG Quebec parental insurance plan activation flag
 QPIPFSE Quebec parental insurance plan contribution rate for self-employed
 QPPSECF QPP contribution rate on self-employment earnings
 QPPWSCF QPP contribution rate on employment earnings
 QUIPF Quebec EI contribution rate
 REPNETFLAG Social program repayments reduce net income flag
 SECF CPP contribution rate on self-employment earnings
 SPLTPNSFLAG Flag to split pension income
 UIBRA EI repayment base amount
 UIBRANR EI repayment base amount for non-repeaters (EI only)
 UIEIBRP Maximum clawback under EI reform [Past Wks ben][Rate]
 UIEINRT EI Non repeater level for higher clawback turndown
 UIEIREF EI contribution refund cut-in
 UIEIREFTK EI contribution refund take up
 UIEIREPOPT EI Benefit repayment option (1=repeaters have higher rate,2=one rate)
 UIEIRPR EI benefit clawback rate
 UIERNMAX Maximum insurable earnings
 UIPF EI contribution rate on earnings
 UITARGET EI target for the number of cases
 WSCF CPP contribution rate on employment earnings
 WSCM Ratio of self-employed to employed contribution fraction
 YMPE CPP/QPP maximum pensionable earnings

INPUT VARIABLES:

cfin First person in census family [pointer]
 cfnpers Number of persons in census family
 cfspoflg Census family contains married couple
 hdprov Province
 hhncf Number of census families in household
 hhnin Number of individuals in household
 hhnnf Number of nuclear families in household

idage	Age
idalexp	Other allowable employment expenses (229)
idcarry	Carrying charges (221)
idcfrh	Relationship to census family head
idclergy	Clergy residential deduction
iddalimo	Alimony paid (220)
iddues	Union and professional dues (212)
idexplor	Exploration and development expenses (224)
idialimo	Alimony income received
idicapg	Capital gains (actual)
idicqp	CPP/QPP income (114)
ididive	Amount of eligible dividend income
ididivie	Amount of other than eligible dividend income
idiemp	Wages & salaries
idiinvnd	Interest and other investment income
idiloss	Business investment losses (217)
idipens	Pension income (115)
idise	Self-employed income
iditoth	Other taxable income (130)
iditrrsp	Taxable RRSP withdrawals
idiworkc	Workers compensation benefits
idlyww	Weeks worked
idmovexp	Imputed moving expenses (219)
idothded	Other deductions from total income (232)
idrand	Random numbers [array]
idrpp	Registered pension plan contributions (207)
idrrsp	RRSP calculated amount (208)
iduirank	Predicted ranked likelihood of getting EI
imgistsa	Amount of GIST which goes into SA
imigis	GIS benefits
imiotg	Other taxable demogrants
imisa	Social assistance (or replacement program)
imispa	Spouse's allowance
imiuib	Employment Insurance benefits
impnsph	Pension income split for head
impnsp	Pension income split for spouse
imgpipcbn	Quebec parental insurance plan calendar year
benefits	
nfineld	Eldest person in nuclear family [pointer]
nfinspo	Spouse of eldest [pointer]
nfnkids	Number of children in nuclear family
nfspoflg	Nuclear family contains married couple
ubcalpd	Benefits paid in calendar year
ubeiwbp	Weeks of past EI benefits
ucbtyp	Claim type
ucstat	Claim status flag

OUTPUT VARIABLES:

imalexp	Allowable employment expenses
imcppctc	CPP contributions tax credit
imcppse	CPP contributions deduction for self-emp
imcqqpc	CPP/QPP contributions
imdedft	Deductions from total income
imicapgt	Capital gains (taxable)
imicnet	Net Income (line 236)
imictot	Total Income (line 150)
imidivt	Dividend income (taxable)
imildivt	Dividend income from large (eligible) corporations (taxable)
imiloss	Modelled Business investment losses (217)
iminet	Net income
imioas	OAS benefits
imipnst	Taxable pension income (after splitting)
imisdivt	Dividend income from small corporations (taxable)
imitot	Total income
imiuccbc	Universal Child Care Benefit amount claimed
imiuccbr	Universal Child Care Benefit amount received
imnfach	Number of under 18 children claimed for tax reduction
imoasr	OAS recovery
impentr	Pension income transferred from spouse
impentr	Pension income deduction from transfer to spouse
imqppp	Quebec parental insurance plan premiums for paid workers
imqpppse	Quebec parental insurance plan premiums for self- employed
imqpiptc	Quebec parental insurance plan premium tax credit for paid workers (federal)
imqpsedd	Quebec parental insurance plan premium deduction for self-employed (federal)
imqpsetc	Quebec parental insurance plan premium tax credit for self-employed (federal)
inrepat	Social Benefits Repayments
imuibr	EI benefit recovery
imuic	Employment Insurance contributions
imuicrf	EI contribution refund

SUMMARY

The process of computing taxable income is divided into two separate routines. Deductions and tax credits which are not dependent upon information from other members of the family (e.g., Basic Personal Tax Credit) are collected together in txitax. Algorithms which require information on the age, income or deductions of a spouse or dependant are in txhstr. txitax calculates a provisional value for taxable income (imitax) which may be further adjusted by txhstr.

The algorithms contained in txitax are:

- Basic Personal Tax Credit
- Age Tax Credit
- Pension Income Deduction
- Medical Expense Tax Credit, Charitable Donations Tax Credit
- Disability Tax Credit
- Education Tax Credit
- Capital Gains Deduction
- EI Benefit Repayment Payable
- OAS Repayment Payable (optional)
- Employee Home Relocation Loan Deduction
- Stock Option Deduction

Basic Personal Tax Credit

The non-refundable Basic Personal Tax Credit is calculated by assigning the value of the parameter BXM (Basic Personal Tax Credit) to the variable imbtc (Modeled Basic Personal Tax Credit) which is applied to reduce Basic Federal Tax in the function txcalc.

Age Tax Credit

All Canadians who were 65 years of age or older on December 31st of the taxation year would be eligible to claim the Age Tax Credit.

When the Age Tax Credit is calculated, imatxc (Modeled Age Tax Credit) receives the value assigned to the parameter AXM. The function txcalc performs any applicable transfers of the tax credit from the spouse and applies the tax credit to reduce Basic Federal Tax.

Pension Income Tax Credit

Certain pension income from a pension plan or upon the death of a spouse qualifies for a Pension Income Tax Credit. The deduction amounted to the lesser of the maximum deduction (fixed at \$1,000) and eligible income. Any amount of this deduction not required to reduce taxable income to zero is transferable to the spouse.

The June 1987 White Paper on Tax Reform proposed the conversion of this deduction into a tax credit, amounting to a proportion of eligible income up to a maximum of \$170. This tax credit would also be transferable.

SPSM Implementation

The Modeled Pension Income Tax Credit (impentxc) is assigned the minimum of:

- a) qualified pension income (imipnst) and
- b) the Maximum Allowable Tax Credit (YPNDL),
times the Tax Credit Rate (FNTCR).

Any portion of the Pension Income Tax Credit not required to reduce a filer's Basic Federal Tax to zero is transferable to the spouse. The transfer is calculated in the function txcalc.

Medical Expense Tax Credit

The filer is allowed a non-refundable tax credit for certain medical expenses paid on behalf of the filer, spouse or dependants. All medical expenses claimed require supporting proof to be allowed as a tax credit and only medical expenses in excess of 3% of net income are claimable.

SPSM Implementation

The value of Medical Expenses Allowed (immeda) is calculated as the value of the gross medical expenses from the database (idmedgro) less either MEDANF percent of net income or MEDALL, whichever is less. The Medical Expense Tax Credit (immedatc) is calculated as a proportion (FNTCR) of the value of Medical Expenses Allowed (immeda). The Medical Expense Tax Credit is applied to reduce Basic Federal Tax in the function txcalc.

Although medical expenses paid on behalf of dependants are claimable by either spouse, no transfers between spouses are made for this tax credit.

Charitable Donations Tax Credit

The filer is allowed a non-refundable tax credit on behalf of charitable donations and gifts to Canada or a province.

SPSM Implementation

The database contains a value for gross charitable donations (idcharit). The allowable charitable donations (imchara) are calculated as the lesser of idcharit and CHATNF percent of net income. The value of gifts or donations to Canada, a province, or a cultural institution, are then added to imchara.

A two-tier, non-refundable Charitable Donation Tax Credit (imchartc) is calculated. Allowable Donations (imchara) up to a set amount (CHATL1) are converted at the first tax credit rate (CHATR1) and the remainder is converted at the second rate (CHATR2).

The Charitable Donations Tax Credit is a component of the total non-refundable tax credits used to calculate Basic Federal Tax in the function `txcalc`.

Disability Tax Credit

Disabled persons whose impairment has markedly restricted, or is expected to restrict their activities of daily living for a continuous period of at least 12 months, are eligible to claim a special Disability Tax Credit.

SPSM Implementation

The Disability Tax Credit (`imdisatc`) is assigned the value of the parameter `MAXDX` (Maximum Disability Tax Credit) for filers with reported disability amounts for self (`iddisslf`) or other dependents (`iddisoht`). Any portion of the tax credit not required to reduce Basic Federal Tax to zero may be transferred to the spouse or a supporting parent in the function `txcalc`.

Education Tax Credit

The Education Tax Credit represents the amount that students with full-time attendance at a designated post-secondary institution may claim. The number of eligible months is multiplied by a maximum allowable amount per month. The filer may transfer to a spouse, parent or grandparent the part of the education tax credit that is not needed to reduce the federal income tax to zero.

SPSM Implementation

The Education Tax Credit (`imedtxc`) is calculated as the number of eligible full-time months of education amount (`ideducfm`) multiplied by the Education Tax Credit per full-time month (`EDXPM`) plus the number of eligible months of part-time education (`ideducpm`) multiplied by the Education Tax Credit per part-time month (`EDXPMPT`). The function `txcalc` may transfer unused amounts of the tax credit to a parent or spouse.

Capital Gains Deduction

Since 1985, a deduction has been allowed on behalf of capital gains income. The Capital Gains Deduction is being phased in with an increasing annual deduction limit amounting to \$10,000 in 1985 and \$25,000 in 1986. The amount an individual may claim during his or her lifetime is limited to a fixed amount. These measures were introduced in the May, 1985 Budget Papers and subsequently modified in the June, 1987 White Paper on Tax Reform.

SPSM Implementation

The Capital Gains Deduction is calculated as the minimum of:

- a) the Annual Capital Gains Deduction Limit (The Annual Limit based on gross Capital Gains, `CAPGAL`, times the Capital Gains Inclusion Rate, `CAPGIR`, and
- b) Taxable Capital Gains (`imicapgt`) minus:

- Allowable Business Investment Loss (idccloss)
- Net Capital Losses of Other Years (imiloss)

The resultant deduction is added to Total Deductions from Net Income (imdedfn).

The database contains no information on the filer's previous Capital Gains Deduction and therefore, the lifetime limit cannot be applied.

Employment Insurance Benefit Repayment Payable

If an individual has received Employment Insurance Benefits and his or her Net Income exceeds a fixed amount (\$38,610 in 1986), a portion of the benefits must be repaid. This repayment is added to Federal Taxes Payable. The amount repaid becomes a deduction from Net Income.

SPSM Implementation

The amount repayable is a proportion of Net Income exceeding the Repayment Level (UIBRA). The value of imuibr is added into the variable imrepay which accumulates modeled repayment amounts. imrepay is added to Total Deductions from Net Income (imdedfn).

OAS Repayments

The SPSM includes optional algorithms which allow the analysis of certain modifications to the Old Age Supplement. These algorithms are presented with the SPSD/M for illustrating a glass box application. Users may consult the *Programmer's Guide* for further details.

The OAS repayment (imoasr) is based on the filer's own Net Income and is computed as the lesser of:

- a) OAS Received (imioas), and
- b) a proportion (OASRR) of Net Income (iminet) exceeding the OAS Repayment Reduction Level (OASTD).

The OAS repayment (imoasr) is added to the variable imrepay which is applied as a deduction from Net Income in the function txitax and is added to Taxes Payable in the function memo1.

CROSS REFERENCE

Function	Description
INPUT PARAMETERS :	
AXM	Age amount

AXRR	Age amount credit reduction rate
AXTD	Age amount net income turndown
BXM	Basic personal exemption/amount
BXMEXT	Basic personal amount extra top-up
CAPGIR	Capital gains inclusion rate
CGTC	Caregiver Tax Credit
CGTCFLG	Caregiver Tax Credit activation flag
CGTCOPT	Caregiver Tax Credit option (1=max, 2=greenbook, 3=model)
CHATL1	Charitable donations amount level 1
CHATNF	Charitable donations maximum net income fraction
CHATR1	Charitable donations tax credit rate 1
CHATR2	Charitable donations tax credit rate 2
EDDISPT	Part time students with disabilities flag
EDXPM	Education amount per month of full-time studies
EDXPMPT	Education amount per month of part-time studies
EMPTXC	Canada Employment Credit
FAMCGTC	Family Caregiver Tax Credit Amount
FAMCGTCFLG	Family Caregiver Tax Credit activation flag
FEICTXC	Employment Insurance Premiums Tax Credit activation flag
FNTCR	Federal non-refundable tax credit rate
FTUITFLG	Tuition Tax Credit activation flag
INTSLFLG	Interest on Student Loans Tax Credit Activation Flag
MAXDX	Maximum disability deduction/amount
MEDALL	Medical allowance maximum lower limit
MEDANF	Medical allowance lower limit net income fraction
MEDEXFLG	Medical Expense Non-Refundable Tax Credit activation flag
ODISTC	Maximum infirm dependent 18 or older tax credit
REPNETFLAG	Social program repayments reduce net income flag
TEXTPMFT	Textbook amount per month of full-time studies
TEXTPMPT	Textbook amount per month of part-time studies
TRANSIT	Public Transit Tax Credit activation flag
YPNDL	Maximum pension income deduction/amount

INPUT VARIABLES:

cfin	First person in census family [pointer]
cfineld	Eldest person in census family [pointer]
cfinspo	Spouse of eldest [pointer]
cfnpers	Number of persons in census family
cfspoflg	Census family contains married couple
hhncf	Number of census families in household
hhnin	Number of individuals in household
idaddded	Additional deductions from net income (256)
idage	Age

idcapgex	Capital gains exemptions (254)
idcfrh	Relationship to census family head
idcgtc	Caregivers tax credit (database) (315)
idcharit	Charitable donations
idcross	Allowable other years capital loss (253)
iddisoth	Disability amount for dependants (318)
iddisslf	Disability amount for self (316)
ideducfm	Eligible full-time months of education
ideducpm	Eligible part-time months of education
idemplo	Employee home relocation loan dedn (248)
idgifts	Gifts to Canada/provinces/culture (342)
idiemp	Wages & salaries
idintstu	Interest paid on student loans (319)
idiworkc	Workers compensation benefits
idmedgro	Medical expenses, gross (330)
idnclos	Allowable other years non-capital loss (252)
idnorth	Northern deductions (255)
idothpe	Amounts for Infirm Dependants (306)
idpartlo	Limited partnership losses (251)
idstkded	Stock option deduction (249)
idtransit	Public Transit
idtuitn	Tuition fees (320)
imgista	Amount of GIST which goes into SA
imicapgt	Capital gains (taxable)
imicnet	Net Income (line 236)
imigis	GIS benefits
imipnst	Taxable pension income (after splitting)
imisa	Social assistance (or replacement program)
imispa	Spouse's allowance
imrepay	Social Benefits Repayments
imuic	Employment Insurance contributions

OUTPUT VARIABLES:

imatxc	Age tax credit
imbtc	Basic personal tax credit
incapgex	Modelled capital gains deduction (254)
incgtc	Caregiver Tax Credit Level
imchara	Allowable charitable donations and gifts (calculated)
imchartc	Charitable donations tax credit
imdedfn	All deductions from net income
imdisatc	Disability tax credit
imedtxc	Education allowance tax credit
imemptxc	Canada Employment Credit
imfamcgtc	Family Caregiver Amount
imintsl	Federal interest on student loans tax credit
imitax	Taxable income

```

immeda      Medical expenses allowed (computed)
immedatc    Medical expenses allowed tax credit
imothpe     Other dependant tax credit (306)
impentxc    Pension income tax credit
imstkded    Modelled Stock option deduction (249)
intransit   Public Transit Tax Credit
imtutxc     Tuition tax credit
imtxttxc    Federal textbook tax credit
imuictc     EI contributions tax credit

```

txman Compute provincial taxes for Manitoba

SUMMARY

When MTXFLG is turned off, Manitoba Basic Provincial Tax (imbpt) is calculated as a proportion (MPTF) of Basic Federal Tax (imbft).

The Manitoba Surtax is calculated based on a series of family credits. The surtax is added to Basic Provincial Tax to derive Manitoba Tax (imtxp).

When the tax on taxable income flag is turned on (MTXFLG), a provincial tax table (MPTX) is applied on taxable income (imitax) in order to get the gross provincial tax (imprvtax). Non-refundable tax credits are calculated using the non-refundable tax credit rate (MPNTR) and are applied against gross provincial tax in order to get the basic provincial income tax (imbpt).

The non-refundable credits which are calculated are:

impbtc	Basic amount	(MBXM)
impatxc	Age amount tax credit	(MAXM, MAXRR, MAXTD)
impmartc	Married and equivalent-to-married tax credit	(MMXM, MMXMT, MEMXM, MEMXMT)
impcgtc	Caregiver tax credit	(MCGTC, MCGTCFLG)
impchrctc	Charitable donations	(MCHATL1, MCHATR1, MCHATR2)
impcpptc	CPP/QPP contribution	(MCPPTXC)
impdistc	Disability tax credit	(MMAXDX)
impothpe	Infirm dependents 18 or older tax credit	(MODISTC)
impdtxc	Dividend tax credit	(MDTCR, MDTCRLC)
impdtxc	Education tax credit	(MEDXPM, MEDXPMPT, MMAXET)
impmedtc	Medical expenses tax credit	(MMEDEXFLG, MMEDANF, MMEDALL)

imppentc	Pension income tax credit	(MYPNDL)
imptutxc	Tuition Tax credit	(MTUITFLG, MMAXET)
impuictc	EI contributions tax credit	(MEICTXC)
impintsl	Interest on Student Loans tax credit	(MINTSLFLG)
impfitexp	Fitness tax credit	(MFITEXPFLG, MFITEXPMAX)
impminco	Minimum tax carryover	(MAMTOPT, MAMTPCTF, MAMTTX, MAMTPCTM)

The refundable learning tax credit (immanltc) is equal to MANLTFCF times (the tuition amount (idtuittn) plus the education amount ((ideducfm * EDXPM) + (ideducpm * EDXPMPT)) plus the education amounts transferred from a spouse or kids (imedrcv) minus the education amounts which have been transferred to a spouse or parents (imedtrf)). It is included in the refundable tax credits (imptc). Beginning in 1998, the credit is limited to MANLTMAX for each student.

The Manitoba labour-sponsored venture capital credit is modeled (implvctc). A study was made showing that the majority of Canadians who contribute to labour-sponsored funds claim both federal and provincial credits. Therefore the gross contributions from the Greenbook are imputed onto the database. The Manitoba provincial credit is modelled as MLVCRT times the gross amount up to MLVCMAX. The credit cannot be more than provincial taxes (imtxp).

The Manitoba homeowner's school tax assistance was introduced in 1993 and is part of the total property tax credit (impptxtc). MSCHFLAG turns it on or off. In order to qualify for assistance, Manitoba residents must be homeowners and be older than MSCHAGE. The basic credit is MSCHBXM which is reduced by income over the turndown MSCHTD by a rate MSCHRR. The value of the benefit is also rounded (see MSCHRND). The benefit may not exceed school taxes paid (idmschpd) less the minimum threshold of MSCHMNTH. The school tax assistance is added to the basic property tax credit and applied against occupancy costs in order to derive the total property tax credit (impptxtc).

Manitoba Family Tax Benefit

The Manitoba Family Tax Benefit has been modeled as a replacement for the family tax reduction program. This new non-refundable tax credit provides credits for self, spouse or equivalent to spouse, age for self and spouse, disability for self and spouse, infirm older dependents and dependent children aged 18 and younger. It is reduced by a percentage of net income and then multiplied by the non-refundable tax credit rate. The result is then included with the other non-refundable tax credits.

Manitoba Child Benefit

The Manitoba Child Benefit was introduced in the 2007 Manitoba Budget and implemented in January 2008.

Under the Manitoba Child Benefit program, parents may be entitled to receive a benefit of MCBAMT for the each child under the age of 18. Benefits may be reduced based on adjusted family net income from the previous year. The benefit is reduced at a rate of MCBRR1 for families with 1 child, MCBRR2 for families with 2 children or MCBRR3 for families with 3 or more children for each dollar of adjusted family net income in excess of MCBTD. Adjusted family net income is defined as net income less UCCB amounts claimed for the head plus the spouse if one exists.

The value of the Manitoba Child Benefit (immcb) is added to provincial family programs (impfp).

CROSS REFERENCE

Function	Description
INPUT PARAMETERS:	
CTCINC	Family income scaling factor
EDXPM	Education amount per month of full-time studies
EDXPMPT	Education amount per month of part-time studies
FCBENCAL	Calculate child benefits for calendar year flag
MAMTFTCFLG	Man. amt flag for provincial foreign tax credit
MAMTOPT	Man. alternative minimum tax option
MAMTPCTF	Man. amt rate as pct of additional fed tax due to minimum tax
MAMTPCTM	Man. amt rate as pct of federal minimum tax amount
MAMTTX	Man. amt rate as tax on adjusted income
MANLTCF	Manitoba learning tax credit factor
MANLTMAX	Manitoba learning tax credit maximum amount per student
MAXM	Man. Age Amount
MAXRR	Man. Age Amount credit reduction rate
MAXTD	Man. Age Amount net income turndown
MBXM	Man. Basic Personal Exemption/amount
MCAXM	Manitoba cost-of-living age credit
MCBAMT	Manitoba child benefit amount per child
MCBAMTP	Manitoba child benefit amount per child for 1st half of year
MCBFLAG	Manitoba child benefit activation flag
MCBPI	Manitoba Child benefit phase-in rate
MCBPIP	Manitoba Child benefit phase-in rate for calendar year
MCBRR1	Manitoba Child benefit reduction rate for 1 child

MCBRR1P Manitoba Child benefit reduction rate for 1 child
 for 1st half of year
 MCBRR2 Manitoba Child benefit reduction rate for 2
 children
 MCBRR2P Manitoba Child benefit reduction rate for 2
 children for 1st half of year
 MCBRR3 Manitoba Child benefit reduction rate for 3+
 children
 MCBRR3P Manitoba Child benefit reduction rate for 3+
 children for 1st half of year
 MCBTD Manitoba child benefit turndown
 MCBTDP Manitoba child benefit turndown for 1st half of
 year
 MCBXM Manitoba cost-of-living basic credit
 MCDISEX Manitoba cost-of-living disability credit
 MCEMXM Manitoba cost-of-living married equivalent credit
 MCFINCR rate
 MCFINCR Manitoba cost-of-living family income reduction
 rate
 MCGTC Man. Caregiver Tax Credit
 MCGTCFLG Man. Caregiver Tax Credit activation flag
 MCGTCOPT Man. Caregiver Tax Credit Option (1=max,
 2=greenbook, 3=model)
 MCGTCTD Man. Caregiver Tax Credit income turndown
 MCHATL1 Man. Charitable Donations amount level 1
 MCHATR1 Man. Charitable Donations tax credit rate 1
 MCHATR2 Man. Charitable Donations tax credit rate 2
 MCMINAGE Manitoba cost-of-living tax credit minimum age
 MCMXM Manitoba cost-of-living married credit
 MCODEX credit
 MCODEX Manitoba cost-of-living old disabled dependant
 credit
 MCPPCTXC Man. CPP Contribution Tax Credit activation flag
 MCSAXM Manitoba cost-of-living spouse age credit
 MCSDISEX Manitoba cost-of-living spouse disabled credit
 MCYEXM Manitoba cost-of-living young dependants credit
 MDTCR Man. dividend tax credit rate
 MDTCRLC Man. dividend tax credit rate from large
 (eligible) corporations
 MEDXPM Man. Education Amount per month of full-time
 studies
 MEDXPMPT Man. Education Amount per month of part-time
 studies
 MEICTXC Man. EI Premium Tax Credit activation flag
 MEMXM Man. equivalent to married amount
 MEMXMT Man. equivalent to married turndown level
 MFITEXPFLG Manitoba Fitness Tax Credit activation flag
 MFITEXPMAX Manitoba Fitness Tax Credit maximum claim
 MFTBAGE Man. Family Tax Benefit age amount

MFTBDIS Man. Family Tax Benefit amount for disability for self or spouse
MFTBFLAG Man. Family Tax Benefit activation flag
MFTBIOS Man. Family Tax Benefit net income offset
MFTBKID Man. Family Tax Benefit amount for kids
MFTBODIS Man. Family Tax Benefit amount for older infirm dependents
MFTBSAGE Man. Family Tax Benefit age amount for spouse
MFTBSELF Man. Family Tax Benefit amount for self
MFTBSP Man. Family Tax Benefit amount for spouse or equivalent to spouse
MHMASOPT Manitoba homeowner assistance option (1=Model 2=database)
MINTSLFLG Man. Interest on Student Loans Tax Credit activation flag
MLVCMAX Maximum Man. labour-sponsored funds tax credit allowed
MLVCRT Percent of Man. labour-sponsored funds cost allowed as credit
MMAXDX Man. Maximum Disability deduction/amount
MMAXET Man. maximum on transfer of education and tuition amount
MMEDALL Man. Medical allowance maximum lower limit
MMEDANF Man. Medical allowance lower limit net income fraction
MMEDEXFLG Man. Medical Expense Tax Credit activation flag
MMXM Man. married amount
MMXMT Man. married amount turndown level
MNITR Manitoba net income tax rate
MODISTC Man. Maximum infirm dependent 18 or older tax credit
MPAXM Manitoba property tax credit senior citizen credit
MPBXM Manitoba property tax credit basic credit
MPFINCRR Manitoba property tax credit family income reduction rate
MPINCRED Manitoba property tax credit income reduction flag for under 65
MPMINC Manitoba property tax credit minimum credit
MPMNTH Manitoba property tax minimum threshold
MPNTCR Man. provincial non-refundable tax credit rate
MPRIR Manitoba property tax credit rental inclusion rate
MPTC Manitoba political contribution table [total donations, donation allowed]
MPTCBEN Maximum Manitoba political tax credit allowed
MPTF Manitoba provincial tax fraction

MPTX	Man. tax table [taxable income, basic provincial tax]
MRAXM	Manitoba tax reduction age credit
MRBXM	Manitoba tax reduction basic credit
MRDISEX	Manitoba tax reduction disability credit
MREMXM	Manitoba tax reduction married equivalent credit
MRMXM	Manitoba tax reduction married credit
MRODISEX	Manitoba tax reduction old disabled dependant credit
MRSAXM	Manitoba tax reduction spouse age credit
MRYCXM	Manitoba tax reduction young dependants credit
MSAXM	Manitoba surtax age credit
MSBXM	Manitoba surtax basic credit
MSCHAGE	Manitoba school tax minimum age
MSCHBXM	Manitoba school tax basic amount
MSCHFLAG	Manitoba school tax assistance activation flag
MSCHMNTH	Manitoba school tax minimum threshold
MSCHRND	Manitoba school tax assistance rounding unit
MSCHRR	Manitoba school tax reduction rate
MSCHTD	Manitoba school tax turndown
MSDISEX	Manitoba surtax disability credit
MSEMXM	Manitoba surtax married equivalent credit
MSMXM	Manitoba surtax married credit
MSODISEX	Manitoba surtax old disabled dependant credit
MSSAXM	Manitoba surtax spouse age credit
MSYCXM	Manitoba surtax young dependants credit
MTRNIOS	Manitoba tax reduction net income offset
MTUITFLG	Man. Tuition Tax Credit activation flag
MTXFLG	Man. tax on taxable income activation flag
MYPNDL	Man. Pension Income Deduction Amount
PYINC	Deflator to calculate previous year income
PYINCP	Deflator to calculate income from 2 years prior
TARGETYEAR	Year of analysis

INPUT VARIABLES:

cfin	First person in census family [pointer]
cfinch	First child in census family [pointer]
cfineld	Eldest person in census family [pointer]
cfinspo	Spouse of eldest [pointer]
cfnchild	Number of children (including 18+)
cfnkids	Number of children in census family
cfnpers	Number of persons in census family
cfspoflg	Census family contains married couple
efin	First person in economic family [pointer]
efnpers	Number of persons in economic family
hdtenur	Tenure
hhncf	Number of census families in household

hhnef	Number of economic families in household
hhnin	Number of individuals in household
hhnnf	Number of nuclear families in household
idage	Age
idcfrh	Relationship to census family head
idcgtc	Caregivers tax credit (database) (315)
iddisab	Disability status (age 16+)
iddisoth	Disability amount for dependants (318)
iddisslf	Disability amount for self (316)
ideducfm	Eligible full-time months of education
ideducpm	Eligible part-time months of education
idfitexp	Fitness expense amount for children
idhomstu	College res/resdnt homeowner assist (558)
ididiv	Dividend income (actual)
idinspo	Person's spouse [pointer]
idintstu	Interest paid on student loans (319)
idiworkc	Workers compensation benefits
idlabtxg	Gross Labour funds bought (413)
idmedgro	Medical expenses, gross (330)
idmincar	Minimum tax carryover (504)
idmschpd	Manitoba school taxes paid
idothpe	Amounts for Infirm Dependants (306)
idprvftc	Provincial foreign tax credit (Form T2036)
idprvpol	Provincial political contributions (565)
idsex	Sex
idspoflg	Person has spouse
idtuitn	Tuition fees (320)
imamtfg	Minimum tax flag
imamtinc	Net adjusted income used for minimum tax
imamtprv	Federal minimum tax concept used for provincial
minimum tax	
imatxc	Age tax credit
imbft	Basic federal tax
imchara	Allowable charitable donations and gifts
(calculated)	
imcppse	CPP contributions deduction for self-emp
imcqppc	CPP/QPP contributions
imdedfn	All deductions from net income
imdepni	Dependant's net income
imedrcv	Education and tuition transferred from others
imedtrf	Education and tuition transferred to others
imfcben	Total Federal Child Benefits
imgistsa	Amount of GIST which goes into SA
imicnet	Net Income (line 236)
imigis	GIS benefits
imildivt	Dividend income from large (eligible)
corporations	(taxable)

imipnst	Taxable pension income (after splitting)
imisa	Social assistance (or replacement program)
imisdivt	Dividend income from small corporations (taxable)
imisp	Spouse's allowance
imitax	Taxable income
imiuccbc	Universal Child Care Benefit amount claimed
immartxc	Married tax credit claimed
imminamt	Minimum Amount due to Federal Minimum Tax
improptx	Imputed property tax paid
imrentpd	Imputed rent paid
imstxcrt	Tax credits transferred from spouse
imuic	Employment Insurance contributions
nfineld	Eldest person in nuclear family [pointer]
nfinspo	Spouse of eldest [pointer]
nfnkids	Number of children in nuclear family
nfspoflg	Nuclear family contains married couple

OUTPUT VARIABLES:

imbpt	Basic provincial tax
immanltc	Manitoba learning tax credit
immcb	Manitoba Child Benefit
immcoltc	Manitoba Cost of Living Tax Credit
immftb	Manitoba Family Tax Benefit
immhmas	Manitoba Homeowners Assistance
immndc	Manitoba number of dependent children 18 or younger
imnptc	Non-refundable provincial tax credits
impatxc	Prov Age amount tax credit
impatxcr	Prov total tax credits applied
impbtc	Prov Basic amount
impcgtc	Prov Caregiver Tax Credit Level
impcgtcp	Provincial Dependent Caregiver Tax Credit Amount
impchrtc	Prov Charitable Donations tax credit
impcpptc	Prov CPP/QPP contributions tax credit
impctxct	Prov tax credits transferred from children
impdistc	Prov Disability tax credit
impdtxc	Provincial dividend tax credit
impedtxc	Prov Education tax credit
impfitexp	Provincial fitness tax credit
impintsl	Provincial interest on student loans tax credit
implvctc	Provincial labour-sponsored funds tax credit
impmartc	Prov Married and Equivalent to Married tax credit
impmeda	Prov Medical expenses allowed (computed)
impmedtc	Prov Medical Expenses tax credit
impminco	Prov Minimum tax carryover
impnit	Provincial net income tax

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impothpe    Provincial infirm dependents 18 or older tax
credit
impentc     Prov Pension Income tax credit
impptc      Provincial Political Contrib Tax Credit
impptxtc    Provincial Property tax tax credit
imprvtax    Prov gross provincial tax
impstxct    Prov tax credits transferred from spouse
impsur      Provincial surtax
imptaxcr    Prov total tax credits
imptc       Refundable provincial tax credits
imptr       Provincial tax reduction
impptxtct   Prov total tax credits transferred
imptutxc    Prov Tuition tax credit
impuictc    Prov EI contributions tax credit
imtxp       Provincial income tax payable

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txnb Compute provincial taxes for New Brunswick

SUMMARY

When BTXFLG is turned off, the basic Provincial Tax (imbpt) for New Brunswick is simply a proportion (BPTF) of Basic Federal Tax (imbft).

The 2000 budget announced that New Brunswick would convert to a tax on taxable income starting in 2000. When the tax on taxable income flag is turned on (BTXFLG), a provincial tax table (BPTX) is applied on taxable income (imitax) in order to get the gross provincial tax (imprvtax). Non-refundable tax credits are calculated using the non-refundable tax credit rate (BPNTCR) and are applied against gross provincial tax in order to get the basic provincial income tax (imbpt).

The non-refundable credits which are calculated are:

impbtc	Basic amount	(BBXM)
impatxc	Age amount tax credit	(BAXM, BAXRR, BAXTD)
impmartc	Married and equivalent-to-married tax credit	(BMXM, BMXMT, BEMXM, BEMXMT)
impcgtc	Caregiver tax credit	(BCGTC, BCGTCFLG)
impchrct	Charitable donations	(BCHATL1, BCHATR1, BCHATR2)
impcppte	CPP/QPP contribution	(BCPPCTXC)
impdistc	Disability tax credit	(BMAXDX)
impothpe	Infirm dependents 18 or older tax credit	(BODISTC)
impdtxc	Dividend tax credit	(BDTCR, BDTCRLC)
impedtxc	Education tax credit	(BEDXPM, BEDXPMP, BEDXPMT)

		BMAXET)
impmedtc	Medical expenses tax credit	(BMEDEXFLG, BMEDANF, BMEDALL)
imppentc	Pension income tax credit	(BYPNDL)
imptutxc	Tuition Tax credit	(BTUITFLG, BMAXET)
impuictc	EI contributions tax credit	(BEICTXC)
impintsl	Interest on Student Loans tax credit	(BINTSLFLG)
impminco	Minimum tax carryover	(BAMTOPT, BAMTPCTF, BAMTTX, BAMTPCTM)

The New Brunswick labour-sponsored venture capital credit is modeled (implvctc). A study was made showing that the majority of Canadians who contribute to labour-sponsored funds claim both federal and provincial credits. Therefore the gross contributions from the Greenbook are imputed onto the database. The New Brunswick provincial credit is modeled as BLVCRT times the gross amount up to BLVCMAX. The credit cannot be more than provincial taxes (imtxp).

Child Tax Benefit

When NBCTBFLG is assigned a value of 1, the New Brunswick Child Tax Benefit calculation is activated. imnbcben is the total benefits received under the New Brunswick Child Benefits program announced in the 1997 New Brunswick Budget and commencing in April 1997. A first component is the base amount, imnbcbb, which is calculated as the base amount per child, NBCBBAS, times the number of children. The level of benefit is reduced, based on family income, at a rate NBCBRRS for families with only one child, and at rate NBCBRR for the others.

If the family gross employment income is higher than a threshold, NBCBECI, then the maximum supplement is NBCBEIS. The supplement is reduced at a rate NBCBESR for each \$ of employment income exceeding the threshold FCBECI. If the family income is higher than NBCBETD then the supplement is reduce at a rate NBCBERR. The final value of the work income supplement is stored in imnbwis.

New Brunswick Home Heating Benefit

When BHEATFLG is turned on, eligible households will receive a home heating benefit (BHEATBEN) from the New Brunswick government for assistance with heating expenses. BHEAPFLG determines the heating source that is eligible for the benefit. When BHEAPFLG is set to 0, households must use home heating oil as the primary source of heat and the family total income (head plus spouse) must be less than BHEATPO. When BHEAPFLG is set to 1, the benefit is geared towards low-income households (income less than BHEATPO) with electricity expenses. When BHEATSA is set to 1, SA recipients will be eligible for the benefit, otherwise they are not. Only one person per household may receive this benefit. The value of the benefit is held in impheatr.

Low Income Tax Reduction

Announced in the 2001 budget, the maximum Low Income Tax Reduction is equal to the sum of a base amount (BTRBAS) and an amount for a spouse or equivalent-to-spouse (BTRSP). It is then reduced for net income over BTRTD at a rate of BTRRR. The reduction cannot be more than taxes owing. The reduction is calculated at a family level but can be split amongst spouses.

CROSS REFERENCE

Function	Description
INPUT PARAMETERS:	
BAMTOPT	N.B. alternative minimum tax option
BAMTPCTF	N.B. amt rate as pct of additional fed tax due to minimum tax
BAMTPCTM	N.B. amt rate as pct of federal minimum tax amount
BAMTTX	N.B. amt rate as tax on adjusted income
BAXM	N.B. Age Amount
BAXRR	N.B. Age Amount credit reduction rate
BAXTD	N.B. Age Amount net income turndown
BBXM	N.B. Basic Personal Exemption/amount
BCGTC	N.B. Caregiver Tax Credit
BCGTCFLG	N.B. Caregiver Tax Credit activation flag
BCGTCOPT	N.B. Caregiver Tax Credit Option (1=max, 2=greenbook, 3=model)
BCGTCTD	N.B. Caregiver Tax Credit income turndown
BCHATL1	N.B. Charitable Donations amount level 1
BCHATR1	N.B. Charitable Donations tax credit rate 1
BCHATR2	N.B. Charitable Donations tax credit rate 2
BCPPCTXC	N.B. CPP Contribution Tax Credit activation flag
BDTCR	N.B. dividend tax credit rate
BDTCRLC	N.B. dividend tax credit rate from large (eligible) corporations
BEDXPM	N.B. Education Amount per month of full-time studies
BEDXPMPT	N.B. Education Amount per month of part-time studies
BEICTXC	N.B. EI Premium Tax Credit activation flag
BEMXM	N.B. equivalent to married amount
BEMXMT	N.B. equivalent to married turndown level
BHEAPFLG	New Brunswick Home Energy Assistance Program activation flag
BHEATBEN	New Brunswick Home Heating Benefit [income, benefit]

BHEATFLG New Brunswick Home Heating Benefit activation
 flag
 BHEATPO New Brunswick Home Heating Benefit family income
 phase out
 BHEATSA New Brunswick Home Heating Benefit for SA
 recipients flag
 BINTSLFLG N.B. Interest on Student Loans Tax Credit
 activation flag
 BLVCMAX Maximum N.B. labour-sponsored funds tax credit
 allowed
 BLVCRT Percent of N.B. labour-sponsored funds cost
 allowed as credit
 BMAXDX N.B. Maximum Disability deduction/amount
 BMAXET N.B. maximum on transfer of education and tuition
 amount
 BMEDALL N.B. Medical allowance maximum lower limit
 BMEDANF N.B. Medical allowance lower limit net income
 fraction
 BMEDEXFLG N.B. Medical Expense Tax Credit activation flag
 BMXM N.B. married amount
 BMXMT N.B. married amount turndown level
 BODISTC N.B. Maximum infirm dependent 18 or older tax
 credit
 BPNTCR N.B. provincial non-refundable tax credit rate
 BPTC New Brunsw. political contribution table [total
 donations,donation allowed]
 BPTCBEN Maximum New Brunswick political tax credit
 allowed
 BPTF New Brunswick provincial tax fraction
 BPTX N.B. tax table [taxable income,basic provincial
 tax]
 BSCI New Brunswick provincial tax above which surtax
 applies
 BSF New Brunswick provincial surtax rate
 BTRBAS Base N.B. low income tax reduction
 BTRRR N.B. low income tax reduction Reduction Rate
 BTRSP N.B. low income tax reduction for spouse or
 equivalent-to-spouse
 BTRTD N.B. low income tax reduction Turndown
 BTUITFLG N.B. Tuition Tax Credit activation flag
 BTXFLG N.B. tax on taxable income activation flag
 BYPNDL N.B. Pension Income Deduction Amount
 CTCINC Family income scaling factor
 FCBENCAL Calculate child benefits for calendar year flag
 NBCBBAS NB Basic child benefit (per child)
 NBCBBASP NB Basic child benefit (per child) for 1st half
 of year

NBCBECI	NB Child benefits earning supplement cut-in level
NBCBECIP	NB Child benefits earning supplement cut-in level for 1st half of year
NBCBEIS	NB Child benefits earned income supplement
NBCBEISP	NB Child benefits earned income supplement for 1st half of year
NBCBERR	NB Child benefits earning supplement reduction rate
NBCBERRP	NB Child benefits earning supplement reduction rate for 1st half of year
NBCBESR	NB Child benefits earned income supplement rate
NBCBESRP	NB Child benefits earned income supplement rate for 1st half of year
NBCBETD	NB Child benefits earning supplement turndown level
NBCBETDP	NB Child benefits earning supplement turndown level for 1st half of year
NBCBPI	NB Child benefits phase-in rate
NBCBPI1P	NB Child benefits phase-in rate for 1st half of year
NBCBPI2P	NB Child benefits phase-in rate for 2nd half of year
NBCBRR	NB Multi-children family income reduction rate
NBCBRRP	NB Multi-children family income reduction rate for 1st half of year
NBCBRRS	NB Single-child family income reduction rate
NBCBRRSP	NB Single-child family income reduction rate for 1st half of year
NBCBTD	NB child benefits family income turndown
NBCBTDP	NB child benefits family income turndown for 1st half of year
NBCTBFLG	NB child benefit activation flag
PYINC	Deflator to calculate previous year income
PYINCP	Deflator to calculate income from 2 years prior

INPUT VARIABLES:

cfin	First person in census family [pointer]
cfinch	First child in census family [pointer]
cfineld	Eldest person in census family [pointer]
cfinspo	Spouse of eldest [pointer]
cfnchild	Number of children (including 18+)
cfnpers	Number of persons in census family
cfspoflg	Census family contains married couple
efin	First person in economic family [pointer]
efnpers	Number of persons in economic family
fxio	I/O expenditure categories [array]
hhncf	Number of census families in household

hhnef	Number of economic families in household
hhnin	Number of individuals in household
hhnnf	Number of nuclear families in household
idage	Age
idcfrh	Relationship to census family head
idcgtc	Caregivers tax credit (database) (315)
iddisab	Disability status (age 16+)
iddisoth	Disability amount for dependants (318)
iddisslf	Disability amount for self (316)
ideducfm	Eligible full-time months of education
ideducpm	Eligible part-time months of education
ididiv	Dividend income (actual)
idiemp	Wages & salaries
idinspo	Person's spouse [pointer]
idintstu	Interest paid on student loans (319)
idise	Self-employed income
idlabtxg	Gross Labour funds bought (413)
idmedgro	Medical expenses, gross (330)
idmincar	Minimum tax carryover (504)
idothpe	Amounts for Infirm Dependants (306)
idprvftc	Provincial foreign tax credit (Form T2036)
idprvpol	Provincial political contributions (565)
idsex	Sex
idspoflg	Person has spouse
idtuitn	Tuition fees (320)
imamtfg	Minimum tax flag
imamtinc	Net adjusted income used for minimum tax
imamtprv	Federal minimum tax concept used for provincial
minimum tax	
imbft	Basic federal tax
imchara	Allowable charitable donations and gifts
(calculated)	
imcppse	CPP contributions deduction for self-emp
imcqppc	CPP/QPP contributions
imdedfn	All deductions from net income
imdepni	Dependant's net income
imgistsa	Amount of GIST which goes into SA
imicnet	Net Income (line 236)
imictot	Total Income (line 150)
imildivt	Dividend income from large (eligible)
corporations	(taxable)
imipnst	Taxable pension income (after splitting)
imisa	Social assistance (or replacement program)
imisdivt	Dividend income from small corporations (taxable)
imitax	Taxable income
imiuccbc	Universal Child Care Benefit amount claimed
imminamt	Minimum Amount due to Federal Minimum Tax

imuic	Employment Insurance contributions
nfineld	Eldest person in nuclear family [pointer]
nfinspo	Spouse of eldest [pointer]
nfnkids	Number of children in nuclear family
nfspoflg	Nuclear family contains married couple

OUTPUT VARIABLES:

imbpt	Basic provincial tax
imnbcbb	NB child tax Benefits base amount
imnbcben	Total NB child tax Benefits
imnbwis	NB child tax Benefits WIS
imnptc	Non-refundable provincial tax credits
impatxc	Prov Age amount tax credit
impatxcr	Prov total tax credits applied
impbtc	Prov Basic amount
impcgctc	Prov Caregiver Tax Credit Level
impcgctcp	Provincial Dependent Caregiver Tax Credit Amount
impchrtc	Prov Charitable Donations tax credit
impcpptc	Prov CPP/QPP contributions tax credit
impctxct	Prov tax credits transferred from children
impdistc	Prov Disability tax credit
impdtxc	Provincial dividend tax credit
impedtxc	Prov Education tax credit
impheatr	Provincial Home Heating Fuel/Energy Rebate
impintsl	Provincial interest on student loans tax credit
implvctc	Provincial labour-sponsored funds tax credit
impmartc	Prov Married and Equivalent to Married tax credit
impmeda	Prov Medical expenses allowed (computed)
impmedtc	Prov Medical Expenses tax credit
impminco	Prov Minimum tax carryover
impothpe credit	Provincial infirm dependents 18 or older tax credit
imppentc	Prov Pension Income tax credit
impptc	Provincial Political Contrib Tax Credit
imprvtax	Prov gross provincial tax
impstxct	Prov tax credits transferred from spouse
impsur	Provincial surtax
imptaxcr	Prov total tax credits
imptr	Provincial tax reduction
impttxct	Prov total tax credits transferred
imptutxc	Prov Tuition tax credit
impuictc	Prov EI contributions tax credit
intxp	Provincial income tax payable

SUMMARY

When NTXFLG is turned off, Basic Provincial Tax (imbpt) for Newfoundland is simply a proportion (NPTF) of Basic Federal Tax (imbft).

For Newfoundland, the SPSM calculates provincial surtax (impsur) as NSF percent of provincial taxes (imtxp) above the level NSCI.

The 2000 budget stated that Newfoundland would convert to a tax on taxable income starting in 2001. When the tax on taxable income flag is turned on (NTXFLG), a provincial tax table (NPTX) is applied on taxable income (imitax) in order to get the gross provincial tax (imprvtax). Non-refundable tax credits are calculated using the non-refundable tax credit rate (NPNTCR) and are applied against gross provincial tax in order to get the basic provincial income tax (imbpt).

The non-refundable credits which are calculated are:

impbtc	Basic amount	(NBXM)
impatxc	Age amount tax credit	(NAXM, NAXRR, NAXTD)
impmartc	Married and equivalent-to-married tax credit	(NMXM, NMXMT, NEMXM, NEMXMT)
impcgtc	Caregiver tax credit	(NCGTC, NCGTCFLG)
impchrctc	Charitable donations	(NCHATL1, NCHATR1, NCHATR2)
impcpptc	CPP/QPP contribution	(NCPPTXC)
impdistc	Disability tax credit	(NMAXDX)
impothpe	Infirm dependents 18 or older tax credit	(NODISTC)
impdtxc	Dividend tax credit	(NDTCR, NDTCRLC)
impdtxc	Education tax credit	(NEDXPM, NEDXPMPT, NMAXET)
impmedtc	Medical expenses tax credit	(NMEDEXFLG, NMEDANF, NMEDALL)
imppentc	Pension income tax credit	(NYPNDL)
imptutxc	Tuition Tax credit	(NTUITFLG, NMAXET)
impuictc	EI contributions tax credit	(NEICTXC)
impintsl	Interest on Student Loans tax credit	(NINTSLFLG)
impminco	Minimum tax carryover	(NAMTOPT, NAMTPCTF, NAMTTX, NAMTPCTM)

A new refundable sales tax credit was modeled and added to the provincial tax credit (imptc). Similar to the federal credit, it allows for NSTCA dollars for each adult, NSTCC dollars for each child, and it reduced starting at family incomes over NSTCL at a rate of NSTCR.

Newfoundland and Labrador Child Benefit

Program Description

The child benefit was introduced in the 1998 provincial budget. The Newfoundland and Labrador Child Benefit (imncb) is a tax-free monthly payment to help low-income families with the cost of raising children under age 18. Benefits from this program are combined with the Canada Child Tax Benefit into a single monthly payment. The program was implemented in July 1999.

SPSM Implementation

This benefit is turned by NCBFLG. Under the Newfoundland and Labrador Child Benefit program, you may be entitled to receive a benefit of NCB1 for the first child, NCB2 for the second child, NCB3 for the third child, and NCB4 for each additional child. The benefit is reduced when net family income is greater than NCBTD and is completely phased out when net family income is at least NCBPO. The benefit (imncb) is assigned to the mother if present.

Newfoundland and Labrador Mother-Baby Nutrition Supplement

The Newfoundland and Labrador Mother-Baby Nutrition Supplement is an amount per child under age 1 to be given to families with net incomes less than NCBPO. The Mother-Baby Nutrition Supplement begins in July 2002. The value of the supplement is saved in the variable immbns and added to impfp (provincial family programs).

Progressive Family Growth Benefit

This program provides a lump sum payment to residents of the province who give birth to a baby or have a child placed with them for adoption on or after January 1, 2008. The Parental Support Benefit program was also implemented, which provides a monthly benefit paid for the 12 months after the child's birth on or after January 1, 2008. Eligible individuals must apply for the benefits.

Newfoundland home heating fuel rebate

When NHEATFLG is turned on, eligible households will receive a home heating fuel rebate (NHEATREB) from the Newfoundland government for assistance with heating fuel expenses. When NHEATINC is set to 0, the rebate is payable to households that use home heating fuel as the primary source of heat and where an individual in that household receives any amount of the Newfoundland and Labrador Child Benefit, Newfoundland and Labrador HST credit or the Newfoundland and Labrador Seniors' Benefit or Social assistance (the latter only applies when NHEATSAFLG is turned on). When NHEATINC is set to 1, the maximum rebate is given to households where the head and spouse net income is less than NHEATTD, and the rebate is reduced for incomes between NHEATTD and NHEATPO, with a minimum rebate of NHEATMIN to eligible households with incomes less than NHEATPO. Households that use electricity or wood as the primary heat source are not eligible for the rebate. The value of the rebate is held in impheatr.

Newfoundland and Labrador Home Heating Rebate

This program is an extension of the Home Heating Fuel Rebate, which only offered rebates for fuel oil, now broadened to include electricity expenses. Under the revised program, homeowners may apply for a rebate for their heating expenses, which is income tested. The maximum rebate is granted to homeowners with incomes below the turndown, a partial rebate is granted for incomes between the turndown and phase out income thresholds with a minimum rebate of \$100 granted to eligible households with incomes below the phase out threshold.

CROSS REFERENCE

Function	Description
INPUT PARAMETERS:	
CTCINC	Family income scaling factor
FCBENCAL	Calculate child benefits for calendar year flag
NAMTOPT	NFLD alternative minimum tax option
NAMTPCTF	NFLD amt rate as pct of additional fed tax due to minimum tax
NAMTPCTM	NFLD amt rate as pct of federal minimum tax amount
NAMTTX	NFLD amt rate as tax on adjusted income
NAXM	NFLD Age Amount
NAXRR	NFLD Age Amount credit reduction rate
NAXTD	NFLD Age Amount net income turndown
NBXM	NFLD Basic Personal Exemption/amount
NCB1	Nfld. child benefit for first child
NCB1P	Nfld. child benefit for first child for 1st half of year
NCB2	Nfld. child benefit for second child
NCB2P	Nfld. child benefit for second child for 1st half of year
NCB3	Nfld. child benefit for third child
NCB3P	Nfld. child benefit for third child for 1st half of year
NCB4	Nfld. child benefit for 4th and subsequent child
NCB4P	Nfld. child benefit for 4th and subsequent child for 1st half of year
NCBFLG	Newfoundland child benefit activation flag
NCBPO	Nfld. child benefit family income phase out

NCBPOP Nfld. child benefit family income phase out for
 1st half of year
 NCBTD Nfld. child benefit family income turndown
 NCBTDP Nfld. child benefit family income turndown for
 1st half of year
 NCCFLAG Newfoundland child care tax credit activation
 flag
 NCGTC NFLD Caregiver Tax Credit
 NCGTCFLG NFLD Caregiver Tax Credit activation flag
 NCGTCOPT NFLD Caregiver Tax Credit Option (1=max,
 2=greenbook, 3=model)
 NCGTCTD NFLD Caregiver Tax Credit income turndown
 NCHATL1 NFLD Charitable Donations amount level 1
 NCHATR1 NFLD Charitable Donations tax credit rate 1
 NCHATR2 NFLD Charitable Donations tax credit rate 2
 NCPPCTXC NFLD CPP Contribution Tax Credit activation flag
 NDTCR NFLD dividend tax credit rate
 NDTCRLC NFLD dividend tax credit rate from large
 (eligible) corporations
 NEDXPM NFLD Education Amount per month of full-time
 studies
 NEDXPMPT NFLD Education Amount per month of part-time
 studies
 NEICTXC NFLD EI Premium Tax Credit activation flag
 NEMXM NFLD equivalent to married amount
 NEMXMT NFLD equivalent to married turndown level
 NHEATERB Newfoundland electricity rebate amount
 NHEATERR Newfoundland electricity rebate reduction rate
 NHEATFLG Newfoundland home heating fuel rebate activation
 flag
 NHEATINC Newfoundland home heating fuel rebate - income
 test flag
 NHEATMIN Newfoundland home heating fuel rebate minimum
 NHEATPO Newfoundland home heating fuel rebate family
 income phase out
 NHEATREB Newfoundland home heating fuel rebate amount
 NHEATRR Newfoundland home heating fuel rebate reduction
 rate
 NHEATSAFLG Newfoundland home heating fuel rebate - SA
 recipients eligible
 NHEATTD Newfoundland home heating fuel rebate family
 income turndown
 NHEATTU Newfoundland home heating fuel rebate take up
 NINTSLFLG NFLD Interest on Student Loans Tax Credit
 activation flag
 NLITRF NFLD low income tax reduction family maximum

NLITRFIT	NFLD low income tax reduction family income threshold
NLITRRR	NFLD low income tax reduction credit reduction rate
NLITRS	NFLD low income tax reduction single maximum
NLITRSIT	NFLD low income tax reduction single income threshold
NLVCMAX	Maximum NFLD labour-sponsored funds tax credit allowed
NLVCRT	Percent of NFLD labour-sponsored funds cost allowed as credit
NMAXDX	NFLD Maximum Disability deduction/amount
NMAXET	NFLD maximum on transfer of education and tuition amount
NMBNS	Nfld. Mother-Baby Nutrition Supplement
NMBNSEXT	Nfld. Mother-Baby Nutrition Supplement newborn extra benefit
NMBNSEXTP	Nfld. Mother-Baby Nutrition Supplement newborn extra benefit for 1st half of year
NMBNSP	Nfld. Mother-Baby Nutrition Supplement for 1st half of year
NMEDALL	NFLD Medical allowance maximum lower limit
NMEDANF	NFLD Medical allowance lower limit net income fraction
NMEDEXFLG	NFLD Medical Expense Tax Credit activation flag
NMXM	NFLD married amount
NMXMT	NFLD married amount turndown level
NODISTC	NFLD Maximum infirm dependent 18 or older tax credit
NPFGB	Newfoundland Progressive Family Growth Benefit
NPFGBTU	Newfoundland Progressive Family Growth Benefit Take Up
NPNTCR	NFLD provincial non-refundable tax credit rate
NPSB	Newfoundland Parental Support Benefit
NPTC	Newfoundland political contribution table [total donations, donation allowed]
NPTCBEN	Maximum Newfoundland political tax credit allowed
NPTF	Newfoundland provincial tax fraction
NPTX	NFLD tax table [taxable income, basic provincial tax]
NSCI	Newfoundland provincial tax above which surtax applies
NSCI2	Newfoundland provincial surtax level 2
NSF	Newfoundland provincial surtax rate
NSF2	Newfoundland provincial surtax rate 2
NSTCA	NFLD sales tax credit amount for adults
NSTCC	NFLD sales tax credit amount for children

NSTCFLAG	NFLD sales tax credit activation flag
NSTCL	NFLD sales tax credit reduction level
NSTCR	NFLD sales tax credit reduction rate
NTUITFLG	NFLD Tuition Tax Credit activation flag
NTXFLG	NFLD tax on taxable income activation flag
NYPNDL	NFLD Pension Income Deduction Amount
PYINC	Deflator to calculate previous year income
PYINCP	Deflator to calculate income from 2 years prior

INPUT VARIABLES:

cfageeld	Age of eldest in census family
cfin	First person in census family [pointer]
cfinch	First child in census family [pointer]
cfineld	Eldest person in census family [pointer]
cfinspo	Spouse of eldest [pointer]
cfnchild	Number of children (including 18+)
cfnpers	Number of persons in census family
cfspoflg	Census family contains married couple
efin	First person in economic family [pointer]
efnpers	Number of persons in economic family
fxio	I/O expenditure categories [array]
hdtenur	Tenure
hhncf	Number of census families in household
hhnef	Number of economic families in household
hhnin	Number of individuals in household
hhnnf	Number of nuclear families in household
idage	Age
idcfrh	Relationship to census family head
idcgtc	Caregivers tax credit (database) (315)
iddisab	Disability status (age 16+)
iddisoth	Disability amount for dependants (318)
iddisslf	Disability amount for self (316)
ideducfm	Eligible full-time months of education
ideducpm	Eligible part-time months of education
ididiv	Dividend income (actual)
idinspo	Person's spouse [pointer]
idintstu	Interest paid on student loans (319)
idlabtxg	Gross Labour funds bought (413)
idmedgro	Medical expenses, gross (330)
idmincar	Minimum tax carryover (504)
idothpe	Amounts for Infirm Dependants (306)
idprvftc	Provincial foreign tax credit (Form T2036)
idprvpol	Provincial political contributions (565)
idrand	Random numbers [array]
idsex	Sex
idspoflg	Person has spouse
idtuin	Tuition fees (320)

imamtfg	Minimum tax flag
imamtinc	Net adjusted income used for minimum tax
imamtprv	Federal minimum tax concept used for provincial
minimum tax	
imbft	Basic federal tax
imccea	Child care expenses allowed
imchara	Allowable charitable donations and gifts
(calculated)	
imcppse	CPP contributions deduction for self-emp
imcqppc	CPP/QPP contributions
imdedfn	All deductions from net income
imdepmi	Dependant's net income
imgista	Amount of GIST which goes into SA
imicnet	Net Income (line 236)
imigist	GIS provincial top-up
imildivt	Dividend income from large (eligible)
corporations	(taxable)
imipnst	Taxable pension income (after splitting)
imisa	Social assistance (or replacement program)
imisdvnt	Dividend income from small corporations (taxable)
imitax	Taxable income
imiuccbc	Universal Child Care Benefit amount claimed
immartxc	Married tax credit claimed
imminamt	Minimum Amount due to Federal Minimum Tax
imuic	Employment Insurance contributions
nfinch	First child in nuclear family [pointer]
nfineld	Eldest person in nuclear family [pointer]
nfinspo	Spouse of eldest [pointer]
nfnkids	Number of children in nuclear family
nfspoflg	Nuclear family contains married couple

OUTPUT VARIABLES:

imbpt	Basic provincial tax
imncb	Newfoundland Child Benefit
imncctc	Newfoundland Child Care Tax Credit
imnmbns	Newfoundland Mother-Baby Nutrition Supplement
imnpfgb	Newfoundland Progressive Family Growth Benefit
imnpsb	Newfoundland Parental Support Benefit
imnptc	Non-refundable provincial tax credits
imnstc	Newfoundland and Labrador Sales Tax Credit
impatxc	Prov Age amount tax credit
impatxcr	Prov total tax credits applied
impbtc	Prov Basic amount
impcgtc	Prov Caregiver Tax Credit Level
impcgtcp	Provincial Dependent Caregiver Tax Credit Amount
impchrctc	Prov Charitable Donations tax credit
impcpctc	Prov CPP/QPP contributions tax credit

impctxct	Prov tax credits transferred from children
impdistc	Prov Disability tax credit
impdtxc	Provincial dividend tax credit
impedtxc	Prov Education tax credit
impheatr	Provincial Home Heating Fuel/Energy Rebate
impintsl	Provincial interest on student loans tax credit
implvctc	Provincial labour-sponsored funds tax credit
impmartc	Prov Married and Equivalent to Married tax credit
impmeda	Prov Medical expenses allowed (computed)
impmedtc	Prov Medical Expenses tax credit
impminco	Prov Minimum tax carryover
impothpe credit	Provincial infirm dependents 18 or older tax credit
imppentc	Prov Pension Income tax credit
impptc	Provincial Political Contrib Tax Credit
imprvtax	Prov gross provincial tax
impstxct	Prov tax credits transferred from spouse
impsur	Provincial surtax
imptaxcr	Prov total tax credits
imptc	Refundable provincial tax credits
imptr	Provincial tax reduction
impptxct	Prov total tax credits transferred
imptutxc	Prov Tuition tax credit
impuictc	Prov EI contributions tax credit
imtxp	Provincial income tax payable

txns Compute provincial taxes for Nova Scotia

SUMMARY

This function calculates provincial taxes and credits for Nova Scotia. The programs simulated are as follows:

- Basic provincial tax
- Two level surtax
- Family tax reduction
- Pharmacare tax and tax credits
- Provincial foreign tax credit
- Provincial political tax credit
- Provincial labour-sponsored venture capital tax credit
- Stock savings plan tax credit
- Home ownership savings plan tax credit
- Direct Assistance

Basic Provincial Tax

When VTXFLG is turned off, the algorithm first calculates basic provincial tax. Basic provincial tax (imbpt) for Nova Scotia is calculated as a proportion (VPTF) of Basic Federal Tax (imbft). Provincial taxes payable (imtxp) are then initialized to the value of basic provincial tax (imbpt).

The 2000 budget announced that Nova Scotia would convert to a tax on taxable income starting in 2000. When the tax on taxable income flag is turned on (VTXFLG), a provincial tax table (VPTX) is applied on taxable income (imitax) in order to get the gross provincial tax (imprvtax). Non-refundable tax credits are calculated using the non-refundable tax credit rate (VPNTCR) and are applied against gross provincial tax in order to get the basic provincial income tax (imbpt).

The non-refundable credits which are calculated are:

impbtc	Basic amount	(VBXM)
impatxc	Age amount tax credit	(VAXM, VAXRR, VAXTD)
impmartc	Married and equivalent-to-married tax credit	(VMXM, VMXMT, VEMXM, VEMXMT)
impcgtc	Caregiver tax credit	(VCGTC, VCGTCFLG)
impchrctc	Charitable donations	(VCHATL1, VCHATR1, VCHATR2)
impcpptc	CPP/QPP contribution	(VCPPTXC)
impdistc	Disability tax credit	(VMAXDX)
impothpe	Infirm dependents 18 or older tax credit	(VODISTC)
impdtxc	Dividend tax credit	(VDTCR, VDTCRLC)
impdtxc	Education tax credit	(VEDXPM, VEDXPMPT, VMAXET)
impmedtc	Medical expenses tax credit	(VMEDEXFLG, MEDANF, MEDALL)
imppentc	Pension income tax credit	(VYPNDL)
imptutxc	Tuition Tax credit	(VTUITFLG, VMAXET)
impuictc	EI contributions tax credit	(VEICTXC)
impintsl	Interest on Student Loans tax credit	(VINTSLFLG)
impfitexp	Sports and recreation tax credit	(VFITEXPFLG, VFITEXPMAX)
impminco	Minimum tax carryover	(VAMTOPT, VAMTPCTF, VAMTTX, VAMTPCTM)

Provincial Surtax

The Nova Scotia surtax (impsur) is calculated as VSF percent of provincial taxes (imtxp) above the level VSCI plus VSF2 percent of provincial taxes above the level VSCI2. This amount is then added to provincial taxes payable (imtxp).

Family Tax Reduction

Program Description

The Nova Scotia tax reduction for low income individuals and families was introduced in 1994. To be eligible for the reduction a filer must be either over age 18, or have a spouse, or be a parent. This is a family based tax reduction and only one person of a married couple may claim the reduction. The reduction has prescribed maximum amounts for the claimant, a spouse and children. There is an equivalent to married amount in cases where a claimant has filed for the federal equivalent to married non-refundable tax credit. The total of these amounts is then subject to a family income test.

SPSM Implementation

The calculation closely follows the structure on form TIC (N.S.). Individuals are first tested for eligibility on the basis of age (idage), marital status (idspoflg), and parental status. Parental status is only relevant for young (<19) families and single parents and so is tested using relation to head (idcfrh == 0) and presence of young children (nfnkids).

Persons without a spouse are assigned the basic amount (VTRBAS). Heads of census families with a spouse are assigned the basic and spouse amounts (VTRBAS + VTRSP). Equivalent to married amounts (VTREM) are given to spouseless heads who claim the federal married tax credit (immartxc). Amounts for children are given to the head of the census family. No child amounts are given with respect to children who triggered the equivalent to married amount.

The maximum deduction is then reduced by a fixed proportion (VTRRR) of the net income (imicnet) of the head plus spouse (if present) in excess of the income base amount (VTRTD). This calculation is performed for persons without spouses or heads of census families with spouses. The amounts for families with spouses are then assigned to the spouse with the higher net income. The tax reduction thus calculated is written to the non-refundable provincial tax reduction variable (imptr) and is used to decrease provincial taxes payable (imtxp).

Pharmacare Program

Program Description

Introduced in the 1995 provincial budget, the pharmacare program consists of an annual pharmacare premium payable by all seniors and a refundable tax credit for low income seniors.

SPSM Implementation

The pharmacare premium (VPHPREM) is assigned to the variable impeht for all Nova Scotians age 65 or older. This amount is then used to increase provincial taxes payable (imtxp).

The pharmacare refundable tax credit (impehtc) is calculated for all Nova Scotia seniors in receipt of GIS benefits (imigis). It is calculated as the basic tax credit (VPHTC) less a fixed proportion (VPHRR) of income (imgisinc) above a threshold (VPHTD). The pharmacare

refundable tax credit (impehtc) is added to the variable for refundable provincial tax credits (imptc).

Starting in 1996, the tax credit no longer depended on whether or not a person received GIS. Instead, the credit is taxed back depending on family income. There are two turndowns, VPHTD for singles and VPHTDC for couples.

Provincial Foreign Tax Credit

The provincial foreign tax credit is imputed from the Greenbook (idprvftc). Only the amount of the foreign tax credit required to reduce provincial tax payable (imtxp) to zero is applied to the variable for non-refundable provincial tax credits (imnptc). Provincial tax payable (imtxp) is then reduced by the amount imnptc.

Political Contribution Tax Credit

Labour Sponsored Venture Capital Tax Credit

The Nova Scotia labour-sponsored venture capital credit is modeled (implvctc). A study was made showing that the majority of Canadians who contribute to labour-sponsored funds claim both federal and provincial credits. Therefore the gross contributions from the Greenbook are imputed onto the database. The Nova Scotia provincial credit is modeled as VLVCRT times the gross amount up to VLVCMAX. The credit cannot be more than provincial taxes (imtxp).

Direct Assistance

Program Description

Introduced in the 1997 provincial budget, direct assistance gives a benefit to low income Nova Scotians who would not be otherwise eligible for the tax reduction.

Beginning in 2000, direct assistance is only granted to families with children.

SPSM Implementation

Nova Scotia residents 19 and over are eligible for direct assistance if their income is below the cut-off (VDACI for families or VDASI for single individuals). The benefits are VDACB for families and VDASB for single individuals.

Differences between the SPSM estimate and reality will primarily come from two problems. Persons are eligible for Direct Assistance if they were full time students for 4 months or less or if they received Social Assistance for three months or less. In the SPSM model, anyone who is a full-time student in March (idestat==1) or anyone who receives Social Assistance was deemed ineligible for the program. This should lower estimates. But since people have to apply for the program, the take-up is probably not going to be 100% which will increase the SPSM estimate.

Nova Scotia Child Benefit

Program Description

The child benefit was introduced in the 1998 provincial budget.

SPSM Implementation

The benefit is turned on by the flag VCBFLG, and families whose net income is less than VCBTD are eligible. They receive VCBBAS1 for their first child, VCBBAS2 for their second child, and VCBBAS3 for their third and each additional child. The benefit is completely phased out when the family net income reaches VCBPO. The benefit (imnscb) is assigned to the mother if present.

Nova Scotia Taxpayer Refund

Program Description

The taxpayer refund is payable if the person paid NS provincial taxes in the previous two years.

SPSM Implementation

In the SPSM, the refund, imnstxrf, is payable if the person paid taxes in the current year. The refund amount is NSTXREFAMT and is controlled by the flag NSTXREFFLG.

Nova Scotia Affordable Living Tax Credit

Program Description

The refundable Nova Scotia Affordable Living Tax Credit has been implemented. This credit begins in July 2010 to help offset the restoration of the harmonized sales tax system to 15%.

SPSM Implementation

The activation flag VALTCFLG assigns the calculated credit (imvaltc) to the spouse with the higher taxable income, beginning in July 2010. The Affordable Living Tax Credit consists of a base amount for eligible individuals and families of VALTCAMT, plus VALTCC for each eligible dependent under 19 years of age. The credit will be reduced by VALTCRR for each dollar of adjusted family net income in excess of VALTCTD. The calculated credit is saved in imvaltc and added to refundable provincial tax credits (imptc).

Nova Scotia Home Heating Fuel Rebate

Program Description

Families and individuals who heat their homes with oil or propane may receive a home heating fuel rebate from the Nova Scotia government for assistance with heating fuel expenses.

SPSM Implementation

When VHEATFLG is turned on, families and individuals who heat their homes with oil or propane may receive a home heating fuel rebate from the Nova Scotia government for assistance with heating fuel expenses. The maximum value of the rebate (VHEATREB for users of oil or VHEATERB for users of electricity) will go to families with a net income of VHEATFTD or less, or if single, an income of VHEATSTD or less. Seniors who receive the Guaranteed Income Supplement or Spouse's Allowance and persons receiving social assistance will be eligible for the maximum rebate. The value of the rebate is held in impheatr.

CROSS REFERENCE

Function	Description
INPUT PARAMETERS:	
CTCINC	Family income scaling factor
FCBENCAL	Calculate child benefits for calendar year flag
GSTCYFLG	GST credit calendar year calculation activation flag
NSTXREFAMT	NS Taxpayer refund amount
NSTXREFFLG	NS Taxpayer refund flag
PYINC	Deflator to calculate previous year income
PYINCP	Deflator to calculate income from 2 years prior
VALTCAMT	N.S. Affordable Living Tax Credit base amount
VALTCAMTP	N.S. Affordable Living Tax Credit base amount for 1st half of year
VALTCC	N.S. Affordable Living Tax Credit child amount
VALTCCP	N.S. Affordable Living Tax Credit child amount for 1st half of year
VALTCFLG	N.S. Affordable Living Tax Credit activation flag
VALTCRR	N.S. Affordable Living Tax Credit reduction rate
VALTCRRP	N.S. Affordable Living Tax Credit reduction rate for 1st half of year
VALTCTD	N.S. Affordable Living Tax Credit income turndown threshold
VALTCTDP	N.S. Affordable Living Tax Credit income turndown threshold for 1st half of year
VAMTOPT	N.S. alternative minimum tax option

VAMTPCTF	N.S. amt rate as pct of additional fed tax due to minimum tax
VAMTPCTM	N.S. amt rate as pct of federal minimum tax amount
VAMTTX	N.S. amt rate as tax on adjusted income
VAXM	N.S. Age Amount
VAXRR	N.S. Age Amount credit reduction rate
VAXTD	N.S. Age Amount net income turndown
VBXM	N.S. Basic Personal Exemption/amount
VCBBAS1	NS child benefit for first child
VCBBAS1P	NS child benefit for first child for 1st half of year
VCBBAS2	NS child benefit for second child
VCBBAS2P	NS child benefit for second child for 1st half of year
VCBBAS3	NS child benefit for third or additional child
VCBBAS3P	NS child benefit for third or additional child for 1st half of year
VCBFLG	NS child benefit activation flag
VCBPO	NS child benefit family income phase out
VCBPOP	NS child benefit family income phase out for 1st half of year
VCBTD	NS child benefit turndown
VCBTDP	NS child benefit turndown for 1st half of year
VCGTC	N.S. Caregiver Tax Credit
VCGTCFLG	N.S. Caregiver Tax Credit activation flag
VCGTCOPT	N.S. Caregiver Tax Credit Option (1=max, 2=greenbook, 3=model)
VCGTCTD	N.S. Caregiver Tax Credit income turndown
VCHATL1	N.S. Charitable Donations amount level 1
VCHATR1	N.S. Charitable Donations tax credit rate 1
VCHATR2	N.S. Charitable Donations tax credit rate 2
VCPPCTXC	N.S. CPP Contribution Tax Credit activation flag
VDACB	NS Direct assistance benefit for couples
VDACI	NS Direct assistance maximum income for couples
VDAFLAG	NS Direct assistance benefit flag
VDAFWC	NS Direct assistance benefit for families with children flag
VDASB	NS Direct assistance benefit for singles
VDASI	NS Direct assistance maximum income for singles
VDTCR	N.S. dividend tax credit rate
VDTCLC	N.S. dividend tax credit rate from large (eligible) corporations
VEDXPM	N.S. Education Amount per month of full-time studies
VEDXPMPT	N.S. Education Amount per month of part-time studies

VEICTXC N.S. EI Premium Tax Credit activation flag
 VEMXM N.S. equivalent to married amount
 VEMXMT N.S. equivalent to married turndown level
 VFITEXPFLG NS Sport and Recreational Expense Child Tax
 Credit activation flag
 VFITEXPMAX NS Sport and Recreational Expense Child Tax
 Credit maximum claim
 VHEATERB Nova Scotia home heating fuel rebate amount for
 electricity
 VHEATFLG Nova Scotia Home Heating Assistance Rebate
 activation flag
 VHEATFTD Nova Scotia home heating fuel rebate income
 turndown for families
 VHEATREB Nova Scotia home heating fuel rebate amount for
 oil
 VHEATSTD Nova Scotia home heating fuel rebate income
 turndown for singles
 VHEATTU Nova Scotia home heating fuel rebate take up
 VINTSLFLG N.S. Interest on Student Loans Tax Credit
 activation flag
 VLVCMAX Maximum N.S. labour-sponsored funds tax credit
 allowed
 VLVCRT Percent of N.S. labour-sponsored funds cost
 allowed as credit
 VMAXDX N.S. Maximum Disability deduction/amount
 VMAXET N.S. maximum on transfer of education and tuition
 amount
 VMEDALL N.S. Medical allowance maximum lower limit
 VMEDANF N.S. Medical allowance lower limit net income
 fraction
 VMEDEXFLG N.S. Medical Expense Tax Credit activation flag
 VMXM N.S. married amount
 VMXMT N.S. married amount turndown level
 VODISTC N.S. Maximum infirm dependent 18 or older tax
 credit
 VPHPREM Nova Scotia pharmacare premium
 VPHRR Nova Scotia pharmacare tax credit reduction rate
 VPHTC Nova Scotia pharmacare refundable tax credit
 VPHTD Nova Scotia pharmacare tax credit turndown
 VPHTDC Nova Scotia pharmacare tax credit turndown for
 couples
 VPNTCR N.S. provincial non-refundable tax credit rate
 VPTC Nova Scotia political contribution table [total
 donations, donation allowed]
 VPTCBEN Maximum Nova Scotia political tax credit allowed
 VPTF Nova Scotia provincial tax fraction

VPTX	N.S. tax table [taxable income, basic provincial tax]
VSCI	Nova Scotia provincial tax above which surtax applies
VSCI2	Nova Scotia provincial tax above which surtax applies (2nd level)
VSEINTRFLG	N.S Tax Relief for Seniors receiving GIS
VSF	Nova Scotia provincial surtax rate
VSF2	Nova Scotia provincial surtax rate (2nd level)
VTRBAS	Nova Scotia tax reduction basic amount
VTREM	Nova Scotia tax reduction equivalent to spouse amount
VTRKID	Nova Scotia tax reduction child amount
VTRRR	Nova Scotia tax reduction family income reduction rate
VTRSP	Nova Scotia tax reduction spouse amount
VTRTD	Nova Scotia tax reduction family income turndown
VTUITFLG	N.S. Tuition Tax Credit activation flag
VTXFLG	N.S. tax on taxable income activation flag
VYCTCAPM	N.S. Young Child Tax Credit Amount per Month
VYCTCPI	N.S. Young Child Tax Credit Phase in
VYPNDL	N.S. Pension Income Deduction Amount

INPUT VARIABLES:

cfageeld	Age of eldest in census family
cfin	First person in census family [pointer]
cfinch	First child in census family [pointer]
cfineld	Eldest person in census family [pointer]
cfinspo	Spouse of eldest [pointer]
cfnchild	Number of children (including 18+)
cfnkids	Number of children in census family
cfnpers	Number of persons in census family
cfspoflg	Census family contains married couple
efin	First person in economic family [pointer]
efnpers	Number of persons in economic family
fxio	I/O expenditure categories [array]
hhncf	Number of census families in household
hhnef	Number of economic families in household
hhnin	Number of individuals in household
hhnnf	Number of nuclear families in household
idage	Age
idcf	Person's census family [pointer]
idcfrh	Relationship to census family head
idcgtc	Caregivers tax credit (database) (315)
iddisab	Disability status (age 16+)
iddisoth	Disability amount for dependants (318)
iddisslf	Disability amount for self (316)

ideducfm	Eligible full-time months of education
ideducpm	Eligible part-time months of education
idestat	Educational status
ididiv	Dividend income (actual)
idintstu	Interest paid on student loans (319)
idlabtxg	Gross Labour funds bought (413)
idmedgro	Medical expenses, gross (330)
idmincar	Minimum tax carryover (504)
idnf	Person's nuclear family [pointer]
idothpe	Amounts for Infirm Dependants (306)
idprvftc	Provincial foreign tax credit (Form T2036)
idprvpol	Provincial political contributions (565)
idrand	Random numbers [array]
idsex	Sex
idspoflg	Person has spouse
idsprecpr	Children's Sport & Recrn Expense(Prov)
idtuitn	Tuition fees (320)
imamtfg	Minimum tax flag
imamtinc	Net adjusted income used for minimum tax
imamtprv	Federal minimum tax concept used for provincial
minimum tax	
imbft	Basic federal tax
imcemc	Child's equivalent to married credit
imchara	Allowable charitable donations and gifts
(calculated)	
imcppse	CPP contributions deduction for self-emp
imcqqpc	CPP/QPP contributions
imdedfn	All deductions from net income
imdepmi	Dependant's net income
imgistsa	Amount of GIST which goes into SA
imicnet	Net Income (line 236)
imictot	Total Income (line 150)
imigis	GIS benefits
imildivt	Dividend income from large (eligible)
corporations	(taxable)
imipnst	Taxable pension income (after splitting)
imisa	Social assistance (or replacement program)
imisdivt	Dividend income from small corporations (taxable)
imispa	Spouse's allowance
imitax	Taxable income
imiuccbc	Universal Child Care Benefit amount claimed
immartxc	Married tax credit claimed
imminamt	Minimum Amount due to Federal Minimum Tax
imuic	Employment Insurance contributions
nfinch	First child in nuclear family [pointer]
nfineld	Eldest person in nuclear family [pointer]
nfinspo	Spouse of eldest [pointer]

nfnkids	Number of children in nuclear family
nfnpers	Number of persons in nuclear family
nfspoflg	Nuclear family contains married couple

OUTPUT VARIABLES:

idinspo	Person's spouse [pointer]
imbpt	Basic provincial tax
iminsda	NS Direct Assistance Program
imnptc	Non-refundable provincial tax credits
imnscb	Nova Scotia Child Benefit
imnstxrf	Nova Scotia Taxpayer Refund
impatxc	Prov Age amount tax credit
impatxcr	Prov total tax credits applied
impbtc	Prov Basic amount
impcgctc	Prov Caregiver Tax Credit Level
impcgtcp	Provincial Dependent Caregiver Tax Credit Amount
impchrtc	Prov Charitable Donations tax credit
impcpptc	Prov CPP/QPP contributions tax credit
impctxct	Prov tax credits transferred from children
impdistc	Prov Disability tax credit
impdtxc	Provincial dividend tax credit
impedtxc	Prov Education tax credit
impeht	Provincial elderly health tax
impehtc	Provincial elderly health tax credit
impfitexp	Provincial fitness tax credit
impheatr	Provincial Home Heating Fuel/Energy Rebate
impintsl	Provincial interest on student loans tax credit
implvctc	Provincial labour-sponsored funds tax credit
impmartc	Prov Married and Equivalent to Married tax credit
impmeda	Prov Medical expenses allowed (computed)
impmedtc	Prov Medical Expenses tax credit
impminco	Prov Minimum tax carryover
impothpe	Provincial infirm dependents 18 or older tax
credit	
imppentc	Prov Pension Income tax credit
impptc	Provincial Political Contrib Tax Credit
imprvtax	Prov gross provincial tax
impstxct	Prov tax credits transferred from spouse
impsur	Provincial surtax
imptaxcr	Prov total tax credits
imptc	Refundable provincial tax credits
imptr	Provincial tax reduction
impttxct	Prov total tax credits transferred
imptutxc	Prov Tuition tax credit
impuictc	Prov EI contributions tax credit
impyctxc	Prov Young Child tax credit
imtxp	Provincial income tax payable

imvaltc N.S. Affordable Living Tax Credit
imvsrtxrf Nova Scotia Seniors' with GIS tax Refund

txont Compute provincial taxes for Ontario

SUMMARY

When OTXFLG is turned off, the Ontario Provincial Tax (imbpt) is calculated as a proportion (OPTF) of Basic Federal Tax (imbft). Added to Basic for some years is the Social Services Maintenance Tax which is a proportion (OSSMR) of Basic Provincial Tax (imbpt) exceeding the tax level (OSSML).

When the tax on taxable income flag is turned on (OTXFLG), a provincial tax table (OPTX) is applied on taxable income (imitax) in order to get the gross provincial tax (imprvtax). Non-refundable tax credits are calculated using the non-refundable tax credit rate (OPNTR) and are applied against gross provincial tax in order to get the basic provincial income tax (imbpt).

The non-refundable credits which are calculated are:

impbtc	Basic amount	(OBXM)
impatxc	Age amount tax credit	(OAXM, OAXRR, OAXTD)
impmartc	Married and equivalent-to-married tax credit	(OMXM, OMXMT, OEMXM, OEMXMT)
impcgtc	Caregiver tax credit	(OCGTC, OCGTCFLG)
impchrctc	Charitable donations	(OCHATL1, OCHATR1, OCHATR2)
impcpctc	CPP/QPP contribution	(OCPPCTXC)
impdistc	Disability tax credit	(OMAXDX)
impothpe	Infirm dependents 18 or older tax credit	(OODISTC)
impdtxc	Dividend tax credit	(ODTCR, ODTCLC)
impdtxc	Education tax credit	(OEDXPM, OEDXPMPT, OMAXET)
impmedtc	Medical expenses tax credit	(OMEDEXFLG, OMEDANF, OMEDALL)
imppentc	Pension income tax credit	(OYPNDL)
imptutxc	Tuition Tax credit	(OTUITFLG, OMAXET)
impuictc	EI contributions tax credit	(OEICTXC)
impintsl	Interest on Student Loans tax credit	(OINTSLFLG)
impminco	Minimum tax carryover	(OAMTOPT, OAMTPCTF, OAMTTX, OAMTPCTM)

Ontario provides a tax reduction for persons with a low taxable income. This reduction amounts to a proportion (OTRF) of taxable income (imitax) below the Ontario Tax Reduction Level (OMTY). This is subtracted from Basic Provincial Tax to derive Provincial Tax Payable (imtxp).

The Ontario labour-sponsored venture capital credit is modeled (implvctc). A study was made showing that the majority of Canadians who contribute to labour-sponsored funds claim both federal and provincial credits. Therefore the gross contributions from the Greenbook are imputed onto the database. The Ontario provincial credit is modeled as OLVCRT times the gross amount up to OLVCMAX. The credit cannot be more than provincial taxes (imtxp).

The Employer Health Tax (imonteht) only applies to self-employed persons, and is calculated when OEHTFLAG is set to 1. The Ontario Employer Health Tax is calculated as OEHTRR times earnings from self-employment which are greater than the exemption OEHTEX. It is reduced using a deduction which is calculated as OEHTDRR times the total tax due. The total tax minus the deduction is the tax due (imonteht).

The taxpayer dividend (imotxdv) announced in the 2000 Budget was implemented. It is equal to taxes paid in the previous year up to a maximum (OTXDVMAX). People who paid over 0\$ in taxes would get a minimum rebate of OTXDVMIN. The benefit is included in refundable tax credits of 2000. Since it is based on the previous year's taxes, the taxes are multiplied by OPYTAX in order to estimate the lagged effect.

The Ontario Health Premium was announced in the Ontario 2004 Budget, to be implemented in July 2004. Individuals in Ontario are required to pay a health premium based on taxable income as per the table in OHPBASE. The value of the premium is multiplied by the phase in rate OHPPI. The value of the calculated premium is held in imphp and this amount is added to imptax.

When the parameter OCCEAFLG is set to 1, the child care expense credit is calculated. The maximum amount of the benefit is calculated as the lower of either OCCEAPCT times actual child care expenses (imccea), or of a specified amount per child (OCCEAYNG) times the number of children age 6 and under in the census family. Maximum family benefits are then reduced by a proportion (OCCEARR) of family net income above the threshold (OCCEATD). The model assigns the imputed Child Care credit (imoccea) to the mother, if present.

When OCWISFLG is set to 1, the supplement for working families is calculated as a percentage (OCWISRR) of family income over a threshold OCWISTD. The percentage depends on the number of children under the age of 7 in the family. The Supplement cannot exceed OCCEAYNG times the number of children under the age of 7. In single parent families, the maximum cannot exceed OCWISSP times the number of children under the age of 7 as announced in the Ontario 2000 Budget. The benefit which is given is the maximum value of either the supplement or the childcare expenses credit.

Ontario Child Benefit

The Ontario Child Benefit (imocb) was introduced in the 2007 Ontario Budget and implemented in July 2007. Under the Ontario Child Benefit program, parents may be entitled to receive a benefit of OCBAMT for the each child under the age of 18. The benefit is reduced at a rate of OCBRR for each dollar of adjusted family net income in excess of OCBTD. Adjusted family net income is defined as net income less UCCB payments for the head plus the spouse if one exists.

The Ontario Child Benefit for 2007 will be a one-time payment in July 2007. This 2007 one-time payment is subject to a minimum amount of OCBMIN. Beginning in July 2008, payments will be made monthly.

With the introduction of the monthly Ontario Child Benefit beginning in July 2008, the Ontario Child Care Supplement for Working Families begins to be phased out. The amount of the Ontario Child Benefit attributed to children under the age of 7 will be removed from the value of the calculated Ontario Child Care Supplement. The flag OCCSOCB activates this clawback. Also see OCCSPOYR for more information on the phase out of the Ontario Child Care Supplement.

The value of the Ontario Child Benefit (imocb) is added to provincial family programs (impfp).

Ontario Senior Homeowners' Property Tax Grant

Under the Ontario Senior Homeowners' Property Tax Grant program, seniors may be entitled to receive a grant of OSHPTGAMT for property taxes paid, provided they are at least OSHPTGMPT. Couples where at least one is a senior will receive the maximum benefit provided their income (head + spouse) is less than OSHPTGTDC, and a reduced benefit for income between OSHPTGTDC and OSHPTGPOC. Eligible single seniors will receive the maximum benefit if their income is less than OSHPTGTDS and a partial benefit for income between OSHPTGTDS and OSHPTGPOS.

The income concept used is net income (imicnet) less any UCCB payments claimed (imiuccbc) from the previous year.

The value of the Ontario Senior Homeowners' Property Tax Grant (imoshptg) is added to provincial other government income (impoth).

Ontario Textbook and Technology Grant

Starting in 2008, OTXTGRANT is allocated to all full-time college and university students in Ontario who are in full-time studies for at least 4 months. The value of the grant is saved in imotxtgr and added to provincial other government income (impoth).

Ontario Sales Tax Transition Benefit

The Ontario Sales Tax Transition Benefit has been implemented for 2010 and 2011. It is activated by the flag OSTTBFLG and grants single individuals an amount OSTTBS provided their adjusted net income is below the threshold of OSTTBTDS, while families are granted

an amount OSTTBF where family adjusted net income is less than OSTTBTDF. Partial benefits may be granted to eligible families and individuals, where the benefit is reduced by OSTTBRR for incomes above the threshold.

Ontario Sales Tax Credit

The proposed Ontario Sales Tax Credit has been implemented. This credit will provide annual relief of up to OSTCA for each adult and OSTCC for each child aged 18 or younger. It would be reduced by OSTCRR of adjusted family net income over OSTCTDS for single people and over OSTCTDF for families and single parents. This is a July to June program, beginning in July 2010. It is calculated when OSPTCOPT is set to 2 and the calculated value is saved in imostc.

Ontario Property Tax Credit

The proposed Ontario Property Tax Credit has been implemented. A credit would be provided for occupancy cost, which is property tax paid and/or OPRTCRIIR of rent paid and/or OPRTCRA for student residence, of up to OPRTCOCM for non-seniors and OPRTCSOCM for seniors, plus OPRTCOCAR of occupancy cost. The credit would be increased by the energy component of OEPTCENER. It would then be reduced by OPRTCRR of adjusted family net income in excess of OPRTCTDS for single individuals (OPRTCSTDS for single seniors) and OPRTCTDF for families (OPRTCSTDF for senior couples and single parents). It is calculated when OSPTCOPT is set to 2 and the calculated value is saved in imoprxc. This is a July to June program, beginning in July 2011.

Ontario Home Electricity Relief

When OHEATFLG is turned on, families and individuals who claimed a property tax credit may be eligible for a one-time Ontario Home Electricity Relief payment. For families, the maximum value of the payment OHEATFAM will go to families with a net income of OHEATFTD or less. If single, the maximum value of the payment is OHEATSNG for those with incomes of OHEATSTD or less. Individuals and families with incomes over the threshold, will have see their relief payments reduced by OHEATRR. The value of the relief payment is held in impheatr.

CROSS REFERENCE

Function	Description
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INPUT PARAMETERS:

CAPGIR	Capital gains inclusion rate
EDXPMPT	Education amount per month of part-time studies
FCBENCAL	Calculate child benefits for calendar year flag

GSTCYFLG	GST credit calendar year calculation activation flag
OAMTOPT	Ont. alternative minimum tax option
OAMTPCTF	Ont. amt rate as pct of additional fed tax due to minimum tax
OAMTPCTM	Ont. amt rate as pct of federal minimum tax amount
OAMTTX	Ont. amt rate as tax on adjusted income
OAXM	Ont. Age Amount
OAXRR	Ont. Age Amount credit reduction rate
OAXTD	Ont. Age Amount net income turndown
OBXM	Ont. Basic Personal Exemption/amount
OCAPGIR	Ont. Capital Gains Inclusion Rate
OCBAMT	Ontario Child Benefit amount per child
OCBAMTP	Ontario Child Benefit amount per child for 1st half of year
OCBFLAG	Ontario Child Benefit activation flag
OCBMIN	Ontario Child Benefit minimum benefit
OCBPIP	Ontario Child Benefit flag for 1st half of year
OCBRR	Ontario Child Benefit reduction rate
OCBRRP	Ontario Child Benefit reduction rate for 1st half of year
OCBTD	Ontario Child Benefit family income turndown
OCBTDP	Ontario Child Benefit family income turndown for 1st half of year
OCCEAFLG	Ont. Child Care Expense Credit activation flag
OCCEAPCT	Ont. Child Care Expense Credit qualifying percentage
OCCEAPCTP	Ont. Child Care Expense Credit qualifying percentage for 1st half of year
OCCEARR	Ont. Child Care Expense Credit benefit reduction rate
OCCEARRP	Ont. Child Care Expense Credit benefit reduction rate for 1st half of year
OCCEATD	Ont. Child Care Expense Credit family income turndown
OCCEATDP	Ont. Child Care Expense Credit family income turndown for 1st half of year
OCCEAYNG	Ont. Child Care Expense Credit allowance per child
OCCEAYNGP	Ont. Child Care Expense Credit allowance per child for 1st half of year
OCCSEXT	Ont. Child Care Supplement One-time payment of extra benefit
OCCSOCB	Ont. Child Care Supplement reduced by Ontario Child Benefit flag

OCCSPOPYR Ont. Child Care Supplement phase out year
proportion born pre July

OCCSPOYR Ont. Child Care Working Income Supplement phase
out year

OCGIRFLG Ont. Capital Gains Inclusion Rate Activation Flag

OCGTC Ont. Caregiver Tax Credit

OCGTCFLG Ont. Caregiver Tax Credit activation flag

OCGTCOPT Ont. Caregiver Tax Credit Option (1=max,
2=greenbook, 3=model)

OCGTCTD Ont. Caregiver Tax Credit income turndown

OCHATL1 Ont. Charitable Donations amount level 1

OCHATR1 Ont. Charitable Donations tax credit rate 1

OCHATR2 Ont. Charitable Donations tax credit rate 2

OCPPCTXC Ont. CPP Contribution Tax Credit activation flag

OCWISFLG Ont. Child Care Working Income Supplement
activation flag

OCWISFLGP Ont. Child Care Working Income Supplement
activation flag for 1st half of year

OCWISMIN Ont. Child Care Working Income Supplement minimum
benefit

OCWISRR Ont. Child Care Working Income Supplement Rate
[children][rr]

OCWISRRP Ont. Child Care Working Income Supplement Rate
[children][rr] for 1st half of year

OCWISSP Ont. Child Care Working Income Supplement maximum
benefit for single parents

OCWISSPP Ont. Child Care Working Income Supplement maximum
benefit for single parents for 1st half of year

OCWISTD Ont. Child Care Working Income Supplement minimum
earnings

OCWISTDP Ont. Child Care Working Income Supplement minimum
earnings for 1st half of year

ODTCR Ont. dividend tax credit rate

ODTCRLC Ont. dividend tax credit rate from large
(eligible) corporations

OEDXPM Ont. Education Amount per month of full-time
studies

OEDXPMPT Ont. Education Amount per month of part-time
studies

OEHTDRR OEHT - Income Tax Deduction Rate

OEHTEX OEHT - Exemption

OEHTFLAG OEHT - Ontario Employer Health Tax Flag

OEHTRR OEHT - Rate

OEICTXC Ont. EI Premium Tax Credit activation flag

OEMXM Ont. equivalent to married amount

OEMXMT Ont. equivalent to married turndown level

OEPTCENER Ontario energy component of the property tax credit (post 2009)
 OEPTCENERP Ontario energy component of the property tax credit for 1st half of year
 OEPTCOPT Ontario energy and property tax credit option
 OFTCOPT Ontario foreign tax credit application option
 OHEATFAM Ontario Home Electricity Relief amount for families
 OHEATFLG Ontario Home Electricity Relief activation flag
 OHEATFTD Ontario Home Electricity Relief income turndown for families
 OHEATMIN Ontario Home Electricity Relief minimum
 OHEATRR Ontario Home Electricity Relief reduction rate
 OHEATSNG Ontario Home Electricity Relief amount for singles
 OHEATSTD Ontario Home Electricity Relief income turndown for singles
 OHPBASE Ontario Health Premium table [taxable income,premium]
 OHPFLAG Ontario Health Premium activation flag
 OHPPI Ontario Health Premium program phase in
 OINTSLFLG Ont. Interest on Student Loans Tax Credit activation flag
 OLVCMAX Maximum Ont. labour-sponsored funds tax credit allowed
 OLVCRT Percent of Ont. labour-sponsored funds cost allowed as credit
 OMAXDX Ont. Maximum Disability deduction/amount
 OMAXET Ont. maximum on transfer of education and tuition amount
 OMEDALL Ont. Medical allowance maximum lower limit
 OMEDANF Ont. Medical allowance lower limit net income fraction
 OMEDEXFLG Ont. Medical Expense Tax Credit activation flag
 OMXM Ont. married amount
 OMXMT Ont. married amount turndown level
 OODISTC Ont. Maximum infirm dependent 18 or older tax credit
 OPCRA Ontario property tax college residence amount (pre 2010)
 OPNTCR Ont. provincial non-refundable tax credit rate
 OPOCAR Ontario property tax percent of occupancy cost (pre 2010)
 OPOCM Ontario property tax maximum occupancy cost (pre 2010)
 OPRIR Ontario property tax credit rental inclusion rate (pre 2010)

OPRTCBAS Ontario property tax credit base amount (post 2009)
 OPRTCBASP Ontario property tax credit base amount for 1st half of year
 OPRTCOCAR Ontario property tax credit percent of occupancy cost (post 2009)
 OPRTCOCARP Ontario property tax credit percent of occupancy cost for 1st half of year
 OPRTCOCM Ontario property tax credit maximum occupancy cost (post 2009)
 OPRTCOCMP Ontario property tax credit maximum occupancy cost for 1st half of year
 OPRTCRA Ontario property tax credit college residence amount (post 2009)
 OPRTCRIIR Ontario property tax credit rental inclusion rate (post 2009)
 OPRTCRR Ontario property tax credit reduction rate (post 2009)
 OPRTCRRP Ontario property tax credit reduction rate for 1st half of year
 OPRTCSBAS Ontario property tax credit base amount for seniors (post 2009)
 OPRTCSBASP Ontario property tax credit base amount for seniors for 1st half of year
 OPRTCSOCM Ontario property tax credit maximum occupancy cost for seniors (post 2009)
 OPRTCSOCMP Ontario property tax credit maximum occupancy cost for seniors for 1st half of year
 OPRTCSTDF Ontario property tax credit income turndown level for senior couples (post 2009)
 OPRTCSTDFP Ontario property tax credit income turndown level for senior couples for 1st half of year
 OPRTCSTDS Ontario property tax credit income turndown level for senior single persons (post 2009)
 OPRTCSTDSP Ontario property tax credit income turndown level for senior single persons for 1st half of year
 OPRTCTDF Ontario property tax credit income turndown level for families (post 2009)
 OPRTCTDFP Ontario property tax credit income turndown level for families for 1st half of year
 OPRTCTDS Ontario property tax credit income turndown level for single persons (post 2009)
 OPRTCTDSP Ontario property tax credit income turndown level for single persons for 1st half of year
 OPSMAX Ontario property/sales tax credit maximum (pre 2010)

OPTC Ontario political contribution table [total donations, donation allowed]
 OPTCBEN Maximum Ontario political tax credit allowed
 OPTCFLAG Ontario political contribution refundable tax credit flag
 OPTF Ontario provincial tax fraction
 OPTX Ont. tax table [taxable income, basic provincial tax]
 OPYTAX Estimate of previous year's Ontario taxes
 OSHPTGAMT Ont. Senior Homeowners' Property Tax Grant amount
 OSHPTGFLG Ont. Senior Homeowners' Property Tax Grant activation flag
 OSHPTGMPT Ont. Senior Homeowners' Property Tax Grant minimum property tax allowed
 OSHPTGPOC Ont. Senior Homeowners' Property Tax Grant income phase out for senior couples
 OSHPTGPOS Ont. Senior Homeowners' Property Tax Grant income phase out for single seniors
 OSHPTGTDC Ont. Senior Homeowners' Property Tax Grant income turndown for senior couples
 OSHPTGTDS Ont. Senior Homeowners' Property Tax Grant income turndown for single seniors
 OSPOCM Ontario seniors property tax maximum occupancy cost (pre 2010)
 OSPSMAX Ontario seniors property/sales tax credit maximum (pre 2010)
 OSPTCOPT Ontario property and sales tax credits option
 OSSML Ontario surtax first cut-in level
 OSSML2 Ontario surtax second cut-in level
 OSSMR Ontario surtax first level rate
 OSSMR2 Ontario surtax second level rate
 OSSTCP Ontario seniors sales tax credit percent of income (pre 2010)
 OSTCA Ontario sales tax credit amount per adult (post 2009)
 OSTCAP Ontario sales tax credit amount per adult for 1st half of year
 OSTCB Ontario sales tax credit basic credit (pre 2010)
 OSTCC Ontario sales tax credit amount per child (post 2009)
 OSTCCP Ontario sales tax credit amount per child for 1st half of year
 OSTCD Ontario sales tax credit dependant credit (pre 2010)
 OSTCFLAG Ontario seniors tax credit claimed flag
 OSTCNIBA Ontario seniors tax credit net income base amount

OSTCNIBC Ontario seniors tax credit net income base amount
 for couples
 OSTCP Ontario sales tax credit percent of income (pre
 2010)
 OSTCRR Ontario sales tax credit reduction rate (post
 2009)
 OSTCRRP Ontario sales tax credit reduction rate for 1st
 half of year
 OSTCS Ontario sales tax credit spouse credit (pre 2010)
 OSTCTDF Ontario sales tax credit income turndown level
 for families (post 2009)
 OSTCTDFP Ontario sales tax credit income turndown level
 for families for 1st half of year
 OSTCTDS Ontario sales tax credit income turndown level
 for single persons (post 2009)
 OSTCTDSP Ontario sales tax credit income turndown level
 for single persons for 1st half of year
 OSTTBF Maximum Ontario Sales Tax Transition Benefit for
 families
 OSTTBFLG Ontario Sales Tax Transition Benefit flag
 OSTTBRR Ontario Sales Tax Transition Benefit Reduction
 Rate
 OSTTBS Maximum Ontario Sales Tax Transition Benefit for
 single persons
 OSTTBTDF Ontario Sales Tax Transition Benefit Turndown for
 families
 OSTTBTDS Ontario Sales Tax Transition Benefit Turndown for
 single persons
 OTCNIBA Ontario tax credit net income base amount
 OTRBPA Ontario tax reduction basic personal amount
 OTRDCA Ontario tax reduction dependant child amount
 OTRDDA Ontario tax reduction disabled dependant amount
 OTRF Ontario tax reduction Ontario tax multiplier
 OTRFP Ontario tax reduction personal amount multiplier
 OTUITFLG Ont. Tuition Tax Credit activation flag
 OTXDVMAX Maximum taxpayer dividend
 OTXDVMIN Minimum taxpayer dividend for people with non-
 zero taxes
 OTXFLG Ont. tax on taxable income activation flag
 OTXTGRANT Ontario Textbook and Technology Grant amount
 OYPNDL Ont. Pension Income Deduction Amount
 PYINC Deflator to calculate previous year income
 PYINCP Deflator to calculate income from 2 years prior
 TARGETYEAR Year of analysis

INPUT VARIABLES:

cfageeld Age of eldest in census family

cfin	First person in census family [pointer]
cfinch	First child in census family [pointer]
cfineld	Eldest person in census family [pointer]
cfinspo	Spouse of eldest [pointer]
cfnchild	Number of children (including 18+)
cfnkids	Number of children in census family
cfnpers	Number of persons in census family
cfspoflg	Census family contains married couple
efin	First person in economic family [pointer]
efnpers	Number of persons in economic family
hhncf	Number of census families in household
hhnef	Number of economic families in household
hhnin	Number of individuals in household
idage	Age
idcapgex	Capital gains exemptions (254)
idcfrh	Relationship to census family head
idcgtc	Caregivers tax credit (database) (315)
iddisab	Disability status (age 16+)
iddisoth	Disability amount for dependants (318)
iddisslf	Disability amount for self (316)
ideducfm	Eligible full-time months of education
ideducpm	Eligible part-time months of education
idestat	Educational status
idhomstu	College res/resdnt homeowner assist (558)
idicapg	Capital gains (actual)
ididiv	Dividend income (actual)
idiemp	Wages & salaries
idiloss	Business investment losses (217)
idinspo	Person's spouse [pointer]
idintstu	Interest paid on student loans (319)
idise	Self-employed income
idlabtxg	Gross Labour funds bought (413)
idmedgro	Medical expenses, gross (330)
idmincar	Minimum tax carryover (504)
idnf	Person's nuclear family [pointer]
idothpe	Amounts for Infirm Dependants (306)
idprvftc	Provincial foreign tax credit (Form T2036)
idprvppl	Provincial political contributions (565)
idrand	Random numbers [array]
idschtp	School type
idsex	Sex
idspoflg	Person has spouse
idstkded	Stock option deduction (249)
idtuitn	Tuition fees (320)
imamtfg	Minimum tax flag
imamtinc	Net adjusted income used for minimum tax

imamtprv	Federal minimum tax concept used for provincial
minimum tax	
imbft	Basic federal tax
imccea	Child care expenses allowed
imchara	Allowable charitable donations and gifts
(calculated)	
imcppse	CPP contributions deduction for self-emp
imcqqpc	CPP/QPP contributions
imdedfn	All deductions from net income
imdedft	Deductions from total income
imdepmi	Dependant's net income
imicapgt	Capital gains (taxable)
imicnet	Net Income (line 236)
imictot	Total Income (line 150)
imildivt	Dividend income from large (eligible)
corporations	(taxable)
imipnst	Taxable pension income (after splitting)
imisdivt	Dividend income from small corporations (taxable)
imitax	Taxable income
imiuccbc	Universal Child Care Benefit amount claimed
imminamt	Minimum Amount due to Federal Minimum Tax
improptx	Imputed property tax paid
imrentpd	Imputed rent paid
imuic	Employment Insurance contributions

OUTPUT VARIABLES:

imbpt	Basic provincial tax
imiotax	Ontario taxable income
imnptc	Non-refundable provincial tax credits
imocb	Ontario Child Benefit
imocbyng	Ontario Child Benefit amount for Child Care
Supplement	dependents
imoccea	Ont. Child Care Exp. credit allowed (Family)
imoccext	Ont. Child Care Supplement one-time extra benefit
imondc	Ontario number of dependent children 18 or
younger	
imonteht	Ontario Employers Health Tax (Self-employed)
imoprtxc	Ontario Property Tax Credit
imopstc	Ont. Property and Sales Tax Credit
imoshptg	Ontario Senior Homeowners' Property Tax Grant
imostc	Ontario Sales Tax Credit
imosttb	Ontario Sales Tax Transition Benefit
imotxdv	Ontario Taxpayer Dividend
imotxtgr	Ontario Textbook and Technology Grant
impatxc	Prov Age amount tax credit
impatxcr	Prov total tax credits applied
impbtc	Prov Basic amount

impcgtc	Prov Caregiver Tax Credit Level
impcgtcp	Provincial Dependent Caregiver Tax Credit Amount
impchrct	Prov Charitable Donations tax credit
impcpptc	Prov CPP/QPP contributions tax credit
impctxct	Prov tax credits transferred from children
impdistc	Prov Disability tax credit
impdtxc	Provincial dividend tax credit
impedtxc	Prov Education tax credit
impheatr	Provincial Home Heating Fuel/Energy Rebate
imphp	Provincial Health Premium
impintsl	Provincial interest on student loans tax credit
implvctc	Provincial labour-sponsored funds tax credit
impmartc	Prov Married and Equivalent to Married tax credit
impmeda	Prov Medical expenses allowed (computed)
impmedtc	Prov Medical Expenses tax credit
impminco	Prov Minimum tax carryover
impothpe	Provincial infirm dependents 18 or older tax
credit	
imppentc	Prov Pension Income tax credit
impptc	Provincial Political Contrib Tax Credit
imprvtax	Prov gross provincial tax
impstxct	Prov tax credits transferred from spouse
impsur	Provincial surtax
imptaxcr	Prov total tax credits
imptc	Refundable provincial tax credits
imptr	Provincial tax reduction
impttxct	Prov total tax credits transferred
imptutxc	Prov Tuition tax credit
impuictc	Prov EI contributions tax credit
imtxp	Provincial income tax payable

txpei Compute provincial taxes for P.E.I.

SUMMARY

When PTXFLG is off, the Basic Provincial Tax (imbpt) for Prince Edward Island is simply a proportion (PPTF) of Basic Federal Tax (imbft).

The 2000 budget announced that PEI would convert to a tax on taxable income starting in 2001. When the tax on taxable income flag is turned on (PTXFLG), a provincial tax table (PPTX) is applied on taxable income (imitax) in order to get the gross provincial tax (imprvtax). Non-refundable tax credits are calculated using the non-refundable tax credit rate (PPNTPCR) and are applied against gross provincial tax in order to get the basic provincial income tax (imbpt).

The non-refundable credits which are calculated are:

impbtc	Basic amount	(PBXM)
impatxc	Age amount tax credit	(PAXM, PAXRR, PAXTD)
impmartc	Married and equivalent-to-married tax credit	(PMXM, PMXMT, PEMXM, PEMXMT)
impcgtc	Caregiver tax credit	(PCGTC, PCGTCFLG)
impchrctc	Charitable donations	(PCHATL1, PCHATR1, PCHATR2)
impcpptc	CPP/QPP contribution	(PCPPCTXC)
impdistc	Disability tax credit	(PMAXDX)
impothpe	Infirm dependents 18 or older tax credit	(PODISTC)
impdtxc	Dividend tax credit	(PDTCR, PDTCRLC)
impedtxc	Education tax credit	(PEDXPM, PEDXPMPT, PMAXET)
impmedtc	Medical expenses tax credit	(PMEDEXFLG, PMEDANF, PMEDALL)
imppentc	Pension income tax credit	(PYPNDL)
imptutxc	Tuition Tax credit	(PTUITFLG, PMAXET)
impuictc	EI contributions tax credit	(PEICTXC)
impintsl	Interest of Student Loans tax credit	(PINTSLFLG)
impminco	Minimum tax carryover	(PAMTOPT, PAMTPCTF, PAMTTX, PAMTPCTM)

The Prince Edward Island labour-sponsored venture capital credit is modeled (implvctc). A study was made showing that the majority of Canadians who contribute to labour-sponsored funds claim both federal and provincial credits. Therefore the gross contributions from the Greenbook are imputed onto the database. The Prince Edward Island provincial credit is modeled as PLVCRT times the gross amount up to PLVCMAX. The credit cannot be more than provincial taxes (imtxp).

Low Income Tax Reduction

Announced in the 2000 budget, the maximum Low Income Tax Reduction is equal to the sum of a base amount (PTRBAS), an amount for a spouse or equivalent-to-spouse (PTRSP), and an amount for each dependent child (PTRKID). It is then reduced for net income over PTRTD at a rate of PTRRR. The reduction cannot be more than taxes owing. The reduction is calculated at a family level but can be split amongst spouses.

Young Child Tax Credit

The parameter PYCTCAPM represents the amount per month to be allocated per child under 6 years of age for the P.E.I. young child tax credit. The spouse with the lower net income (imicnet) may claim this non-refundable tax credit for each child under 6. This amount per month is multiplied by the number of months in the year, the phase in rate for the tax credit (PYCTCPI), the number of eligible children and the provincial non-refundable tax credit rate

(PPNTPCR). The value of the non-transferable credit is saved in `impyctxc` and is included in `imptaxcr`.

CROSS REFERENCE

Function	Description
INPUT PARAMETERS:	
PAMTOPT	P.E.I. alternative minimum tax option
PAMTPCTF	P.E.I. amt rate as pct of additional fed tax due to minimum tax
PAMTPCTM	P.E.I. amt rate as pct of federal minimum tax amount
PAMTTX	P.E.I. amt rate as tax on adjusted income
PAXM	P.E.I. Age Amount
PAXRR	P.E.I. Age Amount credit reduction rate
PAXTD	P.E.I. Age Amount net income turndown
PBXM	P.E.I. Basic Personal Exemption/amount
PCGTC	P.E.I. Caregiver Tax Credit
PCGTCFLG	P.E.I. Caregiver Tax Credit activation flag
PCGTCOPT	P.E.I. Caregiver Tax Credit Option (1=max, 2=greenbook, 3=model)
PCGTCTD	P.E.I. Caregiver Tax Credit income turndown
PCHATL1	P.E.I. Charitable Donations amount level 1
PCHATR1	P.E.I. Charitable Donations tax credit rate 1
PCHATR2	P.E.I. Charitable Donations tax credit rate 2
PCPPCTXC	P.E.I. CPP Contribution Tax Credit activation flag
PDTCR	P.E.I. dividend tax credit rate
PDTCRLC	P.E.I. dividend tax credit rate from large (eligible) corporations
PEDXPM	P.E.I. Education Amount per month of full-time studies
PEDXPMPT	P.E.I. Education Amount per month of part-time studies
PEICTXC	P.E.I. EI Premium Tax Credit activation flag
PEMXM	P.E.I. equivalent to married amount
PEMXMT	P.E.I. equivalent to married turndown level
PINTSLFLG	P.E.I. Interest on Student Loans Tax Credit activation flag
PLVCMAX	Maximum P.E.I. labour-sponsored funds tax credit allowed
PLVCRT	Percent of P.E.I. labour-sponsored funds cost allowed as credit

PMAXDX P.E.I. Maximum Disability deduction/amount
 PMAXET P.E.I. maximum on transfer of education and
 tuition amount
 PMEDALL P.E.I. Medical allowance maximum lower limit
 PMEDANF P.E.I. Medical allowance lower limit net income
 fraction
 PMEDEXFLG P.E.I. Medical Expense Tax Credit activation flag
 PMXM P.E.I. married amount
 PMXMT P.E.I. married amount turndown level
 PODISTC P.E.I. Maximum infirm dependent 18 or older tax
 credit
 PPNTCR P.E.I. provincial non-refundable tax credit rate
 PPTC P.E.I. political contribution table [total
 donations,donation allowed]
 PPTCBEN Maximum P.E.I. political tax credit allowed
 PPTF P.E.I. provincial tax fraction
 PPTX P.E.I. tax table [taxable income,basic provincial
 tax]
 PSCI P.E.I. provincial tax above which surtax applies
 PSF P.E.I. provincial surtax rate
 PTRBAS Base PEI low income tax reduction
 PTRKID PEI low income tax reduction for dependent child
 PTRRR PEI low income tax reduction Reduction Rate
 PTRSP PEI low income tax reduction for spouse or
 equivalent-to-spouse
 PTRTD PEI low income tax reduction Turndown
 PTUITFLG P.E.I. Tuition Tax Credit activation flag
 PTXFLG P.E.I. tax on taxable income activation flag
 PYCTCAPM P.E.I. Young Child Tax Credit Amount per Month
 PYCTCPI P.E.I. Young Child Tax Credit Phase in
 PYPNDL P.E.I. Pension Income Deduction Amount

INPUT VARIABLES:

cfin First person in census family [pointer]
 cfinch First child in census family [pointer]
 cfineld Eldest person in census family [pointer]
 cfinspo Spouse of eldest [pointer]
 cfnchild Number of children (including 18+)
 cfnpers Number of persons in census family
 cfspoflg Census family contains married couple
 efin First person in economic family [pointer]
 efnpers Number of persons in economic family
 hhncf Number of census families in household
 hhnef Number of economic families in household
 hhnin Number of individuals in household
 hhnnf Number of nuclear families in household
 idage Age

idcfrh	Relationship to census family head
idcgtc	Caregivers tax credit (database) (315)
iddisab	Disability status (age 16+)
iddisoth	Disability amount for dependants (318)
iddisslf	Disability amount for self (316)
ideducfm	Eligible full-time months of education
ideducpm	Eligible part-time months of education
ididiv	Dividend income (actual)
idinspo	Person's spouse [pointer]
idintstu	Interest paid on student loans (319)
idlabtxg	Gross Labour funds bought (413)
idmedgro	Medical expenses, gross (330)
idmincar	Minimum tax carryover (504)
idothpe	Amounts for Infirm Dependants (306)
idprvftc	Provincial foreign tax credit (Form T2036)
idprvpol	Provincial political contributions (565)
idspoflg	Person has spouse
idtuitn	Tuition fees (320)
imamtfg	Minimum tax flag
imamtinc	Net adjusted income used for minimum tax
imamtprv	Federal minimum tax concept used for provincial
minimum tax	
imbft	Basic federal tax
imchara	Allowable charitable donations and gifts
(calculated)	
imcppse	CPP contributions deduction for self-emp
imcqqpc	CPP/QPP contributions
imdedfn	All deductions from net income
imdepmi	Dependant's net income
imicnet	Net Income (line 236)
imildivt	Dividend income from large (eligible)
corporations	(taxable)
imipnst	Taxable pension income (after splitting)
imisdivt	Dividend income from small corporations (taxable)
imitax	Taxable income
imiuccbc	Universal Child Care Benefit amount claimed
imminamt	Minimum Amount due to Federal Minimum Tax
imuic	Employment Insurance contributions
nfineld	Eldest person in nuclear family [pointer]
nfinspo	Spouse of eldest [pointer]
nfnkids	Number of children in nuclear family
nfspoflg	Nuclear family contains married couple

OUTPUT VARIABLES:

imbpt	Basic provincial tax
imnptc	Non-refundable provincial tax credits
impatxc	Prov Age amount tax credit

impatxcr	Prov total tax credits applied
impbtc	Prov Basic amount
impcgtc	Prov Caregiver Tax Credit Level
impcgtcp	Provincial Dependent Caregiver Tax Credit Amount
impchrct	Prov Charitable Donations tax credit
impcpptc	Prov CPP/QPP contributions tax credit
impctxct	Prov tax credits transferred from children
impdistc	Prov Disability tax credit
impdtxc	Provincial dividend tax credit
impedtxc	Prov Education tax credit
impintsl	Provincial interest on student loans tax credit
implvctc	Provincial labour-sponsored funds tax credit
impmartc	Prov Married and Equivalent to Married tax credit
impmeda	Prov Medical expenses allowed (computed)
impmedtc	Prov Medical Expenses tax credit
impminco	Prov Minimum tax carryover
impothpe	Provincial infirm dependents 18 or older tax
credit	
imppentc	Prov Pension Income tax credit
impptc	Provincial Political Contrib Tax Credit
imprvtax	Prov gross provincial tax
impstxct	Prov tax credits transferred from spouse
impsur	Provincial surtax
imptaxcr	Prov total tax credits
imptr	Provincial tax reduction
impttxct	Prov total tax credits transferred
imptutxc	Prov Tuition tax credit
impuictc	Prov EI contributions tax credit
impyctxc	Prov Young Child tax credit
imtxp	Provincial income tax payable

txprov Compute provincial taxes

SUMMARY

Provincial income taxes are collected by the federal government on behalf of most provinces. Quebec collects its own income tax. Algorithms for computing provincial tax range from taking a proportion of Basic Federal Tax as in Newfoundland, Prince Edward Island, New Brunswick and Nova Scotia to a parallel of the federal system in Quebec. The other provinces begin with a proportion of federal taxes but have their own systems of tax credits, surtaxes and reductions.

CROSS REFERENCE

Function	Description
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INPUT VARIABLES:

hdprov	Province
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txqcalc	Calculate income tax (Quebec)
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SUMMARY

The txqcalc function calculates Quebec income tax for those individuals affected.

SPSM Implementation

Each census family is processed in turn. First, the basic provincial tax is computed via a table look-up for each person. Next the non-refundable tax credits are applied and unused credits are transferred between spouses, if appropriate. Subsequently, the 'family situation' and 'eligible income' are computed followed by the family tax reduction. After the family tax reduction has been calculated, the refundable property tax credit is computed.

Relation to Other SPSM Routines

txqcalc is called from within txprov and is in a subsidiary relationship to it. It does not call, and is not called by, any further functions.

Sales tax credit

The refundable sales tax credit (imqstr) is activated when QSTRFLAG is set to 1. The sales tax credit includes a base credit (QSTRBCRD), a credit (QSTRCHILD) is added for each child in the family. A second credit is added (QSTRFTP3) when no spouse is present and at least one dependent child is present. And finally another credit is added (QSTRFTP4) is for a person living alone or with at least one dependent. The credit is reduced by the income considered at a rate QSTRRR. Families who receive SA get their credit zeroed out. If QSTREXT is non-zero and the family is received the sales tax refund (or would have received it if they did not receive SA) then QSTREXT is added to the credit.

Housing of Parent tax credit

The Housing of Parent Tax Credit (imqhptc) calculation is activated by a flag (QHPTCFLG) and the base tax credit is QHPTC. An economic family is eligible to the imqhptc if the parent or grandparent of the head of the economic family, or his/her spouse is in the economic family.

Medical Expenses tax credit

The calculation of the refundable tax credit for medical expenses is activated by the flag QMRTCFLG. The maximum refundable credit will be the lesser of QMEDRMAX and QMEDRATE percent of eligible medical expenses (imqmeda). The tax credit is reduced by QMEDRRR percent of net family income in excess of QMEDRTD. Eligibility is also limited to persons aged 18 and over with employment related earnings greater than QMEDRMIN. The medical expenses tax credit was introduced in 1997.

Dues as non-refundable tax credit

Starting in 1997, union and professional dues are treated as a tax credit. The value of the tax credit is imquetc.

Tuition as non-refundable tax credit

Starting in 1997, tuition costs are treated as a tax credit. The value of the tax credit is imqtuitc.

Family Allowance Tax Credit

The Quebec Family Allowance Tax Credit started in September 1997 but is implemented in the model starting 1998. The Quebec Family Allowance Tax Credit is a credit based on previous year net family income and is non-taxable. The maximum credits vary with the number of children (QFATCMXK), and a supplement QFATCSUP is allocated to single parent families. For families with 4 kids and more, a supplement, QFATCK6, is added that varies with the number of kids and the number of kids under 6 years of age. The credit is the maximum until it reaches the first turn down income level with a specific reduction rate. The sequence of turn down incomes and reduction rates for single parent families are in QFATCSR and for married couples in QFATCMRR. The turning point at QFATD4KI is increased by QFATD4K for each child over three. The benefits are reduced up to a minimum based on the number of children in the family (QFATCMNK) until the net family income reaches the last turning point in either QFATCSR or QFATCMRR. At this last turning point the benefits are starting to reduce until they reach a minimum for payments of QFATCMIN. The program is implemented by copying the reduction rate table (QFATCSR or QFATCMRR) into a temporary table. Then another temporary table assigns benefits and reduction rates to turning point incomes. Finally, the calculated benefits, imqfatc, are assigned to the women in the married couples or to the head of the single parent family. When activated, the take-up rate, QFATCTK, selects the assigned individual only if a random number is higher than the level specified by its total income. As a standard, QFATCTK is set to zero and all individuals are selected.

Alternative Minimum Tax

The Alternative Minimum Tax in Quebec started in 1986 and is now fully implemented. The calculation is activated by QAMTXFLG. The calculation of the income considered is slightly different than the Federal Alternative Minimum Tax because of difference in the rates considered for:

- . the grossed up portion of dividends (imqidivt - ididiv), and
- . the allowable taxable portion the capital gains (QAMTCAPR).

The exemption level is QAMTX and the tax rate is QAMTTX. When the Alternative Minimum Tax is higher than the calculated tax using the standard algorithm, the difference is stored in imqamt. A flag, imqamtfg, identifies the individuals with the modified income tax.

When QAMTXSTKFLG is set to 1, the stock option deduction (imqstkdd) can be deducted when calculating the Quebec Alternative Minimum Tax.

Political Contribution

Starting in 1995, the political contribution is subject to two rates (QPCTR) instead of one (QPTC). The calculation procedure for 1995 and after is activated when QPCOPT is set to 2, otherwise it is the single rate that applies.

Labour-sponsored venture capital tax credit

The Quebec labour-sponsored venture capital credit is modeled (implvctc). A study was made showing that the majority of Canadians who contribute to labour-sponsored funds claim both federal and provincial credits. Therefore the gross contributions from the Greenbook are imputed onto the database. The Quebec provincial credit is modeled as QLVCRRT times the gross amount up to QLVCMAX. The credit cannot be more than provincial taxes (imtxp).

Simplified tax program (low income credit)

The simplified tax program, which includes a flat tax credit, started in 1998. People were allowed to decide whether it was in their benefit to fill out the simplified or general tax form. A worksheet was provided in order to facilitate the choice.

The SPSM has implemented this tax system in the following way. When QSFOPT is set to 1, everyone in Quebec fills out the general tax form. This is the system which was in place prior to 1998. If QSFOPT is set to 2, then everyone fills in the simplified tax form. And when QSFOPT is set to 3, then an optimization procedure is run. In this scenario, an approximation of the worksheet which was provided with the 1998 tax form is calculated prior to the computation of taxes. People are assigned to either the general tax form (which includes all deductions) or the simplified tax form (which includes few deduction but an additional credit - QSFTC). The variable imqsfflg notes which form was chosen.

A person can transfer all of their extra credits and deductions to their spouse when both spouses fill out the simplified tax form. When using the general form, only a limited number

of deductions can be transferred. Because the worksheet does not take into account all the inter-spouse complexities, the optimization procedure will tend to overstate taxes. While it is very accurate for single persons, it tends to maximize the individual's gain which is not necessarily the couple's gain. The model may therefore slightly overstate Quebec taxes.

At the same time, the number of income tax brackets in QTX is reduced from 5 to 3, the Surtax and the Tax Reduction are eliminated.

This tax change also signified the replacement of the age, living alone, and retirement credits with a combined family-based credit (imqcalr).

Improved Tax System for Self Employed Workers

The improved tax system for self employed workers in Quebec was added. This improved system was announced in the Quebec 2000 Budget to enable the increasing number of self-employed workers to benefit from the simplified tax form. This system will standardize the tax treatment applicable to that part of the contribution paid by a worker in respect of pensionable self-employed earnings that could be equated with an employer's contribution, and refrain from excluding a growing number of self-employed workers from the simplified tax system. When activated (QITSFSEW), it will result in a conversion of QITSSEF of the tax credit granted in respect of amounts payable as contributions on pensionable self-employed earnings to the CPP/QPP into a deduction in the calculation of income. This new deduction will be applied to the calculation of income under the simplified tax system and to the income used to determine the contribution to the Health Services Fund payable by individuals. The calculated amount of the contributions to be converted is held in imqcppse.

Refundable Tax Credit for Medical Expenses

When QMRTCFLG is assigned to 1, the Quebec refundable tax credit for medical expenses (imqmedrc) is calculated for persons aged 18 and over who had employment related earnings greater than QMEDRMIN. The maximum refundable credit will be the lesser of QMEDRMAX and QMEDRATE percent of eligible medical expenses (imqmeda). It is reduced by QMEDRRR percent of net family income in excess of QMEDRTD. When QMRTCFLG is assigned to 0, the calculation of the Quebec refundable tax credit for medical expenses is suppressed.

Refundable Tax Credit for Home Improvement and Renovation

The Quebec refundable tax credit for home improvement and renovation has been added for the 2009 taxation year. This program provides a credit equal to 20% of eligible renovation costs in excess of \$7,500 and up to \$20,000, and is assigned to the spouse with the higher taxable income.

Quebec Health Contribution

The Quebec Health Contribution starting in 2010 has been implemented. Adults pay the base amount of QHCAMT if their family net income is above the income threshold of QHCINCT, which varies by family type.

Solidarity Tax Credit

The Quebec Solidarity Tax Credit has been implemented. It replaces the tax credit for the QST (imqstr), the property tax refund (imqptr) and the tax credit for individuals living in a northern village (which is currently out of scope for the SPSD/M). For the SPSD/M, only the QST and the housing components will be implemented as the northern village component is out of scope. The QST component consists of a basic amount in regard to the individual (QSTCSBAS), plus an amount in regard of the individual's spouse (QSTCSSP) if a spouse exists, or an amount for individuals who live in a household without any other eligible individuals for the Quebec Solidarity Tax Credit (QSTCSLA). The housing component is granted to individuals and families who pay property taxes or rent. Married couples who live in a single family household may claim QSTCHSF. Individuals or families that who contribute towards rent or property taxes in households with multiple contributing individuals may claim an amount of QSTCHMF that is split amongst all the contributing members. Unmarried individuals who are the sole contributors to rent or property taxes may claim the amount for living alone (QSTCHLA). The housing component also consists of an amount per dependent eligible for the refundable Child Assistance amount (under 18) of QSTCHC. Families and individuals with family net incomes in excess of the turndown threshold of QSTCTD will receive a reduced tax credit. The credit is reduced by QSTCRRF for incomes over the threshold for those eligible for both components, and by QSTCRRP if eligible for only the QST component. The value of the refundable credit is saved in imqstc and added to provincial refundable tax credits (imptc).

CROSS REFERENCE

Function	Description
INPUT PARAMETERS:	
BGISM	Basic GIS - married
BGISS	Basic GIS - single
BOAS	Basic OAS
CCEAOAGE	CCEA Maximum eligible age for oldest child
CCEATFLG	CCEA eligible->claimable transformation activation flag
CCEATFR	CCEA eligible->claimable fraction
CCEATLL	CCEA eligible->claimable lower limit
PYINC	Deflator to calculate previous year income
PYINCP	Deflator to calculate income from 2 years prior
QAMTCAPR	Quebec Alternative Minimum Tax Capital inclusion rate
QAMTDIV	Quebec Alternative Minimum Tax Taxable Dividend Limit

QAMTDIVFLG Quebec Alternative Minimum Tax - dividend level triggers AMT flag
 QAMTRITC Quebec Alternative Minimum Tax Retirement Income Credit Deduction
 QAMTRPFLG RRSP/RPP included in Quebec Alternative Minimum Tax (1=include)
 QAMTSTTC Quebec Alternative Minimum Tax Spouse Transfer of Tax Credits Flag
 QAMTTX QAMTX tax rate
 QAMTX QAMTX exemption level
 QAMTXFLG Quebec alternative minimum tax, QAMTX, activation flag
 QAMTXSTKFLG QAMTX stock option deduction inclusion (1=stk can be deducted)
 QAPFFLG Quebec anti-poverty fund activation flag
 QAPFRAT Quebec anti-poverty fund rate
 QAWPCR Quebec Adapted Work Premium for Disabled Credit Rate [family type]
 QAWPEIPI Quebec Adapted Work Premium for Disabled Employment Income Phase In [family type]
 QAWPFLAG Quebec Adapted Work Premium for Disabled refundable tax credit flag
 QAWPMAX Quebec Adapted Work Premium for Disabled Maximum [family type]
 QAWPRR Quebec Adapted Work Premium for Disabled Reduction Rate
 QAWPTD Quebec Adapted Work Premium for Disabled Income Turndown [family type]
 QAXM Quebec age exemption/amount
 QBXM Quebec basic personal exemption/amount
 QCAFLAG Quebec Child Assistance refundable tax credit flag
 QCALRFLG Quebec combined age, living alone retirement credit
 QCAMAX Quebec Child Assistance Maximum [number of children]
 QCAMIN Quebec Child Assistance Minimum [number of children]
 QCARR Quebec Child Assistance Reduction Rate
 QCASPMAX Quebec Child Assistance Maximum Single Parent additional credit
 QCASPMIN Quebec Child Assistance Minimum Single Parent additional credit
 QCATDC Quebec Child Assistance Income Turndown for couples
 QCATDS Quebec Child Assistance Income Turndown for single parents

QCCEAOLD Quebec CCEA old child limit
 QCCEAYNG Quebec CCEA young child limit
 QCCEEIFLG Quebec Refundable CCE EI Benefits in Earned
 Income flag
 QCCEEITST Quebec Refundable CCE Earned Income Test flag
 QCCEFLAG Quebec Refundable Child Care Expense tax credit
 flag
 QCCEINCDF Quebec Refundable CCE Income Definition flag
 QCCECTCR Refundable CCE credit rate [net income, % cce
 claimable]
 QCMPOPT Quebec Complementary Credit option
 QDTCR Quebec dividend tax credit rate
 QDTCRLC Quebec dividend tax credit rate from large
 (eligible) corporations
 QEIA1 Quebec eligible income family type #1
 QEIA2 Quebec eligible income family type #2
 QEIA3 Quebec eligible income family type #3
 QEIA4 Quebec eligible income family type #4
 QEIA5 Quebec eligible income family type #5
 QEIAA Quebec eligible income aged amount
 QEMPDEDP Quebec earned income deduction percent of income
 QESSNEEDS Quebec essential needs for transfer of parental
 contributions
 QEWAGE Quebec eligible age for Tax Credit for
 Experienced Worker
 QEWEINC Quebec Eligible earning amount for Tax Credit for
 Experienced Worker
 QEWERNM Quebec Minimum eligible earnings for Tax Credit
 for Experienced Worker
 QEWFLAG Quebec flag for Tax Credit for Experienced Worker
 QEWTCR Quebec tax credit rate for Tax Credit for
 Experienced Worker
 QFAMDED Quebec Family related deduction on income in
 refundable credits
 QFAMFLG Quebec family income deduction activation flag
 QFAMNETI Quebec family allowance tax credit net income
 concept flag
 QFAMRAT Quebec family income rate
 QFATCHIRR QFATC High income reduction rate
 QFATCHITD QFATC High income turndown
 QFATCK6 QFATC Supplement for kids under 6 in large
 families [#kids][#kids<6]
 QFATCK6PYR QFATC supplement for kids under 6 phase out year
 proportion
 QFATCK6YR QFATC Supplement for kids under 6 phase out year
 QFATCMIN QFATC minimum benefit paid
 QFATCMNK QFATC Minimum benefits by kid rank

QFATCMRR QFATC turn down income levels and reduction rate
 for married parents
 QFATCMXK QFATC Maximum benefits by kid rank
 QFATCOPT Quebec Family Allowance Tax Credit Option
 QFATCSRR QFATC turn down income levels and reduction rate
 for single parent
 QFATCSUP Quebec Family Allowance Tax Credit Supplement for
 single parent
 QFATCTK QFATC Take-up rates by total income
 QFATD4K QFATC turn down income for 4 children and more
 QFATD4KI QFATC turn down income increase by child for 4
 children and more
 QFTRA1 Quebec family tax reduction family type #1
 QFTRA2 Quebec family tax reduction family type #2
 QFTRA3 Quebec family tax reduction family type #3
 QFTRA4 Quebec family tax reduction family type #4
 QFTRFLAG Quebec family tax reduction activation flag
 QFTRRR Quebec family tax reduction reduction rate
 QHCAMT Quebec Health Contribution base amount
 QHCFLAG Quebec Health Contribution activation flag
 QHCGISFLG Quebec Health Contribution GIS Exemption
 activation flag
 QHCGISPCT Quebec Health Contribution GIS Exemption
 Percentage
 QHCINCT Quebec Health Contribution Income Threshold
 [family type]
 QHPTC Quebec Housing Parent Tax Credit
 QHPTCFLG Quebec Housing Parent Tax Credit activation flag
 QHPTCOPT Quebec Housing Parent Tax Credit Calculation
 option
 QHRTCFLAG Quebec Tax Credit for Home Improvement and
 Renovation activation flag
 QHRTCMAX Quebec Tax Credit for Home Improvement and
 Renovation maximum eligible expenses
 QHRTCMIN Quebec Tax Credit for Home Improvement and
 Renovation minimum eligible expenses
 QHRTCR Quebec Tax Credit for Home Improvement and
 Renovation rate
 QHSCI Quebec surtax first cut-in level
 QHSCI2 Quebec surtax second cut-in level
 QHSF Quebec surtax first level rate
 QHSF2 Quebec surtax second level rate
 QITSFSEW Quebec improved tax system for self-employed
 worker activation flag
 QLAXM Quebec living alone exemption/amount
 QLAXOLDDEP Quebec living alone amount if all dependents 18
 or over

QLVCMAX Maximum Quebec labour-sponsored funds tax credit
 allowed
 QLVCRT Percent of Quebec labour-sponsored funds cost
 allowed as credit
 QMEDEXFLG Quebec Medical Expense non-refundable Tax Credit
 activation flag
 QMEDINC Income definition for Que. refundable tax credit
 for medical expenses
 QMEDRATE Proportion of expenses allowed for refundable tax
 credit for medical expenses
 QMEDRMX Maximum expenses allowed for Que. refundable tax
 credit for medical expenses
 QMEDRMIN Minimum earnings for Quebec refundable tax credit
 for medical expenses
 QMEDRRR Reduction rate for the Que. refundable tax credit
 for medical expenses
 QMEDRTD Turndown level for Que. refundable tax credit for
 medical expenses
 QMRTCFLG Quebec refundable tax credits for medical
 expenses activation flag
 QNORFAMI Quebec Northern Deductions from Family Tax Credit
 Income flag
 QNTRC Quebec nominal tax credit rate
 QPCOPT Quebec political contribution option
 QPCTR Quebec political contribution tax rates
 QPSXM Quebec post-secondary exemption/amount
 QPTC Quebec political contribution table [total
 donations, donation allowed]
 QPTCBEN Maximum Quebec political tax credit allowed
 QPTRMTP Quebec property tax minimum tax per person
 QPTRMTR Quebec property tax maximum tax for reduction
 QPTRRR Quebec property tax rebate reduction rate
 QPTRTF Quebec property tax fraction
 QREPFAMI Quebec repayment of EI/OAS benefits deduct from
 income flag
 QRNCGFLG Quebec Natural Caregivers Tax Credit activation
 flag
 QRNCGMR Quebec Natural Caregivers Tax Credit maximum
 reduction
 QRNCGOPT Quebec Natural Caregivers Tax Credit option
 (1=max, 2=model)
 QRNCGTC Quebec Natural Caregivers Tax Credit
 QRNCGTCR Quebec Natural Caregivers Tax Credit rate
 QRNCGTD Quebec Natural Caregivers Tax Credit income
 turndown
 QRTRFLAG Quebec real estate rebate activation flag

QSFDED Quebec Simplified Form - additional deductions
 for net income calculation flag
 QSFDISFLAG Quebec Simplified Form Disability tax credit
 inclusion flag
 QSFMEDFLAG Quebec Simplified Form medical expense tax credit
 inclusion flag
 QSFOPT Quebec Simplified Form Option (1=general
 2=simplified 3=optimized)
 QSFTC Quebec Simplified Form tax credit
 QSFTXCR Quebec Simplified Form - transfer unused credits
 to spouse under either tax system
 QSTCFLAG Quebec Solidarity Tax Credit activation flag
 QSTCHC Quebec Solidarity Tax Credit housing component
 child amount
 QSTCHLA Quebec Solidarity Tax Credit housing component
 living alone amount
 QSTCHMF Quebec Solidarity Tax Credit housing component
 multiple family amount
 QSTCHSF Quebec Solidarity Tax Credit housing component
 single family amount
 QSTCRRF Quebec Solidarity Tax Credit reduction rate if
 eligible for both QST and housing
 QSTCRRP Quebec Solidarity Tax Credit reduction rate if
 eligible for only QST component
 QSTCSBAS Quebec Solidarity Tax Credit QST component base
 amount
 QSTCSLA Quebec Solidarity Tax Credit QST component living
 alone amount
 QSTCSSP Quebec Solidarity Tax Credit QST component spouse
 amount
 QSTCTD Quebec Solidarity Tax Credit income turndown
 threshold
 QSTRBCRD Quebec sales tax rebate base credit
 QSTRCHILD Quebec sales tax rebate children dependent credit
 QSTREXT Quebec sales tax rebate extra amount
 QSTRFLAG Quebec sales tax rebate activation flag
 QSTRFTP3 Quebec sales tax rebate family type 3 credit
 QSTRFTP4 Quebec sales tax rebate family type 4 credit
 QSTRMAGE Quebec sales tax rebate minimum age flag
 QSTRRRR Quebec sales tax rebate reduction rate
 QSTSCA Quebec Single Tax System Complementary Amount
 QTPCFLG Quebec transfer of recognized parental
 contribution to education activation flag
 QTRBE Quebec Tax Reduction Breakeven
 QTRP Quebec tax Reduction proportion
 QTUITRFFLG Quebec flag to allow transfer of tuition tax
 credit to parents

QTX Quebec income tax table [taxable income, basic provincial tax]
 QWPCR Quebec Work Premium Credit Rate [family type]
 QWPEIPI Quebec Work Premium Employment Income Phase In [family type]
 QWPEXPFLG Quebec Work Premium employment deductions application flag
 QWPFLAG Quebec Work Premium refundable tax credit flag
 QWPMAX Quebec Work Premium Maximum [family type]
 QWPRR Quebec Work Premium Reduction Rate
 QWPSEINC Quebec Work Premium self-employment income concept flag
 QWPTD Quebec Work Premium Income Turndown [family type]
 QYPDL Quebec deduction limit for pension income
 TARGETYEAR Year of analysis

INPUT VARIABLES:

cfin First person in census family [pointer]
 cfinch First child in census family [pointer]
 cfineld Eldest person in census family [pointer]
 cfinspo Spouse of eldest [pointer]
 cfnchild Number of children (including 18+)
 cfnkids Number of children in census family
 cfnpers Number of persons in census family
 cfspoflg Census family contains married couple
 efin First person in economic family [pointer]
 efnpers Number of persons in economic family
 fxhrtcpr Home Renovation Tax Credit eligible expenses on principal residence
 hdnadult Number of adults in household
 hdnpers Number of persons in household
 hhncf Number of census families in household
 hhnef Number of economic families in household
 hhnin Number of individuals in household
 hhnnf Number of nuclear families in household
 idage Age
 idcarry Carrying charges (221)
 idccet Child care expenses associated with child
 idccett Child care expenses (Limit A, Form T778)
 idcfrh Relationship to census family head
 idcgtc Caregivers tax credit (database) (315)
 idclergy Clergy residential deduction
 idcloss Allowable other years capital loss (253)
 iddisab Disability status (age 16+)
 ideducfm Eligible full-time months of education
 idefrh Relationship to economic family head
 idemplo Employee home relocation loan dedn (248)

idexplor	Exploration and development expenses (224)
idicapg	Capital gains (actual)
ididiv	Dividend income (actual)
idiemp	Wages & salaries
idiloss	Business investment losses (217)
idinspo	Person's spouse [pointer]
idise	Self-employed income
idlabtxg	Gross Labour funds bought (413)
idnorth	Northern deductions (255)
idothpe	Amounts for Infirm Dependants (306)
idpartlo	Limited partnership losses (251)
idprvpol	Provincial political contributions (565)
idrand	Random numbers [array]
idrpp	Registered pension plan contributions (207)
idrrsp	RRSP calculated amount (208)
idsex	Sex
idspoflg	Person has spouse
idtuitn	Tuition fees (320)
imgista	Amount of GIST which goes into SA
imgistyp	Type of GIS entitlement
imigis	GIS benefits
imigistop	GIS/SPA Top Up Amount
imioas	OAS benefits
imisa	Social assistance (or replacement program)
imitax	Taxable income
imiuib	Employment Insurance benefits
imoaspar	Partial OAS residency flag
improptx	Imputed property tax paid
imqalexp	Quebec allowable employment expenses
imqatc	Quebec age tax credit
imqbtc	Quebec basic tax credit
imqcapgt	Quebec taxable capital gains
imqcchc	Quebec child's non-refundable credit
imqchatc	Quebec allowable charitable donations tax credit
imqcppse	Quebec self-employ. QPP/PPP Cont. deduction
imqcpptc	Quebec CPP/QPP contributions tax credit
imqdctc	Quebec dependent child tax credits
imqdedfn	Quebec all deductions from net income
imqdedft	Quebec deductions from total income
imqdistc	Quebec disability tax credit
imqduetc	Quebec Dues Tax Credit
imqhsfc	Quebec Health Services Fund Contributions
imqhsftc	Quebec Health Services Fund Cont.tax credit
imqidivt	Quebec taxable dividends
imqinet	Quebec net income
imqintsl	Quebec student loan interest tax credit
imqipnst	Quebec taxable pension income (after splitting)

imqitax Quebec taxable income
 imqitot Quebec total income
 imqlatc Quebec living alone tax credit
 imqldivt Quebec taxable dividends from large (eligible)
 corporations
 imqmeda Quebec medical expenses allowed
 imqmtc Quebec married tax credit
 imqndc Quebec number of dependent children
 imqpipcbn Quebec parental insurance plan calendar year
 benefits
 imqqpiptc Quebec parental insurance plan premium tax credit
 for paid workers (Quebec)
 imqqpsedd Quebec parental insurance plan premium deduction
 for self-employed (Quebec)
 imqqpsetc Quebec parental insurance plan premium tax credit
 for self-employed (Quebec)
 imqritc Quebec retirement income tax credit
 imqsddivt Quebec taxable dividends from small corporations
 imqsfflg Quebec simplified tax form flag 0=general
 1=simplified
 imqstkdd Quebec modelled Stock option deduction (249)
 imqtuitc Quebec Tuition Tax Credit
 imquictc Quebec EI contributions tax credit
 imrentpd Imputed rent paid
 imrepay Social Benefits Repayments
 nfinch First child in nuclear family [pointer]
 nfineld Eldest person in nuclear family [pointer]
 nfinspo Spouse of eldest [pointer]
 nfnkids Number of children in nuclear family
 nfspoflg Nuclear family contains married couple

OUTPUT VARIABLES:

imbpt Basic provincial tax
 implvctc Provincial labour-sponsored funds tax credit
 impptc Provincial Political Contrib Tax Credit
 impsur Provincial surtax
 imptc Refundable provincial tax credits
 imptr Provincial tax reduction
 imqamt Quebec Minimum Tax Amount
 imqamtfg Quebec Minimum Tax flag
 imqapf Quebec Anti-Poverty Fund
 imqawrkpr Quebec Adapted Work Premium for Disabled
 refundable tax credit
 imqbtax Quebec tax before credits
 imqca Quebec Child Assistance refundable tax credit
 imqcalr Quebec combined age, living alone, retirement
 credit

imqcceni	Quebec net income for refundable cce credit calculation
imqccetc	Quebec refundable child care expenses Tax Credit
imqctpc	Quebec child's transfer of recognized parental contribution
imqdtxc	Quebec dividend tax credit
imqei	Quebec eligible income for tax reduction
imqewtc	Quebec tax credit for experienced workers
imqfatc	Quebec Family Allowance Tax Credit
imqfs	Quebec family situation (1-5)
imqftr	Quebec family tax reduction
imqhcont	Quebec health contribution amount
imqhptc	Quebec Home Parent Tax Credit level
imqhptcp	Quebec Home Parent Tax Credit potential level
imqhrtc	Quebec Home Renovation Tax Credit
imqidc	Quebec income of designated dependent child
imqittr	Quebec income tested tax reduction
imqmedrc	Quebec refundable tax credit for medical expenses
imqncgtc	Quebec Refundable Natural Caregivers Tax Credit
imqnctcp	Quebec Refundable Natural Caregivers Tax Credit potential amount
imqptr	Quebec property tax refund
imqstc	Quebec Solidarity Tax Credit amount
imqstr	Quebec sales tax refund
imqtca	Quebec tax credits applied
imqtct	Quebec tax credits transferable
imqtctc	Quebec tax credits transferred from child
imqtcts	Quebec tax credits transferred from spouse
imqtottc	Quebec total tax credits
imqtpcn	Quebec number of children who transferred parental contribution
imqtuitt	Quebec amount of tuition transferred to parents
imqwrkpr	Quebec Work Premium refundable tax credit
imtxp	Provincial income tax payable

txqhstr Compute family-related deductions or credits (Quebec)

SUMMARY

This function parallels txhstr which performs similar calculations for federal taxes. The major difference is that the model does not incorporate the conversion of deductions into tax credits for the calculation of Quebec taxes. The algorithms include:

- calculate and allocate tax credits for dependent children

- calculate and allocate the married tax credit
- calculate the living alone tax credit

Calculate and Allocate Dependent Children Tax Credit

If a spouse is present, the one with the higher Net Income (imqinet) receives the full amount of the tax credit for all dependent children (imqdctc).

Calculate and Allocate Married Tax Credit

Persons legally married during the taxation year are eligible to claim a Married Tax Credit amounting to a fixed value reduced by the spouse's adjusted net income.

The Married Tax Credit (imqmtc) is calculated only for the spouse with the lower Net Income (imqinet). It amounts to a fixed value (QMXM) reduced by the other spouse's Net Income.

Calculate Living alone tax credit

The calculation of the living alone tax credit imqlatc is based on the value of the tax credit QLAXM adjusted by the nominal tax credit rate (QNTCR).

Starting in 1996, the calculation of the living alone tax credit is subject to turndown income (QLAXTD) and a reduction rate (QLAXRR) for net income (imqinet) in excess. In 1996, the reduction is only 50% and 100% after, and it is controlled by the phase in variable QLAXPI.

When QCALRFLG is activated, the combined age, living alone, and retirement credit is activated (imqcalr) and imqlatc is set to zero.

CROSS REFERENCE

Function	Description
INPUT PARAMETERS:	
QCAFLAG	Quebec Child Assistance refundable tax credit flag
QCALRFLG	Quebec combined age, living alone retirement credit
QDTCNCA1	Quebec Dependent Tax Credit Amount for first dependent without child assistance
QDTCNCA2	Quebec Dependent Tax Credit Amount for other dependents without child assistance
QDTCSPA	Quebec Dependent Tax Credit Single Parent Amount (no child assistance)

QITSFSEW Quebec improved tax system for self-employed
 worker activation flag
 QLAXM Quebec living alone exemption/amount
 QLAXPI Quebec living alone phase-in
 QLAXRR Quebec living alone reduction rate
 QLAXTD Quebec living alone turn down
 QLPXM Quebec lone parent exemption/amount
 QMEDINC Income definition for Que. refundable tax credit
 for medical expenses
 QMXM Quebec married exemption/amount
 QNTRC Quebec nominal tax credit rate
 QODISTC Quebec infirm dependent amount (18 and over)
 QPSXM Quebec post-secondary exemption/amount
 QPSXMINC Quebec income ratio for post-secondary
 exemption/amount
 QREPFAMI Quebec repayment of EI/OAS benefits deduct from
 income flag
 QTPCFLG Quebec transfer of recognized parental
 contribution to education activation flag
 QYCXM1 Quebec dependent child #1 amount
 QYCXM2 Quebec dependent child #2 amount

INPUT VARIABLES:

cfinch First child in census family [pointer]
 cfineld Eldest person in census family [pointer]
 cfinspo Spouse of eldest [pointer]
 cfnchild Number of children (including 18+)
 cfnkids Number of children in census family
 cfspoflg Census family contains married couple
 hdnpers Number of persons in household
 hhncf Number of census families in household
 hhnin Number of individuals in household
 idage Age
 ideducfm Eligible full-time months of education
 idestat Educational status
 idothpe Amounts for Infirm Dependants (306)
 idrpp Registered pension plan contributions (207)
 idrrsp RRSP calculated amount (208)
 idschtp School type
 imqcppse Quebec self-employ. QPP/ CPP Cont. deduction
 imqinet Quebec net income
 imqitot Quebec total income
 imrepay Social Benefits Repayments

OUTPUT VARIABLES:

imqcchc Quebec child's non-refundable credit
 imqdctc Quebec dependent child tax credits

imqdepni	Quebec dependant's net income
imqlatc	Quebec living alone tax credit
imqmtc	Quebec married tax credit
imqndc	Quebec number of dependent children

txqinet Compute net income (Quebec)

SUMMARY

The Quebec provincial personal income tax system largely parallels the federal system: deductions and exemptions reduce total income to a taxable amount for which the basic provincial tax is calculated, then tax credits are applied to derive the amount of provincial tax payable. The function calculates net income for Quebec taxpayers and is similar to the process for calculating net income for federal income tax purposes.

SPSM Implementation

The algorithms for calculating Net Income for Quebec Provincial Income Tax Purposes are similar to the algorithms for calculating federal Net Income described under the function txinet. The major difference is that there are no options to treat deductions and personal exemptions as tax credits.

Whenever possible values already calculated in the computation of federal Net Income are applied here. The implementation of specific measures are described below.

Other Allowable Employment Expenses

The model assumes that the definition for Other Allowable Employment Expenses as applied to Quebec Provincial Taxes is the same as the federal definition (see txinet). The same value as used in the federal algorithm (idalexp) is used here. The value of idalexp may be scaled up or down by supplying an appropriate value for the parameter QALEXP (Proportion of Other Allowable Employment Expenses to Use as a Deduction).

The amount idalexp is added to Total Deductions from Total Income (imqdedft) in contrast to the federal algorithm in which the amount is subtracted from Total Income.

Calculate Taxable Capital Gains

Capital Gains are treated as they are for federal taxes (see function txinet). Taxable Capital Gains for Quebec Provincial Tax Purposes (imqcapgt) is calculated as Total Capital Gains Received (idicapg) multiplied by the Capital Gains Inclusion Rate for Quebec Provincial Taxes (QDGUR).

Taxable Dividends

The treatment of dividends is similar to the federal algorithms described under the function `txinet`. Taxable Dividends for Quebec Provincial Taxes (`imqidivt`) are calculated as Total Dividends Received (`ididiv`) multiplied by the Quebec Dividend Gross-up Rate (`QDGUR`).

Calculation of Total Income

As in the federal case (see function `txinet`), Total Income at this stage does not include Family Allowances which cannot be allocated until it is known whether the mother or the father have the higher net income. Total Income (`imqitot`) is calculated as the sum of:

<code>idiemp:</code>	Earnings From Employment
<code>idise:</code>	Self-employment Earnings, optionally scaled by the parameter <code>FACTISENF</code>
<code>idiinvnd:</code>	Interest Income
<code>imqidivt:</code>	Modeled Taxable Amount of Dividends for Quebec
<code>idicqp:</code>	CPP/QPP Benefits Received
<code>idipens:</code>	Pension Income
<code>imqpentr:</code>	Quebec Pension Income Transferred from spouse
<code>iditrsp:</code>	Taxable RRSP withdrawals
<code>iditoth:</code>	Other Taxable Income
<code>imiuib:</code>	Modeled Employment Insurance Benefits Received
<code>imqipcbn:</code>	Quebec Parental Insurance Plan calendar year benefits
<code>imiotg:</code>	Modeled New Taxable Demogrants
<code>imioas:</code>	Modeled OAS Benefits
<code>imqcapgt:</code>	Modeled Taxable Capital Gains and Losses for Quebec
<code>idialimo</code>	Alimony Income Received
<code>imisa</code>	Social assistance benefits
<code>imgistsa</code>	Amount of GIST which goes into SA
<code>idiworkc</code>	Worker's compensation
<code>imigis</code>	GIS benefits
<code>imispa</code>	Spouse's allowance

Other Allowable Employment Expenses (`imqalexp`) are added into All Deductions from Total Income (`imqdedft`) and not subtracted from Total Income as in the federal algorithms.

Calculation of Net Income

All Deductions from Total Income (`imqdedft`) is calculated as the sum of:

<code>imqempdd:</code>	Quebec earned income deduction for workers
<code>idrpp:</code>	Registered Pension Plan Contributions
<code>idrrsp:</code>	Registered Retirement Savings Plan Contributions
<code>imqpentrd:</code>	Quebec Pension income deduction from transfer to spouse
<code>imqiloss:</code>	Allowable Business Investment Loss
<code>idmovexp:</code>	Moving Expenses
<code>iddalimo:</code>	Alimony Paid

idothded: Other Deductions from Total Income (includes Moving Expenses, Alimony Paid, Repayment of Income Amounts, Legal and Accounting Fees, Petroleum Exploration Ventures, Capital Cost Allowance on Canadian Motion Picture Films and Video Tapes)
 idcarry: Carrying Charges (interest on money borrowed to earn investment income)
 imqalexp: optionally, Other Allowable Employment Expenses
 idclergy optionally, Clergy residence deduction
 idexplor: Exploration and development expenses
 idnorth: optionally, Northern Deductions
 imqcppse: optionally, Quebec self-employ. QPP/PPP Cont. deduction
 imrepay: optionally, Social Benefits Repayment
 imqqsedd: Quebec parental insurance plan premium deduction for self-employed

Improved Tax System for Self-Employed Workers

The improved tax system for self employed workers in Quebec was added. When activated by QITSFSEW, it will result in a conversion of QITSSEF of the tax credit granted in respect of amounts payable as contributions on pensionable self-employed earnings to the CPP/QPP into a deduction in the calculation of income. This new deduction will be applied to the calculation of income under the simplified tax system and to the income used to determine the contribution to the Health Services Fund payable by individuals.

CROSS REFERENCE

Function	Description
INPUT PARAMETERS:	
CPPXM	CPP/QPP exemptible earnings
QALEXP	Quebec proportion of other allowable employment expenses to use
QCAPGIR	Quebec capital gains inclusion rate
QCMPOPT	Quebec Complementary Credit option
QDGUR	Quebec dividend gross-up rate
QDGURLC	Quebec dividend gross-up rate from large (eligible) corporations
QDTCR	Quebec dividend tax credit rate
QDTCRLC	Quebec dividend tax credit rate from large (eligible) corporations
QEEXPDED	Quebec employment expenses deduction application flag
QEMPDEDM	Quebec earned income deduction for workers maximum
QEMPDEDP	Quebec earned income deduction percent of income

QHSC11 Quebec Health Services Fund Contribution Lower
 Level Income Threshold
 QHSC12 Quebec Health Services Fund Contribution Upper
 Level Income Threshold
 QHSCM1 Quebec Health Services Fund Contribution Lower
 Level Maximum
 QHSCM2 Quebec Health Services Fund Contribution Upper
 Level Maximum
 QHSCR1 Quebec Health Services Fund Contribution Lower
 Level Inclusion Rate
 QHSCR2 Quebec Health Services Fund Contribution Upper
 Level Inclusion Rate
 QINTSLTC Quebec student loan interest tax credit flag
 QITSFSEW Quebec improved tax system for self-employed
 worker activation flag
 QITSSEF Quebec percentage of self-employ CPP/QPP
 contributions to convert to deduction
 QMAXDX Quebec maximum disability deduction/amount
 QMEDANF Quebec medical allowance lower limit net income
 fraction
 QNORTHDED Quebec northern deductions - 0=for taxable
 income, 1=for net income
 QNTPCR Quebec nominal tax credit rate
 QPIPF Quebec parental insurance plan contribution rate
 for paid workers
 QPIPF1AG Quebec parental insurance plan activation flag
 QPIPFSE Quebec parental insurance plan contribution rate
 for self-employed
 QPPWSCF QPP contribution rate on employment earnings
 QREPFAMI Quebec repayment of EI/OAS benefits deduct from
 income flag
 QREPNETFG Social program repayments reduce Quebec net
 income flag
 QRNCGFLG Quebec Natural Caregivers Tax Credit activation
 flag
 QSFDED Quebec Simplified Form - additional deductions
 for net income calculation flag
 QSFDISFLAG Quebec Simplified Form Disability tax credit
 inclusion flag
 QSFMEDFLAG Quebec Simplified Form medical expense tax credit
 inclusion flag
 QSF1OPT Quebec Simplified Form Option (1=general
 2=simplified 3=optimized)
 QSF5MXI Quebec simplified form spouse maximum income for
 work sheet
 QSFTC Quebec Simplified Form tax credit
 QSPLTPNSFLAG Quebec flag to split pension income

QTX Quebec income tax table [taxable income, basic provincial tax]
YMPE CPP/QPP maximum pensionable earnings

INPUT VARIABLES:

cfin First person in census family [pointer]
cfnpers Number of persons in census family
cfspoflg Census family contains married couple
hhncf Number of census families in household
hhnin Number of individuals in household
idalexp Other allowable employment expenses (229)
idcapgex Capital gains exemptions (254)
idcarry Carrying charges (221)
idcfrh Relationship to census family head
idclergy Clergy residential deduction
idclos Allowable other years capital loss (253)
iddalimo Alimony paid (220)
iddisoth Disability amount for dependants (318)
iddisslf Disability amount for self (316)
iddues Union and professional dues (212)
idemplo Employee home relocation loan dedn (248)
idexplor Exploration and development expenses (224)
idialimo Alimony income received
idicapg Capital gains (actual)
idicqp CPP/QPP income (114)
ididiv Dividend income (actual)
iddive Amount of eligible dividend income
iddivie Amount of other than eligible dividend income
idiemp Wages & salaries
idiinvnd Interest and other investment income
idiloss Business investment losses (217)
idinspo Person's spouse [pointer]
idintstu Interest paid on student loans (319)
idipens Pension income (115)
idise Self-employed income
iditoth Other taxable income (130)
iditrrsp Taxable RRSP withdrawals
idiworkc Workers compensation benefits
idmedgro Medical expenses, gross (330)
idmovexp Imputed moving expenses (219)
idnclos Allowable other years non-capital loss (252)
idnorth Northern deductions (255)
idothded Other deductions from total income (232)
idpartlo Limited partnership losses (251)
idrpp Registered pension plan contributions (207)
idrrsp RRSP calculated amount (208)
idspoflg Person has spouse

idstkded	Stock option deduction (249)
idtuittn	Tuition fees (320)
imcqppc	CPP/QPP contributions
imgistsa	Amount of GIST which goes into SA
imicnet	Net Income (line 236)
imictot	Total Income (line 150)
imigis	GIS benefits
imioas	OAS benefits
imiotg	Other taxable demogrants
imisa	Social assistance (or replacement program)
imispa	Spouse's allowance
imiuib	Employment Insurance benefits
imqipcbn	Quebec parental insurance plan calendar year
benefits	
imqippp	Quebec parental insurance plan premiums for paid
workers	
imqipppse	Quebec parental insurance plan premiums for self-
employed	
imqpnsp	Quebec pension income split for head
imqpnsp	Quebec pension income split for spouse
inrepa	Social Benefits Repayments
imuibr	EI benefit recovery
imuic	Employment Insurance contributions

OUTPUT VARIABLES:

imqalexp	Quebec allowable employment expenses
imqcapgt	Quebec taxable capital gains
imqcppse	Quebec self-employ. QPP/ CPP Cont. deduction
imqcpptc	Quebec CPP/QPP contributions tax credit
imqdedft	Quebec deductions from total income
imqduetc	Quebec Dues Tax Credit
imqempdd	Quebec earned income deduction for workers
imqdivt	Quebec taxable dividends
imqiloss	Quebec Modelled Business investment losses (234)
imqinet	Quebec net income
imqintsl	Quebec student loan interest tax credit
imqipnst	Quebec taxable pension income (after splitting)
imqitot	Quebec total income
imqldivt	Quebec taxable dividends from large (eligible)
corporations	
imqpentr	Quebec Pension income transferred from spouse
imqpentr	Quebec Pension income deduction from transfer to
spouse	
imqqpiptc	Quebec parental insurance plan premium tax credit
for paid workers (Quebec)	
imqqpsedd	Quebec parental insurance plan premium deduction
for self-employed (Quebec)	

```

imqppsetc    Quebec parental insurance plan premium tax credit
for self-employed (Quebec)
imqsdivt     Quebec taxable dividends from small corporations
imqsfflg     Quebec simplified tax form flag 0=general
1=simplified
imqtuitc     Quebec Tuition Tax Credit
imquictc     Quebec EI contributions tax credit

```

txqitax Compute taxable income and individual credits (Quebec)

SUMMARY

The process of computing taxable income for Quebec provincial taxes parallels that of the federal method. When the general tax form is used (imqsfflg), all deductions are calculated and allowed (imqdedfn). These deductions are calculated and subtracted from Net Income (imqinet) to derive a tentative value for Taxable Income (imqitax). When the simplified form is used, depending on the year, only certain deductions are allowed.

The computation of Taxable Income is completed by the function txqhstr which calculates exemptions for dependents and performs the transfer of deductions between members of the family.

The function txqitax also calculates tax credits which are applied in txqcalc.

Calculate Deductions from Net Income

The variable imqdedfn stores the value of All Deductions from Net Income. It is calculated as the sum of:

```

idclos      /* allowable other years capital loss */
idnclos     /* allowable prior years non-capital loss */
idemplo     /* home relocation loan deduction include in other deductions */
idpartlo    /* Limited partnership losses */
imqstkdd    /* stock option deduction as part of other deduction */
idnorth     /* Northern deduction used as designated remote area if
QNORTHDED is set to 0 */
imisa       /* Social assistance or replacement program if QSADED is set to 1 */
imgistsa    /* Amount of GIST which goes into SA if QSADED is set to 1 */
imigis      /* Guaranteed income supplement benefits */
imispa      /* Spouse's allowance */
idiworkc    /* Worker's Compensation Benefits */
imqcagpx    /* Quebec modelled capital gains deduction */

```

The model does not include the Exemption for Members of a Religious Order, the Exemption for Dependents Aged 21 and Over Suffering from a Physical or Mental Infirmary, Deduction

for a Home Relocation Loan, or the Société de placements dans l'entreprise québécoise Deduction.

Medical exemption calculation

Starting in 1997, the calculation of the medical exemption is transferred to txqhstr and the exemption is based on net family income. The credit is allocated to the spouse with the highest net income.

Charity and Gifts to the Crown as Tax Credit

The charity and gifts deduction is transformed in 1993 in a tax credit, imqchatc, and is used in the calculation of total non-refundable tax credits in txqcalc. Before 1998, QGIFTFLG set to zero, idgifts, was included without any limits. Starting 1998, QGIFTFLG set to 1, idgifts and idcharit are subject to the same calculation rules with a limit based on net income. Beginning in 2000, there are two tax credit rates applied to gifts in Quebec. The activation flag, QGIFTHCR, is used to implement the calculation. Allowable gifts up to QGIFTL1 use the QNTCR. The higher credit rate QGFTCR is applied to allowable gifts over QGIFTL1. The total value of the tax credit is imqchatc.

Quebec Health Services Fund Contribution

It is calculated when QHSCFLAG is set to 1.

Individuals with eligible income less than QHSCL1 are not required to pay the Quebec Health Services Fund contribution. For incomes greater than QHSCL2, the contribution is calculated as follows:

$((\text{income less QHSCL2}) * \text{QHSCR2}) + \text{QHSCM1}$, not to exceed the maximum contribution value of QHSCM2.

For incomes between QHSCL1 and QHSCL2, the contribution is calculated as follows:

- $((\text{income less QHSCL1}) * \text{QHSCR1})$, up to the lower level maximum of QHSCM1.

The net income used to lookup an individual's contribution is defined as:

imqitot	Total Income
less	
idtemp	Wages and salaries
idialimo	Alimony Received
imqidivt - idivid	Grossed up portion of dividends
imioas	Optional exemption of OAS benefits
imuibr	EI Repayments
iddalimo	Alimony Paid
idcarry	Carrying charges
imqiloss	Allowable investment losses
imqalexp * !QEEXPDED	Allowable employment expenses

imqcppse * QITSFSEW	CPP/QPP contributions on self-employment
imisa	Social Assistance (if included in total income)
imgistsa	Amount of GIST included in sa (if included in total income)
imigis	GIS Benefits (if included in total income)
imispa	Spouse's Allowance Benefits (if included in total income)
idiworkc	Worker's Compensation Benefits (if included in total income)

Under the simplified tax form system, imuibr is deducted only when QHSSFUIR is set to 1, imqiloss is deducted only when QHSSFLSS is set to 1, idcarry is deducted only when QHSSFCAR is set to 1 and iddalimo is deducted only when QHSSFALM is set to 1. The value of the contribution is imqhsfc.

CROSS REFERENCE

Function	Description
INPUT PARAMETERS:	
QAXM	Quebec age exemption/amount
QAXPI	Quebec age exemption reduction phase in
QAXRR	Quebec age exemption reduction rate
QAXTD	Quebec age exemption income turn down
QBXM	Quebec basic personal exemption/amount
QCALRFLG	Quebec combined age, living alone retirement credit
QCAPGIR	Quebec capital gains inclusion rate
QCHATNF	Quebec charitable donations maximum % net income
QEEXPDED	Quebec employment expenses deduction application flag
QGFTCR	Quebec credit rate for gifts over upper limit
QGIFTFLG	Quebec max to gifts to Federal/Province/Crown activation flag
QGIFTHCR	Quebec higher tax credit on large gifts activation flag
QGIFTL1	Quebec minimum gift limit subject to higher credit rate
QHSCFLAG	Quebec Health Services Fund Contribution calculation flag
QHSC1	Quebec Health Services Fund Contribution Lower Level Income Threshold
QHSC2	Quebec Health Services Fund Contribution Upper Level Income Threshold
QHSCM1	Quebec Health Services Fund Contribution Lower Level Maximum

QHSCM2 Quebec Health Services Fund Contribution Upper
 Level Maximum
 QHSCR1 Quebec Health Services Fund Contribution Lower
 Level Inclusion Rate
 QHSCR2 Quebec Health Services Fund Contribution Upper
 Level Inclusion Rate
 QHSSFALM Quebec Health Services Fund Contrib. Alimony Paid
 Deduction flag
 QHSSFCAR Quebec Health Services Fund Contrib. Carrying
 Charges Deduction flag
 QHSSFLSS Quebec Health Services Fund Contrib. Allowable
 Losses Deduction flag
 QHSSFUIR Quebec Health Services Fund Contrib. EI Repayment
 Deduction flag
 QITSFSEW Quebec improved tax system for self-employed
 worker activation flag
 QMAXDX Quebec maximum disability deduction/amount
 QMEDANF Quebec medical allowance lower limit net income
 fraction
 QMEDINC Income definition for Que. refundable tax credit
 for medical expenses
 QNORTHDED Quebec northern deductions - 0=for taxable
 income, 1=for net income
 QNTCR Quebec nominal tax credit rate
 QREPFAMI Quebec repayment of EI/OAS benefits deduct from
 income flag
 QRNCGFLG Quebec Natural Caregivers Tax Credit activation
 flag
 QSADED Quebec deduction of social assistance benefits
 from net income flag
 QYPDL Quebec deduction limit for pension income
 QYPPI Quebec deduction phase-in for pension income
 QYPRR Quebec deduction reduction rate for pension
 income
 QYPTD Quebec deduction turn down for pension income

INPUT VARIABLES:

hhnin Number of individuals in household
 idage Age
 idcapgex Capital gains exemptions (254)
 idcarry Carrying charges (221)
 idcfrh Relationship to census family head
 idcharit Charitable donations
 idclergy Clergy residential deduction
 idcross Allowable other years capital loss (253)
 iddalimo Alimony paid (220)
 iddisoth Disability amount for dependants (318)

iddisslf	Disability amount for self (316)
idemplo	Employee home relocation loan dedn (248)
idgifts	Gifts to Canada/provinces/culture (342)
idialimo	Alimony income received
ididiv	Dividend income (actual)
idiemp	Wages & salaries
idinspo	Person's spouse [pointer]
idiworkc	Workers compensation benefits
idmedgro	Medical expenses, gross (330)
idnclos	Allowable other years non-capital loss (252)
idnorth	Northern deductions (255)
idpartlo	Limited partnership losses (251)
idrpp	Registered pension plan contributions (207)
idrrsp	RRSP calculated amount (208)
idspoflg	Person has spouse
idstkded	Stock option deduction (249)
imgistsa	Amount of GIST which goes into SA
imigis	GIS benefits
imioas	OAS benefits
imisa	Social assistance (or replacement program)
imispa	Spouse's allowance
imiuccbr	Universal Child Care Benefit amount received
imqalexp	Quebec allowable employment expenses
imqcapgt	Quebec taxable capital gains
imqcppse	Quebec self-employ. QPP/CPP Cont. deduction
imqidivt	Quebec taxable dividends
imqiloss	Quebec Modelled Business investment losses (234)
imqinet	Quebec net income
imqipnst	Quebec taxable pension income (after splitting)
imqitot	Quebec total income
imqqpsedd	Quebec parental insurance plan premium deduction for self-employed (Quebec)
imqsfflg	Quebec simplified tax form flag 0=general 1=simplified
imrepay	Social Benefits Repayments
imuibr	EI benefit recovery

OUTPUT VARIABLES:

imqatc	Quebec age tax credit
imqbtc	Quebec basic tax credit
imqcapgx	Quebec modelled capital gains deduction (254)
imqchatc	Quebec allowable charitable donations tax credit
imqdedfn	Quebec all deductions from net income
imqdistc	Quebec disability tax credit
imqhsfc	Quebec Health Services Fund Contributions
imqhsftc	Quebec Health Services Fund Cont.tax credit
imqitax	Quebec taxable income

imqmeda Quebec medical expenses allowed
 imqritc Quebec retirement income tax credit
 imqstkdd Quebec modelled Stock option deduction (249)

txque Compute provincial taxes for Quebec

SUMMARY

For residents of Quebec, the calculation of provincial taxes roughly approximates the process of calculating federal taxes. The SPSM divides this task among three functions which are described in another section of this document:

1. txqinet calculates total and net income tax
2. txqitax calculates a provisional value for taxable income subject to updating by txqhstr
3. txqhstr performs the calculation of personal exemptions for dependents and the allocation of deductions between head and spouse

The value of Taxable Income (imqitax) calculated by txqhstr is used to look up a value for Basic Provincial Tax (imbpt) in the tax table (QTX).

The Quebec Dividend Tax Credit (imqdtxc) is calculated as a proportion (QDTCR) of Taxable Dividends (imqdivt) and is subtracted from Basic Provincial Tax to derive Provincial Tax Payable (imtxp). Also subtracted is the Quebec Tax Reduction which is a proportion (QTRP) of Provincial Tax Payable (imtxp).

txsask Compute provincial taxes for Saskatchewan

SUMMARY

When STXFLG is off, Saskatchewan Basic Provincial Tax is a proportion (SPTF) of Basic Federal Tax (imbft). A flat surtax, calculated as a proportion (SFTAX) on Net Income (iminet) is added to Basic Tax.

The 2000 budget announced that Saskatchewan would convert to a tax on taxable income starting in 2001. When the tax on taxable income flag is turned on (STXFLG), a provincial tax table (SPTX) is applied on taxable income (imitax) in order to get the gross provincial tax (imprvtax). Non-refundable tax credits are calculated using the non-refundable tax credit rate (SPNTRC) and are applied against gross provincial tax in order to get the basic provincial income tax (imbpt).

The non-refundable credits which are calculated are:

impbtc	Basic amount	(SBXM)
--------	--------------	--------

impatxc	Age amount tax credit	(SAXM, SAXRR, SAXTD)
impmartc	Married and equivalent-to-married tax credit	(SMXM, SMXMT, SEMXM, SEMXMT)
impcgctc	Caregiver tax credit	(SCGTC, SCGTCFLG)
impchrctc	Charitable donations	(SCHATL1, SCHATR1, SCHATR2)
impcpptc	CPP/QPP contribution	(SCPPCTXC)
impdistc	Disability tax credit	(SMAXDX)
impothpe	Infirm dependents 18 or older tax credit	(SODISTC)
impdtxc	Dividend tax credit	(SDTCR, SDTCRLC)
impedtxc	Education tax credit	(SEDXPM, SEDXPMPT, SMAXET)
impmedtc	Medical expenses tax credit	(SMEDEXFLG, SMEDANF, SMEDALL)
imppentc	Pension income tax credit	(SYPNDL)
imptutxc	Tuition Tax credit	(STUITFLG, SMAXET)
impuictc	EI contributions tax credit	(SEICTXC)
impintsl	Interest on Student Loans tax credit	(SINTSLFLG)
imsctxc	Saskatchewan Non-refundable child tax credit	(SCNTC)
imssstxc	Saskatchewan senior supplement tax credit	(SSSTC)
impminco	Minimum tax carryover	(SAMTOPT, SAMTPCTF, SAMTTX, SAMTPCTM)

Adjusted Saskatchewan Tax Payable (before a tax reduction is applied, is stored in the temporary variable a) is calculated as Basic Saskatchewan Tax (imbpt) plus a proportion (SSF) of Basic Saskatchewan Tax exceeding the Saskatchewan Surtax Level (SSCI).

Saskatchewan also implements a system of tax reductions for senior citizens and persons with dependent children. The Basic Tax Reduction (STRBR) is augmented by the Senior Citizen's Tax Reduction (STRSC) if the filer is age 65 or older. A tax reduction per child under 18 (STRPC) up to a maximum total for all children (STRCL) is also added. The number of children claimable for this tax reduction is taken from innfach, the number of children eligible for Family Allowances.

The total potential tax credit is reduced by a proportion (STRRR) of the tax credit exceeding Adjusted Saskatchewan Tax Payable to derive Reduced Saskatchewan Tax Payable imtxp.

Starting in 1992, a surtax (SDSF) for the reduction of the deficit is applied to the tax (imtxp). In 1995, an amount (SDSRA) was deducted from the surtax.

The Saskatchewan labour-sponsored venture capital credit is modeled (implvctc). A study was made showing that the majority of Canadians who contribute to labour-sponsored funds claim both federal and provincial credits. Therefore the gross contributions from the Greenbook are imputed onto the database. The Saskatchewan provincial credit is modeled as

SLVCRT times the gross amount up to SLVCMAX. The credit cannot be more than provincial taxes (imtxp).

Saskatchewan Child Benefit

The Saskatchewan Child Benefit and Saskatchewan Employment Supplement announced in the 1998 budget are modeled. When the SCBFLG is activated, families receive a benefit which depends on the number of children in the family (SCB1, SCB2, and SCB3). The benefit is reduced in two stages. Net family income greater than SCBTD1 and less than SCBTD2 is reduced at a rate SCBRR1 which depends on the number of children in the family. The benefit is further reduced at a rate of SCBRR2 for income over SCBTD2.

Saskatchewan Sales Tax Credit

The Saskatchewan Sales Tax Credit announced in their 2000 Budget is now modelled. The Saskatchewan Sales Tax Credit is activated when SSTCFLAG is set to 1.

The Saskatchewan Sales Tax Credit was introduced in 2000 and became effective April 1, 2000 to offset the effect of sales taxes on lower income earners. SSTCPI represents the phase in rate for the program. The Saskatchewan Sales Tax Credit (imsstc) will consist of an adult component and a child component. This credit will be fully refundable and will be assigned to the spouse with the highest income.

The adult component of the Saskatchewan Sales Tax Credit will rise at a rate of SSTCBASPIR of individual net income up to a maximum (SSTCBAS). It will be reduced at a rate of SSTCRR as family net income increases above SSTCBASTD. An individual will also be eligible for SSTCSP in additional benefits for a dependent spouse or equivalent. This amount will be reduced at a rate of SSTCRR as family net income rises over SSTCSPTD.

The child component of the Saskatchewan Sales Tax Credit will provide an additional SSTCKID per child. For two-parent families, the maximum child component will be SSTCKID + SSTCKID. For single parent families, the first child will be eligible for the adult benefit of SSTCSP and the maximum child component will be SSTCKID. The child component of the Credit will be reduced at a rate of SSTCRR as family net income rises over SSTC1KIDTD for families with one qualifying child. For families with more than one qualifying child, the Credit will be reduced at a rate of SSTCRR as family net income rises over SSTC2KIDTD.

Saskatchewan Low Income Tax Credit

Program Description

The Saskatchewan Low Income Tax Credit was introduced in July 2008, replacing the Saskatchewan Sales Tax Credit. The Saskatchewan Low Income Tax Credit (imslitc) will consist of an adult component and a child component. This credit will be fully refundable and is assigned to the spouse with the higher income.

SPSM Implementation

The adult component of the Saskatchewan Low Income Tax Credit (SLITCBAS) will be granted to the first adult in the couple, and SLITCSP will be granted to the spouse. In the case of single parent families, SLITCBAS will be granted to the single parent and SLITCSP will be granted to the first child. The child component of the Saskatchewan Low Income Tax Credit will provide an additional SLITCKID per child, up to the maximum number of eligible children, SLITCNKID. In the case of single parent families, the maximum allowable children will be reduced by 1 if a child has been granted the adult amount.

The maximum credit is then reduced at a rate of SLITCRR as family net income rises over SLITCTD.

The value of the Saskatchewan Low Income Tax Credit is also added to provincial refundable credits (imptc).

Saskatchewan Home Heating Assistance Rebate

In 2001, persons will receive a direct cash rebate (impheatr) from the Saskatchewan government for assistance with heating expenses. In order to receive it, a person has to have received a GST credit (imfstc). Qualifying persons who live with a spouse or children receive SHEATFAM and others receive SHEATSNG.

CROSS REFERENCE

Function	Description
INPUT PARAMETERS:	
CTCINC	Family income scaling factor
FCBENCAL	Calculate child benefits for calendar year flag
GSTCYFLG	GST credit calendar year calculation activation flag
HEATSNG	Federal relief for heating expenses for singles
PYINC	Deflator to calculate previous year income
PYINCP	Deflator to calculate income from 2 years prior
SAMTOPT	Sask. alternative minimum tax option
SAMTPCTF	Sask. amt rate as pct of additional fed tax due to minimum tax
SAMTPCTM	Sask. amt rate as pct of federal minimum tax amount
SAMTTX	Sask. amt rate as tax on adjusted income
SAXM	Sask. Age Amount
SAXRR	Sask. Age Amount credit reduction rate
SAXTD	Sask. Age Amount net income turndown
SBXM	Sask. Basic Personal Exemption/amount
SCB1	Sask Child Benefit max for 1st child

SCB1P Sask Child Benefit max for 1st child for 1st half
 of year
 SCB2 Sask Child Benefit max for 2nd child
 SCB2P Sask Child Benefit max for 2nd child for 1st half
 of year
 SCB3 Sask Child Benefit max for 3rd and additional
 child
 SCB3P Sask Child Benefit max for 3rd and additional
 child for 1st half of year
 SCBFLG Sask Child Benefit activation flag
 SCBRR1 Sask Child Benefit 1st reduction rate [number of
 kids]
 SCBRR1P Sask Child Benefit 1st reduction rate [number of
 kids] for 1st half of year
 SCBRR2 Sask Child Benefit 2nd reduction rate [number of
 kids]
 SCBRR2P Sask Child Benefit 2nd reduction rate [number of
 kids] for 1st half of year
 SCBSPA Sask Child Benefit Single Parent Amount
 SCBSPAP Sask Child Benefit Single Parent Amount for 1st
 half of year
 SCBTD1 Sask Child Benefit 1st turndown
 SCBTD1P Sask Child Benefit 1st turndown for 1st half of
 year
 SCBTD2 Sask Child Benefit 2nd turndown
 SCBTD2P Sask Child Benefit 2nd turndown for 1st half of
 year
 SCGTC Sask. Caregiver Tax Credit
 SCGTCFLG Sask. Caregiver Tax Credit activation flag
 SCGTCOPT Sask. Caregiver Tax Credit Option (1=max,
 2=greenbook, 3=model)
 SCGTCTD Sask. Caregiver Tax Credit income turndown
 SCHATL1 Sask. Charitable Donations amount level 1
 SCHATR1 Sask. Charitable Donations tax credit rate 1
 SCHATR2 Sask. Charitable Donations tax credit rate 2
 SCNTC Sask. non-refundable child tax credit amt per
 child
 SCPPTXC Sask. CPP Contribution Tax Credit activation flag
 SDSF Saskatchewan provincial deficit surtax fraction
 SDSRA Saskatchewan deficit surtax reduction rate
 SDTCR Sask. dividend tax credit rate
 SDTCRLC Sask. dividend tax credit rate from large
 (eligible) corporations
 SEDXPM Sask. Education Amount per month of full-time
 studies
 SEDXPMPT Sask. Education Amount per month of part-time
 studies

SEICTXC	Sask. EI Premium Tax Credit activation flag
SEMXM	Sask. equivalent to married amount
SEMXT	Sask. equivalent to married turndown level
SFTAX	Saskatchewan provincial flat surtax rate on net income
SHEATFAM	Saskatchewan Home Heating Assistance Rebate for families
SHEATFLG	Saskatchewan Home Heating Assistance Rebate activation flag
SHEATSNG	Saskatchewan Home Heating Assistance Rebate for singles
SINTSLFLG	Sask. Interest on Student Loans Tax Credit activation flag
SLITCBAS	Sask. low Income Tax Credit base amount
SLITCBASP	Sask. low Income Tax Credit base amount for 1st half of year
SLITCFLAG	Sask. Low Income Tax Credit activation flag
SLITCKID	Sask. low Income Tax Credit child amount
SLITCKIDP	Sask. low Income Tax Credit child amount for 1st half of year
SLITCNKID	Sask. low Income Tax Credit Maximum Number of Children
SLITCNKIDP	Sask. low Income Tax Credit Maximum Number of Children for 1st half of year
SLITCRR	Sask. low Income Tax Credit reduction rate
SLITCRRP	Sask. low Income Tax Credit reduction rate for 1st half of year
SLITCSP	Sask. low Income Tax Credit spousal amount
SLITCSPP	Sask. low Income Tax Credit spousal amount for 1st half of year
SLITCTD	Sask. low Income Tax Credit turndown
SLITCTDP	Sask. low Income Tax Credit turndown for 1st half of year
SLVCMAX	Maximum Sask. labour-sponsored funds tax credit allowed
SLVCRT	Percent of Sask. labour-sponsored funds cost allowed as credit
SMAXDX	Sask. Maximum Disability deduction/amount
SMAXET	Sask. maximum on transfer of education and tuition amount
SMEDALL	Sask. Medical allowance maximum lower limit
SMEDANF	Sask. Medical allowance lower limit net income fraction
SMEDEXFLG	Sask. Medical Expense Tax Credit activation flag
SMXM	Sask. married amount
SMXT	Sask. married amount turndown level

SODISTC Sask. Maximum infirm dependent 18 or older tax credit
SPNTRC Sask. provincial non-refundable tax credit rate
SPTC Saskatchewan political contribution table [total donations, donation allowed]
SPTCBEN Maximum Saskatchewan political tax credit allowed
SPTF Saskatchewan provincial tax fraction
SPTX Sask. tax table [taxable income, basic provincial tax]
SSCI Saskatchewan surtax cut-in
SSF Saskatchewan provincial high income surtax fraction
SSSTC Sask. senior supplement tax credit
SSTC1KIDTD Sask. sales tax credit child amount turndown if only 1 child
SSTC1KIDTDP Sask. sales tax credit child amount turndown if only 1 child for 1st half of year
SSTC2KIDTD Sask. sales tax credit child amount turndown if more than 1 child
SSTC2KIDTDP Sask. sales tax credit child amount turndown if more than 1 child for 1st half of year
SSTCBAS Sask. sales tax credit base amount
SSTCBASP Sask. sales tax credit base amount for 1st half of year
SSTCBASPIR Sask. sales tax credit base amount phase in rate
SSTCBASPIRP Sask. sales tax credit base amount phase in rate for 1st half of year
SSTCBASTD Sask. sales tax credit base amount turndown
SSTCBASTDP Sask. sales tax credit base amount turndown for 1st half of year
SSTCFLAG Sask. sales tax credit activation flag
SSTCKID Sask. sales tax credit child amount
SSTCKIDP Sask. sales tax credit child amount for 1st half of year
SSTCPI Sask. sales tax credit phase in
SSTCPI1P Sask. sales tax credit phase in for 1st half of year
SSTCPI2P Sask. sales tax credit phase in for 2nd half of year
SSTCRR Sask. sales tax credit reduction rate
SSTCRRP Sask. sales tax credit reduction rate for 1st half of year
SSTCSP Sask. sales tax credit spousal amount
SSTCSPP Sask. sales tax credit spousal amount for 1st half of year
SSTCSPTD Sask. sales tax credit spousal amount turndown

SSTCSPTDP Sask. sales tax credit spousal amount turndown
for 1st half of year
SSTR Saskatchewan spousal & married equivalent tax
reduction
STRBA Saskatchewan tax reduction base amount
STRBR Saskatchewan basic provincial tax reduction
STRCL Saskatchewan child tax reduction limit
STRPC Saskatchewan tax reduction per child
STRRR Saskatchewan tax reduction reduction rate
STRSC Saskatchewan tax reduction for senior citizens
STUITFLG Sask. Tuition Tax Credit activation flag
STXFLG Sask. tax on taxable income activation flag
SYPNDL Sask. Pension Income Deduction Amount

INPUT VARIABLES:

cfm First person in census family [pointer]
cfmch First child in census family [pointer]
cfmold Eldest person in census family [pointer]
cfmspo Spouse of eldest [pointer]
cfmchild Number of children (including 18+)
cfmkids Number of children in census family
cfmpers Number of persons in census family
cfmsoflg Census family contains married couple
efm First person in economic family [pointer]
efmpers Number of persons in economic family
hhncf Number of census families in household
hhnef Number of economic families in household
hhnin Number of individuals in household
hhnnf Number of nuclear families in household
idage Age
idcfrh Relationship to census family head
idcgtc Caregivers tax credit (database) (315)
iddisab Disability status (age 16+)
iddisoth Disability amount for dependants (318)
iddisslf Disability amount for self (316)
ideducfm Eligible full-time months of education
ideducpm Eligible part-time months of education
ididiv Dividend income (actual)
idinspo Person's spouse [pointer]
idintstu Interest paid on student loans (319)
idiworkc Workers compensation benefits
idlabtsg Gross Labour funds bought (413)
idmedgro Medical expenses, gross (330)
idmincar Minimum tax carryover (504)
idothpe Amounts for Infirm Dependents (306)
idprvftc Provincial foreign tax credit (Form T2036)
idprvppl Provincial political contributions (565)

idsex	Sex
idspoflg	Person has spouse
idtuitn	Tuition fees (320)
imamtfg	Minimum tax flag
imamtinc	Net adjusted income used for minimum tax
imamtprv	Federal minimum tax concept used for provincial
minimum tax	
imbft	Basic federal tax
imchara	Allowable charitable donations and gifts
(calculated)	
imcppse	CPP contributions deduction for self-emp
imcqqpc	CPP/QPP contributions
imdedfn	All deductions from net income
imdepmi	Dependant's net income
imheatrl	Federal relief for heating expenses
imicnet	Net Income (line 236)
imigis	GIS benefits
imildivt	Dividend income from large (eligible)
corporations	(taxable)
imipnst	Taxable pension income (after splitting)
imisa	Social assistance (or replacement program)
imisdivt	Dividend income from small corporations (taxable)
imispa	Spouse's allowance
imitax	Taxable income
imiuccbc	Universal Child Care Benefit amount claimed
immartxc	Married tax credit claimed
imminamt	Minimum Amount due to Federal Minimum Tax
imnfach	Number of under 18 children claimed for tax
reduction	
imuic	Employment Insurance contributions
nfineld	Eldest person in nuclear family [pointer]
nfinspo	Spouse of eldest [pointer]
nfnkids	Number of children in nuclear family
nfspoflg	Nuclear family contains married couple

OUTPUT VARIABLES:

imbpt	Basic provincial tax
imnptc	Non-refundable provincial tax credits
impatxc	Prov Age amount tax credit
impatxcr	Prov total tax credits applied
impbtc	Prov Basic amount
impcgtc	Prov Caregiver Tax Credit Level
impcgtcp	Provincial Dependent Caregiver Tax Credit Amount
impchrtc	Prov Charitable Donations tax credit
impcpptc	Prov CPP/QPP contributions tax credit
impctxct	Prov tax credits transferred from children
impdistc	Prov Disability tax credit

impdtxc	Provincial dividend tax credit
impedtxc	Prov Education tax credit
impheatr	Provincial Home Heating Fuel/Energy Rebate
impintsl	Provincial interest on student loans tax credit
implvctc	Provincial labour-sponsored funds tax credit
impmartc	Prov Married and Equivalent to Married tax credit
impmeda	Prov Medical expenses allowed (computed)
impmedtc	Prov Medical Expenses tax credit
impminco	Prov Minimum tax carryover
impnit	Provincial net income tax
impothpe credit	Provincial infirm dependents 18 or older tax credit
imppentc	Prov Pension Income tax credit
impptc	Provincial Political Contrib Tax Credit
imprvtax	Prov gross provincial tax
impstxct	Prov tax credits transferred from spouse
impsur	Provincial surtax
imptaxcr	Prov total tax credits
imptc	Refundable provincial tax credits
imptr	Provincial tax reduction
impttxct	Prov total tax credits transferred
imptutxc	Prov Tuition tax credit
impuictc	Prov EI contributions tax credit
imscb	Saskatchewan Child Benefit
imsctxc	Saskatchewan Non-refundable child tax credit
imslitc	Saskatchewan refundable low income tax credit
imssstxc	Saskatchewan senior supplement tax credit
imsstc	Saskatchewan refundable sales tax credit
imtxp	Provincial income tax payable

ui Compute UI benefits

SUMMARY

This module calculates Employment Insurance (EI) and the Quebec Parental Insurance Plan (QPIP).

Employment Insurance (EI) benefits are calculated by a set of functions which mimic application of EI regulations to individual employment and claim histories. These histories are summaries of administrative data from a 10% sample of persons with some EI claim activity. Benefits are first calculated on a claim basis. Adjustments are then made to allow for claims overlapping more than one calendar year. Finally, taxable benefits received by individuals within a calendar year are determined.

Program Description

Employment insurance is an income support program financed jointly by employees, employers and the federal government. It is intended to provide income maintenance during temporary interruptions in employment. As such, it is not a universal program. Among those excluded from coverage are persons who do not participate in the labour force, the self-employed (other than fishermen) and persons who have exhausted benefit entitlements.

SPSM Implementation

The SPSM implementation of the EI program has distinct steps representing application of program regulations to a given claim. The function `ui` operates as a controller which calls the sub-functions which apply EI regulations to each claim and each EI claimant within a household and returns the benefits received by individuals for the calendar year. Claimants may have one or two claims overlapping the survey calendar year. Payments within the calendar year are determined assuming benefits are paid on consecutive weeks.

For SPSM purposes, the unemployment regions are urban size classes within each province. These are not the regions defined for administration of the EI program. The use of proxy unemployment regions is required to ensure data confidentiality.

For purposes of determining entitlements, the claim histories include the initial claim type `ucbtyp` (i.e., Maternity, Sickness, Retirement, Fishing or Regular) and a type change flag (i.e., indicating that a Sickness claim, for example, was changed to a Regular claim within the Initial Phase). SPSM deems the type change to have taken place immediately after the claim is established and does not attempt to subdivide the Initial Phase into Special and Regular periods. Since type change takes place, the special benefits totals (e.g., Sickness benefits) can not be determined by eliminating the type (e.g., by setting eligibility requirements high) and calculating the reduction in benefits. A second claim type (`ucmtyp`) is also imputed. If there was more than one type of benefit received within a claim, `ucmtyp` represents the claim type which had the majority of weeks. By turning on `UIEIMTYPFLG`, `ucmtyp` is modelled instead of `ucbtyp`.

The EI algorithm has almost no behavioural response capacity, so that, for example, no new claims can be created. However, there have been more people with claims imputed in the base year than was necessary. This means that the number of persons with claims can be modified using the `UITARGET` and `UIEITKP` parameters. Similarly, the duration of modeled claims does not exceed observed durations, except when the following parameters are used: `UIREGWKFCT`, `UITRNWKFCT`, `UIOTHWKFCT`, `UIEXTMATWKS`, `UIBEHAVOPT`, `UIBEHAVREGFLG`, `UIEXTWKS`. Unless these parameters are modified, the assumption is that individuals would not increase their duration on claim, even if their entitlements were increased.

There are several sub-functions contained in the `ui` function. The first called is `uicl` which calculates benefits for a single claim. It first performs a test for eligibility requirements based on claim type. `uicl` next determines the weeks of entitlement in the Initial Phase. The `ui` function then calls `uitrnc` which calculates training and other benefits (excluding regular,

fishing, sickness, maternity, and parental which are calculated in uiclm). If a second claim is required uiclm and uitrncm are called again. Each function and sub-function are briefly described below.

ui

The ui function serves to pass information about each individual with a EI claim in a household to uiclm. If an individual has more than one claim, modeled weeks of benefits in the qualifying period are computed for the first claim and passed to uiclm when the second claim is processed. EI benefits for a calendar year are returned.

uiclm

The sub-function uiclm processes distinct claims from the information passed to it by ui. In the event of a repeat claim, ui passes information about modeled claim activity in the qualifying period. Modeled changes to EI regulations may produce important differences in first claim activity, thereby effectively changing the status of the second claim.

The uiclm function operates at a claim rather than an individual level. Eligibility tests are applied based on the minimum hours of insurable employment in the qualifying period required for each initial claim type. These are basic tests which may be superseded by special tests applied to repeaters, new entrants/re-entrants, and other regular claimants. The function sets a flag indicating eligibility status. It then changes the type of eligible claims, where appropriate.

Once a claim is established, uiclm then determines the weeks of entitlement in each of the Initial Phase. For special benefit types (i.e., claims that remain maternity, fishing, sickness or parental), this is the total claim entitlement and is determined by a table lookup. For regular claims, entitlements, up to a maximum number of weeks, are determined in proportion to weeks or hours of insurable employment in the qualifying period up to a maximum number of weeks. The claim is represented by four pointers which identify:

Pointer #1 - 1st week of benefits (following waiting period)

Pointer #2 - 1st week of other benefits

Pointer #5 - 1st week of training benefits

Pointer #6 - week after end of training benefits

Weeks are identified by integers with the week of January 1 being zero. The differences between succeeding pointers will initially equal the entitlement on the appropriate phase. uiclm then calls a utility function uisqz which ensures that interval between #1 and #2 does not exceed the original claim (minus any training or other weeks) or the maximum allowable duration of a claim. A subsequent call to uisqz produces a second set of (windowed) pointers that do not include any weeks outside the calendar year.

The uiclm function then calculates the weekly benefits. Benefits are the product of phase weeks times the weekly benefit rate for each phase summed over phases. However, benefit rates may be increased or decreased by the following modelled programs: minimum divisor rule (see UIEIDIVFLG), the intensity rule (see UIEIFIFLG), and the family supplement (see UIEIFSFLG).

uitrncm

The function `uitrncm` is called by the `ui` function after the `uicl` function. Therefore, regular, sickness, maternity, fishing, and parental benefits have already been assigned. The `uitrncm` function assigns first other types of benefits, then training benefits. Other types of benefits will include everything not included in regular, sickness, maternity, parental, fishing or training. The list of other benefits included will vary depending on the year of the program. But they may include such items as job creation benefits, work sharing benefits, and self-employed assistance.

Other benefits are calculated using the imputed weeks of other benefits (`ucothwk`) and a weekly benefit rate (`ucothbr`). These can be adjusted using `UIOTHWKFCT` and `UIOTHBNFCT`. Training benefits are calculated in a similar manner using `uctrnwk`, `uctrnbr`, `UITRNWKFCT`, and `UITRNBNFCT`. There are no eligibility tests for these types of benefits. The pointers `ubp5` and `ubp6` were created to signify the end of these benefit phases.

SPSM Limitations

The SPSM is a static first round model. It does not model behavioural responses to policy changes. The model is also constrained by the data which is available to it.

The database contains EI histories from an administrative database. This means that the histories on the SPSD are from people who received EI in the base year of the database. Therefore, modeling an expansion to the program, say by reducing the number of hours or weeks worked in order to become eligible for benefits, will not result in new claims as everyone on the database had already qualified for benefits under the more restricted rules. In order to model new claims, more people with claims are imputed in the base year than was necessary. So you can increase then number of people with EI by modifying the `UITARGET` and `UIEITKP` parameters. See the [*User's Guide*](#) for more information about how to modify those parameters.

The duration of modeled claims will not exceed observed durations, except when the following parameters are used: `UIREGWKFCT`, `UITRNWKFCT`, `UIOTHWKFCT`, `UIEXTMATWKS`, `UIBEHAVOPT`, `UIBEHAVREGFLG`, and `UIEXTWKS`. As people on the database may have found work after their claim, by expanding their claims internal inconsistencies may arise. However, users may modify the value of the above adjustment parameters to allow longer durations.

`UIBEHAVOPT` controls the adjustment of the duration of regular, sickness, maternity, parental and fishing claims so they may exceed observed durations on the database without exceeding the maximum duration. When `UIBEHAVOPT` is set to 1, then the length of the benefit can be lengthened by `UIREGWKFCT` times the number of unused weeks. When `UIBEHAVOPT` is set to 2, people who have exhausted their benefits on the database will have their claim duration extended by all unused weeks. And when `UIBEHAVOPT` is set to 3, people will take up to `UIEXTWKS` weeks more than seen on the database (without exceeding the maximum number of weeks allowed). When `UIBEHAVREGFLG` is turned

on, the above adjustments only occur for regular claims (e.g. the duration of sickness, maternity, parental and fishing claims are no longer modified).

Further adjustments to the duration of EI claims can be made using UIEXTMATWKS which extends the duration of maternity benefits, UITRNWKFACT which extends the duration of training weeks, and UIOTHWKFACT which extends the duration of other types of benefits.

Quebec Parental Insurance Plan

The Quebec Parental Insurance Plan (QPIP) began in 2006. This plan provides for payment of financial benefits to all eligible workers who take maternity, paternity or parental leave. It replaces the maternity and parental benefits offered under the Employment Insurance program for people in Quebec. It is based on the employment status prior to having the child.

To be eligible for QPIP benefits, one must be a parent of a child born after January 1, 2006 and be paid worker or a self-employed with an insurable income of at least QPIPEMIN. Parents who are eligible for the QPIP can choose between the basic and special plan (idqptype). They may decide on the number of weeks for which they will receive benefits and the rate of their insurable income. In the SPSM, the following QPIP benefits are available – maternity (paid exclusively to the mother), paternity (paid exclusively to the father) and parental (payable to either parent).

When QPIPMODELFLG is turned off, QPIP benefits are not modelled but the value from the database (idqipip) is used and is saved under imqipcbn.

When QPIPMODELFLG is turned on, the amount of QPIP is calculated using the rules set out below. QPIP benefits start in the week idqpstrt. The first type of benefit received (maternity, paternity or parental) is idqpfst. The total amount of weeks of QPIP a person will receive in the SPSM is limited by the maximum available given the rules seen below, and the number of weeks of QPIP a person received in the database (idqpweek). The weekly amount of benefit is calculated using the weekly earnings prior to claim (idqpern) and the rate which depends on the rules below.

Basic Plan:

Under the basic plan, the maximum number of maternity weeks is QPIPBMTW payable at a rate of QPIPBMTTR, and the maximum number of paternity weeks is QPIPBPTW payable at a rate of QPIPBPTR. Parental benefits are split into two phases under the basic plan. In the first phase, the maximum number of parental weeks is QPIPBPRW1 payable at a rate of QPIPBPRR1 and in the second phase, the maximum number of parental weeks is QPIPBPRW2 payable at a rate of QPIPBPRR2.

Special Plan:

Under the special plan, the maximum number of maternity weeks is QPIPSMTW payable at a rate of QPIPSMTR, and the maximum number of paternity weeks is QPIPSPTW payable at

a rate of QPIPSPTR. The maximum number of parental weeks is QPIPSPRW payable at a rate of QPIPSPRR.

Low income supplement:

This supplement provides a weekly top up (not to exceed QPIPSFR of average weekly earnings) based on a look up table QPIPSBN that allocates a weekly amount based on net income. The net income used is previous year's (using PYINC) for claims starting in the last half of the year; and net income from 2 years prior (using PYINCP) for claims starting in the first half of the year. The weekly amount is then assigned to the QPIP recipient for each eligible week of QPIP benefits.

QPIP benefits collected in the calendar year is held in the variable imqipcbn, while the total amounts of QPIP benefits collected for the period of leave is represented in imqpiptbn. As well, the total number of weeks of QPIP benefits collected in the calendar year is contained in the variable imqipcwkw and the total weeks collected for the period of leave is held in the variable imqpiptwk.

Benefits and weeks by type (maternity, paternity or parental) are also captured.

CROSS REFERENCE

Function	Description
INPUT PARAMETERS:	
PYINC	Deflator to calculate previous year income
PYINCP	Deflator to calculate income from 2 years prior
QPIPBMTTR	Quebec parental insurance plan maternity weeks benefit rate - basic plan
QPIPBMTW	Quebec parental insurance plan maximum maternity weeks - basic plan
QPIPBPRR1	Quebec parental insurance plan parental initial weeks benefit rate - basic plan
QPIPBPRR2	Quebec parental insurance plan parental additional weeks benefit rate - basic plan
QPIPBPRW1	Quebec parental insurance plan maximum parental initial weeks - basic plan
QPIPBPRW2	Quebec parental insurance plan maximum parental additional weeks - basic plan
QPIBPTR	Quebec parental insurance plan paternity benefit rate - basic plan
QPIBPTRW	Quebec parental insurance plan maximum paternity weeks - basic plan

QPIPEMIN Quebec parental insurance plan minimum insurable earnings
 QPIPFLAG Quebec parental insurance plan activation flag
 QPIPMODELFLG Quebec parental insurance plan model flag
 QPIPSBN Quebec parental insurance plan low income supplement table [net income, weekly benefit]
 QPIPSFR Quebec parental insurance plan supplement fraction of weekly earnings
 QPIPSMTR Quebec parental insurance plan maternity benefit rate - special plan
 QPIPSMTW Quebec parental insurance plan maximum maternity weeks - special plan
 QPIPSPRR Quebec parental insurance plan parental benefit rate - special plan
 QPIPSPRW Quebec parental insurance plan maximum parental weeks - special plan
 QPIPSPTR Quebec parental insurance plan paternity benefit rate - special plan
 QPIPSPTW Quebec parental insurance plan maximum paternity weeks - special plan
 TARGETYEAR Year of analysis
 UIBASFLAG Basic phase calculation flag
 UIBEHAVOPT EI behavioural response option for benefit duration
 UIBEHAVREGFLG Apply behavioural option only to regular benefits
 UIEFFFLAG Observed effective weekly benefit rate flag
 UIEIDIV EI minimum divisor [uer][divisor]
 UIEIDIVFLG EI minimum divisor flag
 UIEIFIFLG EI intensity rule exemption for family supplement receivers
 UIEIFS1 Max fam supplement 1 child
 UIEIFS2 Max fam supplement 2 children
 UIEIFS3 Max fam supplement 3+ children
 UIEIFSFLG EI calculate family supplement flag
 UIEIFSOPT EI calculate family supplement option
 UIEIFSRL EI family supplement reduction level
 UIEIFSRR EI family supplement reduction rate
 UIEIFSTOPUP Max fam supplement top up for more than 3 kids
 UIEIFSYNG Max fam supplement top up for young children
 UIEIMFSP EI Maximum family supplement percent of earnings
 UIEIMTYPFLG Flag to model main benefit type
 UIEINEREF LG Flag to check for hours for new entrants and re-entrants
 UIEIRATE Benefit rate under EI reform [Past Wks ben][Rate]
 UIEITKP EI takeup rate [index] : index based on prov, sex, age, weeks

UIEIYRS Number of years of previous EI benefits
 calculated
 UIENTFLAG Basic entrance requirements flag
 UIERNMAX Maximum insurable earnings
 UIEWK Entitlement (weeks) [wkwrk, uer]
 UIEXTMATWKS Additional weeks for maternity - behavioural
 response
 UIEXTWKS Additional weeks for any type of benefit -
 behavioural response
 UIFLAG EI Activation flag
 UIFSHERMIN Min. earnings to qualify for fish. benefits
 [unempl. rate]
 UIMATHRMIN Minimum hours to qualify for maternity benefits
 UIMAXDUR Maximum duration of an EI claim
 UIMAXFSHWKS Maximum number of weeks - fishing
 UIMAXMATWKS Maximum number of weeks - maternity
 UIMAXPARWKS Maximum number of weeks - parental
 UIMAXSICWKS Maximum number of weeks - sickness
 UINEREHRMIN Minimum hours to qualify for new entrant or re-
 entrant
 UIOTHBNFCT EI other benefits per week adjustment factor
 UIOTHWKFCFCT EI other benefits weeks adjustment factor
 UIREGHRMIN Min. hours to qualify for reg. benefits [unempl.
 rate]
 UIREGWKFCFCT EI regular benefit weeks adjustment factor
 UISICHRMIN Minimum hours to qualify for sickness benefits
 UITARGET EI target for the number of cases
 UITRNBFCFCT EI training benefit per week adjustment factor
 UITRNWKFCFCT EI training benefit weeks adjustment factor
 UIWAITWKS Minimum waiting period all claims

INPUT VARIABLES:

cfineld Eldest person in census family [pointer]
 cfinspo Spouse of eldest [pointer]
 hdprov Province
 hhncf Number of census families in household
 hhnin Number of individuals in household
 hhnnf Number of nuclear families in household
 idage Age
 idcfrh Relationship to census family head
 idinspo Person's spouse [pointer]
 idiqip Original amount of QPIP
 idnf Person's nuclear family [pointer]
 idqpern Weekly earnings to qualify for QPIP
 idqpfrst First type of QPIP claim
 idqpstrt Week of QPIP start
 idqpctype Type of QPIP claim

idqpweek	Weeks of QPIP
idrand	Random numbers [array]
idspoflg	Person has spouse
iduirank	Predicted ranked likelihood of getting EI
imfcben	Total Federal Child Benefits
imicnet	Net Income (line 236)
imiuccbc	Universal Child Care Benefit amount claimed
imqinet	Quebec net income
imqpicwk	Quebec parental insurance plan calendar year
weeks	
imqpiptwk	Quebec parental insurance plan total weeks
imqptprw	Quebec parental insurance plan total parental
weeks	
nfin	First person in nuclear family [pointer]
nfinch	First child in nuclear family [pointer]
nfnkids	Number of children in nuclear family
nfnpers	Number of persons in nuclear family
ubp2	Week # of start of other type of EI
ubp2c	Week # of start of other type of EI (windowed)
ubp2mx	Week # of start of other type of EI if not
limited to known weeks	
ubp2mxc	Week # of start of other type of EI (windowed) if
not limited to known weeks	
ucbtyp	Claim type
ucdivwk	Minimum divisor weeks
uceff	Effective weekly rate
ucern	Insurable weekly earnings
ucexhas	Exhaustee flag
ucgotpa	Received parental benefits
uchrwk	Hours worked prior to claim
ucmtyp	Main Claim type (majority of weeks)
ucnere	New entrant re-entrant flag
ucothbr	Other benefits weekly rate
ucothwk	Weeks of other benefits
ucstart	Week claim established
ucstat	Claim status flag
uctpcng	Also received regular benefits
uctrnbr	Training benefit weekly rate
uctrnwk	Weeks of training benefits
ucuer	Local unemployment rate (x10)
ucweeks	Weeks of benefits
ucwork	Weeks of work prior to claim
ucy1	Weeks on EI in first year before claim
ucy2	Weeks on EI in second year prior to claim
ucy3	Weeks on EI in third year prior to claim
ucy4	Weeks on EI in fourth year prior to claim
ucy5	Weeks on EI in fifth year prior to claim

OUTPUT VARIABLES:

imiuib	Employment Insurance benefits
imqpcmtb	Quebec parental insurance plan calendar year maternity benefits
imqpcmtw	Quebec parental insurance plan calendar year maternity weeks
imqpcprb	Quebec parental insurance plan calendar year parental benefits
imqpcprw	Quebec parental insurance plan calendar year parental weeks
imqpcptb	Quebec parental insurance plan calendar year paternity benefits
imqpcptw	Quebec parental insurance plan calendar year paternity weeks
imqpcsb	Quebec parental insurance plan calendar year supplemental benefits
imqipcbn	Quebec parental insurance plan calendar year benefits
imqipcwk	Quebec parental insurance plan calendar year weeks
imqpiptbn	Quebec parental insurance plan total benefits
imqpiptwk	Quebec parental insurance plan total weeks
imqptmtb	Quebec parental insurance plan total maternity benefits
imqptmtw	Quebec parental insurance plan total maternity weeks
imqptprb	Quebec parental insurance plan total parental benefits
imqptprw	Quebec parental insurance plan total parental weeks
imqptptb	Quebec parental insurance plan total paternity benefits
imqptptw	Quebec parental insurance plan total paternity weeks
imqptsb	Quebec parental insurance plan total supplemental benefits
imuibr	EI benefit recovery
imuiydep	Number of dependents under 7 for family supplement
ubcalfs	Family supplement paid in calendar year
ubcalpd	Benefits paid in calendar year
ubcalwk	Weeks on claim in calendar year
ubclmfs	Family supplement paid on claim
ubclmpd	Benefits paid on claim
ubclmwk	Weeks on claim
ubeiwbp	Weeks of past EI benefits

ubern	Modelled insurable weekly earnings
ubp1	Week # of first payment
ubp1c	Week # of first payment (windowed)
ubp2	Week # of start of other type of EI
ubp2c	Week # of start of other type of EI (windowed)
ubp2mx	Week # of start of other type of EI if not limited to known weeks
ubp2mxc	Week # of start of other type of EI (windowed) if not limited to known weeks
ubp5	Week # of last other type of EI
ubp5c	Week # of last other type of EI (windowed)
ubp5mx	Week # of last other type of EI if not limited to known weeks
ubp5mxc	Week # of last other type of EI (windowed) if not limited to known weeks
ubp6	Week # of last training payment
ubp6c	Week # of last training payment (windowed)
ubp6mx	Week # of last training payment if not limited to known weeks
ubp6mxc	Week # of last training payment (windowed) if not limited to known weeks

vardef Define structure member as an SPSM variable

SUMMARY

The vardef function (actually a macro) is used to define a new variable to the facilities of the SPSM that make use of variables. Please see the [*Programmer's Guide*](#) for more information.

