



Sixth IRIMA Workshop, on

R&D Investment and Firm Dynamics

Fondation Universitaire, Brussels, 3rd December 2015

Background Note¹

1. GENERAL OBJECTIVES OF IRIMA WORKSHOPS – PRO MEMORIA

Obtain feed-back from policy-makers, industry representatives and experts about how the IRIMA analytical activities are best serving their needs (and could best serve it in future work), in particular in terms of:

- Providing empirical evidence to support policy-making: Europe 2020 and 3% R&D investment intensity target. Focus on key measures under the Innovation Union and Industrial policy flagships, including support to the design and implementation of new financial support instruments (under Horizon 2020 and cohesion policy, mainly). Emphasis is also placed on providing evidence for the most recent EU policy agenda on promoting investment, as a means for generating jobs, productivity growth and economic recovery.
- Offering information and benchmarking tools for companies.

2. TOPIC FOR THE 6TH IRIMA WORKSHOP – BRUSSELS, 3rd DECEMBER 2015

The main objective of the workshop is to present and discuss some on-going research and initial results obtained in the framework of the first (“R&D investments as factors for firm’s productivity gains, economic performance and job creation”) strand of IRIMA’s Work Package 2. Many of the presentations feature research on the EU Industrial R&D Scoreboard data, which is one of the main data sources for the IRIMA project.

In the framework of the “R&D investments as factors for firm’s productivity gains, economic performance and job creation” strand, an overview of the empirical evidence obtained from the analysis of the link between R&D investments and firm performance (growth of sales, employment, profits, etc) will be presented. The workshop begins with an introduction to the latest release of the Scoreboard data, as well as some IRIMA research into firm-level R&D on the basis of this data. Subsequent presentations contain some preliminary analyses of the determinants and persistence of R&D investments of Scoreboard companies, where R&D investment and firm performance are not static but co-evolve over time. This evidence will then be confronted to the real-life experiences of our

¹As of October 2015

industry partners in the context of a panel discussion. The third and final session continues with the theme of R&D and firm performance from European datasets, to explore promising future directions for research into firm growth and innovation, and will culminate in a panel discussion on topics of innovation policy, entrepreneurship promotion, and support for young firms.

The workshop will be structured in three sessions and a final round table:

Session 1. Overview of the EU Industrial R&D Scoreboard 2015

This introductory session will present the 2015 version of the EU Industrial R&D Scoreboard dataset on the world's top R&D investors², that together represent more than 90% of the R&D financed and implemented by the business sector worldwide. We will begin with a short introduction of the dataset, which contains some summary statistics, presents some regional comparisons, discusses some new updated results from the latest release, and identifies some general trends in industrial R&D by the Scoreboard's leading global R&D investors. This session also includes some IRIMA outputs that focus on this Scoreboard data, that will provide a context for the presentations in Session 2 that focus more specifically on the dynamics of R&D investment.

Session 2. Dynamics of R&D investment: Scoreboard evidence

This session goes deeper into the analysis of the Scoreboard dataset, to obtain new findings that relate to 'R&D investment and firm dynamics.' Advanced quantitative techniques are applied to generate novel insights into the causes and consequences of R&D investment, and these findings will have broad implications for policy. The first presentation applies a Structural Vector Autoregression model to analyse the complex interdependencies and co-evolution of five key firm-level variables (growth rates of sales, employment, profits, assets and R&D). Sales growth is observed to kick-start the growth process, having large positive effects on all other variables, closely followed by capital expenditures. R&D growth has a positive influence on employment growth (confirming some of IRIMA's earlier findings).³ Profits growth appears to be an outcome (rather than a driver) of the growth process. The second paper investigates the growth paths of R&D investment, exploring whether R&D growth in one period will persist into later years (i.e. success-breeds-success dynamics in R&D growth). The second paper also evaluates the statistical evidence for whether R&D investments by firms follow rules of thumb such as i) firms aim for a constant R&D/sales ratio over time, or ii) firms converge to the industry's average R&D/sales ratio. The session ends with a panel discussion, to discuss whether the new evidence (obtained by statistical analysis) is in line with the practical experience of industrialists (representatives from industry with experience in their firms' R&D decisions). The discussion will also generate suggestions for how Europe can improve its positioning for industrial innovation in a competitive global environment. Directions for further econometric analysis (on Scoreboard data and other datasets) will also be explored.

² Annual reports and datasets of the EU Industrial R&D Investment Scoreboard are available at: <http://iri.jrc.ec.europa.eu/scoreboard.html>

³ Ciriaci D., Moncada-Paterno-Castello P., Voigt P., (2015). Innovation and job creation: a sustainable relation? Eurasian Business Review, forthcoming.

The session will be closed by an open discussion on how firms make decisions on R&D investment.

Session 3. Stimulating (young) innovative firms

The third and final session continues with the theme of R&D and firm performance from European datasets. New evidence will be put on the table to prepare the discussion for how Europe can establish itself as a global innovation leader. Indeed, for Europe to have a thriving high-tech industry (with a larger number of 'yollies' – young leading innovators), what is required is not only innovation by incumbents, but also the entry of high-tech startups, and the (rapid) growth of new entrants. The first paper therefore examines the role of foreign direct investment on the development of high technology sectors, focusing on aspects of new firm formation. The second paper contains a large-scale quantitative evaluation of two selective government support programs in Sweden (administered by VINNOVA), where care is taken to create an accurate control group in order to obtain estimates of the policy's effects. The paper emphasizes the potential contribution of such interventions as well as the difficulties in generating positive treatment effects. The third presentation contains a critical evaluation of the popular conjecture that high-growth firms are more frequent in high-tech sector, on a detailed panel of Swedish industries. The authors find that "industries with high R&D-intensity, all else equal, can be expected to have a lower share of HGFs than industries with less expenditure on R&D." Although high growth innovative enterprises can play an important role for Europe's innovative capability, nevertheless their role needs to be better understood (especially perhaps with regards to the need to target policy support towards high-tech sectors). The fourth presentation shows how young firms differ in their innovative behaviour from older firms, because their R&D investments are riskier and more radical (whereas the R&D investments of older firms tend to be more incremental and developmental). The paper also discusses whether policy interventions should become conditional on firm age – which might be an important tool for boosting the number of 'yollies'.

Final round table

The workshop will be followed by a round table discussion by leading academics of the lessons for policymakers (in the context of the new Commission priorities such as the Europe 2020 strategy)⁴ and the challenges ahead.

⁴ European Commission (2010). Europe 2020: a strategy for smart, sustainable and inclusive growth: communication from the commission. Research Report, European Commission.