Personal Guidance in English Secondary Education: An initial Return-on-Investment estimate

Chris Percy, August 2020

Reader's note: In 2020, The Careers & Enterprise Company in England commissioned this report estimating the return on investment (ROI) of personal guidance in England, to inform discussions with the Department for Education and to build on the evaluation of the Personal Guidance Fund.

Overview/Abstract:

In July 2020, the UK government announced a comprehensive spending review on departments' resource budgets. The review is to conclude in late 2020 and represents a period of scrutiny over public spending and proactive exploration of opportunities for policy spend to support the UK recovery from the COVID19 pandemic. At times of financial pressures, the risk of activities being dropped is higher for those where the value has not been quantified and might be assumed lower value than other activities that have been analysed. This report seeks to mitigate this risk by presenting a careful analysis of the return on investment (ROI) of personal guidance.

Personal guidance is defined by the Gatsby Foundation (2014) as the provision of career guidance interviews to young people in secondary education. Personal guidance, along with career guidance more generally, has the potential to support school-to-work transitions and economic growth. Career guidance has become a larger priority for the English government in recent years, following the publication of a new careers strategy in 2017 (DfE, 2017a).

The ROI analysis in this paper shows that, at a typical direct cost of £80 per young person for two interviews during secondary education, personal guidance is highly likely to be a net positive investment for the Exchequer. Using valuations by government-commissioned studies, breakeven is achieved if - for instance - one in 500 secondary school students were prevented from becoming NEET prior to the age of 18 or one in 1800 were prevented from dropping out of Higher Education.

The research literature suggests that these breakeven requirements are highly likely to be exceeded. Drawing mainly on meta-analyses of comparison group trials and three longitudinal datasets, a partial and conservative picture of the possible benefits identifies a midpoint ROI for the Exchequer of 4.4x with an 80% probability range of 3x-5x. For each £1 the government invests in personal guidance, it should be confident of recouping at least £3 and most likely much more.

This is the first in-depth ROI assessment for personal guidance and as such represents a provisional exercise that can be improved upon in future work. This report identifies four specific areas of uncertainty that might be addressed in future research, which might both improve the accuracy of impact measurement for personal guidance and also reveal potential ways to enhance its impact: (i) the potential need for additional support for young people at risk of NEET; (ii) the potential impact of increased quality of delivery; (iii) any difference in impact between personal guidance as commonly delivered in General Further Education Colleges compared to the Gatsby model; and (iv) the potential benefit of increased focus on over-served career pathways to support strategic sectors, national skills gaps and improved labour market matching.

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Purpose and scope

The purpose of this technical report is to support funders and stakeholders in considering the likely financial benefit (ROI) of English schools and colleges implementing "personal guidance", which is one of the eight benchmarks of "good career guidance" as defined by the Gatsby Foundation in 2014 and adopted as Government policy in England in 2017 (DfE, 2017a). Around half of schools and colleges report full implementation of this benchmark, so there is potential for further implementation as well as ongoing work on quality improvement (The Careers & Enterprise Company, 2019).

Personal guidance is one of the few areas of Gatsby's standard for "good career guidance" where a budget line is typically directly attributable in many schools and colleges. For instance, it is often delivered by schools and colleges contracting external services – normally called personal advisers or careers advisers – or employing dedicated staff members holding formal, role-specific qualifications. Where education budgets are under pressure, personal guidance activities might naturally come under particular scrutiny, such that there is value in examining the ROI for this activity.

This analysis is deliberately conservative and aims to identify a baseline ROI that is well-grounded in empirical evidence. By drawing on conservative assumptions with a deliberately partial coverage of the potential benefits (prioritising those best studied), stakeholders can be confident that the true ROI lies above the point estimates provided.

Prior to estimating a typical cost, we have to specify a typical activity that corresponds to personal guidance. The minimum such activity is interpreted here in line with the Gatsby benchmarks as follows: providing one-to-one career guidance interviews with an appropriately trained career adviser, with one taking place by the age of 16 and another by the age of 18. These guidance interviews typically follow a high-level structure and often result in an action plan for the young person to follow, perhaps to further research their choices, prepare for applications, gain additional experience, or seek referral to other services. Such interventions have been a regular part of the English careers landscape for decades, even as uptake, delivery model and quality varied over time and over geography (Watts and Kidd, 2010; Hughes, 2017; The Careers & Enterprise Company, 2019).

Other aspects of good career guidance, as defined by the Gatsby Foundation (2014), such as employer visits, work experience and labour market information, and other approaches to guidance, such as group guidance or computer-aided guidance, are out of scope for this return on investment calculation (ROI). Nonetheless, it is important to emphasise that both the Gatsby Foundation (2014) and other good practice standards (e.g. QiCC, 2019) consider personal guidance activities to be part of an overall programme of career guidance.

Methodology overview

The return-on-investment analysis proceeds via five stages:

i. Costs are estimated using interviews with ten career leaders in England[1], salary benchmarking data and The Careers & Enterprise Company's market data;

[1] Identified via The Careers & Enterprise Company (see Appendix 1 for details).

ii. Preparing information for the ROI by model by identifying and prioritising potential long-term outcomes from personal guidance and calculating the subsequent breakeven levels;

iii. Modelling the likely impact of personal guidance on the selected long-term outcomes, using published longitudinal dataset research and meta-analyses of comparison group trials;

iv. Integrating costs and benefits into an ROI estimate, considering an Exchequer perspective and a societal perspective, with uncertainty modelled via Monte Carlo[2] simulation;

v. Triangulating midpoint estimates against other evidence.

The estimates in this paper draw primarily on research identified in three prior systematic literature reviews, conducted for the Education Endowment Foundation (Hughes et al, 2016; Mann et al, 2018) and the OECD (Musset and Kureková, 2018), updated with recent academic publications and organisation publications identified by the project team and the project working group (see Appendix 3 for members).

It is likely that the quantitative relationship between career guidance and life outcomes depends on the prevailing socioeconomic structures, including other factors that affect school-to-work transitions such as the compulsory education age, training and higher education policies, and labour market features. Such structures are not fixed over time or from country to country. In order to prevent this ROI being overly reliant on a single study or historical context, diverse datasets covering different time periods have been used to generate empirical estimates. The use of high quality longitudinal analyses and meta-analyses affords a pragmatic level of confidence that the estimate range captures a relationship that can be relied upon in analysing future policy initiatives. Nonetheless, individual estimates necessarily involve levels of uncertainty, whether due to confidence intervals and subsample variation in the original research or due to the use of bridging assumptions which can take a range of plausible values. This uncertainty is modelled via a Monte Carlo process, integrating the implications of low, high and midpoint estimates on key parameters.

The analysis includes an account of the relative reliability of different strands of analysis from the perspective of present-day policy, considering issues such as deadweight, signalling, attribution and displacement. The ROI approach and calculations have been peer reviewed by Frontier Economics (see Appendix 4 for their report).

i. Cost estimation

The direct costs of organising and conducting a one-to-one interview with a trained professional in England in 2020 is estimated at the equivalent of £40 per interview, resulting in a total investment per young person during secondary education of £80. This estimate is based on a fully-loaded day-rate of £200 and 6 interviews per day which last 45 minutes plus 20 minutes for preparation and follow-up. Some additional time is assumed for overall coordination of the interview programme, but other indirect costs are not incorporated, such as organisational overheads and support from the school, such as premises, utilities and staff infrastructure. This is an average cost estimate, where the actual costs might vary depending on, inter alia, the level of experience and qualifications of the careers adviser, the size of the cohort being interviewed, area of the country and approach to delivery. A low estimate is modelled as £19 per interview and a high estimate at £80 per interview.

[2] Key parameters in the ROI have a low, medium and high value identified. Each Monte Carlo simulation identifies a value at random between those values, sampled according to a triangular probability distribution, and calculates the ROI. 100,000 such simulations are run to generate a range of possible results.

ii. Example long-term outcomes and breakeven analysis

International support for career guidance provision

Empirical evidence and theoretical frameworks developed by sector experts help to identify a range of possible long-term outcomes from career guidance. Different reports use different terminology, but each recognises the role of personal guidance or a similar activity as part of that provision. Such reports include the Education Endowment Foundation in the UK (Hughes et al, 2016), the OECD (Musset and Kureková, 2018), a working group of organisations including the European Commission, the ILO, the OECD and UNESCO (IAG-WBL, 2019), and a Canadian research group (SRDC, 2020).

An Education Endowment Foundation literature review identified 73 relevant studies on career guidance and classified benefits across three areas: education, economic and social, with specific benefits identified in academic attainment, wage premiums, labour market status, self-efficacy, and decision-making skills (Hughes et al, 2016). The OECD argues that career guidance is "both an individual and a social good: it helps individuals to progress in their learning and work, but it also helps the effective functioning of the labour and learning markets, and contributes to a range of social policy goals, including social mobility and equity" (Musset and Kureková, 2018: 4).

Selection of long-term outcomes

This ROI prioritises a small set of the long-term outcomes present in this literature, focussing on those where (i) the outcome has been quantified in an English context using reports commissioned by the government, (ii) the outcomes can collectively be constructed in such a way to minimise overlap (aiding the aggregation of individual outcomes into a single ROI), and (iii) the outcomes can be related back to one-to-one personal guidance using high-quality quantitative studies.

The result of this prioritisation is that the estimates cover only a partial set of the possible benefits of personal guidance. Since the full marginal cost of delivery has been captured, this approach yields an under-estimate of the true ROI. A schematic diagram describing which benefits have been captured alongside example benefits not captured is shown in Figure 1 in Section 6.

Three long-term outcomes have been identified and costed that meet the three prioritisation criteria above: youth NEET prevention at 16-19, Higher Education dropout prevention and increased wages among those in full-time employment (see Table i). We then estimate the benefits to the Exchequer of obtaining these outcomes for a given student, and model the intervention success rates required to 'break-even' on the investment – that is, to recoup the money spent.

Table i: Long-term outcomes and breakeven analysis (for details see Section 4)

Long-term outcome sought	Midpoint estimate value to the Exchequer *[to Society, a partial view]*	Required personal guidance success rate to break even[1]
One student prevented from becoming NEET prior to age 19	£42k *[£78k]* (Coles et al, 2010; DWP, 2011)	0.2% *[0.1%]*
One student prevented from dropping out of Higher Education	£145k *[£105k]* (Walker and Zhu, 2013)	0.1% *[0.1%]*
One student receiving a wage premium of 7.5% up to age 35, based on probable time in full-time employment only	£7k *[£19k]* (Calculations using ASHE and LFS data, see Section 4)	1.1% *[0.4%]*

[1] Applying the midpoint estimate intervention cost of £80 per young person.

Breakeven analysis results

The midpoint estimates of the long-term net present value of these outcomes (see Table i) can be used to identify the breakeven point for personal guidance. In this hypothetical exercise, the breakeven point for each outcome is identified just for that individual outcome of interest assuming no benefits from the other outcomes.

For example, if the full cost of personal guidance were to be recouped to the Exchequer purely through reduced NEET outcomes, we would require one in around 500 recipients to be prevented from becoming NEET up to the age of 19. If the full cost were to be recouped via individuals gaining a 7.5% wage premium up to age 35, we would require around one in 250 recipients to gain such a benefit. Similarly, one in around 1,800 would need to be prevented from dropping out of Higher Education.

These requirements are modest, particularly considering that the three long-term outcomes are partly additive and, once overlap is accounted for, can be combined together to identify an overall ROI.

iii. Estimated impact of personal guidance

Personal guidance, as described in the scope of this ROI, is a low-cost intervention and the requirements for breakeven impact are modest. An examination of the likely impact of personal guidance based on published studies suggests these requirements are highly likely to be exceeded. The key studies for this ROI are listed below, with additional evidence, including data from the US and Australia, captured in Section 5.

Evidence from meta-analyses

Meta-analyses of comparison group trials with pre/post questionnaires reveal a statistically significant relationship between engaging in career guidance sessions and progress on a diverse range of measures, particularly for career decision making self-efficacy, career maturity and career decidedness (Whiston et al, 2017; Oliver and Spokane, 1988; Brown and Ryan Krane, 2000). The latest meta-analysis describes a 95% confidence interval on these and related indicators of 0.25 to 0.44 standard deviations (Whiston et al, 2017).

Improved performance on such measures is theorised to make a positive difference in the lives of young people by providing them new and useful information which will help them to better navigate school to work transitions, avoiding falling out of programmes of education and training, and securing more attractive employment than would be the case without the intervention. In this case, in periods of high unemployment and economic turbulence, the value of guidance may be assumed to be greater as the risks of poor decision making and poor labour market outcomes become greater.

Evidence from longitudinal datasets

Longitudinal datasets also identify statistically significant relationships between the three long-term outcomes costed above and key factors related to pathway decision making and prior career guidance.

The Higher Education drop-out rate for non-mature students is low in the UK at around 6.5%, but the seven-year FutureTrack dataset of all UK university entrants in 2005/6 reveals that career guidance can reduce it yet further (McCulloch, 2014). Using a logistic regression model with a wide range of

control variables, McCulloch identifies a statistically significant ~40% reduction in the odds of drop-out for students who had a high level of satisfaction with their prior career guidance as opposed to a low level, and a ~3% reduction in odds for each extra source of advice and guidance drawn on in their decision making. This improvement might apply only for a subset of students with limited prior support and might only be accessible for a subset of those whom personal guidance is able to support. The net result of these factors is a modest but valuable reduction in drop-out rate of 0.3%pts.

The government supported British Cohort Study, following a large cohort of young people born in 1970, is particularly valuable as it allows us to trace home life and educational experiences from birth to age 16 through to later life outcomes, including NEET outcomes prior to the age of 19 and wage outcomes aged 34. Studies on this dataset have revealed that young people with high career ambitions but low educational ambitions ("misaligned young people") are 2-3x more likely to be NEET (Yates et al, 2011; Schoon and Polek, 2011), with similar disadvantages for young people who were highly uncertain at the age of 16 about their future career pathways. Wage outcomes at age 34 have also been related to these factors: identified as 11%-17% lower for young men and women who were either misaligned or uncertain about their job choices at age 16 (Sabates et al, 2011).

The proportion of young people who were misaligned or uncertain at the age of 16 was just under 50% at the time of the British Cohort Study (during the 1980s). A more recent survey of 15 year olds in England and Wales, the 2018 OECD PISA survey, identified around a quarter of young people being highly uncertain about their future pathway and a further quarter having misaligned education/occupation ambitions[3].

Bridging assumptions between meta-analysis and longitudinal dataset evidence

Connecting the meta-analysis insight on progress on features like self-reported career decision-making efficacy to the questions captured in the longitudinal datasets is managed via bridging assumptions, supported by the similar topic of focus (career decision-making) and OECD evidence from the 2018 PISA study that identifies a cross-sectional correlation between students who report guidance interviews at school and reduced levels of career uncertainty.[4]

Given uncertainty in this area, a wide possible range for this bridging assumption is modelled and the midpoint estimates are conservative, such as requiring 1.5 standard deviations progress for someone to shift from having misaligned education/occupational ambitions to being aligned. This is approximately the equivalent of a student moving from the 7th percentile to the median, a larger shift than implied by the British Cohort Study dataset (for more details see Section 5).

iv. Estimated ROI

Subgroups of young people with respect to need for personal guidance

It is likely that different young people will respond differently to personal guidance, given different starting points in their decision-making, their personal circumstances and the pathways that are open to them. Research has shown that uncertain or misaligned expectations have more severe

[3] OECD PISA 2018 survey data covering the UK (excl. Scotland). Details shared in correspondence with Dr Anthony Mann, senior policy analyst at the OECD. For detail on the underlying data, see Mann et al (2020).
[4] Ibid

consequences for some groups than others (Gutman et al, 2014). In order to model these differences in the ROI estimate, the overall cohort of young people is categorised into example archetypal groups.

Survey evidence points towards possible relevant groupings based on how uncertain young people are about their pathway choices, whether there is misalignment between their educational and occupational ambitions, and the extent to which they report having enough information and support to be confident in their choices. Four sets of survey data are drawn on for this research – the OECD's 2018 PISA questionnaires of 15 year olds, a survey of 2,017 16-19 learners, 1st year undergraduates and apprentices in 2017 conducted for the Department for Education (DfE, 2017b), and the proportions of young people in the underlying British Cohort Study and FutureTrack research.

This process results in constructing the ROI model based on three groups of young people (full details in Section 6):

- The higher priority group includes, for instance, (i) those who are at high risk of NEET, (ii) those who have no idea what job they want to do at the age of 16, and (iii) those whose current education ambitions are insufficient to meet their career ambitions, noting overlap between these subgroups. This is estimated at 25% of young people.

- The medium priority group includes those who have an idea about their future plans but are not entirely certain, are not fully informed about their choices, or have not fully considered the alternatives. Personal guidance might help such young people sense-check or further research their ideas, as well as helping them prepare for their chosen route. This is estimated at 45% of young people.

- The lower priority group represents the remaining 30% of young people. This corresponds approximately to the proportion of young people who typically strongly agree that they know what to do when finishing their current course. Nonetheless, there may still be average benefits from personal guidance for this group.

Only the medium and the higher priority groups are modelled for ROI impact. It is possible that young people in the lower priority group may still benefit or be benefitting from personal guidance – perhaps their pathway confidence partly stems from career guidance prior to the time of survey or perhaps an independent review of their choices and reasoning would have still been beneficial. However, present research evidence is insufficient to support quantifying this benefit and it is more prudent to treat any such benefit as upside from the perspective of this ROI.

ROI across different possible impact strands

Overall this analysis results in four strands of impact for the ROI, with partial overlap between two of them which is adjusted for separately (see Table ii).

The Exchequer ROI largely focuses just on the immediate taxation benefits of higher wages, measured directly in terms of wage gains or indirectly in terms of increased earnings following the completion of Higher Education. No economy multiplier effects are included.

The social ROI is highly limited in scope, drawing mostly on private income gains. Only the NEET reduction impact strand considers a broader set of benefits, such as reduced healthcare costs, reduced benefits, or reduced interactions with the criminal justice system.

Table ii: Short-term impact and ROI by impact strand

Impact strand	Applicable subgroup[1]	Short-term impact within subgroup *(details in Sections 5 & 6)*	Partial Exchequer ROI[2]	Partial social ROI[2]
Higher priority: NEET reduction	25% *(i.e. the full higher priority group)*	Around one in 125 prevented from NEET	1.0x	1.8x
Higher priority: Increased wages	25% *(i.e. the full higher priority group)*	Average wage uplift of 0.8%	2.5x	6.6x
Medium priority: Reduced higher education drop-out	~18% *(i.e. 40% who go to HE out of the 45% in medium priority overall)*	Around one in 325 prevented from dropping out	1.0x	0.7x
Medium priority: Higher wages for those in work post-18	~21% *(i.e. 46% who go to work out of the 45% in medium priority overall)*	Around one in 80 not churning in first year of work and securing a 10% wage uplift	0.3x	0.8x
Reduction for overlap in higher priority group[5]			-0.3x	-0.9x
Total	**~64%** (*of full cohort for whom some probability of benefit is calculated)*		**4.4x**	**9.1x**

[1] Proportion of full cohort receiving personal guidance that is in scope for this short-term impact

[2] Assuming each strand assumed the full cost of personal guidance. Estimates are partial as not all possible ROI benefits are included, i.e. they are anticipated to be underestimates of the true ROI.

The overall midpoint partial ROI is 4.4x for the Exchequer and 9.1x for society/individuals.

Reflecting the uncertainty captured in the ROI model, the Monte Carlo simulations result in an 80% probability of a partial ROI range of 3x-5x for the Exchequer and 5x-11x for society. The uncertainty estimates cover a wide range of plausible outcomes, summarised in Appendix 2.

v. Impact sense-check

The calculation chain above draws on the more precise quantitative estimates of different steps in the ROI logic chain. The result can be sense-checked against less precise measures, such as attempts to directly measure the long-term impact of personal guidance using underpowered datasets and considering the measured long-term impact of integrated programmes in which personal guidance plays a role, but where the significance of that role is hard to specify.

[5] The possibility of double-counting between lifetime NEET prevention benefits and enhanced wages is adjusted for the higher priority group. In the midpoint estimate scenario, we exclude a proportion of the wage-related ROI that corresponds to the proportion of young people who are NEET at age 18 in England in Q4 2019 (13%).

Sense-check using direct measures on longitudinal datasets

Both the LSYPE longitudinal dataset (tracking a sample born in 1990) and the British Cohort Study include high-level questions concerning whether young people accessed personal guidance and permit analyses using an extensive set of control variables for the young person's personal circumstances, background and academic attainment. While the samples are too small to precisely identify the very small effect sizes hypothesised above, reviewing the point estimates and confidence intervals can support a sense-check.

On LSYPE analyses for the DfE, the link between NEET status and having had careers advice or IAG from the personal guidance Connexions service is weakly positive, translating into 0.08 or 0.17 fewer months spent NEET on average, but fails to be statistically significant at the 10% level (Nicoletti and Berthoud, 2010). The effect size is significantly higher than the midpoint estimate of 0.2% in this ROI, as analysed across the full sample of recipients of personal guidance. Analysis on the British Cohort Study similarly identifies a positive (but not statistically significant) relationship between conversations with what were called "careers teachers" at the time of sampling in 1986 and future wages, where the point estimate is higher than the 0.2% assumed in the ROI as applying across all recipients of personal guidance (Percy and Kashefpakdel, 2018).

Sense-check considering integrated career guidance programmes

The Quality in Careers Standard award and its predecessors include a range of expectations for careers provision, including the support of personal guidance activities (QiCC, 2019; Careers England, 2011). Analysis on this overall standard can provide an indication of the potential value of its constituent activities.

The difference between secondary education providers in England that hold the Quality in Careers Standard (QiCS) award and those that do not was analysed by Hooley, Matheson and Watts (2014) for the Sutton Trust. Descriptive comparisons within school type suggest that education providers that held QiCS typically had a lower post-education NEET rate than those that did not, ranging from 0.3%pt (general FE colleges) to 2.3%pts (academies). Controlling for a range of background variables, including neighbourhood deprivation, school type, pupil-teacher ratio, intake demographics and total number of students, the analysis identifies a statistically significant 0.5%pt lower NEET rate.

It is not possible to quantitatively relate personal guidance to QiCS, as the quality mark represents an integrated programme of which personal guidance is only one element. As a heuristic, we might consider personal guidance to be $1/8^{th}$ of the importance of the Gatsby benchmarks as a whole and draw on the recent evidence that schools and colleges holding QiCS self-reported achieving an average of 2.9 benchmarks out of 8 (The Careers & Enterprise Company, 2018a). Using these two adjustments, the 0.5%pt lower NEET rate is equivalent to a 0.17% lower NEET rate, which lines up closely to the 0.2% lower NEET rate implied by the midpoint estimate in this ROI.

Limitations

Adjustments to estimates derived from historical data for today's context

The economic impact of any policy measure or education intervention will depend on the current stage of the economic cycle and the broader socio-cultural context. The evidence for this ROI relating progress on career questionnaires to long-term outcomes draws on data from different historical contexts in the UK: The BCS cohort born in 1970, the LSYPE cohort born in 1990, and the FutureTrack cohort entering Higher Education in 2005/6. While no historical period can ever be an exact measure

for England is it enters the 2020s and recovers from COVID19, the use of multiple reference periods affords confidence that comparably positive impacts might exist going forward. More generally, long-term historical datasets are necessary if we wish to relate interventions aged 16 to wage outcomes in our 30s and beyond, meaning the caveat of contemporary applicability is unavoidable.

Sector experts consulted via this project's Working Group (see Appendix 3) argue that the future impact of career guidance is likely to be higher than identified in historic data. For the years ahead, Lord Baker has raised concerns about a "tsunami of youth unemployment" as the economic effects of the COVID19 pandemic and associated response take hold (Baker, 2020) and the increased need for lifelong guidance, including young people and students as a vulnerable group, has been highlighted by Cedefop (2020). The increased difficulty in finding work, the upheaval to previously intended career pathways and intensely-felt uncertainty point towards the value of more extensive personal guidance and career counselling.

Even prior to the labour market disruption that is anticipated to follow COVID19, the OECD (2010:16) argued that the increasingly rapid changes in our economy and the complex choices involved in various school-to-work transition pathways point towards an increased need (and hence increased potential impact) of career guidance: "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 [with this] is the task of career guidance."

Limitations of the evidence base

The evidence base for this ROI is drawn primarily from meta-analyses of comparison group trials and long-term longitudinal datasets. This is a high quality standard of evidence that mitigates major concerns about attribution, deadweight or causality (see Section 8 for details), but it is small in volume (two main meta-analyses and three main longitudinal datasets), albeit buttressed by a broader evidence base from other jurisdictions, and the studies are imperfect in their applicability to this ROI.

For instance, the comparison group trials incorporate a range of types and settings of guidance, with subsample reports required to comment on the one-to-one setting prior to the age of 19 that is the focus of this ROI. The longitudinal datasets permit an extensive range of control variables but have only high-level questions on personal guidance and pathway decision making (being not the primary focus of the surveys) and are underpowered for the identification of small effects. Bridging assumptions are required to relate the comparison group trials to the questions used in the longitudinal research. Long-term, large-scale randomised control trials to test personal guidance have not been funded and may not be ethical considering evidence over the likely benefits of personal guidance as set out in this report and its cited material.

The limits of the evidence base for identifying a point estimate for an ROI are mitigated by the modest requirements of the breakeven analysis, the selection of conservative midpoint estimates (see Appendix 2 Table 6) and by the adoption of a Monte Carlo approach for modelling uncertainty, which demonstrates a very high likelihood of positive ROI.

The ROI estimates are modelled assumptions informed by a research literature, but not defined by it. As socioeconomic conditions and the broader educational and career programmes change and as additional research is incorporated into a current assessment, it is reasonable for stakeholders to consider the implications of different assumptions.

Conclusions and further considerations

This report has found that providing young people with two one-to-one personal guidance sessions by the age of 18, at a typical cost of £80 per young person, is highly likely to be a net positive investment for the Exchequer. Drawing on valuations commissioned by the government, breakeven is achieved if one in 500 secondary school students were prevented from becoming NEET by the age of 19 or one in 1800 were prevented from dropping out of Higher Education.

An examination of the research base, drawing mainly on meta-analyses of comparison group trials and three large-scale longitudinal datasets, suggests that these breakeven requirements are highly likely to be exceeded. Drawing mainly on potential wage premia and reduced drop-out rates for around two thirds of young people most likely to benefit from personal guidance, i.e. only a partial picture of the possible benefits and adopting conservative assumptions, the midpoint ROI for the Exchequer is 4.4x with an 80% probability range of 3x-5x. In other words, for each £1 the government invests in personal guidance, they should be confident of recouping at least £3 and most likely much more.

According to the latest self-reports of 3,351 schools and colleges in England as of 2018/19, 57% of education providers fully achieve Gatsby Benchmark 8 (The Careers & Enterprise Company, 2019). OECD PISA survey data from 2018 suggests 66% of 15 year olds had spoken to a careers adviser while at school. With 18 year old NEET rates at around 13% prior to COVID19 (DfE, 2020) and typical Higher Education drop-out for non-mature students at 6-7% (McCulloch, 2014), there is considerable scope for the benefits identified in this ROI to translate into net positive benefits for the Exchequer via increased uptake of personal guidance. For instance, just 300-600 additional young people prevented from becoming NEET across the whole of England (around 0.5%-1% of all NEETs) would alone recoup the costs for the Exchequer.

This report identifies four specific areas of uncertainty that might be considered in future research, in addition to more general opportunities to refine and validate the existing research base as drawn on in the paper. These four areas might both improve the accuracy of impact measurement and also identify potential ways to enhance impact: (i) the potential need for additional support for young people at risk of NEET; (ii) the potential impact of increased quality of delivery; (iii) the difference in impact, if any, between the personal guidance model as commonly delivered in General Further Education Colleges compared to the Gatsby model; and (iv) the potential benefit of increased focus on over-served career pathways to support strategic sectors, national skills gaps and improved labour market matching.

1. Introduction: Purpose, scope and structure

Purpose

The purpose of this technical report is to support funders and stakeholders in considering the likely financial benefit of English schools and colleges implementing Gatsby Benchmark 8 on personal guidance, one of the eight benchmarks of good career guidance identified by the Gatsby Foundation in 2014 and adopted as Government policy in England in 2017 (The Gatsby Foundation, 2014; DfE, 2017a).

Personal guidance is one of the few areas of Gatsby's standard for "good career guidance" where a budget line is directly attributable in many schools and colleges. For instance, it is often delivered by schools and colleges contracting external services – normally called personal advisers or careers advisers – or employing dedicated staff members holding formal, role-specific qualifications. Where education budgets are under pressure overall, personal guidance activities might naturally come under particular scrutiny, such that there is value in examining the ROI for this activity.

This analysis is deliberately conservative, and aims to identify a baseline ROI that is well-grounded in empirical evidence. By drawing on conservative assumptions with a deliberately partial coverage of the potential benefits (prioritising those best studied), stakeholders can be confident that the true ROI lies above the point estimates provided.

Statutory basis of personal guidance

DfE statutory guidance for schools (DfE, 2018) and the Ofsted Inspection Framework for schools (Ofsted, 2019) require schools to make sure all young people have access to a programme of independent career guidance; that is, the full range of structured activities defined by the eight Gatsby Benchmarks (CDI, 2019).

Ofsted requires that schools provide "an effective careers programme in line with the government's statutory guidance on careers advice that offers pupils: unbiased careers advice, experience of work, and contact with employers, to encourage pupils to aspire, make good choices and understand what they need to do to reach and succeed in the careers to which they aspire" (Ofsted, 2019:59).

For the further education and skills sector, Ofsted expects providers to have "an effective careers programme that offers advice, experience and contact with employers to encourage learners to aspire, make good choices and understand what they need to do in order to reach and succeed in their chosen career" (Ofsted, 2020:55).

Definitions of personal guidance

The references in statutory guidance to the Gatsby Benchmarks bring in the language of "personal guidance". This phrase is not commonly used in the international literature, which more commonly uses phrases like career counselling (e.g. in Ireland) or career coaching (e.g. in Scotland). Sometimes the personal interviews that make up Gatsby's "personal guidance" are considered complementary to the effective planning and delivery of careers education in schools and colleges, in others (such as the Gatsby benchmarks) it is considered an integral component.

Gatsby's approach to personal guidance supports a relatively precise identification of the activity to be costed and one which resonates as a relevant constituent activity as part of general definitions of career guidance:

"Every pupil should have opportunities for guidance interviews with a career adviser, who could be internal (a member of school staff) or external, provided they are trained to an appropriate level. These should be available whenever significant study or career choices are being made. They should be expected for all pupils but should be timed to meet their individual needs. Every pupil should have at least one such interview by the age of 16, and the opportunity for a further interview by the age of 18. […] In the best cases, this guidance is closely integrated with the pastoral system, so that although the personal careers interviews may be infrequent, they can be followed up by form tutors or their equivalent. The best examples also made a connection between the personal guidance and the wider careers programme." (The Gatsby Foundation, 2014:30).

The Gatsby Foundation did not specify a necessary level of training: "Rather than specifying a particular model, the indicator for our benchmark is that the interview should be with an adviser who is appropriately trained to have the necessary guidance skills, the knowledge of information sources and the essential impartiality to do the job. This person might be an external adviser (the professional association for career guidance practitioners, the Career Development Institute, maintains a register of qualified practitioners), or might be one or more trained members of the existing school staff, whose careers role could be part-time or full-time." (ibid, p31). Recommended practice in the career development sector currently specifies at least a Level 6 guidance qualification, being a requirement of entry onto the CDI's UK Register of Career Development Professionals[6] and backed by The Careers & Enterprise Company toolkit guidance for benchmark 8[7].

A variant of the Gatsby benchmarks was developed for colleges (The Gatsby Foundation, 2018): "Every learner should have opportunities for guidance interviews with a careers adviser, who could be internal (a member of college staff) or external, provided they are trained to an appropriate level (access to a level 6 adviser available when needed). These should be available for all learners whenever significant study or career choices are being made. They should be expected for all learners, but should be timed to meet individual needs."

The Compass tool developed by The Careers & Enterprise Company translates these benchmarks into specific questions for self-evaluation, reinforced by good practice guides on approach (e.g. Everitt et al, 2018; CDI, 2019).[8] Schools, provided they have the relevant cohorts, are asked what proportion of students have had an interview with a qualified careers adviser by the end of Year 11 and what proportion have had two interviews by the end of Year 13. Colleges are asked if interviews with a qualified careers adviser are made available to all learners whenever significant study or career choices are being made and what proportion of learners have had at least one interview with a qualified careers adviser by the end of their programme of study.[9]

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[6] https://www.thecdi.net/CDI-Academy---QCF-Level-6-Diploma-Diploma
[7] https://www.careersandenterprise.co.uk/schools-colleges/gatsby-benchmarks/gatsby-benchmark-8
[8] https://compass.careersandenterprise.co.uk/info
[9] While out of scope of this ROI, careers advisers often support a wide range of activities beyond personal guidance (CDI, 2014). For instance, they might do groupwork, drop-in surgeries, support on results days, presentations/discussions with parents, careers information support, staff training, support integrating careers into curriculum provision, and support the overall careers programme, incl. activities, work experience etc.

Scope

In order to estimate a typical cost for the ROI, we have to specify a typical activity that corresponds to Benchmark 8.

The minimum such activity is interpreted here as follows: providing one-to-one career guidance interviews with an appropriately trained career adviser, with one taking place by the age of 16 and another by the age of 18.

These guidance interviews typically follow a high-level structure and often result in an action plan for the young person to follow, perhaps to further research their choices, prepare for applications, gain additional experience, or seek referral to other services.

Such interventions have been a regular part of the English careers landscape for decades, even as uptake, delivery model and quality varied over time and over geography (Watts and Kidd, 2010; Hughes, 2017; The Careers & Enterprise Company, 2019).

Other aspects of Gatsby's "good career guidance", such as employer visits, work experience and labour market information, and other approaches to guidance, such as group guidance or computer-aided guidance, are out of scope for this ROI calculation. Nonetheless, it is important to emphasise that both the Gatsby Foundation (2014) and other good practice standards (e.g. QiCC, 2019) consider personal guidance activities to be part of an overall programme of career guidance.

Report structure and methodology overview

The cost estimates for personal guidance are set out in Section 2, using interviews with ten career leaders in England (profile in Appendix 1), salary benchmarking data and market data from The Careers & Enterprise Company.

The potential benefits of personal guidance and career guidance more generally are set out in Section 3, drawing on illustrative examples from international organisations, sector advocates, US research and UK case examples. This broad set of possible benefits provides the basis for prioritising and identifying three specific long-term outcomes whose benefits have been costed and which can be used for a breakeven analysis (Section 4).

Section 5 estimates the impact of personal guidance on the three identified long-term outcomes, drawing primarily on research identified in three prior systematic literature reviews, conducted for the Education Endowment Foundation (Hughes et al, 2016; Mann et al, 2018) and the OECD (Musset and Kureková, 2018), updated with recent academic publications and organisation publications identified by the project team and the project working group (see Appendix 3 for members). Diverse datasets covering different time periods are used to generate empirical estimates, mitigating the concern that the ROI might be overly reliant on a single study or a single historical context.

In Section 6, the intervention costs (applied to the full cohort of young people) and the estimated benefits (applied only to specified subgroups of young people) are integrated into a midpoint ROI estimate, considering both an Exchequer perspective and a limited societal perspective. Uncertainty is modelled via a Monte Carlo simulation, with the low, medium and high estimates reported in Appendix 2 along with an account of where midpoint estimates are likely to be conservative. Section 7 provides a sense-check of the ROI impact estimates, triangulating the midpoint estimates against other evidence.

Section 8 assesses the reliability of the evidence base from the perspective of policy decisions, considering signalling, deadweight, attribution and displacement as factors that potentially limit the ability to infer causality from the research literature.

Section 9 explores these limitations further, reflecting on the applicability of this research given the recessionary risks that accompany the COVID19 pandemic.

Section 10 sets out further considerations, including avenues for future research and suggestions for additional data capture by career guidance practitioners.

The Conclusion summarises the main ROI findings and considers the potential for increased provision of personal guidance given current levels of activity in England.

The ROI approach and calculations have been peer reviewed by Frontier Economics, see Appendix 4 for their report.

2. Cost estimation

Methodology and data sources

The cost estimates draw on three primary sources and were subject to review by the project Working Group (see Appendix 3 for membership):

- 10 careers leaders in England from a range of different schools and colleges were interviewed to understand their different approaches to organising personal guidance interviews and the time/cost involved (see Appendix 1 for interviewee profile)
- The typical fully loaded day rates for career advisers from external providers have been identified through The Careers & Enterprise Company market data.
- The annual salaries of in-house careers advisers are based on publicly available data from a range of websites accessed in mid-2020, noting that salaries vary over time and that some stakeholders have reported that qualified and experienced careers advisers can be hard to hire and retain at current salary levels.[10]

Midpoint estimate

The costs of organising and conducting a one-to-one interview with a trained professional in England in 2020 is estimated at the equivalent of £40 per interview, resulting in a total investment per young person during secondary education of £80.

This estimate is based on the following assumptions:

- A fully-loaded day-rate of £200
- 6 interviews per day which last 45 minutes plus 20 minutes for preparation and follow-up plus 10 minutes for coordination time
- 6 hours per year to set up and manage the overall interview programme, allocated over 200 interviews

This is an average cost estimate, where the actual costs might vary depending on, inter alia, the level of experience and qualifications of the careers adviser, the size of the cohort being interviewed, area of the country and approach to delivery. A low estimate is modelled as £19 per interview and a high estimate at £80 per interview, with the underlying assumptions detailed in Appendix 2. The intention is for low and high scenarios to represent plausible extremes and the medium scenario to represent the default best estimation we can calculate at this stage. As such, both low cost and high cost scenarios are expected to be rare in practice and can be treated as bookends for Monte Carlo analysis.

Other activities that support personal guidance, such as one-on-one conversations and pastoral care more generally in education or the provision of office space for the interview, or indirect organisational overheads are not explicitly costed for this ROI, being typically incorporated into the usual running costs of a school or college.

[10] https://www.prospects.ac.uk/job-profiles/careers-adviser, https://www.glassdoor.co.uk/Salaries/career-advisor-salary-SRCH_KO0,14.htm, https://www.payscale.com/research/UK/Job=Career_Advisor/Salary, https://www.indeed.co.uk/salaries/career-advisor-Salaries, accessed July 2020.

Variation by delivery model

Within the Gatsby guidance there is flexibility in terms of delivery model, corresponding to the diverse ways personal guidance is delivered in English secondary education, particularly between schools and colleges, and reflecting the marketised English system of career guidance delivery.

Interviews conducted in May 2020 with ten careers leaders in England suggested five key structural differences with possible implications for costs per interview:

1. ***In-house vs out-sourced***: A typical day-rate range in 2020 for outsourced mainstream personal guidance interview provision is £180 to £300. The CDI (2014) and Careers England (2019) provide good practice guidance on commissioning external providers. For schools and colleges that have the economies of scale and operational set-up to hire, manage, support and fully occupy full-time careers advisers in-house, a typical day-rate equivalent range is £150 to £200.[11]

2. ***Degree of distribution of provision***: The outcomes of personal guidance, such as making good education and career pathway decisions, are often seen as the responsibility and result of many conversations and activities during education. Formally-scheduled one-on-one personal guidance discussions are only a part of the system for promoting such outcomes.

   In some settings, particularly large FE colleges, one-on-one personal guidance support is formally distributed across a specialised tutor or mentor workforce, who might meet one-on-one with students three to four times a year to discuss progress and progression options (among other topics), professional careers advisers who support a subset of referred or self-referred students (e.g. 10%-30% of 16-19 year olds each year), and an extensive offer of resources and careers activities.

   In other settings, particularly Key Stage 4 provision in mainstream schools, formal responsibility for personal guidance is less distributed. Most students access a single professionally-delivered personal guidance session, similar to the Benchmark 8 description, with some students who are particularly uncertain or at risk of poor progression outcomes having multiple one-on-one sessions, which might involve support from outside agencies or local council teams[12].

3. ***Interview length***: Average personal guidance interviews vary in length from 20 minutes to 60 minutes, with 30 to 45 minutes being the most common. The length depends not only on the young person's needs but also on the other careers provision, the degree of distribution of personal guidance provision, and the degree of follow-up and preparation. Discussions with Higher Education students and careers practitioners reveals the importance of longer sessions (Reid, 2018).

4. ***Degree of follow-up and preparation***: In addition to the interview itself, most careers leaders interviewed for this report described at least 5-15 minutes of preparation time for the interview and 20-40 minutes of follow-up time, primarily writing up an action plan, distributing the action plan to the student and tutor, and logging activities on internal systems. Longer-term follow up, such as whether the actions were followed, is normally left

[11] Assuming 40% typical employer on-costs and that holiday / CPD time is typically taken outside term-time.
[12] Local council teams are particularly likely to work more intensively with looked-after children or those on an official education, health and care (EHC) plan.

to the student and tutor's discretion, except for the minority of students identified at risk who might get additional follow-up from the careers staff. In some cases, where students come with a question that does not require preparation and students create the plan during the session, this activity can be significantly reduced. Follow-up and preparation are identified as important features of good practice in The Careers & Enterprise Company's paper on 'Personal Guidance: What works?' (Everitt et al, 2018).

5. ***Scheduling vs referral and no-shows:*** Where organisations schedule students to attend careers provision, an exercise is required to assign students to slots. This exercise typically takes a few hours, either annually or termly. Where students either refer or self-refer, this organisational overhead is not necessary. The scheduling approach supports near-universal participation, but blended approaches can also achieve high levels of participation. The approach to no-shows, or the risk of no-shows, also varies widely. Some organisations consider attendance the responsibility of the student and take no further action beyond reminding about the appointment and recording attendance (which might affect the student's future course applications or internal references). Other careers leaders described several hours of activity each week, reminding tutors to inform students in the morning if they have a session that day, reminding classroom teachers which students will be absent at what times, and walking around the school to ensure people attend.

Interviewees emphasised that different models of personal guidance come with advantages and disadvantages that may suit different circumstances. Two key areas of difference that affect cost regard the provision of extra support for students at risk and the use of distributed personal guidance support. These approaches are discussed in more detail in the Section 10.

Sustainability of the cost estimates

Sector stakeholders in the working group describe several years of downward wage pressure for careers advisers, which threatens the sustainability of current market prices, particularly considering expectations for practitioners to be qualified to Level 6 or above.

Data analysed and shared by members of the working group reveals that total careers adviser numbers have been broadly stable between 2015/16 and 2018/19, with evidence of short-term variation and a dip between those years (based on SIR returns for further education and the Quarterly Labour Force survey). However, it is unsure how these numbers would compare to the early 2000s when large numbers of careers advisers were on contracts with the Connexions service.

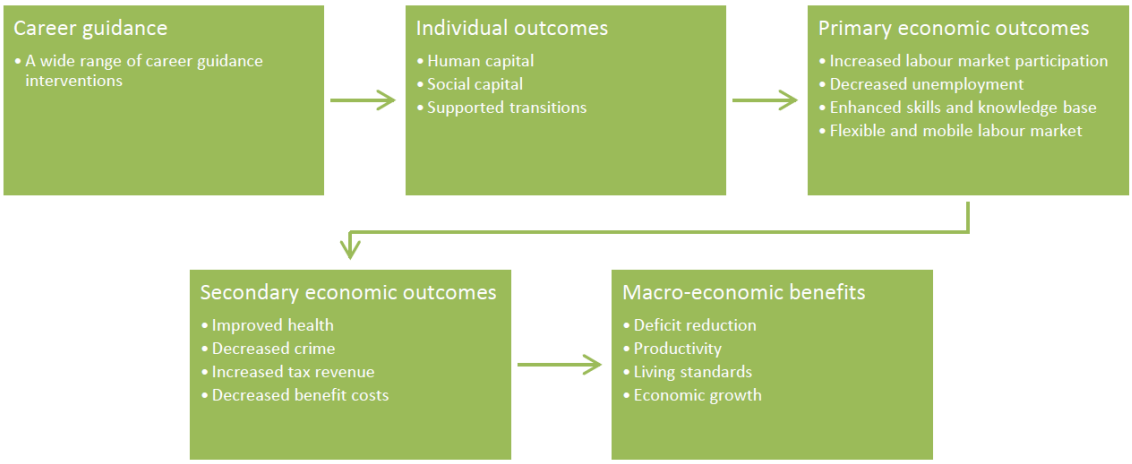
The availability of careers advisers to meet potential demand more generally is hard to identify. Some stakeholders referenced the high partial achievement of Gatsby Benchmark 8, suggesting that most schools and colleges are able to identify at least some careers adviser support. Others pointed to variations in senior leadership support, funding and time for personal guidance, such that schools and colleges are not drawing on sufficient careers adviser support to fully achieve Benchmark 8. On this basis, there may be workforce shortages if demand were to scale up at current price points in an effort to provide full coverage.

Interviews with careers leaders identified some anecdotal evidence of difficulty finding qualified careers advisers, especially those with experience in specialist areas such as guidance for SEND students, but availability of advisers was not generally described as the main barrier to uptake, at least when focused on incremental increases in volume.

3. Overview of potential benefits of personal guidance

The purpose of this section is to illustrate in a range of different ways some of the benefits of personal guidance that have been claimed or identified by different sources: international research, sector advocates, the research base in the US and a case example from England. This overview provides a starting point for identifying possible long-term outcomes against which a breakeven calculation can be completed (see Section 4). The empirical evidence used to drive the midpoint estimates in the ROI, which uses only a subset of the benefits identified in this section, is presented in detail in Section 5.

By way of introduction to the broad scope of possible benefits, Hooley and Dodd (2015: figure 1) relate career guidance to a range of individual outcomes which influence primary and secondary outcomes, leading in turn to macro-economic benefits, as shown in their flowchart below:



International support for career guidance provision

In recent years, sector experts from a range of countries and organisations have related career education and guidance to a wide range of possible benefits. Each uses slightly different terminology, but each recognises the role of one-to-one guidance conversations as part of that provision. Such experts include the Education Endowment Foundation in the UK (Hughes et al, 2016), the OECD in Paris (Musset and Kureková, 2018), a working group comprising the European Commission, the ILO, and UNESCO (IAG-WBL, 2019), and the SRDC in Canada (SRDC, 2020).

The international literature review commissioned by the Education Endowment Foundation identifies 73 relevant studies and classifies benefits across three areas: education, economic and social, including academic attainment, wage premiums, labour market status, self-efficacy, and decision-making skills (Hughes et al, 2016).

The OECD argues that career guidance is "both an individual and a social good: it helps individuals to progress in their learning and work, but it also helps the effective functioning of the labour and learning markets, and contributes to a range of social policy goals, including social mobility and equity" (Musset and Kureková, 2018: 4).

A Work-Based Learning advisory group made up of diverse transnational bodies argues that effective career guidance empowers people by responding to individual needs, forming a regular part of education and training, allowing people to get to know themselves, making use of well-trained

professionals to increase their knowledge of the labour market and career pathways. In this way, they argue that "Effective career guidance helps individuals to reach their potential, economies to become more efficient and societies to become fairer. It provides people with personalised, impartial and timely information and support to make informed decisions about their lives. It acts as a lubricant for developing and nurturing human talent to power innovation, creativity and competitiveness. It helps to implement lifelong approaches to learning and active approaches to labour market engagement and transition. As the working world becomes increasingly complex, career guidance is becoming ever more important to individuals, employers and to society" (IAG-WBL, 2019: 3).

A literature review in Canada focuses on postsecondary transitions and notes that "If students leave high school without a basic idea of who they want to become and are under- or mis-informed about the relevant opportunities open to them, it becomes inevitable that they will not plan appropriately and find themselves making what in retrospect turn out to be poor choices. […] well-designed supports to career-decision making would ideally be delivered in ways that help youth grow into discerning consumers of education, who know when and how they should invest in their futures for optimal impact on their later lives" (SRDC, 2020:2-3). The authors argue that demand for better support for careers decision making is increasing, driven both by broader definitions of what a career should encompass and by changes in the labour market.

Empirical evidence suggests that individual career guidance activities, such as career talks with outside speakers, have greater effect when they take place in a careers rich environment, supported by professional careers advisers among other careers-related interactions (Percy and Kashefpakdel, 2018). From this perspective and considering that personal guidance often affords time for reflective, personalised discussion, personal guidance can be seen as a potential integrative activity connecting the dots between personal interests, employer activities and curriculum insights, developing a holistic careers action plan to take a pathway forward.

The potentially transformative role of guidance

Some advocates of personal guidance activities draw on themes of career development, coaching and/or counselling to describe the potentially transformative impact it can have. Dr Michelle Stewart, writing for the CDI (2019), provides one such account of guidance:

"It is not just the provision of information. Nor is it simply information tailored to the needs of the individual (advice). Career guidance counselling is the skilled process of helping a young person know themselves (self-awareness), engaging with their career hopes and aspirations, and supporting them in assessing realistic options and creating a meaningful future. This involves considering educational and training options. It encompasses [facilitating] engagement with the world of work. It includes helping young people to cope with disappointment, the management of relationships, and for some, concerns at having no idea what they want to be – because of course everyone else does.

In providing career guidance counselling, Careers Advisers draw on career theory and models of practice to support them in building a rapport with the young person, exploring their situation and career ideas, gently challenging as appropriate, filling the gaps in their knowledge, and understanding and agreeing actions (goal setting) that enable the young person to move forward. Using open questions, Careers Advisers raise matters the young person may never have considered but to which they generally have the answer. Similarly, the influence of past experience and expectations on present and future thoughts about work and life are revealed, as the Careers Adviser reflects back the young person's story using their counselling skills of summarising and paraphrasing. […]

In opening up the world of work to the young person, the Careers Adviser is able to explain the rhetoric around employability skills, resilience and adaptability, alongside constructing CVs/personal statements and improving performance at interviews. Using networking, consultancy and advocacy skills to develop organisations and systems, they are able to help individuals to succeed within such organisations and systems. Also, being aware of professional boundaries, where the young person's needs fall outside their expertise, they are able make referrals to organisations better placed to assist." (CDI, 2019: 2).

This supportive, reflective account of career guidance can be contrasted with some of the negative stereotypes of guidance, which describe very brief conversations or questionnaire-driven processes that "tell a young person what job they should do" – typically drawing on out-dated anecdotal examples to make a humorous or cynical comment.[13] The good practice of modern career guidance is more likely to take time to help young people consider their default ideas, explore the range of options open to them, and take steps to gain their own experience to make their own choice. For instance, a young person considering a particular course post-18 aiming at a particular career might be advised to contact or read about other young people, perhaps alumni from the same school or college, who pursued the pathway in question – perhaps talking to one person currently studying that course and another person a few years into their career. Or their career guidance programme might have already enabled workplace visits, speaker talks or class discussions on such options. Reflecting on a few different first-hand perspectives with the support of a neutral professional has the potential to improve pathway choices and the confidence with which they are pursued.

Evidence from career counselling in the US

The counselling lens adopted by Dr Michelle Stewart relates well to evidence from the US on school counselling programmes (ASCA, 2019). The US model places more emphasis on counselling as a comprehensive approach than the Gatsby description of personal guidance. It covers three main domains: "college and career readiness", "academic achievement" and "social emotional support", including a focus on discipline and attendance (ASCA, 2012; Jeffries-Simon & Ackleson, 2017) and views these three domains as mutually supportive (Curry and Milsom, 2017).

Research in the US has found links between counselling programmes and improved attendance and discipline, improved math and reading scores in state achievement tests, (e.g. Carey and Dimmitt, 2012; Sink et al, 2008), reduced changes in college majors, higher grade point averages, and earnings (e.g. Harris-Bowlsbey, 2014), and improved sense of safety or wellbeing, improved relationships with their teachers, greater satisfaction with their education, and greater progress in tackling interpersonal problems (Lapan et al, 2003).

In one example, Hurwitz and Howell (2014) exploit a causal regression discontinuity framework for quantifying the impact of high school counselors on students' education progression outcomes, finding that an additional high school counselor is predicted to induce a 10 percentage point increase in 4-year college enrolment.

[13] E.g. Columnist Rhiannon Lucy Cosslett writing in 2013: https://www.theguardian.com/commentisfree/2013/dec/19/careers-advisers-fish-farmers-michael-gove. Careers advisers have also been satirised in children's TV shows, such as the "Careers Day" episode of the CBBC Programme "Class Dismissed" in 2018 (see https://www.centralcareershub.co.uk/2018/10/09/bbc-careers-adviser-gets-it-all-so-wonderfully-wrong/).

Other US research has also identified benefits for a coaching approach as part of a broad-based programme. A long-term evaluation of the Pathways to Education programme in the US found improved persistence in education, 19% higher earnings and 14% increased employment as part of a comprehensive programme that included coaching, tutoring, group activities and financial incentives offered to disadvantaged students (Lavecchia et al, 2019).

Case experience in England

Case experience in England can often point to compelling personal examples of transformative personal guidance, such as The Careers & Enterprise Company case study of the support provided for a teenager called Bailey by EBP South, a non-profit provider of employer engagement and career guidance services (available at https://www.youtube.com/watch?v=pUinT7VgGPI).

Personal guidance helped Bailey confirm his aspirations to be an apprentice and identify a specific opportunity to apply for, it supported him to develop a CV, and it made him realise the need to improve on his projected English grades to be eligible for the position, encouraging him to attend additional revision classes as a result. Bailey got into his apprenticeship and credits the support from EBP South for his achievement. The full benefits of such transformative encounters are hard to describe and even harder to monetize.

Aggregate statistics that combine high-impact datapoints like Bailey's case study as well as less impactful interactions are used to drive this ROI model (see Section 5 for the empirical evidence).

4. Costed long-term outcomes and breakeven analysis

Framework for prioritising long-term outcomes

The international overviews, the vision set out by Dr Michelle Stewart, the evidence from the US and the case experience in England set out in Section 3 point towards an expansive set of possible long-term outcomes, all of which have potential financial benefits for the individual, for society and/or the state.

Several theoretical frameworks for measuring the impact of career guidance have been created and debated. David Mayston from the University of York developed such a framework, emphasising the importance of the quality of the career guidance interview in supporting human capital accumulation, quality of life improvements and broader social benefits that flow from improved individual choices (Mayston, 2002). Edwin Herr from The Pennsylvania State University explored Mayston's work further in an OECD sponsored conference in Toronto in 2003.[14] Broader issues around impact measurement are explored in an evidence framework for career guidance prepared by Hughes and Gration (2009) for the CfBT Education Trust, highlighting the difficulty in measuring the true impact of public policy given the complexities of human behaviour and the potential unintended or perverse consequences of measuring impact. Building on this work, Hooley and Dodd (2015) trace individual outcomes through to primary and secondary economic outcomes as well as macro-economic benefits. Similarly, Percy and Dodd (2020) set out the main financial metrics that can be used to capture the economic benefits of career development programmes at the individual-level, the employer-level and the state-level, alongside the conceptual and practical limitations of such metrics.

The challenge with implementing these frameworks in an ROI is that high-quality empirical evidence is typically only present for isolated pathways or individual links in the chain, reflecting in part the historic interests of funders and researchers. A comprehensive approach would be dominated by hypothetical values, which runs counter to the goal of this analysis to identify a baseline, conservative ROI. Instead, this analysis prioritises a small set of such outcomes present in this literature, based on those where:

(i) the outcome is quantified in an English context using high-quality reports commissioned by government;
(ii) the outcomes can collectively be constructed in such a way to minimise overlap (aiding the aggregation of individual outcomes into a single ROI); and
(iii) the outcomes can be related back to one-to-one personal guidance using high-quality quantitative studies.

The end result of this prioritisation is to focus on only a partial set of the possible benefits of personal guidance. Since the full marginal cost of delivery has been captured, this approach yields an under-estimate.

Three example long-term outcomes have been identified and costed that meet the prioritisation criteria: youth NEET prevention, Higher Education dropout prevention and increased wages among those in full-time employment. This focus is pragmatic and implies no comparative judgement on whether the areas of impact with suitable, available evidence have greater or lesser economic consequence than other areas.

[14] https://warwick.ac.uk/fac/soc/ier/ngrf/effectiveguidance/impact/assessing/outcomes/herr

As set out in Section 3, many other impacts might be considered for future work. For instance, contemporary longitudinal datasets in Australia (Tomaszewski, 2017) have shown how receipt of career guidance for those from low socio-economic backgrounds improves the chances of university participation in general. Acknowledging partial overlap with the NEET prevention strand, there may be additional value in a UK setting here as well.

The value of youth NEET prevention

The financial consequences of NEET prevention were costed at £56k per person for Government and £104k for society, with a reference date in 2009 (Coles et al, 2010, in analysis for the Audit Commission). The authors incorporated a lifecycle analysis and considered the implications of educational underachievement, unemployment, early motherhood, crime, poor health and substance abuse. Inflating to 2019 values using the Bank of England calculator[15] gives £75.7k and £140.6k respectively.

This estimate is treated as the highest plausible estimate, acknowledging sensitivity to policy changes since 2010 (e.g. in unemployment benefits) and the changing economy, and acknowledging that some of the costs of NEET may represent more complex issues than personal guidance can take full attribution for, although guidance may prompt referrals and be part of a support chain. For instance, if a young person's future switches from NEET to non-NEET as a result of personal guidance, it is likely that such shift at the margins reflects less marginal economic benefit than that saved if an average NEET person were to be swapped for an average non-NEET person.

The lowest plausible estimate for the value of NEET prevention is derived from what DWP was willing to pay as part of a social impact bond: the Youth Unemployment Innovation Fund, specifically the Round 2 rate card issued in 2011 (DWP, 2011). Using this rate card, a successful NEET intervention might be expected to result in improved behaviour at school, (eventual) entry into first employment, and then sustained employment, giving a total value of £6.8k - inflated to 2019 values using the Bank of England calculator to £8.1k. This is a low case because DWP would not have been attempting to reimburse all the social benefits of preventing NEET, which would be negative value for money once administration costs and programmatic uncertainty around measurement error, deadweight and attribution were considered. The social value equivalent of this can be adjusted by the same ratio as Coles et al (2010) to give a value of £15.0k.

A most likely midpoint estimate is derived from taking the simple average of the low case and the high case: £41.9k for the value to the Exchequer and £77.8k for the value to society.

The value of Higher Education dropout prevention

The partial financial benefit of reduced Higher Education drop-out has been analysed by Walker and Zhu (2013) for the UK Government. Focusing only on lifecycle wage benefits, they identify an NPV of £210k in private value (treated as a partial capture of overall social value) and £291k in Government value as a result of completing a degree, based on the simple average of male and female estimates (Table 13).

This estimate is conservative in some respects for this ROI, but optimistic in others. It is conservative in that the estimate is based on HE completion relative to a comparison group with 2+ A-levels,

[15] https://www.bankofengland.co.uk/monetary-policy/inflation/inflation-calculator

whereas the authors identify that HE dropouts earn slightly less than the 2+ A-levels comparison group who do not enter HE. McCulloch (2014) has a similar finding, identifying that students who dropped out had an employment rate of around 60 per cent, significantly lower than that of respondents who had either not entered or who had completed HE (around 75 per cent). It is also conservative in having a reference year of 2012/13, whereas adjusting for inflation since then would result in a larger value.

However, it is likely to be an over-estimate for the purposes of this ROI in that some individuals who drop-out may face lower wages due to circumstances that personal guidance prior to the age of 19 would be unlikely to resolve (such as a sudden health problem or family upheavals). In other words, those that personal guidance might most often help, as a result perhaps of enabling young people to make more informed more confident choices, may see a smaller difference between their wage if dropping out and their wage if completing Higher Education. For this reason, the Walker and Zhu (2013) estimate is taken directly as the highest plausible estimate. The midpoint estimate is taken as half of the value (£105k and £145k respectively) and the low end estimate is taken as 25% of the value.

Other research also identifies wage costs of dropping out of Higher Education. US data point to ~20%/25% (Schneider and Yin, 2011), similar to Walker and Zhu (2013). In the UK, McCulloch (2014) data suggest a median wage of £16.5k for drop-outs vs £20.8k for HE completers five years after matriculation, noting that this understates the lifetime premium as non-HE attenders have 2-3 more years in the early labour market to make progression compared to their HE counterparts, but this advantage soon erodes.

The value of increased wages

A hypothesised wage premium translates into a net present value benefit in a straightforward fashion – the two main modelling choices are how long to extend the wage premium for (up to what age) and which subset of the population to apply it to.

The default assumption in this model is to include wage premia up to age 35, in line with evidence later drawn on from the British Cohort Study. It is applied to those in full-time employment only, since those in part-time employment are more likely to have non-wage factors affecting their labour market participation decisions and outcomes. These are conservative assumptions given that wages are highly serially correlated over time (your wage this year is a strong predictor of your wage next year) and those with higher full-time wages are also more likely to secure higher part-time wages.

Base wages are based on the median full-time gross UK earnings for 2019, derived from ASHE data split by gender into seven age bands. The proportion of men and women in full-time work is drawn from the England Labour Force Survey data for 2019. The discount rate is 3.5%, that is future financial flows are discounted at a rate of 3.5% per year, to reflect future uncertainty and the time value of money.

The ratio of Government benefit to individual gross earnings is estimated at 38%, drawing on Walker and Zhu (2013), focusing purely on direct taxation-related benefits to the Exchequer and no economic multiplier effects. This is a simplification for modelling purposes and does not account for distributional effects. For the breakeven analysis, an example 7.5% wage premium is used, resulting in a private NPV of £19k and a government NPV of £7k.

Breakeven analysis

The midpoint cost estimates of £80 per student and the midpoint value estimates of the three outcomes listed above translate in a straightforward fashion into breakeven thresholds (see Table 1), that is the success rate needed per student receiving the intervention for the Exchequer to recoup the money invested (in net present value terms). A value is also provided reflecting a breakeven threshold partly representing a partial picture of social benefits, to the extent captured in the outcome estimates as described above.

In this hypothetical exercise, the breakeven point for each outcome is identified individually assuming no benefits from the other outcomes.

Table 1: Long-term outcomes and breakeven analysis

Long-term outcome	Midpoint estimate value to the Exchequer [to Society, as a partial view]	Required personal guidance success rate to break even
One student prevented from becoming NEET prior to age 19	£42k [£78k]	0.2% [0.1%]
One student prevented from dropping out of Higher Education	£145k [£105k]	0.1% [0.1%]
One student receiving a wage premium of 7.5% up to age 35, based on probable time in full-time employment only	£7k [£19k]	1.1% [0.4%]

For example, if the full cost of personal guidance were to be recouped to the Exchequer purely through reduced NEET outcomes, we would require one in around 500 recipients of personal guidance in secondary education to be prevented from becoming NEET prior to the age of 19. If the full cost were to be recouped via individuals gaining a 7.5% wage premium up to age 35, we would require around one in 250 recipients to gain such a benefit. Similarly, one in around 1,800 would need to be prevented from dropping out of Higher Education.

5. Estimated impact of personal guidance

Personal guidance, as described in the scope of this ROI, is a low-cost intervention and the requirements for breakeven impact are modest. An investigation of the research literature suggests it is highly likely that these requirements are exceeded.

This section first sets out the meta-analysis evidence that guidance sessions shift key careers-related factors, such as attitudes, preparedness and decision-making self-efficacy. Longitudinal datasets are then used to relate the same general factors to NEET outcomes, future wages and HE dropout. Analysis of career pathways using CV data is then used to relate early labour market churn to future wages. Finally, it sets out the bridging assumptions required to relate personal guidance effects to the high-level questions captured in the longitudinal datasets.

It is also important to consider what proportion of young people are in scope for potential benefits. A young person with no intention of attending to Higher Education cannot be in scope for any benefits associated with a reduced chance of dropping out of Higher Education. Section 6 breaks down the overall population of secondary education students into different categories and constructs the ROI based on potential impact within different groups.

i. Meta-analysis evidence that guidance sessions shift attitudes/preparedness

Multiple meta-analyses have been conducted on career interventions which cover short-term outcomes, primarily self-reported improvements in aspects like career decidedness and career decision-making self-efficacy compared to a no-treatment control group (Whiston et al., 2017; Oliver and Spokane, 1988; Brown and Ryan Krane, 2000). Weighted average effect sizes typically emerge statistically significant at the 95% level with a value of 0.3 to 0.4 standard deviations.

Duration of effect

The majority of the studies in these meta-analyses focus on very short-term effects, such as an immediate post-intervention measure or a follow-up within a few months. However, a one-year follow up study (Perdrix et al, 2012) covering 199 opt-in participants in Switzerland found that effects of this type are likely to stabilise or indeed improve compared to an immediate post-test score and a three month follow-up. While the age range included adults, the results apply also to young people in education: 144 participants were aged 14 to 21 with a mean age of 18 and the findings are described as robust across age groups. The intervention was four to five weekly sessions of one hour each, provided by advanced students of a Level 7 Career Counselling program under the supervision of qualified counsellors. Participants aged 14-21 saw improved scores both for career indecision (measured via CDDQ) and life satisfaction (measured via SWLS) immediately post-intervention, which continued to improve (at a diminishing rate) at both the three month follow-up and the one year follow-up. While some of this improvement may represent natural gains over time, with growing life experience and maturity, the consistency of progress post-intervention rejects the hypothesis that career counselling produces a temporary boost in optimism that is soon reversed.

Applying meta-analysis results to personal guidance

Constituent studies in the meta-analyses typically covered different age ranges and approaches to guidance. Three key aspects of the Gatsby minimum approach to personal guidance can be partially unpacked in these studies: (i) the in-education setting for 13 to 19 year olds; (ii) a single session of guidance per transition point; and (iii) delivery in a one-to-one format. Considering these three

aspects collectively, it is likely that the effect sizes of personal guidance are slightly below the overall average of career counselling as reported in the meta-analyses.

Regarding the in-education setting for 13-19 year olds, a 2017 meta-analysis (Whiston et al., 2017) identified 57 studies from 55 articles (total participants 7,364) published between 1996 and 2015, with 70% from the US and 18% from Europe. 80% of the studies covered the education setting: 30% in school below the age of 18/19 and 50% in Higher Education settings, mostly aged 18-22. This suggests that the average effect size of 0.35 standard deviations broadly applies to education settings, but it does not explicitly differentiate provision for under-19s. An earlier meta-analysis (Oliver and Spokane, 1988) found that effect sizes in junior high school (7 studies; aged 12-15) and high school (15 studies; aged 14-18) were 75% and 66% of the effect size for those in college (29 studies).

Regarding the number of sessions, Whiston et al (2017) and Brown & Ryan Krane (2000) both find most benefits at around five sessions. Nonetheless, Whiston et al (2017) identify that effect sizes for one or two sessions remained highly positive at about two thirds the equivalent of five sessions.

Regarding the one-to-one format, the Gatsby focus on individual guidance is likely to mitigate the lower effect sizes associated with the two other structural features of the Gatsby minimum described above. Individual counselling tends to have higher effect sizes than other forms of counselling, e.g. 0.77 based on 2 studies in Whiston et al (2017) and 1.14 based on 16 studies in Oliver and Spokane (1988).

The latest meta-analysis describes a 95% confidence interval of 0.25 to 0.44 standard deviations (Whiston et al, 2017). Given the Gatsby minimum benchmark considerations, initial estimates of 0.15, 0.25 and 0.35 standard deviations are suggested, corresponding to low, medium and high effect sizes to use for modelling.

Effect size sense check on English data

This effect size estimate for Gatsby Benchmark 8 can be provisionally sense-checked by a pilot in the North East of England, in which schools and colleges have been working to improve their achievement of the Gatsby benchmarks via the Local Enterprise Partnership alongside an evaluation conducted by the University of Derby and funded by The Gatsby Foundation (Hanson and Neary, 2020).

The evaluation includes an analysis of students' career readiness score (SCRI), finding an approximate 0.9 effect size improvement across the different student cohorts from 2016 to 2018. Over this same period, among the 16 participating schools and colleges, those who self-assessed and reported achieving benchmark 8 increased from 9 to 14, alongside self-reported progress in many of the other benchmarks, i.e. ~30% of schools made confirmed progress in personal guidance provision. Assuming the overall SCRI progress can be attributed approximately equally over the 8 benchmarks, this implies an effect size of achieving benchmark 8 of approximately 0.4, at the high end of the estimates derived in this section.

This pilot, which remains in progress at the time of writing, also identifies benefits in terms of the proportion of students getting more A and B GCSE grades compared to a matched sample of schools, as well as qualitative evidence regarding improvements in employability, engagement in the classroom and knowledge of options.

Supporting evidence in England is also found in analysis of pre/post surveys from those participating in a range of career guidance activities, primarily personal guidance, workplace experiences and employer encounters (Tanner, 2020). Pre/post Future Skills surveys were completed by 2,047 young people in 2018/19 and found that participation in career guidance activities supported, among other

changes, awareness of education options (increase from 43% to 58% agreeing with "'I have thought about whether moving straight to work after school is right for me"), career planning (increase from 45% to 59% agreeing with "I can make a plan of my goals for the next five years"), and academic motivation (increase from 60% to 70% agreeing with "I try to answer all the questions asked in class").

ii. Longitudinal evidence that attitudes/preparedness relate to NEET outcomes

A series of analyses of the British Cohort Study (BCS), a longitudinal dataset following a sample born in April 1970, investigates the future employment consequences associated with highly uncertain aspirations and misalignment between aspirations and planned education pathways at age 16, controlling for a wide range of student circumstances.

Young people with high career aspirations but low education expectations ('misaligned' by underestimation, ~40% of the cohort) were more likely to become NEET for at least six months before the age of 19: 1.7x higher for young men and 3x higher for young women (Schoon and Polek, 2011). The sample cohort, using this NEET definition, saw an overall NEET rate of 5% for men and 6% for women.

Young people with highly uncertain aspirations who were unable to identify a job of interest were also associated with 3x higher NEET rates (Yates et al, 2011). However, this was a smaller proportion of the BCS cohort (~7% at age 15). This result did not replicate fully in analysis by Gutman et al (2014) on a more recent cohort study (LSYPE, born in 1990). However, this research controlled for the perceived usefulness of career guidance, limiting its applicability to an ROI examining the impact of career guidance, and the authors argue that their finding may reflect an increased default tendency towards staying in education for those with uncertain aspirations. Uncertain aspirations are likely to be disadvantageous for those not intending to stay in education or for those at risk of NEET.

These analyses from the British Cohort Study can be used to inform modelling assumptions, adopting a conservative approach, recognising the difficulty in controlling for all relevant variables in longitudinal studies and a conservative interpretation of changes in education and the labour market since the 1980s and 1990s. For instance, we define low, medium and high impact scenarios as 3.5%pt, 4.5%pt and 6.5%pt reduction in NEET rate applied only among the subset of students who might be at risk of underestimating the educational requirement for their aspiration.

iii. Longitudinal evidence that attitudes/preparedness relate to future wages

Extending the same British Cohort Study approach to analyse wage outcomes at age 34 with controls for a range of background, work experience, attitudinal and academic factors, not having a job plan is associated with 12%-17% lower earnings and misaligned is associated with 11%-13% lower earnings compared to those with high and aligned expectations (Model 3 from Sabates, Harris and Staff, 2011).

Misaligned ambitions where the education requirement is overestimated is associated more weakly with a wage penalty of 10% for men (statistically significant at 10% level) and 6% for women (not statistically significant). These associated disadvantages only exist relative to the cohort of high aspiration, aligned students (~20% of the cohort at age 16), rather than relative to the low aspiration, aligned students (also ~20% of the cohort).

These datapoints are interpreted cautiously to drive inputs for the ROI model, with low, medium and high impact scenarios as a 2.5%, 5.0% and 7.5% uplift on earnings for those in full-time work and assuming impact only for a subset of students who receive personal guidance.

The British Cohort Study research is drawn on to identify point estimates in this ROI, given its proximity to practice in England, but it is important to emphasise that these findings are buttressed by research from other jurisdictions. Studies in Australia (Gore et al, 2015; Sikora, 2018) and the US (Morgan et al, 2013) find that teenage occupational uncertainty is more commonly linked with low academic performance, lower progression in education and lower earnings. Misaligned ambitions have also been linked with lower academic attainment in other UK research, particularly for students from lower socio-economic backgrounds (Croll, 2008, using the British Household Panel Survey).

Morgan et al (2013) analyse 12,509 US high school seniors from the Education Longitudinal Study (2002 to 2006), finding that students categorized as having uncertain and/or inaccurate beliefs about the educational requirements of their expected jobs had lower rates of college entry than those with certain and accurate beliefs and lower attendance among those who did enter college. Sikora (2018) uses longitudinal data following Australian students from 2006 to 2016, learning that uncertainty persists over time as students who do not report career plans at age 16 tend to be occupationally uncertain also seven years later – and this later occupational uncertainty predicts a lack of university degree and lower expected earnings at age 26.

Where personal guidance can encourage relevant subsets of young people to raise their aspirations, while remaining grounded in the necessary work to drive an acceptable chance of success, further economic benefits are likely to flow that are not captured in this ROI. Research relates ambitions to positive future outcomes, such as Heckhausen & Chang (2009) examining Germany and the US, Guyon & Huillery (2020) examining France, and Mello (2008) who finds benefits for men in the US.

iv. Longitudinal evidence that attitudes/preparedness relate to HE dropout

Effects on integration and academic outcomes in Higher Education have been related to career counselling initiatives to support transitioning students. For instance, the decision-making self-efficacy scale (CDMSE) – the scale used in 32 studies in the most recent meta-analysis by Whiston et al (2017) – was statistically significant in predicting levels of adjustment to college in the US (Hansen and Pedersen, 2012) and both social and academic integration (Peterson, 1993).

Recent work for the English Department for Education (Shury et al, 2017) identified "having a career plan on leaving university" as one of the top three factors that were most important in guiding graduates to employment or further study, rather than unemployment (based on 7,500 students analysed across 27 institutions who completed their full-time undergraduate study in 2011/12 and were aged 18-21 at the outset of their study). Such plans can be informed by prior career intentions and the level of thought that went into the choice of university/course at age 18 in the first instance. For instance, at the point of applying to university, graduates were evenly split between those with a career plan and those without, with 18% knowing exactly which job or career they wanted to pursue.

Analysis by McCulloch (2014) of UK students is reported in sufficient detail to generate parameter inputs for the ROI model. His study drew on the "FutureTrack" dataset of all university entrants from the 2005/06 application cycle and suggests two main ways that personal guidance could reduce the chance of drop-out: firstly indirectly through various channels that ultimately result in young people being able to report higher satisfaction with their prior career guidance, and secondly directly through being an additional source of information and advice about their choices.[16]

[16] Futuretrack is a longitudinal four-stage study of all people who applied in 2005/06 via UCAS to enter full time higher education in the UK during the autumn of 2006. Data were collected by the University of Warwick IER at

Overall respondents were fairly evenly split between low, medium and high career guidance satisfaction (ibid, Table 1). Descriptive analysis (ibid, fig. 21) explains that respondents who dropped out of HE were more likely to have low levels of satisfaction with career guidance (38.3 per cent vs. 27.8 per cent) while those respondents who continued in HE were more likely to have high levels of satisfaction with career guidance (36.7 per cent vs. 29.0 per cent).

A logistic regression analysis incorporating a wide range of controls[17] quantifies the likely benefit of both these aspects for use in this ROI. Young people with high satisfaction with prior career guidance had 40% lower odds of drop-out than those with low satisfaction (ibid, Table 2 regression model results; $p<0.001$, inverted OR to reflect low to high). Overall, 30% of young people reported low satisfaction (ibid, Table 1; being 40% among the drop-out sample and 29% among the completed-HE sample) and forms the subsample where we identify a possible benefit from personal guidance. This should be conservative, as no possible benefit is assumed for those who only reported moderate satisfaction overall, whose odds of dropping out are also lower than those with high satisfaction.

The second channel for impact is through careers advice as another source of advice. Overall McCulloch considers 11 sources of advice, including data sources like the university prospectus, activities like institution visits, and conversations like with family, friends or the school career adviser. Only 6% reported the careers adviser as a source of advice, indicating significant potential for increased usage and reflecting the feedback from the careers leader interviews (see Appendix 1) that formal careers guidance conversations were more common at age 14-16 than 16-18, particularly in large General FE Colleges which account for the majority of education aged 16-18.

Those who reported speaking to a career adviser were less likely to drop-out and more likely to complete HE (excluding deferrals and non-entrants): 3.9% compared to 4.3% as the overall average at Stage 2 (ibid; Appendix Table 17). When translated into the logistic regression model, having 6-11 sources of advice resulted in significantly lower drop-out than having 0-3 sources of advice (20% lower odds, p-value < 0.05). As a heuristic for this ROI, we assume that each extra source of advice adds, on average, some similar amount of value and careers guidance is comparable to this average, which emerges at around 3% (taking a midpoint of 1.5 and 8.5 sources of advice in the two categories). This can be applied to 74% of young people, being the proportion with 0-5 sources of advice (ibid, Table 1). Again this should be conservative, as it assumes no extra value of the 7th source of advice if someone has already had six. It is also conservative as careers advisers typically support their interviewees to produce action plans to further research their options, such as institution visits or reviewing prospectus data, which would in turn generate additional sources of advice that reduce their odds of drop-out in the McCulloch model.

v. Evidence linking early labour market churn to future wages

The future consequences of avoiding early labour market churn, i.e. leaving the first job in less than 12 months, are based on reported analysis of salary data and prior work history, drawing on data and 50,000 CVs collated by job search company Adzuna (Clarke, 2018). The data shows a £4.5k later career wage penalty for leaving the first job within 12 months, as compared to a base rate of not

four stages, the first as prospective students made applications to higher education in 2006 (~100k eligible UK respondents), the second approximately eighteen months later, a third in 2009 / 2010 as most were approaching their final examinations and the fourth in 2012 between 18 and 30 months post-graduation

[17] Including prior education, gender, ethnicity, socio-demographic background, HEI type and subject type.

dropping out of £37.5k. The wage penalty of early churning is rounded down to 10% to reflect a mid-point scenario estimate.

Levels of early workplace churn are high in the UK, resulting in a midpoint estimate of 40% in this ROI. For instance, the CV analysis in Clarke (2018) suggests about half will churn within their first year of work. For apprenticeships, about one third will fail to complete (Newton et al, 2019).

The likelihood of reduced churn is assumed to match the probability of reduced Higher Education drop-out from the McCulloch study (2014). This is likely to be a conservative assumption, given that there is less structured and independent careers advice available in the workplace compared to Higher Education settings and prior career advice is likely to be correspondingly more important.

Combining these estimates results in a midpoint estimate of 1.3%pts fewer young people in the applicable sample churning early as a result of personal guidance, the equivalent of 0.3%pts of the whole sample of young people receiving personal guidance. As early workplace churn has not attracted research funding like NEETs or HE, this is the least certain of the strands of impact analysed.

vi. Bridging assumptions to relate meta-analysis evidence to longitudinal evidence

Bridging assumptions are required to relate progress on detailed career questionnaires to the high-level, often binary career-related questions captured in the longitudinal datasets.

British Cohort Study

The key question is what level of norm-related progress on a broad-based questionnaire instrument like career decision-making self-efficacy (CDMSE) might be sufficient to trigger the equivalent of a young person switching from having "misaligned" educational/occupational pathways or from having "no idea about future job options" to "having an idea about future job options."

Research in Australia (Galliot, 2015) reinforces the potential for career guidance to help tackle career uncertainty, finding significant associations between career decisiveness and meeting with a career counsellor in school (2.1 times more likely to be certain than uncertain), participating in career education classes (2.5 times) and taking part in voluntary work experience placements (2.4 times). Similarly, in the US, Mortimer et al (2017) follow a sample of young people in Minnesota, finding that being influenced by a teacher or school professional in one's career decision-making increases the odds of becoming successful at age 26-27 by 44%, defining success in terms of factors like economic independence, progress towards career goals, and job satisfaction.

Confidence in a UK setting can also be gained from OECD evidence from the 2018 PISA study that identifies a correlation between students who report guidance interviews at school at the age of 15 and reduced levels of career uncertainty.[18] Descriptive cross-sectional analyses show that 25.6% of those without a guidance interview with an in-school guidance counsellor were uncertain about their career options compared to 19.5% for those with such an interview. Smaller differences were observed for out-of-school counsellors (23.0% vs 17.7%). Smaller differences were also observed for misalignment – for in-school counsellors: 19.3% misaligned compared to 19.1%; for out-of-school counsellors: 20.8% misaligned compared to 19.0% without an interview.

[18] Details shared in correspondence with Dr Anthony Mann, senior policy analyst at the OECD. Data relate to England and Wales - for more detail, see Mann et al (2020).

The default bridging assumption for the purposes of modelling is to require an average of 1, 1.5 or 2 standard deviations (for low, medium and high scenarios respectively).

A two standard deviation improvement might correspond, for instance, to someone who was previously reporting decision-making self-efficacy or career decidedness at the 16th percentile improving to the 84th percentile or improving from the 2nd percentile to the median. By contrast a one standard deviation improvement would correspond to someone moving from the 16th percentile to the median or from the median up to the 84th percentile.[19] This is a larger shift than implied by the group sizes in the original British Cohort Survey data.

For wage outcomes, the mathematical consequences of these assumptions combined with the subgroup size in Section 6 is an average wage uplift across all students accessing personal guidance would be 0.2% (applied only to those in full-time work up to age 35). In practice, personal guidance is unlikely to have a tiny impact on all students, so the average can instead be thought of as capturing a meaningful increase for a certain proportion of participants. For instance, the same ROI would result if there were a 2% wage increase for 10% of students or a 20% increase for 1% of students, where the latter might be thought of as students who change their career path or their continuing education plans as a result of insights from and actions prompted by their personal guidance interview.

FutureTrack

The McCulloch (2014) study of FutureTrack data suggests two main ways that personal guidance could reduce the chance of drop-out: firstly indirectly through various channels that ultimately result in young people being able to report higher satisfaction with their prior career guidance, and secondly directly through being an additional source of information and advice about their choices. The second channel relates directly to personal guidance conversations as envisaged by Gatsby and no bridging assumptions are required (3% x 74% directly indicates an overall reduction in dropout odds of 2.2%).

In the first channel, students may interpret "career guidance" differently in terms of the span of activities it covers and it is reasonable to assume that one-to-one guidance interviews might only trigger an improvement in satisfaction for a subset of students who are in particular need of personal guidance from their school or college, perhaps those with particular questions or assumptions about their course choice or those with access to little advice outside of school or college.

The midpoint estimate in the ROI assumes a quarter of those young people in scope fall into this category, drawing on survey data (DfE, 2017b) about the proportion of young people describing – with the benefit of hindsight – their careers adviser conversations as "very helpful" (26%). This should be conservative because the proportion of young people finding careers adviser support helpful is likely to be higher among those in higher need or with little other support, i.e. those who might otherwise report low satisfaction and form the applicable subsample. Combining these assumptions results in an overall reduction in drop-out odds of 3% via this channel (40% x 30% x 25%).

The two channels combine together multiplicatively to give an average overall reduction in dropout odds across the cohort of around 5.2%. Since the odds of dropout are initially low at 0.07 (i.e. 6.5%pts prevalence, ibid, non-mature students only), this reduction in odds only results in a small change in overall drop-out numbers: 0.3%pts reduction for the midpoint estimate. For the low/high estimates a range of 3%pts is put around the midpoint of 5.2% improvement in dropout odds.

[19] This heuristic allows for a normal distribution of score results, as typically obtains by the law of large numbers for index scores constructed by additively combining a large number of separately measured items.

6. ROI estimation

This section first explains the approach to identifying and quantifying subgroups of young people that might have different levels of benefit as a result of personal guidance. It then summarises and presents a schematic to describe which groups of young people and theory of change pathways are in scope for the ROI. This section closes by presenting the results of the midpoint ROI estimation and the results of the Monte Carlo simulation reflecting the uncertainty in underlying ROI parameter assumptions.

Subgroups of young people with respect to need for personal guidance

While everyone can benefit from an independent sense-check and supportive challenge of their career plans, young people are not equal in terms of how much they might need career guidance in general (their ideas may already be suitable), how much they need school or college to provide guidance as opposed to other sources of support, and their likely consequence of receiving guidance - i.e. how different could their futures be as a result. This approach relates to Nathan's concept of varying "capacity to aspire" across different groups (Nathan, 2005).

This variation across young people is interpreted conservatively in three ways in this ROI, by reducing the estimated financial value associated with particular outcomes (see Section 4), by reducing the estimated average effect size of personal guidance (see Section 5), and by reducing the proportion of young people to whom to apply the effect size (this section). This section implements subgroups by differentiating three archetypal groups of young people: those for whom personal guidance would be a medium priority, those for whom it would be a higher priority, and those for whom it would be a lower priority.

- *The higher priority group* includes, for instance, (i) those who are at high risk of NEET, (ii) those who have no idea what job they want to do, and (iii) those whose current education ambitions are insufficient to meet their career ambitions, noting significant overlap between these subgroups. In terms of ROI impact strands, such young people are in scope for reduced NEET outcomes and increased wages as a result of improved alignment on education and career pathways, which may in turn relate to a wide range of mediating factors in a theory of a change (see Section 3 and Figure 1 in Section 6 for some example factors).

- *The medium priority group* is likely to be the majority of young people – those who have an idea about their future plans but are not certain – perhaps they are not fully informed about their choices or have not fully considered the alternatives. Personal guidance has the potential to help these young people sense-check their ideas. Some may change their mind to a more suitable route or set of preparatory actions as a result, others may simply progress with greater confidence in and awareness of their chosen route, being less likely to drop-out of that route and more dedicated in their application to it. In terms of ROI impact strands, for the subset of this group that goes onto Higher Education, personal guidance can contribute to a reduced chance of dropping out. For the subset that goes directly into work or an apprenticeship, personal guidance can similarly contribute to a reduced chance of early churn. The subset that pursues other paths represents upside to this ROI, as there is insufficient research evidence to quantify an impact pathway for them.

- *The lower priority group* represents the remaining young people. There is likely still to be some average benefit from personal guidance in this group, but perhaps less so than others. This group may include some young people with extensive access to advice and guidance outside of their education setting and who have already chosen a clear pathway that fits them well.

It is important to recognise these groups and the proportions in them are not fixed over time. Research by CFE for the DfE (DfE, 2017b:10) identifies that although most young people are willing to access information online, there is strong preference for face-to-face help and support with decision-making. Qualitative research with young people by the Behavioural Insights Team for The Careers & Enterprise Company (2016) found that while many young people are poorly informed about their planned career paths, they may feel relatively confident about their choices and how well-informed they are. Collectively this suggests that more needs to be done to raise awareness amongst young people about the value of careers information, advice and guidance, particularly those with SEN or from lower socio-economic groups where outcomes are often less positive and there may be less support outside of school or college.

Proportion of young people in each subgroup

The proportion of young people modelled to be in each category draws on the OECD's 2018 PISA questionnaires of 15 year olds in England and Wales, a survey of 2,017 16-19 learners, 1st year undergraduates and apprentices in 2017 conducted for the Department for Education (DfE, 2017b), and the proportions of young people in the underlying British Cohort Study and Futuretrack research cited in Section 5.

- *The higher priority group* is estimated at 15%-35% of young people (midpoint estimate at 25%). This is at the conservative end of estimates from the British Cohort Study, where ~40% of young people were misaligned at age 16 and ~7% were uncertain about their aspirations, and the OECD PISA 2018 survey which identified 24% who were misaligned and 25% who were uncertain (up from 5% in 2000). The range is supported by survey data (DfE, 2017b) on young people with questions that personal guidance is well placed to support.[20] For instance, 30% of young people did not find it easy to find out about "what jobs learners who study this course do after they have finished" (ibid Figure 9; base=1,341). 22% found it difficult or very difficult to decide on their course and a further 17% did not find it easy (ibid, Table 7; base=2,017). 23% agreed with "I did not know which source of information I could trust to give me accurate information" and 15% agreed with "I did not use the help and resources available but now wish I had" (ibid Figure 13).

- *The medium priority group* is based on the 69% of students who did not "strongly agree" that they knew what they wanted to do when they finished their current course, indicating some potential for support from guidance (DfE, 2017b). This figure would include the proportion of young people in the higher priority group. Once excluded, this leaves approximately 45% young people in the midpoint estimate. Within this group, the ROI differentiates those on a Higher Education track and those on a work track (incl. apprenticeships):

[20] A total of 2017 responses was achieved during spring/summer 2017: 1,667 age 16-19 learners in education and 1st year undergraduates via the online panel and 350 apprentices interviewed via CATI. Respondents were typically interviewed 1-2 years after the decision point, so provides a good hindsight perspective on the value of career guidance.

    - 40% of the medium priority group are modelled to be on a Higher Education track, based on the proportion of 18 and 19 year olds entering university (according to 2017/18 HEIPR data[21]).
    - 46% of the medium priority group are modelled to be on a work/apprenticeship track, based on October 2019 data from the DfE (Destinations of key stage 4 and 16-18 students, England, 2017/18; rebased to exclude the ~20% who are NEET/unknown and are better captured in the "higher priority" group).
    - Note the approach is conservative in not including any ROI for students following non-HE education routes post-18 (~12% of total KS5 graduating cohort).

- *The lower priority group* represents the remainder of young people, being 30% in the midpoint estimate.

From a policy implementation and potential deadweight perspective, we would like to know which young person is in which group. There are unlikely to be simple indicators of this – for instance, young people of different academic performance levels or different socio-economic backgrounds might be more likely to be in one group than the others, but all types are likely to be present to some degree in each group. In practice, one of the best ways to be certain of a young person's likely priority with respect to personal guidance is likely to be an initial open and reflective conversation with a careers professional, as thoughtful discussion may be required to trigger an awareness of need. In other words, some level of independent and professionally-delivered personal guidance is likely to be the best way to identify what level of personal guidance would be beneficial for a particular young person.

Impact pathways in and out of scope

The prioritised choice of long-term outcomes (section 4) and focus on particular subsets of young people ensures that this is only a partial ROI, in that several credible impact pathways are not fully costed and incorporated into the midpoint estimate.

For different young people facing different levels of need at the time of personal guidance, short-term benefits may include *inter alia* changes to their education or career pathway, greater confidence and motivation in their chosen route, improved motivation and attendance in class contributing to improved grades, practical help with search, application and interview, improved self-awareness or sense of identity, and support with pastoral issues or referrals to outside agencies. Such benefits can result in reduced NEET outcomes, greater success on their education and career pathways, enhanced wages, reduced burden to the state and improved wellbeing, all contributing to a multiplier effect on the economy and wider society. Figure 1 uses colour shading to indicate which impact pathways in a theory of change are better covered in this partial ROI estimate.

[21] See Table 2: HEIPR for females and males by ages 17 to 30, available at https://www.gov.uk/government/statistics/participation-rates-in-higher-education-2006-to-2018

Figure 1: Illustrative theory of change pathways vs ROI scope (darker shading = fuller coverage)

** Simplified schematic to describe groups and potential impact flows primarily in scope for this partial ROI (blue shaded) and provide illustrative examples of those largely or entirely out of scope (grey shaded) – reality would be more interconnected, iterative and contextual than the high-level categories and potential flows described here*

*** Any one of the steps in this section might also result in a young person changing their intended education/career pathway, but this is not the only way in which impact is achieved.*

ROI across different possible impact strands

This return on investment exercise draws on good practice in the public sector to describe the multiple of return (i.e. from the Exchequer's perspective: increased taxation or reduced public sector spend) over investment (i.e. initial spend on the intervention).[22] Net present values are used so that benefits in the future can be appropriately compared to investments in the present. A value of 1 suggests the activity breaks even. Anything higher than 1 is a net positive investment, anything below 1 is a net loss.

Overall this analysis results in four strands of impact for the ROI, with partial overlap between two of them which is adjusted for separately (see Table 2).

Table 2: Short-term impact and ROI by impact strand

Impact strand	Applicable subgroup[1]	Short-term impact within subgroup	Partial Exchequer ROI[2]	Partial social ROI[2]
Higher priority: NEET reduction	25% *(i.e. the full higher priority group)*	Around one in 125 prevented from NEET	1.0x	1.8x
Higher priority: Increased wages	25% *(i.e. the full higher priority group)*	Average wage uplift of 0.8%	2.5x	6.6x
Medium priority: Reduced higher education drop-out	~18% *(i.e. 40% who go to HE out of the 45% in medium priority overall)*	Around one in 325 prevented from dropping out	1.0x	0.7x
Medium priority: Higher wages for those in work post-18	~21% *(i.e. 46% who go to work out of the 45% in medium priority overall)*	Around one in 80 not churning in first year of work and securing a 10% wage uplift	0.3x	0.8x
Reduction for overlap in higher priority group[23]			-0.3x	-0.9x
Total	**~64%** (*of full cohort for whom some probability of benefit is calculated)*		**4.4x**	**9.1x**

[1] Proportion of full cohort receiving personal guidance that is in scope for this short-term impact

[2] Assuming each strand assumed the full cost of personal guidance. Estimates are partial as not all possible ROI benefits are included, i.e. they are anticipated to be underestimates of the true ROI.

[22] HM Treasury (2013). *The Green Book: Central government guidance on appraisal and evaluation.* available from https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-governent

[23] The possibility of double-counting between lifetime NEET prevention benefits and enhanced wages is adjusted for the higher priority group. In the midpoint estimate scenario, we exclude a proportion of the wage-related ROI that corresponds to the proportion of young people who are NEET at age 18 in England in Q4 2019 (13%).

The overall midpoint partial ROI is 4.4x for the Exchequer and 9.1x for society/individuals.

The Exchequer ROI largely focuses just on the immediate taxation benefits of higher wages, measured directly in terms of wage gains or indirectly in terms of increased earnings following the completion of Higher Education.

The social ROI is highly limited in focusing largely on private income gains. Only the NEET reduction impact strand considers a broader set of benefits, such as reduced healthcare costs, reduced benefits, or reduced interactions with the criminal justice system.

Both ROI estimates are partial in the sense that they exclude any economy multiplier effects or (apart from the NEET strand) any benefits outside of wage gains for a subset of young people.

Monte Carlo simulation

Key parameters in the ROI have a low, medium and high value identified (see Appendix 2 for details). Each Monte Carlo simulation identifies a value at random between those values, sampled according to a triangular probability distribution, and calculates the ROI accordingly. 100,000 such simulations are run to generate a range of possible results, plotted in Figures 2 and 3 as probability distributions.

Figure 2: Monte Carlo probability distribution for partial Exchequer ROI

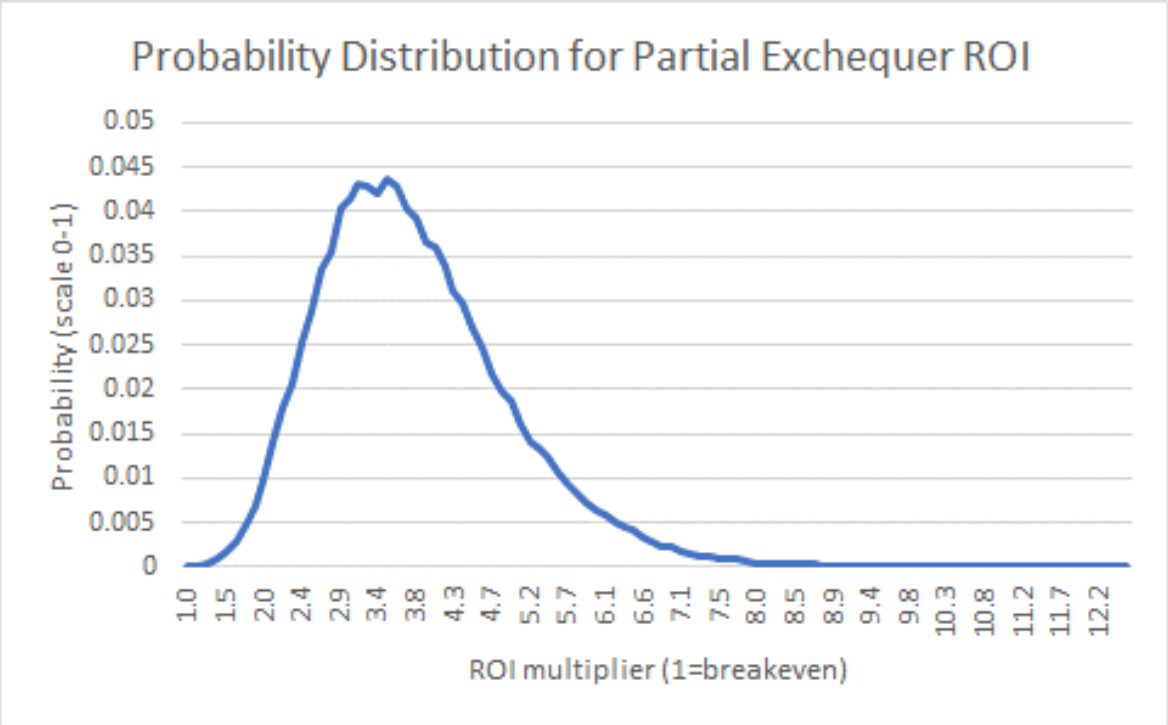


Figure 3: Monte Carlo probability distribution for partial social ROI

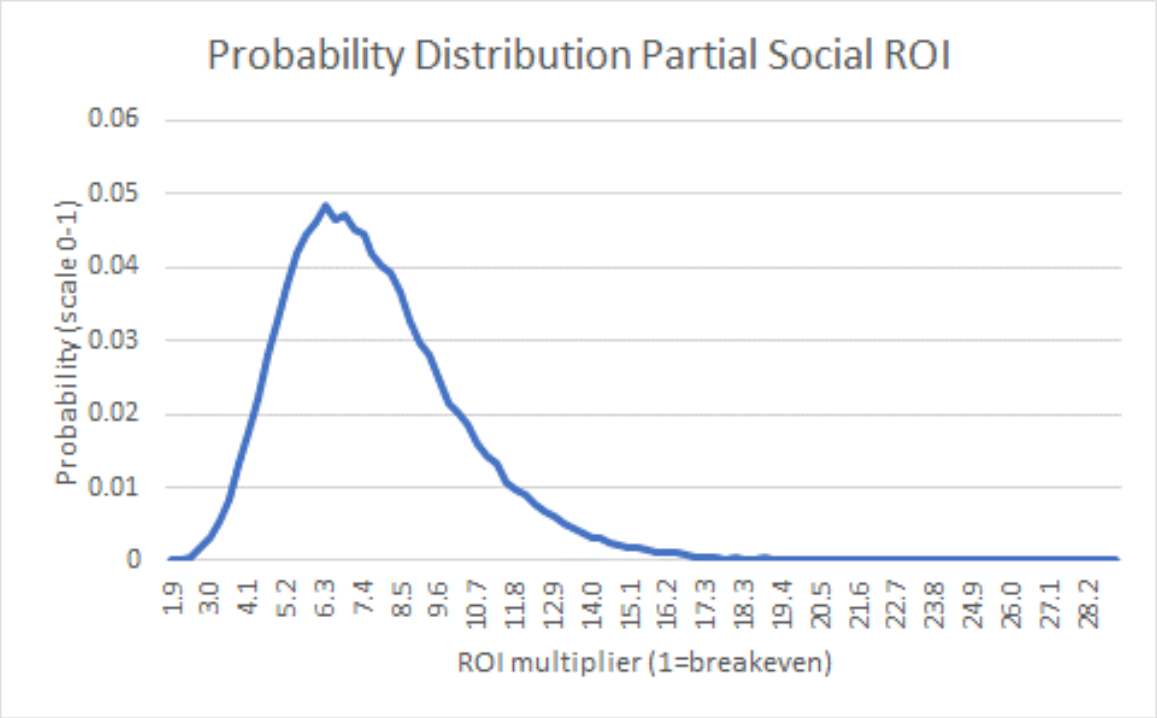


Table 3: Distribution statistics of the Monte Carlo ROI simulation

MC distribution statistic	Partial Exchequer ROI	Partial Social ROI
10th percentile value	2.5x	4.9x
25th percentile value	3.0x	6.0x
Median value	3.7x	7.5x
75th percentile value	4.5x	9.3x
90th percentile value	5.4x	11.2x
Average	3.9x	7.8x

The Monte Carlo results, set out in Table 3, can be summarised as: Given the uncertainty captured in the ROI model, there is an 80% probability that the true value of this partial ROI ranges from 3x-5x for the Exchequer and from 5x-11x for society. The uncertainty estimates cover a wide range of plausible outcomes. The assumptions are summarized in Appendix 2.

7. Impact sense-check

The calculation chain above draws on the more precise quantitative estimates of different steps in the ROI logic chain. The result can be triangulated against less precise measures, such as attempts to directly measure the long-term impact of personal guidance using underpowered datasets and considering the measured long-term impact of integrated programmes in which personal guidance plays a role, but where the significance of that role is hard to specify.

Sense-check using direct measures on longitudinal datasets

With small direct hypothesised effect sizes, it is very hard to identify effects directly in experimental or quasi-experimental data, due to the very large sample sizes that would be needed, the likely subsequent sensitivity of the analysis to analytical choices and background factors, and the hypothesis that the effect is variable over the population (rather than having a broadly consistent point estimate that applies to most participants). Nonetheless, it is helpful to review large-scale Government-supported longitudinal studies to sense-check that these estimates lie within the confidence interval range of the results. Both the LSYPE longitudinal dataset (tracking a sample born in 1990) and the British Cohort Study (tracking a sample born in 1970) have enabled researchers to complete such analyses.

Nicoletti and Berthoud (2010) analyse the LSYPE dataset for the DfE, exploring inter alia the link between NEET status and having had careers advice or IAG from the personal guidance Connexions service. The link is weakly positive but fails to be statistically significant at the 10% level – equivalent to a 0.5% to 1.6% reduced chance of being NEET at age 17-18 and a -0.9% or +0.1% effect at 16-17, aggregating to total reductions in months spent in NEET of 0.08 or 0.17 months (Tables 5.1 & 5.2, using regression and PSM techniques respectively, focusing on discussions about future studies[24]). This effect size is significantly higher than the midpoint estimate of 0.2% in this ROI (as analysed across the full sample of recipients of personal guidance), which falls conservatively within the confidence intervals of the LSYPE data. Other work on the LSYPE (Mann et al, 2017) also finds potential for school conversations about career options to reduce NEET outcomes: teenagers who had spoken to a teacher at least once either inside or outside of lessons aged 13-14 were 13% to 24% less likely than comparable peers to be NEET on the day the survey wave was undertaken at age 19-20.

Analysis on the British Cohort Study similarly concluded that the average effects of careers conversations, classes and meetings with internal school staff were typically very weakly positive (not statistically significant). When young people at age 16 said they had, since the start of the academic year, had any personal contact with a "careers teacher", this was associated with a +0.14% wage premium with a standard error of +/- 0.4% (Percy and Kashefpakdel, 2018; additional analysis on dataset). This is within the range of the midpoint estimate of +0.2% in this ROI, and compares favourably to it if a similar sized benefit were gained in further interactions between the ages of 16 and 18.

[24] Reported discussions with Connexions about apprenticeships/training often had a net negative link to NEET, but the imperfect controls for selection effects for such a specific topic of discussion suggest caution. It is hard to appropriately identify and then to proxy for all the factors that might influence both future outcomes and being a student on a track towards training/apprenticeship (a highly minority route at the time), who also wants to talk to an adviser about it.

Sense-check considering integrated career guidance programmes

An alternative approach to analysing personal guidance is to recognise that, as envisaged by Gatsby, it is part of an integrated programme of careers education and guidance. As such, attempts to isolate the benefit of personal guidance alone may miss its key contribution. Where independent and impartial personal guidance is seen as part of a holistic programme, it might be considered the glue that brings together diverse careers activities.

Good quality guidance interviews might enable young people to personalise and contextualise diverse career-related learning experiences, potentially integrating those experiences with broader pathway information and LMI in order to consider the immediate pathway decisions facing them in the present, what further actions they might take to research or prepare for those pathways, and what links with teachers or other education professionals might be usefully made. Nonetheless, there is scope to analyse the impact of integrated programmes and consider what proportion might heuristically be assigned to personal guidance.[25]

The Quality in Careers Standard (QiCS) award and its predecessors are externally-assessed markers of whether an education provider has a comprehensive careers programme in place, including one-to-one guidance interviews for students (QICC, 2019; Careers England, 2011), and provide an opportunity to sense-check these ROI estimates.

The difference between secondary education providers in England that held QiCS and those that did not was analysed by Hooley, Matheson and Watts (2014) for the Sutton Trust. Descriptive comparisons within school type suggest that education providers that held QiCS typically had a lower post-education NEET rate than those that did not, ranging from 0.3%pt (general FE colleges) to 2.3%pts (academies). Controlling for a range of background variables, including neighbourhood deprivation (POLAR quintile), school type, pupil-teacher ratio, demographic intake (SEN/FSM/EAL ratios) and total number of students, the analysis identifies a 0.5%pt lower NEET rate, statistically significant at the 10% level (N=2,142, R2=0.38).

It is not possible to quantitatively relate personal guidance to QiCS, as the quality mark represents an integrated programme of which personal guidance is only one element. As a heuristic, we might consider personal guidance to be 1/8th of the importance of the Gatsby benchmarks as a whole and draw on the recent evidence that schools and colleges holding QiCS self-reported achieving an average of 2.9 benchmarks out of 8 (The Careers & Enterprise Company, 2018a). Using these two adjustments, the 0.5%pt lower NEET rate is equivalent to a 0.17% lower NEET rate, which lines up closely to the 0.2% lower NEET rate implied by the midpoint estimate in this ROI.

[25] Proportion of total cost of delivery is one reasonable approach from an ROI perspective, but publicly-available reports on programmes costs are insufficiently detailed to support a consistent cost-based approach in this analysis.

8. Assessment of reliability of evidence for policy decisions

This section explores the quality of the evidence base used to underpin the ROI estimates, noting that the precision of specific numerical estimates is discussed elsewhere (e.g. in the low/high/midpoint estimates from Section 5 and Appendix 2) and is modelled via the Monte Carlo simulation.

The purpose of this exercise has been to derive a reasonable estimate of the likely return on investment to society in general and to the Exchequer in particular of supporting investment in personal guidance, whether funded directly by government or via delegated school and college budgets. For such estimates to be reasonable, the ROI has drawn on published academic studies that use a robust analytical design, such as meta-analyses of comparison group studies or multivariate regressions using high-quality longitudinal data.

Signalling

The presence of a theory of change, as summarised in Section 3 and Figure 1, buttresses confidence in empirical estimates and can inform a discussion of possible signalling or positional bias. Such bias results when one person's success (as captured in the empirical research) occurs, albeit perhaps only partially, at the cost of another person's success (which is not necessarily captured in the research). Where a particular series of activities or aspects of the economy are zero-sum, interventions to support particular groups may still be beneficial from a distributional perspective but not from an aggregate ROI perspective.

Most aspects of personal guidance are not zero-sum. As set out in Section 3, personal guidance may help a young person become better informed of options, better aware of their own preferences and better able to develop and follow an action plan that supports their future progression. As a result of being on a better fit pathway and more confident in it, a person may waste less time pursuing an inappropriate career path prior to reversing, and be more motivated and productive in their chosen path. In most plausible scenarios, such benefits would be positive sum for the economy. My being in a well-suited career does not prevent you from finding a well-suited career.

Nonetheless, a few aspects of personal guidance are likely to have some positional aspects, particularly elements of help with CV presentation or interview preparation. While such exercises can have constructive components, helping young people be motivated and confident or to understand their skills relative to the demands of a particular pathway and hence pursuing it appropriately, these activities also have a positional component. For instance, a young person with a polished CV or personal statement may secure a higher paid position that might have otherwise been taken (given scarcity) by an equivalently able person with a less polished CV. Even such activities are not entirely zero sum, as they reduce the "search and matching" costs by education providers or providers.

Overall, signalling is unlikely to be a material proportion of the ROI estimates, especially relative to the likely scale of known impact strands that have not been costed (see Figure 1) or the known conservative aspects of the estimation (see Appendix 2).

Deadweight

Deadweight exists where young people participate in personal guidance needlessly – they (appear to) gain no benefits from it or at least no benefits that they would not have been able to secure costlessly elsewhere. Deadweight is present in some form for most social sector policies.

By construction, this ROI includes a small component of deadweight, in that ~25% of young people are estimated to be in the higher priority group for guidance and ~45% in the medium priority group, leaving ~30% in the lower priority group. There is also a form of deadweight in that the intervention is not assumed to be wholly effective for all young people, even if they start in a medium or higher priority group for guidance.

This construction is an analytical simplification in order to relate likely subgroups of young people (based on survey data) to empirically-estimable routes to impact reflects the limited evidence base on impact more than it reflects confidence in actual impact. It is possible there are benefits for those ~30% of young people that are not captured in this partial ROI – a conversation with an objective, well-informed third party to sense-check a pathway choice might have value, even if it does not induce a material change in pathway.

Even treating that ~30% as true deadweight, it does not follow necessarily that the ROI could be improved by excluding them. It may be the case that in order for any subset of students to benefit as a result of guidance, you need to first identify which students might benefit. In other words, you need some minimum level of guidance interaction to identify what issues (if any) might exist for an individual and explore what the options might be. Viewed through this lens, universal provision is a key part of unlocking material benefits for a subset of students, potentially through the use of further targeted or specialised support for that group.

It is beyond the scope of this work to consider whether an alternative approach to triage might be cheaper, but it should highlight that the intervention is already low cost (£80 / person or £40 per interview) and that some level of one-to-one, independent interaction with a skilled practitioner may be necessary to elicit an honest reflection on personal circumstances or pathway decision-making, to prevent over-confident dismissals of the potential help.

Universal provision may also be an important component in ensuring policy success, by preventing stigmatisation of beneficiaries or a "deficit-lens", in which those receiving guidance are seen to have some "deficit" relative to other students that needs "fixing" by an outside professional (see, for instance, Schnorr and Ware, 2001). As such it is more appropriate to consider the modest portion of deadweight assumed in this partial ROI (which may not reflect the full scope of benefits) as a feature rather than a bug.

Attribution and displacement

Each of the four strands of impact is assessed individually in the following with respect to likely confidence in causality and weak points for future research.

Impact strand	Confidence in causality for a modern policy implementation (attribution/displacement)
Higher priority: NEET reduction	*Medium confidence* - Meta-analyses of comparison group studies give strong causal confidence for an impact from career guidance on self-reported answers on widely-used and validated career questionnaire instruments. By construction, the use of control groups in such studies affords high confidence in attribution and reflects any displacement that naturally occurs. - Peer-reviewed analysis of a large-scale Government-funded longitudinal study also gives robust confidence in the NEET/wage impact of improved career planning. Attribution/ displacement are less certain in longitudinal studies than

	comparison group studies but confidence remains high given the large sample size, extensive control variables and the generalised topic nature of the longitudinal study (retention/answers in topic-specific longitudinal studies can be correlated to the respondents' perspective or experience of the topic). - However, a bridging assumption is required to connect questionnaire progress to improved career planning – the leap is small because the questions used in the questionnaires are functionally similar to those that capture improved career planning as used in the longitudinal data, but there is no mathematical precision for the link. This has been mitigated empirically in the ROI through the use of conservative parameters, but nonetheless represents an opportunity for future research. - A more serious limitation in this impact strand is the significant structural change in the policy environment for age 19 NEET outcomes since the late 1980s, especially the raising of the compulsory participation age for education or training to 18, the significant expansion in Higher Education, and reduction in part-time teenage employment. This limits the ability to extrapolate from the BCS to present-day policy. This limitation is mitigated by sense-checking the subsequent NEET reduction estimate against a more recent study, the Longitudinal Study of Young People in England (LSYPE - LSYPE1) in which young people were aged 20 in 2019/20.
Higher priority: Increased wages	*Strong confidence* - Same as the assessment on NEET reduction, but without the caveat concerning structural changes in raising the participation age of education and training. A desire to quantify long-term wage impacts necessarily means any empirical evidence will be historical in nature. This strand could be improved by further work on the bridging assumption from questionnaire progress to outcomes.
Medium priority: Reduced HE drop-out For those on HE route	*Strong confidence* - The FutureTrack data analysed by McCulloch (2014) directly connects perspectives on career guidance to HE drop-out, using a large and relatively recent cohort (all people who applied to full-time HE in the UK in 2005/06) and employing a wide range of control variables. - The limitation with this study is the need to use young people's perspectives on recollected career guidance rather than more objective contemporaneous data collected on their actual career guidance activities during secondary education; and subsequent uncertainty regarding how well guidance interviews might result in an improvement in student satisfaction. Data from CFE (DfE, 2017b) suggests guidance interviews are generally well received and the effect size is reduced in order to reflect possible application to a subgroup.
Medium priority: Increased wages for those in work post-18	*Weak confidence* - The evidence is weakest for this strand, as there are no direct comparison group trials or longitudinal studies available to inform it. Insights on the impact of personal guidance on reduced first job churn are drawn from the Higher Education study (McCulloch, 2014) and insights on the scale of impact on wages are drawn from a study of 50k CVs and salaries that, while large in scale, did not have a formal sampling frame or a detailed control variables (Clarke, 2018). The weaknesses of this strand are reflected in cautious estimates; the ROI is lowest on this strand.

For the binary outcomes, NEET prevention and HE drop-out, there is a further consideration regarding the comparison of average outcomes between the positive and the adverse outcome groups and the possibility that a policy intervention might only enable progress at the margins. In other words, the kind of person whom personal guidance helps to prevent from becoming NEET might have been only "just" likely to become NEET in the first instance and remains only "just" EET following personal guidance. This marginal improvement may not be sufficient to unlock the full benefit as measured between the two averages.

This consideration is mitigated in two ways – first by using lower midpoint estimates for long-term outcomes (see Section 4) and second by observing a distribution of impacts lying beneath the binary outcome. The intervention may support many young people to make marginal progress, but that only a minority will be near enough to the threshold to trigger a shift from one binary outcome group to the other. However, this does not mean the progress made by those more distant from the threshold is not valuable. The binary outcome itself disguises a spectrum, e.g. how many months NEET for those who are NEET, how engaged and proactive individuals are for those who are EET, such that positive progress at different points still has value. The marginal progress for all individuals at different points along that spectrum will aggregate to comparable values (depending on the distributional assumptions involved) as one hypothetical individual shifting from the average of one binary outcome to the average of the other.

Confidence in causality is increased by the use of sense-checks on the overall point estimates of the impact of careers guidance (see Section 7).

9. Limitations of historical data

Section 8 set out detailed considerations around deadweight, signalling, attribution and displacement, to support an assessment of the likely causal reliability of the evidence base used in this ROI. This section extends the discussion of limitations to reflect more broadly on the reliability of estimates derived from historic data for today's context.

The economic impact of any policy measure or education intervention will, in general, depend on the current stage of the economic cycle and the broader socio-cultural context. For instance, the wage returns to education in the US have been shown to vary over time given the changing policy and socio-economic environment (Goldin and Katz, 2007). The underlying principles by which career guidance might enhance lifetime outcomes, as set out in Figure 1 (section 6), are likely to be broadly stable across adjacent policy settings in present-day England, but the quantitative implications of these principles will vary with changing context.

Recognising this variation by context, the evidence for this ROI draws on data from different historical periods in the UK: The BCS cohort born in 1970, the LSYPE cohort born in 1990, and the FutureTrack cohort entering Higher Education in 2005/6. While no historical period can ever be an exact measure for England as it enters the 2020s and recovers from COVID19, the use of multiple reference periods affords confidence that comparably positive impacts might exist going forward. More generally, long-term historical datasets are necessary if we wish to relate interventions aged 16 to wage outcomes in our 30s and beyond, meaning the caveat of contemporary applicability is unavoidable.

Sector experts consulted via this project's Working Group (see Appendix 3) argue that the future impact of career guidance is likely to be higher than identified in historic data. Other experts concur. For instance, Lord Baker has raised concern about a "tsunami of youth unemployment" as the economic effects of the COVID19 pandemic and associated response take hold (Baker, 2020). The increased need for lifelong guidance, including young people and students as a vulnerable group, as a result of COVID19 has been highlighted by Cedefop (2020).

The increased difficulty in finding work, the upheaval to previously intended career pathways and intensely-felt uncertainty point towards the value of more extensive personal guidance and career counselling.

Even prior to the labour market disruption that is anticipated to follow COVID19, the OECD (2010:16) argued that the increasingly rapid changes in modern economies and the complex choices involved in various school-to-work transition pathways point towards an increased need (and hence increased potential impact) of career guidance: "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 [with this] is the task of career guidance."

Ultimately, the ROI parameter inputs are modelled assumptions informed by a research literature, but not defined by it. As socioeconomic conditions and the broader educational and career programmes change and as additional research is incorporated into a current assessment, it is reasonable for stakeholders to consider the implications of different assumptions.

10. Future considerations

This analysis highlights four specific areas of uncertainty in estimating the returns on investment into personal guidance in English schools and colleges, in addition to more general opportunities to refine and validate the existing research base as drawn on in the paper and the general need for additional comparison group studies of standard personal guidance practice in England[26]:

(i) the potential need for additional support for young people at risk of NEET;

(ii) the potential impact of increased quality of delivery;

(iii) the difference in impact, if any, between the personal guidance model as commonly delivered in General Further Education Colleges compared to the Gatsby model;

(iv) the potential benefit of increased focus on over-served career pathways to support strategic sectors, national skills gaps and improved labour market matching.

Research into these four areas might both increase the accuracy of impact estimates for personal guidance and also identify ways to enhance that impact.

More generally, data-based insights could be enhanced if the sector were to develop a taxonomy[27] of common student issues which personal guidance can support, logging each one-to-one session against this taxonomy - following up with students to identify whether the issue has been resolved and the extent to which the students credit the personal guidance in supporting that resolution. Such practice would not only provide quantitative insight and a framework for research that enhances ROI estimation, it also has the potential to improve practice by adjusting approach in response to analysis of common issues and what works.

i. Additional support for young people at risk of NEET

Several careers leader interviews highlighted the principle that a subset of young people would benefit from additional support than Gatsby's description of a single interview per key stage decision.

Such young people might typically be those facing particularly challenging circumstances, those with no idea what to do or where to start, or those starting to challenge a career preference imposed on them by family, social stereotype or long-running personal inertia. Such young people are likely to be at a higher risk of NEET, although not necessarily all of them. Such support complements rather than

[26] The evidence base is stronger for US practice than English practice, particularly for current or common practice as opposed to assessments of innovative practice. There remain weak areas around relating progress in career-related questionnaires to changes in outcome for those in full-time education (more literature exists for adults, e.g. Abele and Spurk 2008). International and UK evidence also exists showing the impact of guidance on adults, especially unemployed adults (e.g. Gloster et al, 2013; Blundell et al, 2004; Graverson and van Ours, 2008, Page et al, 2007).

[27] A taxonomy could be a as simple as a tick-list based on a set of issues and support, including increasing alignment of education/occupational pathways, developing a firmer choice of immediate step / career direction, pastoral care (incl. referrals), the benefits a subset might gain in terms of reassurance or a double-check on their decisions, specific questions around information or a data point, or technical questions (such as around CVs, application approaches or interview styles). Some of these needs might be met by referrals or action plans following the interview, rather than done within a guidance interview, but it is still useful to log the needs and to understand the guidance interview as part of a system in meeting those needs.

replaces a universal underpinning infrastructure, within which all students receive and are encouraged to access a minimum level of provision.

Interviewees indicated that the size of this subgroup of young people might range from a few percent in a grammar school with high progression rates to Higher Education up to a third or more in an FE college serving a disadvantaged cohort. It is also likely to include a significant proportion of SEND students, where work is taking place in terms of interpreting the Gatsby benchmarks and reflecting further on the most important career guidance activities for different SEND requirements (The Careers & Enterprise Company, 2018b[28]).

One careers leader interviewed for this work emphasised that for some young people in this category, personal guidance was enhanced if delivered by someone who knew the students personally, was based on-site at the school, knew their teachers well, and could have regular conversations with them at different levels of formality. It is uncertain how widely this principle might apply – for some young people, perhaps in other categories, an entirely independent conversation might be more useful (e.g. with someone who deliberately has no knowledge of the school and no links to its teachers). Related to this is the question over the medium of personal guidance contact in different cases, such as in-person, over-the-phone, or by video call.

This notion of proximity links to the insight that one-to-one conversations about future options between a young person and a paid adult already happen at various levels of formality in a school or college: brief conversations with a teacher, discussions of specific questions a student might bring to class, and ad hoc questions asked by a student in passing, all the way up to formally scheduled slots with a professional adviser. Career guidance and pastoral care might be enhanced if such activities were intentionally integrated with each other and logged in a way that identifies and follows up on specific issues, as well as implicitly identifying those young people falling through the gaps.

Meta-analytical studies emphasise five sessions as being valuable for optimising impact among those needing personal guidance, several more than implied by the minimum interpretation of Gatsby Benchmark 8. Some interviewees emphasised the value of "unlimited access" to one-to-one support, recognising that almost no young people would abuse the option at the cost of their own time and that many of those in greater need would be sufficiently well-served after a handful of sessions. This level of additional support can be interpreted within the Gatsby vision in terms of benchmark 3, which focuses on personalising careers provision to a young person's needs.

A school representative providing feedback on this report drew parallels between this approach and the three tiers of support often provided to manage special needs. A school has a universal provision, which provides support to all students and helps to identify those who would benefit from targeted provision, beyond which there is a form of specialised provision which brings in those with expertise in a specific issue.[29] This approach privileges equity over equality and seeks to provide different young people with what they individually need to have the best chance of positive outcomes.

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[28] See also https://www.careersandenterprise.co.uk/schools-colleges/support-send

[29] Universal delivery of one-to-one interactions (or at least universal availability and universally encouraged uptake) is an important component of such services, in that it helps prevent stigma, the self-fulfilling negativity of a "deficit model" approach to coaching/guidance, and the unwillingness to participate which can prevent positive outcomes. This is particularly important for activities like personal guidance that ultimately rely on a high level of positive, proactive and future self-directed engagement by the participant.

ii. The potential impact of increased quality of delivery

Key parts of the evidence chain, such as McCulloch's work (2014) on HE drop-out and the British Cohort study analyses on the relevance of identifiable career preferences and aligned education/occupational aspirations, focus on career guidance as was common practice at the time. There may be potential for increased impact if common practice more closely reflected good practice. For instance, The Careers & Enterprise Company State of the Nation reports identify variation in practice and low overall achievement of the Gatsby benchmarks, e.g. with an average of 3.0 out of eight benchmarks reported as achieved in 2019, already much improved on the average of 1.3 reported in 2014 (The Careers & Enterprise Company, 2019).

Stakeholder inputs for this research reinforced the importance of this variation in practice and the importance of quality of personal guidance as a potential factor that drives impact. There is no single, straightforward measure of quality of personal guidance, although factors are likely to include volume (quantity of interviews, duration of interviews), workforce quality (e.g. level of initial training, ongoing support and CPD, motivation and capability), interaction quality (e.g. level of personalisation, preparation by both student and careers adviser), and the integration with other career guidance activities (both past and future activities, incorporating action plan follow-up). The Careers & Enterprise Company's best practice research also explores the importance and dimensions of quality (Everitt et al, 2018).

It is also possible that different forms of guidance tailored to student circumstances and priorities, including perhaps guidance professionals with different specialisms, is part of enhancing the quality of provision. For instance, specialist support may be important for those considering different routes, such as entry to higher education, entry to technical education, preparation for apprenticeships, preparation for entrepreneurship or freelance work, or direct entry into formal employment. The quantitative implications of increased specialisation in its different possible forms are not well understood.

The self-improvement Compass tool focuses on volume of interviews – the proportion of young people accessing personal guidance – adopting an objective and straightforward measure of the benchmark. Other research emphasises the important variations in quality outside of the Compass tool volume measure.

For instance, one unpublished study shared by the project working group drew on interviews with 21 schools from different regions in England in order to review practice quality in detail beyond the volume measures captured in the Compass tool. The interviews that took place in January 2020 with the staff member responsibility for careers provision. Example concerns identified include limited access for careers advisers to Year 11 students, half the sample of schools offering guidance only at 30 minutes or less (due to prioritising financial pressure over student benefit), limited integration with pastoral care or the wider careers programme, e.g. action plans not routinely followed up and action plan data not used to inform provision, little quality assurance beyond informal feedback or satisfaction measures, and lack of professional support for careers advisers. While some schools are meeting good practice, this research suggests an important proportion are not.

Other research, undertaken by a former Ofsted inspector as part of developing a new careers strategy for Derby local authority, revealed some discrepancies between observed career guidance practice in school and self-assessed practice, pointing towards the importance of quality assurance frameworks as a supplement to self-improvement tools (Hughes et al, 2020:36).

Room for improvement on the estimated ROI in this paper is also apparent in feedback from young people who have had time to progress some years in their careers and reflect on the usefulness of different activities. While 70% of young people described their interaction with a careers adviser as helpful, only 26% described it as very helpful (DfE, 2017b). A sample from an older cohort accessing Higher Education was more critical when reflecting on their prior career guidance as a whole: 30% reported low satisfaction and a further 37% only reported moderate levels of satisfaction (McCulloch, 2014).

International survey evidence reinforces the point that young people are particularly dissatisfied in the UK: 49% of those who had career guidance counselling at school found it useful, the lowest out of 19 countries analysed (non-fee paying schools only; OECD & WorldSkills, 2019:25). Reports of usefulness were much higher in other countries: For instance, in the US (73%), in Japan (81%), in Italy (66%) and in Canada (65%).

It is possible that youth expectations are structurally different from country to country and that different education/labour market systems are also contributing factors to these low reports from the UK. It is also possible that reports from current students would be more favourable: the respondents to the surveys cited in this section would have passed through secondary education before the current English careers strategy and Gatsby benchmark framework for self-improvement were embedded. Nonetheless, these data points should encourage those working in personal guidance to reflect on how greater impact might be gained from guidance conversations and career guidance activities. From a policy perspective, it points towards the potential for higher ROI than set out in this report.

The issue of quality is also connected to the availability of high quality, trained and motivated professionals. Stakeholders in the working group for this project raised concern about low pay and limited progression opportunities for careers advisers, particularly in secondary education where salaries tend to be much lower than in Higher Education. These issues were described as limiting the available talent and connected to the issue of schools or colleges using advisers trained to below the recommended Level 6 qualification. Reinforcing this sector experience, meta-analytical studies tend to identify higher impact for more qualified careers advisers (e.g. Oliver & Spokane, 1988). In an adult setting in Japan, a survey of 9,950 adults found that those who had previously used qualified experts for career counselling had higher work satisfaction, employment outcomes and wages than those who had not used any career counselling or had only used less expert counsellors (Shimomura, 2018).

iii. Personal guidance aged 16-18 in General Further Education Colleges

Interviewees reported that many large FE colleges take a different operational approach to the one described in the Gatsby benchmarks, while supporting the overall vision and principles of the benchmarks.

Students in such colleges are often from more disadvantaged backgrounds than the average population and face greater risk of poor progression; they are typically also moving into a different form of education to the one that preceded it, emphasising individual responsibility and adulthood, and often shifting into more vocationally-orientated courses (Dabbous et al, 2020). This might translate into a significant need for guidance and transition support, which is met in some colleges by a level of formal one-to-one discussion that exceeds typical levels in mainstream school education but with a stronger emphasis on support for their present course and potential other courses within the college ahead of more long-term pathway planning or alternatives outside the college.

For instance, some colleges draw on a cadre of specialist tutors or mentors, some of whom may have professional information and guidance qualifications (perhaps to Level 3 or Level 4), who meet with all students one-to-one three to four times every year – being 6x or 8x more than implied by Gatsby benchmark 8. While those conversations do not exclusively focus on career pathway planning and next steps, it is likely to be a topic in scope for discussion, especially where this is an important issue for a particular young person. And indeed broader pastoral support around current progress is also an important part of the self-awareness and aspiration work of personal guidance. In addition, some colleges have regular one-to-one conversations with a curriculum tutor, as do some schools via PSHE. While curriculum tutors focus more on progress within the course, the vocational nature of many FE courses and the industry experience and industry links of many lecturers and sessional tutors are such that these discussions may naturally cover potential further courses of a vocational nature or entrance into employment.

The FE emphasis on adulthood and independence, combined with the financial pressures facing the FE sector, prompt the availability of Level 6 or Level 7 personal guidance to be subject to tutor referral or self-referral, perhaps being taken up by 5%-25% of 16-18 year olds. The large scale of FE colleges also supports the availability of careers libraries, internally-managed jobs listings and other resources that are hard to provide in many school sixth forms. Good practice for careers delivery in FE and the importance of looking beyond course provision has been discussed on The Careers & Enterprise Company blog by the Principal of Manchester College (O'Loughlin, 2020).

This is a different approach to the personal guidance described in the Gatsby benchmarks and dedicated research would help to test and understand the impact of this particular FE model of guidance provision for different groups of young people.

iv. The potential to address skills gaps and over-served pathways

One subset of young people who might benefit from a specific angle of personal guidance is those aspiring to over-served sectors or jobs.

From one perspective, such students might not trigger particular concern from a personal guidance point of view – they have a clear job in mind and they are on an appropriate education pathway. However, research from multiple countries and different surveys reveals that the jobs most young people aspire to represent a very narrow proportion of the types of jobs that are projected to be available, inevitably leading to future disappointment and a need to change plans abruptly for many young people (see, for instance, Chambers, Percy and Rogers, 2020; Mann et al, 2013, Mann et al, 2020). For instance, in the UK five times as many young people want to work in art, culture, entertainment and sport as there are jobs available - and over half of those respondents do not report an interest in any other sector. Finance, insurance and banking is also far over-served. Meanwhile, there are concerns about skills shortages in several key sectors. For instance, the UK government identifies several shortage occupations which are higher priority for immigration, currently including sectors like nursing and medicine, engineering, IT programming and web design, secondary teachers of maths and Mandarin, and graphic design.[30] Sectors like construction have also highlighted an image problem which contributes to their difficulty in attracting students graduating

[30] https://www.gov.uk/guidance/immigration-rules/immigration-rules-appendix-k-shortage-occupation-list [Accessed Aug 2020]

from the UK education system, with some sector stakeholders directly relating these issues to insufficient careers guidance.[31]

While personal guidance might not seek to dissuade people from these goals (jobs still exist even in over-served areas and interests should be encouraged), it could play a role in ensuring young people understand the likely balance of supply and demand, appreciate what they can do to increase their odds of success, are properly informed and have fully considered the pros and cons of the work, and consider what alternative options might also be attractive and worth preparing for, given that many of them will need a back-up later on.

There is also evidence that career guidance can help tackle these issues. Young people with experience of more careers activities, with more favourable perceptions of career support and with a greater understanding of the links between their current education route and their future ambitions have sectoral ambitions that are less disconnected, in aggregate, from project labour market demand and tend to identify, in aggregate, a more diverse range of jobs that they are interested in (Chambers, Percy and Rogers, 2020; Mann et al, 2020).

Such personal guidance could contribute to economic success by reduced skills shortages, reduced time churning between jobs on first entry to the job market, and increased pay-off from education pathways, particularly vocational pathways as young people are more likely to stay in that vocational area and leverage the vocation-specific skills they have learned. More broadly, such a lens has the potential to enhance efforts to support strategic sectors, national skills gaps and labour market matching, without diminishing the responsibility on employers facing skills gaps to take actions to enhance the attractiveness of their workplaces, provide suitable training and compensation for the work, and ensure potential recruits understand the career options available.

This perspective argues that there is a possible advantage to broadening the lens of personal guidance beyond an individual's immediate preferences and choices to consider the socio-economic environment in which those pathways will take place and a broader set of socio-economic needs.

[31] Kier Group report published Sept 2017: "Averting a £90bn GDP crisis: A report on the image and recruitment crisis facing the built environment". Available via https://www.kier.co.uk/media/2999/researchreport.pdf [Accessed Aug 2020]

Conclusion

This report has found that providing young people with two one-to-one personal guidance sessions by the age of 18, at a typical cost of £80 per young person, is highly likely to be a net positive investment for the Exchequer. Drawing on valuations in studies commissioned by the UK government, breakeven is achieved if one in 500 secondary school students were prevented from becoming NEET prior to the age of 19 or if one in 1800 were prevented from dropping out of Higher Education.

An examination of the research base, drawing mainly on meta-analyses of comparison group trials and three large-scale longitudinal datasets, suggests that these breakeven requirements are highly likely to be exceeded. Potential impacts, primarily wage premia and reduced drop-out rates, are quantified for around two thirds of young people, with any further benefit for the remaining third representing upside to the analysis. Based on this partial picture of the possible benefits, the midpoint ROI for the Exchequer is 4.4x with an 80% probability range of 3x-5x. In other words, for each £1 the government invests in personal guidance, it should be confident of recouping at least £3 and most likely more.

Surveys of young people support the idea that personal guidance is worth investing in. When reflecting in hindsight a year or two after key points of guidance-supported decision-making, 70% of those young people who said they had spoken to a careers adviser in school or college found it helpful, with 26% reporting it very helpful (DfE, 2017b, Fig 3). At the time, only 40% of those surveyed had spoken to a careers adviser at school/college (Fig 2).

This report supports the case for increasing uptake of one-to-one career guidance interviews, noting the importance both of increasing the availability and quality of provision, and of increasing awareness of guidance among young people, alongside an understanding of how to make best use of guidance in supporting their long-term goals and short-term decisions.

With 18 year old NEET rates at around 13% prior to COVID19 (DfE, 2020) and typical Higher Education drop-out for non-mature students at 6-7% (McCulloch, 2014), there is considerable scope for the benefits identified in this ROI to translate into net positive benefits for the Exchequer. For instance, just 300-600 additional young people prevented from becoming NEET prior to the age of 19 across the whole of England would alone recoup the costs for the Exchequer – this is around 0.5%-1% of all such NEETs based on pre-COVID rates.

Appendix 1: Interviewee profile

10 careers leaders in England were interviewed one-to-one in May 2020 for an average of 45 minutes. The careers leaders had operational responsibility for the delivery of career guidance in their school or college. In some cases, they were also careers advisers for students in their school or college.

The interviews focused on exploring the costs and cost drivers of providing personal guidance, as a complement to market data, publicly available salary benchmarks and the insights of the working group on provision (see Appendix 3). The interviewees volunteered to participate in response to an email from The Careers & Enterprise Company.

Table 4: Careers leader interviewee profile

#	LEP	Age range	Type
1	London	7-13	Academy Converter
2	Enterprise M3	16+	Academy 16-19 converter
3	North East	16+	Further education
4	D2N2	All through	Academy special converter
5	Coventry and Warwickshire	7-11	Academy sponsor led
6	Liverpool City Region	7-13	Voluntary aided school
7	Gfirst	16+	Further education
8	Lancashire	7-11	Foundation school
9	Sheffield City Region	16+	Further education
10	South East Midlands	16+	Further education

Self reported performance on Gatsby Benchmark 8 across the interviewees ranged from 0% to 100%. Three used external career providers for all or almost all formal personal guidance, three adopted a mixed approach and four used only in-house services.

Appendix 2: Summary of ROI model parameter estimates

For details on the evidence base and references for the estimates in the below tables, please review Sections 5 and 6. The accompanying spreadsheet to this report is available to The Careers & Enterprise Company stakeholders.

Table 5: Low, midpoint and high case estimates in ROI model

Personal guidance (PG) ROI model parameter	Low case estimate	Midpoint estimate	High case estimate	Midpoint likely to be conservative?
% who are higher priority for PG	15%	25%	35%	Conservative (1)
% medium priority for PG	25%	45%	50%	Conservative (2)
Parameters for those in the higher priority group				
Average effect size of guidance on career questionnaires	0.15 st. devs	0.25 st. devs	0.35 st. devs	
Improvement on questionnaires to reflect shift in attitude/choice	2.0 st. devs	1.5 st. devs	1.0 st. devs	Conservative (3)
Age 19 NEET incidence reduction if shift to "job plan"/ aligned	3.5%	4.5%	5.5%	
Earnings benefit if shift to "job plan"/ aligned	2.5%	5.0%	7.5%	Conservative (4)
Overlap factor within earnings benefit accounted for by NEET reduction	8%	13%	18%	
Parameters for those in the medium priority group				
Reduced odds of HE drop-out	2.2%	5.2%	8.2%	Conservative (5)
Base rate of within 12 month churn for those in work post-18	25%	40%	45%	
Reduced odds of early churn after personal guidance	2.2%	5.2%	8.2%	Conservative (6)
Future career wage benefit if do not churn early	2.5%	10.0%	15.0%	Conservative (7)
Delivery cost parameters				
Interviewer/manager day rate (fully loaded)	£250	£200	£150	
Average interview duration (minutes)	55	45	35	
Average preparation/follow-up time per interview (minutes)	40	20	10	
Time required per year for set-up and management	18	6	2	
Average number of interviews per year	100	200	300	

Coordination time per interview	15	10	0	
Average number of interviews per PG cohort member	2.5	2	2	
Long-term outcome valuations				
Lifetime value to Government /society of 1x NEET prevention	£8.1k / £15.0k	£41.9k / £77.8k	£75.7k / £140.6k	
Lifetime value to Government/ individual of 1x HE dropout prevention	£72.8k / £52.5k	£145.5k / £105.0k	£291.0k / £210.0k	

Several model parameters are unvarying:

Model parameter	Estimate	Conservative?
Discount rate	3.5%	
Ratio of private gross wage benefit that Government accrues in tax	38%	
Proportion of 18 year olds who enter HE	40%	
Base rate of HE drop-out (non-mature students in McCulloch, 2014)	6.5%	
Proportion of 18 year olds who enter work or apprenticeships, excluding those who had been at risk of NEET	46%	
Hours per school day available for interviews (e.g. 9am-4pm excluding one hour for lunch/breaks)	6 hours	
Eligible cohort for wage premia	Full-time workers to age 35	Conservative (8)

Table 6: Rationale for identifying certain midpoint estimates as conservative

The points enumerated in this table are in addition to the conservative nature of the ROI as a whole in focusing only on certain long-term impact outcomes (see Figure 1).

Ref #	Rationale for midpoint as conservative
1	Evidence from BCS and PISA 2018 surveys suggest that 40%-50% of young people might have materially misaligned or highly uncertain career pathways at the age of 15/16. An estimate range of 15%-35% is likely to be conservative.
2	Upside exists relative to the ROI as a result of excluding all students in the lower priority group for personal guidance, as well as by excluding the young people in the medium priority group who might follow non-HE education pathways.
3	1.5 standard deviations represents a large shift in behaviour, equivalent to someone moving from (for instance) the 7th percentile in terms of career confidence/decision-making efficacy to the median. As a bridging assumption, it is prudent to be conservative.
4	The 5.0% earnings premium associated with shifting to having a job plan and aligned career/education aspirations is much lower than estimated in the BCS (11%-17%). The cautious interpretation is applied primarily in case circumstances have changed adversely

	for the impact of personal guidance since the 1980s. Nonetheless, it is likely that growing complexity in the labour market, more competition in the youth labour market, and more contested school to work transitions mean personal guidance is more relevant and therefore potentially more impactful today than in the past (Mann and Huddleston, 2017).
5	The reduced odds of HE dropout exclude a number of subgroups from potential impact, despite indications in McCulloch (2014) that there might be additional benefit there, namely those who are moderately satisfied with their career guidance and anyone who already drew on 6+ sources of advice when considering their decision. Moreover, no account is made for the potential of careers advisers to encourage young people to do further research in considering their choice of Higher Education study. HE-attenders from the other priority groups (higher and lower priority groups) might also have a reduced chance of drop-out due to personal guidance and this is also upside to the analysis.
6	Early workplace churn reduction rates are set to the Higher Education dropout reduction rates, which are themselves thought to be conservative. This is likely to be even more conservative for workplace dropout, given that there is less structured and independent careers advice available in the workplace compared to Higher Education settings and prior career advice is likely to be correspondingly more important.
7	The 10% wage benefit of reduced early churn is a conservative interpretation of the point estimate from CV analysis reported by Clarke (2018) of 12-14%, rounded down given the overall empirical uncertainty in this strand of impact calculation.
8	This analysis assumes no wage benefits for those in part-time work, reflecting a recognition that part-time working is often motivated by a range of non-financial factors (such as availability, flexibility of hours) and it is uncertain whether part-time workers are able to make as full use of their skill-set as implied in the wage benefit. It also assumes no wage benefits at all beyond age 35 (corresponding approximately to the point of measurement in the BCS), despite strong serial correlation in wages over time. Collectively these assumptions are likely to be highly conservative.

Appendix 3: Working Group membership

This report benefitted from discussion and expert review by a working group assembled by The Careers & Enterprise Company:

- David Barton, Executive Officer, Cornwall Association of Secondary Headteachers
- Sheila Clark, Director, Career Connect
- Robert Cremona, Project Officer, The Gatsby Foundation
- Chloe Elliot, Team Manager, Career Connect
- Jan Ellis, Chief Executive of The Career Development Institute (CDI)
- Kieran Gordon, incoming Executive Director, Careers England
- Amy Hams, Careers Policy Lead, Department for Education
- Professor Tristram Hooley, Chief Research Officer, Institute of Student Employers
- Beth Jones, Programme Manager, The Gatsby Foundation
- Robert Lloyd, Economic Advisor, Department for Education
- Richard Simper, Deputy Director Careers and Basic Skills, Department for Education
- Dr Siobhan Neary, Associate Professor and Head of iCeGS, University of Derby
- Steve Stewart OBE, Executive Director, Careers England
- Dr Emily Tanner, Head of Research, The Careers & Enterprise Company
- Andrew Webster, Education Manager (West), The Careers & Enterprise Company

Working group members were consulted throughout this report. Nonetheless, being listed above should not be taken as an indication of agreement with, or endorsement of, specific details in the report.

The methodology was reviewed technically by Sarah Snelson and Danail Popov at Frontier Economics (see Appendix 4).

We would also like to acknowledge feedback on an earlier draft by Dr Deirdre Hughes OBE (Director, DMH Associates Ltd) and Dr Anthony Mann (Senior Policy Analyst Education and Skills, OECD) and a targeted review of econometric analysis by Paul Atherton, founder of Fab Inc and former UK Government Economist.

Any opinions or remaining errors are the responsibility of the author.

Appendix 4: Review by Frontier Economics

Frontier Economics undertook a high-level, formative review of this ROI methodology, with the review lead by Sarah Snelson.

Sarah Snelson is a Director in Frontier's Public Policy practice, with nearly 20 years of experience as a professional economist. Sarah's work has spanned all major government departments and focuses on the evaluation and assessment of effectiveness and value for money of government policies. Sarah leads much of the practice's work on further and Higher Education, skills and labour markets. She has recently led two extensive studies of the Further Education market and the Further Education Qualifications market in England for BEIS, has worked for the Education and Training Foundation to analyse the impact of the Sainsbury Review recommendations on the FE workforce, as well as work for a London-based higher education institution to create a framework and evidence to assess their value for money.

Frontier's review covered the broad structure of the ROI model and methodology for obtaining quantitative estimates as well as the detailed calculations in the model. Specifically, the review concentrated on the following questions:

- Is the ROI methodology appropriate to the context in which it is being applied?
- Is the ROI model used to produce the value for money estimates (e.g. breakeven analysis, ROI estimates) structured appropriately?
- Are the calculations in the ROI model correct?
- What are the big sensitivities around the estimates?

It is worth noting that a detailed review of the academic literature and broader evidence used to inform the parameters in the ROI model was beyond the scope of this review. This means that we have not carried out a detailed review to check whether the evidence used in the ROI is the most appropriate and up to date. Further, we have not carried out detailed checks as to whether the evidence used to support the estimates has been adapted appropriately to the context of the study and that the correct estimates (e.g. the monetary values of avoiding a NEET) have been used. That said, through our professional expertise and experience we identified several areas which could benefit from further sensitivity testing – our suggestions were well received by the author of the study and he undertook additional work to address our queries.

In summary, we were satisfied that the methodology developed by the author was appropriate for addressing the research questions. The calculations of the author were found to be correct and the presentation of the findings, including discussions about the uncertainty and sensitivity of the estimates, are an adequate reflection of the strength and limitations of the evidence base.

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Abbreviations

Abbreviation	Definition
BCS	British Cohort Study
CATI	Computer-assisted telephone interviewing
CDI	Career Development Institute
DfE	Department for Education (jurisdiction over England)
EAL	English as an additional language
EU	European Union
FE	Further Education
FSM	Free school meals (a marker of being from a more disadvantaged background)
HE	Higher Education
IAG	Information, advice and guidance
ILO	International Labor Organization
LMI	Labour Market Information
LSYPE	Longitudinal Study of Young People in England (referring to LSYPE1: Next Steps)
NEET	Not in Education, Employment or Training
NPV	Net Present Value
OECD	Organisation for Economic Co-operation and Development
PG	Personal Guidance
PISA	Programme for International Student Assessment
ROI	Return on Investment
SEN(D)	[Students with] Special Educational Needs (and/or Disabilities)