Discussion of Wage Dynamics

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Giuseppe Bertola’s “What is Natural About Unemployment?”

Wage rigidities exacerbate fluctuations by keeping price of labor too high in recessions, but employment and wage rigidities can also help stabilize

● Employment rigidities reduce separations in downturn (or at least drag out)
● Provides income smoothing to workers; augments goods demand in recessions

Discussion

● Are Bertola’s benefits of labor-market rigidities likely to be quantitatively important?

● How ascertain cyclical price of labor when labor is quasi-fixed or wages are smoothed?

● Are labor-market distortions (e.g., sticky wages) primary force behind excessive fluctuations in employment and hours (the cyclical labor wedge)?
Bertola points out that employment rigidities reduce separations in downturn;

But employment impact might not be large or long-lived

- Impact on separations may be largely undone via reduced hiring—Dynamics in DMP model are quick

- Fall in separation rate with Great Recession, but not clear stabilized net hiring.

→ Is true for younger workers as well as older (Wang, 2014, from SIPP data)

→ Is true for renters as well as homeowners (Wang, 2014, from SIPP data)

→ Labor Market has become more stagnant.
Bertola points out that wage rigidities provide income smoothing to workers, may augment goods demand in recessions;

**Empirical support for higher workers’ marginal propensity to spend in recessions?**

- Consumption fell at least as much for high-income households during Great Recession (e.g., Perri and Steinberg, 2012)

- Any studies of marginal propensity to spend to support? Sahm et al. do not find.

  Sahm, Shapiro, Slemrod (2010): % Households mostly spending 2008 stimulus payment, by income, stock holdings,

<table>
<thead>
<tr>
<th>Income Group</th>
<th>% mostly spending</th>
<th>Stock-holding Group</th>
<th>% mostly Spending</th>
</tr>
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<tbody>
<tr>
<td>$0 – $35,000</td>
<td>21%</td>
<td>No stocks</td>
<td>20%</td>
</tr>
<tr>
<td>$35,000 – $75,000</td>
<td>17%</td>
<td>$1 – $250,000</td>
<td>19%</td>
</tr>
<tr>
<td>&gt; $75,000</td>
<td>26%</td>
<td>&gt; $250,000</td>
<td>39%</td>
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Cyclicality in Labor’s Price Not Captured by Average Hourly Earnings because Labor is Not a Spot Market

- Consider marginal increase in employment: In booms hire and train a worker, in recessions lay off one fewer workers; makes labor’s price more procyclical (Oi, 1962, implicit in Bertola)

- Much evidence that wages of workers smoothed within employment relations (e.g., Bellou and Kaymark, 2012): In extreme, cyclical price of labor divorced from average hourly earnings.

- Kudlyak (2014) estimates wage component of user cost of labor:
  → Is PDV of wages if add worker now, rather than waiting one period:

  \[
  E_t \left\{ \sum_{\tau=1}^{\infty} \left( \beta^{\tau} \prod_{k=0}^{\tau-1} (1 - \lambda_{t+k}) \right) \left( w_{t,t+\tau} - w_{t+1,t+\tau} \right) \right\}
  \]

  \(w_{t,j}\) is wage of worker in \(j\) hired in period \(i\) and \(\lambda_j\) is separation rate in \(j\).

  → Is highly procyclical: Hire in recession, lower wage partially locked going forward

Kudlyak (2014): Cyclicality of Labor’s User Cost (NLSY, Std. errors in parentheses)

<table>
<thead>
<tr>
<th>Wage Measure</th>
<th>Semi-elasticity wrt Unemployment Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Hourly Earnings</td>
<td>−1.8 (0.7)</td>
</tr>
<tr>
<td>New-hire Wage</td>
<td>−3.0 (0.8)</td>
</tr>
<tr>
<td>User Cost of Labor Wage</td>
<td>−5.2 (0.8)</td>
</tr>
</tbody>
</table>
Look at Cyclicality of Labor Wedge = $\frac{MPL}{MRS}$

- See excess fluctuations—competitive labor demand ($MPL$) diverging from labor supply ($MRS$)
- Assume Cobb-Douglas production $\Rightarrow$ Marginal product of labor $\sim$ Average product of labor
- Assume (i) preferences separable in consumption and hours; (ii) intertemporal elasticity of substitution and Frisch elasticity (at work-week margin) both equal 0.5.

$\Rightarrow$ Marginal Rate of Substitution $= \frac{U_{hours}}{U_{cons}} \sim (Hours \bullet Consumption)^2$

![Graph showing cyclicality in MPL versus MRS (both HP-filtered)]

![Graph showing cyclicality of Labor Wedge = MPL/MRS]
Can Divide Wedge into Components from Product and Labor Markets

- Labor Wedge $= \frac{MPL}{MRS} = \frac{MPL}{W/P} = \frac{W/P}{MRS}$ = Prod Market Wedge*Labor Market Wedge

- If measure wage by average hourly earnings, is all labor market (Gali, Gertler, Lopez-Salido, 2007, Karabarbounis, 2014); if measure by User Cost (Kudlyak) is all product market

Wedge Decompositions: Alternative Wage Measures (Bils, Klenow, Malin, 2014)

<table>
<thead>
<tr>
<th>Wedge Measure</th>
<th>Elasticity wrt Real GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Wedge</td>
<td>-1.9 (0.1)</td>
</tr>
<tr>
<td>Product-Market Wedge (Wage = AHE)</td>
<td>-0.04 (0.1)</td>
</tr>
<tr>
<td>Product-Market Wedge (Wage = New-hire Wage)</td>
<td>-0.7 (0.2)</td>
</tr>
<tr>
<td>Product-Market Wedge (Wage = User-cost Wage)</td>
<td>-1.9 (0.2)</td>
</tr>
</tbody>
</table>

- In Bils, Klenow and Malin (2014) employ several ways to decompose wedge without measuring effective wage; find much comes from product market.
  - Compare wedge for Self-employed versus wage earners; presume no labor market (sticky wage) distortion for self-employed
  - Measure product-market wedge from intermediates factor demand, compare to overall labor wedge
Self-employed labor wedge versus that for all workers

- Hours for self-employed at least as cyclical as for wage earners

![Chart showing weekly and annual hours for self-employed and wage earners from 1988 to 2012.](chart1.png)

- Labor Wedge for self-employed as cyclical as for wage earners

![Chart showing labor wedge for self-employed vs. all workers from 1988 to 2012.](chart2.png)
Product-market wedge measured from intermediates vs. total labor wedge

- For Cobb-Douglas production, can measure product-market wedge from inverse share of intermediates in gross output (parallels treatment of looking at inverse labor’s share)

- Spending on intermediates is extremely procyclical (KLEMS data)
  - Intermediate price falls much more than average hourly earnings in recessions
  - But intermediate input also falls much more than labor hours in recessions

- Implies product-market wedge is extremely cyclical, explains at least 75% of total wedge

Cyclicality in Product-Market Wedge vs. Total Labor Wedge (Bils, Klenow, Malin, 2014)
Bottom-line: Pulling output off market in recessions, reducing inputs, not special to labor market purchases

- Bertola entertains sticky-price general disequilibrium model (Figure 2); this is arguably consistent with product-market wedge

- But does not rationalize the duration, timing, or magnitude of the run-up in product-market wedges and declines in employment and hours (e.g., 2009)

- Product-market distortions appear purposeful; extend beyond multiple price changes in cyclical markets