

SAM Interpretation: Exercises

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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 interpretation of the information content in two SAMs: a macro SAM of Botswana and an aggregated SAM for South Africa. The Botswana SAM has 13 accounts. The South Africa SAM has 57 accounts. The Botswana SAM is a so-called ‘macro’ SAM that uses simple macroeconomic data to derive a basic SAM. The South Africa SAM is a so-called ‘micro’ SAM that provides greater detail with respect to commodities, activities, factors, institutions, and taxes.

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 create 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 interp exercise.xlsx’ for these exercises. This workbook has templates for each stage of the process; the workbook ‘SAM interp solution.xlsx’ has worked solutions so that you can check your calculations.

2. Botswana SAM Interpretation Exercise

The interpretation exercise using the macro SAM for Botswana requires you to calculate the column and row coefficients and then to use those coefficients and the SAM to track through the interpretation in Section 7 (Interpreting the Information in a Social Accounting Matrix) of the document 'Intro to SAMs cgemod.pdf'.

The macro SAM for Botswana is reproduced in the workbook 'SAM exercises.xlsx' in the workbook 'Botswana SAM'. You should spend a few minutes making sure you can interpret the meaning of the transactions recorded in each cell.

The worksheet 'Botswana Coeffs' is a template. In this workbook calculate

1. The row coefficients: these should appear in the area B24:N36. (**NB: We use the standard way of defining the bounds of an array in Excel. This is defined by two cells separated by a colon (:); the first cell is the top left-hand corner and the second is the bottom right hand corner.**)
2. The column coefficients: these should appear in the area B43:N55.
3. Include check calculations to ensure that your calculations are correct.
4. Explain why the row sums for the column coefficients do not equal one and the column sums for the row coefficients do not equal one.

Work through the description in Section 7 (Interpreting the Information in a Social Accounting Matrix) of the document 'Intro to SAMs cgemod.pdf', making sure you can identify the row or column coefficients that are used in each stage of the description.

3. South Africa SAM Interpretation Exercise

The interpretation exercise using the SAM for the Republic of South Africa (RSA) requires you to calculate the column and row coefficients and then to use those coefficients to answer some questions.

The SAM for South Africa is reproduced in the workbook 'SAM exercises.xlsx' in the workbook 'RSA SAM'. You should spend a few minutes making sure you can interpret the meaning of the transactions recorded in each cell, descriptions of the accounts are recorded in column A, and make brief notes on:

1. The tax instruments and the transactions to which they relate.
2. The different factor types.
3. The different household types.
4. The commodity and activity accounts.

Column and Row Coefficients

The worksheet 'RSA sam coefficients' is a template. In this workbook calculate

1. The column coefficients: these should appear in the area C71:BG128.
2. The row coefficients: these should appear in the area C137:BG193.
3. Include check calculations to ensure that your calculations are correct.

Interpretation of the South Africa SAM

Now spend some time interpreting the information provided by the row and column coefficients.

Then provide answers to the following questions

1. What are the shares of output of '*cpetchem*' supplied by different domestic activities and imports at basic prices? (Hint: you may need to adjust for taxes and margins.)
2. What is the total share of taxes in the purchaser prices of '*cagric*' and '*cveh*'?

3. What are the factor input cost shares for the activity 'agric'?
4. What are the internal and external balances? What is the share of Government income accounted for by government borrowings?
5. What are the shares of government incomes from different taxes?
6. Compare the shares of income from different factors for the households 'hafflow' and 'hwhigh'.
 - a. What do the incomes from each factor and these shares imply about the endowments owned by each of the two households?
 - b. How important are transfers from the government to each of these households?
7. Compare the shares of consumption expenditures by the households 'hafflow' and 'hwhigh'.
 - a. What do the consumption expenditures and these shares imply about the preferences of the two households?
 - b. Are these patterns of expenditure consistent with your expectations (given inter alia Engels Law).
8. Compare the shares of expenditures by the households 'hafflow' and 'hwhigh' on direct taxes and savings.
 - a. What do the incomes taxes paid and these shares imply about the implications of changes in income tax rates for two households?
 - b. What do the savings and these shares imply about the preferences of the two households?
 - c. Are these patterns of savings consistent with your expectations (given the implied ownership of factors).
9. Compare the transaction values and column and row coefficients for exports. What do these imply about:
 - a. The relative importance of different commodities as sources of foreign exchange?

- b. The shares of domestic commodity production exported? (You will need to do a side calculation for this one.)

- 10. Compare the transaction values and column and row coefficients for imports. What do these imply about:
 - a. The relative importance of different commodities as sources of imports?
 - b. The shares of imports in the total supply of commodities, valued at basic prices, to South Africa? (You will need to do a side calculation for this one.)