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# MANUAL FOR THE AFGHANISTAN E-VIEWS MEDIUM-TERM FISCAL FRAMEWORK

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This manual describes the programs and procedures — with some limited economic explanations — that are used to provide short-term and longer term forecasts. It describes what takes place in each program and includes some screenshots. The manual is divided into several sections, which do not necessarily come in the order that the operations described need to take place. Rather, it starts by discussing how to use this model to generate forecasts. It assumes that the historical data have already been loaded. Thus if you need to import historical data, they are discussed at the end of this manual, in Annex I. At this time table creation is not shown and is best accomplished by exporting the forecasts and simulations into an Excel file and creating tables in Excel. This will be explained in an annex that has not yet been written, but the programming is finished.

## The Forecast

The programs used to generate the forecast have been designed to provide maximum flexibility. Before running these programs, make sure to import the historical data into Eviews (see Annex I). All of the steps to generate the forecast are in a program called ***longtermforecast.*** That program calls several other programs, as explained below. One can run ***longtermforecast*** or run each step individually. The order in which the steps are run is important, however, because some exogenous variable forecasts depend on others (such as inflation or GDP growth). The user can set parameters that apply to various exogenous variables or use an Eviews spreadsheet to edit the data in the subprograms.

If you're running the program in the run window, you can use the *exec* or *run* command (e.g., *run forecastdummies* or *exec c:\users\steve\documents\afgusaid\forecastdummies).* The main forecasting programs calls other programs to forecast individual items that you may want to use to override the original assumptions. You will have four possible forecast choices: i) growth rates (either a fixed value or a variable), ii) mean of last four values, iii) zero, iv) or a fixed number (e.g. .2).[1] **Remember that the assumptions and results can be shown in spreadsheet mode and edited.**

The main forecasting programs are:

1. **Forecast key exogenous variables.** The default is to keep growth rates at their last value starting in a specified year. **The key assumptions are embedded in this program. Open this program to edit these assumptions or use the spreadsheet function**. Program forecasts may be run using the forecast program (e.g., ***exec c:\users\steve\documents\afgusaid\forecastprog inflation 0 1395 20,***

[1] The forecast program may be run as follows: ***run forecastprog var assume startyr periods,*** where *var* stands for the variable to be forecasted, *assume* is the growth assumption, *startyr* is the first year of forecast , and *periods* is the number of periods to be forecasted. The choices for assume are: mean4 for average of last 4, vxx where v indicates the value xx will be taken in the forecast, zero for a zero forecast, and xx which is any number for a growth rate (-1 is equivalent to zero; 0 is for a flat growth rate – no growth), (e.g. run forecastprog gdp .06 1395 20 -- gdp grows at 6% starting in 1395 through 1415; run forecastprog gdpgrowth 0 1395 20 -- gdpgrowth takes on its last value; run forecastprog share v.12 1395 20 – share will be .12 in the forecast; run forecastprog residual zero 1395 10 – residual is forecast at 0 for 10 years starting in 1395 )

which forecasts inflation at its last value – the 0 is growth – and it starts forecasting for 20 years starting in 1395),

a. In addition to inflation, the other values currently forecasted at last value (0) are: gdpgrowth, taxefficiency, nontaxefficiency, worldgrowth, worldinflation, and importgrowth.
b. Then the revenue and expenditure programs use these variables for their growth. In particular, capgrowth is assumed to grow at nominalgdp (although it is assumed flat in MTFF through 1394); others growing at nominal GDP include compensation, goods, and transfers.
   The command is:
   ***exec c:\users\steve\documents\afgusaid\forecastkeyexog***

2. **Set up key revenue data.**
   a. Run the *Loopcashscalar* program in Eviews to create the value of current collection method for 1390. You need to set what month to use and change year if needed (the "3" used in current version indicates that the data for 3 months are used). This program is run in MONTHLYREV tab. The current collection method takes current collections this year for the months to date and scales them by the annual take last year relative to the same collection at this time the previous year. If no collection was recorded last year, then it simply annualizes the revenue to date this year.

   The commands to run this step are:
   ***pageselect monthlyrev***
   ***exec C:\USERS\STEVE\DOCUMENTS\AFGUSAID\loopcashscalar 3***

   In addition, it is necessary to create scalars for every revenue item using the cash collection method. These scalars are copied over to the main MTFF tab.

   The commands to run this step are:
   ***pageselect mainmtff***
   ***copy (overwrite) monthlyrev\sc1* mainmtff***

   b. Then, run the ***Loopcreate1390data*** program in the main tab to set 1390 data for the revenue codes. If the forecast method in the program is 0, then the cash collection method is used. If the method is 1, then the growth rates are used. Each revenue item uses one or more of six different growth assumptions (imports, inflation, world growth, domestic growth, and with and without tax and nontax efficiency). In this program, you can adjust which revenue items will use growth rates and which will use current collection for 1390 and which type of growth rates to apply after the current year (and for the current year, if the cash collection method is not used). These parameters are set in this program.
   c. It might be useful at this point to run the ***Examine1390data*** program, which lets you look at 1390 revenue using cash collection, growth, and current assumptions. You may want to adjust data based on this. To look

at baseline 1390 and cash and growth, *SHOW GROUP11GRSC GROUP12to13230GRSC GROUP13231TO13503 GROUP14TO17GRSC*. You might want to adjust the sample to look just at 1385 to 1390. If you need to adjust assumptions for baseline revenue data, edit the ***loopcreate1390data*** **program**.

d. You need to check to see whether new revenue items have been added to or dropped from the COA (combined with other revenue codes). This might require a call to the Revenue Department (ARD).
e. When there was just a revenue model, and consistent with the Excel spreadsheets, at this point the model could be run through 1395. But since the MTFF now combines the expenditure, financing and revenue, you need to go to the next steps before running the revenue simulations.

3. **Set up key expenditure and financing data through 1394**. Expenditure data do not come from a data retrieval system as with revenue. More cutting and pasting is involved. Until a data retrieval system is in place for expenditure data, I suggest leaving historical data and just updating the previous year and the current budget year. This is all explained in the data annex. The first section of the Annex covers how the data are imported into Eviews. Make sure that the objects in the AGGREG Eviews Tab are also in the MAINMTFF tab. The AGGREG Eviews tab has series that aggregate data by major object codes and ministries. The AGGREG tab also has some dummy data, assumptions, and the model. (Aggregations have not been set up by sector yet, but this can be done easily).
    a. For the operational budget, you can either use the overall assumption or set it as exogenous. A typical equation for compensation for Ministry 10 is:

op1021 = op1021(-1) * (1 + compgrowth) * op1021dum + (1 - op1021dum) * op1021exog

    b. If the ministry is using the overall compensation growth, then opxxyydum (e.g. op1021dum) is set to 1. But if you are using some alternative approach, you need to calculate opxxyyexog and set opxxyydum to 0. By default, opxxydum is set to 1 and opxxyyexog to opxxyy (i.e., whatever data was imported). (The next section explains how these dummies are set.) Alternatively, instead of calculating opxxyyexog, you can add an equation to model for opxxyy. This equation format has been used for all ministries for codes 21 22 24 and 25 in the model. Currently, the assumptions were the ones used in the MoF MTFF, which were compgrowth =0, goodsgrowth = ½ inflation, capgrowth=0, and transfgrowth=0. But as explained below, the assumptions are different for the longer term forecast, and I include a scenario with a more realistic forecast.
        i. Only the Ministries of Interior (26) and Defense (22) are not currently using the government-wide assumptions approach, and

only for compensation, and for goods and capital in 1391 for Defense.

ii. Although only a few ministries have subsidies or transfers, code 24 is applied to all ministries for consistency. Code 23 is applied only to MoF (20).

iii. If using opxxyydum=0, then in alternative simulations, the growth assumptions will not be applied to opxxyy. For that reason, because raw data were available for Ministries 26 and 22 for the medium term, even their dummies were set to one and the residuals calculated to make the model hit the baseline. The reason is that in alternative scenarios, these variables should be allowed to adjust to different assumptions.

c. Contingency expenditures have been added but are excluded in the historical value of the operating budget, because the contingencies are shown under the actual spending code. This variable is dummied out in the history. The forecast for these data is assumed to be exogenous.

d. Grants and transfers from the operating to the development budget are exogenous[2].

e. Currently there are two values for aggregate revenue. The data in the revenue Excel sheets were not the same as in the MTFF. An equation linking the two has been established. (There is one issue: For 1384, Revenue data are available only at the major level. We still need to figure how to regularize the merge and have the 1384 data made available.)

f. The modeling of development expenditures still needs some work. The current MTFF spreadsheet is confusing and inconsistent. In Eviews, I have taken the following approach. The steps are as follows:

i. First, the model takes development budget revenue as given, which is sum of:

1. Grants: new plus carryover
2. Surplus from operating (or the share of the operating budget surplus that you want to go to development spending)
3. New loans
4. Subtract off any ministry development spending that is predetermined and will be larger than its historical share of available funds
5. Share the remainder based on historical shares of remaining ministries (and possibly unallocated)
6. If new money becomes available, it is either totally shared out or earmarked.

ii. The hard part will be determining what should be shared out and what should be earmarked, and whether the earmarked result

[2] Since the default assumption in the model is that the operating budget balance alters development spending, it is not quite accurate to say that transfers to the development budget are exogenous. It just means that there is an exogenous component, but is typically set to 0. This was added because it is in the Excel sheets.

produces more spending than historical shares would produce. This is complicated. The program and model have been designed to ensure that remaining shares add up to 1. (In the model, devdumxx=1 and devxxexog= 0). If earmarked, devdumxx=0 and devxxexog equals the earmarked value. If using earmarking, then in alternative simulations, the ministry will NOT get additional funds. In order to allow these data to adjust in simulations, an alternative approach was used. First, the above calculations of steps 1-4 are done. Then shares are calculated across all development spending based on 5 as if there is no earmarking. The baseline simulation calculates add factors to realize the predetermined baseline values so that in alternative scenarios new funds for development will be shared out. Because the MTFF baseline is so confusing, I have taken the above approach for this run of the model .

g. The MTFF does not include the external budget or an estimate for future O&M for development projects (either from development spending in the core or the external budgets). Although there is a donor funded TA project to estimate this, it is unclear when this will be done. In the Eview model, I have taken a quick and dirty stop-gap/interim approach.
    i. I created total investment for each ministry by adding together: i) code 25 of operating budget, ii) development budget, and iii) external budget. All of these data were supplied by MoF. I had data from 1382 to 1389 for external (I assumed that 1390 would be same level as 1389 but gradually went to 20% of the 1389 investment by 1395). Data from 1384 to 1394 for code 25 and development budget were also available. Although the MOF supplied some disaggregation of development and external spending into wages, goods, etc., it was not very useful (e.g., most of external was unclassified and even if it is compensation, it may have been used in creating the capital). Therefore, I treated all of this spending as capital. Of course. what is missing is the external development spending that is not reported to the MoF. My figure for external development spending is $32 billion since 1983. However, as you will see, even if this is underestimated, the O&M implications are fairly staggering.
    ii. I then made some assumptions about capital accumulation. This is fraught with problems, but I needed to start somewhere. Basically, I assumed that the Afghan value for code 25 was higher than for investment in the development budget, which, in turn, had a higher valuation than external budget investment. The logic behind this hypothesis was that the further away spending occurs from the Afghan budget process, the more likely it was that the capital cost will be greater than if done by Afghans. Another way to say this is that a dollar spent by Afghans through their budget will produce

more real capital than a dollar spent directly by donors. Consider, for example, that security costs for these projects are included in these data. Furthermore, at least part of the existing development and external budgets are O&M. To be precise, I assumed that investment was only 66% of its nominal value, if executed through the development budget and 40%, if from the external budget. To put the numbers in perspective, under these assumptions, using these assumptions government capital relative to the operating budget is over 4 in 1990 or 70% of nominal GDP.

h. What I am after in the O&M calculation is the O&M that is not already in the budget for future years. At this point, I did not differentiate by sector, although a good case could be made for different O&M rates across the sectors. Nor did I differentiate by source of capital after I devalued the investment value of core and external development spending. Although the O&M of code 25 might already be in future budgets, it is not clear that this is correct. In the end, I decided to assume O&M was 15% of the previous year's capital.
i. All of these assumptions can be changed in the program ***forecastdevspending -.25,*** where the -.25 reflects the rate at which external development spending falls.

***The remainder of this discussion focuses on forecasting out for 20 years***

4. **Forecast the dummy variables. In general, these do not need to be changed.** These dummies include:
    a. Buddum indicates when history starts and forecast begins (e.g., contingency for operating budget is relevant only in forecast, because in history, all contingencies are allocated to a spending agency and budget code) Buddum=1 for current budget year and forecast and =0 for history.
    b. Buddum2 determines if operating balance is used to finance development. If buddum2=1, operating balance provides financing for development budget.
    c. opxxyydum and opxxyyexog, where xx represents a ministry and yy a spending code such as 21. If opxxyydum =1, then the underlying forecasting equation is used, but if opxxyydum =0, it is set equal to opxxyyexog. For the forecast, opxxyydum=1 and therefore, opxxyyexog is irrelevant and set to zero; opxxyyexog is important only if it is predetermined (i.e., if opxxyydum =0).
    d. Devdumxx, where xx represents a ministry and is set equal to 1, if available funds are shared out based on last value; If Devdumxx=0, then it is treated as earmarked and development spending for that ministry is equal to devxxexog . For the forecast, it is assumed that no money is earmarked and devdumxx=1 and devxxexog=0

    The command to run this step is:
    ***exec c:\users\steve\documents\afgusaid\forecastdummies***

5. **Forecast development grants.** For the core development budget, development financing (including the carryover) is forecasted at a default rate. As indicated earlier, the program shows the sources in a spreadsheet mode and can be edited. **It is currently assumed to grow at .05**.

   The command to run this step is:
   ***exec c:\users\steve\documents\afgusaid\forecastdevgrants .05***

6. **Forecast development financing.** For the development budget, there are several items that provide financing but are not grants. This includes a variety of loans (less principal repayment) **These are forecasted at .05 growth**. This includes ADB, WB, other loans as well as principal repayment.

   The command to run this step is:
   **exec c:\users\steve\documents\afgusaid\forecastdevfinancing .05**

7. **Forecast operating grants.** For the operating budget, donor financing is forecasted out at a default rate. It is currently **assumed to grow at .05**. Note that total grants are also forecasted, because the historical data needs to calculate other operating grants as a residual ("opothergrants").

   The command to run this step is:
   ***exec c:\users\steve\documents\afgusaid\forecastopgrants .05***

8. Forecast operating contingency. For the operating budget, there are several items that are not assigned to a spending agency but kept as a contingency. Once the year is over, the contingencies are either spent by a spending agency or they lapse. Thus for the current budget year and the forecast, the operating budget contingencies are important (accounts for over 10% of the operating budget) and must be forecasted out. These are treated as exogenous and currently are **forecasted to grow at 15%.**

   The command to run this step is:
   ***exec c:\users\steve\documents\afgusaid\forecastopcontingency .15***

9. **Forecasting development spending.**
   a. For the **external budget, it is assumed to be held at the last forecast value** (0).
   b. For the core development budget, as explained above, it shares out available financing. Therefore, the earmarked value is set at 0. This value is only important if devxxdum=0.
   c. There are also some assorted items.
      i. Sale of assets[3] .

[3] Sales of assets are forecasted in the revenue model but are treated as capital revenue. However, the data are different. This discrepancy needs to be sorted out.

ii. Expected growth rate of development spending: This is used to predict likely development spending in the budget and forecast and creates a carryover. The expected growth rate is kept flat.
iii. Unallocated development spending: This is a budget item and is not the same as unearmarked. It is forecasted flat.
iv. Other development revenue: Tends to be zero and is forecasted flat;

The command to run this step is:
***exec c:\users\steve\documents\afgusaid\forecastdevspending***

10. **Forecasting some assorted items.** These are included to be comprehensive. They are items where there is probably no spending (e.g., capital for some ministries) and are included in case some spending does take place in the future. All of these are forecasted flat which is the same as zero,/

    The command to run this step is:
    ***exec c:\users\steve\documents\afgusaid\forecastassorted***

11. **Showing the data.** Listed below are some simple programs that show the exogenous data in a spreadsheet format and allows the users to change their values. However, since some of the values are derived from others they can not be edited; rather, you have to change the basic data.
    a. ***Showexog*** – shows key exogenous data. However the level of nominal GDP and the growth of nominal GDP cannot be edited, because they depend on real GDP growth and inflation. All of the others can be edited. Also added to this list is the aggregate operating budget contingency. Because it is an aggregate of the components, you need to edit a component to change this. IF you want it changed, run ***showcontingency*** which has the components of the total contingencies.
    b. ***Showdevgrants*** – shows development grants; Although *denewgrants* and *devgrantstotal* are included in the list, they cannot be edited, because they depend on the other components that are shown.
    c. ***Showopgrants*** -- shows operating grants. In this case, the total (*opgrants*) can be forecasted, as *opothergrants* is a residual. *Revtodev* plays the same role as transferring operating surplus to development budget, but here, it is exogenous (this should be dropped from model since all it does is reduce the operating balance – I will probably do so later)
    d. ***Showdevelopment –*** Shows external and core budget development spending in aggregate and by individual ministry. The aggregates are shown first. You would need to change the individual components to change the aggregate.
    e. ***Showdevfinancing*** – Shows loan and other financing of the deficit (still needs some work). Note that the aggregate (devfinancing) can be changed only by changing one of its components.

12. **Producing the Forecast**: To produce the forecast. Run the program, ***runlongternforecast.*** This creates the residuals, so that the program can track history, the current year's budget, and current MTFF from 1386 to 1394 and then create a long term forecast through 1415. The program produces some graphs at the end. I suggest looking at the numbers or downloading to tables when done.

## Next Steps and Outstanding Issues

At the time this manual was drafted, several relationships were still missing in the MTFF or still require some additional work. Some can be remedied soon, but others will require significant work.

a) O&M – An initial attempt has been made to link operating costs to recent development projects. However, some may already be included in budgets, while others may be totally excluded and may be in the development budget. Furthermore, some O&M may be in the external budget (e.g., all of the O&M associated with security, except compensation and food). There is a project that has started, financed by DFID, which is trying to document this information. In the interim, the included estimates may be useful. They are not added to the budget, but are shown as a separate item.
b) No estimate is included for transitional security spending (except for wages and food). Some estimates have indicated that the O&M security spending that has not been estimated is six times the wages and food that are included.
c) Development spending. Currently, development spending is exogenous through 1394, and thereafter, it depends on sharing out available financing. It might be useful to link projects spending to specific financing.
d) Interest expenditures. Currently, it is exogenous. There should be a link between interest and debt.
e) No account is made of debt accumulation.
f) The fiscal adding up constraints and total financing of the budget have some issues and need further work.
g) Clearing up carryover and carryforward in development budget. These variables are conceptually similar in the Excel sheets and their respective roles in the budget need to be clarified and then modeled appropriately.
h) Closing the model. Currently, any excess or shortage in the operating budget results in a change in development revenue. This results in a change in core budget development spending, leaving the budget unchanged. An alternative that is explored in scenarios is to close the model with changes in aid (grants) instead of development revenue (and thus development spending.
i) Need to decompose/disaggregate total compensation into number of staff (Tashkeel) and wages; currently compensation is given in an aggregate form.
j) Need to consider how to handle midyear reviews, supplemental budgets, etc. I think the best approach is to have different Eviews Workfiles and export to Excel for tabling.
k) Currently, the degree of granularity is very high, as every code 21-25 plus development expenditures are forecasted, as well as their external budget expenditures. On the revenue side, every object code is forecasted out separately. Although a strong case can be made for aggregation, given the multiple demands

asked of the government (various definitions of sectors and different ways of categorizing revenue, I tend to think that the disaggregated approach is the preferred approach to give the users maximum flexibility.

l) The setup for stochastic simulations is very simplistic. I think we need to consider what variables should be thought of as stochastic. Currently, it is some of the key assumptions but none of the behavioral equations. My initial approach, which I still favor, was to concentrate on the exogenous variables.

m) Need to develop about 15 illustrative scenarios. I have about 6 right now.

n) Tabling is best done in Excel. Simulation results should be exported to Excel in predefined tables (some preliminary work has been done)

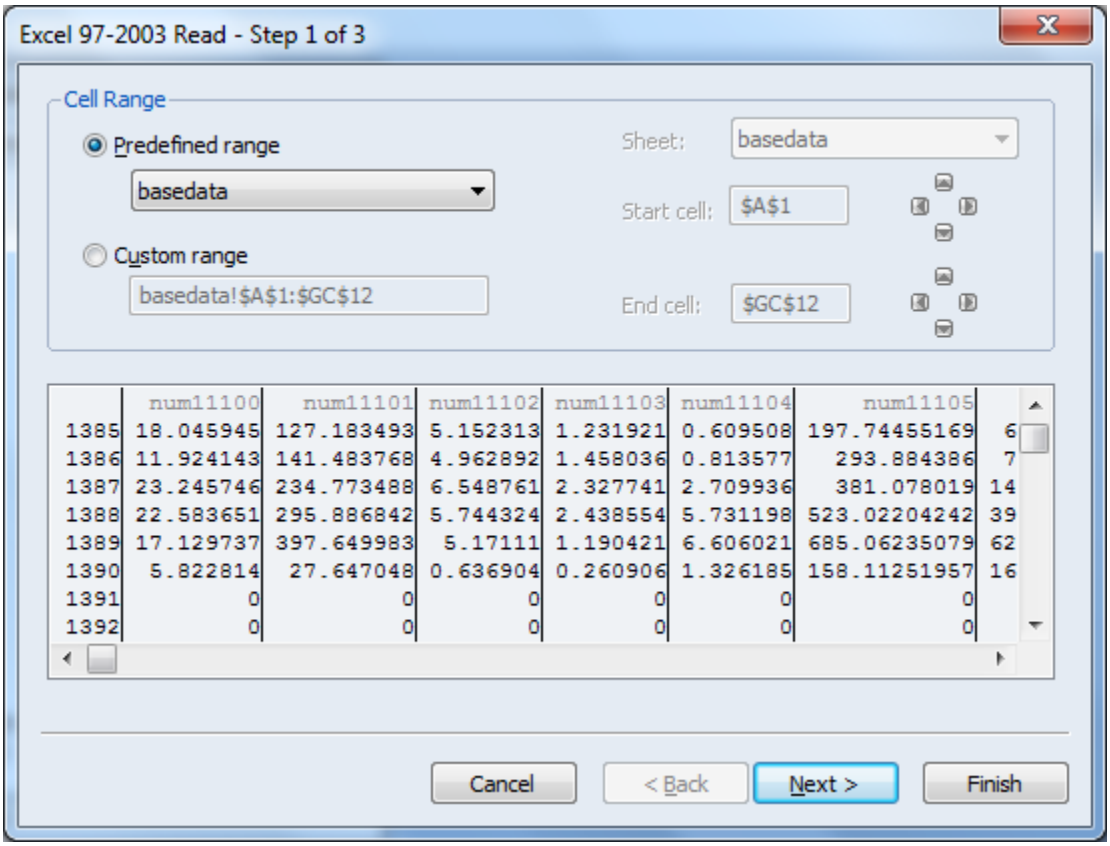
# Data and Simulation Annex

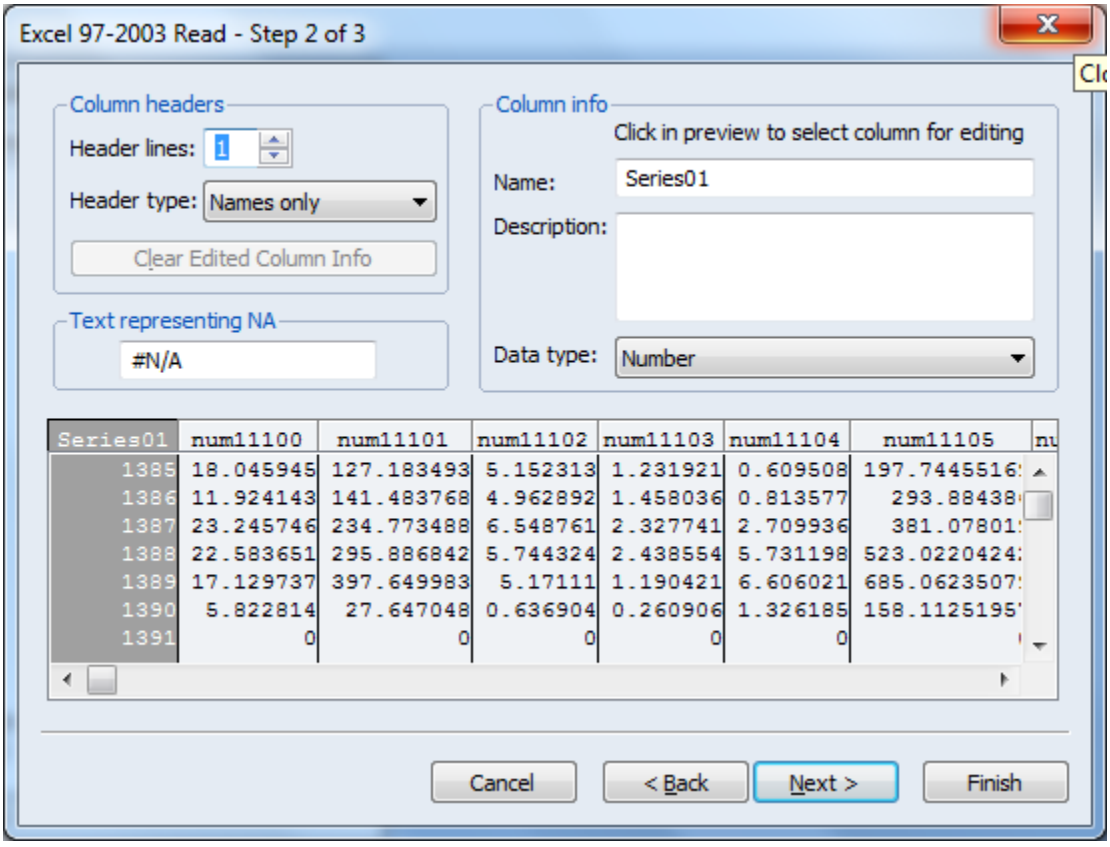
The data part of this annex explains how to get data from Excel into Eviews. It is divided into sections on Revenue data (Section A) and Expenditure/Financing (Section B). These steps are only needed when new historical data are available. The last section (Section C) discusses some simulation issues and goes through some standard simulations.

## A. Revenue Data

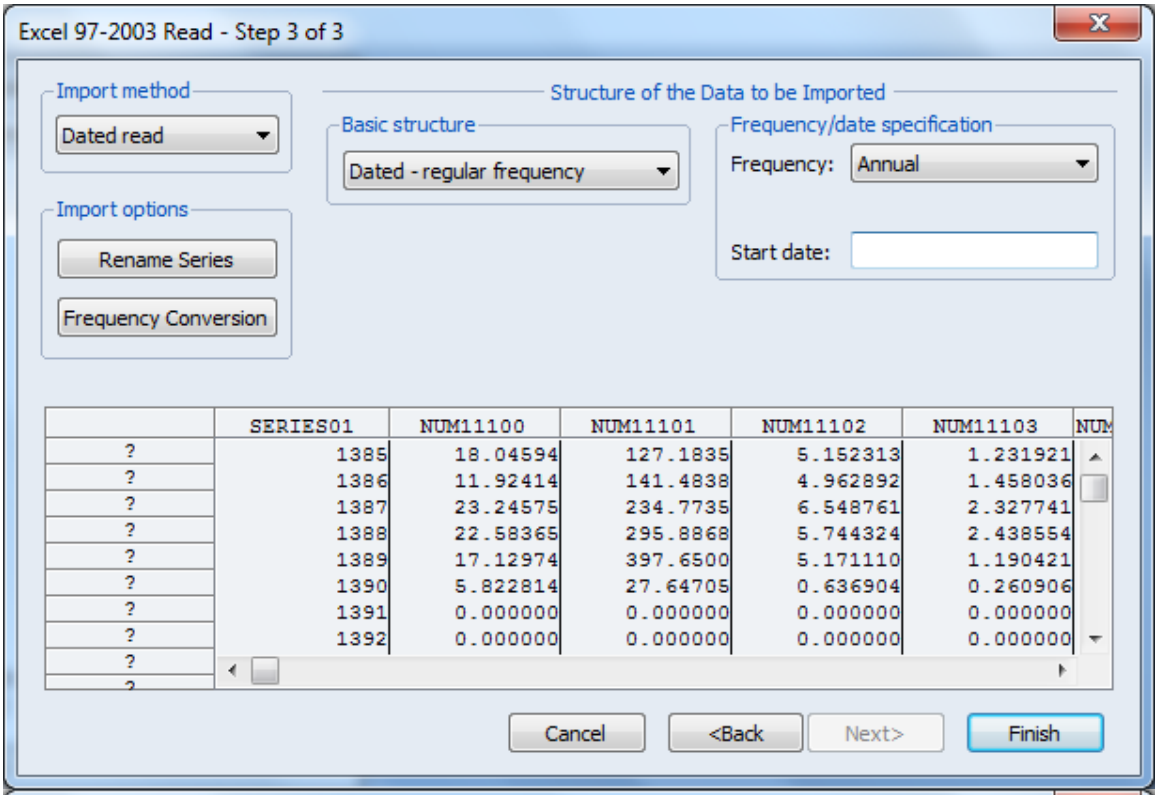
This section discusses the order of work for a new baseline simulation of the model in Eviews when an update of revenue data is available in RTAS. Since RTAS is updated daily, these procedures should be used when a full month of data are available and the cash collection method can be extended by a month. Revenue data are relatively easy to import into Eviews, because the RTAS system creates Excel tables.

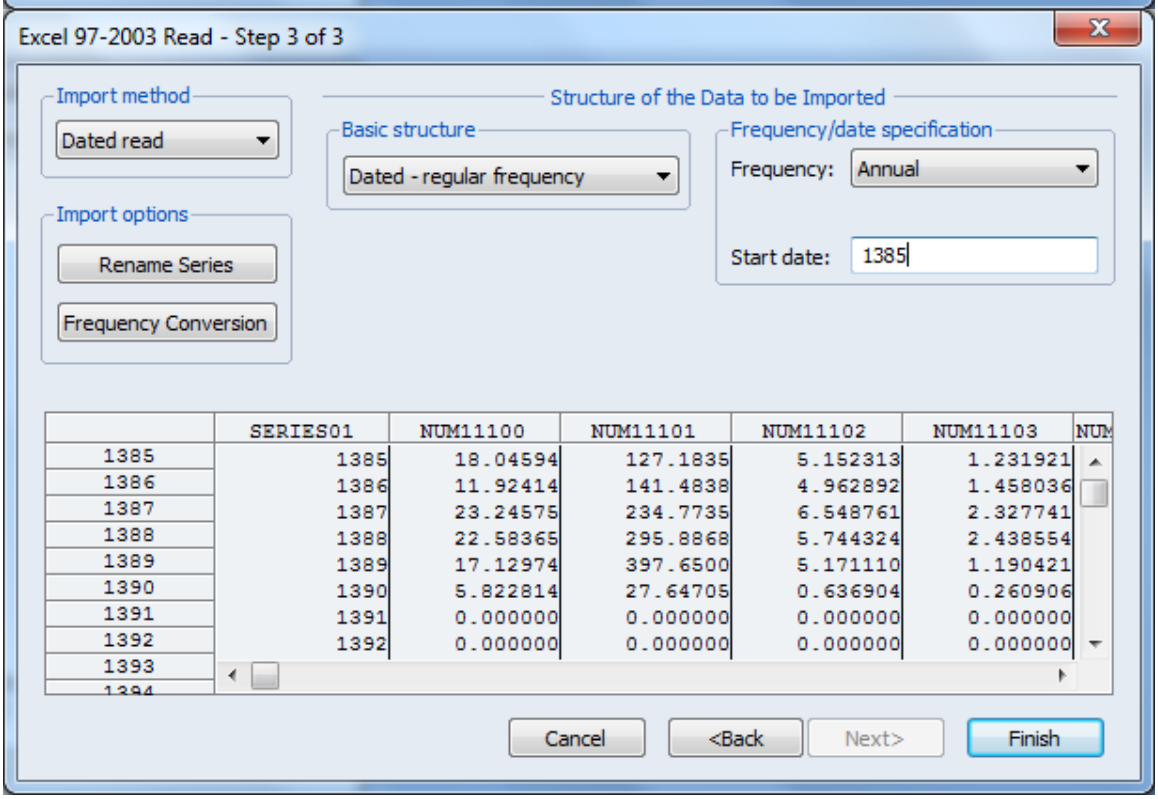
1) Download monthly data into Excel sheets from RTAS. Do one year at a time. Paste monthly data into EVIEWDATA file in columns A-O, one year at a time. Currently I have set all monthly data in forecast set to 0 for years 1391-1395. Alternatively, it may be more efficient to download all monthly data for all years and sort by year and then cut and paste into relevant yearly sheets.
2) The annual data will be created from the monthly data in BASEDATAANNUAL worksheet, which will be imported into Eviews.
3) Check with the Revenue Department (ARDS) if there are new COA data; if so, add them to the BASEDATAANNUAL sheet and add equations to model in Eviews.
4) Import BASEDATAANNUAL into an Eviews file. This should be imported into the *Mainmtff* EVIEWS tab. Overwrite existing data when queried. In general, you only need to bring in 1385 to 1389.


Excel 97-2003 Read - Step 1 of 3
Cell Range
Predefined range
basedata
Custom range
basedata!$A$1:$GC$12
Sheet:
basedata
Start cell:
$A$1
End cell:
$GC$12
num11100 num11101 num11102 num11103 num11104 num11105
1385 18.045945 127.183493 5.152313 1.231921 0.609508 197.74455169 6
1386 11.924143 141.483768 4.962892 1.458036 0.813577 293.884386 7
1387 23.245746 234.773488 6.548761 2.327741 2.709936 381.078019 14
1388 22.583651 295.886842 5.744324 2.438554 5.731198 523.02204242 39
1389 17.129737 397.649983 5.17111 1.190421 6.606021 685.06235079 62
1390 5.822814 27.647048 0.636904 0.260906 1.326185 158.11251957 16
1391 0 0 0 0 0 0
1392 0 0 0 0 0 0
Cancel
< Back
Next >
Finish

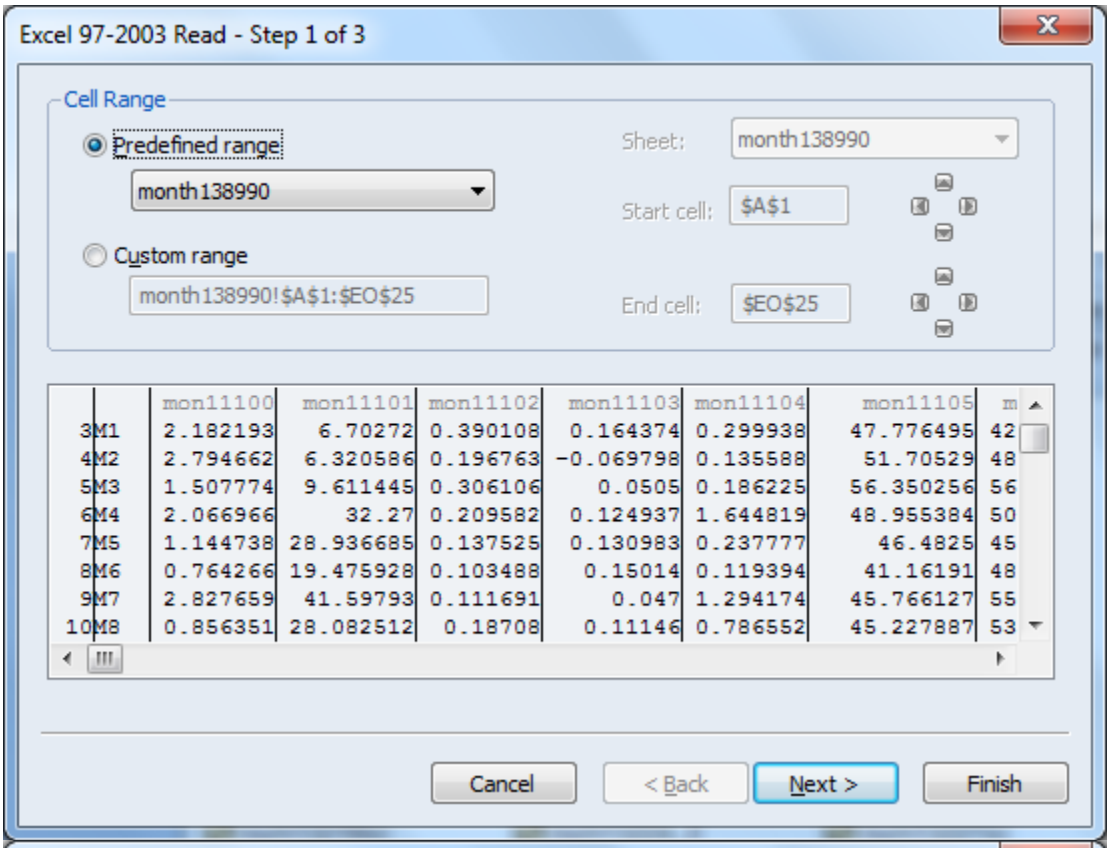

Excel 97-2003 Read - Step 2 of 3
Column headers
Header lines: 1
Header type: Names only
Clear Edited Column Info
Text representing NA
#N/A
Column info
Click in preview to select column for editing
Name: Series01
Description:
Data type: Number
Series01 num11100 num11101 num11102 num11103 num11104 num11105
1385 18.045945 127.183493 5.152313 1.231921 0.609508 197.7445516
1386 11.924143 141.483768 4.962892 1.458036 0.813577 293.88438
1387 23.245746 234.773488 6.548761 2.327741 2.709936 381.07801
1388 22.583651 295.886842 5.744324 2.438554 5.731198 523.0220424
1389 17.129737 397.649983 5.17111 1.190421 6.606021 685.0623507
1390 5.822814 27.647048 0.636904 0.260906 1.326185 158.1125195
1391 0 0 0 0 0 0
Cancel
< Back
Next >
Finish

Note the start date of 1385. It is all *???* before the start date is included



5) Bring in the monthly data, Import MONTH138990 from the Excel sheet in EVIEWDATA into the MONTHLYREV tab.


Excel 97-2003 Read - Step 1 of 3
Cell Range
Predefined range
month138990
Custom range
month138990!$A$1:$EO$25
Sheet:
month138990
Start cell:
$A$1
End cell:
$EO$25
mon11100 mon11101 mon11102 mon11103 mon11104 mon11105
3 M1 2.182193 6.70272 0.390108 0.164374 0.299938 47.776495
4 M2 2.794662 6.320586 0.196763 -0.069798 0.135588 51.70529
5 M3 1.507774 9.611445 0.306106 0.0505 0.186225 56.350256
6 M4 2.066966 32.27 0.209582 0.124937 1.644819 48.955384
7 M5 1.144738 28.936685 0.137525 0.130983 0.237777 46.4825
8 M6 0.764266 19.475928 0.103488 0.15014 0.119394 41.16191
9 M7 2.827659 41.59793 0.111691 0.047 1.294174 45.766127
10 M8 0.856351 28.082512 0.18708 0.11146 0.786552 45.227887
Cancel
< Back
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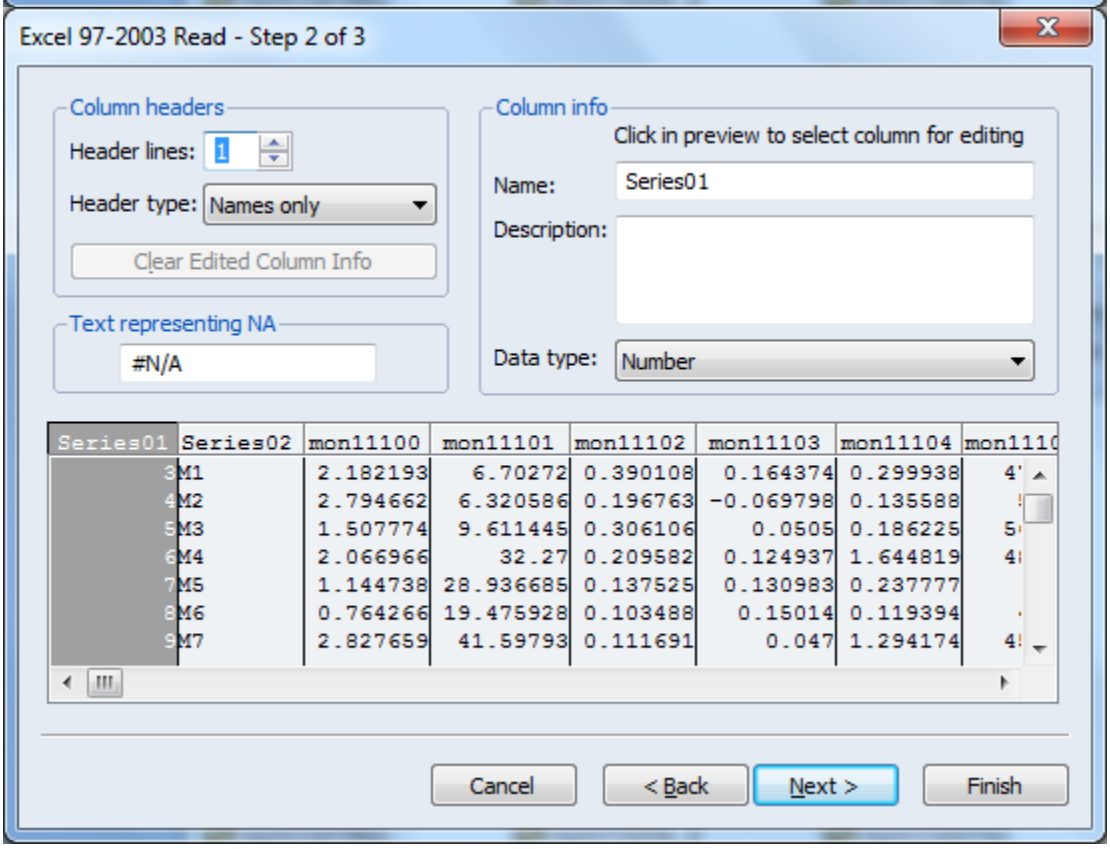
Finish


Excel 97-2003 Read - Step 2 of 3
Column headers
Header lines: 1
Header type: Names only
Clear Edited Column Info
Text representing NA
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Column info
Click in preview to select column for editing
Name: Series01
Description:
Data type: Number
Series01 Series02 mon11100 mon11101 mon11102 mon11103 mon11104
3 M1 2.182193 6.70272 0.390108 0.164374 0.299938
4 M2 2.794662 6.320586 0.196763 -0.069798 0.135588
5 M3 1.507774 9.611445 0.306106 0.0505 0.186225
6 M4 2.066966 32.27 0.209582 0.124937 1.644819
7 M5 1.144738 28.936685 0.137525 0.130983 0.237777
8 M6 0.764266 19.475928 0.103488 0.15014 0.119394
9 M7 2.827659 41.59793 0.111691 0.047 1.294174
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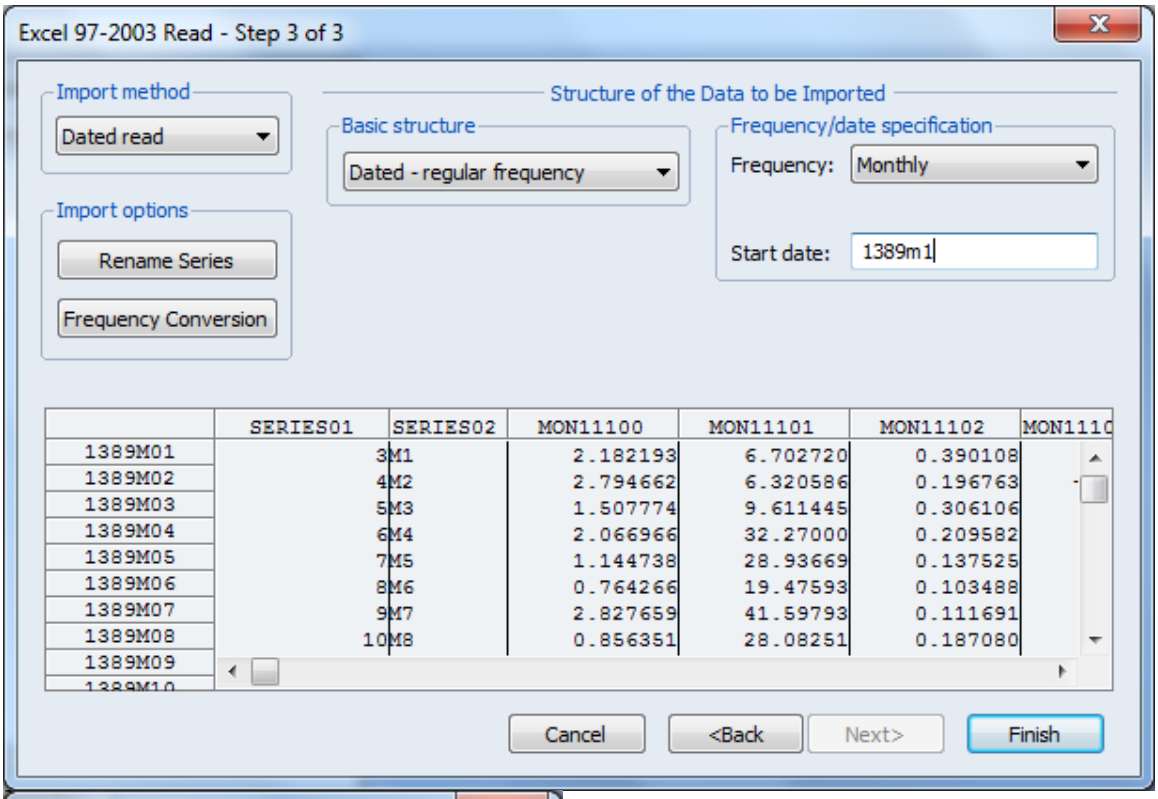
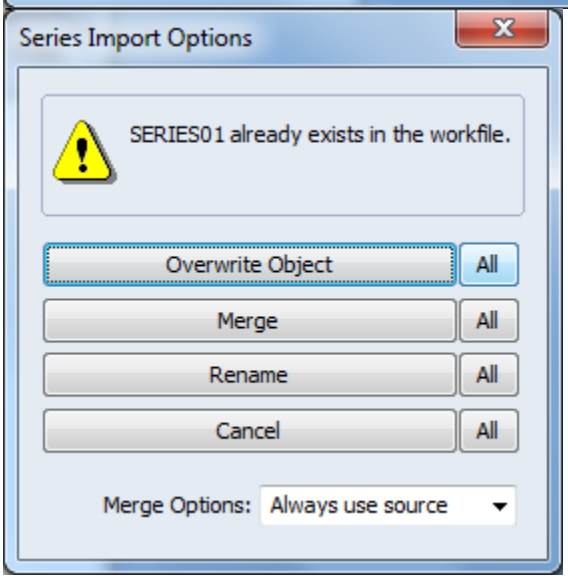
Note that you have to put in the start date, which turns this into monthly data starting in 1389m1.



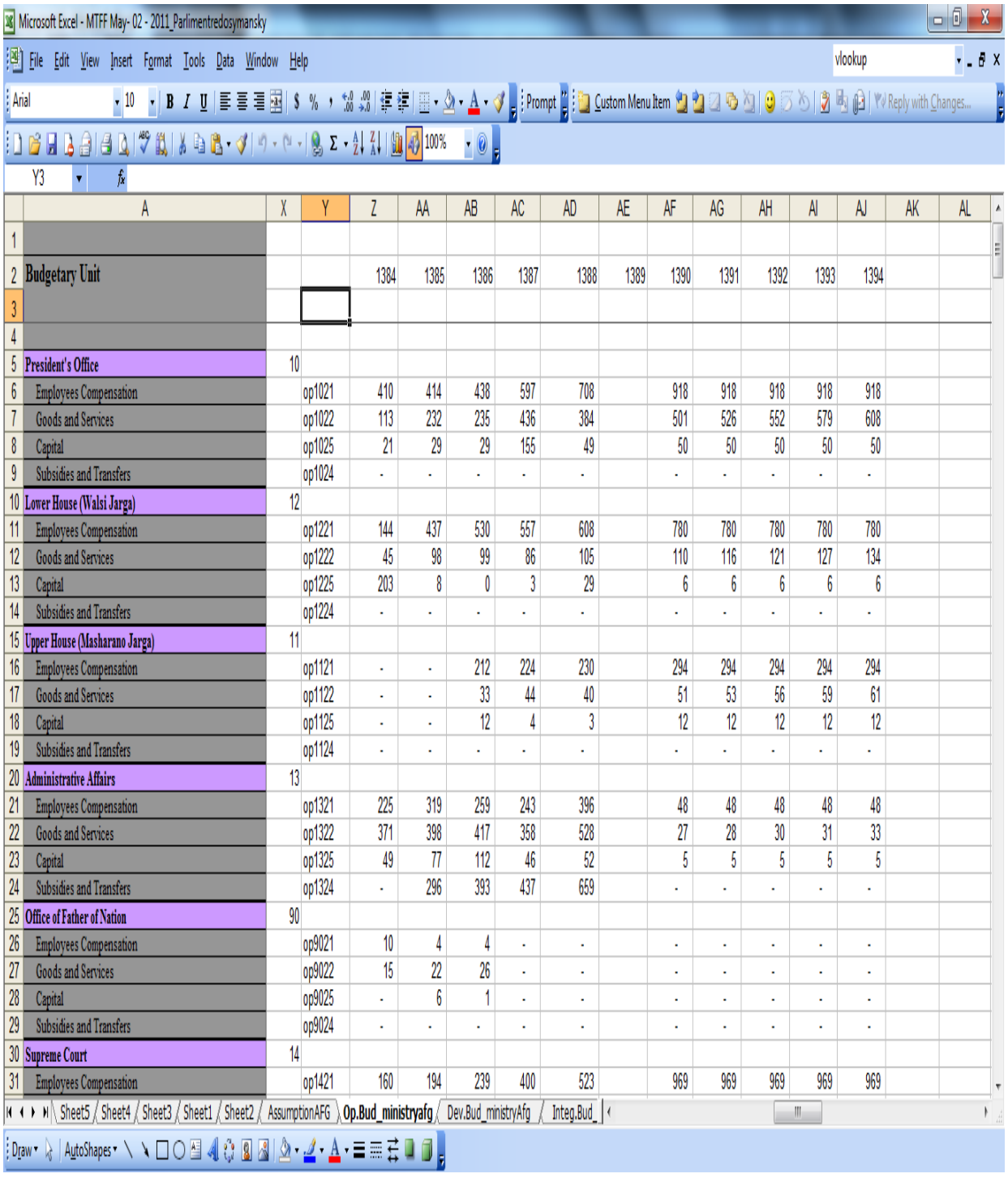

6) Import assumptions (exog) from Excel or edit the assumptions in Eviews.
7) Definitions (aggregation) are done automatically. Definitions are in Eviews tab called Aggreg but are also in main MTFF tab (Mainmtff).

## B. Expenditure and Financing Data.

These data do not come from a data retrieval system, so a lot more cut and pasting will be involved. Until a data retrieval system is in place, I suggest leaving historical data and just updating previous year and budget. This part of the data annex covers how to get these data into Eviews. The second part discusses simulation method

### Steps That Need Not Be Repeated – Getting Expenditure/Financing Data Into Eviews

1. Copy and paste transposed values from operating budget and development budget sheets. I first put the data on the right side by bringing over only the historical data and not budget data. The operating budget data come from *OperatingBudgetAfg* Worksheet. The cells below were transposed into Sheets *Op1, 2, & 3* to be imported. I had to do it in three sheets, because Excel limits the number of columns you can have. The naming convention is opxxyy, where xx is the ministry code and yy is the object code. We have complete data for codes 11 (compensation), 22 (goods), 24 (transfers and subsidies) and 25 (operating budget capital). Code 23 (interest) is only for MoF. Some ministries and agencies do not have operating budgets, but in the name of completeness I have included them. The 1389 data are missing. That comes from recent data supplied by the FPU in the MoF and is imported separately (explained below).




| | A | X | Y | Z | AA | AB | AC | AD | AE | AF | AG | AH | AI | AJ | AK | AL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | | | | | | | |
| 2 | **Budgetary Unit** | | | 1384 | 1385 | 1386 | 1387 | 1388 | 1389 | 1390 | 1391 | 1392 | 1393 | 1394 | | |
| 3 | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | |
| 5 | **President's Office** | 10 | | | | | | | | | | | | | | |
| 6 | Employees Compensation | | op1021 | 410 | 414 | 438 | 597 | 708 | | 918 | 918 | 918 | 918 | 918 | | |
| 7 | Goods and Services | | op1022 | 113 | 232 | 235 | 436 | 384 | | 501 | 526 | 552 | 579 | 608 | | |
| 8 | Capital | | op1025 | 21 | 29 | 29 | 155 | 49 | | 50 | 50 | 50 | 50 | 50 | | |
| 9 | Subsidies and Transfers | | op1024 | - | - | - | - | - | | - | - | - | - | - | | |
| 10 | **Lower House (Walsi Jarga)** | 12 | | | | | | | | | | | | | | |
| 11 | Employees Compensation | | op1221 | 144 | 437 | 530 | 557 | 608 | | 780 | 780 | 780 | 780 | 780 | | |
| 12 | Goods and Services | | op1222 | 45 | 98 | 99 | 86 | 105 | | 110 | 116 | 121 | 127 | 134 | | |
| 13 | Capital | | op1225 | 203 | 8 | 0 | 3 | 29 | | 6 | 6 | 6 | 6 | 6 | | |
| 14 | Subsidies and Transfers | | op1224 | - | - | - | - | - | | - | - | - | - | - | | |
| 15 | **Upper House (Masharano Jarga)** | 11 | | | | | | | | | | | | | | |
| 16 | Employees Compensation | | op1121 | - | - | 212 | 224 | 230 | | 294 | 294 | 294 | 294 | 294 | | |
| 17 | Goods and Services | | op1122 | - | - | 33 | 44 | 40 | | 51 | 53 | 56 | 59 | 61 | | |
| 18 | Capital | | op1125 | - | - | 12 | 4 | 3 | | 12 | 12 | 12 | 12 | 12 | | |
| 19 | Subsidies and Transfers | | op1124 | - | - | - | - | - | | - | - | - | - | - | | |
| 20 | **Administrative Affairs** | 13 | | | | | | | | | | | | | | |
| 21 | Employees Compensation | | op1321 | 225 | 319 | 259 | 243 | 396 | | 48 | 48 | 48 | 48 | 48 | | |
| 22 | Goods and Services | | op1322 | 371 | 398 | 417 | 358 | 528 | | 27 | 28 | 30 | 31 | 33 | | |
| 23 | Capital | | op1325 | 49 | 77 | 112 | 46 | 52 | | 5 | 5 | 5 | 5 | 5 | | |
| 24 | Subsidies and Transfers | | op1324 | - | 296 | 393 | 437 | 659 | | - | - | - | - | - | | |
| 25 | **Office of Father of Nation** | 90 | | | | | | | | | | | | | | |
| 26 | Employees Compensation | | op9021 | 10 | 4 | 4 | - | - | | - | - | - | - | - | | |
| 27 | Goods and Services | | op9022 | 15 | 22 | 26 | - | - | | - | - | - | - | - | | |
| 28 | Capital | | op9025 | - | 6 | 1 | - | - | | - | - | - | - | - | | |
| 29 | Subsidies and Transfers | | op9024 | - | - | - | - | - | | - | - | - | - | - | | |
| 30 | **Supreme Court** | 14 | | | | | | | | | | | | | | |
| 31 | Employees Compensation | | op1421 | 160 | 194 | 239 | 400 | 523 | | 969 | 969 | 969 | 969 | 969 | | |



2. The development budget comes from the *Integrated Budget* worksheet. These data were brought over to sheet *Dev* and imported from there. There are a few artificial codes for agencies since some were missing if they did not have expenditures in 1389.
3. For 1389, I imported data from AFMIS sent by the FPU in the MoF. You can import just one period as I did for 1389. You just need to be careful to set the

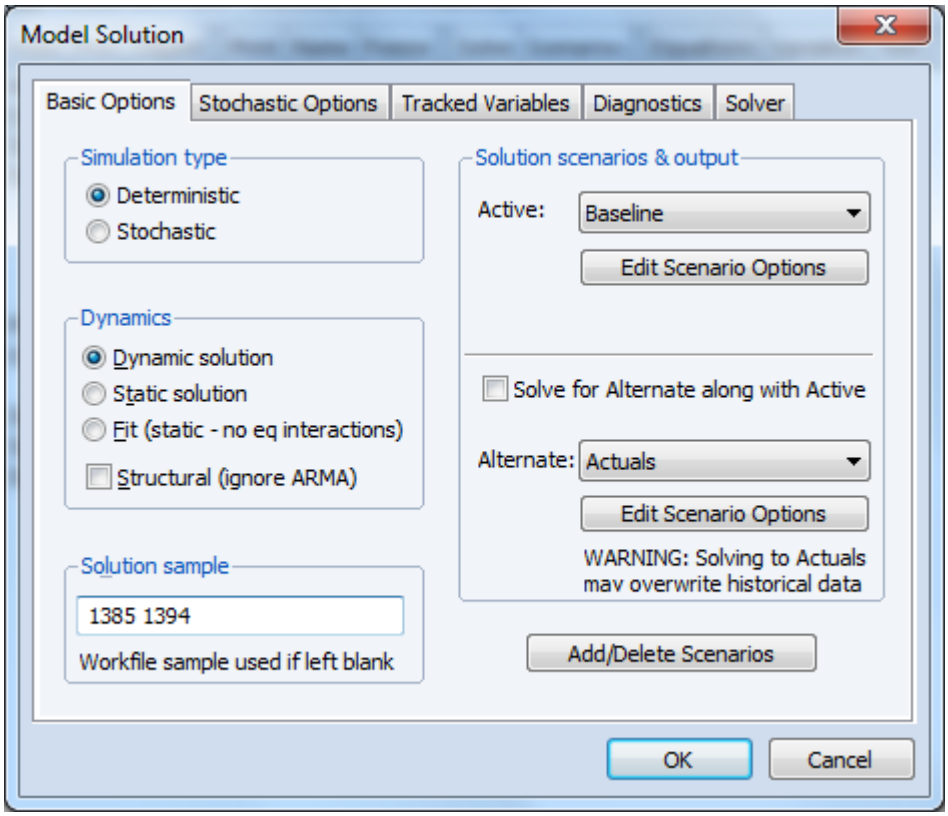
right date, indicate that date, and then use the merge option on data import. The data are in *Eviewsdev and Eviewsop*. These data should be merged and not replaced so that only 1389 data from the above sheets are overwritten.

4. The external budget data is in *eviewsimport* in the External Budget Excel sheet.
5. The grants are in a sheet called *financing*. Unlike the expenditures, I used the most recent estimate for 1389, because I did not have the actual data.
6. The assumptions for growth on expenditures and nominal GDP were copied and pasted from assumption into *External*.
7. The external development budget was in a spreadsheet called 2002-2011 External Dev Bgt by Exp Code 26-04-2011. The data are good through 2010; the 2011 data seems very partial. I assumed that 2010 was comparable to 1389 and copy and pasted into a sheet called Eviews.
8. Issues not dealt with:
    a. Only historical actual and not historical budget data have been included. The problem with budget data is that it is unclear which budget number to use: original, mid-year, supplemental etc. At some point, this issue should be addressed, because it can be useful to compare budget to outturn.
    b. Key tables should be made in Excel. At present historical budget, MYR, and supplemental information are kept in the original spreadsheets. (The standardized tables in Excel and the Eviews to Excel still need to be developed, tested, and documented)

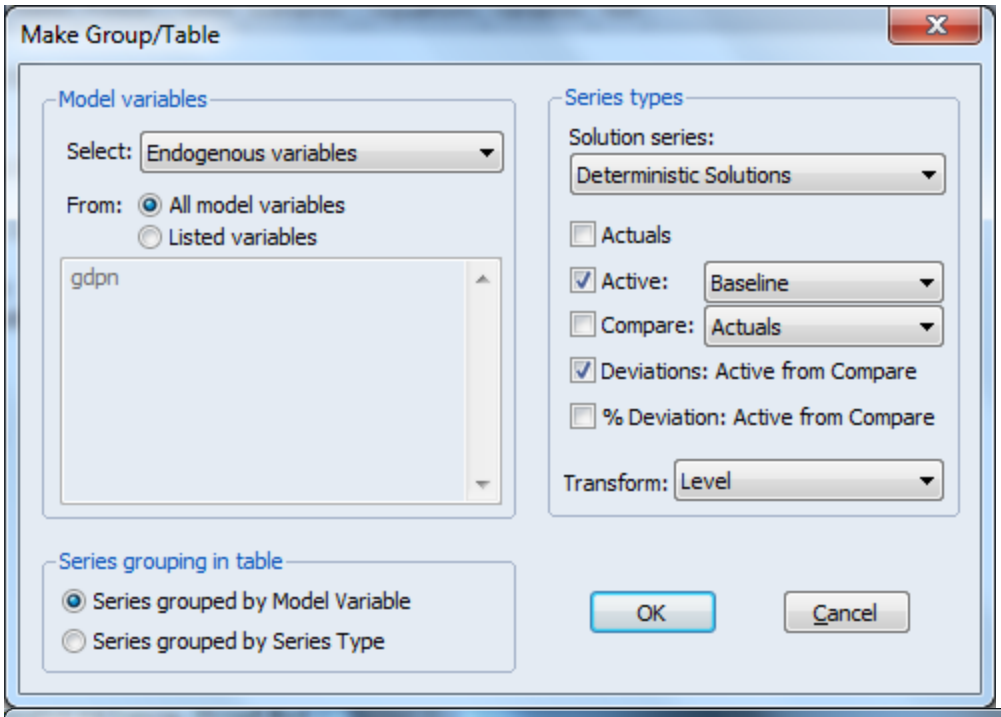
## C. Simulation Considerations

The simulations have been designed so that counterfactuals can be examined.

a) The way to do this is force the model to achieve the baseline. That is done by calculating the add factors for equations that are not identities so that they are consistent with the baseline. This is accomplished via a program called Baselineaddfactors, which calculates residuals for 1384 to 1390. Keep in mind that the data for 1384 to 1389 are historical, and 1390 is largely set via the budget process and can be thought of as predetermined. Then it sets the residuals for 1391 to 1394 equal to 0. The only exception is development spending, which is largely predetermined, and therefore, I force all development spending to achieve the predetermined values via the calculation of the residual.
b) Now try to simulate mode from 1385 to 1394. I suggest using Dynamic even though it allows for interactions. If this shows problems, you may want to try Fit (instead of Dynamic), as Fit closes off equation interactions and tests if identifies hold historically. However Fit requires the data of the endogenous data.




c) When finished, you should compare baseline to actuals. In some cases they should be exact (since the MTFF results were imported into Eviews, but in other cases they may not because the assumptions or data have changed or the data might not exist in Eviews. Therefore the next step is to look at results in levels to see if the simulated values make sense. This is accomplished in an interactive mode (not through a program) in the simulation mode (i. e. *Proc, make group table*) Change tab options to show all columns (current sample for annual columns). What I suggest below will show a lot of material, but it is the only way to ensure that the simulated data are correct. There should be no differences in any results for historical data. This compares the historical to the simulated in level terms. There may be differences in the MTFF period,




EViews

File Edit Object View Proc Quick Options Add-ins Window Help

Group: UNTITLED Workfile: MTFFNEW::mainmtff\

View | Proc | Object | Print | Name | Freeze | Edit+/- | Font | TabOptions | RowOptions | Title | Sample

| | 1388 | 1389 | 1390 | 1391 | 1392 | 1393 | 13 |
|---|---|---|---|---|---|---|---|
| CONTINGENCY | | | | | | | |
| Baseline | 22083.00 | 39649.51 | 14954.38 | 26400.53 | 29758.05 | 30682.98 | 318 |
| Deviation | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| CONTINGENCYSHARE | | | | | | | |
| Baseline | 0.25 | 0.36 | 0.10 | 0.15 | 0.16 | 0.16 | |
| Deviation | -0.00 | -0.00 | 0.00 | 0.00 | 0.00 | -0.00 | |
| DEV | | | | | | | |
| Baseline | 43991.04 | 43378.85 | 74054.28 | 74142.37 | 78177.11 | 88730.70 | 998 |
| Deviation | -0.00 | -0.00 | 0.00 | -0.00 | -0.00 | -0.00 | |
| DEV10 | | | | | | | |
| Baseline | 97.87 | 119.67 | 314.00 | 148.17 | 103.81 | 119.01 | 1 |
| Deviation | -0.00 | 0.00 | 0.00 | 0.00 | -0.00 | 0.00 | |
| DEV11 | | | | | | | |
| Baseline | 10.70 | 22.64 | 78.67 | 37.12 | 26.01 | 29.82 | |
| Deviation | -0.00 | 0.00 | 0.00 | 0.00 | -0.00 | 0.00 | |
| DEV12 | | | | | | | |
| Baseline | 66.41 | 10.85 | 3.67 | 1.73 | 1.21 | 1.39 | |
| Deviation | -0.00 | -0.00 | 0.00 | -0.00 | 0.00 | -0.00 | |
| DEV13 | | | | | | | |
| Baseline | 0.00 | 46.73 | 63.22 | 29.83 | 20.90 | 23.96 | |
| Deviation | 0.00 | -0.00 | 0.00 | 0.00 | -0.00 | 0.00 | |
| DEV14 | | | | | | | |
| Baseline | 101.58 | 78.14 | 206.59 | 97.48 | 68.30 | 78.30 | |
| Deviation | -0.00 | -0.00 | -0.00 | 0.00 | -0.00 | 0.00 | |
| DEV15 | | | | | | | |
| Baseline | 0.00 | 22.01 | 47.00 | 22.18 | 15.54 | 17.81 | |
| Deviation | 0.00 | 0.00 | 0.00 | -0.00 | 0.00 | 0.00 | |
| DEV20 | | | | | | | |
| Baseline | 1245.71 | 1829.56 | 2860.59 | 2338.44 | 2606.92 | 2988.56 | 33 |
| Deviation | 0.00 | -0.00 | 0.00 | -0.00 | -0.00 | -0.00 | |
| DEV21 | | | | | | | |
| Baseline | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Deviation | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| DEV22 | | | | | | | |

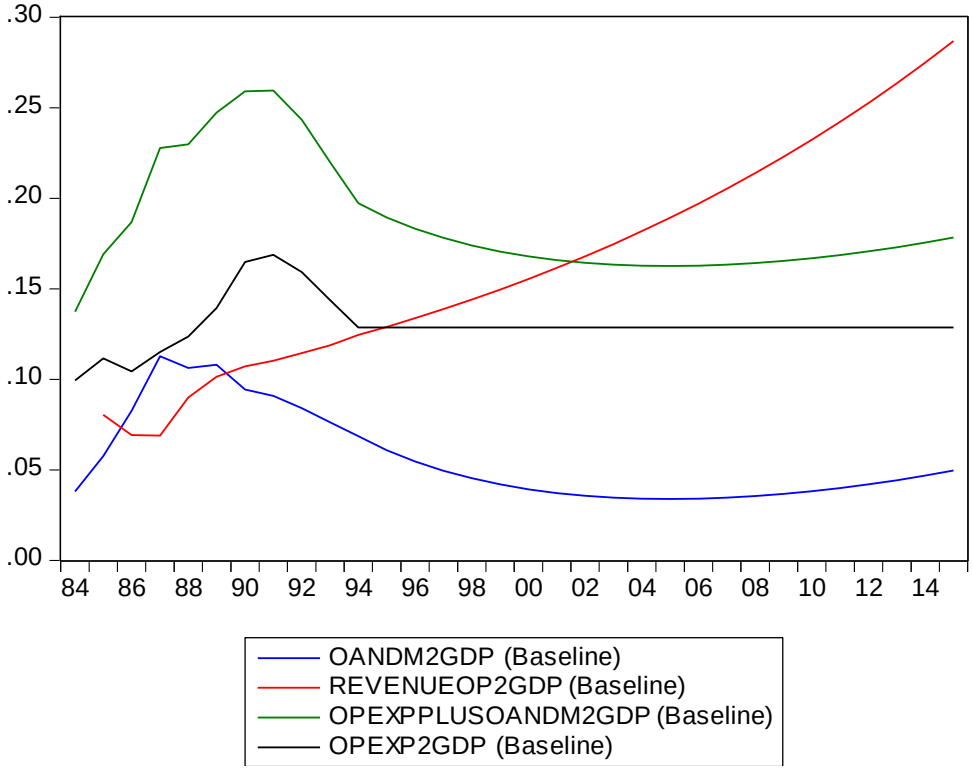
Path = c:\users\steve\documents\afgusaid | DB = none | WF = mtffnew

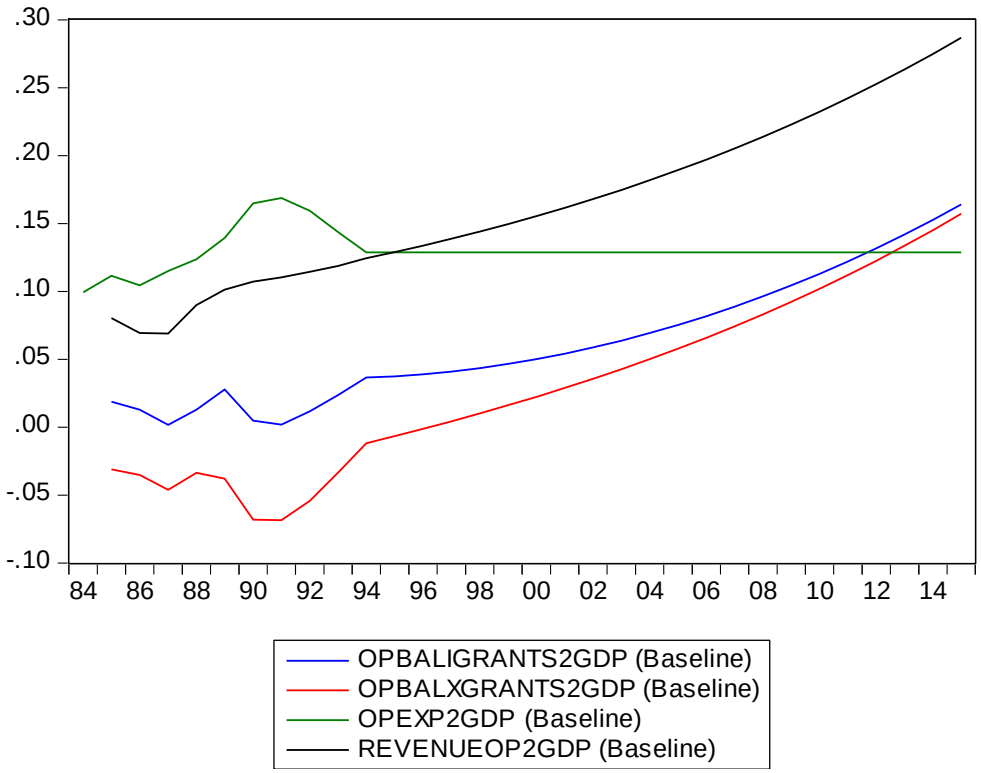
## Scenarios

*General Comments.* Although scenarios can be run interactively, programs were developed for the scenarios. The programs also create charts. Except for the baseline, the data are put in a separate database and the scenario data are deleted from the workfile. The advantage of the data database/deletion step is to keep the workfile uncluttered, but it adds a significant amount of time unless you run it as a batch program.

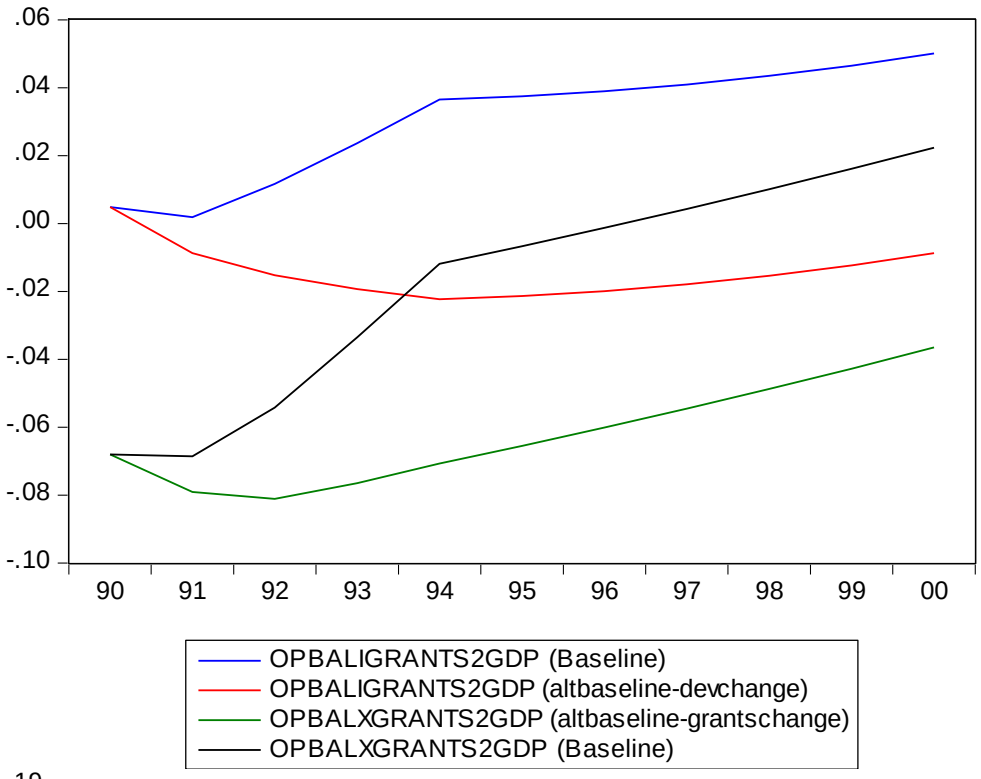
An example of a command to run a scenario is:
***exec c:\users\steve\documents\afgusaid\shocklowrevenue***

1) Baseline: The baseline is created in the main set of programs or can be run separately as ***runlongternforecast***. The _0 after a data series indicates it is a from the simulated baseline values. These data are kept in the main workfile.






2) Alternative baselines: As explained above, the MoF's baseline MTFF has several unrealistic assumptions. Therefore a set of more plausible assumptions over the MTFF period is run, which deteriorates the fiscal position. Two simulations are run based on different assumptions. In one case, the worsening fiscal position is financed by more aid, and other fiscal expenditures and development expenditures are unchanged. The scenario is called ***altbaseline-grantschange.*** In the other scenario, the decline in the fiscal balance is offset by a decline in development expenditures and is called ***altbaseline-devchange.*** The program to run these scenarios is ***exec c:\users\steve\documents\afgusaid\alternativebaseline.***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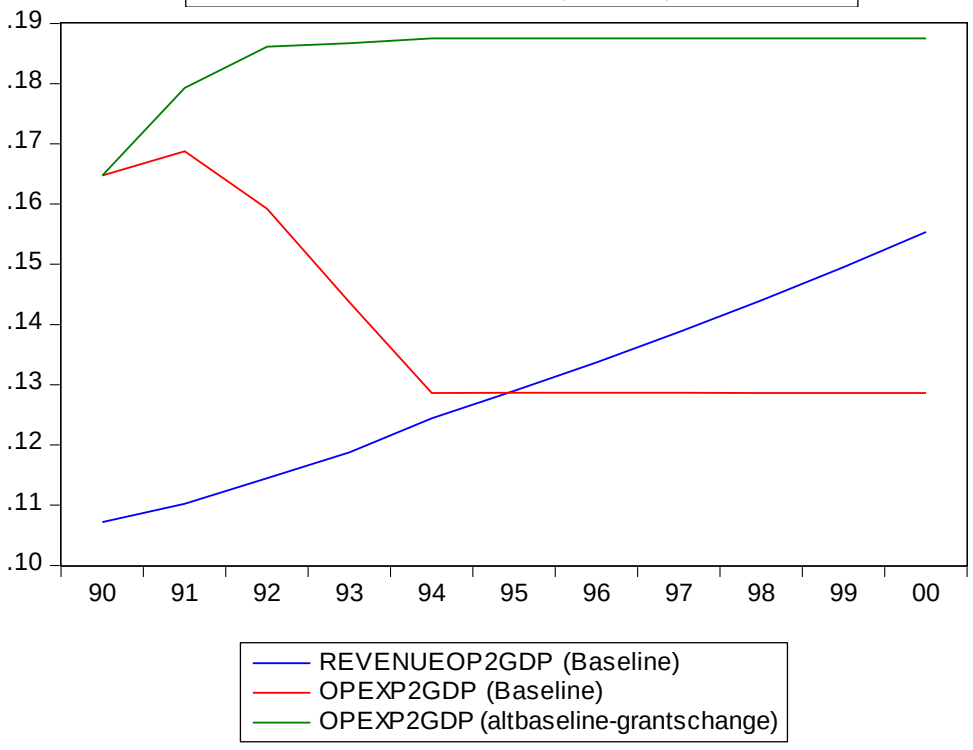
OPBALIGRANTS2GDP (Baseline)
OPBALIGRANTS2GDP (altbaseline-devchange)
OPBALXGRANTS2GDP (altbaseline-grantschange)
OPBALXGRANTS2GDP (Baseline)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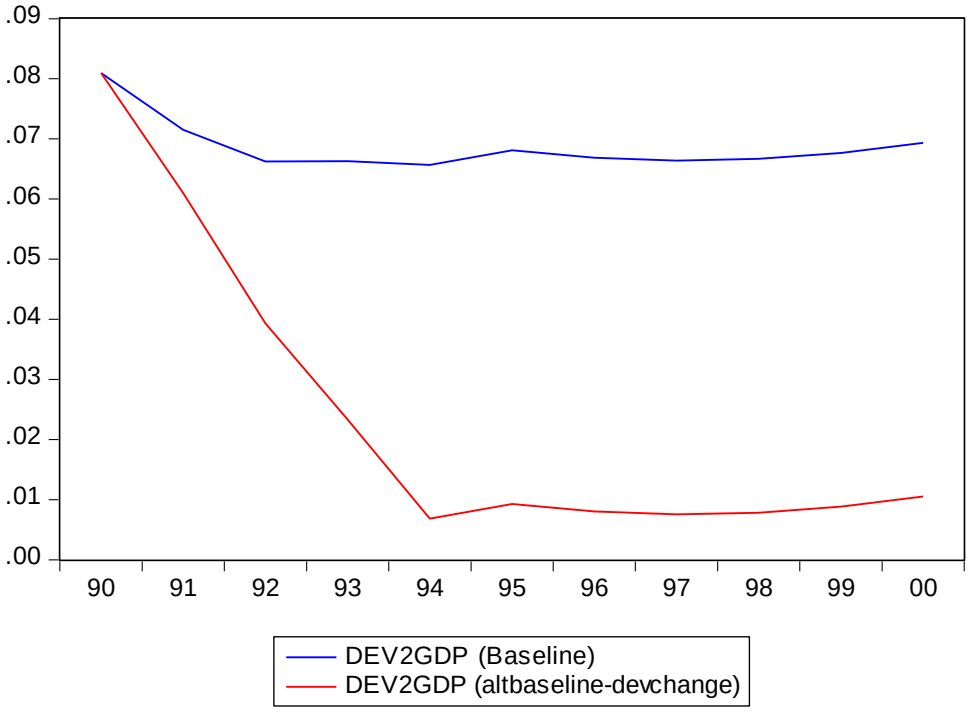
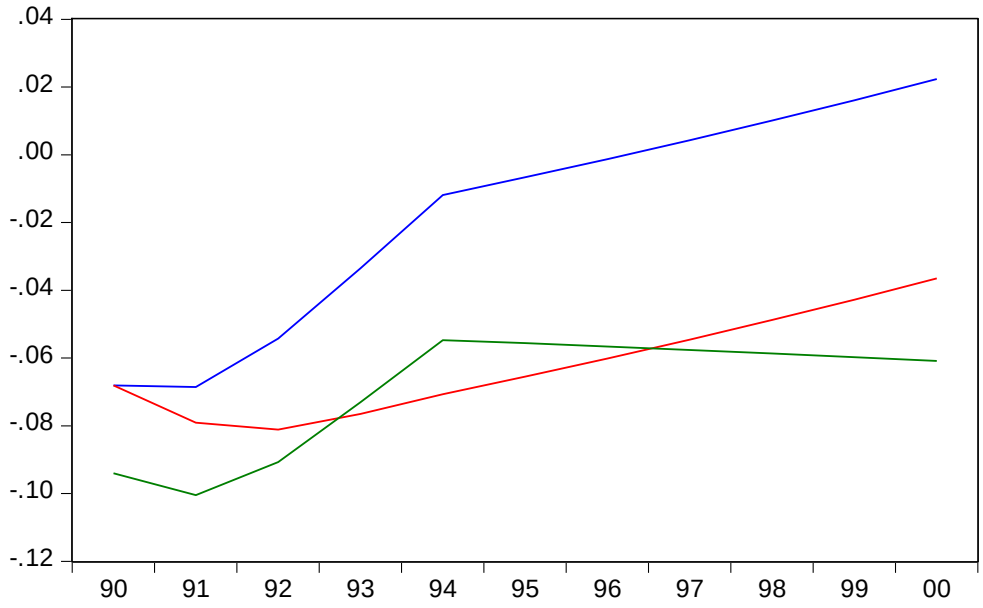
REVENUEOP2GDP (Baseline)
OPEXP2GDP (Baseline)
OPEXP2GDP (altbaseline-grantschange)

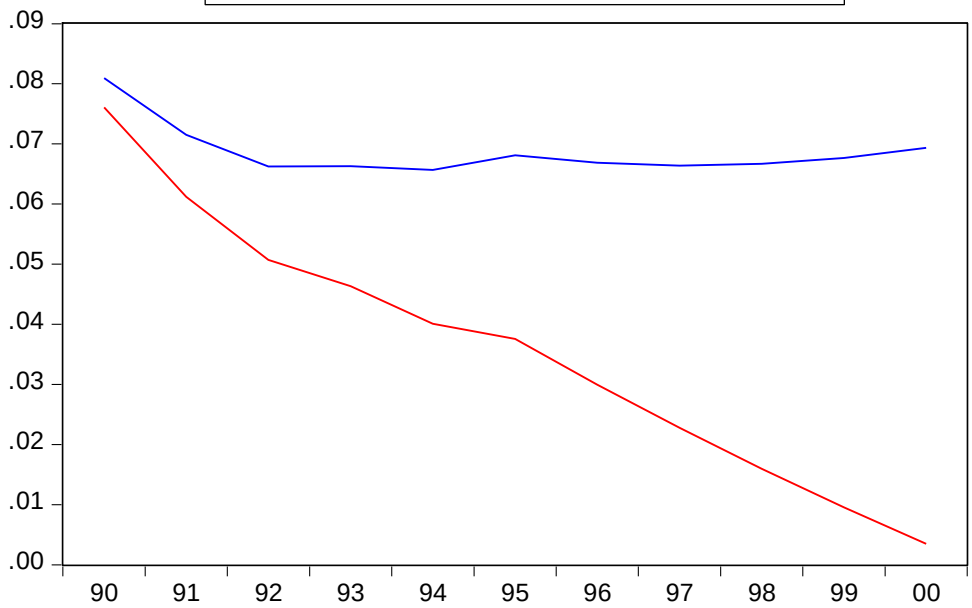



3) Higher Revenue: As in the Revenue Excel file, there is a high-case scenario, which assumes higher domestic growth, higher imports, and improved tax efficiency. (Graphs skipped as I only show the low case) The program to run this scenario is ***exec c:\users\steve\documents\afgusaid\shocklowrevenue***

4) Lower Revenue: Similar to above, except the assumptions are reversed. The program to run this scenario is
***exec c:\users\steve\documents\afgusaid\shockhighrevenue***

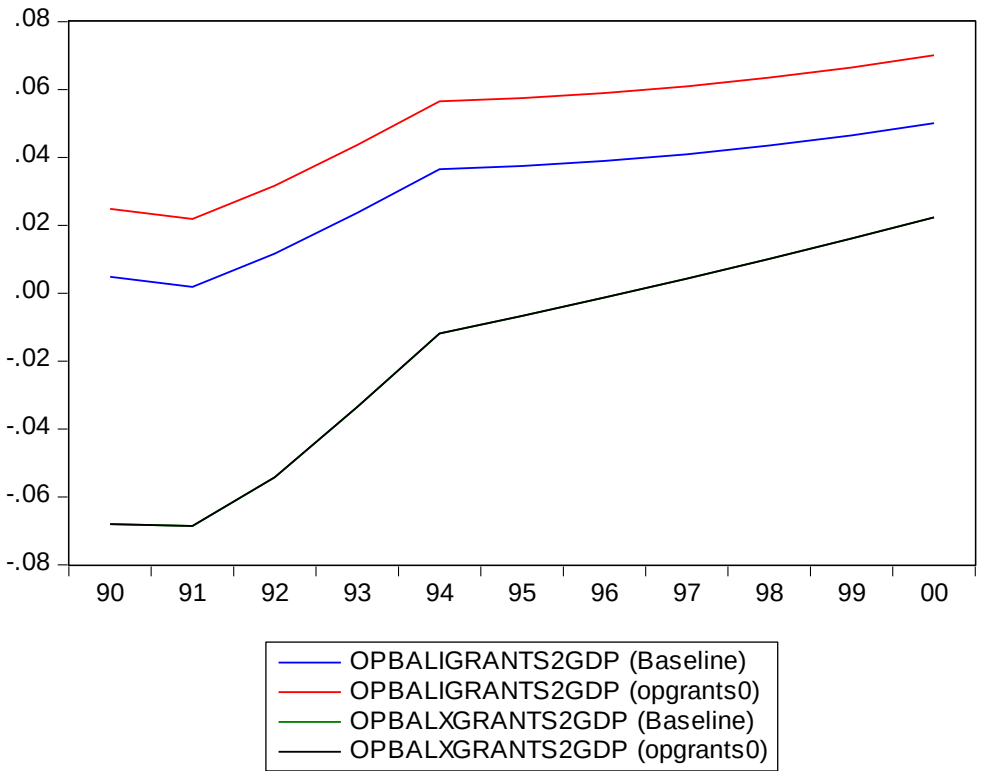








5) Grants increase: In this scenario, operating ***budget grants increase by 2% of GDP.*** However, because this has no impact on any operating expenditures by construction, improvement in the balance results in an increase in development support and an increase in development spending. Note that the operating balance excluding grants is unchanged. The program to run this scenario is ***exec c:\users\steve\documents\afgusaid\shockopgrants***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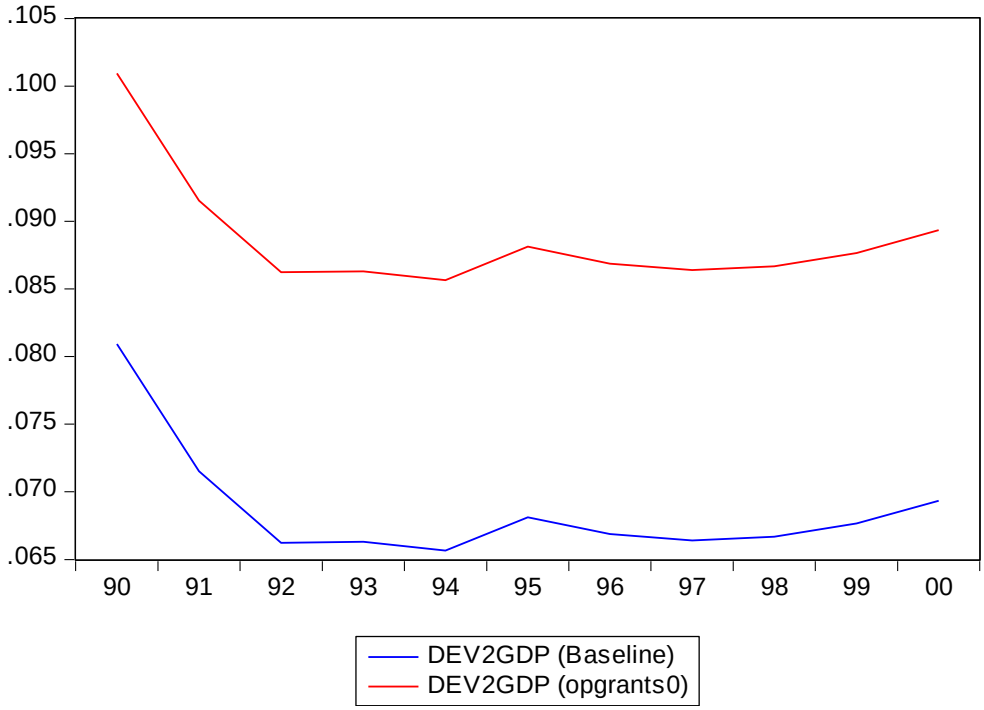
OPBALXGRANTS2GDP (Baseline)
OPBALXGRANTS2GDP (opgrants0)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DEV2GDP (Baseline)
DEV2GDP (opgrants0)