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Should we finance apprenticeships at the university level? Descriptive evidence from France

France's apprenticeship system, which combines firm-based training with academic instruction, has expanded rapidly in recent years, especially at the university level. Unlike most European countries, France allows apprenticeships all the way up to master's degrees, a trend significantly accelerated by the 2018 Loi pour la liberté de choisir son avenir professionnel. The reform liberalised programme creation, simplified funding, and introduced strong financial incentives, leading to a twelvefold rise in higher education apprenticeships between 2000 and 2025. Drawing on administrative data and Hervelin and Merran (2026), we show that apprentices have higher employment and wage outcomes than non-apprentice students. However, we also show that the expansion of the system has coincided with more contract terminations, poorer matching quality, and potentially sizable windfall effects, as firms rely on subsidised apprentices rather than hire new regular employees. Public expenditure has tripled since 2018, raising concerns regarding fiscal sustainability and programme efficiency. Future policy should prioritise high-school apprenticeships (where matches are stronger) while strengthening links to the university labour market to improve outcomes and ensure sustainable public spending.



KEY MESSAGES

- Since 2018, the number of apprenticeships in France has expanded dramatically, rising from approximately 400,000 to over 1 million – a more than twofold increase in five years.
- As a result, public spending has tripled, raising concerns about long-term financial sustainability.
- Apprentices show higher employment and wage outcomes than students, mainly because of retention by training firms, while those not retained see little advantage.
- Evidence of weaker firm-apprentice matching and windfall effects suggests that subsidies partly replace rather than create jobs, thus casting doubt on the effectiveness of unlimited funding.

FRANCE'S 2018 REFORM TO EXPAND APPRENTICESHIPS

Apprenticeship combines work-based learning and formal education, with apprentices hired and trained by firms while attending classes at vocational schools or apprenticeship training centres (ATCs). The OECD distinguishes between two main models (CEDEFOP, 2018). In the “dual system” found in countries such as Germany, Austria, and Denmark, young people typically choose either an apprenticeship or university, with the two pathways remaining largely separate (although combined models such as the *Duales Studium* do exist). By contrast, in France, Italy, and Spain, apprenticeship is integrated into the broader vocational and academic system, allowing apprentices to pursue degrees at all levels of higher education – up to and including master’s degrees.

By 2023–24, 62% of all French apprentices (over 635,000 individuals), were enrolled in higher education. This was a twelvefold increase over 2000, as shown in Figure 1. Apprentices now represent 6.6% of all 18–29 year olds and 21% of university students, marking a major structural shift in the country’s education-to-work transition. The rapid and large-scale expansion of apprenticeships at the university level, which has no equivalent in the German-speaking world, was made possible by France’s existing integration of apprenticeship and academic education.

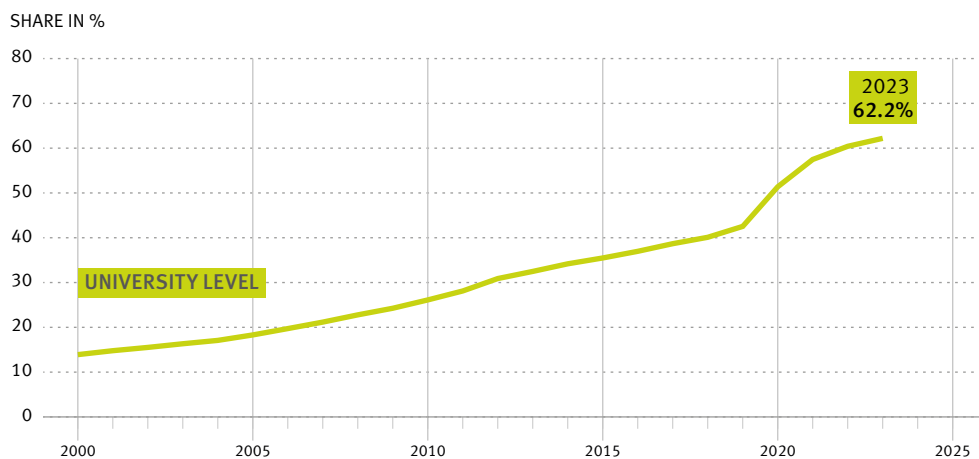
The apprenticeship system grew rapidly following the 2018 *Loi pour la liberté de choisir son avenir professionnel*. The reform liberalised the apprenticeship market, allowing firms and ATCs to launch programmes without regional authorisation, provided quality standards were fulfilled. The reform also changed the funding system, replacing regional budgets with a national, per-apprentice scheme. This scheme is managed by France Compétences, which allocates funds based on demand. In addition, the government increased the age cut-off from 25 to 29 and expanded financial incentives, offering bonuses to firms while increasing apprentice pay. Overall, these changes made apprenticeships more attractive for both young people and employers.

Two models: “dual system” or integrated vocational track

France: 635,000+ higher-education apprentices by 2023–24

2018 reform: deregulated, centrally funded, more attractive

FIGURE 1: SHARE OF UNIVERSITY-LEVEL APPRENTICES IN FRANCE



Reading aid: At the end of 2023, 62.2% of apprentices were studying at the university level.

Source: SIFA survey (DEPP); situation measured on December 31 of the school year.

The reform triggered an unprecedented surge in apprenticeship contracts, particularly in higher education, but at a steep fiscal cost. Public spending on apprenticeships rose from €5.5 billion in 2018 to at least €16 billion in 2023, while revenues from the training tax lagged. France Compétences has required repeated financial infusions from the federal government to cover its deficits. The reform thus achieved its employment and education goals, yet raised new questions concerning financial sustainability and efficiency, issues now central to the future of France's apprenticeship policy.

Surge in contracts, but unsustainable fiscal cost

APPRENTICESHIP SELECTION: STUDENTS AND FIRMS

Access to apprenticeships depends strongly on both individual and institutional selection. At the entry stage, candidates must secure a firm willing to hire them – often through self-initiated applications, supported by schools or employment services. Yet matching remains unequal. Among vocational students, nearly half would prefer an apprenticeship, but two-thirds fail to obtain a placement (Cahuc & Hervelin, 2024). Apprentices tend to come from more advantaged families and perform better academically than vocational students, though completion rates are similar. At the university level, various patterns have emerged since the 2018 reform. Apprentices now include more students from technological and vocational backgrounds and fewer from elite preparatory schools, indicating broader social access (Brouillaud & Ndao, 2022). Still, they remain somewhat privileged: 38% have a parent in a managerial job, compared with 24% in the same-age workforce. Women represent half of all apprentices, but only one-fifth in engineering. The distribution of higher-education apprenticeships has shifted towards bachelor's and master's level degrees and service-related fields (commerce, health, IT), reflecting labour market demand. These apprenticeships are concentrated in large urban areas, especially the Paris region.

Selective access favours advantaged, higher-performing youths

This diversification has been accompanied by rapidly increasing firm participation. Between 2007 and 2023, the number of training firms rose from 157,000 to 420,000, and the average number of apprentices per firm increased from 1.5 to 2. Growth was driven mainly by medium and large firms. Training firms are typically older, more productive, and more profitable than others (Rosa, 2024). The 2018 reform's financial incentives and simplified procedures encouraged many new entrants, including firms hosting apprentices solely at the university level.

Wider access since 2018, but still skewed toward privileged urban students

However, this surge in participation has raised concerns about the potential windfall effects of subsidies, which occur when firms substitute hiring they would have conducted anyway with subsidised apprentices. According to some estimates, the apprenticeship subsidy package has enabled firms to benefit from either no labour costs or an 80% reduction in labour costs, especially for apprentices under 25 (Bock et al., 2022). Econometric estimations suggest that 25% of apprenticeship hires during the 2018 reform, and 44% following the 2020 COVID subsidy, may not represent additional employment. Large firms appear most prone to such substitution, using apprentices to lower labour costs. While apprenticeship expansion has improved training opportunities for young people, these findings question the efficiency of current funding mechanisms and highlight the need to examine how the reform has affected apprentices' labour market outcomes.

Firm participation surged post-2018

Windfall effects: many subsidised hires are not additional

APPRENTICESHIP LABOUR MARKET OUTCOMES

At the end of the 2020–21 academic year, 58% of apprentices who chose to enter the labour market were employed six months after graduation (see Table 1). This rate increased to 67% after one year and rose more gradually to 72% after two years. Among those employed, the mean net monthly wage was €1,682 one year after graduation. Both employment rates and wages were higher for apprentices graduating from the university level (75% in employment and €1,797 after one year) than for those at the high school level (64% and €1,625, respectively).

To interpret these figures, it is necessary to compare them with the outcomes of students who did not enter an apprenticeship. Table 1 shows that, at every level of education, apprentices achieve both higher employment rates and higher wages than students. At the university level, 49% of students were employed 6 months after graduation, 61% after 1 year, and 67% after 2 years. Although student employment remained consistently below the apprentice employment rate, it rose more quickly and converged with it over time.

Strong early outcomes: most employed within a year

Apprentices outperform students early; gaps narrow over time

TABLE 1: LABOUR MARKET OUTCOMES OF APPRENTICES AND STUDENTS AFTER GRADUATION IN FRANCE

	APPRENTICES			STUDENTS		
	All	High school	University	All	High school	University
Employment after 6 months	58%	53%	68%	36%	28%	49%
Employment after 12 months	67%	64%	75%	49%	42%	61%
Employment after 18 months	69%	65%	76%	52%	46%	63%
Employment after 24 months	72%	69%	77%	57%	52%	67%
Wages after 12 months	1,682€	1,625€	1,797€	1,600€	1,568€	1,664€

Note: Employment situations and wages (monthly, net in euros) are measured for apprentices and students who graduated from the 2020–21 academic year. The high-school level encompasses education levels 3 and 4. The university level encompasses level 5 only. **Reading aid:** The employment rate of apprentices, whatever the education level, is 58% six months after graduation, while it is 36% for students.

Source: DARES, DEPP, Inserjeunes 2021

These raw comparisons are informative but imperfect. Because apprentices and students differ in their observable and unobservable characteristics, direct comparisons are biased. At the high-school level, the literature finds that the primary explanation for the employment rate gap is the difference in retention: apprentices are often retained, meaning their training firm hires them at the end of their apprenticeship, while students are less likely to be employed by the firm where they undertook an internship (Cahuc and Hervein, 2024). Retained individuals enjoy a strong labour-market advantage, as more than 95% were still employed two years later. For those who are not retained, apprentices and students find jobs at the same rate. These two facts explain the parallel evolution of the employment rates with almost the same absolute difference over time.

Advantage driven by firm retention, not intrinsic differences

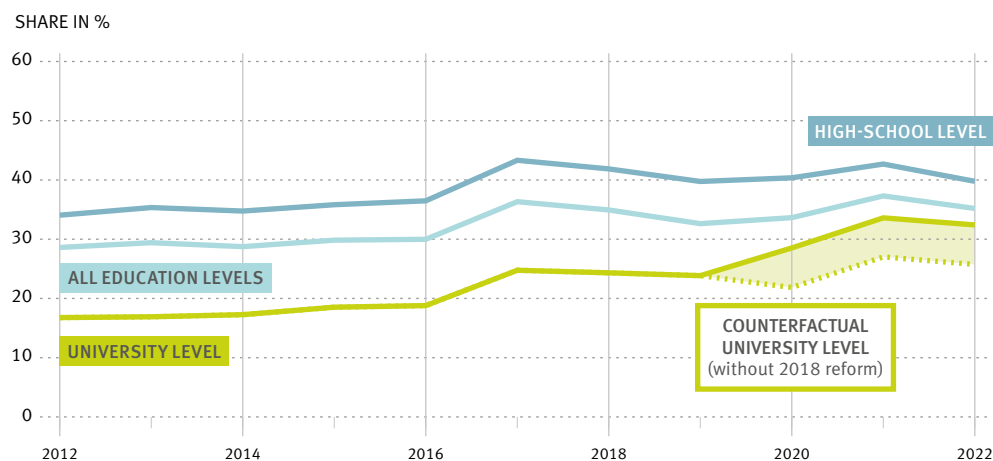
This mechanism likely explains most of the employment gap at the university level as well, particularly at labour market entry, where the difference amounts to 18 percentage points six months after graduation. Our estimates, based on individual-level administrative data, indicate that the mean retention rate of apprentices at the university level is 16%. This figure closely matches the employment rate differential with non-apprentice students. Moreover, the gap in employment rate between apprentices and students shortens over time. This may be linked to the negative selection of students into university apprenticeships, as well as to the entry of many new firms into the system after the reform, some of which lacked prior experience in training young workers.

Figure 2 supports this interpretation by illustrating the evolution of exit rates (i.e. the share of contracts terminated before completion) at both the high-school and university levels, as well as overall. Between 2012 and 2021, the overall exit rate rose from 28% to 38%, a ten-percentage-point increase. In 2012, the exit rate was higher for high-school apprentices (34%) than for university apprentices (17%), and both trends moved in parallel until the 2018 reform. Thereafter, exit rates at the university level increased sharply, reaching 32% in 2022, while the high-school rate continued on its previous trajectory, reaching an estimated 40% in 2022.

Same retention mechanism holds at university level

Apprenticeship exit rates at the university level surged post-2018; growing instability

FIGURE 2: SHARE OF TERMINATED APPRENTICESHIP CONTRACTS OVER TIME IN FRANCE



Note: Terminated apprenticeship contracts are apprenticeship contracts that have ended before completion, whether because of the training firm, the apprentice, or both. **Reading aid:** On average, 28.6% of all apprenticeship contracts were terminated before their theoretical end date in 2012.

Source: Système d'information sur l'apprentissage (2012–22), DARES; access via CASD.

Assuming the exit rates for higher-education apprentices would have followed the same trend as secondary-education apprentices after 2018, insofar as the reform had not occurred and had not affected the exit rate for high-school apprenticeship, econometric estimates suggest that the share of prematurely terminated university-level contracts would have increased by 6.7 percentage points. This implies that around 70% of the rise in the university-level exit rate can be attributed to the 2018 reform. Taken together, these findings suggest that easing access to university-level apprenticeships has reduced the quality of matching between training firms and apprentices.

2018 reform weakened firm-apprentice matching quality

CONCLUSION

France stands out in Europe for subsidising apprenticeships at all levels of education, including at the university level – a system that was dramatically expanded after the 2018 reform. While this reform boosted participation, it also drove apprenticeship spending from €5.5 to €16 billion, raising serious fiscal concerns.

Apprentices enjoy higher employment and wages than students, but this advantage likely stems from training firms' retention of apprentices. Moreover, evidence suggests that the rapid expansion of the system has reduced match quality, particularly in higher education: firm retention has fallen, while contract terminations have risen, and windfall effects indicate that up to half of firms would have hired workers anyway.

These trends question the efficiency of open-ended subsidies for university-level apprenticeships. Policymakers should reassess funding priorities and potentially focus support on high-school apprenticeships, where training matches are stronger, while also encouraging closer coordination between universities and labour market institutions. Providing job-search support to students before graduation, as already done successfully in vocational education (Cahuc et al., 2024), could achieve comparable employment gains at far lower fiscal cost.

Rapid post-2018 expansion; spending tripled

Advantage = retention effect; expansion lowered match quality

Redirect subsidies; strengthen university – labour market ties

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