SAM T-Account: Exercises

Contents

1. Introduction

The SAM exercises are formulated to help you develop your understanding of SAMs; the exercises are not exhaustive and they are not a substitution for more extensive study of SAMs.

This set of exercises involves the generation of a two simple SAMs from a series of T-Accounts. The first SAM is a so-called 'macro' SAM that uses simple macroeconomic data to derive a basic SAM; this is an example of a SAM that might be derived at the start of a process that is undertaken when deriving a SAM for a country using a top-down process. The second SAM is a so-called 'micro' SAM that uses disaggregated data to derive a basic SAM; this is an example of disaggregating a 'macro' SAM. The data in the 'micro' SAM aggregate up to the data in the 'macro' SAM; all the data used are fictional.

The data required for this set of exercises and all the SAM based exercises are in a WinZip archive ('intro sams.zip') on the cgemod site.

The first thing you need to do is created a directory and call this directory/folder 'intro sam' (this is the name we assume you have chosen when referring to the directory in all the SAM exercise documents). Now download the file 'intro sams.zip' to this directory and extract all the Excel files into this directory. You will use the workbook 'SAM T-Account exercise.xlsx' for these exercises. This workbook has templates for each stage of the process; the workbook 'SAM T-account solution.xlsx' has worked solutions so that you can check your calculations.

2. Constructing SAMs from T-Account Data

This set of exercises are about the process of constructing a SAM, i.e., a single-entry accounting system, from data presented as T-accounts, i.e., a double-entry accounting system. The workbook 'SAM T-Account exercise.xlsx' has two worksheets: 'Macro SAM Exercise' and 'Micro SAM Exercise'. The first exercise uses the worksheet 'Macro SAM Exercise' and the second uses the worksheet 'Micro SAM Exercise'.

Both worksheets contain a template/framework for the SAM to be constructed and a series of T-Accounts that will be used to construct the SAM. The worksheets use a 'freeze panes' view: in the top frame is the template and in the bottom frame are the T-accounts. This arrangement allows you to scroll through the T-accounts while still viewing the SAM; you may need to adjust the zoom setting (bottom right hand corner of the screen) on your PC to keep everything in view. The screen shot in Figure 1 shows what you should see – line 16 and below is the frame with the T-accounts, line 15 and above is the frame with the SAM.

The exercise involves deciding which values in the T-accounts should be entered in which cells in the SAM. The simplest way to do this is to use formulas that link the cells in the T-accounts with the cells in the SAM. This can be done in three different ways:

1. Incomes: use the income side of each T-account to determine the row entries in the SAM.

2. Expenditure: use the expenditure side of each T-account to determine the column entries in the SAM.

3. Hybrid: use a mic of the income and expenditure sides of selected T-accounts to determine the entries in the SAM.

Implicitly options 1 and 2 work from the T-accounts to the SAM while option 3 works from the SAM to the T-accounts. Note that the row and column total must equate; if they do not the SAM will not be complete[1], although they may (rarely) be consistent[2].

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[1]   A SAM is said to be complete if it includes all transactions in an economy.
[2]   A SAM is said to be 'consistent' if all the transactions by agents are reconciled, i.e., an income to one account has the same value as an expenditure by another account. If it is complete and consistent the row and column totals will equate. The row and column

Figure 1 Exercise Worksheet Layout

A Macro SAM

For this exercise select one of the ways to derive the Macro SAM and map the values for each cell in the SAM from the respective value in the T-account. Use exactly the same option for ALL transactions; if you chop and change between options you are likely to take longer and risk getting confused. HINT: for option 1 work by rows starting at the top, for option 2 work by columns starting on the left, and for option 3 use rows or columns or work down the SAM from top left to bottom right.

The row and column totals should be:

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totals may equate for a SAM that is not 'complete', i.e., the transactions are 'consistent', but this usually requires that one or more transactions do not have correct values. Thus, the fact that the row and column totals equate does not necessarily mean that a SAM is 'complete' and 'consistent', whereas if a SAM is 'complete' and 'consistent' the row and column totals will equate.

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Table 1   **Macro SAM Account Totals**

Commodities	900
Activities	715
Factors	385
Households	392
Enterprises	80
Government	197
Savings	65
RoW	145

Now repeat the exercise using a different option. Note how you can determine the transaction value for any cells of the SAM from either an income or an expenditure value in a T-account. This is useful since all the data available to generate SAMs have been estimated with some degree of error, so comparisons of estimates of data points from two different perspectives – income v expenditure side – assist when making judgements about data reliability. This can be especially useful when working with certain data points, e.g., tobacco and alcohol consumption is regular seriously under recorded in household expenditure surveys so supply side estimates are particularly important.

In this example, the T-accounts for the macro SAM transactions were fully reconciled. However, when trying to construct a macro SAM from country specific (macro) national accounts data it is more often than not the case that the T-accounts are not fully reconciled and/or that the macroeconomic T-accounts are incomplete.

Compare your macro SAM with those reported in the workbook 'SAM T-account solution.xlsx'. These were constructed using option 1 and option 2 and the cells in the SAM are linked by formulae to the T-accounts.

A Micro SAM

For this exercise select one of the ways to derive the Micro SAM, ideally not the ways your first chose for the macro SAM, and map the values for each cell in the SAM from the respective value in the T-account. Use the same option for ALL transactions; if you chop and change between options you are likely to take longer and risk getting confused. HINT: for

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option 1 work by rows starting at the top, for option 2 work by columns starting on the left, and for option 3 use rows or columns or work down the SAM from top left to bottom right.

The row and column totals should be:

Table 2 Micro SAM Account Totals

Primary	310
Secondary	590
Agriculture	235
Industry	480
Labour	250
Capital	135
Urban	215
Rural	177
Enterprises	80
Government	197
Savings	65
RoW	145

Now repeat the exercise using a different option. Note how the sum of related transaction values, e.g., intermediate input demand, payment by activities to factors, etc., in the micros SAM equal the aggregate values in the macro SAM. This is useful since all the data available to generate SAMs have been estimated with some degree of error. If the sum of these groups of transaction values in the micro SAM do not equal the aggregates in macro SAM, the compiler of a SAM will need to determine the extent to which the transactions in the micro SAM need 'adjusting' to be consistent with the macro SAM aggregates or some mix of both. Inevitably this is a judgement call that must be based on some opinion about the reliability of the different components of the underlying data. Since there is strong evidence that certain data points are very unreliable, e.g., tobacco and alcohol consumption estimates in household expenditure surveys, the decision may be straightforward. In other cases, the decision is more difficult.

Compare your macro SAM with those reported in the workbook 'SAM T-account solution.xlsx'. These were constructed using option 1 and option 2 and the cells in the SAM are linked by formulae to the T-accounts.