Wealth effects: the French case

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Financial crisis

→ slump in asset prices (financial assets and housing)

→ slump in activity, drop in consumption

Link wealth and consumption *via wealth effects*

Empirical and comparative approach (cointegration) for France through various specifications
Theoretical framework

- Models based on budget constraint and elasticity (Lettau and Ludvigson) or on consumption function and MPC (Muellbauer)
  \[ \epsilon_{C/A} = mpc \cdot \frac{C}{A} \]
  → *elasticities are preferred by econometricians (less heteroscedasticity) and MPC by modelers as it is micro-founded and the long term equilibrium can be analytically derived*

- As the ratio C/A is unstable, the 2 approaches are not equivalent
  \[ \epsilon_{C/A} = mpc \cdot \frac{C}{A} \]

- Estimation of different models:
  \[ \frac{C_t}{Y_t} = \alpha + \beta \frac{A_{t-1}}{Y_t} + \epsilon \] or \[ \frac{C_t}{Y_t} = \alpha + \beta \frac{H_{t-1}}{Y_t} + \gamma \frac{F_{t-1}}{Y_t} \]
  \[ c_t = \alpha + \beta_1 a_{t-1} + \beta_2 y_t + \epsilon \] or \[ c_t = \alpha + \beta_1 f_{t-1} + \beta_2 h_{t-1} + \beta_3 y_t \]
Many analysis on this topic for France, mostly in international comparisons

→ Most of them estimate elasticities.

→ Most of them use DOLS or constrained DOLS. Barrel and Davis (2007) and Byrne et alii (2003) use unrestricted ECM via non linear least squares.

→ Wide range of results: elasticity of 2 to 26%! or MPC of 0.4 to 4.6 cents for 1 euro.


→ Weak to very weak effects: 2.3% to 14% (0.4 to 2.5 cents for 1 euro environ)

⇒ We propose a deeper, comparative analysis for France
Empirical Methodology: macro data

- Quarterly national accounts
  - Consumption (total/non durables/excl. FISIM)
  - Households income excluding property income
  - Financial wealth: newly available backcasted data

- Annual national accounts
  - Housing wealth

- Chosen sample 1987-2006, N=80, potential sample 1985-2008
  - Deregulation of credit in France in 1985
  - Potential data revisions after 2006
Consumption, disposable income excluding property income, wealth in real terms
Usual cointegration methodology adopted

→ Number of lags selected using usual criteria (AIC, FPE, SC, HQ)

→ Order of integration determined using unit root tests (ADF, ERS (DF-GLS)) + test with structural break (Zivot-Andrews, 1992 and Lee and Strazicich, 2003 break in the trend of housing wealth)

→ Number of vectors determined using Johansen i.e. Trace and Maximum Eigenvalue Statistics

→ Stability (eigenvalue recursive, CUSUM)

→ Residuals (Portmanteau and LM tests for autocorrelation, heteroskedasticity ARCH test, Jarque Bera normality test)
• Relatively small sample (N=80), estimation using 3 different estimators (robustness analysis)
  
  → *Dynamic Ordinary Least Squares (DOLS, Stock and Watson, 1993)*
  
  → *VECM estimation by Maximum Likelihood (ML, Johansen, 1995)*
  
  → *VECM estimation by Generalized Least Squares (Feasible GLS, Ahn and Reinsel, 1990, Saikkonen, 1992)*

• **Approaches Elasticity/MPC**

• **Approaches aggregated/disaggregated wealth**

• **Consumption total / non durables / excl.FISIM**

• **Sensitivity to the sample (1986-2008)**

• **Sensitivity to omitted variables** (unemployment rate, interest rates and delinquency rate)
Table 3: Estimates of long run MPC

<table>
<thead>
<tr>
<th></th>
<th>DOLS</th>
<th>VECM-ML</th>
<th>VECM-GLS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Wealth</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wealth 1</td>
<td>1.73* (0.69)</td>
<td>1.79* (0.72)</td>
<td>0.437* (0.17)</td>
</tr>
<tr>
<td>Wealth 2</td>
<td>3.45* (1.38)</td>
<td>3.27* (1.31)</td>
<td>1.329 (0.53)</td>
</tr>
<tr>
<td><strong>Disagr. Wealth</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housing wealth 1</td>
<td>4.33* (1.73)</td>
<td>2.76* (1.10)</td>
<td>2.73* (1.09)</td>
</tr>
<tr>
<td>Housing wealth 2</td>
<td>1.74* (0.70)</td>
<td>0.96 (0.38)</td>
<td>0.85 (0.34)</td>
</tr>
<tr>
<td>Financial wealth 1</td>
<td>4.43* (1.77)</td>
<td>4.40* (1.76)</td>
<td>4.58* (1.83)</td>
</tr>
<tr>
<td>Financial wealth 2</td>
<td>9.71* (3.88)</td>
<td>9.51* (3.80)</td>
<td>9.8* (3.92)</td>
</tr>
</tbody>
</table>

*, ** and *** indicate significance at 1%, 5% and 10% level respectively and (.) indicate the annualized results that is the increase in cents in annual consumption induced by an increase by one euro in wealth.

3 or 6 lags for disaggregated, 1 or 2 lags for aggregated. We do not introduce any deterministic term in the VECM model.

1=nondurable consumption ratio 2= excluding financial consumption ratio.
Table 6: Estimates of the long run elasticity of total consumption excluding financial services

<table>
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<th>DOLS</th>
<th>ML</th>
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<tbody>
<tr>
<td><strong>Total Wealth</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wealth</td>
<td>0.08*</td>
<td>0.07*</td>
<td>0.08*</td>
</tr>
<tr>
<td>Income</td>
<td>0.92*</td>
<td>0.67*</td>
<td>0.65*</td>
</tr>
<tr>
<td><strong>Disagr. Wealth</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housing</td>
<td>0.08*</td>
<td>0.06*</td>
<td>0.06*</td>
</tr>
<tr>
<td>Financial</td>
<td>0.11*</td>
<td>0.12*</td>
<td>0.13*</td>
</tr>
<tr>
<td>Income</td>
<td>0.65*</td>
<td>0.66*</td>
<td>0.64*</td>
</tr>
</tbody>
</table>

*, ** and *** indicate significance at 1%, 5% and 10% level respectively.

2 lags for disaggregated and aggregated wealth.
Main results

⇒ Wealth effects are rather weak in France, whatever the approaches.

⇒ Elasticity of consumption to overall wealth: 8-11% / disaggregated wealth: 9-11%/6-8%.

⇒ MPC overall wealth: 0.7-1.4 cent for 1 euro / disaggregated wealth: 1.8-3.9/0.4-1.1 cents for 1 euro.

⇒ The effect of financial wealth is always bigger than that of housing wealth.

⇒ Higher risk aversion? Lower potential leverage affect? Weaker part of financial wealth? Pay as you go vs funded retirement schemes?

⇒ Our estimates are very close to Italian ones (elasticity approach) and lower than UK and US ones.
Main results

⇒ **Short term deviations from equilibrium are mostly compensated for by adjustments in disposable income** (contrary to Lettau et Ludvigson, 2004 but in line with Hamburg et al., 2006).

⇒ **Estimates of elasticities and MPC are rather close, albeit wealth effects seem weaker with the MPC approach.**

⇒ **Superiority of MPC approach? More signs of one single cointegration vector.**

⇒ **Some results to be taken cautiously: housing wealth I(1) or I(2)? Sum of elasticities well below 1 if not constrained**
Conclusions

- First paper which compares different specifications and approaches for evaluating wealth effect in France, with a first attempt to disentangle short and long term dynamics.
- Confirm wealth effects in France, although weak and mostly coming from financial wealth.
- Results to be taken cautiously, especially those concerning housing wealth.

- Need to analyse further the role of transitory shocks as opposed to permanent shocks: variance decomposition (cf Gonzalo et Ng, 2001 in Lettau and Ludvigson, 2004)
- Forecasting exercises to determine the best model (MPC ou Elasticity)
CUSUM test, non durable consumption, aggregated wealth

Elasticity

MPC