Does one have to be healthy to opt to have children?

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Background

• Fertility all time low in Norway – TFR 1.56 in 2018
  ◦ Declined steadily after 2009
• Research efforts directed to explain the decline
  ◦ Also relevant for projections – will the downward trend continue?
• Extensively analyzed fertility determinants (e.g. education, income, labor market participation) influence fertility because they structure time and money available, and also proxy preferences
• Poor health may also constrain fertility
• Health still remarkably understudied as a fertility determinant
Aim

• Explore the association between health and fertility, using uptake of doctor-certified sickness absences (SA) and long-term health-related benefits (LTB) as proxies for health

• Examine whether compositional changes in health distributions or changes in health-fertility associations have contributed to the distinct fall in TFR in Norway since 2009, and perhaps should be included in discussions re. future fertility assumptions

• Investigate if health-related associations differ across socio-demographic characteristics, and thus influence fertility differently in various groups
Theoretical framework

• Many ways in which poor health may influence fertility

• Apply an economic-demographic framework

• Supply, regulation costs and demand (Easterlin & Crimmins 1987)
  ◦ Supply defined as number of children one would have without regulation and depends on the chance of conceiving and for bringing a pregnancy to term (Bongaarts 1983)
  ◦ Regulation costs refers to the availability, affordability and acceptability of contraception
    - Unlikely that poor health operate through this channel as several alternative contraception methods exist
  ◦ Demand or fertility desires defined as number of children one would ideally like to have
  ◦ Depends on purchasing power, costs of childbearing and -rearing, the preferences for spending time and money on raising children rather than on alternatives, and norms
Previous research I

- Many studies examine the possible impact of fertility on health, but few look at the reverse relationship
- Majority directed at supply side, centered around specific illnesses
- Less well explored for general health and/or self-reported health
- On demand side
  - Intended and unintended pregnancies
  - Fertility desires and intentions by health status
  - Counselling processes for specific conditions that might affect conception, pregnancy outcomes or the health of women/offspring
Previous research II

• Poor health may lower supply at a population level
  ◦ Decrease in sexual desire among persons in poor health
  ◦ Subfecundity (difficulties conceiving or carrying a pregnancy to term) due to illness or treatment
    - E.g. Nordic studies suggest many cancer forms reduce fertility
    - Other studies examine disabilities, mental health and nervous system disorders
    - Few studies on musculoskeletal disorders, but suggest lower fertility
    - Main focus on fertility intentions and adverse effects on the health of mothers/offspring
  ◦ Poor health may influence the chance of finding (and keeping) a partner

• Demand side may also be affected
  ◦ Poor health may reduce incomes, affecting purchasing power and fertility desires negatively
    - High treatment costs may have the same effect in countries where health care must be bought in the open market
  ◦ Poor health in younger ages might result in a lower education
  ◦ Poor health may also influence preferences, negatively or positively
Data and methods

• Nationwide registry data on women aged 16-45 from 2004-2018

• Analyze first, second and third births separately, using
  ◦ Descriptive statistics
  ◦ Logistic regressions
  ◦ Marginal effects

• Health is proxied by the uptake of sickness absence benefits (SA) and health-related long-term benefits (LTB)

• Use annual observations with lagged time-varying covariates for education, income, employment, SA and LTB
Descriptives

• Pronounced differences in background characteristics between women at risk for a first, second or third birth
  ◦ Especially true for educational enrollment and level of education

• Large share of women active in the labor market (80-90%)
  ◦ First births more frequent among women who work

• The share receiving LTB is relatively stable across parities

• The share who uses SA is ~ 3x for mothers compared to childless women

<table>
<thead>
<tr>
<th></th>
<th>First birth</th>
<th>Second birth</th>
<th>Third birth</th>
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<tbody>
<tr>
<td></td>
<td>Pyrs</td>
<td>%</td>
<td>Pyrs</td>
</tr>
<tr>
<td><strong>General health</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Healthy</td>
<td>5674939</td>
<td>83.7</td>
<td>1681065</td>
</tr>
<tr>
<td>Only sickness absence (SA)</td>
<td>510154</td>
<td>7.5</td>
<td>557231</td>
</tr>
<tr>
<td>Long-term benefits (LTB)</td>
<td>592227</td>
<td>8.7</td>
<td>294847</td>
</tr>
</tbody>
</table>
Results

- Increased risk of birth for SA, decreased risk for LTB
- Weaker associations for higher parities
- The negative associations of LTB for higher parities driven by low educated

<table>
<thead>
<tr>
<th></th>
<th>FIRST BIRTHS</th>
<th>SECOND BIRTHS</th>
<th>THIRD BIRTHS</th>
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<tbody>
<tr>
<td></td>
<td>OR</td>
<td>95% CI</td>
<td>OR</td>
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<td>Model 1: General health(^a)</td>
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<tr>
<td>Healthy</td>
<td>1</td>
<td>ref</td>
<td>1</td>
</tr>
<tr>
<td>Only sickness absence (SA)</td>
<td>1.32</td>
<td>1.31-1.34</td>
<td>1.17</td>
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<tr>
<td>Long-term benefits (LTB)(^b)</td>
<td>0.52</td>
<td>0.51-0.53</td>
<td>0.57</td>
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<tr>
<td>Model 2: Health and educational level</td>
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<tr>
<td>Healthy, low education</td>
<td>1.36</td>
<td>1.34-1.37</td>
<td>1.98</td>
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<tr>
<td>Healthy, high education</td>
<td>1.40</td>
<td>1.38-1.43</td>
<td>1.28</td>
</tr>
<tr>
<td>SA, low education</td>
<td>1.67</td>
<td>1.64-1.71</td>
<td>2.12</td>
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<tr>
<td>SA, high education</td>
<td>0.50</td>
<td>0.49-0.51</td>
<td>\textbf{0.57}</td>
</tr>
<tr>
<td>LTB, low education</td>
<td>0.84</td>
<td>0.81-0.87</td>
<td>1.20</td>
</tr>
<tr>
<td>LTB, high education</td>
<td>0.84</td>
<td>0.81-0.87</td>
<td>1.20</td>
</tr>
</tbody>
</table>
Changes over time in sickness absence (SA) and long-term benefits (LTB) for women at risk for a first, second or third birth.
Changes over time in fertility by health

• Sharpest decline for healthy women (blue lines)

• LTB uptake is negatively associated with fertility (red lines)
  ◦ The association weakens over time

• SA uptake is positively associated with fertility (green lines)
  ◦ The association strengthens over time

Adjusted predictive probabilities of a first (left panel), second (mid-panel) or third (right panel) child for women by proxies for general health.
Preliminary conclusions

• LTB uptake is negatively associated with fertility
  ◦ The association weakens over time
  ◦ In addition, such uptake is relatively rare

• SA uptake is positively associated with fertility
  ◦ The association strengthens over time
  ◦ SA uptake is common but decreases over time

• If the decrease in SA reflects a strong labor market preference or attachment, it may explain parts of the observed decline
  ◦ But the fertility decline is most pronounced for healthy women

• Health as fertility determinant warrants further research
  ◦ Maybe worth considering in the work on fertility assumptions?
Implications for fertility projections

• In general: Difficult to make fertility assumptions
• Period-TFR relatively unstable, cohort-TFR more stable
• Supply/demand framework warrants information on many factors
  ◦ Education, income and labor market participation well studies
  ◦ Health rarely studied
  ◦ Norms and preferences unstable over life course and calendar time, and difficult to obtain from readily available data sources
• Using results from previous studies has not enabled us to adequately project the recent fertility decline
  ◦ Unlikely that this will get easier in the future
• Other methods warranted?
Thanks!

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