Tax and Transfer Reform for Germany
A Microsimulation Study

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We study three budget neutral reforms of the German tax and transfer system:

- Real flat tax with basic income scheme at the level of current Unemployment Benefit 2
- Reform with the aim of increasing full time employment
- Reform with the aim of increasing marginal employment
- Reforms are financed by increasing marginal tax rates at higher income levels
- All three reforms increase labor supply and welfare of households with low income and decrease labor supply and welfare of households with higher income.
- Flat tax induces highest welfare gains for low income households.
Introduction: Characteristics of German tax and transfer system

- High withdrawal rates of current tax and transfer system make work unattractive for people with low wages receiving transfers.
- Means testing is perceived as degrading
- Minijobs induce strong incentives for secondary earners to work part-time
- Solution 1: Abolishment of Minijobs, Flat Tax with Basic Income Scheme
- Solution 2: Abolishment of Minijobs, Wage subsidy for low income workers
Introduction: Flat Tax

- Friedman (1962): Flat Tax of 25% of with basic income scheme and withdrawal rate of 50%
- Hall and Rabushka (2007) for US: Individuals (or households) are assessed a 19 percent flat-rate tax on wages and pension benefits above an exemption of $25,500 for a family of four.
- Kirchhof (2011) for Germany:

<table>
<thead>
<tr>
<th>Income in Euro</th>
<th>Marginal Tax Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 10.000</td>
<td>0% (8000 basic tax allowance + 2000 deduction)</td>
</tr>
<tr>
<td>10.000 - 15.000</td>
<td>15% (60% * 25%)</td>
</tr>
<tr>
<td>15.000 - 20.000</td>
<td>20% (80% * 25%)</td>
</tr>
<tr>
<td>&gt; 20.000</td>
<td>25%</td>
</tr>
</tbody>
</table>

- Many Eastern European countries have flat income taxes, e.g., Estonia and Russia, but Social Security Contributions lead to non-flat overall income taxes.
Introduction: Employment Subsidy

- Alternative solution to improve incentives for low income households to work more
- Belgian Bonus a l’emploi (see Haan and Steiner, 2007): Subsidy for workers who work full time up to a specific wage limit, phased out afterwards
- Earned Income Tax Credit (EITC) in the USA: Households with gross income exceeding specific threshold receive tax credit, which is phased out from a higher threshold onwards
Related Literature

- **Flat Tax**
  - Fuest and Peichl (2008): two-step “flat tax” with MTR of .25 and withdrawal rate of .5 costs €30 bn; positive participation effect, negative hours effect. Budget neutral “flat tax” has negative participation and hours effect
  - Fuest et al. (2008): Flat taxes (.269 or .319) with basic allowance (7664-10700) while keeping transfer withdrawals as in status quo. Either equity of efficiency loss compared to status quo

- **Employment subsidy**
  - Haan and Steiner (2007): Employment subsidy of 1680 € for full time workers would lead to increase of employment by 100,000 full time equivalents.
Marginal Tax Rates (MTRs)

- **Status quo (2011)**
  - Basic allowance of € 8004
  - 1st progressive zone: increasing MTR starts with .14
  - 2nd progressive zone: increasing MTR starts with .24 (from 13,469 €)
  - 1st linear zone: MTR of .42 (from 52,881 €)
  - 2nd linear zone: MTR of .45 (from 250,730 €)

- **Employment (changes w.r.t. status quo):**
  - 1st progressive zone: increasing MTR starting with .2
  - 2nd progressive zone: increasing MTR starting with .28
  - 1st linear zone: MTR of .43 (from 52,881 €)
  - 2nd linear zone: MTR of .45 (from 70,000 €)

- **Fulltime (changes w.r.t. status quo):**
  - 1st progressive zone: increasing MTR starting with .165

- **Flat Tax:**
  - MTR of .675
Transfers and Withdrawal Rates (MWRs)

- **Status quo (2011) and Full Time:**
  - Allowance of 100 € / month
  - MWR of .8 up to monthly income of 1000€
  - MWR of .9 up to monthly income of 1200 € (1500 € with children in household)
  - MWR of 1 afterwards

- **Employment:**
  - MWR of .6 up to monthly income of 1200 € (1500 € with children in household)
  - MWR of 1 afterwards

- **Flat Tax:**
  - Citizen’s income of 800 €/month for every working age adult and 400 €/ month for children under 16
  - MWR of .675
  - all other transfers for people under 65 are abolished
Employment Subsidy

- **Employment:**
  - Wage subsidy of 1680 €/year for people working at least 10 hours/week
  - Subsidy is withdrawn at rate of .18 starting at individual labor incomes of 22,000/year

- **Full Time**
  - Wage subsidy of 1680 €/year for people working at least 30 hours/week
  - Subsidy is withdrawn at rate of .18 starting at individual labor incomes of 20,000/year
Social Security Contributions / Mini-Jobs

- Social security contributions are unemployment insurance, old age insurance, health insurance and long term care insurance
- For all reform proposals the employer’s contribution remains unchanged
- Status quo (2011):
  - Mini Jobs (up to 400 €/month) are exempted from income tax and social security contributions (SSC)
  - Midi Jobs (up to 800 €/month): Marginal SSC of .3
  - Afterwards marginal SSC of .2 up to specific income levels for different SSC components
- Employment and Fulltime:
  - Mini and Midi Job rules are abolished
- Flat Tax
  - SSC are contained in Flat Tax, Mini and Midi Jobs are abolished
## Change in Government Revenue

Changes in government revenue after labor supply responses in Bn €

<table>
<thead>
<tr>
<th>Employment</th>
<th>Full Time</th>
<th>Flat Tax</th>
</tr>
</thead>
<tbody>
<tr>
<td>.7</td>
<td>1.8</td>
<td>1.3</td>
</tr>
</tbody>
</table>
Marginal tax rates single 1

Single low income

Hourly Wage: 10

Status quo
Reform Employment
Reform FullTime
Reform FlatTax
Marginal tax rates single 2

Single higher income

Overall Marginal Tax Rate

Weekly Work Hours

Weekly Work Hours

Monthly Household Labor Income

Monthly Household Labor Income

Hourly Wage: 10
Budget constraint single 1

Single low income

Monthly Household Disposable Income

Weekly Work Hours

Monthly Household Labor Income

Status quo
Reform Employment
Reform FullTime
Reform FlatTax

Hourly Wage: 10
Marginal tax rates couple status quo

Married couple, 2 children, status quo

Monthly labor income male

Overall Marginal Tax Rate

Monthly labor income male
Budget constraint couple status quo
Data and STSM

- Data: SOEP, v29l, with retrospective data for the year 2011
- Net incomes and government revenues of the reforms are calculated using the STSM (Steuer-Transfer-Mikrosimulationsmodell, see Steiner et al., 2012), a detailed tax and transfer calculator
- Labor supply decisions are modelled following van Soest (1995)
The labor supply model 1/3

- LS model following van Soest (1995)
- Direct utility function:
  \[ V(v) = v'Av + b'v \]
- \( v = (\log(y), \log(lm), \log(lf)) \)
- \( A_{3 \times 3} \) has entries \( a_{ij} \) (\( i, j = 1, 2, 3 \)); \( b = (\beta_1 \beta_2 \beta_3) \)
- \( \beta_i = \sum_k \beta_{ik} x_k, \ i = 1, 2, 3; \alpha_{ij} = \sum_k \alpha_{ijk} x_k, \ i, j = 1, 2, 3 \)
- \( x_k \) family characteristics
- \( lf, lm \): female and male leisure
The labor supply model 2/3

- Random utility model (Maddala, 1983):
  - \( U_j = V_j + \varepsilon_j, \quad (j = 1, \ldots, m) \)
  - \( V_j = V(y_j, lm_j, lf_j) \); \( \varepsilon \sim EV(1), \quad (j = 1, \ldots, m) \), \( \varepsilon_1, \ldots, \varepsilon_m \) independent
  - Household chooses \( j \) with highest \( U \)
  - \( P[U_j > U_k \forall k \neq j] = P[\varepsilon_k - \varepsilon_j < V_j - V_k \forall k \neq j] \)
  - utilities associated with labor supply choices can be estimated via conditional logit
Non-worker wage rates are predicted using a Mincer wage regression correcting for selection using Heckman’s method.

Discretize labor supply (m: 0 10 20 30 38 48, f: 0 10 20 30 38 45).

We use the calibration method (see Creedy and Kalb, 2005) to predict chosen alternatives in counterfactual scenario.

Changes in tax and transfer system change utility levels associated with labor supply choices.
### Labor Supply Effects

Changes in labor supply in percent

<table>
<thead>
<tr>
<th>decile</th>
<th>m Empl</th>
<th>f Empl</th>
<th>m Flat</th>
<th>f Flat</th>
<th>m FT</th>
<th>f FT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9.40</td>
<td>9.04</td>
<td>42.70</td>
<td>20.79</td>
<td>2.99</td>
<td>3.60</td>
</tr>
<tr>
<td>2</td>
<td>0.29</td>
<td>0.71</td>
<td>1.95</td>
<td>1.53</td>
<td>0.12</td>
<td>1.46</td>
</tr>
<tr>
<td>3</td>
<td>0.08</td>
<td>0.27</td>
<td>0.69</td>
<td>0.53</td>
<td>0.13</td>
<td>0.18</td>
</tr>
<tr>
<td>4</td>
<td>-0.55</td>
<td>-1.62</td>
<td>-0.13</td>
<td>-2.84</td>
<td>-0.18</td>
<td>-0.55</td>
</tr>
<tr>
<td>5</td>
<td>-1.01</td>
<td>-1.40</td>
<td>-0.57</td>
<td>-3.80</td>
<td>-0.45</td>
<td>-0.64</td>
</tr>
<tr>
<td>6</td>
<td>-0.11</td>
<td>-1.44</td>
<td>-0.40</td>
<td>-4.61</td>
<td>-0.05</td>
<td>-0.33</td>
</tr>
<tr>
<td>7</td>
<td>-0.35</td>
<td>-0.27</td>
<td>-1.57</td>
<td>-5.77</td>
<td>-0.13</td>
<td>0.21</td>
</tr>
<tr>
<td>8</td>
<td>-0.78</td>
<td>-0.73</td>
<td>-1.55</td>
<td>-6.13</td>
<td>-0.10</td>
<td>-0.39</td>
</tr>
<tr>
<td>9</td>
<td>-0.63</td>
<td>-1.65</td>
<td>-3.37</td>
<td>-7.45</td>
<td>-0.26</td>
<td>0.12</td>
</tr>
<tr>
<td>10</td>
<td>-0.75</td>
<td>-2.05</td>
<td>-3.67</td>
<td>-9.17</td>
<td>-0.19</td>
<td>-0.25</td>
</tr>
</tbody>
</table>

By deciles of household income weighted by OECD equivalence scale. m: males, f: females.
### Welfare Effects

#### Compensating variations

<table>
<thead>
<tr>
<th>Income Decile</th>
<th>Employment</th>
<th>Flat Tax</th>
<th>Full Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-482.30</td>
<td>-8857.09</td>
<td>-0.02</td>
</tr>
<tr>
<td>2</td>
<td>-2570.73</td>
<td>-11017.22</td>
<td>-1132.72</td>
</tr>
<tr>
<td>3</td>
<td>-1683.75</td>
<td>-10685.36</td>
<td>-811.59</td>
</tr>
<tr>
<td>4</td>
<td>-1096.51</td>
<td>-8956.12</td>
<td>-580.05</td>
</tr>
<tr>
<td>5</td>
<td>-582.26</td>
<td>-6451.60</td>
<td>-225.41</td>
</tr>
<tr>
<td>6</td>
<td>-335.85</td>
<td>-4718.33</td>
<td>-214.69</td>
</tr>
<tr>
<td>7</td>
<td>317.27</td>
<td>-1868.79</td>
<td>219.43</td>
</tr>
<tr>
<td>8</td>
<td>1126.94</td>
<td>1251.58</td>
<td>495.14</td>
</tr>
<tr>
<td>9</td>
<td>1862.09</td>
<td>5520.49</td>
<td>915.08</td>
</tr>
<tr>
<td>10</td>
<td>3201.21</td>
<td>16212.41</td>
<td>1242.40</td>
</tr>
</tbody>
</table>

Median compensating variations by deciles of household income weighted by OECD equivalence scale.
Conclusion

- All three studied reforms increases welfare and labor supply of lower income households and decrease welfare and labor supply of higher income households
- The effects are strongest for the Flat Tax reform, followed by the “Employment” reform, while the “Full Time” reform has modest effects
- Outlook: aggregate welfare changes in order to make normative comparisons of reforms
Bibliography


- Kirchhof, Paul (2011): Bundessteuergesetzbuch. Ein Refermentwurf zur Erneuerung des Steuerrechts. C.F. Müller,