Macro Perspectives

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Macro Perspectives

- Micro or survey data may not entirely represent macroeconomic activities
- National accounts and other government documents are needed to adjust results estimated from micro-level data
- Aggregates National Transfer Accounts come from National Accounts
- Need to understand the similarities and differences between these two accounts

Outline

- I. Understanding National Accounts
- II. Methods to Adjust National Accounts to National Transfer Accounts

I. Understanding National Accounts

- National accounts provide a complete and consistent conceptual framework for measuring the economic activity of a nation
- Most countries compile national accounts following the methodology of the United Nations System of National Accounts (UNSNA) 1993; however, there exist differences between SNA in each country and the UN guidelines
- The System of National Accounts (SNA) consists of a coherent, consistent and integrated set of macroeconomic accounts, balance sheets and tables based on a set of internationally agreed concepts, definitions, classifications and accounting rules

Key Variable of the National Accounts: Gross Domestic Product (GDP)

GDP can be measured using three approaches

- 1. Production approach
  - GDP= gross value added (output-intermediate consumption) +taxes-subsidies
- 2. Final expenditure approach
  - GDP=final consumption+gross capital formation+exports-imports
- 3. Income approach
  - GDP=compensation of employees+taxes-subsidies+gross operating surplus+gross mixed income

National vs. Domestic: Gross National Income (GNI)

- GNI=GDP + compensation of employees and property income from the ROW - compensation of employees and property income to the ROW
- GNI involves "primary income" or income derived from factors of production
- Domestic current transfers are not included (i.e., social contributions, social benefits, taxes on income and other transfers)

Net National Income (NNI)

- NTA is consistent with Net National Income
- NNI equals GNI – consumption of fixed capital (depreciation)
- Using net operating surplus and net mixed income rather than gross operating surplus and gross mixed income
- Using net saving rather than gross saving

Institutions in SNA and NTA

- Institutional units are units that are capable of owning goods and assets, incurring liabilities and engaging in economic activities and transactions with other units in their own right
- SNA-5 institutions: non-financial corporations, financial corporations, government units, including social security funds, non-profit institutions serving households (NPISHs) and households
- NTA: unit of analysis is at the individual level

II. Methods to Adjust National Accounts to NTA

- The first step is to allocate net indirect taxes (indirect taxes less subsidies) to individuals to measure income and consumption at "basic prices"
  - NTA uses basic prices or prices before paying indirect taxes and receiving subsidies
  - SNA reports "market prices" or actual prices of consumption and income
- The second step is to estimate labor income and asset income from national income

National Income Account

National Income	National Expenditure
Compensation of employees Wx	Consumption Cx
Operating surplus and mixed income Ox	Saving S
•Mixed income	Less: net indirect taxes (indirect taxes less subsidies) TGt
•Household operating surplus (profits of imputed rent)	Less: net transfer received from the rest of the world T_{ROW}
•Other private operating surplus	

$$\underbrace{W^x + O^x}_{\text{National Income}} = \underbrace{C^x + S - TG^t - \tau_{\text{ROW}}}_{\text{National Expenditure}}$$

Note: superscript *x* defines variables at market prices

Review: National Transfer Flow Account Identity

- Inflows
  - Labor Income
  - Asset Income
  - Transfer Inflows
- Outflows
  - Consumption
  - Saving
  - Transfer Outflows

$$\underbrace{Y^l(a)+Y^a(a)+\tau^+(a)}_{\text{Inflows}}=\underbrace{C(a)+S(a)+\tau^-(a)}_{\text{Outflows}}$$

$$\underbrace{C(a)-Y^l(a)}_{\text{Lifecycle Deficit}}=\underbrace{\underbrace{Y^a(a)-S(a)}_{\text{Asset-based Reallocations}}+\underbrace{\tau^+(a)-\tau^-(a)}_{\text{Net Transfers}}}_{\text{Age Reallocations}}$$

Net Indirect Taxes

- Indirect taxes are taxes on production and imports in SNA
- Taxes on production and imports consist of taxes payable on goods and services when they are produced, delivered, sold or transferred
- Business owners (owners of corporations and unincorporated enterprises) may pay taxes, but they can shift tax burden to consumers and workers
- Tax incidences are difficult to measure

Effects of Indirect Taxes

- Indirect taxes borne by consumers raise prices on consumption
- Indirect taxes borne by workers reduce wage
- Indirect taxes borne by business owners reduce operating surplus and mixed income

Indirect Taxes Borne by Consumers

- Examples are import taxes, sale taxes and VAT
- Consumption at basic prices is measured as consumption at market prices less net indirect tax on consumption, i.e.

$$C = C^{x} - TG^{tc}$$

Indirect Taxes Borne by Workers and Business Owners

- Examples are export taxes and taxes on financial transactions
- Wages, operating surplus and mixed income at basic prices can be measured as wages, operating surplus and mixed income at market prices plus net indirect tax on production, i.e.

$$W = W^x + TG^{tw}$$

$$O = O^x + TG^{tk}$$

Indirect Taxes, Japan, 2004 (bil yen)

Total	37,591	
Consumption tax	18,637	
Liquor tax	3,102	
Tobacco tax	1,700	
Gasoline tax	4,094	
Petroleum gas tax	26	
Aircraft fuel tax	164	
Petroleum and coal tax	897	
Exchange tax	0	
Motor vehicle weight tax	1,400	Taxes Borne by Consumers
Customs duties	1,529	
Tonnage tax	17	
Local road tax	579	
Petroleum gas tax	26	
Aircraft fuel tax	30	
Motor vehicles weight tax	699	
Special tonnage tax	21	
Gasoline tax	1,321	
Crude oil, etc. tax	82	
Electric power source development tax	697	
Other	496	
Stamp duties	2,121	Taxes Borne by Producers
Securities transaction tax	0	

Adjusting Consumption

- Public Consumption
  - Education
  - Health
  - Other public consumption
- Private Consumption
  - Education
  - Health
  - Housing (imputed rent)
  - Durable
  - Other private consumption

NTA Consumption is lower by indirect taxes on consumption. Question: what types of consumption that pay indirect taxes? Need to understand tax policy.

Adjusting Labor and Asset Income

- Labor income consists of compensation of employees (W) and labor's share of mixed income O_h^l

$$Y^l = W + O_h^l$$

- Asset income consists of operating surplus and mixed income minus the labor's share of mixed income

$$Y^a = O - O_h^l$$

Labor Income

- Compensation of employees
- Labor's share of mixed income

Indirect tax on labor income may allocate proportionally between the above two types of labor income

Asset Income

- Private asset income
  - Capital's share of mixed income
  - Household operating surplus
  - Other private operating surplus of financial and non-financial corporations
  - Private property income
- Public asset income
  - Public property income

Which part of asset income pay indirect taxes? Tax incidence depends on tax policy.

Aggregate Controls	Please fill in the white cells				
Country	Japan	Aggregate controls for asset income and saving			
Currency	yen				
Unit of aggregate values	1,000,000,000				
Year	2004				
Variable	**Year**	**Total**	**Private**	**ROW**	**Public**
Asset income	2004	**83,262.5**	98,228.3	**-9,508.1**	-5,457.7
Capital income	2004	83,262.5	83,262.5	0.0	0
Operating surplus, net	2004		74,499.8		0
Operating surplus of corporations and NPISHs , net	2004		47,460		
Opearting surplus of households, net	2004		27,040		
Capital share of mixed income, net	2004		6,642		
Other taxes less subsidies on production	2004		2,120.9		
Property income, net	2004	0.0	14,965.8	-9,508.1	-5,457.7
Property income, inflows	2004	105,616.5	93,757.0	4,431.8	7,427.7
Property income, outflows	2004	-105,616.5	-78,791.2	-13,939.9	-12,885.4
Interest, net	2004		12,913.6		
Inflows	2004		65,362.5	1,664.4	6762.5
Outflows	2004		-52,448.9	-8,782.5	-12558
Interest outflows, households	2004		-6,494.9		
Interest outflows, households to government	2004		0.0		
Distributed income of corporations, net	2004		1,100.5	-1,732.2	631.7
Inflows	2004		12,481.2	1,082.5	631.7
Outflows	2004		-11,380.7	-2,814.7	0
Reinvested earnings on DFI, net	2004		434.8	-434.8	0.0
Inflows	2004		645.2	210.4	0
Outflows	2004		-210.4	-645.2	0
Property income to insurance policyholders	2004		-0.2	0.0	0.2
Inflows	2004		9,707.3	0.0	0.2
Outflows	2004		-9,707.5	0.0	0
Rent, Net	2004		517.1	-223.0	-294.1
Inflows	2004		5,560.8	1,474.5	33.3
Outflows	2004		-5,043.7	-1,697.5	-327.4
Saving, Net/Current external balance	2004		51,672.9	-18,618.5	-28207.1
Capital transfers, net	2004		-4,839.6	627.4	4,326.0
Capital transfers, inflows	2004		4238.7	2116.6	8501.3
Capital transfers, outflows	2004		-9078.3	-1489.2	-4175.3

Aggregate Private Transfers

- Inter-household transfers (transfers between households)
  - Inflows to one household may differ from outflows from another household: net transfers in the economy are not zero
  - If ROW is included, inflows match outflows for aggregate inter-household transfers
- Intra-household transfers (transfers within a household)
  - Transfers received by one member equal transfers made by another
  - Aggregate intra-household transfers equal zero

Public Transfers

Inflows	Outflows
► In-kind transfers (public consumption)	► Personal income tax
► Cash transfers	► Corporate income tax
▪ Social security benefits	► Net indirect tax
▪ Other public cash transfers	► Social security tax
	► Transfer surplus/deficit

Transfer Surplus/Deficit

- ► Balancing item that insures that transfer outflows and inflows are equal
- ► Relationship between transfer surplus/deficit and public saving
  - ▪ If taxes and grants exceed public transfer inflows, transfer surplus and public asset income are saved
  - ▪ if taxes and grants fall short of public transfer inflows, transfer deficit must be financed out of asset income with the residual saved
- ► public saving is the sum of public transfer surplus/deficit and public asset income

Public Transfers and Asset Flows, Japan, 2004 (billion yen)

Public Transfers		
Net Public Transfers		0
Pubic Transfer Inflows		149,943
In-kind Transfers	89,468	
Cash Transfers	60,475	
Public Transfer Outflows		-149,943
Taxes and Grants	-127,193	
Transfer Surplus(+)/Deficit(-).-[1]	-22,749	
Public Asset-based Flows		
Public Asset-based Reallocations		22,749
Asset Income		-5,458
Public Saving[2]		-28,207

[1] Surplus/Deficit is equal to Public Transfer Outflows - Taxes and Grants.

[2] Public Saving is equal to Transfer Surplus/Deficit + Asset Income.

Summary

- ►It is important to be consistent with national accounts while constructing NTA in order for NTA to represent macroeconomic activities
- ►Unit of analysis of NTA is at the individual level: individuals represent all five institutions of national accounts
- ►Tax incidence of indirect taxes affect how to measure basic prices of consumption, labor income and asset income