



**Comments on the paper:**  
**“Multinationality, R&D, and Productivity”**  
**by Davide Castellani and Torben Schubert**

**Elena Huergo**

GRIPICO - UCM

Dpto. de Fundamentos del Análisis Económico I, UCM



# Comments on section 4



- Benchmark regressions:
  - US firms have a higher productivity than the EU ones, even controlling for R&D investments, in High R&D intensive industries.
  - EU firms seem to perform relatively better in Medium-High R&D intensive industries: they have higher productivity than US and RoW and the large gap with Japan disappears in these industries.
  - R&D investments per employee have a positive correlation with productivity in all three industry groupings, but the elasticity is lower in the High-R&D intensive industries. This may reveal some strong con-cavity in the relation between R&D and productivity
  - Control by size is very relevant. Different results by size strata? Sectoral distribution could be correlated with size distribution



# Comments on section 4



- Rich database. Many indicators of geographical diversification and multinationality:
  1. Number of national and international subsidiaries as a share of the number of employees (scale effects)
  2. Degree of multinationality of the firm: the share of international subsidiaries in the total number of subsidiaries
  3. Measure of the network spread: the number of countries where a firm has subsidiaries.
  4. Geographical distribution of firm's presence abroad: the share of subsidiaries in China, EU, India, Japan, US and RoW (firm level)
  5. Average income and the average schooling of the countries where a firm has subsidiaries



# Comments on section 4



6. Herfindhal index of the total number of subsidiaries. Also sectoral concentration of national subsidiaries and sectoral concentration of international subsidiaries
  7. Proximity in the sectoral distribution of national and international subsidiaries. Bray-Curtis index. (I3\_BC\_ICB3)
  8. Share of international subsidiaries in High-R&D, Medium-High R&D or Low/Medium-Low R&D industries.
- Strong point: Capacity to control for firm heterogeneity.
  - However: Difficulty to separate effects. Many independent variables.
    - Pairwise correlation matrix
    - Significant size fixed effects in tables 22-27?



# Comments on section 4



- Caveats: Cross-section analysis. The information on industrial diversification and multinationality are available only for 2012. Difficulty to face endogeneity problems.
  - Strict causality cannot be inferred from the results.
  - Determinants of the location of subsidiaries?
- Direct vs indirect channels:
  - R&D impacts on productivity: “The direct channel reflects the firms’ ability to choose the optimal scales of operations (scale effectiveness) while the indirect effect reflects the technological distance to the frontier (technological efficiency)”.
  - Also other variables. Example: multinationality can boost both the level of R&D investments, and the productivity of R&D, meaning the ability of firms to translate R&D investments into productivity.
  - Identification issue not solved.