



**CENTRAL INSTITUTE FOR
ECONOMIC MANAGEMENT**



**NORDIC INSTITUTE OF
ASIAN STUDIES**

A NEW VIETNAM SOCIAL ACCOUNTING MATRIX FOR THE YEAR 2000

**Henning Tarp Jensen
John Rand and Finn Tarp**
In collaboration with
Pham Lan Huong and Dinh Hien Minh



SCIENCE AND TECHNICS PUBLISHING HOUSE

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LIST OF ABBREVIATIONS

CGE	Computable General Equilibrium
CIEM	Central Institute for Economic Management
CIF	Cost-Insurance-Freight
DANIDA	Danish Development Agency
ETAX	Enterprise Taxes
FOB	Free-On-Board
FTAX	Factor Taxes
GDP	Gross Domestic Product
GSO	General Statistics Office
HTAX	Household Taxes
I-O	Input-Output
IMF	International Monetary Fund
MOF	Ministry of Finance
NIAS	Nordic Institute for Asian Studies
PTAX	Production Taxes
ROW	Rest of the World
SAM	Social Accounting Matrix
STAX	Special Consumption Sales Taxes
TARIFF	Import Tariffs
USD	United States Dollar
VA	Value Added
VAT	Value Added Taxes
VLSS	Vietnam Living Standards Survey
VND	Vietnam Dong

PREFACE

In October 2001, we published the *1999 Social Accounting Matrix (SAM) for Vietnam* as the first output of the CIEM/NIAS project entitled “Strengthening the Development Research and Policy Analysis Capacity of the Central Institute for Economic Management”, funded by DANIDA. The research team consisted of Professor David Roland-Holst, Researcher John Rand and Professor Finn Tarp, on the side of the Nordic Institute of Asian Studies (NIAS), and of Dr. Pham Lan Huong, Dr. Vo Tri Thanh, Director, Mr. Pham Hoang Ha, and Ms. Do Thi Thu Huong from the Central Institute for Economic Management (CIEM).

The 1999 SAM document was an important contribution to the process of strengthening the analytical foundation for the economic reform process in Vietnam, offering an overview of the Vietnamese economy as it emerges from the SAM. This publication therefore remains a key reference on the economy of Vietnam, as well as the starting point for subsequent improvements and refinements.

However, the construction of up-to-date data bases necessary for carrying out high-quality, in-depth economic analysis is an ongoing process. In line with the extensions suggested in the 1999 SAM document, CIEM therefore decided together with NIAS to up-date the 1999 SAM to the year 2000. A first version of the 2000 SAM up-date was completed in early 2002 by a new research team, consisting of Professor David Roland-Holst, Researcher John Rand, Professor Finn Tarp and Assistant Professor Henning Tarp Jensen. This SAM formed the basis for a variety of important studies carried out under the

CIEM/NIAS project. These studies can be downloaded from our website <http://www.ciem.org.vn/vn/asp/default.asp>. Please feel free to contact us for any questions.

Since 2002, new and important data have become available from a variety of sources. CIEM has therefore taken this opportunity to construct a new set of 2000 SAM tables in collaboration with the Institute of Economics at the University of Copenhagen, under the overall umbrella of the CIEM/NIAS project. It is with great pleasure that we are now able to present herewith the technical documentation of these latest SAM tables.

We hope the data and the documentation, we are presenting in this publication, will serve as a valuable input together with our previous studies, into the work of those researchers, who have a keen interest in the challenges and potentials of the Vietnamese economy. Good and consistent data is a fundamental requirement for carrying out sound economic analysis from which relevant policy advice can be derived. We therefore welcome the new SAM, and hope it will be widely applied. Comments and suggestions are encouraged.

Hanoi, September 2004

Dinh Van An

President of CIEM

1. INTRODUCTION

Since the publication in 2001 of the 1999 Social Accounting Matrix (SAM) for Vietnam (CIEM-NIAS, 2001) and the 2000 up-date hereof, important new data and information have become available. They include in particular:

- A new and comprehensive set of input-output (I-O) tables for the year 2000, published by the General Statistical Office (GSO) in 2003, which is based on a 112 sector commodity disaggregation (GSO, 2003a).
- Detailed and up-to-date data on marketing margins, by commodity, available in the new I-O, making it possible to properly analyze the decision to consume goods produced at home.
- Results from the 2001 enterprise census (GSO, 2002), leading to improved estimates of the various returns to capital flows in the enterprise sector.
- Up-dated and revised National Income and Product data, including for example new and detailed government budget data, on which basis the allocation of various consumption items was improved.
- Detailed trade statistics reconciled with official domestic sources.

All of the above factors, and the possibility of establishing a refined mapping of the factor income flow (i.e. from production activities to the respective factors), enterprise income flow (i.e. from enterprises to

households), and allocation of government expenditures (incl. expenditures on culture, sports, and education) imply that it became desirable to produce a new and improved 2000 Vietnam SAM.

The improvements are particularly important since this SAM (like the previously released version) is going to determine the structure a Computable General Equilibrium (CGE) model, to be used for analyzing pressing policy issues.

The new 2000 SAM, consisting of a MacroSAM of macro-totals and a disaggregated set of accounts referred to as the MicroSAM, is documented in this publication. The detailed data, including various aggregations of the most detailed SAM with 112 activities, can be downloaded from the CIEM web-site as follows: <http://www.ciem.org.vn/vn/asp/Default.asp> .

2. CONSTRUCTION OF THE 2000 MACROSAM

2.1. Background, Definitions and Labels

We document in this Section how the new 2000 MacroSAM for the Vietnamese economy was developed. The macro-table is a double entry representation of the usual macroeconomic accounting identities. The macro economic representation in this section is used to ensure that the more detailed activity, commodity, factor, and other institutional accounts in the disaggregated SAM presented in Section 3 are consistent with existing macroeconomic information.

The generic MacroSAM accounts for Vietnam are presented in Table 2.1 and they include nine rows and nine columns sharing the same label. Activity and Commodity accounts track flows of goods and services; Factor, Enterprise and Household accounts track the flow of factor income through the economy and private expenditures by the households; a State account tracks government tax revenues and expenditures; an Investment account tracks savings and investment while the Rest of the World (ROW) account tracks the balance of payments. Intermediate goods are included explicitly, and production and final demand is decomposed in the activity and commodity accounts.

In a SAM, rows track receipts, while columns track expenditures. Hence, row and column sums represent, respectively, total receipts and total payments by a given account/institution. In the tradition of double entry accounting, row sums must equal column sums. Relying on the data mentioned in Section 1, the new 2000 MacroSAM for Vietnam was developed as shown in Table 2.2 and described in detail below.

Table 2.1: A MacroSAM for Vietnam - Generic Macro Accounts

Receipts	Expenditures								
	1. <i>Activities</i>	2. <i>Commodities</i>	3. <i>Factors</i>	4. <i>Private Households</i>	5. <i>Enterprises</i>	6. <i>Recurrent State</i>	7. <i>Investment/ Savings</i>	8. <i>Rest of World</i>	9. <i>Total</i>
1. <i>Activities</i>		Marketed Production		Home Consumption					Total Domestic Sales
2. <i>Commodities</i>	Intermediate Consumption	Marketing Margins		Private Marketed Consumption		State Consumption	Investment	Exports	Total Commodity Demand
3. <i>Factors</i>	Value Added								Value Added
4. <i>Private Households</i>			Wages, Salaries and Household Enterprise Profits		Distributed Profits and Social Security	Social Security and Other Current Transfers to Households		Net Foreign Transfers to Households	Private Household Income
5. <i>Enterprises</i>			Gross Profits			Enterprise subsidies		Net Foreign Transfers to Enterprises	Enterprise Income
6. <i>Recurrent State</i>	Value Added and Other Production Taxes	Commodity Taxes	Factor Taxes	Income Taxes	Enterprise Taxes			Net Foreign Transfers to State	State Revenue
7. <i>Investment/ Savings</i>				Household Savings	Retained Earnings	State Savings			Total Savings
8. <i>Rest of World</i>		Imports			Enterprise Remittances				Imports and Remittances
9. <i>Total</i>	Total Domestic Payments	Total Commodity Supply	Total Factor Payments	Allocation of Private Household Income	Total Enterprise Payments	Allocation of State Revenue	Total Investment	Total Foreign Exchange	

2.2. Documenting the 2000 Vietnam MacroSAM

This section refers to Table 2.2. Values (in bn VND) have been assigned to all of the cells in Table 2.1 for which a transaction between two accounts took place and for which data were available from GSO or other sources. Detailed notes on data sources, assumptions, and procedures are outlined below. Throughout, the cells in Table 2.1 and Table 2.2 are referred to as (i, j) where i refers to the row account and j to the column account.

Cell (1,2) “Activities-Commodities”: Marketed production (bn VND 902,462)

This transaction corresponds to the total value of sales (at producer prices) in the activities row. The gross output figure reported in GSO (2003a) is reported as being bn VND 948,296. From this we have deducted “Home Production” documented in cell (1,4). A downward adjustment of bn VND 121 was made in order to balance the MacroSAM and arrive at the figure (bn VND 902,462) included in the MacroSAM.

Cell (1,4) “Activities-Households”: Private home consumption (bn VND 45,713)

Home consumption of own production was estimated from the Vietnam Living Standards Survey (VLSS) (GSO, 2000). The MacroSAM number was derived by aggregating information from 6,002 VLSS households, as described in relation to the disaggregation of cell (1,4) in Section 3.

Table 2.2: Macroeconomic SAM for Vietnam

Receipts (bn VND)	Expenditures (bn VND)								
	1. <i>Activities</i>	2. <i>Commodities</i>	3. <i>Factors</i>	4. <i>Private Households</i>	5. <i>Enterprises</i>	6. <i>Recurrent State</i>	7. <i>Investment/ Savings</i>	8. <i>Rest of World</i>	9. <i>Total</i>
1. <i>Activities</i>		902,462		45,713					948,175
2. <i>Commodities</i>	524,000	88,435		230,651		45,567	131,479	241,895	1,262,027
3. <i>Factors</i>	392,094								392,094
4. <i>Private Households</i>			283,017		14,523	22,758		18,886	339,184
5. <i>Enterprises</i>			97,852			3,742		2,607	104,201
6. <i>Recurrent State</i>	32,082	17,471	11,225	1,831	26,112			2,028	90,749
7. <i>Investment/ Savings</i>				60,989	51,808	18,682			131,479
8. <i>Rest of World</i>		253,659			11,758				265,416
9. <i>Total</i>	948,175	1,262,027	392,094	339,184	104,201	90,749	131,479	265,416	

Cell (2,1) “Commodities-Activities”: Intermediate consumption (bn VND 524,000)

Intermediate consumption at final use prices is documented as being bn VND 524,000 in the 2000 input-output table (GSO, 2003a).

Cell (2,2) “Commodities-Commodities”: Marketing margins (bn VND 88,435)

Marketing margins were derived and aggregated from information on input-output tables at respectively basic and final use prices (GSO, 2003a). The derivation is elaborated on in Section 3, where the disaggregation procedure for marketing margins is further described.

Cell (2,4) “Commodities-Households”: Private marketed consumption (bn VND 230,651)

Private consumption is documented in the 2000 input-output table (GSO, 2003a) as being bn VND 295,721. Additional information (GSO, 2003c) documents that bn VND 19,357 of private consumption concerning education, healthcare, and culture and sports were financed by the State. This was accordingly corrected for in the MacroSAM. In addition, home consumption (bn VND 45,713) was deducted to arrive at the private marketed consumption figure (bn VND 230,651) included in the MacroSAM.

Cell (2,6) “Commodities-State”: State consumption (bn VND 45,567)

State consumption is documented in the 2000 input-output table (GSO, 2003a) as being bn VND 26,210. As described in cell (2,4), additional information (GSO, 2003c) documents that the State financed additional expenditures on health education and cultural activities amounting to bn VND 19,357. This was accordingly added

to arrive at the total state consumption figure (bn VND 45,567) included in the MacroSAM.

Cell (2,7) “Commodities-Investment/Savings”: Investment (bn VND 131,479)

Gross asset accumulation (investment), including capital formation and inventory changes, is documented in the 2000 input-output table (GSO, 2003a) as being bn VND 131,479.

Cell (2,8) “Commodities-Rest of the World (ROW)”: Exports (bn VND 241,895)

Aggregate exports (FOB) is documented in the 2000 input-output table (GSO, 2003a) as being bn VND 241,895.

Cell (3,1) “Factors-Activities”: Value added (bn VND 392,094)

Total value added (VA) including production and value added taxes (VAT) is documented in the 2000 input output table (GSO, 2003a) as being bn VND 424,297. VAT and production taxes (PTAX) (bn VND 32,082) are separately accounted for in cell (6,1) and were therefore subtracted. A downward adjustment of bn VND 121 was made in order to balance the MacroSAM and arrive at the figure (bn VND 392,094) included in the MacroSAM.

Cell (4,3) “Households-Factors”: Wages, salaries and household enterprise profits (bn VND 283,017)

Compensation of employees is documented in the 2000 input-output table (GSO, 2003a) as income (bn VND 241,406). To this number was added self-employed household enterprise VA (bn VND 41,611) as documented in GSO (2002), to arrive at the figure (bn VND 283,017) included in the MacroSAM.

Cell (4,5) “Households-Enterprises”: Distributed profits and social security (bn VND 14,523)

No reliable information is available. This entry was therefore residually determined to balance row and column totals.

Cell (4,6) “Households-State”: Social security (bn VND 22,758)

Information on retirement pension and social insurance (GSO, 2003c; Ministry of Finance (MOF), 2002a) documents core social security payments as being bn VND 10,739. To this were added price subsidies for preferential goods (bn VND 365), transfers to the communes (bn VND 10,345) and other expenditures (bn VND 1,309) reported in GSO (2003c), to arrive at the total social security payments figure (bn VND 22,758) included in the MacroSAM.

Cell (4,8) “Households-ROW”: Net foreign transfers to households (bn VND 18,886)

Total net transfers to households is reported in Vo Tri Thanh et. al. (2002) as mill. USD 1,340. Using an exchange rate of 14,094 VND = 1 USD gives the figure (bn VND 18,886) included in the MacroSAM.

Cell (5,3) “Enterprises-Factors”: Gross profits (bn VND 97,852)

Gross profits including operating surplus and depreciation is documented in the 2000 input output table (GSO, 2003a) as being bn VND 95,240. An upward adjustment of bn VND 2,612 was made in order to balance the MacroSAM and arrive at the figure (bn VND 97,852) included in the MacroSAM.

Cell (5,6) “Enterprises-State”: Enterprise subsidies (bn VND 3,742)

No reliable information is available. This entry was therefore residually determined to balance row and column totals.

Cell (5,8) “Enterprises-ROW”: Net foreign transfers to enterprises (bn VND 2,607)

Total net transfers to enterprises is reported in Vo Tri Thanh et. al. (2002) as mill. USD 185. Using exchange rate of 14,094 VND = 1 USD gives the figure (bn VND 2,607) included in the MacroSAM.

Cell (6,1) “State-Activities”: Value added plus production activity taxes (bn VND 32,082)

VAT and PTAX were documented in MOF (2002b) as totalling bn VND 32,082 (turnover taxes from state enterprises of bn VND 7,080, turnover taxes from the non-state sector of bn VND 2,601, VAT on imports of bn VND 5,386, plus other PTAX amounting to bn VND 17,015).

Cell (6,2) “State-Commodities”: Commodity taxes (bn VND 17,471)

Commodity taxes covering import tariffs (TARIFF) and special consumption taxes (STAX) were documented in MOF (2002b) as totalling bn VND 17,471 (indirect taxes on imports (excluding VAT) of bn VND 13,566 (bn VND 18,954 minus bn VND 5,388) and special consumption (excise) taxes of bn VND 3,903).

Cell (6,3) “State-Factors”: Factor taxes (bn VND 11,225)

Factor taxes (FTAX) were documented in MOF (2002a, 2002b), as being bn VND 11,225 (natural resource taxes of bn VND 7,441,

capital user charges of bn VND 1,642, agricultural taxes of bn VND 1,776, and land taxes of bn VND 366).¹

Cell (6,4) “State-Households”: Income taxes (bn VND 1,831)

Personal income taxes (HTAX) were documented in MOF (2002a, 2002b) as being bill VND 1,831.

Cell (6,5) “State-Enterprises”: Enterprise taxes (bn VND 26,112)

Government revenue from enterprises originates from both tax and non-tax sources. State and non-State profit taxes were documented in MOF (2002b) as being bn VND 20,998 (bn VND 18,334 plus bn VND 2,664). To this is added license taxes (levied on individual enterprises) of bn VND 379 (bn VND 19 plus bn VND 360) and taxes from joint ventures of bn VND 4,735 to arrive at the enterprise tax figure (ETAX) (bn VND 26,112) included in the MacroSAM.

Cell (6,8) “State-ROW”: Net foreign transfers to state (bn VND 2,028)

Foreign aid (or grants) to government is documented by MOF (2002a, 2002b) as being bn VND 2,028.

Cell (7,4) “Investment/Savings-Households”: Household savings (bn VND 60,989)

Total household savings were documented by GSO (2003b) as being bn VND 60,989.

¹ Strictly speaking, industrial land taxes is a tax on capital, rather than on land. In the present SAM, it is assumed that returns to land are agricultural.

Cell (7,5) “Investment/Savings-Enterprises”: Enterprise savings/retained earnings (bn VND 51,808)

Financial and non-financial institutional savings were documented by GSO (2003b) as being bn VND 58,104 (bn VND 15,653 plus bn VND 42,451). A downward adjustment of bn VND 6,296 was made in order to balance the MacroSAM and arrive at the figure (bn VND 51,808) included in the MacroSAM.

Cell (7,6) “Investment/Savings-State”: State savings (bn VND 18,682)

State savings in 2000 were documented by GSO (2003b) as being bn VND 18,682.

Cell (8,2) “ROW-Commodities”: Imports (bn VND 253,659)

Aggregate imports (CIF) is documented in the 2000 input-output table (GSO, 2003a) as being bn VND 253,659.

Cell (8,5) “ROW-Enterprises”: Enterprise transfers abroad (bn VND 11,758)

Total enterprise transfers abroad were reported in Vo Tri Thanh et. al. (2002) as mill. USD 782. Using an exchange rate of 14,094 VND = 1 USD gives the figure bn VND 11,022. An upward adjustment of bn VND 736 was made in order to balance the MacroSAM and arrive at the figure (bn VND 11,758) included in the MacroSAM.

Summing up, it can be noted that the accounts of the MacroSAM in Table 2.2 balance. The MacroSAM is - with few exceptions - based entirely on data listed in the list of references.

3. THE DISAGGREGATED 2000 VIETNAM SAM

3.1. Background

To allow for more detailed policy experiments and establish the basis for CGE modelling, the MacroSAM established in Section 2 must be disaggregated. This Section documents the 2000 disaggregated SAM for Vietnam, which is in effect a matrix with dimensions 269x269. There are 112 production activities with 114 counterpart commodities in the most detailed SAM presented here. In addition, there are 14 factors, 16 household groups, three enterprise types, one recurrent state expenditure account and seven tax accounts, one investment/savings account and one balance of payments account referring to foreign trade and capital flows.²

Factors include twelve types of labour, one aggregate capital factor and one aggregate land factor. Labour is disaggregated in three dimensions: rural-urban location, gender type and skills, including unskilled, medium-skilled and skilled.³ Household disaggregation, which is based on categorising the household head, involves 16 household types, taking account the rural-urban and male-female headed dimensions, which are each sub-divided into self-employed farmers, self-employed non-farmers, wage-earners and non-employed as illustrated in Figure 3.1. Enterprises include state, private (non-

² The seven taxes are: (i) Value added tax (VAT), (ii) Production tax (PTAX), (iii) Special consumption sales tax (STAX), (iv) Import tariffs (TARIFF), (v) Factor taxes (FTAX) (divided into land and capital factor taxes), (vi) Enterprise taxes (ETAX), (vii) and Household taxes (HTAX) as described in Sub-section 3.1, cells (6,1)-(6,5). Disaggregation is described in detail in Sub-section 3.2, cells (6,1)-(6,5).

³ See GSO (2000, p. 29) for the definitions. Unskilled includes never attended school, not yet finished primary school, finished primary school, finished lower secondary school; medium-skilled finished upper secondary school, technical worker; and high-skilled covers college education, university and over.

state) and foreign-invested companies. A summary overview is provided in Table 3.1.

The primary data sources for disaggregating the 2000 SAM are the 2000 input-output table (GSO, 2003a) and the 1997-98 VLSS (GSO, 2000). In what follows, the disaggregation is documented step-by-step, referring to the individual cells in the SAM in Table 3.1.

The trade vectors of the balanced disaggregated 2000 SAM, i.e. the vectors containing 114 export items and import items, were further disaggregated into trade matrices spanning 194 countries. These trade matrices (114x194) are available upon request. However, detailed information on household remittances and other transfers across the 194 countries were unavailable.

Table 3.1: Illustration of the Household Disaggregation

Receipts	Expenditures								
	1. <i>Activities</i> (112)	2. <i>Commodities</i> (114)	3. <i>Factors</i> (14)	4. <i>Private Households</i> (16)	5. <i>Enterprises</i> (3)	6. <i>Recurrent State</i> (8)	7. <i>Investment/Savings</i> (1)	8. <i>Rest of World</i> (1)	9. <i>Total</i>
<i>1. Activities</i> (112)		112 x 114		112 x 16					112 x 1
<i>2. Commodities</i> (114)	114 x 112	114 x 114		114 x 16		114 x 8	114 x 1	114 x 1	114 x 1
<i>3. Factors</i> (14)	14 x 112								14 x 1
<i>4. Private Households</i> (16)			16 x 14		16 x 3	16 x 8		16 x 1	16 x 1
<i>5. Enterprises</i> (3)			3 x 14					3 x 1	3 x 1
<i>6. Recurrent State</i> (8)	8 x 112	8 x 114	8 x 14	8 x 16	8 x 3			8 x 1	8 x 1
<i>7. Investment/Savings</i> (1)				1 x 16	1 x 3	1 x 8			1 x 1
<i>8. Rest of World</i> (1)		1 x 114			1 x 3	1 x 8			1 x 1
<i>9. Total</i>	1 x 112	1 x 114	1 x 14	1 x 16	1 x 3	1 x 8	1 x 1	1 x 1	

3.2. Documenting the 2000 disaggregated SAM

Cell (1,2) “Activities-Commodities”: Marketed production

Marketed production was disaggregated into a 112x114 matrix. A sub-matrix of 112 activity rows and the first 112 commodity columns form a diagonal matrix. This implies that each of the 112 production activities supplies one counterpart commodity to the market. Another sub-matrix of the 112 activity rows and the last two commodity columns account for the supply of export and domestic marketing service commodities, i.e. for the fact that marketing services makes use of the commercial trade activity as well as land, rail, water and air transport activities.

Data were derived from the 2000 input-output table (GSO, 2003a). The supply of the first 112 commodities was derived as total production at basic prices minus household consumption of own production (home consumption), see cell (1,4), while the supply of domestic/export marketing services was derived as the difference between domestic absorption/exports at final use prices and basic prices. The marketed production matrix was subsequently scaled down (slightly) to match the MacroSAM total.

Cell (1,4) “Activities-Households”: Home consumption

Data on household consumption covering 112 goods categories are available from the 2000 input-output table (GSO, 2003a). This vector was disaggregated into home consumption of own production of 112 activity products and marketed consumption of 112 marketed commodities (excluding domestic and export marketing services) by 16 household groupings on the basis of shares derived from the 1997-

98 VLSS (GSO, 2000) in a number of steps as follows.

First, the overall consumption vector was adjusted downwards to allow for higher government consumption of education, healthcare, and culture and sport (GSO, 2003c). This was done in correspondence with the adjustments undertaken in the construction of the MacroSAM.

Second, relative survey shares were applied to split household consumption of each of the 112 goods into consumption of own production and consumption of marketed production.

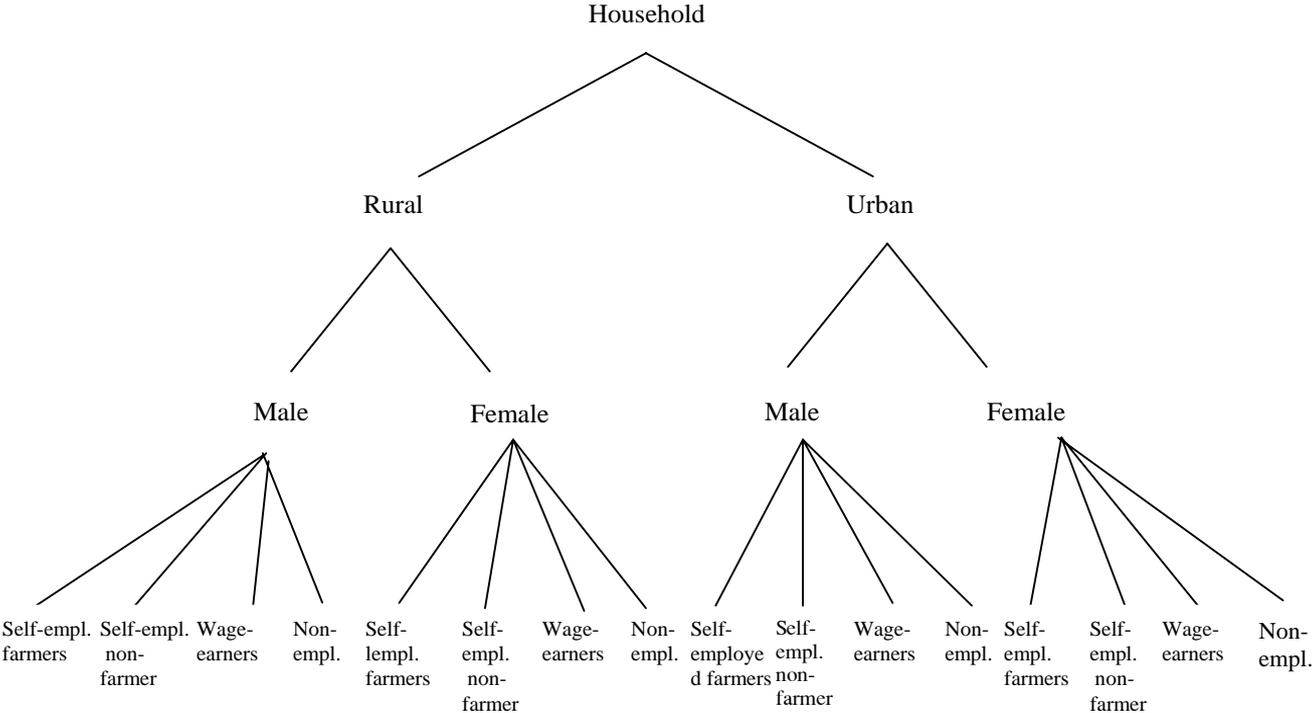
Third, relative survey shares were applied to split home (and marketed) consumption of each of the 112 activity (and commodity) goods among the 16 household categories.

The actual derivation of the consumption matrices involved the use of the minimum cross entropy statistical procedure. The statistical procedure was implemented in a way which ensured consistency with the initial household consumption vector from the 2000 input-output table. Moreover, private home consumption (and marketed consumption remained consistent with the MacroSAM since the latter number was initially derived from the former.

The VLSS has a well-defined section on consumption expenditures, including expenditures on food, non-food, and durables. Thus, the setting up of 1998 consumption vectors of home-produced and marketed goods for the 16 household categories, was straightforward. Food and non-food ‘expenditures’ on home-produced and marketed goods were attributed directly to the different household categories, based on a mapping between the 16 SAM households in Figure 3.1 and the 6,002 VLSS households. Furthermore, information on the initial value and year of acquisition combined with information on the current (1998) value, allowed the computation of compound rates of

depreciation for each durable good. These depreciation rates were subsequently applied to arrive at the year-on-year consumption of durables. A mapping between the 150 goods categories from the VLSS and the 112 activities/commodities SAM categories (excluding the two marketing service commodities) was subsequently used to derive initial share matrices for home consumption (112x16) and private marketed consumption (112x16).

Figure 3.1: Illustration of the Household Disaggregation



Cell (2,1) “Commodities-Activities”: Intermediate consumption

The 112x112 intermediate consumption matrix is documented in the 2000 input-output table (GSO, 2003a). The original numbers from the intermediate consumption matrix were used directly, since the MacroSAM total is identical with the total from the intermediate consumption matrix. In principle, the matrix is dense, reflecting that each of the 112 commodities supplies inputs to each of the 112 production activities. The two marketing commodities do not enter into the intermediate consumption matrix. Instead, they enter at the retail commodity level, i.e. in cell (2,2) in the MacroSAM.

Cell (2,2) “Commodities-Commodities”: Marketing margins

The 112 production activities use marketing service commodities to transform production activity goods into marketed retail commodities. Domestically marketed goods, i.e. imports and domestically marketed production, use domestic marketing services, while exports use export marketing services. Domestic/export marketing margins were derived as the difference between domestic absorption/exports at final use price and at basic prices. Data are available from the 2000 input-output table (GSO, 2003a). Marketing Services remained consistent with the MacroSAM, since the latter number was initially derived from the former.

Cell (2,4) “Commodities-Households”: Private marketed consumption

The splitting of the aggregate household account into 16 household categories is a critically important feature of the SAM, since it is at the core of the income distribution and expenditure nexus of the economy.

As discussed above in relation to the disaggregation of home consumption in cell (1,4), total household consumption of each of the 112 goods available in the 2000 input-output table (GSO, 2003a) were (i) adjusted to allow for higher government consumption of education, healthcare, and culture and sports, (ii) split into respectively home consumption and marketed consumption based on relative VLSS shares, and (iii) split among the 16 SAM household groupings based on relative VLSS shares. Private marketed consumption remained consistent with the MacroSAM, since the latter number was initially derived from the former.

Cell (2,6) “Commodities-State”: State consumption

Basic information on the disaggregation of government consumption is available from the 2000 input-output table (GSO, 2003a). Subsequently, adjustments were undertaken to increase government consumption of education, healthcare, and culture and sports. This increase was based on additional expenditure data for (all levels of) the State (GSO, 2003c). A similar lowering of private marketed consumption meant that final demand for each of the individual commodities remained consistent with the 2000 input-output table. Moreover, total government consumption remained consistent with the MacroSAM, since the latter number was initially derived from the former.

Cell (2,7) “Commodities-Investment/Savings”: Investment

Information on the disaggregation of total investment was available from the 2000 input-output table (GSO, 2003a). Investment remained consistent with the MacroSAM, since the latter number was initially derived from the former.

Cell (2,8) “Commodities-ROW”: Exports

The disaggregation of exports to the rest of the world was based on reconciling the 2000 input-output table (GSO, 2003a) with additional information provided by the Trade Department of the GSO. Exports remained consistent with the MacroSAM, since the latter number was initially derived from the former.

Cell (3,1) “Factors-Activities”: Value added

The disaggregation of VA relied on the 2000 input-output table (GSO, 2003a). The input-output table includes information on income, which was taken to represent labour VA. In addition, the input-output table includes information on operating surplus and depreciation, taken to represent the amount of capital VA. VA by land is not provided by official publications, so had to be derived from the 1997-98 VLSS (GSO, 2000). VA was imputed to land used in agricultural production, and updated from 1998 to 2000 by applying aggregate GDP growth rates.

The imputation of 1998 VA by land in agricultural production sectors was straight forward. Data on rents from borrowing and lending of land plots were directly available from the VLSS. Combined with information on the size of individual plots, as well as the type (annual/perennial/water surface) and the quality of the land/water surface, it was possible to come up with a sensible set of average returns to land/water surface per square-meter. These returns were subsequently applied to measurements of land/water surface, used for agricultural production purposes, to come up with 1998 levels of land VA. Finally, a mapping between the agricultural production activities in the VLSS and the SAM was applied to come up with a consistent vector of 1998 land VA.

Given the differences in magnitude between VA imputed to labour and capital in the 2000 input-output table, it was decided to pull land VA out of labour VA, to come up with an overall distribution of VA among labour, land and capital. Imputed land VA was (slightly) bigger than total labour VA in the (small) livestock sector. It was therefore decided to put land VA at 30 percent of labour VA.

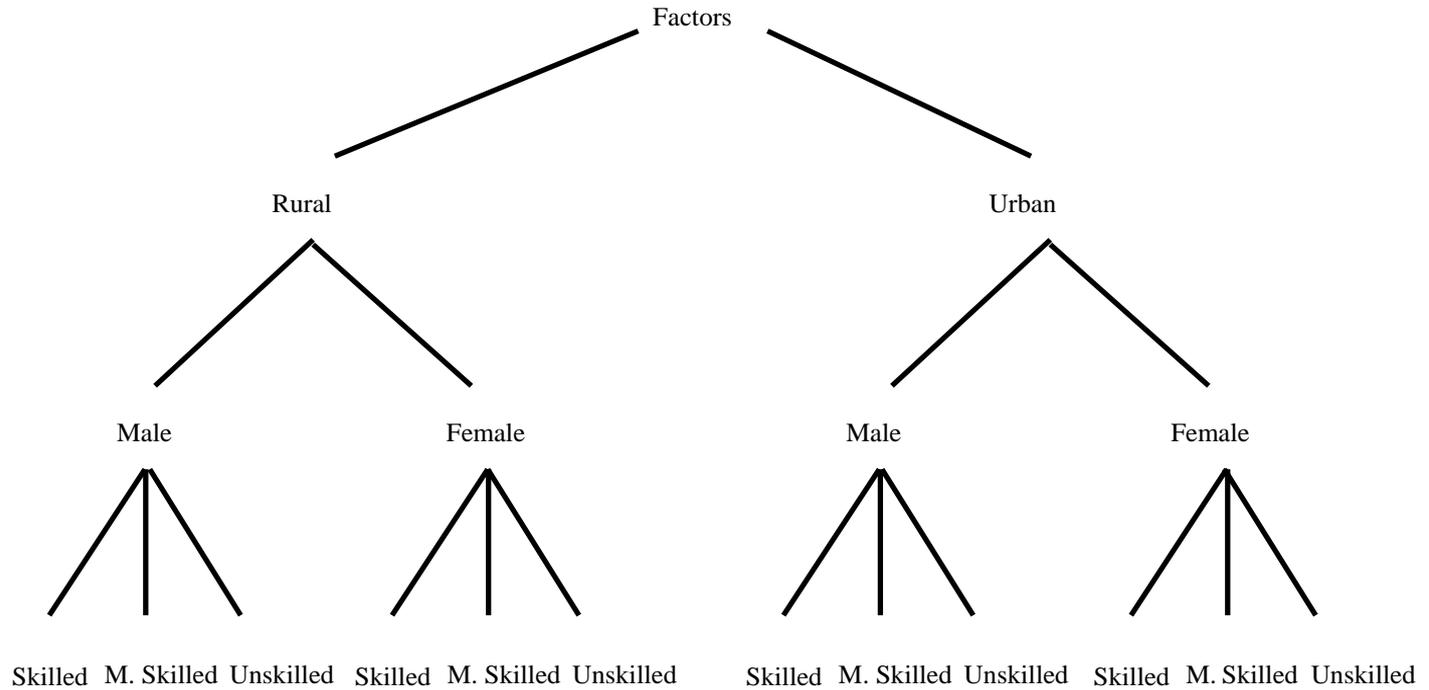
Disaggregation of the resulting vector of labour VA among 12 labour categories, including location (rural/urban), gender (male/female), and skill level (unskilled/medium-skilled/high-skilled), was based on additional wage and employment information (Bales, 2000). Cross tabulations of average annual compensation and labour force participation are available between rural/urban location and (i) gender, (ii) skill level, and (iii) sector of employment at a 14 sector disaggregation.

Proportional shares of labour VA could therefore be derived for the 12 labour categories in each of the 14 available sectors. These shares were subsequently applied to the 1x112 vector of labour VA, based on a mapping between the 14 available sectors and 112 production activities in the 2000 input-output table, to come up with a 12x112 matrix of labour VA.⁴

The labour factor disaggregation is illustrated in Figure 3.2.

⁴ The mapping between the 14 industries of employment in Bales (2000) and the I-O classification is as follows: Agriculture = I-O classification 1 – 15; Mining/Heavy Industry = I-O classification 16 - 21 & 37 – 44; Foodstuffs and tobacco = I-O classification 22 – 36; Other light industry = 45 - 69 & 73 - 74 & 82 – 86; Electronics = I-O classification 70 – 72; Textiles and garments = I-O classification 75 – 81; Utilities = I-O classification 87 – 88; Construction = I-O classification 89 – 90; Sales = I-O classification 91; Other = I-O classification 92 & 101 - 106 & 111; Hotel/Tourism = I-O classification 93 - 94 & 100; Transport = I-O classification 95 – 99; Government and social services = I-O classification 107 – 110; Personal services = I-O classification 112.

Figure 3.2: Illustration of the Labour Factor Disaggregation



Cell (4,3) "Households-Factors": Wages, salaries and other benefits

The factor income distribution matrix for 2000 was derived from survey data and the MacroSAM total. Initial share parameters for the factor income distribution matrix were derived from 1997-98 VLSS (GSO, 2000). The VLSS provides sufficient information to derive a 1998 factor income distribution matrix, distinguishing between the 14 different factors, as described with reference to cell (3,1).

The aggregation of VA by land according to 'ownership' by household, was similar to the aggregation of land VA by production activity, as described with reference to cell (3,1). Accordingly, 1998 VA by land was imputed from VLSS data on rents from borrowing and lending of land plots. Using information on the size of individual plots, as well as the type (annual/perennial/water surface) and quality of land and water surfaces, a sensible set of average returns to land/water surface per square-meter was derived. Applying this set of average returns to all plots of land/water surface yields the distribution of land VA across the 6,002 households in the VLSS survey.

Applying the household aggregation explained with reference to private consumption in cells (1,4) and (2,4), finally yielded the distribution of land VA across the 16 SAM household categories.

Value added by capital was imputed to assets of self-employed persons in agriculture and non-agriculture. Returns to the assets of self-employed in agriculture are straightforward to derive. Average returns to each separate type of equipment, covered in the agricultural part of the VLSS survey, were derived from information on value of and returns to leasing out of equipment. Equipment specific rates of return were supplanted by the overall average rate of return to equipment, if equipment specific rates were below five percent.

Applying these ‘corrected’ equipment specific rates of return to all equipment used in agricultural production, yielded the 1998 distribution of capital VA in agricultural production across the 6,002 households in the VLSS.

Since no information was available to compute rates of return to assets of self-employed persons in non-agriculture, the overall average rate of return to agricultural assets was applied to all non-agricultural assets, yielding the 1998 distribution of capital VA in non-agricultural production across the 6,002 households in the VLSS.

Finally, other capital income in the form of returns from leasing out of assets in the form of buildings, equipment, land, and durable goods, was added to agricultural and non-agricultural capital VA, to yield the overall distribution of capital VA across the 6,002 households in the VLSS.

Applying the household aggregation, as referred to above, finally yielded the distribution of capital VA among the 16 SAM household categories.

After deriving the distribution of VA by land and capital, it was possible to derive total labour VA for each of the 6,002 households in the VLSS, residually. Information on income and expenditures from self-employment in agriculture and non-agriculture was relied on to derive the gross operating surplus for each self-employment activity. Accordingly, VA by labour in self-employment activities was derived as the difference between the gross operating surplus and VA by land and capital. Total labour VA for each of the 6,002 households in the VLSS was subsequently derived by adding income earned by wage-earners to the labour VA generated in self-employment activities.

In order to break down total labour VA among the 12 labour categories in the SAM, the skill levels of each single individual within

each household were relied on. Labour VA among wage earners was easily broken down among the 12 labour categories, based on the skill level of each individual wage earner. Labour VA among self-employed in non-agriculture was broken down based on the skill level of the household member, who informed best about the enterprise of the household. Finally, labour VA among self-employed in agriculture was broken down, based on the skill levels of household members participating in agricultural activities, and their relative use of time in these activities.

Adding up the different components of VA by labour from self-employment and wage-activities, completed the factor income distribution matrix among the 6,002 VLSS households.

Finally, the distribution of Labour VA among the 16 SAM household categories was derived by applying the household aggregation, as referred to above. Altogether, the derivation of VA by labour, capital and land completes the 1998 factor income distribution matrix.

Based on the 1998 factor income distribution matrix, factor income distribution shares among households were derived for each of the 14 factors of production. Capital VA was assumed to be distributed to households through two channels: directly through profits from (informal) household enterprises and indirectly through distributed profits from (formal) legal enterprises.

Capital VA in the 1998 factor income distribution matrix reflects the direct distribution of profits from household enterprises. The capital VA shares were therefore applied to a measure of 2000 household enterprise VA, available from the Enterprise Census from 1 April 2001 (GSO, 2002), to arrive at the direct distribution of

capital VA in 2000.

Land VA in the 1998 factor income distribution matrix reflects total land VA including factor taxes. The distribution of 2000 land VA, including factor taxes, was therefore derived from the distribution of 1998 land VA, derived from the VLSS, by applying aggregate GDP growth rates. Subsequently, 2000 land factor taxes (MOF, 2002b) were subtracted to arrive at after-tax distributed land VA in 2000. Land taxes were assumed to be distributed uniformly across all plots of land.

Total distributed labour VA in 2000 was derived by subtracting total distributed capital and land VA from total distributed VA in the MacroSAM. Subsequently, the distribution of labour VA in 2000, from each of the 12 labour factor categories to each of the 16 household categories, was derived by applying the 1998 labour factor income distribution shares to the total distributed labour VA.

Cell (4,5) “Households-Enterprises”: Distributed profits and social security

Among the three types of enterprises, including state, non-state and foreign-owned enterprises, households were only assumed to receive distributed profits from non-state enterprises. Aggregate distributed profits from non-state enterprises to households in 2000, available from cell (4,5) in the MacroSAM, were distributed among the 16 household groupings according to the distribution of capital VA from self-employment activities, available from the 1997-98 VLSS (GSO, 2000). The vector of self-employment capital VA was derived as part of the computation of the overall distribution of capital VA, with reference to the factor income distribution matrix in cell (3,1).

Cell (4,6) “Households-State”: Social security

The distribution of direct transfers from the government to the 16 household categories in the SAM was based on the 1997-98 VLSS for (GSO, 2000). An estimate of the 1998 distribution of social security transfers among the 6,002 VLSS households was derived, based on information on transfers from the social insurance fund and funds targeted for poverty alleviation purposes. A household mapping was applied to aggregate the 6,002 VLSS households into the 16 SAM households, and the implied household shares were applied to total social transfers in 2000, available from the MacroSAM, to arrive at an estimate of the 2000 distribution of social security transfers among the 16 SAM households.

Cell (4,8) “Households-ROW”: Net foreign transfers to households

The distribution of net foreign transfers to households was based on the 1997-98 VLSS (GSO, 2000). An estimate of the 1998 distribution of net foreign remittances among the 6,002 VLSS households was derived, based on information on expenses for assistance to people living abroad, and remittance income from people living abroad. A household mapping was applied to aggregate the 6,002 VLSS households into the 16 SAM households, and the implied household shares were applied to total net foreign transfers in 2000, available from the MacroSAM, to arrive at the 2000 distribution of net foreign transfers among the 16 SAM households.

Cell (5,3) “Enterprises-Factors”: Gross profits

Gross profits are paid from capital to three types of enterprises, categorized by type of ownership, including state, non-state and

foreign ownership. Disaggregated data about this cell are available from GSO (2003c). However, large discrepancies between the GSO and MacroSAM numbers meant that adjustments had to be made. GSO non-state enterprise profits was particularly low.

The first adjustment was therefore to replace GSO non-state enterprise profits by distributed (non-state) enterprise profits to households, available from cell (4,5) in the MacroSAM. The second adjustment was to adjust this resulting vector of gross profits to match total MacroSAM gross profits. This was achieved by proportional scaling-up of state and non-state enterprise profits, assuming that GSO foreign-owned enterprise profits were correctly estimated. By following this procedure, foreign-owned enterprise profits still accounted for 22 percent of overall enterprise gross profits, while state enterprises accounted for 41 percent.

Cell (5,6) “Enterprises-State”: Enterprise subsidies

It was assumed that only state-owned enterprises were subsidized in 2000. Aggregate enterprise subsidies, available from cell (5,6) in the MacroSAM, was therefore entirely allocated to state-owned enterprises.

Cell (5,8) “Enterprises-ROW”: Foreign transfers to enterprises

It was assumed that only foreign-owned enterprises received transfers from abroad in 2000. Aggregate foreign transfers to enterprises, available from cell (5,8) in the MacroSAM, was therefore entirely allocated to foreign-owned enterprises.

Cell (6,1) “State-Activities”: Activity taxes

Information on individual activity taxes (MOF, 2002b) was used to disaggregate activity taxes (bn VND 32,082) into (i) VAT (bn VND 15,067), and (ii) PTAX (bn VND 17,015). Subsequently, information on the structure of indirect taxes from the 2000 input-output table (GSO, 2003a) was used to disaggregate each of these tax items among the 112 production activities.

Cell (6,2) “State-Commodities”: Sales and Trade taxes

Information on sales taxes and import tariffs (MOF, 2002b) was used to disaggregate commodity taxes (bn VND 17,471) into (i) special consumption (excise) sales taxes (STAX) (bn VND 3,903), and (ii) import tariffs (TARIFF) (bn VND 13,568). Information on the structure of import tariffs from the 2000 input-output table (GSO, 2003a) was used to disaggregate aggregate import tariffs among the 114 retail commodities. Similarly, information on the structure of indirect taxes from the 2000 input-output table (GSO, 2003a) was used to disaggregate (excise) sales taxes.

Cell (6,3) “State-Factors”: Factor taxes

Information on individual factor taxes (MOF, 2002b) was used to disaggregate the MacroSAM number (FTAX) between (i) land factor taxes (bn VND 2,142), and (ii) capital factor taxes (bn VND 9,083).

Cell (6,4) “State-Households”: Income taxes

The distribution of income taxes paid by households (HTAX) was based on the 1997-98 VLSS (GSO, 2000). An estimate of the 1998 distribution of household taxes among the 6,002 VLSS households was derived from information on direct tax contributions as well as

contributions towards local security funds.

A household mapping was subsequently applied to aggregate the 6,002 VLSS households into the 16 SAM households. Finally, the implied household shares were applied to total income taxes paid by households in 2000, available from the MacroSAM, to arrive at the 2000 distribution of income taxes among the 16 SAM households.

Cell (6,5) “State-Enterprises”: Enterprise taxes

The distribution of enterprise taxes (ETAX) was based on several assumptions.

- First, foreign-owned enterprise taxes were residually imputed by subtracting enterprise profit remittances, available from the disaggregation of cell (8,5) below, from the sum of profits and foreign transfers, available from the disaggregation of cells (5,3) and (5,8) above. This procedure was based on an assumption that foreign-owned enterprises do not retain profits for investment purposes.
- Second, the residual between total enterprise taxes, available from cell (6,5) in the MacroSAM, and imputed foreign-owned enterprise taxes were shared proportionately between state and non-state owned enterprises according to relative gross profits, available from the disaggregation of cell (5,3) above.

Cell (6,8) “State-ROW”: Net foreign transfers to state

This entry refers to official development assistance transfers to the state. No disaggregation was necessary. The MacroSAM number was imposed.

Cell (7,4) “Investment/Savings-Households”: Household savings

The disaggregation of savings between rural and urban household groups was available from aggregate tables based on the 1997-98 VLSS (GSO, 2000). Information on average savings per household, members per household and population size for rural and urban areas was used to arrive at total savings in rural and urban areas in 1998.

Rural and urban savings aggregates were subsequently scaled to match total household savings in 2000, available from the MacroSAM. Information was not available for further disaggregation among households. Savings within rural and urban households were therefore shared according to the distribution of factor income and distributed profits, available from the disaggregation of cells (4,3) and (4,5) above.

Cell (7,5) “Investment/Savings-Enterprises”: Retained earnings

Retained earnings were derived residually for each individual enterprise type by subtracting distributed profits, enterprise taxes, and profit remittances, available from the disaggregation of cells (4,5), (6,5) and (8,5), from the sum of profits, enterprise subsidies and foreign transfers, available from the disaggregation of cells (5,3), (5,6) and (5,8). It follows from the assumptions made in relation to the disaggregation of enterprise taxes in cell (6,5), that foreign-owned enterprises have zero retained earnings for investment purposes.

Cell (7,6) “Investment/Savings-State”: State savings

This entry refers to the recurrent budget surplus of the state. No disaggregation was necessary. The MacroSAM number was imposed.

Cell (8,2) “ROW-Commodities”: Imports

The disaggregation of imports from the rest of the world was based on reconciling the 2000 input-output table (GSO, 2003a) with additional information provided by the Trade Department of the GSO. Imports remained consistent with the MacroSAM, since the latter number was initially derived from the former.

Cell (8,5) “ROW-Enterprises”: Enterprise remittances

Remittances of profits were assumed to be undertaken only by foreign-owned companies. Enterprise remittances, available from the MacroSAM, were therefore entirely allocated to foreign-owned enterprises.

In sum, the above disaggregation results in a 269x269 matrix (112 activities, 114 commodities, 14 factors, 16 households, three enterprises, one state, seven taxes, one investment/savings, and one balance of payments).

To complete the SAM estimation procedure it was necessary to reconcile the many data sources mentioned above into one consistent economy-wide set of accounts. This was done using a matrix balancing procedure, commonly referred to as the Minimum Cross Entropy estimation method. This procedure permits the estimation of detailed accounts in a data-poor environment under exogenously given accounting constraints.

4. FINAL REMARKS

In developing the new 2000 SAM documented in this publication, a particular effort was made to integrate the new I-O table published by the GSO. However, a variety of other improvements over the previously released 2000 Vietnam SAM was introduced as discussed in Section 2 and Section 3. The improvements include the use of:

- A new 2000 Input-Output table, including a 112 sector (activity) disaggregation and detailed information on marketing margins (GSO, 2003a).⁵
- New and improved estimates of enterprise earnings derived from the 2001 enterprise census (GSO, 2002).
- New and revised National Income and Product data.
- New information about the composition of the state budget.
- Refinements to the structure of factor income flows.
- Revised trade statistics.

More specifically, the new 2000 Vietnam SAM can be summarized as a very detailed SAM with the following characteristics:

- 112 production activities and 114 commodities (including marketing margins).
- 14 production factors, including 12 labour categories, land and

⁵ In the annexes to this study, the reader will find the complete list of the 112 production activities as well as various aggregations hereof and the labels used. The resulting 112-, 31-, 19- and 3-activity SAMs can be downloaded from <http://www.ciem.org.vn/vn/asp/default.asp> or can be obtained from the authors upon request.

capital.

- 16 household types, based on the 1997-98 VLSS.
- Three enterprises.
- Consolidated accounts for the recurrent government sector, investment, and the Rest of the World.
- A separate set of import and export matrices, where aggregate imports and exports (114 individual items) are broken down by 194 international trading partners.

It is hoped that the new SAM will be used in a very flexible manner in a variety of policy relevant research projects inside and outside Vietnam, which is why it is put in the public domain. The new SAM should also help improve teaching efforts geared towards ensuring that students and researchers in Vietnam get a proper understanding of the usefulness and strengths of the SAM for analytical purposes. Subsequent up-dates will be decided on in due course.

5. LIST OF REFERENCES

1. Bales, S. (2000), *Vietnam's Labour Situation and Trends: Analysis based on the 1992-93 and 1997-98 Vietnam Living Standards Survey*, Background Paper for the Vietnam Development Report 2000, World Bank, Hanoi.
2. CIEM-NIAS (2001), *1999 Social Accounting Matrix for Vietnam*, Statistical Publishing House, Hanoi.
3. GSO (2000), *Vietnam Living Standards Survey 1997-1998*, Statistical Publishing House, Hanoi.
4. GSO (2002), *The Results of the Enterprise Census at 1st April 2001*, Statistical Publishing House, Hanoi.
5. GSO (2003a), *Input-Output Tables 2000 for Vietnam*, Statistical Publishing House, Hanoi.
6. GSO (2003b), *The System of National Accounts - SNS*, Statistical Publishing House, Hanoi.
7. GSO (2003c), *Data for 2000 Provided to Supplement The System of National Accounts for Vietnam*, Mimeo, Hanoi.
8. MOF (2002a), *State Budget: Final Accounts for 2000 and plan for 2002*, Financial Publishing House, Hanoi.

9. MOF (2002b), *Vietnam: Statistical Appendix prepared for IMF country report*, Mimeo, Hanoi.
10. Vo Tri Thanh, Dinh Hien Minh, Do Thi Thu Huong and Nguyen Thi Hong (2001), *The Sustainability of the Current Account Deficit and External Debt in Vietnam*, EADN Working Papers No. 10, Institute of Southeast Asian Studies, Singapore.

6. ANNEXES: SECTOR LISTS, LABELLING AND ACTIVITY CONCORDANCE

A1: 112-Activity SAM

<i>Sector</i>	<i>Labelling</i>
Paddy (all kinds)	001
Raw rubber	002
Coffee beans	003
Sugarcane	004
Tea	005
Other crops	006
Pig (All kinds)	007
Cow (All kinds)	008
Poultry	009
Other livestock and poultry	010
Irrigation service	011
Other agricultural services	012
Forestry	013
Fishery	014
Fish-Farming	015
Coal	016
Metallic ore	017
Stone	018
Sand, gravel	019
Other none-metallic minerals	020
Crude oil, natural gas (except exploration)	021
Processed, preserved meat and by-products	022
Processed vegetable, and animals oils and fats	023

Milk, butter and other dairy products	024
Cakes, jams, candy, coca, chocolate products	025
Processed and preserved fruits and vegetables	026
Alcohol and liquors	027
Beer	028
Non-alcohol water and soft drinks	029
Sugar, refined	030
Coffee, processed	031
Tea, processed	032
Cigarettes and other tobacco products	033
Processed seafood and by-products	034
Rice, processed	035
Other food manufactures	036
Glass and glass products	037
Ceramics and by-products	038
Bricks, tiles	039
Cement	040
Concrete, mortar and other cement products	041
Other building materials	042
Paper pulp and paper products and by-products	043
Processed wood and wood products	044
Basic organic chemicals	045
Basic inorganic chemicals	046
Chemical fertilizer	047
Fertilizer	048
Pesticides	049
Veterinary medicine	050
Health medicine	051

Processed rubber and by-products	052
Soap, detergents	053
Perfumes and other toilet preparations	054
Plastic (including semi-plastic products)	055
Other plastic products	056
Paint	057
Ink, varnish and other painting materials	058
Other chemical products	059
Health instrument and apparatus	060
Precise and optics equipment, meter (all kinds)	061
Home appliances and its spare parts	062
Motor vehicles, motor bikes and spare parts	063
Bicycles and spare parts	064
General-purpose machinery	065
Other general - purpose machinery	066
Other special-purpose machinery	067
Automobiles	068
Other transport means	069
Electrical machinery	070
Other electrical machinery and equipment	071
Machinery used for broadcasting, television and information activities	072
Non-ferrous metals and products	073
Ferrous metals and products (except machinery equipment)	074
Weaving of cloths (all kinds)	075
Fibber, thread (all kinds)	076
Ready-made clothes, sheets (all kinds)	077
Carpets	078
Weaving and embroidery of textile-based goods (except	079

carpets)	
Products of leather tanneries	080
Leather goods	081
Animal feeds	082
Products of printing activities	083
Products of publishing house	084
Other physical goods	085
Gasoline, lubricants (already refined)	086
Electricity, gas	087
Water	088
Civil construction	089
Other construction	090
Trade	091
Repair of small transport means, motorbikes and personal household appliances	092
Hotels	093
Restaurants	094
Transportation	095
Railway transport services	096
Water transport services	097
Air transport services	098
Communication services	099
Tourism	100
Banking, credit, treasury	101
Lottery	102
Insurance	103
Science and technology	104
Real estate	105
Real estate business and consultancy services	106
State management, defence and compulsory social security	107

Education and training	108
Health care, social relief	109
Culture and sport	110
Association	111
Other services	112
Rural male unskilled labour	F01
Rural male medium-skilled labour	F02
Rural male high-skilled labour	F03
Rural female unskilled labour	F04
Rural female medium-skilled labour	F05
Rural female high-skilled labour	F06
Urban male unskilled labour	F07
Urban male medium-skilled labour	F08
Urban male high-skilled labour	F09
Urban female unskilled labour	F10
Urban female medium-skilled labour	F11
Urban female high-skilled labour	F12
Capital	F13
Land	F14
Rural male self-employed farmer household	H01
Rural male self-employed non-farmer household	H02
Rural male wage-earner household	H03
Rural male non-employed household	H04
Rural female self-employed farmer household	H05
Rural female self-employed non-farmer household	H06
Rural female wage-earner household	H07
Rural female non-employed household	H08
Urban male self-employed farmer household	H09
Urban male self-employed non-farmer household	H10

Urban male wage-earner household	H11
Urban male non-employed household	H12
Urban female self-employed farmer household	H13
Urban female self-employed non-farmer household	H14
Urban female wage-earner household	H15
Urban female non-employed household	H16
State owned enterprises	E01
Non-state owned enterprises	E02
Foreign owned enterprises	E03
Value added tax	T01
Production tax	T02
Special consumption sales tax	T03
Import tariffs	T04
Factor taxes	T05
Enterprise taxes	T06
Household taxes	T07
Government	GOV
Rest of the world	ROW
Saving-Investment	S-I
Changes in inventories	DSTK

A2: 31-Activity SAM

<i>Sectors</i>	<i>Labelling</i>
Rice	01-RICE
Coffee bean	02-COF
Sugar cans	03-SUCAN
Other crops	04-OCROP
Livestock	05-LIVSTOC
Forestry	06-FOR
Fisheries	07-FISH
Irrigation	08-IRR
Other agricultural service	09-OASER
Crude oil	10-OIL
Other mining	11-MIN
Food processing	12-FPROC
Tobacco, beers and alcohol	13-TOBABE
Sugar	14-SUGAR
Cement	15-CEMEN
Paper	16-PAPER
Fertilizer and pesticides	17-FERT
Automobile and other transport vehicles	18-AUTO
Ferrous metals	19-STEL
Garments and leather products	20-GALEAT
Chemicals	21-CHEM
Other manufacturing	22-OMANU
Electricity, gas, petroleum and water	23-EGW
Construction	24-CONS
Retail and wholesale trade	25-TRADE
Transportation	26-TRANS

Education and training	27-EDU
Health and social protection	28-HEALTH
Administration, social security and defence	29-ADMDEF
Finance, banking, sciences and telecommunication	30-BATESCI
Other services	31-OTHSER
Rural labour	LAB-RUR
Urban labour	LAB-URB
Capital	CAPITAL
Land	LAND
Rural households	HH-RUR
Urban households	HH-URB
Enterprise	ENT
Direct taxes	DTAX
Indirect taxes	ITAX
Import tariffs	IMPTAR
Government	GOV
Rest of the world	ROW
Saving – investment	S-I
Changes in inventories	DSTK

A3: 19-Activity SAM

<i>Sector</i>	<i>Labelling</i>
Agriculture	01-AGR
Forestry	02-FOR
Fishery	03-FISH
Mining and quarrying	04-MIN
Manufacturing	05-MANU
Electricity, gas and water supply	06-EGW
Construction	07-CONS
Wholesale and retail trade; repair of transport vehicles, personal and household goods	08-TRADE
Hotel and restaurant	09-HOTEL
Transportation, storage and telecommunication	10-TRANS
Financial intermediation	11-BANK
Science and technology	12-SCIEN
Real estate and consulting	13-REALCON
Public administration and defence; compulsory social security	14-ADMDEF
Education and training	15-EDU
Health and social protection	16-HEALTH
Recreational, cultural and sport activities	17-CULT
Activity of the party and associations	18-ASSO
Community, household and personal services	19-OTHSER
Rural labour	LAB-RUR
Urban labour	LAB-URB
Capital	CAPITAL
Land	LAND
Rural households	HH-RUR

Urban households	HH-URB
Enterprise	ENT
Direct taxes	DTAX
Indirect taxes	ITAX
Import tariffs	IMPTAR
Government	GOV
Rest of the world	ROW
Saving - investment	S-I
Changes in inventories	DSTK

A4: 3-Activity SAM

<i>Sector</i>	<i>Labelling</i>
Agricultural sector	01-AGR
Industrial sector	02-IND
Service sector	03-SER
Rural labour	LAB-RUR
Urban labour	LAB-URB
Capital	CAPITAL
Land	LAND
Rural households	HH-RUR
Urban households	HH-URB
Enterprise	ENT
Direct taxes	DTAX
Indirect taxes	ITAX
Import tariffs	IMPTAR
Government	GOV
Rest of the world	ROW
Saving - investment	S-I
Changes in inventories	DSTK

A5: Activity Concordance for Selected Aggregations

<i>Description</i>	<i>112-sector codes</i>	<i>31-sector codes</i>	<i>19-sector codes</i>	<i>3-sector codes</i>
Paddy (all kinds)	1	1	1	1
Raw rubber	2	4	1	1
Coffee beans	3	2	1	1
Sugarcane	4	3	1	1
Tea	5	4	1	1
Other crops	6	4	1	1
Pig (All kinds)	7	5	1	1
Cow (All kinds)	8	5	1	1
Poultry	9	5	1	1
Other livestock and poultry	10	5	1	1
Irrigation service	11	8	1	1
Other agricultural services	12	9	1	1
Forestry	13	6	2	1
Fishery	14	7	3	1
Fish-Farming	15	7	3	1
Coal	16	11	4	2
Metallic ore	17	11	4	2
Stone	18	11	4	2
Sand, gravel	19	11	4	2
Other none-metallic minerals	20	11	4	2
Crude oil, natural gas				

(except exploration)	21	10	4	2
Processed, preserved meat and by-products	22	12	5	2
Processed vegetable, and animals oils and fats	23	12	5	2
Milk, butter and other dairy products	24	12	5	2
Cakes, jams, candy, coca, chocolate products	25	12	5	2
Processed and preserved fruits and vegetables	26	12	5	2
Alcohol, beer and liquors	27	13	5	2
Beer and liquors	28	13	5	2
Non-alcohol water and soft drinks	29	22	5	2
Sugar, refined	30	14	5	2
Coffee, processed	31	12	5	2
Tea, processed	32	12	5	2
Cigarettes and other tobacco products	33	13	5	2
Processed seafood and by-products	34	12	5	2
Rice, processed	35	12	5	2
Other food manufactures	36	12	5	2

Glass and glass products	37	22	5	2
Ceramics and by-products	38	22	5	2
Bricks, tiles	39	22	5	2
Cement	40	15	5	2
Concrete, mortar and other cement products	41	22	5	2
Other building materials	42	22	5	2
Paper pulp and paper products and by-products	43	16	5	2
Processed wood and wood products	44	22	5	2
Basic organic chemicals	45	21	5	2
Basic inorganic chemicals	46	21	5	2
Chemical fertilizer	47	17	5	2
Fertilizer	48	17	5	2
Pesticides	49	17	5	2
Veterinary medicine	50	21	5	2
Health medicine	51	21	5	2
Processed rubber and by-products	52	21	5	2
Soap, detergents	53	21	5	2
Perfumes and other toilet preparations	54	21	5	2
Plastic (including				

semi-plastic products)	55	21	5	2
Other plastic products	56	21	5	2
Paint	57	21	5	2
Ink, varnish and other painting materials	58	21	5	2
Other chemical products	59	21	5	2
Health instrument and apparatus	60	22	5	2
Precise and optics equipment, meter (all kinds)	61	22	5	2
Home appliances and its spare parts	62	22	5	2
Motor vehicles, motor bikes and spare parts	63	18	5	2
Bicycles and spare parts	64	22	5	2
General-purpose machinery	65	22	5	2
Other general - purpose machinery	66	22	5	2
Other special-purpose machinery	67	22	5	2
Automobiles	68	18	5	2
Other transport means	69	18	5	2
Electrical machinery	70	22	5	2
Other electrical machinery and equipment	71	22	5	2

Machinery used for broadcasting, television and information activities	72	22	5	2
Non-ferrous metals and products	73	22	5	2
Ferrous metals and products (except machinery equipment)	74	19	5	2
Weaving of cloths (all kinds)	75	20	5	2
Fibber, thread (all kinds)	76	20	5	2
Ready-made clothes, sheets (all kinds)	77	20	5	2
Carpets	78	20	5	2
Weaving and embroidery of textile-based goods (except carpets)	79	20	5	2
Products of leather tanneries	80	20	5	2
Leather goods	81	20	5	2
Animal feeds	82	12	5	2
Products of printing activities	83	22	5	2
Products of publishing house	84	22	5	2
Other physical goods	85	22	5	2
Gasoline, lubricants				

(already refined)	86	23	5	2
Electricity, gas	87	23	6	2
Water	88	23	6	2
Civil construction	89	24	7	2
Other construction	90	24	7	2
Trade	91	25	8	3
Repair of small transport means, motorbikes and personal household appliances	92	31	8	3
Hotels	93	31	9	3
Restaurants	94	31	9	3
Transportation	95	26	10	3
Railway transport services	96	26	10	3
Water transport services	97	26	10	3
Air transport services	98	26	10	3
Communication services	99	30	10	3
Tourism	100	31	10	3
Banking, credit, treasury	101	30	11	3
Lottery	102	31	11	3
Insurance	103	31	11	3
Science and technology	104	30	12	3
Real estate	105	30	13	3

Real estate business and consultancy services	106	30	13	3
State management, defence and compulsory social security	107	29	14	3
Education and training	108	27	15	3
Health care, social relief	109	28	16	3
Culture and sport	110	31	17	3
Association	111	31	18	3
Other services	112	31	19	3

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