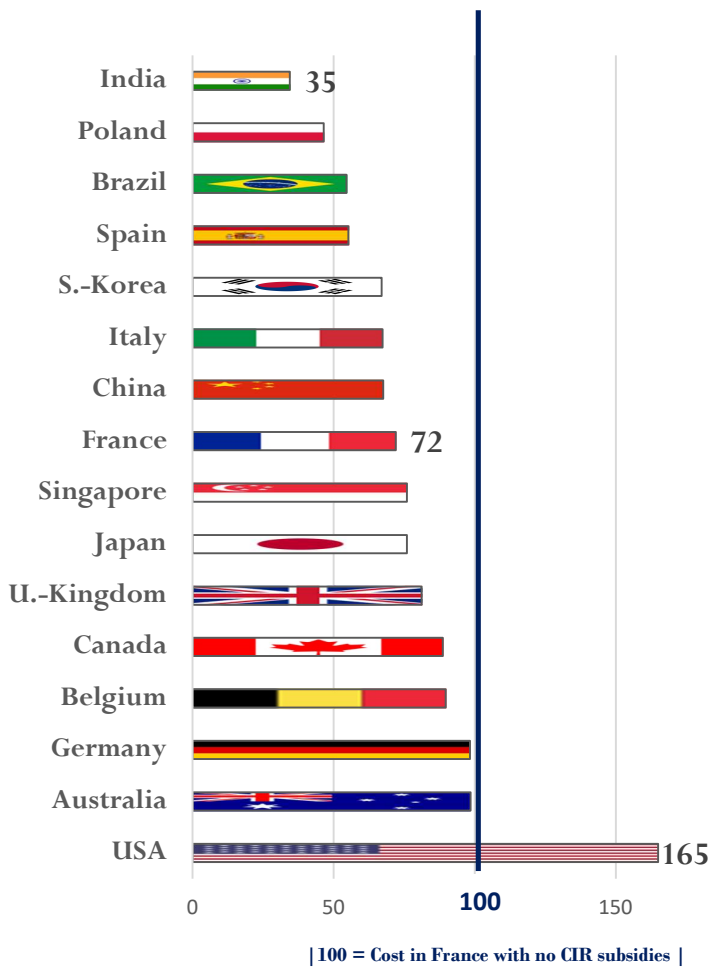


CIR: a fragile island of stability in a sea of uncertainty

Despite three very challenging years, French research-development-innovation (RDI) ecosystems are still standing. Our surveys¹ and studies on attractiveness are conclusive: not only does CIR make the country more attractive, but thus strengthened, company R&D produces innovations that feed into wider ecosystems.

The first graph (below) shows 2022 researcher rates based on data from 2021. The figures take into account the impact of support systems affecting the wage costs of industrial R&D in each country. The United States and India, separated by 130 percentage points – a US researcher costs five times more than an Indian researcher – have topped and tailed our sample since 2010. In Europe, the difference is as much as 100 percent (from Poland to Germany).

Graph 1. – 2022 researcher rates (2021 data)



In 2022, the French researcher rate dropped slightly to 72, ranking it in the middle of our sample.

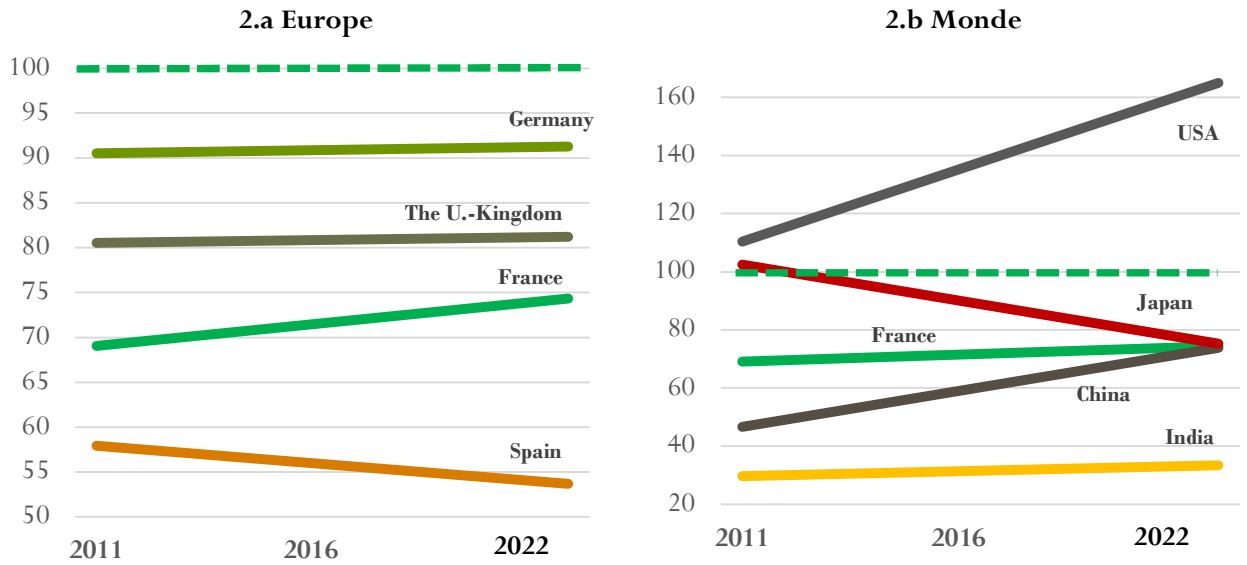
The country has a comparative advantage over Germany (26 points), Belgium (18 points), and the United Kingdom (9 points). The differences between rates influence decisions to readjust R&D teams located geographically nearby.

The US rate is at 165, the same level as in 2020, once again 2.3 times more than the French rate. Successive US economic support plans, ranging from the *American Rescue Plan Act* in 2021 featuring a \$180 billion R&D support package, to the recent *Inflation Reduction Act*, artificially maintain rising pay levels in industrial R&D. This rate, the highest in the world, indicates an economically ailing sector and insufficiently attractive R&D.

¹ Cf. “Ces innovations qui n’auraient pas vu le jour en France sans le CIR”, 2022, ANRT.

A comparison of changes in researcher rates is provided in graphs 2.a and 2.b below. The gap continues to widen between France and Spain, to the latter’s advantage. Spanish sites, which are around 20 points cheaper, are highly competitive, especially for industrial research in targeted priority sectors. The financial conditions for research vary from one region to the next, but are generally very attractive. The difference with German and British rates is shrinking, although both have fortunately risen slightly. The combination of a reduction in lump-sum operating expenditure from 50% to 43% (2020), the end of “doubling” (2021) and its cumbersome replacement by the tax credit for collaborative research (2022), which necessarily has much less positive impact, could close the gap with the United Kingdom by 2023/2024.

Graph 2 – France maintains its relative advantage in Europe but loses grip on a global scale [2011-2022]

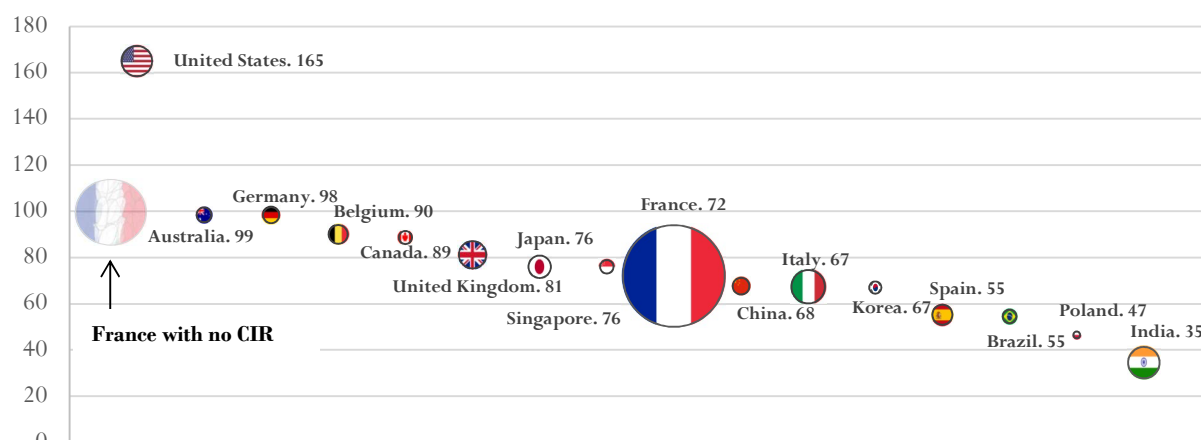


These graphs present a comparison of the evolution of researcher rates, established using data collected from the ANRT Panel over 12 years. The charts show trends for the selected countries. The values on the y-axis correspond to the cost of researchers in the form of an index where the average cost of a French researcher with no CIR or subsidy equals 100. The dotted line (—) shows the French researcher rate with no CIR (or subsidies).

The difficult macroeconomic situation plays a part, involving a massive hike in energy prices in Europe. The consequences are starting to affect R&D in the most energy-intensive industries. The framework conditions underlying attractiveness are contrasted and varied: they affect countries in different ways depending on the national energy mix and its impact on rates (France-Germany, Europe-Americas). Depending on the site, the risk is that these cost differences will outweigh the benefits of supporting corporate R&D. Altering the way that CIR works would therefore be particularly inopportune and weaken this pillar of framework conditions for French RDI.

The landscape is therefore increasingly uncertain in terms of the location of industrial R&D staff. Until now, the proportion of panel members’ R&D personnel has evolved in a reassuring, consistent manner. The French flag in graph 3 (below) is still proportionately the largest. For the most multidomestic companies on the panel, an increased number of R&D staff in their location countries has seen them maintain, and even simultaneously reinforce, R&D centres on the national territory.

Graph 3. – Thanks to CIR’s stabilising effect, French companies have, to date, made the national territory a keystone of their R&D.



Key: The size of each flag is proportional to R&D staff in the panel companies. The position on the y-axis shows the cost of researchers in the form of an index: the 100 mark is the cost of a French researcher with no tax credit or subsidies

Europe, Asia, then the Americas constitute a stable ranking by researcher staff numbers for the companies on our panel. With no CIR or direct aid, France would be the second most expensive country in the world for companies to carry out their R&D, and consequently the most expensive in Europe. Obviously, the French flag would shrink in the short term.

Caution: attractiveness is fragile

The attractiveness of a country is fragile when it comes to the cutting-edge research skills. Changes in the differences between researcher rates impacts the size of R&D teams, in particular between geographically close countries. When it comes to qualified jobs, researchers are particularly mobile. The market for ‘star’ and ‘high-potential’ researchers has no borders. Recent examples of brain drains are common, often involving entire teams, especially in the digital sector. More generally, increased competition means that early career conditions for researchers in knowledge-intensive companies are crucial. French R&D tax credit, including the Young Doctor programme, is therefore a key asset to maintain the attractiveness of France in terms of R&D.

The compensatory measure that corresponds to the “end of doubling”², known as the tax credit for collaborative research (CICo), featured in the 2022 French draft budget bill, or PLF³. Aimed at public laboratories that want to continue receiving external resources, unlike the CIR (and the doubling clause) which is aimed at companies investing in partner-based R&D, the measure has several defects. This might partly explain why the corresponding tax instruction, through which the administration sets out how the measure works in practice for its auditors, has still not been published. This absence is a legitimate cause of concern for potential users of the CICo faced with fiscal uncertainty. Our regular checks over the course of the year indicate a clear lack of support, with doubts expressed by both public laboratories and companies experienced in research partnerships. According to current legislation, companies have no latitude to negotiate intellectual property rights resulting from common projects, and can in no circumstances become exclusive owners. Reciprocally, public laboratories involved

² Of the CIR base retained for eligible R&D expenditure for research entrusted to a public institution.

³ Companies that carry out R&D in research partnerships with organisations that do research or disseminate knowledge can claim a tax reduction proportional to the corresponding amount invoiced. Cf. https://www.legifrance.gouv.fr/jorf/article_jo/JORFARTI000044637727

in “effective collaboration” cannot invoice more than nine-tenths of their “cost prices”; they are obliged to “sell at a loss”. As a result, even those companies that intend to put in place the costly financial engineering required to use the CICO consider 2022 as a “lost year”. The vast majority of companies consulted found that the price was not worth paying. In any case, the benefits, minimal in proportion, that companies can expect from the CICO are henceforth counterbalanced by framework conditions that are set to sharply deteriorate in Europe, although to different extents depending on the Member State.

The most job-creating industries, which are on the front line to combat climate change and whose evolution depends on the intensity of R&D, could end up significantly altering the balance of their staff between France, Europe and the Americas. Unless, of course, a suitable political response is developed in France and the European Union, combining specific measures designed to support companies in their “green transition”.

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Fourteen international groups, members of ANRT (National Association for Research and Technology) that carry out part of their research in France, this year accepted once again to calculate and communicate to ANRT the comparative cost price of their researchers (including direct aid and tax credit) in the countries where they invest in research.

These groups invest over 14 billion euros in research & development h in the world; this year more than 70,000 researchers were included in this comparison, with a wide variety of areas of application.

They have R&D teams in over 30 countries and yet on average over half of their employees are based in France! And the reason is not just habit or patriotism. The simple explanation comes down to one word: competitiveness (cost and non-cost).



Reliable, comprehensive barometer

International groups have every reason to view France as a favourable host country for their research investments. The quality of research and the proximity of large markets, along with favourable researcher prices and research costs for domestic propositions of comparable quality, carry the decision in favour of one or other of the research sites and in particular the company's development.

Researchers

This study only concerns company researchers. These are employees whose task is research & development and who have contributed to at least one research project during the considered period.

Methodological approach with an emphasis on domestic consistency

Taking as a reference the average price of a researcher in France before any subsidy and research tax credit (base 100), ANRT aggregated the compatible data specific to each group to produce the researcher rate by country.

For a given country, the average cost of a researcher is only included if two conditions are fulfilled:

- The ANRT panel has at least two averages of charge-inclusive costs from two different companies
- The research centres considered employ more than 20 people

The different accounting entries were pooled in order to standardize the information, while considering differences between the groups' accounting systems. The information is thus homogeneous at group level, making international gaps highly representative.

Virtuous tax measures

An adequate tax incentive policy involves creating conditions in a country whereby the public resources mobilized produce the desired effect, no more and no less. In the absence of sound information from the field, the legislator cannot know the impact of policies in place elsewhere in the world and attempts to strike the right balance. Studies carried out on research tax credit, in particular by the OECD, quantify theoretical impacts at a macro-economic level. Despite their intrinsic qualities, these studies do not have the capacity to describe the actual cumulated effect on company accounts of all public policies, direct aid and tax incentives.

Accounting is the only real barometer of major companies, taking all advantages and charges into account. Multinational groups' accounting and tax systems are obliged to be robust and consistent; financial control and business intelligence can be used to extrapolate decision-making data. Information is therefore highly sensitive: it reflects the strategy of both companies and governments through subsidy regimes specific to sectors, locations, or intellectual property registration in a country.

No upper limit means no windfall effect

An upper limit defines the optimum expected by public authorities. A cap indicates the maximum research investment that the country expects. As a result, it is more favourable to those that make a small share of their research investment in France; it is less favourable to those that make French sites their main global research hubs.