# Manual on National Transfer Accounts: Getting Started (Chapter 3)

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# Outline

3.1 Materials

3.2 Building a micro-level database

3.3 Basic methods

3.4 Steps to follow in completing the accounts

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# 3.1 Materials

- Necessary human and computer resources
  - Helps to have a team
  - Knowledge of institutional features of the country
  - Computing skills (spreadsheets, survey data analysis and programming in Stata, R)
  - Use saved programs, not point-and-click
    - Makes revision easier
    - Makes sharing with others easier, across the NTA network and over time within your country

# 3.1 Materials

- Data requirements
  - General: same time period, nationally representative, sufficient age detail
    - Also want detail on any sub-groups you are interested in studying (e.g. sex, region, urban/rural, SES indicators like educational attainment)
  - Population estimates
    - Single year of age to 90+
    - Evaluate quality of estimates (see Appendix A)
    - Can use UN World Population Prospects if problems with national estimates
    - Significant non-household population?

# 3.1 Materials

- Data requirements (cont.)
  - National accounts data
    - Get as much of it as you can find
      - List of main SNA tables given on page 4
      - Need tables by SNA sector
    - Which government agencies produce your accounts? How do they publish the results? What is available in international databases?
    - Beware revision schedules!
    - Will probably also need
      - government budget documents
      - entries for your country in the International Monetary Fund's Government Finance Statistics (GFS) publications

# 3.1 Materials

- Data requirements (cont.)
  - Household surveys and administrative records
    - Income and expenditure surveys
      - Direct measures or indicators of relative age pattern
    - Specialized surveys on sub-groups
      - Older people
      - Persons not in households (e.g. nursing home population)
    - Administrative data
      - Government reports on public program participation by age
        - » May give monetary flows
        - » May only have participation indicators

# 3.1 Materials

- Data requirements (cont.)
  - Household surveys and administrative records
    - Features:
      - Nationally representative
      - Designated household head
      - Sufficient sample size
      - Household roster by age, sex, work/school status
      - Detailed income by source data
      - Detailed expenditure by type data

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# 3.2 Building a micro-level database

- What goes in it?
  - Age profiles in the database
    - Start with your income and expenditure survey, create NTA variables from survey items
    - Merge on any external NTA variables to each person
      - Example: merge records on publicly provided health care by age of individual
      - Can use as many additional characteristics in the merge as data allows
  - Other information in the database
    - Population counts
    - Macro controls
- What can you do with it?
  - Calculate NTA age profiles
    - For intra-household transfers, especially (must have a micro-level database with macro-adjusted individual-level age profiles for a set of variables to computer intra-household transfers)
  - Other interesting studies:
    - Sub-groups (regions, sex, urban/rural, socio-economic status)
    - Explore variability (medians instead of means, percentiles)

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# 3.3 Basic methods

- Aspects of an NTA age profile
  - Smoothed
    - Reduces noise from sampling
    - Smooth lowest-level components
    - Beware of eliminating “real” features of the age pattern
      - Peaks/valleys, elbows, zeros
    - False negative values should be replaced with zeros
    - Details and examples in Appendix B

# 3.3 Basic methods

- Aspects of an NTA age profile
  - Macro-adjusted

| | |
|---|---|
| $a$: | age *a*, single years ranging from 0 to $\omega$ |
| $N(a)$: | population count, age *a* |
| $X$: | macro control (i.e. national total, all ages combined) |
| $x(a)$: | per capita age pattern, age *a* |
| $\tilde{x}(a)$: | per capita NTA age profile, age *a* |
| $\tilde{X}(a)$: | aggregate NTA age profile, age *a* |

Scale Factor Calculation: $\theta = X \,/\, \sum_{a=0}^{\omega} x(a)N(a)$

$$\tilde{x}(a) = \theta x(a)$$

Apply Scale Factor:

$$\tilde{X}(a) = \tilde{x}(a)N(a)$$

# 3.3 Basic methods

- Steps to follow in calculating an age profile
  - Calculate the macro control
  - Calculate the single year age group averages
    - 1. From household survey (with survey weights if applicable)
      - Use individual-level data if available
      - Otherwise allocate household amount to individuals in the household
    - 2. From administrative records
    - 3. On *a priori* grounds (i.e. assumed or calculated from other age profiles)
  - Adjust age shape for any missing populations (i.e. persons not represented in survey or administrative records)
  - Smooth
    - Evaluate to ensure that no real variation has been eliminated
  - Adjust smoothed and non-smoothed profiles to controls
    - Evaluate adjustment factor to test the validity of the age shape

# 3.3 Basic methods

- How many age profiles to calculate
  - As many as have identifiable macro controls and different age patterns (example of different levels of education)
  - BUT
    - Don’t re-smooth higher-level profiles
    - Don’t combine profiles with different final age categories

# 3.3 Basic methods

- How to evaluate resulting age profiles
  - Internal NTA validity checks
    - Verify aggregate amount matches macro control
    - Evaluate smoother (plot smooth and unsmoothed)
    - Sub-profile consistency with higher-level profiles?
    - Does age profile look reasonable compared to other NTA countries?
    - Is age profiles >0, <0 or =0 in appropriate age ranges?
    - Role of children
    - Do balancing flows actually balance?
  - External validity checks
    - Are macro controls reasonable relative to SNA amounts from international databases?
    - Do your estimates agree with other researchers who have studied the topic?
    - Overall plausibility in the country context

# 3.3 Basic methods

- Document and archive estimates
  - Write up methods for each age profile with references and data sources
    - In simple tables or a technical paper or manual
  - Save all computer programs and add thorough comments
  - For NTA network members, upload finalized age profiles and documentation to on-line database at www.ntaccounts.org

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**Gather Data**

- Identify available surveys, administrative records, national accounts, and population data
- Choose base year in which all necessary data are available
- Obtain data permissions and copies of datasets
- Evaluate data quality, coverage, usability

**Lifecycle Accounts (Ch 4)**

- Calculate macro controls for components of consumptiona and labor income
- If you have extensive, detailed national account data, you may want to calculate all macro controls at this time to make sure your macro controls satisfy the flow constraint (See Appendix C)
- Estimate age patterns from administrative and survey data
- Smooth, adjust to controls, and evaluate

**Public Age Reallocations (Ch 5)**

- Calculate macro controls for public reallocations (transfers, asset income and saving)
- Estimate age shapes for these variables from administrative and survey data
- Smooth, adjust to controls, and evaluate

**Private Age Reallocations (Ch 6)**

- Calculate macro controls for private reallocations (transfers, asset income and saving)
- Estimate age shapes for these variables from survey data
- Smooth, adjust to controls, and evaulate
- Estimate components of intra-household transfers from already estimated profiles and sharing algorithm
- Smooth, adjust to modified control, evaulate
- Estimate private saving as the balancing item

NTA