Changes in Working Time Flexibility and the Effects on Gender Specific Wage Income

Johanna Gansterer       Vanessa Lechinger

Young Economist Conference 2018, Vienna

09.10.2018
Outline

1 Motivation
2 Data and Variables
3 Descriptive Analysis
4 Methodological Approach and Results
5 Conclusion
Motivation

Manifold theoretical and empirical research on flexible working time arrangements (WTA) → no new field of research but new focus in political and scientific debates within the last years.

- Need of flexibility due to globalization, digitization, ICT, evolving life conditions.
- Different focus on outcomes from enhanced flexible WTA: positive (work-life balance, increased productivity, ...) and negative developments (increased levels of stress, illness, ...).
Research Question

Which structural changes regarding working time flexibility in Austria can be observed comparing the years of 2004 and 2015 and what is the effect on wage income in respect of gender differences?

Definition of working time flexibility based on Atkinson (1984):

- Internal numerical flexibility
  - Full-time vs. part-time employment
  - Autonomous vs. fixed schedule
Hypotheses

- **H1a**: Part-time employment increased in absolute and relative terms for both women and men.
- **H2a**: Working time autonomy increased for both women and men in all working time arrangements (full-time, regular part-time and marginal part-time).
- **H1b**: Part-time employment has a positive effect on hourly wage income for both women and men.
- **H2b**: Working time autonomy has a positive effect on wage income for women and men.
- **H2c**: The positive effect of working time autonomy is higher for men than for women.
Sample Data

- **Source**: Statistics Austria
  - Ad hoc modules of the Austrian Labour Force Survey
  - Wage tax data / main association of social insurance carriers

- **Observation period**
  - 2004: 7476 observations
  - 2015: 9173 / 7522 observations

- **Observation unit**: employees

- **Data Shortcomings**
  - No data availability on gross wage income
  - No panel data
Variable Description

- **Contracted weekly working hours**
  Factor variable indicating full-time (36h or more), regular part-time (12-36h), or marginal part-time (12h or less)

- **Schedule control flexibility**
  Factor variable denoting fixed schedule, some autonomy or full autonomy

- **Hourly net wage**
  Compensation of employees including payments for regularly performed overtime, bonuses and remuneration, and a proportion of the thirteenth and fourteenth month payment
**Figure:** Contracted weekly working hours in 2004 and 2015, women and men

Source: Statistics Austria, own calculations
Figure: Contracted weekly working hours by age class in 2004 and 2015, women
**Figure:** Contracted weekly working hours by household type in 2004 and 2015, women

Source: Statistics Austria, own calculations
Figure: Schedule control flexibility in 2004 and 2015, women and men

Source: Statistics Austria, own calculations
**Figure:** Schedule control flexibility by weekly working hours in 2004 and 2015, women

Source: Statistics Austria, own calculations
Figure: Schedule control flexibility by economic sector in 2004 and 2015, women

Source: Statistics Austria, own calculations
Econometric Model: Ordinary Least Squares

\[ y = \mu \alpha + X \beta + \varepsilon \]  \hspace{1cm} (1)

Whereas

- \( y \) denotes a N-by-1 vector of observations \( i = 1, \ldots, N \) on the natural logarithm of hourly net wage income
- \( X \) is defined by a N-by-K matrix of the variables of interest (weekly contracted working hours and schedule control flexibility), as well as a set of control variables regarding socio-demographic characteristics, job and firm related variables
- \( \beta \) is the K-by-1 vector associated unknown parameter for \( X \)
- \( \varepsilon \) denotes the N-by-1 vector of disturbances
- \( \mu \alpha \) is a scalar parameter associated with the constant
Adapted Econometric Model: Heckman Selection Correction

**First Stage:**

\[ y^{S*} = \nu \alpha + X^S \beta^S + \varepsilon^S \]  \hspace{1cm} (2)

where

\[ y^S = \begin{cases} 0 & \text{if } y^{S*} < 0 \\ 1 & \text{otherwise} \end{cases} \]  \hspace{1cm} (3)

**Second Stage:**

\[ y^{O*} = \nu \alpha + X^O \beta^O + \varepsilon^O \]  \hspace{1cm} (4)

where

\[ y^O = \begin{cases} 0 & \text{if } y^S = 0 \\ y^{O*} & \text{otherwise} \end{cases} \]  \hspace{1cm} (5)
Estimation Results (I): OLS

Results are in line with findings from human capital theory literature

- Socio-demographic variables likewise *age, job tenure, education,*... are positive and highly significant on hourly net wage for both women and men
- Part-time work has a positive effect for women (part-time premium), no effect for men
- Higher degrees of schedule control flexibility have a positive and significant effect on income for both sexes but in a higher magnitude for men with full autonomy
Outcome Regression:

- Individual, household, and job related variables are positive and significant on hourly net wage for both full-time working women and men, magnitudes vary in contrast to OLS
  - Schedule control flexibility has an even higher effect on hourly net wage income
- IMR coefficient is positive and significant for women only, indicating higher hourly net wage in full-time employment from selective unobservable factors
H1a and H2a are confirmed

- Regular and marginal of part-time increased, however women are much more effected
- Working time autonomy enhanced, especially full autonomy

H1b is partly verified

- Female employees seem to gain a part-time premium
- Effects for males can hardly be detected

H2b and H2c are confirmed

- Both sexes benefit financially from schedule control flexibility
- Men’s gains are higher when they have full control over their working schedule
Bibliography


Figure: Schedule control flexibility by weekly working hours in 2004 and 2015, men
Table: Hourly net wage income regarding contracted weekly working hours

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>25% Quantile</th>
<th>Median</th>
<th>75% Quantile</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Women</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-time</td>
<td>12.27</td>
<td>9.47</td>
<td>11.42</td>
<td>14.44</td>
</tr>
<tr>
<td>Regular part-time</td>
<td>12.53</td>
<td>9.57</td>
<td>11.76</td>
<td>14.54</td>
</tr>
<tr>
<td><strong>Men</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-time</td>
<td>14.05</td>
<td>10.59</td>
<td>12.99</td>
<td>16.59</td>
</tr>
<tr>
<td>Regular part-time</td>
<td>12.84</td>
<td>8.70</td>
<td>11.91</td>
<td>15.49</td>
</tr>
</tbody>
</table>