The quest for the best Consumer Confidence Indicator

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Is the current CCI reliable?
Purpose

• To search for the best possible Consumer Confidence Indicator
• Use a Big Bang approach
  – Given the methodology, all possible indicators are considered
• Target the EU and the euro area
• Hypothesis
  – An indicator based on “micro” questions is a good choice
11 questions in the questionnaire

• Micro questions
  – Financial situation of the household (Q1 & Q2)
  – Major purchases (Q8 & Q9)
  – Savings (Q11)

• Macro questions
  – General economic situation (Q3 & Q4)
  – Consumer prices (Q5 & Q6)
  – Unemployment (Q7)
  – Savings (Q10)
Current Consumer Confidence Indicator (CCI)

- Based on four forward looking questions
  - Financial situation of the household (Q2)
  - General economic situation in the country (Q4)
  - Unemployment (Q7)
  - Likelihood to save (Q11)

- Answers to each question is summarised in a balance statistic (B):
  - \( B = (PP + 1/2P) - (1/2M + MM) \)

- CCI is the average of the balances
  - \( CCI = (B_{Q2} + B_{Q4} + B_{Q7} + B_{Q11}) / 4 \)
Hypothesis for a new indicator

• An indicator based on questions related to the household economy, rather than the general economy, would be more informative

• Rational for the hypothesis
  – Respondents have better knowledge of their own economic situation than of the general economic situation
  – The micro questions reflect better consumers’ budget constraints
Micro questions less volatile

- Micro questions less volatile
- Standard deviation

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Micro CCI – an alternative indicator

• Based on four micro questions
  – Current financial situation of the household (Q1)
  – Expected financial situation of the household (Q2)
  – Right moment to make major purchases (Q8)
  – Expected major purchases (Q9)

• For aggregation, the same methodology as for the current consumer confidence indicator is applied
“Micro CCI” shows better fit
Big Bang approach I

• Traditionally
  – A set of questions are selected
  – A few composite indicators are proposed and evaluated

• We consider all possible indicators
  – Keep the current methodology for constructing composite indicators (i.e. balances, seasonal adjustment, weights)
Big Bang approach II

- There are 11 potentially useful monthly questions
- It is possible to generate 2,047 candidate indicators for each economic area and country ($2^n - 1$)
- All are considered and ranked according to specific criteria
Two search criteria

• Indicator’s correlation with the reference series
  – Correlation between all indicators and private final consumption (coincident and leading)

• Predictive power of the indicator
  – Improvement of adjusted R-square in a simple consumption model

• Excluded criteria
  – Ability to detect turning points
  – Volatility (MCD)
Box plots of 2,047 country correlations
First results - correlations

• Between the best performing indicator and the median there is usually a relatively narrow range of correlations: 0.22
• There are big differences across countries
Considered Consumer Confidence Indicators

• Optimal indicators for EU and euro area
  – Coincident and leading
• Current Consumer Confidence Indicator (CCI) and Micro CCI (MCCI)
• Globally optimal indicator (across countries)
  – Minimises the difference between the country optimal and potential indicators across countries:

\[
\min_{\rho_{c,\text{optimal}} - \rho_{\text{global}}} \sum_{c=1}^{26} \left( \rho_{c,\text{optimal}} - \rho_{\text{global}} \right)^2
\]
## The optimal euro area

### Consumer Confidence Indicator

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Coincident correlation</th>
<th>Rank (1-2047)</th>
<th>Leading correlation</th>
<th>Rank (1-2047)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optimal (coincident)</td>
<td>0.86</td>
<td>1</td>
<td>0.83</td>
<td>2</td>
</tr>
<tr>
<td>Optimal (leading)</td>
<td>0.86</td>
<td>3</td>
<td>0.83</td>
<td>1</td>
</tr>
<tr>
<td>Globally optimal</td>
<td>0.78</td>
<td>724</td>
<td>0.69</td>
<td>877</td>
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<tr>
<td>Micro</td>
<td>0.82</td>
<td>284</td>
<td>0.73</td>
<td>530</td>
</tr>
<tr>
<td>Current</td>
<td>0.68</td>
<td>1617</td>
<td>0.61</td>
<td>1434</td>
</tr>
<tr>
<td>Factor-based</td>
<td>0.78</td>
<td>831</td>
<td>0.69</td>
<td>896</td>
</tr>
</tbody>
</table>
# The globally optimal Consumer Confidence Indicator

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Coincident (I)</th>
<th>Leading (II)</th>
<th>Combining (I) &amp; (II)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Globally Optimal (coincident)</td>
<td>1</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Globally Optimal (leading)</td>
<td>47</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Globally optimal (combined)</td>
<td>1</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Micro</td>
<td>183</td>
<td>335</td>
<td>248</td>
</tr>
</tbody>
</table>
| Current                                | 1519           | 976          | 1259                 

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Questions included in the optimal CCIs

- Optimal euro area (coincident)
  - Expected financial situation of the household (Q2)
  - Expected general economic situation (Q4)
  - Perceived consumer prices (Q5 with negative sign)
  - Right moment to make major purchases (Q8 & Q9)

- Optimal euro area (leading)
  - Expected general economic situation (Q4)
  - Perceived consumer prices (Q5 with negative sign)
  - Right moment to make major purchases (Q8 & Q9)

- Global optimal (coincident & leading)
  - Current general economic situation (Q3)
  - Right moment to make major purchases (Q8 & Q9)
Predictive power of spending in coincident quarter

• Previous empirical work (mainly from the U.S and the U.K) in general confirms predictive power...

• ...but once controlling for other variables (such as lagged dependent variable and disposable income), the true *incremental* predictive value is quite small

• Parsimonious model

\[ \hat{\epsilon}_t = \alpha + \beta_0 c_{t-2} + \beta_1 \text{CCI}_{t-1} + \epsilon_t \]

where benchmark \( \beta_1 = 0 \)

(other control variables, such as disposable income, real interest rate turned out insignificant)
## Preliminary results
(Euro area, sample 1995q1-2008q2)

<table>
<thead>
<tr>
<th>Model</th>
<th>Adjusted R2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benchmark model</td>
<td>0.68</td>
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<tr>
<td>Model including CCI</td>
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<tr>
<td>Optimal (coincident)</td>
<td>0.77</td>
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<tr>
<td>Optimal (leading)</td>
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<td>Globally optimal</td>
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<tr>
<td>Micro</td>
<td>0.72</td>
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<tr>
<td>Current</td>
<td>0.69</td>
</tr>
<tr>
<td>Factor-based</td>
<td>0.71</td>
</tr>
</tbody>
</table>

- Optimal indicators have incremental predictive power...
- ...but not the current, micro or factor based indicators.
Concluding remarks

• The derived optimal indicator for the euro area performs significantly better than the current
• But, this indicator does not fit all countries
• The globally optimal indicator is in general reasonably close to the optimal country CCIs
• The Micro indicator performs well consistently
• The selection of questions is important, probably more so than the aggregation methodology
Correlations of indicators by country

- Country Optimal
- Globally Optimal
- Micro CCI
- CCI

Correlation

EU, EA, BE, CZ, DK, DE, EE, IE, ES, FR, IT, CY, LV

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Correlations of indicators by country

Correlation

-0.4 -0.2 0.0 0.2 0.4 0.6 0.8 1.0

LT LU HU MT NL AT PL PT SI SK FI SE UK

Country Optimal  Globally Optimal  Micro CCI  CCI