Estimating NTTA for Brazil from a single piece of housework time information

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Background

Time use surveys are the main input for NTTA estimates

Currently, 18 countries in Latin America and the Caribbean collect time use data

Brazil is the only country on this list that limits data collection to a single piece of information: The **total number of hours dedicated per week to housework**, available in the National Household Survey

Assessing data quality in Brazil

- Questions in the National Household Survey:
    1. "Did you take care of housework in the reference week?"
    2. "Number of hours normally devoted to housework per week"

- Limitations:
- Self-interpretation of housework
- Possibility of disregarding childcare as housework
- Personal estimate of the number of hour for the whole week

Figure 1. Daily per capita production of housework by age and gender, Brazil, 2003, 2008 and 2013
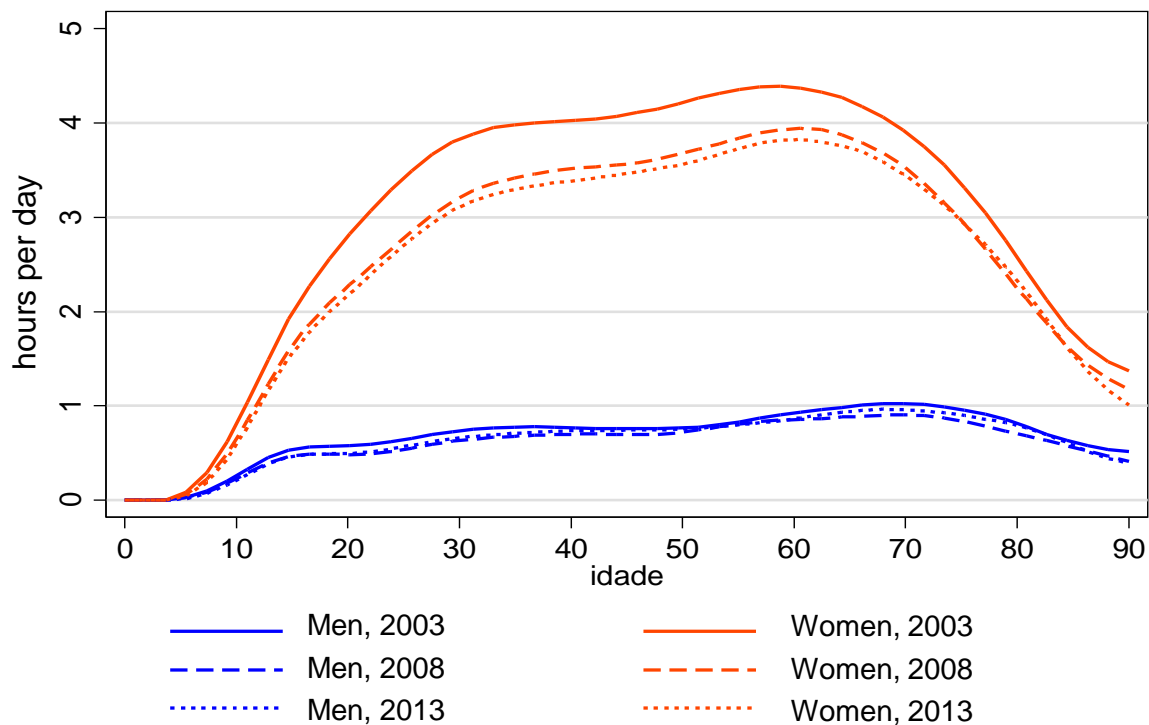
Different pattern from several NTA countries, suggesting underreporting of childcare

Men, 2003
Men, 2008
Men, 2013
Women, 2003
Women, 2008
Women, 2013

Source: Own calculations based on National Household Survey

Assessing data quality in Brazil

We compared to the National Time Use Survey (ENUT 2012-2013) from Colombia

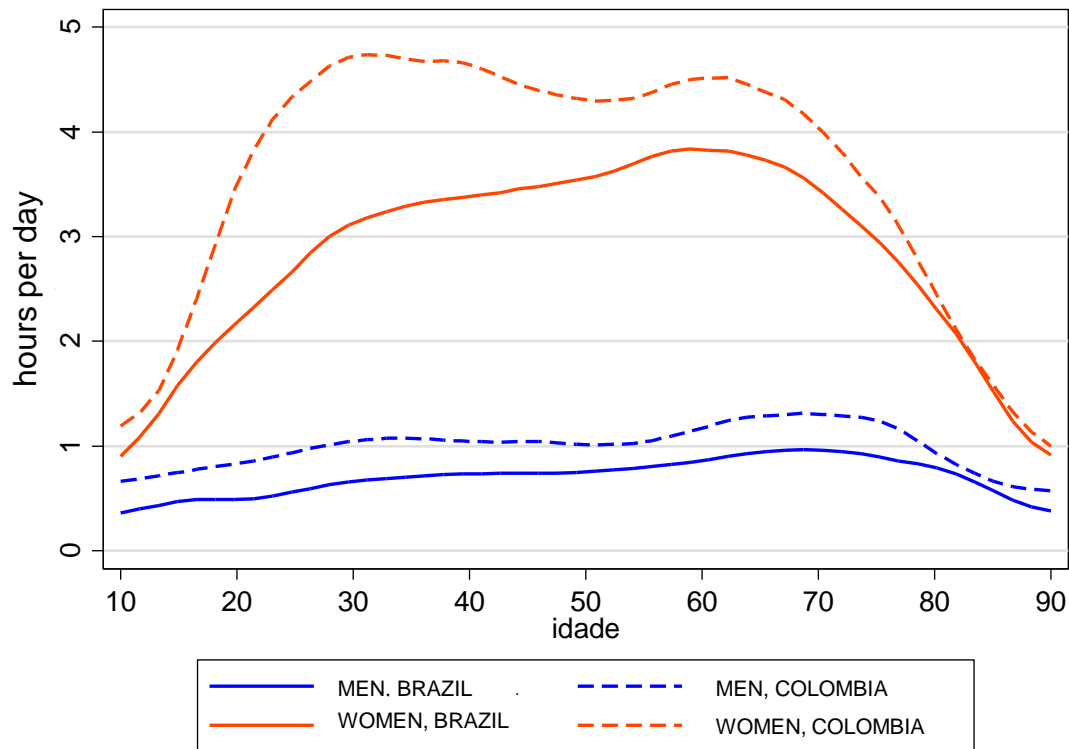Colombia and Brasil share socio-demographic, economic and cultural traits

Similar total fertility rate, female labour force participation and late labour legislation for domestic workers

GRÁFICO 2 - Distribuição relativa dos domicílios segundo os tipos de domicílios, Brasil e Colômbia
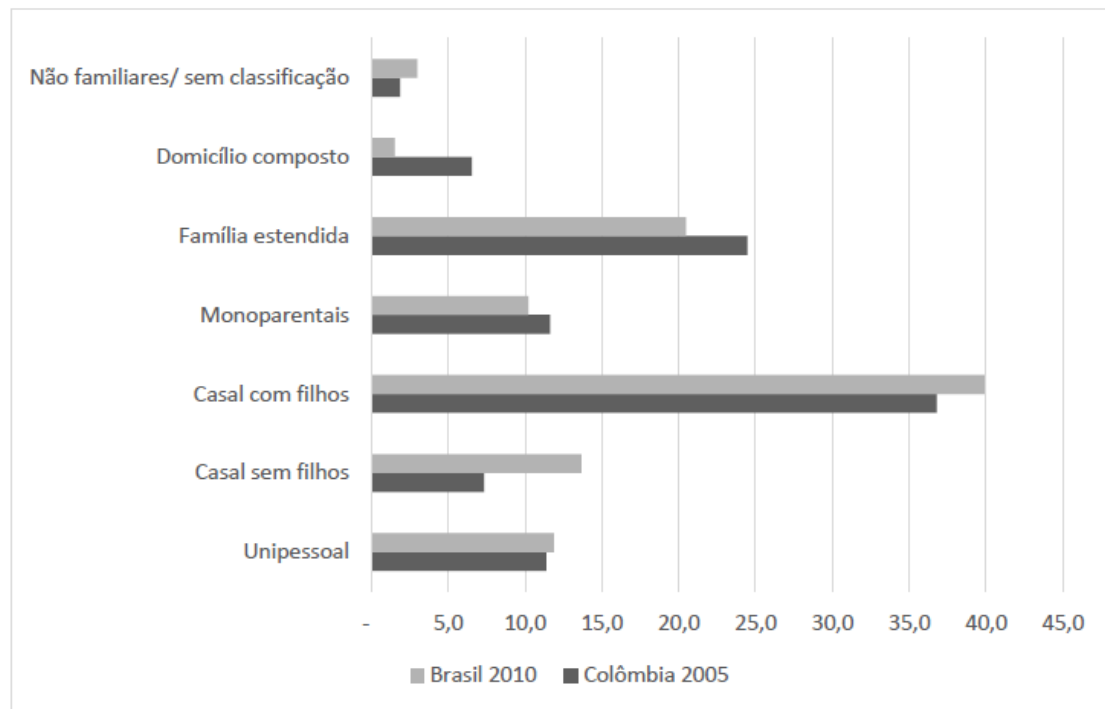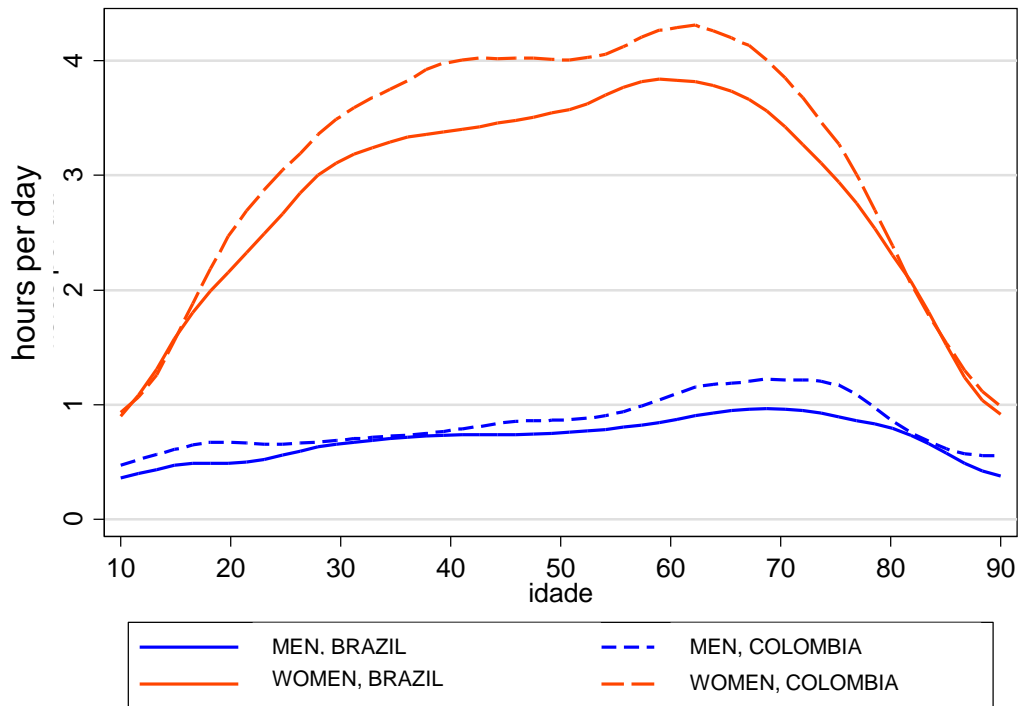

Fonte: elaboração própria a partir dos censos disponíveis no IPUMS

Figure 2. Daily per capita production of housework by age and gender, Brazil 2013 and Colombia 2012-2013

Figure 3. Average number of daily hours of housework in Colombia (excluding childcare) and housework in Brazil by age and sex

Proposed methodology

Assumption:

- Respondents report correctly the number of hours of domestic activities not involving childcare
- The difference in the domestic production age profile is a result of under-reporting of hours of childcare

Incorporating childcare into Brazilian data:

- Indirect standardization, borrowing the standard from Colombia
- **Adjustment ratio**: Ratio between the average number of daily hours dedicated to childcare and hours of other domestic activities

Proposed methodology

$$K_{i,j,l,m,n}^{COL} = \frac{CC_{i,j,l,m,n}^{COL}}{HW_{i,j,l,m,n}^{COL}}$$

$CC_{i,j,l,m,n}^{COL}$: average number of daily hours dedicated to childcare in Colombia

$HW_{i,j,l,m,n}^{COL}$: average number of daily hours dedicated to other domestic activities in Colombia

$$CC_{i,j,l,m,n}^{BRA} = K_{i,j,l,m,n}^{COL} * HW_{i,j,l,m,n}^{BRA}$$

i: sex
j: age
l: age of the youngest child at the household
m: occupational status
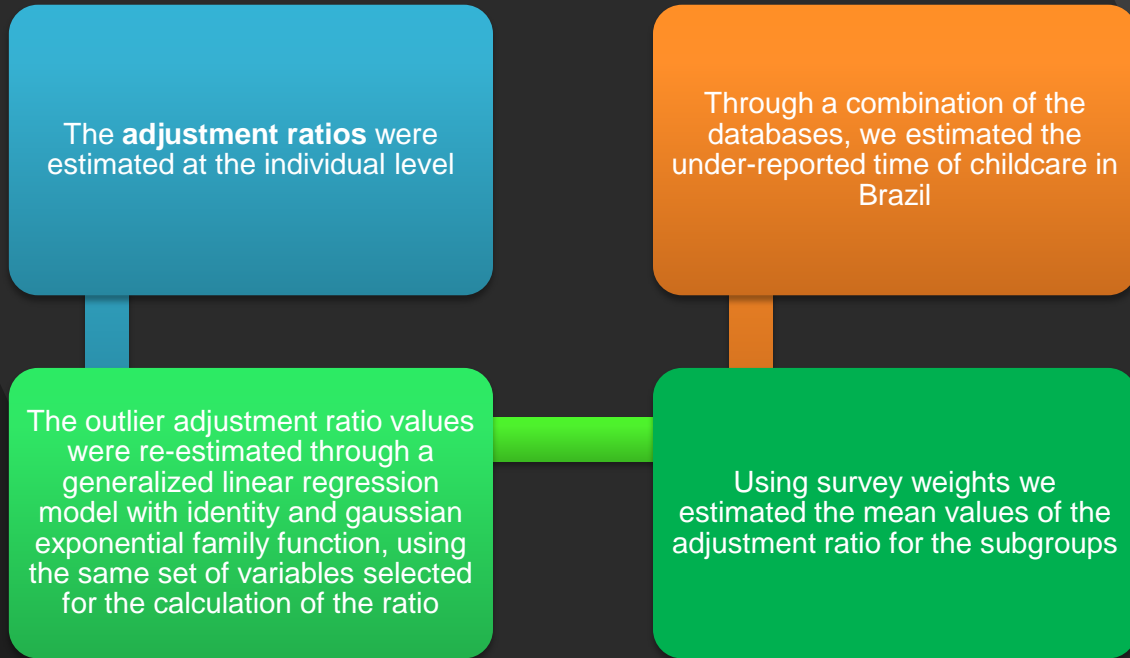n: local of residence (urban or rural)

Proposed methodology

The **adjustment ratios** were estimated at the individual level

Through a combination of the databases, we estimated the under-reported time of childcare in Brazil

The outlier adjustment ratio values were re-estimated through a generalized linear regression model with identity and gaussian exponential family function, using the same set of variables selected for the calculation of the ratio

Using survey weights we estimated the mean values of the adjustment ratio for the subgroups
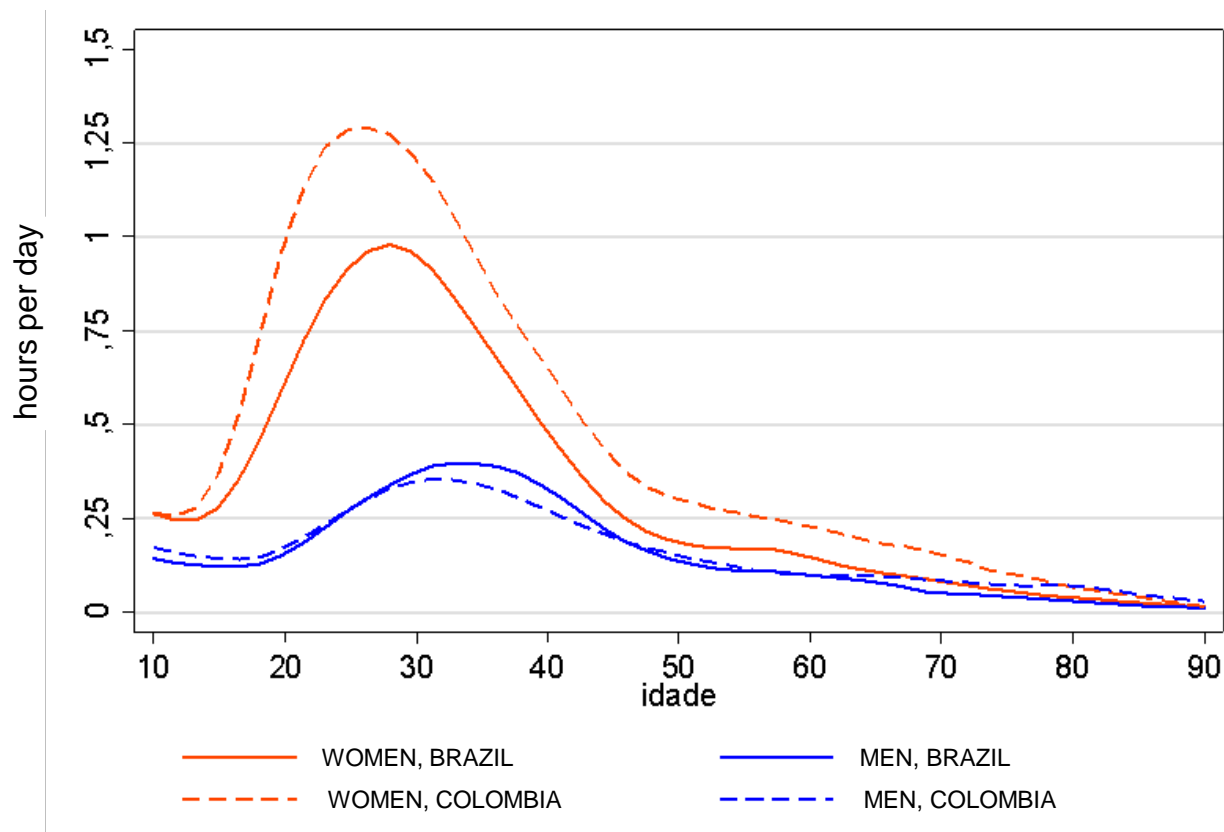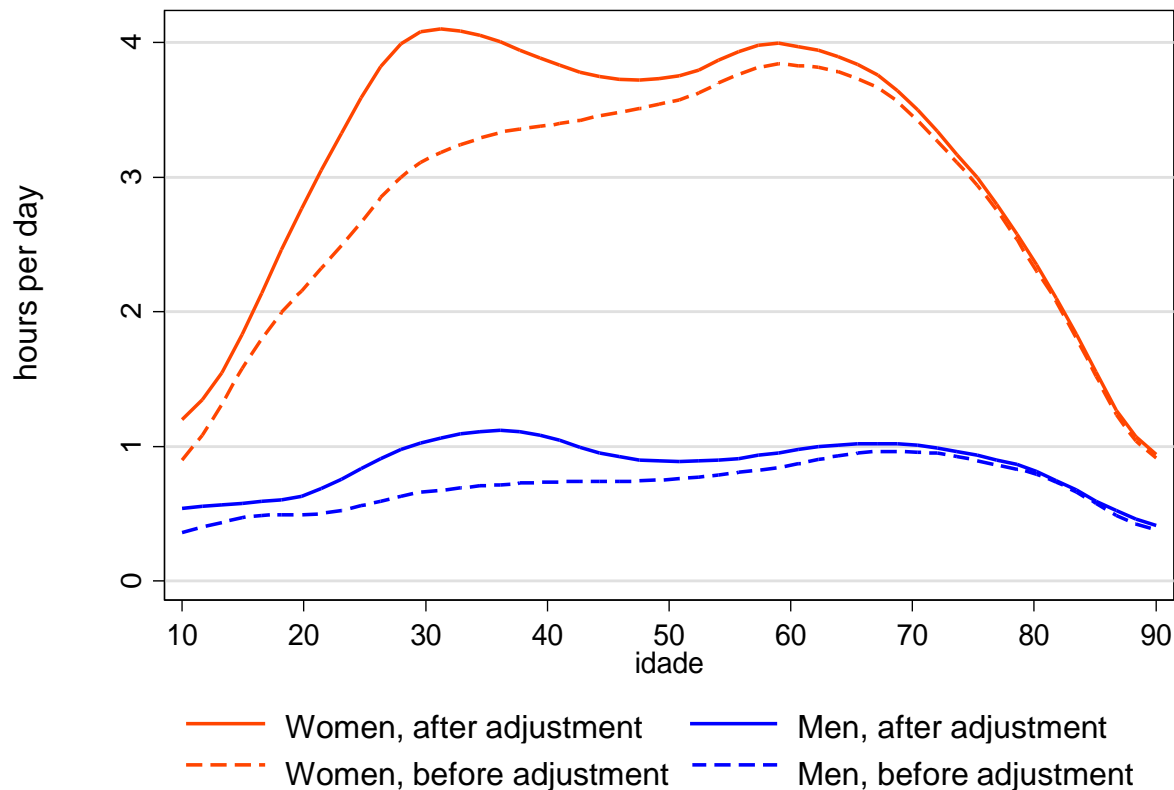
Figure 4. Average number of child-care hours by age and sex, Brazil 2013 estimate and Colombia 2012-2013

Source: Own calculations based on National Household Survey (Brazil 2013) and National Time Use Survey (Colombia 2012-2013)

Figure 5. Daily per capita production of housework by age and gender, Brazil 2013

Source: Own calculations based on National Household Survey (Brazil 2013) and National Time Use Survey (Colombia 2012-2013)
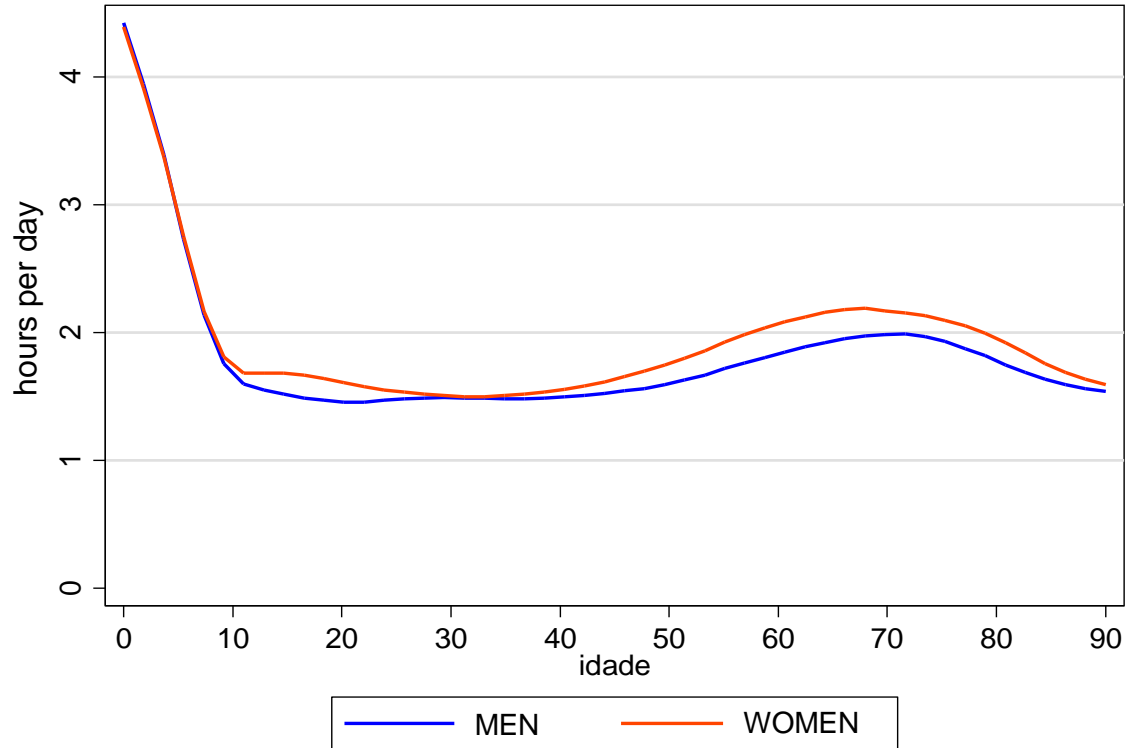
Estimating consumption

General housework:

- We assumed that each household member consumes the same share of housework, following Donehower (2014)
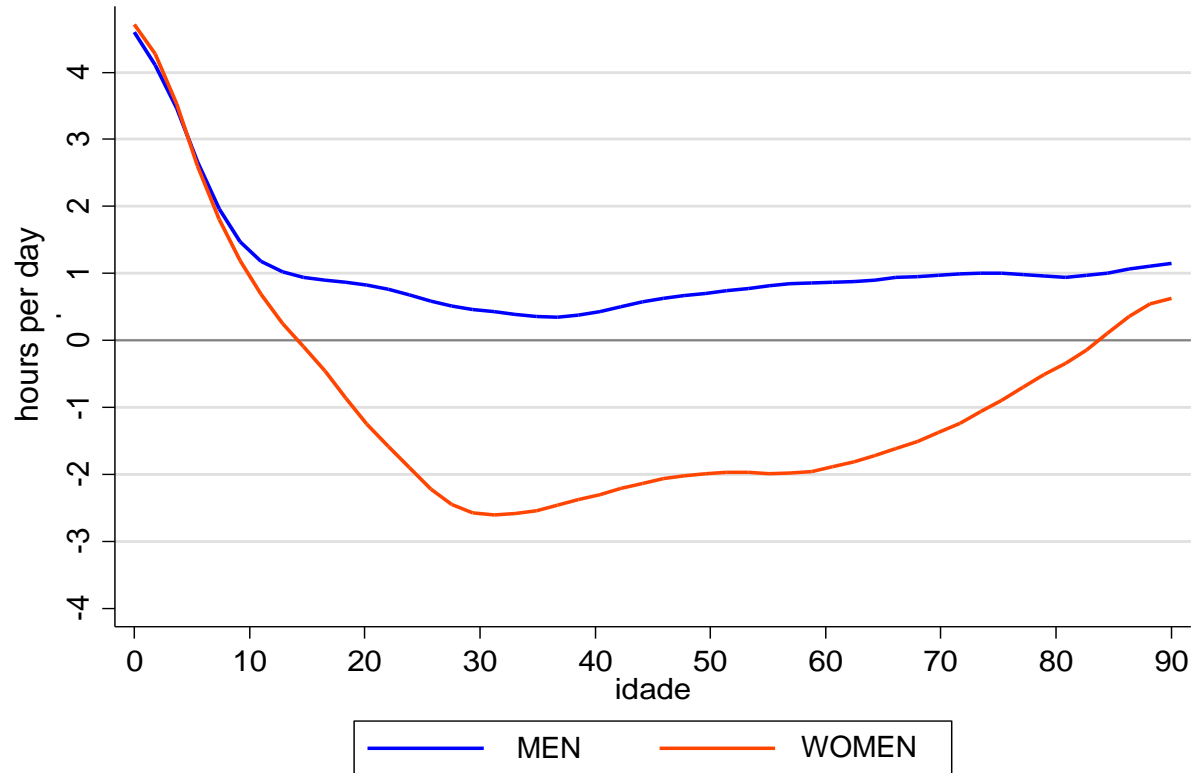
Childcare
- Consumed only by children
- In case of more than one child living in the household, equivalence scale was used to estimate the consumption of each child

Figure 6. Daily per capita consumption of unpaid housework in hours by age and gender, Brazil 2013
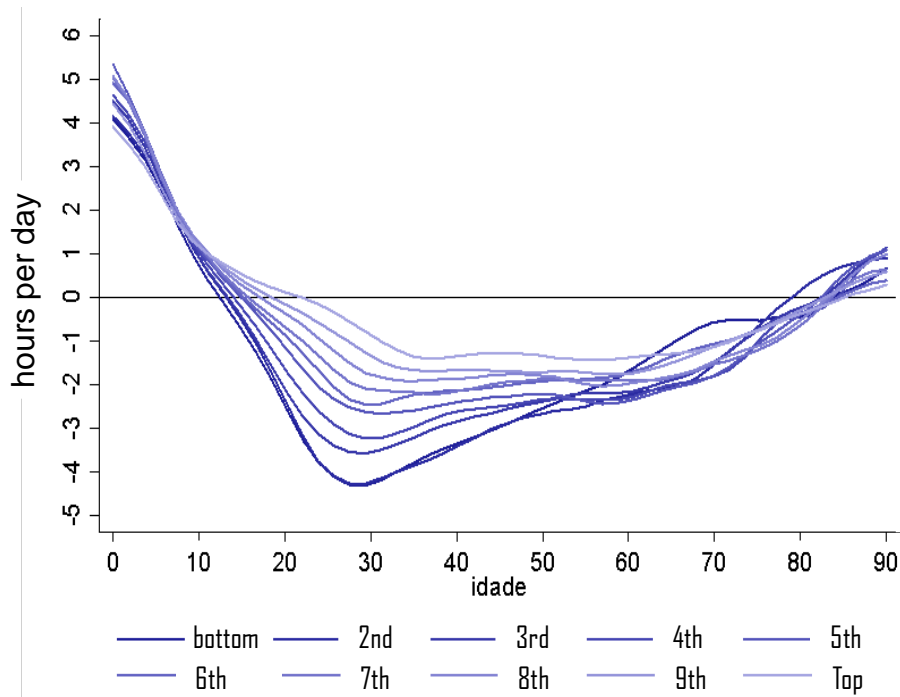
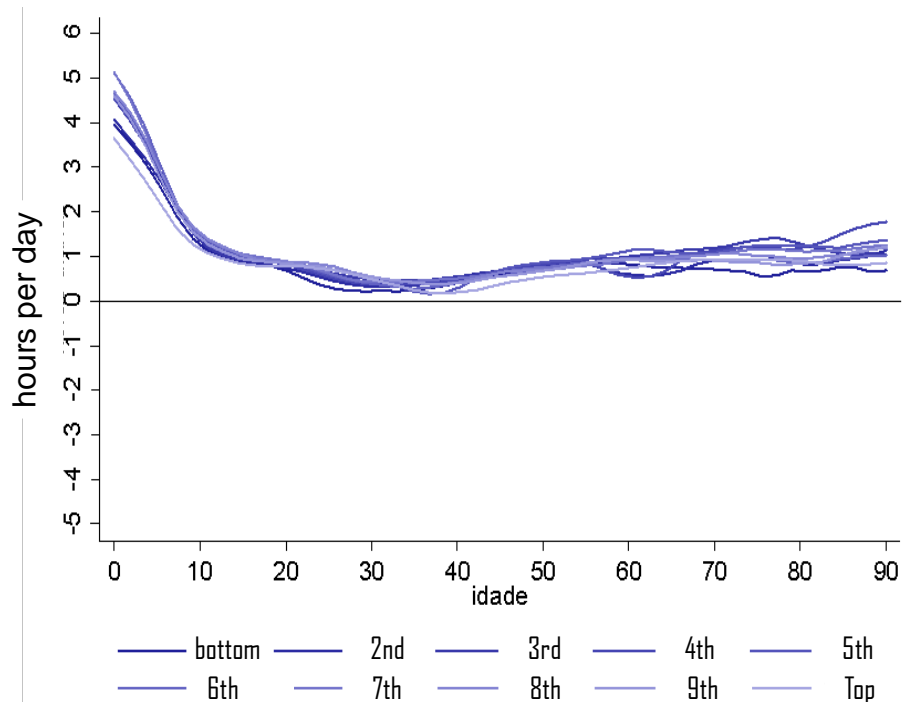# Figure 7. Net time transfers by age and gender, Brazil 2013

Source: Own calculations based on National Household Survey (Brazil 2013)

Figure 8. Net time transfers in hours by age, gender and income decile group, Brazil 2013

Women

Men

Source: Own calculations based on National Household Survey (Brazil 2013)

Pricing household labour

Substitution method

Wage used for persons in the market performing general housework and childcare

Median hourly earnings by occupation calculated for each state in Brazil to take into account the large regional differences in the labour market

The total value of labour devoted to home production of nonmarket services represented **10.4%** of Brazilian GDP in 2013

Figure 8. Average value of market and non market production by age and sex, Brazil 2013
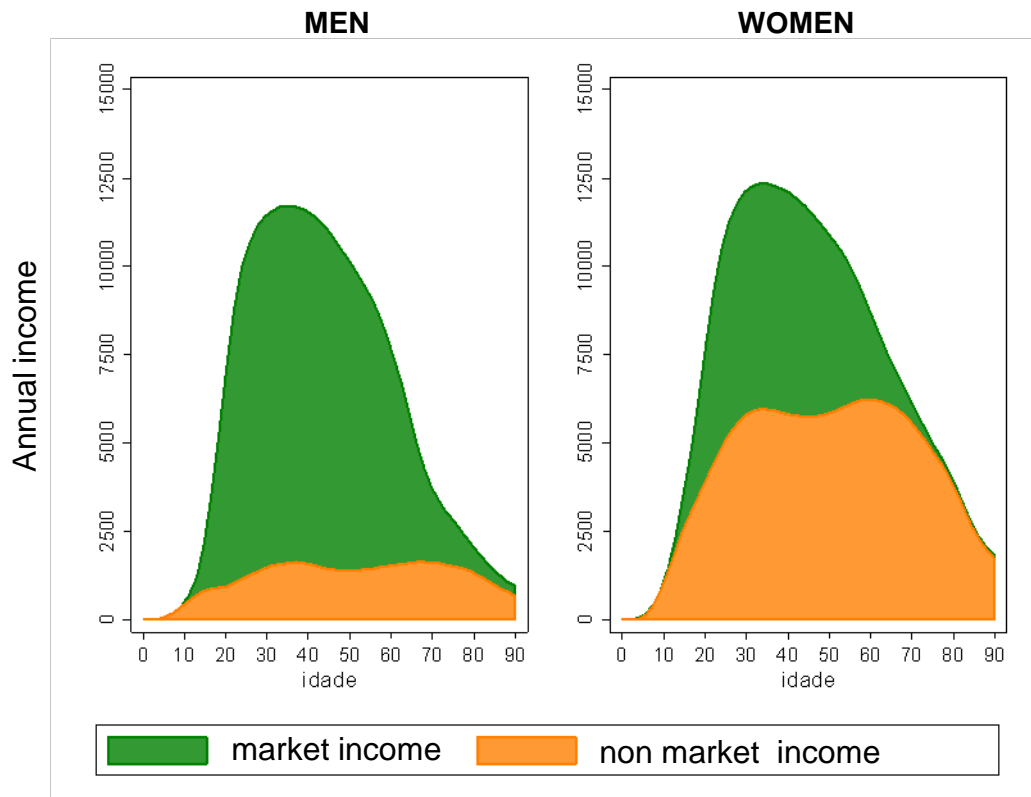
Source: Own calculations based on National Household Survey (Brazil 2013)

Next steps

Estimating the complete life cycle deficit

To explore different patterns for the adjustment of Brazilian data, considering other countries

Thank you!

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