Female labour supply and time use

## David Vonka

20.11.2007

(1) Where does the extra working time come from ?
(2) General picture of female time use
(3) How does non-parental childcare interact with timeuse ?

- Literature review
- Data (and its limitations)
- Empirical results
- Aguiar-Hurst(2006)
- Hamermesh, Pfann(2004)
- Ichino, Galdeano(2006?)
- Bianchi(2000)
- Bryant, Zick(1996)
- Ruhm (2004)
- Folbre, Yoon (2007)


## Data (and its limitations)

- TBO in 1980,85,90,95 and 2000. 14453 people aged $12+$.
- Only one in a family !
- diary + background information.
- Wealth and income information missing. Education available.
- No " with whom" info. Very little "secondary activity" info.
- ... but observed in 7 days.
- Therefore no structural model
- We only include grown-ups (20-55 yo) living in a couple and having a child( $<18 y o$ ) at home.
- Define three groups: working mothers, stayhome mothers and fathers.
- Activities: formal work, household work, personal time, studying, active time with children and passive time with children

|  | Working <br> mothers | Stayhome <br> mothers | Fathers |
| :--- | ---: | :---: | ---: |
| Formal work | $19,2 \uparrow$ | - | $38,5 \uparrow$ |
| Housework | $20,4 \downarrow$ | $27,2 \downarrow$ | $7,9 \uparrow$ |
| Personal | $50,1 \uparrow$ | $53,5 \uparrow$ | $47,6 \uparrow$ |
| Act childcare | $1,9 \uparrow$ | $2,7 \uparrow$ | $1,2 \uparrow$ |
| Pas childcare | $4,8 \uparrow$ | $7,4 \uparrow$ | $1,6 \uparrow$ |
| Free time | $22,4 \downarrow$ | $27,9 \uparrow$ | $21,8 \downarrow$ |
| Studying | $1,2 \uparrow$ | $1,2 \uparrow$ | $1,4 \uparrow$ |
| Nr. of kids | $1,9 \downarrow$ | $2,1 \uparrow$ | $2,0 \uparrow$ |
| $\Delta$ Education | 1,5 | 1,2 | 1,4 |
| Sample size | 1014 | 1748 | 1813 |

- Dependent vatiable: Time spent in activity A during the 5 working days
- Independent variables: Year dummies, age, age ${ }^{2}$, working time, partner's working time, kids <3yo dummy, kids 4-12yo dummy, 2 kids dummy, 3+ kids dummy, education level dummies.
- OLS \& Tobit


## Where does the working time come from ?

|  | Working <br> mothers | Fathers |  |  |
| :--- | :---: | :--- | :---: | :---: |
| Housework | 25 | $\downarrow$ | 18 | $\frown$ |
| Personal | 11 | $\hookrightarrow$ | 14,5 |  |
| Act childcare | 2 | $\uparrow$ | 1,4 | $\uparrow$ |
| Pas childcare | 5,4 | $\uparrow$ | 4,4 | $\uparrow$ |
| Free time | 15 | $\nearrow$ | 20 | $\checkmark$ |
| Studying | 1,5 | $\uparrow$ | 2 |  |

(1) Personal needs

- Year effects: Every five years an hour less of personal care for working people.
- Negative effects of many and/or small children (ca 1.5 hour)
(2) Housework time
- Small children lead to less housework
- More children lead to more housework
- Education leads to much less housework. No year effects.
- Men have a positive time trend, negative effect of more children. No effect of education.
(3) Free time
- -1.5 h per kid. -5h for small kids. -2 h for $4-12 \mathrm{yo}$.
- Men's free time decreased when their spouses worked in the 80's. Higher education leads to less free time. Negative effect of small children. Negative trend.

Active child care

|  | g1TOT | g180 | g190 | g100 | g2TOT | g3TOT |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Work | $\underset{(0.00692)}{-0,0414^{*}}$ | $\begin{array}{\|c} \hline-0,03444^{*}(0.0112) \end{array}$ | $\underset{(0.00994)}{-0,0425^{*}}$ | $\begin{array}{\|c} -0,05664^{*}(0.0181) \end{array}$ | $0_{(0)}$ | $\underset{\substack{-0.00419^{*} \\ \hline(0.036)}}{ }$ |
| Work(p) | $\begin{gathered} (0,0215) \\ (0,0238 \end{gathered}$ | $\begin{gathered} 0,0299 \\ (0.0366) \end{gathered}$ | $\begin{gathered} -0,00908 \\ (0.0298) \end{gathered}$ | $\begin{gathered} 0,0696 \\ (0.0567) \end{gathered}$ | $\underset{(0.0834)}{-0,0190}$ | $\underset{(0.0135)}{-0,0234 .}$ |
| kid<3 | $\underset{(0,318)}{3,}$ | $\underset{(0.559)}{3,41^{*}}$ | $\underset{(0,466)}{3,68^{*}}$ | $\underset{(0,772)}{3}$ | $\begin{gathered} 3,77^{*} \\ (0.297) \end{gathered}$ | $\begin{aligned} & 3, .22^{*} \\ & (0.233 \end{aligned}$ |
| kid 4-12 | $\underset{(0,755)}{2,77^{*}}$ | $\underset{(0,432)}{2,77^{*}}$ | $\underset{(0,364)}{3,02^{*}}$ | $\underset{(0,627)^{2}}{2,23^{*}}$ | $\underset{(0,254)}{2,77^{*}}$ | $\underset{(0,224)}{2,19^{*}}$ |
| 2 kids | $\underset{(0.507)}{\left(0,502^{*}\right.}$ | $\underset{(0,316)}{0,464}$ | $\underset{(0,265)}{0,574^{*}}$ | $\underset{(0,451)}{0,493}$ | $\underset{(0.166)}{0,425^{*}}$ | $\underset{(0.148)}{0,49}{ }^{*}$ |
| 3+ kids | $\underset{(0.240)}{0,276}$ | $\underset{(0,42)}{0,139}$ | $\underset{(0.33)}{0,239}$ | $\begin{gathered} 0,809 \\ (0.589) \end{gathered}$ | $\begin{gathered} 0,0982 \\ (0.201) \end{gathered}$ | $\begin{gathered} (0.179) \\ 0,0226 \end{gathered}$ |

By stayhome mothers and men: increases with education

Passive child care

|  | g1TOT | g180 | g190 | g100 | g2TOT | g3TOT |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Work | $\underset{\substack{-0,120^{*} \\(0.0139)}}{ }$ | $\underset{(0,0216)}{-0,119^{*}}$ | $\underset{(0.0211)}{-0,119^{*}}$ | $\underset{(0.0333)}{-0,129^{*}}$ | $0_{(0)}$ | $\underset{\substack{(0.00529)}}{-0,0795^{*}}$ |
| Worp(p) | $\begin{gathered} 0,0136 \\ (0.0428) \end{gathered}$ | $\underset{(0.0694)}{0,0151}$ | $\begin{gathered} 0,00867 \\ (0.0635) \end{gathered}$ | $\underset{(0.102)}{0,0190}$ | $\underset{(0.196)}{0,116}$ | $\underset{(0.0218)}{-0,0636^{*}}$ |
| kid<3 | $\underset{(0.646)}{9,86^{*}}$ | $\underset{(1.07)}{7,81^{*}}$ | $\underset{(0.961)}{10,5^{*}}$ | $\underset{(1.44)}{10,6^{*}}$ | $\underset{(0.699)}{11,4^{*}}$ | $\begin{aligned} & 4,58^{*} \\ & (0.399) \end{aligned}$ |
| kid 4-12 | $\underset{(0.528)}{5,7^{*}}$ | $\begin{gathered} 4,19^{*} \\ (0.852) \end{gathered}$ | $\underset{(0.791)}{6,02^{*}}$ | $\underset{(1.21)}{7,16^{*}}$ | $\underset{(0.602)}{5,41^{*}}$ | $\begin{aligned} & 2,28^{*} \\ & (0.357) \end{aligned}$ |
| 2 kids | $\underset{(0.372)}{0,998 *}$ | $\begin{gathered} 0,163 \\ (0.606) \end{gathered}$ | $\underset{(0.555)}{1,73^{*}}$ | $\begin{aligned} & 0,314 \\ & (0.825) \end{aligned}$ | $\underset{(0.387)}{0,854^{*}}$ | $\underset{(0.235)}{0,551^{*}}$ |
| $3+$ kids | $\underset{(0.477)}{1,13^{*}}$ | $\begin{aligned} & 0,439 \\ & (0.81) \end{aligned}$ | $\underset{(0.694)}{1,77^{*}}$ | $\underset{(1.08)}{0,202}$ | $\underset{(0.468)}{1,79^{*}}$ | ${ }_{(0.278)}^{1,16^{*}}$ |
| edu5 | $\underset{(0.715)}{1,78^{*}}$ | $\underset{(1.00)}{2,78^{*}}$ | $\underset{(1.26)}{0,32}$ | $\begin{aligned} & 2,63 \\ & (2.82) \end{aligned}$ | $\underset{(0.634)}{3,94 *}$ | $\underset{(0.38)}{2,30^{*}}$ |
| edu6 | $\underset{(0.926)}{2,54^{*}}$ | $\underset{(1.54)}{2,96 .}$ | $\begin{aligned} & 1,83 \\ & (1.49) \end{aligned}$ | $\begin{aligned} & 1,29 \\ & (3.2) \end{aligned}$ | $\underset{(1.67)}{7,6^{*}}$ | $\begin{gathered} 3,3^{*} \\ (0.49) \end{gathered}$ |

## Restructuring timeuse - Childcare by parents

Distribution of parental childcare over week


|  | Work | Hshld work | Personal needs | Free time | Active childcare | Passive childcare |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| aftern'n | $\underset{(0.189)}{-0,267}$ | $\underset{(0.102)}{0,536 *}$ | $\underset{(0.073)}{-0,146 .}$ | $\underset{(0.113)}{0,586 *}$ | $\underset{(0.076)}{0,284^{*}}$ | $\underset{(0.0647)}{-0,186 *}$ |
| sex | $\begin{gathered} -5,6^{*} \\ (0.633) \end{gathered}$ | $\underset{(0.223)}{2,31 *}$ | $\underset{(0.230)}{0,627^{*}}$ | $\begin{gathered} 1,52 * \\ (0.261) \end{gathered}$ | ${ }_{(0.181)}^{1,00^{*}}$ | $\underset{(0.183)}{1,25^{*}}$ |
| childc'e | $\begin{gathered} 0,024 \\ (0.299) \end{gathered}$ | $\underset{(0.208)}{-0,033}$ | $\underset{(0.139)}{0,0238}$ | $\underset{(0.238)}{-0,367}$ | $\underset{(0.170)}{-0,207}$ | $\underset{(0.136)}{0,356}$ |
| age | $\underset{(0.541)}{1,38^{*}}$ | $\underset{(0.11)}{0,268^{*}}$ | $\underset{(0.119)}{-0,123}$ | $\underset{(0.121)}{-0,211}$ | $\begin{gathered} 0,0328 \\ (0.0886) \end{gathered}$ | $\underset{(0.09)}{0,101}$ |
| age ${ }^{2}$ | $\frac{-2,05^{*}}{(0.846)}$ | $\underset{(0.185)}{-0,376 .}$ | $\begin{gathered} 0,171 \\ (0.203) \end{gathered}$ | $\begin{gathered} 0,358 \\ (0.207) \end{gathered}$ | $\underset{(0.150)}{-0,0134}$ | $\underset{(0.152)}{-0,130}$ |
| fem-chc | $\begin{gathered} 3,79^{*} \\ (0.413) \end{gathered}$ | $\underset{(0.246)}{-1,08^{*}}$ | $\underset{(0.173)}{-0,775^{*}}$ | $\underset{(0.281)}{-0,591 *}$ | $\underset{(0.199)}{-0,531^{*}}$ | $\underset{(0.160)}{-0,577^{*}}$ |
| $\sigma_{\epsilon}$ | 2,21* | 1,24* | 0,911* | 1,31* | 0,773* | 0,767* |
| $\sigma_{\alpha}$ | 2,23* | 0,626* | 0,829* | 0,766* | 0,529* | 0,574* |
| $\%>0$ | 54 \% | 57 \% | 60 \% | 48 \% | 31 \% | 51 \% |

- Female labour supply is mainly compensated by housework and free time
- ... but still work has a negative effect on time spent actively with children
- ... and this negative effect has intensified over time
- Nonparental childcare correlates positively only with formal labour. Other activities are supressed.

