

Peru

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1. Introduction

This document briefly describes a new social accounting matrix (SAMs) for Peru, constructed to be consistent with 2004 macroeconomic structure and the sectoring scheme of the Global Trade Analysis Project (GTAP). The main table details activities, commodities, and institutional expenditure and income for 57 distinct product categories, two labor types, capital, and the usual aggregate domestic and foreign institutions. This table was estimated by the author, relying exclusively on official Peruvian and World Bank data. Despite the quality of these sources, the estimates do not represent official information or any governmental or other institutional decisions or actions based on the component data.

2. Source Material

The current table was estimated from a variety of primary sources, all of which are independently documented elsewhere:

1. A 1994 Input-Output table estimated by the Ministry of Industry
2. 2004 National Accounts published by the Peruvian Ministry of Finance
3. 2004 Household survey data from the World Bank LSMS project
4. Other official sources cited in the following description of the macro accounts

3. Institutional Classification

Sectoring was first set to standard of the 1994 Peruvian Input-Output table. This initial table was then complemented with 2004 trade and macroeconomic accounts, as well as independent LSMS household survey data detailing income and expenditure patterns across national household income deciles.

In future work, this table will be further disaggregated with LSMS microeconomic data to capture households by region and urban-rural residential status.

The resulting table was then balanced with respect to the 2004 macro SAM (included in the companion spreadsheet) and row-column consistency using maximum entropy econometric estimation techniques.

4. *Estimation of the Macroeconomic SAM*

The structure of the Peruvian Macro SAM includes separated accounts for activities and commodities, factors account, three institutions (household, enterprises, and government), separate tax account, public and private savings account, and rest of the world. The macro SAM was based on data from two main sources: Annual Report for 2005 of the Banco Central de Peru (BCRP) and statistical database and publications of the Instituto Nacional de Estadística e Informática (INEI).

The Macro SAM for Peru is constructed for 2004. All values in entries are in thousands of Nuevos Soles. This document outlines the construction of the SAM account by account. The accounts have row-column indication so that, for example, (Activity, Household) refers to a cell on the cross of the row “Activity” with column “Household”.

1. (Labour, Activities)

The labour factor component was taken as a remuneration value. Data are from the National Accounts Statistics of the INEI (www.inei.gob.pe, Información Económica / Sistema de Cuentas Nacionales/PBI por Tipo de Ingreso). It includes payments to social security funds paid by employers and contributions of employers to their private pension funds (see for details Ficha Técnica).

2. (Capital, Activities)

Value of capital is from the National Accounts by the INEI (www.inei.gob.pe, Información Económica / Sistema de Cuentas Nacionales/PBI por Tipo de Ingreso) and includes, along with an operating surplus, a value of depreciation of a fixed capital.

3. (Commodities, Activities)

Data of an Input-Output table (IOT) for 1994 were used for estimation of value of intermediate consumption. It was calculated using a ratio of intermediate demand to the total Value-Added in the IOT at base prices (attached).

4. (Activities, Commodities)

Gross output was calculated using the previous data as a sum of the factor income, indirect taxes on production, and intermediate consumption.

5. (Indirect taxes, Activities)

Value of indirect taxes was taken from the National Accounts in the INEI data (www.inei.gob.pe, Información Económica / Sistema de Cuentas Nacionales/ PBI por Tipo de Ingreso). This value includes indirect taxes such a VAT, excises, and other taxes. The more detailed breakdown of revenue of the central government is available in the

BCRP data (Annual Report 2005, Annex 29 'Central Government Current Revenues). Since there is a difference on the value of indirect taxes in the data of the INEI and the BCRP (worksheet 'Gov revenue'), this difference was included into the additional column of the macro SAM for statistical discrepancies.

6. (Tariff account, Commodities)

Tariff account includes only imports taxes. The data are from the National Accounts statistics of the INEI (www.inei.gob.pe, Información Económica / Sistema de Cuentas Nacionales/PBI por Tipo de Ingreso). The difference of this figure with the BCRP data on government revenues (see worksheet 'Gov. Revenue') was included to the column of statistical discrepancies in the macro SAM.

7. (Factor tax account, Labour)

In accordance with the IMF information on tax system as of September 2005 there were no taxes on the factors in Peru (neither on labour nor on capital).

8. (Factor tax account, Capital)

As it was mentioned above there were no factor taxes on capital in Peru in this period.

9. (Direct tax account, Enterprise)

The enterprise account includes both state-owned enterprises and private sector entities. The sum of this account comprises, along with corporate taxes, primary balances of state-owned enterprises, of the local government and of the rest of the central government (which consists mainly of contribution to social security funds), and non-tax revenues. These data are from the BCRP (Annual report, 2005, Annex 28 'Operations of the non-financial public sector'). Since a detailed breakdown of the revenues of the local government and the rest of the central government is not available, it was supposed that these payments represented a surplus of their current revenue in the form of contribution of the all enterprises to the government.

10. (Direct Tax, Households)

The direct taxes on households include income taxes paid by individuals (BCRP, Annual Report 2005, Annex 29, Central Government Current Revenues).

11. (Government, Tax collection accounts)

This account accumulates all public current revenues as a consolidated value. The total value of the tax revenue (mainly due to the value of indirect taxes) is slightly different of the National Accounts data (see details in the account (Indirect taxes,

Activities) above). The total difference of the tax revenues is placed in a separate column 'Statistical discrepancies' (details in the worksheet 'Gov Revenue').

12. (Government, Rest of the world)

There is no data on grants from abroad in the government accounts (BCRP, Annex 28, 'Operations of the non-financial public sector'), thus this cell has zero value in the macro SAM. Meanwhile, there is a section of external sector operations in the INEA site, which includes data about donations from abroad to different institutions (ministries, including Ministry of Agriculture) and social programs.

13. (Rest of the world, Commodities)

Imports of good and services were taken from the National Accounts statistics of the INEI (www.inei.gob.pe, Información Económica / Sistema de Cuentas Nacionales/ PBI por Tipo de Ingreso).

14. (Commodities, Household)

The household consumption value was taken directly from the National Accounts statistics of the INEI (www.inei.gob.pe, Información Económica / Sistema de Cuentas Nacionales/ PBI por Tipo de Ingreso).

15. (Commodities, Government)

The total value of government consumption is from the National Accounts data of the INEI (www.inei.gob.pe, Información Económica / Sistema de Cuentas Nacionales/ PBI por Tipo de Ingreso).

16. (Commodities, Government Savings)

The value of public investment spending is a sum of capital expenditures of the central government (BCRP, Annual Report 2004, Annex 30 'Central Government expenditures'), of the rest of the central government (Perú, Compendio Estadístico 2004, table 23.16) and of the local government (Perú, Compendio Estadístico 2004, table 23.17). The further disaggregation will require more detailed data of public investments by sectors.

17. (Commodities, Savings-Investment)

Value of a private gross capital formation was taken as a rest of the value of fixed capital formation in the National Accounts (www.inei.gob.pe, Información Económica / Sistema de Cuentas Nacionales/ PBI por Tipo de Ingresos) after deduction of the value of public investments (see above).

18. (Commodities, Rest of the world)

The value of total exports is from INEI data on the National Accounts (www.inei.gob.pe, Información Económica / Sistema de Cuentas Nacionales/ PBI por Tipo de Ingresos). The value of exports is based on the BCRP data. More detailed information by commodities will require data of tax administration agency in Peru, SUNAT (Superintendencia Nacional de Administración Tributaria).

19. (Household, Labour)

The distribution of labour income to households was taken as a value of remuneration in the National Accounts data (www.inei.gob.pe, Información Económica / Sistema de Cuentas Nacionales/ PBI por Tipo de Ingreso). The mixed income was not included to this account.

20. (Enterprises, Capital)

This account was taken equal to the value of the operating surplus in the National Accounts (www.inei.gob.pe, Información Económica / Sistema de Cuentas Nacionales/ PBI por Tipo de Ingreso), since there were no factor taxes in Peru. This value is then subject to direct taxation by the government (enterprise income tax). If the mixed income be calculated for households, the value factors income to enterprises should be reduced for it. The data of a detailed household survey should be used for verification of these estimations.

21. (Household, Enterprises)

Redistributed income of enterprises to households is calculated as the enterprise income minus direct taxes of enterprises to government (see the account of (Direct Tax, Enterprises)).

22. (Household, Government)

Data of the government transfers to household is a value of pensions in Current Transfers account of the Central Government Expenditures (BCRP, Annual Report 2005, Annex 30 'Central Government Expenditures'). This data might be corrected later using information of a Household Survey.

23. (Household, Rest of the world)

The total value of Current transfers in the Balance of payments were included entirely to household account since there was no detailed information about the structure of these transfers. This figure is calculated using data of the Balance of payments by BCRP (Annual Report 2005, Annex 1 'Selected Macroeconomic Indicators'). The GDP for calculation was taken at market prices.

24. (Enterprises, Government)

This account was included in order to show government expenditures on interest payments of the domestic debt. The assumption was made that these payments are to domestic enterprises. The value of these payments was taken from the BCRP (BCRP, Annual Report 2005, Annex 28 'Operations of the non-financial public sector').

25. (Enterprises, Rest of the world)

Information about transfers from abroad to enterprises is not available in the INEI/BCRP statistics. The assumption was made that the relations of the enterprises with the Rest of the World can be represented as a net factor income from abroad. It is calculated as a residual of National Disposable income less GDP at market prices and current transfers from abroad (see worksheet 'NA balance').

26. (Capital Account, Enterprises)

This account balances enterprise's income and expenditure. It is calculated as a residual of the total income of enterprises after deduction of redistributed profits to households and of payments to government.

27. (Government Savings, Government)

This account represents a current balance of the consolidated government account. It is calculated as a difference between current revenues (include tax and non-tax current revenues of the Central government and a primary balances of the rest of the Central government, and of the local government) and current expenditures (include current expenditures for goods and services, transfers to households, and interest payments on domestic debt). The details are shown in the worksheet 'non-financial public operations')

28. (Capital Account, Household)

Household savings were estimated as a residual of the total domestic savings after deduction of government and enterprise savings. The value of domestic savings was taken from the BCRP data (BCRP, Annual Report 2005, Annex 1 'Selected Macroeconomic Indicators'). The GDP for calculations is at market prices. This figure could be also verified using data of a household survey.

29. (Capital Account, Rest of the world)

This account is a balancing item for the Private Investments and the Private Savings (of Enterprises and Households) account and shows foreign savings related to the private sector.

30. (Government Savings, Rest of the world)

This account is a balancing item for Government Savings account and the Rest of the World. It is calculated as a residual of the total foreign savings (BCRP, Annual Report 2005, Annex 1 “Selected Macroeconomic Indicators”) and private savings account. The balances of the Rest of the World and of the Capital Accounts are shown in the NA balance worksheet.