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Launching ceremony

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Pre-Prototype 2015 Social Accounting Matrix (SAM) for Myanmar

A Pre-Prototype 2015 Social Accounting Matrix (SAM) for Myanmar has been completed

Overview of Presentation. We will talk about:

- Where are we now: Pre-Prototype 2015 SAM now completed
- What is a SAM
- Why is a SAM useful: Economy-Wide Perspective
- Why is an Economy-Wide Perspective important
  - Methods of Economy-Wide analysis
  - What can Economy-Wide models do and not do
  - SAM as data tool
- The history of a Pre-Prototype 2015 SAM for Myanmar
  - Overview
  - Data sources used so far
- Important feature of SAM: circular flow of money
  - Explained by means of diagrams
- Examples of use of SAM
  - Descriptive analysis: some examples

What is a Social Accounting Matrix (SAM)

- A SAM is a representation:
  - Economic **transactions** or flows in an economy over a given period
  - **Structure** of the modelled economy (on an oversized chessboard)
- SAM shows money **transactions** amongst institutions/agents
  - In an exhaustive way: accounts are defined to cover the entire economy
  - Simple: only needs a single entry to achieve double entry accounting
  - In a consistent way
    - Payments by one account (columns) are receipts by another (rows)
  - Can be set up in various degrees of detail
- **Structure** of the modelled economy is defined by
  - The set of accounts and level of detail – is flexible
  - Designed to suit specific analytical purpose (energy / inc distribution etc..)
  - But also depends on data availability
- So, why a SAM?

Why is a SAM useful?

- We want to model the economy as a whole (why? next slide)
  - Like macroeconomics
  - … but also disaggregated – unlike macroeconomics
- Structure matters
  - Industry structure
    - which sectors are important?
    - what are the linkages between them
  - Labour markets
  - Income distribution
  - Types of households
- But macroeconomic constraints are also important
  - We want to “Add Up” consistently
  - Therefore we use the National Accounts as benchmark

WHY ECONOMY-WIDE?

- Policy-makers should be concerned with whole economy
- Direct effects on targeted sector (partial) often quite obvious
  - Can be investigated with a partial equilibrium model.
  - Powerful if not interested what happens elsewhere in the economy
- However, indirect effects could be significant
  - … but may generally be less obvious
  - Unintended versus intended consequences
- Important for political economy of interest groups
  - Direct effect: often concentrated ➔ representing a single voice
  - Indirect effects: wide-spread
    - Harder to give voice to those affected by indirect effects
    - E.g: tariffs on clothing + exchange rate adjustment

OTHER BENEFITS OF ECONOMY-WIDE APPROACH

- Data consistency checks:
  - Allows us to investigate accuracy and consistency of data
    - Often from different sources (as discussed later)
- Often shows where there are gaps in our knowledge
- "Adding up": a reality check on plausibility of policies
  - National accounts as common benchmark
- In summary: economy-wide→better economic thinking

METHODS OF ECONOMY-WIDE ANALYSIS

- **Macroeconomic models & DSGE**
  - Normally limited structure - macro rather than micro
  - Econometrically estimated
  - Limited data support to do this at disaggregated level
- **Linear multisector economic models**
  - Input-Output (IO) & Supply-Use (SUT)
    - Interactions amongst Industries & Commodities
  - Social Accounting Matrices (SAM)
    - Adds Factors / Income distribution / Consumption
  - Characterised by simple behaviour – strongly proportional
  - Given any particular shock, results only move in one direction
- **Computable General Equilibrium (CGE) Models**
  - Contain the same underlying data and interactions as linear models
  - Behavioural responses are more important (non-linear)
    - Rooted in more meaningful economic theory
  - Become complex to solve / results could move in opposite directions
  - ….so use computer with specialised software

WHAT ECONOMY-WIDE MODELS CAN AND CANNOT DO

- Economy-wide models useful if asked right question
  - Not: “How will firms respond to carbon tax?”
    - For that we need micro economics
    - That knowledge is required to build the model
  - Rather “What are economy-wide implications
    - …. if firms respond in a particular way?”
- Not normally used for forecasting
  - But used to disaggregate macro forecasts to industry level
- Strong on *ex ante* policy analysis
  - Laboratory for scenarios / controlled environment
  - While assuming other conditions remain constant

STORY VERSUS NUMBERS

- Economy-wide models can help us understand channels
  - …through which policies work
  - But… story is more important than the numbers
  - Even if the data is not necessarily as accurate as we want
- **But much of the structure of the economy is in the data**
- Therefore need to pay attention to data & improvement
- Economy-wide models are based primarily on data captured in
  - Social Accounting Matrices (SAMs)
  - National Accounts
- This is the rationale for constructing a SAM for Myanmar

SAM as data tool: Construction

- SAM data comes from multiple sources
  - National Accounts
  - Supply-Use Tables
    - Production / Firm surveys / Industry level data / Agricultural production
  - Balance of Payments
    - Trade data / Services trade / Transfers / Tourism data
  - Government Statistics
    - Tax revenues / Income from royalties / Transfers
  - Household Income and Expenditure Surveys
    - Expenditures and savings
    - Income distribution
  - Labour Force Surveys
- Sources are generally diverse
- Consolidation may show inconsistencies
  - Which makes us search for better data
  - But in the end, we probably have to use statistical balancing techniques
- This process emphasises gaps in knowledge and data

During 2018: Establish Initial Game Plan for SAM work Myanmar 2019 - 2020

- Evaluation of existing data
- Construct Pre-Prototype SAM with existing data
- Gaps in Pre-Prototype SAM to be plugged with
  - Data of countries with similar characteristics
  - Informed judgement
- Pre-Prototype SAM for internal use only!!!! Purpose:
  - Identify data & knowledge gaps
  - Develop proposal for work programme 2019-2020:
    - Prioritise workload search for new data
    - Capacity building
      - So that future SAM building by internal resources
    - We want to do collaborate on analysis:
      - Descriptive / Multiplier / CGE modelling

Data Sources for Pre-Prototype 2015 Myanmar SAM

- ADB 2016 Report contains 2015 data for
  - Supply Table / Use Table
  - National Accounts
  - Balance of Payment
- CSO Statistical Year Book: Govt Budget Stats
- Myanmar Poverty LCS 2015:
  - Wage earnings by education attainment
  - Household expenditure by
    - Quintile
    - Rural-urban
    - Farm-non farm
- Informed judgement for
  - Non-wage earnings distribution
  - RoW transfers
- Some detailed distributions borrowed from Vietnam SAM for:
  - Non-wage income by household type
  - Income tax

EXPLAINI[illegible]COUNTING MATRIX FRAMEWORK

Rules of the Game:
We follow the money
Rows➔ receipts
&
Column ➔ payments

		Payments made by:				
		Act	Com	Factors	Households	Total
Incomes received by	Activities		SALES			Gross Output
	Commodities	INTM			FD	Total Demand
	Factors	VA				Factor Income
	Households			Distrib of Factor Income to Households		Household Income
	Total	Costs	Supply	Factor Income Distributed	Household Expenditure	

Row and column totals must be equal

Circular flow in the SAM:

Activities pay Factors which pay Households which pay Commodities which pay Activities

Same principals applied to Myanmar SAM on next slide

A Macro SAM for Myanmar, 2015

	Row serial number	Activities	Commodities	Factors	Enterprises	Households	Government	Taxes	Investment	Change in stocks	Rest of the World	Total
Column serial number		1 (43)*	2 (164)	3 (3)	4 (1)	5 (1)	6 (1)	7 (5)	8 (1)	9 (1)	10 (1)	
Activities	1		Marketed Output									Activity income
Commodities	2	Intermediate Inputs	Transaction costs			Marketed consumption of households	Marketed consumption of government		Investment	Change in stocks	Exports	Total demand
Factors	3	Value-added									Remittances received by Myanmar factors from RoW	Factor earnings
Enterprises	4			Factor income to enterprises			Transfers to enterprises					Enterprises earnings
Households	5			Factor income to households	Indirect capital payments		Transfers to households				Net foreign remittances received	Household income
Government	6				Revenue from state properties and state economic enterprises			Revenue from taxes			Net foreign transfers to the government	Government income
Taxes	7	Activity taxes	Sales taxes	Factor taxes	Corporate income taxes	Personal taxes						Revenue from taxes
Savings	8				Enterprises savings	Household savings	Government savings				Foreign savings	Savings
Change in stocks	9								Change in stocks			Change in stocks
Rest of the world	10		Imports	Gross payments to foreign owned factors of production	Enterprise payments to RoW		Government Transfers to the RoW					Foreign exchange outflow
Total		Gross output	Total supply	Factor expenditure	Enterprise expenditure	Household expenditure	Government expenditure	Revenue from taxes	Investment	Change in stock	Foreign exchange inflow	

A Macro SAM for Myanmar, 2015

		Activities	Commodities	Labour	Capital	Enterprises	Households	Government	Act Tax	Sales Tax	Imp Tax	Fact Tax	Dir Tax	Sav=Inv	Change in stocks	Rest of the world	Total
		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
Activities	01		177,192														177,192
Commodities	02	99,809					43,477	5,189						31,390	1,028	13,558	194,450
Labour	03	17,486														138	17,624
Capital	04	58,160														59	58,218
Enterprises	05				43,799			736								330	44,865
Households	06			17,624	9,748	33,813		874								2,968	65,027
Government	07					608			1,738	1,965	372	1,488	2,235			312	8,718
Act Tax	08	1,738															1,738
Sales Tax	09		1,965														1,965
Imp Tax	10		372														372
Fact Tax	11				1,488												1,488
Dir Tax	12					205	2,030										2,235
Sav=Inv	13					9,742	19,188	1,919								1,569	32,418
Change in stocks	14													1,028			1,028
Rest of the world	15		14,921		3,183	498	332										18,934
Total	16	177,192	194,450	17,624	58,218	44,865	65,027	8,718	1,738	1,965	372	1,488	2,235	32,418	1,028	18,934	

What can the SAM be used for?
Descriptive analysis: Value Added

		Share in total VA@fct cst
1	Wholesale and retail trade	17.0%
2	Other crops	9.4%
3	Food, beverage and tobacco products	8.0%
4	Other manufacturing products	7.8%
5	Construction	6.9%
6	Fuel minerals	6.6%
7	Land transport	4.6%
8	Fisheries	4.5%
9	Paddy	4.4%
10	Livestock	3.5%

Source: 2015 Myanmar SAM and authors' calculations

What can the SAM be used for?
Descriptive analysis: Value Added

		Share in total VA@fct cst
1	Agriculture	25.1%
2	Mining	7.6%
3	Manufacturing	18.0%
4	Utilities	1.4%
5	Construction	6.9%
6	Private Services	36.5%
7	Public Services	4.4%
8	Total	100.0%

Source: 2015 Myanmar SAM and authors' calculations

What can the SAM be used for?
Descriptive analysis: Imports

		% of total imports
1	Other manufacturing products	54.4%
2	Coke and refined petroleum products	16.9%
3	Food, beverage and tobacco products	8.5%
4	Water transport	7.0%
5	Wearing apparel & textiles	3.2%
6	Non-metallic mineral products	2.8%
7	Insurance and other financial auxiliary services	2.3%
8	Other administrative and support services	1.0%
9	Computer programming, consultancy and information service activities	0.9%
10	Other crops	0.7%
		Import % of total supply
1	Insurance and other financial auxiliary services	87.1%
2	Coke and refined petroleum products	69.0%
3	Computer programming, consultancy and information service activities	56.6%
4	Travel agencies	44.5%
5	Water transport	34.8%
6	Postal and courier	23.8%
7	Professional, scientific and technical activities	20.9%
8	Other manufacturing products	16.4%
9	Other administrative and support services	14.0%
10	Non-metallic mineral products	13.2%

Source: 2015 Myanmar SAM and authors' calculations

What can the SAM be used for?
Descriptive analysis: Exports

		% of total exports
1	Fuel minerals	39.6%
2	Restaurants	13.0%
3	Other manufacturing products	11.6%
4	Wearing apparel & textiles	8.2%
5	Other crops	7.3%
6	Fisheries	4.9%
7	Food, beverage and tobacco products	3.9%
8	Non-metallic mineral products	2.1%
9	Insurance and other financial auxiliary services	2.0%
10	Water transport	1.5%
		Export % of total demand
1	Insurance and other financial auxiliary services	69.8%
2	Fuel minerals	55.3%
3	Publishing, motion pictures, video, TV and radio	43.8%
4	Restaurants	39.5%
5	Air transport	28.3%
6	Professional, scientific and technical activities	26.9%
7	Hotels	25.4%
8	Travel agencies	23.4%
9	Postal and courier	22.7%
10	Other administrative and support services	16.2%

Source: 2015 Myanmar SAM and authors' calculations

What can the SAM be used for?
Descriptive analysis: Income Distribution

	Income sources	Rural Farm low inc HH	Rural Farm high inc HH	Rural non-farm low inc HH	Rural non-farm high inc HH	Urban Farm low inc HH	Urban Farm high inc HH	Urban non-farm low inc HH	Urban non-farm high inc HH	Average
1	Low skilled labour	10.4%	5.8%	39.4%	9.4%	8.7%	15.9%	60.3%	15.1%	18.9%
2	High skilled labour	0.4%	0.8%	1.5%	0.9%	1.3%	5.4%	11.6%	13.6%	6.0%
3	Agr capital	14.0%	15.7%			13.5%	15.8%			4.4%
4	Non-agr capital									
5	Fish stock	6.8%	19.9%			0.7%				3.9%
6	Land	47.6%	32.5%			45.8%	31.5%			11.0%
7	Livestock	9.7%	9.8%			6.4%	6.9%			2.8%
8	Enterprises	9.7%	13.7%	38.7%	84.3%	21.8%	22.5%	25.1%	69.5%	47.7%
9	Govt Transfers	0.4%	0.3%	4.3%	0.8%	0.9%	0.2%	1.3%	0.7%	1.2%
10	RoW Transfers	1.0%	1.5%	16.0%	4.6%	0.9%	1.8%	1.8%	1.1%	4.2%
	Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

MOPF

MYANMAR CSO
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Next Steps: Capacity Building & Analysis (with current and/or updated SAM)

- We now have a Pre-Prototype 2015 SAM:
  - Proof of concept: ad-hoc with limited capacity building
  - Still based on MPLCS
  - Data and documentation with some descriptive analysis
- Next steps: new SAMs and capacity building
  - Add MLCS: **Pre-Prototype** 2015 SAM➔**Prototype** SAM
    - Extracting data from MLCS + LFS with capacity building
  - 2017 SAM: create SAM building template
    - More systematic approach
    - Ensure local team fully involved in updating process going forward
  - Analysis
    - Descriptive
    - Multiplier: Workshops & Analysis
    - CGE: Workshops & Topics: what are the policy issues??


MOPF


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