Housing Markets and Current Account Dynamics

P. Gete, 2010
Presented by Luis Franjo
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Motivation/Observations

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- Country differences in housing dynamics strongly correlated with current account dynamics.
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Housing Markets and CA Dynamics
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- Housing sector is large, then housing specific shocks may have important aggregate implications → In the U.S. from 2001 to 2006: 28% or 41%.
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Do housing demand shocks help to explain recent global imbalances?
Motivation/Observations

- Large and persistent current account deficits.

![Graph showing % CA/GDP over years from 1988 to 2006 for different countries like Au, Fr, Gr, It, Pt, Sp, US.](image-url)
Heterogeneity in the current account dynamics of developed economies.

### Table 1: Current Account as % of GDP

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>-1.47</td>
<td>1.9</td>
<td>Australia</td>
<td>-4.9</td>
<td>-5.49</td>
</tr>
<tr>
<td>Germany</td>
<td>-1.41</td>
<td>4</td>
<td>France</td>
<td>0.54</td>
<td>-2.59</td>
</tr>
<tr>
<td>Japan</td>
<td>2.75</td>
<td>3.9</td>
<td>Ireland</td>
<td>2.69</td>
<td>-1.04</td>
</tr>
<tr>
<td>Korea</td>
<td>-0.95</td>
<td>1.6</td>
<td>Italy</td>
<td>1.18</td>
<td>-2.07</td>
</tr>
<tr>
<td>Netherlands</td>
<td>4.75</td>
<td>9.52</td>
<td>Spain</td>
<td>-1.23</td>
<td>-8.86</td>
</tr>
<tr>
<td>Switzerland</td>
<td>6.22</td>
<td>13.5</td>
<td>Portugal</td>
<td>-2.31</td>
<td>-9.58</td>
</tr>
<tr>
<td>Canada</td>
<td>-2.3</td>
<td>3.34</td>
<td>UK</td>
<td>-0.99</td>
<td>-2.45</td>
</tr>
<tr>
<td>Sweden</td>
<td>1.13</td>
<td>6.7</td>
<td>USA</td>
<td>-1.71</td>
<td>-7.24</td>
</tr>
</tbody>
</table>
Motivation/Observations

- Strong negative cross-country correlation between share of labor employed in construction and current account dynamics.
Motivation/Observations

- Strong negative cross-country correlation between value added of construction and current account dynamics.
Motivation/Observations

- Weaker but still negative cross-country correlation between housing prices and current account dynamics.
Net imports of capital goods account for a smaller fraction of the deficit dynamics than do net imports of consumption goods.
Housing decoupled from the cycle $\rightarrow$ housing specific shocks.
Housing and current account dynamics:

- aggregate wealth effects of housing on consumption → Matsuyama (1990); Punzi (2008).
Housing and current account dynamics:

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Housing demand shocks $\rightarrow$ Aspachs-Bracons and Rabanal (2009); Iacoviello and Neri (2010).
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This paper:

- shocks to the demand for housing generate trade deficits without need for the standard ingredients.
Approach

- Build a model where increases in the demand for housing will imply trade deficits through net imports of consumption goods to smooth consumption.
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- Study the effects of transitory shocks that increase the preference for housing relative to tradable goods in a two periods version of the model with full housing depreciation.
Approach

- Build a model where increases in the demand for housing will imply trade deficits through net imports of consumption goods to smooth consumption.
- Study the effects of transitory shocks that increase the preference for housing relative to tradable goods in a two periods version of the model with full housing depreciation.
- Solve numerically a parameterized version of the full model to U.S. data and perform impulse response analysis.
The Model
General Environment

- Two countries, indexed by \( i \in \{1, 2\} \), with the same preferences and technology.
The Model
General Environment

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- Labor ($n$) is the only production input to produce houses ($y_h$) or tradable goods ($y_c$).
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The tradable good is identical for both countries.
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- The tradable good is identical for both countries.

\[
y_{iht} = An_{iht}^\alpha
\]

\[
y_{ict} = n_{ict}^\alpha
\]
Two goods: houses \((h)\) and tradable goods \((c)\).
The Model

General Environment

- Two goods: houses ($h$) and tradable goods ($c$).
- Houses:
  - are nontradable and durable.
  - give a flow of services proportional to the stock.

$$h_{it} = (1 - \delta)h_{i(t-1)} + y_{iht}$$
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\[
h_{it} = (1 - \delta)h_{it-1} + y_{iht}
\]

- Each country has a fixed supply of labor \((n_i)\). Free mobility between sectors inside the country.

\[
\sum_{t=0}^{\infty} c_{it} = \sum_{t=0}^{\infty} y_{ict}
\]

\[
n_{iht} + n_{ict} = n_i
\]
Representative household in country $i$ maximizes utility over consumption of housing services ($h_{it}$) and tradable goods ($c_{it}$).

$$\sum_{t=0}^{\infty} \beta^t u(c_{it}, h_{it})$$
The Model
General Environment

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\[ \sum_{t=0}^{\infty} \beta^t u(c_{it}, h_{it}) \]

- Preferences have a CRRA functional form.

\[ u(c_{it}, h_{it}) = \left( \left( (1 - \theta_{it}) \frac{c_{it}^{\frac{\epsilon-1}{\epsilon}}}{\epsilon} + \theta_{it} h_{it}^{\frac{\epsilon-1}{\epsilon}} \right)^{\frac{\epsilon}{\epsilon-1}} \right)^{1 - \frac{1}{\sigma}} \]
The Model
Two Periods Version with no durable good

- Full housing depreciation, $\delta_h = 1$. 
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- When $\frac{N_1}{N_2}$ is very small $\rightarrow$ Country 1 as a SOE.
The Model
Two Periods Version with no durable good

- Full housing depreciation, $\delta_h = 1$.
- When $\frac{N_1}{N_2}$ is very small $\Rightarrow$ Country 1 as a SOE.

$$\max \quad u(c_1, h_1) + \beta u(c_2, h_2)$$

s.t.  
$$y_{ht} = An_{ht} = h_t$$  
$$y_{ct} = n_{ct}^{\alpha}$$  
$$n = n_{ht} + n_{ct}$$  
$$c_1 + \frac{c_2}{R} = y_{c1} + \frac{y_{c2}}{R} \quad \leftarrow \text{SOE}$$
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s.t.  

$y_{ht} = An_{ht}^\alpha = h_t$

$y_{ct} = n_{ct}^\alpha$

$n = n_{ht} + n_{ct}$

$c_1 + \frac{c_2}{R} = yc_1 + \frac{yc_2}{R}$  $\leftarrow$ SOE

$c_t = yc_t$  $\leftarrow$ Closed Economy
The Model
Two Periods Version with no durable good

- Unexpected increase in $\theta_1$ in the CE.
The Model
Two Periods Version with no durable good

- Unexpected increase in $\theta_1$ in the SOE.
The Model
Full Model

- Calibrated parameters:

\[
\begin{align*}
\frac{1}{\sigma} &= 2 \\
\varepsilon &= 0.9 \\
\theta^*_i &= 0.2 \\
\alpha &= 0.67 \\
\delta_h &= 0.1 \\
A &= 1/30
\end{align*}
\]

- Shock $\rightarrow \theta_1 = 0.5$. 

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The Model

Full Model

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Conclusions

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- Housing booms are larger when the economy can run a trade deficit.
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A parameterized version of the model presented generates trade balance dynamics consistent with recent OECD current account dynamics.