



# FRANCE

## SELECTED ISSUES

January 2023

This paper on France was prepared by a staff team of the International Monetary Fund as background documentation for the periodic consultation with the member country. It is based on the information available at the time it was completed on January 10, 2023.

Copies of this report are available to the public from

International Monetary Fund • Publication Services  
PO Box 92780 • Washington, D.C. 20090  
Telephone: (202) 623-7430 • Fax: (202) 623-7201  
E-mail: [publications@imf.org](mailto:publications@imf.org) Web: <http://www.imf.org>  
Price: \$18.00 per printed copy

**International Monetary Fund**  
**Washington, D.C.**



# FRANCE

## SELECTED ISSUES

January 10, 2023

Approved By  
European Department

Prepared By Iulia Ruxandra Teodoru and Ruud Vermeulen

## CONTENTS

<b>SPENDING EFFICIENCY AND REFORMS</b>	<b>2</b>
A. Introduction	2
B. Social Protection	4
C. Health	10
D. Education	12
E. Public Administration	13
F. Tax Expenditures	15
G. Conclusions and Policy Recommendations	17
References	22
<b>APPENDIX</b>	
I. Benchmarking Methodology and Results	24

# SPENDING EFFICIENCY AND REFORMS<sup>1</sup>

*The trend increase in primary current spending over the last three decades leaves France with the highest spending ratio in Europe. France will need to reverse this trend through structural spending reforms to rebuild fiscal buffers that have been further eroded by the large fiscal response to successive shocks over 2020–22. This paper identifies areas where scope for savings or efficiency gains exist based on an analysis of public spending on key categories and related outcomes relative to peers. Reform of social protection, health, education, and civil service should preserve or improve outcomes while generating savings that would help meet medium-term adjustment needs. In parallel, rationalizing costly, distortive, or inefficient tax expenditures would allow for base broadening and partially offset permanent revenue losses from the rebalancing of revenues away from labor and production taxes.*

## A. Introduction

**1. Spending reforms are needed to reverse the trend increase in public spending and rebuild fiscal buffers.** Annual real primary spending growth has outpaced output growth about half of the time over the past three decades, averaging 2 and 1.5 percent over 1990–2021 respectively. This reflects in part the limited countercyclicality of fiscal policy in France, especially during good times.<sup>2</sup> While spending restraint during the 1994–99 fiscal adjustment episode<sup>3</sup> helped reverse the spending increase of preceding years, the 2011–16 adjustment episode did not see a similar spending reversal, as the post-GFC consolidation largely relied on revenues. Hence, the gap between real spending and output growth has widened since the GFC, and more so than in peers where the adjustment was larger and centered on spending (Hallaert and Queyranne, 2016). With the highest spending ratio in Europe, France’s spending gap with peers reached 10 percentage points of GDP in 2019. While this high spending in part reflects social preferences, the high taxation required to fund it weighs on competitiveness, motivating successive tax cuts since 2017. With revenue growth falling short of spending growth, deficit and debt levels have been trending up since the 1980s. To reverse this, avoid adding to an already elevated tax burden, and rebuild fiscal buffers, structural spending reforms are needed.

**2. To identify areas for spending reforms, this paper evaluates the level and efficiency of public spending in France relative to European peers.** Building on earlier IMF analyses (IMF, 2019–20; Hallaert and Queyranne, 2016), it first benchmarks spending in France against its peers<sup>4</sup> by

<sup>1</sup> We are grateful to Jeffrey Franks for his guidance and comments, and to the French Trésor for their feedback during a seminar presentation. We thank Laurent Kemoe for sharing his code to estimate spending efficiency, Chunling Peng for her programming assistance, and Paola Alejandra Castillo for her excellent research assistance.

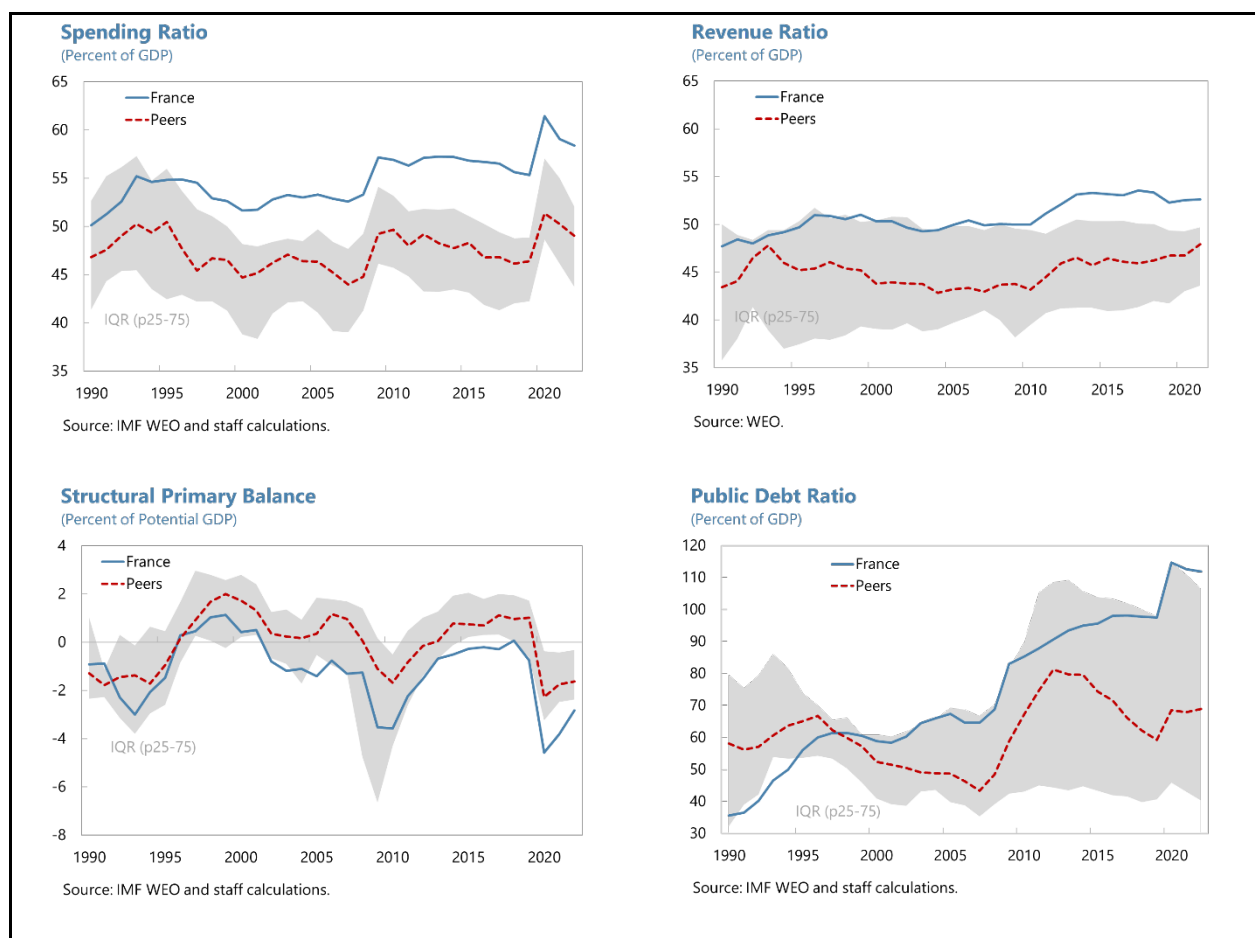
<sup>2</sup> Except during large shocks (2009 and 2020–21), fiscal policy has generally not been countercyclical witnessing the lack of a response to (lagged) changes in the output gap (see also [IMF Country Report No. 19/246](#)).

<sup>3</sup> Defined as an uninterrupted spell of positive changes in the structural primary balance of at least three years.

<sup>4</sup> Peer countries include Austria, Belgium, Denmark, Finland, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and United Kingdom (“EU13+UK+CHE+NOR”).

(continued)

jointly disaggregating spending by economic and functional classification to identify areas where scope for savings may exist. It shows that the spending gap of over 10 percent of GDP in 2019 is primarily driven by social benefits (+6½ pts), followed by the wage bill and subsidies (about +1¼ pts each), together accounting for 87 percent of the gap. With this “excess” spending concentrated in social protection (+5.5 pts), health (1.4 pts), education (+0.2 pts) and economic support (+1.6 pts), the analysis focuses on these four areas. The paper then assesses the efficiency of spending in these areas relative to peers by estimating efficiency frontiers using stochastic frontier analysis (SFA, see Annex). The paper is structured accordingly, with sections B, C, and D covering social protection, health, and education spending, followed by public administration and tax expenditures (that drive wage bill and subsidy spending, respectively) in sections E and F. Section G presents conclusions.



Notwithstanding significant disparities within this group, these are all advanced economies with broadly comparable fundamentals in terms of their level of development (proxied for by GDP per capita), institutional frameworks (esp. EU member states), and the prevalence (less so design) of social safety nets. The sample is larger than in previous studies cited to ensure that efficiency scores can be estimated econometrically.

		Spending Gap Relative to Peers (Difference between France and peers in percent of GDP, 2019) <sup>1/</sup>																										
		General Public services					Economic affairs					Health					Education			Social protection								
Total Expenditure	Total	Exec.&Legis. Organs, Fiscal, Financial & External affairs	General Services	Other	Total	General econ., commercial and labour affairs	Energy and Communication	Transportation	Other	Total	Medical products, appliances and equipment	Outpatient services	Hospital services	Public health services	R&D Health	Other	Total	Pre-primary and primary education	Secondary education	Other	Total	Sickness and disability	Pensions	Family and children	Unemployment	Housing	Social exclusion	
	<b>Total</b>	10.6	-0.2	-0.1	0.5	-0.6	1.6	1.1	0.3	-0.3	-0.5	1.4	0.5	1.0	0.1	0.0	-0.1	-0.2	0.2	-0.4	0.5	-0.1	5.5	-0.1	3.9	0.2	0.7	0.6
Social benefits	6.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.6	1.9	-0.8	0.0	0.0	0.0	-0.1	-0.1	0.0	-0.1	4.8	-0.5	3.5	0.2	0.7	0.5	0.5	
Subsidies	1.2	0.0	0.0	0.0	0.0	1.4	0.9	0.2	0.2	-0.2	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Compensation of employees	1.4	0.1	-0.1	0.5	-0.3	-0.1	-0.1	0.0	-0.2	0.1	0.2	0.0	-0.5	0.7	0.0	-0.1	0.0	0.6	-0.1	0.6	0.1	-0.1	-0.1	-0.1	0.0	0.0	0.0	
Investment	1.0	-0.2	-0.1	0.1	-0.2	0.4	0.3	0.1	-0.1	0.2	-0.1	0.0	0.0	0.0	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Consumption of goods and services	-1.1	-0.5	-0.2	-0.2	-0.2	0.0	0.0	-0.3	-0.1	-0.3	0.0	-0.3	0.1	0.0	0.0	-0.1	-0.2	-0.1	0.0	-0.1	-0.1	-0.1	0.1	0.0	0.0	0.0		
Other spending	1.5	0.4	0.3	0.1	0.1	0.2	0.1	0.0	0.2	0.0	0.0	-0.1	0.1	0.0	0.1	0.1	-0.1	0.0	-0.1	-0.1	1.0	0.7	0.1	0.2	0.0	0.2		

■ Higher than peers by more than 25 percent  
■ Higher than peers by 5-25 percent  
■ Higher than peers by 0-5 percent  
■ Lower than peers by 0-5 percent  
■ Lower than peers by 5-25 percent  
■ Lower than peers by more than 25 percent

1/ Peers include: Austria, Belgium, Denmark, Finland, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, and Switzerland.  
Sources: Eurostat and IMF Staff calculations

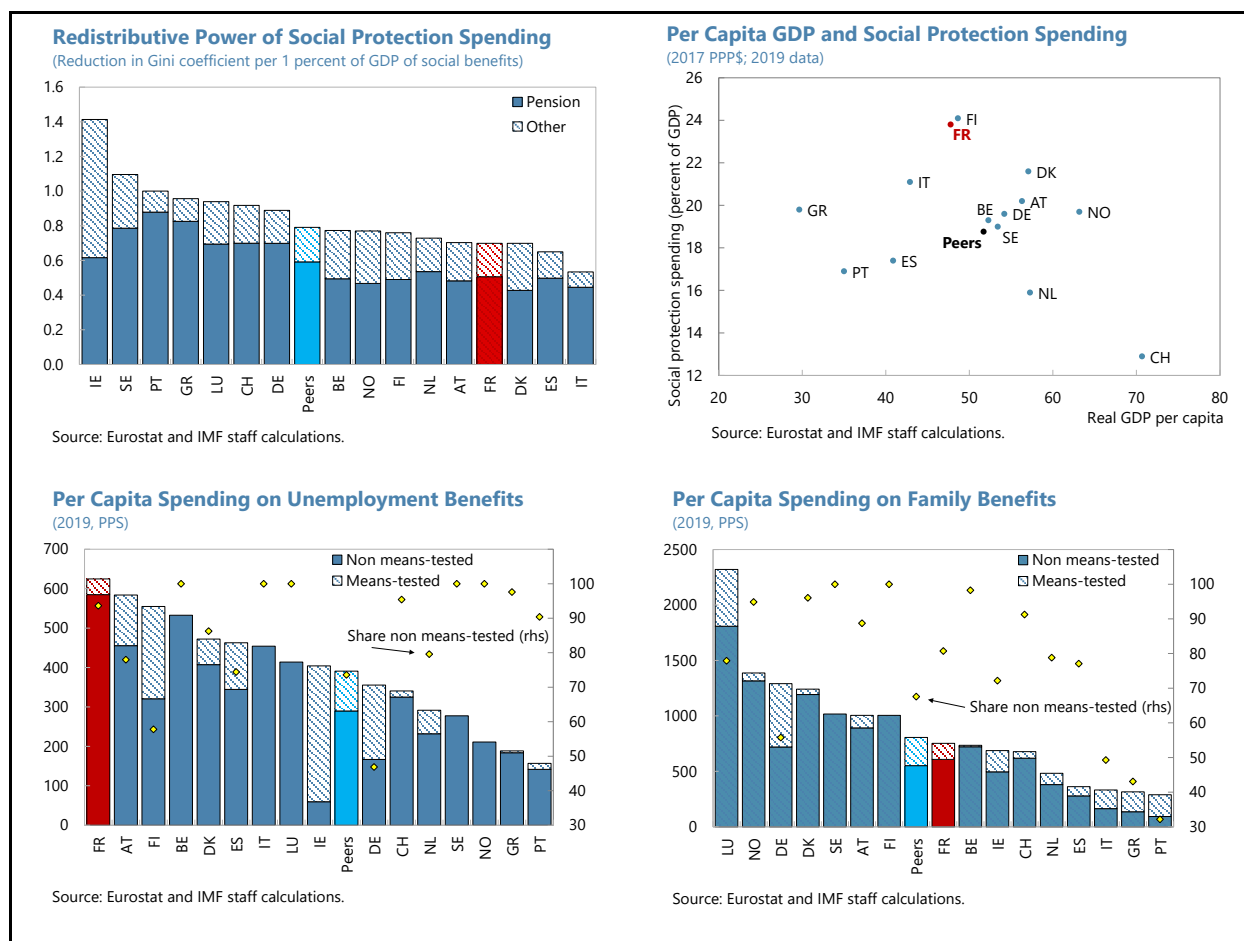
## B. Social Protection

**3. Social protection spending accounts for more than half of the spending gap with peers.** At 23.8 percent of GDP in 2019, social protection spending in France is the second highest in Europe—after Finland—and some 5.5 ppts above its peer average. This is largely funded from equally high taxes and social contributions, reflecting France’s social model that relies more on public rather than private insurance. While social protection spending declined from its peak of 24.5 percent of GDP in 2014—driven by lower pension, unemployment, and family benefit spending—the gap with peers has continued to widen as reforms and the recovery after the GFC and European sovereign debt crisis reduced spending elsewhere at a faster clip.

**4. While social benefits lower income inequality and poverty risk, their redistributive efficiency is low compared to peers.** Poverty rates and income inequality are relatively low and stable in France,<sup>5</sup> reflecting sizeable income redistribution through taxes and transfers. While the reduction in the Gini coefficient due to social transfers alone is slightly higher than the peer average (about ½ ppt), the redistributive efficiency of social benefits is lower as France spends significantly more than peers. This is largely driven by pension spending, which has a large redistributive impact but at a high cost (see below), and limited targeting of other social benefits. Unemployment benefits are especially poorly targeted, with only 6 percent of benefits means-tested against a peer average of 26 percent, reflecting a large insurance component. While more targeted, the share of untargeted family benefits is also some 13 ppts above that of peers. A study by [Rousselon and Viennot](#) (2020)

<sup>5</sup> At 14.6 percent in 2019, France’s poverty rate after taxes and transfers (relative to a 60 percent poverty line) is 2.5 ppts below its peer average (OECD data). At 0.29 in 2019, the disposable income Gini coefficient in France is in line with the simple average of its peers but about 1 ppt below the income-weighted average (Eurostat data).

confirms that redistribution in France is driven more by the volume of support than targeting, thus leaving scope to further improve the redistributive efficiency of direct taxes and social spending, and—more specifically—to improve the targeting of unemployment, social exclusion, and housing benefits.<sup>6</sup>



**5. High public pension spending reflects a relatively generous and fragmented system.** At some 14 percent of GDP in 2019, public spending on pensions is among the highest in Europe (after Greece and Italy), reflecting a relatively generous system with a low effective retirement age and high replacement rates.<sup>7</sup> As a result, the disposable income of those aged over 65 is high and the

<sup>6</sup> The study shows that—measured in relative terms and using a larger sample of European countries—redistribution reduces inequality in France more than elsewhere, with this redistribution broadly evenly spread between direct taxes and non-pension social benefits despite the former being six times larger; and that the redistributive efficiency of social spending is in fact higher. For our smaller sample, the reduction in the Gini coefficient per one percent of GDP in social benefit spending excluding pensions amounts to 0.55 percent against a median for France’s peers of 0.65 percent (in absolute terms 0.19 vs. 0.22 percentage points).

<sup>7</sup> While the *normal* retirement age is in line with the peer average (65), the *minimum* retirement age (62) years is one of the lowest in Europe. Few countries allow for retirement with a full-rate pension before the age of 64-65. While discounts for those retiring before qualifying for a full-rate pension (aged between 62 and 67 with an incomplete

(continued)

incidence of old age poverty is low, both relative to peers and to the rest of the population.<sup>8</sup> The 2010 and 2014 reforms reduced generosity by tightening eligibility—raising the minimum retirement age and age for full-rate pension by 2 years to 62 and 67<sup>9</sup>, effective from 2017; and the minimum contribution period for a full-rate pension at a rate of one quarter per three years from 2020, respectively—but are not sufficient to narrow the gap with peer countries where reforms enacted a larger and faster increase in the retirement age (OECD, 2021d). In fact, a proportionality measure that links lifetime benefits to lifetime contributions to assess the sustainability and equity of pension systems shows that the pension system in France has become relatively more generous since 2008, especially for mid-career workers, and more so than for selected peers (Fouejieu et al. 2021). However, pension projections by the *Conseil d’Orientation des Retraites* (COR, 2022) show that the higher living standards that retirees currently enjoy relative to the rest of the population will erode over time as wages (linked to productivity growth and inflation) grow faster than pension benefits (indexed to inflation), putting pressure on old-age poverty rates and hence the social and political acceptability of the current system (Blanchard and Tirole, 2021). This argues for pension reform focusing more on adjusting retirement ages rather than benefits or contributions. Besides its generosity, another factor that drives up the cost of the pension system is its fragmentation, with 42 different regimes with different rules adding to its complexity (and administrative costs) while undermining equity and labor mobility.

**6. Pension reform plans aim to improve the employment rate of older workers and the effective retirement age.** At 55 percent, the employment rate of older workers (55+ years) is well-below the peer average. Under current policies, the participation rate of the oldest cohort (65-74) is expected to increase by only 15 ppts by 2070, with less than half of the increase due to reforms, which is much lower than that in peer countries like Denmark, Italy, Netherlands, Greece, Portugal, Finland, and Spain (EC Ageing Report 2021). A recently unveiled pension reform plan that raises the minimum retirement age and accelerates the increase in the minimum contribution period for a full pension<sup>10</sup>—with provisions for special circumstances (e.g., long or interrupted careers, arduous jobs, etc.)—would bring the effective retirement age closer to peers. Beyond facilitating longer careers, this would strengthen the sustainability of the system and generate significant savings. While grandfathering existing participants, the reform also envisages gradually aligning most special

---

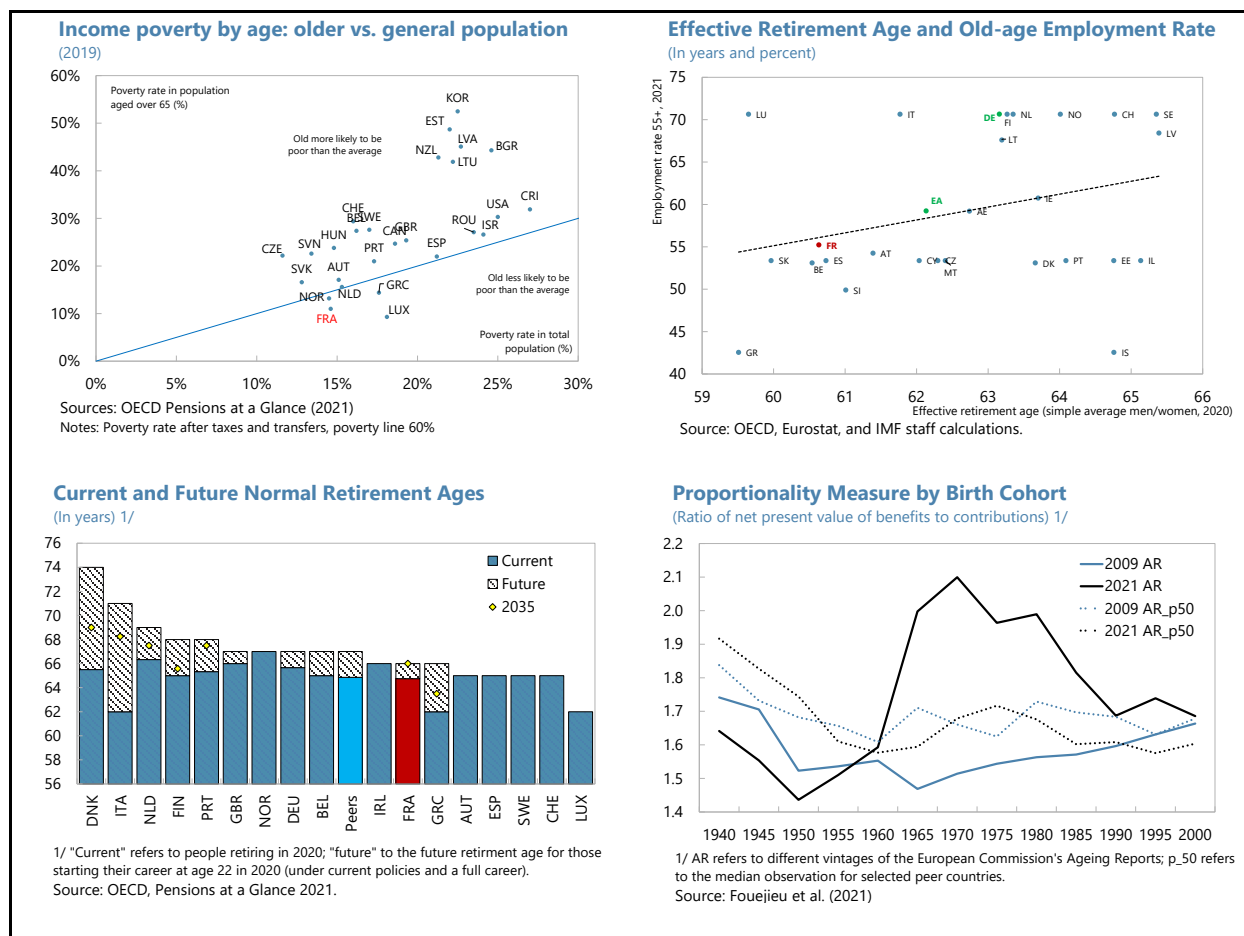
contribution history) are actuarially fair, it does not prevent early exit, reflected in an average age of labor market exit of 60.6 years (2 years below peers). Combined with a high life expectancy (0.6 years above peer average), the expected retirement duration is the second highest in Europe (shared with Spain, after Greece).

<sup>8</sup> The disposable income gap of this age cohort has narrowed dramatically over the past four decades from 20 percent to close to zero. This compared to an average of 12 percent across the OECD.

<sup>9</sup> Those with long careers (e.g., starting before 18 years and meeting the minimum contribution requirement) and “active service” public sector employees (police, nurses, etc.) can retire before the legal retirement age. The 2010 reform also raised the minimum and full-rate retirement ages for them by 2 years to 57 and 62 years.

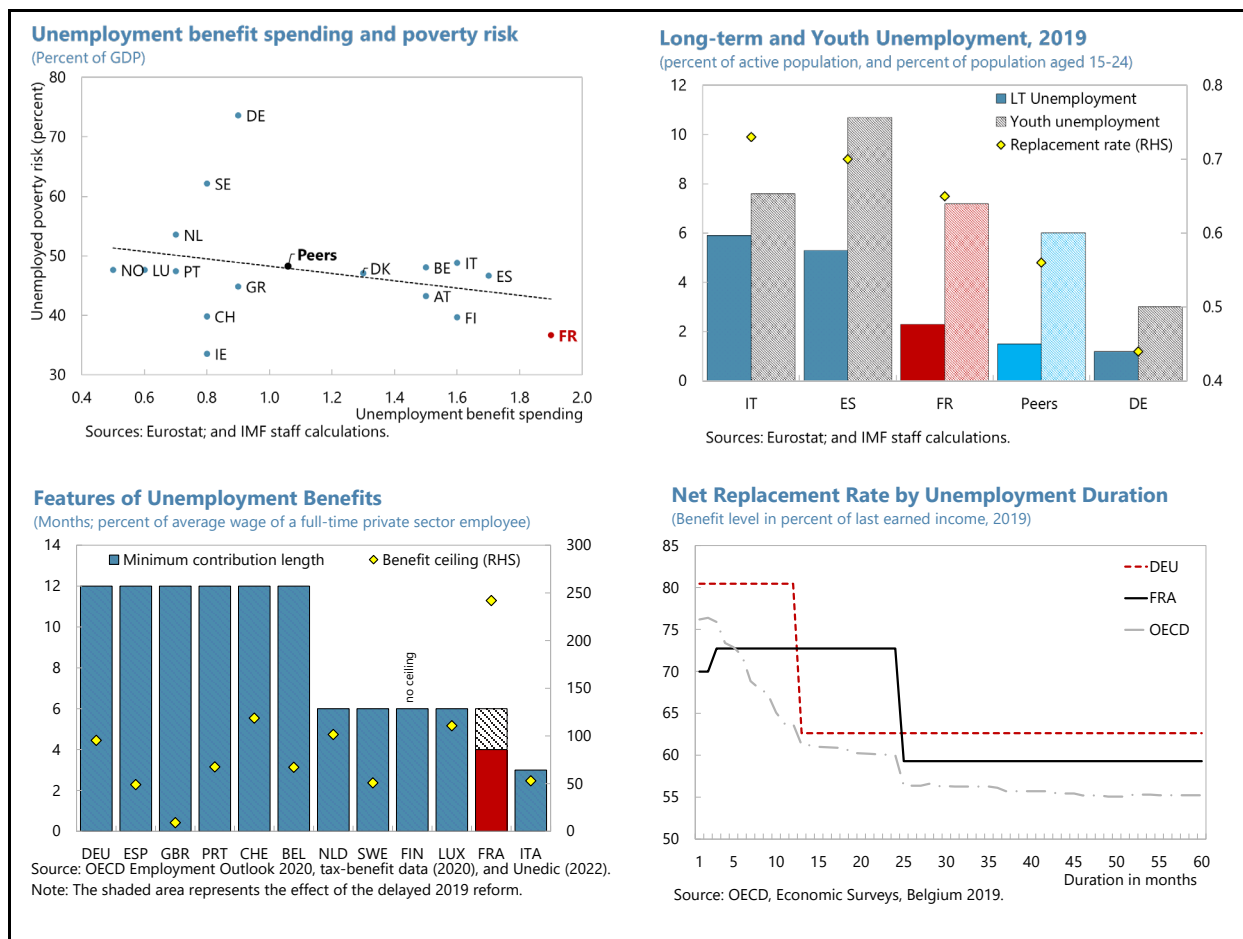
<sup>10</sup> The [plan](#), presented on January 10, 2023, includes raising the minimum retirement age from 62 to 64 at a rate of 3 months per year from September 2023 and minimum contribution period from 42 to 43 years by 2027. The 2014 reform (“Touraine”) legislated a gradual increase in the minimum contribution period for a full pension to reach 43 years by 2035.

regimes with the general regime for new participants (special schemes for more precarious professions, such as maritime fishing and performing arts, would be excluded).



**7. France outspends peers on unemployment benefits, reflecting a high unemployment rate and relatively generous system that weakens labor market incentives.** At close to 2 percent of GDP, France spends almost twice as much as its peers. While poverty risk in unemployment is low in France, it is broadly similar to that in Finland, Ireland, and Switzerland, who spend 0.3-1.1 ppts of GDP less. Long-term and youth unemployment in France are above the peer average (though below Italy and Spain) and are positively correlated with replacement rates, suggesting misaligned incentives (unemployment trap). While the replacement rate is only marginally above that of peers, it declines less with benefit duration, while the duration and ceiling of benefits are relatively high. The minimum benefit duration is broadly in line with peers (6 months) but the maximum duration is significantly higher (24 months vs. an average of 18 months for those aged below 50), especially for older cohorts (30 months for those aged 53-54 and 36 months for those aged 55 and older—the highest among peers except Belgium, which has no ceiling).





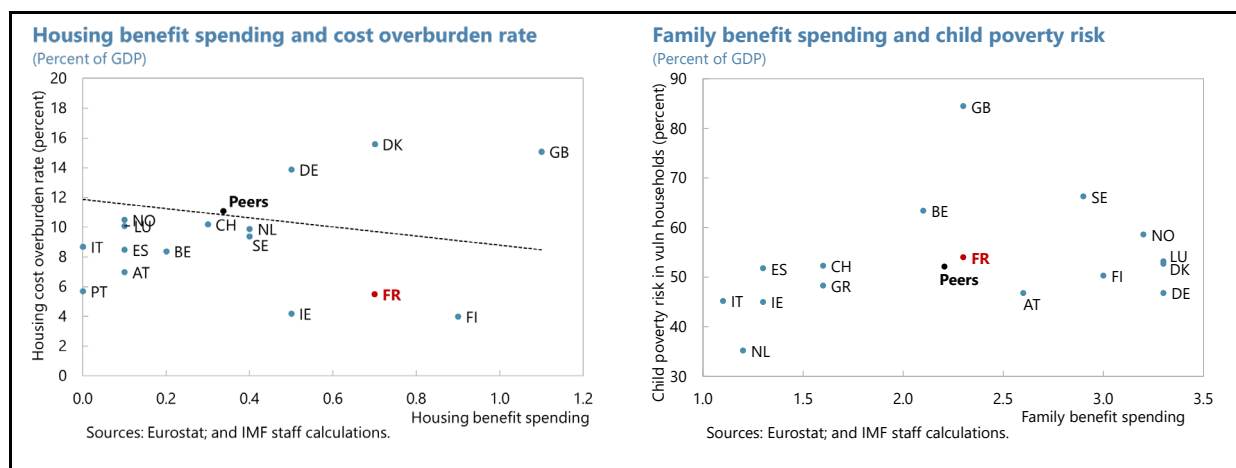
**8. Recent reforms should improve labor market incentives and generate savings.**

Specifically, the 2019 reform that was completed last year adjusted rules to calculate and accumulate benefits, tightened eligibility, introduced degressivity for higher incomes, and a modulation of employers’ unemployment contribution rate under a new bonus-malus system that penalizes excessive use of short-term contracts. Building on this, a recently enacted law<sup>11</sup> extends the application of the reform that was set to expire on November 1 until end-2023 and introduces countercyclicality in unemployment benefits (to be regulated by an upcoming decree and effective from February). The government envisages varying benefit duration with the level and change in the unemployment rate as a proxy for labor market conditions, with a 25 percent reduction in the maximum duration when the unemployment rate is below 9 percent and its quarterly rate of increase is below 0.8 ppts.<sup>12</sup> It also tightens eligibility for workers who voluntarily resign and for workers on fixed-term contracts who repeatedly refuse permanent contracts. After negotiations social partners on the governance of unemployment insurance, the new rules should apply from

<sup>11</sup> The law governing emergency measures to improve the functioning of the labor market to attain full employment enacted in December 2022.

<sup>12</sup> The duration varies with beneficiaries’ work history and will remain subject to a floor of 6 months and would be extended when labor market conditions deteriorate. The government considered further reducing duration (by 40 percent) when the unemployment rate drops below 6 percent but decided to postpone this to allow for sufficient dialogue with social partners and regulate it in the next interprofessional agreement (early 2024).

2024. While the reform will reduce labor market disincentives by shortening the duration when the labor market is relatively tight, there is scope to further revisit the level and duration of benefits, which remain relatively high.



## 9. There is scope to streamline other social benefits. Specifically:

- Housing benefits:** At 0.9 percent of GDP, spending on housing benefits is ½ percent of GDP higher than in peers. This comes on top of spending on housing and community amenities—at 1.1 percent of GDP the highest among peers (averaging 0.4 percent of GDP). While higher spending is mirrored in a lower cost overburden rate, the cost burden remains high compared to peers while it doesn't lead to a lower overcrowding rate for poor households (at 22.6 percent for households below 60 percent of equivalized median income, it is equal to the peer average). High spending and limited cost control are driven by insufficient (and inelastic) housing supply in densely populated urban areas, limited turnover and accessibility of social housing (despite a large stock), and poor targeting of housing support, with one in five households receiving such support and three quarters of the population eligible for social housing (*Cour des Comptes*, 2021c). Furthermore, the complexity of housing subsidies (*aides personnelles au logement*) undermines their effectiveness while adding to administrative costs. Finally, housing-related tax expenditures are costly and regressive and could be rationalized (T18).
- Social exclusion benefits:** At 1.3 percent of GDP, France spends ½ percent of GDP more than its peers on social minima. It comprises 10 different schemes that cover about 10 percent of the population, reducing the poverty rate and intensity by 3 and 8 ppts, respectively, in 2019 (DREES, 2022). Spending is concentrated on the four largest schemes<sup>13</sup> and dominated by the *revenu de solidarité active* (RSA) that was introduced in 2009 (0.6 percent of GDP, including the *prime d'activité* that replaced the *RSA-activité* in 2016, and administration cost). At 5.8 percent

<sup>13</sup> Accounting for 95 percent of spending, this includes the *revenu de solidarité active* (RSA), *allocation aux adultes handicapés* (AAH), *allocation de solidarité spécifique* (ASS), and the *allocation de solidarité aux personnes âgées* (ASPA), providing a minimum income to those without a job, with a low-paid job, unable to work, or with insufficient pensions while fostering reintegration into the labor market and transition to work.

over 2000-19, real spending growth exceeded that in peers (3.4 percent). While slowing in the post-GFC recovery phase (averaging 3.5 percent over 2012-18, similar to peers), it accelerated sharply in 2019-20, due to cyclical and discretionary factors (increase in beneficiaries and benefits) as well as underlying structural flaws. The latter include: (i) a low exit rate due to weak incentives and support to reintegrate beneficiaries into the labor market (only 2-4 percent of beneficiaries find durable employment; 42 percent of RSA beneficiaries remain beneficiaries after 7 years, while only a third transition into employment); (ii) widening of eligibility, especially for the disability scheme, and limited controls due to the fragmentation of roles and responsibilities, including administration and financing;<sup>14</sup> and (iii) limited effectiveness of some schemes in achieving their stated objective of preventing poverty (*Cour des Comptes*, 2021c, 2022b). To address some of these shortcomings, reform plans initiated in 2018 aimed to simplify and unify social assistance by introducing a universal activity income scheme (*revenu universel d'activité*, RUA). These were interrupted by the pandemic. Current reform plans (*solidarité à la source*) focus on improving and streamlining access through automation, digitalization, and better data exchange.<sup>15</sup> Eligibility to the RSA would be more strictly conditioned on reintegration efforts through training or work, with rights and obligations modeled after the *contrat d'engagement jeune* (CEJ). The reform will be piloted in 19 (out of 43) departments in 2023.

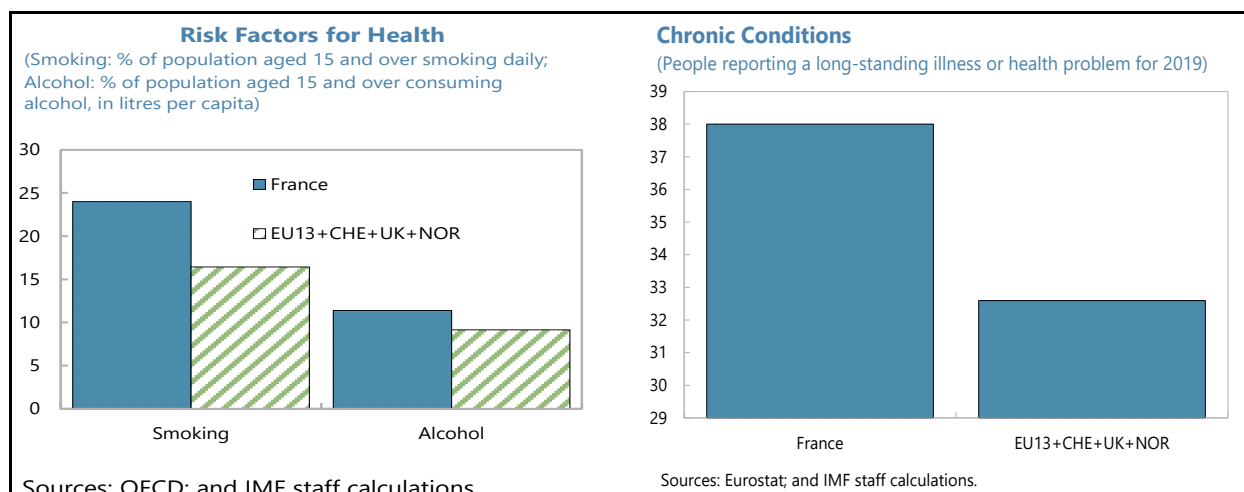
- **Family benefits:** Spending is only marginally above the peer average but is associated with mixed outcomes: slightly worse than the peer average for child poverty risk in vulnerable households (proxied by educational attainment of their parents), but better in terms of fertility and female labor force participation rates. However, as discussed above (T4), targeting of family benefits could be improved.

## C. Health

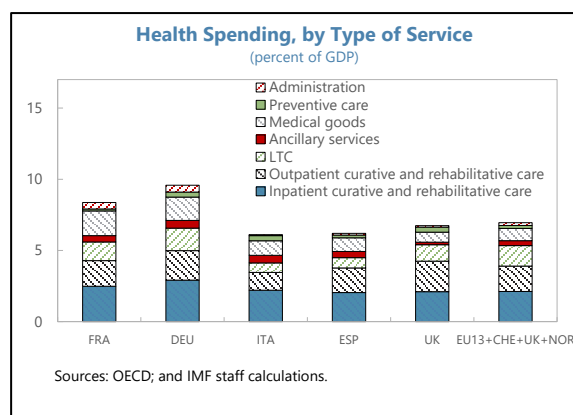
**10. France has one of the highest life expectancies compared to peers and other health outcomes are in line with peers.** Mortality rates from treatable causes are lower in France compared to the average of peers, and gaps in life expectancy between people with the highest and lowest education levels are similar to peers (and lower for women). However, high smoking rates and alcohol consumption among disadvantaged socio-economic groups—an important contributor to the gaps in life expectancy by education—prevent achieving even better health outcomes. Furthermore, chronic conditions and cancer incidence are much higher than in peers. In terms of the quality of care, France has effective primary care, including lower avoidable hospital admissions, and good secondary care as well, but it is below peers in terms of safety of primary care (i.e. antibiotics prescriptions are high in France) and preventive care.

<sup>14</sup> This holds for the AAH (*Cour des Comptes*, 2019 [L'allocation aux adultes handicapés]) and the RSA. For the RSA, CNAF estimates fraud at some €1bn in 2019. The *Cour des Comptes* (2020) estimates that some €1.4bn, or 12 percent of spending, were wrongly paid out, mostly due to fraud.

<sup>15</sup> Only 70 and 40 percent of those eligible for RSA are recipients of benefits and reintegration support, respectively (*Cour des Comptes*, 2022b).

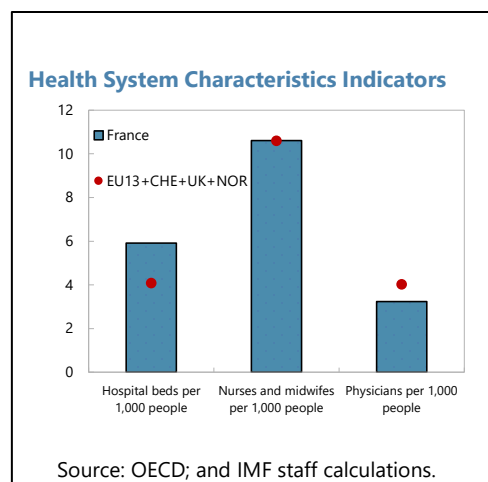


**11. The good overall health outcomes have come at a high fiscal cost.** At 11 percent of GDP in 2019, total spending on health is higher than the peer average (9.6 percent of GDP) with public health spending accounting for about 77 percent of total, compared to 70 percent in peers. While the ratio of public health spending to GDP increased by 1 ppt of GDP in France over the past two decades—in line with peers—other countries such as Spain or Italy had much lower initial health spending ratios (less than 6 percent of GDP in 2000 vs. 7 percent in France). The high level of spending mostly reflects compensation of employees (at 2.2 vs. 2 percent of GDP in peers) and social transfers (4.3 vs. 2.7 percent of GDP in peers). When looking at the spending by type of service of government/compulsory schemes, inpatient and outpatient care make up most of the health spending (4.3 percent of GDP), higher than in peers (about 3.9 percent of GDP). These categories account for about 50 percent of all health spending in France. Administrative costs in France (0.5 percent of GDP) are higher than in peers (0.2 percent of GDP).



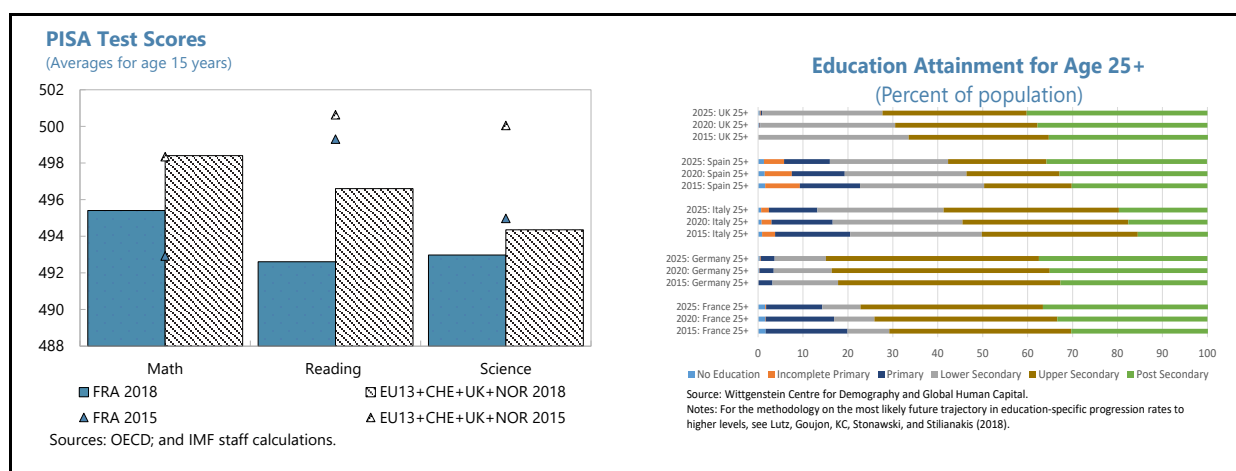
**12. Some medical resources available for delivering services to inpatients in France exceed peers, while others are below peers.** The number of hospital beds in France far exceeds that in peers. A surplus of hospital beds may lead to overuse and therefore costs—notably for patients whose outcomes may not improve from intensive care (Phua, Hashmi and Haniffa, 2020). Meanwhile, the number of doctors in France is below peers, and they have just barely kept up with

the increase in population growth since 2000 and it is projected to fall in the next few years (both in absolute levels and per capita), as doctors who will retire will exceed those entering the profession. This has prompted recommendations to increase by an additional 20 percent the number of students admitted to medical schools in France during 2021-25 compared with the previous five-year period (ONDPS, 2021). In addition, there are wide disparities in the density of general practitioners across regions. Combined with rising population, the density of general practitioners was reduced from 1.5 per 1 000 population in 2012 to 1.4 in 2021. While this reduction occurred in most regions, it was greater in some, and disparities increased (OECD, 2021).



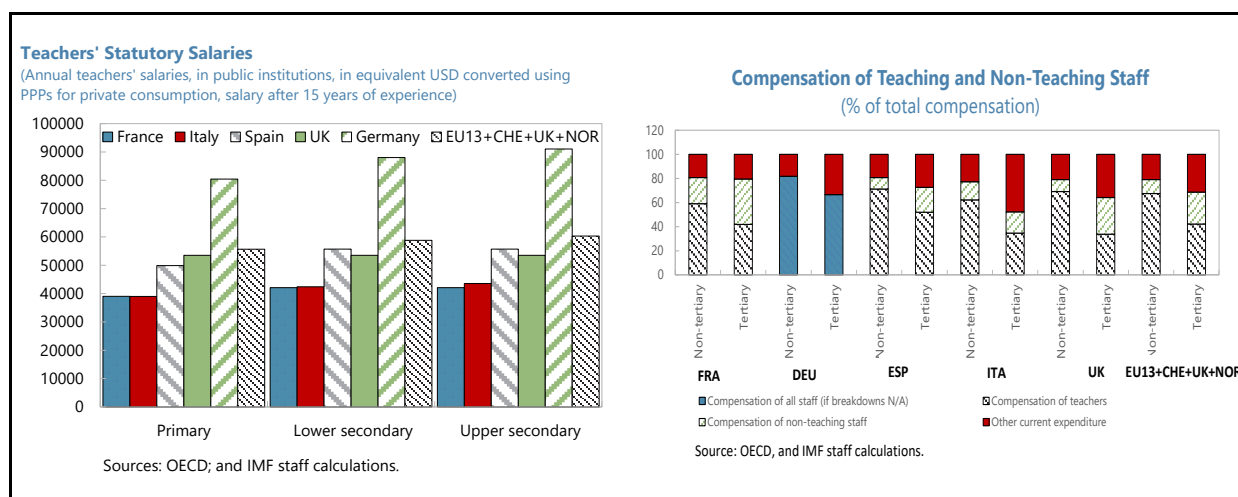
## D. Education

**13. Student performance and education attainment are relatively lower than in peers.** PISA test scores in secondary education in France are below Germany, the UK and other advanced economies. France also performs worse than the G5 in terms of test scores in math, science, and reading for grades 4 and 8. Only 30 percent of the population have completed a short post-secondary education cycle, versus 35 and 33 percent in the UK and Germany, respectively. Within the post-secondary education, France has one of the lowest shares of students graduating with a master's degree or higher among the G5. Meanwhile, it also has one of the highest shares of graduates for upper secondary education. These attainment trends are likely to continue into 2025 in the absence of structural reforms.



**14. Public education spending is high compared to peers, and mostly geared towards secondary education.** At 5.2 percent of GDP in 2019, public education spending is higher than in peers (5 percent of GDP), and notably above Germany, Spain, and Italy but lower than in the UK. While teachers' salaries are lower than in peers, compensation of non-teaching staff represents a

larger share of current expenditure from primary to tertiary education (22 percent in non-tertiary and 38 percent in tertiary education, vs. 12 and 28 percent, respectively, in peers). Expenditure per student is 5 percent higher than peers for secondary education (and over 30 percent higher for the upper secondary level), while it is 20 and 8 percent lower for primary and tertiary education. And while teacher/pupil ratios at all education levels are lower than in peers, they are slightly higher in upper secondary education, which drives costs up. Meanwhile, higher average class sizes could lead to a reduction in the amount of time devoted to learning and teaching. When benchmarking France to peers, there appears to be scope for achieving efficiency savings from rationalizing education spending.



## E. Public Administration

**15. The wage bill is significantly higher than in peers and has proved difficult to contain across the general government.** The wage bill accounted for 12.2 percent of GDP and over one fifth of public spending in 2019. It was about 1.5 ppt of GDP larger in France than in peers and it exceeds peers in almost all sectors, with social sectors contributing the most. While the wage bill for the central government has declined over the past decade (owing to the decentralization process, employment reduction with the introduction of employment caps from 2006 and natural attrition targets, and the wage-scale freeze since 2010), this decline has not been commensurate with the increase in the wage bill for local governments. Despite three waves of decentralization which should have led to a better delineation of the roles between the central and local governments, the central government is still very active in the local administration, including through a strong and powerful prefectural administration. The more complex breakdown of responsibilities in France can often result in duplication, overlap and co-ordination challenges.

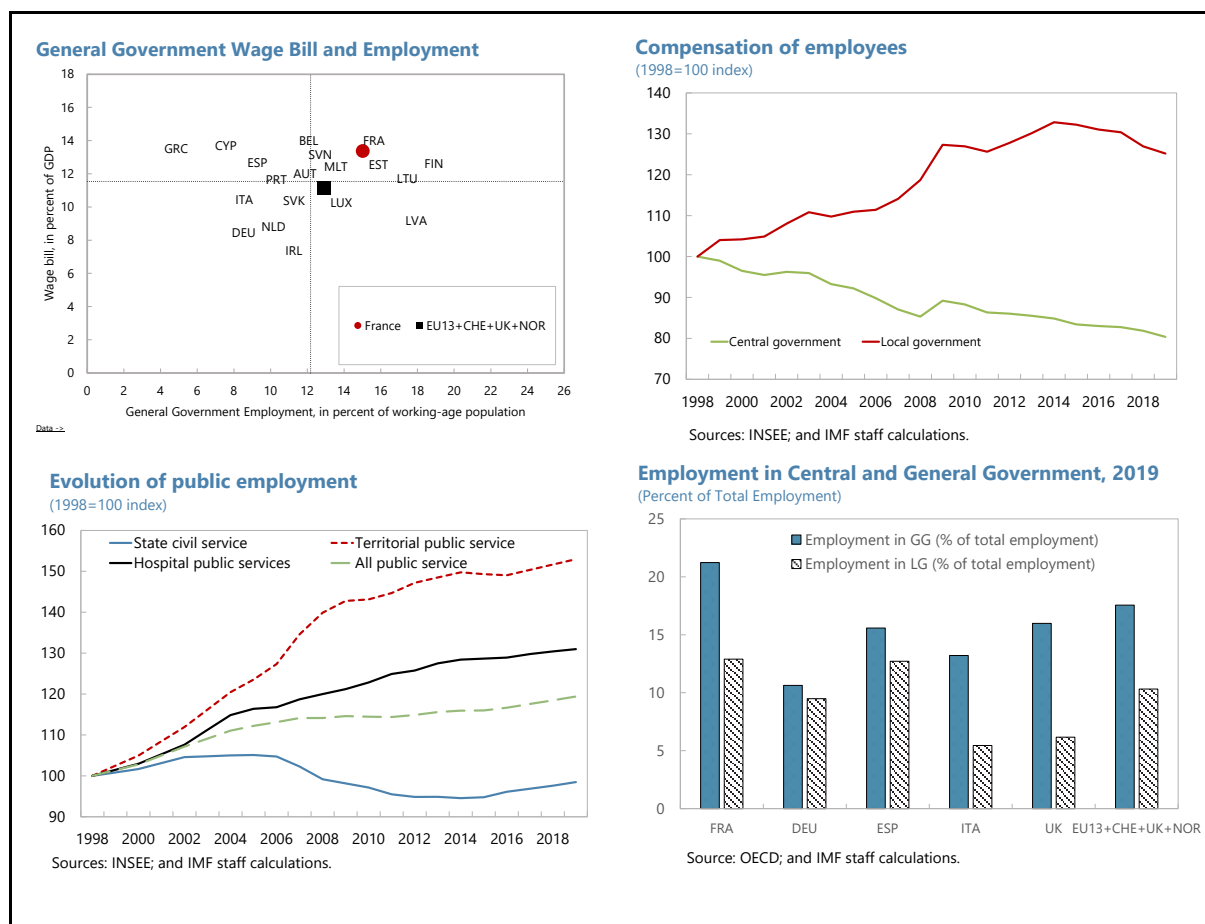
**16. While wages are relatively low, government employment in France is among the highest in Europe.** At about 15 percent of the working age population since the early 2000s, public employment is much higher than in peers or the other G4 economies. This is mainly due to increasing local employment levels, especially in the 2000s, while the state civil service has started to decline since mid-2000s. The share of local government employment—at about 12 percent of total

employment is the highest among peers. The rapid increase in local governments' wage bill and employment levels was due to weak hiring practices and rapid promotions, particularly at the municipal level, beyond what the decentralization process would require (*Cour des Comptes*, 2009 and 2012). France has a much larger number of municipalities per 100K inhabitants compared to peers.

**17. Containing the increase in spending at the local level remains challenging, while tax autonomy has diminished.** In addition to the issue of a high local governments' wage bill, procurement purchases have been sub-optimal at the local level, given the large number of municipalities which do not follow standardized processes/practices. Moreover, transfers from the center have supported additional and frequently inefficient spending. In recent years, France has increased efforts to contain spending in addition to the golden rule long in place for local governments under which they can only borrow to finance investment. The government introduced an indicative expenditure-growth limit for local governments in 2014 (ODEDEL). The targets set in the 2014-18 medium-term programming bill aimed to keep local spending broadly constant in real terms and were largely met by cutting investment spending. In addition, the *Cour des Comptes* now publishes an annual review of the finances and financial reporting of local governments (OECD, 2021). Meanwhile, the devolution of spending responsibilities to local governments could be more closely coordinated with a corresponding assignment of own-revenue sources. France falls in the category of countries with medium decentralized spending and medium tax revenues (OECD, 2019). However, the 2010 local finance reform led to a diminished share of own-source local taxes and thus, to less tax autonomy (OECD, 2019), which can potentially undermine imposing a hard budget constraint on local governments. In addition, revenue decentralization – more than spending decentralization – appears to be more strongly associated with income gains (OECD, 2022).<sup>16</sup> Empirical evidence further indicates that revenue decentralization could be associated with smaller regional economic disparities (OECD, 2022).

---

<sup>16</sup> OECD research found a broadly positive relationship between revenue decentralisation and growth, with spending decentralisation demonstrating a weaker effect (Blöchliger, Égert and Fredriksen, 2013). Blöchliger and Akgun (2018) find that tax decentralisation is more conducive to growth than spending decentralisation, with a 10 percentage point increase in tax decentralisation associated with 0.1 percentage points more economic growth. This is consistent with other recent studies, including Gemmill et al. (2013) and Filippetti and Sacchi (2016).

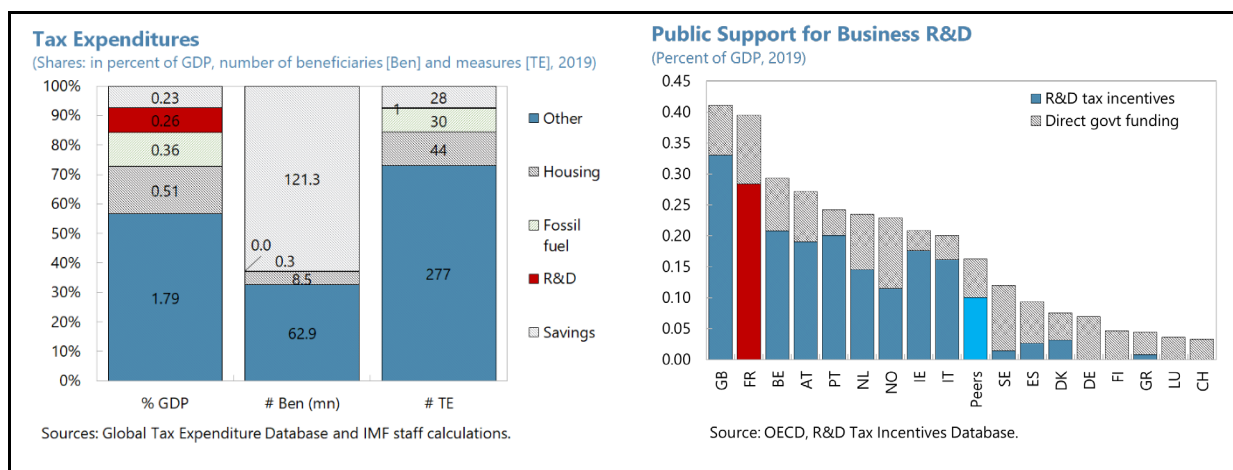
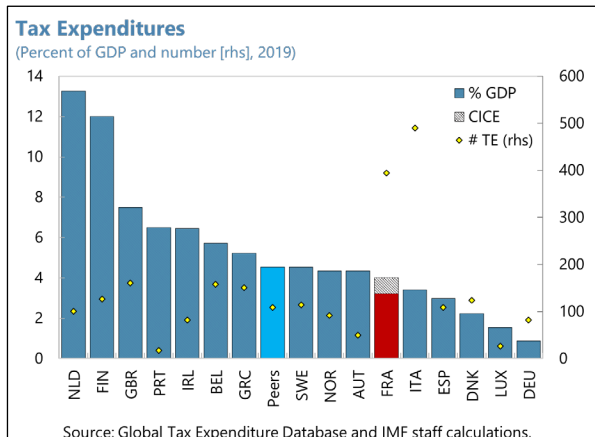


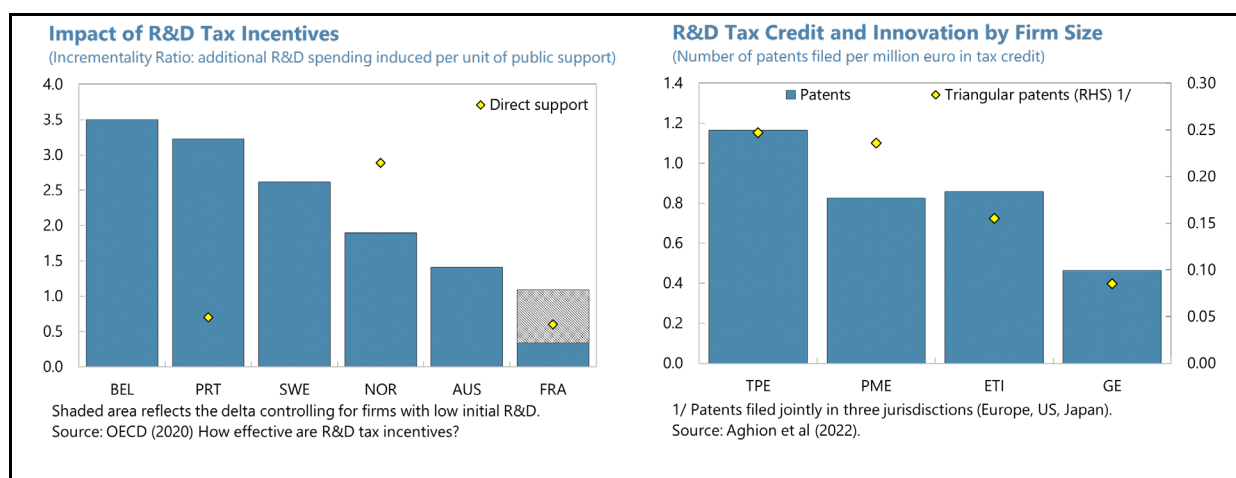
## F. Tax Expenditures

**18. France spends more than peers on economic support.** At close to 6 percent of GDP, spending is 1½ ppts higher than the peer average. Two thirds of spending support general affairs and transportation. More than 40 percent is channeled through subsidies and tax expenditures, accounting for nearly 90 percent of the spending gap with peers. Including the CICE (*crédit d'impôt pour la compétitivité et l'emploi*), tax expenditures amounted to 4 percent of GDP in 2019, below the peer average but well-above that in other large economies (Italy, Spain, and Germany). Moreover, their proliferation over time is reflected in France having the largest number of tax expenditures (394) after Italy (490)—more than 3.5 times higher than the peer average. Costly, distortive, regressive, or relatively ineffective tax expenditures include those for fossil fuels, housing, household savings, and R&D. These tax expenditures could be rationalized or redesigned. Specifically:



- R&D** (*crédit d'impôt recherche, CIR*): Public support for business R&D is among the highest in Europe (second after the UK) and is largely channeled through tax incentives. At 1/4 percent of GDP, the CIR is the single largest tax expenditure, accounting for more than 80 percent of R&D-related, and 8 percent of total tax expenditures. Studies show a positive effect of the CIR on R&D spending, investment, and innovation but with a relatively low additionality ratio (CNEPI 2021, Appelt et al. 2020, *Cour des Comptes* 2022a). With additionality inversely related to firm size, this largely reflects the disproportionate use of the R&D tax credit by large firms: in 2018, the 100 largest beneficiaries accounted for about a third of total spending while firms with more than 5k employees accounted for 36 percent, up from 32 percent in 2009 (CNEPI, 2021). While large firms accounted for only 14 percent of R&D tax relief recipients in 2019, they accounted for 70 percent of the benefits (OECD, 2021e). Similarly, innovation funded by the CIR also seems to decline with firm size, with Aghion et al. (2022) showing that the return on CIR spending—measured by patents issued per euro spent—is 2.5 times larger for micro firms than for large firms (2.9 times when looking at patents covering multiple jurisdictions). A low additionality and efficiency for large firms is inherent in the design, with a reduced CIR rate of 5 percent for R&D spending above €100mn (vs. 30 percent below). Estimates by Le Gall et al (2021) show that the CIR reform generates 0.8pp additional growth and 60k jobs in the long term—a costly tool as it implies an average annual cost of more than 83k per job created.





- Housing:** At  $\frac{1}{2}$  percent of GDP in 2019, housing-related tax expenditures are well-above the average of peer countries for which data are available (0.2 percent). They account for some 16 percent of tax expenditures (excl. CICE) and equal more than 80 percent of the budget allocation for territorial cohesion (charged with housing policies). Given multiple objectives, their effectiveness is hard to assess, with existing assessments yielding inconclusive results or pointing to limited effectiveness, significant cost, and/or undesirable effects (*Cour des Comptes, 2022a*). For instance, some tax exemptions and rebates for social housing organizations undermine their objectives of fostering the development and improvement of social housing. Similarly, reduced rates on housing maintenance, development and renovation work have a limited impact on employment and tend to be regressive (CPO, 2015).
- Fossil fuels:** Fuel tax expenditures amount to  $\frac{1}{3}$  percent of GDP in 2019, more than double the peer average, mostly in the form of reduced rates for fossil fuel use in transport and agriculture. While reduced tax rates for road freight transport and non-road diesel are gradually phased out, other fossil fuel tax expenditures remain, which contribute to pollution and congestion and undermine climate change goals. Moreover, they are costly and possibly underestimated (EC, 2022).
- Savings:** Household savings incentives amount to some  $\frac{1}{4}$  percent of GDP, largely in the form of exemptions for wage and housing savings. In view of the saving surplus accumulated during the pandemic, a reduction or elimination of savings incentives could be considered and could be achieved by revisiting the favorable tax treatment for housing investment and for the sale of immovable property (OECD, 2021a).

## G. Conclusions and Policy Recommendations

### 19. The analysis shows that higher spending in France relative to peers is not always commensurate with better outcomes, leaving scope to improve the efficiency of spending.

Reform of social protection, health, education, and the civil service should preserve or improve outcomes while generating savings that would help meet medium-term adjustment needs. In parallel, rationalizing costly, distortive, or inefficient tax expenditures would allow for base

broadening and partially offset permanent revenue losses from the rebalancing of revenues away from labor and production taxes. Findings and policy recommendations by spending category are presented below.

**20. While France scores well on protecting its citizens from social risks, the efficiency of social protection spending could be improved.** Social protection spending explains the bulk of the spending gap with peers. Higher spending is associated with better outcomes relative to peers, as measured by poverty risk and income inequality by age, employment status, or educational attainment of parents, but the analysis shows that there is scope to improve efficiency. This is corroborated by an estimate of France’s social protection efficiency score that, though above the peer average, is well-below that of the best performers (see Appendix 16). Better targeting of social benefits and reducing their generosity would strengthen redistributive efficiency and labor market incentives while generating savings. Specifically:

- *Pension reform:* increasing the effective retirement age as envisaged in pension reform plans is a step in the right direction. Introducing automatic adjustment by indexing the retirement age to life expectancy—as in Denmark, Finland, Greece, Italy, Netherlands, and Portugal (OECD 2021d)—would further enhance sustainability. To generate savings while maintaining the same replacement rate, this should be complemented by a proportional reduction in accrual rates or extension of the minimum contribution period. Unifying and simplifying the highly fragmented system—covering all 42 schemes—would improve equity, lower administrative cost, and facilitate labor mobility. To facilitate longer careers and increase the employment rate of older cohorts, pension reform should be accompanied by measures to improve working conditions (including flexible work arrangements and partial retirement) and skills of older workers.
- *Unemployment benefit reform:* entrenching recent unemployment benefit reforms and further revisiting eligibility and generosity, especially with regard to benefit ceilings and degressivity, would enhance labor market incentives and generate additional savings.
- *Reform of other social benefits:* strengthening means-testing of family, housing, and social assistance benefits would improve redistributive efficiency and generate savings. Simplifying and unifying social assistance schemes, while differentiating for special conditions, would reduce complexity for beneficiaries and administrators and facilitate better monitoring and control of eligibility. The sequencing of reforms is important: means-testing should be harmonized across schemes first before simplifying and unifying schemes (*Cour des Comptes*, 2021c). Likewise, while automation, digitalization, and better data exchange envisaged under the *solidarité à la source* plan may improve access, it is equally important that it is accompanied by enhanced efforts to reintegrate beneficiaries (*Cour des Comptes*, 2022b).<sup>17</sup>

**21. There is significant room for efficiency savings in health spending without compromising outcomes.** The Recovery and Resilience Plan envisages a modernization of the health care system which could achieve greater efficiency and improve outcomes, including wider

<sup>17</sup> The *Cour des Comptes* notes that the automation of payments undermines the principle of individualized support underpinning the RSA.

implementation of technological health and eHealth systems, encouraging R&D, training and scientific research, and greater investment in elderly care facilities. Additional reforms to obtain efficiency savings and improve cost-effectiveness of health services could include:

- Reducing spending on inpatient care, medical goods as well as administrative costs. Restructuring the public hospital network and developing primary care to increase treatment in ambulatory centers outside hospitals, including improving coordination between ambulatory and hospital care, could achieve savings in spending on hospital care and rationalize hospital services. More efficient management of human resources and equipment purchases in hospitals would also generate savings.
- Developing pluri-professional care exercises and houses by pooling resources, including generalists, would increase quality of care while rationalizing expensive equipment and reducing administrative costs (CdC, 2021).
- Investing in prevention relative to curative care and discouraging unhealthy behaviors, which would reduce the high costs associated with admissions to hospital for cardiovascular, cancer, and psychiatric diseases. Increasing incentives to prevent smoking or alcohol consumption could include increasing remuneration of doctors for preventive action and promoting tobacco and alcohol consumption control policies.
- Remuneration paid to health system stakeholders should be based less on fee-for-service or per admission, and more on lump-sum payments. For example, to contain the growth of expenditure linked to chronic diseases, an annual individualized per-patient budget could be considered, based on patients' health condition and needs (CdC, 2021).
- Aligning costs to the burden and complexity of care, given that pricing of care services favors most expensive modes of coverage for health insurance and charging categories include thousands of distinct items with complex definitions which do not reflect production costs.
- Spending could be further controlled by encouraging doctors to increase the share of generics in their drug prescriptions. This share (16 percent in value and 30 percent in volume) remains much lower in France than in Germany or the UK (35 percent in value and more than 80 percent in volume). Developing core care services for pathologies and best practices in drug prescriptions, including of generics, and aligning and adapting tariffs to pathologies will help reduce redundant/inadequate prescriptions.

**22. Achieving efficiency savings will be also important given the build-up of longer-term spending pressures from aging and medical progress.** 24 percent of the French population will be aged 65 or over in 2030. Based on the French long-term care indicator, the number of long-term care recipients will increase by 76 percent from 2015-2050. According to the 2021 Ageing Report projections, public expenditure on LTC is projected to increase in relation to GDP by 0.7 ppt (or 37 percent) between 2019 and 2050 (from 1.9 percent in 2016 to 2.6 percent in 2050).

**23. More ambitious structural reforms are needed to achieve efficiency savings in education spending while addressing inequities.** Structural reforms can focus on the following:

- Rationalizing excessive education resources in secondary and tertiary education and rebalancing spending from secondary and tertiary towards pre-primary and primary levels. Furthermore, better adapting the structure of expenditures to changing student demographics (i.e. using overtime to anticipate declining school demographics and avoid hiring) would help rationalize resources (CdC, 2021). Also, strengthening the selectivity of hiring of teachers, particularly in scientific subjects, and using assessments to steer the education system would help achieve better outcomes.
- Strengthening training of teachers (both initial education and lifelong training) and collaborative practices among them would foster innovative teaching methods. French teachers are less prepared on pedagogical aspects and receive less training related to in-class pedagogy; they also collaborate less with other teachers (TALIS, 2018).
- In addition, aligning teacher compensation with performance and the challenges faced in difficult areas would reduce educational inequities. The 2023 budget envisages an increase of teachers' salaries by 10 percent and the guarantee that no teacher would have a starting salary of below Euros 2000. This unconditional increase would be accompanied by another 20 percent increase in salaries if supplementary educational missions are performed.
- Giving more responsibilities and autonomy to school administrations could further foster teaching innovations. France has an education system with overly centralized and supervised management, and thus, both primary and secondary schools do not have sufficient autonomy to allocate resources according to a project developed locally and corresponding to the needs of the students (CdC, 2021).
- Providing better access to schooling from early ages on for low socio-economic background children and improving outcomes for schools in difficult and disadvantaged areas. Schools could offer children access to the internet to increase learning opportunities and possibly leverage online learning too.

**24. Achieving more efficiency in local public administration will be critical to ensure the benefits of decentralization in France.** Adequate subnational capacity and transparent multi-level governance, including efficient co-ordination mechanisms across levels of government is important to promote efficient public service delivery and regional development. Clarifying responsibilities assigned to different government levels will help contain spending at the local level, including on the wage bill, while increasing tax autonomy will impose a hard budget constraint. Introducing new own-source local taxes and broadening local decision-making power for setting rates or based on existing local taxes (e.g. property tax) could be considered to increase tax autonomy. Moreover, updating property valuations would be important, as out of date property values have been identified as lowering local property tax revenues (OECD, 2022). With respect to local spending autonomy, priority should be given to ensure that regions have adequate fiscal capacity to support vocational training while the roles of national and regional vocational training councils are clarified not to interfere with one another (OECD, 2022). Centralized electronic procurement would help standardize processes and up-skilling the local civil service would improve the efficiency of local procurement.

**25. Rationalizing and redesigning tax expenditures would improve their efficiency and generate substantial savings.** Tax expenditures that are not only costly but also distortive, regressive, or relatively ineffective should be rationalized (e.g., fossil fuels and housing) or redesigned (e.g., R&D). The effectiveness of the R&D tax credit, the single largest tax expenditure, could be enhanced by lowering the ceiling on the tax credit, raising the CIR rate, and/or differentiating the CIR rate by firm size (with a higher rate for smaller firms), as well as reducing overlap between R&D incentives (Aghion et al, 2022; *Cour des Comptes* 2021, 2022a; CPO 2022). Coupled with rationalizing other tax expenditures, this could yield savings ranging from ½ to 1 percent of GDP. Transparency and reporting on tax expenditures has improved, and new fiscal and social tax expenditures will be subject to 5 and 3 year sunset clauses, respectively, allowing for review before possible extension. However, the systematic evaluation of tax expenditures could be strengthened with a view to improve their effectiveness, reduce cost, and eliminate those that fail to meet objectives.

## References

- Aghion, P., N. Chanut, and X. Jaravel, 2022, "Renforcer l'Impact du Crédit d'Impôt Recherche", Conseil d'Analyse Economique, Focus No. 090-2022, September 2022.
- Appelt, S. M. Bajgar, C. Criscuolo, and F. Galindo-Rueda, 2020, "The Effects of R&D Tax Incentives and Their Role in the Innovation Policy Mix—Findings from the OECD microBeRD Project, 2016-19", OECD Science, Technology and Industry Policy Papers No. 92, September 2020.
- Blanchard, O. and J. Tirole, 2021, "Major Future Economic Challenges", France Stratégie, International Commission Report, June 2021.
- Conseil d'Orientation des Retraites, 2022, "Evolutions et Perspectives des Retraites en France", Annual Report, September 2022.
- Cour des Comptes, 2022a, "La Situation et les Perspectives des Finances Publiques", Paris: Cour des Comptes.
- Cour des Comptes, 2022b, "Le Revenu de Solidarité Active", Paris: Cour des Comptes.
- Cour des Comptes, 2021a, "A More Efficiently Organized School at the Services of Students", Cour des Comptes.
- Cour des Comptes, 2021b, "Health: Ensuring Access to Quality Care and Reducing the Health Insurance Deficit", Cour des Comptes.
- Cour des Comptes, 2021c, "Une Stratégie de Finances Publiques pour la Sortie de Crise, Communication au Premier Ministre, June 2021.
- Cour des Comptes, 2020, "La Lutte Contre les Fraudes aux Prestations Sociales", Communication à la Commission des Affaires Sociales du Sénat, September 2021.
- Cour des Comptes, 2012, "La situation et les perspectives des finances publiques", Paris: Cour des Comptes.
- Cour des Comptes, 2009, "Les effectifs de l'Etat 1980-2008: Un Etat des lieux (Synthèse du rapport public thématique)", Paris: Cour des Comptes.
- DREES, 2022, "Minima Sociaux et Prestations Sociales—Ménages aux Revenus Modestes et Redistribution", Edition 2022.
- Dutu, R., and P. Sicari, 2016, "Public Spending Efficiency in the OECD: Benchmarking Health Care, Education, and General Administration", OECD Economics Department WP no. 1278.
- EC, 2022, "2022 Country Report France", Commission Staff Working Document No. 612.
- Farrell, M. J., 1957, "The Measurement of Productive Efficiency", Journal of the Royal Statistical Society, Vol. 120 N°3, pp. 253-90.
- Fouejieu, A., A. Kangur, S. Romero Martinez, and M. Soto, "Pension Reforms in Europe, How Far Have We Come and Gone?", IMF Departmental Paper No. 2021/16.

- Gollier, C. et al, 2021, "Major Future Economic Challenges," International Commission chaired by O. Blanchard and J. Tirole, Tresor.
- Hallaert, J., and M. Queyranne, 2016, "From Containment to Rationalization: Increasing Public Expenditure Efficiency in France", IMF Working Paper No. 16/7.
- IMF, 2020, "Belgium—2020 Article IV Consultation", Country Report No. 20/91.
- IMF, 2019, "France—2019 Article IV Consultation", Country Report No. 19/245.
- Kumbhakar, Subal, H. Wang, and A. Horncastle, 2015, "A Practitioner's Guide to Stochastic Frontier Analysis Using Stata", Cambridge University Press.
- OECD 2022, "Fiscal Federalism 2022: Making Decentralization Work", OECD.
- OECD 2021a, "Economic Surveys: France 2021", OECD.
- OECD 2021b, "Health at a Glance 2021", OECD.
- OECD 2021c, "Education at a Glance 2021", OECD.
- OECD 2021d, "Pensions at a Glance 2021", OECD.
- OECD 2021e. "R&D Tax Incentives: France, 2021", [www.oecd.org/sti/rd-tax-stats-france.pdf](http://www.oecd.org/sti/rd-tax-stats-france.pdf), Directorate for Science, Technology and Innovation, December 2021
- OECD 2020, "Education Policy Outlook France", OECD.
- OECD 2019, "Making Decentralisation Work", OECD Multi-level Governance Studies.
- OECD 2007, "Meeting the Challenges of Decentralisation in France", OECD.
- Rousselon, J. and M. Viennot (2020), Primary Inequality and Redistribution: Where Does France Stand in Europe?, France Stratégie Note d'Analyse No. 97.
- Unédic, 2022, "Europ'Info 2022—L'Assurance Chômage en Europe", October 2022.



## Appendix I. Benchmarking Methodology and Results

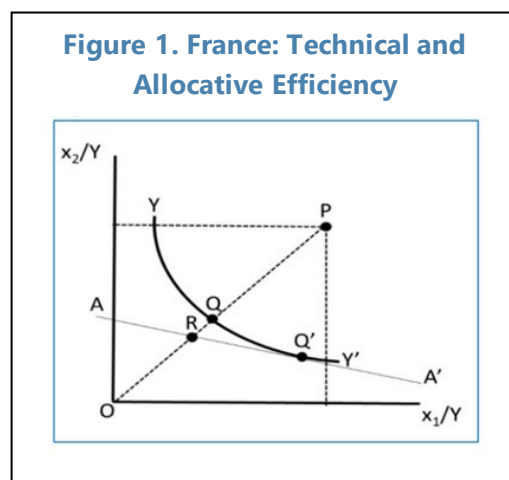
### A. Methodology

**1. Benchmarking is the systematic comparison of the performance of one unit against other peers.** It involves comparing units implementing the same transformation processes consuming inputs to produce goods and services (outputs). These units could be firms, industries, etc. but for the purpose of this analysis, they are countries. This comparison is done based on performance evaluations. Because of this, any benchmarking exercise is intimately related to the concept of efficiency. In the benchmarking literature, efficiency is measured by identifying the best performing units and use them to build a frontier. That frontier is called the “efficiency frontier”. With the frontier, the performance of all units is assessed by measuring their distances relative to the efficiency frontier.

**2. The modern discussion of gauging efficiency started with Farrell’s (1957) seminal paper.** The paper defines two types of efficiency, technical and allocative. Figure 1 illustrates both concepts by using the familiar isoquant diagram assuming a production function with two inputs  $x_1$  and  $x_2$ . To simplify the analysis, we normalize the inputs relative to the output so that the level of production is always one. The  $YY'$  isoquant represents the optimal (minimum) combination of normalized inputs required to produce one unit of output. The point  $P$  represents a sub-optimal production bundle because it produces one unit of output, but by using more inputs relative to  $Q$  (which is part of the isoquant). As point  $Q$  represents the optimal consumption of inputs required to efficiently produce one unit of output, the ratio  $QP/OP$  would be a measure of technical inefficiency which means that distance  $QP$  could be saved if inputs were used efficiently. The latter is a view of efficiency entirely based on the technical capacity to obtain the higher level of output with the minimum consumption of inputs.

**3. Efficiency can also be seen from a cost minimizing perspective.** Let  $p_1$  and  $p_2$  be the prices of inputs  $x_1$  and  $x_2$  then the slope of line  $AA'$  would be  $-p_2/p_1$  and  $Q'$  would be the optimal bundle assuming such price levels. For the production bundle  $P$ , the ratio  $OR/OQ$  would be a measure of the allocative or cost efficiency. Allocative efficiency measures the amount of resources that could be saved if, given input prices, the consumption of inputs would be used to minimize the unit’s total cost. Because of the lack of comparable multi-country data on prices, this paper focuses entirely on the

estimation of technical efficiency. Technical efficiency could be estimated based on input or output oriented models. In input-oriented models, the efficiency scores are the proportional amount by which input consumption could be reduced while leaving outputs unchanged. On the other hand,



efficiency scores from output-oriented models are defined as the proportional amount by which outputs could be increased while leaving inputs consumption unchanged.

**4. There are two families of methodologies—parametric and non-parametric—to estimate technical efficiency.** Each methodology has advantages and disadvantages. Parametric methods require several assumptions on the errors' distribution and the functional form underpinning the model. At the same time, parametric methods assume a stochastic relationship between inputs and outputs allowing us to separate from the efficiency estimation the part that is real inefficiency and the part which is explained by measurement errors or other noise in the data.<sup>1</sup> The flagship of the parametric methods is the stochastic frontier model (SFA).<sup>2</sup> Non-parametric methods, on the other hand, are based on mathematical programming and, therefore, do not require any distributional assumptions. They also do not require assumptions relative to the functional form of the transformation relation between outputs and inputs. However, non-parametric models do not include randomness and thus, all the data by construction provides information on the inefficiency or the technological frontier. This assumption makes non-parametric models very sensitive to the presence of outliers or noise in the data.

**5. This paper employs an SFA model to estimate the efficiency of social protection, health, and education spending.** The model is governed by the following functional form with the inefficiency term assumed to follow an exponential distribution:

$$y_i^* = f(x_i^1, X_i^{-1}, \alpha) \quad (1)$$

where  $y_i^*$  is the optimal outcome,  $x_i^1$  is government spending in a specific function,  $X_i^{-1} = (x_i^2, \dots, x_i^k)$  is a vector of other determinants of  $y_i^*$ , and  $\alpha = (\alpha_0, \dots, \alpha_k)$  is a vector of parameters. Inefficiencies ( $0 < \varepsilon_i = \exp(-u_i) \leq 1$ ) and shocks ( $v_i$ ) prevent an optimal outcome, with  $y_i = y_i^* \varepsilon_i \exp(v_i)$  under the assumption that  $y_i^* = c * \prod_{j=1}^k (x_i^j)^{\alpha_j}$ .

The efficiency frontier can then be derived as  $f_t(x) = \gamma * x^{\hat{\alpha}_1}$  and computed using the coefficient estimates from the following specification:

$$\ln(y_i) = \alpha_0 + \sum_{j=1}^k \alpha_j \ln(x_i^j) + v_i - u_i \quad (2)$$

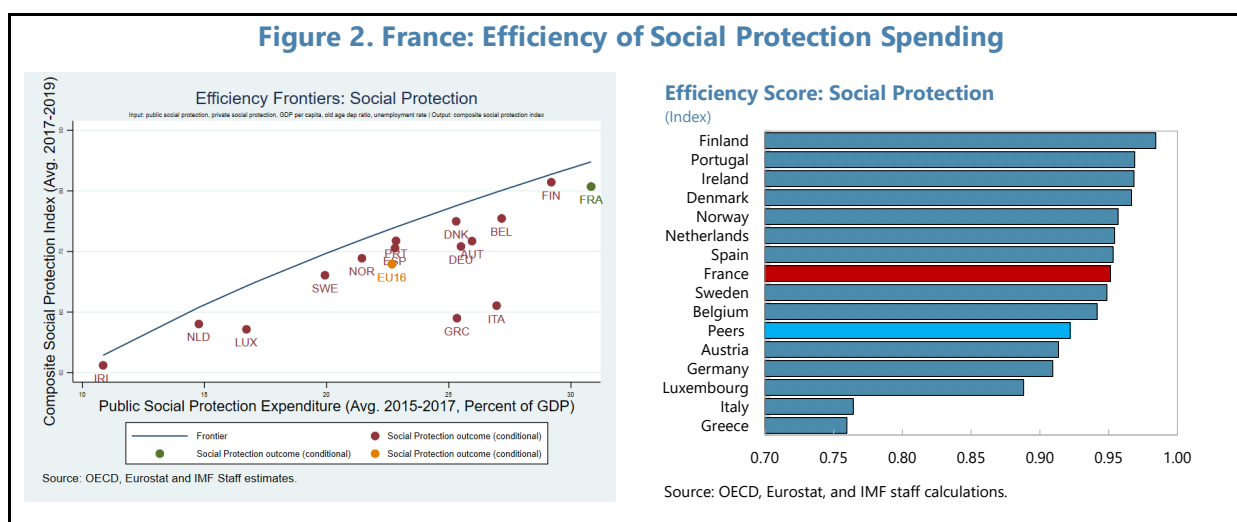
Public spending on health, education and social protection are used as inputs, and a weighted average of several standardized outcome measures are used as outcomes in these areas. SFA models control for private spending, the level of development, and other relevant determinants of the outcomes.

<sup>1</sup> Parametric methods could also be classified in non-distributional and distributional methods. The first involves adjustments on simple econometric methods to comply with the restrictions that all estimated errors lie below the frontier while the second involves the specification of a full econometric model including stochastic assumptions for the behavior of the inefficiency parameter.

<sup>2</sup> See Kumbhakar and others, 2015, chapter 3, for more details on the SFA model.

## B. Results

**6. France can improve the efficiency of its social protection spending.** Figure 2 plots the estimated efficiency frontier and scores, which shows that higher public spending on social protection in France is associated with better outcomes when controlling for private spending, the level of development, old-age dependency ratio, and unemployment rate. While the social protection index (comprising working- and old-age poverty rates, disposable income Gini coefficient, long-term unemployment rate, school enrollment rate, and housing overburden rate) is the second-highest after Finland, France spends significantly more than any other European country. This is reflected in an efficiency score that, though above the peer average, is well-below that of the best performers (Finland, Portugal, Ireland, and Denmark).



**7. France appears to have some room for efficiency savings in health spending.** Figure 3 shows the main results of the SFA method for estimating the efficiency scores for health. For the health outcome indicator (comprising life expectancy at birth, healthy life years, infant mortality, and health satisfaction level), the score in France implies potential efficiency savings in health spending. Spain, Sweden, Belgium, Norway and the Netherlands appear to be the best performers, and Germany is also a better performer compared to France, given their relatively lower spending on health associated with a certain level of the composite health indicator outcome.

**8. France appears to have some room for efficiency savings in education spending.** Figure 4 shows the main results of the SFA method for estimating the efficiency scores for education. For the education outcome indicator (comprising PISA scores, education satisfaction level, population speaking a second language, and secondary and tertiary education attainment), the score in France implies potential efficiency savings in health spending. Ireland, Germany, and Finland appear to be the best performers, and several other advanced economies are also better performers compared to France, given their relatively lower spending on education associated with a certain level of the composite education indicator outcome. Zooming into each level of education, efficiency scores for each level of education imply potential savings mostly in secondary and tertiary education spending.

Figure 3. France: Efficiency of Health Spending

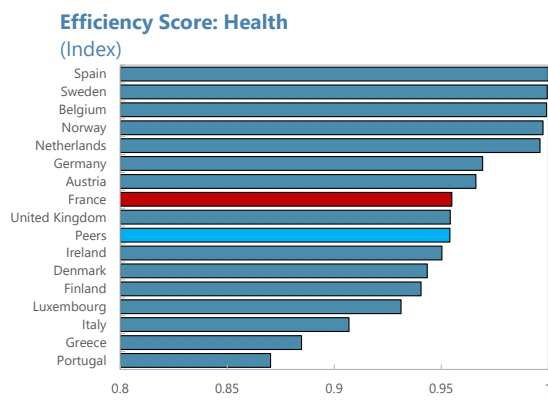
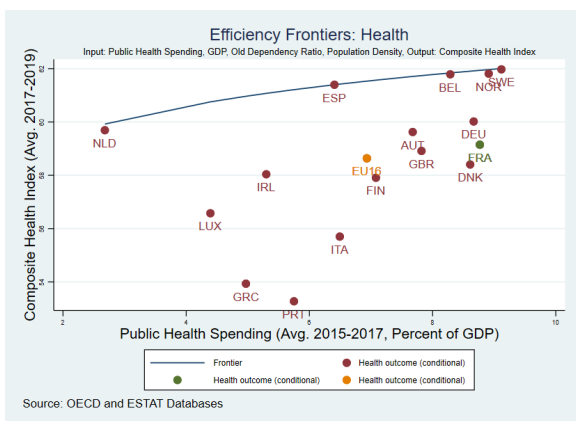


Figure 4. France: Efficiency of Education Spending

