

Germany on the slippery slope of the research tax credit

by [Evens Salies](#) and [Sarah Guillou](#)

After years of hesitation, the German parliament has just introduced a tax scheme to promote investment in R&D. The decision precedes the Covid-19 crisis, but it may well be heaven-sent for German business.

What factors motivated Germany to take such a decision, four decades after the United States and France, when it is among the world's leading investors, in terms of both R&D and innovation? Is this yet another instrument to boost its competitiveness? And what will be the repercussions on R&D spending in France?

The German tax incentive, which came into force in January 2020, offers companies a tax credit equal to 25% of the declared R&D expenditure. The base is narrower than for France's research tax credit (CIR), since in Germany only wages are taken into account (including employer social security contributions).^[1] The 25% rate is, however, close to the French rate (30%). A company's eligible expenses are capped at two million euros; and the tax credit for each firm will be limited to 500,000 euros

(subcontracting is subject to slightly different treatment). When a group has several subsidiaries benefiting from the system, as part of a joint research programme, the total eligible expenses are capped at 15 million euros (for a tax credit of 3.75 million).

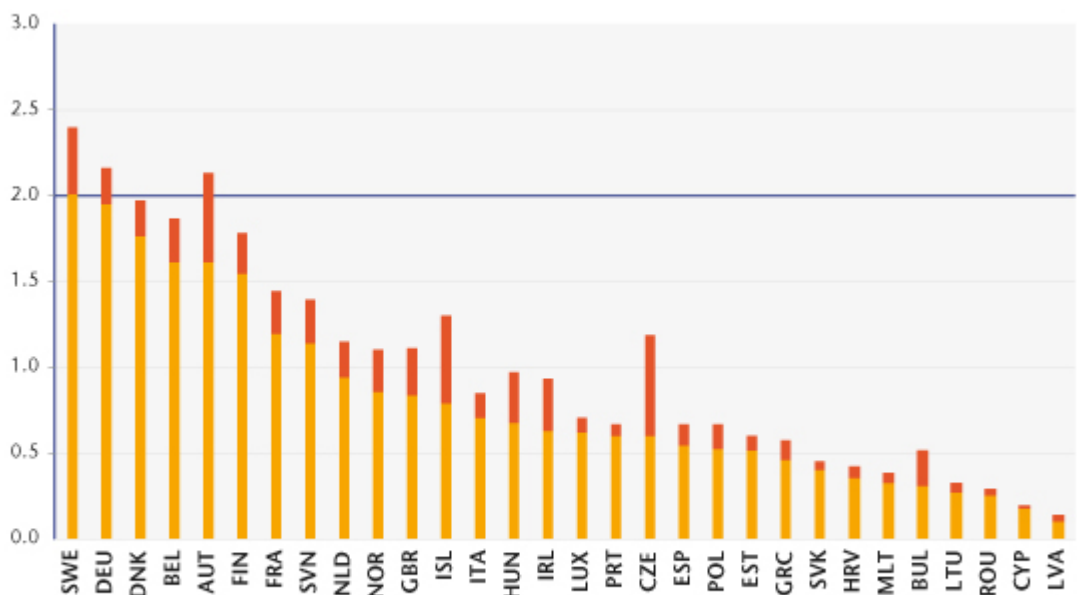
By way of comparison, among French companies who carry out R&D, SMEs receive an average of 131,000 euros for the CIR credit, mid-caps [fewer than 5,000 employees] 742,000 euros, and large corporations 5.6 million, according to the [MESRI's](#) figures. The highest amounts exceed 30 million euros (with few companies in this category), but do not go much higher, because the CIR rate falls from 30% to 5% of eligible R&D expenditure beyond the base threshold of 100 million euros. Estimates of the annual loss in taxation for Germany (before taking into account the macroeconomic effects) could amount to as much as five billion euros. This is 80% of the French CIR credit, and on the same level as the R&D tax incentives in the United Kingdom. Without the cap, the scheme would cost the German federal government around 9 billion euros. [\[2\]](#)

The characteristics of the scheme and the high level of German private R&D raise questions about the Parliament's real motivations. Indeed, one could wonder why it did

not opt for an “incremental” system, that is, base itself on the increase in eligible R&D expenditure, as in the United States, or in France until 2003.

Admittedly, an incremental system would not support firms whose R&D is stagnating or falling (in which case direct aid is more effective), but it avoids the windfall effects of France’s CIR credit ([Salies, 2017](#)). The cap limits, but does not eliminate, these effects.

Figure 1. R&D effort (% of GDP), EU-28 and Iceland, Norway, 2018



Note : The lower rectangle is the R&D effort, after having excluded direct aid. The upper rectangle only includes direct aid. The values are for 2018 or the nearest year.
Sources : EU open data portal.

The level of private R&D spending is significantly higher in Germany than in any other EU Member State (62.2 billion euros, excluding direct grants). France is far behind (27.5 billion euros), followed by Italy and Sweden (respectively 12.8 and 9.6 billion). A comparable ranking is obtained, for Germany, France and Italy, if we measure the R&D effort (expenditure relative to GDP; Figure 1).

Germany is at almost the same level as Sweden (resp. 1.92 and 2.01 points).

Next come Denmark, Belgium, Austria and Finland. France is in 7th position with

1.44 points and Italy 13th with 0.71 point. Private research in Germany (excluding

subsidies) is only 0.08 GDP points below the 2% threshold set at the Barcelona

European Council in 2002 (the "Lisbon strategy"), which Sweden alone has

achieved. If subsidies are included, the private sector exceeds this threshold.

Since 2017, Germany's domestic expenditure on R&D (private and public) has

also exceeded the 3% threshold. The argument advanced in 2009 by [Spengel and Grittmann from ZEW](#) that a tax incentive would

allow German companies

to overcome private underinvestment in R&D is therefore not convincing, at

least from a European perspective.

At the global level,

three countries are of course doing better than Germany: the United States,

China and Japan, where the private sector spends 1.6 euros for every euro spent

by Germany. However, if the motivation of Germany's Parliament for introducing

a tax incentive was to catch up with these countries, it would not have done so

only 40 years after the United States!

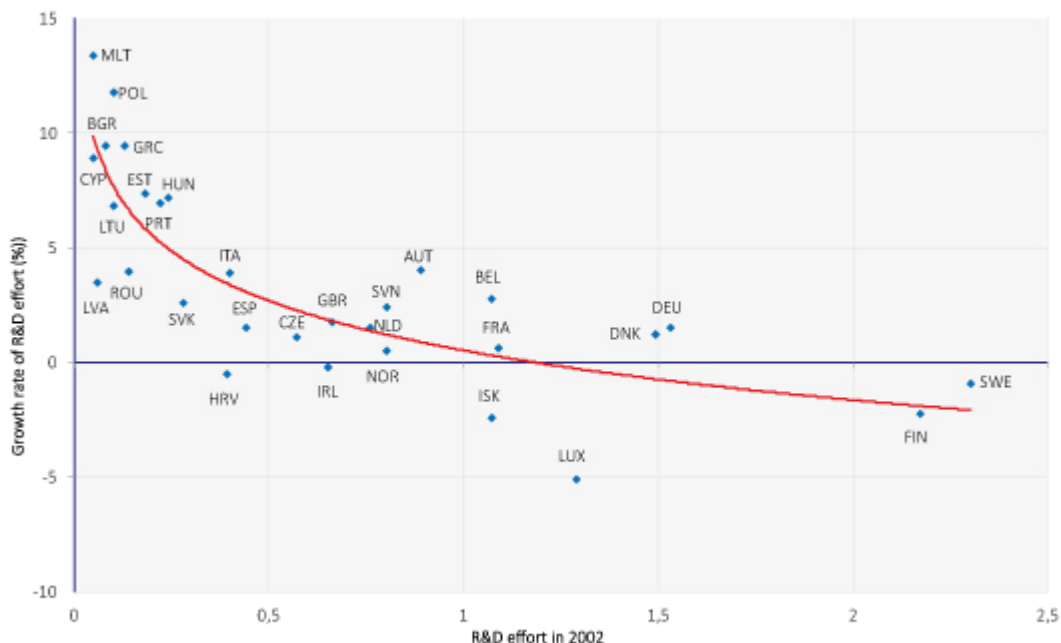
The introduction of a

tax incentive for R&D is less surprising if we consider changes in the

R&D effort. We have calculated the average growth rate of the R&D

effort for the 27 current Member States plus the United Kingdom, Norway and Iceland over the period 2002-2017 (Figure 2).

Figure 2. Rate of change in the R&D effort (%) versus effort, in 2002, EU-28 and Iceland, Norway, 2002-2017



Note : The R&D activities are net of direct aid. For certain countries, the starting year is 2003, due to the availability of data. The concluding year is 2017, except for the UK (2016). Sources : EU open data portal.

The curve through the cloud (logarithmic adjustment) reveals an almost inverse relationship between the rate and the effort in 2002, suggesting a convergence of R&D efforts.

Obviously, many countries are in a period of catch-up with respect to investing in research. Most of them are small, but the whole is significant. For example, in 2017 countries where the R&D effort grew at a rate at least equal to Germany's (1.52%) spent 82.8 billion euros (subsidies included), or 1.2 times Germany's expenditure (68.7 billion).[\[3\]](#) The R&D effort of these countries amounted to 0.8 point of GDP in 2017.[\[4\]](#)

Could the German CIR credit

thus be a response to the slowdown in the country's spending on R&D?

R&D expenditure behaves like other capital expenditure, i.e. it slows as the level rises. Furthermore, the more countries have a high level of domestic spending on R&D, the more they invest in R&D abroad. This results from the fact that R&D expenditure is mainly by large corporations and multinationals; we could cite, for example, Alphabet, Volkswagen and Sanofi, which in 2019 spent, respectively, 18.3 billion, 13.6 billion and 5.9 billion euros on R&D according to figures from the [EU Industrial R&D Scoreboard](#). It is notable that the big multinationals open R&D centres abroad to get closer to their export markets, as well as for the bargaining power that these investments provide vis-à-vis local governments (see the report by UNCTAD [WIR, 2005](#)). All the major pharmaceutical firms (Pfizer, GlaxoSmithKline, AstraZeneca, Sanofi-Aventis, Novartis, Eli Lilly) have established clinical research laboratories in India. Even France's power supply firm EDF has an R&D centre in Beijing, dedicated to networks, renewable energies and the sustainable city. While this does not necessarily amount to substitution with domestic R&D, it does indicate that there is a kind of plateau in a given country for a company's R&D expenditure. The German measure is probably motivated by global competition to attract new R&D centres. This

is also the stated objective of France's CIR credit.

Does the enactment of a "German CIR" credit in favour of R&D bode well for France's competitiveness? Germany has a comparative advantage in the manufacturing sector, which invests heavily in R&D. The new German tax scheme will reinforce this advantage, without any risk of European litigation, since R&D support falls under the exemptions to the European Commission's control system on state aid. France's comparative advantage tends to be situated in services. France's R&D effort in services is more intense than in Germany: 0.28% of GDP in Germany and 0.67% in France. However, France stands out for providing less public support for R&D investment by service companies. In 2015, public funding's share of private research in services was 4% in France, compared to 11% in Germany, according to an [INSEE study](#). The "German CIR" will only increase the relative price of French private research in services in comparison with German research. However, the R&D content of services determines the price, since it determines their technological content. The German tax advantage will therefore accentuate the cost advantage of the technological services which are themselves incorporated into manufacturing value added. So this will in turn increase the cost advantage of German manufacturers.

In addition, the price of R&D is increasingly determined by personnel costs, whose share in R&D has tended to rise in Italy and France and slightly too in Germany.

This share was roughly equal in the latter two countries in 2017: 61.8% in Germany, and 59.7% in France.[\[5\]](#) Relative changes in researchers' salaries will have an impact on the difference in the amount of the tax credit between France and Germany. As noted, the new scheme introduced across the Rhine is based only on the costs of personnel. It could thus be conceptualized as a credit like France's Competitiveness and Employment Tax Credit (CICE) targeted at high-skilled workers in the research sector (referring to the CICE credit before it transforms into a reduction in employer social security contributions).

This is the reason why we think that Germany has rather wanted to pursue its policy of lowering corporate taxes. This was one of the motivations for France's CIR reform in 2008, which "[can] be viewed as [fiscal] compensation for lower corporate tax rates in other countries" ([Lentile and Mairesse, 2009](#)). The median tax rate in the OECD applied to large corporations has fallen continuously since 1995 (13 points over the period 1995-2018), from 35% to 22%. However, the German rate, which has fluctuated between 29 and 30% since 2008, is close to the French rate (around 32% in 2020; [EC, 2020](#)). The opposition that could exist in the realm of "tax

philosophy”,
between a French system based on a high rate and numerous provisions for exemptions, and a German system based on a broad base and low rates, is not as strong now that Germany has set up its own “CIR” credit.

This new incentive is expected to enhance Germany’s attractiveness for R&D activities, which has deteriorated somewhat ([EY, 2020](#); see also [CNEPI, 2019](#)).

Since 2011, the top three countries welcoming the most R&D centre projects were the United Kingdom, followed by Germany and France. Since 2018, France has hosted more projects than Germany (1197 against 971 in 2019), relegating Germany to third place (this had already transpired in 2009, during the financial crisis). The new tax credit should influence the trade-off of foreign companies that are hesitating between France and Germany about where to set up.

It should also attract French companies to Germany, in the same way that a significant share of private R&D activities carried out in France come from foreign companies: 21% in 2015, for the percentage of expenditure as well as the percentage of employed researchers (see [Salies, 2020](#)).

In accordance with European law, French companies established across the Rhine, and liable for the “Körperschaftsteuer” (German corporate tax), should be able to benefit from this niche.

Finally, private and public R&D entities located in France should be able to benefit from the tax incentive introduced in Germany, via subcontracting. But this will be only of marginal benefit, for two reasons: the tradition of the German "Mittelstand" has a culture favouring local networks, and the base for outsourced activities is capped (as with France's CIR credit). French subcontractors will probably be able to benefit from authorizations, in the same way as France's research ministry, the [MESRI, issues authorizations](#) in Germany. Since 2009, Germany has recovered 6% of the subcontracting approvals granted by the MESRI, the United Kingdom 4%, etc. The majority of authorizations are granted to companies located in France (75%).

Whatever the reasons that motivated the German Parliament to introduce a tax incentive in favour of R&D expenditure, it is certain that France has no interest in retiring its own scheme. This does not mean France shouldn't reform the CIR credit, as the leverage effects are not as strong as expected; aid (direct and indirect), in GDP points, has increased on average by 5.7% per year since 2000, whereas R&D, also in GDP points, has increased only by 0.73% per year. The weak leverage effect may have been *the* factor that for a long time discouraged Germany from introducing a tax break to boost R&D.

In this period of searching for ways to support business, it goes without saying that the research tax credit will remain unchanged in France and could see the base for the scheme expanded in Germany (in particular to help car manufacturers who have been refused a plan for direct support).

It is nonetheless regrettable that one of the reasons for Germany's new scheme is probably to be found in the inability of the Member States to advance the European Common Corporate Consolidated Tax Base (CCCTB) directive, which provides for harmonized R&D taxation for large firms by deducting R&D expenditure from the tax base on corporate profits. The German CIR may well be in competition with the French CIR, leading to transfers of R&D (by multinationals) from one State to another. The net increase in R&D spending by European companies remains to be estimated. Unless this spending increases, German policy could be viewed as yet one more uncooperative tax policy coming at a time when Europe is looking for common tax revenue.

[1]. The [French CIR credit](#) includes, in addition to personnel costs, costs for the acquisition of patents, standardization, allocations relating to the depreciation of buildings used for research, etc.

[2]. Based on a private R&D expenditure of 62 billion euros in 2017 (direct aid excluded), we find 0.25 (the rate of the tax credit), 0.6 (the share of salaries in R&D), yielding a credit of 9.3 billion euros.

[3]. The Netherlands, the United Kingdom, Slovenia, Slovakia, Belgium, Latvia, Italy, Romania, Austria, Lithuania, Portugal, Hungary, Estonia, Cyprus, Greece, Bulgaria, Poland and Malta.

[4]. The GDP of these countries (at market prices in 2017) is 2.5 times that of Germany.

[5] The increase in France and in Italy was +7 and +20 points respectively over the period 2000-2017.

How to spend it: A proposal for a European Covid-19 recovery programme

[Jérôme Creel](#), [Mario Holzner](#), [Francesco Saraceno](#), [Andrew Watt](#) and [Jérôme Wittwer^{\[1\]}](#)

The Recovery Fund recently proposed by the EU Commission marks a sea-change in European integration. Yet it will not be enough to meet the challenges Europe faces. There has been much public debate about financing, but little about the sort of concrete projects

that the EU should be putting public money into. We propose in [Policy Brief n°72](#) a 10-year, €2tn investment programme focusing on public health, transport infrastructure and energy/decarbonisation.

The investment programme consists of two pillars. In a national pillar Member States – broadly as in the Commission proposal – would be allocated €500bn. Resources should be focused on the hardest-hit countries and front-loaded: we suggest over a three-year horizon.

The bulk of the money – €1.5tn – would be devoted to finance genuinely European projects, where there is an EU value added. We describe a series of flagship initiatives that the EU could launch in the fields of public health, transport infrastructure and energy/decarbonisation.

We call for a strengthened EU public health agency that invests in health-staff skills and then facilitates their flexible deployment in emergencies, and is tasked with ensuring supplies of vital medicines (Health4EU).

We present costed proposals for two ambitious transport initiatives: a dedicated European high-speed rail network, the Ultra-Rapid-Train, with four-routes cutting travel times between EU capitals and

regions, and, alternatively, an integrated European Silk Road initiative that combines transport modes on the Chinese model.

In the area of energy/decarbonisation we seek to “electrify” the Green Deal. We call for funding to accelerate the realisation of a smart and integrated electricity grid for 100%-renewable energy transmission (e-highway), support for complementary battery and green-hydrogen projects, and a programme, modelled on the SURE initiative, to co-finance member-state decarbonisation and Just Transition policies.

The crisis induced by the pandemic, coming as it does on top of the financial and euro crises, poses a huge challenge. The response needs to take account of the longer-run structural challenges, and above all that of climate change. The European Union should rise to these challenges in the reform of an ambitious medium-run recovery programme, appropriately financed. An outline of such a programme is set out here by way of illustration, but many permutations and options are available to policymakers.

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The COVID-19 crisis and the US labour market: Rising inequality and precariousness in perspective

By [Christophe Blot](#)

In the United States as in France, the COVID-19 crisis has led to numerous measures restricting economic activities intended to limit the spread of the virus. The result will be a fall in GDP, which is already showing up in figures for the first quarter of 2020, and which will be much steeper in the second quarter. In a country noted for its weak employment protection, this unprecedented recession is quickly having repercussions on the labour market, as reflected in the rise in the unemployment rate from a low point of 3.5% in February to 14.7% in April, a level not seen since 1948. As [Bruno Ducoudré and Pierre Madec](#) have recently demonstrated in the case of France, the current crisis in the United States should also result in heightened inequalities

and insecurity. And the shock will be all the greater in the US since the social safety net is less extensive there.

In the United States, the Covid-19 restrictions were set not at the Federal level but by the various States at differing times.

The vast majority of States did decide however to close schools and

non-essential businesses and to encourage people to stay home.

The lockdown was

thus imposed by California on March 19, followed by Illinois on March 21 and

New York State on March 22, but South Carolina didn't follow until April 6.

North Dakota, South Dakota, Arkansas, Iowa and Nebraska have taken no action,

and three other States – Oklahoma, Utah and Wyoming – applied measures only in certain

counties, and not State-wide. However, by early April a large part of the

country had been locked down, with a varying degree of strictness, affecting between

92% and 97% of the population^[1].

Which employees have been hit hardest by the crisis?

According to a [survey](#) by the US Bureau of Labor Statistics, almost 25%

of employees worked from home in 2017-2018. However, some employees said they

could have stayed at home to work but did not necessarily do so during the

reporting period. With the COVID-19 crisis and the incentives to modify the

organization of work, we can therefore consider that almost 29% of employees could stay at home during the lockdown [\[2\]](#). Furthermore, as the survey carried out for France highlights, the implementation of teleworking is more widespread among employees in management jobs and commercial or financial activities. In 2017-2018, 60% of these people could have managed to work from home. In contrast, fewer than 10% of workers in agriculture, construction, manufacturing or transport services would have been able to telework during the crisis. Not surprisingly, the survey also shows that the employees able to telework are also those at the top of the wage distribution. For the top quartile, 61.5% of employees could work at home compared with fewer than 10% for employees in the bottom quartile.

Mirroring these elements, a more recent [study](#) analyzed which jobs would be most affected by the lockdowns and in particular by the closure of non-essential businesses [\[3\]](#). Six sectors are particularly exposed. Logically enough, these include bars and restaurants, transport and travel, entertainment, personal services, the retail trade and some manufacturing industries. Based on employment data for the year 2019, these sectors represent 20.4% of total employment. With more than 12 million jobs, the bar and restaurant sector is being hit hardest. This survey also shows that the most exposed employees generally receive below-average pay. They

are particularly concentrated in the two lowest wage deciles. For example, the wage bill for bar and restaurant workers represents barely 3% of the total wage bill but more than 8% of employment. These people usually work in companies with fewer than 10 employees. This dimension is all the greater in the United States since access to health insurance is often linked to the employer, whose obligations for insurance provision depend on how many employees they have. Finally, by crossing the distribution by sector and geography, it appears that Nevada, Hawaii and to a lesser extent Florida (23.7%) concentrate a larger share of these sectors, and therefore of the exposed jobs [\[4\]](#). Conversely, Nebraska, Iowa and Arkansas are among the States where these sectors account for a smaller share of employment [\[5\]](#). These three States have also not adopted lockdown measures and should therefore be relatively spared from the rise in unemployment.

Unemployment statistics for the months of March and [April](#) confirm this outlook. In one year, the unemployment rate increased by 4.8 points for those in management jobs or commercial or financial activities, while, over the same period, the rate rose by 23 points for service jobs and almost 15 points for employees in production. The geographic disparities are also significant. In California and Illinois, the first States

to implement a lockdown, the unemployment rate rose 11.3 and 12.2 points, respectively, in one year. Conversely, the States that have not enacted lockdown measures are among those where the unemployment rate has risen the least over the year. The increase reached 5.2 points for Nebraska, 6.7 points for Arkansas and 7.5 points for Iowa, for example.

The structure of employment is, however, a key factor determining the variation in unemployment. Despite fairly close starting dates for the lockdowns in Connecticut and Michigan, the unemployment rate rose only 4.2 points in the former versus over 18 points in industrial Michigan. The statistics also confirm the exposure to the shock of Nevada and Hawaii, which recorded the two largest increases: 24.2 and 19.6 points respectively, while Minnesota, with a very low exposure, saw its unemployment rate rise by only 4.9 points, one of the smallest variations since April 2019. Likewise, the impact has been relatively softer in the District of Columbia, where the unemployment rate rose by 5.5 points.

Health under threat?

The deteriorating state of the labour market will be accompanied by a deterioration in living conditions for millions of Americans, especially if the end of the lockdowns is not synonymous with a rapid rebound in activity, as Jerome Powell, Chairman of the

Federal Reserve, now fears. This would result in increased poverty for households that have lost their jobs. Previous analyses indicate that workers at the bottom of the distribution will be the most exposed, especially since, despite the [measures taken to extend unemployment insurance](#), the duration of benefits remains overall shorter in the United States. To deal with the crisis, the Federal government has spent USD 268 billion (or 1.3 percentage points of GDP) on unemployment insurance to extend the duration and amount of compensation. This is in addition to the tax credit of up to USD 1,200 for households without children [\[6\]](#). The government has thus chosen to support incomes temporarily, but unlike the partial unemployment schemes in force in France and in many other European countries, it has not protected jobs [\[7\]](#). The flexibility of the US labour market could, however, prove more advantageous in so far as the recovery is rapid and differs depending on the sector. Employees actually do not lose much of their skills and can more easily find a job in another business sector. But a protracted crisis associated with persistently higher unemployment would greatly increase poverty.

In addition, access to health insurance is also often linked to employment. Indeed, 66% of insured Americans are covered by their employer, who is obliged to offer health insurance in companies with

more than 50 employees. The corollary is that many workers risk losing their health coverage at the same time as their jobs if they cannot pay the portion of the insurance costs previously borne by their employer. As for employees of small businesses exposed to the risk of closure and unemployment, it is very likely that they will no longer have the means to take out a private insurance policy on their own. Already, in early 2019, just over 9% of the population had no health coverage. While this rate had dropped sharply since 2010 and the “Obamacare” reform, the annual [report](#) of the US Census Bureau published in November 2019 estimated that more than 29 million people had no coverage in 2019, a figure that has risen somewhat since 2017. The coverage rates also show strong regional disparities, which is due to the demographic structure of the States.

Although part of the economic support plan is devoted to food aid [\[8\]](#) and some health expenses, the COVID-19 crisis will once again hit the most vulnerable populations and widen inequalities that are already significant and being deepened by the recent tax reforms of the Trump administration.

[\[1\]](#)

In terms of GDP, the share of States that have imposed lockdowns is in much the same proportions.

[\[2\]](#)

Note that this survey does not show a significant difference between men and women, even if women have a slightly fewer opportunities for teleworking: 28.4% against 29.2% for men.

[\[3\]](#)

See Matthew Dey and Mark A. Loewenstein, "[How many workers are employed in sectors directly affected by COVID-19 shutdowns, where do they work, and how much do they earn?](#)", *Monthly Labor Review*, U.S. Bureau of Labor Statistics, April 2020.

[\[4\]](#)

In Nevada, the exposed sectors represent 34.3% of jobs. This figure also exceeds 30% in Hawaii and is 23.7 % in Florida.

[\[5\]](#)

This is also the case of the District of Columbia due to the large presence of Federal employees.

[\[6\]](#)

This amount is granted to households receiving less than USD 75,000 (150,000 for a couple) per year. USD 500 is awarded per child. The amount of the tax credit is regressive and falls to zero for households with an income above USD 99,000.

[\[7\]](#)

See [here](#) for our analysis of European and American strategies to deal with the crisis.

[\[8\]](#)

The plan approved on 18 March ([Families First Coronavirus Response Act](#)) actually provides for over 20 billion dollars in assistance for poor people.

It seems like it's raining billions

[Jérôme Creel](#), [Xavier Ragot](#), and [Francesco Saraceno](#)

The second meeting of the Eurogroup did the trick. The Ministers of Finance, after having once again laid out their divisions on the issue of solidarity between euro area Member States on Tuesday 7 April 2020, reached an agreement two days later on a [fiscal support plan](#) that can be put in place fairly quickly. The health measures taken by the Member States to limit the spread of the Covid-19 pandemic will enjoy better short-term financing, which is good news. The additions to Europe's tools for dealing with the crisis will be on the order of 500 billion euros – this is certainly not negligible, and note that this comes on top of the efforts already put in place by governments – but this corresponds mainly to a new accumulation of debt by the Member States. The net gain for each of them, as we shall see, is actually quite marginal.

The Eurogroup will propose the creation of a credit line (Pandemic Crisis Support) specifically dedicated to the management of the Covid-19 crisis within the framework of the European Stability Mechanism (ESM), without strict conditionality (meaning that recourse to the credit line will not imply any control on the part of the EMS over the future management of the Member State's public finances). The creation of the credit line was inspired by the proposal by [Bénassy-Quéré et al. \(2020\)](#), the [advantages and disadvantages](#) of which we presented to the Eurogroup meeting on 9 April 2020. The amount allocated to this credit line represents around 2% of the GDP of each euro area Member State, or nearly 240 billion euros (in 2019 GDP).

The lending mechanism proposed by the European Commission to supplement the partial unemployment programmes of the Member States – [it goes under the name of SURE](#) – will clearly see the light of day and will be endowed with 100 billion euros. For the record, the three main beneficiaries of SURE cannot receive a combined total of more than 60 billion euros in loans.

Finally, the European Investment Bank (EIB) will grant an additional 200 billion euros, mainly to small and medium-sized enterprises in the EU Member States. In total, the euro area countries will have 480 billion euros in additional financing capacity.

Table 1 below

presents a breakdown by country of the amounts in play. As part of the 240 billion euros of Pandemic Crisis Support, Germany will be able to benefit from a borrowing capacity of nearly 70 billion euros, France nearly 50 billion euros, and Italy and Spain 35 and 25 billion euros respectively. These amounts correspond to 2% of the 2019 GDP of each country. At this point, there is no indication of whether the Member States will draw on this capacity. The advantage in doing so depends crucially on the difference between the interest rate at which they can finance their health and economic expenses without using the EMS and the interest rate on loans made by the EMS. The financing cost without going through the EMS is the interest rate on the country's public debt. The cost of financing through Pandemic Crisis Support is the interest rate at which this credit line is itself financed, that is to say, at the lowest rate on the market, i.e. the German rate. So it is obvious that Germany has no interest in using this credit line. Of the 240 billion euros allocated to Pandemic Crisis Support, the 70 billion euros for Germany is thus useless. For countries other than Germany, the use of Pandemic Crisis Support depends on the difference between their interest rate and Germany's rate, the infamous spread. If the spread is positive, using the EMS effectively reduces the cost of borrowing. But as shown

in Table 1, the gain enabled by Pandemic Crisis Support is rather low. For Greece, whose spread vis-à-vis Germany is the highest in the euro zone, the gain would come to around 0.04% of GDP in 2019, i.e. a 215 basis point spread multiplied by the amount allocated to Greece for Pandemic Crisis Support (3.8 billion euros, which corresponds to 2% of its GDP of 2019), all relative to its 2019 GDP. For Italy, the gain is on the same order: 0.04% of its GDP. Expressed in euros, Italy stands to gain 700 million euros. For France, whose spread vis-à-vis Germany is much lower than that of Italy, the gain could be 200 million euros, or 0.01% of its GDP in 2019.

Assuming that the amounts allocated by the EIB are prorated to the country's size (measured by its GDP in 2019), and that Spain, Italy and France benefit from 20 billion euros each under SURE, the total interest rate savings would reach, respectively, 680 million, 1.5 billion and 430 million euros (0.05%, 0.08% and 0.02% of GDP). At a time when it seems to be raining billions, these are not big savings. Unless you think of it as a metaphor. Like rain before it falls, the billions of euros are not really euros before they fall.

Table 1. Distribution of amounts allocated as part of Pandemic Crisis Support (PCS), and each country's potential gains, including from the use of additional EIB and SURE financing

	Max amount of PCS	10-year spreads	Max. gain from use of PCS and other additional financing				
	Billion euros	Base points	PCS	EIB*	SURE**	Total	Total
			Million euros				% of GDP
Germany	68,5	0	0	0	0	0	0
Austria	8	43	34,3	20,9	5,8	61,0	0,02
Belgium	9,4	52	49,1	30,0	8,3	8,8	0,02
Cyprus	0,4	204	9,0	5,5	1,5	16,0	0,07
Spain	24,8	113	280,7	171,3	226,0	678,0	0,05
Estonia	0,6	nd	nd	nd	nd	nd	nd
Finland	4,8	40	19,3	11,8	3,2	34,3	0,01
France	48,3	44	212,6	129,8	88,0	430,4	0,02
Greece	3,8	215	81,5	49,7	13,7	145,0	0,08
Ireland	6,9	55	38,0	23,2	6,4	67,5	0,02
Italy	35,5	195	693,1	423,1	390,0	1506,2	0,08
Latvia	0,6	nd	nd	nd	nd	nd	nd
Lithuania	1,0	nd	nd	nd	nd	nd	nd
Luxembourg	1,3	nd	nd	nd	nd	nd	nd
Malta	0,3	90	2,4	1,5	0,4	4,2	0,03
Netherlands	16,1	26	41,9	25,6	7,1	74,6	0,01
Portugal	4,2	124	52,3	31,9	8,8	93,0	0,04
Slovakia	1,9	77	14,5	8,9	2,4	25,9	0,03
Slovenia	1,0	107	10,3	6,3	1,7	18,3	0,04

* Assuming that the use of additional EIB financing is fully distributed in proportion to the country's relative GDP compared to that of the EU (in 2019).

** Assuming that Italy, Spain and France obtain 20 billion euros each and that the remaining 40 billion euros are distributed in proportion to the relative GDP of the countries compared to that of the euro zone (in 2019).

Sources: Ameco (PIB 2019), Financial Times (Spreads, 10 April 2020).

Does the fall in the stock market risk amplifying the

crisis?

By [Christophe Blot](#) and [Paul Hubert](#)

The Covid-19 crisis will inevitably plunge the global economy into recession in 2020. The first available indicators – an increase in the unemployment rolls and in partial unemployment – already reveal an unprecedented [collapse](#) in activity. In France, the OFCE's [assessment](#) suggests a 32% cut in GDP during the lockdown. This fall is due mainly to stopping non-essential activities and to lower consumption. The shock could, however, be amplified by other factors (including rises in some sovereign rates, falling oil prices, and capital and foreign exchange movements) and in particular by the financial panic that has spread to the world's stock exchanges since the end of February.

Since 24 February 2020, the first precipitous one-day fall, the main stock indexes have begun a decline that accentuated markedly in the weeks of March 9 and 16, despite announcements from the [Federal Reserve](#) and then the [European Central Bank](#) (Figure 1). As of 25 April, France's CAC-40 index had fallen by 28% (with a low of -38% in mid-March), -25% for the German index and nearly -27% for the European Eurostoxx index. This stock market crash

could revive fears of a new financial crisis, only a few years after the subprime crisis. The fall in the CAC-40 in the first few weeks was in fact steeper than that observed in the months following the collapse of Lehman Brothers in September 2008 (Figure 2).

Figure 1. Changes in the main stock market indexes

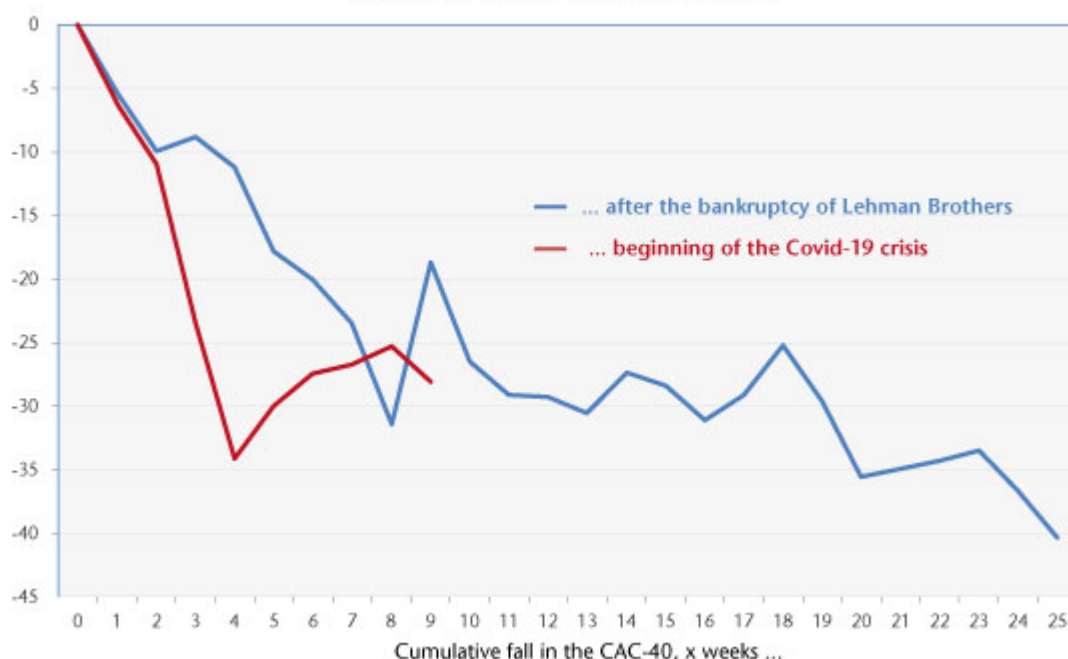


Source: Eikon Datastream. Base 100: average for the year 2019.

While the short-term impact of the Covid-19 crisis could prove to be more severe than that of the 2008 financial crisis, the origin of the crisis is very different – hence the need to reconsider the impact of the stock market panic. In the financial crisis, the origin was in fact a banking crisis, fuelled by a specific segment of the US real estate market, the subprime market. This financial crisis then caused a drop-off in demand and a recession through a variety of channels: higher risk

premiums, credit rationing, financial and real estate wealth effects, uncertainty, and so on. While some of these elements can be found today, they are now being interpreted as the consequence of a health crisis. But if there is no doubt that this is at the outset a health and economic crisis, can it trigger a stock market crash?

Figure 2. Fall in France's CAC-40 index in the Covid-19 crisis compared with the post-Lehman Brothers collapse



Source: Eikon Datastream.

Another way of posing the question is to ask ourselves whether the current stock market fall is due entirely to the economic crisis. Share prices are in fact supposed to reflect future changes in a company's profits. Therefore, expectations of a recession, as demand – consumption and investment – and supply are constrained, must result in a reduction in turnover and future profits, and therefore a fall in share prices.

However, the financial

shock could be magnified if the fall in stock prices is greater than that caused by the decline in corporate profits. This is a thorny issue, but it is possible to make an assessment of a possible over-adjustment of the stock market, and thus of a possible financial amplification of the crisis. The method we have used is to compare changes in profit expectations (by financial analysts) since the beginning of the Covid-19 crisis with the fall in equities. Focusing on CAC-40 companies, profit expectations for next year have been cut in the last three months by 13.4% [\[1\]](#). This reduction should therefore be fully reflected in the change in the index. In fact, the fall there was much larger: -28%. This would result in an amplification of the financial shock by just under 15 percentage points.

This over-adjustment by the stock market can be explained by, among other things, the current prevailing uncertainty about the way lockdowns around the world will be eased, and thus about an economic recovery, as well as uncertainty about the oil shock that is unfolding concomitantly, with determinants that are both economic and geopolitical. This over-adjustment may therefore not be wholly irrational (with regard to the supposed efficiency of financial markets), but the fact remains that it has led to major variations in the financial assets of consumers and

business.

Variations like these are not neutral for economic growth. On the consumer side, they contribute to what are called the wealth effects on consumption: additions to a household's assets give it a sense of wealth that drives it to increase its consumption [2]. This effect is all the greater in countries where household assets are in the main financialized. If a large portion of household wealth is made up of equities, then changes in share prices strongly influence this wealth effect. The portion of shares (or of investment funds) in financial assets is quite similar in France and the United States, respectively 27% and 29%. However, these assets account for a much larger share of the disposable income of American households: 156%, compared to 99.5% in France. As a result, French households are less exposed to changes in share prices. Empirical studies generally suggest a greater wealth effect in the United States than in France [3].

As for business, these changes in stock market valuations have an effect on investment decisions through collateral constraints. When a company takes on debt to finance an investment project, the bank demands assets as collateral. These assets can be either physical or financial. In the event of an increase in equity markets, a company's financial assets increase in value and allow it

greater access to credit

[4]. This mechanism is potentially important today. At a time when companies have very large cash requirements to cope with the brutal shutdown of the economy, the sharp decline in their financial assets is restricting their access to lines of credit. While the financial amplification factors are not reducible to the financial shock, the recent changes in the prices of these assets are nevertheless giving an initial indication of how the financial system is responding to the ongoing health and economic crises.

[1] The data comes from Eikon Datastream, which for each company provides analysts' consensus on the earnings per share (EPS) for the coming year and the following year. We then calculated the weighted average using the weight of each CAC-40 company in the index of the change in these expectations over the past three months. The fact that a 13.4% decline in profit expectations for the next year will give rise to a 13.4% decline in the stock price is made on the assumption that profits beyond the next year are not taken into account, or, in other words, that their current net value is zero, which is to say that investors' preference for the present is very strong today.

[2] More formally, we can speak of a propensity to consume that increases as wealth increases. Wealth effects can

be distinguishable according to whether they are purely financial assets or also include property assets.

[3] See [Antonin, Plane and Sampognaro \(2017\)](#) for a summary of these estimates.

[4] See [Ehrmann and Fratzscher \(2004\)](#) and [Chaney, Sraer and Thesmar \(2012\)](#) for empirical assessments of this transmission channel via share prices or property prices, respectively.

The Covid-19 passport and the risk of voluntary infection

By [Gregory Verdugo](#)

Covid-19 has made it risky to have a job that cannot be done remotely and requires contact with the public. Given the danger of infection facing frontline workers, employers confront the risk of legal consequences in the event of insufficient protection. This new risk could lead to changes in the characteristics of the workers being hired, as the threat of lawsuits creates an incentive to discriminate by choosing workers who are least at risk for these positions. As long as the Covid-19 virus is in circulation, we could therefore witness the rise of a powerful new

source of discrimination in the labour market based on the risk of serious infection. But according to some epidemiologists, the virus could be circulating and creating episodic outbreaks for 18 to 24 months [\[1\]](#), with the result that Covid-19 could leave a lasting imprint on the job market.

Which workers are least at risk? First, there are those with no apparent co-morbidities, which means that individuals who are obese may face even more pronounced discrimination on the labour market [\[2\]](#). However, the main easily identifiable group at lower risk are the young, since the under-30s face a very low risk of developing a serious form of Covid-19 [\[3\]](#). This situation is unprecedented – for the first time, we’re experiencing a recession where young people are less affected than more senior employees!

But while the young are less at risk, there is one group of individuals for whom the risk could be even lower. Experience with other viruses suggests that individuals who have previously contracted Covid-19 gain at least temporary immunity from future infection [\[4\]](#). Although such immunity remains uncertain and controversial [\[5\]](#), some employers may want to test their employees, especially those in at-risk positions, to rule out the danger of infection

attributable to their professional activity.

Information on the state of an employee's immunity could therefore be very valuable for an employer – so much so, in fact, that it could lead to the development of low-quality private tests and a risk that false immunity certificates could proliferate. To avoid these risks, many countries are considering creating immunity passports certifying that a worker has already contracted Covid-19 and is, at least in the short term, safe from the risk of infection [\[6\]](#). Chile has announced that it is implementing such a policy, and it is under discussion in various European countries.

An immunity passport is expected to provide high wages in labour markets wracked by Covid-19, particularly in high-risk jobs, including those requiring close contact with infected people, such as in hospitals. In turn, in an economy in crisis, an immunity passport guaranteeing well-paid employment could generate high demand for voluntary infection among those in direst need.

This possibility of self-infection when immunity is socially valued or economically profitable is not merely a theoretical question. In an article published in 2019, historian Kathryn Olivarius of Stanford University showed that there are numerous historical precedents [\[7\]](#). Being recognized as having

immunity was in particular an essential condition for economic integration during the colonization of tropical zones, where infectious diseases were decimating the colonists. In the early 19th century, immigrants recently arriving in New Orleans were said to be “non-acclimated”, and sought to quickly suffer and survive yellow fever, which at that time had an estimated mortality rate of about 50%, which is well above that of Covid-19, currently estimated at between 0.3% and 1%. To integrate, you had to prove that you survived the infection and thus became “acclimated”. Only after becoming “acclimated”, with the risk of early death being ruled out, did it become possible to have access to the best jobs in the local labor market, to get married and to access credit from local banks.

If a Covid-19 immunity passport is developed, it will in a similar manner foster a dangerous temptation to become infected in order to gain access to jobs where the risk of infection is high but wages are also high. The temptation to self-infect would be even stronger in the case of Covid-19, the consequences of infection are usually benign. But voluntary infection could lead to risky behaviour: one can imagine individuals trying to get infected, and in doing so spreading the disease around them, especially if they remain asymptomatic.

Alex Tabarok, a professor

of economics at George Mason University, argues that the issue of immunity passports by the public authorities would also imply the need to regulate the demand for voluntary infection that this would give rise to. So the public authorities should offer the possibility of infection in moderate doses, in a medical setting and by ensuring medical follow-up during a period of quarantine following voluntary infection.[\[8\]](#)

The supervision of a voluntary infection motivated by the desire to obtain an immunity passport clearly poses ethical problems. First, it would be individuals in the most precarious situations, especially those most affected by the recession, who would volunteer. Furthermore, it is not certain that medical supervision reduces the risk of death or serious sequelae. Above all, voluntary infection contradicts the apparent policy goal today, which is to curb the epidemic as much as possible, as the possibility of achieving collective immunity seems distant. So such an approach is for the moment dangerous.

To be consistent with the goal of suppressing the epidemic, it therefore appears necessary to discard the policy of immunity passports, which give value to having been infected. As is set out in the French protocol for lifting the lockdown [\[9\]](#), it is also necessary to ensure that the private market does not fuel this demand and that companies don't

create their own immunity passports or try to acquire information about immunity through other means. While a rule like this might seem paradoxical, the risk of self-infection can be eliminated only if a non-discrimination rule is imposed that prohibits employers from using or requesting the results of serological tests to employ workers in high-risk positions and that also bars employees from revealing their immunity status.

[1] Moore Kristine, Marc Lipsitch, John M. Barry and Michael T. Osterholm, 2020, "The Future of the COVID-19 Pandemic: Lessons Learned from Pandemic Influenza", *COVID-19: The CIDRAP Viewpoint*, April.

<https://www.cidrap.umn.edu/sites/default/files/public/downloads/cidrap-covid19-viewpoint-part1.pdf>

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[4] Altman Daniel M., Daniel C. Douek and Rosemary J. Boyton, 2020, "What policy makers need to know about COVID-19 protective immunity", *The Lancet*. [https://doi.org/10.1016/S0140-6736\(20\)30985-5](https://doi.org/10.1016/S0140-6736(20)30985-5)

[5] See the opinion of 24 April 2020 by the World

Health Organisation, “Immunity passports in the context of COVID-19”, https://apps.who.int/iris/bitstream/handle/10665/331866/WHO-2019-nCoV-Sci_Brief-Immunity_passport-2020.1-eng.pdf

[6] *The Guardian*, 2020, “‘Immunity passports’ could speed up return to work after Covid-19”, 30 March.

<https://www.theguardian.com/world/2020/mar/30/immunity-passports-could-speed-up-return-to-work-after-covid-19>

[7] Olivarius K., 2019, “Immunity, Capital, and Power in Antebellum New Orleans”, *The American Historical Review*, 124(2), 425-455. <https://doi.org/10.1093/ahr/rhz176>

[8] Tabarrok A., 2020, “Immunity Passes Must Be Combined With Variolation”, *Marginal Revolution*, blog post, 5 April, <https://marginalrevolution.com/marginalrevolution/2020/04/immunity-certificates-must-be-combined-with-variolation.html>

[9]<https://travail-emploi.gouv.fr/IMG/pdf/protocole-national-d-e-deconfinement.pdf>