Evaluating tax and benefit reforms in 1996-2001: the experience of Finland
Background

- Severe depression in the beginning of the 90s
- High unemployment remained in the mid 90s
- General consensus that unemployment was a structural problem that should be dealt with structural reforms.
The system was to be reformed so that taxes, benefits and charges for public services would always encourage work instead of living on social benefits.

The working group came up with proposals that:

- increased tax deductions on low earnings
- changed the way day care fees were determined
- lessened the degree of means-testing of labour market support
- increased co-ordination between the housing allowance and social support systems.
The government accepted the proposals in 1996 and the reform was fully implemented by 1998.

After 1998 the focus has shifted to improve the incentives of the income tax system.

Most benefits have risen slower than wages => improved incentives without reform.
Evaluation of the reform

- Expected incentive effects of each part of the reform were assessed
- Effective marginal tax rates.
- DID-estimation for two parts of the reform.
- Group-wise estimation strategy to assess the overall impact of the reform.
Detailed assessment:  
1. Families with small children
Effect of family income on the child home care allowance supplement.

Source: VATT.
Household income: family with one parent working, the other on labour market support, two children
Effect of the co-ordination of social assistance and housing allowance
The effects of the changes in the income tax system 1996–2001
Effective marginal tax rates

\[
EMTR = 100 \times \left( 1 - \frac{\text{change in disposable income}}{\text{change in earnings}} \right)
\]

- Large variation in tax rates between individuals at lower income levels.
- Low-income households are likely to face the severest incentive problems.
Median, 10th and 90th (updec96) percentile of EMTRs in 1996
EMTRs

- The worst affected groups:
  - single mothers
  - the unemployed
  - couples with one spouse working and the other one on labour market support
  - families with children in municipal day care
  - entrepreneurs

- High EMTRs were predominantly caused by two or more means-tested benefits overlapping
The distribution of EMTRs in 1999 simulated with parameters of 1996, 1999 and 2001
DID-estimation

- Labour supply changes in the "treatment" group vs. the control group are analysed

\[(h^y_{99} - h^y_{96}) - (h^s_{99} - h^s_{96})\]

- Where \(h^y\) and \(h^s\) refer to the labour supply of the treatment group and control group respectively
The following function was estimated

\[ h = \alpha + \beta_1 D_{99} + \beta_2 D_p + \beta_3 D_{px99} \]

- \( D_{99} \) is an indicator variable for observations in 1999
- \( D_p \) is an indicator variable for the treatment group
- \( D_{px99} \) is their interaction
- By estimating the coefficient \( \beta_3 \), exactly the same results are obtained as by the simple DID-method shown above
- Both participation and months in work were analysed
The DID method was used to estimate the labour supply effects of two parts of the reform

1. Child home care supplement:
   - T: Parents of small children
   - C: Parents of older children.

2. Means testing of labour market supply
   - T: Persons whose spouses are on labour market support
   - C: Persons whose spouses are on other UE benefits.
DID estimation results

- Both participation (-4%) and months in work (-0.5) decreased for mothers with small children using mothers of older children as a comparison group.

- Both participation (4.3%) and months in work (1.0) increased for persons whose spouses were on labour market support, using persons whose spouses received non means-tested unemployment benefits as a comparison group.
The DID estimation is valid if
1. Compositions of the groups stay constant
2. Other factors influencing the labour supply of the two groups did not change differently over time.

Especially the second condition is problematic since the ”treatment” group is likely to differ from the control group in both cases.
Labour supply estimates for the whole population

- A labour supply function was estimated using a modification of a group-wise estimation strategy by Blundell et. al. (1998).
- The sample was split to 90 cells based on sex, level of education, age, and the age of children.
- Net monthly wage was calculated for the employed individuals in each cell.
Average monthly benefits were calculated by adding up:

- unemployment benefits
- sickness benefits
- student support
- home care support
- pensions

The sum was divided by the number of months in non-employment.
The following function was estimated:

\[ h = \alpha + \beta w(1-t) + \gamma y + D_{99} + \lambda D_{cell} + \epsilon \]

- \( h \), \( w(1-t) \) and \( y \) are the labour supply, marginal wage and virtual income.
- The estimates of net wages and average benefits are used to calculate the difference of labour income and benefit level in each cell.
- This difference was called the marginal wage.
- Virtual income was calculated similarly.
Estimation results from a previous study (Laine & uusitalo, 2001) were used for the years 1996-1998.

In both estimations only the marginal wage for females statistically significant.

The results imply that females respond more to changes in the marginal wage than males.

A study published in March 2007 (Jäntti et al.) used a similar estimation approach. The estimation results were of approximately the same magnitude.
Estimation results for the period 1996-1998

<table>
<thead>
<tr>
<th></th>
<th>(1) All (months employed)</th>
<th>(2) Men (months employed)</th>
<th>(3) Women (months employed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marginal wage /1000</td>
<td>0.253 (1.60)</td>
<td>0.094 (0.52)</td>
<td>0.532* (1.71)</td>
</tr>
<tr>
<td>Other income /1000</td>
<td>-0.005 (0.44)</td>
<td>-0.005 (0.37)</td>
<td>-0.010 (0.51)</td>
</tr>
<tr>
<td>Year 1998</td>
<td>-0.072 (0.49)</td>
<td>0.141 (0.74)</td>
<td>-0.273 (1.20)</td>
</tr>
<tr>
<td>Constant</td>
<td>5.153** (3.05)</td>
<td>5.596** (2.84)</td>
<td>9.088** (2.85)</td>
</tr>
<tr>
<td>Cells</td>
<td>122</td>
<td>66</td>
<td>56</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.95</td>
<td>0.95</td>
<td>0.95</td>
</tr>
</tbody>
</table>
Estimation results for the period 1998-2001

<table>
<thead>
<tr>
<th></th>
<th>(1) All (months employed)</th>
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<th>(3) Women (months employed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marginal wage /1000</td>
<td>0.582 (2.67)*</td>
<td>0.087 (0.43)</td>
<td>0.867 (2.30)*</td>
</tr>
<tr>
<td>Other income /1000</td>
<td>0.004 (0.34)</td>
<td>-0.011 (1.29)</td>
<td>0.034 (1.18)</td>
</tr>
<tr>
<td>Year 1999</td>
<td>-0.349 (1.37)</td>
<td>0.374 (1.50)</td>
<td>-0.862 (2.06)</td>
</tr>
<tr>
<td>Constant</td>
<td>5.049 (3.37)**</td>
<td>8.398 (7.03)**</td>
<td>0.465 (0.17)</td>
</tr>
<tr>
<td>Cells</td>
<td>84</td>
<td>45</td>
<td>39</td>
</tr>
<tr>
<td>R²</td>
<td>0.88</td>
<td>0.93</td>
<td>0.86</td>
</tr>
</tbody>
</table>
The estimated labour supply parameters were used to simulate the aggregate effects of the reform.

Between 1996 and 1998 the average effect was assessed as 0.11 months a year or as 1.2 % at the level of the whole working aged population.

Between 1998 and 2001: 0.01 months a year or 0.1 %.

Both the increase in participation and the increase in labour supply of those already participating is included in this assessment.