INTERNAL DEVALUATIONS IN A MONETARY UNION: LABOUR VS PRODUCT MARKET REFORMS

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DG ECONOMICS, STATISTICS AND RESEARCH
1. INTRODUCTION

We use the model from Arce, Hurtado and Thomas (2015) to study the effects of different reforms aimed at engineering an internal devaluation in a country inside a monetary union, under different macroeconomic circumstances

- Product market reforms vs labor market reforms
- Normal times vs “ZLB and deleveraging”
- The effect of the size of the area implementing the reforms, and spillovers to the rest
- The importance of economic integration
- Sequencing of reforms

Main results:

- Product market reforms have bigger impact in short run than labor market reforms (both in the country that implements them and in the rest of the monetary union)
- But product market reforms are more deflationary and can be contractionary in the short term if ZLB and the region that implements the reforms is big enough
- Labor market reforms are more robust: impact doesn’t depend much on ZLB or size
- Sequencing: if at ZLB and with big implementation region, implement labor market reforms ASAP, but delay price market reforms
2. THE MODEL

Andrés, Arce and Thomas (2014, JME) → Arce, Hurtado and Thomas (2015, IJCB) Multi-country DSGE (Core and Periphery form a monetary union) with usual rigidities

Patient households lend to impatient households and (impatient) entrepreneurs
Housing is used as collateral, with the usual LTV constraint
Debt is long term, with the maximum speed of enforceable amortization set ex ante

Endogenous regime switching:

If debt > LTV*collateral, there will be no new loans → deleveraging regime

We look for the t* where patients households are willing to lend again → normal regime

Same for ZLB: if the shadow rate from the Taylor rule is <0, then r=0

There is one endogenous t* for loans to impatient households, another one for loans to entrepreneurs, and another one for the ZLB (and policy shocks can affect these t*)

Simulations under normal times: the baseline has no shocks
Simulations under ZLB+deleveraging: the baseline has a negative demand shock in Periphery and Core, and a deleveraging shock in Periphery; look at marginal effects
2. CLOSED ECONOMY

Product- and labor-market reforms in a closed economy with no other shocks:
Long-run effects: similar on output, different on consumption, capital and employment
Short-run effects: overshooting with price reforms, because of real interest rate

GDP | Inflation | Real interest rate |
--- | --- | ---
| | | |

Employment | Investment | Gross exports |
--- | --- | ---
| | | |

Structural reforms in product markets
Structural reforms in labor markets
Deviations from the baseline scenario. Horizontal axis in years. Size of Periphery: 0.95.
3. SMALL OPEN ECONOMY

Product- and labor-market reforms in a small open economy with no other shocks:
Overshooting with price reforms, but this time because of the terms of trade
Short-lived and negligible short-term recession after labor market reforms

Deviations from the baseline scenario. Horizontal axis in years. Size of Periphery: 0.01.
4. MONETARY UNION, NORMAL TIMES

Product- and labor-market reforms in a monetary union in normal times:
Similar effects with size of Periphery at 25% instead of close-to-one or close-to-zero
Spillovers to Core are small but positive in both cases

Marginal effects of structural reforms in product markets

![Graphs showing marginal effects of structural reforms in product markets](image1)

Marginal effects of structural reforms in labor markets

![Graphs showing marginal effects of structural reforms in labor markets](image2)
Product-market reforms in a monetary union in normal times:
The size of Periphery doesn’t change the effect much, but increases the spillovers

Horizontal axis: size of Periphery
Short term effects (average of first year)

Deviations with respect to a baseline scenario with no other shocks. Horizontal axis: size of Periphery.
4. MONETARY UNION, NORMAL TIMES

**Labor-market reforms in a monetary union in normal times:**

With a bigger area implementing the reforms, effects and spillovers are more positive. The initial contractive effect in Periphery only appears if Periphery is small.

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### Horizontal axis: size of Periphery

<table>
<thead>
<tr>
<th>GDP</th>
<th>CPI inflation</th>
<th>Real interest rate</th>
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</thead>
<tbody>
<tr>
<td>Periphery</td>
<td>Core</td>
<td>Deviations with respect to a baseline scenario with no other shocks. Horizontal axis: size of Periphery.</td>
</tr>
</tbody>
</table>
5. MONETARY UNION, ZLB AND DELEVERAGING

Product-market reforms in a monetary union at ZLB and with deleveraging:

Effects in Periphery: still positive, but smaller
Spillovers to Core: negative in short-term (the fall in real interest rates has disappeared)

Deviations from a baseline scenario in which negative demand shocks have taken nominal interest rates to the ZLB
5. MONETARY UNION, ZLB AND DELEVERAGING

Product-market reforms in a monetary union at ZLB and with deleveraging:
If Periphery is big, effects become smaller, and spillovers become more negative.

Horizontal axis: size of Periphery

Short term effects (average of first year)

<table>
<thead>
<tr>
<th>GDP</th>
<th>CPI inflation</th>
<th>Real interest rate</th>
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<tbody>
<tr>
<td>-0.8</td>
<td>-0.7</td>
<td>-0.05</td>
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<tr>
<td>-0.6</td>
<td>-0.6</td>
<td>0</td>
</tr>
<tr>
<td>-0.4</td>
<td>-0.5</td>
<td>0.05</td>
</tr>
<tr>
<td>-0.2</td>
<td>-0.4</td>
<td>0.1</td>
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<tr>
<td>0</td>
<td>0</td>
<td>0.15</td>
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<td>0.2</td>
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<td>0.4</td>
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<td>0.8</td>
<td>0.5</td>
<td>0.5</td>
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Deviations with respect to a scenario with deleveraging and demand shocks that take interest rates to the ZLB.
5. MONETARY UNION, ZLB AND DELEVERAGING

Labor-market reforms in a monetary union at ZLB and with deleveraging:
Effects on Periphery: still positive, except for the first couple of quarters
Spillovers to Core: still positive

Deviations from a baseline scenario in which negative demand shocks have taken nominal interest rates to the ZLB
Labor-market reforms in a monetary union at ZLB and with deleveraging:
Even at ZLB, benefits from labor-market reforms are bigger when the share of countries implementing them is bigger (Philips curve effects make it inflationary)

Horizontal axis: size of Periphery
Short term effects (average of first year)

Deviations with respect to a scenario with deleveraging and demand shocks that take interest rates to the ZLB.
In normal times: both kinds of reforms should be implemented as soon as possible
At the ZLB: implement labor market reforms ASAP but delay product market reforms

<table>
<thead>
<tr>
<th>Table 2. Present value of accumulated GDP gain</th>
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<tbody>
<tr>
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<tr>
<td>Normal times</td>
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<tr>
<td>Periphery</td>
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<td>Simultaneous reforms</td>
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<tr>
<td>Delay labor reform</td>
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<td>Delay prod. reform</td>
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<td>Delay prod. reform</td>
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</tbody>
</table>

Net gain from...

- delaying labor reform: -0.7 (-0.8)
- delaying prod. reform: -1.1 (2.0)
7. OTHER RESULTS

Lower economic integration (imports less sensitive to relative prices) weakens the short-term positive effects in Periphery from both product- and labor-market reforms:

- Product market reforms: less positive for P in the short term, more positive for C
- Labor market reforms: more negative for P in the short term, more positive for C

A different kind of labor-market reform: more flexible wages (lower Calvo parameter)

It doesn’t have steady-state effects, but it changes how the economy reacts to shocks.

Flexible wages reduce the negative effects from negative demand and financial shocks.

The effect is bigger at the ZLB, and if Periphery is small (if big, deflationary pressures)
8. SUMMARY

Main results:

• Product market reforms have bigger impact in short run than labor market reforms (both in the country that implements them and in the rest of the monetary union)

• But product market reforms are more deflationary and can be contractionary in the short term if ZLB and the region that implements the reforms is big enough

• Labor market reforms are more robust: impact doesn’t depend much on ZLB or size

• Sequencing: if at ZLB and with big implementation region, implement labor market reforms ASAP, but delay price market reforms

• Lower economic integration weakens the short-term positive effects in Periphery

• More flexible wages help cope with negative shocks, particularly at the ZLB, but not so much if the area implementing these reforms is big