VOCATIONAL EDUCATION
International perspective, The Portuguese case, and Challenges ahead

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May 13, 2024

[1]The analyses, opinions and conclusions expressed herein are the sole responsibility of the author and do not necessarily reflect the opinions of Banco de Portugal or the Eurosystem.

Road Map

1. International Perspective: Some indicators from Education at a Glance
2. The Portuguese case: some features and recent research
3. Challenges for the future

International Perspective: Some indicators from Education at a Glance[2]

[2] Based on the OECD report on findings from Education at a Glance 2023.

International Perspective: First thoughts

- It is widely acknowledged that Vocational education is a vital part of a country's education system, designed to develop occupational skills

- Upper secondary education is the most common level at which vocational education and training (VET) programmes are provided

- In contrast to higher education, there is no fixed goal in terms of enrollment to the vocational system

- But it is structured in different ways in different countries
  - e.g. Germany and Switzerland on one side: apprenticeship system - important role of firms
  - e.g. Portugal and France: still more weight on the general component

- Plus the importance for each country is also different
  - High heterogeneity: countries with very low % of vocational (less than 10%) to others where vocational represents 70%

How do Vocational systems differ in structure and importance?

How do VET systems differ in structure and importance?

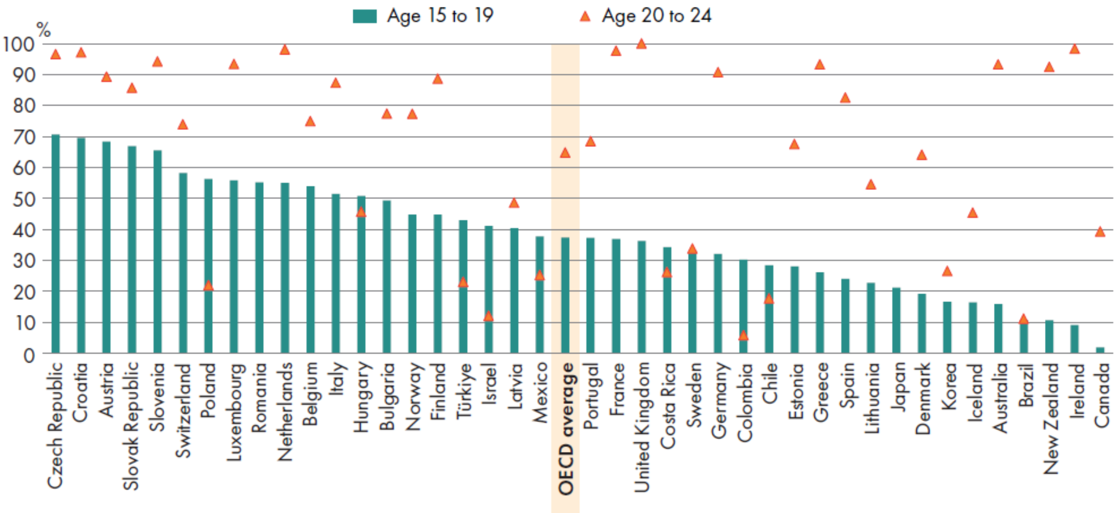
Table 1 • Approaches to VET provision in initial upper secondary education (2021)

Approach to VET at upper secondary level (ISCED 3)	Share of VET students at upper secondary level (ISCED 3): Small	Medium	Large
No (or limited) VET in upper secondary initial education	Australia, Ireland, New Zealand (limited VET at ISCED 3), Canada[1], United States (no differentiated VET at ISCED 3)	United Kingdom	n.a.
One vocational track (one access arrangement	Korea, Lithuania	Chile, Colombia, Costa Rica, Estonia, Finland, Latvia, Norway, Portugal, Sweden, Türkiye	
Multiple vocational tracks (multiple access arrangements)	Brazil, Denmark, Iceland, Japan, Spain	Bulgaria, France, Germany, Greece, Israel, Mexico	Austria[2], Belgium, Czech Republic, Croatia, Hungary, Italy, Luxembourg, Netherlands, Poland, Romania, Slovak Republic, Slovenia, Switzerland.

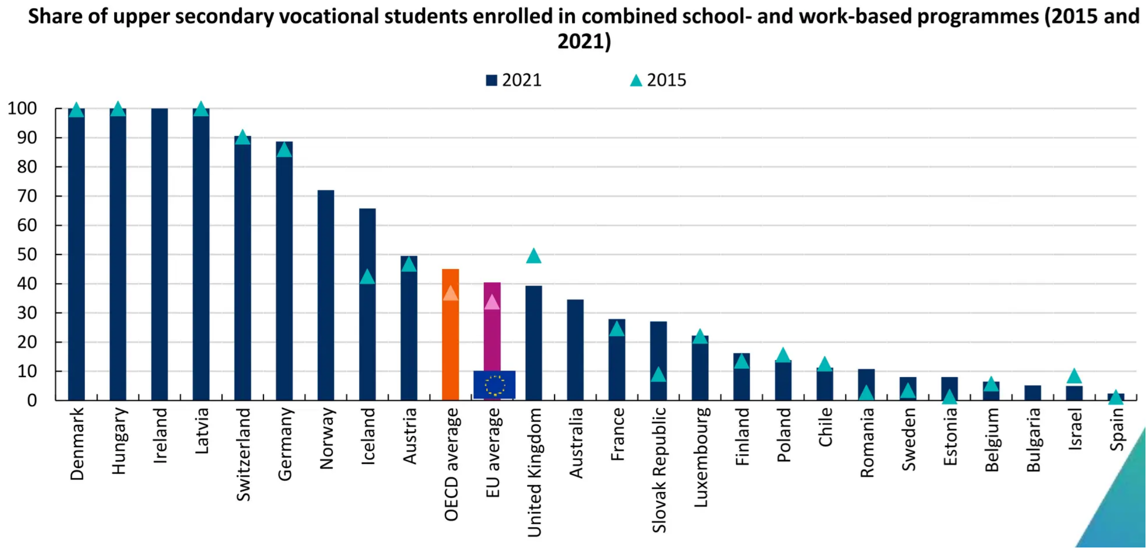
Notes: Table only includes programmes leading to full completion of upper secondary education (ISCED 3). The share of upper secondary VET students enrolled in VET is measured here by the percentage of upper secondary students aged 15-19 who pursue a vocational programme (small – up to 25%; medium – 25-49%; large – 50% or more). A country is considered as having multiple vocational tracks if there are at least two tracks (programmes associated with a particular access arrangement) with at least 5% of upper secondary VET students in each.
Colours indicate the share of VET students pursuing combined school- and work- based programmes. Blue – 50% or more; orange – 25%-49%; not highlighted – less than 25%.

How do VET systems differ in structure and importance? - Enrollment

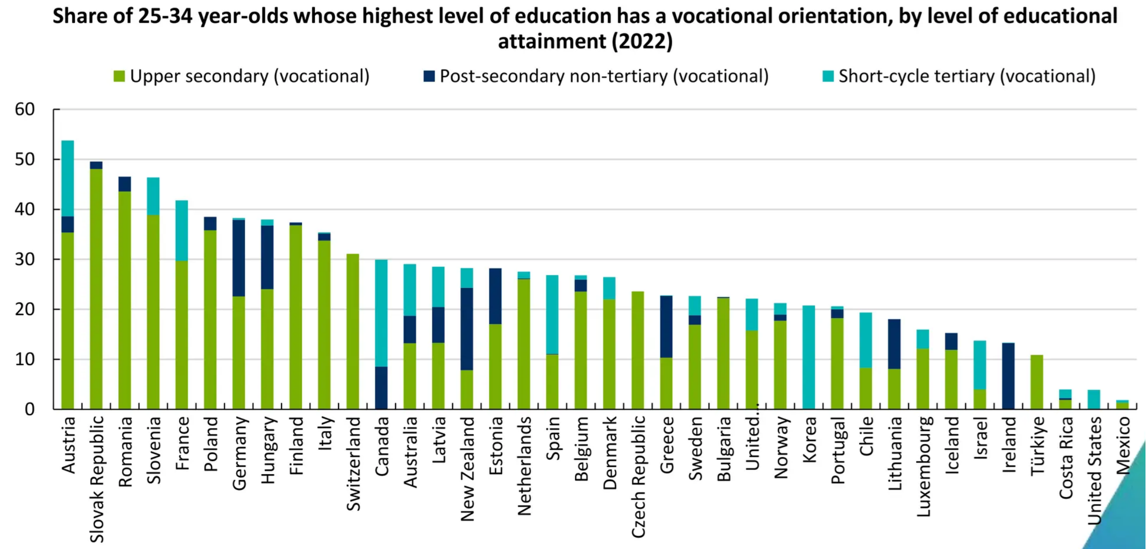
Figure 2•Share of upper secondary students enrolled in vocational programmes, by age group (2021)



How do VET systems differ in structure and importance? - Work-based programmes



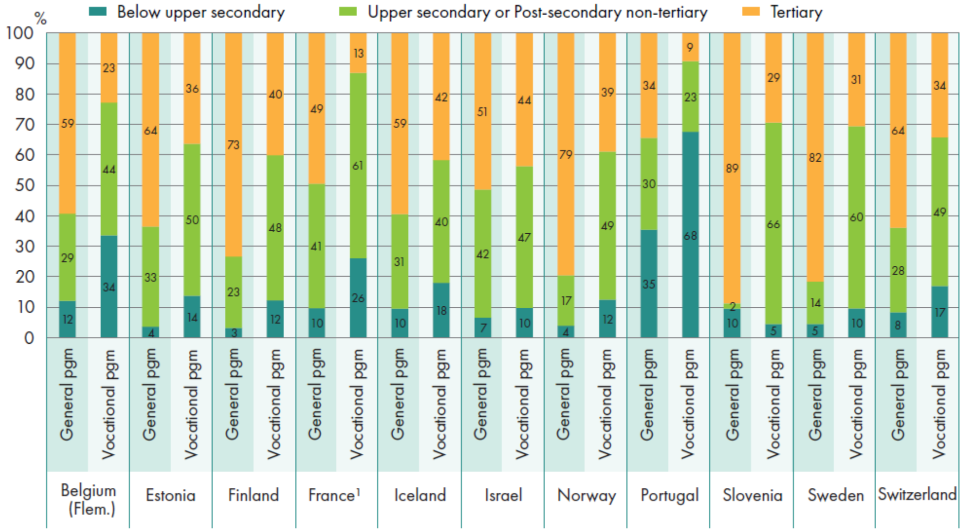
How do VET systems differ in structure and importance? Highest level of education



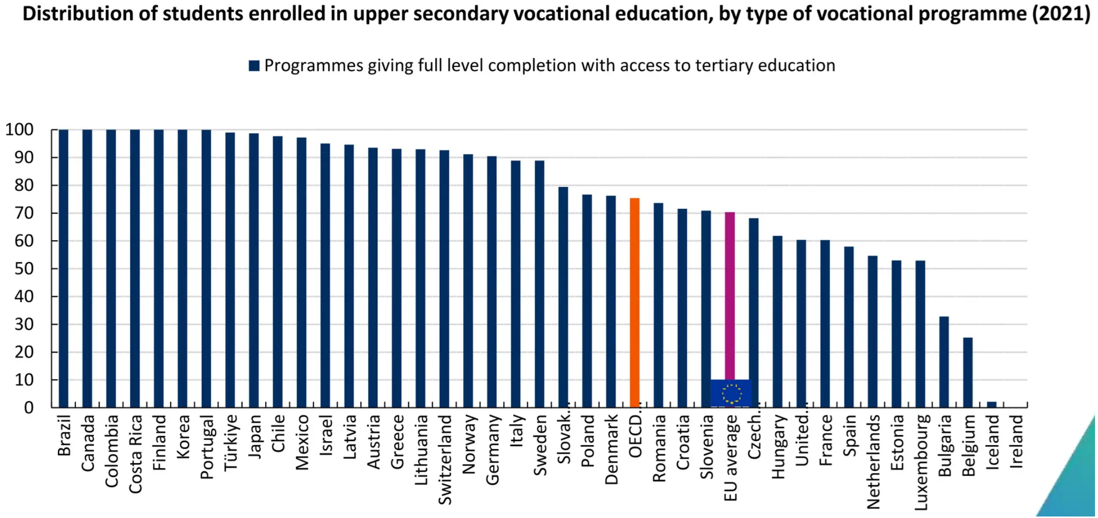
How do Vocational systems differ in terms of equity?

How do VET systems compare in terms of equity? - Parents' Education

Figure 5•Share of entrants to upper secondary initial education, by programme orientation and parents' educational attainment (2022)



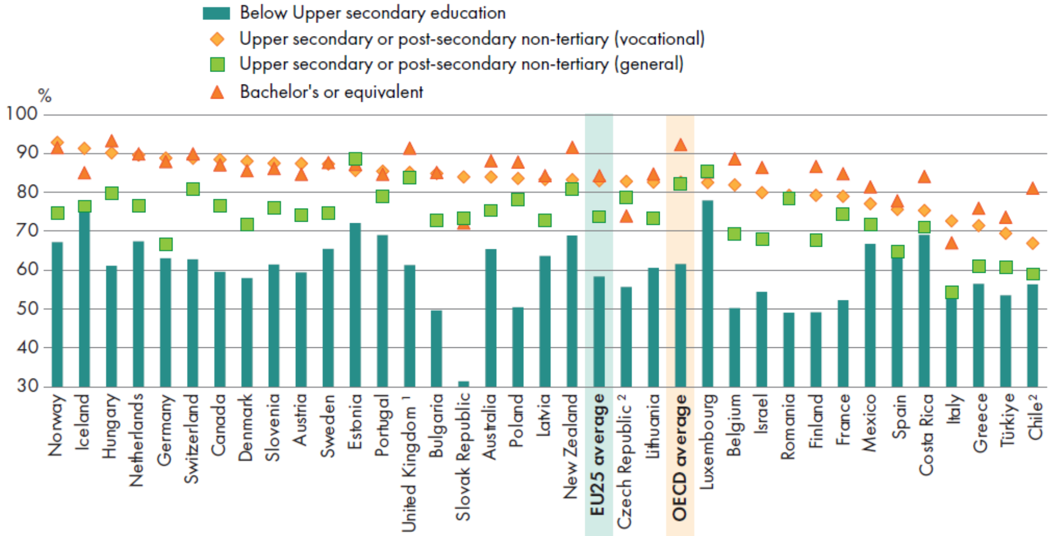
How do VET systems compare in terms of equity? - Access to higher education



Insights on Labour Market Outcomes

Some indicators on labour market outcomes - employment

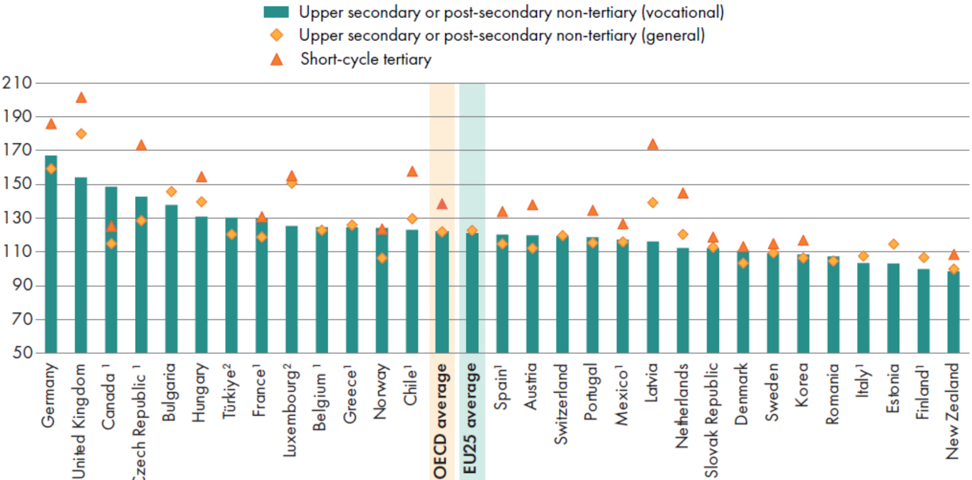
Figure 7•Employment rates of 25-34 year-olds, by educational attainment and programme orientation (2022)



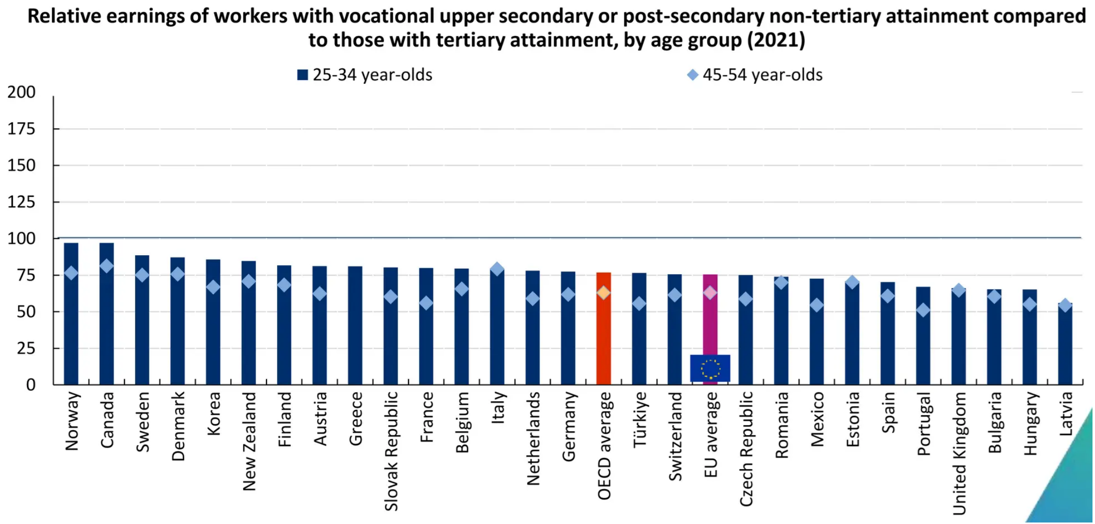
Some indicators on labour market outcomes - earnings (1)

Figure 8•Relative earnings of workers compared to those with below upper secondary attainment, by educational attainment and programme orientation (2021)

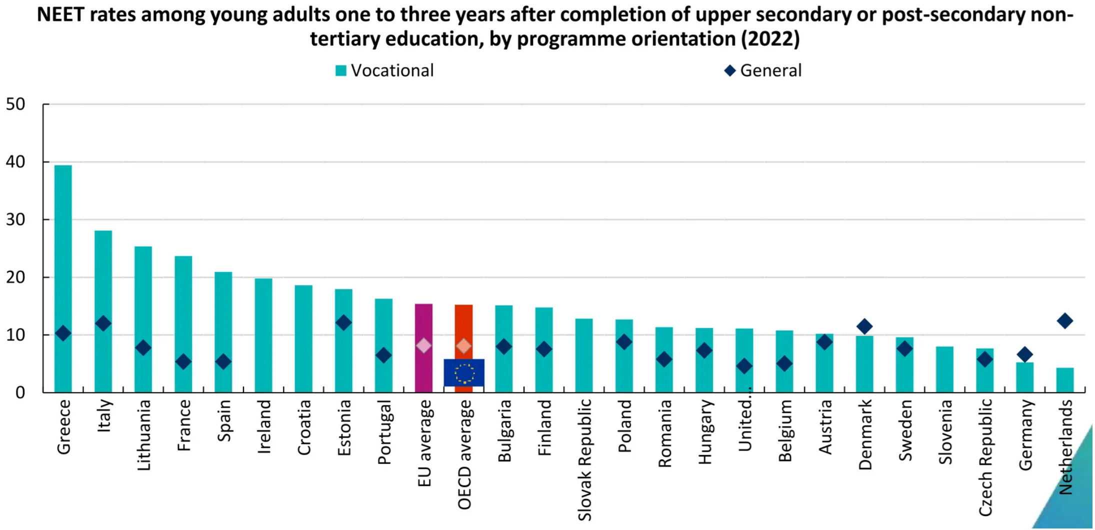
Adults with income from employment (full-time full-year workers); 25-34 year-olds; below upper secondary attainment = 100



Some indicators on labour market outcomes - earnings (2)



Some indicators on labour market outcomes- After completion status
Not in Education,Employment nor Training (NEET)



The Portuguese case: some features and recent research

Some features about Portugal VET

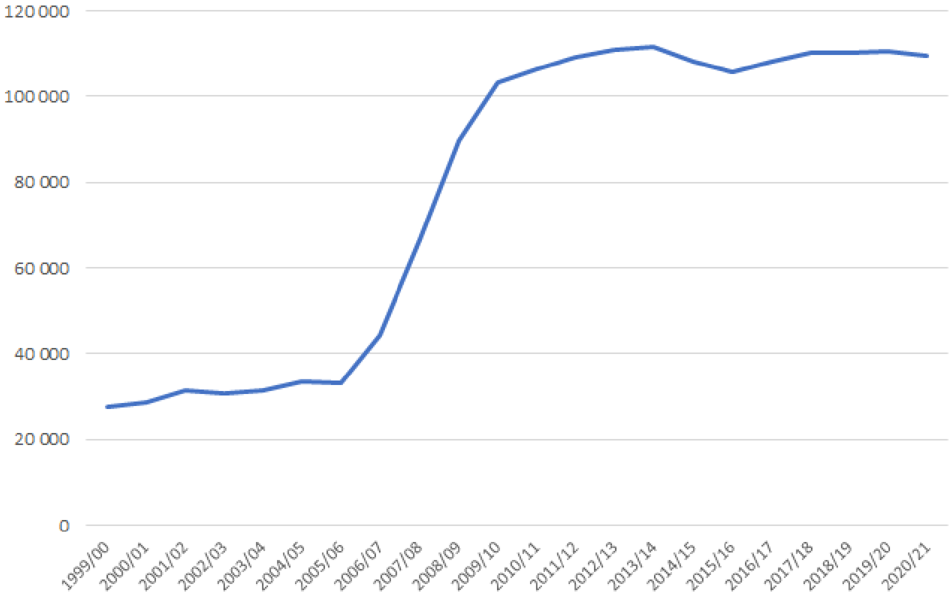
- **VET is operated mainly at the upper secondary level**, which lasts for three years, provides students with different pathways to match their vocational interests and/or to prepare them for post-secondary studies.

- Admission to alternative secondary tracks is open to everyone, under the view that all individuals should be able to choose from all of the educational options available.

- Upper secondary students may choose from two alternative tracks:
  - science-humanities courses (general);
  - vocational courses;
    - **vocational course (cursos profissionais)**;
    - specialized artistic courses;
    - own-school-curriculum courses;
    - education and training courses (Cursos de Educação e Formação - CEF);
    - apprenticeship courses.

- Cursos Profissionais - corresponds to almost 85% of the Vocational Track and only 25% or less is work based

Number of students enrolled in the vocational courses



Recent Research on Portugal

Recent Research on Portugal

- Joop Hartog, Pedro Raposo, and Hugo Reis (2022)
  - Fluctuations in the wage gap between vocational and general secondary education, *Journal of Population Economics, vol. 35(2), pages 643-675.*
- Joop Hartog, Pedro Raposo, and Hugo Reis (2023)
  - Risk and Heterogeneity in Benefits from Vocational vs. General Education, *CESifo Working Paper Series 10538.*
- João Ferreira and Pedro Martins (2023)
  - Can vocational education improve schooling and labor outcomes?, *IZA Discussion Paper 16474, Institute of Labor Economics (IZA).*

Hartog, Raposo, and Reis (2022)

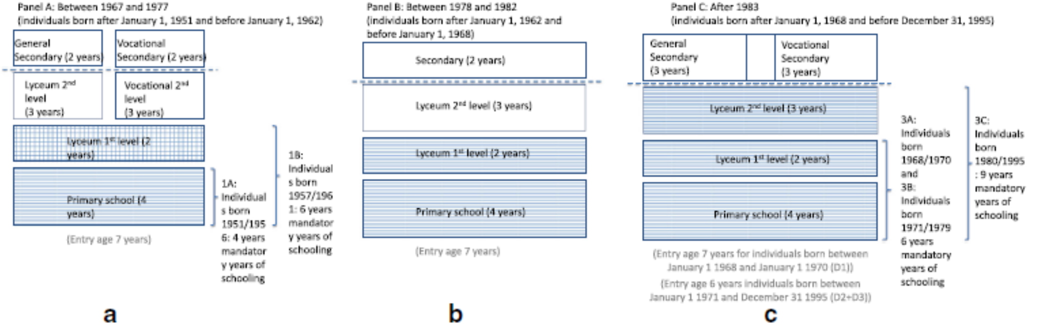
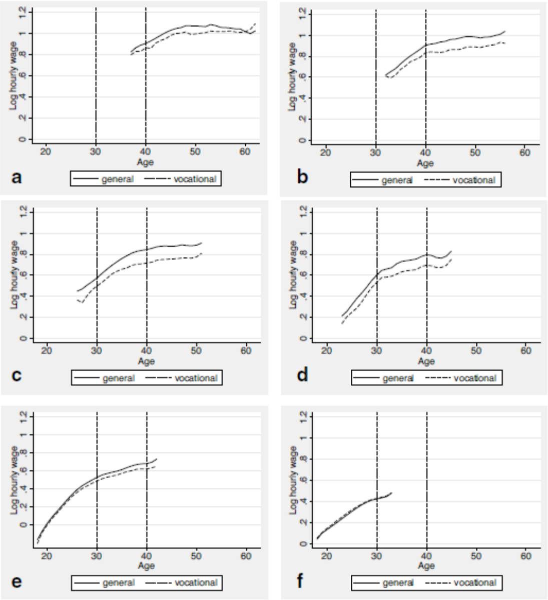


Fig. 7 Changes in the structure of the Portuguese education system. Notes: **a** Individuals born after January 1, 1951, and before December 31, 1961 (Secondary school entry year between 1967 and 1977). **b** Individuals born after January 1, 1962, and before December 31, 1967 (Secondary school entry year between 1978 and 1983). **c** Individuals born after January 1, 1968, and before December 31, 1995 (Secondary school entry year between 1984 and 2011)

Hartog, Raposo, and Reis (2022) - wage gap



Hartog, Raposo, and Reis (2022) - wage gap

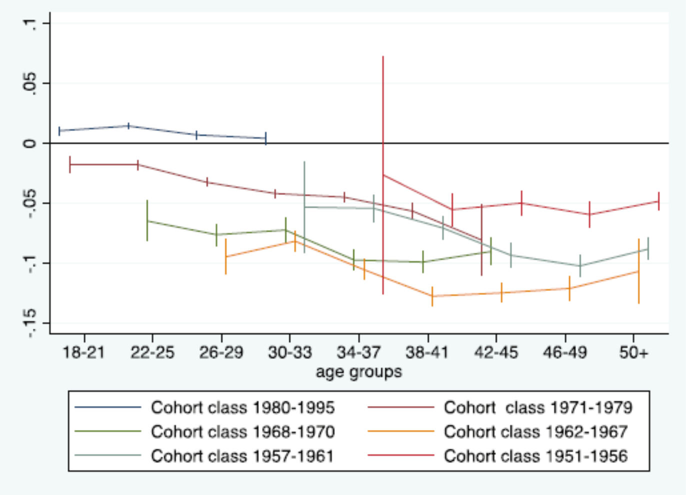


Fig. 2 Log hourly wage gap (vocational—general)—by cohort class and age group. Notes: Log hourly wage gap between vocational and general education for individuals with upper secondary school by age groups and by cohort classes. The figure includes the 95% confidence interval for each point estimate. See Table 4 in the Appendix for cohort class definition

Hartog, Raposo, and Reis (2022) - sorting

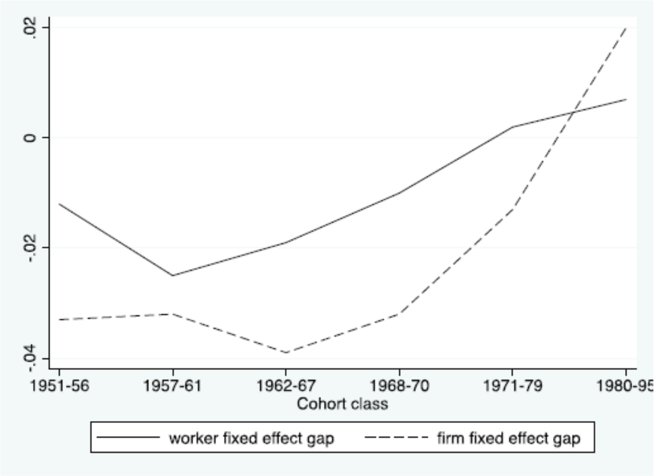


Fig. 4 Worker and firm fixed effect—vocational gap—by cohort class. Notes: This figure reports the vocational gap for the worker fixed effect and the firm fixed effect by the six cohort class. The worker and firm fixed effects are estimated in Eq. 4

Hartog, Raposo, and Reis (2022) - high paying firms

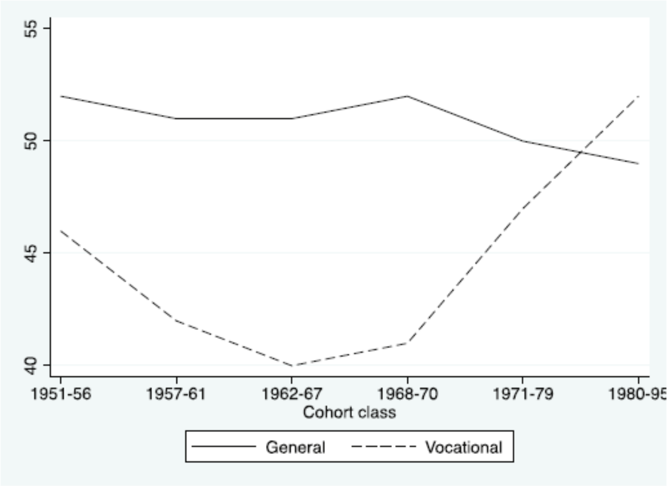


Fig. 5 Percentage of workers in general and vocational in high-paying firms—by cohort class. Notes: This figure reports the share of workers in high paying firms by the six cohort class. High paying firms: firms above median firms fixed effects. In other words, firm fixed effects above percentile 50

Hartog, Raposo, and Reis (2022) - main insights

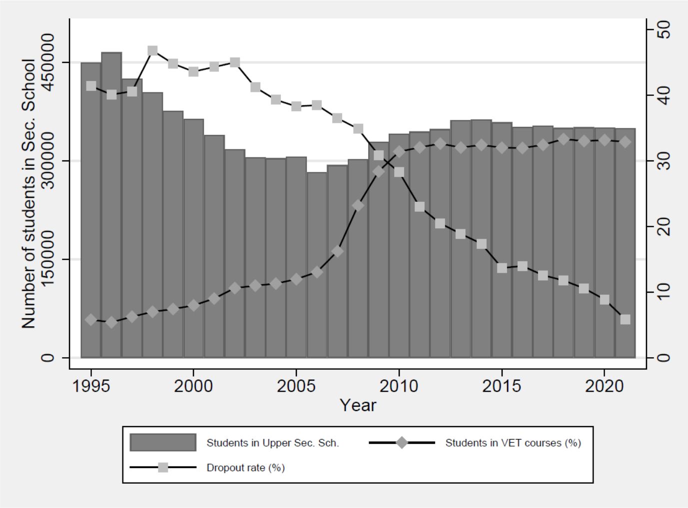
- The researchers follow the institutional history of secondary education in Portugal, from the traditional system before the Revolution of 1974, the fuzzy situation during that Revolution, to the modern system.
  - The paper compares six age cohorts of workers born between 1951 and 1994 and measures the wage differential among graduates from secondary education with a vocational and a general curriculum for Portugal.
- For five cohorts, vocational **wages** are always below general wages. Only for the youngest cohort, observed until age 33, vocational wages are higher than general wages.
- Important role of **sorting**: if workers of different educational tracks were randomly distributed across firms the gap would reduce considerably (or even disappear).
- In the later cohort, in the current system, vocational graduates were more successful in finding **employment at higher wage firms** than general graduates
  - general graduates lost their advantage over vocational graduates in high paying firms

Hartog, Raposo, and Reis (2023) - Risk

- We estimate a dynamic job search model for vocational/general secondary school graduates
- Vocational have lower wage risk on the job
- Vocational have much higher dispersion in the outside wage offer distribution
- Vocational are initially less heterogenous, but their heterogeneity increases more
- Vocational benefit more from internal labour markets than from the external market

Ferreira and Martins (2023) - expansion of VET

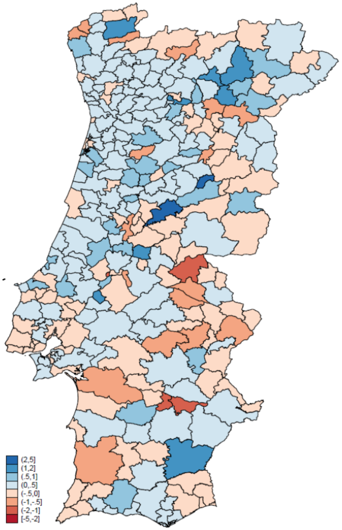
Figure 1: **Upper secondary indicators, Portugal, 1995-2021**



Notes: This Figure presents the total number of students enrolled in upper secondary education in Portugal over 19
- 2021, the proportion of upper-secondary VET students , and the dropout rate (defined as the percentage of 18- to 2
year-olds who have left school without completing upper secondary education). **Source:** Authors' analysis of Ministry
Education data.

Ferreira and Martins (2023) - VET supply

Figure 3: **Variation in 'VET supply', 2006-2011**



Notes: This Figure shows the difference, measured at the *concelho* (municipality) level, between the values of $VETsupply$ experienced by the 2006/07 and 2010/11 9^{th} grade cohorts (positive values indicate that $VETsupply$ increased). The expansion of upper secondary VET in Portugal was faster between 2005 and 2010. **Source:** Authors' analysis of Ministry

Ferreira and Martins (2023) - graduation rates

- This study examines the large expansion of upper-secondary VET in Portugal since 2005
  - Can Vocational education improve schooling and labor outcomes?
- The main findings point to an increase in upper-secondary **graduation rates**, exceeding 50 percentage points for students enrolling in VET as a consequence of the reform.
- Notably, the positive impact of VET is stronger for **girls**, even though boys are more likely to enrol in VET courses.
- Students from **lower socio-economic backgrounds** and with weaker prior academic achievement also benefited more from the reform.

Ferreira and Martins (2023) - labour market outcomes

- In terms of **labour market outcomes**, in comparison to lower-secondary or upper-secondary academic-track degree, VET graduates:
  - earn higher wages,
  - have higher access to firm-provided training,
  - more likely to secure open-ended (as opposed to fixed-term) contracts
- Main insights:
  - significant positive impact of VET on both educational and labor market outcomes in Portugal
  - substantial gains for the affected individuals, particularly among disadvantaged students

Challenges for the future

Food for thought

- Different perceptions from society on the role of vocational education
  - Change the way we look at vocational as a society

- It cannot be seen as the last resort
  - The place of those that did not succeed
  - Does not have to be like that... It has to be as prestigious as other type of education

- High potential for the development at the national and regional level
  - Through regional partnership with local firms and employment centers
  - Interaction between school and the socio-economic reality
  - It should respond to the local and regional needs

- Tightening the link between schools and firms

Food for thought

- Investment in teachers is critical
  - The teaching profession is ageing, which may create a problem in renewing the workforce over the next decade
    - less than 30: 2%
    - btw 30 and 49: 49%
    - 50 or more: 48%
  - The issue may be more pronounced in vocational education because of the fact that some teachers gain industry experience before joining the profession.

- Provide pathways to further learning - Access to higher education
  - It cannot be blocked the access but we have to acknowledge that the goals are different
  - It cannot be seen as an easier way to get access to higher education

Food for thought

- The Economics of VET is complicated and more research and more rigorous evaluation of VET policies needed worldwide.
    - The important role of the access and quality of the data

- For the success of any education level (higher education or vocational), the quality of early investment is critical

- It is important that these studies not only focus on the economic returns to VET but on the whole process of skill formation.
    - It is clear that policy needs to ensure that lots of investments in skills occurs in early life.
        - need to take into account the fact that skills beget skills.