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Evaluation of Enterprise Management Incentive scheme

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Contents

Glossary

Survey analysis

Early user	Defined subgroup of respondents from the survey. Joined the EMI scheme in 2012/13 or 2013/14. This group is analysed to assess the impact of EMI on firms who have been offering the scheme for a long period of time.
Later user	Defined subgroup of respondents from the survey. Joined the EMI scheme in 2015/16. This group is analysed as a control group to compare to early users.

General business terminology

CSOP	Company Share Option Plan – Discretionary scheme that allows companies to incentivise individuals or groups of employees with tax advantaged share options. Introduced in 1996, CSOP is generally more restrictive than EMI in terms of the tax advantages offered.
EMI	Enterprise Management Incentives – Tax advantaged share options targeted at small, higher risk companies. Firms in qualifying industries, with total assets under £30 million and fewer than 250 workers, are eligible. Employees must dedicate at least 25 hours, or 75% of their time, to the enterprise.
Equity	The process of raising capital through the sale of shares in a business. It refers to the sale of at least part of the ownership to raise funds for business purposes.
Firms expecting high growth	Firms with expectations of at least 20% growth for the company over the next 12 months. This may include growth in turnover, employee numbers, new premises or trading overseas.
Gross Value Added (GVA)	The measure of the value of goods and services produced in an area, industry or sector of an economy.
Micro business	A business with less than 10 employees.
Medium-sized business	A business with between 50 and 249 employees.
R&D	Research and Development covers any activities that a company undertakes to improve their products or services. It consists of investigative activities that a business chooses to conduct with the intention of making a discovery that can lead either to the development of new products or procedures, or to improvement of existing products or procedures.

SAYE	Save As You Earn – Tax advantaged all-employee share option scheme where employees save and are granted an option to purchase their employers' shares.
Small business	A business with between 10 and 49 employees.
Share options	The right to buy a number of shares in a company at a set price during a set period of time. Tax advantages are available for share options granted under HMRC-approved share option schemes.
SIP	Share Incentive Plan – Tax (and National Insurance Contribution) advantaged all-employee share plan. Organisations can give employees free shares. Employees can purchase shares and organisations can choose to match the shares employees purchased with additional shares.
Total Factor Productivity (TFP)	The portion of output not explained by the amount of inputs used in production. As such, its level is determined by how efficiently and intensely the inputs are utilized in production.
Vesting	The process by which an employee accrues rights over employer-provided stock incentives.

Executive Summary

HM Revenue and Customs commissioned Ipsos MORI to conduct an evaluation of the Enterprise Management Incentive (EMI) scheme to examine how the scheme is working for businesses and the impact it has had on recruitment, retention and firm performance. The delivery of the evaluation was supported by a range of primary and secondary research including:

- a **review of secondary literature and a series of analyses of firm and worker level microdata** to examine the range of market failures put forward to justify the subsidy implicit in the scheme and test the validity of the economic case for the programme;
- a **telephone survey of EMI users** to assess its effectiveness; and
- **econometric analysis** to explore the causal effects of EMI on its intended outcomes.

Economic case for the programme

EMI allows small and medium-sized companies, in particular high-risk, high-growth companies, to offer tax-advantaged share options. The scheme is expected to produce a range of intermediate and longer term outcomes, including helping SMEs:

- **compete more effectively with larger firms for highly skilled employees** visible in the reduction of number of vacancies and improvement in the quality of employees;
- **retain key members of staff**, enabling the firm to deepen its pool of firm-specific knowledge and avoid the costs of replacing key members of staff; and
- **develop and grow the business** in terms of employment and output, which may include attracting external equity or other types of investment to support growth and scale-up of operations.

The economic case for the programme is underpinned by hypotheses that SMEs are disadvantaged in the labour market, preventing them from competing for highly skilled staff and inhibiting their growth. These issues arise in part because the prospective employee has weaker information on the prospects of the SMEs than large firms (requiring the former to make higher wage offers to attract equivalently skilled staff). Imperfections in financial markets will also constrain the ability of SMEs to meet those wage offers. These issues could be expected to disproportionately affect early-stage or pre-revenue firms, resulting in further social costs if growth constraints also inhibit R&D activity resulting in lost knowledge spill-overs.

The literature review found that **financial constraints are a barrier to achieving growth potential among smaller companies** and that, although the problems involved appear to have eased in recent years, they are far from resolved. The findings from the literature and econometric analysis review suggested micro-businesses face the most acute funding constraints and they are only able to undertake below socially optimal levels of investment.

There is also clear evidence from the literature that **smaller firms face more challenges in recruiting staff** and that **more highly qualified workers are sorted into larger firms**. Smaller firms typically pay lower wages, provide

less secure employment and are less likely to invest in training. There is also evidence that employment in small firms is sub-optimally low.

In overall terms, **the findings confirm the presence of the market failures which provide the economic rationale for the subsidies implicit in the EMI scheme**.

Scheme participation

The primary research among EMI users found that the **scheme has been mainly used by smaller, expanding companies** which suggests that the target firms are self-selecting into the scheme. However, while EMI is also intended to target high risk businesses, only a small proportion of firms identify themselves as high risk. The vast majority of firms that took part in the survey agreed their organisation competes in a market for premium quality products or services and more than half said their strategy is based on being the first to introduce new products or services to the market. This is also consistent with the scheme's aim of targeting high value added, innovative firms.

The survey also found that **EMI was being used as a recruitment and retention tool** in line with its objectives. Employers in the survey said they had mostly introduced EMI for retention rather than recruitment purposes.

Only a **minority in the survey thought that their employees or applicants would expect to be offered share options**. However, this expectation was more commonly reported by smaller, younger companies, as well as those expecting high growth, firms that had received external equity and those which perceive they are operating in a high risk market. These types of firms would potentially have high growth potential and are likely to experience issues with recruitment, which is again consistent with the scheme's objective.

Few companies offered EMI to all staff and the **survey revealed that seniority was by far the most common criteria for eligibility** within firms. There was less evidence that the scheme was being used specifically for the rewarding of skills or for individual performance - although senior staff are, of course, likely to be more skilled and experienced on average.

Since joining, the **majority of employers had found the scheme easy to use**. Among those reporting difficulties, this tended to be in relation to administering the scheme and understanding scheme rules.

Virtually all employers **offered benefits aside from EMI**, with medium-sized companies more likely to offer a larger range of other benefits than smaller firms. For most firms, participating in the EMI scheme was the first time share options had been granted to staff. Only a minority currently offered other share option schemes – this was more prevalent among medium sized firms.

Impact on recruitment and retention

Information collected on vacancies and staff turnover since adopting the scheme suggests that **companies were finding it harder to recruit and retain staff** since they joined the scheme, although this is likely the result of wider trends in the labour market. In the baseline year conditions in the labour market were much worse with unemployment around 8% throughout 2012 (compared to 5.1% in Q1 2016)[1]. As such, it would have been relatively easier for businesses to recruit then compared to 2016. **Employers also perceived it was currently more difficult**

[1] ONS labour market statistics, December 2017, https://www.ons.gov.uk/employmentandlabourmarket/peoplenotinwork/unemployment/timeseries/mgsx/lms

to recruit than to retain key or skilled staff. Indeed, it might be expected that some of the underlying issues justifying the scheme would recede once the employee joins the firm – as they acquire more complete information on the future prospects of the firms – and perhaps explaining the finding that EMI users face greater difficulties with recruitment.

In the survey the main reason firms cited for difficulties in keeping and attracting staff was that there are **not enough applicants with the right skills**.

The majority of adopters perceived EMI to be successful in **helping companies retain key and skilled staff** (84%) and **improve staff morale** (85%). Just over half said that EMI had **helped with the recruitment** of key workers (54%) and **attracting higher quality employees** (52%). This is consistent with the reasons firms gave for introducing EMI. The fact that EMI is seen as less influential in terms of recruitment may also reflect the finding that attracting staff remains a bigger issue for these businesses than retention.

However, in contrast to the perceptions of the companies interviewed, robust econometric analysis using a control group based approach indicates that EMI does aid recruitment efforts. **Both the control and early adopters experienced a reduction in the proportion of hard-to-fill vacancies** since the baseline year, but the **reduction was larger among early adopters** (an average reduction of 10 percentage points from 26% to 16%) compared to the matched control group (a reduction of 4 percentage points from 22% to 18%). The results also showed that the effect of **adopting EMI feeds through into growth in the number of employees**. The magnitude of this effect was estimated as a 26 per cent increase over three years (the equivalent of increasing from 24 employees to 30 - based on the average employment of EMI users in the matched sample in 2012/13).

However, analysis found that EMI had no measurable effect on retention rates. This might be expected given that the prospective employee acquires considerably more information on the prospects of the firms once they have joined – with tax incentives expected to have a greater effect at the recruitment stage where information problems are most acute.

In the **absence of the scheme, early user firms said they would have been most likely to offer stock options** (financial options in the forms of bonuses and higher salaries were the next most common alternative schemes although a substantial number said they would not have offered anything else). The secondary analysis indicates that stock options were a widely used and effective tool to motivate employees among similar types of companies.

Impact on firm performance and growth

Employers **perceived EMI to be successful in helping companies grow and develop**. The survey data which collected baseline characteristics on the number of employees, turnover, equity, profit, R&D and exports of businesses also indicated that **EMI adopters are expanding**. The findings also suggest that companies who used the scheme were typically focused on scaling-up and many expected high levels of growth over the next year.

The results of the **econometric analysis found that the EMI scheme had led to increased equity investment** for some adopters. This is a signal that the scheme has been successful in supporting the growth of SMEs, and could be interpreted as showing the scheme has been successful in encouraging participation by firms with high growth potential. However, the scheme does not appear to have had a significant effect on R&D spending. One possible explanation for this finding is that EMI users are at a later stage of the growth cycle than perhaps originally

anticipated, using equity investment to scale up their operations rather than to further the development of new products, processes or service offerings.

The econometric analysis found that EMI had yet to have an effect on turnover, output or productivity growth amongst early users of the scheme. Again, this could be consistent with a significant share of EMI users being at the scale-up phase, recruiting larger numbers of workers but yet to experience substantial effects on revenues or efficiency. It is likely too early to assess the long term economic impacts of the scheme given the time frame for the analysis.

1 Introduction

This report contains the findings from an evaluation of the Enterprise Management Incentive (EMI) scheme undertaken by Ipsos MORI Social Research Institute on behalf of HM Revenue and Customs (HMRC). This section provides background to the evaluation, with an overview of the objectives of the study and the study design.

1.1 Evaluation background

The Finance Act 2000 sought to implement a package of measures to raise Britain's productivity by making the country more entrepreneurial[2]. The EMI scheme was launched as part of this package to allow smaller, higher-risk companies to offer tax-advantaged share options, to help recruit and retain employees with the skills to aid their growth. It was also designed as a way of rewarding employees for taking a risk by investing their time and skills to help smaller companies achieve their potential. Firms in qualifying industries, with total assets under £30 million and fewer than 250 workers are eligible[3]. Employees must dedicate at least 25 hours, or 75% of their time, to the enterprise.

1.2 Evaluation aims and objectives

The aims and objectives of the evaluation were to:

- Explore the economic theory describing the market failures that EMI seeks to address, knock-on consequences for competitiveness, innovation and productivity, and empirical evidence that demonstrates (or otherwise) the on-going presence of the relevant market failures in the UK economy;
- Explore how the scheme is working for businesses that use EMI, including its design, targeting and accessibility;
- Examine the perceived impact EMI has had on workplace factors such as staff motivation, retention and recruitment, as well as perceptions of how the scheme has helped firm performance and growth; and
- Determine the extent to which EMI has the desired effect on participating SMEs, including on rates of recruitment, retention, and growth, and whether this effect varies across different types of firms.

The study also draws comparisons to findings from the 2008 quantitative study among employers who were using or had used EMI[4].

1.3 Evaluation design and methodology

The delivery of the evaluation was supported by a range of primary and secondary research:

- **Literature review and analysis of secondary evidence:** A review of literature and a series of analyses of firm and worker level microdata was completed to test the validity of the economic case for the programme. This involved an analysis of the economic theory underpinning the case prepared as part of the approval process for

[2] http://www.legislation.gov.uk/ukpga/2000/17/pdfs/ukpga_20000017_en.pdf
[3] All companies are permitted to offer EMIs except those in the following activities: banking; farming; property development; provision of legal services; and ship building.
[4] http://webarchive.nationalarchives.gov.uk/20080728042924/http://www.hmrc.gov.uk/research/report41-summary.pdf

the scheme. The analysis was then used to develop a range of predictions that could be tested against the available evidence. A review of the wider literature was completed, alongside a range of econometric analyses of firm and worker level microdata available through the Office for National Statistics' Virtual Microdata Laboratory. An abridged version of the assessment is provided in section 3, with the full analysis appended in a separate document.

- **Telephone survey:** A telephone survey of EMI scheme users was conducted to support the assessment of the scheme's effectiveness. This involved taking samples of those who first used the scheme in 2012/13 or 2013/14, and a sample of later adopters who joined in 2015/16 (with the latter used as a control group for the econometric analysis described below). HMRC provided a sample of all employers who first used the scheme in the years of interest. In total, 703 interviews were conducted with employers between 24th August and 24th October 2017[5]. There was a relatively even split of interviews between early users and later users (356 and 347 interviews respectively). Interviews were conducted with the business owner or the person in the business responsible for how EMI is run. It was not necessary to weight the survey data as early and later users shared very similar observable characteristics. Sample profile, outcomes and response rates are included in Appendix A1 and A2.

- **Econometric analysis:** The survey results were used to implement a series of difference-in-difference analyses, exploring the causal effects of EMI on its intended outcomes. Given the scheme design and policy history, a 'pipeline' design was adopted; this approach involves comparing firms that have used EMI for a number of years ('early users' who first used the scheme in 2012/13 or 2013/14) with the outcomes of companies that have joined more recently ('later users' who first used the scheme in 2015/16). As EMI users can be assumed to be similar in terms of their observed and unobserved characteristics (at least more similar than any comparison group that could be drawn from the wider business population) this approach helps mitigate the risk of selection bias. A kernel matching procedure was applied to match firms in the two groups in terms of their observable 'pre-treatment' characteristics. Following the collection of the performance data, a data cleaning exercise was undertaken to validate outliers and changes of an extreme order of magnitude across the time period. Records were validated against Companies House to determine if they were accurate or not. These analyses were in principle robust to any systematic but unobserved differences between groups that do not change over time.

1.4 Interpretation of data

When interpreting the findings, it is important to remember that the results are based on a sample of EMI users not the entire populations. Consequently, results are subject to sampling tolerances. In other words, not all differences between sub-groups are statistically significant and there is a calculated margin of error for all findings. Taking this into consideration, the overall findings for EMI users are subject to sampling tolerances of +/- 3.7 percentage points at the 95 per cent confidence interval (see Appendix A3 for further detail). Throughout the report, results highlighted are statistically significant unless indicated otherwise. Caution should be exercised especially when interpreting findings from sub-groups of fewer than 100 respondents.

[5] Questionnaire development for the survey was informed by a pilot. As only minimal changes were made to the questionnaire between the pilot and mainstage, the pilot interviews are included in the final data. There was a break in fieldwork between the pilot and mainstage (6th to 13th September).

Where percentages do not add up to 100 per cent this is due to multiple answers, to rounding, or to the exclusion of 'Don't know' categories. An asterisk (*) denotes a value greater than zero, but less than 0.5 per cent.

1.5 Report structure

Following this introduction, the report is organised into six further sections:

- A description of the **rationale** for the EMI scheme as put forward by the UK as part of the authorisation process and an overview of the outputs, outcomes and impacts EMI is expected to produce;
- The **economic theory** describing the market failures that EMI seeks to address and empirical evidence that demonstrates (or otherwise) the on-going presence of these in the UK economy;
- An analysis of **characteristics** of the scheme participants;
- **Use of EMI** including sources of information on EMI, reasons for adopting the scheme and how EMI has been used in practice including ease of use and criteria for awarding staff options;
- **Labour market impacts** of the scheme, including how far the scheme has addressed recruitment and retention issues and the extent to which these can be attributed to EMI; and
- **Wider impacts** of the scheme on company growth and performance, including the impact of EMI on investment, R&D spending, turnover and productivity.

2 Enterprise Management Incentives

This section sets out the economic case for EMI. It then provides an overview of the causal processes through which the scheme is expected to produce its intended outputs, outcomes and impacts.

2.1 Rationale

The economic case for EMI put forward by the UK as part of the authorisation process focused on the constraints faced by SMEs in attracting and retaining skilled staff. The rationale for the scheme centred on the following market failures:

- **Asymmetric information:** If employees are risk-averse, then SMEs whose prospects are less certain are likely to need to offer employees greater rewards to compete with large firms. This, in itself, cannot be classed as a failure of the market. However, asymmetric information between employers and employees - whereby the former has superior information on the level of risk associated with the firm's future prospects - is likely to exacerbate these issues. In turn, this will increase the premium the firm needs to pay to attract staff to inefficiently high levels. Such an issue may be less acute in terms of retaining staff (who acquire information on the firm's prospects once employed).

- **Financial market constraints:** The schemes authorisation also highlights financial market imperfections that inhibit the ability of SMEs to attract the external funding needed to remunerate staff at the levels needed to compete. These constraints stem from further asymmetries in information - in this case between employers and investors or lenders – where the latter are less able to appraise the risks and returns associated with investments in intangible assets and therefore supply inefficiently low levels of capital. The presence of other market failures in the labour market, such as suboptimal levels of investment in training caused by the threat of losing workers to competing firms, is likely to exacerbate these problems.

- **Externalities:** The presence of the above market failures would lead to SMEs facing issues in filling vacancies, employing inefficiently low numbers of employees and growing less rapidly. These constraints would be expected to be more acute in the case of early stage technology or pre-revenue businesses that are aiming to bring a novel product or service to market with little in the way of fixed assets. As such, these market failures are expected to hold up R&D activity and slow or prevent the exploration or exploitation of commercially viable innovations, resulting in negative economic consequences including unrealised productivity gains and a loss of potential knowledge spill-overs.

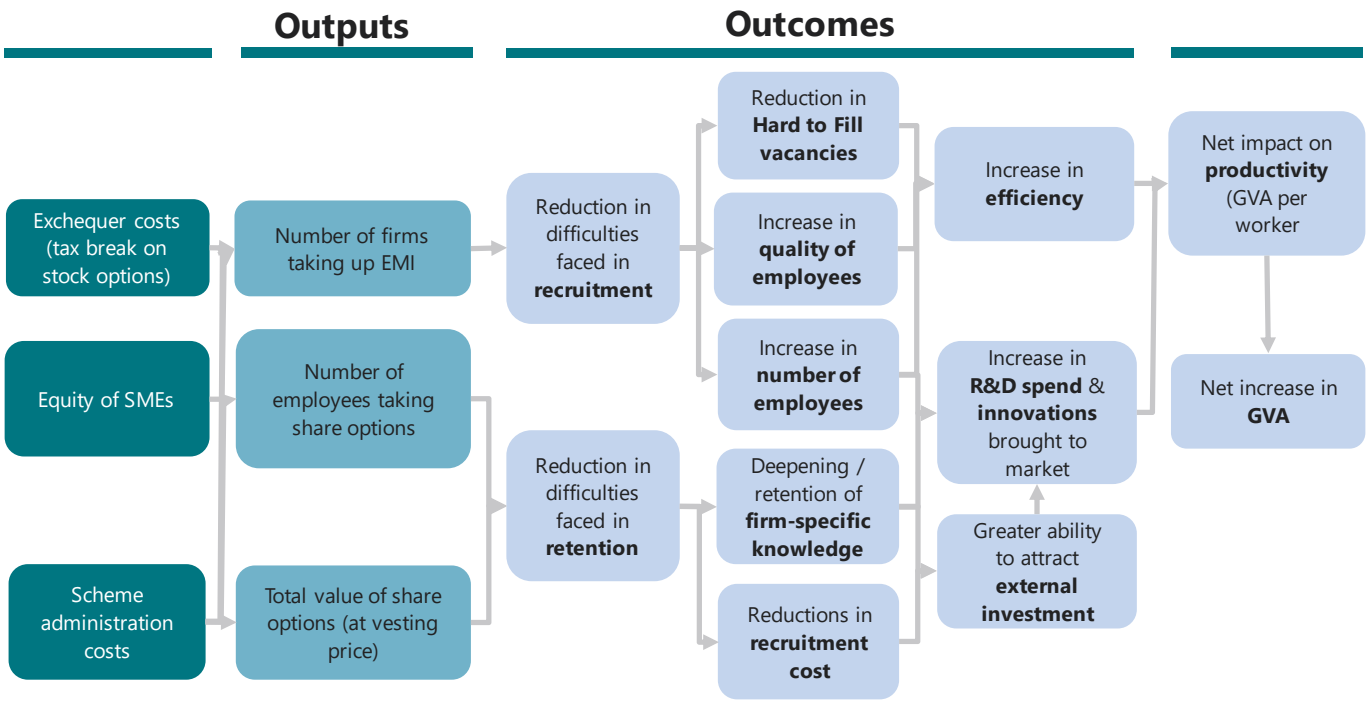
The scheme's authorisation also highlights a further market failure used to justify the choice of instrument used to implement EMI (i.e. tax incentives for stock options). This relates to a **'principal-agent' problem** in which wages may not create effective financial incentives for employees to commit their full efforts to the success of the firm if they cannot be perfectly monitored. In these situations, stock options may help to align the incentives of the employer and the employee more effectively.

2.2 Intervention logic

2.2.1 Logic model

The figure below provides an overview of the causal process by which EMI is expected to produce its outputs, outcomes and impacts.

Figure 2.1: Logic Model – Enterprise Management Incentive[6]



2.2.2 Theory of Change

- **Inputs**: Delivery of the EMI scheme requires several key inputs. Chief amongst these is the implicit subsidy associated with the tax reductions offered through the scheme (i.e. tax revenues foregone). SMEs clearly contribute resources in the form of equity offered to employees, while there will also be costs incurred by both the public sector and participating firms in the form of administrative costs.

- **Outputs**: The core outputs from the programme include the number of firms taking up the scheme, the number of employees receiving share options, and the value of these share options.

- **Outcomes**: The scheme is expected to produce a range of intermediate and longer term outcomes:

    a. **Recruitment:** The ability to offer prospective employees tax advantaged stock options will allow SMEs to compete more effectively with large firms for skilled workers. This would be visible in reductions in the number of vacancies that participating firms find hard to fill, alongside an increase in the number and quality of employees.

[6] GVA refers to Gross Value Added which is the measure of the value of goods and services produced in an industry or sector of the economy. Vesting is the process by which an employee accrues rights over employer provided stock incentives.

b. **Retention:** EMI may also help SMEs retain key members of staff, helping the firm both to deepen its pool of firm-specific knowledge and avoid the costs associated with replacing key members of staff.

c. **Investment:** In turn, the recruitment and retention of skilled staff might be expected to contribute to the on-going development of the business, which may help it attract external equity (or other types of) investment to support growth. To the extent that firms using EMI are R&D intensive, additional working capital may be deployed to increase R&D spending and activity.

d. **Growth:** EMI could potentially contribute to the growth of firms using the scheme directly (through facilitating recruitment) or indirectly – for example, if firms attracting equity investment use it to scale up their operations. This would be visible in terms of employment – and for firms that have moved beyond the pre-revenue stage, in their output (GVA).

- **Economic impacts**: While EMI may support the growth of SMEs, their expansion may come at the cost of reducing the market share of other firms located in the UK (displacement effects[7]) or placing pressure on wages and other factor prices (crowding out). However, the outcomes described above may also be associated with an increase in the efficiency or productivity of firms using the schemes (visible in output per worker). Improvements in efficiency will increase the productive capacity of the economy, producing an increase in national economic output to the degree that any GVA growth at the firm level is driven by productivity growth. To the degree that EMI encourages further R&D spending, it is also possible that the wider improvements in productivity are achieved through knowledge spill-overs that may arise as a consequence[8].

[7] Though providing the measure is well targeted at correcting market failures, it will not result in SMEs in acquiring an unfair competitive advantage in factor or product markets.

[8] Improvements in retention potentially have both benefits (particularly in avoiding loss of firm specific skills and useful knowledge) and costs (potentially slowing rate of diffusion of knowledge or the redeployment of resources to more productive uses).

3 Strength of rationale

This section provides an analysis of the economic case for the EMI scheme. Drawing on literature and a series of analyses of firm and worker level microdata, it assesses the presence and prevalence of the range of market failures put forward to justify the subsidy implicit in the scheme and considers the suitability of EMI as a corrective instrument.

3.1 Consequences of market failures

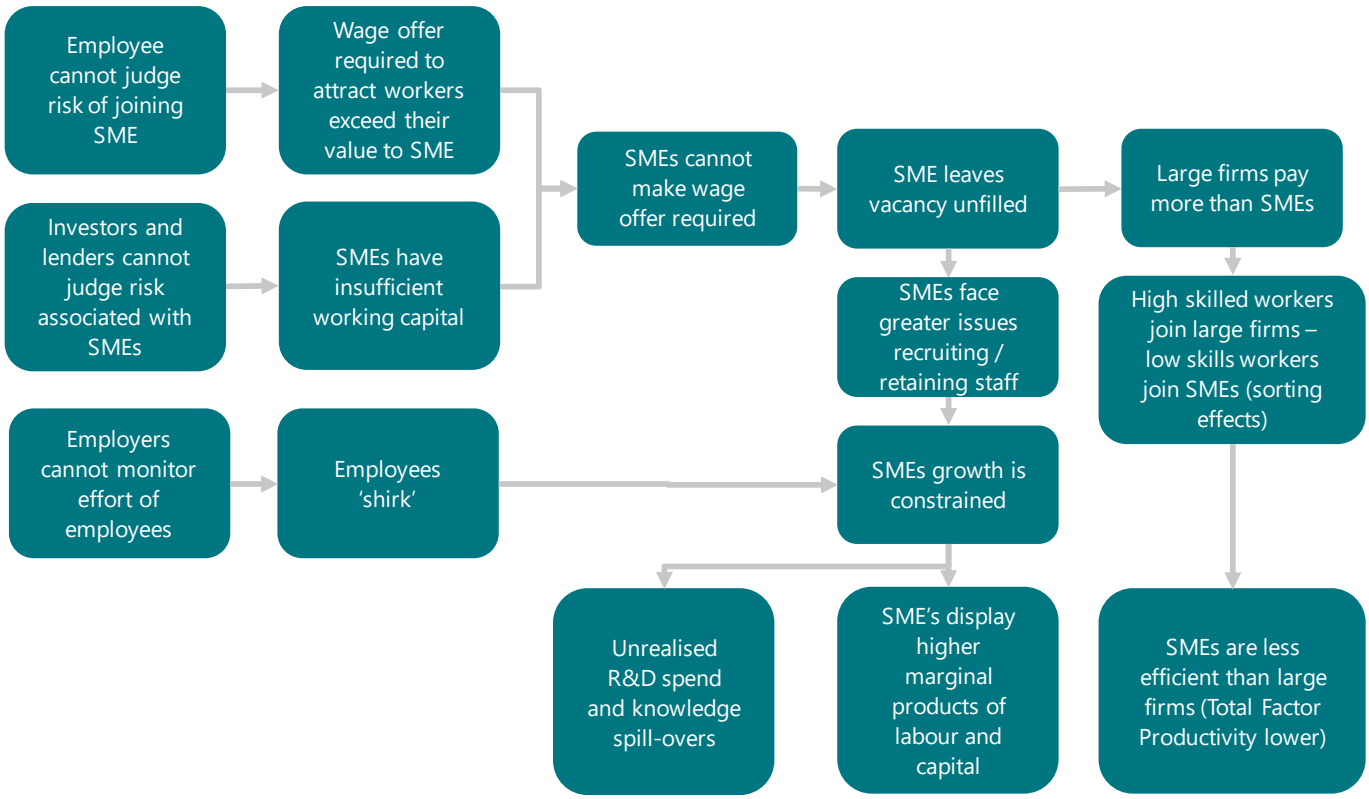
In order to explore the potential presence of the market failures put forward in the preceding section to justify the public subsidy implicit in EMI, consideration was given to the range of consequences that might be observed should they be affecting the performance of SMEs in the manner suggested. This gave a framework against which the strength of the rationale for the programme could be tested:

- **Recruitment and retention difficulties:** The expectation would be that smaller firms would be more likely to report difficulties recruiting staff (particularly at higher skill levels). Additionally, even where smaller firms have recruited skilled staff, they may struggle to retain those workers if larger firms can fund higher wage offers.
- **Wage differentials:** In turn, this would lead to an expectation that wages amongst employees of SMEs would be lower than in large firms, other things being equal.
- **Sorting effects:** Additionally, a sorting pattern would be expected in which more highly skilled workers are employed by large firms, while lower skilled workers – or less qualified workers who are less able to evidence their skills - are sorted into smaller firms[9].
- **Business model:** Smaller firms may need to adapt their business models to the skills that they can acquire – such as offering more standardised product offerings.
- **Productivity:** The net effect of the above on productivity is not necessarily clear. Smaller firms would be expected to employ too few workers due to these constraints, which would imply that their marginal productivity of labour would be higher than for large firms. However, the sorting of lower skilled employees into smaller firms would have countervailing effects, causing average productivity to be lower amongst SMEs.
- **Disproportionate effects on early stage technology businesses:** It is reasonable to expect the above issues to be most acute for early stage or pre-revenue technology businesses.

[9] Does Layoff Risk Explain the Firm-Size Wage Differential, Rudolf Winter-Ebmer, Applied Economic Letters, 1995.

This is summarised in the following diagram.

Figure 3.1: Anticipated consequences of market failures



3.2 Importance of SMEs for growth

It is widely accepted that small firms have become increasingly important drivers of economic growth in many economies in recent decades[10]. Potential explanations include globalisation, increased economic uncertainty and market fragmentation, and changes in the character of technological progress. The economic effects of the market failures that restrict the growth of SMEs can therefore be expected to have more significance as smaller firms become increasingly prevalent in the economy. An OECD study[11] notes that SMEs account for 60 per cent – 70 per cent of jobs in most OECD countries. It suggests that between 30 per cent and 60 per cent of SMEs can be characterised as innovative, of which 10 per cent are technology driven. Other research notes that SMEs employ most of the global labour force and a report by a Goldman Sachs led group[12] found that in the UK smaller businesses created 60 per cent of all private sector jobs and argues that they are key to helping to close the productivity gap relative to international competitors.

Several studies have argued new and young companies particularly are key drivers of growth. The OECD study[13] notes that, "some evidence points to the importance of age, rather than size, in job creation: young firms generate

[10] See, for example Carlsson B, The Rise in Small Businesses: Causes and Consequences in Adams W (1992), Singular Europe, Economy and Policy of the European Community After 1992, University of Michigan Press.
[11] 'Small and Medium Sized Enterprises: Local Strength, Global Reach,' OECD policy brief, June 2000.
[12] Goldman Sachs with the British Business Bank and the Enterprise Research Centre with support from the Scale-Up Institute and Said Business School (2015) Unlocking UK Productivity Internationalisation and Innovation in SMEs.
[13] Small Businesses, Job Creation and Growth: Facts, Obstacles and Best Practices, OECD (undated).

more than their share of employment." A somewhat different emphasis is suggested by research for NESTA[14] which finds that Europe's high-growth firms (3 per cent – 6 per cent of firms) account for between a third and half of jobs created by all surviving firms with 10 or more employees. Significantly, it finds that, "young firms are more likely to achieve high-growth, but most high-growth firms are older than five years old. They also emerge in all sectors of the economy, and can be of all sizes." In a UK context, a report by the Enterprise Research Centre which tracks a cohort of start-ups in 1998 over a 15-year period finds that these firms created some 230,000 jobs in net terms[15]. However, significantly, it found that just six per cent of these firms – what the study terms extraordinary prolific job creators - accounted for 40 per cent of this growth and that these firms "can be found in all sectors of the economy".

3.3 Recruitment and retention of employees

The main source of evidence on the recruitment and retention difficulties faced by firms in the UK is the UK Employer Skills Survey[16]. The most recent wave of the survey (2015) suggests:

- **Hard to fill vacancies:** Organisations with fewer than 25 staff reported that they had an average of 1.7 open vacancies, rising to 5.3 for organisations with 100 to 249 employees (large firms reported an average of 12.2 open vacancies). The smallest organisations were more likely to report vacancies that were hard to fill (44 per cent of open vacancies were reported to be hard to fill by organisations with 2 to 4 employees, compared to 34 per cent of large firms). There is a clear link between the size of the establishment and the skill levels associated with hard to fill vacancies. SMEs faced more difficulties in filling vacancies in 'middle-skill' occupations, while large firms face more challenges in filling vacancies in 'high skill' occupations. The proportion of employers reporting that they found vacancies difficult to fill because they faced too much competition from other employers or that they offered poor terms and conditions (e.g. pay) increased with the size of the firm. These observations align with the expected pattern by which high skill workers sort into large firms while lower and mid skill workers sort into SMEs.

[14] Bravo-Biosca A (2010) Growth Dynamics Exploring business growth and contraction in Europe and the US, NESTA Research Report.
[15] UK's Hidden Growth Champions. Hart M and Anyadike-Danes, 2014.
[16] UK Employer Skills Survey, UK Commission for Employment and Skills 2015. This is the latest data – results from the 2017 Employer Skills Survey will be available in summer 2018.

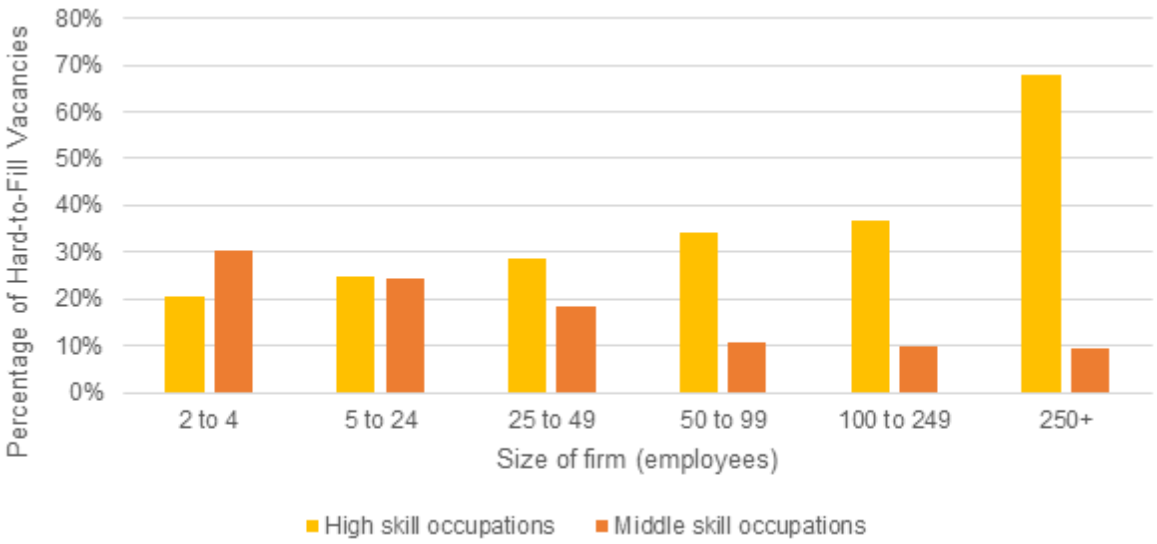
Figure 3.2: Proportion of hard to fill vacancies

- **Retention of staff:** Smaller proportions of SMEs reported difficulties in retaining their staff (5 per cent of employers with 2 to 4 employees, compared to 30 per cent of employers with 250 employees or more). This appears at odds with the wider case for intervention set out in the preceding section. However, the proportion of organisations reporting that competition from other employers was a cause of retention difficulties rose from 36 per cent amongst firms with 2 to 4 employees to 69 per cent amongst those with 250 employees or more. Similarly, the proportion reporting that retention difficulties were caused by lower wage offers than other organisations also rose with firm size (32 per cent of firms with 2 to 4 employees, in comparison with 51 per cent of firms with 250 employees or more). On the assumption that high skill workers are also scarce (and therefore, firms will compete more intensively to bring them into their business), this would also be potentially consistent with the expected sorting pattern. However, it might also reasonably be expected that issues of asymmetric information would recede once the employee has joined the firm, and this may potentially contribute to the finding that SMEs face greater difficulties with recruitment than retention.

Figure 3.3: Percentage of employers reporting jobs with difficulties in retaining staff

- **Impact of hard to fill vacancies:** The Employer Skills Survey suggests that in many respects the impact of hard to fill and skills shortage vacancies are similar for large and small firms. Between 80 to 90 per cent of employers report the effect of recruitment difficulties is to increase workloads while 40 to 50 per cent report difficulties in meeting customer services objectives. However, there were some impacts that varied systematically with firm size. Smaller firms were more likely to report that recruitment difficulties caused delays in developing new products or services, loss of business or orders to competitors, or withdrawal from offering certain products or services altogether[17].

Figure 3.4: Skill levels associated with hard-to-fill vacancies



3.4 Financial market constraints

There is clear evidence set out below that SMEs face special problems in securing finance because of their greater variance in profitability, survival and growth rates. Furthermore, following a period in the early to mid-2000s when credit was more widely available, SMEs "faced a more challenging environment for accessing credit after the financial crisis of 2008 and subsequent recession"[18] . This study notes that, "even controlling for risk factors, rejection rates for both overdrafts and term loans were significantly higher in the period from 2008-9 onwards" though, "older more established businesses were less likely to be rejected." Whilst the situation has improved subsequently, "there is clearly a funding gap (the difference between the funding required by SMEs and the funding available)"[19].

A recent OECD report[20] confirms that, although the situation has improved, it remains fragile. "Almost a decade after the financial crisis, the financing situation of SMEs and entrepreneurs has generally improved in 2015 and the first half of 2016 in most participating countries, and indicates a more favourable business environment. While

[17] What holds back high-growth SMEs? Evidence from UK Firms, Neil Lee, Small Business Economics, 2014.
[18] Evaluating Changes in Bank Lending to UK SMEs Over 2001-2012 - Ongoing Tight Credit? (2013) NIESR Discussion Paper: 408.
[19] Stenrud (2017) Helping SMEs Access Finance: The importance of responsible finance providers, Civitas Briefing Note.
[20] OECD (2017) Financing SMEs and Entrepreneurs 2017 – An OECD Scorecard.

alternative sources of financing are gaining some traction, SMEs nevertheless remain very reliant on bank lending, making them vulnerable to credit market conditions and the economic climate."

Lack of collateral means that many such businesses can only achieve their full growth potential with external equity finance. The availability of Venture Capital in the UK has been a longstanding issue. The issue took on renewed significance following the collapse of the dot.com boom, the financial crisis and poor returns on European equity in the early to mid-2000s, leading to several British Business Bank initiatives to support the market. Subsequently, the situation has improved, particularly for smaller scale amounts, because of tax incentives and the improving economic environment but there are still areas of difficulty[21].

A substantial and increasing share of the market value of young and innovative SMEs is derived from their intellectual assets. Problems in securing realistic valuations of such assets contribute to the difficulties which innovative SMEs face in securing finance, meaning that, "technology is among the driving factors of economic growth, yet it is chronically underfinanced"[22].

3.4.1 Marginal product of capital in small and large firms

To further explore how far financial market imperfections disproportionately affect small firms, a series of analyses were completed to examine the marginal product of capital[23] in small and large firms. In principle, if SMEs are financially constrained, the expectation would be that the marginal product of capital would be higher in small firms (on the assumption that the additional output associated with additions to the capital stock gets smaller as the stock gets larger). This hypothesis was explored using the firm level micro-data available within the ONS Virtual Microdata Laboratory to estimate the production function for firms of different sizes[24]. The analysis drew on the results of the ONS Annual Business Survey, which collects information on the output (GVA) of firms, employment, net capital investment[25] and spending on intermediate goods and services of over 60,000 firms per annum[26]. Survey data for the two most recent years of final data (2013 and 2014) and the most recent year of provisional data (2015) were used in the analysis.

The results of these analyses are set out in Figure 3.5 overleaf:

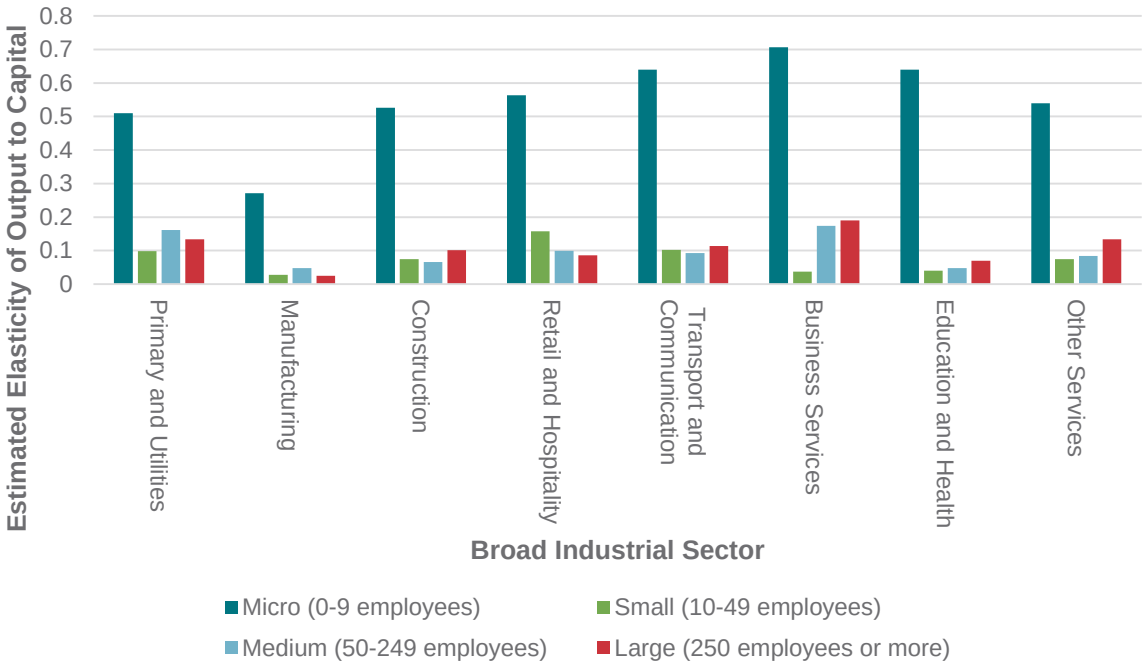
- **Micro-businesses:** The estimated marginal rate of return to capital amongst micro-businesses (0 to 9 employees) was substantially higher than for firms with larger numbers of employees. The marginal product of capital was estimated to range from 27 per cent higher in the manufacturing sector in the UK to 70 per cent in professional and business services. This suggests that micro-businesses deploy suboptimal levels of capital (i.e. the implication is that micro-businesses would earn more profits if they increased their deployment of capital,

[21] Ipsos MORI (2017) Evaluation of the Venture Capital Catalyst for the British Business Bank.
[22] European Commission Directorate-General for Enterprise and Industry (2006) Intellectual property and access to finance Discussion paper for the Workshop.
[23] The additional output (GVA) associated with a marginal increase in the capital stock.
[24] This was achieved by assuming a Cobb-Douglas Production function: $Y = \alpha L^{\beta} K^{\delta} E^{\emptyset}$. In this model, output (Y) is a function of the levels of employment (L), capital (K), and expenditures on intermediate goods and services (E). The parameters β and δ represent the marginal products of labour and capital respectively and α represents the total productivity of factors (TFP). The model was estimated with econometric methods by taking the natural logarithm of both sides of the equation: $\ln Y = \ln \alpha + \beta \ln L + \delta \ln K + \emptyset \ln E + u$.
[25] To estimate the model described in Footnote 27, estimates of the capital stock (rather than net changes in the capital stock) are required. Estimates of the capital stock were derived using the perpetual inventory method, following the approach set out in 'The Causal Effects of an Industrial Policy,' Criscuolo, Martin, Overman and Van Reenan, CEP Discussion Paper.
[26] Variables expressed in financial terms (GVA, capital investment and spending on intermediate goods and services) were adjusted for inflation using ONS GDP deflators.

and therefore cannot be deploying a profit maximising mixture of inputs) and is supportive of the hypothesis that the smallest firms face particular constraints in financial markets**.**

- **Small and medium sized firms:** The models did not generally show substantial differences in the estimated marginal rate of return to capital between firms with 10 to 249 employees and larger firms. The marginal product of capital fell with size in the retail and hospitality industry but rose in other sectors (such as professional and business services). As such, these results suggest that the financial market constraints constraining the growth of small firms are likely limited to the smallest businesses (though across all areas of the economy). Overall, the marginal product of capital was estimated to range from 2.5 to 4.8 per cent in the manufacturing sector to 3.7 to 19.0 per cent in the professional and business services sector. These results are broadly consistent with other studies that have sought to estimate the marginal product of capital in the UK using other methodologies[27].

Figure 3.5: Estimated Elasticity of Output to Capital by Size and Sector



Source: Annual Business Survey, Ipsos MORI analysis

3.5 Wage differentials

It has long been established within the literature that small firms typically offer lower wages and salaries, and often lesser benefits in other terms, as well as less employment security than larger counterparts provide, with the differential increasing at a decreasing rate with firm size. Specific research was completed as part of this study to explore the size and nature of wage differentials in large and small firms using the microdata collected through the Annual Survey of Hours and Earnings (available through the Office for National Statistics Virtual Microdata Laboratory). This survey collects information on the annual earnings and hours associated with 180,000 employee

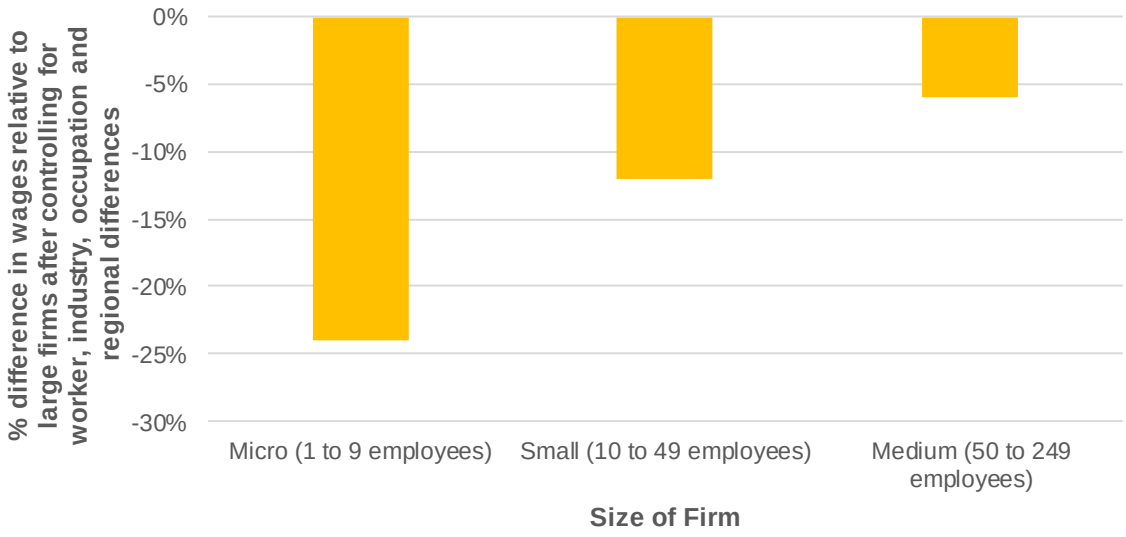
[27] See 'The Marginal Product of Capital,' Caselli and Feyrer, Quarterly Journal of Economics, 2007.

jobs, and can be linked to business surveys to create an employee and employer matched dataset. The matched sample was used to investigate the size of the wage differential and how it varied by size of businesses and sector:

- **Overall wage premium:** The findings confirmed that SMEs pay lower wages for job roles and workers with similar characteristics. On average, employees in SMEs were paid 11-12 per cent less than workers in large firms in similar occupations and industries and sharing similar characteristics.

- **Wage differentials by size of business:** The results suggested that wage differentials narrowed as firm size increased. The results suggested that wages were 23 per cent lower in micro-businesses (1 to 9 employees), 12 per cent lower in small firms (10 to 49) employees and 6 per cent lower in medium sized firms (50 to 249 employees) than larger firms.

Figure 3.6: Wage differentials by size of business



- **Wage differentials by sector:** The estimated wage differential was estimated to vary from 20 per cent in the manufacturing sector to 5 per cent in the other services sector.

- **Wage differentials by local labour market conditions:** The wage differential was estimated to fall when local unemployment is higher with a 1 percentage point increase in unemployment reducing the differential by 0.61 percentage points.

- **Evidence from job moves:** The data available does not allow us to control for all characteristics of workers that may influence productivity and wage offers. Most critically, there are no direct or indirect measures of skills or ability available within the ASHE. The ASHE also includes panel data describing the earnings and hours of individuals over time and captures changes in the wage when employees move between employers. Analysis of changes in wages when employees move from SMEs to large firms (and vice versa) allows unobserved worker characteristics to be accounted for (presuming that aspects such as skills and ability do not change immediately following the move). Analysis of 126,000 full-time to full-time job moves between 1998 and 2015 confirms the findings on the overall wage differential set out above. Workers moving from SMEs to large firms see their wages increase on average by 33.1 per cent per week. Workers moving from large firms to SMEs see their wages

increase on average by 20.6 per cent per week. The difference between the two (13 per cent) is of a similar magnitude of the overall wage differential estimated above.

While there are other factors that could contribute to these patterns (e.g. greater levels of market power or greater unionisation of workforces amongst large firms), these findings are largely what would be expected from the hypothesised market failures.

3.6 Productivity

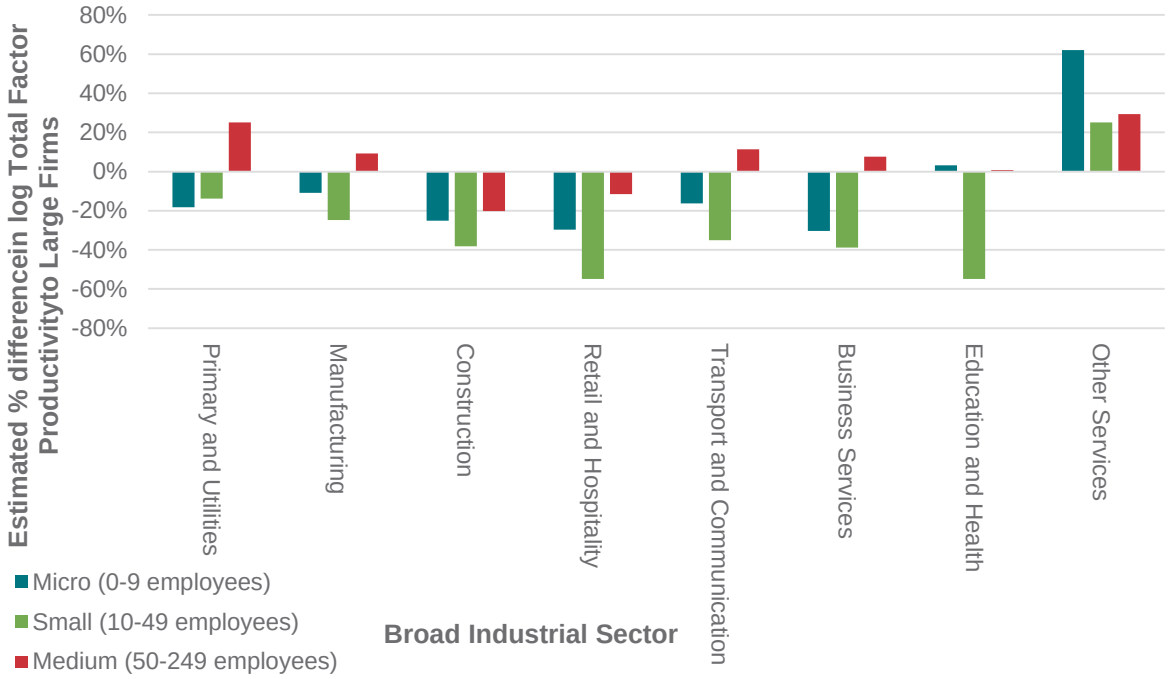
The results of the Annual Business Survey provide a breakdown of both total Gross Value Added and employment costs by size of firm, and suggest a more complex relationship. GVA per £1 spent on employment costs is highest amongst firms with 1 to 9 employees, and around three per cent higher than for large firms. GVA per £1 spent on employment costs is lowest amongst firms with 10 to 49 employees (around 4 per cent lower than large firms). It should be noted that these figures do not control for industry differences. Nevertheless, this finding is consistent with the hypothesis that employment levels in very small firms are constrained by market failures.

The models used to estimate the marginal product of capital also gave results exploring the relationship between firm size, the marginal product of labour, and total factor productivity. The resulting figure sets out the estimated elasticity of GVA to labour by business size[28]. These results show that, in general, the marginal product of labour is highest in small firms and falls as firm size increases. This suggests that small firms are sub-optimally small - in most cases, it is estimated that the output of small firms would more than double in response to a doubling of employment. This result is consistent with the hypothesised market failures described in section 3.1 suggesting that small firms are constrained in their employment. The relationship was less consistent with respect to micro and medium sized business.

Figure 3.7: Estimated differentials (%) in GVA per £1 of employment costs, SMEs relative to large firms

[28] That is the ease in GVA associated with a doubling of employment.

Figure 3.8: Total Factor Productivity in SMEs relative to large firms



The findings also pointed to the reverse relationship with respect to Total Factor Productivity (TFP), which – with the exception of the 'other services' sector - was positively correlated with firm size as illustrated in Figure 3.8 (consistent with the expectation that smaller firms will adopt more standardised product offerings, feeding through into lower value added in the production process). The data available did not allow us to construct measures of the quality of factor inputs employed by firms (such as the education of workers). Under the approach taken, higher quality human and physical capital will feed through into higher TFP and the results are consistent with the types of sorting effect described in section 3.1 (i.e. that more highly skilled workers sort themselves into larger firms). It is important to note, however, that while this result is not inconsistent with the framework defined at the beginning of this paper, higher TFP in large firms could also be linked to other factors that are unrelated to their ability to recruit highly skilled workers - such as the quality of intangible assets or the degree of monopoly or monopsony power.

3.7 Summary

- It is clear that **financial constraints are a barrier to achieving growth potential** and that, though the problems involved appear to have eased in recent years, they are far from resolved. The findings of this evaluation suggest micro-businesses likely face the most acute funding constraints, earning a marginal rate of return on capital that is substantially higher than that of firms with more employees, and suggesting they are only able to undertake below socially optimal levels of investment.

- There is clear evidence that **smaller firms face more challenges than larger firms in recruiting staff and that more highly skilled workers are sorted into larger firms** (reflected both in reported skill requirements associated with open vacancies and the lower levels of Total Factor Productivity observed in smaller firms). Smaller firms typically pay lower wages, provide less secure employment and are less likely to invest in training. There is also evidence that employment in small firms is sub-optimally low, with the estimated elasticity of output to labour substantially higher in small firms. These findings are consistent with the expected consequences of the market failure rationale for the subsidies implicit in the Enterprise Management Incentive.

- Any policy targeted on growth potential must **confront the problems that high growth potential is concentrated in only a small proportion of firms** (perhaps 6% to 10%[29]). While this could provide an argument for a scheme with more refined targeting than the Enterprise Management Incentive, it should also be acknowledged that many firms with the potential for growth fall outside obvious potential definitions based upon size or sector – making such targeting very difficult, and perhaps infeasible, in practice. However, in the absence of targeting, **the scheme relies on high growth firms – or firms with high growth potential – self-selecting into the programme**. There was some suggestion this might be expected from the review of the literature, with one study of technology start-ups in Silicon Valley suggesting that equity was a particularly effective instrument for motivating staff[30].

[29] UK Employer Skills Survey, UK Commission for Employment and Skills 2015. This is the latest data – results from the 2017 Employer Skills Survey will be available in summer 2018.
[30] Zenger T and Lazzarini S (2004) Compensating for Innovation: Do Small Firms Offer High-powered Incentives That Lure Talent and Motivate Effort? Managerial and Decision Economics.

4 Scheme participation

This section first provides an overview of scheme participation based on publicly available statistics. It then summarises the characteristics of EMI users, with details based on characteristics at the time of the survey, to assess whether EMI is used by the types of firms intended.

4.1 Companies using the EMI scheme

The EMI scheme was introduced in 2000 and in its first year 790 SMEs used the scheme. Since then the number of firms using EMI has increased to 8,610 for the financial year 2015/16[31]. The average value awarded has generally been increasing gradually since 2007/8, possibly in part due to the increase in award limits from April 2008. The number of companies where employees have exercised options fell sharply in 2008-09 and have been fluctuating since then.

4.2 Characteristics of EMI users in the survey

Number of employees

In line with the aims of the scheme, the **majority of companies were micro or small employers** (76%)[32]. Table A1 in Appendix A4 shows that the size profile of early and later users is similar (see glossary for definition of groups).

Business sector

EMI users were most likely to be in **professional scientific and technical activities** (27%), followed by **information and communication** (12%) and **manufacturing** (12%)[33]. While high-growth firms emerge in all sectors of the economy (as discussed in section 3.2), these types of sectors rely on attracting highly skilled workers to achieve growth potential, again suggesting the intended firms are using the scheme.

Table A2 in Appendix A4 provides full details, which are based on sample responses about the company's main activity, rather than the survey categorisation where respondents were asked to verify their businesses sector. There was a close match between early and later users, with no statistically significant differences.

Age of company

Around half of firms using EMI (47%) were found to be aged 10 years or under (see Table 4.1), which is a **younger profile than the wider SME population** (29% of all SMEs were aged 10 years or under)[34]. This fits in with the findings set out in section 3 that suggested younger firms tend to have more growth potential.

[31] EMI statistics based on Annual Returns. https://www.gov.uk/government/statistics/companies-with-tax-advantaged-employee-share-schemes

[32] This is based on the average number of people (full time equivalent) employed by the company in 2016. Respondents were asked to exclude themselves but to include any directors who were also employees but not unpaid workers or freelancers.

[33] BEIS business population estimates indicate a smaller proportion of businesses are in the professional scientific and technical activities (15%), information and communication (6%) and manufacturing sectors (5%) https://www.gov.uk/government/statistics/business-population-estimates-2017.

[34] https://www.gov.uk/government/publications/small-business-survey-2015-businesses-with-employees.

Later user businesses were on average younger than early user businesses likely due to those established for a shorter period having introduced the scheme more recently.

Table 4.1: Age of company

	All employers	Early users	Later users
Base	***703***	***356***	***347***
Less than 5 years	20%	13%	27%
6-10 years	27%	31%	23%
11-15 years	18%	18%	18%
Over 15 years	35%	38%	33%

Ownership

Almost all EMI user companies were **UK-owned** (94% of early users and 97% of later users) rather than foreign-owned (5% and 3% respectively).

The majority were **stand-alone companies** (59% of early users and 63% of later users), rather than companies with subsidiaries (26% of early users and 21% of later users) or subsidiaries of another company (16% and 18% respectively).

As might be expected, smaller firms were more likely to be stand-alone companies: 79% of micro companies (those with fewer than 10 employees) were stand-alone companies.

Product/service market

EMI users were most likely to say that the **national (UK) market was the most important to them** (53% of early users and 57% of later users). Around three in ten said that the international market was more important, and this was more likely to concern other countries outside of the EU (22% of early users and 19% of later users) rather than countries in the EU (9% and 10% respectively). Only small proportions said that the local or regional market was the most important, as shown in Table 4.2.

Table 4.2: Type of market perceived as most important

	Early users	Later users
Base	***356***	***347***
Local	4%	4%
Regional	9%	8%
National	53%	57%
Outside of the UK, elsewhere in the EU	9%	10%
Other countries outside the EU	22%	19%
Don't know/refused	3%	2%

Micro companies (32% of those with fewer than 10 employees) and information and communication companies (33%) were most likely to say that the market outside the EU was most important to them.

Respondents were asked about their company's position in their market. The findings showed that:

- The vast majority (90% of early users and 87% of later users) agreed that **their organisation competes in a market for premium quality products or services** which is consistent with the scheme's aims of targeting high value added firms. Information and communication companies were particularly likely to agree (95%), as were companies who were longer established (91% of those who had been operating for over 15 years, compared with 82% of those operating for less than five years).

- EMI users mostly agreed that their **company operates in a highly competitive market** (88% of early users and 86% of later users). Companies that focused on the domestic UK market were more likely to agree than those whose main market was outside the UK (91% compared with 81%).

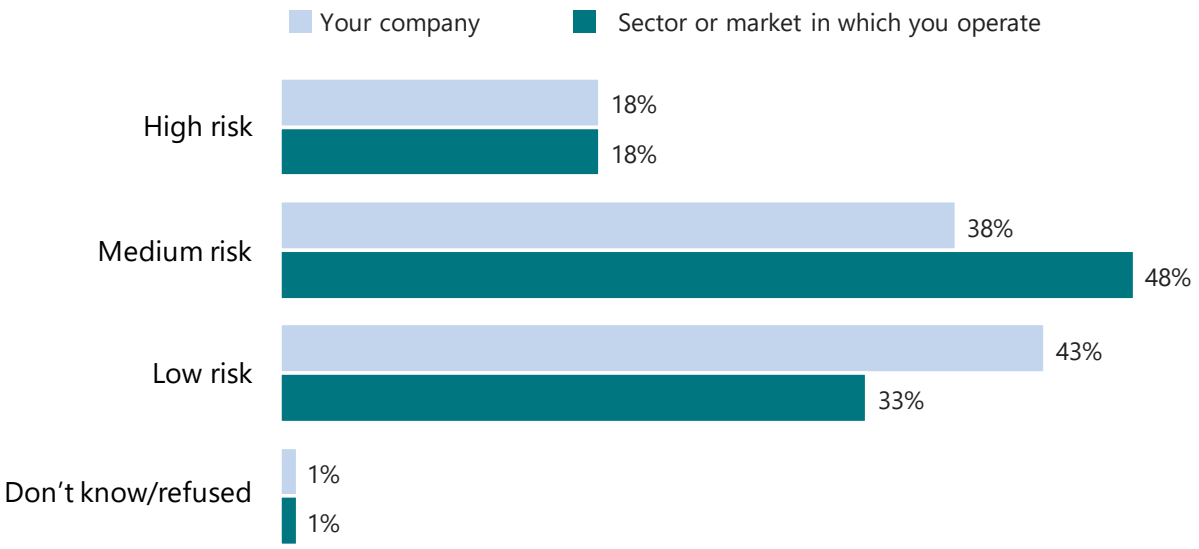
- More than half (58% of early users and 57% of later users) agreed that their **strategy is based on being the first to introduce new products or services to market**. Newer businesses were more likely to agree than longer established businesses (69% of those who had been operating for less than five years, compared with 51% of those operating for more than 15 years). This is consistent with the intended use of EMI among younger, innovative businesses.

Level of risk

Around one in five EMI users described their company or sector over the last three years as **'high risk'**, defined as where there is a high chance of companies going out of business. Respondents were more likely to describe their company and sector as 'medium' or 'low' risk, as shown in Figure 4.1. This suggests EMI has not solely been used by the types of company at which it was targeted; although defining and measuring 'high risk' companies can be problematic.

Figure 4.1: Perceived level of risk in company and sector over the last 3 years

Q. Over the last 3 years, how would you describe the level of risk in A) your company and B) the sector or market in which you operate?



Base: All early and later users (703)

The findings were similar for early users and later users, but there were differences by other characteristics. Companies were more likely to see themselves or their sector as 'high risk' if they:

- Had a turnover of less than £250,000 (49% described their company as 'high risk' and 31% said this about their sector).
- Were smaller (33% of micro companies described their company as 'high risk' and 27% said this about their sector);
- Operated outside of the UK market (30% said their company was 'high risk' and 26% said this about their sector); and
- Received external equity (36% and 30% respectively).

4.3 Summary

Overall, the findings confirm that EMI participation is focused on small and medium-sized companies, and that EMI users generally operate in a competitive market. While most companies perceive themselves to be innovative, perceptions of risk were varied with only a minority seeing their company or sector as 'high risk'. The profiles of the two sample groups (early and later adopters) correspond closely on all of the various characteristics.

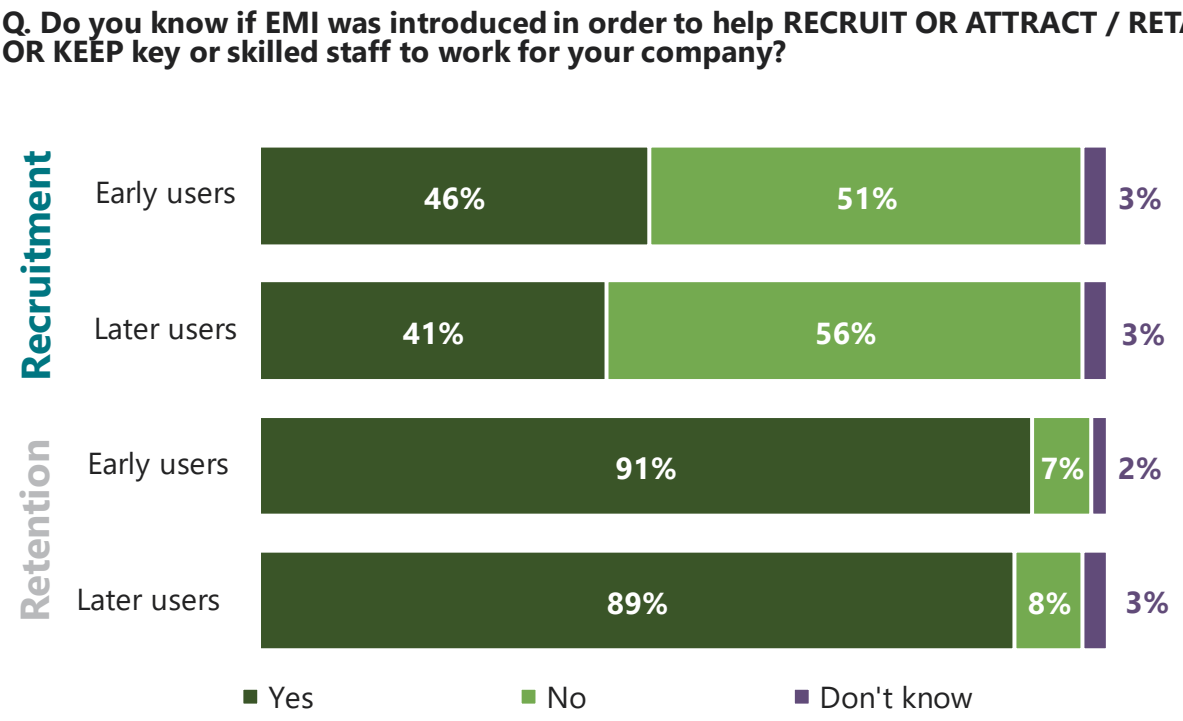
5 Use of EMI

This section looks at how employers found out about EMI and their reasons for adopting the scheme. It also examines how EMI has been used in practice, including ease of use and the criteria employers use to award options. The section also looks at other benefits offered by companies, including use of other share schemes.

5.1 Reasons for adopting EMI

The survey found that **EMI was being used as a recruitment and retention tool in line with its objectives.** However, employers had mostly introduced EMI for retention rather than recruitment purposes, as shown in Figure 5.1. For nine in ten (91% of early users and 89% of later users), EMI was introduced to help retain key or skilled staff. In contrast, only four in ten (46% of early users and 41% of later users) adopted EMI to recruit staff. This pattern was also found in the 2008 study, where the most common reason for introducing EMI was to help with retaining key employees (mentioned by 92% of employers when prompted). Four in ten (39%) mentioned recruitment when prompted.

Figure 5.1: Reasons for introducing EMI



Bases: All early users (356); All later users (347)

There was no significant difference between the proportion of early users and the proportion of later users who adopted EMI to help with retention. In contrast, there were more variations among the firms which used EMI to help recruitment. Recruitment was a more important factor for introducing the scheme for a range of firms, including firms expecting high growth (65%), firms less than 5 years old (65%), firms with equity (61%), firms operating in a high risk market (61%), and firms whose main focus is outside of the UK (53%).

5.2 Use of other share option schemes

For most firms (87%), participating in the EMI scheme was the **first time share options had been granted to staff**. In contrast, firms with a turnover above £10 million were more likely to have awarded share options before (16% compared to 10% overall).

Among employers who had offered other share option schemes to employees, for 38% EMI replaced share options they had used in the past. In terms of what was offered, a non tax-advantaged share scheme (28%) was mentioned most often, closely followed by a Company Share Option Plan (CSOP) (26%). One in seven (14%) offered Share Incentive Plans (SIPs). The only other named schemes which had been used were Employee Share Scheme (ESS) (4%) and Employee Benefit Trust (EBT) (2%).

Only eight per cent of firms currently offered **other share option schemes**. Less well-established firms were more likely to offer other share schemes with the proportion rising to 13 per cent both for firms which were less than five years old and those with a turnover under £10 million. This was also more common among medium sized firms of 50-249 employees (13%), companies that were part of a group (11%) and firms whose main focus was outside the UK (12%).

The reasons for using these schemes were very similar to motivations for participating in EMI; to help with retention (28%) followed by helping with recruitment (19%). Offering something to staff not eligible for EMI (18%) was another common factor. Engendering ownership (11%) and improving staff morale (5%) were also mentioned.

5.3 Expectations of share options being offered

Only a minority (25%) thought that their **employees or applicants would expect to be offered share options**. However, this increased to at least four in ten micro firms with less than 10 employees (40%) and with a turnover below £1 million (43%), as well as firms which were fewer than five years old (48%). The other firms where expectations of share options were higher were those expecting high growth (40%), those reporting a loss before tax (43%), firms which had received external equity (40%), and firms which operated in a high risk market (49%). This profile of firms would potentially have high growth potential and would likely experience issues with recruitment which is consistent with the schemes targeting.

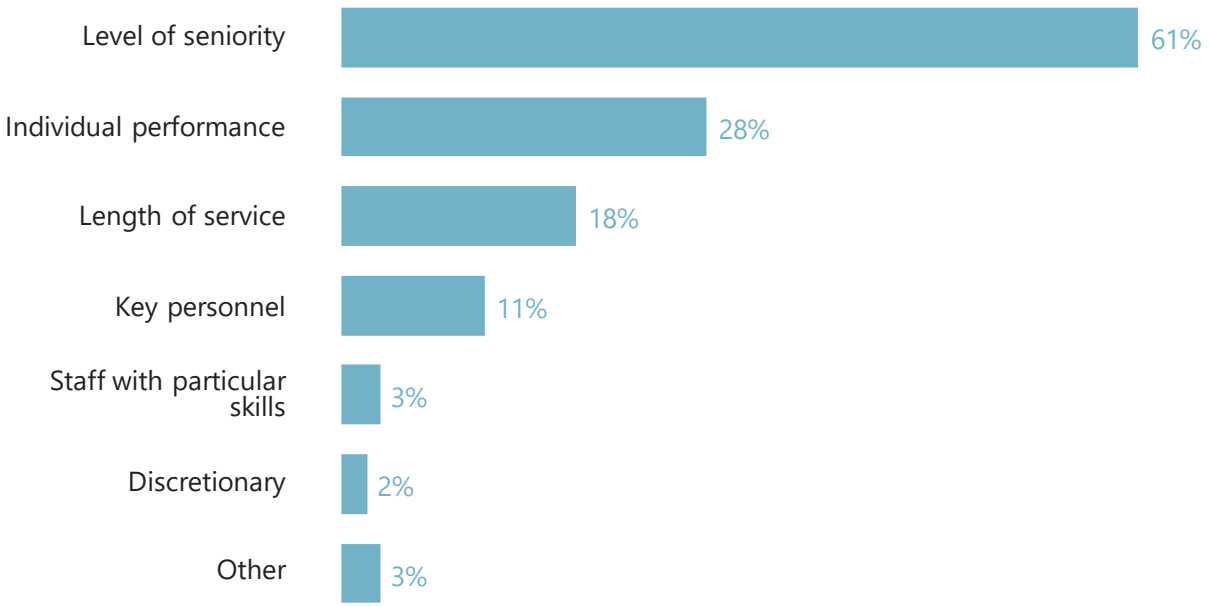
5.4 Granting EMI share options

Most early users **offered EMI options to only some employees** (76%), with a quarter (24%) saying options were offered to everyone. The firms more likely to offer EMI to all employees were those with a main focus beyond the UK (36%), firms expecting high growth (39%), those reporting a loss before tax (39%), firms with equity (34%), those less than five years old (42%), and those operating in a high risk market (44%).

Figure 5.2 shows that **seniority (61%) was by far the most common criteria for eligibility** for EMI options, followed by individual performance (28%), length of service (18%) and being key personnel (11%). In the 2008 study, the most common criteria were level of seniority (66%) and individual performance (22%). Considering EMI was intended to be used by companies to recruit and retain employees, only a small proportion claimed to offer options to staff with particular skills (3% in the current study vs. 12% in 2008). The survey findings suggest there is less evidence therefore that the scheme is being used specifically for the rewarding of skills or for individual performance - although senior staff are, of course, likely to be more skilled and experienced than average.

Figure 5.2: Criteria for offering EMI

Q. Which criteria are used to decide which staff are awarded EMI options?



Base: All early users (356); All early users who offer EMI to some employees (269)

Firms with equity were more likely to mention seniority (71%), while micro firms with fewer than 10 employees were less likely to do so (42%). Standalone firms were more likely than those who were part of a group to decide EMI eligibility on the basis of individual performance (33% versus 20%).

EMI options were most likely to be granted when a member of staff reached a particular level within the company, had been in post for a specific period of time or had successfully completed a probationary period (all 21%). The use of a probationary period was more common among firms expecting high growth (30%), firms with a turnover below £1 million (36%) those reporting a loss before tax (35%), firms operating in a high risk market (37%), firms with equity (32%) and firms less than 5 years old (40%).

In contrast, only 11 per cent of employers granted staff EMI options immediately on taking up their post, which is consistent with EMI being used primarily as a retention tool. This was more prevalent among firms expecting high growth (20%), firms with a turnover below than £1 million (22%), firms operating in a high risk market (25%) and those less than 5 years old (35%). Firms whose main focus is outside the UK (17%) were also more likely to award options immediately.

For 17 per cent, options were granted at no particular point, while for 14 per cent it was when staff met personal performance targets. This differs from the 2008 survey, where as many as 42 per cent of employers said they did not grant EMI share options to staff at any particular point, while 27 per cent granted them on successful completion of a probationary period. Nine per cent granted options to staff immediately on taking up their posts, a similar figure to this study.

Employers in the study were more likely to report **using EMI options as supplementary to salary** (48%) rather than in lieu (22%). Firms without equity were more likely to offer EMI options in addition to salaries (54% versus 41% with equity investment).

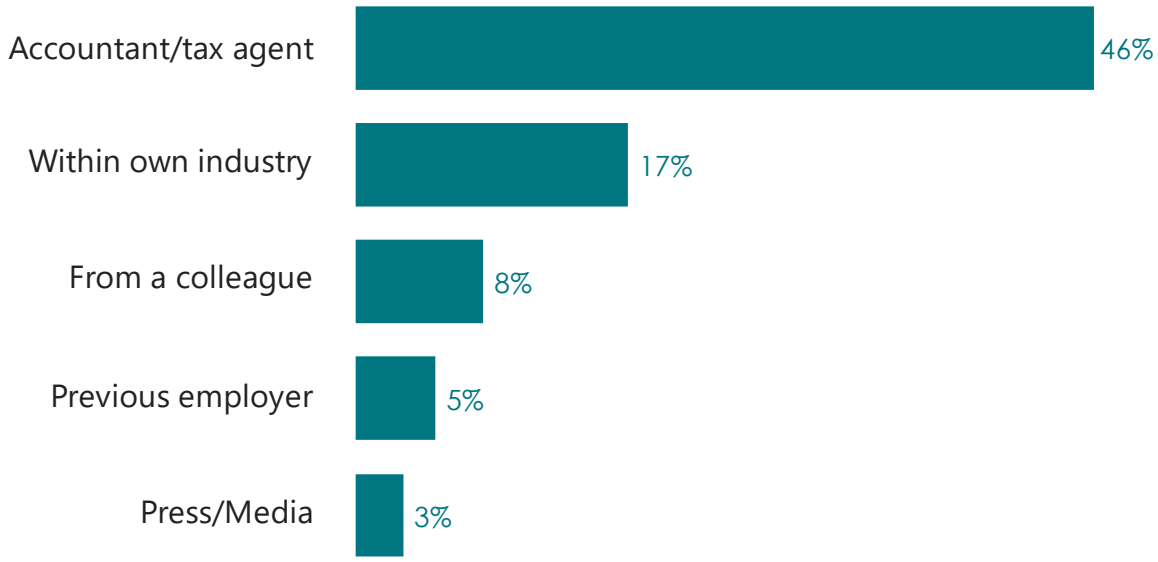
In terms of wages, **most firms thought these were in line with the average for their sector** (63%), while one in five said they were above average (20%) and a minority (14%) below average. Wages were more likely to be regarded as below average among micro firms with fewer than 10 employees (23%) and those with a turnover below £1 million (27%), which is consistent with the literature and analysis from the Annual Survey of Hours and Earning outlined in section 3. Firms which were more likely to think their wages were above average were those without external equity, (26%), those in existence for more than over 15 years (26%), firms operating in a low risk market (27%) and standalone firms (23%).

5.5 Sources of information on EMI

Employers were most likely to have **first found out about EMI from an accountant, tax agent or solicitor** (46%), as shown in Figure 5.3. Firms without external equity (55%), firms over 15 years old (53%) and standalone firms (50%) were all more likely to have first come across EMI through a professional advisor. This pattern was also seen among firms with a main focus within the UK (49% compared to 40% of firms mainly focusing beyond the UK).

Figure 5.3: Sources of information on EMI scheme

Q. Where did you first find out about EMI?



Base: All employers (703)

Coming some way behind professional advisors were sources within the firm's own industry (for instance other companies or trade bodies). This was mentioned by 17 per cent rising to 22 per cent among firms in the professional, scientific and technical sector, those who had received external equity and firms which were part of a group. Colleagues were the third most popular source (8%), particularly among medium firms with 50-249

employees (13%) and manufacturing firms (14%). Only one per cent had first heard about EMI from HMRC or another government source (rising to 5% among firms in the wholesale and retail sector).

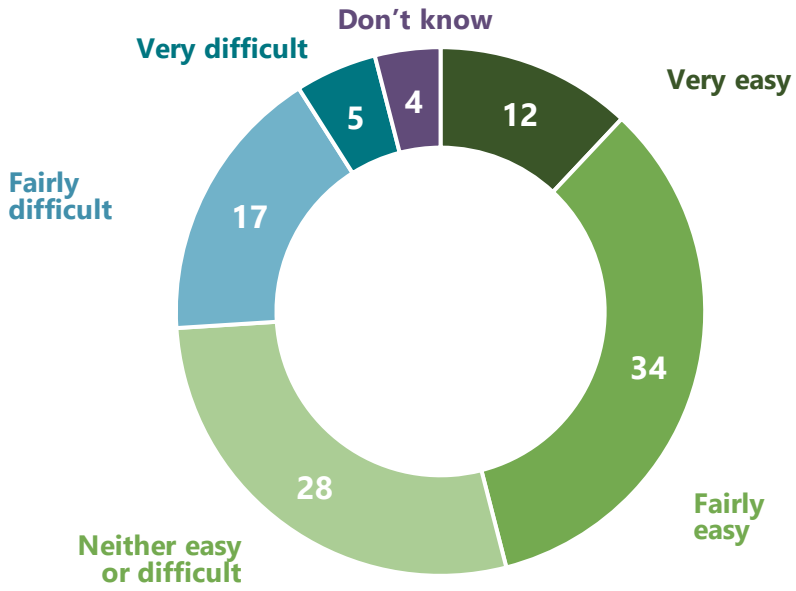
The 2008 study asked about the main source of information or advice and found that the most popular was external administrators (72% of employers consulted them), followed by HMRC (24%) and a company accountant (11%).

5.6 Using EMI since set-up

On balance, **early users were twice as likely to describe EMI as easy (45%) rather than difficult (22%) to use** (see Figure 5.4). However, a significantly higher proportion of companies in the 2008 study found EMI easy to use since set-up (61%).

Figure 5.4: Ease of using EMI

Q. Since your company first decided to grant EMI share options, how easy or difficult would you say it has been to use EMI?



Base: All early users (356); All early users who found EMI difficult to use (78)

The firms most likely to regard EMI as difficult to use were micro firms with 10-19 employees (34%), firms with turnover under £500,000 (38%) and those operating in a high risk market (34%).

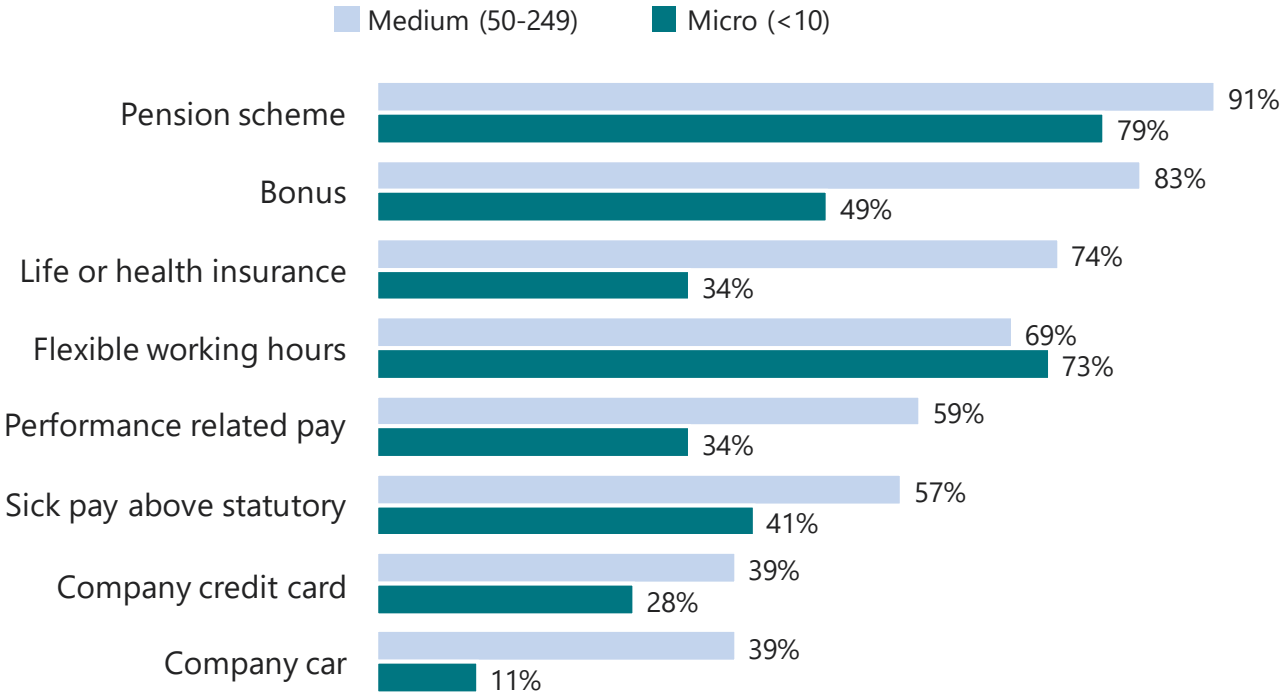
The biggest issues were caused by the **administrative burden** (mentioned by 54% unprompted) followed by **forms being difficult to fill out** (37%). Three in ten (29%) thought the **rules were hard to understand**.

5.7 Other benefits offered by employers

It was **common for other benefits to be offered alongside EMI**. The most frequently mentioned were a pension scheme (86%) followed by bonuses (72%), flexible working hours (68%) and life or health insurance (57%). As Figure 5.5 illustrates, most benefits, with the exception of flexible working hours, were more likely to be offered by medium-sized firms compared to micro firms. This was also the case in 2008. Firms operating at a profit before tax, with a turnover above £10 million, who had been in business for more than 15 years, and operating in low risk markets were also more likely to offer most benefits.

Figure 5.5: Benefits offered aside from EMI

Q. And apart from EMI share options, does your company currently offer any other benefits or bonuses to staff? (top mentions)



Base: All medium-sized employers (160); All micro employers (140)

Most employers offered at least one of the benefits mentioned in the question; only three per cent did not provide anything other than EMI (lower than the 11% recorded in the 2008 study). Firms with a turnover below £1 million (7%), micro firms with less than 10 employees (6%) and firms in high risk markets were more likely than average (6%) to provide nothing else.

5.8 Summary

The survey found that EMI was being used as a recruitment and retention tool in line with its objectives. According to employers, retention was more important than recruitment as a reason for introducing EMI. Only a minority thought that their employees or applicants would expect to be offered share options. Indeed, few companies offered EMI options to all staff and the survey revealed seniority was by far the most common criteria for eligibility within firms.

Employers were most likely to have first found out about EMI from an accountant. While more employers found the scheme easy rather than difficult to use since joining, a minority cited difficulties with administration and understanding rules.

Virtually all employers offered benefits aside from EMI, although medium-sized companies were more likely to offer a number of benefits than smaller firms. For most firms, participating in the EMI scheme was the first time share options had been granted to staff. Only eight per cent of firms currently offered other share option schemes – again this was more prevalent among medium sized firms.

6 Impact on recruitment and retention

This section first looks at changes in vacancies and skill shortages. It then examines perceptions around currently recruiting and retaining staff among EMI users and the perceived impact EMI has had on workplace factors such as retention, recruitment and staff motivation among early users. The section ends with the econometric analysis to assess the causal effects of EMI on the recruitment and retention difficulties faced by participating SMEs.

6.1 Vacancies and skill shortages

The survey collected information on vacancies, skill shortages and staff turnover in the baseline year[35] and 2015/16. As Table 6.1 shows, in most cases, companies had at least one vacancy over the course of 2016: 86 per cent of early users and 87 per cent of later users. This was an increase on the proportions in the baseline year (77% of early users and 74% of later users). The average number of vacancies per year also increased, from 4.1 to 7.0 among early users, and from 4.3 to 7.7 among later users.

Nearly all vacancies were filled within three months, although the proportion fell between the baseline year and 2016. On average among early users, 95 per cent of vacancies were filled within three months in the baseline year, but this was lower (79%) in 2016. There was a similar pattern among later users (96% in the baseline year, 80% in 2016).

Among those companies that had vacancies in 2016 that were unfilled for at least three months, more than a third said at least one of the vacancies was unfilled because of skill shortages: 40 per cent of early users and 38 per cent of later users. These proportions were higher than in the baseline year (23% for early users, 25% for later users). There was also an increase in the average number of vacancies that were unfilled because of skill shortages: from 0.7 to 1.5 among early users, and from 0.7 to 1.4 among later users.

Most companies had at least one employee leaving the company in 2016. As a proportion of the total number of employees, an average of one in six employees left the company in 2016 (18% for early users and 15% for later users). This was an increase on the figures in the baseline year (13% for early users and 11% for later users).

These findings suggest a **negative shift in patterns of recruitment and retention**, with companies finding it harder to recruit and retain staff in 2016 than in the baseline year, although this is **likely the result of wider trends in the labour market**.

[35] The default baseline year was set as 2012 or 2011/12 depending on the information collected. If the company was not trading until 2012 or later, the baseline year would be set as the year prior to the business joining EMI. If the business joined EMI in the same year they were established, the baseline year would be the year they were established.

Table 6.1: Vacancies and skill shortages

	Baseline year	2016	Change	*Base*
Mean number of vacancies*				
early users	4.1	7.0	+3.3	***278***
later users	4.3	7.7	+3.7	***281***
% with any vacancies*				
early users	77%	86%	+9	***278***
later users	74%	87%	+14	***281***
Mean proportion of vacancies filled within 3 months**				
early users	95%	79%	-0.16	***192***
later users	96%	80%	-0.17	***186***
Mean number of vacancies unfilled due to skill shortages**				
early users	0.7	1.5	+0.9	***164***
later users	0.7	1.4	+0.8	***164***
% with any vacancies unfilled due to skill shortages***				
early users	23	40	+18	***164***
later users	25	38	+13	***164***
Mean % of staff leaving*				
early users	13%	18%	+5	***277***
later users	11%	15%	+4	***284***

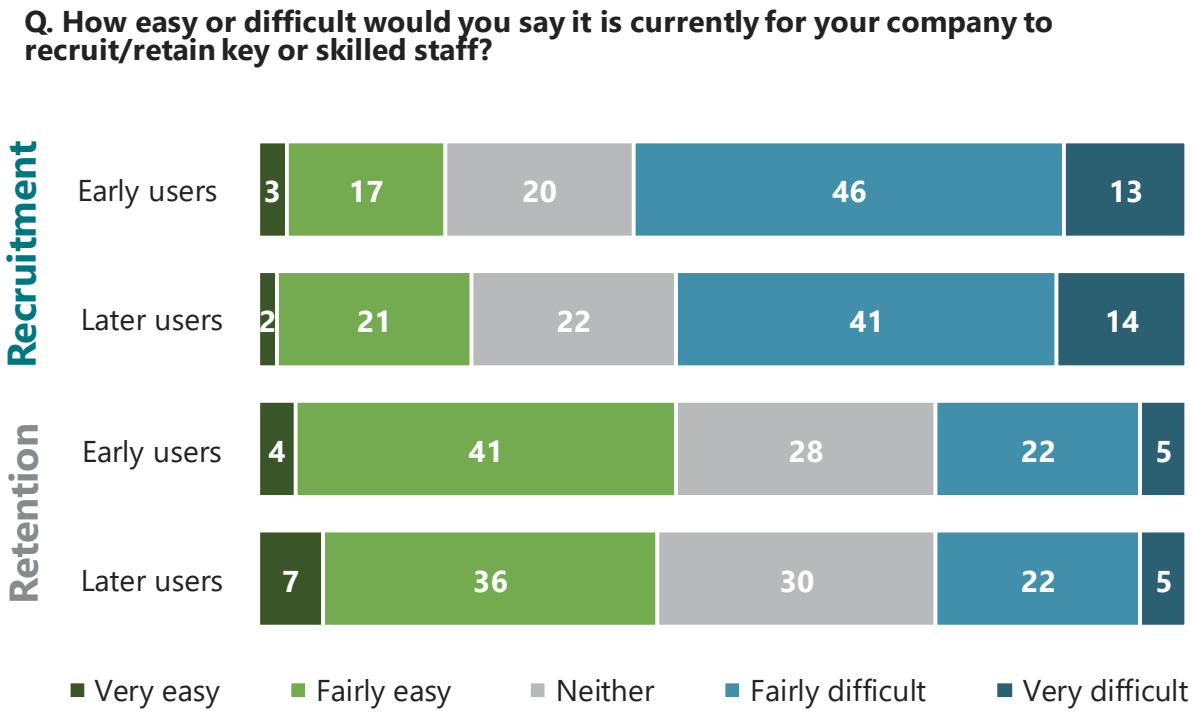
*Base: * all respondents giving a response at both years; ** all respondents with at least one vacancy and giving a response at both years; *** all respondents with at least one vacancy that was unfilled for 3+ months and giving a response at both years*

6.2 Ease of currently recruiting and retaining staff

Recruitment was more of a current problem than retention, as the survey data in Figure 6.1 illustrates. Around a fifth of both early (21%) and later (23%) users said they were currently finding it easy to recruit key or skilled staff, but almost three-fifths were finding it difficult (59% of early users and 55% of later users). This would support the hypothesis in section 3 that information asymmetries are a constraint on the economic efficiency of recruitment.

In contrast, four in ten of early (44%) and later (43%) users said they were finding it easy to retain key staff, while only around three in ten were having difficulties (28% of early users and 27% of late users).

Figure 6.1: Current ease of recruiting or retaining staff



Bases: All employers (703); All early users (356); All later users (347)

Recruitment was particularly an issue for firms in the information and communication and manufacturing sectors, with 69 per cent in both cases having difficulties compared to 57 per cent overall. This was also true of those who perceived their firm was operating in a high risk market (66%). Firms with a turnover of less than £3 million were twice as likely to say recruitment was currently 'very difficult' compared to firms with a turnover above £3 million (20% versus 10%) again supporting the economic case for the scheme that smaller firms find recruitment harder.

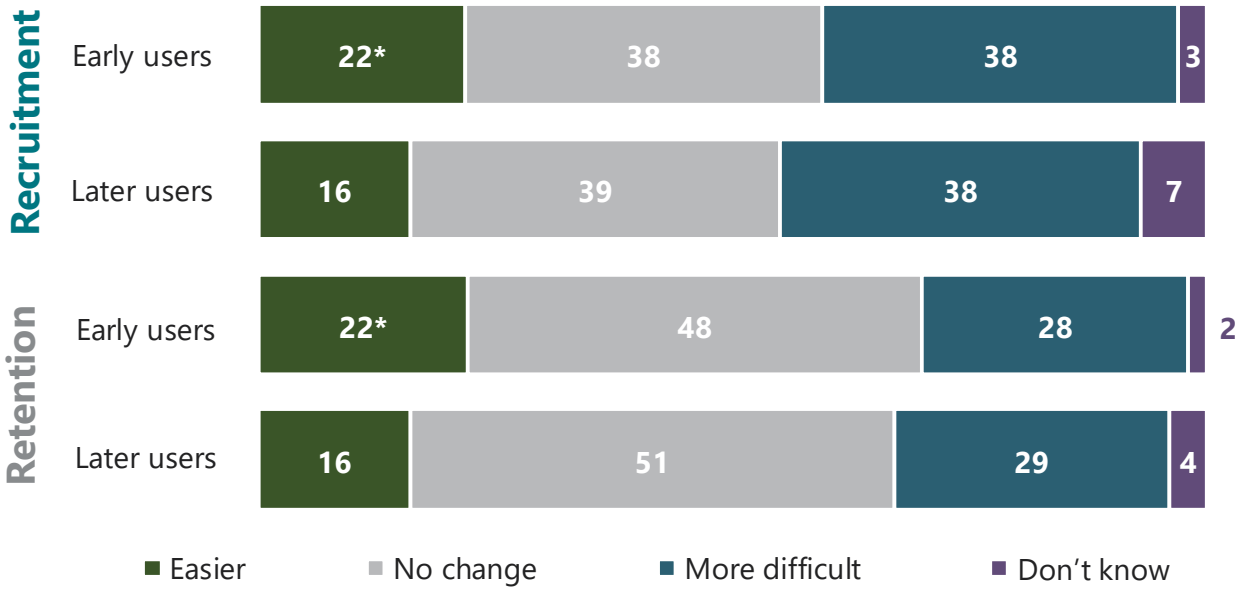
As with recruitment, information and communication firms were more likely than average to report difficulties with retention (39% compared to 27% overall).

6.3 Improvements to recruitment and retention

Figure 6.2 shows there was less of a clear difference between recruitment and retention when employers were asked how things had changed since joining the EMI scheme. Four in ten thought **recruitment had got more difficult** (38% of early users and 39% of later users) compared to three in ten for retention (28% of early users and 29% of later users). Around one in five thought both had become easier. Early users (22% for both recruitment and retention) were more likely than later users (16% in both instances) to think both had become easier.

Figure 6.2: Changes in recruitment and retention since the baseline year

Q. Do you think it has become easier or more difficult for your company to RECRUIT or ATTRACT / RETAIN or KEEP key or skilled staff since the baseline year?



Bases: All employers (703); All early users (356); All later users (347)
*significant difference compared with Later users

Source: Ipsos MORI

Around half of all EMI users thought there was no change in retention (49%), while four in ten (38%) thought the same for recruitment.

In the 2008 study, there was also a higher proportion who believed that recruitment had got more difficult. For 63 per cent of participants in the 2008 study, the retention of key or skilled staff had become neither easier nor more difficult in the past two to three years. In contrast, 41 per cent said recruitment had become more difficult, a similar proportion to those saying it had not changed.

In the current study, there were three main groups of firms that thought that both recruitment and retention had got more difficult:

- Medium size firms with 50-249 employees (46% thought recruitment had got more difficult, 38% said the same about retention);
- Firms operating in the UK only (42% recruitment, 32% retention); and
- Firms operating in highly competitive markets (40% recruitment, 31% retention).

Similarly, the types of employers below found that both recruitment and retention had got easier:

- Firms expecting high growth (25% for recruitment and 24% for retention); and

- Firms with equity (27% recruitment, 25% retention).

The length of time a company had been operating was linked to perceptions of whether or not recruitment and retention had got more difficult. Almost half (46%) of firms over 10 years old thought that recruitment had got harder, compared to only 30 per cent of firms less than 10 years old. Similarly, 32 per cent of firms more than 10 years old were finding retention more difficult compared to 22 per cent less than 10 years old.

Other firms which reported recruitment (but not retention) getting easier were those operating in a high risk market (25%), firms with a turnover of less than £1 million (25%) and firms in the professional, scientific and technical sector (26%).

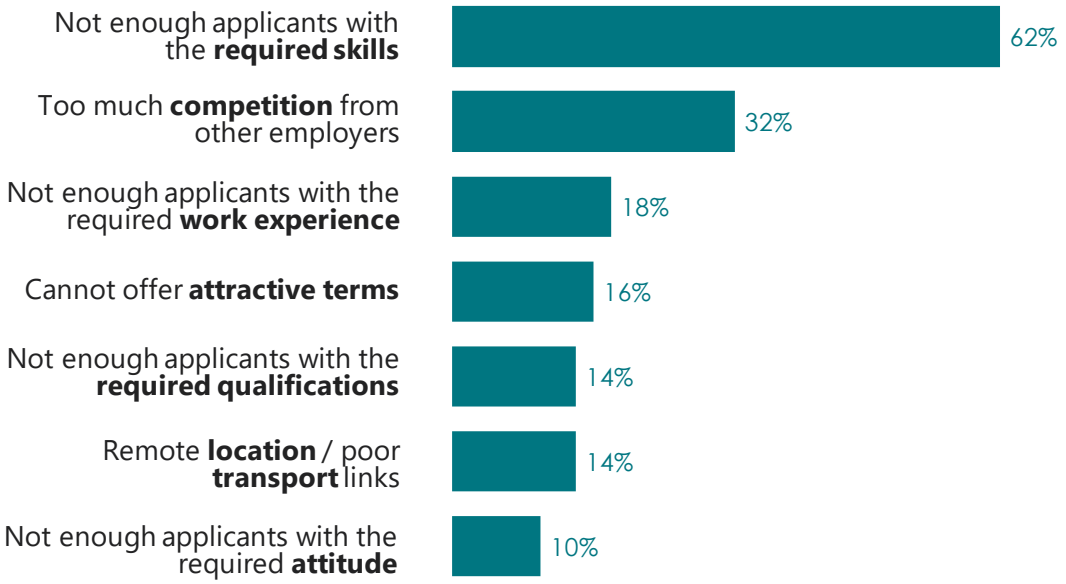
6.4 Reasons for retention and recruitment difficulties

Many of the difficulties around recruitment and retention related to a **shortage of suitable candidates** (see Figure 6.3). Not enough applicants with the right skills was the top reason given (62%), which is consistent with the sorting effects outlined in section 3. This was followed by too much competition from other employers (32%) and a lack of applicants with the required work experience (18%). Less common were issues with the firms themselves, with 16 per cent saying they could not offer attractive terms (rising to 21% among firms which had received external equity) and 14 per cent reporting that location/poor transport links were an issue.

While ten per cent of firms with difficulties thought the problem was not enough applicants with the required attitude, this perception was more prevalent among micro firms with fewer than 10 employees (20%). There was also a difference in views among firms mainly focusing within the UK compared to those focused beyond the UK (13% versus 5%) and firms reporting a profit before tax profit in contrast to those reporting a loss (14% versus 4%). For micro firms, a shortage of applicants with enough work experience was also more of an issue than average (27% versus 18% overall).

Figure 6.3: Reasons for difficulties with recruitment and retention

Q. Why do you say it is currently difficult to recruit or retain key or skilled staff?



Bases: All employers finding recruitment or retention difficult (428)

Among the employers who were finding recruitment and retention easier, a more **established reputation** was the most common reason given (63%), followed by improved cash flow (20%), which is again consistent with the analysis in section 3. Use of EMI was mentioned third most often by 12 per cent.

This also chimes with what was found in the 2008 study, where the main reasons given by employers for recruitment having become easier in the past two to three years was a more established reputation (69%), less competition for staff in the industry in general (14%) and because the company's cash flow had improved (12%).

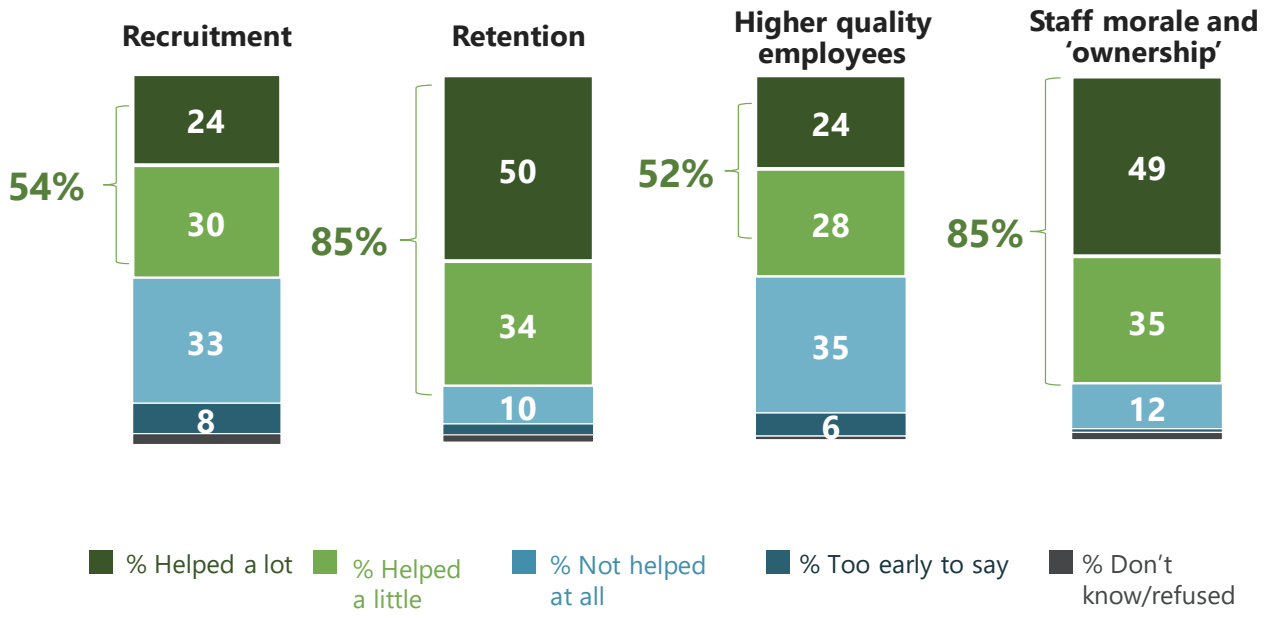
In the current study, a more established reputation was more likely to be mentioned as a factor by firms expecting high growth (72%).

6.5 Views on how far EMI has helped with recruitment and retention

Respondents were asked the extent to which EMI had helped labour market issues. As Figure 6.4 shows, half of early users (54%) thought that EMI had assisted **with recruiting key or skilled employees**, with a quarter (24%) saying it had helped 'a lot.' A similar proportion felt that EMI had **helped attract higher quality employees** (52%, with 24% saying it had helped 'a lot'). EMI was perceived to have had even more of an impact on **retention**, with 85 per cent saying it had made a positive difference, and half (50%) saying it had helped 'a lot.' This was also the case for improving **staff morale and creating a feeling of 'ownership'** (85% said it had helped including 49% helped 'a lot' in this respect).

Figure 6.4: Perceived views on how far EMI has helped with labour market issues

Q. How much, if at all, do you think that granting EMI has helped with each of the following?



Base: All early users (356)

Firms expecting high growth were more likely to say that EMI had assisted in all aspects. Three in four said it had helped with recruitment and attracting high quality staff (76% and 73% respectively) and this increased to nine in ten who said it had helped with retention (89%) and improving staff morale (90%). EMI was also more likely to have been seen to have had a positive impact on **recruitment** by firms with a turnover of less than £1 million (68%), businesses receiving equity (69%), firms less than 5 years old (73%) and those operating in a high risk market (75%). Businesses more than 15 years old (46% versus 33% overall) and those operating in a low risk market (44%) were more likely to say EMI had not helped at all with recruitment.

Employers particularly likely to have said that EMI helped attract higher quality employees were those with external equity (66%), a turnover under £1 million (67%) and operating in a high risk market (71%). Medium firms with 50-249 employees were more likely to say EMI had not helped at all (44% versus 35% overall), as were businesses more than 10 years old, particularly those which had been in existence for more than 15 years (52%).

EMI was seen as helping in recruiting key staff through making the company more attractive to new recruits (56%) and encouraging better quality candidates to apply (21%). Promoting buy-in/a feeling of ownership was another key factor (15%), along with providing additional incentives (10%).

6.6 Offering alternative schemes to EMI

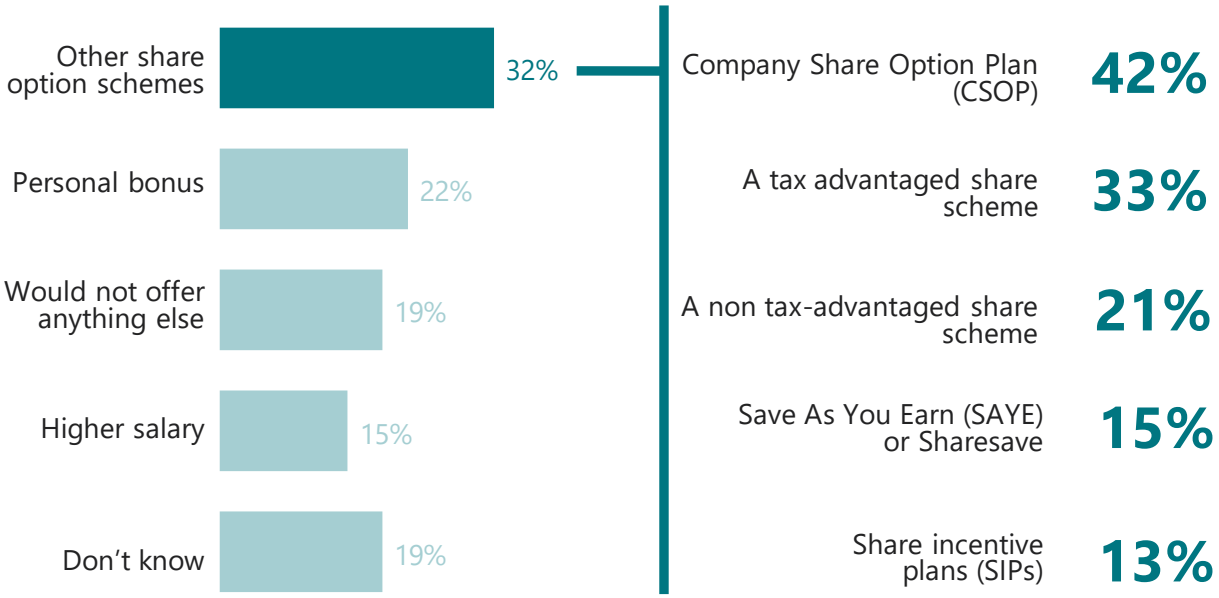
If EMI were not available, early user firms would be most likely to offer **other share schemes** instead (32%) suggesting share options are an effective tool for small companies. Financial options in the form of bonuses (22%) and higher salaries (15%) were the next most common alternative schemes given, as shown in Figure 6.6. A fifth (19%) would not offer anything else. Firms expecting high growth were more likely to say they would offer other

share options or share based incentive schemes (44%), as would firms reporting a loss before tax (43%), firms with equity (40%) and those operating in a high risk market (42%).

Among those who would offer other share-based schemes if EMI were not available, 42 per cent say they would provide a Company Share Option Plan. The next most popular option was a tax-advantaged share schemes (33%) and a non tax-advantaged share scheme (21%). One in seven (15%) would offer Save As You Earn (SAYE) or Sharesave and a similar amount (13%) would provide Share Incentive Plans (SIPs). One in five (20%) did not know what scheme they would offer.

Figure 6.5: Alternative benefits if EMI was not available

Q. If EMI was not available what, if anything, would your company offer instead? (top mentions)



Base: All early users (356)

6.7 Impact of EMI on recruitment and retention

A range of difference-in-difference analyses were completed to assess the causal effects of EMI on the recruitment and retention difficulties faced by participating SMEs. The focus of this analysis was on the two key intermediate outcomes identified in the logic model set out in Figure 2.1 in section 2:

- **Hard to fill vacancies** as a percentage of total employment – on the expectation that if EMI was effective in addressing recruitment difficulties, this ratio would fall amongst users of the scheme; and,
- **Retention rates –** i.e. the proportion of staff leaving over the course of 12 months as a percentage of total employment (on the expectation that EMI would lead to improved retention rates if it was effective in addressing retention difficulties)

These analyses compare the changes over time in outcomes between a treatment group (356 firms that adopted EMI in 2012/3 and 2013/14) and a comparison group (347 firms that adopted EMI in 2015/16). The underlying assumption of this approach is that later adopters should be reasonably similar in their unobservable characteristics to early adopters, or at least more similar than any comparison group which could be drawn from the general business population[36], mitigating against the risk of selection bias which would otherwise confront the research design:

- **Difference-in-differences:** A difference-in-difference approach was employed to allow us to estimate the impact of an intervention compared to what would have happened anyway. If we can reasonably assume that in the absence of the policy the outcomes of each group would have experienced the same trends, then the differences in trends over time (between 2011/12 and 2015/16) will represent the causal impact of the participation in EMI. The difference-in-difference approach is robust to time invariant unobserved differences between the treatment and comparison groups.

- **Matching:** While it is not necessary for a robust difference-in-difference analysis that the two groups are exactly equivalent (the common trend assumption is sufficient), using a matching technique to remove some observable differences in baseline characteristics between the treatment and control groups will strengthen the plausibility of this assumption.

6.7.1 Matching

As outlined in section 4, early and late adopters corresponded closely across most variables and the in the main, differences in characteristics were not large enough to be identified as statistically significant. However, some statistically significant differences were found. Specifically, R&D spend and level of equity investments in 2011/12 were higher amongst early than late adopter firms:

- **R&D spend:** The average R&D spend in 2011/12 was £79,417 amongst later adopters and £217,635 for early adopters. The proportion of firms that spent nothing on R&D was higher among later users (55%) than early users (49%).

- **Equity investment:** Average level of external equity investment in 2011/12 (i.e. not including stock options awarded through EMI) was £467,437 for later users and £3,110,713 for the early users. The proportion that had secured equity investment was 28 per cent among early users and 15 per cent among later users. Of those that have secured equity investment, the average amount was higher amongst the early users. This – taken together with the findings on R&D spend above – suggests that the early users were further ahead in their growth trajectory than later users.

- **Turnover and profits:** Average levels of turnover and profits were also higher amongst the early adopters than later adopters in 2011/12 (though these differences were not statistically significant due to the large variation in these variables and the relatively small sample size).

A propensity score matching algorithm was deployed to remove differences in a range of baseline characteristics, including R&D spending, turnover, number of hard-to-fill vacancies as a proportion of total employment, level of

[36] This is known as a 'pipeline design'.

equity investment, level of risk in product markets and age of the firm. The matching process achieved an overall reduction in the differences in baseline characteristics between groups – reducing the standardised bias[37] to below 5% for all variables used in the model (typically, a bias reduction below 3% or 5% is seen as sufficient[38]). Further details are set out in a separate document.

Matching resulted in a loss in sample size and 203 of 356 treated firms were matched. This is mostly due to missing values in the proportion of hard-to-fill vacancies[39] (mainly because firms were unable to report how many vacancies they had in the base year). The consequence is that any firms with a missing value for the proportion of hard-to-fill vacancies were excluded from the analysis. This could result in bias in the results if EMI adoption affects this type of firm differently to the rest (though we have no reasons to suspect this may be the case). As a general caveat for this type of analysis, a combination of large variation (in variables such as profit, turnover, equity investment and R&D spend) and small sample size can produce instability in the analysis (e.g. a few firms with extreme values driving the observed changes over time).

6.7.2 Findings

The main results are shown in Table 6.2 and are summarised below:

- **Hard-to-fill vacancies as a proportion of employment:** The results indicate that adoption of EMI reduces the proportion of hard-to-fill vacancies amongst those using the scheme. Both groups experienced a reduction in the proportion of hard-to-fill vacancies since the baseline year, but the reduction was larger among early adopters (an average reduction of 10 percentage points from 26% to 16%) compared to the matched control group (a reduction of 4 percentage points from 22% to 18%). This confirms that EMI aids recruitment efforts – and the results showed that the impact grows with the amount of time the firm has participated in the scheme.

- **Employment:** The results also showed that the effect of adopting EMI feeds through into growth in the number of employees. The magnitude of this effect was estimated as a 26 per cent increase over three years (the equivalent of increasing from 24 employees to 30 - based on the average employment of EMI users in the matched sample in 2012/13.

- **Retention:** However, analysis found that that EMI had no measurable effect on retention rates. In part, this might be expected – given the results shown in section 3 and 5 that both EMI users and the general population of SMEs face less acute issues with retention than recruitment. Additionally, the information problem faced by prospective employees will tend to recede once they have joined the firm and acquire an insider view on its likely future performance – suggesting that retention problems could be expected to be less acute amongst SMEs (particularly as they tend to recruit from less competitive labour markets). Nevertheless, this finding does not quite align with the perspectives offered by those surveyed, who suggested that EMI has been more effective in raising retention rates. It may be that the effects of the programme on retention are smaller than could be detected in the sample sizes available for this analysis. Alternatively, it may be that insufficient time had

[37] The standardised bias indicates the distance in marginal distributions of the variables after matching, with a lower value indicating a closer match. It is the difference of sample means in the treated and matched control subsamples as a percentage of the square root of the average of sample variances in both groups.
[38] Caliendo, 2005. Available at: http://ftp.iza.org/dp1588.pdf
[39] Omitting this variable from the matching model leads to a drop in the match quality while the number of matched firms only rises to 245 due to other missing values (e.g. in R&D, turnover).

elapsed since the baseline year to clearly observe the anticipated effect (i.e. while effects on recruitment can be observed relatively quickly, it is reasonable to expect that effects on retention will be lagged).

Table 6.2: Estimated impact of EMI on recruitment and retention

Change in outcome	Estimated impact of EMI
Hard to fill vacancies as % of employment	**-0.059****
Log number of employees	**0.263***
# of staff leaving as % of employment	**No effect**

*Source: Ipsos MORI analysis - ** significant at the 95% level, * significant at the 90% level*

6.8 Summary

Information collected from EMI users in the survey on vacancies and staff turnover since first using the scheme suggests companies are finding it harder than they did previously (in the baseline year) to recruit and retain staff, although this is likely the result of wider trends in the labour market. In the survey, EMI users also perceived it was more difficult to recruit than to retain key or skilled staff. The main reason firms cited for difficulties in attracting staff was that there are not enough applicants with the right skills.

EMI was perceived by adopters of the scheme to be successful in helping companies retain key and skilled staff and improve staff morale with over eight in ten (both 85%) reporting it helped with these challenges. In contrast, around half (54%) said that EMI helped them with recruitment. EMI being less helpful for recruitment may also reflect that attracting staff remains the key issue among those using the scheme.

In contrast to the perceptions of the businesses interviewed, more robust analysis using a control group suggested that EMI appears to aid recruitment efforts (leading to a decreased proportion of hard-to-fill vacancies and increased employment) but does not influence retention. This is in line with expectations outlined in the supporting market failure analysis. Information asymmetries are likely to be most acute in the case of the prospective employee, whereas those that have joined the firm will acquire information about its prospects (with additional incentives predicted to have a weaker effect).

7 Impact on firm performance and growth

This section starts by looking at changes in growth and performance, followed by EMI users' recent experience of major events and their perceptions for growth prospects. The section then looks at the perceived impact EMI has had on company performance. The section ends with the findings from the econometric analysis assessing the impact of EMI on investment, R&D spending and firm performance.

7.1 Number of employees

The survey data on baseline characteristics of firms and changes in firm performance variables provides further evidence that EMI users are expanding companies. While the majority were still micro or small companies, **company size increased over time**, as shown in Table 7.1. Among early users, the average number of employees increased from 26 in the baseline year to 40 in 2016, with a similar increase among later users (from 28 to 43 employees). The proportion of medium and large companies (with 50 or more employees) also increased, from 14 per cent to 25 per cent among early users, and from 16 per cent to 23 per cent among later users.

Table 7.1: Change in number of employees

	Baseline year	2016	Change	*Base*
Mean number of employees				
early users	26	40	+14	***340***
later users	28	43	+15	***325***
% with 50+ employees				
early users	14%	25%	+11	***340***
later users	16%	23%	+7	***325***

Base: All respondents giving a response at both years

7.2 Turnover and profitability

As **companies have grown in number of employees over the timeframe covered by the survey, so too has their turnover**, as shown in Table 7.2. The typical annual turnover doubled between the baseline year and 2015/16: for early users, the median amount increased from £1.57 million in the baseline year to £3.02 million in 2015/16. For later users, there was a corresponding increase from 1.24 million to £2.74 million.

This change can also be seen by looking at the proportions with low and high turnovers. The proportion with an annual turnover of less than £500,000 fell between the baseline year and 2015/16, while the proportion with a turnover of £5 million or more increased.

This **pattern is also evident when looking at changes in profit**. The median profit in 2015/16 was more than £100,000 (£124,085 among early users and £133,465 among later users), higher than in the baseline year (£75,807 and £73,070 respectively). The proportion of early users that made a profit remained similar between the two years (56% in the baseline year and 58% in 2015/16), as did the proportion of early users that made a loss (34% and 36%). However, later users were more likely to make a profit in 2015/16 than in the baseline year (68% compared with 59%), while the proportion that made a loss remained similar (28% and 27%).

Table 7.2: Change in turnover and profitability

	Baseline year	2016	Change	*Base*
Median annual turnover				
early users	£1,570,000	£3,022,222	+£1,452,222	***331***
later users	£1,240,000	£2,738,090	+£1,498,090	***314***
% with annual turnover < £500,000				
early users	33%	16%	-17	***331***
later users	31%	20%	-11	***314***
% with annual turnover £5,000,000 or more				
early users	27%	39%	+12	***331***
later users	22%	33%	+11	***314***
Median annual profit				
early users	£75,807	£124,085	£48,278	***265***
later users	£73,070	£133,465	£60,395	***231***
% making a profit				
early users	56%	58%	+2	***301***
later users	59%	68%	+9	***271***
% making a loss				
early users	34%	36%	+1	***301***
later users	28%	27%	-2	***271***

Base: All respondents giving a response at both years

7.3 Other firm performance measures

The expansion in profit and turnover shown in Table 7.2 is also reflected when looking at other firm performance measures. This provides further evidence that the intended firms are self-selecting into the scheme (see Table 7.3).

The amount spent on **research and development** (R & D) increased substantially over the time period covered by the survey. In the baseline year, the typical/median spend among early users was £19,729, which increased to £88,000 in 2015/16. The typical R & D spend among later users increased from £5,693 to £39,643.

There was also an increase in the proportion of firms **exporting**. In the baseline year, less than half of companies exported goods or services out of the UK (40% of early users and 42% of later users). However, this increased to more than half of these companies in 2015/16 (58% in both groups). This compares to only 19% of SMEs exporting goods or services in the most recently published findings from the Small Business Survey[40] again suggesting the scheme is attracting the right types of firms.

In terms of **equity**, around a third of early users said they had received external equity investment, and this was consistent between the baseline year and 2015/16 (32% and 36% respectively). Later users were less likely than

[40] https://www.gov.uk/government/publications/small-business-survey-2015-businesses-with-employees

early users to have received external equity investment, although the proportion did increase from the baseline year to 2015/16 (from 17% to 27%).

Table 7.3: Change in R & D, exporting and investment

	Baseline year	2016	Change	*Base*
Median R & D spend				
early users	£19,729	£88,000	£68,271	***293***
later users	£5,693	£39,643	£33,950	***280***
% exporting				
early users	40%	58%	+17	***347***
later users	42%	58%	+17	***332***
% attracting external equity				
early users	32%	36%	+4	***299***
later users	**17%**	**27%**	**+10**	***294***

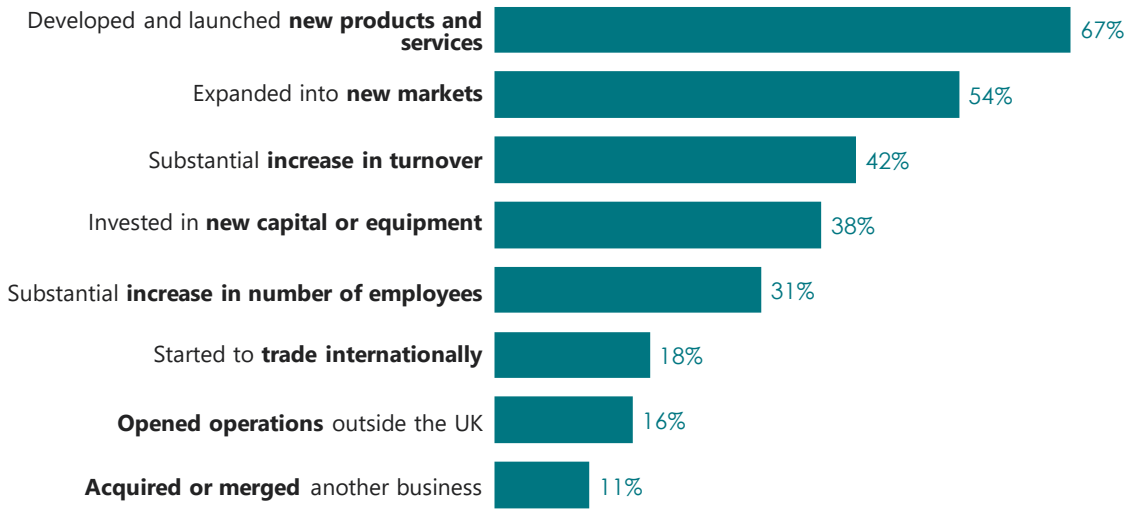
Base: All respondents giving a response at both years

7.4 Major events experienced in the last 12 months

When asked about major events that their company had experienced in the previous 12 months, two-thirds (67%) said that they had developed and launched new products and services, while more than half (54%) had expanded into new markets (see Figure 7.1). Over a third (38%) had invested in new capital or equipment. Companies were more likely to have experienced a substantial increase in turnover (42%) than in the number of employees (31%).

Figure 7.1: Major events experienced over the last 12 months

Q. Which of the following major events has your company experienced over the last 12 months?



Bases: All early and later users (703)

Later users were more likely than early users to have experienced a substantial increase in turnover (46% compared with 38%) and an increase in the number of employees (37% compared with 25%). Otherwise, the findings were very similar for the two groups.

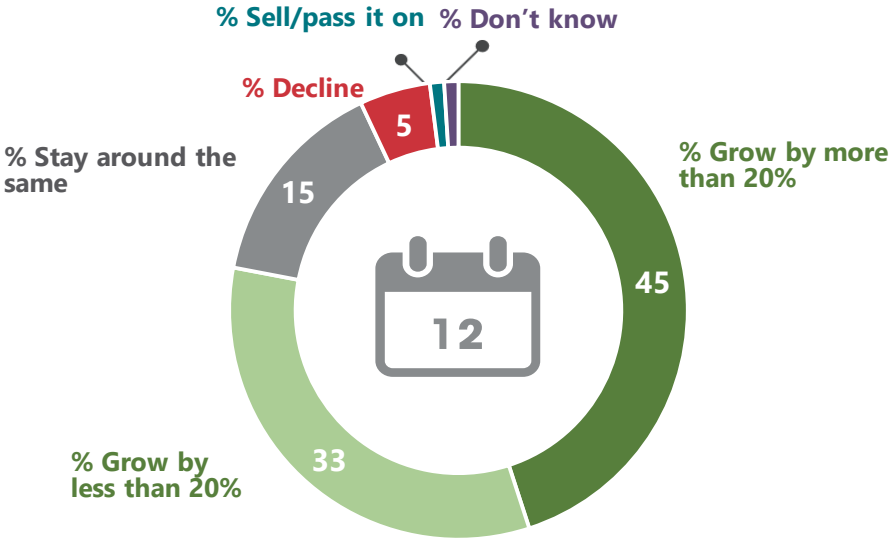
Newer businesses and those that had received external equity were also more likely to have seen an increase in turnover and number of employees. This could also potentially explain why later users had seen a greater increase in profit and investment as they are younger businesses more likely to be growing at a faster rate than older firms – although this would be somewhat contrary to the findings from the literature in section 4.

7.5 Prospects for future growth

Figure 7.2 shows around three-quarters of EMI users (78%) said they **expected their company to grow** over the next 12 months, including almost half (45%) who expected the company to grow by 20% or more. Only five per cent were expecting a decline. This compares favourably to the latest data on the wider business population from the Small Business Survey, which found 45 per cent of SMEs were anticipating growth over the next year and eight per cent were expecting a decline [41].

Figure 7.2: Expectations for growth over the next 12 months

Q. Which of the following do you feel describes your expectations for the company over the next 12 months?



Base: All early and later users (703)

Expectations for 'high growth' (of 20% or more) were more prevalent among micro companies (61%) and newer companies with a lower turnover, as well as among those operating outside of the UK market (57%) and those who had received external equity (64%). Findings were very similar for early and later users.

[41] https://www.gov.uk/government/publications/small-business-survey-2015-businesses-with-employees

There were four main ways that companies were planning to achieve their expected growth:

- Take on more employees (73%)
- Move into new markets (69%)
- Introduce new products or services (68%); and
- Increase marketing (66%).

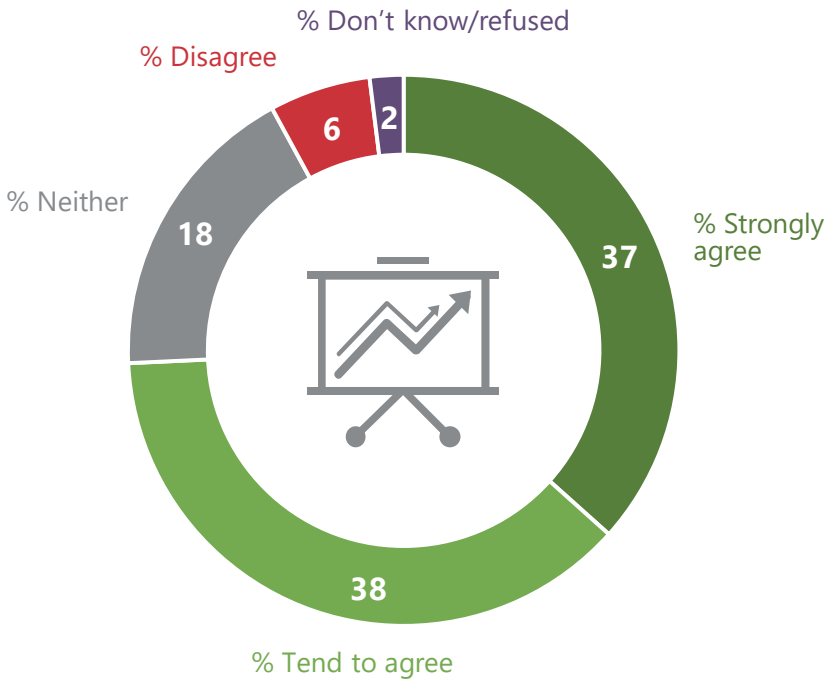
These priorities were broadly similar between those expecting high growth (of 20% or more) and those expecting lower growth (of less than 20%). The main differences were that those expecting high growth were more likely to be planning to move into new markets or take on new employees, while those expecting lower growth placed a relatively high emphasis on raising prices and cutting back on expenses.

7.6 Views on how far EMI has helped company growth

Three-quarters (74%) of early user firms agreed that offering EMI share options had been **important to their growth and development**. Almost two-fifths (37%) strongly agreed that was the case.

Figure 7.3: Importance of EMI to company growth and development

Q. Overall to what extent do you agree or disagree offering EMI share options has been important to the growth and development of your company?



Bases: All early users (356)

Source: Ipsos MORI

Micro firms with less than 10 employees (47%), firms in existence for less than 5 years (48%), information and communication firms (48%) and firms with equity (44%) were more likely than other sub-groups to strongly agree. Firms expecting high growth (84%) and those reporting a loss before tax (81%) were more likely than average to agree.

7.7 Impact of EMI on investment and firm performance

The econometric models described in section 6 were also used to assess the impact of EMI on investment, R&D spending and firm performance. In summary:

- **Investment[42]:** In addition to helping firms to grow in terms of employee numbers, EMI also led onto increased equity investment for some adopters. This is a signal that the scheme has successful in supporting the growth of SMEs, and could be interpreted as showing the scheme has been successful in encouraging participation by firms with high growth potential.
- **R&D expenditure:** However, the results suggested that EMI had no effect on R&D spending. One possible explanation for this finding is that EMI users are at a later stage of the growth cycle than perhaps anticipated in the business case, using equity investment to scale up their operations rather than to further the development of new product, process, or service offerings.
- **Output and productivity growth:** The time frame for analysis (3 years) may be insufficient to assess the long term economic impacts of the scheme – and no impact was found on turnover, output or productivity growth. Again, this would potentially be explained if a share of EMI users is at the scale-up phase, recruiting larger numbers of workers but yet to experience substantial effects on revenues or efficiency.

7.8 Summary

The survey data collecting baseline characteristics of firms and changes in firm performance variables provides evidence that EMI users were expanding companies. The findings also indicate companies are focused on scaling-up and many expect high levels of growth in the next 12 months.

EMI is perceived by businesses that are using the scheme to be successful in helping companies grow and develop.

The results of the econometric analysis suggest that the EMI scheme has led onto increased equity investment for some adopters. This could be interpreted as a signal that the scheme has been at least partially successful in encouraging participation by firms with high growth potential. However, the scheme does not appear to have had a significant effect on R&D spending. One possible explanation for this finding is that EMI users are at a later stage of the growth cycle than perhaps originally anticipated and are using equity investment to scale up their operations.

[42] Note that the treatment and comparison samples were balanced in terms of baseline levels of R&D spending, equity investment, as part of the matching process.

However, the results of the econometric analysis did not suggest that EMI has yet had an effect on turnover, output or productivity growth amongst those joining the scheme in 2012/13. Again, this would potentially be explained if a share of EMI users were at the scale-up phase, recruiting larger numbers of workers but yet to see substantial effects on revenues or efficiency. This would be consistent with the fact that nearly half (45%) of firms reported that they expected more than 20% growth in the coming year and three-quarters (73%) of firms expecting any growth intend to support this by taking on new employees. As such, the timeframe for analysis (3 years) may be insufficient to assess the long-term economic impacts of the scheme.

8 Assessment of EMI

This evaluation of the EMI scheme is based around four key aims:

- Explore the validity of the economic theory behind the scheme and determine the presence of market failures that were used to justify it;
- Examine how the scheme is working for businesses that use EMI, including its design, targeting and accessibility;
- Assess the perceived impact EMI has had on workplace factors such as staff motivation, retention and recruitment, as well as the schemes perceived impact on firm performance and growth; and
- Determine the extent to which EMI has the desired effect on participating SMEs, including on rates of recruitment, retention, and growth, and whether this effect varies across different types of firms.

Strength of rationale

The evaluation has found a range of evidence in support of the case for the EMI scheme:

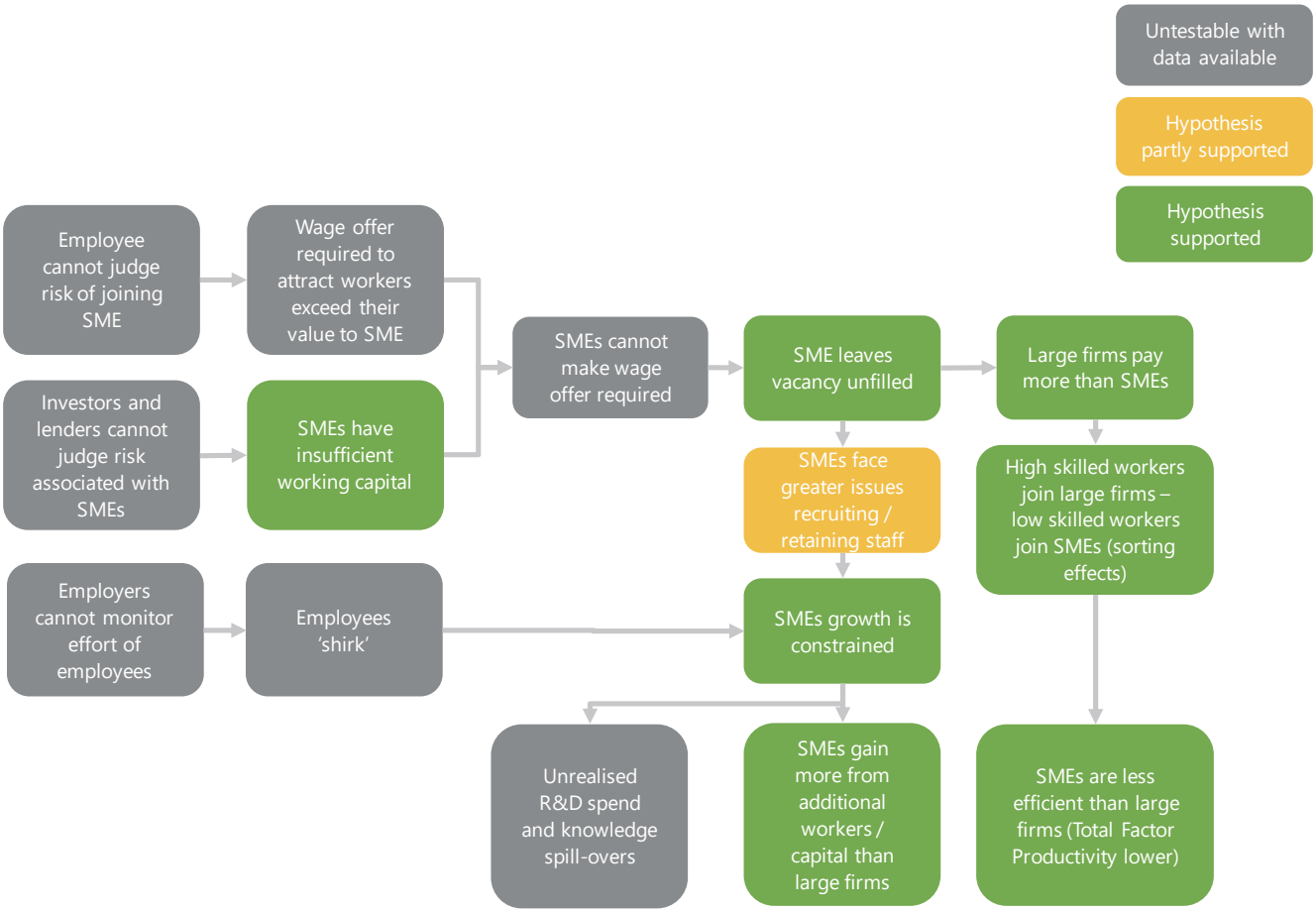
- **Information asymmetries:** The case for EMI is based centrally on the hypothesis that the prospective employee has poorer information on the likely prospects of SMEs than of large firms – requiring the former to offer higher wages to attract workers of equivalent skills and ultimately leading to sorting patterns in which highly skilled workers sort into large firms while lower skilled workers sort into SMEs. The evidence gathered through the evaluation was consistent with this expectation – business surveys tend to indicate that SMEs faced greater recruitment challenges than large firms and that they tend to focus their recruitment efforts on less skilled workers. SMEs also typically pay lower wages for workers with equivalent skills, provide less secure employment, are less likely to invest in training compared to larger firms, and show lower total factor productivity. The evaluation also found evidence of employment constraints – smaller firms show higher marginal labour productivity than large firms, suggesting SMEs would be able to raise profits if they were to expand their labour force.
- **Retention:** While the business case for EMI also focused on its potential role in supporting retention rates – we did not find evidence that retention is a significant issue for SMEs (with larger firms tending to report more difficulties in retaining employees). This is consistent with the finding above that larger firms tend to compete for more scarce and highly skilled workers who are more in demand. Furthermore, the information problem described above is likely to ease once employees have joined an SME as they would be exposed to the business and naturally have more information on the growth prospects of the firm.
- **Financial market constraints:** The other hypothesis was that SMEs faced greater constraints in financing than larger firms, making it difficult to pay the wage offers demanded by more highly skilled staff. This restricts their growth prospects with a knock on impact on the growth of the broader economy. The findings confirm this view with a wide range of research showing that SMEs face particular constraints in securing finance due to their greater variance in profitability, survival and growth rates. Our analysis of the secondary data suggests that access to working capital is particular problem for micro-businesses who could potentially raise their profits and

productivity substantially if they had access to larger amounts of working capital (despite financing constraints easing in recent years).

- **Targeting:** The literature review suggests that SMEs are a primary contributor to employment growth in many developed economies across the world, though only a small share of businesses have high growth potential. This is potentially problematic as although EMI is targeted at SMEs, it is still open to the vast majority of enterprises in the UK – these findings would provide a case for more refined targeting. However, the literature also suggests that firms with high growth potential defy definition – they can appear in any sector, and can be of any age – making a more refined approach likely infeasible. Therefore, the effectiveness of EMI in reaching firms with high growth potential relies on them self-selecting into the scheme. There was some evidence to suggest that the focus on rewarding employees with company equity could produce such an effect – for example, equity tends to be an instrument that is most widely used amongst early stage technology firms, and evidence from firms in Silicon Valley indicate that it can have a material influence on the motivation and productivity of staff.

The diagram below illustrates the hypothesised rationale for the scheme and where this is borne out in the market failure analysis. Green boxes indicated where evidence has been found to support the specific hypothesis.

Figure 8.1: Market failure findings



Targeting, design and accessibility

The findings from the primary research illustrate that, broadly, the type of firms joining the scheme fit the profile of businesses with high growth potential. The evidence indicates the EMI has attracted younger, smaller firms with

high growth potential in highly competitive industries. Almost all firms reported that they operate in a highly competitive market and that they offer premium quality goods or services which is also consistent with the schemes aim of targeting high value adding firms in particular. The evidence also suggests that EMI users are more R&D and innovation intensive than the wider business population - over half of EMI users reported that their strategy was based on introducing new products or services to the market (58% compared to 53% of the wider business population[43]).

The primary research also found that the scheme was being used as a tool to aid recruitment and retention, consistent with its intended aims. A larger proportion of firms reported that they had difficulties with recruitment compared to retention. However, more firms reported that they introduced the scheme to aid retention compared with recruitment. In addition, seniority within the business was the primary criteria used to decide which staff would be offered the chance to participate. This suggests the primary motivation businesses reported for offering EMI was the retention (or motivation) of senior staff – a finding that is possibly inconsistent with the scheme's targeting but may be a result of an overlap in perceptions of seniority and skills. Senior staff would naturally have skills that were valuable to the businesses and therefore this may indicate that businesses are using EMI to retain those skills.

Impacts on recruitment and retention

Evidence from the survey indicates that firms which had been using EMI for longer were more likely to see an improvement in recruitment and retention compared to firms who had only recently started using the scheme.

The majority of early users reported that EMI was having a positive impact on retention and recruitment. Over eight in ten reported that EMI had helped their business with retention and the same proportion reported an improvement in staff morale and a feeling of ownership. The most common reason reported for this improvement in recruitment or retention was that they had a more established reputation, which is consistent with the information problem highlighted above. This compared to around half who reported that EMI had helped with recruitment and attracting higher quality staff in particular. As firms generally reported that they had greater difficulties with recruitment, this likely reflects a bigger challenge for SMEs more broadly. The primary reason for difficulties with recruitment was reported to be a lack of applicants with the required skills.

Evidence collected in the survey from firms on staff vacancies and retention indicates that, since joining EMI, businesses are finding it harder now to recruit and retain staff compared with the baseline year which is likely a reflection of tightening labour conditions as the economy recovered from the 2008 financial crisis.

In contrast to the above findings, a robust econometric analysis using a control group found that EMI helped businesses with recruitment but had no observable impact on retention. This is in line with the analysis of the case for intervention where it was predicted that information asymmetries have a greater impact on initial recruitment rather than retention once an employee has joined a business. The reason there is no observable impact on retention in this analysis could potentially be because improvements only become observable over a longer period of time, beyond the comparative timeframes set for this evaluation.

[43] UK Innovation Survey, 2015, BIS, ONS

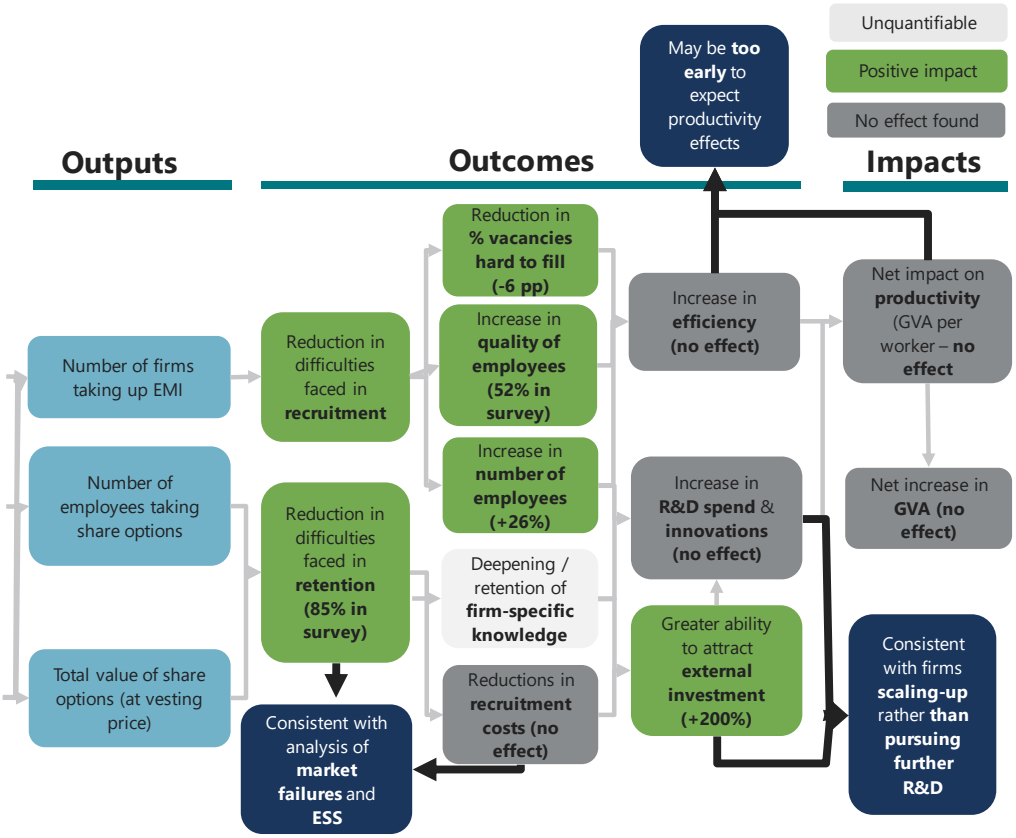
Longer term economic impacts

The majority of businesses reported that they felt EMI has been important to their growth and development. There were also indications that businesses were in a phase of scaling up, with most expecting to grow in the next 12 months. As mentioned above there was also a strong indication that EMI helped to recruit higher quality employees which would be expected to support growth in the future.

Evidence from the econometric analysis also found that the scheme led to increased levels of equity investment for some adopters. This suggests the scheme has succeeded in its intention of supporting SME growth. However, this trend was not evident across other performance metrics. The findings demonstrated no impact for spending on research and development, turnover or productivity. The reason for this may be that EMI users are at a later stage in their growth cycle than anticipated and are using equity investment to scale up their operations. Furthermore, as mentioned the timeframe of three years for the analysis may be too narrow to effectively observe the longer term economic impacts of the scheme.

The chart below displays the results of the evaluation and where evidence was found to support hypothesised outcomes.

Figure 8.2: Evaluation results[44]



[44] Figures from the econometric are in brackets e.g. (-6pp). Figures from the survey are specified e.g. (52% in survey)

Conclusions

This evaluation found a range of evidence to support the rationale behind the introduction of the EMI scheme. The literature review supported the case that information asymmetries and financial constraints are significant obstacles for SMEs. While the secondary research indicated SMEs are fundamental to the growth of developed economies, it was also demonstrated that only a very small proportion have high growth potential.

This evaluation has also found substantial evidence that EMI is fulfilling its core aims of improving recruitment and retention prospects for SMEs and supporting their future growth. The survey findings and econometric analysis indicated that EMI had helped early users with recruitment. Although the firm performance data did not indicate an improvement in retention, firms did perceive EMI to have helped with retaining staff. The econometric analysis also found a positive impact on external equity investment for early users, further supporting the view that EMI had aided growth for users. Evidence was not found, however, to support the aim of EMI helping SMEs increase their research and development spending which may be due to businesses in the scheme currently progressing through a scale up phase in their development.

Appendix A

1. Sample outcomes

HMRC provided a sample of 3,373 companies which first used the EMI scheme in 2012/13, 2013/14, and 2015/16. Of these records, 700 had phone numbers (21%), so tele-matching using publicly available data provided by UK Changes, was conducted on the whole sample. This provided an additional 523 leads with phone numbers. Manual searches for phone numbers were then undertaken and this generated a further 1,465 phone numbers. All companies in the sample were sent an advance letter before fieldwork began, asking if they wished to opt out of the study. The number of opt-outs received among sample with a telephone number was 282 (11%). The remainder were loaded for fieldwork and the table below provides a breakdown of sample used and the response rate.

	All sample		Valid sample[45]	
Complete interviews	703	29	703	41
Refusals (including abandoned interviews)	592	25	474	27
Screened out	180	7		
Unresolved[46]	661	27	528	30
Not available in fieldwork period	37	2	30	2
Bad numbers	233	10		
Total sample	**2,406**		**1,735**	**100**
Ineligible (screen out/complete + screen-out))		80%		
Co-operation rate[47] (complete/(complete + refusal))		**54%**		
Unadjusted response rate (complete/all sample)		**29%**		
Adjusted response rate (complete/valid sample)				**41%**

[45] Taking into account ineligibility rate of 80%.

[46] These are cases which at the end of fieldwork the sample lead was not converted to a completed interview and was not confirmed as an unusable lead or refusal either. The vast majority of these were called by Ipsos MORI on more than 12 occasions and many were contacted at least 20 times.

[47] The co-operation rate is the proportion of all respondents who agreed to complete an interview, excluding those who refused and abandoned the interview.

2. Sample profile

This table sets out the profile of the sample of EMI users provided by HMRC and the profile of EMI users who participated in the survey. As both early and later users shared very similar observable characteristics with the overall sample profile, it was not considered necessary to weight the data to the population profile.

	Sample profile (%)		Achieved interviews (%)	
	Early users *2012/13 and 2013/14*	Later users 2015/16	Early users *2012/13 and 2013/14*	Later users 2015/16
Company size				
Micro (under 10 employees)	12.1	15.3	12.8	16.8
Small (10-49 employees)	25.8	22.0	25.9	23.3
Medium (50-249 employees)	9.2	7.6	7.0	6.4
Large (250+ employees)	0.8	0.3	0.6	0.1
Blanks	2.0	5.0	3.0	4.1
Total	49.9	50.1	49.2	50.8
Sector				
Administrative and support service activities	5.5	5.5	4.4	6.1
Financial and insurance activities (excluding holding companies)	2.6	2.8	2.6	2.7
Information and communication/Information and communications/Information and communications (excluding holding companies)	13.7	10.3	12.5	9.5
Manufacturing	4.8	5.0	5.4	6.4
Professional, scientific and technical activities	12.5	10.9	13.5	13.5
Wholesale and retail trade/Wholesale and retail trade; repair of motor vehicles and motorcycles	5.1	5.0	5.1	3.7
Other sectors (including Blanks)	5.5	10.7	5.7	8.8
Total	49.9	50.1	49.2	50.8

3. Margins of error

The respondents to the survey are samples of the total 'population' of EMI users in the years of interest so we cannot be certain that the figures obtained are exactly those we would have obtained if all EMI users had been interviewed (the 'true' values). However, the variation between the sample results and the 'true' values can be predicted from the knowledge of the size of the samples on which the results are based and the number of times that a particular answer is given. The confidence with which this prediction can be made is usually chosen to be 95% - that is, the chances are 95 in 100 that the 'true' value will fall within a specified range. The table below illustrates the predicted ranges for different sample sizes and percentage results at the "95% confidence interval".

For example, if 50% of EMI users say that the scheme has helped with recruitment, the chances are 19 in 20 that the 'true' value (which would have been obtained if the whole population of EMI users in the years of interest had been interviewed) will fall within the range of +3.7 percentage points from the sample result (i.e. between 46.3% and 53.7% inclusive).

	Base size	95% confidence interval for a survey estimate at following percentages		
		10%/90%	30%/70%	50%/50%
All EMI users	703	2.2	3.4	3.7
Early users	356	3.1	4.8	5.2
Later users	347	3.2	4.8	5.3
Micro (under 10 employees)	140	5.0	7.6	8.3
Small (10-49 employees)	391	3.0	4.5	5.0
Medium (50-249 employees)	160	4.6	7.1	7.7
Professional scientific and technical activities	190	4.3	6.5	7.1
Information and communication	85	6.4	9.7	10.6
Manufacturing	83	6.5	9.9	10.8
In business for less than 5 years	140	5.0	7.6	8.3
6 – 10 years	190	4.3	6.5	7.1
11+ years	373	3.0	4.6	5.1

4. Additional tables from the survey

Table A1: Number of employees in 2016

	All employers	Early users	Later users
Base	***703***	***356***	***347***
Micro (0-9)	20%	18%	22%
Small (10-49)	56%	57%	54%
Medium (50 – 249)	23%	24%	21%
Large 250+	1%	1%	1%

Table A2: Main activity/business sector

	Early users	Later users
Base	***356***	***347***
Professional scientific and technical activities	28%	26%
Information and communication	14%	10%
Manufacturing	11%	13%
Wholesale and retail trade	10%	7%
Administrative and support service activities	9%	12%
Financial and insurance activities excluding holding companies	5%	5%
Construction	2%	3%
Arts, entertainment and recreation	*%	1%
Human health and social work activities	1%	1%
Transport and storage	*%	1%
Accommodation and food service activities	1%	*%
Real estate activities	1%	2%
Agriculture, forestry and fishing	1%	1%
Education	2%	1%
Mining and Quarrying, Electricity, Gas, Steam and Air Conditioning Supply, Water Supply, Sewerage and Waste Management	1%	1%
Other service activities	2%	1%
Other	11%	14%

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