The relevance of unit labor costs for exports in the Euro Area

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11th FIW Conference – Vienna, November 29 2018

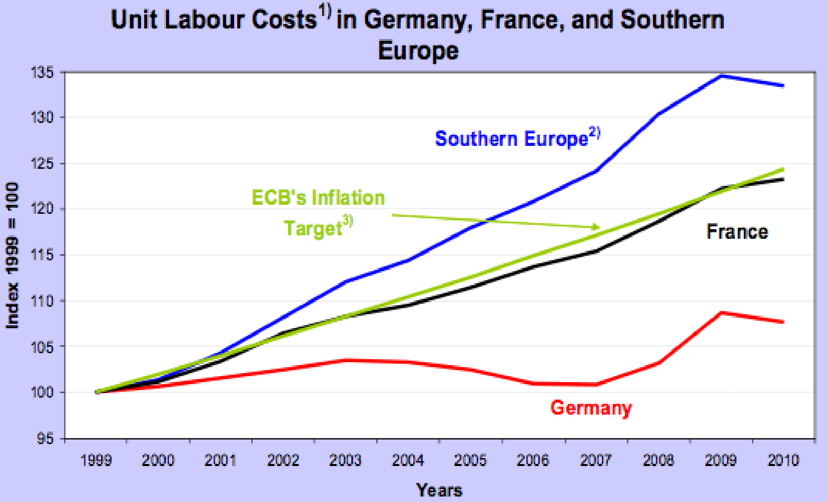
Two views on the eurozone crisis

German wage moderation is a major crisis cause

- Key: Cost competitiveness through wage policy
- Divergence in Unit Labor Costs
- Evidence: Figure next page, correlation of inflation rates with nominal unit labor costs

Price mechanism not at the core of the problem

- Relative size instead of relative price effect
- Spillovers of German demand on European South small
- Aggregate ULC lags CA and is driven by non-tradables sector
- German quality and technology superiority



[1] Index of ULC of total economy 1999 = 100. [2] Greece, Portugal, Spain, and Italy. [3] Yearly increase of 2%.
Source: AMECO database (updated May 2011), own calculations.

Two faces of the ULC debate

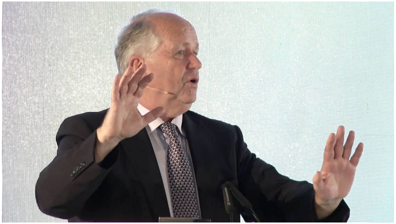


Figure: Heiner Flassbeck, but also Jean-Claude Trichet, Angela Merkel, Peter Bofinger

Figure: Servaas Storm (and Naastepad), but also Gaulier and Vicard, Gabrisch and Staehr, Consensus View

Problematic arguments used against ULC view I

Hypotheses/“factual statements”:

1. Aggregate ULC positively correlated with imports, but not negatively with exports
2. ULC small part of gross output price in e.g. manufacturing, intermediate input value make up most of gross output value
3. Estimations of correlation between RULC (wage share) and real exports: RULC elasticity of exports is low or insignificant in standard export equations

Problematic arguments used against ULC view II

Main problem

- ULC measures only direct unit labor cost, but not the labor cost contained in intermediate goods
- applies to both sectoral and aggregate indices
- German wage moderation also affects the indirect unit labor cost part in each sector
- Therefore: Need a vertically integrated unit labor cost (VIULC) indicator to properly assess labor cost developments
- Additionally: Export-weighted instead of aggregate economy (VIEW-ULC)

Research question

Is VIULC or VIEW-ULC an empirically more useful measure than ULC?

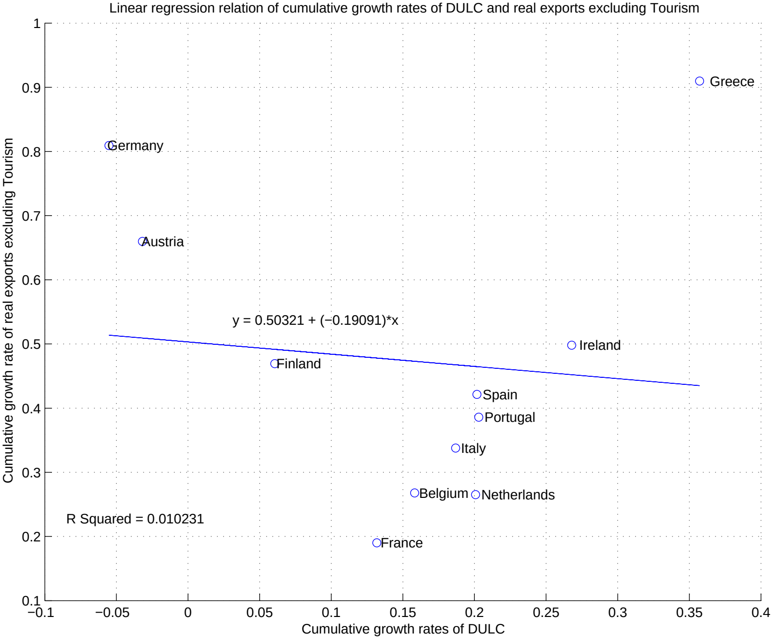
1. Is there a cross-country correlation between VIEW-ULC (or its domestic part) and exports?
2. What part of the gross output price is vertically integrated unit labor cost?
3. Recalculate elasticities: VIULC elasticity of export demand higher?

Method and Data

- Calculate data series for VIULC by using Input-Output tables
- Data source: World Input Output Database (WIOD)
  - Trade interlinkages and global value chains depicted
  - 35 sectors, 43 countries + 1 model of RotW
  - SEA provides compensation of employees and gross operating surplus

Compare two regressions:

1. DULC and real exports excluding Tourism, cumulative growth rates, EU11, 1999-2007 (roughly comparable to Gaulier and Vicard 2013)
   $\Rightarrow$ no correlation
2. VIEW-ULC and real exports excluding Tourism, cumulative growth rates, EU11, 1999-2007
   $\Rightarrow$ Negative correlation as expected and $R^2 = 0.32$ with export-weighted vertically integrated unit labor costs


Linear regression relation of cumulative growth rates of DULC and real exports excluding Tourism
Cumulative growth rate of real exports excluding Tourism
Cumulative growth rates of DULC
y = 0.50321 + (−0.19091)*x
R Squared = 0.010231
Greece
Germany
Austria
Ireland
Finland
Spain
Portugal
Italy
Belgium
Netherlands
France
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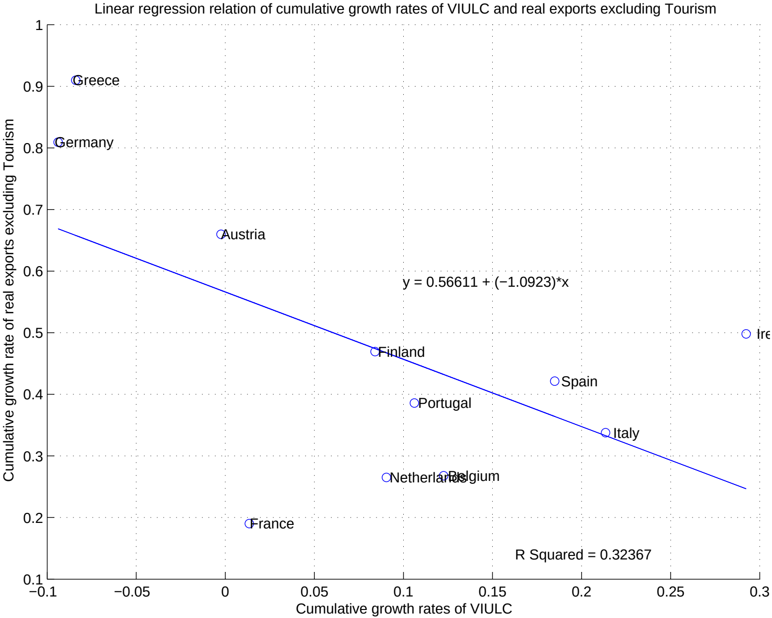

Linear regression relation of cumulative growth rates of VIULC and real exports excluding Tourism
Cumulative growth rate of real exports excluding Tourism
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0.15
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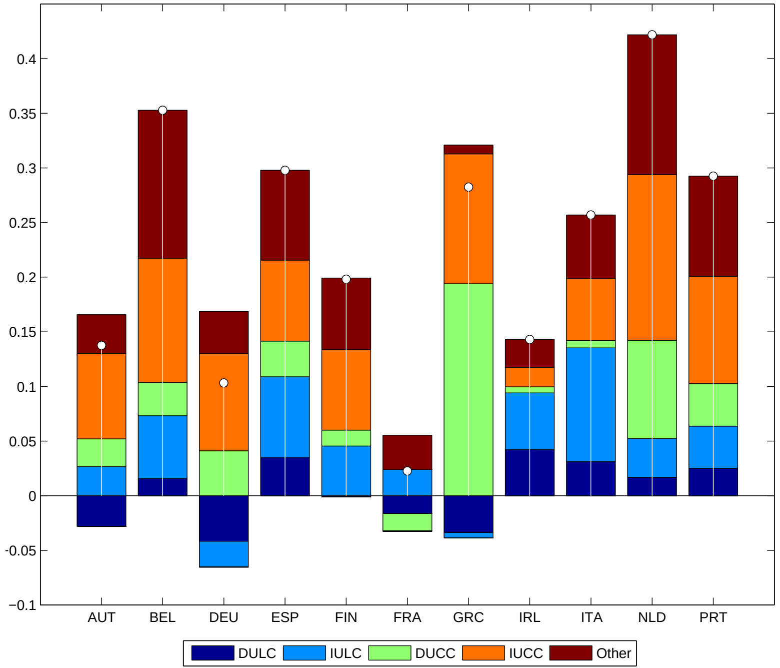
0.25
0.3
Greece
Germany
Austria
Finland
Spain
Portugal
Italy
Netherlands
Belgium
France
Ire
y = 0.56611 + (−1.0923)*x
R Squared = 0.32367

Decomposition of the export-weighted gross output price (cumulative change 1999-2007):

1. Cumulative contributions of export-weighted unit costs (bars) to the export-weighted inflation rate of gross output (white line), 1999-2007, EU11 by country, 1999-2007
2. same graph, but indirect unit costs split into foreign and domestic indirect unit costs



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ITA
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DUCC
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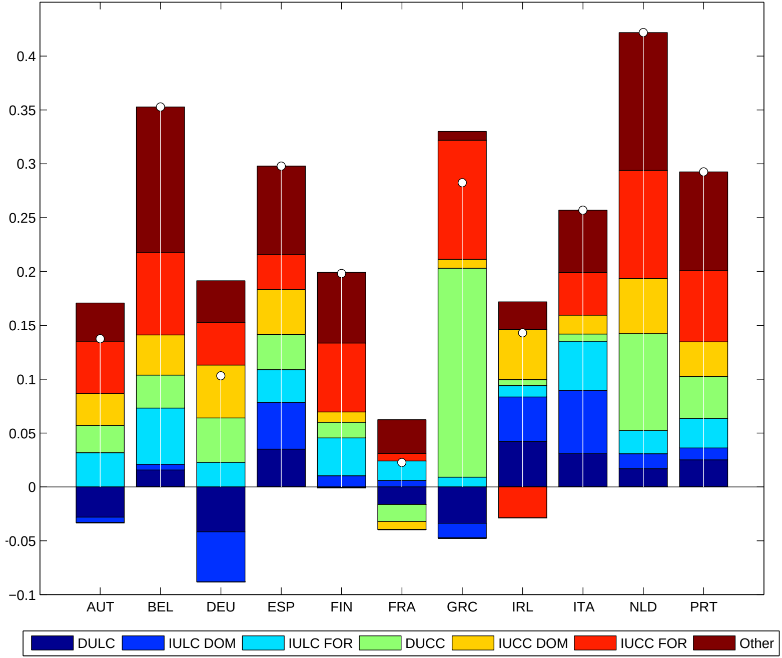
Other



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IUCC FOR
Other

Econometric analysis

- Fixed effects panel with time dummies
- Standard export regressions
- Nominal exports explained by one export demand variable, one price/cost competitiveness variable
  $\Rightarrow$ only get two coefficients (country ones don't make sense with such a short time period)
- Time period: 1995-2007 (build-up towards crisis)
- Euro Area 11

Explained variable	Cost competitiveness variable	Demand variable	Tourism excluded	Comp.C.	Dem.C.
Nominal Exports	Standard ULC (WIOD)	Nominal Final Demand		insignificant	0.67
Nominal Exports	Standard ULC (WIOD)	Nominal Final Demand	Yes	insignificant	0.67
Nominal Exports	VIEW-ULC	Nominal Final Demand		**-0.34**	**0.86**
Nominal Exports	VIEW-ULC	Nominal Final Demand	Yes	**-0.35**	**0.87**
Nominal Exports	Domestic VIEW-ULC	Nominal Final Demand		**-0.38**	**0.89**
Nominal Exports	Domestic VIEW-ULC	Nominal Final Demand	Yes	**-0.39**	**0.90**
Nominal Exports	Domestic VIEW-ULC	Nominal GDP		**-0.43**	**1.02**
Nominal Exports	Domestic VIEW-ULC	Nominal GDP	Yes	**-0.44**	**1.02**

Conclusions

1. ULCs are the wrong measure for the cost competitiveness situation of the export sector
2. Export-weighted vertically integrated ULC are theoretically and empirically more sound
3. Empirical evidence supports this view based on standard export regressions
4. But: Absolute changes in demand much greater than changes in VIEW-ULC!

Further research

1. Which variable 1: VIEW-ULC or merely its domestic part (DULC+IULC(Dom)?
2. Which variable 2: IUCC is a cost and DUCC is the mark-up (variable by exporter)?
3. Use other measures for export performance
4. WIOD2016 for more data
5. Comparison with Lommatsch et al. (2017): export-weighted TiVA-exports show same result
6. Connection with models?

Implications for the eurozone ULC debate

Not revolutionary, but still..

- Critique of ULC view is multi-faceted (e.g. industrial structure argument), we have not dealt with that
- But: VIULC may provide a part of the defense of the ULC view. An economy-wide wage moderation affects gross output price at least twice..
- Paraphrasing M. Twain: The reports of (VI)ULC's death have been greatly exaggerated.
- In the end: Majority view (Anti-ULC) faction probably still correct