

Right students right jobs

Higher quality careers provision leads to less gender-stereotyped career choices that are better aligned to the economy

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Summary

This report explores how career readiness,¹ gender stereotypes, and industry preferences intersect among secondary school students in England. Students reporting stronger career readiness, as assessed by The Careers & Enterprise Company's Future Skills Questionnaire (FSQ), are less likely to be drawn to traditionally gender-stereotyped industries that are often oversubscribed, compared to their peers. This suggests that high-quality career guidance, measured by the Gatsby Benchmarks, can help students break free from passively taking in job preferences influenced by media or peer pressure, and instead explore a wider range of career options that match our economy's needs.

This finding resonates with the theory of change championed by the OECD² in their work on career concentration. This shows that careers awareness and reflection, as targeted by high quality careers provision, help students to reflect on preconceived notions about careers, understand more about the range of jobs available and feel confident they could thrive in more careers.

This report identifies specific industries, such as "Sport & Leisure" for male students and "Animal Care" or "Travel & Tourism" for female students, as being stereotyped and heavily sought after compared to available opportunities, based on economic demand projections and data from the Careers & Enterprise Company. It also highlights positive shifts in attitudes when students report higher levels of career readiness, with more female students showing interest in engineering roles. Good careers provision has been shown to improve career readiness. However, this report stresses that there is further to go to align students' overall interests with the demand of the job market. It provides insights for addressing skills shortages in different sectors and guiding strategic industry policies.

The ultimate policy goal is not necessarily to perfectly match young peoples' job interests with future economic demand. It is also important to encourage young people to explore their passions and pursue 'moonshot' jobs. However, they should do so with an informed and realistic understanding of the labour market and the competition they may face. Good career guidance should provide a diverse range of career options, debunk stereotypes, and offer practical advice on pursuing goals and developing backup plans. Understanding the levels of competition and being ready to not just pursue a sector, but to be in the top segment of those aiming for it, is valuable data for decision-making and potential rocket fuel for motivation.

Good careers guidance provides inspiration for a wide range of careers, helping to introduce the reality of careers that tend to be glamourised in stereotypes while also providing insight into the positive sides of careers that might be overlooked. Thoughtful, regular discussion can explore the areas close to students' core aspirations, the underlying, transferrable interests to those passions, sensible back-up plans to worthwhile moonshots, and the many different ways to fulfil passions within a longer-term career context (including hobbies and community activities, as well as paid work).

As we anticipate additional findings, including patterns by age and future industry interests, the report provides a contribution to understanding the nuanced dynamics between career readiness, student preferences, and industry demands.

Introduction

The report focuses on the likelihood of students making industry choices, showcasing a marked improvement in alignment with future job demands among older, more career-ready students. A closer look at the Key Stage 4 and 5 (KS4/5) cohorts reveals persistent challenges, but also substantial opportunities to improve alignment of student interests and economic demand. In particular, the analysis demonstrates the potential for further improvements in careers provision to reduce such misalignment, including the importance of outreach by high-need sectors and involvement in careers education to mitigate stereotypes and build interest.

The aims of this research were:

- to substantiate the role of careers education provision in shaping industry awareness among students, addressing the role of age as a key driving factor of industry awareness.
- to propose future investigations into the relationship between alignment and reported careers activities, providing a pathway for continued exploration and refinement of the broader theory of change.

Key findings

1. Compared to those with a 0% score, students with a 100% career readiness score typically:
2. Engage more with career options: being over 2x more likely to have industry interests.
3. Overcome negative gender stereotypes: with over 2x more interest in engineering for female students.
4. Make more considered, economy-aligned choices: being over 2x less likely to choose gender-biased, over-subscribed sectors.

We also find that industry interests are much better aligned among older students, with those in post-16 education over 5 times less likely to choose gender-biased, over-subscribed sectors as Year 7 students. Nonetheless, even if better among career ready students, overall average misalignment remains high across our 2022/23 dataset. For instance, among the 83% of KS5 students whose average interests are in over-subscribed sectors, there would be approximately four students for each projected job. From a recruitment perspective, many employers will see a corresponding shortfall, with few applicants that were originally interested in their sector. This excess interest in over-subscribed industries is 20% lower among the most career ready students compared to the least. Careers education makes a vital contribution to career readiness and so can drive better alignment in the medium term.⁷

Improved careers options engagement

Between 26% and 29% of students between Years 7 and 11 did not express an interest in any of the 25 specific industry sectors asked about, decreasing only to 22% for KS5 students in post-16 education.⁸ This lack of engagement with ideas about future jobs is linked to poorer outcomes in the job market, according to previous academic research.⁹

Students who are more career ready are significantly more likely to express interest in at least one industry sector. For those with the highest career readiness scores, this likelihood triples or more compared to those with the lowest scores.¹⁰ Those with most access to support were 7%pts to 29%pts more likely to specify at least one industry interest compared to those with the least.^{11,12}

Overcoming negative gender stereotypes

There is often concern about negative stereotypes for particular jobs. One gender may feel those jobs are not welcoming or not appropriate for them in some way. Such stereotypes are particularly concerning where they might lead to students prematurely dropping subjects at key transitions, such as ruling out STEM subjects and regretting those choices later in life.

We investigated the relationship in KS4 between career readiness and female students' reporting interest in the engineering sector.³ Female student interest in engineering increased on average by 1.6%pts for those with the highest career readiness scores - over twice the level of interest compared to female students with the lowest scores. However, the analysis is limited by the very low base interest in engineering in this cohort. Fewer than 1% of female students chose engineering as their sole sector of interest and on average it represented 2% of their overall industry interest.

More considered, economy-aligned choices

Gender stereotypes are not just of concern where they prematurely push students away from industries that might turn out to suit them well. They can also lead students to assume an industry would suit them well without due consideration, perhaps lacking enough authentic information or experience about the industry to form a reliable impression.

This kind of “unconsidered” choice, potentially the result of a gender-stereotyped interest received from media or peer pressure, is particularly concerning where it drives students into heavily over-subscribed sectors, where more students want jobs than there are jobs available. One ambition for good careers provision is that it will help students question these stereotypes and understand a broader range of career options, meaning some will naturally evolve new or additional sector interests.⁴

We first analyse students who were interested only in sectors that were both gender-biased and heavily over-subscribed: Sport & Leisure for male students and Animal Care and Travel & Tourism for female students (Appendix 2 for details). Table 4 in Appendix 1 shows the share of students exclusively choosing such sectors declining sharply with age, from 13.4% in Year 7 to 2.6% in post-16 (a five-fold decrease). In all four age ranges analysed, students were at least two times less likely to choose only a gender-biased, over-subscribed sectors where they had full career readiness scores.

Our final analysis explores a deeper understanding of overall alignment on the KS4 and KS5 cohorts, considering all industries that are well aligned to demand projections, not just the industries that are gender-biased and heavily over-subscribed. The average student interested in over-subscribed sectors would face approximately four students (including themselves) for each projected job vacancy. Career readiness score again correlates with improved alignment to economic demand, with the average over-subscription rate per student declining 19% at KS4 and 20% at KS5.

Rather than viewing a projected job search experience from the average student’s perspective, these numbers can also be translated into a projected hiring experience from the employer perspective. By this measure, the aggregate shortfall across industries where the share of student interests is less than projected jobs is 34% with respect to KS5 students and 31% for KS4 students. This would correspond to some 34% of forecast jobs from 2020 to 2035 having no job applicants where that sector was one of their interests when aged 16-18.⁵

Further research

This exploratory research addresses a macroeconomic benefit of career guidance that has received little academic attention: quantifying its influence on specific sector interests and its potential contribution to economic alignment and sector skill shortages.⁶ As such, it is important to test whether these findings replicate on future academic years of data and to assess robustness to alternative specifications, sample selection strategies, additional control variables, and outlier sensitivity.

Longitudinal analysis of student interests would be a particularly high value test of this theory of change. This will become feasible as usage of the Compass+ digital tool increases and sustains over time into future academic years, generating more student industry preference data. For instance, research could investigate to what extent changes in a student’s industry interests over time can be associated with specific careers activity participation or specific Gatsby Benchmark performance. Qualitative research with students, careers leaders and activity participants could also identify specific hypotheses to test while deepening our understanding of the theory of change, including its limitations and potential moderating or contextual factors.

We would also like to examine how interests and economic alignment vary at the local and regional levels. Such research is particularly important for understanding the opportunities facing students who do not want to move far from home and the needs faced by priority local sectors, which can often differ significantly from an average national picture. This topic remains a new avenue of research for the sector, and we would welcome comments from readers on prioritising these ideas and suggesting other potential work on this topic.

Methodology

Data source and definitions

This report draws on student responses to the Future Skills Questionnaire (FSQ) from 1st September 2022 and 31st July 2023 (n=104,648). A small number of students moved school during this time and completed the FSQ in both their original and new school. The data were cleaned, removing duplicate responses and keeping only the student's most recent response. 125 cases were also removed where the student had completed the wrong version for their year group, leaving a sample of 104,505 questionnaire results for this study.

Career readiness is defined using the granular career knowledge and skills score from their FSQ responses. All FSQ questions¹³ regarding career knowledge and skills are equally weighted, with responses scored 0, 1, 2, or 3 for “No, not yet”, “Possibly, I’m not sure”, “Yes, to some extent”, and “Yes, to a great extent.” Any missing responses are excluded from the arithmetic average, which is then normalised for a 0-100% scale. A higher score indicates greater career readiness. On average, career readiness scores improve from 45% in Year 7 to 63% for post-16 students, with standard deviations around 16%pts.

Students are able to select none, one or more from 25 future industry sector interests as part of their FSQ responses.¹⁴ Where students select multiple sectors, the analysis assumes their interest is distributed equally across them. These interests are lined up against the best economic forecast data available for England that covers the necessary granularity, being the 75 industries used by government for their latest projections in the Skills Imperative 2035 programme.¹⁵

Most of the FSQ sector categories can be approximately aligned with the industries in Skills Imperative 2035. Overall, adequate matches are identified for 80% of forecast replacement jobs demand. Analysis of aggregate and specific sector alignment focuses on this subset of adequately matched data. For instance, some replacement jobs are excluded because it is unclear what students interested in such jobs would have selected, such as utilities, libraries, gambling, security, waste management, and membership organisations. Likewise, some FSQ categories are excluded since they align better to occupations than industries or have no good fit in the forecast data. The remaining FSQ sector categories are used as the basis to identify gender-biased, over-subscribed sectors, as benchmarked on the KS4 cohort data (please see Appendix 2 for data on specific sectors).

Analysis approach

Analyses take the form of either descriptive statistics or regression models. In all regression models using career readiness scores, both linear and non-linear relationships are considered. If the squared term for career readiness score is significant at the 10% level (in at least half the age ranges), headline results are presented for the model with squared terms included, with commentary provided on a linear only model. Robust standard errors are used throughout for the reporting of p-values. Please see Appendix 1 for all analysis results tables

The method to identify individual over-subscription rate by sector is also used to develop an overall alignment indicator between all students' interests and forecast replacement jobs. We take the arithmetic average of the over-subscription rate for each industry a student chooses. We exclude students where one of their interests is one of the minority without an adequate demand alignment estimate.

These over-subscription rates can be interpreted as the “number of students who would be chasing each job”, subject to a number of assumptions that make it an approximate, likely conservative view of actual competition students would face. For instance, the interpretation is approximate because we assume that the interests in this sample are broadly representative of other children with whom they will compete for future jobs and because we do not differentiate first career roles from later career roles. The interpretation is likely to be conservative, because the analysis assumes workforce mobility across England. Some young people will favour work in particular geographies which have less diversity of jobs available. Many interests are focused on particular aspects of the industry groupings available, rather than distributed across that industry in proportion to projected demand. For instance, research suggests far more young people choosing “Sports & Leisure” are thinking of professional sports player roles than working as an administrator at a holiday camp.¹⁶

To aid interpretation of model results, the model outputs for the extreme values of career readiness scores are included in the form of average predicted values. The model outputs are generated by maintaining the distribution of all other variables in the data, changing only the readiness score of all students hypothetically first to 0% and then to 100%, reporting the mean model result across all students in the analytical sample in both cases.

Control variables

Commentary on results without control variables is included, with all headline figures reported based on analysis with control variables for both student-level and school-level characteristics.

Student-level control variables

- Year Group dummy variables
- Whether student is reported as male
- Whether student is reported as FSM (Free School Meals)
- Whether student is reported as SEN (Special Educational Needs)
- Whether student is reported as EAL (English as Additional Language)

School-level control variables

- Whether has a sixth form
- Number of pupils (also as a squared term)
- FSM % (also as a squared term)
- Whether in an Education Investment Area
- CEC school type dummy variables
- Region of England dummy variables
- Level of rurality dummy variables
- Ofsted score dummy variables, allowing “missing” to be an explicit category with a dummy variable

Appendix 1: Data tables

Table 1. Identifying at least one specific industry sector interest by age range

Age range	Sample size	% with at least one industry interest
Year 7 ("Starting Secondary" FSQ survey variant)	27,875	74%
Years 8-9 ("Transition to KS4" FSQ survey variant)	37,282	71%
Years 10-11 ("GCSE Years" FSQ survey variant)	29,029	73%
Years 12-13 ("Post-16 study" FSQ survey variant)	7,324	78%

Table 2. Logistic regression of career readiness score (adj.) on specifying sector interests

Age range	Sample size	Score joint p-value	% with at least one interest at score of 0%	% with at least one interest at score of 100%	Multiplier increase in likelihood
Year 7	27,010	0.00	28.6%	95.5%	3.3x
Years 8-9	36,241	0.00	25.6%	95.9%	3.7x
Years 10-11	27,437	0.00	14.7%	99.4%	6.8x
Years 12-13	7,076	0.00	14.1%	99.6%	7.1x

* Results shown for model with controls and a squared term on the score, following the methodology rationale. Reported relationships are all monotonic. Sample sizes lower than Table 1 due to dropping students with incomplete control variable coverage. Without controls, p-values remain 0.00 and multiplier increases remain within 10% of table 2. Without the squared term, the score remains significant (p-values 0.00), with a lowest multiplier increase of 2.9x (Year 7), such that all models comfortably demonstrate over 2x likelihood increases. The adjusted career readiness score excludes the question about whether the person has any ideas about what they might do for a job or career in the future (since it would be definitionally correlated with the outcome variable), but is otherwise calculated in the same manner.

Table 3. Model results for career readiness score on concentration of female interest in engineering

Model	Sample size	Score p-value	Coefficient on score	Increase in interest concentration for 0%-100% scores
Generalised linear model with binomial family and logit link function				
With controls	10,405	0.04	0.80	+1.6%pts (up from 1.4%pts)
Without controls	11,019	0.02	0.83	+1.6%pts (up from 1.3%pts)
Tobit regression, with censoring of reported interest concentration at 0% and 100%***				
With controls	10,405	0.13	0.24	Equivalent of choosing engineering as one of four sectors vs having neutral interest in engineering
Without controls**	11,019	0.09	0.25	

* Results shown for model with linear term only on the score, following the methodology rationale.

** Excluding the school type control, which has insufficient variation within the data for model convergence.

*** A Tobit approach recognises that not selecting engineering could represent either a neutral level of interest, where new positive information could tip them into choosing the industry, or a negative level of interest, where new information might make them less negative about engineering, but still would not change their mind.

Table 4. Students choosing only a gender-stereotyped, over-subscribed sector by age

Age range	Sample size		% choosing only a gender-biased, over-subscribed sector		
	Male	Female	Male	Female	Overall
Year 7	10,853	9,902	9.2%	18.0%	13.4%
Years 8-9	13,172	13,163	6.7%	10.0%	8.3%
Years 10-11	11,019	10,170	5.6%	6.1%	5.8%
Years 12-13	3,300	2,397	2.3%	2.8%	2.6%

* Analysis includes only students declaring at least one industry interest. Age range is statistically significant (p-values <0.01).

Table 5. Regression of readiness score on choosing only a gender-biased, over-subscribed sector

Age range	Sample size	Score P-value	% in bias sector at score of 0%	% in bias sector at score of 100%	Multiplier decrease in likelihood
Year 7	20,085	0.00	20.0%	8.4%	2.4x
Years 8-9	25,590	0.00	12.1%	5.8%	2.1x
Years 10-11	19,969	0.00	8.8%	4.2%	2.1x
Years 12-13	5,474	0.04	5.3%	1.7%	3.1x

* Results shown for model with controls and a linear term only on the score, following the methodology rationale. Without control variables, the score term remains significant at the same levels, with multiplier decreases remaining 2x-3x.

Table 6. Over- and under-subscription rates in KS4 and KS5

Student group	Sample size	Mean	St. Dev.	Range
Key Stage 4				
On average with over-subscribed industry interests	10,134	3.9x	2.0x	1x-9x
On average with under-subscribed industry interests	3,873	72%	22%	10%-1x
Key Stage 5				
On average with over-subscribed industry interests	3,114	3.6x	2.4x	1x-11x
On average with under-subscribed industry interests	641	60%	22%	12%-1x

Table 7. Linear regression of career readiness on over-subscription rates

Student group	Sample size	Score joint p-value	Subscription rate at score of 0%	Subscription rate at score of 100%
KS4	9,566	0.00	4.7x	3.8x
KS5	3,019	0.00	3.5x	2.8x

* Results shown for model with controls and squared term on the score, following the methodology rationale. The target relationship is monotonic at KS4 and n-shaped for KS5, peaking slightly at 3.9x for score of 40%. Without control variables, the score term remains significant at the same levels, with slightly larger changes from 0%-100% for KS4 and smaller for KS5. Without a squared term, the score p-value remains significant at the same levels and changes from 0%-100% within 20% of the Table 7 figures.

Appendix 2: Gender-biased, over-subscribed industries

Table A.1. Analysis of gender-biased, over-subscribed industries (KS4)

FSQ #	FSQ category	Male (n=10,170)	Female (n=11,019)	Ratio female:male (1x = in balance)	2x+ gender bias	Gender-combined over-subscribed rate (1x = interest/demand in balance)
1	Administration*	1%	1%	0.9x		
2	Animal care	3%	6%	2.0x	Female	9x
3	Beauty and wellbeing*	2%	6%	4.1x	Female	
4	Business and finance*	9%	4%	0.4x	Male	
5	Computing, technology and digital*	10%	2%	0.3x	Male	
6	Construction and trades	12%	2%	0.2x	Male	0.9x
7	Creative and media	7%	13%	1.9x		5x
8	Delivery and storage	1%	1%	0.6x		0.3x
9	Emergency and uniform services (combined into #26)*	5%	4%	0.7x		
10	Engineering and maintenance	11%	2%	0.2x	Male	4x**
11	Environment and land	1%	1%	1.1x		2x
12	Government services (combined into #26)*	2%	1%	0.9x		
13	Healthcare	3%	12%	3.5x	Female	0.8x
14	Home services*	0%	1%	1.5x		
15	Hospitality and food	2%	3%	1.7x		0.3x
16	Law and legal	3%	9%	2.6x	Female	2x
17	Managerial*	2%	1%	0.7x		
18	Manufacturing	4%	1%	0.2x	Male	1x
19	Retail and sales	2%	1%	0.9x		0.1x
20	Science and research	4%	4%	1.1x		6x
21	Social care	1%	7%	6.3x	Female	0.7x
22	Sports and leisure	10%	4%	0.4x	Male	4x
23	Teaching and education	2%	7%	3.4x	Female	0.6x
24	Transport	2%	1%	0.5x	Male	0.6x
25	Travel and tourism	1%	4%	3.1x	Female	9x
	All	100%	100%			
26	Gvnt & uniformed services	6%	5%	0.8x		2x

Highlighted sectors are those identified as the most gender-biased and oversubscribed, to be analysed as such in this report.

* Greyed out sectors are excluded or aggregated due to poor alignment with the 75 industries in the forecast replacement demand analysis.

** Excluded manually from "oversubscribed" assessment, given the significant sector and government priority on increasing interest in these areas, channelled in part via careers provision.

Endnotes

- 1 Career readiness score, derived from students' responses to the career knowledge and skills questions within the Future Skills Questionnaire
- 2 Mann, A., V. Denis, and C. Percy (2020). [Career ready? How schools can better prepare young people for working life in the era of COVID-19](#). Paris: OECD.
- 3 To adjust for students with multiple interests, we analysed the concentration of interest into engineering, just among students with at least one industry of interest. For instance, if a student specified only engineering, they would have 100% engineering concentration. If it were one of four industries chosen, it would be 25%.
- 4 In order to analyse this issue, we identified heavily over-subscribed sectors as those where the share of student interest was four or more times higher than the share of forecasted jobs demand and gender-biased sectors as those with at least twice the male interest as female or vice versa, benchmarked on our KS4 dataset (see Methodology for details).
- 5 Where our sample is a sufficient proxy for other students and their labour market.
- 6 In addition to earlier references, example related studies include Kashefpakdel, E., Percy, C., & Rehill, J. (2019). *Motivated to achieve: How encounters with the world of work can change attitudes and improve academic achievement*. London: Education and Employers Charity; Chambers, N., Percy, C., & Rogers, M. (2020). *Disconnected: Career aspirations and jobs in the UK*. London: Education and Employers; OECD. (2020). *Dream Jobs? Teenagers' Career Aspirations and the Future of Work*.
- 7 The Careers & Enterprise Company (2024). *Careers Education 2022/23: Now & next*. P22. London: The Careers & Enterprise Company.
- 8 The very small proportion of students who expressed an interest in every industry are also treated as not having any specific industry interests.
- 9 See discussion in Percy, C. (2020). [Personal Guidance in English Secondary Education: An initial Return-on-Investment estimate](#). London: The Careers & Enterprise Company.
- 10 Note that all analytical samples have some respondents with the lowest possible and highest possible readiness scores (0% and 100% respectively).
- 11 "Do you have support to help you make education and career choices?" for KS4 and KS5 and "At school, do you know who to go to for information and guidance about careers?" for younger years, with four options from "No, not yet" to "Yes, to a great extent" entered as dummy variables.
- 12 Logistic regression with control variables; p-values < 0.01.
- 13 FSQ questions can be found on the CEC website: [What is the Future Skills Questionnaire? – The Careers & Enterprise Company \(zendesk.com\)](#).
- 14 30%-36% of students from Year 7 to KS5 selected multiple sectors. Older students more commonly selected multiple sectors.
- 15 Total requirement data, i.e. net change plus replacement demand from the analysis, as led by the National Foundation for Educational Research and funded by the Nuffield Foundation. Details available from www.gov.uk/government/publications/labour-market-and-skills-projections-2020-to-2035
- 16 See the Drawing the Future research programme, e.g. Chambers, N., Kashefpakdel, E., Rehill, J., & Percy, C. (2018). *Drawing the future: exploring the career aspirations of primary school children from around the world*. London: Education and Employers.

