

Estimating NTA by sex

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Outline

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3. How to add gender?
4. Labor income
5. Consumption
6. Adjustment for consistency with single-sex NTA
7. Once you have the profiles, what then?

Introduction

- If you have already computed NTA age profiles of consumption and production, NTA by sex is just an extension of those estimates
- Overall strategy:
 1. Apply the usual NTA method
 2. Instead of smoothed age-specific means, calculate smoothed age- and sex-specific means instead
 3. Adjust the smoothed age- and sex- profiles so they are consistent with the smoothed single-sex profiles
 4. Sensitivity testing

Review single-sex estimation strategy

In single sex NTA, we use different estimation strategies depending on data source, level of availability, and type of age profile:

- Data source: household surveys
 - For individual-level data, compute age means directly
 - For household-level data, allocate to household members
 - Use “equivalent adult consumer” (EAC) weights for non-health, non-education private consumption
 - Use regression method or iterative method for education and health care if utilization measures are available
 - Allocate total amount to household head if assets are involved or for interhousehold transfers
- Data source: administrative data (government reports)
 - Take age-means from government sources
- Profiles based on imputation/assumption

How to add sex as another category?

- Data source: household surveys
 - For individual-level data, compute age **and sex** means directly
 - For household-level data, allocate to household members
 - Use “equivalent adult consumer” (EAC) weights for non-health, non-education private consumption, **using the same weights for males and females of the same age**
 - Use regression method or iterative method for education and health care if utilization measures are available, **adding sex to the independent variables in the regression equations**
 - Allocate total amount to household head if assets are involved or for interhousehold transfers, **treating male and female heads the same**
- Data source: administrative data (government reports)
 - Take age- **and sex**-means from government sources
- Profiles based on imputation/assumption (**use same imputation/assumption for both sexes**)

Sex in Regression Allocation

- “Kitchen sink” approach
 - Where single-sex regression has a term for each age group, make a term for each age group for males and for females separately
 - We are not concerned with statistical significance so okay to have terms in a regression equation that don’t add much fit
- Alternative: using goodness of fit tests to get the most parsimonious model may be better for some research questions

Adjustment for consistency with single-sex NTA

- Single-sex NTA is our best estimate
 - Keeping sexes together means larger sample size
 - Single-sex NTA profiles are adjusted to macro controls
- Want gender-specific profiles to be consistent with single-sex
- Adjust each age of gender-specific profiles for consistency
 - Adjustment is different at each age, but the same for both sexes within an age group
 - Adjust smoothed profiles to be consistent with smoothed profiles; unsmoothed with unsmoothed

Calculating adjustment factors

$N(a)$: Population age a

$N(a, g)$: Population, age a, sex g

$\tilde{x}(a)$: Single-sex profile, adjusted to control

$x(a, g)$: Sex-specific profile

Age-Specific Adjustment Factors:

$$\theta(a) = \frac{\tilde{x}(a)}{[x(a, M)N(a, M) + x(a, F)N(a, F)]/N(a)}$$

Adjusted Profiles :

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

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

Final notes on adjustment

- Adjusting this way makes the gender profiles consistent with single sex profiles and macro controls in one step
- Save the schedule of adjustment factors and plot them for review
 - Adjustment factors should be similar size to the control adjustment factor for single-sex NTA
 - If gender adjustment factors are very different, there may be a mistake in the calculations
 - If factors have an age pattern, there may be a problem with the data not measuring the concept well

Sensitivity Tests

- Change allocation of general consumption from EAC weights to regression
 - Same EAC weights by gender may be bad assumption
 - Run alternative estimates with regression-based estimates
 - Best practice: estimate separate regression equations for different types of consumption, but this is very data intensive and time consuming
 - Captures correlation between household composition by gender and consumption patterns, but still leaves a lot out
- Change assumption about headship
 - Does not affect consumption or labor income profiles, but for transfers and asset-based reallocations there is a big impact
 - As much as possible, want to assign headship in the same way that legal control of assets is designated

Once you have profiles, what then?

- For labor income, examine what determines the different levels to specify policy implications
 - Labor force participation
 - Full time vs. part time status
 - Hours worked per week
 - Occupational specialization
 - Educational distribution
 - Different wages for same work
- For consumption, examine by sub-category to see which policies might be appropriate

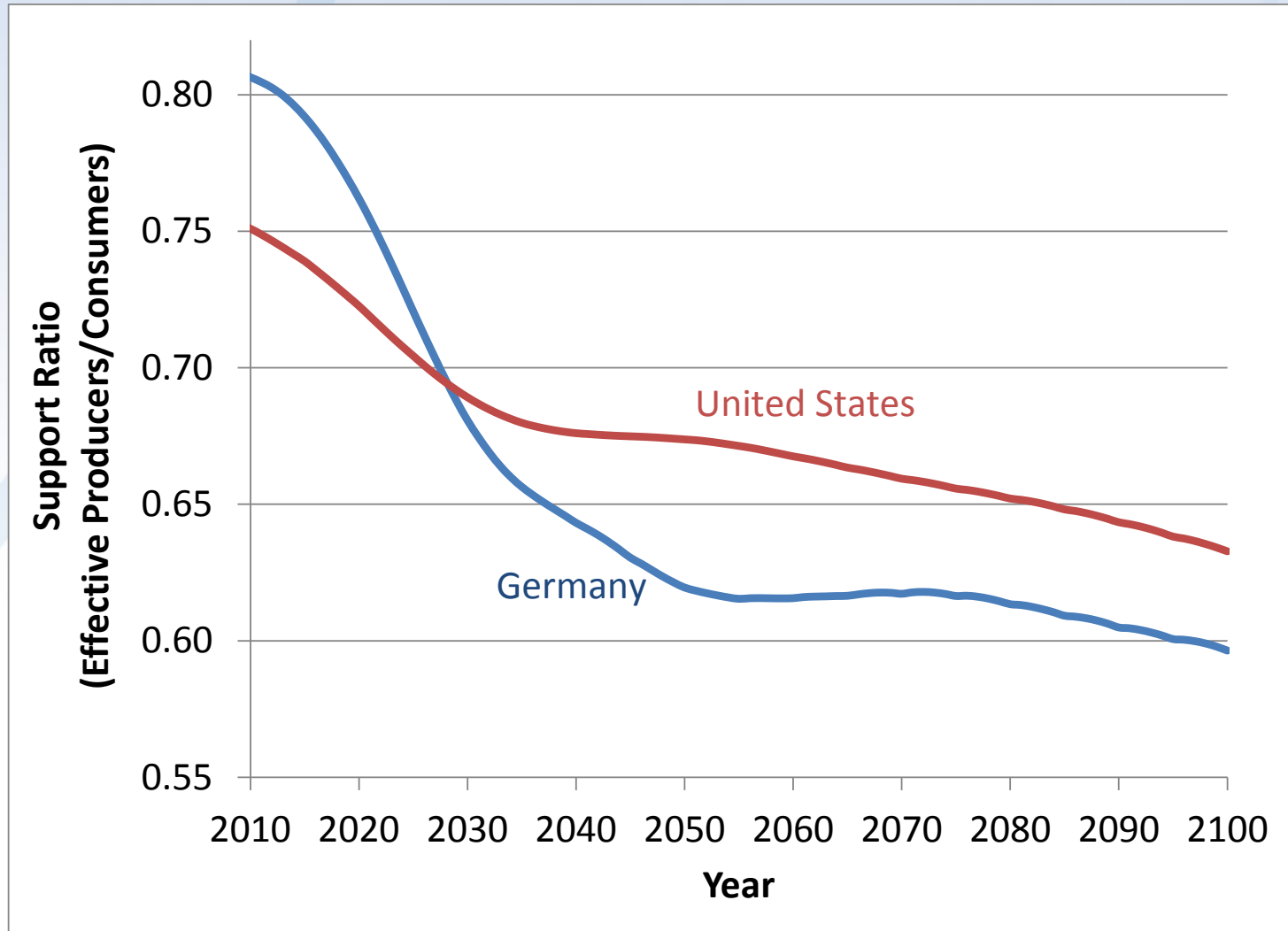
Childcare and household responsibilities related to patterns of market labor?

Once you have profiles, what then?

- For transfers, are there particular government programs or family transfer patterns that show gender disparities?
- For all, could examine by type of household
 - by SES
 - by household type
 - by region, etc.
- Present an analysis of the potential for a “gender dividend”
 - What would happen to the support ratio if women’s YL converged to that of men?
 - BUT, then what would happen to the household production women were responsible for?

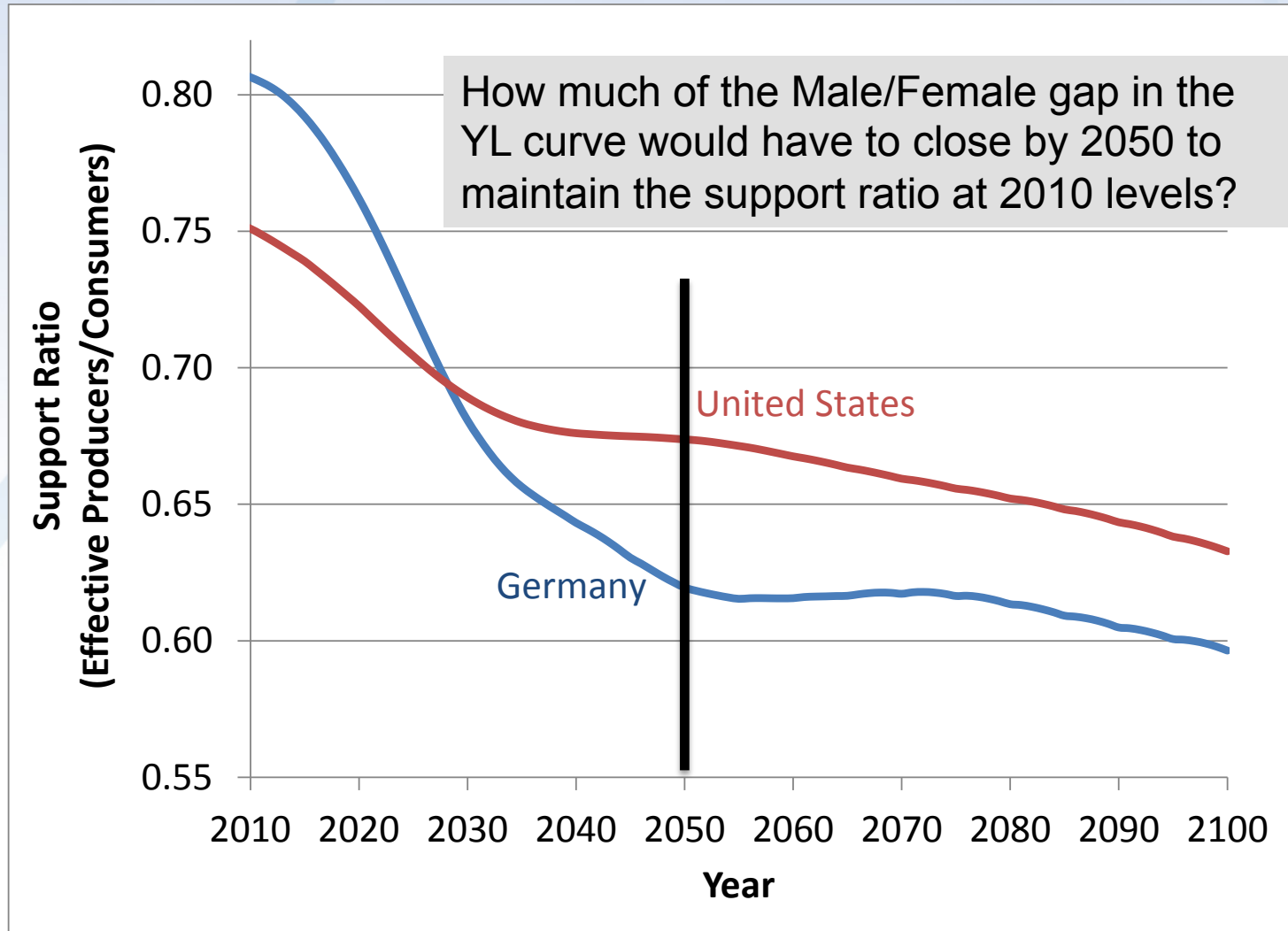
Gender Dividend Example

- Projected Support Ratios for US and Germany:



Gender Dividend Example

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Gender Dividend Example

- Germany: 30%, United States: 85%
 - Germany has less market/household specialization between men and women than US, and will have an older population
- Unless accomplished by raising the average woman's wage, it would have to mean more market work time for women
- The time has to come from somewhere
 - Care and housework?
 - Leisure, self-care, human capital investment?