Import Prices and Invoice Currency: Evidence from Chile

By Giuliano and Luttini

Discussion by Joaquin Blaum (Brown)
What They Do

- Interesting paper, with potentially important policy implications.
What They Do

- Interesting paper, with potentially important policy implications.

- Document pattern of invoicing of Chilean imports:
  - Majority of import transactions invoiced in USD
  - Mismatch between trade from the US and trade invoiced in USD
What They Do

- Interesting paper, with potentially important policy implications.

- Document pattern of invoicing of Chilean imports:
  - Majority of import transactions invoiced in USD
  - Mismatch between trade from the US and trade invoiced in USD

- Revisit measurement of ERPT into import prices:
  - Including both bilateral and invoice currency
  - Dynamic lag specifications:
    - For two quarters: invoice currency (usd) ERPT is higher
    - After two quarters: bilateral ERPT takes over
  - Specifications in annual differences with no lags (medium-term)
    - Both USD and bilateral ER seem to matter
    - Pattern is less clear and depend on origin country
Main Finding

For imports invoiced in USD:

\[
\Delta p_{gct} = \sum_{i=1}^{7} \beta_{i}^{ber} \Delta ber_{c,t-(i-1)} + \sum_{i=1}^{7} \beta_{i}^{usd} \Delta usd_{t-(i-1)} + \gamma' x_{ct} + \alpha_{g} + \alpha_{c} + \varepsilon_{cgt},
\]

where \( g \) is 8-digit product, \( c \) is country of origin, \( ber_{ct} \) is bilateral ER with country \( c \), \( usd_{t} \) is dollar ER, \( \Delta \) are quarterly changes and \( p \) is in domestic currency.

(Standard errors? Levels?)
#1 Connection to Literature

- Closely related paper: Casas et al (2017) - henceforth CDGG

- GL state that their findings are somewhat contradictory
  - Intuitively, for CDGG the usd is important in the medium and long run, while for GL not.

- Are the two papers actually inconsistent? Not immediate since they run quite different specifications.

- CDGG run

\[ \Delta p_t = \sum_{i=1}^{9} \beta_i^{usd} \Delta usd_{t-(i-1)} + \gamma' x_t + \alpha + \epsilon_t \]

and distinguish by dollar vs non-dollar country of origin.

- Another key difference: CDGG work at the transaction level, with firm-industry-country FE

- For dollar origins, usd is both invoice and bilateral currency. For non-dollar origins, usd is only invoice currency.
Connection to Literature (Ctd)

- CDGG findings:

\[ \Delta x_t = \alpha + \sum_{s=0}^{8} \beta_s \Delta e_{t-s} + Z_t + \epsilon_t, \] (26)

where \( \Delta x_t \) is the quarterly log change in export/import prices expressed in pesos. This is the quarterly log change in the nominal exchange rate of the peso relative to the dollar regardless of origin.

- Two regularities:
  1. ERPT is higher from dollar origins relative to non-dollar, at all horizons.
  2. ERPT falls faster with horizon from non-dollar relative dollar origins.

- This is broadly consistent with GL findings
  - Think of left plot above as the sum of two lines in GL, while right plot is just the GL line for usd.
  - As for level of right plot, the bilateral ER is omitted and likely correlated with usd ER.
#2: Medium-term ERPT

Run at the annual frequency:

$$\Delta p_{gcrt} = \beta_r^{ber} \Delta ber_{ct} + \beta_r^{usd} \Delta usd_t + \alpha + \gamma' x + \varepsilon_{cgrt},$$

where $r$ is the currency of invoicing (either exporter or usd).

Pooling Europe + Japan:

<table>
<thead>
<tr>
<th>Currency</th>
<th>Invoice USD</th>
<th>Invoice Exporter Currency</th>
</tr>
</thead>
<tbody>
<tr>
<td>USD ($\beta^{usd}$)</td>
<td>0.456</td>
<td>$-0.285$</td>
</tr>
<tr>
<td></td>
<td>(0.241)</td>
<td>(0.204)</td>
</tr>
<tr>
<td>Exporter ($\beta^{ber}$)</td>
<td>0.475*</td>
<td>0.910***</td>
</tr>
<tr>
<td></td>
<td>(0.197)</td>
<td>(0.148)</td>
</tr>
<tr>
<td>Observations</td>
<td>14512</td>
<td></td>
</tr>
</tbody>
</table>

Result: **Even with USD invoicing, the exporter currency ERPT dominates**
## Medium-term ERPT: By Country

Table: Medium-term ERPT and Invoice Currency: Europe + Japan.

<table>
<thead>
<tr>
<th>Currency</th>
<th>Germany</th>
<th>Spain</th>
<th>France</th>
<th>Italy</th>
<th>Japan</th>
<th>UK</th>
<th>Sweden</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel A: Invoice USD.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>USD ($\beta_{usd}$)</td>
<td>−0.211</td>
<td>−0.282</td>
<td>0.840</td>
<td>−0.411</td>
<td>0.0795</td>
<td>0.525</td>
<td>1.087</td>
</tr>
<tr>
<td>(0.497)</td>
<td>(0.711)</td>
<td>(0.708)</td>
<td>(0.700)</td>
<td>(1.256)</td>
<td>(1.046)</td>
<td>(0.794)</td>
<td></td>
</tr>
<tr>
<td>Exporter ($\beta_{ber}$)</td>
<td>1.089**</td>
<td>1.030*</td>
<td>−0.326</td>
<td>1.684**</td>
<td>−0.468</td>
<td>0.478</td>
<td>−0.225</td>
</tr>
<tr>
<td>(0.381)</td>
<td>(0.495)</td>
<td>(0.503)</td>
<td>(0.547)</td>
<td>(0.767)</td>
<td>(0.967)</td>
<td>(0.616)</td>
<td></td>
</tr>
</tbody>
</table>

- Pooled results driven by 3 euro countries (GER, ITA, SPA)
  - But FRA, JPN, UK, SWE look different,
    - JPN: 60% invoicing in USD & 40% in Yen, so statistical power should be ok
  - Explore what explains country heterogeneity.
#2: Medium-term ERPT: Country Variation (Ctd)

<table>
<thead>
<tr>
<th>Country</th>
<th>USD ($\beta_{usd}$)</th>
<th>Exporter ($\beta_{ber}$)</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>1.158** (0.428)</td>
<td>1.427*** (0.279)</td>
<td>4434</td>
</tr>
<tr>
<td>Spain</td>
<td>-0.0841 (0.575)</td>
<td>1.254*** (0.312)</td>
<td>2804</td>
</tr>
<tr>
<td>France</td>
<td>-0.439 (0.644)</td>
<td>0.761* (0.370)</td>
<td>2423</td>
</tr>
<tr>
<td>Italy</td>
<td>-0.892 (0.574)</td>
<td>1.385*** (0.419)</td>
<td>1873</td>
</tr>
<tr>
<td>Japan</td>
<td>-0.370 (1.309)</td>
<td>-0.107 (0.793)</td>
<td>1271</td>
</tr>
<tr>
<td>UK</td>
<td>-0.356 (0.979)</td>
<td>1.462 (0.876)</td>
<td>896</td>
</tr>
<tr>
<td>Sweden</td>
<td>1.329 (0.876)</td>
<td>-0.941 (0.682)</td>
<td>811</td>
</tr>
</tbody>
</table>

- Similar picture for transactions invoiced in exporter currency
  - Pooled results driven by 3 euro countries (GER, SPA, ITA)
  - For UK, SWE and JPN exporter currency not significant, sometimes even negative coefficient.
- Similar picture for pooled vs country-level results for LATAM.
Other Suggestions

1. Elaborate on how aggregation helps with bias from using unit values to proxy prices.
   
   1.1 Wouldn’t firm-level analysis help with bias from changes in product mix?

\[
\Delta p_{\text{Xigct}} = (\beta_{\text{ber}} + \delta_{\text{ber}}) \Delta \text{ber}_{\text{ct}} + (\beta_{\text{usd}} + \delta_{\text{usd}}) \Delta \text{usd}_{\text{t}} + \alpha + \gamma' \times \text{xigct}
\]

where \(p_{\text{X}}\) are export prices, \(i\) denotes a firm and \(s_i\) is the import share.
Other Suggestions

1. Elaborate on how aggregation helps with bias from using unit values to proxy prices.

   1.1 Wouldn’t firm-level analysis help with bias from changes in product mix?

2. Why restrict to CPI goods and exclude inputs?

   2.1 Inputs affect the CPI via the price of locally produced goods

\[ \Delta p_{Xigct} = (\beta_{ber} + \delta_{ber}s_i) \Delta ber_{ct} + (\beta_{usd} + \delta_{usd}s_i) \Delta usd_t + \alpha + \gamma' x + \epsilon_{igct} \]

where \( p_{X} \) are export prices, \( i \) denotes a firm and \( s_i \) is the import share.
Other Suggestions

1. Elaborate on how aggregation helps with bias from using unit values to proxy prices.
   1.1 Wouldn’t firm-level analysis help with bias from changes in product mix?

2. Why restrict to CPI goods and exclude inputs?
   2.1 Inputs affect the CPI via the price of locally produced goods

3. What about export prices? Similar forces could apply.
Other Suggestions

1. Elaborate on how aggregation helps with bias from using unit values to proxy prices.
   1.1 Wouldn’t firm-level analysis help with bias from changes in product mix?

2. Why restrict to CPI goods and exclude inputs?
   2.1 Inputs affect the CPI via the price of locally produced goods

3. What about export prices? Similar forces could apply.

4. One way to address all of above: apply methodology of Amiti, Itskholki, Konings

\[ \Delta p_{Xigct} = \left( \beta^{ber} + \delta^{ber} s_i \right) \Delta ber_{ct} + \left( \beta^{usd} + \delta^{usd} s_i \right) \Delta usd_t + \alpha + \gamma' x + \epsilon_{igct} \]

where \( p_X \) are export prices, \( i \) denotes a firm and \( s_i \) is the import share.