SPSD/M

Release 9.2 Update

This guide is designed to provide SPSD/M users with new information relating to the release of Version 9.2 algorithms and software.

Statistics Canada **Statistique Canada**

Canada

WARNING

This software is complex. It is designed to be easy to use.
However, the institutions and programs it models are
themselves complex. **It is thus easy to make subtle mistakes
that may result in significant estimation errors.**
To make the best use of the SPSD/M, please read the available
documentation. Then if you have any problems or you are
unsure of the simulation approach or results, please phone us at
(613) 951-3774.

Table of Contents

Overview

This document outlines the modifications that the SPSD/M has undergone subsequent to the version 9.1 release. This current release is called version 9.2 and users will note that the chapter headings in this Addendum correspond to guides in the manuals.

Users experiencing difficulties updating their black-box or glass-box applications to version 9.2 should contact Statistics Canada at (613) 951-3774.

This guide gives instructions pertaining to the installation of the SPSD/M on your system. The SPSD/M program and database files are stored in a compressed format. This means that the files are decompressed as part of the installation process. Be patient, installation time could be up to 15 minutes.

If you are a new SPSD/M user, you should look at the *Introduction and Overview* Manual first, since much of the material here will be incomprehensible without some familiarity with SPSD/M concepts.

RELATIONSHIP TO EXISTING DOCUMENTATION

This Addendum is a guide to the changes in SPSD/M software between 9.1 and 9.2. This Addendum is intended to be used in conjunction with the other SPSD/M Guides included as part of the 9.2 release. The information in this Addendum supersedes the information in the documentation released with version 9.1.

It is worth noting that the examples in the *Introduction and Overview* will still function. However the screen images and the exact results may vary.

SUMMARY OF MAJOR CHANGES

DATABASE and GROWTH

> New weight files
> The most recent economic growth projections are incorporated into the parameter files

TAX/TRANSFER ALGORITHMS AND PARAMETERS

> Parameter files updated through 2002 Tax forms and 2003 Budgets
> Tax Algorithms updated through 2002 Tax forms and 2003 Budgets

LEGISLATIVE CHANGES MODELED

The changes in tax transfer legislation that have been incorporated into the SPSD/M 9.2 are detailed in this section.

Federal Changes

- The National Child Benefit Supplement is increased by $150 in July 2003
- The National Child Benefit Supplement is increased by $185 in July 2005
- The EI contribution rate for 2003 is set at $2.10 per $100 of insurable

earnings
- The EI contribution rate for 2004 is set at $1.98 per $100 of insurable earnings

Provincial Changes

The changes reported in this section are derived from the 2003 provincial budgets and press releases.

Newfoundland

- The non-refundable personal income tax credit for person with disabilities will increase from $4,233 to $5,000 in 2003.
- The Newfoundland Seniors Benefit will be increased from $300 to $350 in 2003.
- The Home Heating Fuel rebate will provide a $100 rebate for low-income households which used furnace oil, stove oil, or propane gas as their main source of heat.
- The benefit rate for the first child under the Newfoundland and Labrador Child benefit was increased by $12 to $216.

Prince Edward Island

- The disability tax credit increases from $4,400 to $5,400 in 2003.

Nova Scotia

- Nova Scotia Residents who paid provincial income taxes will receive the Nova Scotia Taxpayer Refund in 2003.
- Effective January 1, 2004, the tax rates for all three brackets will be reduced. The lowest bracket rate will be reduced from its current 9.77% of taxable income to 8.79%. The middle bracket will be lowered from 14.95% to 13.58% and the highest bracket will be reduced from 16.67% to 15.17%.
- The family caregiver tax credit is increased by 75 per cent from $223 to $408.
- The Labour Sponsored Venture Capital Corporation Tax Credit is extended in 2004.

New Brunswick

- The New Brunswick Dividend Tax Credit was adjusted to ensure that it does not overcompensate for the amount of tax collected at the corporate level. Therefore, for dividends declared and paid on or after January 1, 2003, the Dividend Tax Credit rate will be reduced from 7.6 percent to 3.7 percent.
- In 2002, the New Brunswick political contribution tax credit was changed to match the federal tax credit.

Quebec

- There were no changes in this release.

Ontario

- In 2003, the disability tax credit is increased to $6,637 from $6,316.
- In 2003, the caregiver tax credit is increased to $6,637 from $3,684.
- In 2003, the income level of the dependent at which the caregiver tax credit is

reduced is raised to $13,050 and the credit is eliminated when the dependant's income reaches $19,687.

- The Ontario Tax Reduction program basic person amount is increased to $197.
- The net income level above which the Ontario Child Care Supplement benefits are reduced is increased to $20,750 starting in June 2003.
- In 2004, the remaining Ontario surtax will become payable when Ontario income tax exceeds $4,727.
- In 2005, the remaining Ontario surtax will become payable when Ontario income tax exceeds $5,240.

Manitoba

- The maximum education property tax credit for seniors rises from $775 to $800 in 2003.
- The tax rate in the middle bracket is reduced to 14.0% from 14.9% in 2004.

Saskatchewan

- There were no changes in this release.

Alberta

- There were no changes in this release.

British Columbia

- There were no changes in this release.

COMTAX

All of the changes below are a result of the 2003 budgets, unless otherwise indicated

- Tobacco tax increases were announced in Newfoundland, Prince Edward Island, Nova Scotia, New Brunswick, Manitoba and British Columbia.

- New Brunswick increased taxes on gasoline and diesel fuel in December 2003.

- British Columbia expanded their tax exemption on Bunker fuel and increased their provincial fuel tax.

- Quebec is now exempted from tax on bio-diesel fuel.

- Ontario announced a retail sales tax rebate for Energy Star products in November 2002, which was later expanded in the budget.

- Ontario will phase-out their auto insurance premiums and retail sales tax on repairs and replacements by April 2004.

- Ontario extended it's retail sales tax rebate on alternative fuel vehicles in November 2002, and extended again in March 23.

- Ontario extended it's retail sales tax rebate to include audio books for the blind in June 2002.

- Ontario exempted bio-diesel from the fuel tax in June 2002.

PRINTED DOCUMENTATION

Version 9.2 is being shipped with all of its guides in electronic format. All guides can be accessed on-line using the included windows help file. The directory "/Doc" on the CD-ROM contains a printable version of all Guides for those users who wish printed versions of the other guides. These are PDF files and can be read on-line or printed using the Adobe Acrobat reader. The Adobe Acrobat reader can be installed from the /Doc directory on the CD-ROM. The self-extracting installation programs are called ar32e30.exe.

Once you have installed Adobe Acrobat on your system you can simply navigate to the \Doc directory on the CD-ROM using the File Manager or Explorer. Find the guide you wish to view or print and double-click it. Adobe will start up and open the file you selected.

Installation Guide

Release 9.2 is disseminated on one CD-ROM or a demonstration version can be downloaded from the Internet World Wide Web. The CD-ROM contains information for both the SPSD/M 9.2 as well as for the on-line documentation.

Prior to installation of Release 9.2 it is **strongly** recommended that you either remove any existing \spsm directory from your system or rename it to \spsm91. If you wish to keep running the old version of SPSM, you should also rename the \spsd directory to \spsd91. SPSD/M 9.2 should be installed in new \spsm and \spsd directories. Version 9.2 has a \spsm directory structure that allows for ONLY a 32-bit operating system such as Windows NT/2000 or Windows 95/98/ME. The executable files are placed in the \spsm\win32 directory.

Install the SPSD/M 9.2 CD-ROM using the same general procedure described in the _Installation Guide_. Please read the entire installation guide and follow the instructions that apply to your system and the version of the model that you wish to install. The packages contained on the CD-ROM supersede the contents of the 9.1 package and upon installation will overwrite the 9.1 files if left in the default directory. The install.exe program on the CD-ROM should be run to perform the installation of the new version of the model.

Directory names may now be longer than 8 characters as the install.exe program has been converted to a 32-bit environment.

VERSION 9.2 PACKAGE CONTENTS

This section describes each package in the installation kit. The SPSD/M version 9.2 installation kit contains the following packages:

Package Name	Function	Directory
SPSM	The package contains all the executable programs and language-specific dialogue files. It also contains a directory of example control parameter include files described in the SPSD/M manuals.	\spsm
SPSD(5%)	This package contains the 5% sub-sample demographic weight files for the years 1988 through 2005.	\spsd
PARAMETERS	This package contains the control, database adjustment, and tax/transfer parameter files. Also included is the factors.txt file that contains the growth factors used to statically age the SPSD.	\spsd
GLASS_BOX	This package includes all necessary files, including template files for standard and alternate algorithms, for the 'glass box' user. Please see the _Programmer's Guide_ for information on using SPSM in 'glass box' mode.	\spsm
SPSD(100%)	This package contains demographic weight files for 1988 through 2005.	\spsd
HELP	This package contains on-line documentation. This documentation will only work under Windows NT/2000 or Windows 95/98/ME.	\spsm

ON-LINE DOCUMENTATION INSTALLATION

The SPSD/M documentation is now installed as a package within the main SPSD/M installation. The documentation will ONLY work for 32-bit operating systems such as Windows NT/2000 or Windows 95/98/ME. The English version of the help file is called spsme.hlp and found in the spsm folder. Use the help facilities by navigating to the proper directory (e.g. by using the Explorer) and double clicking on the spsme.hlp file.

User's Guide

LOW-INCOME LINE ANALYSIS

The calculation of low income was modified for families of size greater than 7.

Tools User's Guide

spsmiter

The convergence condition was slightly changed when the binary option is chosen.

Programmer's Guide

Please **call** the SPSM hotline at (613) 951-3774 if you have any questions about using SPSM in glass-box mode.

Algorithm Guide

The following section titled "Overview of algorithm changes" provides a list of the major changes organized by level of government and tax/transfer program. The following sections present the changes organized by the C++ language functions which were required to implement the programs. (A change in tax/transfer legislation may require changes to multiple functions.)

Note that the conversion from the C language to C++ has meant that the headers of all the files have changed and that the glass box code is now contained in *.cpp files.

OVERVIEW OF ALGORITHM CHANGES

Federal

There were no Federal changes in this release.

Provincial

The Nova Scotia taxpayer refund is modeled.

Families who receive social assistance can qualify for the Newfoundland home heating fuel rebate.

The Quebec SA clawback flow-through of the NCBS was changed in order to allow for different amounts depending on the parity of the child.

Changes were made to the Manitoba SA clawback in order to implement part-year changes.

A flow-through amount was added to the Alberta NCBS clawback.

CHANGES BY FUNCTION

memo1　　　**Compute memo items for reporting**

The Nova Scotia taxpayer refund (imnstxrf) was added to provincial transfers (imptran).

samod　　　**Compute social assistance or guarantees**

The Quebec flow-through amount can now be set independently for the first child

(QNCBSFT1), the second child (QNCBSFT2), and the third and additional children (QNCBSFT3).

In Manitoba, in order to implement part-year changes, MCLAWSA6 now represents the proportion of the year that children 6 and under were exempt from the clawback and MCLAWSA12 represents the proportion of the year that children 12 and under are exempt

A flow-through amount (ANCBSFT) was added to the clawback of SA in Alberta.

`txnfld`   Compute income tax (Newfoundland)

The Newfoundland Home Heating Fuel Rebate is now available to families who received social assistance when the NHEATSAFLG flag is turned on. Only one rebate is assigned per household.

`txns` Compute income tax (Nova Scotia)

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

`txqcalc`   Compute income tax (Quebec)

The amount QSTREXT is the extra amount of sales tax credit. It is given to families who receive non-zero imqstr or who would have received some had they not received social assistance. There is no reduction rate applied to this extra amount

`txsask`   Compute income tax (Saskatchewan)

The senior supplement tax credit (imssstxc) and the non-refundable child tax credit (imsctxc) can now be transferred to a spouse.

Parameter Guide

This section describes new parameters as well as conceptual changes that have occurred to SPSM parameters. Parameters which have been deleted, or whose interpretations have changed, are identified in this section by a preceding asterisk.

CONTROL PARAMETERS

There were no changes to control parameters in this release.

ADJUSTMENT PARAMETERS

There were no changes to adjustment parameters in this release.

TAX/TRANSFER PARAMETERS

Modified Parameters

MCLAWSA6: Manitoba Social assistance NCBS clawback for children 6 and under

Manitoba claws back the National Child Benefit Supplement (NCBS) from Social Assistance amounts. Beginning in 2000, the National Child Benefit Supplement for kids under 7 is not clawed back from Social Assistance. Beginning in January 2003, the supplement is not clawed back for children under 13. The parameter MCLAWSA6 represents the proportion of the year in which children under 7 are exempt from the clawback. The parameter works with MCLAWSA12 which indicates the proportion of the year children under 13 were exempt. So if MCLAWSA6 is set to 1, then children under 7 were exempt from the SA clawback. If MCLAWSA6 is set to 0.5 and MCLAWSA12 is set to 0.5, then for half the year, children under 7 were exempt from the clawback and for half the year children under 13 were exempt. The parameter MCLAWPCT is used to calculate the amount of the clawback depending on the make up of the family (number of children in family and number of children under 7 or 13).

The NCBS clawback of social assistance in Manitoba will occur when SACLAWFLAG is set to 1 and SACLAWPR provincial vector for Manitoba is set to 1.

MCLAWSA12: Manitoba Social assistance NCBS clawback for children 12 and under

Manitoba claws back the National Child Benefit Supplement (NCBS) from Social Assistance amounts. Beginning in 2000, the National Child Benefit Supplement for kids under 7 is not clawed back from Social Assistance. Beginning in January 2003, the supplement is not clawed back for children under 13. The parameter MCLAWSA12 represents the proportion of the year in which children under 13 are exempt from the clawback. The parameter works with MCLAWSA6 which indicates the proportion of the year children under 7 were exempt. So if MCLAWSA12 is set to 1, then children under 13 were exempt from the SA clawback. If MCLAWSA6 is set to 0.5 and MCLAWSA12 is set to 0.5, then for half the year, children under 7 were exempt from the clawback and for half the year children under 13 were exempt. The parameter MCLAWPCT is used to calculate the amount of the clawback depending on the make up of the family (number of children in family and number of children under 7 or 13).

The NCBS clawback of social assistance in Manitoba will occur when SACLAWFLAG is set to 1 and SACLAWPR provincial vector for Manitoba is set to 1.

New Parameters

ANCBSFT: Alberta social assistance NCBS flow-through amount per child

The province of Alberta claws back the National Child Benefit Supplement from Social Assistance. It then increases social assistance by a monthly shelter allowance (ASHELTFLG). Starting in 2003, social assistances was also increased by this amount, ANCBSFT, the flow through amount for each eligible child.

The clawback of social assistance in Alberta will be activated when SACLAWFLAG is set to 1 and SACLAWPR provincial vector Alberta flag is also set to 1.

NHEATSAFLG: Newfoundland home heating fuel rebate – SA recipients eligible

When NHEATSAFLG is turned on, the Newfoundland Home Heating Credit is payable to people who receive social assistance (imisa) in addition to those receiving Newfoundland and Labrador Child Benefit, Newfoundland and Labrador HST credit or the Newfoundland and Labrador Seniors' Benefit.

NSTXREFAMT: Nova Scotia Taxpayer Refund amount

This is the amount of the Nova Scotia Taxpayer refund (imnstxrf). The refund is payable if the person paid NS provincial taxes in the previous two years. In the SPSM, the refund is payable if the person paid taxes in the current year.   The program is turned on by the flag NSTXREFFLG.

NSTXREFFLG: Nova Scotia Taxpayer Refund flag

This flag turns on the Nova Scotia Taxpayer refund (imnstxrf). The refund is payable if the person paid NS provincial taxes in the previous two years. In the SPSM, the refund is payable if the person paid taxes in the current year.   The refund amount is NSTXREFAMT.

QNCBSFT1: Quebec social assistance NCBS flow-through amount for first child

The province of Quebec claws back the National Child Benefit Supplement from Social Assistance amounts. Increases to the National Child Benefit Supplement are flowed through to social assistance recipients in Quebec. This parameter represents the NCBS flow through amount for the first eligible child.

The clawback of social assistance in Quebec will be activated when SACLAWFLAG is set to 1 and SACLAWPR provincial vector Quebec flag is also set to 1.

QNCBSFT2: Quebec social assistance NCBS flow-through amount for second child

The province of Quebec claws back the National Child Benefit Supplement from Social Assistance amounts. Increases to the National Child Benefit Supplement are flowed through to social assistance recipients in Quebec. This parameter represents the NCBS flow through amount for the second eligible child.

The clawback of social assistance in Quebec will be activated when SACLAWFLAG is set to 1 and SACLAWPR provincial vector Quebec flag is also set to 1.

QNCBSFT3: Quebec social assistance NCBS flow-through amount for third (or more) child

The province of Quebec claws back the National Child Benefit Supplement from Social Assistance amounts. Increases to the National Child Benefit Supplement are flowed through to social assistance recipients in Quebec. This parameter represents the NCBS flow through amount for the third and additional children.

The clawback of social assistance in Quebec will be activated when SACLAWFLAG is set to 1 and SACLAWPR provincial vector Quebec flag is also set to 1.

QSTREXT: Quebec sales tax rebate extra amount

The amount QSTREXT is the extra amount of sales tax credit. It is added to families who receive non-zero imqstr or who would have received some had they not received social assistance. There is no reduction rate applied to this extra amount.

Deleted Parameters

*QNCBSFT: Quebec social assistance NCBS flow-through amount per child

This parameter was replaced by parameters depending on child parity: QNCBSFT1, QNCBSFT2 and QNCBSFT3.

Variable Guide

This section includes descriptions of all new variables introduced in version 9.2. Variables which have been deleted, or whose interpretations have changed, are also described and are identified in this section by a preceding asterisk.

ALPHABETICAL LISTING OF VARIABLES

Modified Variables

There were no modified variables in this release.

New Variables

imnstxrf: Nova Scotia taxpayer refund

This is the Nova Scotia Taxpayer refund. The refund is payable if the person paid NS provincial taxes in the previous two years. In the SPSM, the refund is payable if the person paid taxes in the current year. The refund amount is NSTXREFAMT and is controlled by the flag NSTXREFFLG.

Deleted Variables

There were no deleted variables in this release.

Growth and Validation Guide

DATABASE

The database is built on 1997 data.

A new matching procedure was used for SCF and FAMEX/SHS based on multivariate analysis. The objective was to create classes of household types with more similar consumption patterns.

In the production of the database, the original SCF weights are modified to represent the Canadian population at December 31, 1997. We also constraint the number of

wages and salaries earners to represent the T4 distribution by province and income classes, the number of self-employed – farm and non-farm – to represent the T1 distribution by province and income classes. The household size distribution was also added as a constraint.

WEIGHT FILE UPDATES

New demographic estimates were used for the weight files between 1985 and 2001.

New demographic projections were used to revise the weight files for 2002 up to 2005.

The weights in all years were set in a way to represent the population by province/age group/sex, the employment/population and unemployment/population ratio by province/age group and sex. Except for the household size distribution, all the margins used to reweight the original SCF were used to reweight the database in the base year. Another margin was added to keep the consistency between the number of high income earners added to the database and the final number of high income earners by province.

In the 9.2 release, a new margin was added to update the distribution of families by census family type according to demographic data. This was done to correct the underestimation of single parent families.

GROWTH UPDATES

The database growth parameters were recalculated for the 9.2 release. From 1988 to 2002, growth parameters were adjusted to reflect the growth rates in the System of National Accounts. These adjustments were done provincially. Canada and Quebec Pension Plan benefits were adjusted using data from Human Resources Development Canada and reflect growth rates by age of recipient.

For 2003 and later, the growth rates of the income parameters reflect forecasted personal income. This growth rate is national and comes from an average of private sector forecasts.

The growth methodology for expenditures has changed. The distribution of expenditures is now held constant and all expenditures are grown using GDP. For 2003 and later, the growth in GDP is national and comes from an average of private sector forecasts.

Model parameter projection, which occurs when no official estimate is available, was done using Average Industrial Wage and the Consumer Price Index.

Online Documentation

The SPSD/M online documentation provides quick access to the full Documentation

Guides. These online guides will only work with Microsoft Windows 95/98/ME or Windows NT/2000.

The installation is now done as a package within the main SPSD/M installation. It will result in a file spsme.hlp in the main spsm folder. In order to use the help facility, navigate to the folder and run the file (e.g. using Explorer). You can navigate within the documentation in several ways: you can examine the index, use a full text search to identify which topics contain a given word or phrase or navigate using the hierarchical structure. A help file on using the online documentation is included and can be accessed from the application's help menu.

This product is similar to the standard windows help system and a full text search is supported. If you are having any problems using the online documentation please contact us at (613) 951-3774.

Database Creation Guide

The database is built around 1997 data. Four major adjustments are made to the database to improve consistency with published data: recalibration of the wages and salaries distribution, recalibration of the non-farm self-employed income, recalibration of the farm self-employed income and the population at December 31, adjusted for household size.

SCF wages and salaries produce total wages up to 6% higher than the national accounts. A comparison with T4 file shows an over-representation of population in the median group and an under-representation of the low wages population. The T4 file is used to recalibrate the wage distribution.

The count of population within six income classes, by province, from the T4 file is used as a target value in the recalibration of SCF. The population used to define those classes is all the wage earners in T4 file with income higher or equal to $1,500. The classes correspond to 25, 50, 65 and 75% of population in the T4 file with wages and salaries. The last two classes depend on the province: in Newfoundland and PEI it is 95 and 100%; in Quebec and Ontario it is 99 and 100%; in all the other provinces it is 98 and 100%.

Because most of the people with self-employment income also have small amounts of wages within a year, the wage distribution reweighting worsens the distribution of farm and non-farm self-employment incomes. The solution was to calibrate the distribution of farm and non-farm self-employment income in the SCF, based on T1 distribution. For non-farm self employment income, two classes by province are used corresponding to 50% of the population with self-employment income larger or equal to $500. Negative values were excluded because there are not enough observations in SCF to support calibration.

The same definition of income classes applies to farm self-employment income. Because there are not enough observations in Newfoundland, Prince Edward Island,

Nova Scotia, New Brunswick and British Columbia, those provinces were excluded from calibration. They count for less than 6% of all people with farm self-employment income larger than $500.