Matching it up: non-standard work and job satisfaction

Katarzyna Bech    Magdalena Smyk    Joanna Tyrowicz    Lucas van der Velde

Income and wealth inequality: drivers and consequences
Gdansk, September 2023
Motivation

- Ambiguity haunts empirical work on job satisfaction and flexibility
  - Wheatley (2017): correlations positive for M and negative for W
  - Bellmann and Hübler (2020): patterns for JS unclear, correlations with WLB negative.
  - Hayman (2009): correlations with FWC and WFC lower
Matching it up: non-standard work and job satisfaction

Introduction

Motivation

- Ambiguity haunts empirical work on job satisfaction and flexibility
  - Wheatley (2017): correlations positive for M and negative for W
  - Bellmann and Hübler (2020): patterns for JS unclear, correlations with WLB negative.
  - Hayman (2009): correlations with FWC and WFC lower

- Workers offered flexibility are happy
Matching it up: non-standard work and job satisfaction

Introduction

Motivation

- Ambiguity haunts empirical work on job satisfaction and flexibility
  - Wheatley (2017): correlations positive for M and negative for W
  - Bellmann and Hübler (2020): patterns for JS unclear, correlations with WLB negative.
  - Hayman (2009): correlations with FWC and WFC lower

- Workers offered flexibility are happy

- (Some) People lack boundary management strategies and suffer when forced to set them
  (Lee et al. 2002, Kossek et al. 2004, Bainbridge and Townsend 2020)
Our contribution

Flexibility enactment theory → match between a person and work arrangements

1. Inclination to specific working arrangements (WA) is: individual,
Matching it up: non-standard work and job satisfaction

Our contribution

Flexibility enactment theory → match between a person and work arrangements

1. Inclination to specific working arrangements (WA) is:
   individual, potentially time-varying,
Matching it up: non-standard work and job satisfaction

Our contribution

Flexibility enactment theory → match between a person and work arrangements

1. Inclination to specific working arrangements (WA) is:
   individual, potentially time-varying, and unobservable
Our contribution

Flexibility enactment theory → match between a person and work arrangements

1. *Inclination* to specific working arrangements (WA) is:
   - individual,
   - potentially time-varying,
   - and unobservable

2. Machine learning to uncover latent link between JS and WA ...
3. ... and obtain counterfactual levels of JS ...
4. thus identify individuals who are (mis)matched

Hypotheses

**H1** Ability to actively manage boundaries is higher for women and parents.

**H2** Overall job satisfaction with NWAs is higher than in a scenario eliminating NWAs.
European Working Conditions Survey

- Spans 2001-2015; every five years, 36 countries, approx. 1000 workers
  - salaried workers, aged between 18 and 65 years of age, private employer
European Working Conditions Survey

- Spans 2001-2015; every five years, 36 countries, approx. 1000 workers
  salaried workers, aged between 18 and 65 years of age, private employer

- Broad range of individual and HH characteristics:
  gender, age, education, HH-structure, tenure, health
European Working Conditions Survey

- Spans 2001-2015; every five years, 36 countries, approx. 1000 workers
  salaried workers, aged between 18 and 65 years of age, private employer

- Broad range of individual and HH characteristics:
  gender, age, education, HH-structure, tenure, health

- Rich on work characteristics:
  occupation, industry, temporary/permanent, (long) hours, work on weekends, commute, direct hazards, discomfort (tedious tasks, etc), wearing protective gear, hours fit schedules, supportive colleagues, enough time to finish tasks, etc.
European Working Conditions Survey

- Spans 2001-2015; every five years, 36 countries, approx. 1000 workers
  salaried workers, aged between 18 and 65 years of age, private employer

- Broad range of individual and HH characteristics:
  gender, age, education, HH-structure, tenure, health

- Rich on work characteristics:
  occupation, industry, temporary/permanent, (long) hours, work on weekends, commute, direct hazards, discomfort (tedious tasks, etc), wearing protective gear, hours fit schedules, supportive colleagues, enough time to finish tasks, etc.

- Job satisfaction: 4-level categorical scale
Job satisfaction across countries in waves in EWCS
Matching it up: non-standard work and job satisfaction

Data & methods

Non-standard working arrangements (NWAs)

Six non-standard working arrangements (NWAs):

- varying hours,
- nights,
- long hours,
- Sundays
Six non-standard working arrangements (NWAs):

- varying hours,
- nights,
- long hours,
- Sundays
- long & varying hours
- Sundays & nights
Matching it up: non-standard work and job satisfaction

Data & methods

NWAs across countries in EWCS

% of population working:
- varying hours
- nights
- long hours
- Sundays
- long & varying hours
- Sundays & nights

Countries include: Netherlands, Finland, Austria, Denmark, Belgium, Germany, Luxembourg, Sweden, Italy, France, Estonia, Ireland, United Kingdom, Slovenia, Lithuania, Latvia, Hungary, Spain, Slovakia, Romania, Greece, Czech Republic, Cyprus, Poland, Malta, Bulgaria, Portugal.
Matching it up: non-standard work and job satisfaction

Data & methods

Methods

The link between NWAs and JS is ambiguous and endogeneous

1 ML model of JS: low level of arbitrariness, use all available variables
   - individual and household characteristics + job characteristics

2 Estimate it for people who work in standard WAs (reference group, NWA=0)

3 Obtain counterfactual JS for each individual with NWA as if no NWA

4 Compare the actual and the counterfactual levels of JS: $\Delta \text{JS}_i = \text{Factual JS}_i - \text{Counterfactual JS}_i$
Methods

The link between NWAs and JS is ambiguous and endogeneous

1. ML model of JS: low level of arbitrariness, use all available variables
   - individual and household characteristics + job characteristics

2. Estimate it for people who work in standard WAs (reference group, NWA=0)
   - ML model works well
Methods

The link between NWAs and JS is ambiguous and endogeneous

1. ML model of JS: low level of arbitrariness, use all available variables
   - individual and household characteristics + job characteristics

2. Estimate it for people who work in standard WAs (reference group, NWA=0)
   - ML model works well

3. Obtain *counterfactual JS* for each individual with NWA as if no NWA
The link between NWAs and JS is ambiguous and endogeneous

1. ML model of JS: low level of arbitrariness, use all available variables
   - individual and household characteristics + job characteristics

2. Estimate it for people who work in standard WAs (reference group, NWA=0)
   - ML model works well

3. Obtain counterfactual JS for each individual with NWA as if no NWA

4. Compare the actual and the counterfactual levels of JS:
   \[ \Delta JS_i = \text{Factual } JS_i - \text{Counterfactual } JS_i \]
Does taking away NWAs improve job satisfaction?

A counterfactual experiment of taking away \textit{NWA}.

Example 1: dissatisfied to very satisfied = $4 - 1 = 3$
Example 2: very satisfied to dissatisfied = $1 - 4 = -3$

\[
\text{Improvement}(Y/N)_i = \beta_0 + \beta_w \times \text{woman} + \beta_p \times \text{parent} + \gamma_i \text{woman} \times \text{parent} + \delta X_i + \epsilon_i \quad (M1)
\]

\[
\Delta JS_i = \beta_0 + \beta_w \times \text{woman} + \beta_p \times \text{parent} + \gamma_i \text{woman} \times \text{parent} + \delta X_i + \epsilon_i \quad (M2)
\]
We classify workers into:

- actual and counterfactual job satisfactions are the same – indifferent
  a worker is just as well off with and without NWA
Mismatch in working arrangements

We classify workers into:

- **actual and counterfactual job satisfactions are the same – indifferent**
  a worker is just as well off with and without NWA

- **job satisfaction is higher in actual than in counterfactual – matched**
  a worker is better of keeping NWA and would lose from having standard working arrangements
We classify workers into:

- **actual and counterfactual job satisfactions are the same – indifferent**
  a worker is just as well off with and without NWA

- **job satisfaction is higher in actual than in counterfactual – matched**
  a worker is better of keeping NWA and would lose from having standard working arrangements

- **job satisfaction is lower in actual than in counterfactual – mismatched**
  a worker would benefit from changing from NWA to standard working arrangements

We aggregate the individuals to country-level measures.
Does taking away NWAs improve job satisfaction?

<table>
<thead>
<tr>
<th></th>
<th>All NWA samples</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Logit</td>
<td>OLogit</td>
<td></td>
</tr>
<tr>
<td>woman ($\beta_w$)</td>
<td>-0.17***</td>
<td>-0.19***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.03)</td>
<td>(0.03)</td>
<td></td>
</tr>
<tr>
<td>parent ($\beta_p$)</td>
<td>-0.24***</td>
<td>-0.23***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.05)</td>
<td>(0.04)</td>
<td></td>
</tr>
<tr>
<td>woman $\times$ parent ($\gamma$)</td>
<td>0.13***</td>
<td>0.13***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.07)</td>
<td>(0.06)</td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>27 729</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Does taking away NWAs improve job satisfaction?

<table>
<thead>
<tr>
<th></th>
<th>Varying hours</th>
<th>Nights</th>
<th>Long hours</th>
<th>Sundays</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Logit</td>
<td>OLogit</td>
<td>Logit</td>
<td>OLogit</td>
</tr>
<tr>
<td>woman ($\beta_w$)</td>
<td>-0.08</td>
<td>-0.12**</td>
<td>-0.13</td>
<td>-0.19***</td>
</tr>
<tr>
<td></td>
<td>(0.07)</td>
<td>(0.06)</td>
<td>(0.10)</td>
<td>(0.09)</td>
</tr>
<tr>
<td>parent ($\beta_p$)</td>
<td>-0.22**</td>
<td>-0.26***</td>
<td>-0.19*</td>
<td>-0.28***</td>
</tr>
<tr>
<td></td>
<td>(0.13)</td>
<td>(0.11)</td>
<td>(0.13)</td>
<td>(0.11)</td>
</tr>
<tr>
<td>woman $\times$ parent ($\gamma$)</td>
<td>-0.01</td>
<td>0.04</td>
<td>-0.54</td>
<td>0.01</td>
</tr>
<tr>
<td></td>
<td>(0.19)</td>
<td>(0.13)</td>
<td>(0.43)</td>
<td>(0.25)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Long &amp; varying hours</th>
<th>Sundays &amp; nights</th>
<th>All NWA samples</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Logit</td>
<td>OLogit</td>
<td>Logit</td>
</tr>
<tr>
<td>woman ($\beta_w$)</td>
<td>-0.30***</td>
<td>-0.31***</td>
<td>0.01</td>
</tr>
<tr>
<td></td>
<td>(0.08)</td>
<td>(0.07)</td>
<td>(0.05)</td>
</tr>
<tr>
<td>parent ($\beta_p$)</td>
<td>-0.41***</td>
<td>-0.25***</td>
<td>-0.21***</td>
</tr>
<tr>
<td></td>
<td>(0.09)</td>
<td>(0.08)</td>
<td>(0.07)</td>
</tr>
<tr>
<td>woman $\times$ parent ($\gamma$)</td>
<td>0.41**</td>
<td>0.23</td>
<td>0.37***</td>
</tr>
<tr>
<td></td>
<td>(0.24)</td>
<td>(0.16)</td>
<td>(0.19)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Observations</th>
<th>6 312</th>
<th>1 728</th>
<th>4 461</th>
<th>5 577</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observations</td>
<td>4 407</td>
<td>5 243</td>
<td>27 729</td>
<td></td>
</tr>
</tbody>
</table>
Mismatch in working arrangements across countries
Mismatch in working arrangements across countries
Summary

Build on flexibility enactment theory
Study match between workers and WA

- women and parents would not benefit from removing NWAs;
- across countries: substantial room for raising JS by better aligning workers with WA;
Summary

Build on flexibility enactment theory
Study match between workers and WA

- women and parents would not benefit from removing NWAs;
- across countries: substantial room for raising JS by better aligning workers with WA;
- no one-size-fits-all policy
Questions or suggestions?
Thank you!

w: grape.org.pl
t: grape_org
f: grape.org
e: j.tyrowicz@grape.org.pl
Matching it up: non-standard work and job satisfaction

References

References I


Matching it up: non-standard work and job satisfaction

### Descriptive statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Full sample</th>
<th>Reference group</th>
<th>Varying hours</th>
<th>Nights</th>
<th>Long hours</th>
<th>Sundays</th>
<th>Long &amp; varying h.</th>
<th>Sundays &amp; nights</th>
</tr>
</thead>
<tbody>
<tr>
<td>% satisfied with their job</td>
<td>82.9</td>
<td>85.1</td>
<td>84.6</td>
<td>75.5</td>
<td>81.0</td>
<td>78.3</td>
<td>83.7</td>
<td>76.2</td>
</tr>
<tr>
<td><strong>Personal characteristics:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of women</td>
<td>40.4</td>
<td>46.1</td>
<td>46.4</td>
<td>23.7</td>
<td>27.7</td>
<td>52.0</td>
<td>20.3</td>
<td>25.6</td>
</tr>
<tr>
<td>% of single hh</td>
<td>10.3</td>
<td>10.2</td>
<td>11.5</td>
<td>10.3</td>
<td>9.5</td>
<td>9.4</td>
<td>11.6</td>
<td>10.0</td>
</tr>
<tr>
<td>% of hh with a child aged 7 yo</td>
<td>12.3</td>
<td>12.0</td>
<td>12.8</td>
<td>13.1</td>
<td>12.2</td>
<td>11.6</td>
<td>14.0</td>
<td>12.2</td>
</tr>
<tr>
<td>% of hh with an elder member</td>
<td>1.5</td>
<td>1.5</td>
<td>1.0</td>
<td>1.8</td>
<td>1.1</td>
<td>1.6</td>
<td>1.6</td>
<td>2.2</td>
</tr>
<tr>
<td><strong>Job characteristics:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% working part-time</td>
<td>11.2</td>
<td>11.8</td>
<td>18.5</td>
<td>6.8</td>
<td>4.0</td>
<td>17.5</td>
<td>2.8</td>
<td>7.9</td>
</tr>
<tr>
<td>% working on Saturdays</td>
<td>37.6</td>
<td>23.1</td>
<td>30.9</td>
<td>35.8</td>
<td>33.8</td>
<td>89.7</td>
<td>33.5</td>
<td>90.7</td>
</tr>
<tr>
<td>% report hours fit schedules</td>
<td>81.9</td>
<td>89.5</td>
<td>86.4</td>
<td>74.7</td>
<td>78.4</td>
<td>71.6</td>
<td>71.1</td>
<td>58.1</td>
</tr>
<tr>
<td>% report supportive colleagues</td>
<td>92.7</td>
<td>92.5</td>
<td>91.1</td>
<td>92.4</td>
<td>95.1</td>
<td>92.6</td>
<td>93.2</td>
<td>93.2</td>
</tr>
<tr>
<td>% report enough time for tasks</td>
<td>92.8</td>
<td>94.1</td>
<td>93.6</td>
<td>93.5</td>
<td>89.6</td>
<td>92.4</td>
<td>88.1</td>
<td>91.9</td>
</tr>
<tr>
<td>% with long commute</td>
<td>29.7</td>
<td>27.0</td>
<td>30.6</td>
<td>28.1</td>
<td>36.2</td>
<td>26.3</td>
<td>40.6</td>
<td>32.0</td>
</tr>
<tr>
<td>Hazardous conditions (count)</td>
<td>3.03</td>
<td>2.95</td>
<td>2.67</td>
<td>4.00</td>
<td>3.23</td>
<td>3.19</td>
<td>2.78</td>
<td>3.53</td>
</tr>
<tr>
<td><strong>NWAs:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% working in varying hours</td>
<td>11.9</td>
<td>0</td>
<td>100</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>% working nights</td>
<td>3.6</td>
<td>0</td>
<td>0</td>
<td>100</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>% working in long hours</td>
<td>8.1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>100</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>% working on Sundays</td>
<td>8.4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>100</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>% working long &amp; varying hours</td>
<td>8.7</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>% working on Sunday nights</td>
<td>8.5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td><strong>Observations</strong></td>
<td>56</td>
<td>107</td>
<td>28</td>
<td>378</td>
<td>6</td>
<td>312</td>
<td>1</td>
<td>728</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>461</td>
<td>5</td>
<td>577</td>
<td>4</td>
<td>408</td>
<td>5</td>
<td>243</td>
</tr>
</tbody>
</table>
## ML works: true vs model JS in the sample

<table>
<thead>
<tr>
<th>Actual JS</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cell %</td>
<td>Cell %</td>
<td>Cell %</td>
<td>Cell %</td>
<td></td>
<td>Cell %</td>
<td>Cell %</td>
<td>Cell %</td>
<td>Cell %</td>
</tr>
<tr>
<td>very satisfied (1)</td>
<td>15.6</td>
<td>3.9</td>
<td>1.9</td>
<td>1.2</td>
<td></td>
<td>2.3</td>
<td>20.7</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>satisfied (2)</td>
<td>11.1</td>
<td>35.2</td>
<td>10.2</td>
<td>6.1</td>
<td></td>
<td>1.8</td>
<td>58.7</td>
<td>0.2</td>
<td>0.0</td>
</tr>
<tr>
<td>dissatisfied (3)</td>
<td>1.2</td>
<td>1.4</td>
<td><strong>8.3</strong></td>
<td>1.3</td>
<td></td>
<td>0.1</td>
<td>13.0</td>
<td><strong>0.2</strong></td>
<td>0.0</td>
</tr>
<tr>
<td>very dissatisfied (4)</td>
<td>0.1</td>
<td>0.1</td>
<td>0.2</td>
<td><strong>2.3</strong></td>
<td></td>
<td>0.0</td>
<td>2.6</td>
<td>0.2</td>
<td><strong>0.0</strong></td>
</tr>
<tr>
<td>N</td>
<td>8 302</td>
<td>11 094</td>
<td>5 932</td>
<td>3 050</td>
<td></td>
<td>1 218</td>
<td>26 965</td>
<td>187</td>
<td>8</td>
</tr>
</tbody>
</table>