Conversion of the Melbourne Institute Tax and Transfer Simulator from a DOS to Windows environment

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Abstract

This report documents the process of translating the Melbourne Institute Tax and Transfer Simulator (MITTS) from GAUSS for DOS to GAUSS for Windows (version 5.0). All menus used to set the parameters of the simulation and request particular output tables are also available in the later version. The broad structure of MITTS, the relationships among its components and all the main features of MITTS remain the same. MITTS has been successfully translated into GAUSS for Windows and can now be run in any Windows environment, such as the Windows 2000 operating system.

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1 Introduction

The current version of MITTS, written in the DOS version of GAUSS, has been used successfully for several years. Unfortunately, over time it has become more difficult to run GAUSS for DOS. For example, the programs cannot run on machines using Windows 2000. As Windows 2000 has become more and more popular and has been introduced as the standard windows version to be used, separate machines, operating under for example Windows NT, have become necessary to run MITTS simulations. It is likely that GAUSS for DOS will become increasingly difficult to run under up-to-date operating systems. Therefore, the MITTS programs needed updating to ensure its relevance in the long run.

Until recently, GAUSS for Windows could not deal with the menu windows created in GAUSS for DOS. However the latest version, known as GAUSS 5, comes with Windows application and DOS Compatibility Windows (DCW hereafter). This latest version of GAUSS is supported by many operating systems, including Windows 2000. This new facility has prompted the Melbourne Institute to investigate the feasibility of using the DCW version of GAUSS as a platform for the MITTS model by translating the programmes from GAUSS for DOS into GAUSS 5. In addition to the more flexible operating environment, DCW requires less memory than DOS, which means we cannot only run MITTS in less time but also that MITTS does not take up all available CPU time when running.\footnote{GAUSS for DOS was made to run in a DOS environment where multi-tasking was not a possibility, so that there was no need to share the available CPU with other programs. More recent software has been designed with multitasking in mind and thus allows for a more efficient allocation of CPU time.} This extreme use of CPU time by Gauss for DOS made working on other files, such as for example writing in a Microsoft Word document, while MITTS was running extremely slow and sometimes impossible. MITTS is easier to operate in a Windows environment.

The purpose of this report is to document the process of translating MITTS from DOS to DCW. It highlights the differences and similarities between MITTS written in DOS and MITTS written in DCW. It also briefly describes what changes have been made, from a user’s point of view, to make
the new version of MITTS operational. Ideally, MITTS should retain its exact appearance in DCW. However, this is not always possible because some commands, tools, functions and procedures available for use in DOS have become obsolete or have changed to such an extent that they cannot be used in DCW. Therefore, writing new procedures and replacing obsolete procedures and functions in the MITTS model, so that it can be run in DCW, has constituted the bulk of work. The ‘front end’ menu, which allows the user to make choices regarding the simulation, and the ‘back end’ menu, which allows the user to make choices regarding tables to be generated from the simulation results, are both made available in the new DCW version. It is vital to emphasize that the broad structure of MITTS, all the calculations, the relationships among its components and all the main features of MITTS, which are listed in Section 2 of Creedy, Duncan, Kalb, and Kew (2001), remain the same.

This report is organised as follows. Section 2 presents an overview of the MITTS files and the additions and changes that have been made. Section 3 discusses in detail the specific changes that have been made and also the difficulties faced when translating MITTS. Since the aim of translation is to move MITTS to the latest version of GAUSS, it is important to ensure that the simulations generated from the DOS version are the same as the DCW version; section 4 does that by comparing the simulation results from the two different versions of GAUSS. Section 5 concludes the report.

2 MITTS file structure

This section provides an overview of the MITTS file structure and documents the changes that were necessary to translate the programs into GAUSS 5.0. The main file Mitts.e sets the values for the main variables, starts the main menu and calls all other procedures. All other programs are organised into 8 sub-folders: benefits, rebates, tax&ml (short for tax and medicare levy), netinc (short for net income), systems, data, programs and results.

The benefits folder contains GAUSS programs used to calculate social security payments such as Age Pension, Newstart Allowance and Parenting Payment. The rebates folder contains GAUSS programs used to compute
rebates such as Beneficiary Rebate, Dependent Spouse Rebate and Pension Rebate. The tax&ml folder contains GAUSS programs used to compute income taxation and medicare levy. The netinc folder contains GAUSS programs used to compute net incomes based on information supplied by the benefits, rebate and tax&ml folders. The tax system files, which keep a record of tax, rebate and benefits parameters such as income tax rates, payment rates of allowances and pensions, and withdrawal rates for different points in time, are placed in the system folder. The data folder contains the various data files with information on labour supply parameters, consumer price indices and average weekly earning wage deflators. The programs folder contains GAUSS programs used to create the front-end and back-end user-friendly menus. In addition, it also runs – together with tax&ml, system and data folders – the static and behavioural simulations. Finally, the results folder contains any files saved by the user during the running of MITTS.

In the following subsection, we provide an update on the MITTS file structure as listed in Section 11 of Creedy, Duncan, Kalb, and Kew (2001). Most changes to the MITTS file structure were needed in the files in the program folder and mitts.e. We therefore describe the programs folder in this subsection. The current files in the other folders are listed in the appendix. The only changes made in these files (if any changes were made at all) was an extension of the variable names to the full names in the Survey of Income and Housing Costs survey. This has become necessary because the number of characters for a variable name has increased from 8 to 9. As a result, the last characters of the variable names that previously just dropped off when reading in the data have now become relevant. Updating the variable names was a tedious but straightforward task.

2.1 Programs folder

Three new files have been added to the programs folder, making a total of 41 files. Eight files have been modified to incorporate new procedures and to replace obsolete commands. We first list newly created files, followed by modified existing files and finally the files that remain unchanged.
2.1.1 New Files

These new files have been created to rearrange and organise some of the procedures that carry out a common task, such as defining the colours or creating menus in MITTS-B. They also contain some new procedures needed in the translation of MITTS from DOS to DCW.

1. color.inc - Defines the colour used in the text, menus and background of the screen.

2. mitts_in.prc - Creates menus to enable interactive use of MITTS-B. Contains some of the old procedures. Changes were made to assign keys to a particular action such as saving output to a file.

3. tabul_b.prc - Defines many procedures used in the ‘back-end’ menus. Defines GenMover procedure which generates information for tables of hours and work probabilities; Povlineb procedure to calculate relative poverty line for use in behavioural simulations.

2.1.2 Modified existing files

New procedures and some modifications to the existing procedures are carried out in these files. The reasons for adding, modifying and changing some procedures in these files are explained in Section 3.

1. Back_end.prc - Calculates winners and losers, inequality measures, poverty measure and marginal effective tax rate results.

2. Back_sim.prc - Generates, for example, tables with Government expenditure, transition matrices, or probability of hours worked to be written to the screen.

3. Frontend.prc - Presents all tax system information to screen enabling users to run simulations interactively

4. Input.inc - Creates menus to enable interactive use of MITTS-A (in the new version input.inc is divided into two files input.inc and color.inc).
5. RunMitts.prc - Runs simulation of MITTS-A. Specifies the variables to be written to a data file (note that this data file is used for example to generate tables on winners and losers, and inequality and poverty measures, after running the simulation; all relevant household and individual characteristics are stored in this file together with the simulation results).

6. RunSim.prc - Runs simulation of MITTS-B.

7. ShowHH.prc - Generates household information to be written to screen. This includes calculation of net incomes; that is, it calls the MittCalc procedure found in NetInc.prc

8. Tabulate.prc - Defines many procedures used in back_end.prc. Defines tabulate procedure which is called when output needs to be tabulated; GenCount procedure which generates information for tables of winners and losers; MetrTab which is used to generate tables of METR differences and; a range of procedures which generate various inequality and poverty measures which are all used in the Inequal procedure.

2.1.3 Unchanged files (includes files which only needed changes in variable names)

1. Allocset.prc - allocates benefits and tax system to pre reform and post reform

2. Assets.prc - Imputes household assets (currently returns zeros)

3. barchart.prc - Defines Bar_Diff procedure which is called when bar charts average income changes are graphed.


5. Data.prc - Defines openfile procedure, seekhh procedure. Also defines data transformation procedures (datatran performs the transformations and tranfile applies them using seekhh). Data transformations include uprating, imputing certain information such as assets
and parental income, recoding numeric variables to string variables, and generating equivalence scale information.

6. Del.prg - clears the disk from temporary files

7. DTran.prc - Performs data transformations needed for imputing wages

8. Equiv1.prc - Equivalence scales

9. FindKink.prc - Algorithm to find kinks in individuals budget constraints

10. Hours.prc - Defines the range of discrete hours over which labour supply behaviour is simulated

11. IneqMenu.prc - Sets up menu for inequality and poverty measure settings.

12. List.prc - Adjusts parameters of the tax system

13. Pickyear.prc - Opens data file depending on year chosen by user

14. Pincome.prc - Imputes parental income for dependent students living away from home, needed for Youth Allowance.

15. predchcc.prc - Imputes child care costs.


17. price_cc.prc - Assign child care prices to households.

18. PrintBC.prc - Plots budget constraints.

19. ReadSys - Reads tax system parameters for simulation RiteMain.prc

20. savelist.prc - Saves the tax parameters.

21. Startup - Sets the number of symbols allowed.

22. Sysset.prc - Determines tax systems to be used in simulation
23. Uprate.prc - Defines procedure uprating all income data in base file
24. Utility.prc - Household utility specifications for behavioural simulations
25. viewfile.prc - Enables users to navigate large tables displayed on the screen by hitting the keys, "pageup" and "pagedown".
26. Virtual.prg - Generates virtual incomes and net marginal effective wage rates
27. WriteSys - Writes tax systems updated interactively to file
28. Ritemain.prc - test program for creating main screen
29. Selmat.prc test program for Selmat procedure
30. Systest.prg - program for checking system files

3  Translating MITTS from DOS to DCW

The translation of MITTS from DOS to DCW is a complicated task. Changes need to be made to the MITTS files in order to make them run in DCW. Some of the code also has to be adapted in the new version of GAUSS, because the usage of some of the commands has changed in subtle ways between the GAUSS for DOS version and the GAUSS 5.0 version. As a result, after the first round of translating the programmes MITTS would crash in some parts of the programme where this would not happen in the old version of GAUSS. For example, MITTS crashed when "View Households" was selected from the main menu. However, this had never happened in the DOS version. A second round of refining the programmes and fixing problems was therefore needed. This was a time-consuming process as it involved an extensive investigation into the MITTS code to find out where the problems occurred and how they could be fixed. Unfortunately the error messages in GAUSS are not always straightforward to understand.

The completion of this project depends on the successful translation of all the MITTS programs previously written in DOS into DCW. This was done in two steps.
3.1 Stage One

The first step is to load up the Main Menu, see Figure 1, in the DCW. To do this, new procedures had to written in two files: Mitts.e and input.inc. First, the commands in DOS for choosing colours for the text and background are different in DCW and commands in some basic procedures in input.prc and mitts.e needed to be changed. All these changes had to be made to make the desired menu appear in the DCW. Second, the length of variable names is limited to seven characters in DOS. For example, if a variable name has a length of eight characters then DOS only takes the first seven characters of the original name when the file is read and puts an "i" at the start of the name, however DCW allows for longer names. Hence, throughout all the MITTS programmes the variable names consisting of seven characters that originally had a length of eight characters had to be changed.

After making the necessary adjustments, the Main Menu appears in the DCW (see Figure 2) upon entering the command, run mitts.e, in the Command Input-Output window. Having the main menu on the screen, we are now in a position to run the MITTS model.
3.2 Stage Two

The second step is to ensure that all menu items appearing in the Main Menu, which includes "Select Tax System", "Run MITTS-A" and "Run MITTS-B", are operational in the same way as in DOS. Some of the Gauss commands from the DOS version have become obsolete. This causes two problems: the appearance of MITTS and the functionality of some of the features available in MITTS.

3.2.1 Appearance of MITTS

There are three problems relating to the appearance of MITTS: the boxes around the sub-menus, the arrow symbol and the contrast in colours.

1. Boxes around the sub-menus

   The boxes around the sub-menus cannot be drawn in DCW. For example, comparing Figures 3 and 4 it can be seen that the boxes around the sub-menus, which provide a list of options, do not show up in DCW.
Although this is not a major problem, it makes the menus less clear by reducing the distinction between the relevant group of commands or options and the rest of the screen. Further work will be carried out to find an alternative to the boxes drawn in DOS.

2. Arrow Symbol

The arrows, which appeared on the bottom of the screen (see Figure 5), no longer appear in DCW. We have replaced the arrows with the symbol "+" to indicate that users can hit the keys "PageUp" and "PageDown" on the keyboard to help them navigate large tables displayed on the screen. If more options are available from a menu, the symbol "+" is also displayed on the screen to indicate that users can hit the up or down arrow keys on the keyboard to scroll through the list of menu options.

3. Contrast of Colours

Some procedures work differently in DCW and this caused the colours appearing on the screen to be slightly different from the colours in the old version. As a result, some tables were difficult to read because the numbers in the table were in a colour that was too close to the background colour of the screen. We adjusted some of the commands in back_sim.prc, front_end.prc, runmitts.prc, back_end.prc, tabulate.prc and input.prc to ensure a better contrast of foreground and background, which sharpened the appearance of the tables.

3.2.2 Functionality of MITTS

Some key combinations and the "View Households" and "Analyse Results" menu options were not functioning properly in the new version. We identified the reasons and fixed the problems as follows:

1. Key combinations

The key combination Alt-S, to save results, and the key F10, to make changes on the default values of wage rates, hours worked and number
Figure 3: Boxes around the sub-menus in DOS

Figure 4: No boxes around the sub-menus
Figure 5: Arrows appear on the bottom of the screen of children for a particular person, are not operational in DCW. MITTS did not respond when a user hit one of the keys just mentioned. We replaced these non-working key combinations by other key combinations from the keyboard. Alt-S and F10 are replaced with Shift-S and F3, respectively. These changes needed to be made in the input.prc file.

2. View Households

On selecting the menu option "View Households" and then entering a particular household number, MITTS at first immediately crashed. This is because certain procedures written in the showhh.prc program are not compatible with the DCW version. The way DWC reads these procedures is quite different from the DOS version. Alternative procedures have been created to make "View Households" work again.

3. Analysed Results

The option "Analyse Results" in MITTS-B faced a similar problem as the "View Households" due to similar compatibility reasons. This has been fixed by altering some of the procedures in RunSim.prc and
4 Static and behavioural simulations results

To check that the old and new version of MITTS provide the same results, this section presents the results from static and behavioural simulations which were run in both the DOS version and the DCW version. The policy simulation chosen to this end involves reducing all withdrawal rates from the March 1998 tax and transfer system from 50 and 70 percent to 30 percent. Tables 1 and 2 present respectively the static simulation results from DOS and DCW. The behavioural simulation results from DOS and DCW are given in Tables 3 and 4, respectively. It is clear from these tables that the results are exactly the same. This confirms that MITTS has been successfully translated into the DCW version.

The time needed for running the MITTS-A and MITTS-B simulation in DOS was around 3 minutes and 350 minutes, respectively. Considerably less time was needed for running the same simulation for MITTS-A and MITTS-B in DCW on the same machine. Running MITTS-A took 45 seconds and MITTS-B required 200 minutes.

<table>
<thead>
<tr>
<th>Tax or Transfer</th>
<th>Cost ($m)</th>
<th>Numbers (thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before reform</td>
<td>Change</td>
</tr>
<tr>
<td>Income Tax</td>
<td>72133.2</td>
<td>1844.6</td>
</tr>
<tr>
<td>Medicare Levy</td>
<td>4523.3</td>
<td>205.8</td>
</tr>
<tr>
<td>Total</td>
<td>76656.6</td>
<td>2050.4</td>
</tr>
</tbody>
</table>

Table 1: DOS: Main Revenue and Expenditure
Table 2: DCW: Main Revenue and Expenditure

<table>
<thead>
<tr>
<th>Tax or Transfer</th>
<th>Cost ($m)</th>
<th>Numbers (thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before reform</td>
<td>Change</td>
</tr>
<tr>
<td><strong>Government Revenue</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income Tax</td>
<td>72133.2</td>
<td>1844.6</td>
</tr>
<tr>
<td>Medicare Levy</td>
<td>4523.3</td>
<td>205.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>76656.6</td>
<td>2050.4</td>
</tr>
<tr>
<td><strong>Government Expenditure</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tax Rebates</td>
<td>4223.1</td>
<td>-800.5</td>
</tr>
<tr>
<td>Family Payment</td>
<td>6208.5</td>
<td>1760.4</td>
</tr>
<tr>
<td>FTP/FTB</td>
<td>628.2</td>
<td>178.9</td>
</tr>
<tr>
<td>Allowances</td>
<td>16882.5</td>
<td>8705.7</td>
</tr>
<tr>
<td>Pensions</td>
<td>21912.8</td>
<td>1196.5</td>
</tr>
<tr>
<td>Pharm Allow</td>
<td>343.4</td>
<td>23.8</td>
</tr>
<tr>
<td>Rent Allowance</td>
<td>1588.7</td>
<td>869.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>51787.3</td>
<td>12134.3</td>
</tr>
<tr>
<td><strong>Net Expenditure</strong></td>
<td>-24889.3</td>
<td>10883.9</td>
</tr>
</tbody>
</table>

Table 3: DOS: Behavioural responses

<table>
<thead>
<tr>
<th>Pre-Reform</th>
<th>Change after reform</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LS</td>
</tr>
<tr>
<td></td>
<td>Abs. Value($m)</td>
</tr>
<tr>
<td><strong>Government Revenue</strong></td>
<td></td>
</tr>
<tr>
<td>Income Tax</td>
<td>71439.1</td>
</tr>
<tr>
<td>Medicare</td>
<td>4467.4</td>
</tr>
<tr>
<td><strong>Total Revenue</strong></td>
<td>75906.5</td>
</tr>
<tr>
<td><strong>Government Expenditure</strong></td>
<td></td>
</tr>
<tr>
<td>Tax Rebates</td>
<td>4195.9</td>
</tr>
<tr>
<td>Family Payment</td>
<td>6198.2</td>
</tr>
<tr>
<td>FTP/FTB</td>
<td>629.1</td>
</tr>
<tr>
<td>Allowances</td>
<td>16822.7</td>
</tr>
<tr>
<td>Pensions</td>
<td>21699</td>
</tr>
<tr>
<td>Pharm Allow</td>
<td>339.3</td>
</tr>
<tr>
<td>Rent Allow</td>
<td>1574.9</td>
</tr>
<tr>
<td><strong>Total Expenditure</strong></td>
<td>51459.1</td>
</tr>
<tr>
<td><strong>Net Expenditure</strong></td>
<td>-24447.4</td>
</tr>
</tbody>
</table>

Notes:
LS refers to changes taking into account labour supply.
Fixed refers to changes without accounting for labour supply responses.
Table 4: DCW: Behavioural responses

<table>
<thead>
<tr>
<th>Pre-Reform</th>
<th>Change after reform</th>
<th>LS</th>
<th>Fixed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Abs. Value($m)</td>
<td>Abs. ($m)</td>
</tr>
<tr>
<td><strong>Government Revenue</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income Tax</td>
<td>71439.1</td>
<td>1516.2</td>
<td>2.1</td>
</tr>
<tr>
<td>Medicare</td>
<td>4487.4</td>
<td>201.7</td>
<td>4.5</td>
</tr>
<tr>
<td><strong>Total Revenue</strong></td>
<td>75906.5</td>
<td>1720.9</td>
<td>2.3</td>
</tr>
<tr>
<td><strong>Government Expenditure</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tax Rebates</td>
<td>4195.9</td>
<td>-588.3</td>
<td>-13.9</td>
</tr>
<tr>
<td>FCM Payment</td>
<td>6198.2</td>
<td>-588.3</td>
<td>-9.4</td>
</tr>
<tr>
<td>FTP/FTB</td>
<td>629.1</td>
<td>2180.1</td>
<td>346.5</td>
</tr>
<tr>
<td>Allowances</td>
<td>16822.7</td>
<td>6215.9</td>
<td>48.9</td>
</tr>
<tr>
<td>Pensions</td>
<td>21699</td>
<td>1126.5</td>
<td>5.2</td>
</tr>
<tr>
<td>Pharm Allow</td>
<td>339.3</td>
<td>1126.5</td>
<td>332.6</td>
</tr>
<tr>
<td>Rent Allow</td>
<td>1574.4</td>
<td>24.2</td>
<td>1.5</td>
</tr>
<tr>
<td><strong>Total Expenditure</strong></td>
<td>51459.1</td>
<td>12105.7</td>
<td>23.5</td>
</tr>
<tr>
<td>Net Expenditure</td>
<td>-24447.4</td>
<td>10368.1</td>
<td>-42.5</td>
</tr>
</tbody>
</table>

Notes:
LS refers to changes taking into account labour supply.
Fixed refers to changes without accounting for labour supply responses.

5 Conclusion

MITTS is now fully operational in GAUSS 5.0. This means MITTS can now be installed on machines using the Windows 2000 operating system. The time and effort involved in translating the MITTS model from DOS to DCW has been worthwhile, since operating systems are evolving at a rapid rate and there was a risk of the MITTS programmes to become out-of-date whilst remaining in GAUSS for DOS. The installation of MITTS is no longer confined to a specific operating system, such as Windows NT. Despite some difficulties, which are outlined in Section 3, the translation process was successful and MITTS can now be run in Windows 2000 or any other operating system. In addition, the time needed to run the static and behavioural simulations in GAUSS for Windows is around twice as fast compared to running the same simulations in GAUSS for DOS.
References

Appendix

A Files in MITTS

This section lists the files that are in the following folders.

A.1 Benefits folder

This subdirectory (c:\gauss50\mits5\benefits) contains the gauss procedures used to compute benefits.

1. AgePen.prc - Age pension
2. Allow.prc - Allocates individuals to particular allowances. It also calls the particular allowance procedure and determines entitlements.
3. Austudy.prc - Austudy (post July 2000)
4. AusYTA.prc - Austudy (pre July 2000)
5. CarerPay.prc - Carer Payment
6. CCben.prc - Childcare rebate and childcare assistance (childcare costs are not calculated in the standard simulations)
7. DSPen.prc - Disability Support Pension
8. DVADis.prc - Department of Veterans Affairs Disability Pension
9. DVAPen.prc - Allocates individuals to particular Department of Veterans Affairs pensions. It also calls the particular DVA pension procedure and determines entitlements.
10. DVAServ.prc - Department of Veterans Affairs Service Pension
11. DVAWWP.prc - Department of Veterans Affairs War Widows Pension and Income Support Supplement
12. Family.prc - Determining whether Family Allowance or Family Tax Benefit is to be called

13. FamPay.prc - Family Allowance/Payment. It also calculates Family Tax Payment/Assistance entitlements

14. FamTBen.prc - Family Tax Benefit Parts (A) and (B)

15. FlatTax.prc - Negative Income Tax

16. MatAge.prc - Mature Age Allowance

17. Newstart.prc - Newstart Allowance

18. ParntPay.prc - Parenting Payment

19. Partner.prc - Partner Allowance

20. Pension.prc - Allocating individuals to particular pensions. It also calls the particular pension procedure and determines entitlements.

21. RentAss.prc - Determines maximum entitlements to Rent Assistance based on family circumstances and rent paid.

22. Res Allow.prc - Allocating individuals to residual allowances, that is, Special Benefit or Partner Allowance. It also calls the particular allowance procedure and determines entitlements.

23. Sickness.prc - Sickness Allowance

24. SpecBen.prc - Special Benefit

25. WidBPen.prc - Widow B Pension

26. Widow.prc - Widow Allowance

27. WifePen.prc - Wife Pension

28. YouthAll.prc - Youth Allowance

29. YthTrain.prc - Youth Training Allowance
A.2 Rebates folder

This subdirectory (c:\gauss50\mitts5\rebates) contains the gauss procedures used to compute rebates.

1. BenReb.prc - Beneficiary Rebate
2. DSRReb.prc - Dependent Spouse Rebate
3. LIRebate.prc - Low Income Rebate
4. Prebate.prc - Pension rebate
5. SPPReb.prc - Sole Parent Pensioner rebate
6. SPRebate.prc - Sole Parent Rebate

A.3 Tax&ML folder

This subdirectory (c:\gauss50\mitts5\tax&ml) contains the gauss procedures used to compute income taxation and the Medicare Levy.

1. AssessI.prc - Calculates assessable income needed to determine eligibility for allowances
2. IncomTax.prc - Income Tax procedure
3. Medicare.prc - Medicare Levy procedure

A.4 NetInc folder

This subdirectory (c:\gauss50\mitts5\netinc) contains the gauss procedure used to compute net incomes. There is just one file.

1. NetInc.prc - Calculates net incomes
A.5 Systems folder

This subdirectory (c:\gauss50\mitts5\systems) contains the various tax system parameter files.

1. ANTS.tbp - A New Tax System (July 2000)
2. Jan00.tbp - January 2000
3. July95.tbp - July 1995
5. March95.tbp - March 1995
6. March98.tbp - March 1998

A.6 Data folder

This subdirectory (c:\gauss50\mitts5\data) contains the various data files used by MITTS.

1. B_hh5.fmt - Labour supply parameters
2. B_sm2.fmt - Labour supply parameters
3. B_sp5.fmt - Labour supply parameters
4. B_sw2.fmt - Labour supply parameters
5. Betas.dat/dht - Wage equation parameters needed for imputing wages for non-workers
6. Deflate.dat/dht - Average weekly earnings wage deflators
7. Femawe.dat/dht - Female average weekly earnings deflators needed for uprating.
8. Gammas.dat/dht - Selection equation parameters needed for imputing wages
9. Maleawe.dat/dht - Male average weekly earnings deflators needed for uprating
10. Mind.dat/dht - Average proportion of employed persons in each industry (needed for imputing wages of non-workers)
11. Mindur.dat/dht - Average proportion of unemployed persons in each industry taken from labour force data (needed for imputing wages of non-workers)
12. Mocc.dat/dht - Average proportion of employed persons in each occupation group (needed for imputing wages of non-workers)
13. Moccur.dat/dht - Average proportion of unemployed persons in each occupation group taken from labour force data (needed for imputing wages of non-workers)
14. Xx_in.fmt - Output file containing all data at household level
15. Xx_pr.fmt - Output file containing all data at person level (one row per person).

A.7 Results folder
This subdirectory (c:\gauss50\mitts5\results) contains any files saved during the running of MITTS. In particular, it contains:

1. Mitts - This is the default file containing simulation costing results