

State Aid and Export Competitiveness in the EU Mark II

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An Industrial Renaissance in Europe - Can it happen? Should it happen?

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Background and Motivation

- 'Return of industrial policy' (Wade, 2012)
- Low growth environment in Europe
- Changes in perception of the role of manufacturing in the economy
- New initiatives at the European level and in Member States
 - *An integrated industrial policy for the globalisation era. Putting Competitiveness and Sustainability at Centre Stage (European Commission, 2010)*
 - *A Stronger European Industry for Growth and Economic Recovery. Industrial Policy Communication Update, (European Commission, 2012)*
 - *A European Strategy for micro- and nanoelectronic components and systems (European Commission, 2013)*
 - *For a European industrial renaissance (European Commission, 2014)*

Research questions

- Is there a relationship between state aid and export performance of the manufacturing sector in EU Member States?
 - *Subsidies can remedy market imperfections and improve export performance*
 - *Pervasive government failure renders subsidies (or industrial policy more generally) ineffective or even impairs export performance*
- Related question:
 - Does the quality of the government play a role?

Related Literature

- *Aghion, Boulanger and Cohen (2011) Rethinking Industrial Policy (Bruegel)*
- *Gual and Jódar (2006) Vertical industrial policy in the EU: an empirical analysis of the effectiveness of state aid (EIB)*
- *Ades and Di Tella (1997) hold-up model of investment in which industrial policy is inductive to both investment and corruption*
- *Midelfart-Knarvik and Overman (2002) Delocation and European integration: is structural spending justified? (Economic Policy)*
- *Criscuolo et al. (2012) The Causal Effects of an Industrial Policy (NBER)*

Data

- **European Commission State Aid Scoreboard:** *state aid*
http://ec.europa.eu/competition/state_aid/studies_reports/studies_reports.html
- **World Input-Output Database (WIOD):** *value added exports*
<http://www.wiod.org/>
- **Eurostat:** *real exchange rate, labour costs*
<http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/themes>
- **AMECO database:** *value added deflators*
http://ec.europa.eu/economy_finance/db_indicators/ameco/
- **IMF WEO database:** *global GDP data*
<http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/index.aspx>
- **World Governance Indicators (WDI):** *government effectiveness*
<http://info.worldbank.org/governance/wgi/index.asp>

Notes on State Aid

- Institutional particularity in the EU
 - The COM is empowered to control and restrict state aid activities of MS
- What is state aid?
 - Specificity criterion
 - Aid provided by MS; excludes money from EU structural funds
 - Figures relate to the aid element contained in the aid measures
 - 'De-minimis aid' is not included in state aid data
 - Excludes crisis related aid (Temporary Framework 2008-2011)
- State aid in the EU is at historically low levels ($\approx 0.5\%$ of GDP)
- Radical reform of state aid rules in the 'new' EU member states (Jovic, 2012)

'Manufacturing Aid' and Value Added Exports

- Value added exports (Johnson and Noguera, 2012)
 - A country's value added exports is the part of domestic value added that is produced to satisfy foreign final demand taking into account trade in intermediates.
- 'Manufacturing aid' includes
 - Specific aid to the manufacturing sector
 - R&D aid, SME aid, 'internationalisation aid'; risk capital aid; environmental aid; regional aid; employment aid and training aid

'Manufacturing Aid' in the EU, averages 1995-2011

| aid to the manufacturing sector | | | | |
|---------------------------------|---------------|-------------------------|-------------|-----------------------------------|
| | in EUR mn | in % of total state aid | in % of GDP | in % of EU-wide manufacturing aid |
| DEU | 13,878 | 73.6 | 0.60 | 29.9 |
| ESP | 3,396 | 62.0 | 0.36 | 7.3 |
| FRA | 6,457 | 62.2 | 0.36 | 13.9 |
| GBR | 2,646 | 82.4 | 0.17 | 5.7 |
| ITA | 6,382 | 90.5 | 0.41 | 13.8 |
| <i>EU-15</i> | <i>41,887</i> | <i>74.6</i> | <i>0.40</i> | <i>90.3</i> |
| CZE | 754 | 47.7 | 0.60 | 1.6 |
| HUN | 915 | 79.6 | 1.02 | 2.0 |
| POL | 1,454 | 60.4 | 0.54 | 3.1 |
| <i>EU-12</i> | <i>4,283</i> | <i>63.3</i> | <i>0.56</i> | <i>9.2</i> |
| CYP | 101 | 57.9 | 0.69 | 0.2 |
| MLT | 137 | 96.3 | 2.39 | 0.3 |
| <i>CYP+MLT</i> | <i>238</i> | <i>75.2</i> | <i>1.17</i> | <i>0.5</i> |
| EU-27 | 46,409 | 73.4 | 0.41 | 100.0 |

Econometric Model (1)

- Starting point is an export demand function for the manufacturing sector:

$$VAX = A \cdot (AID)^\beta \cdot (FX)^\varepsilon \cdot (GDP^*)^\eta \cdot (WAGE)^\omega \cdot (GOVEFF)^\phi$$

- Time series issues: unit root in the dependent variable and all explanatory variables except GDP*
- Test for co-integration: unsuccessful due to short sample period (17 years)
- **model is estimated in first differences (removes non-stationarity)**

Econometric Model (2)

- Based on the macroeconomic export function the following econometric specification is derived:

$$\Delta vax_{i,t} = \alpha + \beta \cdot \Delta aid_{i,t} + \gamma \cdot (\Delta aid_{i,t} \times EU10) + \varepsilon \cdot \Delta fx_{i,t} + \eta \cdot \Delta gdp_{i,t}^* + \omega \cdot \Delta wage_{i,t} + \phi \cdot \Delta goveff_{i,t} + \mu_i + \delta_t + \varepsilon_{i,t}$$

- Main interest is with the coefficients β and γ
- Interaction term allows for differentiated effects of state aid on export performance between EU15 and EU-10

Regression results

| | Sample: EU-25 | | | Sample: EU-15 | Sample: EU-10 |
|----------------------------|----------------------------------|------------------------|------------------------|----------------------------------|--------------------|
| | Dependent variable: Δvax | | | Dependent variable: Δvax | |
| | (1) | (2) | (3) | (4) | (5) |
| Δaid | 0.0161 (0.011) | 0.0200 * (0.010) | 0.0248 ** (0.011) | 0.0250 * (0.012) | 0.0160 (0.016) |
| $\Delta(aid \times EU-10)$ | | -0.0057 (0.019) | -0.0113 (0.018) | | |
| EU-10 | | | 0.0382 *** (0.012) | | |
| Δfx | -0.4365 *** (0.132) | -0.4388 *** (0.134) | -0.4849 *** (0.140) | -0.5064 ** (0.173) | -0.3098 (0.200) |
| Δgdp^* | 0.2550 ** (0.108) | 0.2544 ** (0.108) | 0.2747 ** (0.127) | 0.2301 (0.141) | 0.1160 (0.118) |
| $\Delta wage$ | 0.2377 * (0.125) | 0.2380 * (0.126) | 0.2679 ** (0.125) | 0.2506 (0.170) | 0.0242 (0.179) |
| $\Delta goveff$ | -0.0015 (0.162) | -0.0017 (0.162) | -0.0348 (0.155) | -0.1276 (0.150) | 0.0213 (0.370) |
| country effects | yes | yes | no | yes | yes |
| time effects | yes | yes | yes | yes | yes |
| F-test | 100.88 | 113.61 | 158.19 | . | |
| R^2 | 0.516 | 0.516 | 0.560 | 0.607 | 0.555 |
| R^2 -adj. | | | 0.530 | | |
| R^2 -within | 0.579 | 0.580 | | 0.625 | 0.602 |
| obs. | 345 | 345 | 345 | 239 | 106 |

Conclusions

- Causal claims on the relationship between manufacturing aid and export performance are difficult to make due to unavoidable policy endogeneity (see Rodrik, 2012)
- Differentiation between state aid regimes of EU-15 and ‘new’ EU-MS needs to be made
- Small positive ‘effect’ of state aid on export competitiveness in the EU. A noticeable impact on export growth would require a massive scaling-up of aid budgets
- A successful industrial policy strategy targeting export competitiveness of the manufacturing sector will require more than simply handing out subsidies to firms.

Thank you
for your attention!
