Note 1: The document currently states that the SAM is available on request. This may need to be changed depending on the decision to make this SAM publicly available or not, see footnote 1

**Appendix: A Provisional 2019 Social Accounting Matrix (SAM) for South Africa**

**List of acronyms**

GDP Gross Domestic Product

LCS Living Conditions Survey

LMD Labour Market Dynamics

NA National Accounts

SAM Social Accounting Matrix

SARB South Africa Reserve Bank

SSA Statistics South Africa

ST Supply Table

SUT Supply-Use Table

SUTSAM Supply-Use Table Social Accounting Matrix, a SAM with a single household   
and single labour type

UT Use Table

This appendix outlines the construction of a provisional 2019 Social Accounting Matrix (SAM) for South Africa. A SAM is a consistent data framework that captures the information contained in the National Accounts (NA, SARB, 2020), a Supply Table (ST) and a Use Table (UT) (SSA, 2020), as well as the monetary flows between institutions. A SAM is an ex-post accounting framework in that within its square format, total receipts must equal total payments for each of its accounts. Since the required data is not drawn from a single source, information is manipulated in order to make it internally consistent. SAMs are economy-wide databases that are used in conjunction with analytical techniques to strengthen the evidence underlying policy decisions.

A SAM is an economy-wide data framework that usually represents the real economy of a single country. More technically, a SAM is a square matrix in which single entry bookkeeping is undertaken for a set of accounts that represent various economic agents such as productive activities, commodities, factors of production and a range of institutions such as households, government and the rest of the world. Each account is represented by a row and a matching column. Each cell shows the payment from the account of its column to the account of its row – the incomes of an account appear along its row, its expenditures down its column. The same underlying principle of double-entry accounting are applied and in the SAM they require that, for each account in the SAM, total revenue (row total) equals total expenditure (column total). Table 1 shows an aggregate SAM for South Africa (with verbal explanations in place of numbers).

The first step in constructing the provisional 2019 SAM is consolidating NA data for 2019 (SARB, 2020) and StatsSA’s ST and UT (StatsSA, 2020b) data sources into a consistent SAM framework. This results in what can be labelled the “SUTSAM” since it only identifies a single type of labour and a single household. The second step draws on the latest available labour market and household income and expenditure survey data to disaggregate labour and household accounts of the SUTSAM respectively .

The provisional 2019 SAM distinguishes 62 ‘activities’ (the entities that carry out production) and 104‘commodities’ (representing markets for goods and non-factor services). A list of activities and commodities as well as more detail on SAMs in general can be found in van Seventer et al, 2018. Labour market detail is extracted from the 2018 Labour Market Dynamics data set (SSA, 2020) and disaggregates the single labour category of the SUTSAM into 4 categories by highest level of education attained. Household detail is derived from the 2015 Living Conditions Survey (SSA, 2017) and identifies expenditure deciles, with the highest household group split into five categories of 2%.

Table 1: Basic structure of a Provisional 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 primary and secondary incomes received, incl. related to social (pension) contributions and non-life insurance | Property income paid: households + secondary, i.e., social (pension) contributions and non-life insurance premiums | Property income paid: general government |  |  |  |  |  |  |  | Enterprise earnings |
| Households |  |  | Compensation of residents | Gross operating surplus / mixed income of households | Misc secondary income transfers (incl priv pensions & non-life insurance) + property income received by households+ adjm for change in pension fund net equity reserves |  | Misc current transfers paid: general government + social benefits received by households (state pension, child support grant etc) |  |  |  |  |  |  | Misc current transfers paid: RoW | Household earnings |
| Government |  |  |  | Gross operating surplus of general government | Social contributions paid by corporations + property income received by general government | Misc transfers received by general government |  | Net other taxes on production in all industries | Net taxes on products - 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 - import duties |  |  |  |  |  |  |  |  |  |  |  |  | Net taxes on products - 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 households 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 |  | 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 - 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 |  |

*Source: own descriptions and labels*

Table 2: A 2019 Macro SAM for South Africa (Billions of Rands)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Activi-  ties | Commodi-  ties | Labour | Capital | Enter-  prises | House-  holds | Govern-  ment | Net activity taxes | Net product taxes | Import duties | Income taxes | Changes in invent-  tories | Accumu-  lation | Rest of the world | **Total** |
| Activities |  | 9,732 |  |  |  |  |  |  |  |  |  |  |  |  | 9,732 |
| Commodities | 5,208 |  |  |  |  | 3,059 | 1,081 |  |  |  |  | 3 | 909 | 1,516 | 11,776 |
| Labour | 2,419 |  |  |  |  |  |  |  |  |  |  |  |  | 13 | 2,431 |
| Capital | 2,010 |  |  |  |  |  |  |  |  |  |  |  |  | 104 | 2,114 |
| Enterprises |  |  |  | 1,097 | 567 | 727 | 237 |  |  |  |  |  |  |  | 2,628 |
| Households |  |  | 2,416 | 664 | 1,037 |  | 275 |  |  |  |  |  |  | 26 | 4,418 |
| Government |  |  |  | 108 | 77 | 13 |  | 95 | 498 | 56 | 783 |  |  | 1 | 1,631 |
| Net activity taxes | 95 |  |  |  |  |  |  |  |  |  |  |  |  |  | 95 |
| Net product taxes |  | 498 |  |  |  |  |  |  |  |  |  |  |  |  | 498 |
| Import duties |  | 56 |  |  |  |  |  |  |  |  |  |  |  |  | 56 |
| Income taxes |  |  |  |  | 247 | 537 |  |  |  |  |  |  |  |  | 783 |
| Changes in inventories |  |  |  |  |  |  |  |  |  |  |  |  | 3 |  | 3 |
| Accumulation |  |  |  |  | 701 | 70 | -12 |  |  |  |  |  |  | 153 | 912 |
| Rest of the world |  | 1,490 | 15 | 245 |  | 13 | 50 |  |  |  |  |  |  |  | 1,813 |
| **Total** | 9,732 | 11,776 | 2,431 | 2,114 | 2,628 | 4,418 | 1,631 | 95 | 498 | 56 | 783 | 3 | 912 | 1,813 |  |

*Source: own compilation of South Africa’s National Accounts from the SARB Quarterly Bulletin, Sept 2020*

The macro SAM shown in Table 2 is an aggregation of the micro SAM. This section explains how each macro SAM entry is derived and broadly how, where necessary, it is disaggregated to arrive at the unbalanced prior micro SAM. The notation for SAM entries is (row, column) and the values are in billions of 2019 South African Rand. KBP refers to the SARB series of National Accounts in their Quarterly Bulletin of the South African Reserve Bank. [[1]](#footnote-1)

|  |  |
| --- | --- |
| i | (Commodities,Activities)…Rb5,208 |
|  | KBP6871J: Production account: Intermediate consumption of total domestic economy. Total (sum of all) intermediate inputs are initially disaggregated across activities identified in the SAM according to shares in the 2017 UT. For each activity identified in the SAM, the ratio of total intermediates to GDP at basic prices is derived from the 2017 UT. This is multiplied with matching 2019 values of GDP that aggregate up 1 digit National Accounts' higher level control totals using disaggregation shares from the UT. Adjustment has been made for difference in treatment of informal sector GDP between the 1 digit activity National Accounts measure and the UT. Intermediate inputs are subsequently disaggregated across commodities according to its shares for each activity based on the SSA Use Table (UT). |
| ii | (Labour,Activities)…Rb2,419 |
|  | KBP6000J: Compensation of employees. Total labour income is disaggregated across activities according to shares in the 2017 UT. For each activity identified in the SAM, the labour income share in GDP at basic prices is derived from the 2017 UT. This is multiplied with matching 2019 GDP values that aggregate up 1 digit National Accounts' higher level control totals by using disaggregation shares from the 2017 UT. Adjustment has been made for difference in treatment of informal sector GDP between the 1 digit activity National Accounts measure and the UT. Labour income is subsequently split across four educational groups: |
|  | -          ‘primary” refers to workers with some or no primary schooling, i.e., grades 1-7 |
|  | -          “middle” includes workers who have completed grade 10 |
|  | -          “secondary” includes workers who have completed grade 12 |
|  | -          “tertiary” includes workers who have at least some post-secondary or higher education. |
|  | Workers’ compensation is drawn from the 2012 Labour Force Survey (LFS) (StatsSA 2012). Not all activities are covered in the LFS. Appendix B reports the mapping from LFS to activities used in the SAM. |
| iii | (Capital,Activities)…Rb2,010 |
|  | KBP6001J: Net operating surplus + KBP6002J: Consumption of fixed capital (Depreciation). Total capital income is disaggregated across activities according to shares in the 2017 UT. For each activity identified in the SAM, the capital income share in GDP at basic prices is derived from the 2017 UT. This is multiplied with matching 2019 GDP values that aggregate up 1 digit National Accounts' higher level control totals by using disaggregation shares from the 2017 UT. Adjustment has been made for difference in treatment of informal sector GDP between the 1 digit activity National Accounts measure and the UT. |
| iv | (Net activity taxes,Activities)…Rb095 |
|  | KBP6600J: Other taxes on production in all industries - KBP6601J: Other subsidies on production in all industries. Net activity taxes are derived by applying the activity tax rates from the 2017 UT to 2019 GDP at factor cost. The latter is the sum of ii and iii above. |
| v | (Activities,Commodities)…Rb9,732 |
|  | KBP6870J: Production account: Output of total domestic economy. It is equal to the sum of the activites' total costs which is the sum of i - iv above, i.e., intermediate costs, labour costs, rewards for the production factor capital and activity tax. Total costs of production is what local producers supply to the market. Total domestic production of each activity is disaggregated across the commodities that they make according to the shares in the 2017 ST. |
| vi | (Net dom prod taxes,Commodities)…Rb498 |
|  | KBP6603J: Taxes on products - KBP6604J: Subsidies on products-KBP4590J: National government tax revenue: Taxes on international trade and transactions: Import duties. Domestic taxes less subsidies on products together with import duties is equal to taxes on products as reported by the National Accounts. Disaggregation of this control total (sum of taxes less subsidies on products less import duties) across products is based on 2017 ST shares after import duties, discussed below in (vii), are subtracted. |
| vii | (Import duties,Commodities)…Rb056 |
|  | KBP4590J: National government tax revenue: Taxes on international trade and transactions: Import duties. Total Import duties are part of national government tax revenue as reported in the Public Finance Statistics of the SARB Quarterly Bulletin and together with net domestic product tax [see (vi) above] make up net product tax that is reported in the National accounts. Commodity level import duties collected were obtained from 2009 SARS import duty collection rates. These rates were manually adjusted so as to avoid negative domestic commodity tax where it was obvious this did not make sense. More robust and recent direct estimates of tax collection or their rates will require further work. |
| viii | (Rest of the world,Commodities)…Rb1,490 |
|  | KBP6014J: Imports of goods & services. Disaggregated to commodity level based on 2017 ST shares. Adjustments are made for purchases of residents abroad while benchmarking on the 2019 National Accounts. |
| ix | (Households,Labour)…Rb2,416 |
|  | KBP6240J: Compensation of residents. Disaggregated across types of labour and household income classes according to the 2015 LCS |
| x | (Rest of the world,Labour)…Rb015 |
|  | KBP6207J: Compensation of South African employees abroad. Disaggregated across types of labour according to total labour income received by households using 2015 LCS |
| xi | (Enterprises,Capital)…Rb1,085 |
|  | KBP6706J: Generation of income account: Gross operating surplus of Financial corporations+KBP6746J: Generation of income account: Gross operating surplus of non-financial corporations+KBP6904J: External account of primary incomes and current transfers: Property income paid: ROW-KBP6901J: External account of primary incomes and current transfers: Property income received: ROW |
| xii | (Households,Capital)…Rb664 |
|  | KBP6826J: Generation of income account: Gross operating surplus / mixed income of households and NPISHs. Distribution is based on the LCS |
| xiii | (Government,Capital)…Rb119 |
|  | KBP6786J: Generation of income account: Gross operating surplus of General government. Income earned by government from holdings |
| xiv | (Rest of the world,Capital)…Rb245 |
|  | KBP6901J: External account of primary incomes and current transfers: Property income received: ROW. |
| xv | (Enterprises,Enterprises)…Rb567 |
|  | -KBP6707J: Allocation of primary income account: Property income received: Financial corporations+KBP6710J: Allocation of primary income account: Property income paid: Financial corporations-KBP6747J: Allocation of primary income account: Property income received: Non-financial corporations+KBP6752J: Allocation of primary income account: Property income paid: Non-financial corporations+KBP6716J: Secondary distribution of income account: Other current transfers received: Financial corporations-KBP6720J: Secondary distribution of income account: Non-life insurance claims paid: Financial corporations+KBP6715: Secondary distribution of income account: Social contributions received: Financial corporations+KBP6757J: Secondary distribution of income account: Non-life insurance claims received: Non-financial corporations+KBP6759J: Secondary distribution of income account: Social contributions paid by non-financial corporations-KBP6761J :Secondary distribution of income account: Net non-life insurance premiums paid: Non-financial corporations |
| xvi | (Households,Enterprises)…Rb1,037 |
|  | KBP6718: Secondary distribution of income account: Social benefits paid by Financial corporations+KBP6721J: Secondary distribution of income account: Miscellaneous transfers paid: Financial corporations+KBP6762J: Secondary distribution of income account: Miscellaneous current transfers paid: Non-financial corporations+KBP6827J: Allocation of primary income account: Property income received: Households and NPISHs+KBP6838J: Secondary distribution of income account: Non-life insurance claims: Households and NPISHs+KBP6845J: Use of disposable income account: Adjustment for the change in net equity in pension fund reserves: Households & NPISHs. Disaggregated across household income classes according the LCS (2016). The following items are included: “Income from letting of fixed property”, “Interest received”, “Dividends of Listed Companies”, “Dividends of Unlisted Companies”, “Pension from previous employment”, “Annuities from own investment”, “Payments received from boarders and other non-members”, “Claims”, “Non-refundable bursaries”, “Benefits, donations and gifts” and “Cash” |
| xvii | (Government,Enterprises)…Rb077 |
|  | KBP6787J: Allocation of primary income account: Property income received: General government+KBP6794J:Secondary distribution of income account: Social contributions received: General government |
| xviii | (Income taxes,Enterprises)…Rb247 |
|  | KBP6717J: Secondary distribution of income account: Current taxes on income and wealth paid by Financial corporations+KBP6758J: Secondary distribution of income account: Current taxes on income and wealth paid by non-financial corporations |
| xix | (Accumulation,Enterprises)…Rb690 |
|  | KBP6724J: Use of disposable income account: Residual: Financial corporations+KBP6725J: Use of disposable income account: Gross saving of Financial corporations+KBP6764J: Use of disposable income account: Residual: Non-financial corporations+KBP6765J: Use of disposable income account: Gross saving of non-financial corporations |
| xx | (Commodities,Households)…Rb3,059 |
|  | KBP6007J: Final consumption expenditure by households: Total (PCE). Disaggregated across products according to the expenditure shares in the 2017 UT and across household income classes using shares from the 2015 LCS. |
| xxi | (Enterprises,Households)…Rb727 |
|  | KBP6832J: Allocation of primary income account: Property income paid: Households and NPISHs+KBP6840J Secondary distribution of income account: Social contributions paid: Households and NPISHs+KBP6842J: Secondary distribution of income account: Net non-life insurance premiums: Households and NPISHs. Disaggregated across household income classes using shares from the LCS (2015) and consists of the following outlay items: “interest on mortgage bonds”, “contribution to pension, provident and annuity funds” and “employer contribution to pension, provident and annuity funds”. |
| xxii | (Government,Households)…Rb013 |
|  | KBP6797J: Secondary distribution of income account: Miscellaneous transfers received: General government. Disaggregated across household income classes using shares from the 2015 LCS for income tax payments (see next item for details). |
| xxiii | (Income taxes,Households)…Rb537 |
|  | KBP6245J: Current taxes on income and wealth of households. Disaggregated across household income classes using shares from the 2015 LCS based on the distribution of outlays for income tax purposes and includes the following items: “SITE - income tax”, “PAYE - income tax”, “According to assessment - income tax”, “Amnesty tax”, “Penalty late submission of tax”. |
| xxiv | (Accumulation,Households)…Rb067 |
|  | KBP6846J: Use of disposable income account: Residual: Households and NPISHs+KBP6848J: Use of disposable income account: Gross saving of households and NPISHs. Disaggregated across household income classes using shares from the 2015 LCS for the following items: “Listed company - shares 12 months”, “Unlisted company - shares 12 months”, “Unit trusts 12 months”, “Investment plans 12 months”, “Other investments 12 months”, “Deposits into savings 12 months” and offset by “Withdrawals from savings”. |
| xxv | (Rest of the world,Households)…Rb013 |
|  | KBP6909J: External account of primary incomes and current transfers: Miscellaneous current transfers received: ROW. Disaggregated across household income classes using total income shares from the 2015 LCS and consists of the same items as used for transfers by households to enterprises (see item xxi above). |
| xxvi | (Commodities,Government)…Rb1,081 |
|  | KBP6008J: Final consumption expenditure by general government. Disaggregated across products according to the expenditure shares in the 2017 UT. |
| xxvii | (Enterprises,Government)…Rb237 |
|  | KBP6791J: Allocation of primary income account: Property income paid: General government. |
| xxviii | (Households,Government)…Rb272 |
|  | KBP6801J: Secondary distribution of income account: Miscellaneous current transfers paid: General government+KBP6798J: Secondary distribution of income account: Social benefits paid: General government. Disaggregated across household income classes using shares from the 2015 LCS and includes the following items: “Old age pensions”, “Disability grants”, “Family and other allowances” and “Workmen's compensation Funds”. |
| xxix | (Government,Government)…Rb000 |
|  | 0 |
| xxx | (Accumulation,Government)…Rb002 |
|  | KBP6803J: Use of disposable income account: Gross saving of General government. |
| xxxi | (Rest of the world,Government)…Rb050 |
|  | KBP6908J: External account of primary incomes and current transfers: Current international co-operation received: ROW. |
| xxxii | (Government,Net activity taxes)…Rb095 |
|  | KBP6600J: Other taxes on production in all industries - KBP6601J: Other subsidies on production in all industries. Net activity taxes are derived by applying the activity tax rates from the 2017 UT to 2019 GDP at factor cost. The latter is the sum of ii and iii above. |
| xxxiii | (Government,Net dom prod taxes)…Rb498 |
|  | KBP6603J: Taxes on products - KBP6604J: Subsidies on products-KBP4590J: National government tax revenue: Taxes on international trade and transactions: Import duties. Domestic taxes less subsidies on products together with import duties is equal to taxes on products as reported by the National Accounts. Disaggregation of this control total (sum of taxes less subsidies on products less import duties) across products is based on 2017 ST shares after import duties, discussed below in (vii), are subtracted. |
| xxxiv | (Government,Import duties)…Rb056 |
|  | KBP4590J: National government tax revenue: Taxes on international trade and transactions: Import duties. Total Import duties are part of national government tax revenue as reported in the Public Finance Statistics of the SARB Quarterly Bulletin and together with net domestic product tax [see (vi) above] make up net product tax that is reported in the National accounts. Commodity level import duties collected were obtained from 2009 SARS import duty collection rates. These rates were manually adjusted so as to avoid negative domestic commodity tax where it was obvious this did not make sense. More robust and recent direct estimates of tax collection or their rates will require further work. |
| xxxv | (Government,Income taxes)…Rb783 |
|  | KBP6717J: Secondary distribution of income account: Current taxes on income and wealth paid by Financial corporations+KBP6758J: Secondary distribution of income account: Current taxes on income and wealth paid by non-financial corporations. |
| xxxvi | (Commodities,Ch in inventories)…Rb003 |
|  | KBP6010J: Change in inventories+KBP6011J: Residual item. Disaggregated across products according to the expenditure shares in the 2017 UT. |
| xxxvii | (Commodities,Accumulation)…Rb909 |
|  | KBP6009J: Gross fixed capital formation (Investment). Disaggregated across products according to the expenditure shares in the 2017 UT. |
| xxxviii | (Ch in inventories,Accumulation)…Rb003 |
|  | KBP6010J: Change in inventories+KBP6011J: Residual item. Disaggregated across products according to the expenditure shares in the 2017 UT. |
| xxxix | (Commodities,Rest of the world)…Rb1,516 |
|  | KBP6013J: Exports of goods & services. Commodity level adjustments are made for purchases of non-residents while benchmarking on National Accounts. Disaggregation to commodity level is based on the 2017 UT. |
| xl | (Labour,Rest of the world)…Rb013 |
|  | KBP6208J: Compensation of South African residents in the rest of the world. Disaggregated across types of labour according to shares in total labour income using LMD data |
| xli | (Capital,Rest of the world)…Rb104 |
|  | KBP6904J: External account of primary incomes and current transfers: Property income paid: RoW. |
| xlii | (Households,Rest of the world)…Rb026 |
|  | KBP6912J: External account of primary incomes and current transfers: Miscellaneous current transfers paid: RoW. The distribution across household income classes is the same as for what households receive from enterprises (see xvi above. |
| xliii | (Government,Rest of the world)…Rb001 |
|  | KBP6911J: External account of primary incomes and current transfers: Current international co-operation paid: RoW. |
| xliv | (Accumulation,Rest of the world)…Rb153 |
|  | KBP6913J: External account of primary incomes and current transfers: Current external balance: RoW. |

# 4. Balancing the Prior SAM

The range of datasets used to construct the SAM described in the previous section suggests that there will may be imbalances (i.e., row and column totals are unequal). The reason is that 2017 SUT data is matched to 2019 NA data. Balancing is achieved by means of the cross entropy approach as described by Robinson, et al (1998).

After balancing the SUTSAM, it was disaggregated across labour and households using the 2018 LMD data (StatsSA, 2020a) and the LCS data for 2014/15 (StatsSA, 2017) survey data. Since the SUTSAM is balanced, this can be set up such that this results in imbalances for the household accounts only. We do this by first disaggregating wages and salaries for each activity by education attainment using the 2018 LMD data (StatsSA, 2020a). Summing across activities results in total labour income for each education attainment group. We then disaggregate household expenditure for each commodity and for each of the other outlays across household income groups using the LCS data for 2014/15 (StatsSA, 2020) survey data . Summing across all commodities and other types of outlays, yields total household outlays for each household income group. Since total households outlays must equal total household income for each household income group we use the former as our benchmark for the latter. Initial shares of household income by sources (wages & salaries by educational attainment, capital income, dividends and various transfers) are obtained from the LCS data for 2014/15 (StatsSA, 2020). These shares are then applied to the total outlays of each household income group. Finally, the household accounts were balanced using the biproportional scaling method, also known as RAS while holding all other non-household-related entries of the SUTSAM constant. The result is a fully disaggregated micro SAM with detailed labour and household categories which remains consistent with the National Accounts aggregates.

Although SAMs are typically presented in monetary values, modellers and other users might wish to refer to the physical quantities that are associated with certain flows. In particular, employment figures related to the wage flows recorded in the SAM can be useful. We derived these figures from the 2018 LMD (StatsSA, 2020a) using the same method of allocating labour as we did for wage earnings. Informal sector employment (of employees, employers and own account worker) is allocated to the last activity in the SAM (Non-observed, informal, non-profit, households). 2018 employment data were updated to 2019 using higher level control totals from the QLFS for total employment by level of education attained (Stats SA, 2020c, Table 3.3) and total employment of 1 digit industries (Stats SA, 2020c, Table 6) based on disaggregation shares of the 2018 LMD. Final balancing was achieved using the biproportional scaling method.

# 5. Conclusions and Potential Improvements

The SAM construction discussed in this Appendix is consistent with the limited underlying data source used. These data sources are the 2017 StastSA SUT, the 2019 National Accounts from the SARB Quarterly Bulletin, Stats SA labour market data from the 2018 LMD and 2019 QLFS and household income and expenditure data from the 2015 StatsSA LCS. There are a number of options to expand the underlying data:

1. We use the expenditure structure from the 2017 SUT for a single representative household which is matched up to total household expenditure from the National Accounts. It would be possible to improve on this by matching the structure up to SARB Quarterly Bulletin household expenditure data which is available at a lower level of disaggregation for the year 2019. This would capture broad structural shifts in household expenditure but requires a mapping to the 2017 SUT commodities.
2. We use the trade structure from the SUT 2017 and assume that this applied in 2019. There is probably more recent data available from SARS but this requires a mapping from the detailed Harmonised System commodities to those of the 2017 SUT. Trade in services is more complicated and would need access to detailed Balance of Payment data.
3. There are also the investment data that might be updated. The SARB Quarterly Bulletin publishes gross domestic fixed investment as well as inventory changes by broad asset type and by 1 digit industries demanding investment good. The SUT and SAM present investment goods supplied at the commodity level. A mapping is required to convert investment by asset types to specific commodities identified in the SUT
4. Finally, there may be more recent data for indirect taxes on products such as VAT, excise duties as well as import duties.

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1. **The final disaggregated SAM is quite large and is available on request or as an accompanying Excel workbook, depending on the decision made**. [↑](#footnote-ref-1)