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UNITED NATIONS ESCAP
Economic and Social Commission for Asia and the Pacific

Asia-Pacific Workshop on Measuring Population Ageing and Assessing its Economic and Fiscal Consequences

24-27 June 2019
United Nations Conference Centre, Bangkok

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Session 4:

New measures of ageing

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The traditional dependency ratios

- ***Demographic*** dependency ratios

- Young-age dependency ratio
- Old-age dependency ratio
- Total dependency ratio

$$\frac{\sum_{0}^{19} p(x) + \sum_{65}^{100} p(x)}{\sum_{20}^{64} p(x)}$$

What age is old?

- German system: First proposed 70, then legislated later 65
- US states: evenly split between 60 and 65
- US Social Security: originally 65, 66 now, slowing moving towards 67
- UN publication: no standard for it (began with 60, now 60 and 65)
- But from the beginning, also a notion that chronological age not the only measure of being old.

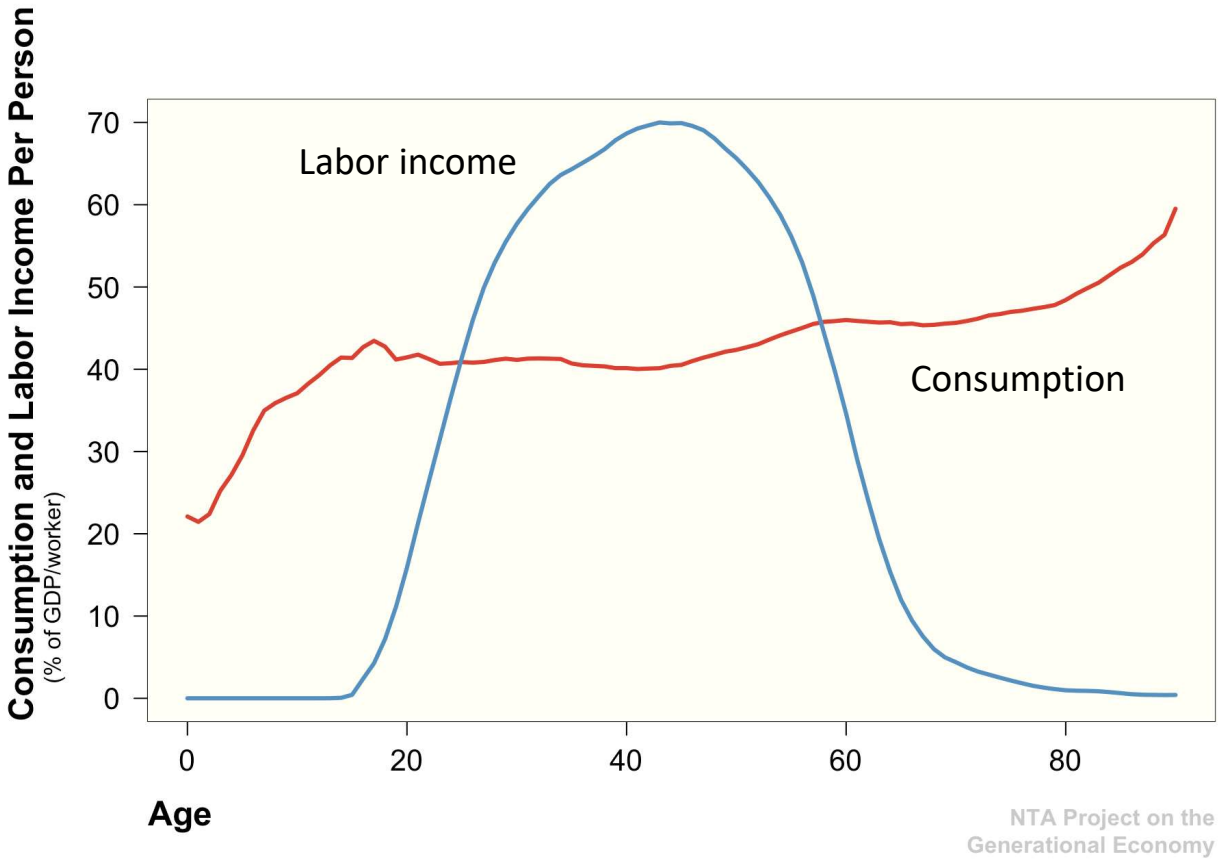
What age is young?

- In agrarian system, children working early.
- Laws for minors 0-17.
- Marriage age laws.

- UN has no fixed definition: 0-14 and 0-19 are both used.
- UNICEF, for example: 0-14 are children and 15-19 are adolescents.

What is dependency?

The economic life cycle is characterized by two periods of dependency in which individuals consume more than they produce.



Dependency ratios

1. Demographic dependency ratio
2. Prospective-age dependency ratio
3. Thanatological-age dependency ratio
4. Economic dependency ratio (NTA)

- Note: Typically not used in program evaluation – actual age profiles of benefits and contributions/taxes are used.
- But can be useful indicators.
- For 3 of the 4 measures, the goal posts are constant. See impact of changing population if all else constant.

1. Demographic dependency ratio

- Dependent population: Young and Older Persons

		Older Persons	
		60+	65+
Young	0-14	15-59	15-64
	0-19	20-59	20-64

$$\frac{\sum_{0}^{19} p(x) + \sum_{65}^{100} p(x)}{\sum_{20}^{64} p(x)}$$

2. Prospective-age dependency ratio

- One way of conceptualizing how old people are **in terms of their needs and capabilities** is to measure ageing based on remaining life expectancy.

- Why remaining life expectancy?
  - It reflects the needs and capacities of older people.
  - Remaining life expectancy is a characteristic of people relevant to the study of population ageing that the United Nations publishes for all countries over a long span of time.

2. Prospective-age dependency ratio

- Prospective age = based on the number of remaining years people are expected to live based on life tables values (using their chronological age).
- Prospective ages are life expectancy equivalent ages.
- People with the same prospective age have the same remaining life **expectancy**.
- Measures of population ageing based on prospective age are called prospective measures of population ageing.

2. Prospective-age dependency ratio

- In the Prospective Old-Age Dependency Ratio (POADR), the threshold of being old is not fixed but linked to life expectancy. People are considered old when the average remaining life expectancy in their age group is less than 15 years.

- Old-age is based on Threshold Age: The age group in a life table for which remaining life expectancy is 15 years.
- In the traditional measure of dependency, Threshold Age is fixed at age 65. In the prospective-age measures, Threshold Age changes over time = R(t).

$$\frac{\sum_{65}^{100} p(x)}{\sum_{20}^{64} p(x)} \qquad \frac{\sum_{R(t)}^{100} p(x)}{\sum_{20}^{R(t)} p(x)}$$

3. Thanatological-age

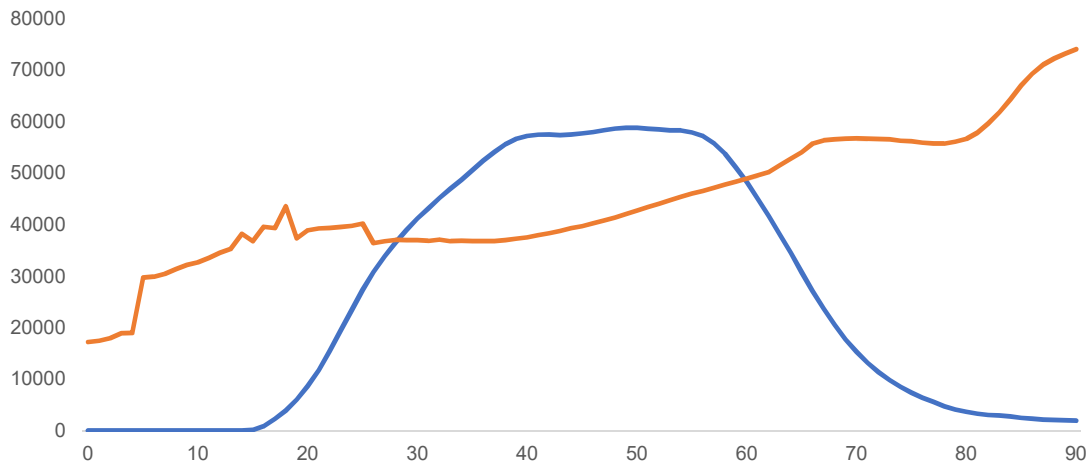
- Years before deaths
- Known for all those who have died
- Guesses for everyone else. Bad at guesses for individuals (show), Pretty good at guesses for populations (show).

- *Discussion: What is the chance that we have two people having the same birthday (day & month) in this room?*

4. Economic dependency ratios

- NTA !
- EDR=effective consumers/effective producers

$$=\sum_x c(x) * pop(x) / \sum_x yl(x) * pop(x)$$



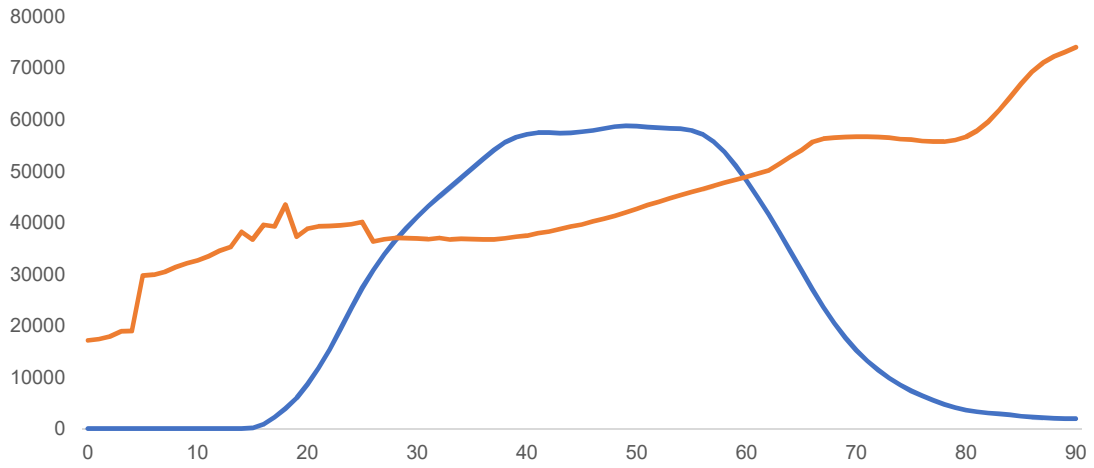
How to determine dependency here?

What does dependency mean? (non-labor sources)

4. Economic dependency ratios

- NTA !
- EDR=effective consumers/effective producers

$$\sum_x c(x) * p(x,t) \Big/ \sum_x y(x) * p(x,t)$$



How to determine dependency here?

What does dependency mean? (non-labor sources)

Hands-on Training

- Show the comparison of the 4 indicators

- What is gained by thinking about the 3 non-traditional measures?

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Any questions?
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Next up
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