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A Social Accounting Matrix for The Gambia

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CORNELL FOOD AND NUTRITION POLICY PROGRAM



A SOCIAL ACCOUNTING MATRIX FOR THE GAMBIA

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ABBREVIATIONS

CSD	–	Central Statistics Department
ERP	–	Economic Recovery Program
GAMTEL	–	Gambia Telecommunications Company Ltd.
GCU	–	Gambia Cooperative Union
GDP	–	Gross Domestic Product
GNTC	–	Gambia National Trading Corporation
GOTG	–	Government of The Gambia
GPA	–	Gambia Ports Authority
GPMB	–	Gambia Produce Marketing Board
GPTC	–	Gambia Public Transport Corporation
GUC	–	Gambia Utilities Corporation
MFEA	–	Ministry of Finance and Economic Affairs
MOA	–	Ministry of Agriculture
ROW	–	Rest of the World
SAM	–	Social Accounting Matrix

FOREWORD

This working paper presents the details of a Social Accounting Matrix (SAM) developed for The Gambia. The purpose for constructing the SAM was to integrate all available information about the economic and social structure of The Gambia into a disaggregated data framework that links economic transactions according to a classification of production activities, factors of production, institutions, and socioeconomic groups.

Unlike the SAMs constructed for Cameroon, Madagascar, and Niger under the Cornell Food and Nutrition Policy Program's Africa Economic Policy Project, the SAM for The Gambia was built from the "bottom up" rather than from the "top down." In particular, the SAM was constructed largely from data collected in a household income and expenditure survey conducted in The Gambia by CFNPP from September 1989 to March 1990. The results were presented in an unpublished paper written by Cathy Jabara, Marjatta Tolvanen, Mattias K. A. Lundberg, and Rohey Wadda. This paper examined households' income and expenditure patterns, and it provided the information for the construction of the final demand accounts of the Gambia SAM. The CFNPP household survey also formed the basis for many of the production accounts in the model, particularly for informal-sector activities, because there was no input-output table for The Gambia.

The SAM presented here is not a model; it is a database for modeling. However, by specifying the relationships within the economy in a methodological and consistent framework, it provides the most important step toward more systematic analyses of the ties between policy and poverty in The Gambia. Future work will therefore build upon this SAM to model the effects of various policies on different household groups. This modeling will provide further insight into the impact of the economic recovery program on growth and income distribution in keeping with the objective of the research, and technical cooperation between CFNPP and the Government of The Gambia, being financed by the Africa Bureau and The Gambia Mission of the U.S. Agency for International Development.

Washington, DC
January 1992

David E. Sahn
Deputy Director, CFNPP

1. INTRODUCTION

This paper presents a social accounting matrix (SAM) for The Gambia. The SAM is constructed from data for 1989/90. The purpose of the SAM was to integrate all available information about the economic and social structure of The Gambia. The SAM can be used for planning and for analyzing the relationships among production patterns, trade flows, and household income distribution in The Gambia.

Unlike the SAMs constructed for Madagascar, Cameroon, and Niger under the Cornell Food and Nutrition Policy Program's Africa Economic Policy Project, the SAM for The Gambia was built largely from a household income and expenditure survey conducted in The Gambia by CFNPP from September 1989 to March 1990. Thus it was built from the "bottom up" rather than from the "top down." Preliminary analyses of the CFNPP household survey are presented in Jabara, Tolvanen, Lundberg, and Wadda (1991). This paper examines households by income and expenditure patterns, and provides the information for the construction of the final demand accounts of the Gambia SAM. The CFNPP household survey also formed the basis for the production accounts in the model because the published national accounts underestimate activity in the informal sector, and because, unlike other countries for which SAMs have been constructed, there was no input-output table for The Gambia. CFNPP's household data were used to create input-output relationships, particularly for activities in agriculture and in the informal sector.

Other data sources were consulted to supplement the CFNPP household survey in the construction of the SAM. These included the revised national accounts of The Gambia, financial reports of parastatals, agricultural production and population surveys conducted by the Ministry of Agriculture, and national trade statistics and labor surveys obtained from the Ministry of Finance and Economic Affairs.

An advantage to building a SAM from the "bottom up" is that we were not held to previous conventions when we delineated consumption shares, household income groups, and production accounts. At the same time, we were able to use the detailed information on interhousehold financial flows, informal enterprise income, and household expenditure from the CFNPP survey in the construction of the Gambia SAM. In this paper, we present an aggregated version of our Gambia SAM.

Our "bottom-up" SAM is more flexible than a traditional top-down SAM because our aggregate accounts can be disaggregated into individual component parts, depending upon the type of analysis desired. For instance, the transport account can be disaggregated to analyze the effect of a change in informal

transport services, or the marketing accounts could be disaggregated to analyze the impact of increased private sector groundnut or fertilizer marketing on household income distribution. Because the CFNPP survey also contained information on household nutrition, it would be possible to link income changes to the nutritional status of households in the Gambia SAM.

The following sections of the paper describe the structure of the Gambia SAM and its individual components. The next section presents the overall structure of the SAM. This is followed by a discussion of the data sources and by a presentation of the disaggregated SAM accounts. Appendix A compares the SAM accounts with the national accounts and discusses possible reasons for discrepancies between the two records.

2. DEFINITION OF A SAM

A SAM is a comprehensive data framework that links all economic transactions (production, income formation, transfers, consumption, savings, and investments) for disaggregated classifications of production activities, factors of production, institutions, and socioeconomic groups (Thorbecke 1985). The SAM is usually built on a foundation of three data sources: the national accounts, which present the data for the economy in double entry accounts; an input-output table for the economy, which identifies the structure of production and final consumption on a source and use basis; and a household income and expenditure survey, which provides information on the income and expenditure patterns of different socioeconomic household groups.

The SAM is an extension of the traditional Leontief open input-output model. The Leontief model is basically an accounting framework, in which the receipts and expenditures of any industry or sector are described in a matrix rather than in two separate accounts. The consolidation of all the relationships between all the producing parts of the economy in one matrix provides a structure for error checking and consistency: each cell in the matrix describes both the receipts of one sector and the expenditures of another.

The problem with the basic Leontief model is that while production activities and transactions can be modeled, there are no household consumption accounts. The input-output table cannot be used to examine issues regarding income distribution. In addition, the model ignores the increase in value-added that results from an increase in production activity. It is simply "leaked" out of the system. Because there are no accounts describing the incomes of households or firms, the model cannot be used to examine the effects of increased income on consumption. The SAM resolves this problem by adding these income accounts. In the SAM, increased wages and profits lead to higher expenditures, which in turn raise demand, and so on. The value-added remains and is recycled (multiplied) throughout the system. In this way, the SAM can be used as a base for economy-wide, policy oriented planning models.

The detailed structure of a SAM for any particular country will vary according to data availability and the purpose for which the SAM was constructed. Table 1 presents the seven basic accounts included in the Gambia SAM: production, factors, institutions, capital accounts, financial accounts, foreign or rest-of-the-world (ROW) activities on current account, and foreign or ROW capital.

Two accounts often included in SAMs are not in the Gambia SAM. Commodity accounts, which link the production accounts to household consumption accounts, are excluded. Final consumption in the Gambia SAM is directly mapped to

Table 1 – The Gambia: Accounts of the Aggregated SAM

	1. Production	2. Factors	3. Institutions	4. Capital	5. Financial	6. ROW Current	7. ROW Capital	8. Total
1. Production	Intermediate consumption		Final consump	Capital formation		Exports		Total output
2. Factors	Value-added			Value-added				Factor income
3. Institutions								
a. Households		factor income	Domestic transfers			Foreign transfers		Household income
b. Companies		factor income			Financial liability			Incorp. enterp. income
c. Government	Indirect taxes		Direct taxes	Indirect taxes				Government revenue
4. Capital accounts			Savings				Foreign saving	Total saving
5. Financial account				Financial assets				Financial assets
6. ROW current	Imports		Factor and non-factor payments	Capital imports				Total imports
7. ROW capital						Foreign capital		Foreign capital
8. Total	Total cost	Value-added	Total expenditure	Total investment	Change financial liability	Total exports	Foreign saving	

production activities. These commodity accounts are really necessary only when one production activity produces two goods or services that differ significantly. If, for instance, carpenters produced groundnuts as well as their more obvious outputs, commodity accounts would be necessary to distinguish between the products of the carpentry sector. The Gambia model has only sporadic cases of differentiated production, such as fodder as a by-product of groundnut production, and fertilizer as a by-product of livestock. They command few, if any, of the resources of their respective sectors.

Secondly, there is no aggregate marketing account. Marketing is considered to be a production activity; thus the marketing margins are directly mapped to the specific production activities that involve the transport and distribution of goods from one sector to another. A brief description of each of the accounts follows.

Production: The production account of the Gambia SAM can be disaggregated into sectors representing the various production activities in The Gambia's economy. The production account maps the intermediate input and consumption flows to specific production activities. When available, the production account is based on an input-output table, and for this reason it is often referred to as the I/O account.

Production activities receive revenue from the supply of intermediate commodities to other production activities, from sales of final consumption goods to consumers, from sales of capital goods, and from exports. These revenues make up the total sales or output of each production activity (row 1). Sales revenue is spent on purchases of raw materials (domestically produced or imported), factors of production, and indirect government taxes (column 1).

Production in the Gambia SAM is divided into formal and informal sector activities. The formal sector (incorporated enterprises such as parastatals and private companies) pays wages to employees, generally has high overheads, and retains earnings in the form of surplus or profits. Activities in the informal sector generally have lower overheads and retain earnings as income to self-employed entrepreneurs.

Factors: This account (row 2) depicts the functional distribution of value-added generated by production activities. Factors of production in the Gambia SAM are various types of labor and capital. The factor income generated by the model is comparable to the estimates of value-added in The Gambia's national accounts. The outlays of the factor accounts are payments to the institutions that own the factors (column 2).

Traditionally, factors of production only receive income from production activities; in this model they also receive income from the capital account. This is because salaries are paid from the government's development budget, and placing these salaries in the capital account keeps the model consistent with the accounting format of the public expenditure estimates.

Institutions: Institutions in the Gambia model are households, incorporated enterprises (companies), and the government. Households and companies receive income as payments to factors and transfers from government, other households, or from household members or foreigners living abroad (rows 3a and 3b). These sources provide the total income of domestic institutions. Their expenditure consists of the consumption of final goods, transfer payments to other institutions, direct government taxes, savings, and factor and nonfactor payments for foreigners living abroad (column 3). The government receives income in the form of indirect taxes on intermediate imports of goods and services, and direct taxes from other institutions (row 3c).

Capital Accounts: Capital for investment purposes is obtained in The Gambia from domestic sources (in the form of savings of households, companies, and government), and from foreign sources (foreign savings) (row 4). The Gambia's savings are used to purchase capital goods from domestic sources, to import capital goods, to pay indirect taxes on capital goods imports, and to purchase financial assets (column 4). The total investment equals the total savings available to the economy.

Financial Account: The Gambia SAM does not contain a detailed accounting of the entire financial sector (see Pyatt and Round 1985 for examples). The financial account is used in the SAM to transfer the savings of institutions (households in this case) into loanable funds for corporate enterprises. Thus, the purchase of financial assets (row 5) is offset by the creation of an equal amount of financial liabilities (column 5) in the financial account.

Rest-of-the-World (ROW) Current: The foreign current account sums up transactions that require outflows of foreign exchange from the external current account (row 6). These transactions include imports of intermediate and capital goods, and factor and nonfactor payments abroad (total imports). The total use of foreign exchange must equal The Gambia's total availability of foreign exchange (column 6). The latter include exports of goods and services, unrequited transfers from abroad, and foreign capital inflows.

Rest-of-the-World (ROW) Capital: This account isolates The Gambia's transactions on its external capital account. Foreign capital (row 7) equals foreign savings (column 7), which are used to supplement the savings from domestic sources.

3. DATA SOURCES AND METHODS

No national input-output table existed for The Gambia, and there was no single consistent database on which we could rely to build the SAM. Thus, we had to combine data from a wide variety of sources. At the heart of the SAM is a household consumption and income survey conducted by the Cornell Food and Nutrition Policy Program (CFNPP) from September 1989 to March 1990 in both urban and rural areas in The Gambia. A detailed description of the survey method and results is presented in Jabara, Tolvanen, Lundberg, and Wadda (1991).

That paper presents some behavioral and econometric characteristics of different household groups in The Gambia. These were used to construct the household and consumption accounts in the SAM. In addition, the consumption data were used to corroborate certain production estimates: the amount of goods and services produced by each sector and used for final domestic consumption (plus stock, storage, and other losses) must be physically reasonable. For example, bakeries probably do not produce a hundred loaves of bread per capita per day, since that volume of bread is too great to consume.

The CFNPP survey also recorded entrepreneurial incomes and enterprise budgets. These were combined to construct production accounts for informal sector activities. Production accounts for the formal sector were constructed from the financial reports of parastatals and large private companies operating in The Gambia. These formal sector reports provide information on gross income, use of intermediate inputs, wage and salary payments, and the number of people employed. The revised national accounts for 1989/90 were used to construct the formal sector production accounts in cases where financial reports were unavailable. The national accounts also provide information on aggregate value-added and use of inputs by each sector. These are provided in the aggregate only: they do not describe explicitly the inputs used (Central Statistics Department [CSD] 1991a).

Additional data sources include unpublished trade data from the Ministry of Finance and Economic Affairs, urban labor surveys conducted by the Central Statistics Department (1989), and estimates of agricultural production and population from the Department of Planning, Ministry of Agriculture (1990). The trade data provided estimates of the percentage of imports re-exported. The MOA data were used to determine the size of the population living in rural or predominantly agricultural areas. We used these estimates rather than those from the CSD, because the latter are reported by administrative divisions; some areas described by the CSD as rural actually contain market towns. We used government expenditure estimates for 1989/90 to construct the government accounts (Republic of The Gambia 1989).

We used the household survey data to construct SAM accounts according to the guidelines provided in Ruggles and Ruggles (1970). These guidelines are primarily concerned with the weights and methods used to aggregate expenditure and income data from households and enterprises to national levels that are consistent with national accounting procedures.

The CFNPP sample population was stratified and selected for the analysis of microeconomic intrahousehold characteristics specific to migration issues, and the ratio of rural-to-urban households in the sample population did not correspond to the rural-to-urban ratio in the population as a whole. The weights used to aggregate the survey data to national levels were therefore calculated to compensate for this imbalance.

The CFNPP survey excluded single person households and households without children; and this may be a source of some error or bias, especially in the estimation of consumption and expenditure patterns. This bias may be insignificant, because as Jabara et al. (1991) show, the age distribution of the survey population is close to that found by the 1983 census (Jabara et al. 1991: Table 2).¹ The likelihood of bias is further reduced by the common practice of single men arranging to eat with the household of a relative or neighbor (Daffeh 1990). If that is the case, the consumption habits of most single person households were captured in the survey.

It is possible that for both urban and rural populations, household characteristics have come to resemble those found in the survey. The annual rate of population growth between 1973 and 1983 was 3.4 percent (Jabara 1990). If that rate of increase has been maintained in recent years, it is reasonable to expect that both the number of children and their ratio to the adult population have increased. Therefore the 1983 census probably underestimates the number of children in the 1989 population.

In any event, we have tried to make use of all the available data. Overall, a national model constructed solely from the data collected by the CFNPP survey would have been misleading, given the omissions in the survey and the likelihood of bias in the sample. However, the data presented in the national accounts are not internally consistent, and relying exclusively on these data for the construction of the SAM would result in significant and possibly irreconcilable imbalances between rows and columns. We have attempted a synthesis of data from disparate and often conflicting sources. The methods and sources used in the construction of each account are discussed in greater detail in the following sections.

¹ The correlation coefficients of the overall age distribution of the CFNPP survey population and the 1983 census are .98 for the urban sample and .96 for the rural sample, with the greatest difference in the younger age groups.

4. THE SAM FOR THE GAMBIA

A SAM is based on the accounting principle of double entry bookkeeping: every row account has an equivalent column account. The data for each account are presented in a matrix rather than in two separate columns. The receipts to accounts are read along the rows, and outlays or expenditures are read down the columns. Tables 2 and 3 present the SAM for The Gambia. Table 2 is an aggregate table and contains values of the aggregate variables identified in Table 1. Table 3 shows the disaggregated accounts. The data entries in Table 2 correspond to the totals of the individual accounts in Table 3. A more disaggregated version of the SAM is not provided here, but is available from the authors.

The row and column accounts in Tables 2 and 3 are based on economic accounting identities. For instance, the total cost of production in columns 1 to 13 must equal total output; total factor income received in columns 14 to 24 and columns 31 to 34 equals the value-added for the economy; the institutions' (households, enterprises, and government) expenditures in columns 25 to 30 must equal their total income; total investment in columns 31 to 34 must equal total savings; investments in financial assets in row 35 equals the loans available to institutions in column 35; imports in row 36 must equal inflows of foreign exchange in column 36; and foreign saving in column 37 equals inflows of foreign capital in row 37.

The production accounts shown in Tables 2 and 3 are the input-output portion of the SAM. These accounts contain more than simply the value-added by each activity: because they try to capture all the linkages between production activities, they also include purchases of intermediate inputs and transfer payments. This results in some unavoidable double counting: goods and services produced by one account and purchased by another as intermediate inputs are recorded twice in the matrix. As a consequence, the input-output table overestimates the value of production. The sum of these accounts is (along the row) the value of total output and (down the column) total production cost. The value of gross domestic product (GDP), however, is exclusively the sum of the value-added from each activity.

The estimates of value-added from factor incomes obtained in the SAM are compared with the estimates of national product and income for The Gambia in Appendix Table A.1. Our estimates of value-added are not necessarily consistent with those in the national accounts. The national accounts estimates for 1988/89 and 1989/90 are preliminary and subject to change. Where large, unexplained differences occur between the national accounts data from 1987/88 and 1989/90, our estimates approximate the average from the national accounts between the two periods. For some production sectors, our estimates of factor income differ from the national accounts because official labor statistics and/or our expenditure

Table 2 - The Gambia: Aggregate SAM, 1989/90

	Production Activities 1-13	Factors 14-24	Institutions 25-30	Capital 31-34	Financial 35	ROW Current 36	ROW Capital 37	Total 38
Million Dalasis								
Production activities 1-13	1,042.7		1,720.8	253.6		1,207.9		4,225.0
Factors 14-24	1,807.4			14.9				1,822.3
Institutions 25-30	281.0	1,822.3	213.4	39.0	29.3	50.0		2,435.0
Capital 31-34			282.9				157.1	440.0
Financial account 35				29.3				29.3
ROW current 36	1,093.7		218.0	103.2				1,414.9
ROW capital 37						157.1		157.1
Total 38	4,225.0	1,822.3	2,435.0	440.0	29.3	1,414.9	157.1	10,523.6

Source: CFNPP Gambia SAM.

Table 3 - The Gambia: Disaggregated SAM

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	Subtotal
Groundnuts	[1]	29.9	-	-	72.5	-	-	-	-	3.1	-	-	-	-	105.5
Other agriculture	[2]	-	27.6	-	-	-	-	-	-	15.5	-	-	-	-	43.1
Livestock/forestry/fishing	[3]	-	-	-	28.5	-	0.3	8.9	-	24.5	-	-	-	-	62.2
Agric. marketing/services	[4]	3.7	0.4	-	-	81.5	0.1	-	-	-	-	-	-	-	85.7
Groundnut processing	[5]	-	-	0.3	-	-	-	-	-	15.8	15.0	-	-	-	31.1
Manufacture and industry	[6]	7.4	2.7	8.8	0.1	0.0	8.3	10.6	10.7	-	22.3	-	21.1	6.3	98.2
Construction	[7]	-	-	-	0.0	-	-	-	0.2	-	-	-	0.1	0.3	0.6
Transport, comm., and utils.	[8]	-	-	3.0	1.2	6.6	12.1	5.1	6.8	3.4	29.3	54.8	44.3	6.5	173.0
Domestic food trade	[9]	-	-	-	-	-	-	-	-	-	-	-	-	1.3	1.3
Other domestic trade	[10]	-	-	14.7	2.6	2.9	103.2	9.6	100.1	1.0	9.0	-	104.3	56.4	403.7
Re-export trade	[11]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Private services	[12]	-	-	-	0.4	0.9	9.5	5.0	4.4	0.7	9.2	-	4.6	3.7	38.3
Government services	[13]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal		41.0	30.7	26.7	105.2	91.9	133.6	39.2	122.2	63.9	84.8	54.8	174.4	74.5	1,042.7
Rural self-empl. agric.	[14]	152.6	216.7	123.4	-	-	-	-	-	-	-	-	-	-	492.7
Rural unskilled labor	[15]	3.0	2.7	-	1.7	-	0.3	-	2.9	-	-	-	-	-	10.9
Rural skilled labor	[16]	-	-	-	-	-	-	2.1	-	-	-	-	-	0.3	8.9
Rural self-empl. nonagric.	[17]	-	-	-	4.9	-	17.8	10.4	10.6	-	32.4	-	23.3	-	99.3
Urban unskilled labor	[18]	0.1	0.5	0.8	0.9	4.0	9.3	4.5	21.0	-	12.1	-	23.2	15.8	92.2
Urban skilled labor	[19]	-	-	2.3	0.9	5.4	14.6	7.5	26.1	-	8.2	-	43.9	116.0	224.9
Urban self-employed	[20]	2.8	15.2	16.6	5.8	-	35.5	20.7	32.2	45.2	121.8	200.0	23.1	-	518.8
Rural capital (rents)	[21]	-	-	-	-	-	-	-	-	-	-	-	89.2	-	89.2
Urban capital (rents)	[22]	-	-	-	-	-	-	-	-	-	-	-	95.0	-	95.0
Corporate capital	[23]	-	-	6.6	1.2	7.2	8.7	6.0	52.3	-	19.5	-	12.5	0.0	114.2
Interest paid	[24]	-	-	-	0.3	6.3	2.2	22.9	13.6	-	2.8	-	13.0	-	61.1
Subtotal		158.5	235.1	149.8	15.7	27.9	88.5	74.2	158.6	45.2	196.8	200.0	323.2	138.9	1,807.4
Urban wealthiest	[25]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Urban poorest	[26]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rural wealthiest	[27]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rural poorest	[28]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Enterprises	[29]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Government current	[30]	-	-	13.0	0.1	2.3	7.0	6.5	11.5	7.4	126.8	79.2	27.0	-	281.0
Subtotal		0.0	0.0	13.0	0.1	2.3	7.0	6.5	11.5	7.4	126.8	79.2	27.0	0.0	281.0
Urban HH capital	[31]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rural HH capital	[32]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Enterprise capital	[33]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Government capital	[34]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Financial account	[35]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ROW current	[36]	-	-	-	2.8	-	5.2	64.0	-	40.4	525.5	389.2	63.2	3.5	1,093.7
ROW capital	[37]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal		0.0	0.0	0.0	2.8	0.0	5.2	64.0	0.0	40.4	525.5	389.2	63.2	3.5	1,093.7
Total		199.4	265.7	189.5	123.8	117.0	234.3	183.9	292.4	157.0	933.9	723.2	587.9	216.9	4,225.0

Table 3 (continued)

		[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	Subtotal	[25]	[26]
Groundnuts	[1]	-	-	-	-	-	-	-	-	-	-	-	-	1.8	1.6
Other agriculture	[2]	-	-	-	-	-	-	-	-	-	-	-	-	5.6	11.5
Livestock/forestry/fishing	[3]	-	-	-	-	-	-	-	-	-	-	-	-	0.2	0.7
Agric. marketing/services	[4]	-	-	-	-	-	-	-	-	-	-	-	-	16.3	21.7
Groundnut processing	[5]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manufacture and industry	[6]	-	-	-	-	-	-	-	-	-	-	-	-	33.8	26.3
Construction	[7]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transport, comm., and utils.	[8]	-	-	-	-	-	-	-	-	-	-	-	-	31.3	22.6
Domestic food trade	[9]	-	-	-	-	-	-	-	-	-	-	-	-	68.7	87.0
Other domestic trade	[10]	-	-	-	-	-	-	-	-	-	-	-	-	112.0	106.3
Re-export trade	[11]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Private services	[12]	-	-	-	-	-	-	-	-	-	-	-	-	103.3	84.7
Government services	[13]	-	-	-	-	-	-	-	-	-	-	-	-	1.7	1.7
Subtotal		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	374.7	364.1
Rural self-empl. agric.	[14]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rural unskilled labor	[15]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rural skilled labor	[16]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rural self-empl. nonagric.	[17]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Urban unskilled labor	[18]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Urban skilled labour	[19]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Urban self-employed	[20]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rural capital (rents)	[21]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Urban capital (rents)	[22]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Corporate capital	[23]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Interest paid	[24]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Urban wealthiest	[25]	-	-	-	-	44.3	125.2	283.2	-	33.8	-	3.0	489.5	-	-
Urban poorest	[26]	-	-	-	-	50.6	111.9	235.7	-	31.7	-	2.0	431.8	-	-
Rural wealthiest	[27]	205.4	5.0	5.9	49.1	-	-	-	36.3	-	-	0.3	302.1	26.9	14.6
Rural poorest	[28]	287.3	5.9	3.0	50.3	-	-	-	53.0	-	-	1.7	401.1	10.7	5.8
Enterprises	[29]	-	-	-	-	-	-	-	-	29.5	114.2	54.1	197.8	-	-
Government current	[30]	-	-	-	-	-	-	-	-	-	-	-	-	9.8	9.4
Subtotal		492.7	10.9	8.9	99.3	94.9	237.1	518.8	89.2	95.0	114.2	61.1	1,822.3	47.4	29.8
Urban HH capital	[31]	-	-	-	-	-	-	-	-	-	-	-	-	55.7	32.5
Rural HH capital	[32]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Enterprise capital	[33]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Government capital	[34]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	55.7	32.5
Financial account	[35]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ROW current	[36]	-	-	-	-	-	-	-	-	-	-	-	-	26.1	15.2
ROW capital	[37]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	26.1	15.2
Total		492.7	10.9	8.9	99.3	94.9	237.1	518.8	89.2	95.0	114.2	61.1	1,822.3	504.0	441.6

Table 3 (continued)

		[27]	[28]	[29]	[30]	Subtotal	[31]	[32]	[33]	[34]	Subtotal	[35]	[36]	[37]	Subtotal	Total
Groundnuts	[1]	6.6	12.9	-	-	23.0	-	-	-	-	-	-	71.0	-	71.0	199.4
Other agriculture	[2]	72.4	97.2	-	-	186.8	-	-	-	-	-	-	35.9	-	35.9	265.8
Livestock/forestry/fishing	[3]	39.9	55.2	-	-	96.0	-	6.1	-	0.9	7.0	-	24.4	-	24.4	189.5
Agric. marketing/services	[4]	-	-	-	-	38.1	-	-	-	-	-	-	-	-	-	123.8
Groundnut processing	[5]	-	-	-	-	-	-	-	-	-	-	-	85.9	-	85.9	117.0
Manufacture and industry	[6]	19.1	27.3	-	-	106.5	2.4	1.1	3.3	5.7	12.5	-	17.0	-	17.0	234.3
Construction	[7]	-	-	-	-	-	44.8	15.2	43.3	80.0	183.3	-	-	-	-	183.9
Transport, comm., and utils.	[8]	8.0	11.0	-	-	72.8	-	-	-	3.4	3.4	-	43.2	-	43.2	292.4
Domestic food trade	[9]	-	-	-	-	155.6	-	-	-	-	-	-	-	-	-	157.0
Other domestic trade	[10]	128.3	138.0	-	-	484.6	11.7	5.5	-	28.3	45.5	-	-	-	-	933.9
Re-export trade	[11]	-	-	-	-	-	-	-	-	-	-	-	723.2	-	723.2	723.2
Private services	[12]	71.4	80.9	-	-	340.3	-	-	-	1.9	1.9	-	207.3	-	207.3	587.8
Government services	[13]	2.5	2.0	-	209.0	216.9	-	-	-	-	-	-	-	-	-	216.9
Subtotal		348.3	424.6	0.0	209.0	1,720.8	58.9	27.9	46.6	120.2	253.5	0.0	1,207.9	0.0	1,207.9	4,225.0
Rural self-empl. agric.	[14]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	492.7
Rural unskilled labor	[15]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.9
Rural skilled labor	[16]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.9
Rural self-empl. nonagric.	[17]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	99.3
Urban unskilled labor	[18]	-	-	-	-	-	-	-	-	2.7	2.7	-	-	-	-	94.9
Urban skilled labour	[19]	-	-	-	-	-	-	-	-	12.2	12.2	-	-	-	-	237.1
Urban self-employed	[20]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	518.8
Rural capital (rents)	[21]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	89.2
Urban capital (rents)	[22]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	95.0
Corporate capital	[23]	-	-	-	-	-	-	-	-	0.0	0.0	-	-	-	-	114.2
Interest paid	[24]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	61.1
Subtotal		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.9	14.9	0.0	0.0	0.0	0.0	1,822.3
Urban wealthiest	[25]	-	-	5.5	9.0	14.4	-	-	-	-	-	-	-	-	-	504.0
Urban poorest	[26]	-	-	3.7	6.0	9.8	-	-	-	-	-	-	-	-	-	441.6
Rural wealthiest	[27]	-	-	0.4	0.4	42.4	-	-	-	-	-	-	35.8	-	35.8	380.3
Rural poorest	[28]	-	-	2.2	2.2	20.7	-	-	-	-	-	-	14.2	-	14.2	436.0
Enterprises	[29]	-	-	-	63.9	63.9	-	-	-	-	-	29.3	-	-	29.3	291.0
Government current	[30]	-	-	43.0	-	62.2	-	4.4	34.6	-	39.0	-	-	-	-	382.2
Subtotal		0.0	0.0	54.8	81.5	213.4	0.0	4.4	34.6	0.0	39.0	29.3	50.0	0.0	79.3	2,435.0
Urban HH capital	[31]	-	-	-	-	88.2	-	-	-	-	-	-	-	-	-	88.2
Rural HH capital	[32]	32.0	11.4	-	-	43.4	-	-	-	-	-	-	-	-	-	43.4
Enterprise capital	[33]	-	-	129.2	-	129.2	-	-	-	-	-	-	-	-	-	129.2
Government capital	[34]	-	-	-	22.0	22.0	-	-	-	-	-	-	-	157.1	157.1	179.1
Subtotal		32.0	11.4	129.2	22.0	282.9	0.0	0.0	0.0	0.0	-	0.0	0.0	157.1	157.1	440.0
Financial account	[35]	-	-	-	-	-	29.3	-	-	-	29.3	-	-	-	-	29.3
ROW current	[36]	-	-	107.0	69.7	218.0	-	11.1	48.1	44.0	103.2	-	-	-	-	1,414.9
ROW capital	[37]	-	-	-	-	-	-	-	-	-	-	-	157.1	-	157.1	157.1
Subtotal		0.0	0.0	107.0	69.7	218.0	29.3	11.1	48.1	44.0	132.5	0.0	157.1	0.0	157.1	1,624.9
Total		380.3	436.0	291.0	382.2	2,435.0	88.2	43.4	129.2	179.1	440.0	29.3	1,414.9	157.1	1,624.9	10,523.6

data were not consistent with estimates from the national accounts. In those instances we assumed that the national income estimates were not reliable, and we based the production and value-added estimates in the model on other data sources.

The aggregate production activities used in the SAM in Table 3 do not necessarily correspond to the aggregate production activities in the national accounts. The production accounts in the SAM are compiled from more detailed production activities for specific industries created by the authors (not presented here). The categories used to aggregate production activities in the SAM are based on the analysis of labor activity and income obtained by the CFNPP household survey (Jabara et al. 1991). In particular, the production sectors in the Gambia SAM, in contrast to the national accounts, highlight trade and marketing activities such as food trade, distributive trade, and re-export trade. The CFNPP household survey found that a significant percentage of household income is provided by these types of activities. Marketing margins are often treated as aggregate accounts in SAMs; but the Gambia SAM links marketing margins to specific production activities, and links the income generated to households to consumption expenditures.

As with any SAM, discrepancies in account balances arose in the process of assembling the SAM from the different data sources. We did not use any computerized procedure (such as the RAs method) to balance accounts.² Because the unexplained discrepancies encountered were rather small, we adjusted values using estimates based on our knowledge of the Gambian economy.

² The RAs is an algorithm that iteratively adjusts the rows and columns in a matrix until the values converge (see Dervis, de Melo, and Robinson 1982).

5. DISAGGREGATED ACCOUNTS

PRODUCTION ACCOUNTS

The production accounts were assembled from the CFNPP household survey data, from agricultural production and census data supplied by the Department of Planning of the Ministry of Agriculture, from annual financial reports of private enterprises and parastatals operating in The Gambia, from the national accounts, and from the government's budget estimates. Enterprise and consumption information from the CFNPP survey was used to construct the input-output table for production activities in the informal sector, and the financial reports, national accounts, and government budget estimates were used to construct activities in the formal sector.

Before the SAM could be built, it was necessary to devise a method for the appropriate use of the CFNPP survey data in the construction of an economy-wide model for The Gambia. The CFNPP survey contained 407 households: 288 households in urban areas and 119 households in three rural villages in North Bank. Moreover, the survey was designed to examine migration in The Gambia, so the sample was stratified by migration history (see Jabara et al. 1991). The stratified samples were weighted proportionally to construct national estimates of incomes and expenditures.

The CFNPP sample was divided into urban and rural groups. Based upon the analysis presented in Jabara et al., it was decided that the estimates of per capita consumption and expenditure could serve as the basis for the urban and rural household consumption figures in the Gambia SAM. More complicated, however, was the use of survey data on household enterprises to calculate informal sector production and income for the urban and rural populations in The Gambia. The method chosen depended partly on the data itself. If the distribution of employment and income in the CFNPP sample resembled that in urban and rural Gambia, then the information obtained *per capita* could simply be multiplied by the population to construct the model of informal production activities for The Gambia as a whole. If, on the other hand, the CFNPP sample was not accurately representative, another method of transformation would have to be applied. For instance, the CFNPP data could be used to estimate input-output relationships on a *per enterprise* basis; these relationships would then have to be multiplied by some other estimate of employment distribution in order to construct national estimates of the distribution of informal production activities.

Based on comparisons of the CFNPP employment data with information contained in the 1983 census, we decided to use the CFNPP employment distribution multiplied by population labor force estimates, to construct production accounts

for agriculture and for the informal sector. The comparisons of the CFNPP urban and rural employment distributions to the distributions in the 1983 census are shown in Tables 4 and 5. In general, the CFNPP employment data approximated the employment figures for some sectors in the census, and provided a more useful picture of current employment for other sectors.

The most notable discrepancies in the urban employment percentages occur in commerce, hotels/restaurants, fishing, and government services (public administration, health, and education) (Table 4). The higher percentages of employed persons in commerce and hotels/restaurants in the CFNPP data may reflect the expansion that occurred in these sectors under the Government of The Gambia's Economic Recovery Program (ERP) (see Jabara 1990). In addition, the number employed in hotels and restaurants shown in the census data appears to be low when compared to income estimates from the national accounts. This may reflect the seasonal nature of this work, but it may also indicate an underestimation of employment in these activities by the census.

The difference in estimates of public sector employment by the census and CFNPP data probably reflects the stagnation in government expenditures since 1983. Only debt service and transfers to parastatals have increased in real terms since the beginning of the ERP.

The proportion employed in fishing in the CFNPP data is low. Estimates of the value-added in informal fishing were made using household consumption figures as discussed in the sections that follow.

The estimate of employment in agriculture is higher in the CFNPP rural sample than in the census data in the divisions where the CFNPP rural survey took place (Table 5). However, it should be noted that The Gambia census data are presented by administrative divisions, and they do not differentiate between rural and urban areas. The census data include areas that could functionally be classified as primarily urban. The CFNPP survey also found that many rural adults have significant secondary employment in off-farm work activities, and the inclusion of this employment would significantly raise the percentage of adults employed in nonfarm activities (Jabara et al. 1991; Jabara and Lundberg 1991). The employment pattern from the CFNPP survey data is probably more representative of both actual employment and employment opportunities in the rural economy.

National estimates of the value of production for specific activities were derived from the CFNPP household data. The value of production for each activity was calculated including both primary and secondary employment. The percentage of individuals aged 10 and over who reported income from each activity in the CFNPP data set was then estimated. This percentage was applied to the population estimates, aged 10 and over. These estimates, for the rural and urban populations, are shown in Table 6. Finally, the sample value of production was multiplied by our estimates of employment for each activity, assuming that the ratio of production value to employment numbers for the nation as a whole is the same as in the CFNPP data set.

Table 4 – The Gambia: Employment of Urban Population Aged 10 and Over, by Employment Sector

Category	CFNPP Urban Sample		Gambia Census ^a	
	Frequency	Percent	Frequency	Percent
Agriculture	17	2.7	2,853	6.6
Commerce	176	27.5	8,289	19.3
Community, social, personal services	90	14.1	4,847	11.3
Construction	38	6.0	2,034	4.7
Education	18	2.8	2,416	5.6
Electricity, water, gas	17	2.7	774	1.8
Fishing	2	.3	1,053	2.5
Health	11	1.7	1,508	3.5
Hotels, restaurants	58	9.1	1,555	3.6
Manufacturing	62	9.7	3,741	8.7
Public administration	63	9.9	5,329	12.4
Transport, storage	72	11.3	4,293	10.0
Others (not classified)	15	2.3	1,737	4.0
Not stated	0	0.0	2,520	5.6
Total employed	639	39.0	42,949	44.6

Sources: CFNPP household survey; Central Statistics Department (1990).

^a Census statistics are for the Banjul/Kombo St. Mary area, where the CFNPP urban survey took place.

Table 5 – The Gambia: Employment of Rural Population Aged 10 and Over, by Employment Sector

Sector	CFNPP Sample		Gambia Census ^a			
	Frequency	Percent	Kuntaur		Kerewan	
			Frequency	Percent	Frequency	Percent
Agriculture	676	96.3	27,430	92.2	45,206	87.9
Commerce	11	1.6	576	1.9	1,528	3.0
Community, social, personal services	3	0.4	117	0.4	231	0.4
Construction	2	0.3	136	0.5	343	0.7
Education	1	0.1	138	0.5	446	0.9
Electricity, water, gas	1	0.1	12	0.1	47	0.1
Fishing	1	0.1	164	0.5	373	0.7
Health	0	0.0	79	0.3	186	0.4
Hotel, restaurant	1	0.1	27	0.1	60	0.1
Manufacturing	4	0.6	300	1.0	789	1.5
Public admin.	1	0.1	243	0.8	473	0.9
Transport, storage	1	0.1	167	0.5	645	3.4
Others (nec)	0	0.0	73	0.3	238	0.5
Not stated	0	0.0	299	1.0	861	1.7
Total employed	702	69.6	29,763	79.3	51,448	73.0

Sources: CFNPP Household Survey; Central Statistics Department (1990).

^a Census statistics are for the Kerewan and Kuntaur districts, the districts in which the CFNPP rural survey took place.

Table 6 - The Gambia: Labor Force Calculations for the SAM

	Urban	Rural	Total
Total population	247,000 ^a	615,000	862,000
Population < 10	47,671 ^b	215,250 ^c	262,921
Population ≥ 10	199,329	399,750	599,079

Sources: Central Statistics Department (1987); Department of Planning, Ministry of Agriculture (1990).

^a The urban population estimate is a residual after subtracting the Ministry of Agriculture's estimate of the rural population from the 1989/90 population estimate.

^b The estimate of the urban population under 10 years of age is made by applying the percentage of children under 10 in Banjul/Kombo St. Mary in the 1983 census (19.3 percent) to the 1989/90 urban population estimate.

^c The estimate of the rural population aged under 10 is made by applying the percentage of children under 10 in the population excluding Banjul/Kombo St. Mary in the 1983 census (35.0 percent) to the 1989/90 rural population estimate.

Production accounts were constructed for both informal activities (self-employed entrepreneurs and firms employing fewer than five people) and formal activities (registered firms). For this SAM production accounts for individual sectors were formed by combining both informal and formal activities. Thus a change in a sectoral production account results in changes in informal and formal employment and use of inputs in fixed proportions. This latter assumption could be relaxed and the two types of production technologies separated in a more disaggregated version of the Gambia SAM.

The aggregate variables of the 13-sector production (input-output) account of the Gambia SAM are shown in Table 7. The construction of the production activities in the Gambia SAM using the CFNPP household survey data as well as other data sources is discussed in the following sections.

AGRICULTURAL ACCOUNTS

Agricultural production accounts in the Gambia SAM include groundnuts; other crops (cereals, and fruits and vegetables); and livestock, forestry, and fishing. The accounts were constructed as follows:

Groundnuts: Data on household sales of groundnuts, home use, retention for seed, and use of farm inputs were obtained from the CFNPP household survey for 119 rural households and for the few urban households reporting income from groundnuts. These data were used to create an input-output vector of cost relationships for groundnut production. In the factor accounts, agricultural labor was classified as entirely unskilled, and payment of wages was assumed to accrue entirely to unskilled rural workers. The remaining income, after payment of wages and input costs, was assigned to self-employed entrepreneurs in the rural and urban areas.

To obtain an input-output vector for groundnuts for the entire economy, we increased the total groundnut production (and associated inputs costs) proportionally by applying the percentages of the population aged over 10 with groundnut income in the CFNPP sample to the number of individuals aged over 10 in 1989/90, as discussed above. However, when we did this the value of production in the model greatly exceeded estimates of production value for 1989/90 provided by the Ministry of Agriculture. This was not unexpected as the data in the CFNPP survey are from the North Bank, where groundnuts are the primary cash crop. Therefore, each cell in the groundnut production column was adjusted by a fixed percentage so that the total groundnut production value in the model equaled the Ministry of Agriculture estimates for the 1989/90 year.

Groundnut use includes retention for seed, sales to the groundnut marketing board, sales to the urban food trade, urban and rural final consumption, and unofficial cross-border sales. Rural consumption includes both consumption of own-produced groundnuts as well as purchases; these were combined under the assumption that rural purchases involved no trade margin. Urban final consumption of groundnuts includes only amounts reported as own-consumption.

Table 7 – The Gambia: Aggregate Variables of the 13-Sector Input-Output Account of the SAM

	Ground-nuts	Other Crops	Live-stock/For/Fish	Agric. Market/Service	Ground-nut Process	Manufacturing	Construction	Trans/Comm/Utils	Food Trade	Other Trade	Re-export Trade	Private Services	Government
Million Dalasis													
Column variables													
Intermediate consumption	41.0	30.7	26.8	105.3	91.9	133.5	39.2	122.2	64.0	84.8	54.8	174.4	74.5
Value-added	158.5	235.1	149.7	15.7	22.9	88.4	74.1	158.7	45.2	196.8	200.0	323.2	138.9
Indirect taxes	0.0	0.0	13.0	0.1	2.3	7.0	6.5	11.5	7.4	126.8	79.2	27.0	0.0
Imports	0.0	0.0	0.0	2.8	0.0	5.2	64.0	0.0	40.4	525.5	389.2	63.2	3.5
Total cost	199.4	265.8	189.5	123.8	117.0	234.3	183.5	292.4	157.0	933.9	723.2	587.9	216.9
Row variables													
Intermediate uses	105.5	43.1	62.0	85.7	31.1	98.3	0.6	179.1	1.3	403.8	0.0	38.4	0.0
Household consumption	22.9	186.7	96.0	38.0	0.0	106.5	0.0	72.7	155.7	484.6	0.0	340.3	7.9
Government consumption	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	209.0
Capital	0.0	0.0	7.0	0.0	0.0	12.5	183.3	3.4	0.0	45.5	0.0	1.9	0.0
Exports	71.0	35.9	24.4	0.0	85.9	17.0	0.0	43.2	0.0	0.0	723.2	207.3	0.0
Total uses	199.4	265.8	189.5	123.8	117.0	234.3	183.5	292.4	157.0	933.9	723.2	587.9	216.9

Source: The Gambia SAM.

Urban households also purchase groundnuts through the food trade in the SAM, after a margin has been added. CFNPP household consumption data were used to estimate the amounts of rural and urban consumption, and sales to food trade. Sales to the groundnut marketing board are equal to the amount that the board reportedly purchased in 1989/90. Cross-border sales (exports) are calculated as a residual and account for 35.7 percent of the total value of groundnut production in the SAM. Jabara (1990) shows that this is consistent with previous estimates of cross-border trade, which vary from 50 to 85 percent of production in the border areas and 25 percent of production in nonborder areas.

Other Crops: These include cereals (millet, sorghum, maize, and rice), and fruits and vegetables. Individual production accounts for cereals and fruits and vegetables were constructed in the same manner as for groundnuts. The cereal account was adjusted downward by a small percentage so that the value of cereals production in the SAM would equal the estimated value from the Ministry of Agriculture. No adjustment was made to the fruits and vegetables account, because no reliable data on production currently exist in The Gambia. The two accounts are aggregated in this condensed version of the SAM.

Rural consumption accounts for the largest use of other crops in the Gambia SAM (63.8 percent of production). Exports account for 13.5 percent of the value of production and include both official exports of fruits and vegetables as well as a residual for unofficial cross-border trade.

Livestock/Forestry/Fishing: This account includes the value of production from cattle and poultry raising, wood for use as firewood or in construction and the production of handicrafts, and fishing. Production value for firewood does not include the value of wood gathered for own consumption. In addition, the estimated value of livestock investment (change in stocks) is much lower than reported in the national accounts, although it should be noted that the national accounts data are not very reliable. The lower level of livestock investment does not pose a problem in the Gambia SAM, because livestock is considered an unproductive investment in the model and is only included as an accounting item. Meat sales, on the other hand, create income that is used for consumption and purchases of investment goods; thus they result in additional income multiplier effects. The value-added from livestock production is lower in the SAM than in the national accounts because of lower estimated value of livestock investment.

The data on household consumption of meat, firewood, and fish in the CFNPP survey were generally deemed more reliable than the distribution of persons employed in these types of production activities. Therefore, the value of production for these activities for the entire country was calculated from per capita estimates of consumption from the CFNPP household survey (Jabara et al. 1991). Production estimated in this manner reflects the value of production in the informal sector, which is the largest supplier of these goods to households. Input-output vectors for these activities were created from the most reliable income and expenditure statements reported by persons employed in these activities in the CFNPP data. The exception to this method is fishing, since fish are also exported by formal private enterprises. The value of fish exports

reported in the national accounts was added to the production value of informal sector fishing activities to arrive at the total value of fish production.

About half of the value of production from these activities is consumed by rural producers themselves. The remainder of fish production is sold to the food trade, and the balance of meat and wood production to agricultural marketing. Through these marketing accounts they are resold to urban consumers, to foreigners, and as inputs to other production activities.

Agricultural Marketing Services: This account is an aggregation of production from groundnut, meat, fertilizer, and wood marketing. In 1989/90, groundnut buying was liberalized and farmers could sell their produce directly to the Gambia Produce Marketing Board (GPMB) depots or indirectly through the Gambia Cooperative Union (GCU) or private dealers. About 50 percent of the sales to the GPMB was handled by the GCU, while 25 percent was channeled through traders and 25 percent was sold directly to the GPMB by farmers. The groundnut marketing vector in the SAM is the aggregation of the three different types of marketing activities.

An input-output table for GCU activity was constructed from unpublished GCU financial reports. An input-output table for trader activity was constructed with the assumption that groundnut traders have lower overhead expenses than the GCU, and that the remaining marketing margin is earned by traders as entrepreneurial income. Agricultural producers who sell to the GPMB earn the entire marketing margin minus transport expenses. All groundnuts marketed to the GCU are sold through the groundnut marketing account in the SAM.

The fertilizer marketing account was constructed in a similar manner. In 1989/90 approximately 25 percent of fertilizer sales to farmers was made by private traders, and the rest was made by the GCU. Fertilizer marketing includes value-added and production from GCU sales (obtained from GCU financial reports) and from private trade activity.

Wood and meat are sold by informal traders to urban consumers. The value of production arising from these sales is presented *sui generis*, because the marketing of wood and meat is not handled by the food trade and other distributive trades. The value of production in the aggregate agricultural marketing account includes the margin earned from these sales. Factor income earned from wood and meat marketing accrues to urban entrepreneurs.

Groundnut Processing: This activity includes groundnut shelling and milling. The input-output relationships were constructed from unpublished financial reports of the GPMB. Groundnut products are exported and sold to the urban food trade and to the distributive trade. The latter in turn sells groundnut oil to both rural and urban households.

Manufacturing: Manufacturing is conducted by enterprises in both the formal and informal sectors. Informal manufacturing in the Gambia SAM includes tailoring, handicrafts, blacksmithing, welding, auto repair, and baking.

Information on input use and entrepreneurial income for these activities was obtained from the CFNPP household data set. With the exception of baking, the economy-wide estimates of the value of production were made by applying the CFNPP employment distribution to the 1989/90 population estimates. For baking, the value of production was estimated from consumption data for wheat products and bread in the CFNPP household survey (Jabara et al. 1991). We also added some sales to the hotel/restaurant sector based upon accepted consumption standards in Western countries, and on the number of tourists visiting The Gambia each year. It was assumed that the informal sector supplies 20 percent of the value of bakery production in the urban areas and all of the bakery production in the rural areas of The Gambia.

Formal manufacturing in the SAM includes soft drinks and brewing, baking, furniture making, chemicals, and metalwork. Data to construct an input-output table for this sector were difficult to obtain because some private industries do not want to release financial statements or reveal their manufacturing processes. The input-output table and value of production for soft drinks and brewing was constructed from financial reports of the Banjul Breweries. The input-output table for formal baking activity was constructed from the input-output table of the informal sector, but with higher overhead and wage payments. The remainder of the formal manufacturing sector was constructed from estimates from the national accounts and estimates of manufacturing employment, under the assumption that the input-output relationships for these activities were similar to those of the breweries. Our estimate of value-added from formal manufacturing is lower than the estimate in the national accounts, but it approximates the estimates of value-added obtained from the Central Statistics Department's March 1991 survey of manufacturing establishments (CSD 1991b).

Manufacturing sales are primarily made to other production accounts (intermediate sales), to households, and to the hotels and restaurants in The Gambia. Household consumption estimates were made using the CFNPP household data.

Construction: The CFNPP household survey respondents included numerous masons and carpenters. Most of these are employed in the informal sector, that is, they are self-employed or employed for wages by firms with fewer than five people, and a few were employed in the formal sector.

Production value from construction is largely used for investment, in the form of housing and housing repairs for households, and in public works for government and enterprises. We created the input-output account for that sector by using the income and expenses of individuals working in the construction sector as reported in the CFNPP survey. This activity was divided into three sectors according to scale and structure of production, and so three different production accounts were created: one each for formal sector firms, firms with fewer than five people, and for the self-employed. The formal sector accounts have a higher overhead than the other two, and value-added to labor is paid in the form of wages and to capital in the form of enterprise surplus. Production accounts for firms with fewer than five employees have lower overhead than the

larger firms, pay wages to labor, and surplus in the form of entrepreneurial income. Production accounts for the self-employed have very low overhead (rent and electricity only) and pay surplus in the form of entrepreneurial income.

The remaining production accounts represent the value from services in The Gambia. These include transport, ferry, and taxi services; water, electricity, and gas; telephone and telegraph; various trade activities; and private services.

Transport, Communication, and Utilities: Transport services in The Gambia are provided by both formal and informal sector enterprises. The formal sector portion of the transport account includes production value from two parastatals, the Gambia Ports Authority (GPA) and the Gambia Public Transport Corporation (GPTC). The input-output tables for these enterprises were constructed from their financial reports. Added to this was the production value of informal sector transport activities.

The CFNPP household survey population included respondents who made their living by driving taxis owned by others and by driving their own taxis. Following the method used to build the construction sector accounts, the accounts for informal taxi and other transport operators were assembled using CFNPP data on income and expenses reported by these respondents. Three types of accounts were constructed: for the self-employed who drive their own taxis, for those who drive taxis owned by others, and for those employed by large firms (excluding the GPA and GPTC) such as Amdalaye Transport Services or Alhuri Transport Services. The technological differences among these activities are similar to those of the construction industry.

Transport services are used by households and by other production accounts in the Gambia SAM. A transport residual was included as an export in order to account for the use of taxi services by tourists.

Communication and utilities include the production value from the Gambia Telecommunications Company Ltd. (GAMTEL) and the Gambia Utilities Corporation (GUC). The input-output relationships for those two parastatal enterprises were assembled using published and unpublished financial reports.

Food Trade: This trade activity accounts for the production value of the informal sector sale of food products (groundnut oil, rice, fruits and vegetables, and prepared foods) by women in the urban areas. It also includes the production value from sales of fish, which is sold by both men and women. The output from this account is sold only in urban areas. Rural consumers are assumed to purchase food directly from the producers at the farm-gate price. The input-output accounts for food trade were derived from the CFNPP survey data, which contained a large number of respondents engaged in these activities.

Other Distributive Trade: This trade activity accounts for the production value from sales of other goods in The Gambia. These goods are largely imported, and include items such as cloth and textiles, footwear, batteries, matches, soap, sugar, rice, groundnut oil, machinery, machine parts, and equipment. The

production technology involved ranges from small stalls in the market to large, modern retail outlets. Sales are made to both urban and rural consumers.

Consumption, income, and enterprise data from the CFNPP survey, Gambia trade statistics, and the financial report of the Gambia National Trading Corporation (GNTC) were used to construct this account. Consumption of distributive trade items was calculated using per capita estimates obtained by the CFNPP survey (Jabara et al. 1991). These estimates already incorporated the trade margin and indirect taxes. Consumption of some items was omitted by the survey; this deficiency was overcome by including estimates of The Gambia's imports. The CFNPP survey data were then used to create an input-output table for the distributive trade.

The value obtained from these calculations was determined to be the product of the informal distributive trade. The estimate of informal sector distribution was about 40 percent lower than the consumption estimates obtained from the CFNPP survey. The residual 40 percent was attributed to the formal sector and distributed according to input-output relationships assembled using the GNTC financial accounts.

Re-export Trade: The production value of this sector involves the resale of imported goods to other countries by private businesses within The Gambia. Officials at the Ministry of Finance and Economic Affairs (MFEA) in The Gambia provided estimates of the percentage of imports that are thought to enter the re-export trade. For those cases where the estimates of household consumption provided by the CFNPP household survey were either unavailable or unreliable, the MFEA data were used to obtain the value of imports that are re-exported. In the other cases, the value of re-exports was calculated as the difference between the value of imports consumed as found in the CFNPP survey and the value of total imports for each good. This procedure resulted in estimates of the percentage of imports for re-export that differ from the MFEA estimates for some commodities (see Table 8).

Once the value of imports for re-export was obtained, the input-output relationships were calculated by adding appropriate costs for duties, port charges, and transport. Individuals engaged in this trade receive entrepreneurial income equal to about 30 percent of the total production value of this sector.

Private Services: This broad account includes the production value from hotels and restaurants, insurance and banking, private education and health services, religious education and services of marabouts, maid services, hair dressing, laundry services, the imputed value of owner-occupied housing, rental services, and other services. The production accounts for hotels and restaurants, and for the banking and insurance sectors, were constructed from the national accounts, labor survey statistics, and import data. The output from the hotels and restaurant sector is largely exported, although some allowance is made for domestic consumption in restaurants. The assumption is that the vast majority of hotel and restaurant services are paid for by foreigners in foreign

Table 8 - The Gambia: Shares of Imports for Domestic Consumption and for Re-export in the SAM

Commodity	Total SAM Imports (1 Million Dalasis)	Percent for Re-export The Gambia SAM	Percent for Re-export MFEA/Central Bank
Green tea	55.0	92.7	90.0
Dairy	35.0	5.8	50.0
Rice	182.5	54.5	50.0
Sugar	120.0	57.7	85.0
Textiles	100.0	69.3	93.0
Tomato paste	20.0	20.4	78.0
Tobacco	29.0	50.6	20.0
Wheat flour	28.0	82.8	22.0

Sources: The Gambia SAM; Central Statistics Department (1991c).

currency. The private services category therefore produces a combination of foreign exchange earning and domestic (i.e., "tradable" and "nontradable") goods and services. For some simulations it would be necessary to divide this category to distinguish between the two.

The CFNPP survey data provided information on the consumption of other private services. Jabara et al. (1991) calculated the imputed value of owner-occupied rents for rural and urban households, as well as the value of cash rents paid and received by urban households in the CFNPP sample. These data, applied to the entire population, were used to estimate the value of housing services. Rental payments by enterprises were obtained from enterprise financial reports.

Detailed per capita expenditure data for health and education services, multiplied by the relevant population estimates, were used to estimate the demand for private health and education services. Payments for religious education and for nontechnical secondary and other higher education were included as payments to the private sector. Payments by households for health care were disaggregated in the household survey as payments for services, medication, and transportation. The share of total health care services supplied by the private sector was calculated as the sum of household expenditures on services and medication, minus the revenue received by the government for the provision of health care (as reported in the GOTG's expenditure estimates). The CFNPP survey population included a self-employed pharmacist, whose business income and expenditures, combined with the household expenditure on medication, provided a base for the determination of input-output relationships for the pharmaceutical industry.

The CFNPP survey also contained numerous respondents who were employed as maids, laundresses, hair dressers, and providers of other informal sector services. The income and expenditure data of these respondents from the CFNPP survey were used to estimate the input-output accounts for these activities.

Jabara et al. (1991) found that "social expenditures" constituted about 14 percent of urban household expenditures in the CFNPP survey and about 6 percent of rural expenditures. These expenditures included gifts and loans to other households, as well as expenditures on ceremonies, such as marriages and naming ceremonies. This category was divided into two parts: payments for ceremonies, which are included in the production value of private services; and payments to other households, which are treated as income transfers and are included in the household expenditure matrix.

Government Services: The input-output account for this sector was constructed from the GOTG's expenditure estimates for 1989/90 (Republic of The Gambia 1989). These data provide detailed information on use of materials and supplies, as well as wage and salary payments that are used in the provision of government services.

FACTOR ACCOUNTS

The factor accounts summarize the value-added from the production activities in the Gambia SAM. These accounts play an important role in the analysis of income distribution, linking the production side of the economy to households that own the factors of production.

The distribution of sectoral value-added in the Gambia SAM is shown in Table 9. The Gambia SAM contains ten factor categories, differentiated by type and area. Rural factors of production are agricultural self-employment, nonagricultural self-employment, skilled labor, and unskilled labor. Urban factor categories include self-employment, and skilled and unskilled labor. In addition, urban factor accounts receive surplus or profit from corporate production activities and interest paid. The urban and rural housing accounts receive rental income as well as the imputed value of rents from own housing.

The factor accounts in the Gambia SAM represent the returns to labor and capital from production activities. Land is not included in the capital accounts: there are no returns to agricultural land in the SAM. This is partly because none of the rural households in the CFNPP survey report paying rent for agricultural land. In addition, the vast majority of farming households in The Gambia cultivate their own land, and all farming households have access to communal land. Production is undertaken by *dabadas*, or work groups, which are not necessarily household specific, and the members of these groups share the output.

Strictly speaking, the returns to land ownership and to access to land are subsumed within the income accruing to self-employed agriculturalists. In theory, it is possible to separate returns to land from returns to other types of capital. However, it is not possible, without specific data on the pattern of land cultivation, to make explicit the share of value-added for which land is responsible.

Factor accounts for capital include corporate surplus, interest paid, and housing. Imputed rents included in the SAM were taken from Jabara et al. (1991), which also describes the method used in the calculation of both rural and urban imputed rents. Again, strictly speaking, both the urban and rural self-employment categories contain a return to entrepreneurial capital. In theory, it is possible to isolate these returns by subtracting the wages a self-employed entrepreneur would receive if she or he were employed in her or his occupation for a wage, and then computing the return to entrepreneurial capital as the difference between actual earnings and the calculated opportunity wage (Ruggles and Ruggles 1970).

Gross corporate surplus and entrepreneurial income accounts are presented, that is, they also include depreciation charges. Depreciation was not specified in the factor account because no information was available on the capital stock of informal sector businesses. The CFNPP household survey did not ask respondents to list enterprise assets or estimate enterprise depreciation charges.

Table 9 – The Gambia: Distribution of Sectoral Value-Added to Factors in the SAM by Category

	Rural Self-empl. Agric.	Rural Unskilled	Rural Skilled	Rural Self-empl. Nonagric.	Urban Unskilled	Urban Skilled	Urban Self-empl.	Housing	Corporate and Interest	Total
Million Dalasis										
Groundnuts	152.6	3.0	0.0	0.0	0.0	0.0	2.8	0.0	0.0	158.5
Other crops	216.7	2.7	0.0	0.0	0.5	0.0	15.2	0.0	0.0	235.1
Livestock/forestry/ fishing	123.4	0.0	0.0	0.0	0.8	2.3	16.6	0.0	6.6	149.7
Agr. marketing services	0.0	1.7	0.0	4.9	0.9	0.9	5.8	0.0	1.5	15.7
Groundnut processing	0.0	0.0	0.0	0.0	4.0	5.4	0.0	0.0	13.5	22.9
Manufacturing	0.0	0.3	0.0	17.8	9.3	14.6	35.5	0.0	10.9	88.4
Construction	0.0	0.0	2.1	2.4	4.5	7.5	20.7	0.0	28.9	74.1
Transport/communi- cation/utilities	0.0	2.9	0.0	10.6	21.0	26.1	32.2	0.0	65.9	158.7
Food trade	0.0	0.0	0.0	0.0	0.0	0.0	45.2	0.0	0.0	45.2
Other domestic trade	0.0	0.0	0.0	32.4	12.1	8.2	121.8	0.0	22.3	196.8
Re-export trade	0.0	0.0	0.0	0.0	0.0	0.0	200.0	0.0	0.0	200.0
Private services	0.0	0.0	0.0	23.3	23.2	43.9	23.1	184.2	25.5	323.2
Government services	0.0	0.3	6.8	0.0	15.8	116.0	0.0	0.0	0.0	138.9
Total	492.7	10.9	8.9	99.3	92.2	224.9	518.8	184.2	175.3	1,807.4

Source: The Gambia SAM.

The factor accounts were generated from the production accounts, and using the CFNPP survey and financial enterprise reports. The returns to self-employment, as well as wages for unskilled and skilled workers, including wage or salary, bonuses, tips, and income in kind, were taken from the CFNPP survey. The skilled worker category includes clerical, administrative, and managerial workers as well as skilled manual laborers. In general the factor accounts are structured so that income from the same activity is higher if the worker is self-employed. For instance, a person who drives as well as owns a taxi earns more than a person who drives someone else's taxi.

Formal enterprise financial reports usually reported their total wage bills and number of workers, but they did not report the skill levels and salaries of particular workers. Labor surveys that record the skill categories of workers employed by particular industries were used to determine the formal sector wage structure (Central Statistics Department 1989). We used these percentages, and the wage and salary data from the CFNPP survey, to separate the total wage bills presented in the enterprise reports into skilled and unskilled categories.

As shown in Table 9, the two most important categories of factor income generated in the Gambia SAM are urban self-employment and rural self-employment in agricultural activities. Rural self-employment in nonagricultural activities accounts for approximately one-fifth of total rural factor incomes. Wage employment is relatively rare in the rural areas. Factor income from wage employment in urban areas is less than two-thirds of that generated by self-employment, and less than 40 percent of total urban household income. This indicates that Gambian labor statistics, which survey only the formal sector, overlook an important portion of the urban economy.

One advantage of the SAM constructed here is the disaggregation of the factor accounts related to labor and skill. This is one consequence of having built the SAM from the "bottom up." The CFNPP household surveys contained detailed and precise information on income and on income sources for all household members, many of whom have multiple income sources.

HOUSEHOLD ACCOUNTS

The household accounts depict the demand side of the economy in the Gambia SAM. Households receive income from the factor accounts, as well as from other sources, and they use this income to either consume goods and services or to save. Savings accrue to the capital account, while consumption translates into demand for goods produced in the economy.

Household Groups

The Gambia SAM includes four household groups, divided according to area of residence and income class: urban wealthy, urban poor, rural wealthy, and rural poor. This delineation is designed to capture disparities between rural and urban incomes and disparities in intraurban and intrarural incomes in The Gambia.

No effort was made to delineate the household groups by occupation, such as by groundnut farmers or informal entrepreneurs. Because most households in the CFNPP survey were found to obtain income from a wide variety of occupations and sources, an occupational classification would have been difficult and arbitrary.

Information on household income and expenditure distribution in The Gambia was obtained from the CFNPP survey. Jabara et al. (1991) analyzed both expenditure and income shares for household groups in the CFNPP data set. That paper used per capita household expenditure to estimate "permanent" household income and classified both urban and rural CFNPP households according to expenditure groups. For the SAM the 30 percent of CFNPP households with the highest per capita expenditures were classified as urban richest and the 70 percent with the lowest per capita expenditures were classified as urban poorest; similarly, the 30 percent of CFNPP rural households with the highest per capita expenditures were classified as rural richest and the 70 percent with the lowest per capita expenditure were classified as rural poorest. The income and consumption patterns of these four groups were then taken from the CFNPP data set and applied to the urban and rural household incomes and expenditures in the Gambia SAM.

Household Expenditures and Incomes

Households are the main consuming agents of final goods in the Gambia SAM. The expenditure matrix depicts total household demand, which includes both imported and domestically produced goods classified by production activity, as well as transfers to other households within The Gambia and transfers abroad. Imports for final consumption in the Gambia SAM are channelled through the "food trade" and "other domestic trade" activities. Average household expenditures and expenditure shares in the Gambia SAM are shown in Table 10. These data were obtained by applying expenditure shares calculated in Jabara et al. (1991) from the CFNPP household data to the aggregate urban and rural income data obtained from the Gambia SAM. However, expenditure shares in the Gambia SAM are expressed in terms of marketing channels, rather than by type of good as presented in Jabara et al. (1991). For instance, consumption of goods from "other domestic trade" includes food as well as nonfood commodities that are marketed through the distributive trade. Consumption of groundnuts, other crops, and livestock, forestry, and fish products (i.e., the first three rows) include only own-consumption and intrarural household sales. The majority of urban consumption of these items is purchased through the distributive trade channels.

Table 10 presents these expenditure shares for the four household classes in The Gambia. As expected, higher-income households in both rural and urban areas spend relatively less on food than lower-income households. Urban households in the Gambia SAM transfer money to both rural Gambian households and abroad. The CFNPP survey found that transfers from urban households make up slightly more than half of all transfers received by rural households, with the remainder coming from relatives or household members abroad.

Table 10 – The Gambia: Average Household Expenditures in Million Dalasis and Expenditure Shares

Production Accounts	Urban Richest		Urban Poorest		Rural Richest		Rural Poorest	
	Value	Percent	Value	Percent	Value	Percent	Value	Percent
Groundnuts	1.8	(0.4)	1.6	(0.4)	6.6	(1.7)	12.9	(3.4)
Other crops	5.6	(1.1)	11.5	(2.6)	72.4	(19.0)	97.2	(22.3)
Livestock/forestry/fishing	0.2	(0.0)	0.7	(0.2)	39.9	(10.5)	55.2	(12.7)
Agricultural marketing services	15.3	(3.2)	21.7	(4.9)	0.0	0.0	0.0	0.0
Groundnut processing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Manufacturing	33.8	(6.7)	26.3	(6.0)	19.1	(5.0)	27.3	(6.3)
Construction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transport/communication/ utilities	31.1	(6.2)	22.6	(5.1)	8.0	(2.1)	11.0	(2.2)
Food trade	68.7	(13.6)	87.0	(19.7)	0.0	0.0	0.0	0.0
Other domestic trade	112.0	(22.2)	106.3	(24.1)	128.3	(33.7)	138.0	(31.6)
Re-export trade	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Private services	103.3	(20.5)	84.7	(19.1)	71.4	(18.8)	80.9	(18.5)
Government services	1.7	(0.3)	1.7	(0.4)	2.5	(0.6)	2.0	(0.4)
Transfers (net)								
Households	37.6	(5.3)	20.4	(4.6)	0.0	0.0	0.0	0.0
Rest of world	26.1	(5.2)	15.2	(3.4)	0.0	0.0	0.0	0.0
Government (income tax)	9.8	(1.9)	9.4	(2.1)	0.0	0.0	0.0	0.0
Savings	55.7	(11.0)	32.5	(7.4)	32.0	(8.4)	11.4	(2.6)
Total	504.0	100.0	441.8	100.0	380.3	100.0	436.0	100.0

Source: The Gambia SAM.

Urban households also transfer money abroad. These transfers were estimated by combining household savings rates estimated by Jabara et al. (1991) with information on unrequited transfers and net interest paid abroad from the national accounts. These household transfers may reflect business expenses of household enterprises engaged in re-export or distributive trades. The shares of income taxes paid by the two groups of urban households were estimated according to the share of formal sector income in the total income of the richest and poorest urban income groups. Rural households in the Gambia SAM do not pay income taxes.

Distribution of Factor and Other Income to Households

The distribution of factor and other income to households in the Gambia SAM is shown in Table 11. The mapping of incomes to household groups is based on factor and household income relationships computed from the CFNPP household survey (see Jabara et al. 1991). Interest payments to households are based on interest receipts per capita by household groups as reported in the CFNPP data. The interest payments calculated from the survey data were smaller than the aggregate interest payments estimated in the Gambia SAM. The remaining interest payments were thus distributed to corporate enterprises in the SAM. Housing income for rural households includes only imputed rents. For urban households, housing income includes imputed rents as well as cash rents paid by households. All other rents were distributed to corporate enterprises.

Rural households receive transfers from urban households. Income from household transfers was distributed to rural households according to relationships estimated from the CFNPP survey data. As shown, wealthy rural households receive a much larger share of their income from transfers than poorer rural households. Wealthier households also receive relatively more from relatives living abroad. Income received by households from enterprises and government largely consists of pensions; these were distributed among households according to receipts of pension income reported by CFNPP survey households.

As shown in Table 11 (and reported by Jabara et al. 1991), the wealthiest 30 percent of households in the urban areas receive more income from self-employment and skilled labor than poorer households. The poorer 70 percent of urban households receive more income from unskilled labor. The distribution of skilled and unskilled income is similar in the rural areas. The rural poor receive more income from agricultural self-employment than the rural wealthy, and the returns to nonagricultural self-employment are split evenly between the two groups. Obviously these are gross values reported for entire income classes; on a per capita basis, the wealthiest 30 percent of both urban and rural households receive more income from all sources than the poorest 70 percent. The richest 30 percent of urban households, which constitute less than 10 percent of the total population, receive 28.6 percent of all income in the Gambia SAM.

Table 11 – The Gambia: Distribution of Factor (value-added) and Other Income to Household Groups

	[1] Urban Richest	[2] Urban Poorest	[3] Rural Richest	[4] Rural Poorest	Total
	Million Dalasis				
Factor income					
Unskilled labor	44.3	50.6	5.0	5.9	105.8
Skilled labor	125.2	111.9	5.9	3.0	246.0
Self-employed labor	283.2	235.7	49.1	50.3	618.3
Rural self-employed agr.	0.0	0.0	205.4	287.3	492.7
Interest	3.0	2.0	0.3	1.7	7.0
Housing	33.8	31.7	36.3	53.0	154.8
Subtotal	489.5	431.9	302.0	401.2	1,624.6
Other income					
Transfers (net) to rural households	0.0	0.0	41.5	16.5	58.0
Transfers from abroad (net)	0.0	0.0	35.8	14.2	50.0
Income from enterprises	5.5	3.7	0.4	2.2	11.8
Income from government	9.0	6.0	0.4	2.2	17.6
Total	504.0	441.6	380.3	436.0	1,761.9
Share of total (percent)	28.6	25.1	21.6	24.7	100.0

Source: The Gambia SAM.

6. AGGREGATE ACCOUNTS

CAPITAL ACCOUNTS

The capital account rows represent the various sources of savings, and the capital account columns represent investment expenditure in the SAM. Investment is assumed to be strictly equal to savings. As shown in Table 12, there are five components of savings in the Gambian economy: urban household savings, rural household savings, corporate enterprise savings, and government savings (domestic and foreign). As mentioned earlier, both corporate savings and household savings are gross in that they include depreciation allowances for formal and informal sector businesses and agricultural production.

Jabara et al. (1991) calculated household savings from the CFNPP survey households as the difference between incomes and expenditures. Savings rates obtained from the CFNPP survey data were used to construct the household expenditure matrix and household savings for the Gambia SAM. Savings of corporate enterprises are equal to corporate surplus and interest (from the factor accounts) minus payments to households, payments to government (taxes), and transfers abroad. The government's domestic savings are equal to the government's contribution to the development budget, which was set at D 22 million in 1989/90 in consultation with the International Monetary Fund. Foreign savings is equal to D 157.1 million, which was equal to The Gambia's net receipt of foreign development loans and grants in 1989/90. Foreign savings are transferred entirely to the government's capital account.

Investment in the Gambia SAM is assumed to be largely in the form of capital formation. The exception is the estimate of changes in the livestock herd because of a lack of information on changes in stocks for the Gambian economy. Demand for investment from the production accounts is primarily from the construction sector; that is, household demand for housing and housing repairs and government demand for public works. Imports of capital goods are channeled through the distributive trade, although some capital goods are imported directly by users, such as agricultural and fishing equipment by rural households and some capital goods imported directly by government.

The financial account represents investments in the form of monetary assets held by urban households. These assets are then transferred to corporate enterprises in the form of loans. Jabara et al. (1991) found very high savings rates (up to 22 percent of income for the richest 20 percent of households) among

Table 12 – The Gambia: Savings Sources and Investment in the SAM

	Urban Households	Rural Households	Corporate Enterprises	Combined Government (Domestic and Foreign)
Million Dalasis				
Savings sources	88.2	43.4	129.2	179.1
Savings uses				
Production accounts	58.9	27.9	46.6	135.1
Import taxes	0.0	4.4	34.6	0.0
Financial account	29.3	0.0	0.0	0.0
Direct imports	0.0	11.1	48.1	44.0
Total	88.2	43.4	129.2	179.1

Source: The Gambia SAM.

urban Gambian households in the CFNPP survey.³ The financial account was created in order to account for the passage of some of these savings into productive uses. The role of financial accounts in SAMs in general is discussed in detail by Roe (1985). This financial account does not include the entire financial system of The Gambia, which would require a more detailed version of the Gambia SAM.

GOVERNMENT ACCOUNTS

The government accounts are described in rows and columns 30 and 34 of the Gambia SAM (see Table 3). The government current account (row 30) receives current government revenues, which are in the form of indirect taxes on intermediate goods and services, and income taxes paid by households and private enterprises. Indirect taxes were calculated by applying the appropriate import and sales tax rates to the value of the taxable activity (pretax) estimated in the Gambia SAM. With a few exceptions, imported goods are subject to a 10 percent import charge, and sales of goods and certain services are subject to an additional 10 percent sales tax in The Gambia. Expenditures on taxes, licenses for taxi drivers, and market duties paid by urban shopkeepers were estimated from the CFNPP household survey. Information on direct taxes paid was taken from the GOTG expenditure documents (Republic of The Gambia 1989).

As mentioned earlier, it was assumed that only persons employed in the urban formal sector pay household income taxes. These taxes were divided between income classes based upon the share of formal sector income received by each group.

Column 30 depicts government current expenditure, which is divided among current services, transfers to households and enterprises, savings, and debt service. These data were obtained from the government's budget documents. The distribution of government pensions to household groups is based on the distribution of income from pensions reported in the CFNPP survey.

Row 34, government capital (combined government) depicts the savings available to the government from domestic and foreign sources. The government's domestic savings was set in negotiations with the International Monetary Fund (D 22 million). Foreign savings is the amount of the development budget financed by foreign loans and grants. Column 34 represents the government's investment expenditures, which include both purchases of capital goods and the payment of salaries. These data are reported in the government's budget documents.

³ Urban savings rates in the Gambia SAM are lower than those calculated by Jabara et al. (1991), because the CFNPP household survey underestimated some nonfood consumption expenditures. In addition, the SAM treats household repairs as investment, whereas Jabara et al. treat housing repairs as a current expense. If housing repairs were included as current household expenditure in the SAM, then savings (the difference between expenditure and income) would be even lower.

It should be noted that government revenue in the Gambia SAM equals government expenditure. Since the government's revenue is derived from taxes, it can vary endogenously as production and income change. Government expenditure, on the other hand, is fixed exogenously. Thus when the SAM is manipulated to trace the effects of certain policy changes, the domestic savings are calculated as a residual and the D 22 million is allowed to change.

FOREIGN ACCOUNTS

The foreign accounts are included in rows and columns 36 and 37 of the Gambia SAM. The ROW current account records the value of imports used by production activities, debt service payments, and other transfers abroad. These data were estimated in the construction of the input-output and the expenditure matrices of the Gambia SAM. The value of commodity imports in the Gambia SAM is estimated at D 1,197 million, which is below the estimate of The Gambia's 1989/90 imports of D 1,597 million supplied by the MFEA, but equal to the average of estimated imports for the years 1988/89 and 1989/90. The two-year average was considered more representative: the 1989/90 data include large jumps in import values for certain goods that cannot be explained within the current SAM framework and for which no explanation is available from official sources.

Exports are read down column 36 of the SAM. These include both unofficial "cross-border" exports of groundnuts and fruits and vegetables, as well as estimates of goods exported through official channels. The export column also includes net unrequited transfers. These are allocated to households based upon the distribution of income received from abroad as reported in the CFNPP survey. This column also receives foreign capital, which is used to balance the import and export accounts.

Column and row 37 represent the foreign capital accounts. In these accounts, foreign savings are received by the economy and transferred to the government for use in its capital account. Foreign savings balance the country's imports and exports. Without these savings, imports would exceed exports.

7. CONCLUSION

The construction of a SAM for The Gambia provides a map of the relationships between the producing and consuming parts of the economy. The SAM presents these relationships in one table, allowing the user to examine easily the flow of resources between sectors, and the distribution of benefits that arise from overall economic growth. Thus the SAM provides a consistent framework on which to base the examination of alternative policies and scenarios; more importantly, the SAM permits the analysis of the impact of different policies on different groups of people within The Gambia.

This paper has highlighted the fact that the Gambia SAM was put together "from the ground up." In other words, the SAM is based on the household in its roles as consumer, producer, and the owner of the factors of production. This method has allowed for the precise classification of households into different groups, based *inter alia* on incomes, income sources, expenditures, and factor endowment. Having such disaggregated data on the households also allows for analysis based on other classifications, such as nutritional status or demographic composition. In this way, overall changes in income can be decomposed and attributed to specific subgroups. For instance, the impact of change on the poorest groundnut farmers can be examined separately, rather than simply as a part of the entire category of groundnut farmers. To look at it from another angle, the household-based SAM can be used to examine the consequences of alternative policies, not only on the poor, but on specific subgroups within the entire class of poor households.

That said, the SAM presented here is not a model; it is a database for modeling. The simplest model that can be built using the SAM data, known as fixed-price multiplier analysis, requires the addition of some behavioral assumptions about the direction of flows through the economy. However, specifying the relationships within the economy in a methodical and consistent framework is the first and arguably most important step in the systematic analysis of the ties between policy and poverty in The Gambia.

APPENDIX A**A COMPARISON OF VALUE-ADDED IN THE GAMBIA SAM
WITH THE NATIONAL ACCOUNTS**

In Appendix Table A.1 we compare the value of gross domestic product (value-added) at factor cost found in The Gambia's revised national accounts to the value-added at factor cost contained in the Gambia SAM. This is an interesting exercise, since most of the production activities in the SAM were constructed independently of national accounts data. The value-added amounts in the Gambia SAM are compared with national accounts data for two years, 1987/88 and 1989/90, because the data for 1989/90 are preliminary and are subject to revision.

As shown in this table, the greatest discrepancies between the two data sets arise in the estimates of value-added from "other manufacturing" and livestock, forestry, and fishing. As mentioned in the text, the estimate of value-added from livestock in the SAM is lower than in the national accounts because of our lower estimate of the value of investment in livestock. It is likely that the value-added for fishing and forestry presented in the Gambia SAM are more accurate than the national accounts, since the SAM figures are constructed using the CFNPP consumption estimates for the products of those two sectors. The values for production presented in the national accounts are not reconciled with consumption.

The Gambia SAM's large discrepancy in manufacturing value-added needs to be examined more thoroughly. The national accounts show a swift and steep increase in the value of formal (large-scale) manufacturing beginning in 1985/86. Our data on large-scale manufacturing is incomplete, but we could not replicate the national accounts data on large-scale manufacturing using employment statistics and the CFNPP consumption estimates. On the other hand, our estimate of value-added from formal manufacturing (D 34.8 million) is comparable to the manufacturing value-added reported for 1989/90 in the March 1991 survey of manufacturing establishments (D 38.9 million) (Central Statistics Department 1991b). Our estimate of value-added from small-scale manufacturing (D 53.6 million) is higher than in the national accounts (D 38.2 in 1987/88 and D 48.8 in 1989/90).

Groundnut value-added in the SAM is below that reported in the national accounts for 1989/90. This may be due to a more complete accounting of input use in the Gambia SAM, since the data on the value of groundnut production were estimated in the SAM by multiplying the GCU's purchase price and the Ministry of Agriculture's estimate of national groundnut production. Value-added in other crops is larger in the SAM, because the SAM has a more complete accounting of horticultural crop production and use.

Appendix Table A.1 – The Gambia: Comparison of Value-Added in the Gambia SAM with that in the National Accounts, at Factor Cost, 1987/88 and 1989/90

Sector	National Accounts		Gambia SAM
	1987/88	1989/90 ^a	
	Million Dalasis		
Groundnuts	157.6	192.1	158.5
Other crops	154.8	211.2	235.1
Livestock/forestry/fishing	176.3	226.8	149.7
Groundnut trade	(40.9)	8.5	6.1
Groundnut processing	(23.5)	8.2	22.9
Other manufacturing	108.3	125.2	88.4
Construction	53.9	93.7	74.1
Transport/communication/utilities	141.4	151.6	158.7
Other trade ^b	291.6	415.4	442.0
Private services	250.2	286.1	323.2
Government services	111.6	174.1	153.8

Sources: The Gambia SAM; Central Statistics Department (1991a and c).

^a Estimated, subject to revision.

^b Includes food trade, other domestic trade, and re-export trade.

Although SAM value-added in private services is close to the national accounts estimate, we have probably underestimated the value-added by key sectors such as banking and insurance. Our estimates of the total production of private services approach those of the national accounts because we have a higher estimate of private services supplied by the informal sector. We have underestimated the value-added from construction compared with the 1989/90 national accounts. However, activity in this sector has increased dramatically since 1985/86, and our estimates appear to have caught the upswing in this activity as our value-added estimate for this sector is between the 1987/88 and 1989/90 values from the national accounts.

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