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South African Macro Social Accounting Matrix 2022

Macro and Resource Economics

SOUTH AFRICAN MACRO SOCIAL ACCOUNTING MATRIX 2022

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Programme: Agricultural Economic Services

Division for Macro & Resource Economics

Muldersvlei Road

Eisenburg

7607

South Africa

Author:

Ms Riekie Cloete

Senior Agricultural Economist: Macro & Resource Economics

E-mail: Riekie.Cloete@westerncape.gov.za

Tel: +27 21 808 5207

Internal review:

Mr Tshepo Morokong

Deputy Director: Macro and Resource Economics

Technical review:

Dr Cecilia Punt

Senior Lecturer: Department of Agricultural Economics, Stellenbosch University

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Table of Contents

1	Introduction	7
2	Background.....	7
2.1	Social Accounting Matrix.....	7
2.2	Importance of Social Accounting Matrices	9
2.3	Applications of Social Accounting Matrices	10
2.4	Selected Uses of Social Accounting Matrices.....	11
2.5	Limitations of Social Accounting Matrices.....	13
3	Macro and Micro SAM Classification	14
3.1	Macro SAM	14
3.2	Micro SAM.....	15
3.3	Relationship between Macro and Micro SAMs	15
4	The circular flow of the economy and the SAM framework	16
5	Approach	19
5.1	Updating the 2019 Macro SAM to 2022	19
5.2	Data Sources and Methodological References	20
5.3	Mapping National Accounts Data to the SAM Structure	21
6	Results.....	22
6.1	Analysing the 2022 Macro SAM	22
6.2	Comparison of activity account aggregates, 2019 and 2022.....	26
7	Key Findings.....	27
8	Recommendations and way forward	28
9	References	30
	Annexure A: Structure and interpretation of the Macro SAM.....	32

List of Tables

Table 1: Simplified representation of the Macro SAM	17
Table 2: Detailed structure and transaction coding of the Macro SAM	18
Table 3: Mapping and verification of selected 2022 Macro SAM accounts	22
Table 4: 2022 Macro SAM for South Africa (R billion)	23
Table 5: Breakdown of activity components in the economy	24
Table 6: Selected SAM accounts and the aggregate commodity supply-demand balance	25
Table 7: Final domestic demand disaggregation	26
Table 8: Trade accounts	26
Table 9: Comparison of selected Macro SAM aggregates, 2019 and 2022	27

List of Figures

Figure 1: Circular flow of income and expenditure in the economy	16
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List of Acronyms

S-I	Saving–Investment
CGE	Computable General Equilibrium
CFC	Consumption of Fixed Capital
GDP	Gross Domestic Product
GFCF	Gross Fixed Capital Formation
GOS	Gross Operating Surplus
HH	Households
DUTY	Import Duties
INVCH	Change in Inventories
YTAX	Income Taxes
NA	National Accounts
NATAX	Net Activity Taxes
NPISHs	Non-Profit Institutions Serving Households
NPTAX	Net Product Taxes (excluding Import Duties)
QB	Quarterly Bulletin
RAS	Bi-proportional Matrix Balancing Method
ROW	Rest of the World
SAM	Social Accounting Matrix
SARB	South African Reserve Bank
SNA	System of National Accounts
StatsSA	Statistics South Africa
SUT	Supply and Use Tables
UNU-WIDER	United Nations University World Institute for Development Economics Research

Abstract

This report presents a 2022 Macro Social Accounting Matrix (SAM) for South Africa, developed by updating the 2019 South African Macro SAM published by the United Nations University World Institute for Development Economics Research. The purpose is to provide an updated and internally consistent macroeconomic accounting framework for structural and policy analysis and the development of more detailed modelling databases.

The update retained the established 2019 SAM framework. Individual SAM transactions were mapped to corresponding national accounts series and replaced with 2022 observations, primarily from the South African Reserve Bank Quarterly Bulletin. The resulting accounts were checked against the national accounting framework to maintain consistency between production, income, expenditure, institutional and external-sector flows.

The 2022 Macro SAM records total domestic output of approximately R13.1 trillion. Intermediate consumption accounted for 54.4% of output, while value added amounted to approximately R5.99 trillion. Labour income represented 50.3% of value added, capital income 47.7% and net activity taxes 2.0%. Household consumption was the largest component of domestic absorption, accounting for approximately 65%, while exports exceeded imports by about R142 billion.

Compared with the pre-COVID-19 2019 benchmark, total output increased by 19.0%, intermediate consumption by 19.3% and value added by 18.7%. The similar rates of change indicate that the broad division between intermediate consumption and value added remained relatively stable between the two benchmark years. As the comparison is based on current monetary values, it reflects both price and volume changes.

The resulting matrix provides a national benchmark for descriptive structural analysis and future economy-wide modelling. As a next step, it will be restructured for initial national macro-level Computable General Equilibrium modelling and will also guide the construction of a 2022 Western Cape SAM. The experience gained through this process will inform the account classification, data requirements and modelling structure required for subsequent provincial multiplier and CGE applications.

Keywords: Social Accounting Matrix; South Africa; Macro SAM; national accounts; economy-wide modelling; Computable General Equilibrium modelling

1 Introduction

Social Accounting Matrices (SAMs) provide an integrated economy-wide accounting framework for analysing the circular flow of income, production, expenditure and institutional transactions. In South Africa, the availability of an updated macro-level SAM is important for policy analysis, multiplier applications and the development of more detailed provincial and sectoral modelling frameworks, including agricultural impact analysis. Consequently, this report constructs a 2022 Macro Social Accounting Matrix for South Africa based on the United Nations University World Institute for Development Economics Research (UNU-WIDER) 2019 South African Macro SAM.

The updating process first involved reproducing the 2019 Macro SAM and mapping its individual transactions to the corresponding national accounts series. The benchmark values were then replaced with 2022 observations from the South African Reserve Bank Quarterly Bulletin and checked against relevant national accounts aggregates and accounting identities.

This report provides an updated macroeconomic benchmark for South Africa that can support descriptive structural analysis, multiplier analysis, future Computable General Equilibrium (CGE) modelling, and the development of more detailed SAMs for agricultural, regional and policy applications.

The remainder of the report is structured as follows. It first provides background on the development, purpose, applications and limitations of Social Accounting Matrices, followed by an explanation of the classification and structure of macro and micro-SAMs. The report then outlines the data sources and methodological approach applied to update the 2019 Macro SAM to 2022. This is followed by the results and key findings. The report concludes with recommendations and a proposed way forward for the further development and application of the SAM.

2 Background

2.1 Social Accounting Matrix

A Social Accounting Matrix (SAM) is a comprehensive, economy-wide accounting framework that records the transactions and financial flows between production activities, commodities, factors of production, institutions, capital accounts and the rest of the world within a given period.

It represents the System of National Accounts (SNA) in matrix form and elaborates the linkages between Supply and Use Tables and institutional sector accounts. By integrating production, income generation, income distribution and expenditure within a single accounting framework, a SAM provides a consistent representation of the circular flow of income and the inter-relationships between the different parts of the economy (King, 1985, pp. 17–19; Statistics South Africa, 2006, p. 1).

The development of social accounting was closely linked to the need for economic information that could support practical policy and planning decisions. In 1941, during the Second World War, James Meade and Richard Stone developed a systematic set of tables linking national income, expenditure, saving and investment within an integrated accounting framework (Meade and Stone, 1941, pp. 216–222). This approach developed further after the war as economic accounting moved beyond the measurement of aggregate national income towards the systematic representation of transactions between different parts of the economy. This reflected the recognition that aggregate measures alone were insufficient for many analytical purposes and that greater attention was required to the structure and interdependence of the transactions underlying them (Stone, 1947, p. 23).

A significant step towards the modern SAM occurred through the Cambridge Growth Project, which commenced in 1960. The project developed an economy-wide framework in which social accounting information could be organised consistently within a multisectoral model of the economy. This work contributed to the development of the SAM as a structured information framework for representing economic relationships and supporting economy-wide planning and analysis (Barna, 1963, pp. 604–605; Pyatt and Round, 1977, pp. 341–342).

During the 1970s, the development of the SAM increasingly reflected the need for economic information that could support policy questions extending beyond aggregate growth. Pyatt and Round argued that economic growth alone was an inadequate policy objective unless its implications for employment opportunities, income distribution and the living standards of different groups within society could also be identified. This created a need for accounting systems that linked production not only to aggregate income, but also to the factors through which income was generated and the household groups to which that income accrued. The detailed disaggregation of factor and household accounts therefore became an important feature of SAM development, enabling the relationship between economic activity, employment and the distribution of income across different groups to be examined within a consistent economy-wide framework (Pyatt and Round, 1977, pp. 339–340).

This policy-oriented development was closely associated with the International Labour Organization's World Employment Programme and subsequent applications in developing economies. SAM studies for countries including Iran, Sri Lanka and Swaziland demonstrated how greater detail on factors and households could be used to examine how production and economic growth translated into employment opportunities and income received by different groups in society (Pyatt and Round, 1977, pp. 340–342; Pyatt and Round, 1985, pp. 52–66).

The practical development of the SAM was demonstrated further in Botswana, where a SAM for 1974–75 was constructed in close cooperation with government officials. The development of the framework reflected the growing need for economic planning to move beyond individual sector and project issues towards a broader macroeconomic perspective, while also considering how the benefits of development were distributed across the population (Greenfield, 1985, pp. 126–127, 139–140). The Botswana experience also highlighted the practical requirements involved in constructing and maintaining a SAM, including data collection, estimation and the need for continued development of the underlying statistical system.

Taken together, these developments illustrate the broader motivation for the SAM: to provide a consistent economy-wide framework that links production and income generation to institutions and expenditure, allowing the relationships between economic activity and the distribution of income to be examined within a single accounting system.

At the macro level, a SAM provides a consolidated representation of the economy by recording transactions between broad accounts such as activities, commodities, factors of production, households, enterprises, government, capital accounts and the rest of the world. The Macro SAM serves as a benchmark control framework that ensures consistency between production, income and expenditure accounts and provides the basis for the development of more detailed SAMs for multiplier analysis and Computable General Equilibrium (CGE) modelling.

2.2 Importance of Social Accounting Matrices

The importance of a Social Accounting Matrix (SAM) lies in its ability to bring economic and social information together within a single, internally consistent accounting framework. By integrating information on production, factor incomes, households, enterprises, government, investment and trade, a SAM connects the generation of income through production with its distribution and subsequent use by institutions. In this way, the SAM brings together the production and commodity relationships through Supply and Use Tables with the income and expenditure relationships recorded through institutional sector accounts, providing an integrated representation of the economy (Round, 2003, pp. 162–163; Statistics South Africa, 2006, p. 1).

A particular strength of the SAM is its capacity to examine the distributional consequences of economic activity and policy change. Households and factors of production can be disaggregated according to characteristics such as income group, occupation, skill level, geographic location or other relevant socio-economic classifications. This makes it possible to trace how changes in production affect labour and capital income, how this income accrues to different household groups, and how taxation, transfers and expenditure further redistribute income. The SAM therefore provides an important bridge between economic activity and socio-economic outcomes such as employment, household income, inequality and poverty (Round, 2003, pp. 164–165).

The SAM also provides a structured framework for economy-wide structural and policy analysis. By linking institutional incomes, expenditure, transfers and savings with the production of goods and services and the generation of factor incomes, the framework makes the interdependencies within the economy explicit (Round, 2003, p. 163). These relationships can subsequently provide the basis for SAM-based multiplier analysis and for the construction of benchmark databases used in Computable General Equilibrium (CGE) models.

An additional value of the SAM compilation process lies in the discipline imposed by its accounting structure. Constructing a SAM requires information from different statistical sources to be brought together, compared and reconciled within a common framework. Because corresponding receipts and expenditures must balance, inconsistencies, missing information and differences between alternative estimates can be identified and investigated systematically. The resulting accounting consistency provides a common basis for compiling a benchmark dataset for subsequent economic analysis, although consistency within the matrix does not in itself imply that all underlying estimates are necessarily accurate (Round, 2003, pp. 174–179).

2.3 Applications of Social Accounting Matrices

Social Accounting Matrices are applied across a broad range of economic, social and policy analyses. Depending on the analytical objective, a SAM can be used as a descriptive database to examine the structure of an economy, as the basis for SAM multiplier analysis to trace the transmission of exogenous shocks, or as the benchmark database for more complex economy-wide models such as Computable General Equilibrium (CGE) models (Pyatt and Round, 1979, pp. 850–851; Round, 2003, p. 163; Statistics South Africa, 2002, pp. 52–55).

Applications of SAMs include:

- **Economic and social analysis:** assessment of economic structure, employment, household income, poverty, inequality and the distributional effects of economic change.

- **Policy and development planning:** analysis of fiscal and tax policy, trade policy, development programmes, infrastructure investment and other policy interventions.
- **Sectoral and regional analysis:** assessment of sector-specific and regional economic linkages, including applications in agriculture, natural resource economics and provincial or regional development.
- **Economy-wide modelling:** SAM-based multiplier analysis and the construction of benchmark databases for CGE models used to simulate policy interventions and external shocks.

In South Africa, SAMs have been used to connect macroeconomic policy questions with socio-economic outcomes. Statistics South Africa (2002, pp. 52–55) identifies applications relating to poverty, income distribution, macroeconomic policy objectives, fiscal balance and the analysis of monetary-policy transmission. SAMs have also provided the database for policy simulation models. For example, National Treasury used a CGE model calibrated to a 2012 South African SAM to assess the potential economy-wide effects of the proposed tax on sugary beverages, including effects across sectors and household groups (National Treasury, 2017, p. 22).

SAM applications have also been undertaken at provincial and sectoral level. In the Western Cape, an integrated SAM for South Africa and its regions was used to calibrate a CGE model for analysing trade, sectoral policies, labour markets and fiscal policy. The resulting analyses were intended to support decision-making at national, provincial and industry level (Provincial Government Western Cape, 2005, p. 769). This illustrates the value of SAMs in linking national economic relationships to regional and sector-specific policy questions.

For agricultural economics, SAMs are particularly useful because agriculture is linked to the wider economy through input purchases, processing and distribution activities, labour and capital income, household expenditure and trade. Agricultural shocks or interventions can therefore be assessed beyond their immediate effects on the agricultural sector. SAM multiplier analysis can be used to trace how such changes are transmitted through production, factor incomes and households, while SAM-based CGE models can additionally incorporate behavioural responses, resource constraints and changes in relative prices. This provides an economy-wide perspective on agricultural development, external shocks and policy interventions.

2.4 Selected Uses of Social Accounting Matrices

The practical value of Social Accounting Matrices can be illustrated through selected applications that demonstrate how the framework has been used to analyse economic shocks, identify transmission mechanisms and evaluate policy interventions.

These applications range from relatively transparent SAM multiplier approaches to more complex CGE models calibrated from a SAM database.

An early example is the Botswana SAM for 1974–75, which was developed in cooperation with government institutions (Greenfield, 1985, pp. 126–127). The SAM was subsequently used in applied analysis to examine policy and external shocks, including the economy-wide consequences of a foot-and-mouth disease outbreak (Hayden and Round, 1982, pp. 461–464). This demonstrated how an initial shock affecting a particular sector could be traced through the wider economic relationships represented in the SAM.

A further methodological development was provided by Defourny and Thorbecke (1984, pp. 111–119) through multiplier decomposition and Structural Path Analysis. Rather than considering only the overall multiplier effect, Structural Path Analysis identifies the specific channels through which an initial change is transmitted across production activities, factors of production and household groups. Their application to a South Korean SAM demonstrates, for example, how changes in production can affect intermediate demand and factor incomes before ultimately influencing different household groups. The approach therefore provides additional insight into the mechanisms through which economic shocks or policy changes are transmitted across the economy (Defourny and Thorbecke, 1984, pp. 120–133).

SAMs have also been applied in South African and provincial policy modelling. In the Western Cape, an integrated SAM for South Africa and its regions was used to calibrate a CGE model for the analysis of trade, sectoral policies, labour-market issues and fiscal policy, providing an economy-wide framework for evaluating national and provincial policy questions (Provincial Government Western Cape, 2005, p. 769). At national level, National Treasury (2017, p. 22) used a CGE model calibrated to a South African SAM to assess the potential economy-wide effects of the proposed tax on sugary beverages, including impacts across economic sectors and household groups.

These applications illustrate the progression from using the SAM as a descriptive accounting framework to applying it as an analytical tool and, ultimately, as the benchmark database for more complex economy-wide models. The choice of approach depends on the policy question being investigated. SAM multiplier analysis provides a relatively transparent means of tracing how an initial change is transmitted through production and consumption linkages, factor incomes and households. Breisinger et al. (2009, pp. 13–15), for example, demonstrate these relationships using changes in agricultural demand and show how the effects extend beyond the agricultural sector through its linkages with the wider economy. Where behavioural responses, resource constraints and changes in relative prices are important, the SAM can instead provide the benchmark database for CGE modelling (Breisinger et al., 2009, p. 17).

For agricultural policy and planning, these approaches provide a means of assessing how changes affecting agriculture may extend to linked industries, factor incomes and households.

2.5 Limitations of Social Accounting Matrices

Despite their strengths and widespread application in economic analysis, Social Accounting Matrices (SAMs) are subject to several limitations that should be recognised when interpreting analytical results. One of the primary challenges relates to their extensive data requirements. The construction of a SAM requires the integration and reconciliation of information from multiple sources, including national accounts, household surveys, labour statistics, government accounts and trade data. Differences in definitions, classifications, reference periods and data coverage can create inconsistencies between sources, while data gaps may require estimation and balancing procedures to achieve accounting consistency (Round, 2003, pp. 172–179; Statistics South Africa, 2002, pp. 8, 52–54). Techniques such as RAS¹ and cross-entropy estimation are widely used for this purpose, while their application may result in some elements of the final SAM being estimated rather than directly observed, introducing a degree of uncertainty into the benchmark database (Round, 2003, pp. 176–179).

At the macro level, some detailed institutional-sector transactions may also be represented by residual or balancing entries where directly corresponding source series are not available. These entries preserve the accounting identities and benchmark structure, but they should be revisited before detailed institutional, distributional or behavioural modelling.

A further limitation is that a SAM generally represents the economy for a single benchmark year. It therefore provides a detailed snapshot of the economic structure and income flows prevailing during that period, but does not inherently capture changes in technology, preferences, production structures or other longer-term developments (King, 1985, p. 17). The relevance of a SAM may consequently decline as the economy moves further away from the benchmark year, particularly where significant structural changes or external shocks have occurred.

It is also important to distinguish between limitations of the SAM as an accounting framework and those associated with SAM-based multiplier analysis. SAM multiplier models typically assume fixed prices, fixed technical coefficients and relatively stable expenditure relationships. They may also assume that sufficient factor resources and productive capacity are available for supply to respond to changes in demand. Production relationships and consumption patterns therefore remain unchanged following an economic shock, while substitution between

¹ Bi-proportional Matrix Balancing Method

inputs or products, resource constraints and behavioural responses are not explicitly represented.

These assumptions can result in multiplier effects being overstated where supply is constrained. SAM multiplier results should consequently be interpreted as estimates of economy-wide effects under the structural relationships and modelling assumptions applied to the benchmark economy.

Where price adjustments, resource constraints and behavioural responses are important, the SAM can instead provide the benchmark database for a Computable General Equilibrium (CGE) model, which incorporates these additional mechanisms (Round, 2003, p. 163; Breisinger et al., 2009, p. 17).

The level of detail included in a SAM affects the type of analysis that can be undertaken. A more detailed SAM can distinguish between different industries, factors of production and household groups, making it possible to analyse economic impacts more precisely. However, greater detail also requires more data, and where detailed data are not available, additional estimates may be required (Round, 2003, pp. 164–165). The usefulness of the resulting analysis therefore depends on both the level of detail in the SAM and the quality of the underlying data.

Having considered the conceptual foundations, applications and limitations of Social Accounting Matrices, it is useful to distinguish between the broad Macro SAM used as an economy-wide control framework and more detailed SAMs developed for specific analytical purposes.

3 Macro and Micro SAM Classification

Social Accounting Matrices can be constructed at different levels of aggregation depending on the objectives of the analysis. A distinction is commonly made between Macro SAMs and Micro SAMs. While both are based on the same accounting principles and maintain consistency within the circular flow of income and expenditure, they differ in the level of detail incorporated into the framework.

3.1 Macro SAM

A Macro SAM focuses on the broad structure of the economy and provides a highly aggregated representation of economic transactions. Typical accounts include productive activities, commodities, factors of production, households, enterprises, government, capital accounts and the rest of the world.

By consolidating economic flows into a manageable framework, a Macro SAM provides a comprehensive overview of production, income generation, income distribution and expenditure within an economy.

The primary purpose of a Macro SAM is to establish a consistent economy-wide accounting framework that can be used for economic analysis, policy evaluation and modelling applications. The Macro SAM establishes the economy-wide accounting framework and control totals that provide the basis for the development of more detailed SAMs used in multiplier analysis and Computable General Equilibrium (CGE) modelling.

3.2 Micro SAM

For the purposes of this report, a Micro SAM refers to a more detailed or disaggregated SAM that extends the Macro SAM by introducing additional levels of detail within selected accounts. This may include, where data permit, but is not limited to, the separation of industries into individual sectors, households into income groups, labour into occupational categories, geographic regions, demographic groups, farm types or enterprise classes. This additional detail allows for a more refined analysis of economic relationships and outcomes.

Micro SAMs are particularly valuable when the focus extends beyond aggregate economic impacts to include the effects of policies or shocks on specific groups, sectors or regions. As a result, they are widely used in studies relating to poverty, inequality, employment, household welfare and sector-specific interventions.

3.3 Relationship between Macro and Micro SAMs

The relationship between Macro and Micro SAMs is hierarchical. The Macro SAM provides the overarching accounting framework and establishes the economy-wide control totals for all accounts. The Micro SAM then disaggregates selected accounts within this framework to provide greater analytical detail while maintaining full accounting consistency.

Consequently, the totals recorded in a Micro SAM should reconcile exactly with those contained in the corresponding Macro SAM. The Macro SAM therefore provides the structural foundation of the economy, whereas the Micro SAM facilitates more detailed analysis through the disaggregation of selected accounts according to sectoral, institutional, regional, demographic or other analytical requirements. Regardless of the level of aggregation, both Macro and Micro SAMs retain the same underlying accounting logic. The following section illustrates this logic through the circular flow of income and its representation within the SAM framework.

4 The circular flow of the economy and the SAM framework

A Social Accounting Matrix (SAM) represents the circular flow of income and expenditure within an economy. While economic activity originates through the production of goods and services, the SAM records the associated monetary transactions between production activities, commodities, factors of production, institutions, government and the rest of the world.

Figure 1 illustrates the circular flow of income and expenditure. Table 1 translates these relationships into a simplified Macro SAM, while Table 2 expands the framework into the detailed accounting structure.

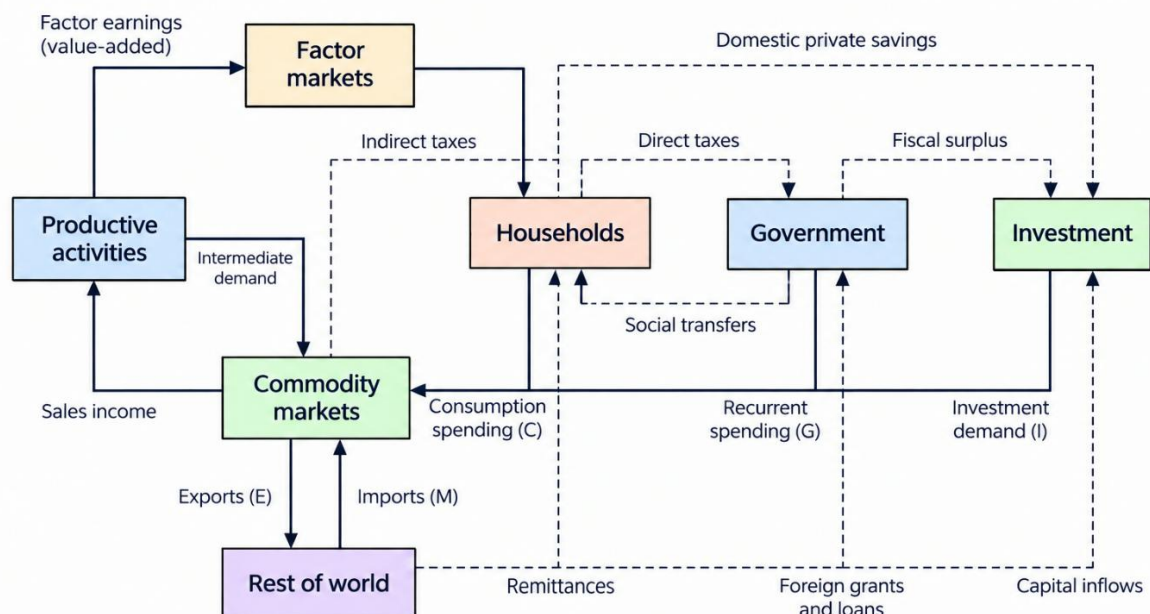


Figure 1: Circular flow of income and expenditure in the economy

Source: Author's illustration based on the SAM framework described by Round (2003), Breisinger et al. (2009) and van Seunter and Davies (2023).

The circular-flow diagram provides a visual overview of how income and expenditure move between productive activities, factor and commodity markets, households, government, investment and the rest of the world. Production generates factor income, while households and government use income for consumption, taxes, transfers and saving. Savings are channelled towards investment, while imports, exports and other cross-border flows connect the domestic economy to the rest of the world. These same relationships are translated into matrix form in the simplified SAM as shown in Table 1.

Table 1: Simplified representation of the Macro SAM

ROWS RECEIVE COLUMNS PAY	EXPENDITURE COLUMNS							
INCOME ROWS	Activities ACT	Commodities COM	Factors FAC	Households HH	Government GOV	Saving- Investment S-I	Rest of world ROW	Total
Activities ACT		Domestic output (P1)						Gross output
Commodities COM	Intermediate demand (P2)	Trade & transport margins (C1)		Consumption spending (C2)	Government consumption (C3)	Investment demand (C4 + C5)	Export earnings (C6)	Total demand
Factors FAC	Labour + capital value added (P3 + P4)							Total factor income
Households HH			Factor income to households (F4 + F5)		Social transfers (I5)		Foreign remittances (X2)	Household income
Government GOV		Product taxes & import duties (C7 + C8 → T2 + T3)		Household income taxes (T6 → T4)			Foreign grants / transfers (X3)	Government receipts
Saving- Investment S-I				Private savings (S3)	Government saving / fiscal balance (S4)		Current external balance / foreign saving (S5)	Total savings
Rest of world ROW		Import payments (X4)						FX outflows
TOTAL	Gross output	Total supply	Factor distribution	Household outlays	Government outlays	Total investment	FX inflows	SAM balances

Source: Developed by the author based on van Seventer and Davies (2023, p. 4).

Linking key: simplified SAM to the detailed Macro SAM

Code / account	Meaning	Link to the detailed Macro SAM
ACT	Activities	Remains ACT.
COM	Commodities	Remains COM; net product taxes (NPTAX) and import duties (DUTY) are shown separately.
FAC	Factors	Disaggregated into Labour (LAB) and Capital (CAP).
HH	Households	Remains HH.
GOV	Government	Remains GOV; NATAX, NPTAX, DUTY and YTAX are shown as separate tax accounts.
S-I	Saving-Investment	Remains S-I; change in inventories (INVCH) is shown separately.
ROW	Rest of world	Remains ROW.
ENT	Enterprises	Added as a separate institutional account in the detailed SAM.
Transaction code families		
P	Production and gross output	P1-P5
C	Commodity-market flows	C1-C8
F	Factor income	F1-F6
I	Institutional income and transfers	I1-I8
T	Taxes	T1-T6
S	Saving, investment and inventory change	S1-S5
X	Trade and external flows	X1-X9

Reading note: the simplified SAM groups broad accounts together.

Table 2: Detailed structure and transaction coding of the Macro SAM

Production identity: gross output = intermediate consumption + gross value added

Commodity-market identity: total supply = total demand

Saving-investment identity: total saving = total investment

ROW RECEIVES COLUMN PAYS	ACT	COM	LAB	CAP	ENT	HH	GOV	NATAX	NPTAX	DUTY	YTAX	INVCH	S-I	ROW	ROW TOTAL
Activities		P1													Gross output
Commodities	P2	C1				C2	C3					C4	C5	C6	Total demand
Labour	P3													F1	Labour income
Capital	P4													F2	Capital income
Enterprises				F3	I1	I2	I3							X1	Enterprise earnings
Households			F4	F5	I4		I5							X2	Household earnings
Government				F6	I6	I7	I8	T1	T2	T3	T4			X3	Government receipts
Net activity taxes	P5														Production taxes
Net product taxes		C7													Product taxes
Import duties		C8													Import duties
Income taxes					T5	T6									Income taxes
Change in inventories													S1		Inventory change
Saving-Investment					S2	S3	S4							S5	Savings
Rest of world		X4	X5	X6	X7	X8	X9								FX outflows
COLUMN TOTAL	Gross output	Total supply	Labour distribution	Capital distribution	Enterprise outlays	Household outlays	Government outlays	Production taxes	Product taxes	Import duties	Income taxes	Inventory change	GFCF + inventory change	FX inflows	SAM BALANCES

Account key: ACT Activities • COM Commodities • LAB Labour • CAP Capital • ENT Enterprises • HH Households • GOV Government • NATAX Net Activity taxes • NPTAX Net Product taxes • DUTY Import duties • YTAX Income taxes • INVCH Change in inventories • S-I Saving-Investment • ROW Rest of world

1 PRODUCTION & GROSS OUTPUT P1 domestic output; P2 intermediate inputs; P3 labour; P4 capital; P5 activity tax. Activity receipts from output equal the costs of production; both sides sum to gross output.	2 COMMODITY MARKET The commodity account brings domestic output and imports into total supply and records how commodities are used. Demand comprises intermediate inputs (P2), household consumption (C2), government consumption (C3), changes in inventories (C4), gross fixed capital formation (GFCF) (C5) and exports (C6). Total supply equals total demand. C1 represents trade and transport margins within the commodity system and is therefore not a separate final-demand category.	3 FACTOR INCOME Labour and capital income generated by production is distributed to households, enterprises and government (F3–F6), while cross-border factor income is recorded with the Rest of World account (F1–F2 and X5–X6).	4 INSTITUTIONS & TAXES Enterprises, households and government receive and pay property income and transfers (I1–I8); government also receives activity, product, import and income taxes (T1–T6).	5 SAVING, INVESTMENT & INVENTORY CHANGE Saving by enterprises, households and government, together with net foreign saving, is recorded as receipts of the Saving-Investment account (S2–S5). These savings finance investment through gross fixed capital formation (GFCF) and changes in inventories, which are recorded separately in the SAM. Total saving equals total investment.	6 TRADE & EXTERNAL FLOWS The Rest of World account records imports, exports, cross-border factor income and transfers, and net foreign saving, linking the domestic economy to the external economy.
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Reading note: A SAM records monetary flows during the accounting period, rather than stocks at a point in time. A change in inventories is therefore recorded as a flow.

Source: adapted from the UNU-WIDER 2019 South Africa macro SAM structure (van Seventer and Davies, 2023, p. 4). Terminology note: S-I corresponds to the benchmark Accumulation account; INVCH denotes change in inventories.

With these accounting relationships established, the report now turns to the approach used to reproduce the 2019 benchmark and update the South African Macro SAM to 2022.

5 Approach

The 2019 South African Macro Social Accounting Matrix (SAM) published through the United Nations University World Institute for Development Economics Research (UNU-WIDER) was used as the benchmark framework for constructing the 2022 South African Macro SAM.

The benchmark SAM provides a consistent representation of the production, income, expenditure and trade relationships within the South African economy.

The objective of this study was to update the benchmark 2019 SAM to reflect the economic conditions prevailing in 2022. This approach allowed the established accounting framework to be retained while updating the values of the various accounts using the latest available official data. The primary source for updating the SAM was the South African Reserve Bank (SARB) Quarterly Bulletin (QB), which contains the national accounts and institutional sector data required for the construction of a Macro SAM.

Artificial intelligence tools, including ChatGPT and Microsoft Copilot, were used as supplementary research and productivity aids for verifying information, refining text, checking consistency and supporting selected technical tasks. All outputs generated through these tools were independently reviewed, validated and verified by the author against primary data sources, official publications and relevant literature prior to inclusion in the study.

5.1 Updating the 2019 Macro SAM to 2022

The first step in the process involved reproducing the published 2019 Macro SAM and tracing its individual transactions to the corresponding national accounts and other source series. This benchmarking exercise was undertaken to understand and verify the account structure and mappings required to update the SAM consistently.

Once the benchmark structure had been reproduced, the corresponding national accounts series were updated to 2022 values. The South African Reserve Bank Quarterly Bulletin was the principal source of macroeconomic data. As historical national accounts series are revised periodically, the March 2026 release was consulted to obtain the latest available revised observations for the 2022 reference year.

The updating process involved linking each SAM transaction, where possible, to its corresponding national accounts series and replacing the benchmark value with the relevant 2022 observation.

Attention was given to maintaining consistency between the SAM accounts and the national accounting framework. Where the required detail was not directly available from the SARB series, complementary official data sources were used.

For transactions between enterprises, households and government, the 2019 benchmark account structure, source mappings and accounting relationships were retained. The corresponding SARB series used in the benchmark were identified and updated using the available 2022 observations. Where the 2019 benchmark derived a transaction as a residual or balancing item, the same accounting approach was applied to the 2022 data. These transactions were therefore not proportionally scaled from the 2019 values, but updated using the same source-series mappings and accounting relationships applied in the benchmark SAM.

Import duties required separate identification, as they form part of taxes on products in the national accounts but are recorded as a separate account in the Macro SAM. A directly usable 2022 import-duty series could not be identified in the SARB Quarterly Bulletin or Statistics South Africa data. The available Statistics South Africa import-duty observation was therefore used as the reference point and updated to 2022 using the applicable growth rate. The resulting estimate was checked for consistency within the SAM and with the broader taxes-on-products aggregate.

5.2 Data Sources and Methodological References

The primary data source used in the compilation and updating of the South African Macro Social Accounting Matrix (SAM) 2022 was the South African Reserve Bank (SARB) Quarterly Bulletin (QB). Reference was made to the June 2022 release (South African Reserve Bank, 2022) in reproducing and verifying the underlying source data, while subsequent revisions and updates published up to March 2026 (South African Reserve Bank, 2026) were consulted to verify and align the underlying macroeconomic aggregates. The methodology follows the approach adopted by van Seventer and Davies (2023) in the UNU-WIDER 2019 South African Macro SAM, which provides the benchmark structure and account mappings for the 2022 update.

The updating process involved aligning the published 2019 Macro SAM with the latest available macroeconomic information contained in the SARB Quarterly Bulletin. This ensured consistency with official national accounts, institutional sector accounts and external sector statistics while maintaining the accounting structure of the benchmark SAM.

The theoretical foundation and methodological approach draw on the established SAM literature. Round (2003, pp. 161–179) provides guidance on SAM structure, classification, construction and data reconciliation, while Breisinger et al. (2009, pp. 1–3, 13–17) provide practical guidance on SAM structure, economic linkages and multiplier analysis. Defourny and Thorbecke (1984, pp. 111–119) provide the methodological basis for multiplier decomposition and Structural Path Analysis, while Pyatt and Round (1985, pp. 52–66) demonstrate the development and policy-oriented application of the SAM framework. Statistics South Africa (2006, pp. 7–8, 52–55) further provides South African context regarding SAM structure and its application in statistical and policy analysis.

Related South African work is also documented by van Schoor, Punt and McDonald (2006, pp. 1, 8), who used a National Accounting Matrix, based largely on South African Reserve Bank Quarterly Bulletin data, as the starting point for the development of national, regional and multiregional SAMs for South Africa.

5.3 Mapping National Accounts Data to the SAM Structure

Once the benchmark 2019 Macro SAM had been replicated, the corresponding national accounts series were mapped to the individual SAM accounts and updated to their 2022 values. The advantage of using the SARB Quarterly Bulletin is that individual national accounts series can be traced over time, enabling the systematic updating of the SAM while preserving the integrity of the original accounting structure. Each transaction within the SAM was traced, where possible, to a corresponding national accounts series or complementary official data source and verified against the relevant published values.

This process ensured that the 2022 update remained consistent with the benchmark account mappings and accounting structure. Table 3 provides an extract of the mapping and verification process used in compiling the 2022 Macro SAM and illustrates how selected source series were linked to specific SAM transactions.

Table 3: Mapping and verification of selected 2022 Macro SAM accounts

Step	ID	Receiving account (row)	Paying account (column)	SAM notation	National Accounts description, with adjustments where applicable	Value (Rm, 2019)	Value (Rm, 2022)	2022 verification	QB page / source	KBP series	Calculated Total	Component 1	Component 2	Component 3
1	i	Commodities	Activities	(Commodities, Activities)	Intermediate consumption	5 991 753	7 148 197	☑	S-141	6871J	7 148 197			
2	ii	Labour	Activities	(Labour, Activities)	Compensation of employees	2 732 292	3 013 872	☑	S-114	6000J	3 013 872			
3	iii	Capital	Activities	(Capital, Activities)	Net operating surplus + CFC	2 206 214	2 859 659	☑	S-114	6001J + 6002J	2 859 659	1 984 839	874 820	
4	iv	Net activity taxes	Activities	(Net activity taxes, Activities)	Other taxes less subsidies on production	106 420	117 043	☑	S-114	6600J minus 6601J	117 043	131 121	14 078	
5	v	Activities	Commodities	(Activities, Commodities)	Output of total domestic economy	11 037 000	13 138 771	☑	S-139	6870J	13 138 771	13 138 771		
6	vi	Net product taxes	Commodities	(Net domestic production taxes, Commodities)	Net taxes on products less import duties	511 739	617 926	☑	S-114	6603J minus 6604J minus import duties	617 926	691 930	15 923	58 081
7	vii	Import duties	Commodities	(Import duties, Commodities)	Import duties	57 000	58 081	☑	Stats SA growth-rate update	n/a	58 081			

Source: Developed by the author.

The mapping and verification process provides the accounting basis for the 2022 Macro SAM. A detailed explanation of the structure and interpretation of the Macro SAM is provided in Annexure A. The following section presents the results of the 2022 update.

6 Results

6.1 Analysing the 2022 Macro SAM

Table 4 presents the updated 2022 Macro SAM, compiled using the 2019 Macro SAM benchmark structure and updated national accounts information from the SARB Quarterly Bulletin. It provides the values used in the descriptive analysis that follows. A high-level comparison with the 2019 benchmark is presented in Section 6.2.

Table 4: 2022 Macro SAM for South Africa (R billion)

	Activ- ities	Com- modi- ties	Labour	Capi- tal	Enter- prises	House- holds	Gov- ern- ment	Net activity taxes	Net prod- uct taxes	Im- port duties	Income taxes	Change in inven- tories	Saving-In- vestment	Rest of the world	Total
Activities	-	13 139	-	-	-	-	-	-	-	-	-	-	-	-	13 139
Commodi- ties	7 148	1 145	-	-	-	4 228	1 252	-	-	-	-	99	945	2 236	17 053
Labour	3 014	-	-	-	-	-	-	-	-	-	-	-	-	14	3 028
Capital	2 860	-	-	-	-	-	-	-	-	-	-	-	-	171	3 031
Enterprises	-	-	-	1 906	1 035	442	890	-	-	-	-	-	-	26	4 298
Households	-	-	3 012	671	1368	-	833	-	-	-	-	-	-	67	5 950
Government	-	-	-	146	518	482	339	117	618	58	974	-	-	1	3 253
Net activity taxes	117	-	-	-	-	-	-	-	-	-	-	-	-	-	117
Net product taxes	-	618	-	-	-	-	-	-	-	-	-	-	-	-	618
Import duties	-	58	-	-	-	-	-	-	-	-	-	-	-	-	58
Income taxes	-	-	-	-	379	594	-	-	-	-	-	-	-	-	974
Change in inventories	-	-	-	-	-	-	-	-	-	-	-	-	99	-	99
Saving-In- vestment	-	-	-	-	972	156	-105	-	-	-	-	-	-	22	1 045
Rest of the world	-	2 094	17	308	26	49	44	-	-	-	-	-	-	-	2 536
Total	13 139	17 053	3 028	3 031	4 298	5 950	3 253	117	618	58	974	99	1 045	2536	

Source: Author's compilation based on South African Reserve Bank (2026) and Statistics South Africa.

Note: The institutional block retains the 2019 benchmark mapping and uses available 2022 institutional-sector series together with residual or balancing entries where required. These detailed flows maintain accounting consistency and are not interpreted separately in the descriptive results.

The 2022 Macro SAM provides insight into the production structure of the economy, the generation of value added, the composition of domestic demand and the interaction of the South African economy with the rest of the world. Table 5 decomposes total activity output into intermediate consumption and value added, including the contributions of labour, capital and net activity taxes.

Table 5: Breakdown of activity components in the economy

Component	Economic role	Value (Rand bn)	% of total activities	% of value added
Commodities (intermediate inputs)	Intermediate consumption	7 148	54.4%	Not Applicable
Labour	Value added	3 014	22.9%	50.3%
Capital	Value added	2 860	21.8%	47.7%
Net activity taxes	Value added	117	0.9%	2.0%
Total value added		5 991	45.6%	100%
Total output (Activities)		13 139	100.0%	

Source: Calculations by the author.

Table 5 disaggregates total activity output into intermediate input and value-added components. Intermediate consumption accounts for 54.4% of total output, indicating that production inputs represent a substantial share of gross output. Production activities use goods and services supplied by other sectors before generating value added. For example, a food processing company purchases agricultural products from farmers, packaging materials from manufacturers, electricity from utilities and transport services from logistics providers before producing its final output. Value added amounts to R5 991 billion, representing 45.6% of total output. Within value added, labour income accounts for 50.3%, capital income for 47.7% and net activity taxes for 2.0%.

Table 6 provides a bridge between the Macro Social Accounting Matrix (SAM) accounts and the aggregate commodity supply-demand balance. Only accounts that enter the commodity-flow identity carry values in the supply or demand columns. Factor and institutional accounts are retained for orientation but are not added to this gross flow total.

Table 6: Selected SAM accounts and the aggregate commodity supply-demand balance

SAM Account	Role	Supply (Rand bn)	Demand (Rand bn)
Activities (Domestic)	Domestic production	13 139	
Commodities (intermediate demand)	Intermediate consumption		7 148
Labour	Factor-income account		
Capital	Factor-income account		
Enterprises	Institutional account		
Households (Final Demand)	Household consumption		4 228
Government (Final Demand)	Government consumption		1 252
Net activity taxes	Taxes on production		
Net product taxes	Taxes on products (excluding import duties)	618	
Import duties	Taxes on imports	58	
Income taxes	Institutional tax account		
Saving-Investment	Gross fixed capital formation		945
Change in inventories	Inventory investment		99
Rest of the world (imports/exports)	Imports / exports	2 094	2 236
Total	Gross commodity-flow balance	15 909	15 909

Source: Calculations by the author. Note: The underlying unrounded values are fully balanced; any apparent difference arises from rounding.

Total supply and total demand both amounted to approximately R15.9 trillion. Domestic output constituted the largest supply component, while intermediate consumption and household consumption were the largest demand components. Imports contributed to total supply, while exports represented demand from the rest of the world.

Intermediate demand represents goods and services used as inputs in the production process, while final domestic demand represents expenditure on goods and services by households, government and investors within the domestic economy.

Final domestic demand can be expressed as:

$$\text{Final domestic demand} = C + G + I + \Delta Inv \quad (1)$$

where C denotes household consumption expenditure, G government consumption expenditure, I gross fixed capital formation, and ΔInv the change in inventories.

When trade with the rest of the world is incorporated, the broader expenditure identity becomes:

$$Y = C + G + I + \Delta Inv + (X - M) \quad (2)$$

where Y represents expenditure-based GDP at market prices, X exports of goods and services, and M imports of goods and services.

Domestic absorption, consisting of household consumption, government consumption, gross fixed capital formation and changes in inventories, amounted to R6 524 billion in 2022.

Exports amounted to R2 236 billion and imports to R2 094 billion, resulting in a positive trade balance of R142 billion.

Table 7 provides a breakdown of final domestic demand. Household consumption represents the largest component, accounting for approximately 65% of domestic absorption, followed by government consumption (19%), fixed investment (14%) and changes in inventories (2%).

Table 7: Final domestic demand disaggregation

Description	Values (R bn)	%
Households	4 228	65%
Government	1 252	19%
Gross fixed capital formation (GFCF)	945	14%
Change in inventories	99	2%
Final Domestic Demand	6 524	100%

Source: Calculations by the author.

The final component highlighted from the Macro SAM is the trade account, shown in Table 8.

Table 8: Trade accounts

Rest of the World	Values (R bn)
Exports of goods and services	2 236
Less: Imports of goods and services	2 094
Trade Balance	+ 142

Source: Calculations by the author.

Given that exports exceeded imports by R142 billion in 2022, South Africa recorded a modest trade surplus. Relative to total trade flows, the surplus amounted to approximately 3.3 per cent.

In practical terms, this implies that the economy sells slightly more to the rest of the world than it purchases from it.

6.2 Comparison of activity account aggregates, 2019 and 2022

The availability of comparable 2019 and 2022 Macro SAMs provides an opportunity to assess high-level changes in the overall value of economic activity and in how total output is divided between intermediate consumption and value added. The 2019 Macro SAM represents a pre-COVID-19 benchmark, while the 2022 Macro SAM reflects the economy during the subsequent recovery period. Table 9 compares total output, intermediate consumption and value added across the two benchmark years.

Table 9: Comparison of selected Macro SAM aggregates, 2019 and 2022

Indicator	2019 Macro SAM (R billion)	2022 Macro SAM (R billion)	Value change (R billion)	Percentage change
Total output	11 037	13 139	2 102	19.0%
Intermediate consumption	5 992	7 148	1 156	19.3%
Value added	5 045	5 991	946	18.7%

Source: Author's calculations based on van Seventer and Davies (2023) and the 2022 Macro SAM developed in this report.

Between 2019 and 2022, total output increased by approximately R2.10 trillion, or 19.0%. Intermediate consumption increased by approximately R1.16 trillion, while value added increased by R946 billion. The similar rates of increase recorded for intermediate consumption and value added indicate that the broad split between these two components remained relatively stable at the aggregate level. Intermediate consumption accounted for approximately 54.3% of output in 2019 and 54.4% in 2022, while the value-added share changed only slightly, from approximately 45.7% to 45.6%.

The comparison represents changes in monetary values and therefore incorporates both price and volume effects. It illustrates how SAMs constructed for different years can be used to monitor broad changes in the scale and structure of an economy at either national or provincial level.

7 Key Findings

The 2022 Macro SAM reveals the following structural characteristics of the South African economy:

- The economy generated total output of approximately R13.1 trillion, illustrating the scale of production and economic activity across all sectors.
- Intermediate consumption accounted for 54.4% of total output, illustrating the substantial role of intermediate inputs and the importance of supply-chain linkages within the economy.
- Value added amounted to R5.99 trillion, representing 45.6% of total output. The relatively balanced distribution between labour income (50.3%) and capital income (47.7%) suggests that both factors of production play significant roles in generating economic value.
- Household consumption was the dominant component of final domestic demand, accounting for approximately 65% of domestic absorption. This confirms that household consumption was the largest component of domestic absorption in the 2022 benchmark year.

- Government consumption contributed 19% of domestic absorption, while investment and inventory accumulation accounted for the remaining 16%, reflecting the role of both public expenditure and capital formation in supporting economic activity.
- South Africa remained closely integrated with global markets, recording exports of approximately R2.2 trillion and imports of R2.1 trillion during 2022.
- Exports exceeded imports by approximately R142 billion, resulting in a modest trade surplus.
- A comparison of the 2019 and 2022 Macro SAMs shows that total output increased by 19.0% in monetary terms, while intermediate consumption and value added increased by 19.3% and 18.7%, respectively. Their shares of total output remained broadly stable.
- Overall, the 2022 Macro SAM portrays an economy characterised by substantial production linkages, a relatively even split between labour and capital income within value added, household-consumption-dominated domestic absorption and continued integration into international trade.

8 Recommendations and way forward

This report serves as a standalone reference document on the structure of the South African economy in 2022. It also provides the national benchmark framework required for the development of a 2022 Western Cape Provincial Social Accounting Matrix.

It is therefore recommended that the 2022 South African Macro SAM be used as the benchmark framework for constructing a 2022 Western Cape Macro SAM. This process should be undertaken in conjunction with the 2022 South African Supply and Use Tables, South African Reserve Bank data and relevant provincial economic datasets.

The resulting provincial SAM will provide a comprehensive and internally consistent representation of the Western Cape economy and the interlinkages between production activities, factors of production, institutions and trade. Where appropriate and supported by available data, selected accounts may subsequently be further disaggregated to provide greater sectoral, household and institutional detail.

As an interim and practical next step, the 2022 South African Macro SAM will be restructured and, where appropriate, aggregated into a format suitable for application within a national macro-level Computable General Equilibrium model. This will allow initial CGE modelling, calibration, testing and capacity development to proceed while the more detailed 2022 Western Cape SAM is being constructed.

The experience gained through the conversion and application of the national Macro SAM will also inform the design of the Western Cape SAM, particularly with regard to account classification, data requirements, model structure and the representation of economic relationships required for future provincial CGE modelling.

The intended application of the Western Cape SAM is twofold. Firstly, it will support economic impact assessments of investments, projects and policy interventions. Depending on the application, this may include estimating direct, indirect and induced impacts on economic output, value added, employment and household income. Through SAM-based multiplier analysis, the broader economic effects of these interventions can also be quantified.

Secondly, once the Western Cape SAM has been completed and appropriately structured, it will provide the benchmark database for the development of a provincial CGE model. Such a model will enable the analysis of economy-wide effects arising from policy changes, external shocks and other events affecting the Western Cape economy. Potential applications include the assessment of climate-related events, trade disruptions, infrastructure investments and agricultural policy interventions.

In conclusion, while this report focuses on the development and analysis of the 2022 South African Macro SAM, it represents an important first step towards establishing a comprehensive economic modelling framework for the Western Cape. The initial application of the national Macro SAM within a CGE framework, together with the subsequent development of the Western Cape SAM and provincial CGE model, will strengthen the Department's capacity to undertake evidence-based economic analysis, policy evaluation and impact assessment within the agricultural sector and the broader provincial economy.

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Annexure A: Structure and interpretation of the Macro SAM

Table 1 provides a simplified representation of the circular flow within the Macro SAM, while Table 2 expands these broad relationships into the detailed account structure and transaction coding used in this report. Table A.1 then presents the corresponding benchmark accounting structure of the 2019 South African Macro SAM in fuller descriptive form. The underlying accounting relationships are the same across the three representations, although the level of detail and terminology differ.

Table A.1 retains the terminology used in the 2019 benchmark to preserve direct comparability with van Seventer and Davies (2023). In particular, the benchmark Accumulation account corresponds to the Saving–Investment (S–I) account used in Tables 1 and 2, while Changes in inventories corresponds to the Change in inventories (INVCH) account. Import duties are shown as a separate account, although they form part of taxes on products in the national accounts.

In the SAM, rows record receipts and columns record expenditures. Each transaction therefore appears as a payment by one account and a corresponding receipt by another, and each account must balance.

Intermediate consumption at purchasers' prices includes the basic value of commodities together with trade and transport margins and applicable net taxes on products. To remain aligned with the benchmark structure and source data, net product taxes and import duties are shown separately in the matrix.

Table A.1: Basic structure of a 2019 SAM for South Africa

	Activities	Commodities	Labour	Capital	Enterprises	Households	Government	Net activity taxes	Net product taxes	Import duties	Income taxes	Changes in inventories	Accumulation	Rest of the world	Total
Activities		Output of total domestic economy													Gross output
Commodities	Intermediate consumption	Transactions margins				Final consumption expenditure by households	Final consumption expenditure government					Change in inventories + residual item	Gross fixed capital formation	Exports of goods & services	Total demand
Labour	Compensation of employees													Compensation SA residents in RoW	Labour income
Capital	Net operating surplus + Depreciation													Property income paid: RoW	Capital income
Enterprises				Gross operating surplus of corporations, adjusted for property income paid to / received from RoW	Net property income + other current transfers received: corporations - non-life insurance claims paid: corporations	Property income paid: households + net non-life insurance premiums: households	Social contributions received: financial corporations + property income paid: general government							Secondary distribution of income	Enterprise earnings
Households			Compensation of residents	Gross operating surplus / mixed income of households	Misc transfers paid: corporations + property income received: households + non-life insurance claims: households + adjustment for the change in net equity in pension fund reserves: households		Misc current transfers paid: general government + social benefits received: households							Misc current transfers paid: RoW	Household earnings
Government				Gross operating surplus of general government	Social benefits paid by corporations + property income received by General Government	Misc transfers received: general government + social contributions paid: households	Net social contributions received: General Government	Net other taxes on production in all industries	Net taxes on products minus import duties	Import duties	Current taxes on income and wealth			Current international co-operation paid: RoW	Government receipts
Net activity taxes	Net other taxes on production in all industries														Net other taxes on production in all industries
Net product taxes		Net taxes on products minus import duties													Net taxes on products minus import duties
Import duties		Import duties													Import duties
Income taxes					Current taxes on income and wealth paid by corporations	Current taxes on income and wealth of households									Current taxes on income and wealth
Changes in inventories													Change in inventories + residual item		Change in inventories + residual item
Accumulation					Residual: corporations + Gross saving of corporations	Residual: households and NPISHs + Gross saving of HH and NPISHs	Gross saving of General Government							Current external balance: RoW	Savings
Rest of the world		Imports of goods & services	Compensation of South African employees	Property income received: RoW	Secondary distribution of income	Misc current transfers received: RoW	Current international co-operation received: RoW								Foreign exchange outflows
Total	Gross output	Total Supply	Distribution of labour income	Distribution of capital income	Enterprise outlays	Household outlays	Government outlays	Net other taxes on production in all industries	Net taxes on products minus import duties	Taxes on international trade and transactions: Import duties	Current taxes on income and wealth paid by corporations + current taxes on income and wealth of households	Change in inventories + residual item	Gross fixed capital formation (investment) + change in inventories + residual item	Foreign exchange inflow	Total

Source: Adapted by the author from van Seventer and Davies (2023, p. 4).

Table A.1 shows how the conceptual flows presented in Table 1 are translated into the detailed accounting structure of the benchmark Macro SAM. The main accounts and their economic roles are summarised below to support interpretation of the 2022 matrix.

The activities account represents the production side of the economy and records the expenditures incurred in producing domestic output. These include intermediate inputs purchased from the commodities account, payments to labour and capital, and net taxes on production. Total activity expenditure equals the value of gross domestic output. Output is recorded at basic prices, representing the value received by producers before the addition of trade and transport margins and taxes on products.

The commodities account serves as the supply and demand balancing account within the SAM. On the supply side, it records domestic output supplied by activities and imports from the rest of the world, together with the relevant margins and product taxes required to express commodities at purchasers' prices. On the demand side, commodities are used for intermediate consumption, household consumption, government consumption, gross fixed capital formation, changes in inventories and exports. Net product taxes and import duties are shown separately in the matrix to preserve the benchmark structure and make these flows transparent.

Labour and capital constitute the factor accounts. The labour account records compensation of employees generated through domestic production, together with relevant cross-border compensation flows. The capital account records income generated by capital, including operating surplus and mixed income, with consumption of fixed capital reflected where applicable, together with relevant property-income flows. These factor accounts show how income generated through production is distributed to domestic institutions and the rest of the world.

The institutional accounts consist of enterprises, households and government. These accounts record property income, transfers, social contributions, social benefits and taxes, showing how income is received and paid among economic agents. The government account is linked to dedicated tax accounts for net activity taxes, net product taxes, import duties and income taxes. These tax accounts are shown separately to preserve the benchmark structure and facilitate interpretation of the corresponding government receipts.

The saving-investment part of the SAM comprises the benchmark Accumulation account together with the separate Changes in inventories account. The Accumulation account receives gross saving from enterprises, households and government, together with the current external balance from the rest of the world. These resources finance gross fixed capital formation and changes in inventories.

Gross fixed capital formation is recorded as commodity demand, while the change in inventories is recorded separately through the inventory-change account. Together, these flows reconcile total saving and investment. The stock of inventories itself is not recorded in the SAM; only its change during the accounting period is recorded as a flow.

The rest of the world account records transactions between the domestic economy and external agents. These include imports and exports of goods and services, cross-border factor income, transfers and international cooperation flows. The account therefore captures the interaction between the South African economy and the external sector and records the corresponding foreign exchange inflows and outflows.

Because a SAM is a square accounting framework, the same accounts appear as both rows and columns. Rows record receipts and columns record expenditures. Each transaction therefore represents a payment by one account and a corresponding receipt by another. For every account, total receipts must equal total expenditures, ensuring that the SAM remains fully balanced.

Department of Agriculture
Programme: Agricultural Economic Services
Private Bag X1
Muldersvlei Road
Elsenburg, 7607

tel: +27 21 808 5207 1 **e-mail:** Riekie.Cloete@westerncape.gov.za
www.elsenburg.com | www.westerncape.gov.za



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