INTERNATIONAL MONETARY FUND

Public Education in Belgium – Improving Outcome While Reducing Cost

Jean-Jacques Hallaert

SIP/2025/021

IMF Selected Issues Papers are prepared by IMF staff as background documentation for periodic consultations with member countries. It is based on the information available at the time it was completed on March 3, 2025. This paper is also published separately as IMF Country Report No 25/70.

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European Department

Public Education in Belgium – Improving Outcome While Reducing Cost

Prepared by Jean-Jacques Hallaert

Authorized for distribution by Jean-François Dauphin
March 2025

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ABSTRACT: Educational outcomes in Belgium are comparable to peers but achieved at a higher cost. The public wage bill for education is higher than in peers, reflecting smaller student-to-teacher ratios and less teaching time. Yet, Belgium experiences teacher shortages. Reforms should aim at increasing the efficiency of public spending on education while achieving greater equality of educational outcomes and a lower skills mismatch. This would help increase the employment rate, reduce the need for firms to provide training to upgrade skills, boost productivity, and increase the creation and diffusion of innovation. Ultimately, these reforms would improve potential growth.

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SELECTED ISSUES PAPERS

Public Education in Belgium – Improving Outcome While Reducing Cost

Belgium

Prepared by Jean-Jacques Hallaert

INTERNATIONAL MONETARY FUND

BELGIUM

SELECTED ISSUES

March 3, 2025

Approved By
European Department

Prepared By Jean-Jacques Hallaert (EUR)

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PUBLIC EDUCATION IN BELGIUM: IMPROVING OUTCOME WHILE REDUCING COST[1]

Educational outcomes in Belgium are comparable to peers but achieved at a higher cost and have been deteriorating. The public wage bill for education is markedly higher than in peers, reflecting comparatively smaller student-to-teacher ratios and less teaching time. Yet, Belgium experiences teacher shortages and the highest share of grade repetition in the EU. Reforms should aim at increasing the efficiency of public spending on education while achieving greater equality of educational outcomes irrespective of students' economic or migrant backgrounds and a lower skills mismatch. This would help increase the employment rate, reduce the need for firms to provide training to upgrade inadequate skills, boost productivity, and increase the creation and diffusion of innovation. Ultimately, these reforms would also improve potential growth. The reforms would imply ensuring that the curriculum is better aligned with firm needs and reorganizing the educational system to better leverage teachers' time and strengthen support provided to students who face difficulties.

1. Increasing public spending efficiency can contribute to the fiscal consolidation that Belgium needs to undertake. Greater efficiency allows to preserve and even increase the impact of public spending at a lower fiscal cost. In several analyses, IMF staff have documented that the efficiency of public spending can be markedly increased in Belgium in many areas (Hallaert, 2016 and 2023; Kemoe, 2020; Wong, 2023).

2. This paper focuses on education spending, where potential efficiency gains are large enough to reverse the decline in educational achievements while also reducing spending. Increasing the efficiency of education spending could yield fiscal savings in the medium term as the impact of necessary organizational reforms gradually materializes. Besides supporting fiscal consolidation, reforms should aim at better aligning skills with labor market demands and reducing the gaps in education achievements resulting from students' diverse background. This would help increase the employment rate, reduce the need for firms to provide training to offset inadequate skills (which increases labor cost and weighs on firms' competitiveness), boost productivity, increase the diffusion and creation of innovation, and foster social mobility. Thus, reforms would contribute to higher potential growth and enhanced fiscal sustainability.

3. This paper is organized as follows. The first section focuses on spending, showing that public education spending is significantly higher in Belgium than in peers and that long-term demographic changes will provide comparatively little savings.[2] The second section highlights

[1] Prepared by Jean-Jacques Hallaert (EUR). The author thanks Jean-François Dauphin, Mark Horton, Iglika Vassileva, and participants at a National Bank of Belgium (NBB) seminar on January 31, 2025, for insightful comments as well as Wouter Duyck, Jean Hindriks, Dirk Van Damme, staff and officials of Federal Planning Bureau, NBB, Cabinet of Minister of Education for the Fédération Wallonie-Bruxelles, Cabinet of Education for Flanders, Minister of Education Gatz for the Dutch Speaking Community of Brussels for discussions. Xun Li provided excellent research assistance.

[2] In this paper, comparators are France, Germany, and The Netherlands. Peers are other EU members. EU25 are the 25 EU members covered by OECD data.

that, despite higher level of spending, educational achievements are not better than in peers. The gap between spending and outcomes, points to significant potential efficiency gains that are quantified in Section 3. Section 4 looks at the allocation of resources and the organization of the education system to identify reforms that can increase efficiency.

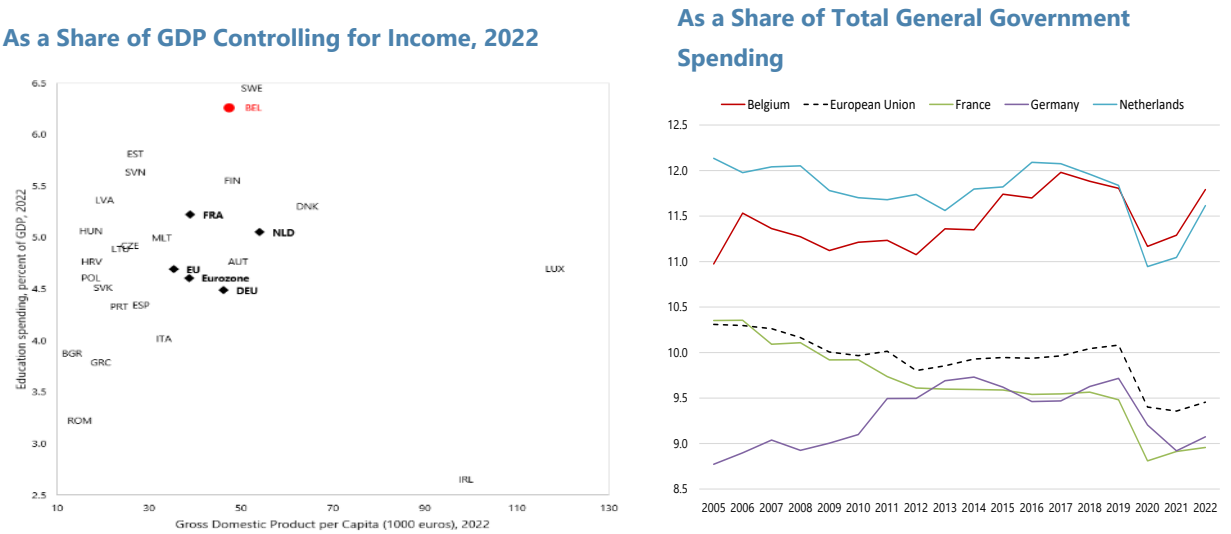
A. Belgium Spends More on Education Than Peers

4. Whatever the metrics, public spending on education is comparatively high in Belgium.

- *As a share of GDP.* At 6.3 percent of GDP in 2022, general government spending on education is the second highest in Europe (Figure 1).[3] The ratio is 34 percent larger than EU average (1. 6 percentage point of GDP higher), 40 percent larger than in Germany (1.8 percentage point higher), 34 percent larger than in France (1.0 percentage point higher), and 13 percent larger than in The Netherlands (0.7 percentage point higher). Figure 1 shows that the higher spending is not explained by difference in income.

- *As a share of public spending.* Education accounts for 11.8 percent of total general government expenditure in 2022. This share is 30 percent larger than in France or Germany, 25 percent larger than EU average, and 2 percent larger than in The Netherlands (Figure 1).

Figure 1. Evolution of Public Expenditure on Education
(In percent)



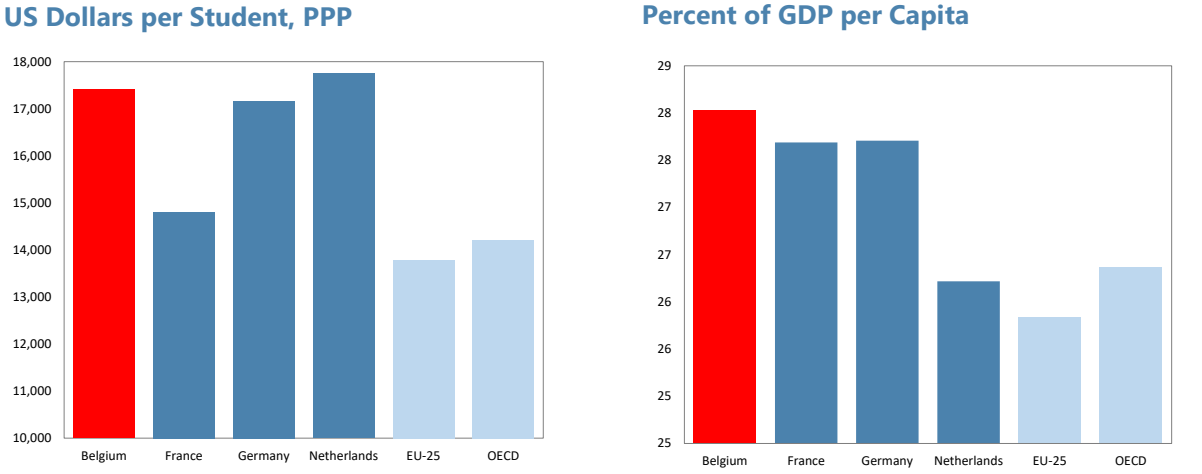
Sources: Haver and IMF Staff calculation.

- *As spending per student.* Though growing less in recent years (2019 to 2021) than comparators (except France) and EU25 and OECD averages, spending per student remains larger in Belgium

[3] See Table 2 for the list of items included in education spending.

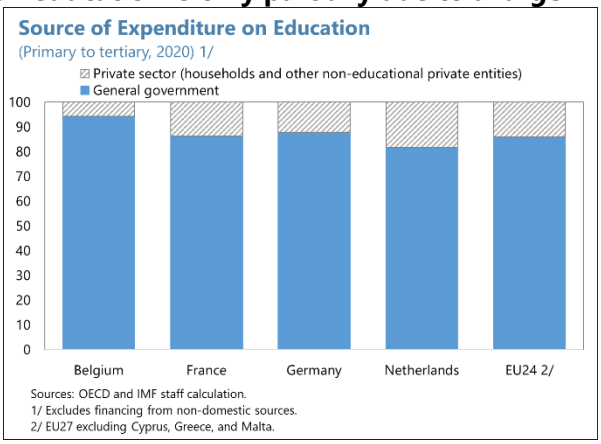
than in most peers whether measured in nominal terms or as a share of GDP per capita (Figure 2).[4] This reflects a strong focus on basic education, as spending per student is higher than any comparator at primary and lower secondary levels (Appendix I). In contrast, at the upper secondary level, Belgium's spending per student is lower than comparators.[5] At the tertiary level, Belgium's spending is in an intermediate position.

Figure 2. Spending Per Full-Time Equivalent Student
(2021, primary to tertiary education)



Source: OECD.

5. The comparatively high public spending on education is only partially due to a larger public financing of education. Private financing (including the financing by international organizations and the rest of the world) is smaller than in other European countries in part because, except for a small number of schools not recognized by the government, private schools receive public financing.[6]

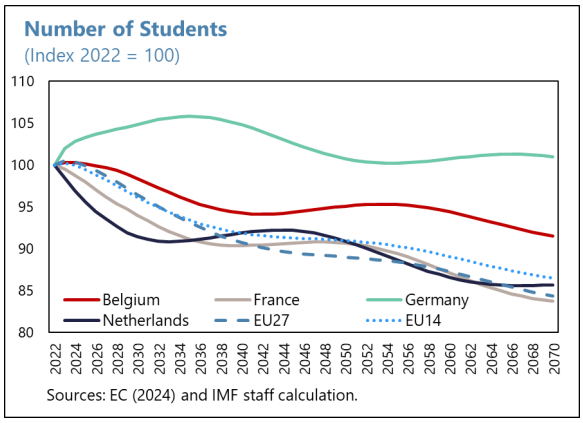


[4] Education spending differs across communities. For example, the spending per full-time equivalent student in primary and secondary education was 7.5 percent higher in the Flemish community (16,456 US dollars PPP) than in the French Community (15,310 US dollars PPP) in 2021 (OECD, 2014a).

[5] Except than in The Netherlands when measured as a share of GDP per capita (but not when measured in US dollars, PPP).

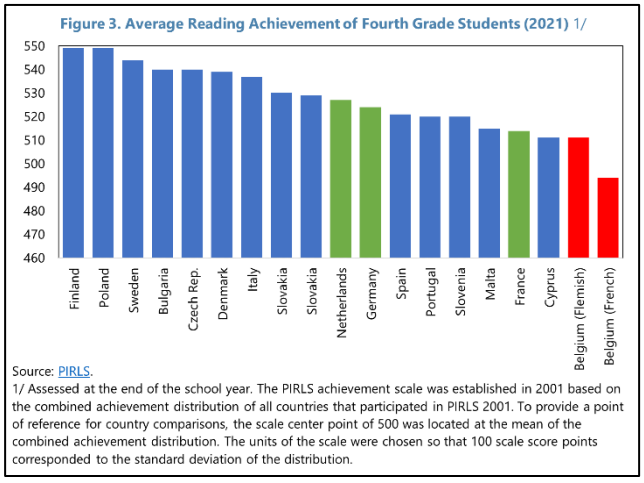
[6] For more details on the organization of the education system in each community (Flemish, French, and German-speaking communities), see Eurydice.

6. Population aging will result in limited saving on education. According to the 2024 Aging Report, the student population is expected to decline by 8½ percent between 2022 and 2070. This is much less than for the EU as a whole, for France, and for the Netherlands (which will experience a decline in student populations of 14½–16½ percent).[7] As a result, demographic developments are expected to reduce spending on education by 0.8 percent of GDP between 2022 and 2070.[8] They will not support fiscal consolidation in the coming years as education spending is projected to decline by barely 0.2 percent of GDP by the end of the decade, while spending pressure from pension and healthcare are mounting rapidly (EC, 2024a; Hallaert, 2023).[9]



B. Education Outcomes are Comparable to Peers and Deteriorating

7. Higher spending does not translate into better education outcome. The reading score of fourth graders in the Flemish and French communities is the lowest among the EU countries that participated in the PIRLS assessment (Progress in International Reading Literacy Study). Belgian scores are also among the lowest in the EU for science and mathematics according to the TIMSS assessment (Trends in International Mathematics and Science Study) (Figures 3 and 4). Though they differ significantly across communities, the performance of 15-year-old students in Belgium measured by scores in the OECD's Programme for International Student Assessment (PISA) is broadly similar to that of peers, but these spend less on education in all three domains tested: reading, mathematics, and science (OECD, 2024a and b; Figure 5).



8. Educational outcomes have deteriorated over time. As for peers, Belgian average scores have experienced a decline in the last decade (Figure 3). Moreover, despite some improvement in mathematics and reading in the last round of test, the share of low performers is higher in 2022 than

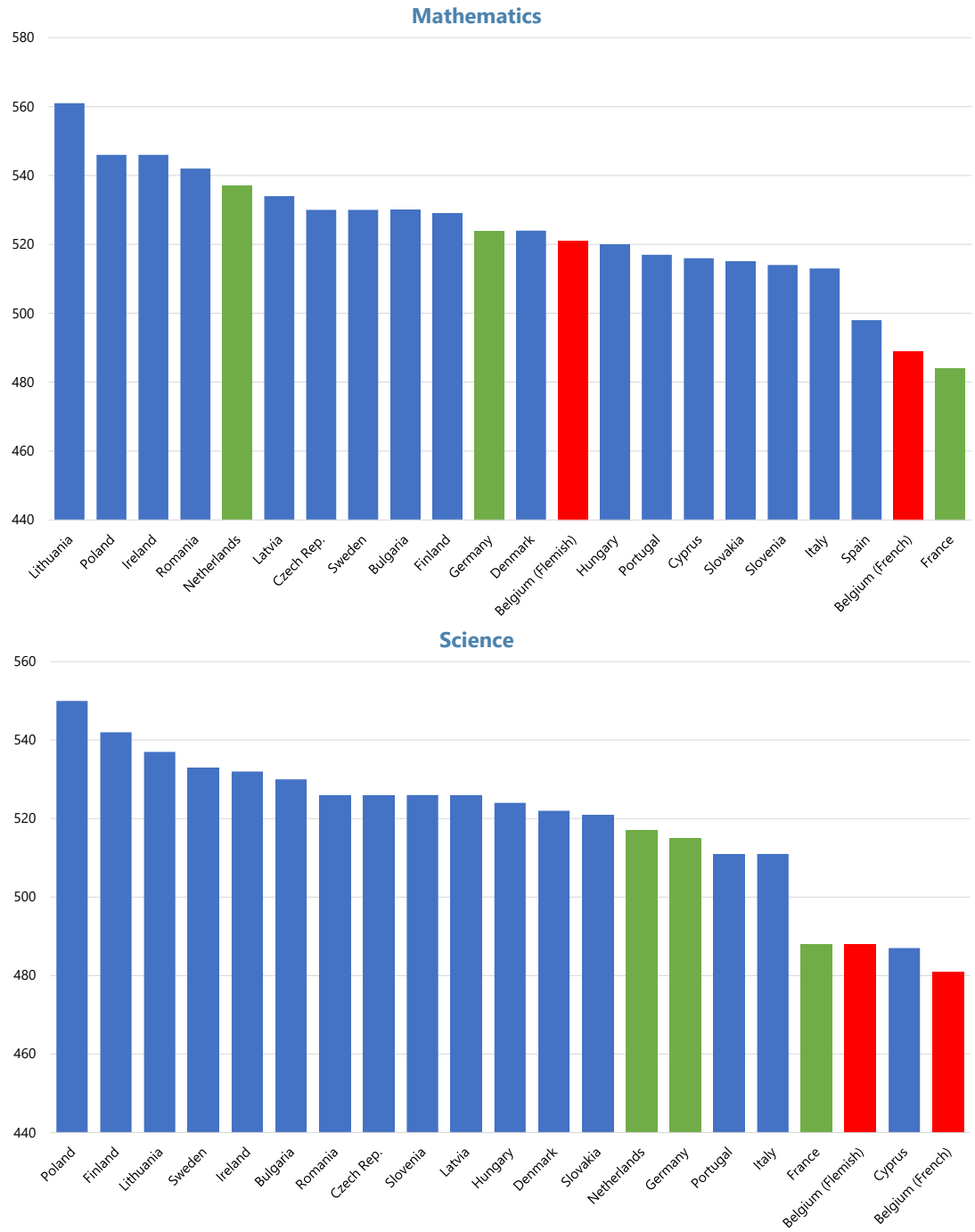
[7] Student population is projected to increase by 1 percent in Germany.

[8] The Federal Planning Bureau projects a smaller decline of 1.3 percent between 2022 and 2070. This would result in an even smaller fiscal saving than projected by the 2024 aging report.

[9] Moreover, the aging report projects a slight increase in education spending by 2030 if the enrollment rate gradually increases to the average of the three best EU performers (EC, 2024a).

it was in 2012 in both the French and the Flemish Communities. The EC (2023) highlights that for fourth graders' reading "the proportions of low achievers have increased considerably since the previous two testing rounds (2011 and 2016) in both communities (the shares of low achievers in 2021 were 38 percent in the French Community and 29 percent in the Flemish community), and the average performance of pupils has declined in the past decade." At the same time, it points to a decline in the share of high performers. Nonetheless, as most EU countries experienced a deterioration in average test scores, the share of low performers in Belgium remains one of the lowest in the EU (Figure 6). Notably, the share of low performers in all three domains tested is the fifth lowest in the EU.

Figure 4. Achievement in Mathematics and Science of Fourth Graders (2023) 1/



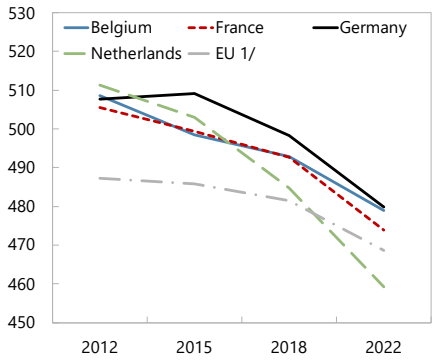
Source: TIMSS.

1/ For mathematics, the assessment covers of number, measurement and geometry, and data. For Science, it covers life science, physical science, earth science. TIMSS uses scale anchoring to summarize and describe student achievement at four points on the mathematics and science scales—Advanced (625), High (550), Intermediate (475), and Low (400) international benchmarks. For details, see http://timss.bc.edu/publications/timss/2015-methods/chapter-14.html.

Figure 5. Educational Achievement of Fifteen-Year-Old Students

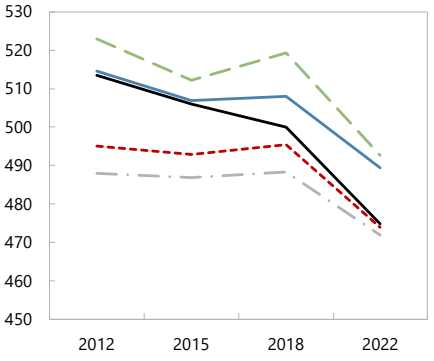
Compared to EU Peers

Reading
(Mean Score)



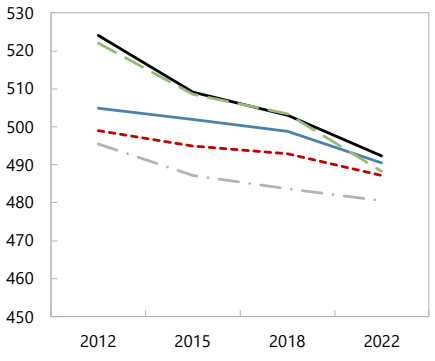
Sources: OECD and IMF staff calculation.
1/ EU27 (simple average) excluding Luxembourg due to data limitations.

Mathematics
(Mean Score)



Sources: OECD and IMF staff calculation.
1/ EU27 (simple average) excluding Luxembourg due to data limitations.

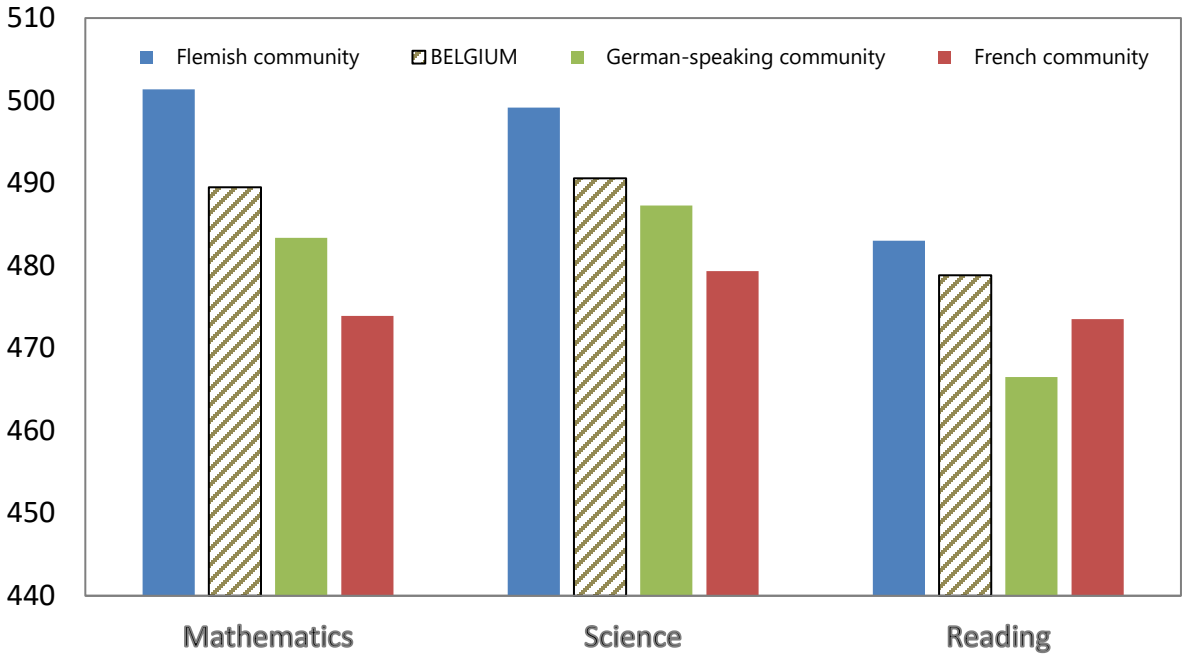
Science
(Mean Score)



Sources: OECD and IMF staff calculation.
1/ EU27 (simple average) excluding Luxembourg due to data limitations.

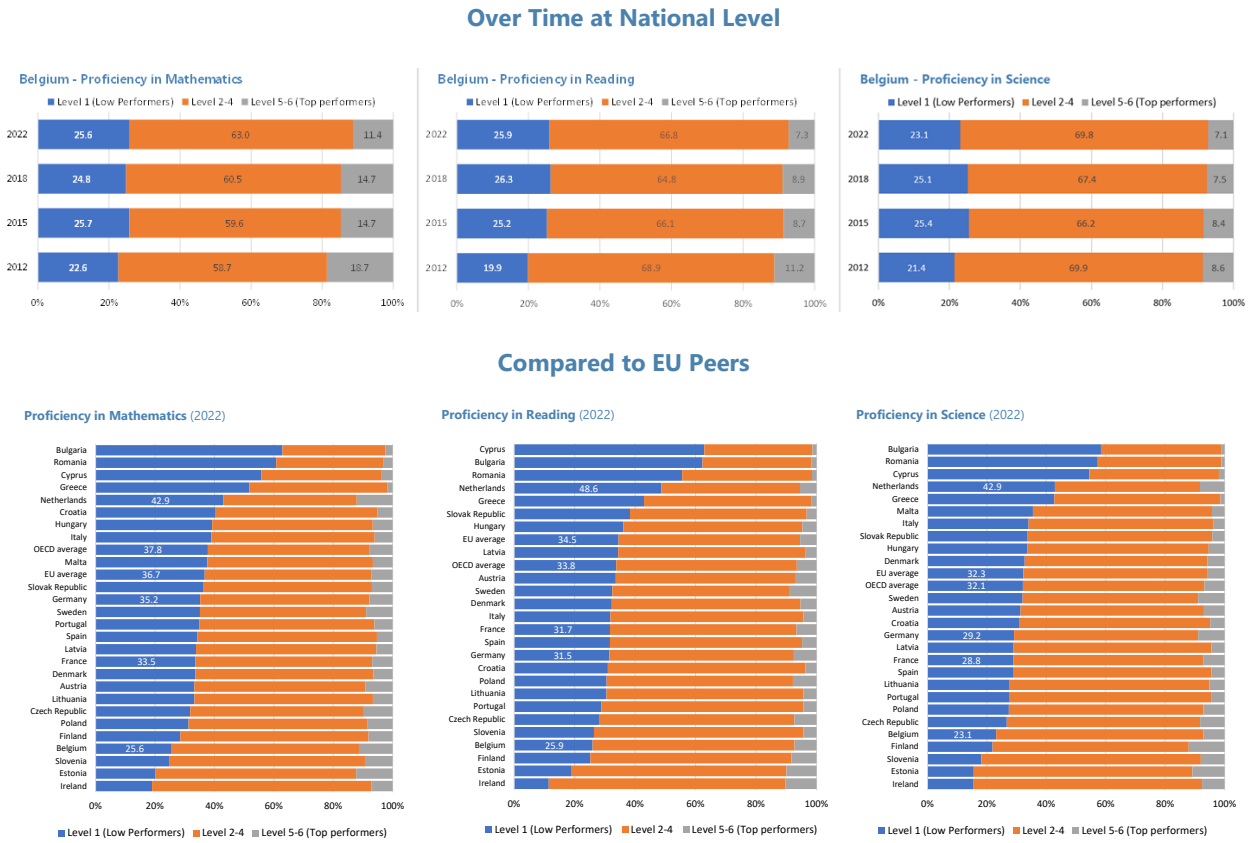
Belgium: Regional Disparities

Education Outcome (Mean PISA Overal Score, 2022)



Source: OECD.

Figure 6. Share of Low and High Performers Among the Fifteen-Year-Old Students 1/



Sources: OECD and IMF staff calculation.

1/ The OECD considers that level 2 is the baseline level of proficiency that is requires to participate fully in society.

C. Potential Efficiency Gains are Large

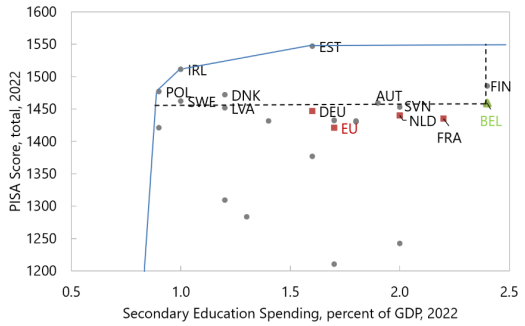
9. That a higher level of education spending is not reflected in better student test scores points to lower spending efficiency than in most peers. Belgium achieves a mean overall PISA score similar to many other EU countries, but at a significantly higher fiscal cost. This is true at the secondary level as well as cumulatively from the pre-primary to the secondary level (Figure 7).

10. Reforms that would increase efficiency of spending to the level of EU best performers would allow significant fiscal saving and/or better educational achievements. If education spending was as efficient as best EU performers, Belgium could achieve higher outcomes (PISA scores) for the same level of spending (vertical dotted line) or achieve the same outcome at a

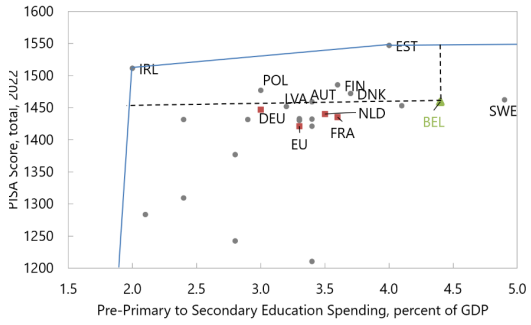
significantly lower cost (horizontal dotted line) (Figure 7). Potential fiscal saving ranges from 0.75 to 1.4 percent of GDP; increases in PISA scores range from 20 to 45 percent (Table 1).[10]

Figure 7. Efficiency of Education Spending (2022)

PISA Score and Secondary Education Spending



PISA Score and Pre-Primary, Primary, and Secondary Education Spending



Sources: Eurostat and OECD.

Table 1. Belgium: Potential Efficiency Gains (2022) 1/, 2/

If Belgium's education system was as efficient as	*Fiscal saving (ppt of GDP)*
France	0.74
Germany	1.38
Netherlands	0.85
	Increase in overall PISA score (percent)
France	20
Germany	45
Netherlands	24

Sources: OECD, Eurostat, and IMF staff calculation.

1/ Pre-Primary, primary, and secondary education spending.

2/ The table reports fiscal saving or increase in PISA score, if Belgium spending on education was as efficient as each comparator.

[10] Because education is a cumulative process, pre-primary to secondary spending is used to estimate the potential efficiency gains rather than the secondary level of spending. As difference in spending can be in part due to structural differences (e.g., demographic, distribution of students across level of education), the estimated efficiency gains and fiscal savings should be interpreted as "potential." For that reason, a range rather than a point estimate is preferred. Nonetheless, alternative measurements confirm that potential efficiency gains are large (Appendix II).

D. Efficiency-Increasing Reforms

11. Several reforms could increase the efficiency of education spending. Structural reforms of the educational system are required to increase spending efficiency in support of fiscal consolidation and/or improved educational achievements, to leverage the significant potential highlighted in Figure 7 and Table 1.

Cost-Reducing Reforms

12. The wage bill explains why Belgium spends more on education than peers. Compensation of employees of the education system accounts for over 5 percent of GDP. This was 1.4 to 2.6 percent of GDP higher than European peers in 2022 and more than explains the difference in total public spending on education (1.0 to 1.8 percent higher). Although compensation of employees of the education system was the same as a share of GDP in 2022 as in 2012, it represents a growing share of total government wage bill. This increase has been much larger than in peer countries over the past two decades. The wage bill now accounts for 81 percent of education spending, while it ranges from 56 percent in Germany to 71 percent in France; compensation of employees in education accounts for 41.5 percent of general government total wage bill, 10 percentage points or more than in France, Germany or the EU and 6 points more than in the Netherlands (Tables 2 and 3).

Table 2. Belgium: Composition of General Government Spending on Education
(Percent of GDP unless otherwise specified)

	Total	Current spending	Compensation of employees	Goods and services	Subsidies	Interest payments	Current transfers	Social benefits	Capital spending 1/
2022									
Belgium	**6.3**	5.9	***5.1***	*0.7*	*0.0*	*0.0*	*0.0*	*0.0*	0.4
EU	**4.7**	4.3	*3.0*	*0.6*	*0.1*	*0.1*	*0.3*	*0.3*	0.4
France	**5.2**	4.8	*3.7*	*0.5*	*0.1*	*0.1*	*0.2*	*0.3*	0.4
Germany	**4.5**	4.0	*2.5*	*0.7*	*0.1*	*0.0*	*0.5*	*0.1*	0.5
Netherlands	**5.1**	4.5	*2.9*	*1.1*	*0.1*	*0.0*	*0.0*	*0.4*	0.5
2012									
Belgium	**6.3**	5.9	***5.1***	*0.7*	*0.0*	*0.0*	*0.0*	*0.1*	0.4
EU	**4.9**	4.5	*3.1*	*0.7*	*0.1*	*0.1*	*0.2*	*0.3*	0.4
France	**5.5**	5.1	*3.8*	*0.6*	*0.2*	*0.0*	*0.2*	*0.3*	0.4
Germany	**4.3**	3.9	*2.5*	*0.7*	*0.1*	*0.0*	*0.5*	*0.1*	0.3
Netherlands	**5.5**	5.0	*3.1*	*1.2*	*0.1*	*0.0*	*0.0*	*0.6*	0.6
Change in percentage points 2012-2022									
Belgium	**0.0**	0.0	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	0.0
EU	**-0.2**	-0.2	*-0.1*	*-0.1*	*0.0*	*0.0*	*0.0*	*0.0*	0.0
France	**-0.3**	-0.3	*-0.1*	*-0.1*	*-0.1*	*0.0*	*0.0*	*0.0*	0.0
Germany	**0.2**	0.1	*0.0*	*0.0*	*0.0*	*0.0*	*0.1*	*0.0*	0.1
Netherlands	**-0.5**	-0.4	*-0.1*	*-0.1*	*0.0*	*0.0*	*0.0*	*-0.2*	0.0

Sources: Haver and IMF staff calculation.

1/ Capital spending includes gross capital formation and capital transfers.

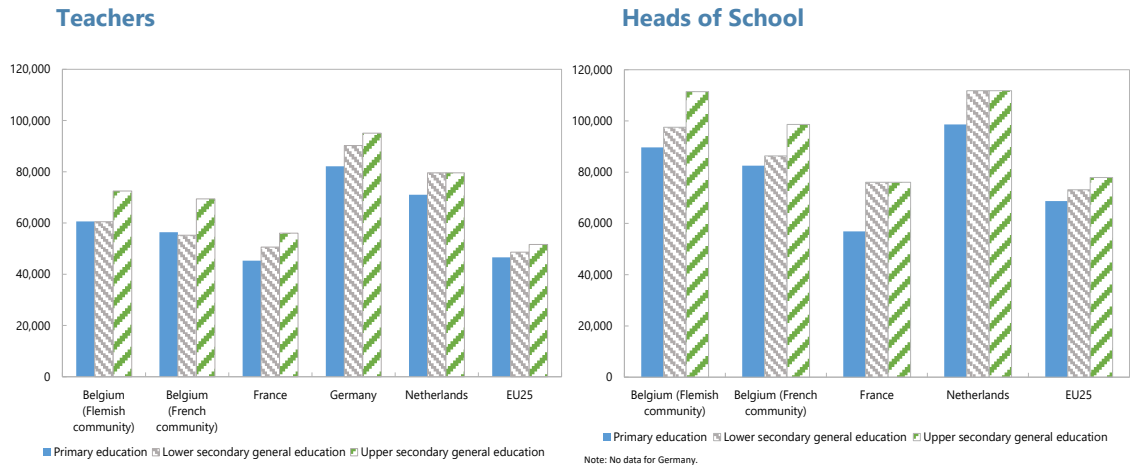
Table 3. Belgium: Wage Bill in Education
(Percent of general government wage bill)

	2002	2007	2012	2017	2022	Changes in ppt 2012 to 2022	Changes in ppt 2002 to 2022
Belgium	39.1	38.5	39.9	41.1	41.5	1.7	2.4
EU	31.3	30.0	29.5	29.7	29.8	0.2	-1.5
France	31.6	29.2	29.2	29.9	29.7	0.5	-1.9
Germany	32.3	32.3	31.7	31.7	31.5	-0.2	-0.8
Netherlands	34.1	34.3	34.5	34.5	35.5	1.0	1.3

Sources: Haver and IMF staff calculation.

13. Salary levels do not explain the comparatively high wage bill. For both the French and the Flemish communities, teachers' actual salaries are in an intermediate position among comparators (Figure 8).[11] Moreover, since 2015, the actual and statutory salaries of teachers declined in real terms in both communities.[12] This decline preceded the post-COVID high inflation period (OECD, 2022, 2024c and d). This evolution may have affected the attractiveness of the teaching profession although teacher salaries are relatively more attractive than in EU peers as they are closer to the wages of the population with a similar level of education (Table 4).

Figure 8. Actual Salaries
(2022, US dollars PPP)



Source: OECD.

[11] Actual salaries of comparators are also comparatively high when compared to EU level but are also, with the exception of France, well above OECD average (OECD, 2023a).

[12] "The subnational variation in *actual* salaries was less than 11 percent for all levels of education for both teachers and school heads, and greater for school heads than for teachers." Moreover, "the variation in *statutory* salaries between subnational entities remains relatively consistent across all levels of education and stages of teachers' careers (a range of 3–7 percent)" (OECD, 2024c; emphasis added).

Table 4. Belgium: Teachers' Actual Salaries Relative to Earnings of Tertiary-Educated Workers
(Ratio)

		Actual salaries, relative to earnings for full-time, full-year							
		Similarly educated workers (weighted averages, 25-64 year-olds)				With tertiary education (ISCED 5 to 8, 25-64 year-olds)			
		Pre-primary	Primary	Lower secondary	Upper secondary	Pre-primary	Primary	Lower secondary	Upper secondary
Belgium (Flemish community)	2020	0.98	0.96	0.94	0.99	0.88	0.87	0.87	1.04
Belgium (French community)	2020	0.93	0.89	0.85	0.91	0.84	0.81	0.79	1.00
France	2019	0.75	0.72	0.79	0.88	0.76	0.74	0.83	0.92
Germany	2021	...	0.83	0.91	0.96	...	0.97	1.07	1.12
Netherlands	2021	0.84	0.84	0.89	0.89	0.79	0.79	0.89	0.89
OECD average		...	...	...	...	0.81	0.87	0.90	0.95

Source: OECD (2023b).

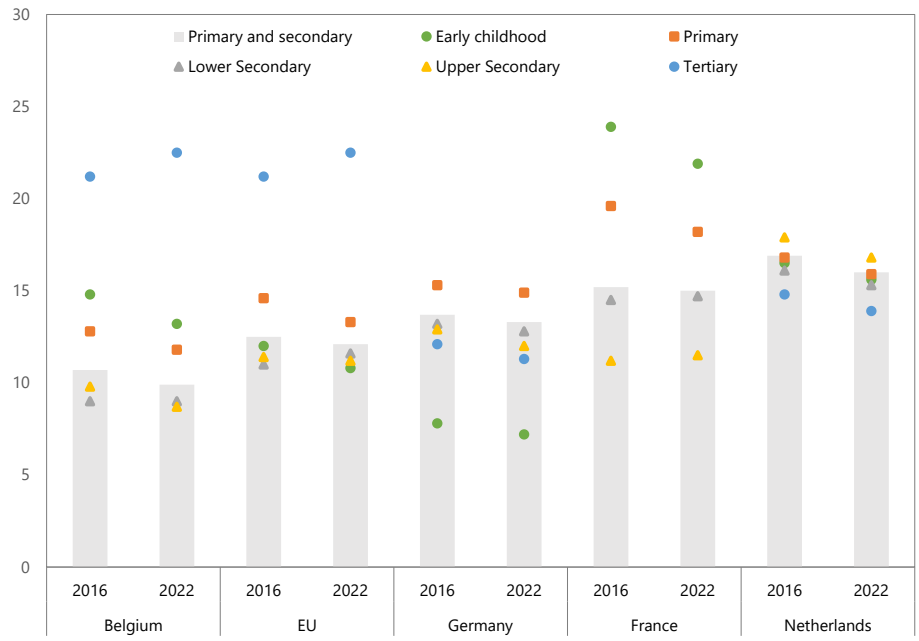
14. The main reason for the higher wage bill is the employment level. From the primary to the secondary level, the number of students per teacher is much lower than in any of the comparators. The student-to-teacher ratio has also declined in the recent past at all levels of education, except tertiary (Figure 9). In most OECD countries, the decline in class sizes over the past decade was driven by an increase in the number of teachers outpacing the increase in the student population. In Belgium, the students-to-teacher ratio shrank because the number of teachers increased notwithstanding a drop in the number of students and attempts to limit the increase in the number of teachers (Hallaert, 2016; OECD, 2024c). Between 2016 and 2022, the number of students from early childhood to tertiary declined by 4 percent while the number of teachers increased by 7 percent. This is a larger gap than in any of the comparators. The increase in teachers is driven mostly by early childhood, primary and (upper) secondary levels (Figure 10). These developments contribute to a significantly higher spending per student on basic education (Appendix I).

15. Relatively low teaching time is another reason for the high wage bill. In both the French and the Flemish communities, teachers' statutory teaching time is significantly lower than in any comparator (Figure 11). It is higher in the French community than in the Flemish community at all levels of education. Data for statutory *working* time (rather than statutory *teaching* time) is only available for primary education in the French Community. It is only 54 to 60 percent the statutory working time of teachers in comparators while for statutory teaching time the gap is 72 to 98 percent.[13,14]

[13] See OECD (2024c, Chapter D4) for a description of the working/teaching time requirements.

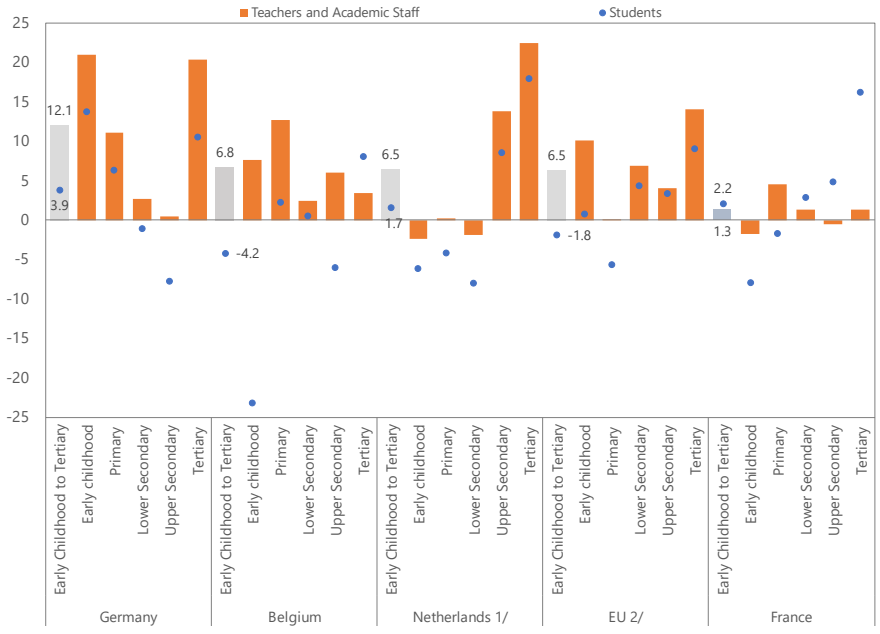
[14] The share of teachers working part-time is higher than in France or for the EU27 at all levels of education but lower than in the Netherlands. It is also higher than in Germany at secondary level but lower at primary level.

Figure 9. Students-to-Teacher Ratio (2022)



Source: OECD.

Figure 10. Change in the Number of Students and Teachers
(2016–22, Percent)

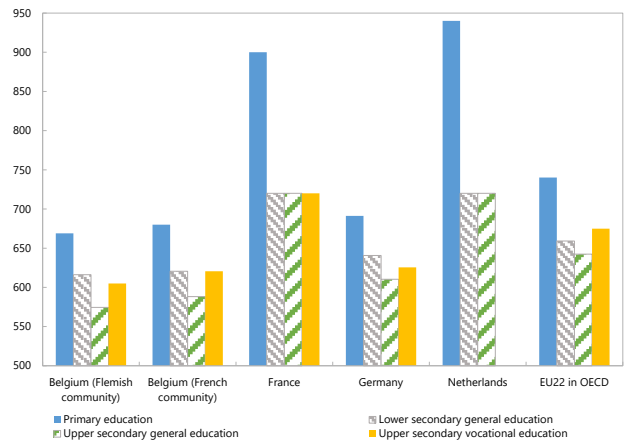


Sources: Eurostat and IMF staff calculation.

1/ Growth in the number of students is for 2016–21 for "Early childhood to Tertiary" and "Tertiary" due to data availability.

2/ Excludes post-secondary non-tertiary education due to data issues.

Figure 11. Statutory Teaching Time
(2021, hours per year)



Source: OECD.

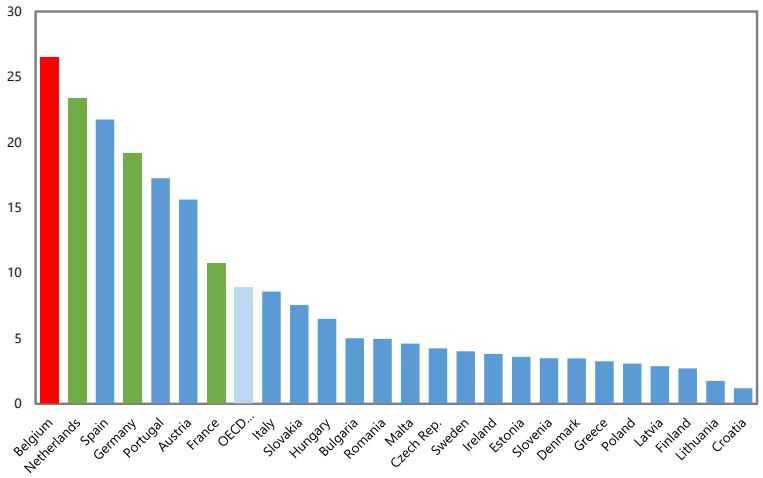
16. A review of schemes that allow education employees to reduce their working time would lower the wage bill without affecting outcome. Under certain circumstances, teachers and employees of the education system appointed on a permanent basis and aged 55 and over can reduce their working time. At 58, they can stop working while receiving a reduced salary. In the French community; 23.4 percent of the employees over 55 percent benefited from such a scheme (*Départ Préalable à la Pension de Retraite*) up from 18.7 percent in 2019. The reduction accounted for 13.2 percent of full-time equivalent of employee 55 and over, up from 9.5 percent in 2019 (Fédération Wallonie-Bruxelles, 2024).

17. Another reform would be to improve the allocation of teachers and better leverage teachers' time. "While lower student-teacher ratios allow teachers to focus more on the needs of the individual, they require higher overall spending on teacher salaries and have to be weighed against alternative spending priorities" (OECD, 2024c). However:

- Lower student-to-teacher ratios do not appear to lead to a better focus on the needs of students in difficulty as Belgium has the highest rate of grade repetition in the EU, which is a cause of excessive spending in primary and secondary education (Figures 12). The effectiveness of grade repetition is debated but, in Belgium, it affects more socio-economically-disadvantaged students, students with a migrant background, and boys than in other EU countries (Appendix III). It is noteworthy that, both the French and the Flemish communities are taking measures to reduce grade repetition (EC, 2023; Kemoe, 2020; OECD, 2024c and d, *Pacte pour un Enseignement d'excellence*).[15]

[15] In the Flemish community, "starting from the 2023/24 school year, all first graders of primary education will be required to either change their study programme (B-certificate) or repeat a year (C-certificate) if they fail the end-of-year exam. Normally, this process only started from the second year onward" (OECD, 2024c).

Figure 12. Share of Students Repeating a Grade at Least Once in Primary and Secondary Education
(All students, 2022, percent)



Source: OECD.

- Lower student-to-teacher ratios (or lower teaching time) do not appear to be associated with comparatively higher educational outcomes in Belgium (Figures 13). This is consistent with a large body of evidence. Hattie (2005) concludes a large meta-analysis pointing that reducing class-size has only a "tiny" positive effect and suggests that the main reason is that teachers of smaller classes adopt "the same teaching methods as they use in larger classes and thus [do] not optimiz[e] the opportunities presented by having fewer students."

Therefore, an increase in teaching time (possibly by reducing time spent on administrative and non-teaching tasks) could also be considered. Combined with proper incentives, this would allow dedicating more times to students in difficulty, fostering better educational achievements by reducing grade repetition and improving educational outcomes of socio-economically-disadvantaged students (see below).

18. Moreover, increased mobility and career prospects, strengthened job security, and a larger share of working time dedicated to teaching would increase the attractiveness of the profession, reducing staffing issues. Belgium experiences a comparatively high shares of teachers leaving prematurely the profession (in both the French and Flemish communities), high absenteeism rates, along with a declining share of students enrolling in initial teacher education. This has contributed to severe and rapidly increasing teacher shortages (Figure 14) that affect more students than in anywhere else in Europe.[16] Faced with teacher shortages and cumbersome hiring rules, schools tend to rely on replacement teachers, some of whom may not have adequate qualifications (Figure 14) and who have low job security. At the same time, new teachers often have to wait several

[16] Caution is needed in interpreting differences across countries as the indicator reflects principals' perceptions (which may be affected by cultural expectations) rather than an objective measurement.

years to be permanently appointed. This reduces the attractiveness of the profession and leads to "a growing proportion of not or not fully qualified teachers and occasional disruptions to school activities such as examinations" (EC, 2023).[17,18] To address these issues, communities have recently adopted several measures. For example, all communities have introduced changes to provide job security for new teachers and increase the number of permanent contracts (EC, 2023; OECD, 2024c and d). The Flemish Community has reduced the length of time before a teacher is made permanent. It has also eased the rules governing the recruitment as teachers of individuals working in the private sector, including by allowing them to retain part of their seniority, making teaching financially more attractive.

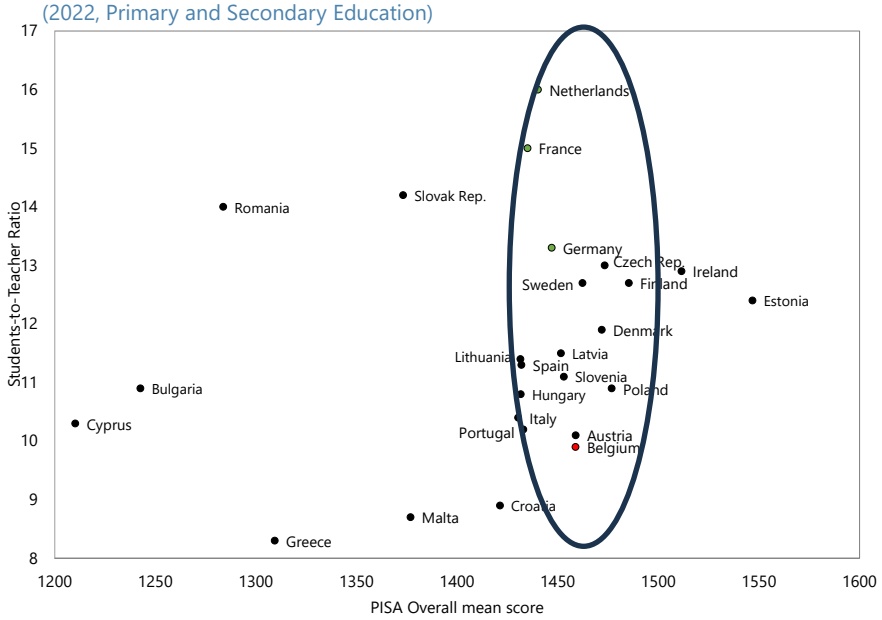
[17] In the French Community: 33.7 percent of teachers that started teaching in academic year 2017–18 had stopped doing so within five years (Fédération Wallonie-Bruxelles, 2024). Over 84 percent of teachers in Dutch-speaking schools of Brussels under 30 in academic 2014–15 were employed on a temporary basis. Five years later, 17.3 percent of these teachers had left the profession. The share reached 19.5 percent for those employed on a temporary basis and 5.0 percent for those employed on a fixed basis.

[18] Teacher shortage in secondary education "is a relatively new issue in […] the Flemish Community of Belgium, […] as they were not experiencing shortages in 2014/15" (OECD, 2024b). "Vacancies in Flemish secondary schools in 2022–23 were most common for teachers of mathematics, languages and technical subjects. In the French Community, bilingual 'immersion' schools are particularly impacted by the lack of qualified language instructors and only around half of VET teachers have received pedagogical training" (EC, 2023).

Figure 13. Class Size, Teaching Time, and Educational Outcome

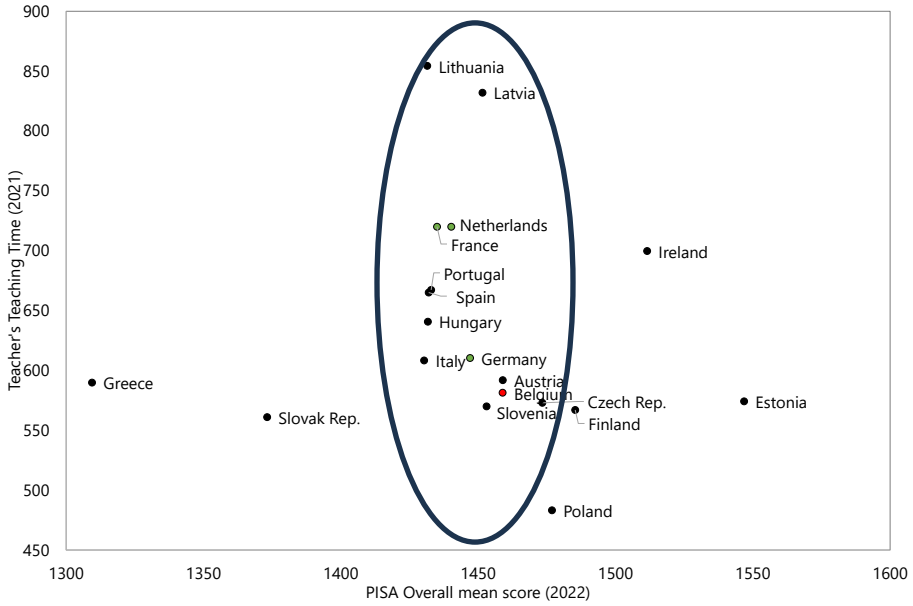
Smaller class-size is not associated with higher PISA score.

Student-to-Teacher Ratio and PISA Score
(2022, Primary and Secondary Education)



Nor is lower statutory teaching time.

Statutory Teaching Time and PISA Score
(Upper Secondary Education) 1/,2/

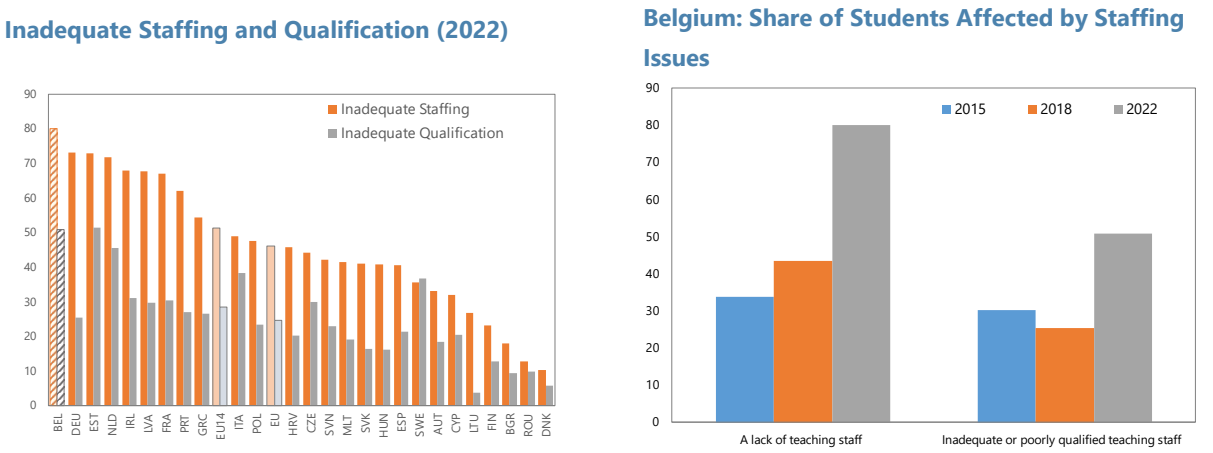


Sources: Eurostat, OECD and IMF staff calculation.

1/ For Belgium: simple average of statutory teaching time in the Flemish and French communities.

2/ Using lower secondary education provides the same picture.

Figure 14. Staffing Issues 1/
(Percent)



Source: OECD.

1/ Percentage of students in schools whose principal reported that the school's capacity to provide instruction is hindered to some or a large extent by staffing issues.

19. Finally, a better allocation of fiscal resources across levels of education may increase efficiency. There may be scope to reallocate some of the resources from secondary education to primary education, supporting the shift in policy focus in both the Flemish and the French communities.[19] This may require a greater nimbleness in teacher assignments, including the flexibility to increase teacher mobility, as well as tackling the fragmentation of the educational system (between various educational networks in each community) that leads, in some locations, to the duplication of small size schools.[20]

Outcome-Increasing Reforms

20. Increasing the efficiency of the education system should also aim at increasing educational achievement. The objective of reforms of the educational system should not be limited to reversing the decline in test scores, it should also be to increase equality of opportunities and better align skills acquired at school with firms' needs. The economic impact is potentially large as it would boost human capital and productivity, improve labor market functioning, and increase

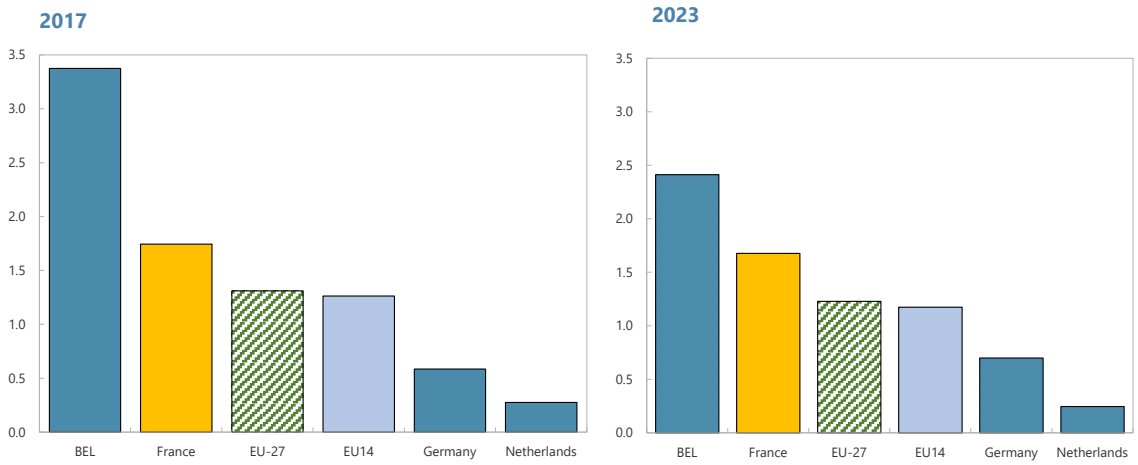
[19] The new Flemish government intends to put a stronger focus on acquisition of "basic skills" in part due to the recent PIRLS and TIMMS results (Figures 3 and 4) and to the increase in the share of students that do not speak Dutch at home. The French community intends to shift its focus from secondary education to primary education to avoid inequalities that are created at primary level and are difficult for the secondary education to offset.

[20] For a description of educational networks, see Eurydice.

competitiveness, and, ultimately, potential growth.[21]

21. In addition to declining educational achievement, education does not provide adequate skills. Though the skills mismatch has declined over time in Belgium, it remains the highest in the EU (Figure 15). Notably:

Figure 15. Skills Mismatch 1/



Sources: Eurostat and IMF staff calculation.

1/ Measured as the squared difference in proportions between population aged 15 to 64 and employed by level of education: 1) low skill (less than primary, primary and lower secondary education), 2) medium skills (upper secondary and post-secondary non-tertiary education), and 3) high skills (tertiary education).

- More than peers, Belgium suffers from a shortage of people with high skills (Table 5). As a result, high-skilled occupations account for a relatively high share of job vacancies in Belgium (OECD, 2024e).

- More than for peers, the share of the working-age population with low skills exceeds low-skill employment (Table 5). People with less than secondary education are overrepresented among jobseekers and low levels of education and low work-related skills are the two main barriers among people experiencing employment difficulties (OECD, 2024e). Moreover, at about 65 percent in 2023, the employment rate of people with only secondary education is significantly lower than in comparators and at the EU level. It has not increased since 2022 unlike in all comparators.

[21] "Belgium faces several [...] challenges related to labor shortages and skills mismatches, the integration of disadvantaged groups into the labor market, the performance and equity of the education system, the teaching profession and also challenges related to the business environment, the regulatory burden and complexity, as well as restrictions in the service sector. Addressing these challenges could help improve the skills of workers and educational outcomes of all students, resulting in increasing labor productivity, and bring employment closer to the national 2030 target of 80 percent" European Commission (2024b).

Table 5. Belgium: Skills Distribution 1/
(Percent)

		Belgium	EU27	France	Germany	Netherlands
Low skills	Share of population	22.5	24.7	21.1	23.1	23.5
	Share of employment	11.9	16.2	11.9	16.4	19.8
	Difference	*10.6*	*8.5*	*9.2*	*6.7*	*3.7*
Medium skills	Share of population	38.4	44.3	41.2	47.8	37.8
	Share of employment	37.7	45.8	41.2	50.5	38.4
	Difference	*0.7*	*-1.5*	*0.0*	*-2.7*	*-0.6*
High skills	Share of population	39.1	30.9	37.5	29.0	38.2
	Share of employment	50.4	37.9	46.6	33.2	41.4
	Difference	*-11.3*	*-7.0*	*-9.1*	*-4.2*	*-3.2*

Source: OECD.

1/ Skills are proxied by education achievement: Low skills are less than primary, primary and lower secondary education, medium skills by upper secondary and post-secondary non-tertiary education, high skills are tertiary achievement.

22. Enrollment in science, technology, engineering, and mathematics (STEM) is low. Despite favorable employment prospects, few students (notably female students) pursue a tertiary education in STEM.[22, 23] The share of graduates that study STEM is lower than in comparators, notably for information and communication technologies despite the growing demand in digital skills associated with the digital transformation (Figure 16). The share of younger working age population (20-29) with a tertiary degree in STEM was 16.4 percent in 2022, well below EU level of 23.0 percent, Germany (24.3 percent) or France (35.3 percent).

23. The skills mismatch has important economic consequences.

- *First, it limits the employment rate.* The skills mismatch contributes to one of the lowest employment rates in the EU. At 75½ percent in 2023, the employment rate in Belgium was also lower than in any of the three comparators. Reflecting the shortage of people with tertiary education, the employment rate of population aged 25 to 64 with a tertiary level of educational achievement was much higher at 88.2 percent, 12.7 percentage points higher than the overall employment rate. Among EU27 members, only Italy, Romania, and Croatia have a larger gap. Again, there is noticeable heterogeneity among Belgian regions (Figure 17).

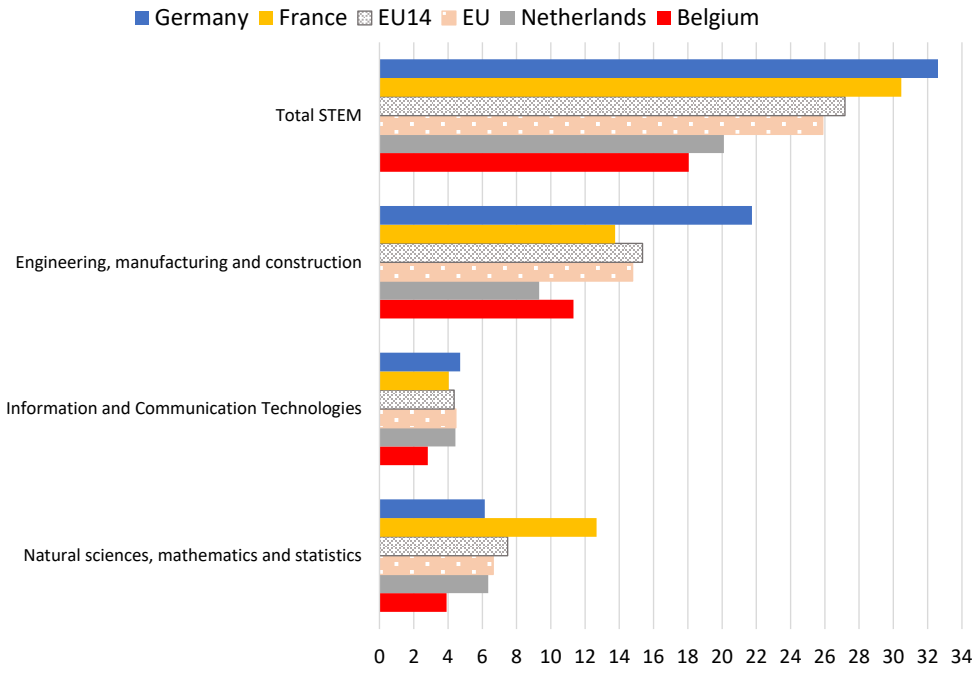
- *Second, the skills mismatch weighs on firms costs, productivity, and competitiveness.* "Skill mismatch plays a major role in firms' recruitment difficulties" and "skills shortages create competition between firms to attract talent and reinforces incentives to upskill their pool of employees. However, smaller firms are often penalized in this race because of challenges in

[22] "In 2021, employment rates in Belgium were highest among tertiary-educated individuals who studied engineering, manufacturing and construction or information and communication technologies with 90 percent and lowest among those who studied arts and humanities, social sciences, journalism and information at 84 percent" (OECD, 2022).

[23] See Breda and others (2023) and Jaravel (2023) for successful initiatives to increase female enrollment in STEM.

competing on salary and benefits. Small firms also face more difficulties than larger firms in investing into training" (OECD, 2024e). Indeed, in part to offset the skill inadequacy, Belgian firms resort more to training than in most other EU countries (Figure 18).

Figure 16. Share of Graduates in STEM 1/
(2022, in percent)



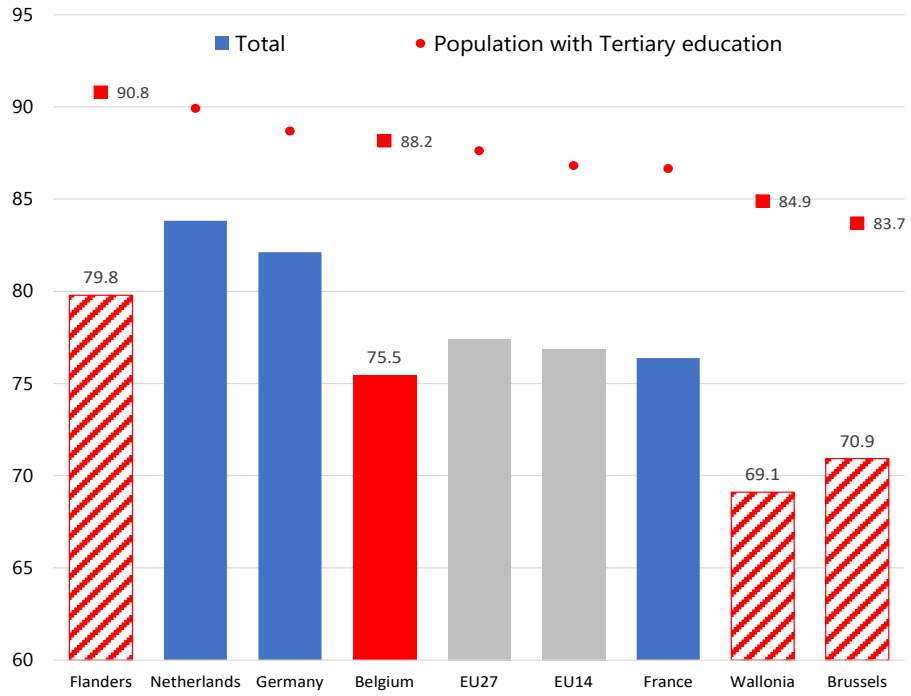
Sources: Eurostat and IMF staff calculation.

1/ Post-secondary non-tertiary education - vocational and tertiary education.

24. Various policies would help better aligning skills with firms' needs. Policy makers should strengthen incentives and guidance to ensure that the curriculum provides graduates from the secondary education with skills that would increase their low employment rate. Reforming and promoting vocational training (to address stigma associated with it among the two largest communities) should also be considered.[24] Addressing the shortage in high-skilled individuals, policies should aim at promoting STEM studies, notably among women.

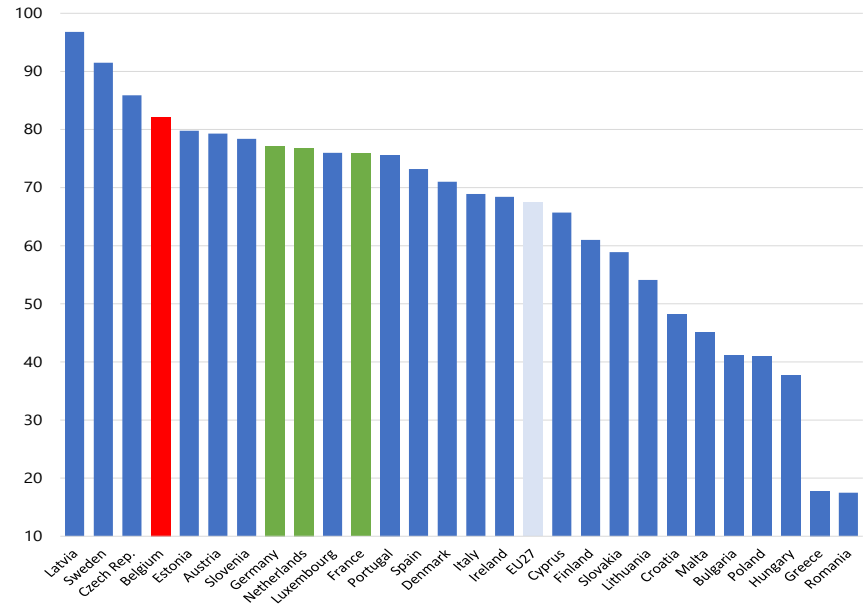
[24] Less than half of the recent graduates participated in work-based learning during their vocational education and training compared to over 60 percent in the EU. Moreover, there is a need to (i) promote vocational education and training to firms dual learning that is little known resulting in insufficient available place, and (ii) address the stigma attached to vocational education which contributes to high drop-out rate (EC, 2023).

Figure 17. Employment Rate
(2023, percent, population aged 25 to 64)



Sources: Eurostat and IMF staff calculation.

Figure 18. Enterprises Providing Continuing Vocational Training Courses
(2020, percent of all firms)



Source: Eurostat.

25. Reducing inequalities in education would also help increase educational outcomes, while promoting social mobility. Students' background determines more their educational achievement in Belgium than in peers.

- **Childhood education is crucial to child development and has a long-lasting impact on education achievements, including helping reducing grade repetition.** It is particularly important for socio-economically disadvantaged children as it can mitigate the impact of poverty on brain development and language acquisition, which are crucial for future educational and job successes (Hallaert and others, 2023). While enrollment in early childhood education is almost universal for children three and older in Belgium, the enrollment of younger children is more limited notably among disadvantaged students: 33 percent of children from the poorest income tertile are enrolled compared to 72 percent of children of the richer income tertile. This 39-points difference is more than twice the OECD average of 19 percentage points (OECD, 2024d).

- **In all tested domains, the socio-economic status of students explains more the variance in PISA performance in Belgium than in any peers.** This is increasingly so and markedly more the case in the French community than in the Flemish one (and even more than in the German-speaking community) (Figure 19). Moreover, more than in most peers (except France), disadvantaged children tend to be much more low performers than advantaged students. Advantaged students are also more likely than in peers to be top performers than disadvantaged children (notably in mathematics though less so in science).

- **Belgium has a higher share of students with immigrant background than most EU countries.** As in most countries, the PISA score of students with immigrant background is lower than for students with non-immigrant background. However, the 57-point gap in both mathematics and reading is among the largest in the EU. The gap is wider in the Flemish community than in other communities. Most of the lower performance in the PISA test is explained by the fact that the share of disadvantaged students among students with immigrant background is larger than for non-immigrant students (Figure 20).

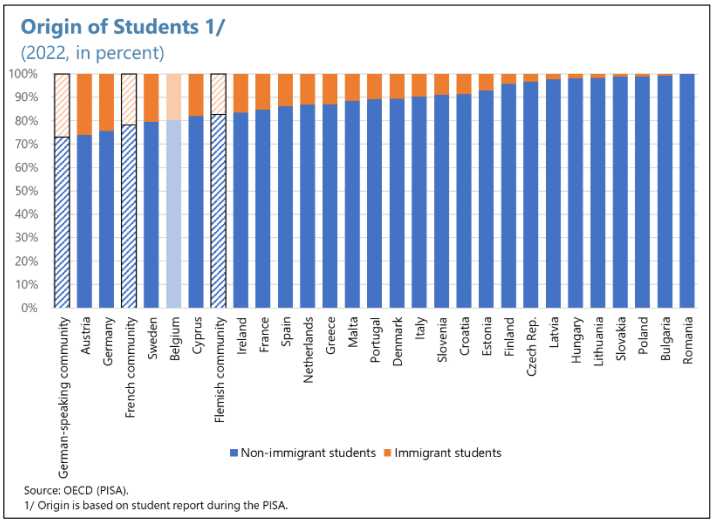
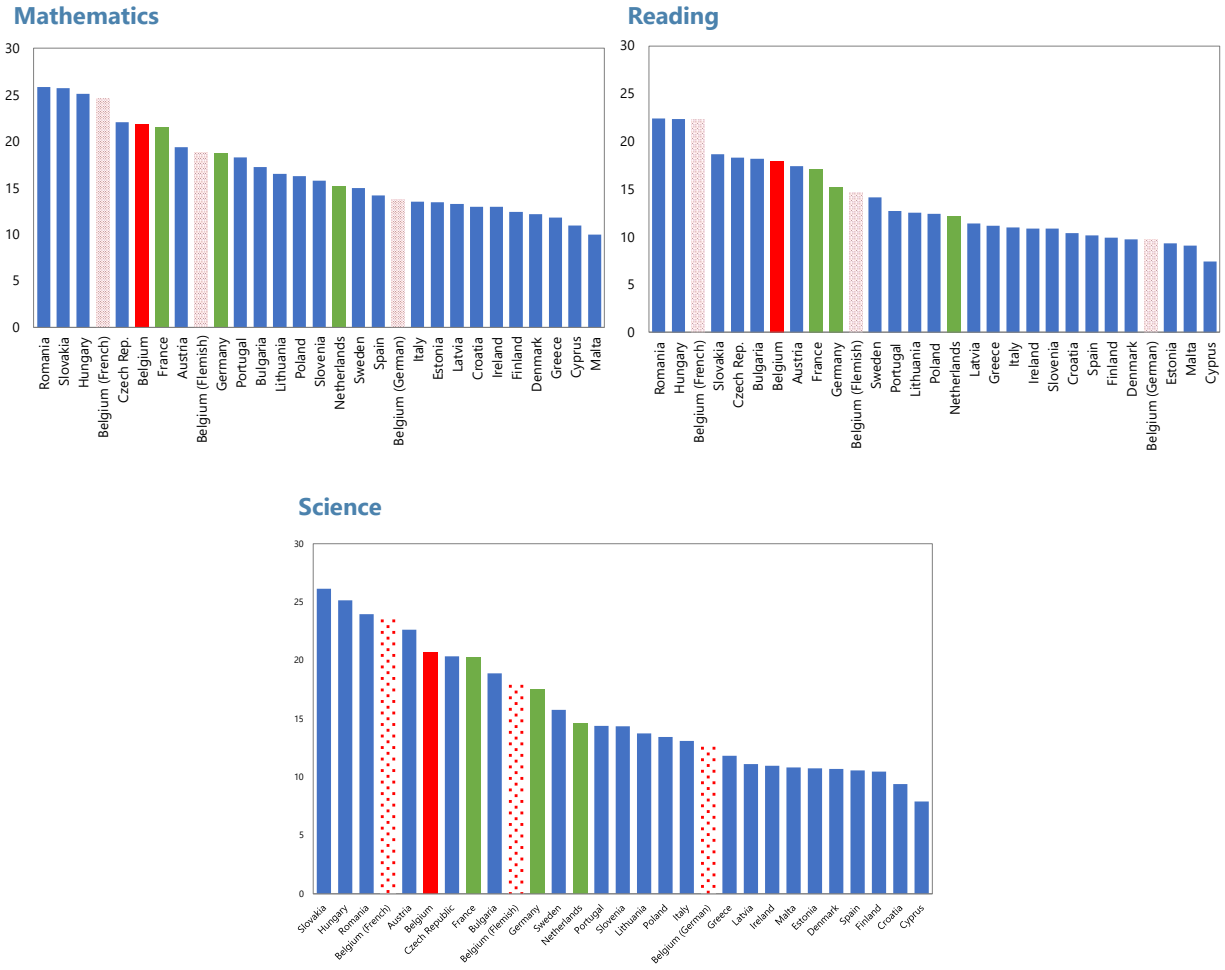


Figure 19. Percentage of Variance in PISA Performance Explained by ESCS (2022) 1/



Source: OECD.
1/ ESCS refers to the PISA index of economic, social and cultural status.

26. Reducing the impact of the disadvantaged socio-economic and migrant backgrounds would have important economic and social positive implications. It would increase the skills of disadvantaged students and thus help raise their employment rate and thus potential growth. It would also increase their income prospects and, as a result, foster social mobility. Economic literature has provided evidence that, in advanced economies, equal access to education lifts pre-redistribution incomes for those at the bottom of the income distribution contributing to reducing income inequality, which is strongly associated with intergenerational social mobility (Blanchard and Rodrik 2021, Bruroni and others 2013, Chancel 2021, Corak 2013, Rodrik and Stantcheva 2021). As a result of lower market income inequality, less fiscal redistribution would be needed to achieve the same, and comparatively low, disposable income inequality that underpins the Belgian social model (IMF, 2023). Finally, it would also increase the pool of individuals able to innovate or to absorb technological innovation. Literature has shown the "children's chances of becoming inventors vary

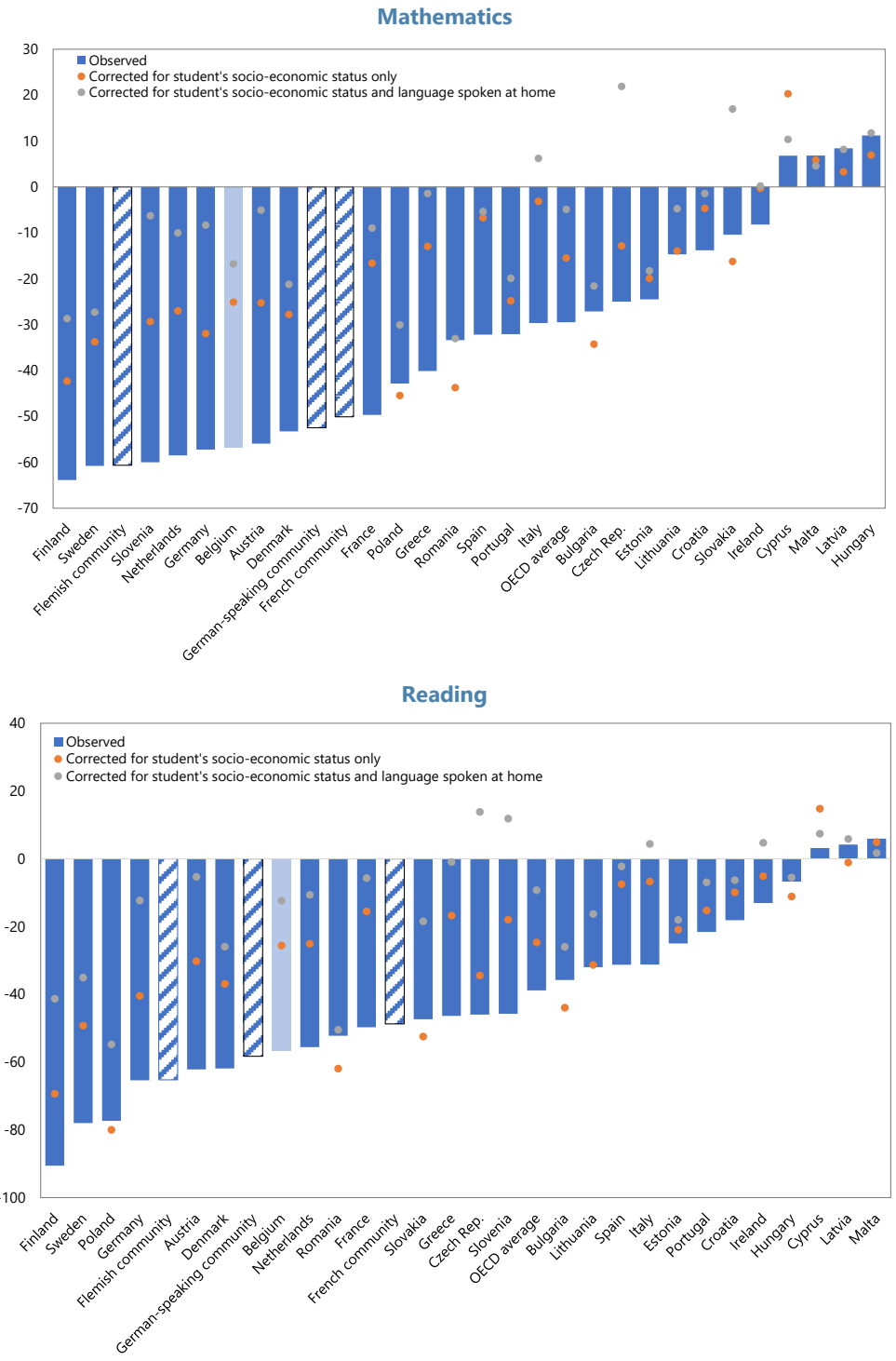
sharply with characteristics at birth, such as their race, gender, and parents' socioeconomic class" (Bell and others, 2019).[25]

27. This would, again, require organizational reforms. Promoting the enrollment of disadvantaged students in early childhood (through lower cost, increased availability, or simplified enrollment procedures) would increase their educational achievements and has been associated with higher labor force participation of their mothers (Hallaert and others, 2023).[26] Allowing and incentivizing teachers to provide support to students who face difficulties would foster their skills acquisition and help reduce grade repetition that is more frequent for disadvantaged students and students with immigrant background.

[25] For a review of literature on the link between education and innovation, see Biasi and others (2021) and Jaravel (2023).

[26] Childcare costs erode more low earners parents' work incentives in Belgium than on average in the EU, notably for single parents (OECD, 2020). For some household types (e.g. single parent with two children earning average wage, couples with two children earning minimum wage), the cost of childcare after tax and benefits represents a higher share of the household income than on average in the EU (OECD Net Childcare Cost).

Figure 20. Difference in PISA Score Associated with Immigrant Background
(2022, in points)



Source: OECD.

E. Conclusion

28. A higher spending on education than in peers does not result in better educational outcomes, suggesting large scope for increasing spending efficiency. This paper estimates that Belgium could achieve the same educational outcome at a fiscal cost lower by up to 1.4 percent of GDP. Alternatively, Belgium could achieve better educational outcomes at unchanged current spending, reversing the recent decline in test scores and provide students with skills that are more aligned with labor market demands.

29. The magnitude of potential efficiency gains suggests that reforms could lead to both an increase in educational outcomes *and* a lower fiscal cost. Increasing spending efficiency would free fiscal resources than can be used to both support fiscal consolidation and to improve educational achievements. These benefits would be achieved in the medium term, as they require structural reforms that would take time to design, implement, and bear fruit.

30. Changes in the organization of the educational system are needed to increase spending efficiency. The main reason for the larger spending in Belgium than in European peers is a high wage bill due to higher level of employment combined by relatively shorter teaching time and lower students-to-teacher ratio. Yet, Belgium experiences teacher shortages and the highest share of grade repetition in the EU (a source of inefficiency and fiscal cost). Therefore, reform should focus on a reorganization of the educational system to better allocate teachers and better leverage their time, while streamlining the schemes allowing for reduced working time or early retirement with reduced salary.

31. Reforms should also aim at providing skills better aligned with firms' needs and at increasing educational achievement of disadvantaged students. This would help increase the employment rate (notably of the population with only secondary education), reduce the need for firms to provide training to offset inadequate skills (which increases labor cost and weighs on firms' competitiveness), boost productivity, and increase the diffusion and creation of innovation. This would reduce the need for fiscal spending including the need for fiscal redistribution. The reforms would imply to ensure that the curriculum better align education with firms' needs and a reorganization of the educational system to allow teachers to spend more time supporting students who face difficulties.

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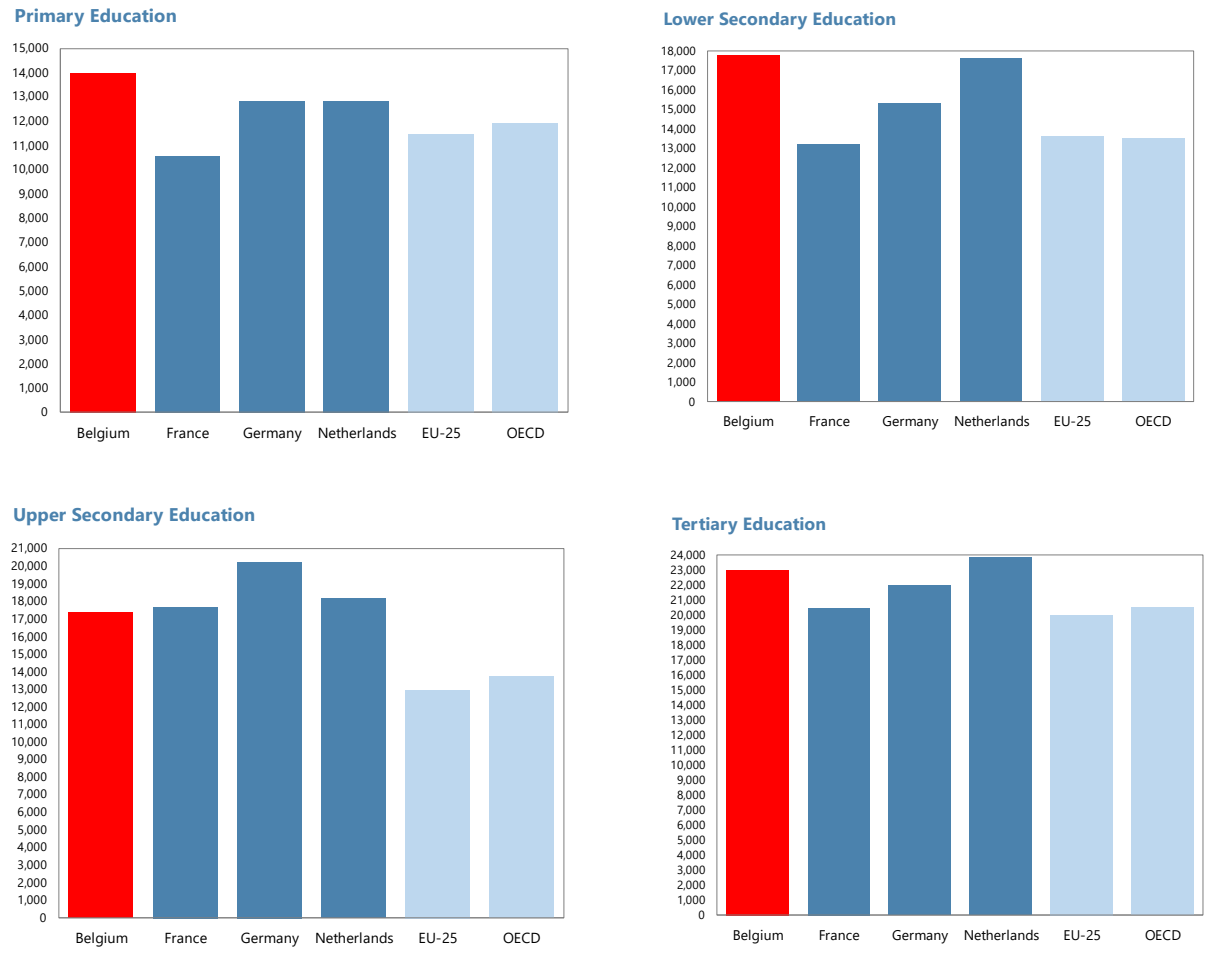
Appendix I. Total Expenditure on Educational Institutions

Figure I.1. Total Expenditure on Educational Institutions per Full-time Equivalent Student by Level of Education

(2021, US dollars per student, PPP)



Source: OECD.

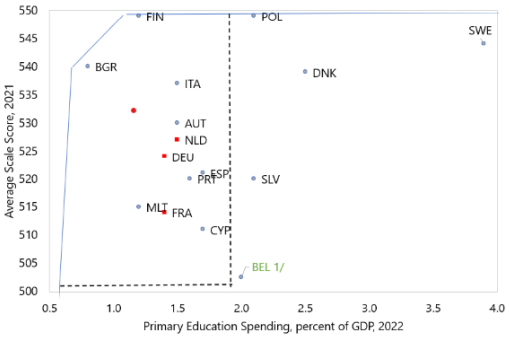
Note: Private and public financing.

Appendix II. Alternative Measures of Efficiency Gains

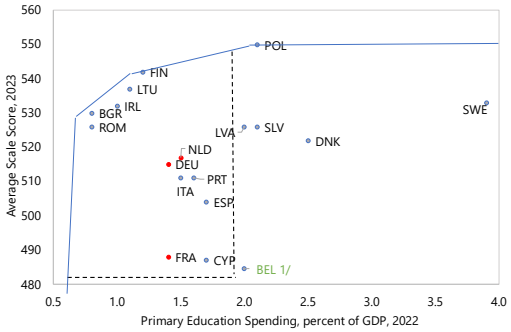
Figure II.1. Alternative Measures of Efficiency Gains at Primary and Secondary Level of Education

Test Scores at Primary Level (4th Graders)

PIRLS Score and Primary Education Spending

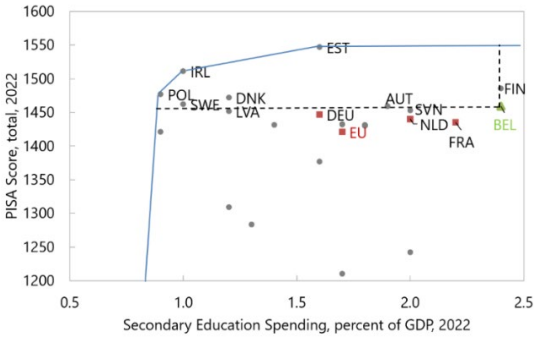


TIMSS Score on Science and Primary Education 2/

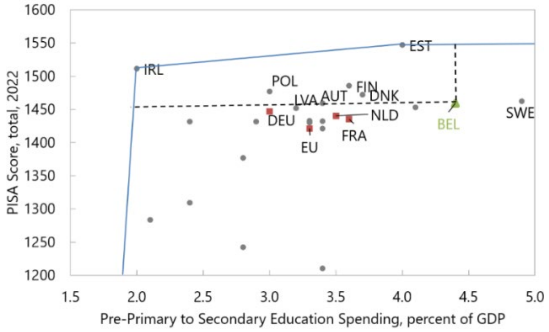


Test Scores at Secondary Level (15-Year Olds)

PISA Score and Secondary Education Spending

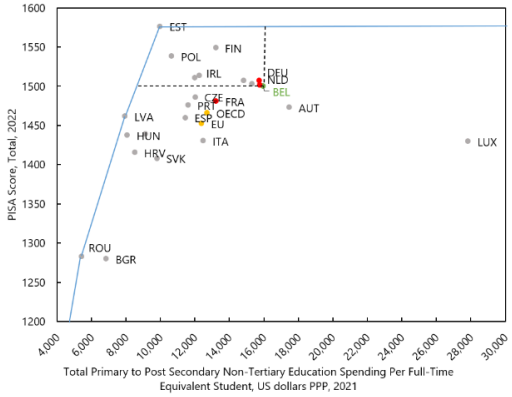


PISA Score and Pre-Primary, Primary, and Secondary Education Spending

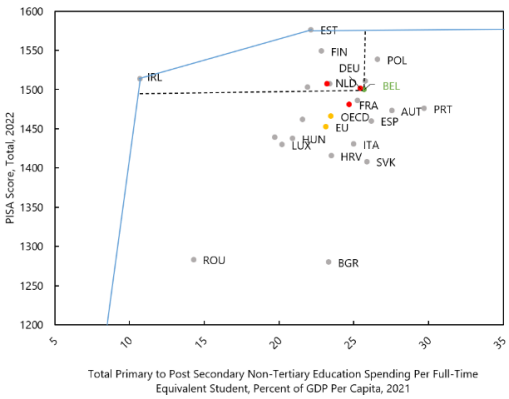


PISA Score and Total Primary to Secondary Spending per Student

(US dollars, PPP)



(Percent of GDP Per Capita)



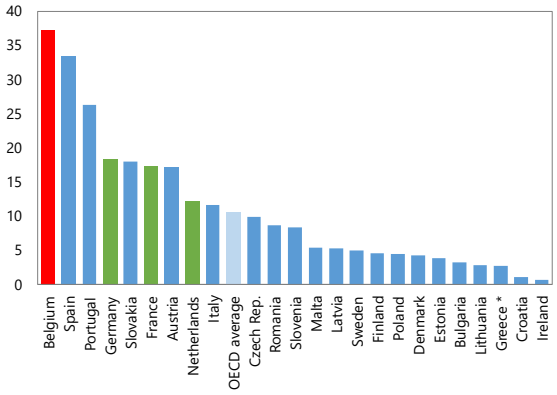
Sources: Eurostat, OECD, PIRLS, and TIMSS.
1/ Average of the Flemish and French communities scores.
2/ The picture is broadly similar if mathematics scores are used.

Appendix III. Grade Repetition

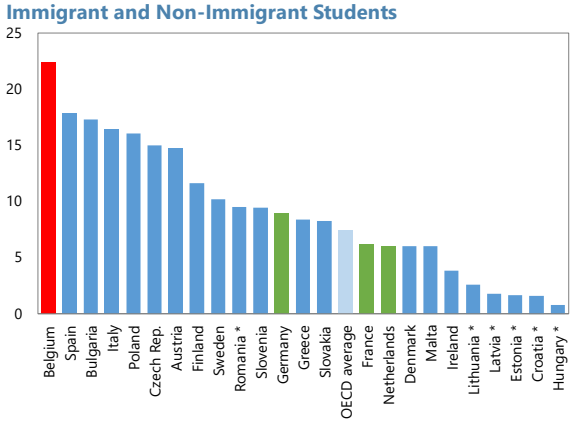
Figure III.1. Grade Repetition in the EU

(2022, percentage points)

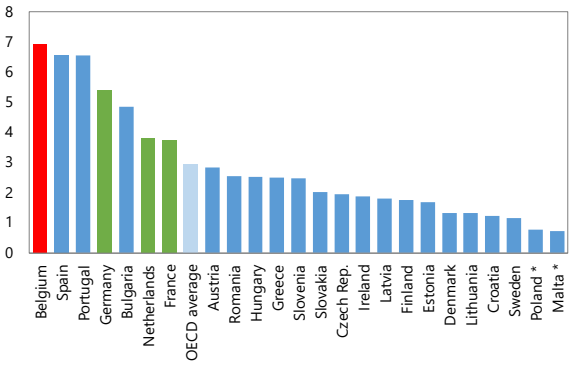
Difference in the Percentage of Grade Repeaters Between Disadvantaged and Advantaged Students



Difference in the Percentage of Grade Repeaters Between Immigrant and Non-Immigrant Students



Difference in the Percentage of Grade Repeaters Between Boys and Girls



Sources: OECD.

* Difference is not significant.