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UPDATED SOCIAL ACCOUNTING MATRICES FOR KENYA: AN INSTRUMENT FOR POLICY ANALYSIS AND SIMULATION

Key Highlights

The policy brief provides an overview of the updated Kenya Social Accounting Matrices (SAMs). The current Kenya SAM which incorporates latest rebased national accounts data, supply and use tables and household budget survey, is an update of the previous SAM compiled for 2009 transactions. SAMs are used in conjunction with analytical techniques to strengthen the evidence underlying policies.

The updated Kenya SAM 2021 identifies 90 production activities and commodities (products) across agriculture, industry, and services sectors. As an economy-wide data framework, SAM best captures priority production sectors outlined in the government's new development plan (Bottom-up Economic Transformation Agenda (BETA)). For instance, priority sub-sectors highlighted in the plan include maize, dairy, cattle, tea value addition, expanding and revamping export cash crops such as coffee, cashew nuts, avocado, macadamia nuts and pyrethrum, revamping leather, cotton, pharmaceutical, and textile and clothing industries. Using this SAM data framework, analysis can be done to assess the likely impacts of implementing BETA on jobs, poverty and food security in Kenya. The SAM also includes 3 broad categories of production factors (land, capital and labour), and 15 household groups by quintiles.

Highlight from Kenya SAM 2021 suggests that services sector contributed the largest share to GDP (57.8%), followed by Agriculture (23.4%), and Industry (18.7%). The brief also presents the share of external trade to total output and domestic demand, showing that Kenya exports more agriculture-related products while it imports more industrial products. In 2021, Kenya exported 7.1 per cent of its output while import share to domestic demand was 11 per cent, and in the agriculture sector, export to output share was 16.3 per cent.

The Kenya SAM 2021 provides policymakers with the necessary data and analytical tools to design and implement effective policies to promote sustainable economic growth and reduce poverty and inequality.

1.0 Introduction

Kenya has experienced impressive economic growth over the past decade, with an average annual GDP growth rate of 5.7 per cent. However, the country still faces significant challenges in creating jobs, reducing poverty, inequality, and uneven economic growth. To address these challenges, policymakers need timely, accurate and comprehensive data to design and implement effective policies that promote inclusive economic growth. One of the tools that can be used for this purpose is a Social Accounting Matrix (SAM).

A Social Accounting Matrix (SAM) is a comprehensive and economy-wide database recording data of all transaction between economic agents in a specific economy for a certain period. It incorporates all economic transactions, between institutional sectors¹, productive activities, goods and services and factors of production. It therefore describes the circular flow of income and spending in a national economy, (Alfredo et al 2018). Basically, a SAM records flows that include all transactions that are summarized as purchasing of intermediate goods, hiring of factors, current account transactions of institutions (transfers, consumption expenditure, savings and investments and any foreign transaction including direct investment and international trade).

There are two main groups of models based on Social Accounting Matrices. The fixed price models, which are mainly the linear models that utilize multipliers² based on the traditional Input-Output theory. The other group of models the Computable General Equilibrium (CGE) and Dynamic Stochastic General Equilibrium (DSGE) models, allows for flexibility in prices. These models are technically complex but undoubtedly have an enormous explanatory power as well as a huge capacity to simulate policy scenarios, (Alfredo et al 2018). CGE framework considers the whole economy and uses SAM as the basis for analysis particularly calibrating most variables and parameters in the model. The impact analysis of policy reforms, spending, investments, external shocks are influenced by the initial structures of the institutions, input-output relationships across sectors, the factor and product market linkages between producers and consumers. All these structures and linkages are captured in SAM. Therefore, the quality of data and SAM estimation procedures greatly influence the empirical strength of CGE analysis.

The level of SAM disaggregation depends critically on the policy/research questions that the economy wide models are expected to answer. If the model is to be used to explore issues related to income distribution, then the household account in SAM is broken down into several relatively homogeneous household groups reflecting the socioeconomic characteristics of the country or region under consideration. Alternatively, if the purpose of the model is to analyze intersectoral linkages, then a relatively detailed sectoral disaggregation of production activities is important.

SAM thus contributes to the design of appropriate policies that target various sections of the economy, such as agriculture, informal sector, and rural areas. The SAM is also used to analyze the distribution of income and consumption among different institutional sectors of the economy and identify the most effective policy interventions to reduce unemployment, poverty, and inequality. Moreover, SAMs enable policymakers to analyze the impacts of different trade and tariff policies on different sectors of the economy, including the effects on industry, households, and government entities. It is also used to analyze the impacts of different fiscal policies, such as taxation and government spending, on different sectors of the economy, including the effects on households and industry.

¹ These are households, financial corporations, non-financial corporations, government, non-profit institutions serving households and the rest of the world.

² [Social Accounting Matrices and Multiplier Analysis](#)

The government development agenda (BETA) plans to create jobs, eradicate hunger and lower the cost of living for its citizens. Using Kenya SAM 2021 as the data framework, a CGE analysis for assessing impact of implementing Bottom-up Economic Transformation Agenda is useful evidence for designing appropriate policies, strategies and programs that support the overall agenda. Likewise, assessing impacts of external shocks such as increase of fertilizer, fuel, and food prices on the Kenya's economy provide a piece of evidence for appropriate response to crises, like the analysis of impact of Ukraine-Russia war on Kenya's economy³. Further, KIPPRA and IFPRI conducted CGE simulations of the impact of implementing the Kenya Kwanza manifesto and the results were shared with stakeholder. The results show significant improvement in all targeted sectors if the manifesto is implemented 100 per cent⁴.

This policy brief provides highlights of the key accounts in the Kenya SAM 2021.

2.0 Key findings

2.1 Structure of the Kenya SAM 2021

The Kenya SAM 2021 is an improvement from the 2009, it incorporates 2016 rebased national accounts data, 2016 supply and use tables and 2015/16 Kenya Integrated Household Budget Survey. The SAM therefore reflects a more current picture of institutional structures and production linkages. It identifies ninety production activities across agriculture⁵, industry, and services sectors. It also includes three broad categories of production factors (labour, land, and capital). Labour is further disaggregated across eight educational attainment levels and differentiated by rural and urban location. The SAM also includes household account (disaggregated into fifteen household groups), government account, enterprise account, tax accounts, saving-investment account, and the rest of the world. The SAM provides insights into the production and external trade structure, domestic institutions and the rest of the world incomes and expenditures.

2.2. Economic growth and sectoral shares to total GDP, exports, and imports.

Services sector accounted for the largest contribution to GDP (57.8%), followed by Agriculture (23.4%), and Industry (18.7%) as shown in Figure 1. From the figure, Agriculture exports amounted to the largest share of total exports at 37.4 per cent followed by services sector at 35.1 per cent while industry amounted to 27.5 per cent share of the total exports. The result on imports shows industry⁶ share to total imports as the largest at 83.6 per cent, services (14.4%), Agriculture (2%).

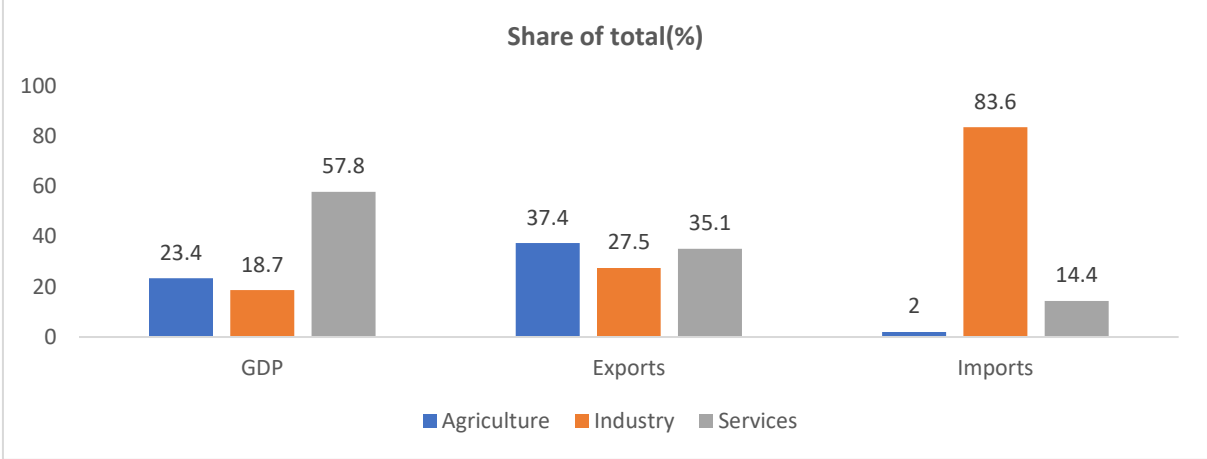
³ [Ukraine-Russia war impacts on Kenya's economy](#)

⁴ See policy brief here "<https://www.ifpri.org/publication/impacts-implementing-bottom-economic-plan-jobs-poverty-and-food-security-kenya>"

⁵ Agriculture includes growing of crops, Animal production, Fishing and aquaculture, Forestry and Logging

⁶ Industry comprises of Mining and quarrying, Manufacturing, Electricity supply, Water supply and waste management and Construction.

Figure 1: Share of broad sectors to total GDP, Exports, and Imports in percentage points.



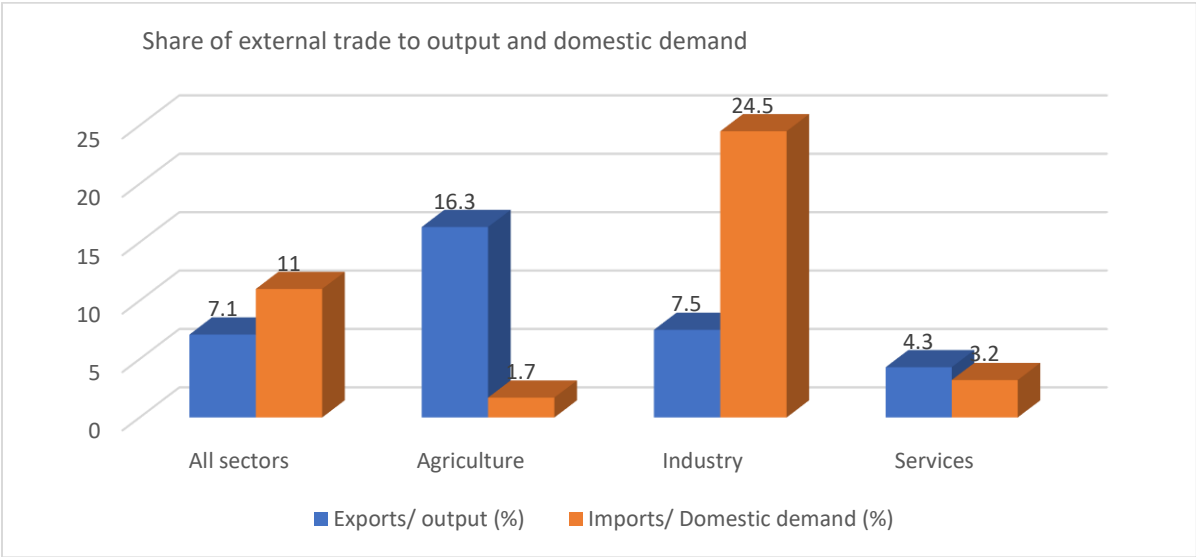
Source: 2021 Kenya SAM

Source:

2.3. Share of external trade to output and domestic demand.

Figure 2 shows the share of exports to output and imports to domestic demand. Kenya exports more agriculture related products while it imports more industrial products. In 2021, Kenya exported 7.1 per cent of its output while import share to domestic demand was 11 per cent. In the agriculture sector, export to output share was 16.3 per cent, and imports to domestic demand share was 1.7 per cent. The industrial sector’s export to output shares was 7.5 per cent while imports to domestic demand was 24.5 per cent. Services sector’s export to output was 4.3 per cent while imports to domestic demand was 3.2 per cent.

Figure 2. Share of exports to output and imports to domestic demand.



Source: 2021 Kenya SAM

2.4: Distributional of household incomes and expenditures.

Table 1 shows distribution of household incomes by sources and household expenditures. In 2021, the share of capital income to total household income was the largest at 63.2%, followed by labour income (32.6%), and transfers (4.1%), this is reflected across different household quintiles, and households' locations. Urban and rural households receive 38.8 per cent and 22.2 per cent respectively of their incomes from labour. Rural household's income from total capital (including crop and land) was higher at 74.1 per cent than urban households (56.8%). Urban households receive 4.5 per cent of their income from Transfers, which is higher than the rural counterparts (3.6%).

Table1: Household Income Sources in Kenya for the year 2021

	Total Labor	Total capital including crop and land	Transfers (Government & ROW)
All households	32.6	63.2	4.1
Quintile 1	30.7	66.3	3
Quintile 2	31.8	65.8	2.3
Quintile 3	33.8	64.3	1.9
Quintile 4	36.9	60.2	2.9
Quintile 5	31.4	63.5	5.1
Rural households	22.2	74.1	3.6
Urban households	38.8	56.8	4.5

Source: 2021 Kenya SAM

Table 2 shows annual consumption and total spending by households across quintiles and location. Urban households have higher per capita consumption and total spending than the rural households. Food consumption spending for rural households was 48.5 per cent compared to 36.0 per cent for urban households. On the other hand, the savings rate for rural households was the lowest at 6.5 per cent.

Table 2: Annual consumption and total spending among rural and urban households.

	Consumption spending			Total spending	
	Share of total consumption (%)	Per capita (1000 Shilling)	Food share (%)	Per capita (1000 Shilling)	Savings rate (%)

Rural households	40	105	48.5	115	6.5
Urban households	60	282	36.0	345	11.4

Source: 2021 Kenya SAM

Notes: Expenditures are annual. Consumption spending includes spending on goods and services. The total spending is consumption spending plus taxes, savings, and outward remittances.

3.0 Conclusion

Social Accounting Matrix (SAM) is a comprehensive, economywide data framework and tool for policy analysis. The Kenya SAM 2021 is a tool that provides solid support for evidence-based economic policy analysis and assessment of the current situation and future development. The SAM is organized based on economic, social, and environmental structure of the economy while also providing a schematic presentation of incomes and outlays in the economic system. Important to note is that the SAM makes it possible to develop a model that can address relatively detailed policy-relevant issues without asking for non-existent data and/or carrying out complicated economic estimations. In addition, the SAM forms statistical foundations for macroeconomic models building especially using SAM Multipliers, CGE and DSGE models. Since the SAM draws together data from different and distinct, it helps to check for data consistency.

During the SAM building some observations were made. Particularly, it is recommended that to address the existing data gap on the compilation of input and output ratios, there is need to conduct a comprehensive cost of agricultural production survey. Further, the Kenya SAM 2021 uses 2015/2016 Kenya Integrated Household Budget Survey as a key data input, there is need for timely update of the dataset.

References

Mainar-Causapé, A.J.; Ferrari, E.; McDonald, S. Social accounting matrices: basic aspects and main steps for estimation, EUR 29297 EN, JRC Technical Reports. Publications Office of the European Union, Luxembourg, 2018, doi:10.2760/010600.

ABOUT THE AUTHORS

Kenya Institute for Public Policy Research and Analysis (KIPPRA)

Joshua Laichena, Daniel Omanyo, Benson Kiriga, Kenneth Malot, and Shadrack Mwatu

Kenya National Bureau of Statistics (KNBS)

Benjamin Muchiri, Hiram Mbatia, James Abuga, and Justin Rutto

International Food Policy Research Institute (IFPRI)

Clemens Breisinger, Juneweenex Mbuthia, and Lensa Omune

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1201 Eye Street, NW, Washington, DC 20005 USA | T. +1-202-862-5600 | F. +1-202-862-5606 | Email: ifpri@cgiar.org | www.ifpri.org | www.ifpri.info

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