

3.3

Teachers' wage models

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KEY MESSAGES

- Teachers' average monthly payments have increased faster than the average wage, and since 2023 teachers' incomes have exceeded the Estonian average wage.
- Teachers have both the motivation and the time to work more than full-time: half of them work under more than one employment contract, earning on average an additional EUR 175 per month from short-term work. It is not known whether this additional work is done out of preference or necessity.
- The education-level component in the teacher wage model, which gives Estonian basic school teachers a 5% wage premium for a master's degree and a 35% premium for a doctoral degree, is questionable, because a higher level of education does not necessarily make someone a better teacher. However, teachers working with children with special educational needs, pupils from lower socio-economic backgrounds, more complex subjects, and higher school levels should be paid more.
- The teachers' labour market is growing: the teaching profession has become more popular, teacher wages are increasing, employment relationships are becoming more flexible, including short-term work and gig-type arrangements.

INTRODUCTION

Teachers' wage models vary across countries and education systems. Three main principles of remuneration are commonly used. First, there is the fixed wage model, where in addition to an agreed minimum wage, seniority and qualification may determine the wage scale. A similar approach is the career-stage model, where specific criteria, such as seniority, professional certification, or completion of continuing education, enable movement along the career and wage ladder. Very different from these two is the performance-based wage model, where pay is determined by

results, such as feedback, pupils' progress in the subject, or peer evaluations. An alternative is the full decentralisation of wages, where the school head independently determines teachers' wages based on the information available to them.

In Estonia, the official system is a mixture of a fixed and performance-based wage model, which sets the minimum salary for a full-time teacher. However, school heads may differentiate wages. A full-time workload is defined as 35 hours per week, of which 21–24 hours are contact hours,

meaning hours spent teaching in front of a class. From 1 January 2025, the minimum monthly salary has been set at EUR 1,820 gross. However, school leaders have a 20% variable reserve within the wage fund, which allows them to reward performance.

According to the Ministry of Finance, as of 10 November 2024, the actual estimated average teacher salary was EUR 2,184 per month¹. We show that as of May 2024, the actual average monthly amount of payments was higher. The question is whether this is due to teachers working above the standard workload or earning additional income outside school.

Over four years, comparing October 2019 and October 2023, payments to teachers working in basic and upper-secondary education increased by 37%, and somewhat more in vocational education. Although Estonia's official wage model, until 2025, did not include wage grades based on teachers' seniority, competence, or effectiveness in improving learning outcomes, school heads had the autonomy to establish such wage models. We therefore ask whether school heads paid for seniority and education, and whether the wage return to seniority increased rapidly during the first five years of teaching. Unfortunately, our data do not allow us to ask whether teachers of certain subjects, such as science and mathematics, or teachers of pupils from lower socio-economic backgrounds or with special educational needs, including highly gifted pupils, are paid more generously.

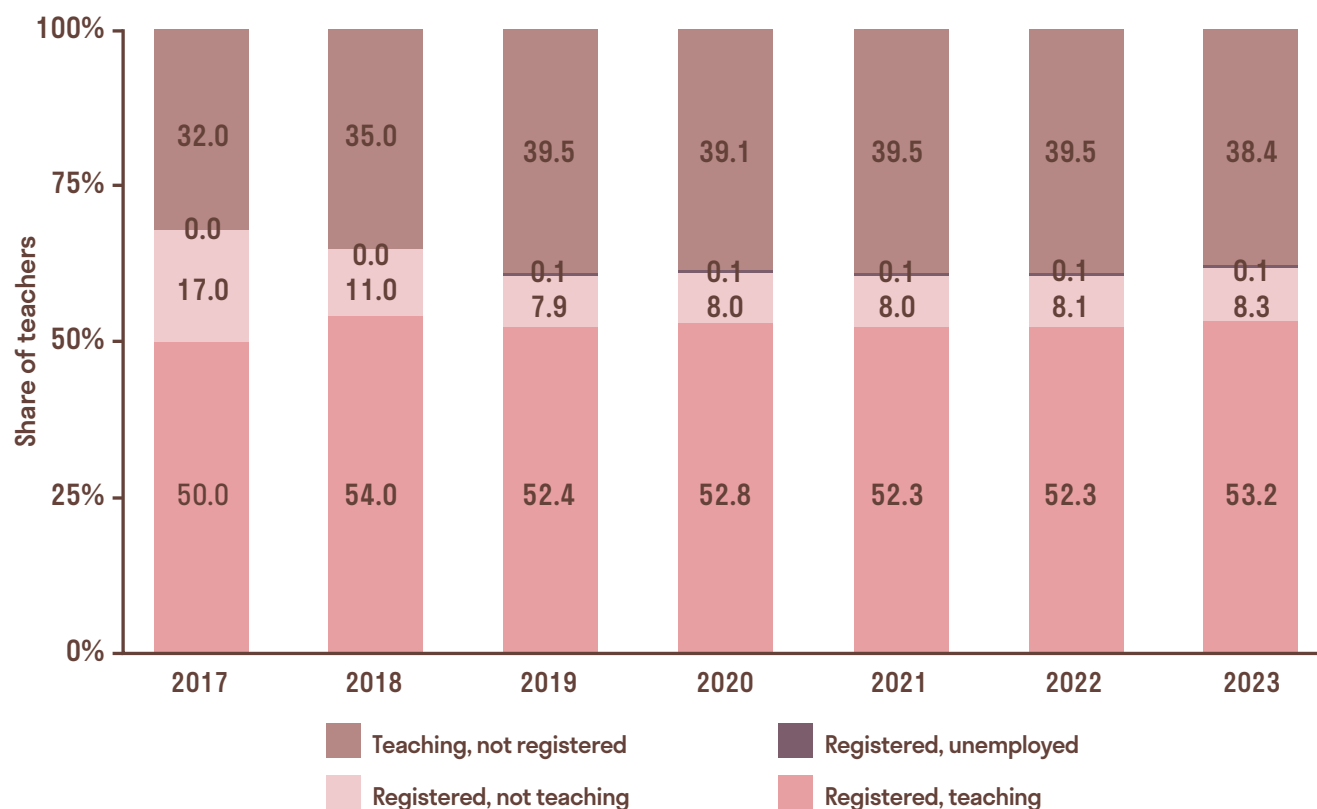
THE TEACHER LABOUR MARKET: ONE EMPLOYER VERSUS SHORT-TERM WORK

The main advantages of a fixed wage model are considered to be transparency² and so-called decommodification³: teaching as a profession is not treated as a market commodity. Research suggests that, especially compared with a performance-based model, fixed wages may increase cooperation between teachers.⁴ The disadvantage of fixed wages is that they may create inappropriate incentives; for example, under conditions of rapid wage growth, they may not motivate teachers to remain in schools for a long time. However, the basic premise is that a performance-based model improves teaching quality.⁵ Still, combining fixed pay with performance-based elements may create incentives to earn more through short-term work, or the gig economy. The pattern suggests a possible dualisation of the teacher labour market, with one segment consisting of full-time career teachers and another consisting of flexible, contract-based or gig-type teaching work. Is this also happening in Estonia?

The number of teachers increased substantially between 2017 and 2023, although the growth rate slowed over time. The largest contribution to this growth came from people without pedagogical education, who make up around 40% of all teachers. Nevertheless, the number of qualified teachers (with a master's degree) has also increased, although their share among all teachers has not. Only a small share, 8%, work in

Data and methodology. We rely on register data: all individuals associated with teaching positions in schools and higher education were selected from the register of educators. From the employment register (TÖR), we obtained all their registered employments for the period 1 September 2019 to 1 September 2024, together with background data. Statistics Estonia linked these data with income and social tax declarations (TSD) and the Estonian Education Information System (EHIS). As analytical methods, we used regression analysis techniques. The standard practice is to estimate wage equations based on the Mincer approach, where the dependent variable is log monthly earnings, which in our analysis are explained by education, work experience, level of teaching (basic school, upper-secondary school, vocational school), and gender. The effect of time is captured by monthly and annual time fixed effects, and school-specific characteristics by school fixed effects. For other regression techniques, we present the results only graphically.

Figure 3.3.1 Individuals working and not working as teachers, by status



SOURCE: figure by the authors

positions other than direct teaching positions (see Figure 3.3.1).

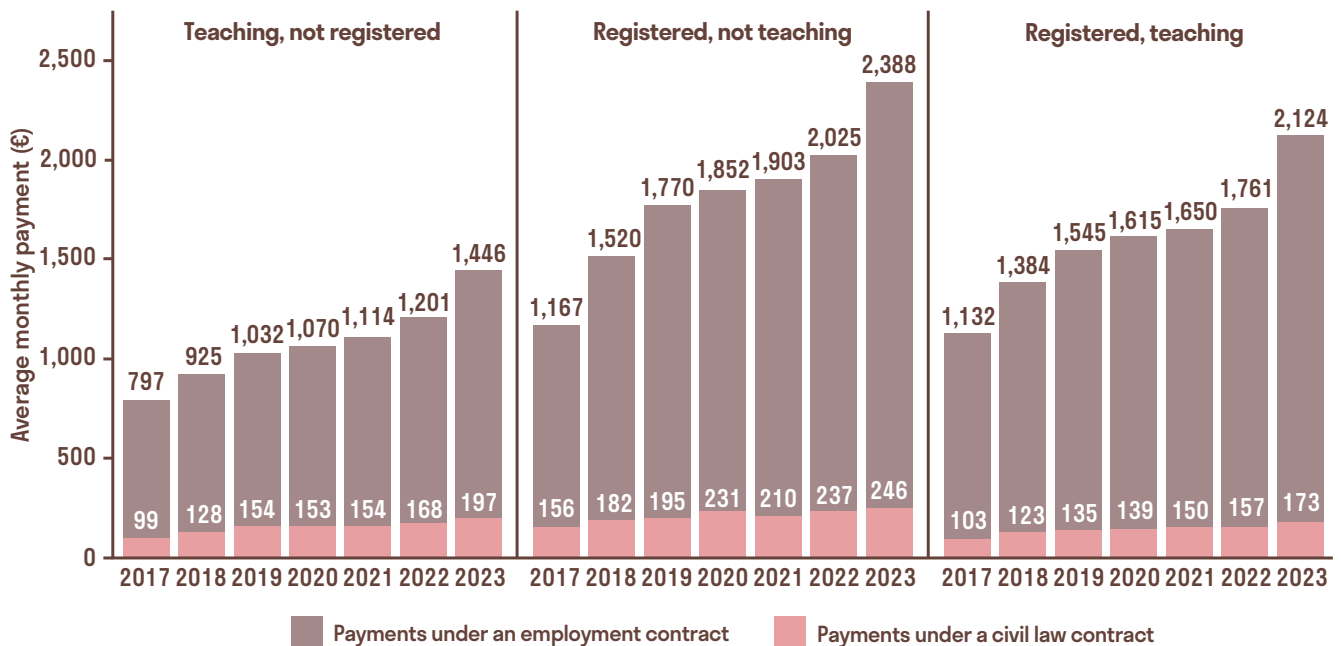
Nearly two-thirds of teachers work in only one main job, and most of them work full-time. In principle, there are no unemployed teachers. In 2023, the average teacher workload was 0.9, which reflects part-time work among both young and older teachers. Part-time work is nevertheless mainly concentrated among very young teachers, aged 20–25, who presumably do not yet have teacher qualifications. Only a very small share of teachers, less than 10%, work more than full-time.

Only one-third of teachers have civil-law contracts, such as authorisation agreements, and on average they earn little from these contracts – about EUR 175 per month in additional income (Figure 3.3.2). There are also teachers who have more than two contracts (see Figures 3.3.7–3.3.9 in the appendix at the end of the article).

Although Figure 3.3.2 does not account for workload, it shows that teachers’ alternative wage-earning opportunity, shown in the middle panel, has nevertheless remained higher than teachers’ salaries. Teachers who are registered as teachers but do not work as teachers also earn additional income through civil-law contracts.

Overall, reduced workload appears to be driven primarily by individual circumstances, such as supplementing pension income or working in a school prior to completing pedagogical qualifications. Gig-type engagements have remained relatively stable over the past seven years, with no marked increase following the Covid-19 pandemic. Contrary to common perceptions, teachers do not earn substantial additional income through civil-law contracts, which account for around 10% of total income.

Figure 3.3.2 Remuneration of individuals working as teachers or registered in the Register of Pedagogical Staff



SOURCE: figure by the authors

HOW DO SENIORITY, EDUCATION, GENDER AND TEACHING COMPLEXITY AFFECT TEACHERS' PAY?

The research literature has long found that higher levels of education spending do not consistently correlate with better study outcomes.⁶ However, this does not imply that financial resources are irrelevant for learning outcomes. Rather, existing funding principles may have failed to convert higher expenditure into improved education, suggesting inefficiencies in allocation. Although hundreds of studies address this issue, a 2000 study on teachers' pay has been particularly influential, showing that remuneration systems affect pupils' performance and well-being only under certain conditions.⁷ Unlike the formal Estonian pay model described above, the 2000 study cited here notes that pay structures are typically step-based, with career progression (including years of experience) and educational attainment determining salary grades. However, the same study finds that career ladder models are not effective.⁸ Instead, it argues that pay systems should provide rapid salary growth

during the first five years, when teachers' skills develop quickly and their effectiveness improves. The model should not include an increment solely for educational attainment, as higher qualifications do not necessarily make a teacher more effective. Higher pay should instead be directed towards teachers working with pupils with special educational needs or from lower socio-economic backgrounds, as well as those teaching more demanding subjects and at higher levels.

Estonian statistics show that the most recent non-seasonal monthly payment to teachers (total across all institutions, May 2024) exceeded the estimate reported by the Ministry of Finance, which is based solely on teachers' salaries (Table 3.3.1). Payments are highest, as expected, for upper secondary school teachers. Holding a master's degree has a statistically significant positive effect on total remuneration compared with a bachelor's degree, although we cannot control for whether subject or level complexity carries a wage premium. In vocational schools, the coefficient for a master's degree is negative: holding such a degree slightly reduces pay, although the effect is very small (less than 1%). For

Table 3.3.1 Effects of seniority, gender, age and educational attainment on total remuneration (%), basic schools, upper secondary schools and vocational schools, 2019–2024

	Basic	Upper secondary	Vocational
Seniority: each additional year of work	0.2***	0.3***	0.4***
Sex: female	-12.8***	-16.5***	-10.5***
Age: each additional year	0.3***	0.5***	-0.1*
Education: master's degree	5.5***	4.5***	-1.7***
Education: doctoral degree	37.6***	6.8***	32.7***
Average total remuneration in May 2024	€2,269	€2,690	€2,391
Number of observations (months of teaching)	130,151	66,511	7,266
Number of teachers (unique observations)	21,027	7,621	3,188

SOURCE: table by the authors

NOTE. Monthly gross wage payments are log-transformed, and the coefficients are subsequently converted into percentage terms. Seniority is calculated from the year of obtaining the teaching qualification, not from the actual start of employment in a school. Age is controlled for. Stars *** indicate statistical significance at the 99% confidence level (1% probability of error) and * at the 90% confidence level. The Register of Pedagogical Staff includes 31,836 unique individuals with higher education; total remuneration refers to the sum of all wage payments.

doctoral degrees, the difference in remuneration compared with a bachelor's degree is substantial; somewhat unexpectedly, the largest effect is observed in basic and vocational schools and the smallest in upper secondary schools.

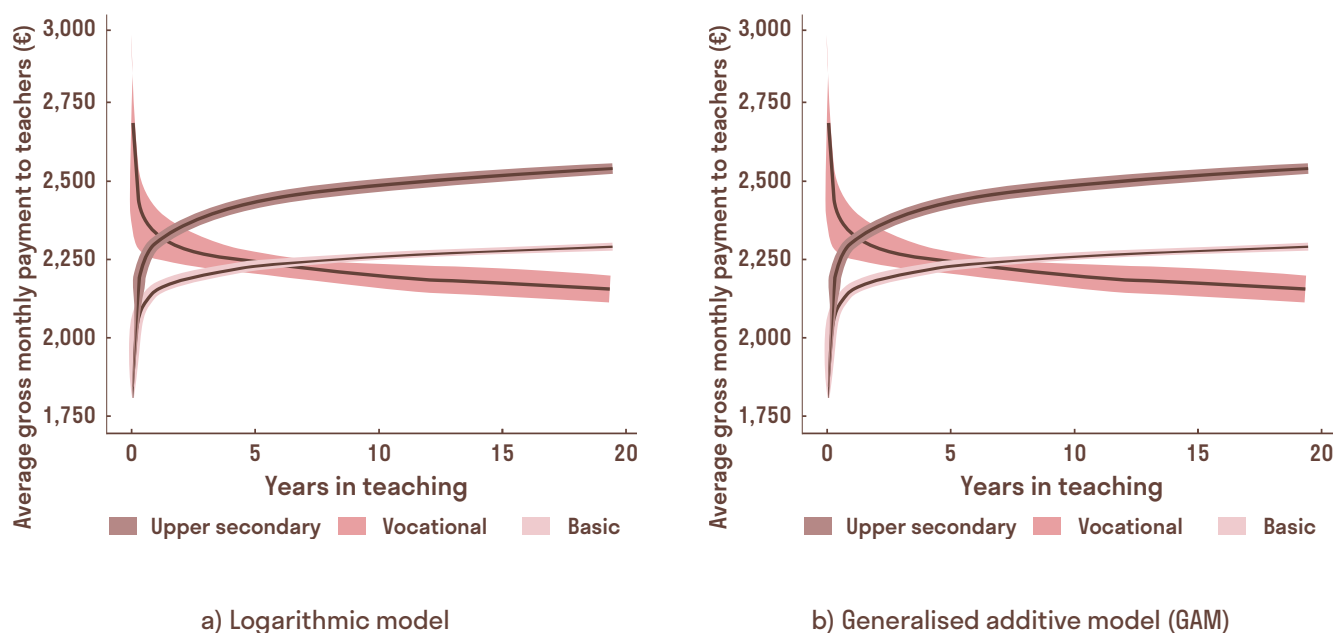
Lower wage levels for women, including in education, have been documented in several studies and have multiple explanations. The most common is the opportunity cost argument: highly educated men generally earn more in alternative occupations. In OECD countries, male teachers earn on average 77% of the earnings of similarly educated men, whereas female teachers earn more relative to women in alternative occupations.⁹ This creates gender-differentiated wage pressure.

Teachers' monthly wage payments are seasonal: holiday pay is disbursed in June (see the appendices at the end of the article). There are also indications of Christmas bonuses or payments related to formalised Christmas leave. Table 3.3.1

shows that seniority increments are paid across all types of educational institutions and generally to a similar extent, although part of this effect may overlap with the age coefficient. This is, however, a generalisation, as the data indicate that a fixed percentage is not paid for each additional year of seniority. Figure 3.3.3 presents the dynamics of remuneration by years of seniority (0–20 years) under two different functional specifications. Longer periods cannot be shown due to the temporal limitations of the registers.

Panel a) shows rapid wage growth at the beginning of teachers' careers in both basic and upper secondary schools, followed by minimal growth after the first few years. In vocational schools, additional years of seniority have a negative effect. Panel b) shows that in basic schools wages follow a pattern similar to the recommended effective model, with rapid growth at the start of the career and again after 15 years of seniority. In upper secondary schools, growth is concentrated between the fifth and tenth years of

Figure 3.3.3 Relationship between seniority and wages among teachers



SOURCE: figure by the authors

seniority and after 15 years. In vocational schools, however, wages begin to decline after the sixth year of seniority and increase again only after the thirteenth year.

FUTURE CHALLENGES

A centralised or a decentralised pay model?

Teachers' pay models serve several purposes: ensuring teacher supply¹⁰ and providing fair, contribution-based remuneration.¹¹ A meta-analysis of 119 studies by Hanushek shows that in 20% of cases there is a positive association between teachers' pay and pupils' outcomes, in 7% a negative association, and in the remaining cases the relationship is statistically insignificant.¹² Perceptions of fairness and motivation vary. From our education economics perspective, contribution and remuneration should move in tandem and be grounded in evidence.¹³ Accordingly, wage growth should be concentrated in the first five years of teaching. Higher pay should be directed towards more demanding classroom contexts and subjects, particularly where pupils have special educational needs or lower socio-economic backgrounds, and

towards higher grade levels. We recommend a pay model differentiated by level of teaching or subject area. In an ideal setting, effective pay design would fall within the remit of a capable school leader.

Will gig work enter school education?

Estonia has been a relatively generous funder of education. Compared with other European countries, investment at each level of education exceeds the average. At the same time, teachers have expressed concerns about low pay and excessive workload. The latter may reflect both necessity and opportunity, as many other professions also involve multiple jobs and long hours, yet their reported average wages are not calculated against a defined standard workload. Our analysis indicates that those working more than full-time are predominantly teachers aged 40–60, which we interpret as reflecting opportunity rather than compulsion.

In higher education, short-term contracts and gig-type arrangements have become widespread, including in elite institutions.¹⁴ Since the Covid-19 pandemic, the teaching



market has expanded particularly through paid private tutoring, accessed via platforms or personal recommendations. Business-oriented solutions have also entered schools, such as substitute teacher development programmes that recruit replacement teachers through civil-law contracts.¹⁵ Our analysis does not indicate explosive growth in such contracts. Nevertheless, around one-third of teachers hold civil-law contracts, and as the total number of teachers has increased, so too has the number of these contracts. The average additional monthly income remains below 200 euros.

Greater autonomy for school leaders in salary and personnel matters has been associated with increased competition and market-type behaviour among schools. Competition may manifest in selective admissions, investment in school reputation and competition for teachers. These practices may be framed as promoting educational quality¹⁶ but may also be viewed as contributing to the commodification of education, reduced collaboration among teachers and greater inequality and segregation between schools.¹⁷ This issue is discussed in greater detail in Chapter 4 of this report.

Given that the average age of teachers exceeds 50 (see Figures 3.3.10 and 3.3.11 in the appendix), and that school leaders are on average even older, there appears to be limited inclination to adopt platform-based work, gig arrangements

or short-term, transaction-intensive employment relationships. Civil-law contracts are more common among younger teachers registered in the Register of Pedagogical Staff, and this trend is likely to continue.

Is there a teacher supply problem in Estonia?

Recent studies¹⁸ have reinforced a widespread perception of an acute and large-scale teacher shortage.¹⁹ However, interest in teacher education remains strong,²⁰ a substantial number of qualified teachers are not currently working in schools,²¹ and planned legislative amendments²² aim to lower barriers to entry into the profession. The growth in teachers' pay described in this article should further encourage individuals to pursue teacher education and enter the profession. It has even been suggested that school teachers' salaries now exceed those of academic staff in higher education (see Figures 3.3.5 and 3.3.6 in the appendix). This may reflect the high barriers to entry into the teaching profession – it is possible to work as a member of academic staff without being eligible to work as a school teacher – or limited competition between universities, which may allow them to act as monopsonistic employers, whereas schools compete more actively for teachers. We also show that since 2019 approximately 2,600 individuals with teaching qualifications who are not currently employed as teachers have remained available to enter the profession (around 8% of teachers).

Table 3.3.2 Teachers' wages and background characteristics (mean values), September 2019 – August 2024

	All	Basic	Upper secondary	Vocational
Monthly payment	€2,064.69	€2,023.81	€2,286.49	€1,940.02
Workload	0.94	0.95	0.93	0.90
Seniority in years	7.25	7.15	7.58	8.68
Age in years	48.72	48.93	49.9	50.37
Sex (share of women)	81.67%	88.27%	81.76%	58.52%

SOURCE: table by the authors

In our assessment, the teacher labour market is therefore moving in a positive direction.

APPENDICES

Appendix 1. Monthly and annual dynamics of payments to upper secondary, basic school and vocational school teachers over the past five years

Table 3.3.2 presents register-based data in which all individuals registered in teaching positions are linked to Employment Register (TÖR) records for the period 1 September 2019 – 1 September 2024 and combined with background information (gender, education and age). These data are further linked to income and social tax declarations (TSD) and the Estonian Education Information System (EHIS).

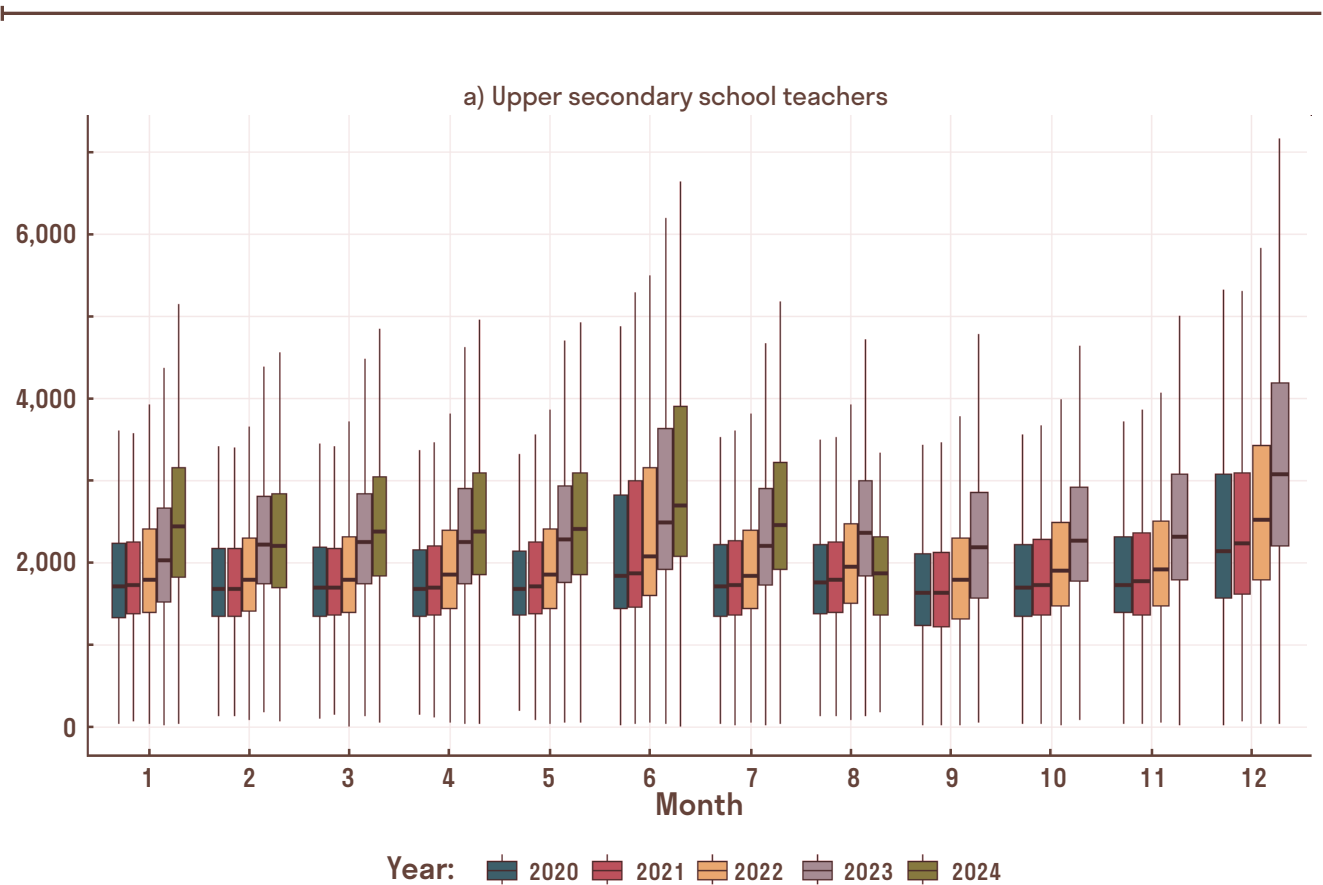
The data show that while teachers' incomes remained virtually unchanged between 2020 and 2021, substantial increases occurred in recent years, particularly in 2023 and 2024, both in median

pay (the lines inside the boxes in Figure 3.3.4) and in wage dispersion (the 'whiskers', which roughly represent two-thirds of observations). In box-and-whisker plots, the box represents 50% of observations, meaning that its size reflects wage variation among half of teachers (a longer box indicates greater variation). For example, wages of vocational school teachers vary more than those of upper secondary or basic school teachers. At the same time, they are more evenly distributed, so the median lies relatively centrally within the box. All three graphs in Figure 3.3.4 display clear seasonality, with additional payments or holiday pay disbursed in June and December.

Appendix 2. Comparison of salaries of school teachers and academic staff

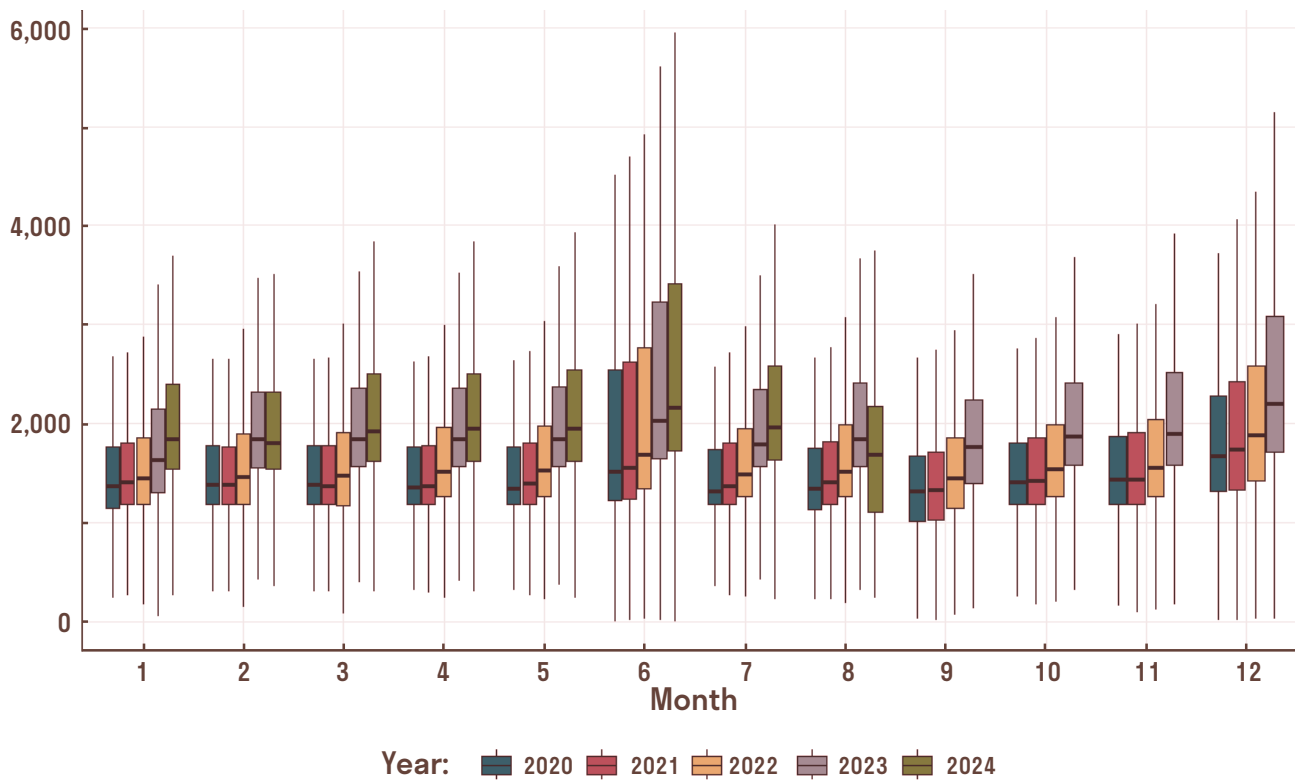
Universities have argued that academic staff contribute more to societal welfare than institutional budgets allow them to be compensated for, resulting in their salaries being lower than those of school teachers due to public underfunding.²³

Figure 3.3.4 Average monthly gross payments to teachers over five years

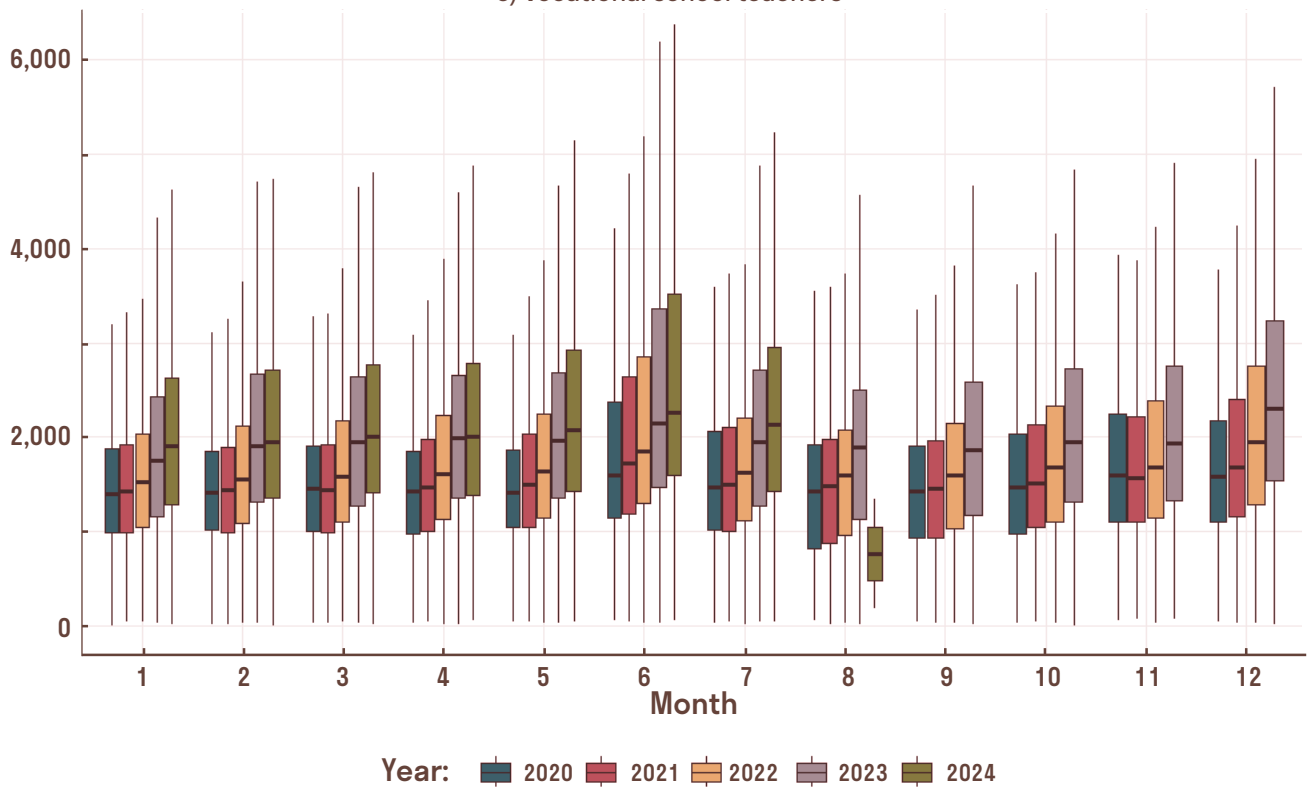




b) Basic school teachers



c) Vocational school teachers



However, the data indicate that teachers earn on average less than academic staff. In October 2023, academic staff in higher education institutions (regardless of academic rank) earned 41% or 971 euros more than school teachers. Nevertheless, a considerable number of academic staff earn less than school teachers (see Figure 3.3.5).

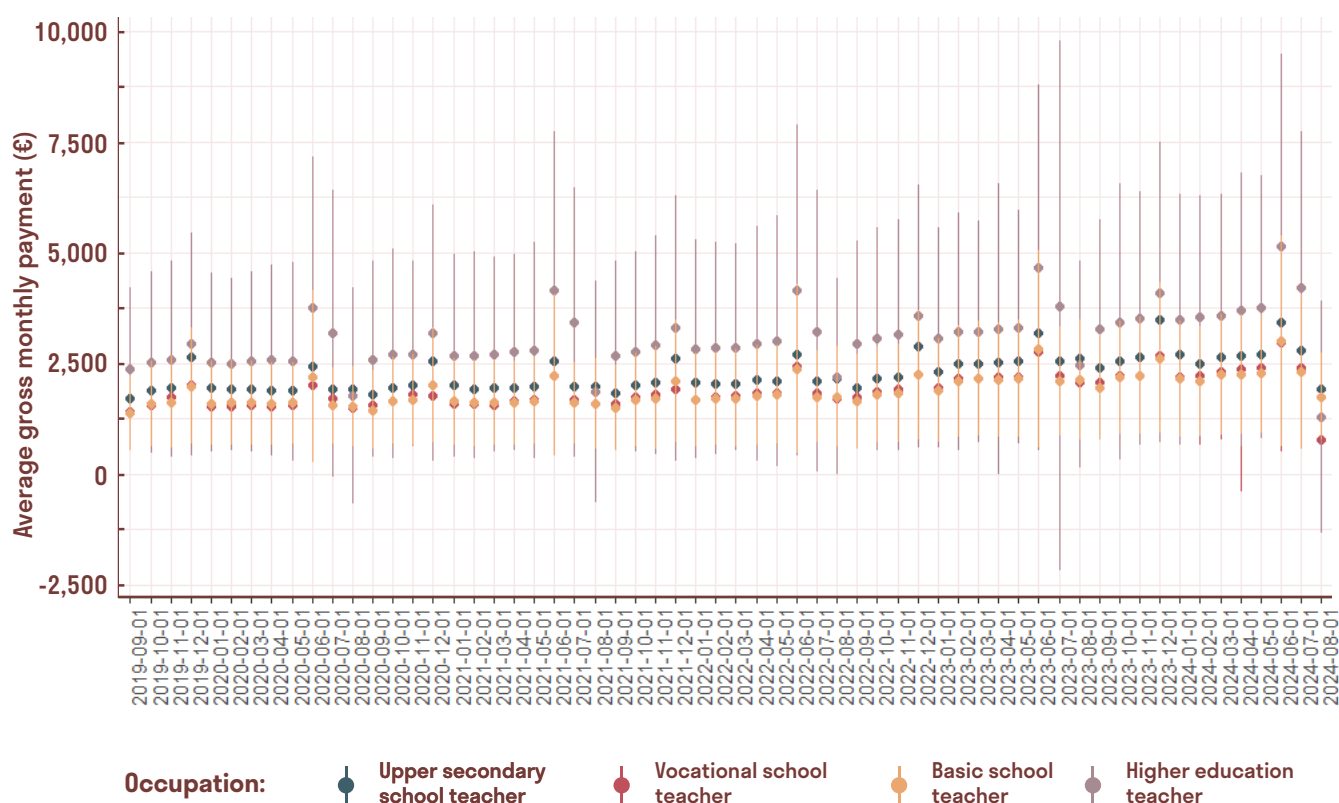
Average monthly payments differ across levels of teaching, with the lowest salaries in vocational education and the highest among upper secondary school teachers. However, these differences are not statistically significant, and it is therefore incorrect to claim that university academic staff earn less on average than school teachers. This comparison is based on group averages and includes highly paid professors and research group leaders. Figure 3.3.6 compares university

academic staff salaries with those of upper secondary school teachers, focusing primarily on academic staff whose main responsibility is classroom teaching, presented on an annual basis for clarity. It shows that the average salary of school teachers may indeed be higher, but not significantly higher, than that of several categories of university staff, such as assistants, fixed-term academic staff (category 0) and academic staff with a master's degree (category 5 teacher).

Appendix 3. Teachers' additional earnings

Approximately one-third of registered teachers hold a civil-law contract (Figure 3.3.7). Teachers may have multiple contracts, some of which are civil-law contracts. In 2023, teachers' total remuneration increased significantly, by 20%, while remuneration from civil-law contracts increased

Figure 3.3.5 Comparison of remuneration and monthly pay dynamics among school teachers and academic staff, September 2019 – August 2024



SOURCE: figure by the authors

NOTE. Points represent average monthly payments, and the lines around the points show 95% confidence intervals, indicating the range within which monthly payments fall in 95% of cases.

by less, on average around 10% (Figure 3.3.2). The share of teachers with civil-law contracts has remained unchanged, although their number has exceeded 10,000. It is not known whether such contracts represent additional work or primary employment. Income from civil-law contracts has remained at around 9% of total pay.

Appendix 4. Teachers' workload

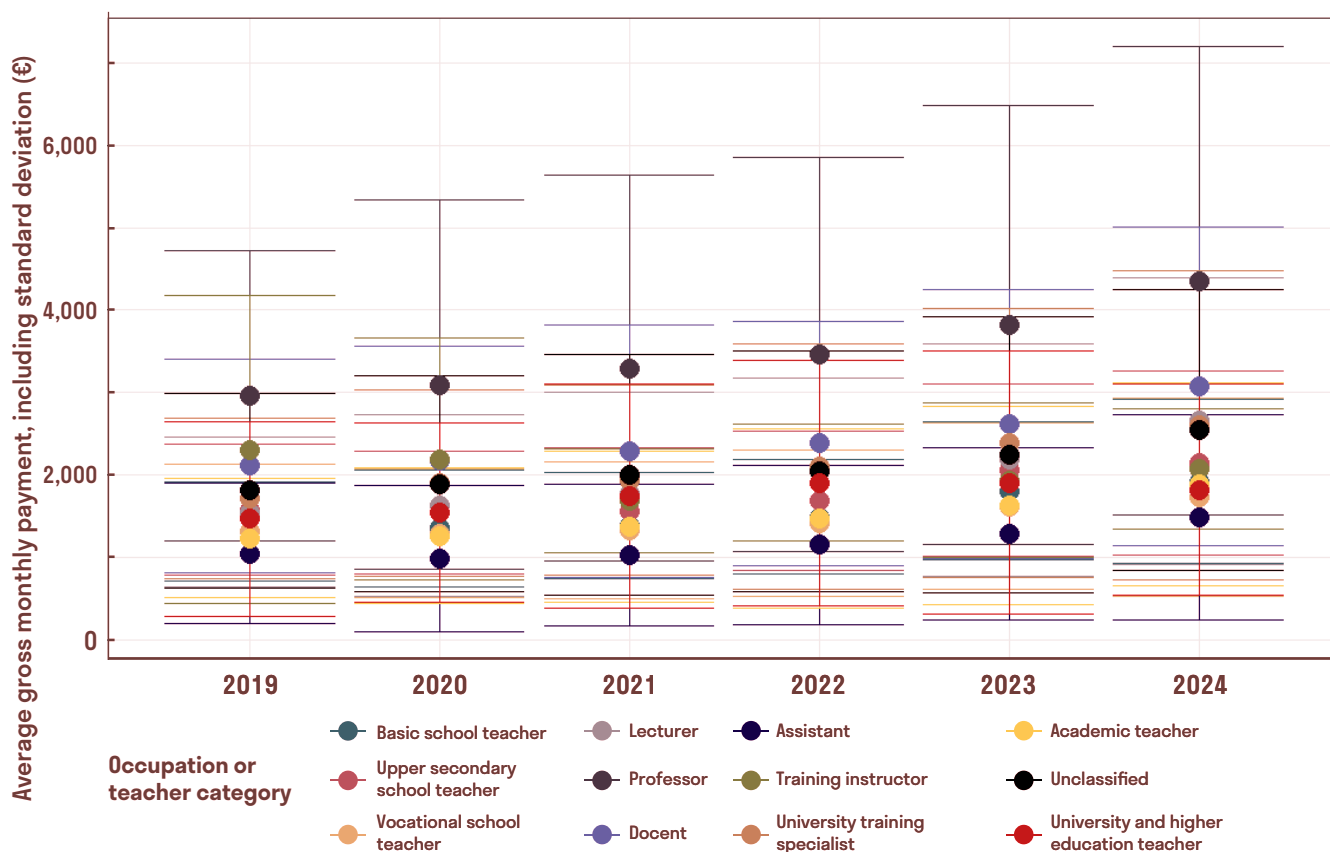
Less than half of teachers (48% in 2023) have only one employment contract (Figure 3.3.8). Approximately 35% undertake additional work at least once during the year under either an employment or a civil-law contract. Although the total number of teachers has increased over time, the proportion with multiple contracts has remained stable.

Most teachers (55–58%) work close to a full-time load (0.95–1.05 full-time equivalent) (Figure 3.3.9). Around 30% work below 0.8 of a full-time equivalent and 8–9% between 0.8 and 0.95. Some of these teachers may have additional duties not recorded in the Register of Pedagogical Staff. We measure only declared workload, which may differ from actual working time.

Appendix 5. Teachers' age

The number of individuals registered in the Register of Pedagogical Staff and working as teachers increased significantly between 2017 and 2023 (Figure 3.3.10). Figure 3.3.11 shows that the share of teachers aged over 50 has grown more rapidly, while the proportion of teachers under 40 remained almost unchanged between 2020 and 2023. The share of teachers aged over 70 has also increased, while graduates of teacher education programmes are increasingly entering

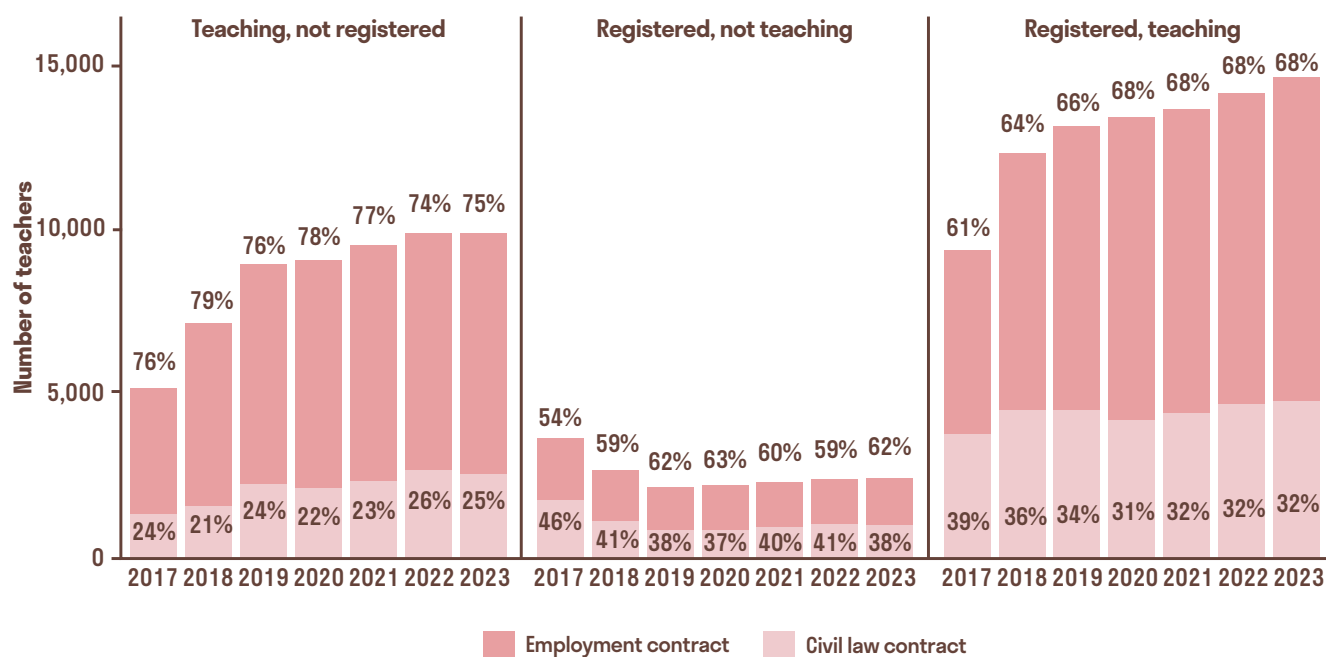
Figure 3.3.6 Comparison of teachers' average annual payments by university academic position



SOURCE: figure by the authors

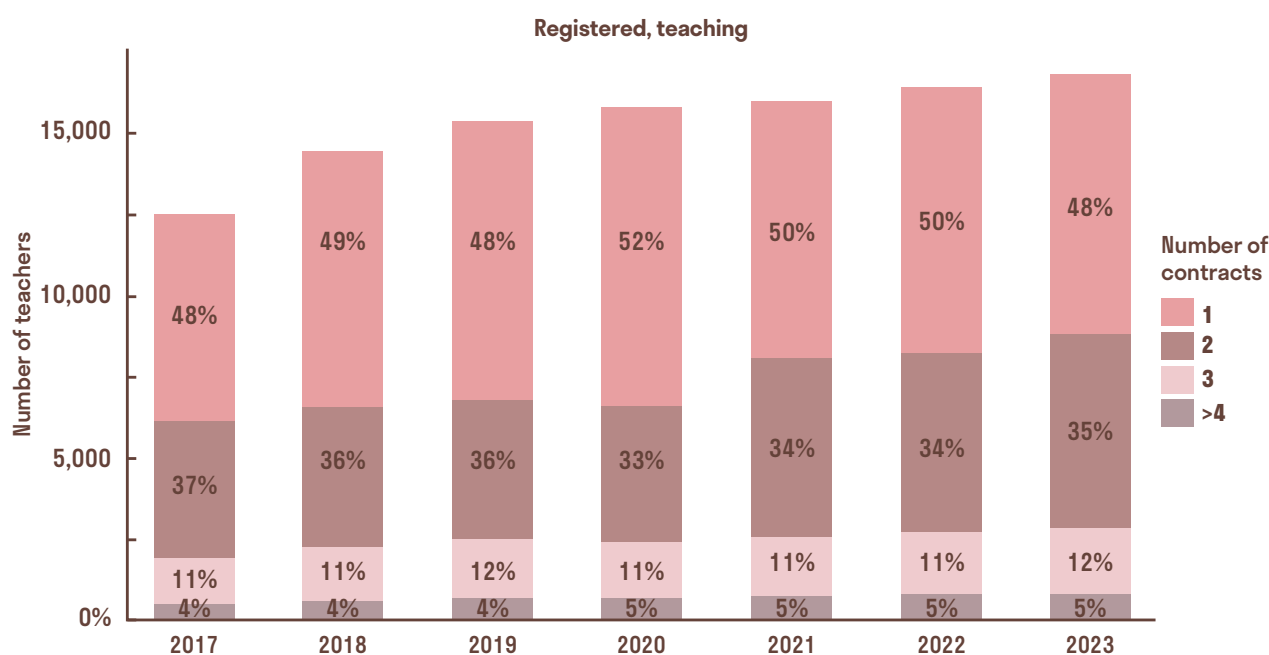
NOTE. Points represent the average monthly payment in a given year, and the lines around the points show standard deviations, indicating the range within which monthly payments fall in 68% of cases among school or university employees.

Figure 3.3.7 Types of contracts among individuals working as teachers or registered in the Register of Pedagogical Staff



SOURCE: figure by the authors

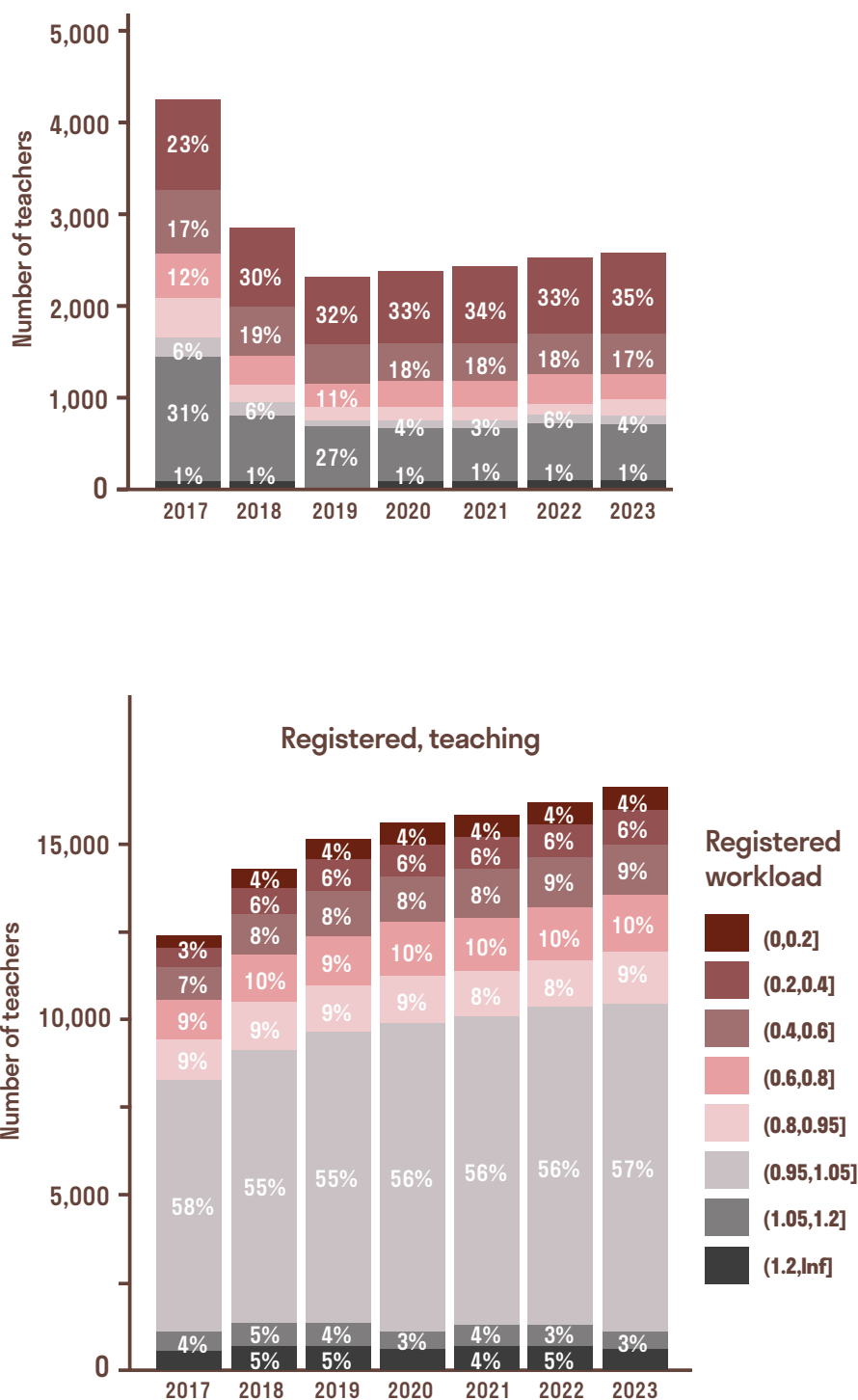
Figure 3.3.8 Number of contracts among individuals working as teachers or registered in the Register of Pedagogical Staff



SOURCE: figure by the authors

NOTE: The number of contracts reflects the annual average, rounded up.

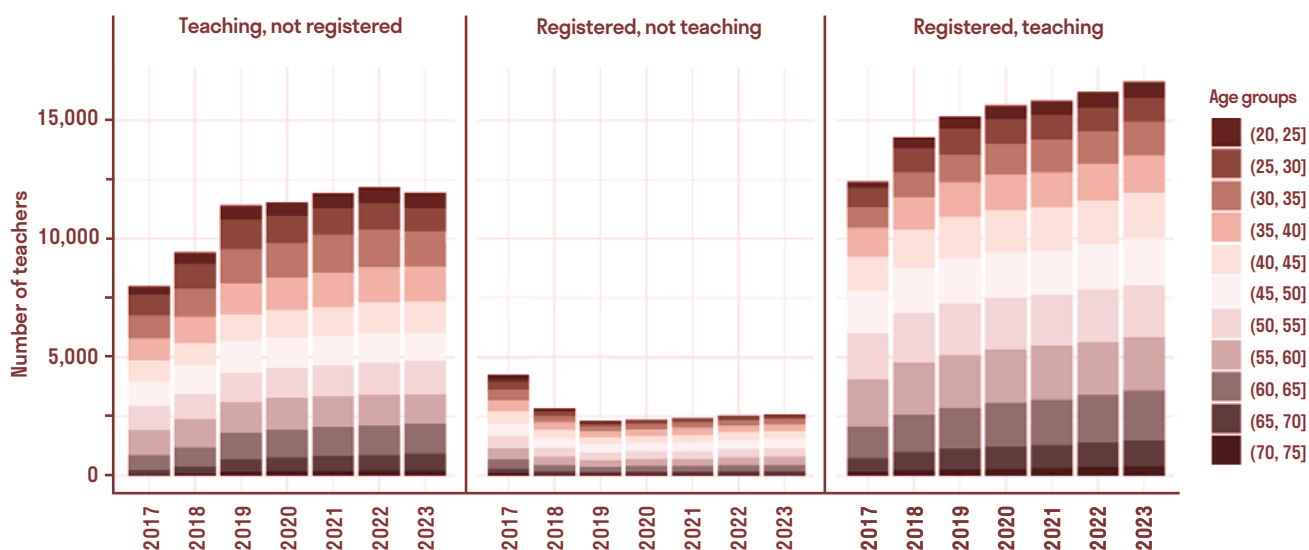
Figure 3.3.9 Workload of individuals working as teachers or registered in the Register of Pedagogical Staff



SOURCE: figure by the authors

NOTE. The figure is based on workload recorded in the Register of Pedagogical Staff, which may differ from workload recorded in the Employment Register. Not all individuals working as teachers are necessarily registered in the Register of Pedagogical Staff. The intervals in the legend do not overlap. The lower bound is excluded, and the upper bound included (e.g. (0, 0.2] means more than 0 and up to and including 0.2).

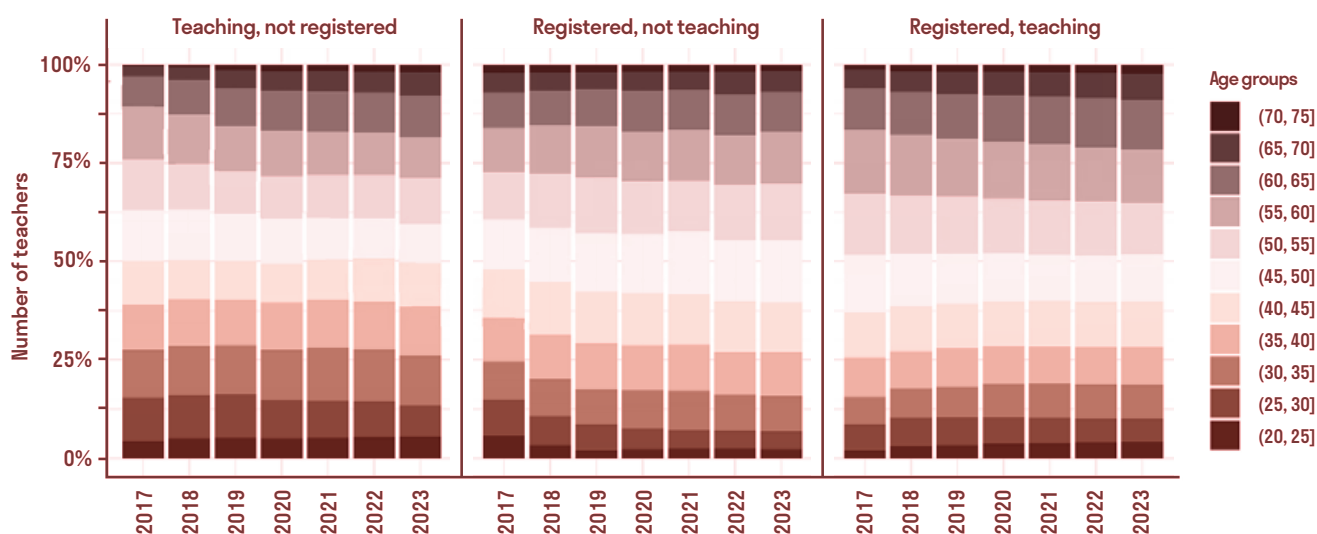
Figure 3.3.10 Age distribution of individuals working as teachers or registered in the Register of Pedagogical Staff



SOURCE: figure by the authors

NOTE: The intervals in the legend do not overlap. The lower bound is excluded, and the upper bound included (e.g. (70, 75] means more than 70 and up to and including 75).

Figure 3.3.11 Proportional age distribution of individuals working as teachers or registered in the Register of Pedagogical Staff



SOURCE: figure by the authors

NOTE: The intervals in the legend do not overlap. The lower bound is excluded, and the upper bound included (e.g. (70, 75] means more than 70 and up to and including 75).

REFLECTION

Eve Eisenschmidt

Pay growth is an important component of improving teachers' working conditions. It is also common to assume that teacher supply depends primarily on salary levels. However, focusing solely on pay growth obscures the need to address working conditions more broadly.

There are differing views on pay models. Some favour a centralised model, others a decentralised one. A centralised model could reduce inequality between teachers and schools but would not allow differentiation based on individual contribution. A decentralised or school-based pay system would make it possible to recognise teachers' effort but could increase competition between schools.

An increase in gig-type work may begin to affect the quality of teaching. Schools need flexibility, but the age structure of the teaching workforce must be taken into account: older teachers tend to prefer stability, while younger teachers are more open to flexible forms of work.

The situation is further complicated by insufficient or low-quality data for analysing teachers' workload, recruitment needs and pay. As a result, public communication and reform efforts may be ineffective or even counterproductive.

Focusing solely on pay growth obscures the need to address teachers' working conditions as a whole.

To make the teaching profession more attractive, a comprehensive approach is needed: fair pay, flexible working conditions, a supportive environment and high-quality data on the teaching workforce to enable national-level forecasting and governance. This requires action in three areas.

- 1. A two-tier dynamic pay fund: teachers' contribution combined with a context index.** A nationally designed but school-level contribution index should be developed. The index would account for teachers' effort within each school, including the complexity of teaching and the difficulty of the working environment. At the national level, schools would receive additional funding if they operate in more challenging contexts and take responsibility for generating added value – for example, by achieving developmental progress or piloting and implementing new initiatives. School leaders could then design transparent internal pay systems that differentiate teachers' contribution within the school, based on nationally agreed indicators.
- 2. A comprehensive view of the teaching profession.** A balance should be struck between stability and flexibility. Supportive working conditions should be promoted, including teamwork and flexible working time. The system should enable teachers to make informed career choices and take development breaks, during which they may work in other sectors and later bring fresh perspectives back to schools. Such an approach would enhance the attractiveness of the profession, retain experienced teachers and offer a positive image to new entrants.
- 3. A teacher register.** A public register should be established for graduates of teacher education, those on career breaks and individuals undergoing retraining, enabling schools to contact and make direct offers to qualified teachers. Flexible return programmes should be developed to allow qualified teachers currently working elsewhere to re-enter the profession, including part-time and with mentoring support.

REFERENCES

1. Õpetajate palkade kujunemine. – Rahandusministeerium, last updated 25.09.2025, <https://www.fin.ee/opetajate-palkade-kujunemine>.
2. S. Kimball, H. G. Heneman III, R. Worth, J. Arrigoni, D. Marlin, *Teacher compensation: Standard practices and changes in Wisconsin*. WCER Working Paper No 2016-5 (University of Wisconsin–Madison, Wisconsin Center for Education Research, 2016).
3. S. McGrath-Champ, S. Fitzgerald, M. Gavin, M. Stacey, R. Wilson, *Labour commodification in the employment heartland: Union responses to teachers' temporary work*. – *Work, Employment and Society* 37 (5), 2023.
4. T. J. Brewer, P. S. Myers, M. Zhang, Islands unto themselves: How merit pay schemes may undermine positive teacher collaboration. – *Critical Questions in Education* 6 (2), 2015.
5. L. D. Pham, T. D. Nguyen, M. G. Springer, *Teacher merit pay: A meta-analysis*. – *American Educational Research Journal* 58 (3), 2021.
6. E. A. Hanushek, *Assessing the effects of school resources on student performance: An update*. – *Educational Evaluation and Policy Analysis* 19 (2), 1997.
7. S. Loeb, M. E. Page, *Examining the link between teacher wages and student outcomes: The importance of alternative labor market opportunities and non-pecuniary variation*. – *Review of Economics and Statistics* 82 (3), 2000.
8. S. Loeb, M. E. Page, *Examining the link between teacher wages and student outcomes: The importance of alternative labor market opportunities and non-pecuniary variation*. – *Review of Economics and Statistics* 82 (3), 2000.
9. OECD, *Education at a glance 2020: OECD indicators* (OECD Publishing, 2020).
10. M. D. Hendricks, *Does it pay to pay teachers more? Evidence from Texas*. – *Journal of Public Economics* 109, 2014.
11. E. A. Hanushek, *The failure of input-based schooling policies*. – *The Economic Journal* 113 (485), 2003.
12. E. A. Hanushek, *The failure of input-based schooling policies*. – *The Economic Journal* 113 (485), 2003.
13. S. Loeb, M. E. Page, *Examining the link between teacher wages and student outcomes: The importance of alternative labor market opportunities and non-pecuniary variation*. – *Review of Economics and Statistics* 82 (3), 2000.
14. Oxford UCU, *Emergency briefing: Beyond HESA: Pay and working conditions for casualised staff in Oxford colleges and in the Department for Continuing Education* (2023).
15. Substitute teacher development programme <https://asop.ee/>.
16. L. Woessmann, *International evidence on school competition, autonomy, and accountability: A review*. – *Peabody Journal of Education* 82 (2–3), 2007.
17. C. A. Lubienski, S. T. Lubienski, Reconsidering choice, competition, and autonomy as the remedy in American education. – W.J. Mathis, Tina M. Trujillo (eds.) *Learning from the federal market-based reforms: Lessons for the Every Student Succeeds Act* (ESSA) (Information Age Publishing, 2016).
18. National Audit Office of Estonia, *Õpetajate vastavus kvalifikatsiooninõuetele ja ainepädevus* (2024); Foresight Centre, *Õpetajate järelkasvu tulevik. Trendid ja stsenaariumid aastani 2040* (2023).
19. H. Raudla, *Eesti hariduse edulugu ohustavad õpetajate järelkasvu puudus, meeletu töökoormus ja vähene töötasu*. – *Õpetajate Leht*, 19.12.2023; *Riigikontroll: nõuetele vastavate õpetajate puudus on arvatust suurem*. – ERR, 26.01.2024.
20. Tallinna Ülikooli esitati ligi 9700 sisseastumisavaldust. Populaarseimad erialad olid psühholoogia ja hariduse juhtimine. – News, Tre Raadio, 5.07.2024.
21. Foresight Centre, *Õpetajate reserv Festis* (2024).
22. *Õpetajate järelkasvu tagamiseks luuakse karjäärimudel ja avardatakse ametisse asumise võimalusi*. – News, Haridus- ja Teadusministeerium, 8.01.2025.
23. See also *Õpetajate palk tõuseb ja läheb kohati õppejõudude palgast mööda*. – ERR, 30.04.2021; *Õpetajate palkade kujunemine*. – Rahandusministeerium, last updated 25.09.2024, <https://www.fin.ee/opetajate-palkade-kujunemine>; Tartu Ülikooli palgapoliitika. – Tartu Ülikooli Ametiühing, <https://union.ee/too-ulikoolis/tartu-ulikooli-palgapoliitika/>.

