A 2012 SAM for South Africa & Mini SAMs 1993-2013

(https://www.wider.unu.edu/database/2012-social-accounting-matrix-south-Africa)

A 2012 Social Accounting Matrix (SAM) for South Africa by Dirk van Seventer[1], Faaiqa Hartley[2], Sherwin Gabriel[2] & Rob Davies[1], [1]UNU WIDER, [2]SA National Treasury

Background & objective 2012 Social Accounting Matrix

- The SA NT uses SAM data for CGE modelling
- SAMs present economy-wide snapshot
  - Double entry bookkeeping on an oversized chessboard
  - For a single point in time (year)
  - With some detail (act / comm / factor / hh)
  - Features interactions amongst economic entities
- Underlying data is updated on regular basis
  - (SUTs / Nat Acc / HH Surveys / Lab Force Surveys)
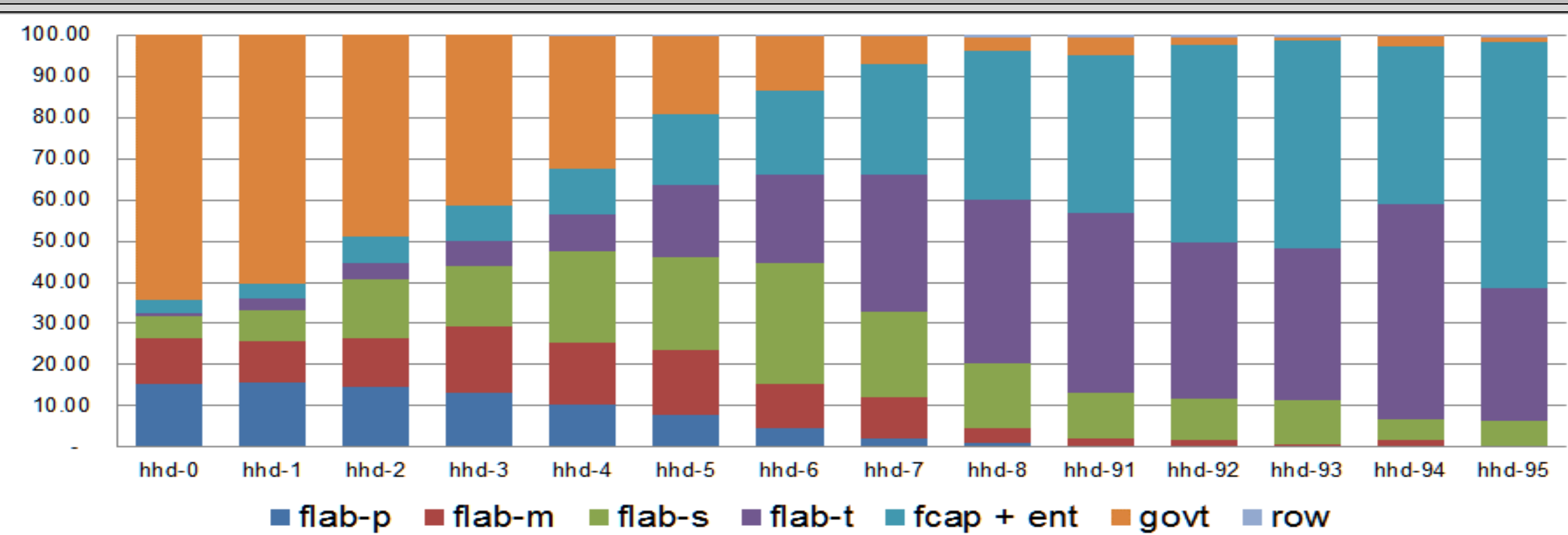- Aim of project: develop system for NT in-house updating

Methodology consists of three broad steps:

1. Create a macro SAM based on and entirely consistent with National Accounts
2. Adjust latest published SUT to match Nat Acc: initial rebalancing full table
3. Add labour and household detail using surveys: final rebalance of households

Results: SAM with following features

- Full consistency with Nat Acc preserved: zero tolerance in rebalancing
- Method can be replicated for other SUT years (now 2007 – 2014)
  - As long as the disaggregation remains the same
  - New survey data from QLFS and LCS will require manual operation
- Dimensions
  - 62 activities / 104 commodities (consistent with SSA ST & UT)
  - 4 types of labour (by education attainment)
  - 14 types of households (9 income decile & 2% intervals at the top decile)

Table 1: A 2012 Social Accounting Matrix for South Africa

	Activities	Commodities	Labour	Capital	Enterprises	Households	Government	Net activity taxes	Net dom prod taxes	Import duties	Income taxes	Ch in inventories	Accumulation	Rest of the world	Total
Activities		6,461													6,461
Commodities	3,521					1,975	651					65	615	970	7,796
Labour	1,474													9	1,483
Capital	1,420													40	1,459
Enterprises				835	231	253	287								1,606
Households			1,472	420	547		277							11	2,728
Government				78	160	191	154	46	285	37	466			2	1,420
Net activity taxes	46														46
Net dom prod taxes		285													285
Import duties		37													37
Income taxes						182	284								466
Ch in inventories													65		65
Accumulation					485	17	16							162	679
Rest of the world	1,012	11	126			9	36								1,193
Total	6,461	7,796	1,483	1,459	1,606	2,728	1,420	46	285	37	466	65	679	1,193	

Source: Authors calculations

Figure 1: Sources of Income by Income Group, 2012, shares

Source: a 2012 Social Accounting Matrix for South Africa

Compilation of annual mini SAMs for South Africa 1993-2013 in current and constant prices by Dirk van Seventer[1]

Background and objective:

- SA Nat Treasury uses CGE models
- CGEs use parameters for behavioural equations
  - Usually taken from other literature
- SAM time series ➜ estimation of parameters:
  - Estimation methods described elsewhere
- SAM time series ➜ analyse structural change
  - Decomposition methods described elsewhere
- SAMs need to be in constant prices
- Why Mini: manageable with some detail
  - 15 activities & commodities / 1 labour / 1 hh

Methodology Step1: SAM Series current prices

- Distinguish 2 periods
  - 2013-2006: SSA SUTs for 2007-2013 and Ann Nat Acc / Balancing first ➜aggregation
  - 2005-1993: 7 SSA SAMs for selected years / Ann Nat Acc / missing years: closest SAM
- Activity value added (GVA) and breakdown benchmarked on SSA series for 1 & 2 digit
- Complication: informal sector treatment in SUTs different compared to SSA GVA
- Problem: total import duties from SARB Govt Stats but commodity level initially 2007

Methodology Step 2: Constant price SAMs

- Deflators considered but unsuitable
  - Domestic output of SA industry / Commodities for SA consumption / Exports / Imports
  - Due to lack of coverage and / or change thereof
  - Some require physical quantities for weigthed aggregation for which hard to find data
- Deflators used:
  - SSA GVA (for W&S & GOS) & Total Intermediate Use
  - SARB implicit for Final Demand / Assets / Imports / Exports (limited detail) /
- Final Balance
  - Total Intermediate Input =Total Intermediate Sales: scale weakest / residual to Δstocks
  - Biproportional scaling of intermediates with current price structure as starting point
  - Transfers: by means of residual derivations

Table 2: Deflator Schedule for Constant Price SA Mini SAMs 1993-2013

	Activities	Commodities	Domestic Final Demand	Investment	Inventory Changes & Residual	Exports	Total
Activities		4) Derived from 3)					3) Total Derived
Commodities		1) Stats SA Intermediate Consumption & SARB Final Demand Commodities followed by scaling	7) SARB Final Demand Commodities	8) SARB Asset Commodities	10) Residual	9) SARB Exports	6) Total Derived
Value Added		2) Stats SA/SARB GVA					
Imports		5) SARB Imports					
Total		3) Total Derived	6) Total Derived				

Source: author's workings

Further work:

- Analysis elsewhere at this conference
- Breakdown of labour by skill (not education) is now available but more required