



Career education that works: an economic analysis using the British Cohort Study

Elnaz T. Kashefpakdel & Christian Percy

To cite this article: Elnaz T. Kashefpakdel & Christian Percy (2016): Career education that works: an economic analysis using the British Cohort Study, Journal of Education and Work, DOI: [10.1080/13639080.2016.1177636](https://doi.org/10.1080/13639080.2016.1177636)

To link to this article: <http://dx.doi.org/10.1080/13639080.2016.1177636>



Published online: 27 Apr 2016.



Submit your article to this journal [↗](#)



Article views: 12



View related articles [↗](#)



View Crossmark data [↗](#)

Career education that works: an economic analysis using the British Cohort Study

Elnaz T. Kashfepakdel^a and Christian Percy^b

^aDepartment of Education, University of Bath, Bath, UK; ^bIndependent Researcher, London, UK

ABSTRACT

There is significant policy interest in the issue of young people's fractured transitions into the labour market. Many scholars and policy-makers believe that changes in the education system and labour market over recent decades have created a complex world for young people; and that this can partly be addressed by enhanced career education while individuals are at school. However, the literature lacks in-depth quantitative analysis making use of longitudinal data. This paper draws on the British Cohort Study 1970 to investigate the link between career talks by external speakers and employment outcomes, and finds some evidence that young people who participated in more career talks at age 14–16 enjoyed a wage premium 10 years later at age 26. The correlation is statistically significant on average across all students who receive talks at age 14–15; but remains the case for 15–16 year olds only if they also described the talks as very helpful.

ARTICLE HISTORY

Received 15 January 2015
Accepted 8 April 2016

KEYWORDS

Employer engagement; wage premiums; youth labour market; careers education; school-to-work transition

1. Introduction

Over recent years, governments around the world have worked hard to engage employers in the careers advice and guidance offered to young people in schools. In England, the Department for Education published in 2014 new statutory guidance on Careers guidance and inspiration in schools. The document sets out a clear expectation that first-hand advice from employers should be at the heart of school careers policies:

Every school should engage fully with their local employer and professional community to ensure real-world connections with employers lie at the heart of the careers strategy (Department for Education 2014, 10).

The approach is aligned with advice from influential international commentators (Mourshed, Farrel, and Barton 2012; Symonds, Schwartz, and Ferguson 2011). The Organisation for Economic Co-operation and Development, for example, argues:

More complex careers, with more options in both work and learning, are opening up new opportunities for many people. But they are also making decisions harder as young people face a sequence of complex choices over a lifetime of learning and work. Helping young people make these decisions is the task of careers guidance ... [Careers professionals] need to be able to call upon a wide range of information ... Strong links between schools and local employers are very important means of introducing young people to the world of work. (OECD 2010, 16)

Individual career guidance should be a part of a comprehensive career guidance framework, including a systematic career education programme to inform students about the world of work and career opportunities. This means

that schools should encourage an understanding of the world of work from the earliest years, backed by visits to workplaces and workplace experience. Partnerships between schools and local firms allow both teachers and students to spend time in workplaces. (OECD 2010, 85)

Such policy imperatives have been championed, however, in the absence of a large volume of research evidence. While a growing number of analyses have investigated and demonstrated significant links between school-mediated employer engagements and the ultimate employment outcomes of young people (Kemple and Willner 2008; Mann and Percy 2014; Massey 2014; Neumark and Rothstein 2005; Percy and Mann 2014), such studies have focused on a wide range of employer engagements including work experience placements, enterprise activities and mentoring as well as career-focused interventions and programmes of study rich in work-related learning. UK studies have moreover depended on analysis of contemporary survey data to test for statistically significant employment outcomes (in earnings and NEET status) linked to teenage behaviour and characteristics. Mann and Percy (2014) and Percy and Mann (2014) both draw on contemporary survey data wherein young adults (aged 19–24) provide data on their recollections of the volume of school-mediated employer engagements, details of current full-time earnings and a range of control measures related to social background. While such studies have provided insights of value (Mann and Percy (2014) finding wage premiums of up to 18% being linked to school-mediated employer engagement), they have inevitably been limited by the breadth of control variables available and depend upon retrospective recollection of participation levels in workplace activities.

Analysis of longitudinal data offers a more reliable means to test the instincts of policy-makers, commentators and analysts. Employer engagement in careers activities is, after all, not a new phenomenon within the British educational traditions (Archer et al. 2014). During the 1980s, notably, funding made available to schools through the Technical and Vocational Education Initiative (TVEI) provided considerable government investment which led to very many schools introducing changes to broaden the curriculum to make it more relevant to the working world. Essentially a 'work-oriented and employment-based development' aimed at broadening the curriculum to help young people develop skills and qualifications more relevant to the labour market (McCulloch 1991, 117), TVEI included a number of important elements of value to analysts. The initiative was:

- Piloted at scale in schools between 1983 and 1986 prior to a short-lived national rollout from the autumn of 1987 ultimately curtailed by the introduction of the National Curriculum by the Education Reform Act of 1988, meaning that over the academic year 1985–86, a large number of schools engaged in innovative programmes of work of varying scale and intensity;
- Delivered within a model of 'decentralised, school-based curriculum development' (McCulloch 1991, 117; Yeomans 1996), wherein participating schools varied considerably in the character of innovation pursued ensuring that meaningful numbers of young people experienced unusual variation in their educational experiences;
- Designed with a clear emphasis on careers education (Andrews 2008);
- Delivered within participating schools to large proportions of pupils, at all attainment levels and across different subject areas (Wilson 1988, 149–156)

In 1986, while the TVEI initiative cannot alone be said to have been responsible for the delivery of careers focused employer engagement activities in schools, it clearly did provide a significant impetus and it is timely that the British Cohort Study surveyed young people aged 16 midway through the life of the TVEI initiative. The BCS survey gives a snapshot of teenage school experiences at a time when considerable interest (and resource) was focused on improving young people's relationships with the labour market.

The decentralised TVEI delivery model can also be seen as encouraging unusually high variations in pupil experiences across key elements of careers-related provision and consequently allows analysts the opportunity to explore whether higher volumes of teenage employer contacts are connected to better employment outcomes 10 years later, without being strongly influenced by self-selection bias, the possibility that only highly focused individuals attend careers activities and such individuals

independently go on to earn higher wages. As Prue Huddleston, Professor Emeritus at the University of Warwick describes the delivered TVEI notes:

TVEI was designed to be relevant to a very wide range of learners in participating schools and was typically delivered in a way that meant a broad cross section of young people would take part in at least some of its activities. Given the typical delivery of careers provision in the 1980s, if they were enrolled at a TVEI school it would be expected that young people had relatively little discretion over whether they took part in careers talks with external speakers if they were offered as part of the enhanced provision. The key determinant in whether schools took part in TVEI was whether their local authority opted into the pilot and very many did. There was no typical type of school which took part – schools with a broad range of catchments and pupil achievement were involved¹.

Faith Muir, now Senior Lecturer at Canterbury Christ Church University, was at the time of TVEI a co-ordinator of the Initiative at Haggerston School in Hackney, London. She recalls:

There was fairly limited choice for students regarding career sessions with outside speakers at the school. At times, students would have had opportunity to choose between different workshops/talks run by outside people during suspended curriculum days. On occasion too, students may have been selected to attend events organised outside of the school organised by a central TVEI team with pupils selected on the basis of their ability to benefit. In general, however, student agency over the volume of career talks they would have encountered within TVEI provision was pretty modest².

2. Data

This paper draws upon one of the richest and most robust longitudinal data-sets in the UK, the British Cohort Study 1970 (BCS70). BCS70 is a study of the outcomes and families of babies born in the UK in one particular week in April 1970. Since BCS70 began, there have been seven full data collection exercises undertaken in order to monitor the cohort members' health, education, social and economic circumstances (ESDS 2012). These took place when respondents were aged 5, 10, 16, 26, 30, 34, and 38 and 42. The 1970 British cohort was designed to survey approximately 17,000 babies born in Great Britain. In common with other cohort studies, BCS sample size has declined as the cohort has aged (Centre for Longitudinal Studies 2004). Table 1 presents the response rate for the five waves used in this analysis.

BCS70 response rates do not follow what has come to be seen as the expected pattern for longitudinal wave-on-wave responses rates. This common pattern, observed especially in annual household panel studies, sees wave 2 response rates suffer the largest fall, but wave-on-wave response rates from wave 3 onwards being consistently high and at rates that are often in the 90 per cent and above range. There are a number of reasons why BCS70 did not realise this common patterns, including:

- uncertainties in the funding leading to very long gaps between contacts;
- the use of lower quality modes at times (e.g. postal surveys); and
- a factor that is inherent to birth cohort studies, but not to panel surveys, that is the shift from parent to cohort member in commitment to the study (Centre for Longitudinal Studies 2004).

The data used for this study are collected from birth to age 26 with response rates varying by wave, questionnaire and individual question. While acknowledging the unavoidable risk of bias caused by non-response rates, we invoke a wide range of control variables, from demography to socio-economic status and academic background. To the extent that non-response bias or any compensatory weighting schemes might relate to included variables, our analysis will be robust.

Table 1. Response rates of BCS70.

Wave (Age)	Wave 0 (birth)	Wave 1 (age 5)	Wave 2 (age 10)	Wave 3 (age 16)	Wave 4 (age 26)
Observed sample	16,571	12,981	14,350	11,206	8654
Non-response	716	2812	1108	3293	4765
Uncertain eligibility	0	668	723	1500	2307
Target sample (estimated)	17,287	16,461	16,181	15,999	15,726

Source: Centre for Longitudinal Studies 2004.

BCS70 allows the investigation of correlation between employer engagement activities and earning by providing various variables at age 16 and 26. At age 16 (conducted in 1986), individuals are asked whether they had school-organised contacts with the world outside school in the forms of work experience, career talks at age 15 and 16 and workplace visits arranged by schools. Among these activities, receiving a career talk from speakers outside school was the most common, with 66% of students participating in at least one such talk (see Figure 1).

Specifically, the questionnaire asked students whether they had received any career talks from speakers from outside school at any point and, if yes, how many they had attended in Fourth Year (aged 14–15, equivalent to Year 10) and Fifth Year (aged 15–16, equivalent to year 11). In order to be able to compare those who had attended none with those who had attended one and more, we combined respondents' answers to these two questions. This approach results in some data loss, as some respondents recorded participation in careers talks but could not state how many. On this basis, we exclude at least 191 individuals who could not state the details for either age 14–15 or age 15–16 (8% of the applicable full-time employed respondents who provided data on weekly pay).

At age 26, when most cohort members would have been in the labour market for a number of years, they reported their net weekly income³. In order to create a more comparable subsample, only individuals with full-time jobs are included in the analysis, as depicted in Figure 2 (597 or 6.5% of the sample are part time employees who provided valid data for their weekly income). On average, individuals were earning £215 a week, with standard deviation of approximately £100 when

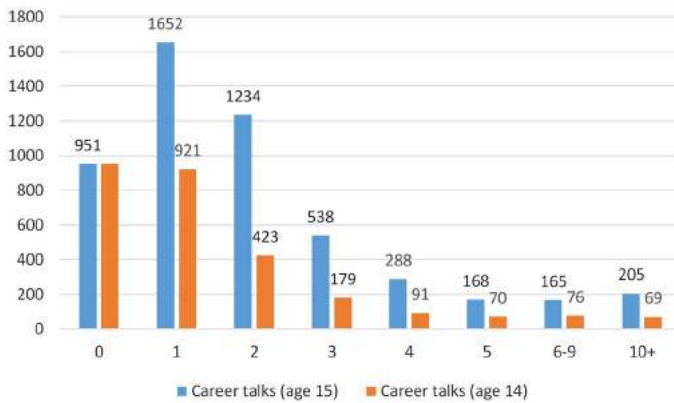


Figure 1. Distribution of careers talk participation [respondent count, full age 16 sample].

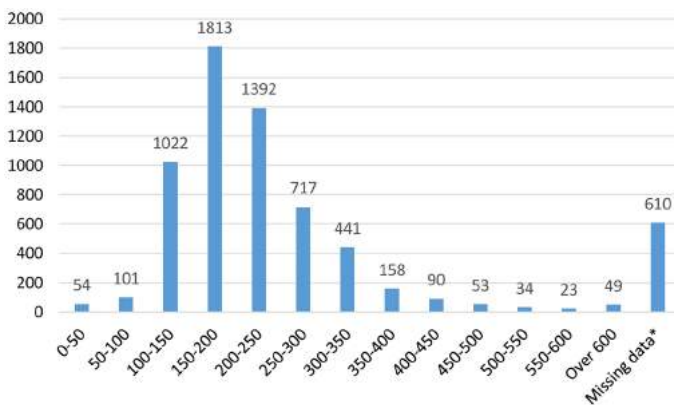


Figure 2. Distribution of weekly earnings [respondent count, full time workers only, age 26 full sample].

employed full time at age 26. Income is affected by factors such as academic achievement at age 16 and family background, where those with higher grades at A level typically earn more, as do students from more privileged backgrounds.

The current analysis will seek to explore whether teenage participation in careers talks also has similar associations. The analysis provides a test, therefore, as to whether wage premiums observed by young British adults with higher levels of teenage school-mediated workplace exposure might best be understood through social capital theory: that access to high volume non-redundant, trusted information and insight about the job market through encounters with working professionals can be seen to provide economic advantage in later job market transitions.

3. Method

3.1. Control variables

As with any study exploring variation in labour market performance, it is important to include background variables in the analysis, as particular effects might otherwise render the analysis misleading. For instance, it is possible that individuals from wealthier socio-economic backgrounds are more likely to attend schools with privileged access to careers talks with outside speakers, but also go on to earn more due to social advantages, regardless of those career talks. Hence, it is important to include a control for individuals' family background. In general, BCS allows a rich range of background variables (from birth to age 16). Drawing on the well-established literature on school-to-work transitions and employment outcomes, variables across several key categories were identified: socio-economic status, academic ability, home learning environment and demographics (see, for example, Schoon and Polek 2011; Yates et al. 2011).

Ideally, we would also include a range of school-level control variables. However, a teachers' strike during 1986, when school-level data were collected, reduced sample coverage for such questions to around a third. The decision to strike is not independent of the types of school or features of the local area that are relevant to wage outcomes and so we regretfully do not make use of these data. Family-level data from 1986 are still used but not teacher-level responses.

BCS has various variables within each of the key categories we would like to control for. However, these categories and variables have high levels of covariance, as well as different patterns of missing data (due mostly to individuals choosing not to answer particular questions). In order to maintain a parsimonious model, with minimal variance-inflation factors and as high a sample size as possible, we select only those variables in each category that have a p-value under 0.10 in a wage regression analysis (see starred variables in Table 2).

Basic demographic data on gender and ethnicity were available in a straightforward fashion from the BCS survey results. In the second category, capturing academic ability, the highest qualification achieved by age 26 includes both vocational and academic qualifications from Certificate of Secondary Education (CSE) and 'O' level to degree and applies the traditional UK academic levels to allow comparison of individuals across different types of qualification. Maths score is a derived variable using an individual's grade at O-level/CSE. Households were asked whether the relevant survey candidate had sat an examination in Mathematics at age 16, at what level and what mark they achieved. This variable consists of those who said yes to the first question; subsequently they are standardised and scored from 1 to 8. They scored one if they failed in both O'level and CSE level maths. If they gained an O'level, those achieving grades E to A, were scored 4 to 8, respectively. Those with CSE level results scored 2 to 6 for grades increasing from 5 to 1. Where candidates had both CSE and O'level results, their highest score prevailed. To capture a wider understanding of academic ability, a dummy variable is included for disruptive behaviour while at school and a test of cognitive ability at age 5 (expert assessment of a human figure diagram drawing) is also used.

The third category represents the early home learning environment and draws on data collected from age 5 and 10 including the mother's self-reported interest in her child's learning, the number of

Table 2. Selection of control variables.

Dependent variable = ln wage, aged 26 in 1996 [N=519]					
Category	Variable	Est.	Std error	T-stat	p-value
n.a.	(Constant)	4.76	0.20	23.31	0.00
Demographics	**Gender (0=female, 1=male)	0.18	0.03	5.44	0.00
	Has at least one UK parent (0=No, 1=Yes)	-0.10	0.13	-0.74	0.46
Academic ability	**Highest level of qualification at age 26 (Level 0-5)	0.06	0.01	3.99	0.00
	**Math score at O'level age (1-8, 8 high)	0.04	0.01	3.11	0.00
	Ever removed from class for disruptive behaviour at age 16 (0=No, 1=Yes)	0.02	0.07	0.33	0.74
Home learning	**Standard figure drawing at age 5 (-5 to +5, +5 high score)	0.03	0.01	2.26	0.02
	**Days TV watched in weekday evenings / week at age 5 (0-5)	-0.02	0.01	-2.08	0.04
	Mother's interest in education age 10 (1-4, 4 high interest)	0.04	0.03	1.21	0.23
	Days in past week that parents read to their child at age 5 (0-7)	0.00	0.01	0.51	0.61
Socio-economic status	*Mother's socio-economic status (0 to 7, 7 high SES)	0.02	0.01	1.92	0.06
	Father's socio-economic status 01 to 7, 7 high SES)	-0.01	0.01	-0.77	0.44
	Dummy variable for receipt of benefits (0=No, 1=Yes)	0.03	0.05	0.58	0.56
	Dummy variable for council housing (0=No, 1=Yes)	0.07	0.05	1.30	0.19

**= Sig. at 5% level.

*Sig. at 10% level. *F*-statistic 9.9 (*p*-value 0.00); *R*² of 20%.

days parents have read to their child in the previous week and the number of weekday evenings spent watching TV. The fourth category addresses one of the most important set of background variables, family socio-economic status, captured by father's and mother's social class at age 16 (measured by the Registrar General Social Class Scale and based on the occupation of the parents), as well as dummy variables for families in receipt of state benefit and whether respondents resided in council-owned accommodation as indicators of financial capability.

The final control we apply is one for the level of deprivation at the local education authority (LEA) level allowing an account to be made of local labour market conditions within tests for variations in earnings. To derive an average rate of economically active participation in those aged 16 and above in each of the 120 LEAs recorded in the data-set, we use the NOMIS census results from 1991. This control is necessary to account for the ease with which a school might identify economically active outside speakers to contribute to careers talks and the exogenous difficulty in finding employment for those young people who seek work in the same LEA where they went to school. Provided a similar relationship obtains on average within the LEAs, the control for localised unemployment allows us to adjust for this bias. Where a different relationship obtains in individual LEAs, we also tested a separate control with the LEAs included as dummy variables. Results remained robust under this specification, with the presented analysis preferred both in producing the most statistically well-specified regression models and in aligning most closely with our desire to have a localised measure of deprivation.

The use of several important control variables unfortunately translates into a reduction in sample size for our final analysis. Of the 6417 respondents at age 16 who also did the education questionnaire, 3172 were in full-time work and reported their earnings. A further 14% sample size reduction occurs once we remove those who did not complete the age 5 survey. On that sample, a further 19% sample size reduction is due to those who did not provide data on the mother's social economic status. With a few per cent also not providing sufficient data to identify highest academic qualification and TV watching, there is a further 14% drop in the sample size to 1823 due to those for whom we could not calculate a maths score. The final reductions occur in those who reported data on their participation in careers talks: 16% for the age 15–16 cohort and 55% for the age 14–15 cohort. The large reduction for careers talks at age 14–15 most likely reflects the difficulty in remembering and specifying the number of careers talks with external speakers taking place one to two years previously.

Given this sample size reduction, it is important to compare the smaller of our main analytical sample to the full population as captured in individual survey questions for wave 3 respondents. Table 3 provides this information and highlights that our primary analytical sample is broadly comparable to the national average on several indicators but is more likely to be female, with slightly higher SES and a better home learning environment. Our sample also had slightly higher performance in maths while at school and tended to stay in education longer, being significantly more likely to earn a degree.

3.2. Estimation method

Since the dependant variable, income at age 26, is a continuous variable, linear least squares regression model is applied using SPSS v21, with some additional diagnostic testing conducted with Stata IC/12 (64). In order to obtain a better fit model and in line with common econometric practice for wage regressions, we adopt the natural log transform of the income variable. This transformation makes the positively skewed distribution of income more normal.

We hypothesise that each additional careers talk will be associated with an additional change in outcomes, since each careers talk with a different outside speaker will convey different insights and motivations that will resonate with different students in the class. Given that it is hard to predict which insights will resonate with which students, on average, we would expect a broadly linear relationship to apply between the number of careers talks and later outcomes, potentially with some cap at the high end and negligible effects at the low end, since only one or two careers talks over a whole academic year may not convey much seriousness. The broad suitability of a linear model is tested and approved via RESET tests and chart analysis in Section 4.4.

Table 3. Descriptive statistics for control variables included in the analysis (1970 British Cohort Study).

Variable	Description	Unit	Primary analytical subsample (N=784, Table 4)	Full BCS age 16 sample available
Highest qualification achieved	None	%	1%	3%
	CSE2–5 or NVQ 1	%	9%	10%
	O level or NVQ 2	%	33%	23%
	A level or NVQ 3	%	16%	6%
	NVQ 4	%	5%	3%
	Degree or NVQ 5/6	%	36%	11%
Math score (8 represents best score)	1	%	0%	0%
	2	%	2%	6%
	3	%	8%	13%
	4	%	15%	17%
	5	%	14%	15%
	6	%	26%	21%
	7	%	20%	15%
	8	%	14%	11%
Standard Drawing Test		Avg (st. dev.)	0.17 (1.15)	–0.11 (1.27)
Weekdays watching TV	1–5	Avg (st. dev.)	1.09 (1.80)	1.37 (1.98)
Mother's SES	1 – Dead	%	1%	1%
	2 – Student	%	20%	25%
	3 – Type V	%	4%	7%
	4 – Type IV	%	15%	16%
	5 – Type III Manual	%	4%	6%
	6 – Type III Non-Manual	%	37%	29%
	7 – Type II	%	19%	16%
	8 – Type I	%	0%	1%
Gender	Female	%	59%	49%
	Male	%	41%	51%
LEA deprivation	% 16+ economically active	Avg % (st. dev.)	61% (0.03)	61% (0.04)

4. Results

4.1. Number of careers talks aged 14–15

The initial analysis controls for background variables of gender, socio-economic status, academic performance/highest level of qualification and home learning environment. The analysis indicates a 1.1% link between each careers talk and wage outcomes at 26, significant at the 1% level (N=826). For comparison, the regression without controls in place indicates a 0.8% wage premium (N=1409). Although highly significant (p-value 0.00), the regression without controls only accounts for a very small amount of the variation in wage (R^2 0.6%), pointing to the importance of controls.

However, there is evidence that outliers may be present, causing interpretative issues with the regression output. Specifically, for the regression with background controls, residuals fail the Shapiro–Wilk and Kolmogorov–Smirnov tests for normality (p-values 0.00), indicating that while the coefficient estimate of 1.1% may be unbiased, the standard errors and significance tests are unreliable. The statistical driver of poor performance is a small number of outlier individuals in the survey, which weakens the linear approximation applied by the regression analysis. While this itself is an interesting feature of the analysis (explored further in 4.4), for our headline findings we wish to use a better specified regression that allows for more confident interpretation.

By excluding the 42 respondents in the analysis (5% of the total) with a Cook's distance higher than 0.005, using the 4/N heuristic, a regression result is obtained that is better specified and allows more confident interpretation of p-values. The relationship, reported in Table 4, between careers talks and wage outcomes remains statistically significant at the 1% level, being equivalent to an average 0.8%

Table 4. Talks aged 14–15, regression output.

Dependent variable = ln wage, aged 26 in 1996 [$N = 784$, outliers excluded]					
Variable	Estimate	Std error	<i>T</i> -statistic	<i>p</i> -value	
[Intercept]	4.42	.19	22.97	.00	
**Gender	.14	.02	6.93	.00	
**Highest qualification at age 26	.04	.01	4.88	.00	
**Mother's socio-economic status	.01	.01	2.16	.03	
**No. days watching TV in evenings [Mon-Fri]	−.01	.01	−2.27	.02	
Cognitive development test age 5	.00	.01	.43	.66	
**Maths score age 16	.04	.01	5.78	.00	
**LEA economic activity rate	.65	.31	2.11	.04	
**Careers talks with external speakers age 14–15	.008	.003	3.278	.001	

**= Sig. at 5% level.

*Sig. at 10% level. *F*-statistic 30.2 (*p*-value 0.00); R^2 of 24%. As the relationship under investigation, careers talk results are presented to an extra decimal place.

wage uplift associated with each additional careers talk, and is more applicable to the 'majority' of career talks participants at the time, with outliers excluded.

Given the complexity of wage drivers, the regression reported in table 4 performs well on standard diagnostic tests with tolerance up to the 5% level of significance. The residuals are normally distributed according to the Kolmogorov-Smirnov and Shapiro-Wilk tests and display homoscedasticity via the White test and the Breusch-Pagan/Cook-Weisberg tests with fitted values and predictor variables (Stata implementation). While acknowledging that such linear models reflect only a highly simplified and stylised summary of reality, the model still passes a high-level test of specification, the Ramsey RESET test using powers of the fitted values and predictor variables (Stata implementation). Given the significant complexity of applying average statistical models in the social sciences, we also confirm our previous results hold up against the use of robust standard errors: 0.8% with *p*-value of 0.00.

It is common in social sciences for predictor variables to be correlated, introducing the risk of multicollinearity to regression analysis. In this case, the risk is minimal, supported by the approach taken to identify parsimonious control variables, as the variance inflation factors (VIF) are generally below 1.1, with only maths score and level of highest qualification being closely correlated at 1.6 VIF. These VIF scores indicate that standard errors are less than 1.3 as large as they would be without any correlation and have minimal effect on the analysis of interest.

4.2. Number of careers talks aged 15–16

Applying the same principles to the number of careers talks experienced a year older, aged 15–16, we identify a similar exposure to outlier respondents at 4% of the respondent base (65), again challenging the initial result of 0.4% wage uplift per careers talk (sig. at 10% level, $N = 1531$). The results, adjusted for the 65 outliers, are presented in Table 5, indicating that while there is an average positive association of 0.1% wage uplift to additional careers talks, this is not statistically significant.

Regression diagnostics are similar to those for table 4, although this specification fails the Breusch-Pagan/Cook-Weisberg test with fitted values for homoscedasticity, while still passing the White test for the same malady, and similarly fails the Shapiro-Wilk test for normality, while passing the Kolmogorov-Smirnov test for the same.

4.3. Student perceptions

Students were also asked whether or not they found the careers talks helpful, with no distinction made between careers talks experienced at age 14–15 vs. 15–16 (see Figure 3).

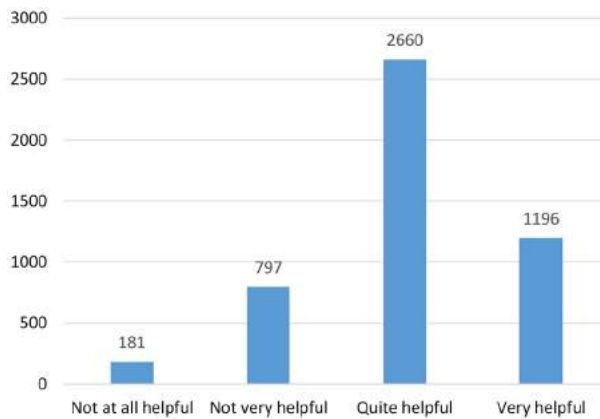
We use this question to address whether or not students who found career talks helpful feature a stronger relationship between careers talks and wage outcome. The response 'Quite helpful' is most

Table 5. Talks aged 15–16, regression output.

Dependent variable = ln wage, aged 26 in 1996 [N = 1466, outliers excluded]				
Variable	Estimate	Std error	T-statistic	p-value
[Intercept]	4.29	.14	30.66	.00
**Gender	.15	.02	9.77	.00
**Highest qualification at age 26	.04	.01	7.20	.00
**Mother's socio-economic status	.02	.00	4.12	.00
No. days watching TV in evenings [Mon-Fri]	-.01	.00	-1.50	.13
*Cognitive development test age 5	.01	.01	1.71	.09
**Maths score age 16	.03	.01	6.36	.00
**LEA economic activity rate	.92	.22	4.08	.00
Careers talks with external speakers age 15–16	.001	.002	.382	.703

** = Sig. at 5% level.

*Sig. at 10% level. F-statistic 54.9 (p-value 0.00); R^2 of 23%. As the relationship under investigation, careers talk results are presented to an extra decimal place.

**Figure 3.** Student views on the helpfulness of careers talks [respondent count, full age 16 sample].**Table 6.** Results of ln wage regression with control, by number of talks experienced.

Student views on the helpfulness of careers talks with outside speakers	Career talks age 14–15	Career talks age 15–16
Very helpful	1.6% [0.01]* N = 130	0.9% [0.04] N = 274
Quite helpful	1.2% [0.00] N = 344	0.2% [0.42] N = 716
Not helpful at all, or not very helpful	0.9% [0.37] N = 90	0.2% [0.71] N = 266

*Number in square brackets is the standard error for the presented coefficient. N gives the subsample size used in the analysis.

common and represents a default value, as given in Figure 3, and in our analysis we focus on differences between 'very helpful' and 'not at all helpful/not very helpful'. Maintaining the same control variables as identified in Sections 4.1 and 4.2, Table 6 reports the results of the variable of interest regressed against ln wage.

Acknowledging the limitations of the reduced subsample size, table 6 tentatively indicates that students' perceptions of careers talks relate well to whether or not those careers talks later turned out to be associated with beneficial career outcomes. For students who found the talks very helpful, there was a statistically significant relationship at the 5% level for career talks both at age 15–16 (0.9% wage uplift per careers talk) and at age 14–15 (1.6%). This association was weaker and not statistically

significant among respondents who did not find the talks helpful. Across both age ranges an average 0.7 percentage point increase in associated wage per individual careers talk is seen among those who found the talks very helpful as compared to those who did not find them helpful. We also note that students who found the talks very helpful experienced 3.3–3.5 talks on average in each year, whereas those who did not find them helpful only experienced 2.2–2.3 on average.

4.4. Outlier analysis

Taken collectively, the results in 4.1 and 4.2 indicate that a small number of respondents are driving a significant uplift in the association between careers talks and wage outcomes. Removing outliers in the first analysis in Table 4 decreased the associated wage returns from 1.1% to 0.8% and from 0.4% to 0.1% in the second analysis in Table 5. A review of the outliers, in table 7, identifies that they are disproportionately found from among those with 15 or more careers talks as well as, to a lesser extent, those with no careers talks.

Those with zero career talks are likely to reflect schools which did not offer careers talks at all at that age. However, even once outliers are excluded, there is a large sample size for those experiencing zero or a small numbers of careers talks. It is the delta in those experiencing more than 14 careers talks that deserves further investigation, as these small, but extreme datapoints have a disproportionate effect on linear regression estimations.

While the sample size does not permit non-parametric analysis to explore how the relationship of interest varies over different ranges of careers talks, we can include each number of career talks as a separate dummy variable, as an exploratory analysis only, grouping categories together where required to obtain a sample size of at least 10 in each category. Figures 4 and 5 plot the coefficients of the career talk dummy variables for both Fourth Year and Fifth Year, in the ln wage regression including the same background controls as earlier prior to the exclusion of outliers (with zero career talks as the baseline reference point for each dummy variable).

The results in Sections 4.1 and 4.2 are also apparent in Figures 4 and 5: a broadly compelling relationship at Fourth Year, as opposed to a very weak relationship at Fifth Year. Across both Figures 4 and 5, the positive association between wage and careers talks is most apparent for those experiencing five or more career talks. This visual interpretation can be supported statistically. Conducting an analysis with the same control variables on a binary variable for participants receiving 5 or more career talks with external speakers shows a 12.5% wage increase (p -value 0.01) for talks at age 14–15 and a 6.2% wage increase (p -value 0.04) for those at age 15–16.

As expected by the Cook's D analysis, the extreme values of 15 career talks and above support the positive association, particularly at 30 career talks and above. However, the analysis is not solely reliant on such outliers, and a positive association is discernible by eye without them at age 14–15. Thus, these charts support, at a visual level and in line with the regression diagnostics, the summary appropriateness of a linear approximation for the overall relationship between exposure to career talks and wage outcomes, once background variables are controlled for. Nonetheless, this analysis acknowledges that those with zero or very few career talks and those systematically experiencing a large number, such as 15 and above do not fit the linear trend as well as the mid-range of careers talks.

Table 7. Distribution of excluded outliers by number of careers talks.

Range of careers talks	Career talks age 14–15		Career talks age 15–16	
	Excluded outliers	Retained sample	Excluded outliers	Retained sample
0	31	36%	17%	25%
1	33%	29%	32%	25%
2	16%	12%	25%	18%
3–6	14%	7%	21%	15%
7–14	4%	5%	3%	6%
15–50	2%	12%	2%	11%
Total sample size	42	784	65	1466



Figure 4. Fourth Year results [0 career talks as baseline comparator].

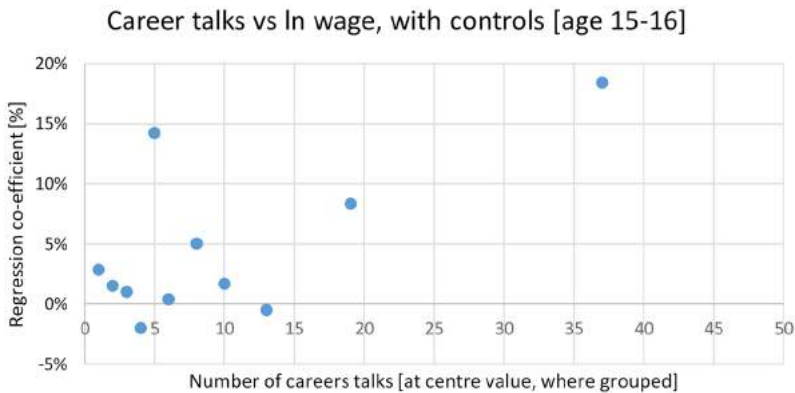


Figure 5. Fifth Year results [0 career talks as baseline comparator].

5. Discussion

This paper finds evidence of a positive, statistically significant association between school-organised career talks with outside speakers and the future earnings of participants when adults aged 26. The extent of the impact observed varies significantly across age groups. With controls for background characteristics and academic success in place, each career talk with outside speakers at age 14–15 in the mid-1980s was associated with a 0.8% wage uplift in 1996, among those in full-time employment. However, at age 15–16, while there is a directionally positive association at 0.1%, this is too weak an association, with too much variation in the underlying relationship, for the effect to be noticeably different from zero in a statistical sense. The analysis finds, importantly, that teenage perceptions of the helpfulness of career talks are significantly related to later higher earnings at both ages. Teenagers who found career talks ‘very helpful’ experienced, on average, a 0.7 percentage point higher wage premium for each career talk they participated in than their peers who found the talks ‘unhelpful’, both at age 14–15 and age 15–16. As well as the quality of talks, it is possible this result relates to the benefit of a larger number of talks, as individuals who found the talks ‘very helpful’ had 3.3–3.5 talks on average per year, as opposed to 2.2–2.3 for those who found them ‘unhelpful’.

On average, a linear relationship is statistically robust, with each additional career talk adding some value. However, at the extreme ends, 1, 2 or 3 career talks over a year are not associated with any meaningful difference in wage, whereas 15+ career talks, or even 30+ talks over the year are associated with a higher wage than suggested by simply extrapolating a linear relationship. Although too few students

experienced such large numbers of talks for detailed subsample analysis, this observation hints at the possibility that integrating talks into the regular rhythm of school, such as fortnightly outside of exam season, can drive a particularly valuable benefit.

The findings presented suggest that policy-makers in the 1980s were right to encourage schools to enhance educational provision through inclusion of careers talks with outside professionals. The analysis presented in this paper shows participation in such activities to be related with better labour market outcomes as was certainly part of the ambition behind the Technical and Vocational Education Initiative of the mid-1980s. The findings also support contentions made in recent academic literature (Mann and Percy 2011; Percy and Mann 2014; Stanley and Mann 2014; McDonald et al. 2007; Jokisaari and Nurmi 2005; Jones, Mann, and Morris 2015) that teenage engagement with the labour market, even episodic, short duration and perhaps unstructured in character can be associated with enhanced labour market outcomes. This literature has drawn heavily on the work of American sociologist Mark Granovetter and his influential conceptualisation of the 'strength of weak ties' in evidencing the ways in which the character of social networks possessed by adult workers can be seen to influence employment outcomes, including higher levels of earnings (Granovetter 1973).

To some scholars, Granovetter's development within Social Capital theory has proved an attractive lens through which to frame the means by which teenagers engage with the labour market to gain access to information found to be more authentic, useful and persuasive than rival sources of knowledge (Jones, Mann, and Morris 2015; Mann and Dawkins 2014; Raffo and Reeves 2000; Stanley and Mann 2014). Teenage personal networks including access to larger numbers of professionals with more varied types of experience have been seen to add value particularly by increasing access to 'non-redundant, trusted information' about the availability of economic opportunities and the suitability of a potential applicant for those posts.

From a US perspective, McDonald et al. (2007), for example, have identified significant employment boosts for young adults aged 23–28 possessing, as teenagers, strong networks of non-family work-related contacts. Drawing on Finnish data, Jokisaari and Nurmi (2005) equally have drawn on Granovetter to explain positive employment outcomes in the two years following the conclusion of full-time education linked to professional networks enjoyed as older teenagers.

Looking specifically at British school-mediated employer contacts, Mann and Percy (2014) similarly argue that evidence of higher earnings at ages 19–24 being linked to higher levels of teenage employer contacts – commonly experiences which are episodic, of short duration and poorly integrated into wider curriculum in the UK – can best be explained through the provision of new and useful information rather than in terms of skills development. The workplace interactions of young people are presented as offering effective means of broadening understanding of the labour market, the character and availability of work and preparatory routes into specific occupations.

In theoretical approaches, Stanley and Mann (2014) and Jones, Mann, and Morris (2015) have explored ways in which such extended Social Capital can influence the self-perceptions of young people, shaping their Cultural Capital. Drawing on Bourdieu's theorisation of the power of culture and ideas to shape lives, Jones et al. assess the written testimonies of 190 young adults reflecting on their teenage experiences of school-mediated employer engagement and argue that episodes of workplace exposure commonly serve to interact and influence the habitus of young people: the often inherited and/or unconsciously acquired self-perceptions which are linked, to some degree, to wider social structures, such as social class, ethnicity and gender.

Located within this literature, the engagement of young people with external speakers in the mid-1980s can be understood as broadening teenage access to a resource of meaning within individualised processes of reflection on relations between education and employment. It is a characterisation which would be in keeping with insights from extensive literature on teenage career-related decision-making: that it is commonly highly interactive and dynamic and is significantly bound up in the wider social relations of the learner (Foskett, Dyke, and Maringe 2004; Stanley and Mann 2014). As Tomlinson has stated: 'decision making around post-compulsory and higher education appears to be largely influenced by the social capital possessed by individuals in terms of their social networks, ties and access to

available knowledge and resources' (Tomlinson 2013:145). Raffo and Reeves, in ethnographic studies, have argued that teenagers have gained access to such resource through periods of extended work experience (Raffo and Reeves 2000:151–153). The current paper would suggest value can be gained through more fleeting interactions. The self-assessment of the teenagers within the British Cohort Study themselves that they often found sessions 'helpful' or 'very helpful' indicates that they commonly felt that they had indeed received information which was new and useful to them during sessions and that it was to be trusted – effectively extending their Social Capital. Significant correlations with later earnings suggest that the initial reactions of very many teenagers were right – that the information was, in some way, helpful to later labour market prospects – an important insight in itself for careers provision.

Such an understanding would be consistent with the finding that teenagers experiencing higher volumes of careers talks were more likely to agree they had found sessions to be relevant (and so helpful) to themselves. As they moved through the mid-teenage years, the participants in this study can be imagined responding in different ways to external presenters and what they had to say about their occupations, with those young people experiencing the greatest the volume of career talks, more likely to encounter presentations which provide insights judged to be of practical relevance to aspirations shaped by preceding experiences and interactions.

A wider body of recent longitudinal analysis is suggestive that a particular purpose served by access to such information may be to provide young people with more informed understanding of what the labour market demands and how it relates to their own ongoing and planned accumulation of human capital. A number of studies (Sabates, Harris, and Staff 2011; Schneider and Stevenson 1999; Staff et al. 2010; Yates et al. 2011) have evidenced statistically significant adult employment premiums being associated with lower levels of teenage career uncertainty and higher levels of alignment between the character of career aspirations and level of educational expectation. Studies demonstrate, moreover, that high proportions of young people, up to half of cohorts analysed, can be categorised as uncertain or unrealistic, underestimating the educational achievement required to access desired careers. The analysis presented in the current paper may be suggestive but does not explore whether participation in higher volume careers talks is related with teenage career realism or certainty. Further analysis into the relationship would be welcomed.

Investigation of the association may well shed further light on an intriguing finding of this paper: that wage premiums accrued at age 26 are significantly greater when related to careers talks encountered in Fourth Year (age 14–15) as compared to Fifth Year (age 15–16), where positive associations are much smaller and only statistically significant for individuals who had found the careers talks programmes 'very helpful'. Since only a single year's difference is involved, we think it unlikely in this instance that the common educational pedagogy of 'earlier is better' applies (see, for instance, DCSF 2010). Instead, it is more likely that structural differences between Fourth Year and Fifth Year affect this result. For instance, the end of the Fifth Year was the main examination period for students at the time, when CSE and 'O' level examinations were taken. During this year, both teachers and students are more likely to have been focused on short-term academic outcomes, such that career talks may, at times, have been seen as an unhelpful distraction. Meanwhile, during the Fourth Year, it may have been easier for insights from outside speakers to translate into post-16 decisions, such as which A-level courses to do and where to focus energies, academic and otherwise, in the lead up to Fifth Year. Acknowledging we cannot test this interpretation statistically with the dataset available, to the extent it applies, it leads to a clear implication for practitioners: prioritise careers activity prior to higher pressure examination years. Alternatively, given that Fifth Year students still saw some associated higher earnings where they found the talks 'very helpful', the onus is to focus keenly on quality and relevance where such activities take place in higher pressure examination years.

6. Limitations and further research

Throughout this paper, we have highlighted a number of limitations to the data and methodology, as common across much statistical work in the social sciences. Individual wage outcomes are the

result complex, non-deterministic, highly personal and non-linear processes with multiple influences. In applying a deterministic regression analysis to explore some of these influences, we know that we cannot capture all the variables that matter. For instance, experience from part-time jobs, private research or personal networking are all likely to affect career pathways and wage outcomes but cannot be adjusted for in our data-set.

Many questions in this longitudinal surveys rely on self-reported data, with some known errors in salary data that have already been partly corrected by the BCS. Furthermore, many questions have missing answers, resulting in a smaller sample size, particularly once a large number of control variables are included. Since our results have a small coefficient in absolute terms (0.8%), there are likely to be different model formulations with different control variables that result in minor coefficient fluctuations which afford both more significant and less significant results.

The lack of a school-level identifier and the small sample size at school level makes it impossible to explore certain fixed effects models, as well as making it impossible to test statistically the range of variation in career talks participation at the school level. Including school-level data would have reduced our final sample sizes by over half. The small sample size also limits enthusiasm for further sub-sample analysis that could potentially explore questions of interest to policy-makers, such as whether low academic performers or those from less privileged backgrounds disproportionately benefit from careers talks.

It is understood that the data are somewhat dated when comparing the results to the current education system. Conducting the same research technique to test similar research question using a more recent data-set such as Longitudinal Study of Young People in England could provide useful evidence; one could test whether change of policy with regard to career education has affected young people labour market prospects. Youth labour markets and transitions have changed considerably over the last generation (Tomlinson 2013:131–149). It is now widely asserted that changes in the composition of the labour market have made it more complex and opaque for young people seeking to align accumulations of education, qualifications, training and skills with actual labour market demand (OECD 2010; Tomlinson 2013). Arguably, in this case, value accrued from enhanced teenage careers insight may be greater for the current generation of young people than those participating within the British Cohort Study.

Further analysis might also dig deeper into the question of individual agency (or self-selection bias) within the analysis. Pupils taking part in presentations by external speakers within careers sessions described in this paper will have had little agency over whether they engaged in such sessions. With reduced individual agency, opportunities for accessing information of value are potentially increased. For instance, individuals with less agency are correspondingly less able to decide to skip an event, which might in some cases be based on false assumptions about what kind of talks they guess will be helpful to them. Similarly, where students have less choice over whether to attend, we can be more confident that the results signal added value of an experience, rather than selection bias in the form of sifting young people to isolate the 'go getters', the entrepreneurially minded, psychologically well-disposed young people who might go out of their way to access resources, like careers talks or business events, even if those events convey little benefit. Nonetheless, we question whether the presence of such proactive individuals attending careers talks necessarily means a binary choice between whether the underlying mindset or careers talk participation is driving any changes in later outcomes. A 'go getting' attitude still needs channels through which to act. Attitudes are not fixed, but are developed through the activities we participate in and groups we interact with. Well-designed careers talks, with authentic speakers, should foster and channel career-focused individuals, as well as help urge into action those currently disengaged. In this way, the relationship between individual agency and access to opportunities, such as careers talks, should be understood as mutually reinforcing, such that disentangling individual causal effects becomes not only more challenging without an experimental design but also less relevant. Questions remain to be asked, furthermore, about the extents to which participating young people were able to draw upon informed careers advice and guidance, in and out of formal schooling, to make best sense of information to which they were exposed to within careers talks sessions.

Further analysis, moreover, might explore relations between the sheer volume of careers provision in all its guises, whether enriched by employer engagement or not and student perceptions of it, encountered within schooling and later employment outcomes. Since this paper is drawing conclusions that young people's interaction with the world beyond the classroom is advantageous, it would be interesting to find out if there are other types of interventions including work experience and workplace visits that impact young people's transition to labour market.

It is, in addition, recommended that this analysis be repeated using other sets of control variables including birth-related variables and other cognitive ability measurements, parental-related questions including their education, household conditions such as number of children in a house, prior employment to age 26 including any part time job or voluntary work. Although this research has carefully selected the background variables to avoid multicollinearity, it is very useful to validate the findings through different controls. Furthermore, this paper selected age 26 as the age when young people started some type of job while still being close to education; it would also be interesting to show if the same result would be gained if people are followed to age 30 and 34.

As much as income is an important measurement of financial stability and career success, there are other desirable labour market outcomes, such as employment status, career happiness, number of times and motivation for changing jobs, etc. it is also worth investigating whether attending career talks (or possibly other types of interventions) have immediate impacts on young people's self-belief, career certainty and aspiration and how can these directly or indirectly change their position in the job market in future. Being able to explore such aspects of employment analytically would help clarify the role that careers talks can play in supporting labour market outcomes, using data to test the argument in this paper that it provides access to trusted, non-redundant information that shapes an individual's choices. For instance, by asking individuals whether they referred to careers talks in interviews or CVs we can exclude the possibility of a pure signalling effect driving wage premia. In a similar way, individuals could be asked if they ever used career talks to gain access to the social networks of speakers, asking about specific job openings or accessing work experience opportunities.

7. Conclusion

The evidence presented in this analysis of British Cohort Study data shows higher levels of employer contacts, in the form of careers talks with outside speakers, are correlated to better labour market outcomes (as measured by earnings) at age 26. The association is far more compelling at Fourth Year (age 14–15), rather than in the following school year, pointing towards the possible difficulty of providing and acting upon long-term careers insights into high pressure examination years where the focus lies on short-term academic outcomes.

In a similar vein to the conclusions presented by Mann and Percy (2014), these findings would suggest that even very short duration modest engagements with employers, whilst in education can have a meaningful and statistically significant impact of later earnings. Importantly, the analysis shows that teenagers who felt at the time of the career talks they engaged with were 'very helpful' went on to earn the highest premiums in later life. This paper, consequently, argues that policy officials and commentators have been right to call for systematic employer engagement in the careers education of young people and that in judging the impact of such interventions, the contemporary judgements of young people themselves demand respect.

Notes

1. Interview with authors, October 30 2014.
2. Interview with authors, August 4 2015.
3. The original variables for reported income contained some identifiable data errors, such as annual salaries miscoded as weekly salaries. The BCS helpfully provides a derived variable, 'net corrected weekly income', which is used in this paper.

Acknowledgements

We would like to take the opportunity to thank *Dr Anthony Mann*, Director of Research and Policy at Education and Employers Taskforce and the generous fund he commissioned to complete this work.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This work was supported by the Education and Employers Taskforce.

Notes on contributors

Elnaz T. Kashfekdel is a PhD student at University of Bath working in the area of education policy. She joined the Education and Employers Taskforce in 2011 as a research assistant and was appointed as research analyst from December 2013. She works for the Research and Policy team and is mainly responsible for quantitative research and runs data analysis for different projects using statistical methods.

Christian Percy is an independent academic and econometrician with research interests in emerging economies, social structures and incentives. He works in strategy consulting with experience across the public, private and third sectors. Previous publications and seminar presentations include work on youth employment, problem gambling, parental mortality and urban renewal in China.

References

- Andrews, D. 2008. Guidance and Careers Education, Nuffield Review of 14–19 Education and Training, Issues Paper 5, Nuffield Foundation Website. Accessed October 15, 2014. <http://www.nuffieldfoundation.org/sites/default/files/files/5%20Guidance%20and%20Careers%20Education.pdf>
- Archer, L., A. Mann, and S. Julian. 2014. *Understanding Employer Engagement in Education: Theories and Practice*. London: Routledge.
- Centre for Longitudinal Studies. 2004. *Changes in the NCDS and BCS70 Populations and Samples over Time in National Child Development Study and 1970 British Cohort Study Technical Report*, Institute of Education, London ESDS 2012. 1970 British Cohort Study, Accessed November 15. <http://discover.ukdataservice.ac.uk/series/?sn=200001>
- DCSF. 2010. *Early Intervention: Securing Good Outcomes for All Children and Young People*. Department for Children, Schools and Families. Accessed November 1, 2015 <http://dera.ioe.ac.uk/11385/1/DCSF-00349-2010.pdf>
- Department for Education. 2014. *Careers Guidance and Inspiration in Schools: Statutory Guidance for Governing Bodies, School Leaders and School Staff*, p. 10, London.
- Foskett, N., Dyke, M., and Maringe, F. 2004. The Influence of the School in the Decision to Participate in Learning Post-16. DfES Research Report 538. London: DfES.
- Granovetter, M. 1973. "The Strength of Weak Ties." *American Journal of Sociology* 78: 1360–1380.
- Jokisaari, M., and J. Nurmi. 2005. "Company Matters: Goal-related Social Capital in the Transition to Working Life." *Journal of Vocational Behavior* 67: 413–428.
- Jones, S., Mann, A., and Morris, K. 2015 (forthcoming). "The 'Employer Engagement Cycle' in Secondary Education: Analysing the Testimonies of Young British Adults." *Journal of Education and Work*.
- Kemple, J., and C. Willner. 2008. *Career Academies: Long-term Impacts on Labor Market Outcomes, Educational Attainment, and Transitions to Adulthood*. New York: MDRC.
- Mann, A, and J. Dawkins. 2014. *Employer Engagement in Education – A Literature Review*. Reading: CfBT Education Trust.
- Mann, A, and Percy, C. 2014. "Employer Engagement in British Secondary Education: Wage Earning Outcomes Experienced by Young Adults." *Journal of Education and Work* 27 (5): 496–523.
- Massey, D. 2014. "Work Experience: The Economic Case for Employers." In *Understanding Employer Engagement in Education: Theories and Practice*, edited by L. Archer, A. Mann, and S. Julian, 236–247. London: Routledge.
- McCulloch, G. 1991. "Technical and Vocational Schooling: Education or Work?" In *Education for Work: Background to Policy and Curriculum*, edited by D. Corson, 111–118. Clevedon: Multilingual Matters.
- McDonald, S., L. D. Erickson, M. K. Johnson, and G. H. Elder. 2007. "Informal Mentoring and Young Adult Employment." *Social Science Research* 36: 1328–1347.

- Mourshed M., Farrel D., and Barton D. 2012. "Education to Employment: Designing a System That Works". McKinsey on Society Website. Accessed October 15, 2014. http://mckinseysociety.com/downloads/reports/Education/Education-to-Employment_FINAL.pdf
- Neumark, D, and Rothstein, D. 2005. *Do School-to-work Programs Help the 'Forgotten Half?* National Bureau of Economic Research Working Paper 11636, Bonn, Germany.
- OECD. 2010. *Learning for Jobs. Synthesis Report of the OECD Reviews of Vocational Education and Training*. Paris: Organisation for Economic co-operation and Development.
- Percy, C., and A. Mann. 2014. "School-mediated Employer Engagement and Labour Market Outcomes for Young Adults: Wage Premia, NEET Outcomes and Career Confidence." In *Understanding Employer Engagement in Education: Theories and Practice*, edited by L. Archer, A. Mann, and S. Julian, 205–221. London: Routledge.
- Raffo, C., and M. Reeves. 2000. "Youth Transitions and Social Exclusion: Developments in Social Capital Theory." *Journal of Youth Studies* 3 (2): 147–166.
- Sabates, R., A. L. Harris, and J. Staff. 2011. "Ambition Gone Awry: The Long Term Socioeconomic Consequences of Misaligned and Uncertain Ambitions in Adolescence." *Social Science Quarterly* 92: 1–19.
- Schneider, B., and D. Stevenson. 1999. *The Ambitious Generation: America's Teenagers, Motivated but Directionless*. New Haven, CT: Yale University Press.
- Schoon, I., and E. Polek. 2011. "Teenage Career Aspirations and Adult Career Attainment: The Role of Gender, Social Background and General Cognitive Ability." *International Journal of Behavioral Development* 35 (3): 210–217.
- Staff, J., A. Harris, R. Sabates, and L. Briddell. 2010. "Uncertainty in Early Occupational Aspirations: Role Exploration or Aimlessness?" *Social Forces* 89: 1–25.
- Stanley, J., and A. Mann. 2014. "A Theoretical Framework for Employer Engagement." In *Understanding Employer Engagement in Education: Theories and Practice*, edited by L. Archer, A. Mann, and S. Julian, 36–53. London: Routledge.
- Symonds, W., R. B. Schwartz, and R. Ferguson. 2011. *Pathways to Prosperity: Meeting the Challenge of Preparing Young Americans for the Twenty-first Century*. Cambridge, Mass: Harvard Graduate School of Education.
- Tomlinson, M. 2013. *Education, Work and Identity – Themes and Perspectives*. London: Bloomsbury.
- Wilson, D. 1988. "The Technical and Vocational Educational Initiative: The Agony and the Ecstasy." In *Young Careers: The Search for the New Vocationalism*, 149–156. Milton Keynes: Open University Press.
- Yates, S., A. Harris, R. Sabates, and J. Staff. 2011. "Early Occupational Aspirations and Fractured Transitions: A Study of Entry into 'NEET' Status in the UK." *Journal of Social Policy* 40: 513–534.
- Yeomans, D. J. 1996. *Constructing Vocational Education: From TVEI to GNVQ*. Post-14 Research Group, University of Leeds, Leeds.