Motivation
• Multiplier effects of social security changes “relative unknowns of fiscal policy” (Romer and Romer, 2016)
• Identification problem (endogeneity of the budget to business cycle fluctuations)
• Cyclic Adjustment Approach (Blanchard and Perotti, 2002) (BP)
• Narrative Approach (Romer and Romer, 2010) (RR)

Contribution of the Paper
• Constructs a narrative quarterly series of social security contribution and benefit shocks for Germany
• Estimates their respective GDP effects
• Based on the proxy SVAR specification of Mertens and Ravn (2014) (MR) (rule out model friction)
• Compares narrative MR/RR specification with BP specification

Constructing the Shock Series
• Period 1970q1-2013q4
• Shock series covers changes in transfers and social security contributions for pensions, health care, long-term care and unemployment insurance on the German federal level
• Sources
  - Chronicles from Federal Ministry of Labour and Social Affairs, German Statutory Pension Insurance Scheme, Steffen (2013)
  - Historical records of draft legislations and legislative texts from Bundestag (Federal Parliament) and Bundesrat (Federal Council)

→ Provide size, timing and motivation of the shock

Size
• Expected amount of full-year budgetary effect of the measure (without macroeconomic feedback), % of annual GDP

Timing
• Shocks are timed at the implementation date of the discretionary measure
• But we also test with announcement dates, non-anticipated shocks (fiscal foresight)

Motivation
• Exogenous: structural and ideological reasons, budget consolidation, rulings of the court (Endogenous: counter-/procyclical policies, contemporaneous macroeconomic shocks, spending-driven / revenue-driven)

Figure 1: Exogenous Shocks to Social Security at Implementation Date (% GDP) (>0 – consolidation shock)

Reduced-form VAR model

identical for both MR and BP approaches:

\[ X_t = \Gamma(L)X_{t-1} + v + u_t \]  \hspace{1cm} (1)

\[ X_t = \beta_0 y_t \tau_t \]  \hspace{1cm} (2)

... more specifically:

- 4 lags
- \( \beta_0 \) = general gov’t spending on consumption and capital formation
- \( y_t \) = GDP
- \( \tau_t \) = social security revenues or expenditures
- all log real per capita levels (robustness: growth rates)
- \( v \) = constant, linear time trend, re-unification dummy and financial crisis dummy

Identification (AB model)

\[ A_{Xt} = A L(0)X_{t-1} + A v + B_{\epsilon_t} \]  \hspace{1cm} (3)

\[ u_t = A^{-1}B\epsilon_t \]  \hspace{1cm} (4)

\[ \Sigma_u = A^{-1}B\Sigma B^t(A^{-1})' \]  \hspace{1cm} (5)

Identifying Restrictions

MR approach:
- \( \hat{\omega}_{\tau y} \) – technical 0/1 restrictions
- \( \hat{\omega}_{\tau y} \) – IV estimation

\[ \hat{\omega}_{\tau y} = \mu^\tau + \alpha^\tau \hat{\omega} + \epsilon^\tau_{\tau} \]  \hspace{1cm} (6)

\[ \hat{\omega}_{\tau y} = \mu^\tau + \gamma \bar{m}_\tau + \omega^\tau = \hat{\omega} + \omega^\tau \]  \hspace{1cm} (7)

BP approach:
- \( \hat{\omega}_{\tau y} \) – technical 0/1 restrictions
- \( \hat{\omega}_{\tau y} \) – elasticities of social security benefits and contributions (Price et al., 2014)

Table 1: Elasticities imposed and estimated for the BP and MR models in levels

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<thead>
<tr>
<th></th>
<th>Socrev</th>
<th>Socexp</th>
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<tbody>
<tr>
<td>Socrev</td>
<td>0.60</td>
<td>-0.50</td>
</tr>
<tr>
<td>Socexp</td>
<td>0.74 (0.43, 1.04)</td>
<td>-0.74 (-1.14, -0.34)</td>
</tr>
<tr>
<td>BP implied</td>
<td>-0.09 (-0.18, 0)</td>
<td>0.15 (0.07, 0.23)</td>
</tr>
<tr>
<td>MR implied</td>
<td>-0.13</td>
<td>0.20</td>
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95% confidence bounds for implied elasticities in parentheses.

Results

Figure 2: IRF for MR (solid red or green) and BP (dashed blue) identification - expansionary shock to contributions or benefits (tau) sized to 1% of GDP, log levels, 2-SE confidence bands

Results are robust to ...

- non-anticipated shocks only
- original MR B-model specification
- extended 5-variable VAR
- big vs. small shocks (for revenues big shocks have lower multiplier)

Central Findings

1. Revenues: Impact multiplier of \( \approx 0.8 \), effect dies out quickly
2. Benefits: Impact multiplier of \( \approx 0.9 \), effect much more persistent
3. No significant difference between MR/RR and BP approach

→ Social security shocks push GDP only mildly, middle of the range of multipliers

→ Redistribution from rich to poor (higher contributions + higher transfers) might have positive net effect in the medium run