Consumption and Labor Income

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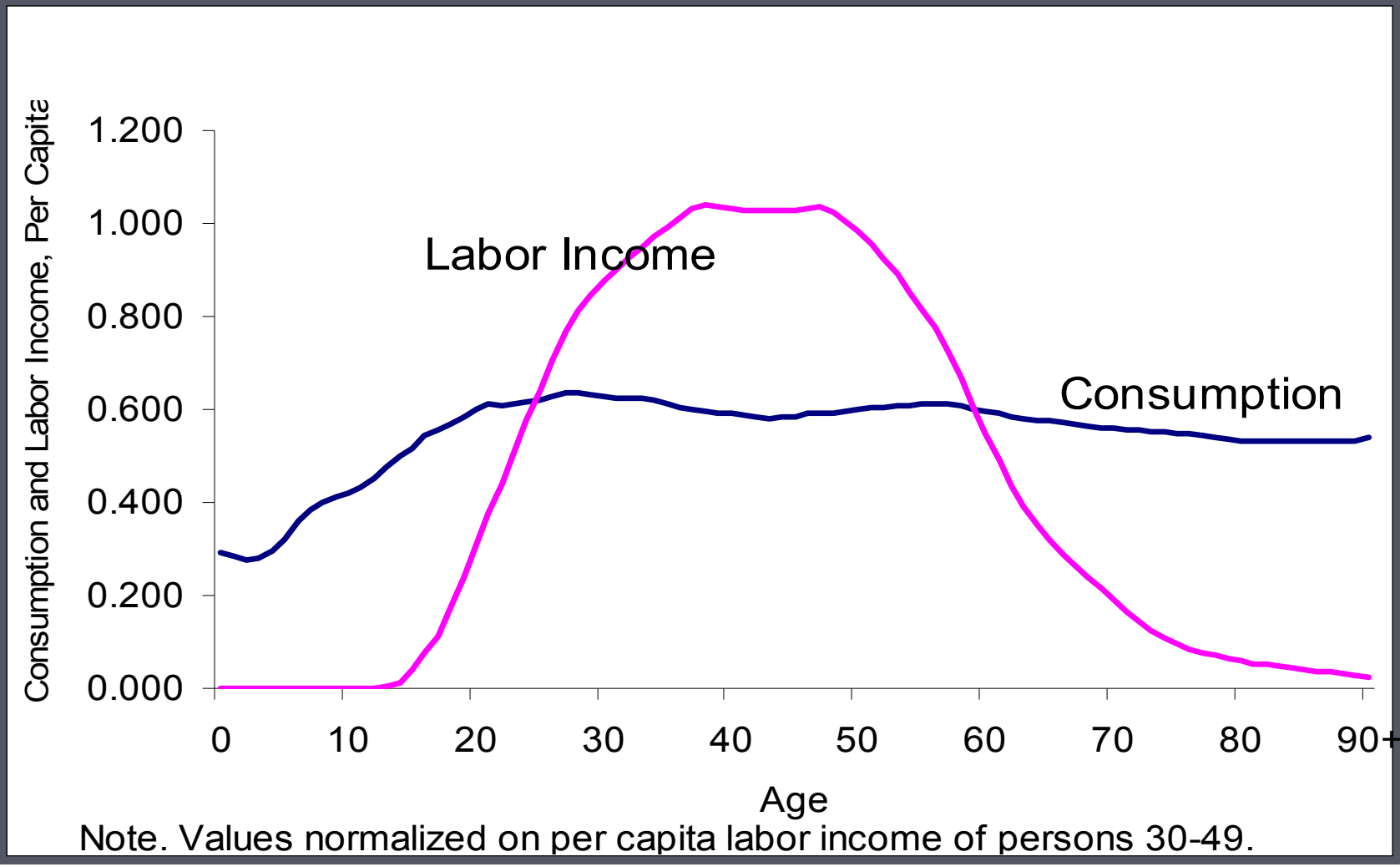
The Economic Lifecycle (per capita)



Note. Values normalized on per capita labor income of persons 30-49.

Assumptions

- Per capita age profiles are estimates of per capita values by single year of age.
- All consumption and labor production can be assigned to individuals
- This assumes away pure public goods, economies of scale, and other important features of consumption and production.

General Rule

- Estimate the per capita age-profile for the variable using household survey data or administrative records.
- Use population data to construct a preliminary aggregate age-profile.
- Adjust the aggregate profile and the per capita profile to match a control total taken from National Income and Product Accounts or some other source.
- However, detailed estimation method could vary across countries depending on available data.

Estimating Labor Income

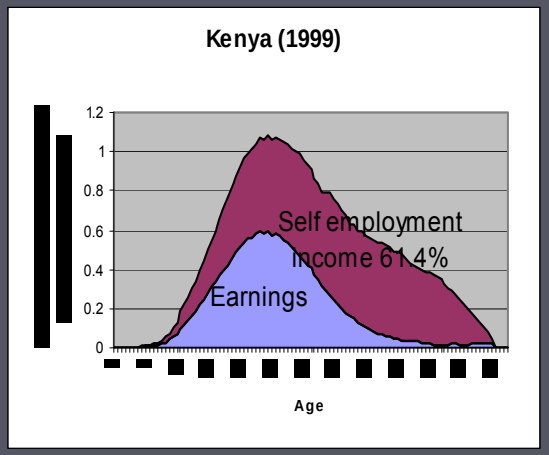
- Labor income includes
  - The compensation of employees
    - Wages and salaries
    - Fringe benefits
    - Deferred payments
  - Labor's estimated share of mixed income (self-employment income)
- Does not include in-home activities which does not produce market goods or services (e.g. childrearing)

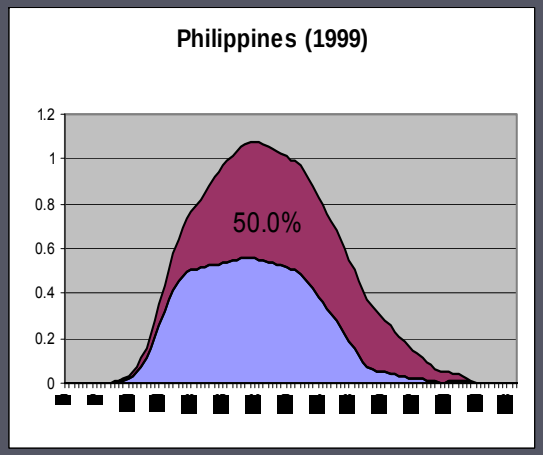
Imputing Labor Income for Unpaid Family Workers

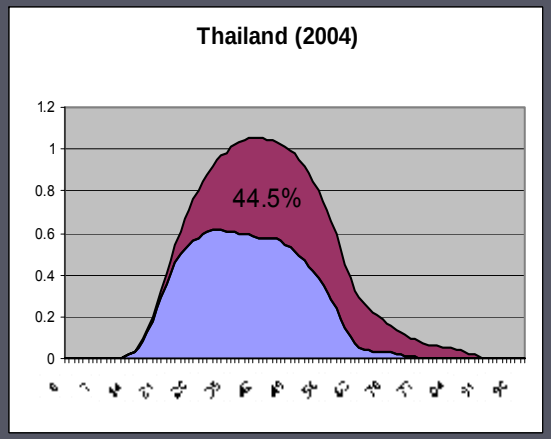
- Estimate using the age profile of earnings of *employees* as a share to allocate household self-employment income to self-employed workers including unpaid family workers.
  - Example: Two-third of this household's self-employment income equals 30. Then,

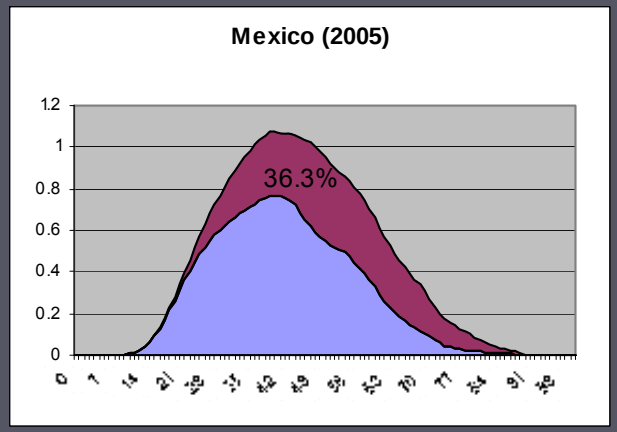
Age	Earnings per employee	Imputed
18 (unpaid)	200	10
44 (self emp.)	400	20

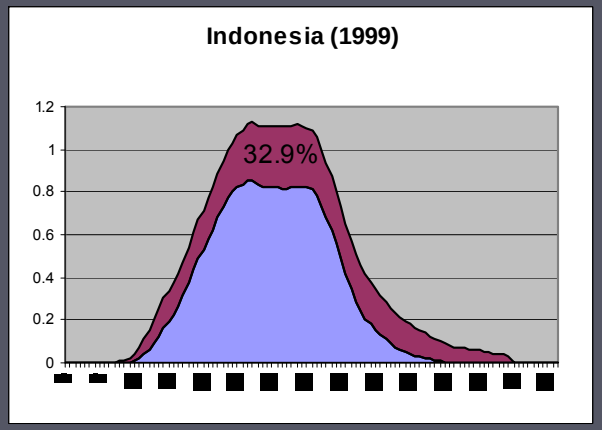
Primary Target: Countries with Large Share of Self-Employment Income (per capita)



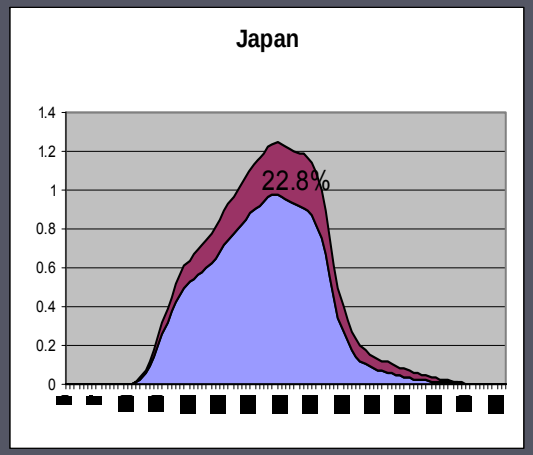


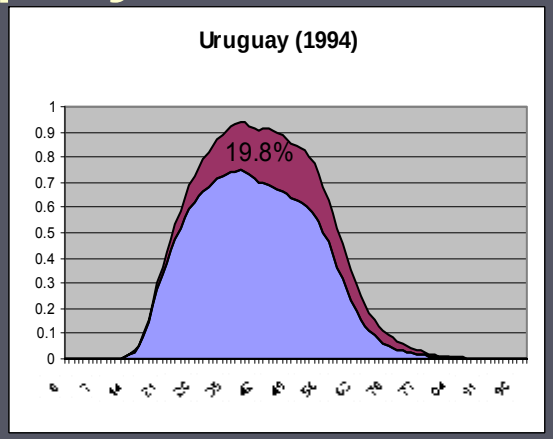


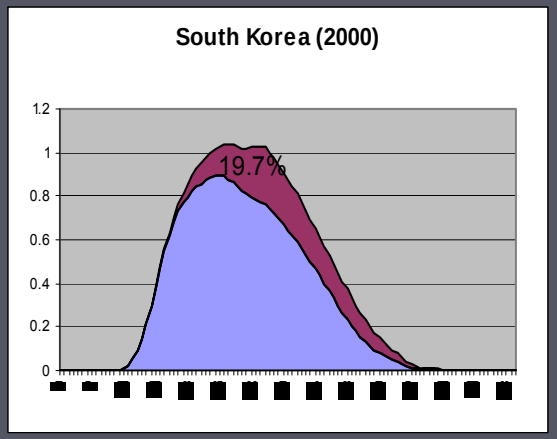


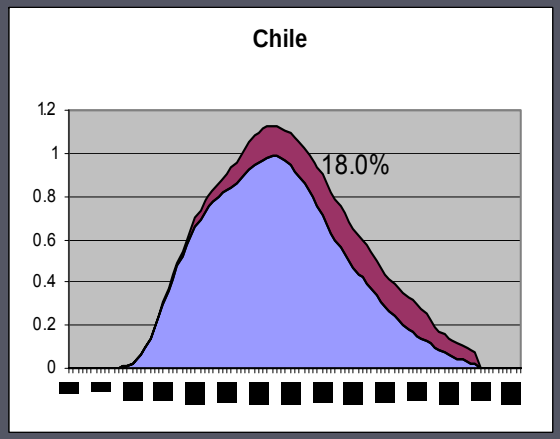


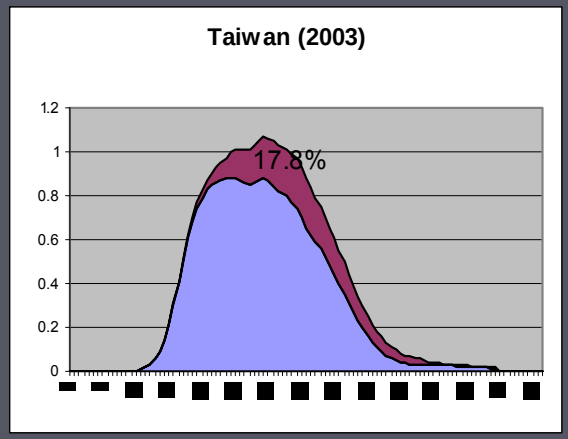
Secondary Target: Countries with Moderate Share of Self-Employment Income



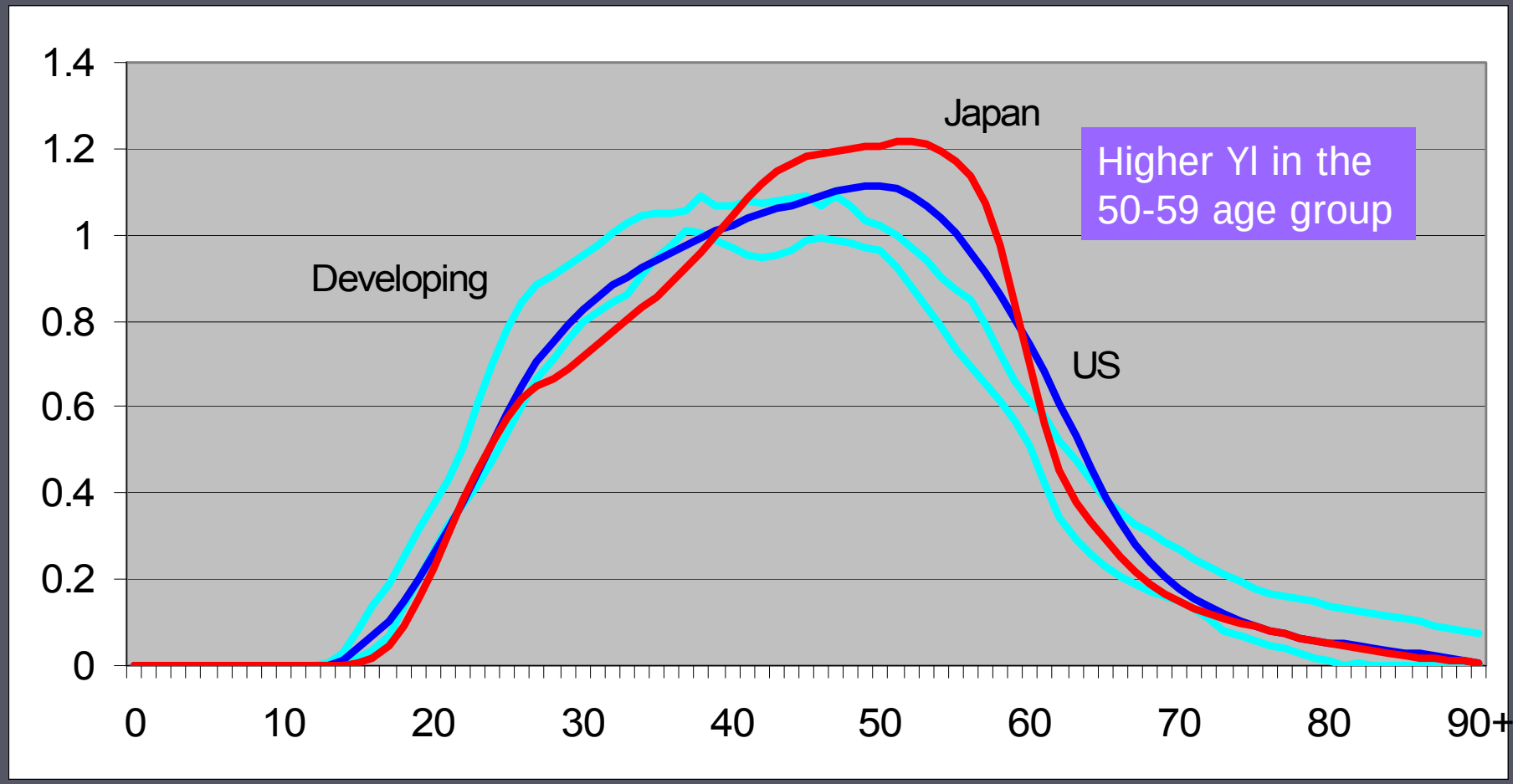








Labor Income: Industrialized vs. Developing Countries.



National Transfer Accounts

Private Consumption

- Standard approach of allocating household consumption among the members did not provide reasonable results
  - Engel method: food share is used to measure households' well-being
  - Rothbarth method: welfare measured by expenditure on adult goods per adult
- Alternative method (NTA)
  - Estimate education and health consumption directly
  - Estimate private capital consumption (rental value of owner occupied housing + flow of services from durables)
  - Allocate other consumption indirectly (using Equivalence Scale)

Allocating Private Education Consumption

$$C_j^{edu} = \sum \alpha(a) E_j(a) + \sum \beta(a) NE_j(a)$$

- Private education consumption is regressed on the number of enrolled (E) and non-enrolled (NE) in each age group.
- The age groups included will vary with the country and its enrollment rates.
- Use unsmoothed profile.

Allocating Private Health Care Consumption

- Often very complex in part due to various source of financing, which includes
  - Private out-of-pocket expense
  - Private insurance
  - Public sector
- Available sources of data vary across countries.
- There are differences between NHA and NTA
  - E.g. NHA document expenditures rather than consumption. Thus it includes profits of insurance companies.
- Estimate using one of four approaches.

Approach 1: Method based on individual utilization measures from expenditure survey data

$$C_j^{health} = \sum \alpha(a) IN_j(a) + \sum \beta(a) OUT_j(a)$$

- Private health consumption is regressed on the number of members using inpatient services (IN) and outpatient services (OUT) in each age group.

Approach 2: Based on age profile of per capita utilization measures

$$C_j^{health} = \sum \beta(a) U(a) M_j(a)$$

$$C_j^{health} = \sum \beta_0 U(a) M_j(a) + \sum \beta_1 a U(a) M_j(a) + \sum \beta_2 a^2 U(a) M_j(a)$$

- Private health consumption is regressed on the number of members (M) and per capita utilization measure by age (U)
- Could be linear (the former) or non-linear (the latter)

Approach 4: Based on simple regression

$$C_j^{health} = \sum \beta(a) M_j(a)$$

- Private health consumption is regressed on the number of household members (M).
- Could have negative coefficients—replace with zero.
- The least recommended approach.

Estimating Other Household Consumption

$$\beta(a) = 1 - 0.6 \quad (\text{for } a \leq 4)$$

$$\beta(a) = 1 - [0.6 * (20 - a)]/16 \quad (\text{for } 4 < a < 20)$$

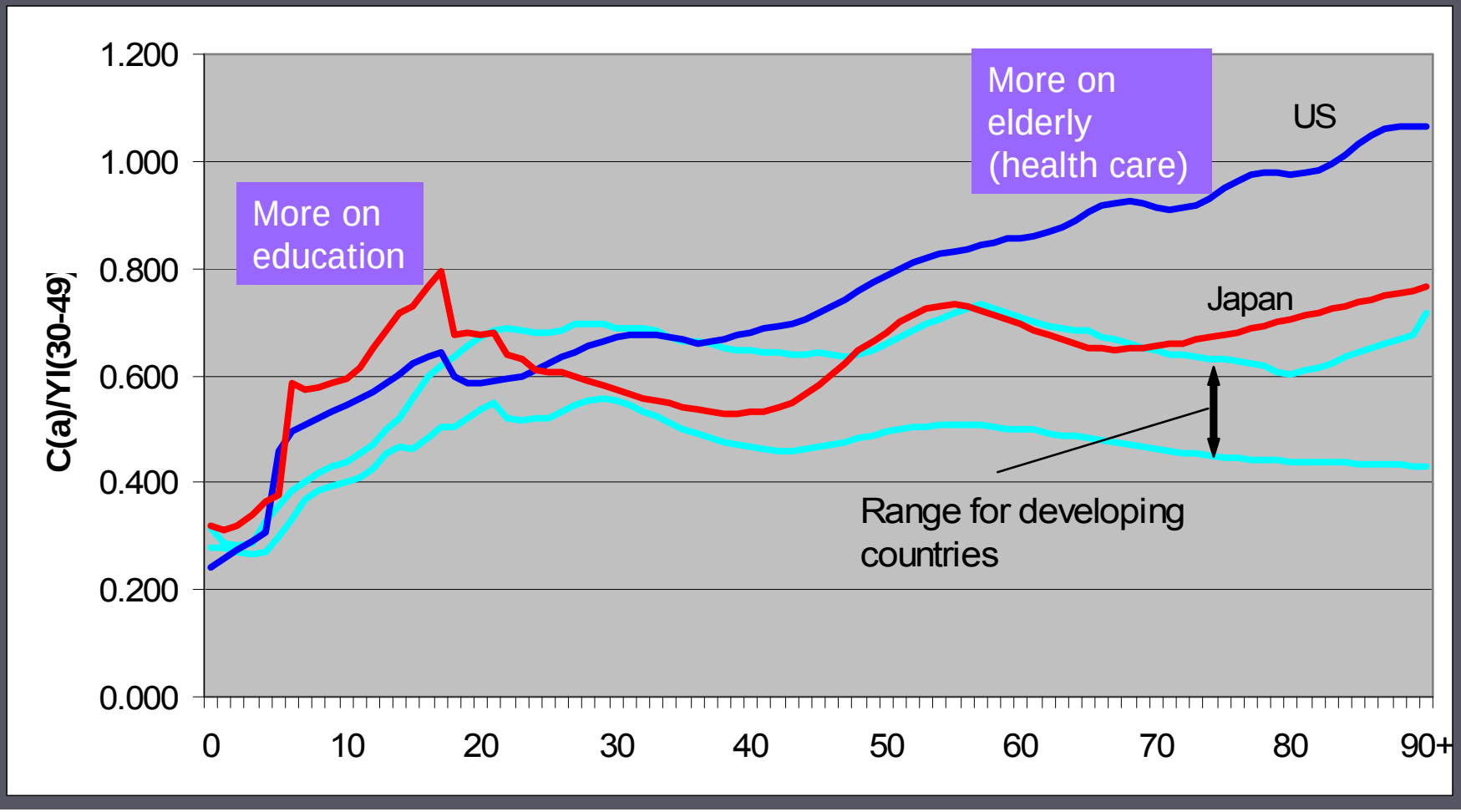
$$\beta(a) = 1 \quad (\text{otherwise, i.e., } a \geq 20)$$

- Assumed to be proportional to an equivalence scale that is equal to 1 for adults aged twenty or older, declines linearly from age 20 to 0.4 at age 4, and is constant at 0.4 for those age 4 or younger.

Public Consumption

- Allocated based on administrative records, and in some cases, survey data.
- Public education consumption
  - Formal education consumption: estimate by calculating unit cost per student per level.
  - Informal education consumption: estimate by dividing total public informal education consumption by total population by age.
- Public health care consumption
  - Health care purchased by individuals and reimbursed through public programs: captured in household surveys.
  - Health care provided directly to individuals by government clinics: allocate using administrative records.
  - Collective health services: allocate on a per capita basis.
- Other public consumption: equally to all members

Consumption Profiles: Industrialized vs. Developing Countries.



Aggregate Age-Profile

- Use population data to construct a preliminary aggregate age-profile.
  - Population data are available from the UN Pop Division for the period of 1950-2050 and also to 2300 (long term projection).
  - Insure that population data have been adjusted to eliminate age heaping and under-reporting.

Aggregate Controls

- Adjust the aggregate profile and the per capita profile to match a control total taken from NIPA or some other source.
  - Private consumption: household final consumption expenditure + non-profit institutions serving households' (NPISHs) final consumption expenditure
  - Public consumption: general government final consumption expenditure
  - Earnings + fringe benefits: compensation of employees. NIPA excludes compensation received by non-resident and remittances (on-going discussion)
  - Labor portion of self-employment income: mixed income of household sector

Some Adjustments are Needed

- In NIPA, prices are market prices; in NTA, prices are basic prices net of indirect taxes
- In NIPA, private health consumption reimbursed through public health insurance programs (Medicare, NHI) are private health consumption; in NTA it is reclassified as public consumption.
- In NIPA, non-housing consumer durable consumption is measured by expenditure; in NTA, consumption of it is the flow of services.