



**EX POST ECONOMIC IMPACT ASSESSMENT OF
PROGRAMMES TO SUPPORT BUSINESS R&D AND
INNOVATION – PRELIMINARY FINDINGS FROM A STUDY ON
EU28 AND CHOSEN COUNTRIES**

**TAFTIE Policy Forum on Measuring effectiveness and impact:
Role of performance indicators and possible consequences**

Oxford Research AS

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- Knowledge for a better society -

Agenda

- Some definitions
- Preliminary findings from
 - Literature review
 - Inventory and analyses of policies and methods in twelve surveyed countries
 - Inventory and analyses of policies and methods in five visited countries
- Reflections on performance indicators

Definitions

- **Programme to support business RDI**
 - Government direct or indirect funding action to enhance R&D and innovation in firms:
 - Direct RDI funding actions include grants, loans and procurements.
 - Indirect RDI funding actions include tax incentives such as R&D tax credits, reductions in R&D workers' wage taxes and social security contributions, accelerated depreciation of R&D capital and 'patent boxes'.
- **Ex post evaluation of programmes**
 - Programmes can be evaluated as part of a 'policy implementation life-cycle'
 - impact assessment or ex-ante evaluation before decision and implementation - interim and on-going evaluation during implementation
 - final or ex-post evaluation after completion of the intervention
 - Can be directed out for a variety of purposes; improving programme design, assessing the impact of programmes or producing better value for money
- **Ex post economic impact assessment**
 - directed towards assessing the micro-economic impact of strategies, programmes and actions on economic growth but also on the jobs, growth and productivity of the direct beneficiaries.
 - subcategory of ex post evaluations, that investigate the ECONOMIC (not so much social) impacts of the intervention. As such, they operate with economic quantitative indicators to demonstrate the impact.

Key messages from the literature review - 1

There is no single best research design, designs have to be tailored to the assignment. In RDI evaluation the design and method tends to be the result of prior reasoning based on the evaluation questions.

Still several gaps in existing knowledge about ex post impact evaluation methods

Assessing the impact of research poses some important methodological challenges:

- Attributing the intervention to the observed effects
- Determining counterfactual positions
- Understanding time lags between research and tangible outcomes

There are several ways of trying to make sense of economic impacts from RDI:

- Differentiate impacts depending on the type of additionality
- In turn, impacts may refer to the micro (firm) level or the macro (economy/society) level
- From a different angle, some studies consider impacts from a temporal perspective, namely short-term outputs, intermediate outcomes and longer-term impacts

Key messages from the literature review - 2

At the micro level, existing evidence on the economic impacts of R&D have looked into various form of input, output and behavioural additionality.

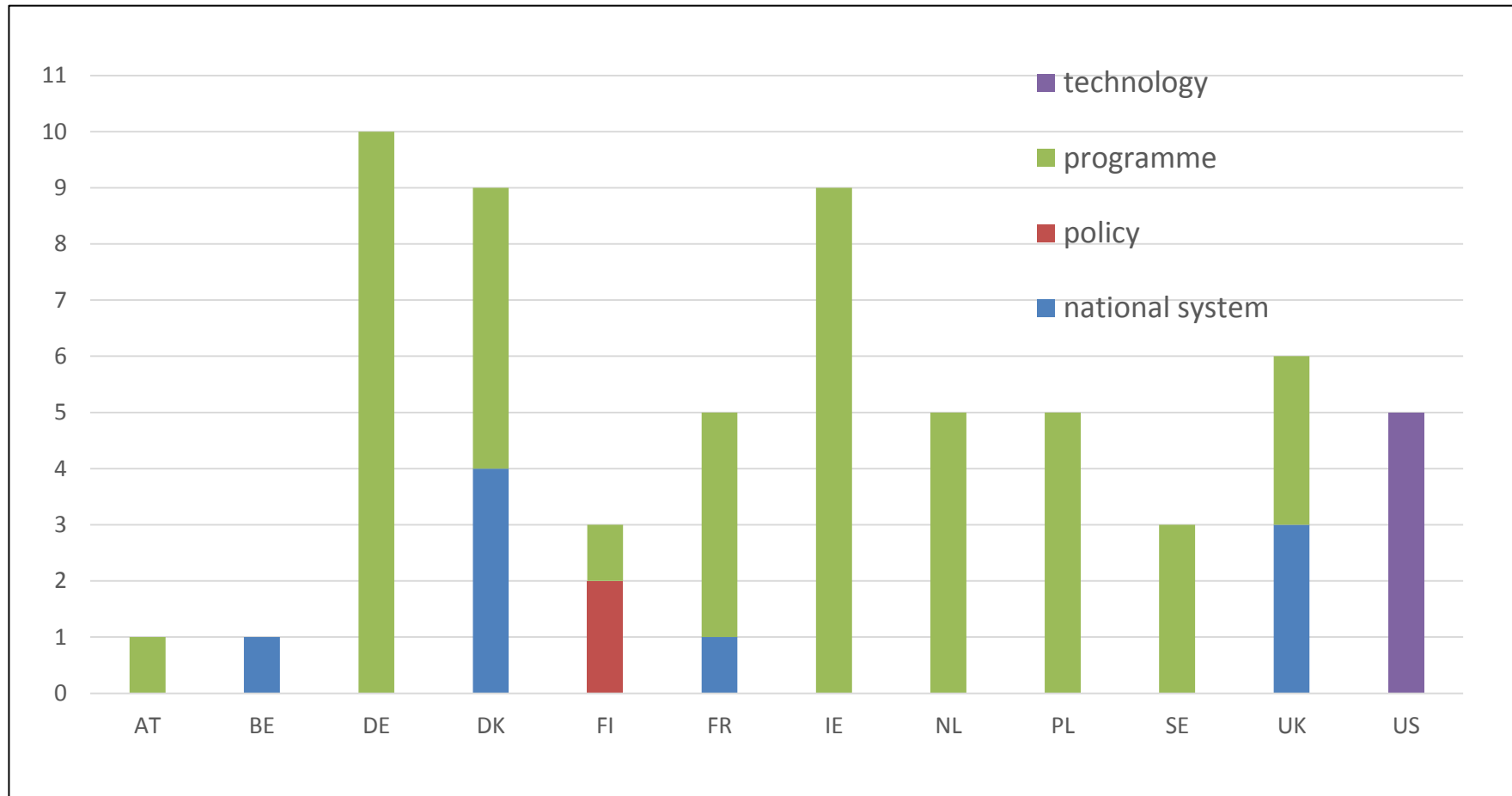
Most of the available evaluation studies of R&D programmes are not based on microeconomic techniques, but makes use of qualitative, most notably case studies, interviews and surveys, which all have disadvantages.

On the other hand, evaluation studies based on controlled or natural experiments are scarce, so evaluators and policy makers often have to work with these shortcomings.

There are few macro-models applied in policy evaluation that have an explicit modelling of the R&D growth process. Macroeconomic models also increasingly need to consider new types of innovation.

Highly relevant work to address a number of these challenges has been undertaken through the FP7 SIMPATIC project.

12 surveyed countries - Number of IAs identified per country and study scope (N=62)



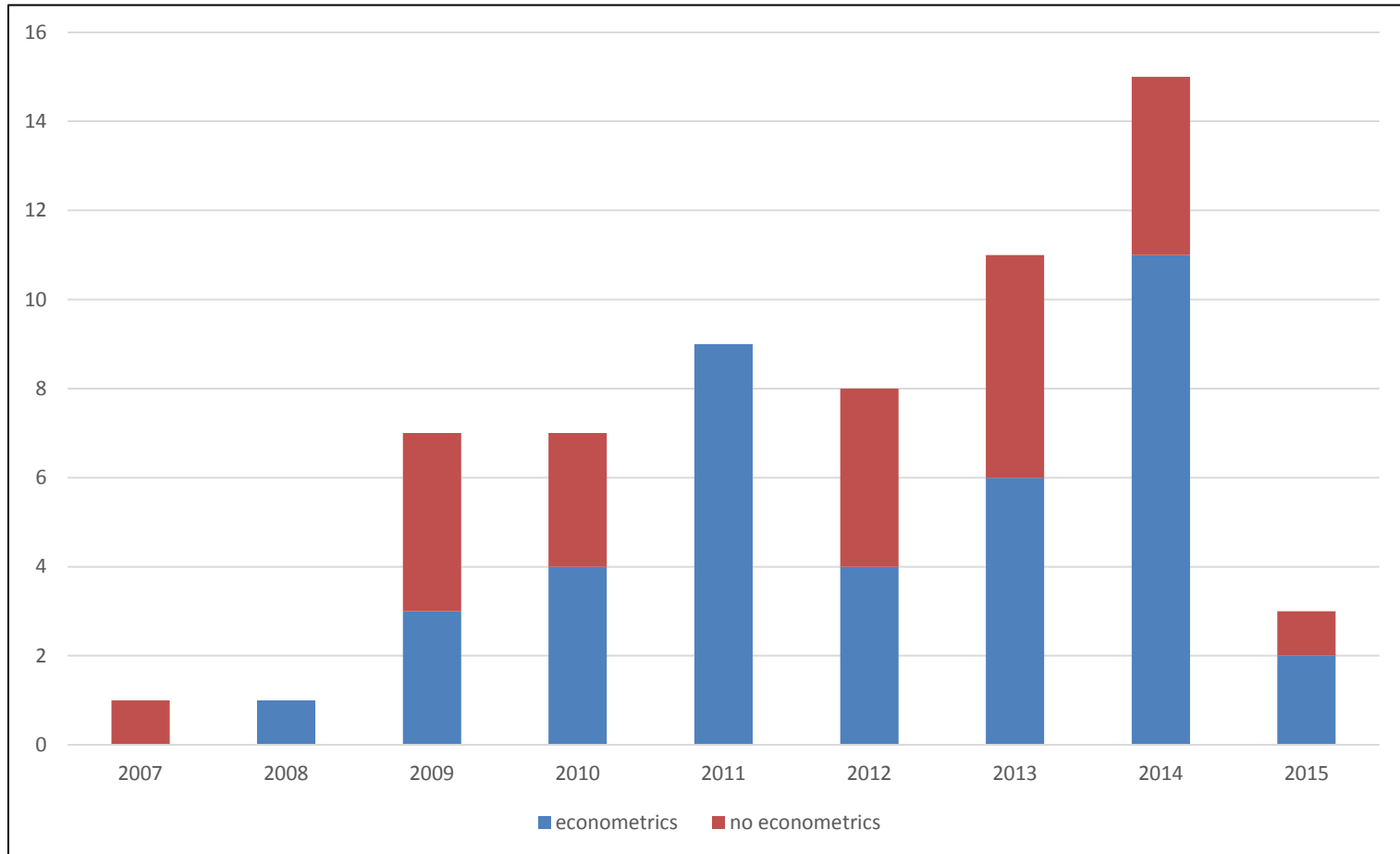
12 surveyed countries – Preliminary findings

Indicators	#
Employment	40
Turnover	34
Value creation	21
Number of patents	19
Productivity	18
New commercial product/serv.	17
R&D expenditure	16
Exports	15
Survival rates of firms	12
New company creation	9

Data sources	#
Register data (programme information, accounting information, patent information etc.)	43
Survey data	37
Interviews; focus groups data	33
Case studies	13
Peer reviews, expert panels opinions	12

Methods used	#
Descriptive statistics	62
Econometrics	40
Network analysis	2
Randomized experimental designs	0

12 surveyed countries - Number of studies using econometrics as approach in IA per year (N=62)



Inventory and analyses of policies and methods in 12 surveyed countries – main preliminary findings – Methods and approaches

A system of public agencies responsible for implementation of RDI support.

A majority of RDI support programmes are evaluated regularly, however ex ante evaluations are still very rare.

Most ex post impact assessment applying econometric approaches use control groups, but descriptive statistics and econometrics are more commonly used. Randomized experimental designs, network analysis etc. are very scarce.

Interviews and focus groups, surveys to beneficiaries and register data on companies' performance, including accounting/financial indicators and patents information most frequent data sources.

Case studies, peer reviews, expert panel's opinions and int'l benchmarking less used.

Most commonly used indicators; well-established register data indicators, such as employment, productivity, turnover and revenue. Number of patents less popular.

Inventory and analyses of policies and methods in 12 surveyed countries – main preliminary findings – Use of evaluations and IAs

Horizontal, national level: Most studies make recommendation on programme influence on the national RDI performance, level of satisfaction of beneficiaries and programme alignment with national strategies and plans.

Programme level: IAs often make recommendations regarding programme structures, mechanism and procedures. Such recommendations are often implemented, influencing programmes' future shaping, and allocations to different beneficiary groups, detailed regulations regarding intake and selection of firms, assessment of proposals and application procedures.

Recommendations based on economic IAs mostly suggest changes in allocation of funds to different groups of beneficiaries, aimed at improving programme impact, however they are rare. Some lead to discontinuation of interventions.

Inventory and analyses of policies and methods in 12 surveyed countries – main preliminary findings – Evaluation practices

Mostly established evaluation markets, where all major studies are tendered.
Developed networks of institutes and companies.

Evaluations mostly financed by public institutions launching the evaluation study.
However, smaller evaluations sometimes done by ministries or implementing agencies.

Large, horizontal studies: Main tenderer typically a ministry responsible for industry or research, sometimes seconded by one or two other ministries.

Evaluations of RDI programmes at lower levels: Mostly the implementing agencies (programme operators, public or semi-public bodies) responsible for launching the tendering procedures for evaluations.

Evaluations launched by independent institutions different/higher in the hierarchy than the one implementing the programme are rare, but increasingly discussed.

In some countries, not all evaluation reports are publicized.

Inventory and analyses of policies and methods in five visited countries – main preliminary findings - 1

Mix of external pressure and internal motivation to carry out ex-post evaluations and impact assessments

- Always: A MoF (Treasury) and Court of Audits making pressure for better IAs and evaluators encouraging the development of better methods
- Most often: Ministry (of Economy or Education) and agencies seeing possibilities, champions
- In some cases: Additional actors advocating more rigorous IA methods

A functioning ecosystem – system is key

- Always: The nodes are in place – a Ministry with clear intention to improve and building up internal capacities and competence, agencies willing to improve, evaluators able to deliver
- Most often: Much activity in the system; lots of ex-post evaluations and IA (well-functioning market) and much debate amongst the nodes
- Most often: Limited number of participants in the ecosystem

Realistic expectations to rigor of methods

- Most often: RCT cannot answer everything, quasi-experimental designs will often do the job, embracing this development and putting resources into it
- Rare: Almost no RCTs found in the RDI area.
 - When people (entrepreneurs) are targeted
 - Intrinsic resistance in the agencies – in conflict with their “intervention logic”

Inventory and analyses of policies and methods in five visited countries – main preliminary findings - 2

Access to and cost of data needed for ex post evaluations and IAs

- In most cases: Less than ideal quality of both types and they are costly. Regulation prohibits linking and coupling of data from various registries
- In some cases: Real efforts and investments in providing better data

Using ex ante evaluations and intervention logic

- In most cases: Not happening
- In some cases: Problem acknowledged and actions in place to improve
- (Still) rare: Small-scale testing of interventions before full roll-out

“Impact of impact assessments”

- In all cases: Lack of (following) standards for conducting ex post evaluations and IAs make comparisons extremely hard
- In most cases: Results are needed before ex-post evaluations and impact assessments can be carried out, often limited impact of IAs. Other factors more important in deciding the fate of an intervention
- Rare: Meta-evaluations which make comparisons of IAs carried out with different methods meaningful (and much debated)

At the end of the day; ex post impact assessments inform on whether an intervention works or not. And just that. They say nothing about the social rate of return of the intervention. Finding the marginal rate of return of the intervention is not trivial...

Reflections on performance indicators

More uniform use of performance indicators in Europe

Interesting performance indicators in US IAs of R&D programmes

- Net Present Value
- Social Rate of Return
- Benefit to Cost Ratio
- Acceleration of technology development

Consequently used in NIST-programmes and in DoE