

The Social Accounting Matrix – a tool for economy-wide impact analysis

presented at the
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Background



A Namibian SAM was constructed over the years 2005 to 2008 based on 2004 data. Extensive training provided involving BoN, MoF, NPC and other institutions. Financed by SIDA.

DRFN was contracted by ILO and the Ministry of Labour, Industrial Relations and Employment Creation in 2015 to conduct a study on a shift to a Green Economy and its impacts on employment. DRFN used the SAM 2013 for the analysis.

Input – Output Table



	Activities (Industries)	Final Demand (consumption)	Total value of output
Activities (Industries)			
Value Added			
Total value of inputs			

The Social Accounting Matrix



- Extended version of an Input – Output Table or Supply and Use Table
- Equal number of rows (horizontal lines) and columns (vertical lines)
 - Columns depict inputs (domestic and imports, incl. labour)
 - Rows show sales to other industries and final demand (households, Government, exports)
 - Row and column total must match
- Use of coefficients instead of absolute monetary amounts
- Updated every five to ten years because of changes in technology and in relative prices

Macro SAM

						FINAL EXPENDITURES					
		PRODUCTION		FACTORS		INSTITUTIONS			CAPITAL	ROW	
		Activities	Commodities	Labour	GOS	H'holds	Govt	Enterprise	Investm.	Rest of World	TOTALS
PRODUCTION	Activities		211 537								211 537
	Commodities	93 968				82 414	34 929		30 968	54 453	296 731
FACTORS OF PRODUCTION	Labour cost	53 391								67	53 458
	GOS	63 151								1 822	64 973
INSTITUTIONS	Households			53 337		509	13 175	37 995			105 016
	Govt	1 028	9 164			12 160		8 281		16 026	46 659
	Enterprises				62 015		2 450				64 465
CAPITAL	Savings					8 649	-4 870	18 189		9 000	30 968
ROW	Rest of World		76 030	121	2 958	1 284	975				81 368
TOTALS		211 537	296 731	53 458	64 973	105 016	46 659	64 465	30 968	81 368	

- Activities – entities carrying out the production
- Commodities – Markets for goods and services
- Includes Institutions, Capital (Savings, Investment) and Rest of the World (Imports, exports)

Brief description of 2013 SAM



- Activities & Commodities: 37 industries and 37 products
- Factors of production: skilled and unskilled labour, mixed income (agriculture), capital
- Households: Six categories based on consumption – three rural, three urban
- In addition
 - Government (Row represents taxes [income] collected by Government)
 - Investment / Savings
 - Exports / Imports

Data sources



- Aggregate data:
 - National Accounts (NSA)
 - NHIES 2009-10 for household consumption
 - Balance of Payment (BoN)
- Detailed intermediate consumption:
 - Survey: 26 returns
 - Industry interviews: 36
 - Companies' Annual Reports: 12
 - South African coefficients for six industries (textiles, leather, wood, paper, chemicals, fabricated metals)

Selected part of the SAM



	rur Lowest 40%	rur Middle 40%	rur Highest 20%	urb Lowest 40%	urb Middle 40%	urb Highest 20%
Other food processing	909	1 143	612	1 058	1 806	1 481
Beverages	320	717	517	581	1 357	976
Textiles and wearing apparel	351	442	311	371	928	743
Leather and related products	68	91	63	63	178	121
Wood & wood products, Furniture, Misc.	55	92	123	65	226	329
Paper & printing	15	42	60	49	157	201
Petroleum products	58	651	1 561	100	769	2 163
Chemicals & Pharmaceuticals	387	557	550	474	1 039	1 027
Rubber & Plastic products	63	201	469	51	228	442
Fabricated metals, Machinery & Equi	289	1 105	3 537	444	1 926	6 039
Electricity	25	77	123	186	550	416
Water	28	38	47	89	135	267
Communication	42	81	112	66	186	239

Information provided by SAM



- Number of backward - forward linkages
- Multipliers
- Labour market links
- Import & export dependency
- Economy-wide impact of change in demand (due to external shocks, policy changes etc.)

Backward linkages of selected industries



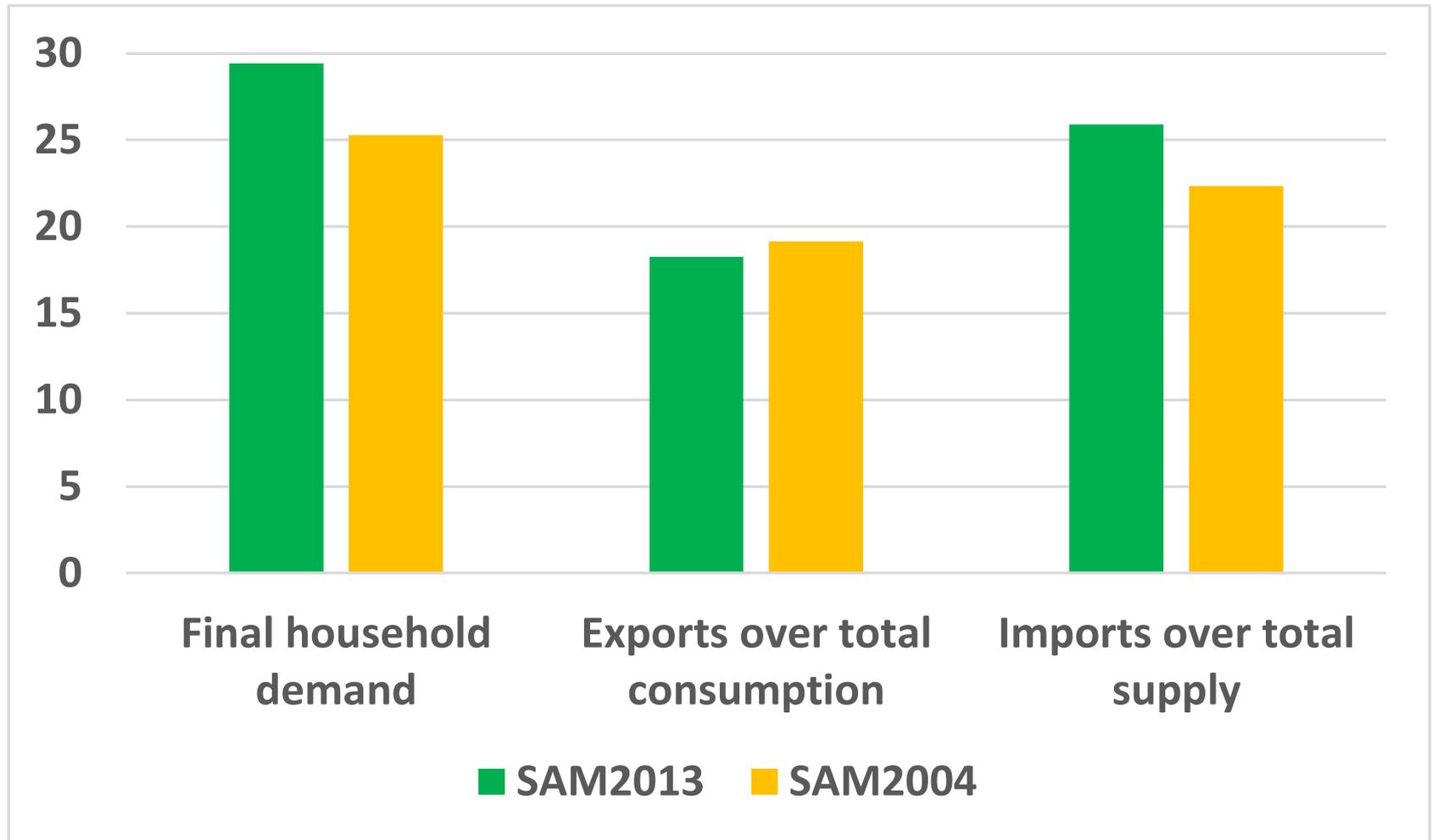
	Backward Linkages	Total value of Intermediate inputs	Total contribution to GDP
Meat processing	27	3 128	467
Rubber & Plastic products	27	179	287
Communication	27	1 796	2 233
Health, Education, Publ Admin	27	15 282	27 512
Base metals (non-ferrous metals)	26	1 638	1 304
Fabricated metals, Machinery & Equipment	26	350	563
Commercial animal products	25	680	1 125
Precious stones & diamonds	15	1 052	7 418
Finance and insurance	14	3 656	8 018
Uranium	13	3 248	2 141

Forward linkages of selected industries



	Number	Intermediate Sales	Consumer Sales	Government Sales	Investment Sales	Export Sales
Transport	36	60.7	29.8	0.0	0.0	9.5
Communication	36	79.7	17.9	0.0	0.0	2.4
Market Real Estate & Business services	36	71.9	13.0	0.0	14.3	0.8
Petroleum products	35	62.2	37.8	0.0	0.0	0.0
Finance and insurance	35	58.0	40.1	1.4	0.0	0.4
Wood & wood products, Furniture, Misc.	34	40.0	26.5	0.0	0.0	33.5
Paper & printing	34	65.3	23.6	0.0	0.0	11.1
Fabricated metals, Machinery & Equipment	34	17.6	34.8	0.0	33.6	14.0
Electricity	34	76.0	22.3	0.0	0.0	1.7
Water	34	59.3	40.7	0.0	0.0	0.0
Other food processing	31	23.3	75.2	0.0	0.0	1.5
Chemicals & Pharmaceuticals	31	50.2	46.6	0.0	0.0	3.2
Hotels and restaurants	31	81.3	18.7	0.0	0.0	0.0
Health, Education, Publ Admin	30	7.3	11.4	81.2	0.0	0.0
Rubber & Plastic products	29	42.2	49.0	0.0	0.0	8.8
Wholesale and retail trade; repairs	29	37.3	62.7	0.0	0.0	0.0
Fishing	2	65.4	17.0	0.0	0.0	17.7
Precious stones & diamonds	1	11.5	0.0	0.0	-0.7	89.2
Uranium	0	0.0	0.0	0.0	-4.5	104.5
Diamond processing	0	0.0	0.0	0.0	0.0	100.0

Import dependency



Example 1 - Drop in cereal and livestock output by 10%



- Total decline in demand for cereals and for livestock amounts to 10.4 percent and 10.1 percent respectively.
 - GDP down by 0.24 percent
 - Mixed income commerc. agric. biggest loser (-9.1 percent). All other capital accounts lose by between 0.13 and 0.17 percent.
 - Rural households accounting for the highest 20 percent of consumption main losers (-0.64 percent). Urban wealthy households lose 0.18 percent. Least impact on rural poor.
 - Income distribution improves very slightly.
- Please note that these results are indicative only of the potential changes

Results Example 1



Labour, skilled	-48	-0.15
Labour, unskilled	-27	-0.15
Mixed income, commercial Agr	-117	-9.06
Mixed income, Trad Agr	-3	-0.17
GOS	-85	-0.13
rur Lowest 40%	-4	-0.05
rur Middle 40%	-15	-0.12
rur Highest 20%	-116	-0.64
urb Lowest 40%	-8	-0.12
urb Middle 40%	-30	-0.14
urb Highest 20%	-70	-0.18

Example 2 - Shift in spending from constr. to social grants by NAD1 bn



- Demand for construction declines by NAD1.004 bn or 5.9 percent.
- Agricultural sector and food processing benefit (grain milling and other food processing up by 1.5 percent)
- GDP declines by 0.24 percent.
- Subsistence farmers main beneficiaries (income up by 2.6 percent) followed by commercial farmers (income up by 1.0 percent).
- Urban poor benefit more than rural poor hhd (7.1 and 6.3 percent resp.)
- Income distribution improves slightly
- Please note that these results are indicative only of the potential changes

Results Example 2

Labour, skilled	-44	-0.14
Labour, unskilled	-20	-0.11
Mixed income, commercial Agr	13	0.97
Mixed income, Trad Agr	45	2.61
GOS	-276	-0.42
rur Lowest 40%	516	6.32
rur Middle 40%	5	0.04
rur Highest 20%	-32	-0.18
urb Lowest 40%	491	7.09
urb Middle 40%	-40	-0.19
urb Highest 20%	-100	-0.26

Thank you for your attention

For further information please contact us

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