ISSUES IN THE CONSTRUCTION OF AN EXPANDED MEASURE OF CONSUMPTION: LESSONS FROM LIMEW

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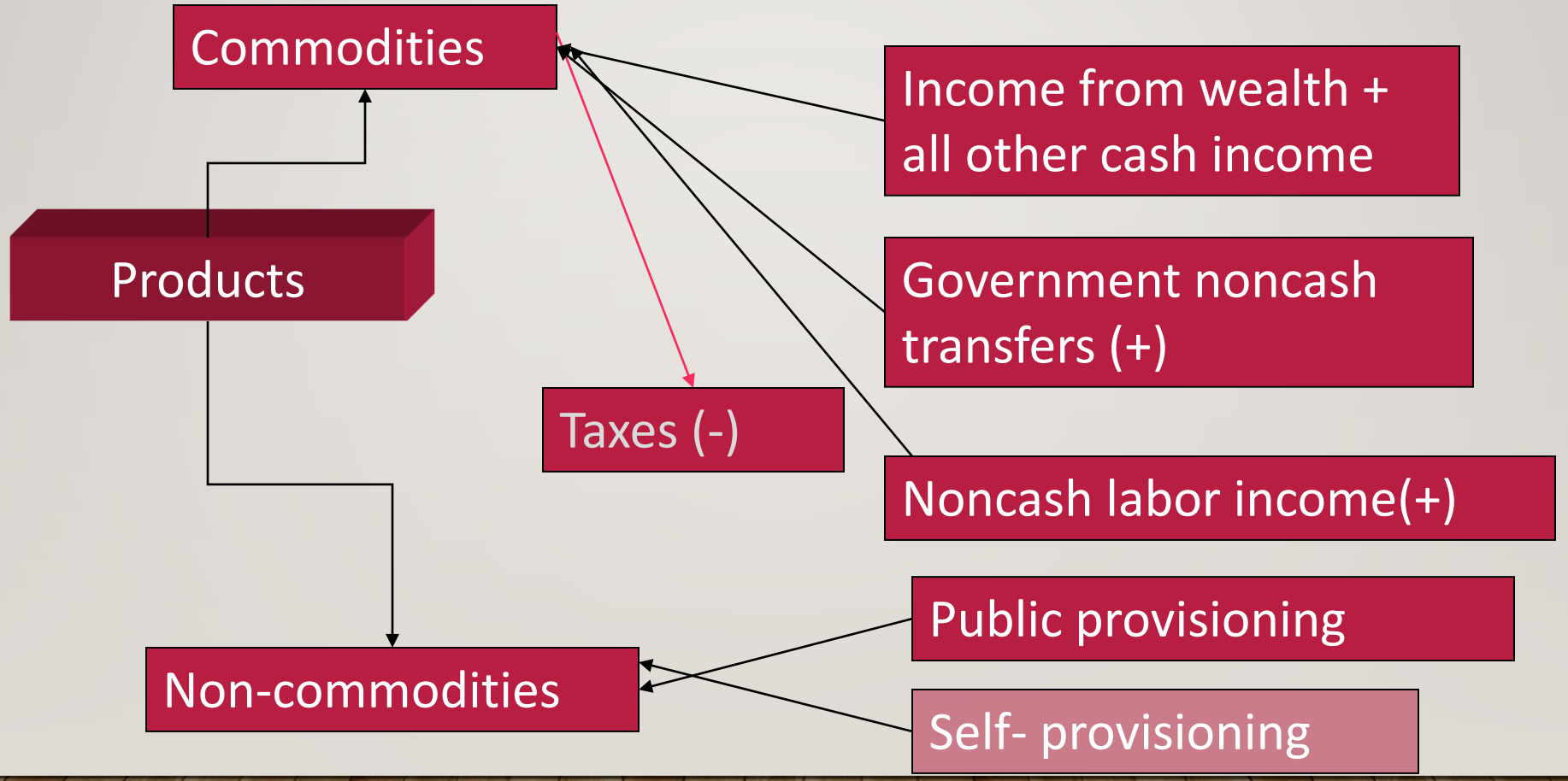
ECONOMIC WELL-BEING

- *Our concept*: The command that households have over the products produced in an economy over a given period of time.
- *The Canberra report:* A household's economic well-being can be expressed in terms of its access to goods and services.
- *Adam Smith:* "Every man is rich or poor according to the degree in which he can afford to enjoy the necessaries, conveniences and amusements of life."
  - What matters for Smith is not the degree to which the person enjoys but the degree to which he can afford to. That is, not consumption or utility but command or access

MAJOR COMPONENTS OF ECONOMIC WELL-BEING

The three major institutions that sustain living standards under capitalism is reflected: markets, state and households



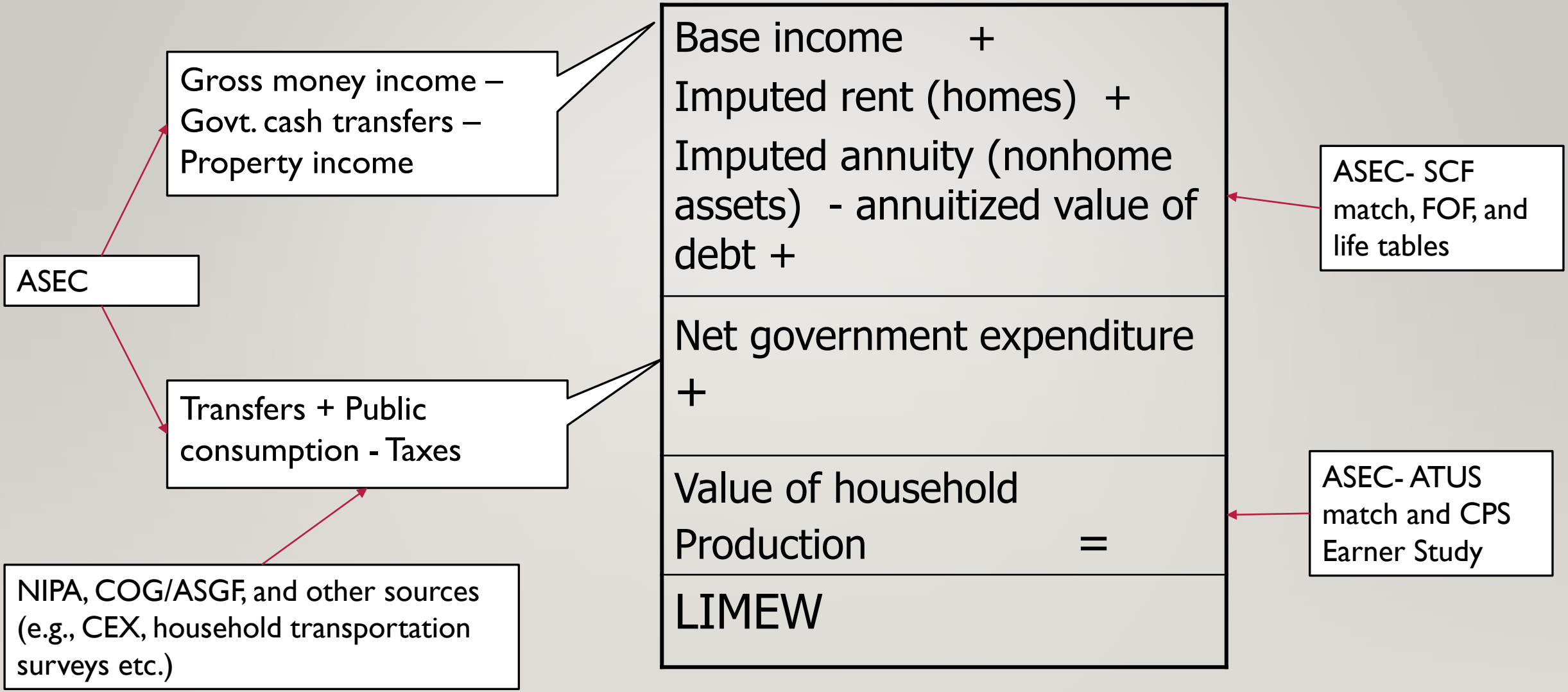
ALTERNATIVE VIEWS

- LIMEW focuses on means or resources rather than outcomes—hybrid of *potential* and actual consumption
  - Jeremey Bentham—utility
  - Amartya Sen—functionings and capabilities
- *Stiglitz-Fitoussi-Sen Commission (2009)*: "Full income"
  - Overlaps with LIMEW in public consumption and household production
    - Definition of public consumption is narrower (includes health and education but leaves out physical infrastructure and most public goods)
  - Emphasized wealth but does not include it in a comprehensive manner in full income
  - Includes value of leisure (Utilitarian tradition)

COMPARISON WITH CONSUMPTION-BASED MEASURES

- No overlap with *private actual* consumption of commodities
  - Annuity from nonhome fungible wealth represents *private potential* consumption of commodities
  - Consumer durables (automobiles) are excluded from the definition of wealth in the LIMEW because they are not fungible
- Would overlap with a broader measure of consumption if the latter includes
  - *private actual* consumption of household production
  - insurance value of health insurance (employer and government-provided or subsidized)
  - imputed values of noncash government housing and food benefits
  - elements of public consumption (e.g. schooling)
- Broadening measures of consumption may involve incorporating *potential* consumption
  - Weakens the initial case for actual consumption as a better measure of well-being

MEASUREMENT FRAMEWORK



DATA FUSION/STATISTICAL MATCHING

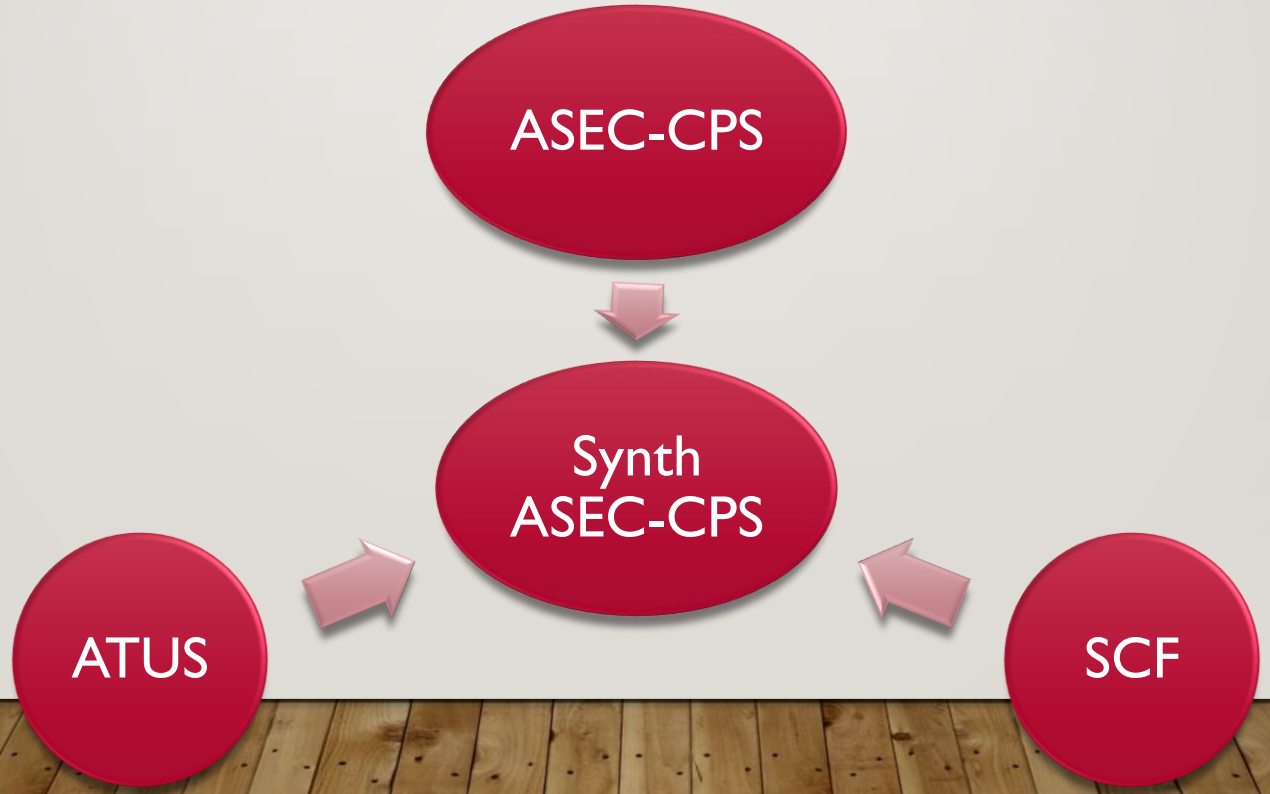
- Two key components require microdata from other surveys
- Information on household assets and liabilities from the Survey of Consumer Finances (SCF) is used to calculate income from wealth
- Data on time spent on household production from the American Time Use Survey (ATUS) is used to estimate the value of household production
- Combining ASEC-CPS with SCF and ATUS requires the use of imputation-like methods

A PROBLEM OF MISSING DATA

Type of variables	Recipient: ASEC-CPS	Donor: ATUS	Donor: SCF
Z Demographics, Income, Labor force	Available	Available	Available
X1: Detailed Income Transfers, access to services	Available		
X1 Time use		Available	
X2 Wealth Data			Available

A PROBLEM OF MISSING DATA

- Goal: create a synthetic dataset that contains all information together



A PROBLEM OF MISSING DATA

- Nature of the problem.
  - Not one of missing information for few records
  - Entire blocks of data is not available for all records.
- General Solutions:
  - (Multiple) imputation (regression based)
  - Statistical Matching (our preferred approach)

STATISTICAL MATCHING

- Identify the following joint distribution:

$$f_1(x_1, x_2, x_3, z) \Rightarrow f_1(x_1, x_2, x_3|z) f_1(z)$$

- However, because joint data doesn't exist, we impose a conditional independence assumption:

$$f_1(x_1, x_2, x_3|z) = f_1(x_1|z) f_1(x_2|z) f_1(x_3|z)$$

STATISTICAL MATCHING

- Thus, the goal is:

$$\hat{f}_1(x_1, x_2, x_3, z) = f_1(x_1|z)\hat{f}_{12}(x_2|z)\hat{f}_{13}(x_3|z)f_1(z)$$

- This implies that we need to "transfer/impute" the conditional distributions $\hat{f}_{12}(x_2|z)$ and $\hat{f}_{13}(x_3|z)$ from the observed distribution $f_2(x_2|z)$ and $f_3(x_3|z)$ using the distribution of common variables z.
- Specifically, we transfer this information using constrained ranked match (using all data).
  - This works only if:

$$f_1(z) \sim f_2(z) \sim f_3(z)$$

STATISTICAL MATCHING

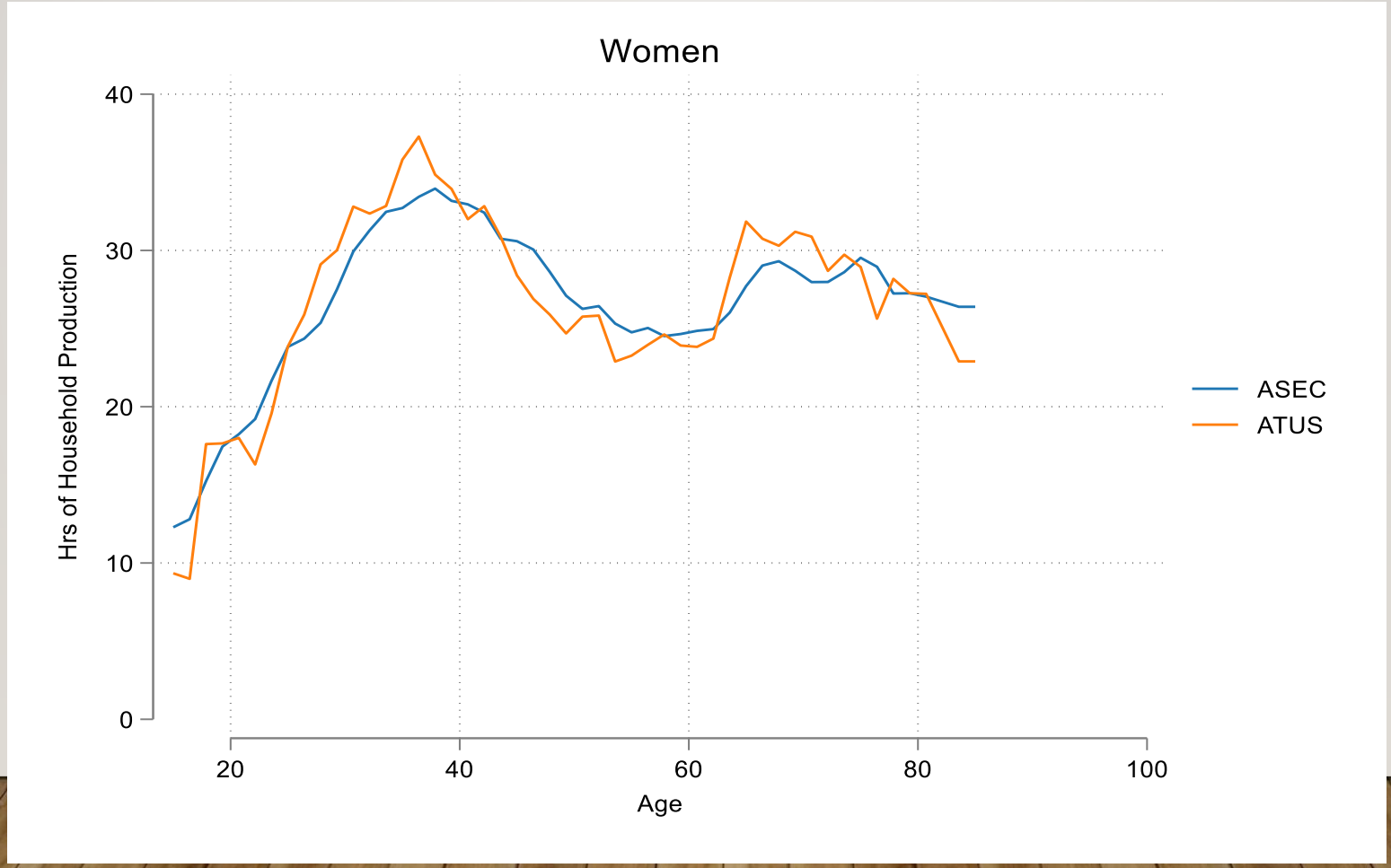
- Procedure:
  - A propensity score match $P_{srv=1}\ (z)$ is estimated for all observations and samples.
    - Reduces dimensionality from K_z to 1
  - Observations are linked (transferred) based on their ranked propensity score and survey weight.
  - Strata matching refinements can be applied
- Match quality is assessed based on how well transferred data resembles the original constrained distribution

$$\hat{f}_{21}(x_2|z) \sim f_2(x_2|z)$$

- But we can also compare the distribution of "transferred" common variables:

$$\hat{f}_{21}(z|p(z)) \sim f_1(z)$$

ATUS(2019)-ASEC(2020): WEEKLY HOURS OF HOUSEHOLD PRODUCTION WOMEN BY AGE



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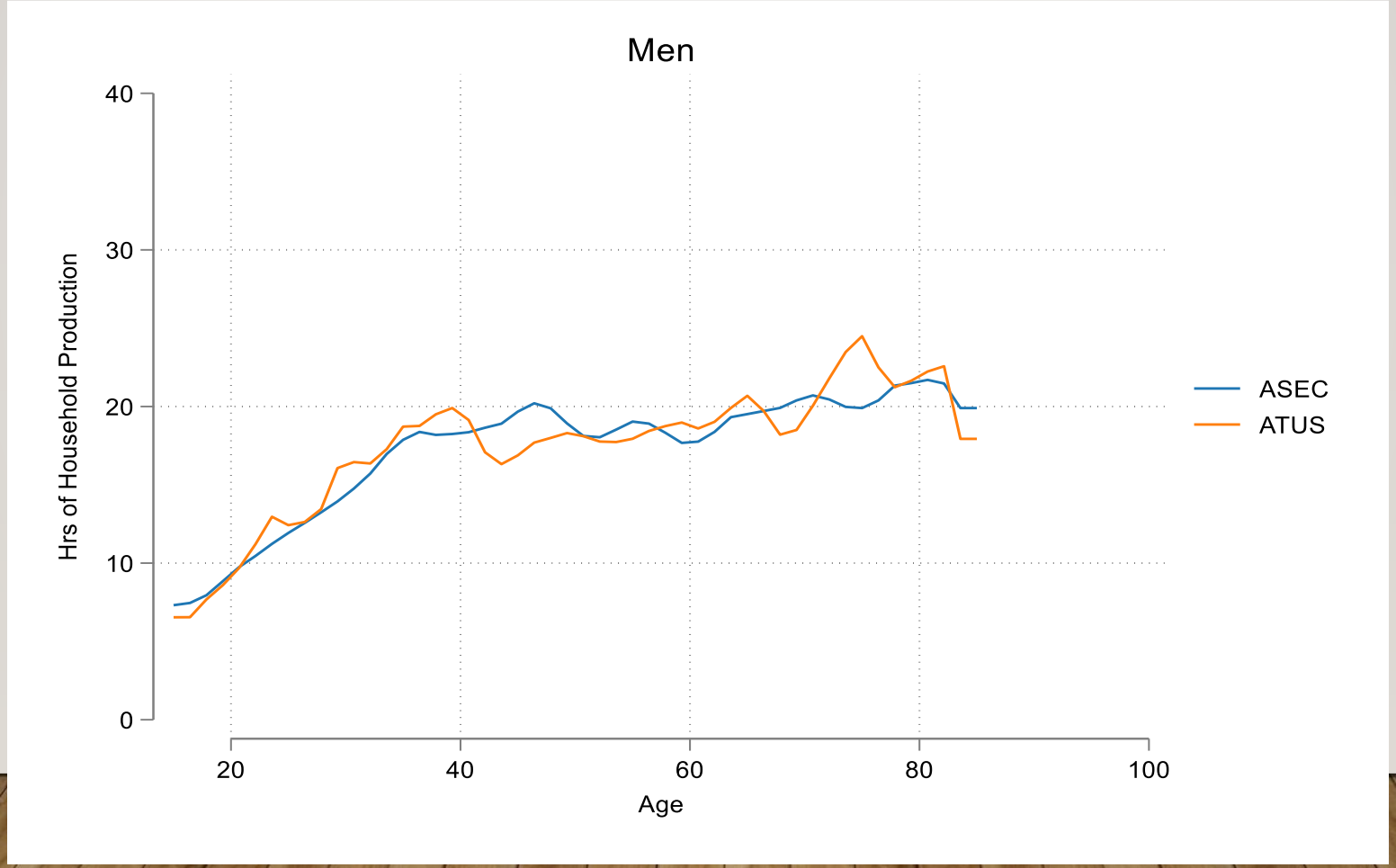

ATUS(2019)-ASEC(2020): WEEKLY HOURS OF HOUSEHOLD PRODUCTION BY HH INCOME LEVEL