

# Aggregate Accounts: National Income Account & Public Account

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## Outline

- Part 1: Construct aggregate control for the National Transfer Account
- Part 2: Public Account

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## Part 1: Aggregate Control

- National Transfer Flow identity
- National Income Account
- How to adjust from National Income Account to construct the National Transfer Flow Account
- Examples: Thailand

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## The Flow Account Identity

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• Inflows           <ul style="list-style-type: none"> <li>– Labor Income</li> <li>– Asset Income</li> <li>– Transfer Inflows</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• Outflows           <ul style="list-style-type: none"> <li>– Consumption</li> <li>– Saving</li> <li>– Transfer Outflows</li> </ul> </li> </ul> |
|---|--|

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

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

Age Reallocations

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# National Income Account

National Income	National Expenditure
Compensation of employees	Consumption
Operating surplus	Saving
•Income from unincorporated enterprises	Subsidies
•Income from private corporations and government enterprises	Less: indirect taxes
	Less: net transfer received from the rest of the world

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

Note: superscript x defines variables at prices after paying indirect taxes and receiving subsidies (post-tax)

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## 2 steps to adjust National Account

- The first step is to allocate indirect taxes and subsidies to individuals to measure income and consumption at prices before paying indirect taxes and receiving subsidies.
- The second step is to measure labor income and asset income from national income.

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## 1<sup>st</sup> step: indirect taxes

- There are broadly two types of indirect taxes: taxes on consumption and taxes on production
- Indirect taxes on production reduce dividend and profits for producers. Pre-tax operating surplus is measured as post-tax operating surplus plus indirect tax on production less subsidies, i.e.

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

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## 1<sup>st</sup> step (Cont.)

- Indirect taxes on consumption raise prices on consumption. Pre-tax consumption is measured as post-tax consumption less indirect tax on consumption, i.e.

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

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## 2<sup>nd</sup> step: labor and asset income

- Labor income consists of compensation of employees ( $W$ ) and labor share of income from unincorporated enterprises  $O_h^l$

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

- Asset income consists of pre-tax operating surplus minus the labor share of income from unincorporated enterprises

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

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## Examples

- Using Thailand National Income Account
- Please bring your National Income Account and follow step-by-step how to construct the aggregate National Transfer Flow Account

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Table 1: National Income Account of Thailand in 1996 (Billions of Baht)

Income Approach		Expenditure Approach	
Compensation of Employees	1,353	Public Consumption Expenditure	470
Operating Surplus	2,041	Education	144
Income from Unincorporated Enterprises	1,065	Health	44
Income from Private Corporations and Property	846	Other	281
Property Income	476	<b>Private Consumption Expenditure</b>	<b>2,480</b>
Less: Interest Payment on Consumer Debt	62	Education	22
Less: Interest Payment on Public Debt	9	Health	164
Saving of Private Corporations	252	Other	2,294
Corporate Income Tax	176	<b>Net Saving</b>	<b>1,026</b>
Corporate Transfer Payment	13	Households	278
Income from Public Enterprises and Property	130	Corporations	252
Government Income from Property and Entrepreneurship	66	General Government	431
Saving of Government Enterprises	65	Government Enterprises	65
		<b>Less: Indirect Taxes</b>	<b>573</b>
		<b>Subsidies</b>	<b>12</b>
		<b>Less: Net Public Current Transfers from ROW</b>	<b>2</b>
		<b>Less: Net Private Current Transfers from ROW</b>	<b>18</b>
<b>National Income</b>	<b>3,394</b>	<b>National Expenditure</b>	<b>3,394</b>

Source: National Income of Thailand (NESDB 2001, pages 3-5)

Note: The average exchange rate of Thailand in 1996 was about 25 Baht per 1 USD

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Table 2: Allocation of Indirect Taxes of Thailand in 1996 (Billions of Baht)

	Billion Baht	Notes
<b>Indirect Taxes Borne by Consumers</b>		
Business Tax	0.5	520.4 Taxes levied on the sale of a group of commodities collected from the domestic producers and importers. The commodities that are subjected to taxes are spirits, beer, non-alcoholic beverage, tobacco, petroleum and petroleum products, vehicles, appliance, etc.
Value Added Tax (VAT)	175.3	
Consumption Goods Tax (Excise Tax)	195.2	
Import Duties	149.6	
<b>Indirect Taxes Borne by Producers</b>		
Specific Business Tax	38.6	53.0 Specific business tax is levied on the gross receipts of certain businesses, such as the interest and foreign exchange gains of banks and other financial institutions, life insurance premiums, and dealing in real estate
Stamp Duty	6.0	
Natural Resource Tax	5.4	
Fees and Permits	2.9	
<b>Total Indirect Taxes</b>	<b>573.4</b>	

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Table 3: Labor Income and Asset Income of Thailand in 1996 (Billions of Baht)

Compensation of Employees	1,353	} All data, except for indirect taxes borne by producers (shown in Table 2), are drawn directly from national income account of Thailand (shown in Table 1)
Plus: 2/3 of Income from Unincorporated Enterprises	710	
<b>Labor Income</b>	<b>2,063</b>	
1/3 of Income from Unincorporated Enterprises	355	
Plus: Income from Enterprises and Property	976	
Plus: Indirect Taxes Borne by Producers	53	
Less: Subsidies	12	
<b>Asset Income</b>	<b>1,372</b>	

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Table 4: The National Transfer Flow Account for Thailand in 1996 (Billions of Baht)

<b>Lifecycle Deficit</b>	<b>366</b>	
<b>Consumption</b>	<b>2,429</b>	
<b>Public Consumption Expenditure</b>	<b>470</b>	} Drawn directly from NIPA (Table 1)
Education	144	
Health	44	
Other	281	
<b>Private Consumption Expenditure</b>	<b>1,959</b>	
Education	22	
Health	164	
Housing	147	
Other	2,147	
Less: Indirect Taxes Borne by Consumers	520	→ Table 2
<b>Less: Labor Income</b>	<b>2,063</b>	↓
<b>Age Reallocations</b>	<b>366</b>	Table 3
<b>Asset-based Reallocations</b>	<b>346</b>	↑
Asset Income	1,372	
Less: Saving	1,026	
<b>Transfers</b>	<b>20</b>	} Drawn directly from NIPA (Table 1)
Public Transfers	2	
Private Transfers	18	

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## Why need aggregate control?

- Results for variables estimated from the surveys are different from the national income accounts.
- Population estimates from the surveys are also different from “actual” population (i.e. non-institutional households).

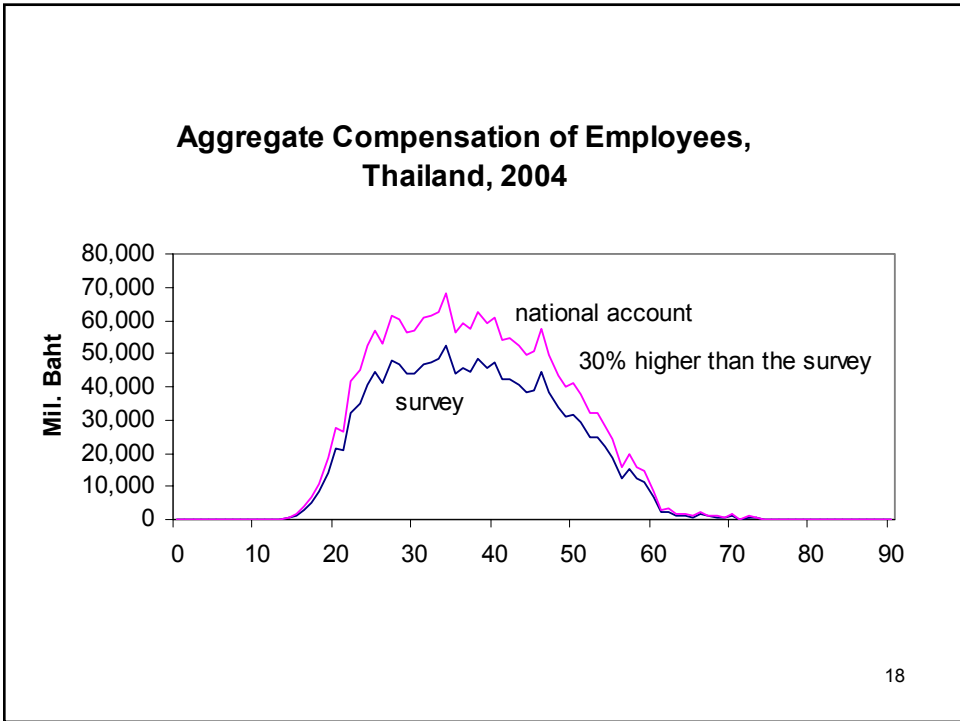
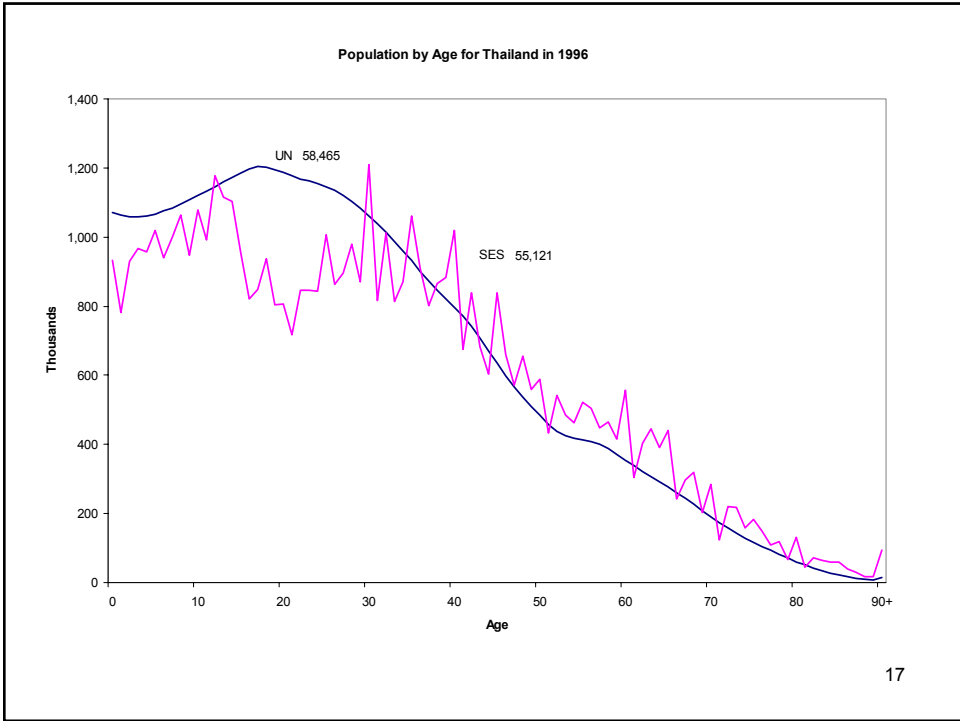
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## Population

- What is the difference between population estimated from the surveys and other?
- What data for population by age should be used?

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## Part 2: Public Account

- Scope of the public sector
- Functions of the government
- How to finance public functions
- Age-specific public functions/taxes

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## Scope of the public sector

- General government
  - Central
  - Local
  - Social security fund
- Public enterprises (?)
- Central bank (?)

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## Functions of the government

- Public transfers
  - In-kind transfers (education, health, etc)
  - Cash transfers (social security systems, etc)
- Public investment
- Public credit transactions
  - Interest payment on public debt
  - public lending/borrowing

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## Describe “Government Functions”

- Public education: compulsory? free?
- Public sector health
- Social security systems
- Budget balance
- Government Debt

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**Table 5: Government Expenditures of Thailand in 1996**

	<b>Billion Baht</b>
<b>Public Transfers</b>	<b>501</b>
<i>In-kind Transfers</i>	470
Education	144
Health	44
General Administration	100
Defence	110
Justice and Police	44
Special Welfare Services	4
Transport and Communication Facilities	9
Other Services	14
<i>Cash Transfers</i>	31
Social Security Benefits	10
Other Cash Transfers	21
<b>Public Investment</b>	<b>254</b>
<b>Public Credit Transactions</b>	<b>187</b>
Interest Payment on Public Debt	9
Public Lending	178
<b>Government Expenditure</b>	<b>942</b>

Source: National Income of Thailand (NESDB 2001, Account 5 and Table 6)

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## Sources of revenue

- What sources of revenue the government has?
- What revenue is used to finance a particular public function?
- Examples
  - social security contribution is used to pay for social security benefit.
  - Property taxes are used to finance public education in the US.

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**Table 6: Government Revenues of Thailand in 1996**

	<b>Billion Baht</b>
<b>Tax Revenue</b>	<b>863</b>
Personal Income Tax	112
Corporate Income Tax	176
Indirect Taxes	573
Less: Subsidies	12
Social Security Contributions	13
<b>Non-tax Revenue</b>	<b>79</b>
Income from Government Enterprises	66
Cash Transfers from the Private Sector	11
Net Transfers from Abroad	2
<b>Government Revenue</b>	<b>942</b>

Source: National Income of Thailand (NESDB 2001, Account 5)