Session 20: Unpaid Work, Time Poverty, and Well-being

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OUTLINE

A. Time Use and Well-being
B. Notion of Time Poverty and its measurement
C. Notion of Work Intensity and its measurement
Motivation

• To better understand poverty and well-being in ways that reveal their working time dimensions.

➢ Concept of time poverty
➢ Concept of work intensity.
Work Burden and Well-being

• Engagement in work constitutes an essential element of a person’s life.
• Process of earning a living, doing household tasks, caring for the sick, gathering water and firewood, livestock raising, etc determines a person’s well-being.
• It can be satisfying but also burdening.
Gender and Work Intensity

• Many women in particular, face ‘double day/second shift’, ‘double burden, dual roles

• Long hours of work + prolonged periods of multi-tasking (work intensity) = stress and eventual deterioration of health of women

• Ways to relieve time pressure:
  – Longer working day, less sleep/rest and leisure.
  – Juggling many tasks by performing two or more activities at a time.
Welfare Consequences

• Connection between work processes and women's health in fact, has been reported in several medical and psychology studies.

• May also expose children to non-stimulating and potentially dangerous environments and hazardous materials.
B. Income Poverty and Time Poverty

Insufficient income leads to basic needs not being met, →→ consumption poverty.

Long hours spent working in paid and unpaid productive activities means less rest/leisure, sleep. →→ time poverty.
Who are Time-Poor?

• Individuals who are very pressed for time are not able to allocate sufficient time for important activities, and are therefore forced to make difficult trade-offs. (Bardasi and Wodon 2010)
Concept of Time Poverty Line

• Time Poverty threshold:
  • a lower threshold equal to 1.5 times the median of total individual working hours distribution, resulting a 9 hour per week time poverty line for children and 70.5 hour per week line for adults.
  • a higher threshold equal to 2 times the median, resulting a 12 hours per week line for child and 94 hours per week line for adults.
Time Poverty Measures:

If $\alpha = 0$, the **headcount index** is the share of the population $n$ which is time poor, i.e. the proportion of the population that works a number of hours $y$ that is above a certain time poverty line $z$.

If $\alpha = 1$, the **time poverty gap** represents the mean distance separating the population from the time poverty line. This measures the time deficit of the average individual, i.e. the amount of time that would be needed.

If $\alpha = 2$, the **squared time poverty gap** takes the square of that distance into account. When using the squared time poverty gap, more weight is given to those who have extra long working hours.
Some Examples

1. study by Bardasi and Wodon (2010) of Guinea.
2. study by Gammage (2010) of Guatemala

- According to lower threshold, about 18% of individuals are time poor, with women's rate (24%) being much higher than men's (9.5%)

- More women living in rural areas are time poor (26.5%) than women living in urban area (18.6%)

- For men, it is the reverse: urban men are more likely to be time poor than rural men (11.7% vs 8.3%)

Children's pattern is identical to adult's: higher rate for rural (49%) than urban (14%) areas. Higher for girls (47%) than boys (32%).

*Figure 2 Time poverty rates in Guatemala, 2000 (percentages reflect portion of each group affected)*

C. Notion of Work Intensity

• Intensification of work: a person is exerting more effort (physical and/or mental) per unit of time by simultaneously performing two or more work activities over prolonged periods of time.
Determinants of Well-being: Work Intensity

- Incidence of work intensity
  - Alternating effect on:
    - Physical and Mental Health/Stress effect
    - Completed HH tasks/output/income effect*
      - (+) to Individual Well-being

*Note that an increase in output is usually accompanied by a deterioration of output quality.
Developing a Well-Being Indicator

• **Takes Account of the following determinants:**

• **Incidence of work intensity [Inverse]**
  1. Length of the working day (paid & unpaid)
  2. Overlapping activities (perform one or more work simultaneously) that are considered unpleasant.

• **Income**

• **Education**
Determinants of Well-being: Income

- **Personal Income**
  - **Participation in HH decision and bargaining power**
  - **Meeting basic needs**
  - **Self esteem and Respect**
  - **Individual Well-being**

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Determinants of Well-being: Education

Educational Attainment → Health → Personal development: Self esteem → Employment and Earnings: Personal Income → Individual Well-being

(+)

Self esteem

Educational Attainment

Employment and Earnings:
Personal Income

Health

Personal development:
Self esteem

Individual Well-being

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Creation of an Individual Well-being Index (WBI)

- A composite index following the HDI formula
- Components of WBI
  - The level of educational attainment index (edu)
  - The personal income index (y)
  - The inverse work intensity index (k)
- Simple average of the sums of each of the component indices
  \[ WBI_j = \frac{\sum_i I_{ij}}{m}, \quad \text{where } 0 \leq WBI_j \leq 1 \]
- [Can change the weights for robustness check.]
- Value range: 0-1
- The higher the well-being index value, the better individual j is in terms of the m attributes of well-being.

- Self-employed informal workers
- Subcontracted (piecerate) workers
Data Collection & Respondents’ Characteristics

• > 20 million workers in the informal economy (National Statistical Office of Thailand (2000)
• At least 900,000 work as subcontracted workers (HomeNet Thailand 2002)

• Use of a purposive 2002 Bangkok Urban-Poor Home-Based Worker survey sample
  • 359 individuals (head & spouses)
  • 110 households (time allocation module)
  • Simplified time use diary + recall method
  • Circle of trust approach

Data limitations: small, representative of the lowest quintile of urban population.
Data Collection & Respondents’ Characteristics

Household Income Per month (Baht)
Average HH income B14,499

Age
Average age
Male: 44.9
Female: 41.3

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Data Collection & Respondents’ Characteristics

Educational Attainment (Male)
- Grade 9: 27%
- Primary: 17%
- Grade 4: 38%
- No Schooling: 6%
- Secondary: 6%
- Diploma: 6%

Average yrs. In school: 6.4

Educational Attainment (Female)
- Grade 9: 16%
- Primary: 23%
- Grade 4: 47%
- No Schooling: 13%
- Secondary: 1%

Average yrs. In school: 4.7

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### Work Intensity

<table>
<thead>
<tr>
<th>Activities</th>
<th>Women</th>
<th></th>
<th>Men</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Primary only</td>
<td>Overlapped Only</td>
<td>Primary and Overlapped</td>
<td>Primary only</td>
</tr>
<tr>
<td>Labor Market Work</td>
<td>538.15</td>
<td>74.13</td>
<td>612.28</td>
<td>595.83</td>
</tr>
<tr>
<td>Household work</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domestic</td>
<td>122.93</td>
<td>89.68</td>
<td>212.61</td>
<td>60.28</td>
</tr>
<tr>
<td>Childcare</td>
<td>58.91</td>
<td>94.1</td>
<td>153.01</td>
<td>23.61</td>
</tr>
<tr>
<td>Shopping</td>
<td>37.88</td>
<td>8.91</td>
<td>46.79</td>
<td>18.33</td>
</tr>
<tr>
<td>Sub-total</td>
<td>219.73</td>
<td>192.68</td>
<td>412.41</td>
<td>102.22</td>
</tr>
<tr>
<td>Leisure Activities</td>
<td>151.9</td>
<td>293.42</td>
<td>445.32</td>
<td>185.56</td>
</tr>
<tr>
<td>Other Activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal care</td>
<td>139.02</td>
<td>32.94</td>
<td>171.96</td>
<td>148.61</td>
</tr>
<tr>
<td>Sleeping</td>
<td>391.2</td>
<td>0</td>
<td>391.2</td>
<td>407.78</td>
</tr>
<tr>
<td>Sub-total</td>
<td>530.22</td>
<td>32.94</td>
<td>563.16</td>
<td>556.39</td>
</tr>
<tr>
<td>Total</td>
<td>1440</td>
<td>593.17</td>
<td>2033.17</td>
<td>1440</td>
</tr>
<tr>
<td>Change</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4a: Mean Individual Well-Being Index and Component Indices, By Sex, (standard deviation in parentheses)

<table>
<thead>
<tr>
<th></th>
<th>Women</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Individual Well-Being Index</strong></td>
<td>0.302</td>
<td>0.411</td>
</tr>
<tr>
<td></td>
<td>(0.072)</td>
<td>(0.120)</td>
</tr>
</tbody>
</table>

Decomposition of Well-Being Index

1) **Educational Attainment Index**

<table>
<thead>
<tr>
<th></th>
<th>Women</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.296</td>
<td>0.403</td>
</tr>
<tr>
<td></td>
<td>(0.161)</td>
<td>(0.220)</td>
</tr>
</tbody>
</table>

2) **Personal Income Index**

<table>
<thead>
<tr>
<th></th>
<th>Women</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.384</td>
<td>0.516</td>
</tr>
<tr>
<td></td>
<td>(0.153)</td>
<td>(0.169)</td>
</tr>
</tbody>
</table>

3) **Inverse Work Intensity Index**

<table>
<thead>
<tr>
<th></th>
<th>Women</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.226</td>
<td>0.315</td>
</tr>
<tr>
<td></td>
<td>(0.167)</td>
<td>(0.155)</td>
</tr>
</tbody>
</table>

Note: Full details on these calculations can be found in Appendix C.

1. The individual well-being index is calculated as

$$WBI_j = \sum_{I_y^m} I_y$$

where $0 \leq WBI \leq 1$ and $I_y$ = edu. y. k
## Individual Well-being Index

<table>
<thead>
<tr>
<th>Well-being Index and Its Component by Gender</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Individual Well-being</strong></td>
</tr>
<tr>
<td><strong>Women</strong></td>
</tr>
<tr>
<td>0.302</td>
</tr>
</tbody>
</table>
Women

Men

Individual Well-Being Index
Table 4b: Individual Well-Being Index and Component Indices, by Employment Type

(standard deviation in parentheses)

<table>
<thead>
<tr>
<th></th>
<th>Contracted Workers</th>
<th>Self Employed Workers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Individual Well-Being Index</strong>¹</td>
<td>0.309</td>
<td>0.327</td>
</tr>
<tr>
<td></td>
<td>(0.082)</td>
<td>(0.096)</td>
</tr>
<tr>
<td><strong>Decomposition of Well-Being Index</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) Educational Attainment Index²</td>
<td>0.297</td>
<td>0.324</td>
</tr>
<tr>
<td></td>
<td>(0.170)</td>
<td>(0.179)</td>
</tr>
<tr>
<td>2) Personal Income Index³</td>
<td>0.328</td>
<td>0.460</td>
</tr>
<tr>
<td></td>
<td>(0.166)</td>
<td>(0.136)</td>
</tr>
<tr>
<td>3) Inverse Work Intensity Index⁴</td>
<td>0.302</td>
<td>0.198</td>
</tr>
<tr>
<td></td>
<td>(0.191)</td>
<td>(0.135)</td>
</tr>
</tbody>
</table>
MODEL 1: \( \text{WBI}_i(y, k, edu) = x_i \beta_j + e_i \) \hspace{1cm} (3)

MODEL 2: \( k_i = x_i \beta_j + e_i \) \hspace{1cm} (4)

or

\[
\text{WBI}_i = \beta_1 + \text{FEM}_i \beta_2 + \text{EMT}_i \beta_3 + \text{SS}_i \beta_4 + \text{ORG}_i \beta_5 + \text{DEP}_i \beta_6 \\
+ \text{AGE}_i \beta_7 + \text{AGE}^2_i \beta_8 + e_i
\] \hspace{1cm} (5)

\[
k_i = \beta_1 + \text{FEM}_i \beta_2 + \text{EMT}_i \beta_3 + \text{SS}_i \beta_4 + \text{ORG}_i \beta_5 + \text{DEP}_i \beta_6 \\
+ \text{AGE}_i \beta_7 + \text{AGE}^2_i \beta_8 + e_i
\] \hspace{1cm} (6)

where

\( \text{WBI}_i \) = the estimated WBI index of individual \( i \);
\( k_i \) = the inverse work intensity index of individual \( i \);
\( \text{FEM}_i \) = the gender dummy (man = 0);
\( \text{EMT}_i \) = the subcontracted worker dummy (self-employed worker = 0);
\( \text{SS}_i \) = the social support dummy variable (Not receiving any social support = 0);
\( \text{ORG}_i \) = the organizational capacity of and level of services in the community dummy variable (low level of organization = 0);
\( \text{DEP}_i \) = the presence of dependent members dummy (present in household = 0);
\( \text{AGE}_i \) = the age of individual \( i \); and
\( \text{AGE}_i^2 \) = the age square of individual \( i \).
Use of Well-being Index

Results of OLS and GME Estimations

<table>
<thead>
<tr>
<th>Well-Being Index</th>
<th>OLS Coefficient</th>
<th>OLS Robust Standard Error</th>
<th>OLS Coefficient</th>
<th>OLS Standard Error</th>
<th>GME Coefficient</th>
<th>GME Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>0.3264***</td>
<td>0.1096</td>
<td>0.3272**</td>
<td>0.1082</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SEX</td>
<td>-0.1221***</td>
<td>0.0295</td>
<td>-0.1202***</td>
<td>0.0216</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EMT</td>
<td>0.0148</td>
<td>0.0166</td>
<td>0.01481</td>
<td>0.0166</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS</td>
<td>0.0301*</td>
<td>0.0167</td>
<td>0.02394*</td>
<td>0.0158</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ORG</td>
<td>0.0387</td>
<td>0.0219</td>
<td>0.03824</td>
<td>0.0238</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEP</td>
<td>-0.0139</td>
<td>0.0156</td>
<td>-0.0140</td>
<td>0.0168</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGE</td>
<td>0.0043</td>
<td>0.0049</td>
<td>0.00417</td>
<td>0.00505</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGE²</td>
<td>-0.0000</td>
<td>0.0000</td>
<td>-0.0001</td>
<td>0.000057</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

F( 7, 103) 4.31
Adjusted-R² 0.2836 0.2935

*** Significant at 1 percent level
**  Significant at 5 percent level
*   Significant at 10 percent level
## Model 2 Inverse Work Intensity

### Results of OLS and GME Estimations

<table>
<thead>
<tr>
<th>Inverse Work Intensity Index</th>
<th>OLS Coefficient</th>
<th>Robust Standard Error</th>
<th>GME Coefficient</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>0.06284</td>
<td>0.2475</td>
<td>0.3173**</td>
<td>0.1084</td>
</tr>
<tr>
<td>SEX</td>
<td>-0.1515***</td>
<td>0.0427</td>
<td>-0.1217***</td>
<td>0.0216</td>
</tr>
<tr>
<td>EMT</td>
<td>0.1416***</td>
<td>0.0352</td>
<td>0.015</td>
<td>0.0166</td>
</tr>
<tr>
<td>SS</td>
<td>0.0057</td>
<td>0.0288</td>
<td>0.0300*</td>
<td>0.0158</td>
</tr>
<tr>
<td>ORG</td>
<td>0.0256</td>
<td>0.0491</td>
<td>0.0299</td>
<td>0.0238</td>
</tr>
<tr>
<td>DEP</td>
<td>-0.0438*</td>
<td>0.0307</td>
<td>-0.0128</td>
<td>0.0169</td>
</tr>
<tr>
<td>AGE</td>
<td>0.0124</td>
<td>0.0124</td>
<td>0.0027</td>
<td>0.00506</td>
</tr>
<tr>
<td>AGE^2</td>
<td>-0.0001</td>
<td>0.0001</td>
<td>-0.0032***</td>
<td>0.000057</td>
</tr>
</tbody>
</table>

| F(7, 103)                    | 4.720           |                       |                 |              |
| Adjusted-R^2                | 0.1563          | 0.5642                |                 |              |

*** Significant at 1 percent level  
**  Significant at 5 percent level  
*   Significant at 10 percent level
OLS and GME Results

• Well being determinants:
  being female worker ***
  social support/community networks*

• Work Intensity determinants:
  being female worker***
  social support/community networks**
  lifecycle

These results suggest that increased income can improve the well-being of workers only if they do not have to work extremely long hours – up to 15 hours a day – or to intensify their work at prolonged periods.
Final remarks

• Understanding the well-being of working poor.
• A working life characterized by “double day” and “work intensity” reflects a non-tangible cost dimension of poverty.
• Time use information → individual well-being

• Assessment of economic and social policies and poverty reduction programs requires a more comprehensive evaluation not only in terms of (money) incomes but also of resulting changes in the unpaid work burden and the level of work intensity.