
The UK Management and Expectations Survey

2019.12.11 @ US Census



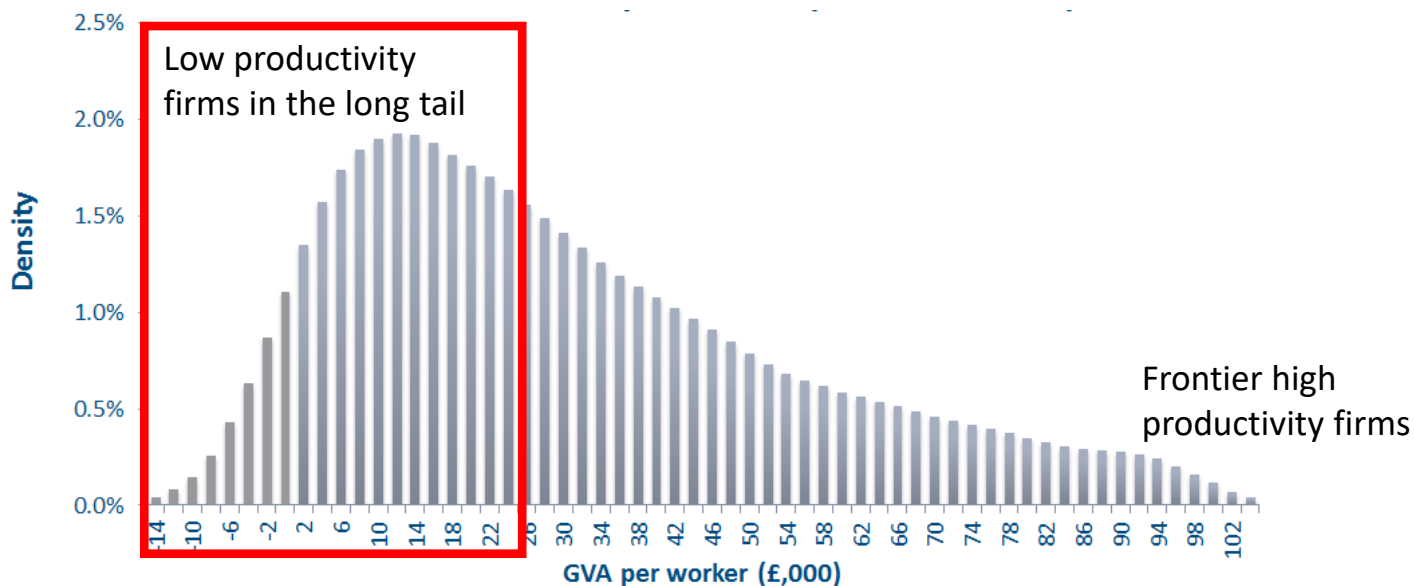
Gaganan Awano (ONS), Nicholas Bloom (Stanford), Ted Dolby (ONS), Paul Mizen (Nottingham), Rebecca Riley (NIESR), Tatsuro Senga (QMUL), John Van Reenen (MIT), Jenny Vyas (ONS) and Philip Wales (ONS)

Productivity slowdown across countries



Source: GDP per capita and productivity growth (OECD)

“Long Tail Productivity Review (BEIS)”



Gross Value Added per worker (Constant Prices). Source: ONS (2017) Understanding firms in the bottom 10% of the labour productivity distribution in Great Britain: “the laggards”, 2003 to 2015

Source: Andrew Paterson (Business and Local Growth Analysis in BEIS) at BEIS Conference Centre, 28 Feb 2018

(Andy Haldane, Bank of England, March 2017)



“A lack of management quality is a plausible candidate explanation for the UK's long tail of companies”

Management and Expectation Survey (MES)

- New nation-wide UK firm level survey executed by the Office for National Statistics (ONS)
 - **ESCoE members:** Nicholas Bloom (Stanford), Rebecca Riley (NIESR), Tatsuro Senga (QMUL), Paul Mizen (Nottingham)
 - **ONS members:** Phillip Wales Gaganan Awano, Jenny Vyas, Ted Dolby,
- Dispatched in July 2017
- 25,000 firms sampling from Annual Business Survey (ABS)
 - Both manufacturing and non-manufacturing sectors

New features of the MES survey

1. **Management scores**
2. **Subjective uncertainty measures**, constructed from probability distributions of forecasts

Our uncertainty measures by region, sector and firm type allow us to study the role of uncertainty in shaping firms' activities.

Particularly useful during this period rapid change and uncertainty!

Findings so far

- Substantial variation in management scores amongst GB businesses
- Management scores are highest among:
 - ✓ Larger than smaller firms
 - ✓ Not family owned than family owned
 - ✓ Multinationals than domestic
 - ✓ Services than production
- Management practice score is strongly correlated with productivity
- Firms whose GDP expectations most align with professional forecasters were larger and had higher management scores
- Firms whose uncertainty is high were smaller, younger, less productive, domestically-owned and family-owned and -managed firms

Management practices

Survey Design - Sample

	MES (2017)
<i>Survey type</i>	Voluntary postal
<i>Sample frame</i>	ABS
<i>Sample size</i>	25006
<i>Stratification</i>	Size, Industry & Region
<i>Size band</i>	10-49, 50-249, 250+
<i>Industry</i>	Production & Services
<i>Section</i>	All except A & K
<i>Region</i>	NUTS1
<i>Geography</i>	Great Britain

Response rates

	Count	Percent
Total sample	25006	100%
Non-response	15325	61%
<i>Of which:</i>		
<i>No reply</i>	14432	58%
<i>Opt outs</i>	893	4%
Responded	9681	39%
<i>Of which:</i>		
<i>Also responded to ABS</i>	8222	33%
Met management score threshold	7841	31%



Management and Expectations Survey

In 2016, how many days training and development, on average, have managers and non-managers undertaken within this business?
Include: formal training and informal 'on the job' training.

Please one box for each column

	Managers	Non-managers
a. Less than a day.....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
b. 1 day.....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
c. 2 - 4 days.....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
d. 5 - 10 days.....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
e. More than 10 days.....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>



Management and Expectations Survey

In 2016, how many key performance indicators were monitored within this business?

Examples: Sales, cost, quality, customer satisfaction, timely service delivery, waste.

Please one box only

a. 1-2 key performance indicators.....

b. 3-9 key performance indicators.....

c. 10 or more key performance indicators.....

d. No key performance indicators.....

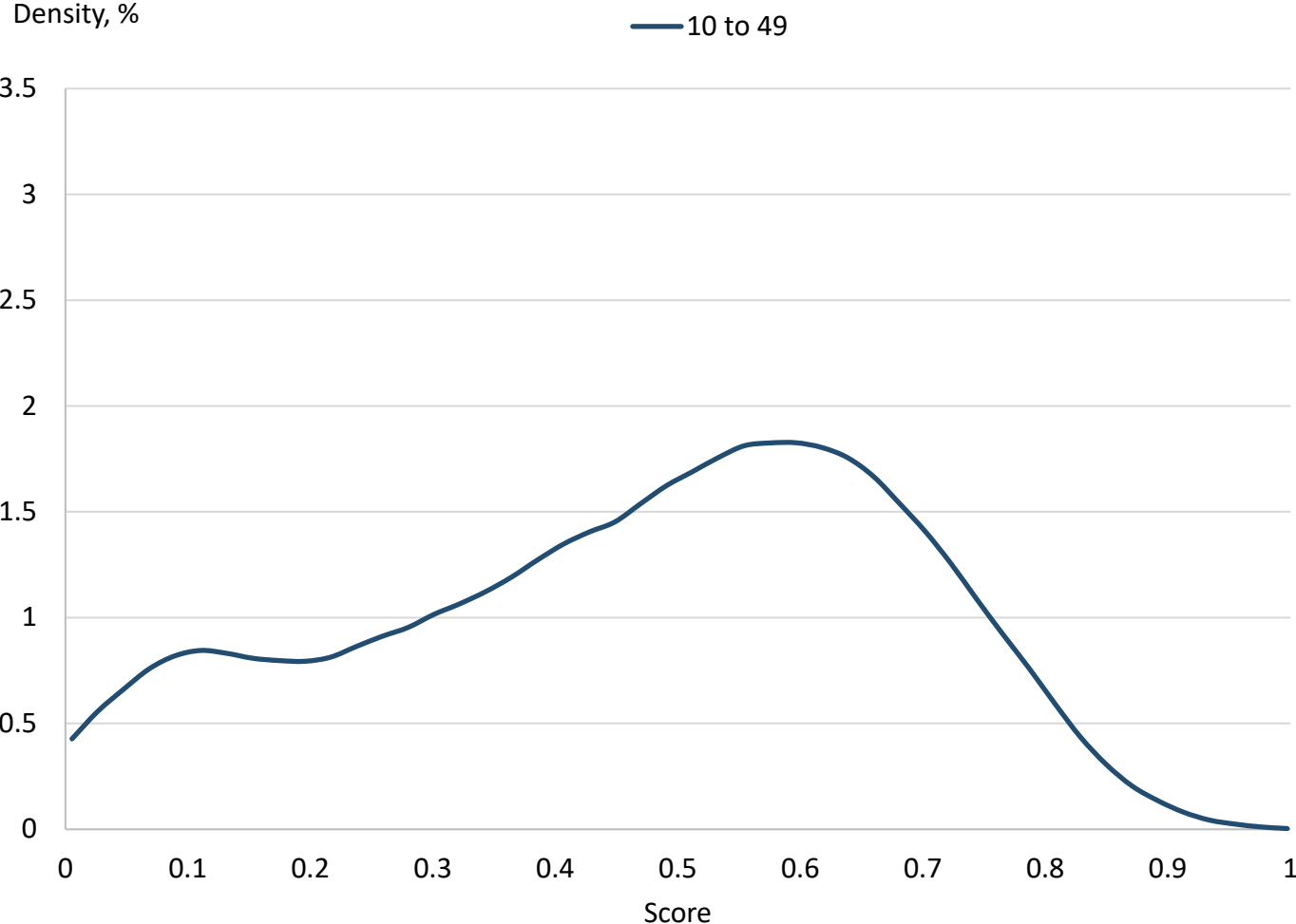


Go to
Question 7

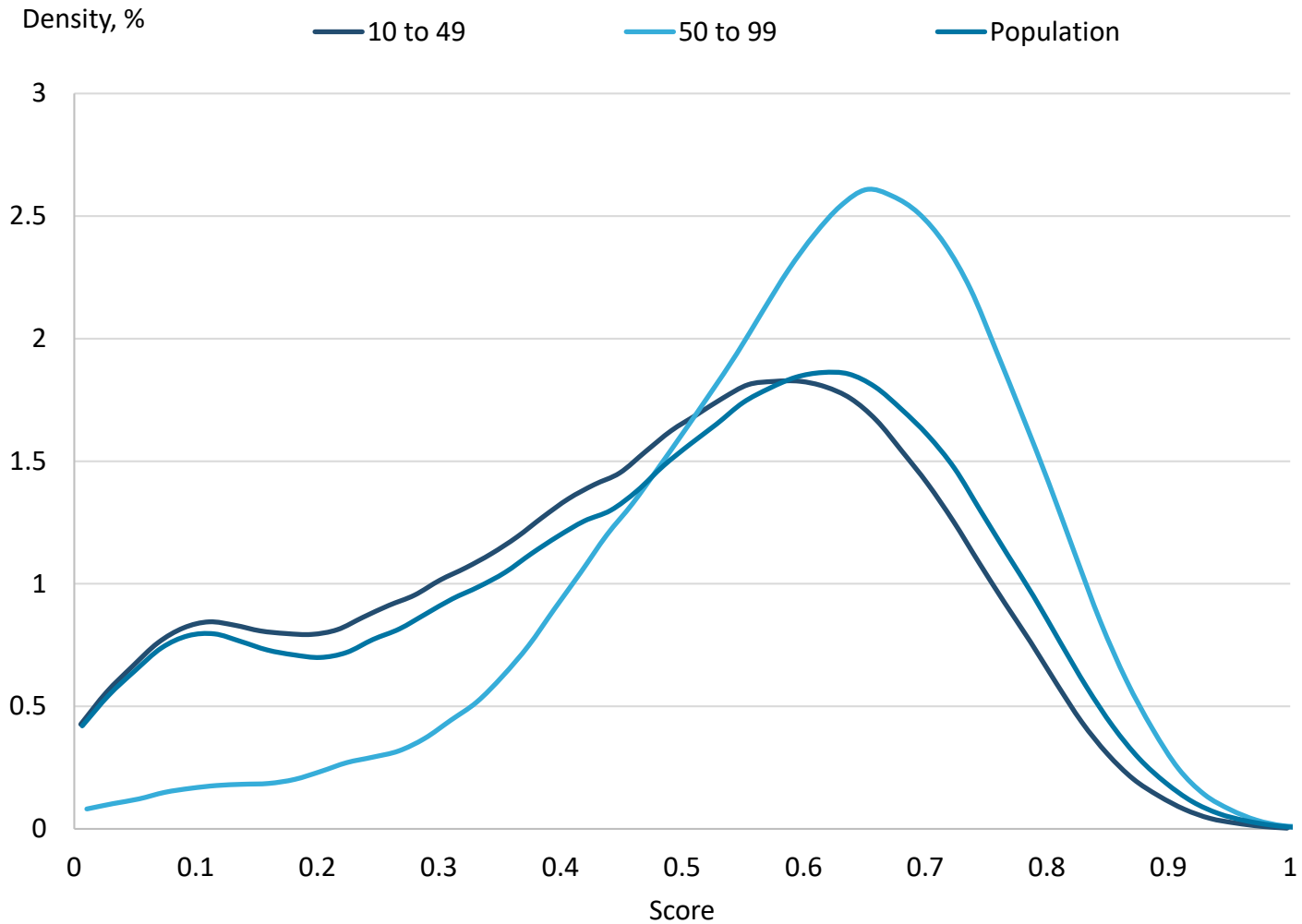


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Question 8

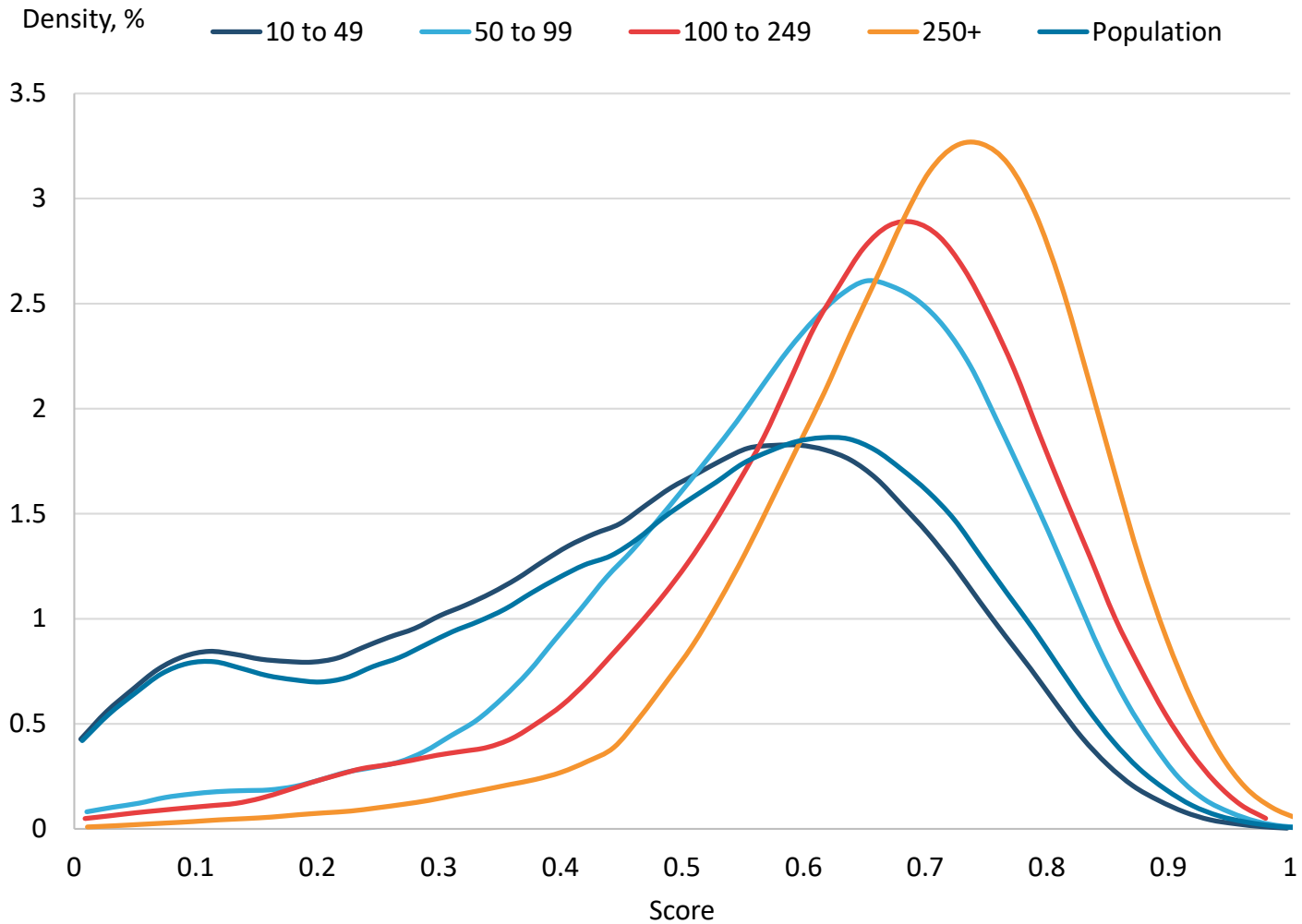
Substantial variation in management scores amongst firms



Management scores are highest among larger than smaller firms



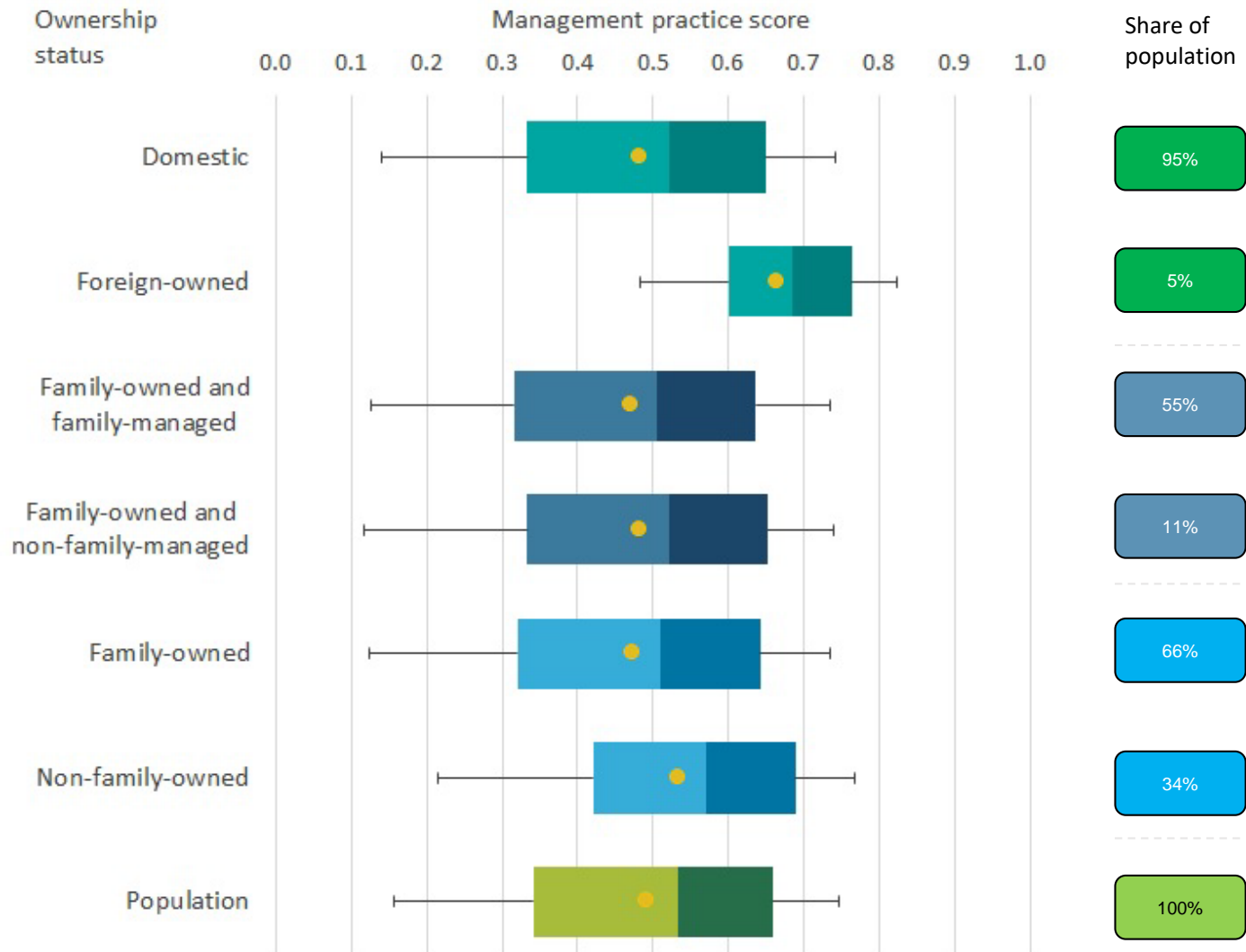
Management scores are highest among larger than smaller firms



Management scores are highest among services than production

Industry	Employment Size Band 10-49			Employment Size Band 50+		
	Mean Score	Standard Deviation	Share of Total	Mean Score	Standard Deviation	Share of Total
Construction	0.38	0.23	7%	0.59	0.18	1%
Retail, distribution, hotels & restaurants	0.41	0.23	26%	0.64	0.16	4%
Real Estate	0.42	0.29	2%	0.67	0.16	0%
Manufacturing	0.44	0.21	9%	0.63	0.16	3%
Non-Manufacturing Production	0.44	0.22	1%	0.63	0.16	0%
Transport, storage, & communication	0.47	0.22	7%	0.62	0.18	2%
Business services	0.50	0.22	16%	0.62	0.18	4%
Other services	0.50	0.20	15%	0.62	0.15	4%
Production	0.41	0.22	16%	0.62	0.16	4%
Services	0.46	0.23	66%	0.63	0.17	14%
Population	0.45	0.23	82%	0.62	0.17	18%

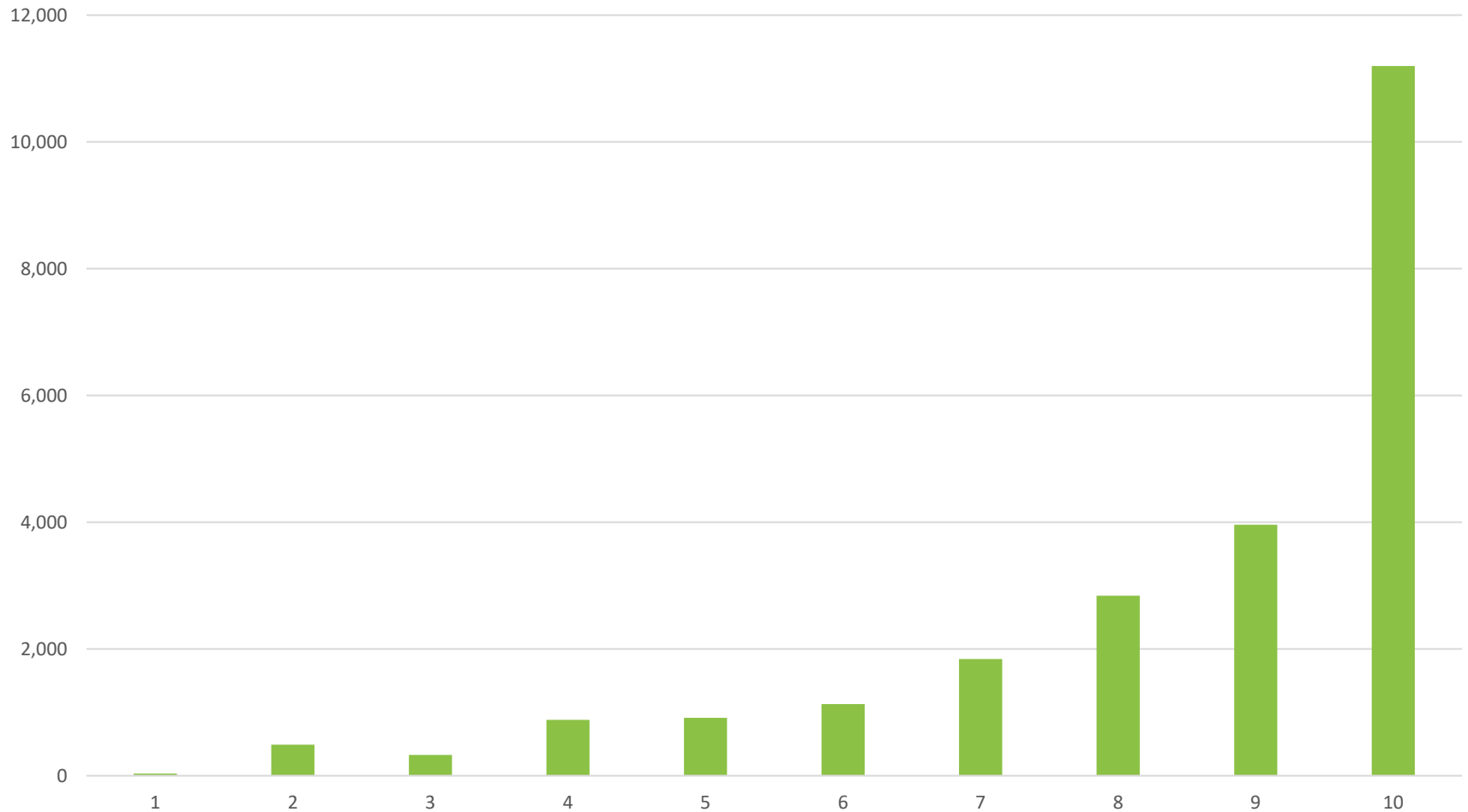
Management scores are highest among multinationals than domestic



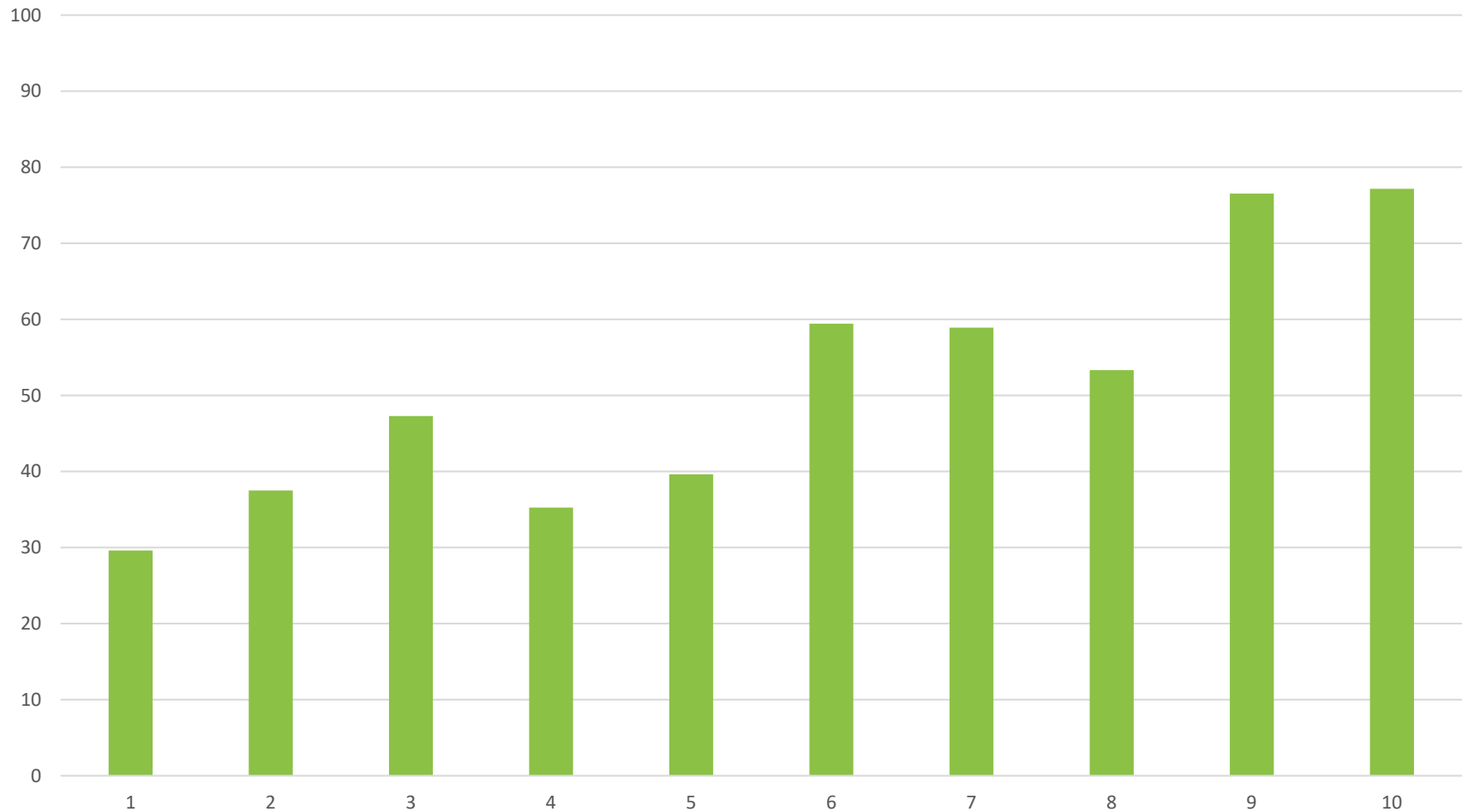
Average labour productivity by management score decile, natural log of £000s



Average gross operating surplus by management score decile, £000s



Share of businesses that export by management score decile



Higher management scores for larger and foreign-owned firms

	Dependent variable is management score					
	(1)	(2)	(3)	(4)	(5)	(6)
Ln(employment)	0.081*** (0.00)	0.077*** (0.00)	0.082*** (0.00)	0.064*** (0.00)	0.064*** (0.00)	0.061*** (0.00)
Family-owned		0.000 (0.01)	-0.005 (0.01)	-0.005 (0.01)	-0.004 (0.01)	
Family-owned and non-family-managed						-0.026 (0.02)
Family-owned and family-managed						0.002 (0.01)
Foreign owned		0.083*** (0.01)	0.078*** (0.01)	0.065*** (0.01)	0.063*** (0.01)	0.065*** (0.01)
Age			0.007* (0.00)	0.006 (0.00)	0.007* (0.00)	0.004 (0.00)
Age squared			-0.000*** (0.00)	-0.000** (0.00)	-0.000*** (0.00)	-0.000** (0.00)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Education controls	No	No	No	Yes	Yes	Yes
Location dummies	No	No	No	No	Yes	Yes
R ²	0.238	0.244	0.263	0.343	0.356	0.359
Observations	7,841	7,810	7,810	7,115	7,115	7,107

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Lower management scores for family-owned firms in the large firm group

	Dependent variable is management score				
	1: All	2: 10-49	3: 50-99	4: 100-249	5: 250+
Ln(employment)	0.061*** (0.00)	0.096*** (0.01)	-0.042 (0.03)	0.066*** (0.02)	0.014*** (0.00)
Family-owned and non-family-managed	-0.026 (0.02)	-0.039 (0.02)	0.011 (0.02)	0.006 (0.02)	-0.007 (0.01)
Family-owned and family-managed	0.002 (0.01)	-0.000 (0.01)	0.007 (0.01)	-0.011 (0.01)	-0.047*** (0.01)
Foreign owned	0.065*** (0.01)	0.081*** (0.02)	0.061*** (0.02)	0.047** (0.02)	0.032*** (0.01)
Age	0.004 (0.00)	0.004 (0.00)	0.003 (0.00)	0.010* (0.00)	0.006*** (0.00)
Age squared	-0.000** (0.00)	-0.000* (0.00)	-0.000 (0.00)	-0.000* (0.00)	-0.000** (0.00)
Industry controls	Yes	Yes	Yes	Yes	Yes
Education controls	Yes	Yes	Yes	Yes	Yes
Location controls	Yes	Yes	Yes	Yes	Yes
R ²	0.359	0.334	0.279	0.268	0.255
Observations	7,107	2,902	1,208	1,027	1,970

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Management scores are positively related to labour productivity

	Dependent variable is Ln(GVA/worker)					
	(1)	(2)	(3)	(4)	(5)	(6)
Management score	1.454*** (0.16)	1.136*** (0.14)	1.101*** (0.14)	0.981*** (0.15)	0.977*** (0.15)	0.961*** (0.16)
Log(employment)		0.001 (0.02)	-0.023 (0.02)	-0.077*** (0.02)	-0.077*** (0.02)	-0.081*** (0.03)
Family-owned			-0.080 (0.06)	-0.049 (0.06)	-0.041 (0.06)	
Family-owned and non-family-managed						-0.144 (0.08)
Family-owned and family-managed						-0.017 (0.06)
Foreign owned			0.366*** (0.06)	0.328*** (0.07)	0.317*** (0.07)	0.357*** (0.07)
Age				0.061** (0.02)	0.063*** (0.02)	0.057** (0.02)
Age ²				-0.002** (0.00)	-0.002** (0.00)	-0.002** (0.00)
Industry controls	No	Yes	Yes	Yes	Yes	Yes
Education controls	No	No	No	No	No	Yes
Location controls	No	No	No	No	Yes	Yes
R ²	0.075	0.368	0.374	0.403	0.411	0.412
Observations	7,416	7,416	7,388	6,731	6,731	6,723

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Expectations and Uncertainty

Questionnaire Example

The example below will help you to complete questions 22, 24, and 26

Example A:

Jane Smith is filling out this survey for Business A. In 2016, Business A had approximately £4,500,000 in turnover, with a forecast of £4,750,000 in 2017.

For calendar years 2016 and 2017, what are the approximate values of turnover, including exports and other receipts within this business? If applicable exclude freight charges, excise taxes and value added tax.

For 2016 calendar year..... £ , ,

Forecast for 2017 calendar year..... £ ,

The example below will help you to complete questions 23, 25, 27 and 29

Example B:

Jane also knows that turnover at Business A is forecast to grow approximately an additional 5% in 2018, with predicted annual value of turnover of £5 million. However, Jane knows there is some uncertainty with that forecast and that the value of turnover next year could be more or less than £5 million depending on consumer demand, changes in prices, and other uncertainties in the market. Given this uncertainty, Jane estimates that turnover will be between £2.8 million and £7.5 million, and thinks the likelihood of each scenario is as shown in the table below.

Looking ahead to the 2018 calendar year, what is the approximate value of turnover you would anticipate for this business in the following scenarios, and what likelihood do you assign to each scenario?

2018 scenarios, from lowest to highest	Approximate turnover in 2018	Percentage likelihood (values in this column should sum to 100)
LOWEST	£ <input type="text" value="2"/> <input type="text" value="8"/> <input type="text" value="0"/> <input type="text" value="0"/> , <input type="text" value="2"/> <input type="text" value="8"/> <input type="text" value="0"/> <input type="text" value="0"/> , <input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="0"/>	<input type="text" value="5"/> %
LOW	£ <input type="text" value="4"/> <input type="text" value="2"/> <input type="text" value="0"/> <input type="text" value="0"/> , <input type="text" value="4"/> <input type="text" value="2"/> <input type="text" value="0"/> <input type="text" value="0"/> , <input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="0"/>	<input type="text" value="1"/> <input type="text" value="0"/> %
MEDIUM	£ <input type="text" value="5"/> <input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="0"/> , <input type="text" value="5"/> <input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="0"/> , <input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="0"/>	<input type="text" value="6"/> <input type="text" value="0"/> %
HIGH	£ <input type="text" value="6"/> <input type="text" value="3"/> <input type="text" value="0"/> <input type="text" value="0"/> , <input type="text" value="6"/> <input type="text" value="3"/> <input type="text" value="0"/> <input type="text" value="0"/> , <input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="0"/>	<input type="text" value="2"/> <input type="text" value="0"/> %
HIGHEST	£ <input type="text" value="7"/> <input type="text" value="5"/> <input type="text" value="0"/> <input type="text" value="0"/> , <input type="text" value="7"/> <input type="text" value="5"/> <input type="text" value="0"/> <input type="text" value="0"/> , <input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="0"/>	<input type="text" value="5"/> %
	Total	<input type="text" value="1"/> <input type="text" value="0"/> <input type="text" value="0"/> %

Questions for:

- Turnover
- Expenditure
- Investment
- Employment

Questionnaire Example: Good Response

The example below will help you to complete questions 22, 24, and 26

Example A:

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For 2016 calendar year..... £

Forecast for 2017 calendar year..... £

The example below will help you to complete questions 23, 25, 27 and 29

Example B:

Jane also knows that turnover at Business A is forecast to grow approximately an additional 5% in 2018, with predicted annual value of turnover of £5 million. However, Jane knows there is some uncertainty with that forecast and that the value of turnover next year could be more or less than £5 million depending on consumer demand, changes in prices, and other uncertainties in the market. Given this uncertainty, Jane estimates that turnover will be between £2.8 million and £7.5 million, and thinks the likelihood of each scenario is as shown in the table below.

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LOW	£ <input type="text" value="4"/> <input type="text" value="2"/> <input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="0"/>	<input type="text" value="1"/> <input type="text" value="0"/> %
MEDIUM	£ <input type="text" value="5"/> <input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="0"/>	<input type="text" value="6"/> <input type="text" value="0"/> %
HIGH	£ <input type="text" value="6"/> <input type="text" value="3"/> <input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="0"/>	<input type="text" value="2"/> <input type="text" value="0"/> %
HIGHEST	£ <input type="text" value="7"/> <input type="text" value="5"/> <input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="0"/>	<input type="text" value="5"/> %
Total		<input type="text" value="1"/> <input type="text" value="0"/> <input type="text" value="0"/> %

Response requirement for each indicator:

- Period reported for is 365 days (+/- 31 days)
- Forecasts given for both 2016 and 2017
- For 2018:
 - At least two bins completed
 - Values given must be weakly increasing (from lowest to highest)
 - Sum of percentage likelihoods must be within range 90 – 110

Questionnaire Example (GDP): Good Response

30. Please indicate what likelihood you would attach to the possible 2018 rates of UK economic growth (real growth rate of Gross Domestic Product) below.
Gross Domestic Product (GDP) is the main measure of the size of the UK economy, based on the value of goods and services produced during a given period.

UK Economic Growth in 2018		Percentage likelihood (values in this column should sum to 100)
Strong decline	-4% or less	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value="2"/> % 1138
Moderate decline	-2% to -3%	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value="5"/> % 1139
Slight decline	-1%	<input type="text" value=""/> <input type="text" value="1"/> <input type="text" value="0"/> % 1140
No change	0%	<input type="text" value=""/> <input type="text" value="3"/> <input type="text" value="0"/> % 1141
Slight increase	1%	<input type="text" value=""/> <input type="text" value="4"/> <input type="text" value="0"/> % 1142
Moderate increase	2% to 3%	<input type="text" value=""/> <input type="text" value="1"/> <input type="text" value="0"/> % 1143
Strong increase	4% or more	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value="3"/> % 1144
Total		<input type="text" value="1"/> <input type="text" value="0"/> <input type="text" value="0"/> %

Response Requirement:

- Sum of percentage likelihoods must be within range 90 – 110

Our new approach to measuring uncertainty

- **Through the lens of forecasts made by business managers**
 1. How the mean forecast is dispersed across managers
 2. How forecasts by each individual managers are diffused

Our new approach to measuring uncertainty

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- **Forecasts about:**
 1. GDP
 2. Turnover, capital expenditure, employees, input costs

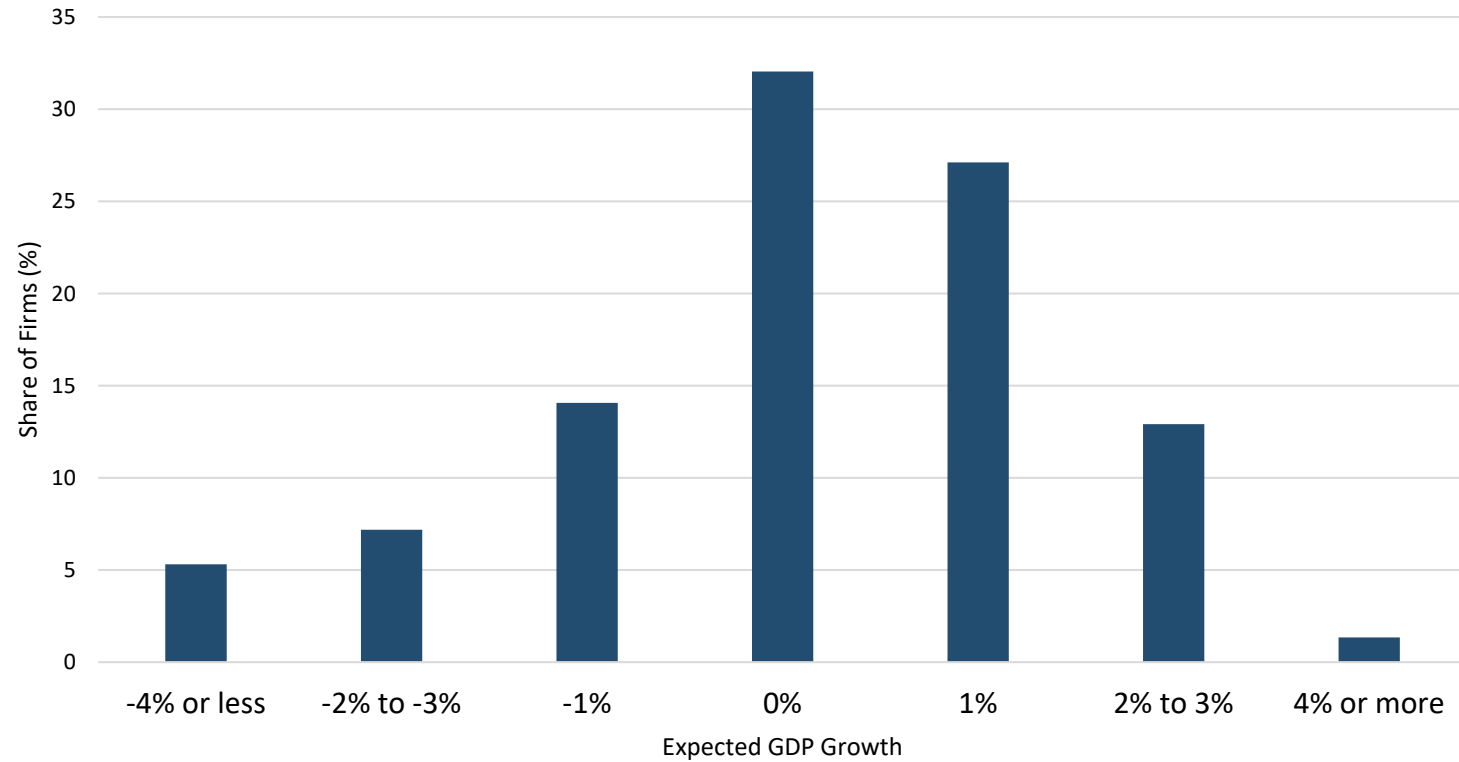
Our new approach to measuring uncertainty

- **Through the lens of forecasts made by business managers**
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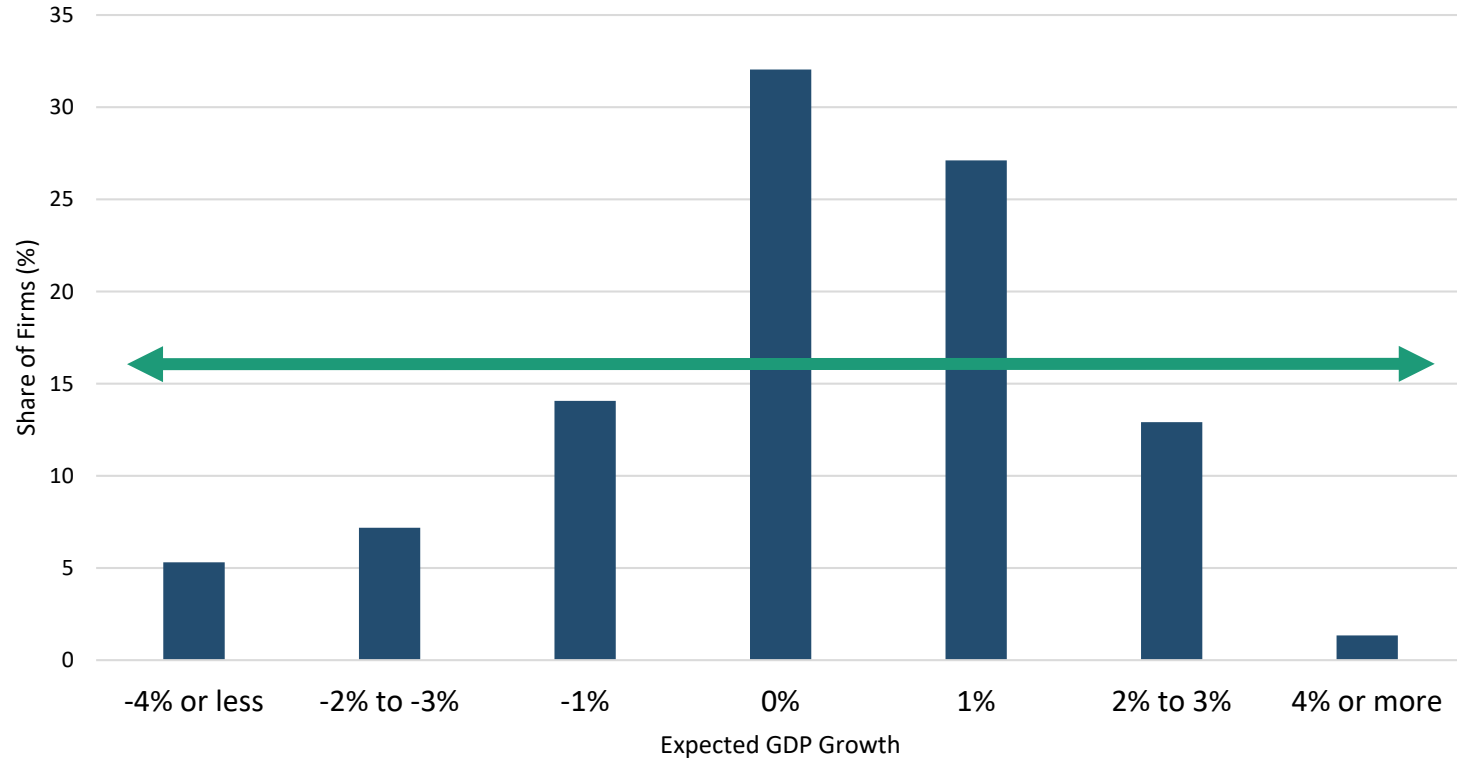
Questions in the literature:

- Macro uncertainty -v- Micro uncertainty
- Disagreement -v- Uncertainty
- Impacts of uncertainty on firm activities and performance

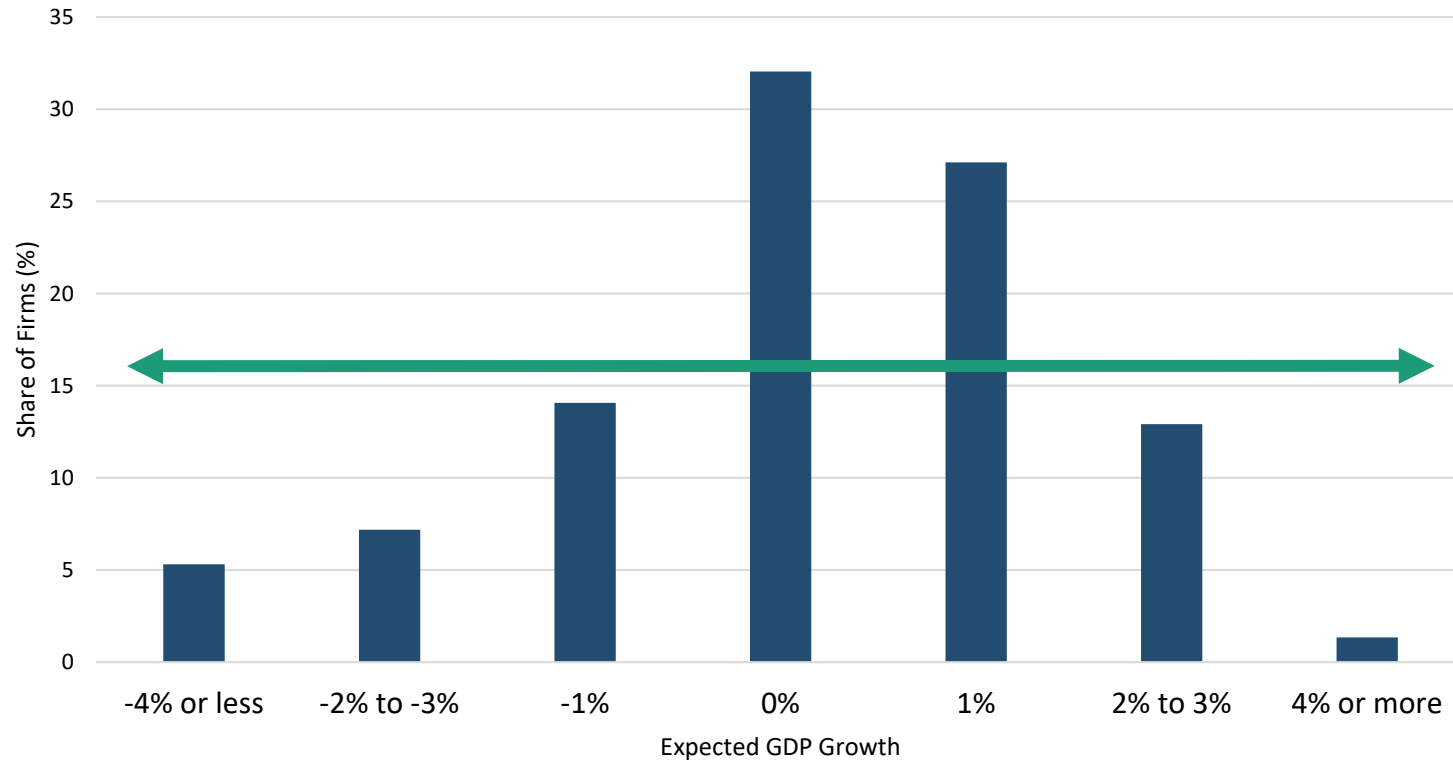
Expected UK GDP Growth for 2018



Expected UK GDP Growth for 2018



Expected UK GDP Growth for 2018

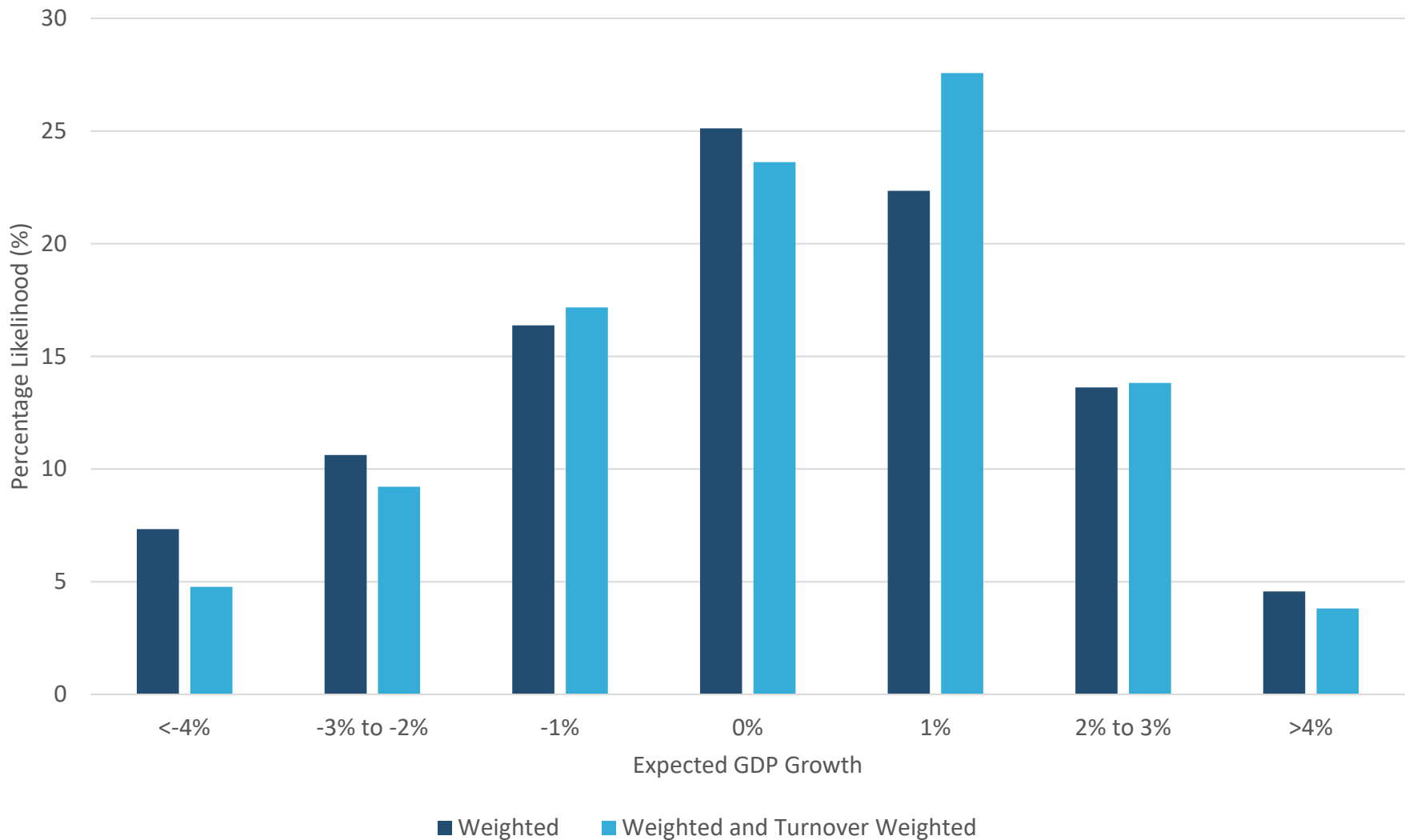


0.4% --- 1.4% -----2.6%

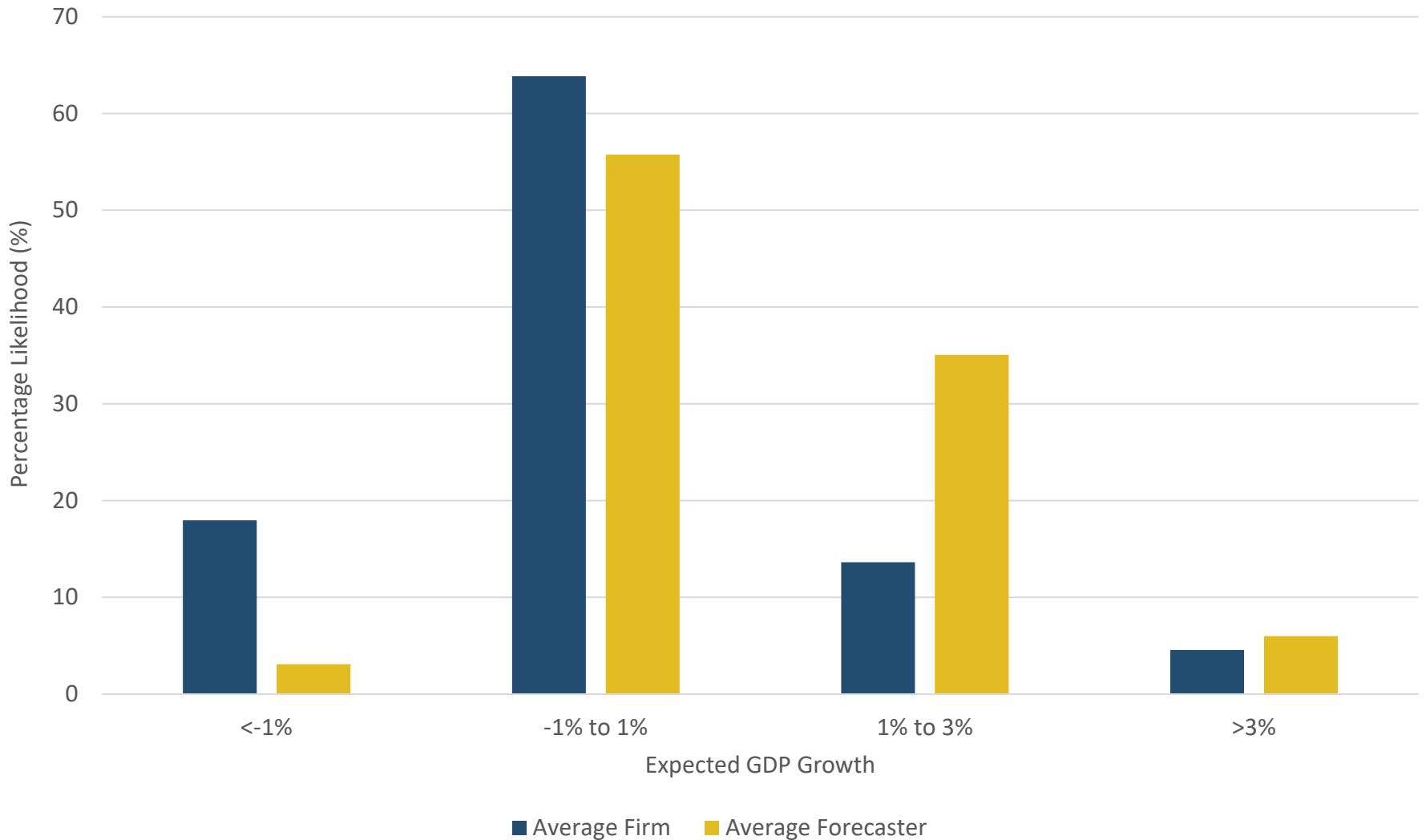
Forecasts by professional forecasters

Source: HM Treasury (July 2017)

Businesses with more structured management practices are more optimistic/correct



Businesses are generally more pessimistic than Bank of England external forecasters



GDP Forecast Disagreement

- One can assume that Bank of England's external forecasters will give a more accurate GDP forecast than business
- We can analyse which firms more closely align with the external forecasters

$$\text{Forecaster Disagreement} = \frac{\sum_i |\text{Firm Likelihood}_i - \text{Forecaster Likelihood}_i|}{4}$$

Larger businesses are more optimistic/correct

	Dependent variable: Expected UK real GDP growth, 2018							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log Employment	0.078*** (0.03)							0.146* (0.08)
Management Score		0.531*** (0.17)						0.494** (0.23)
Age			-0.009** (0.00)					-0.007 (0.00)
Foreign Owned				0.139* (0.08)				0.054 (0.09)
Family owned but not family run					0.024 (0.11)			0.023 (0.11)
Family owned and family run					-0.011 (0.08)			0.073 (0.09)
Log GVA/Worker							-0.060 (0.06)	
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Location Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7424	7155	7424	7424	7387	7044	7044	6755
R ²	0.044	0.052	0.044	0.042	0.042	0.043	0.044	0.060

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Businesses whose GDP expectations most align with forecasters were larger and had higher management scores

	Dependent variable: GDP forecast disagreement, 2018						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Log Employment	-0.781*** (0.18)						-1.040** (0.45)
Management Score		-4.010*** (1.07)					-3.451** (1.39)
Age			0.027 (0.03)				0.022 (0.03)
Foreign Owned				-0.519 (0.53)			0.309 (0.68)
Family owned but not family run					0.617 (0.74)		0.429 (0.75)
Family owned and family run					0.113 (0.50)		-0.244 (0.53)
Log GVA/Worker						0.195 (0.34)	
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Location Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7424	7155	7424	7424	7387	7044	6755
R ²	0.046	0.051	0.040	0.040	0.041	0.042	0.058

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Uncertainty Measure

The example below will help you to complete questions 22, 24, and 26

Example A:

Jane Smith is filling out this survey for Business A. In 2016, Business A had approximately £4,500,000 in turnover, with a forecast of £4,750,000 in 2017.

For calendar years 2016 and 2017, what are the approximate values of turnover, including exports and other receipts within this business? If applicable exclude freight charges, excise taxes and value added tax.

For 2016 calendar year..... £ , 4 , 5 0 0 , 0 0 0

Forecast for 2017 calendar year..... £ , 4 , 7 5 0 , 0 0 0

The example below will help you to complete questions 23, 25, 27 and 29

Example B:

Jane also knows that turnover at Business A is forecast to grow approximately an additional 5% in 2018, with predicted annual value of turnover of £5 million. However, Jane knows there is some uncertainty with that forecast and that the value of turnover next year could be more or less than £5 million depending on consumer demand, changes in prices, and other uncertainties in the market. Given this uncertainty, Jane estimates that turnover will be between £2.8 million and £7.5 million, and thinks the likelihood of each scenario is as shown in the table below.

Looking ahead to the 2018 calendar year, what is the approximate value of turnover you would anticipate for this business in the following scenarios, and what likelihood do you assign to each scenario?

2018 scenarios, from lowest to highest	Approximate turnover in 2018	Percentage likelihood (values in this column should sum to 100)
LOWEST	£ <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> 2 , <input type="text"/> 8 0 0 , <input type="text"/> 0 0 0	<input type="text"/> <input type="text"/> 5 %
LOW	£ <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> 4 , <input type="text"/> 2 0 0 , <input type="text"/> 0 0 0	<input type="text"/> <input type="text"/> 1 0 %
MEDIUM	£ <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> 5 , <input type="text"/> 0 0 0 , <input type="text"/> 0 0 0	<input type="text"/> <input type="text"/> 6 0 %
HIGH	£ <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> 6 , <input type="text"/> 3 0 0 , <input type="text"/> 0 0 0	<input type="text"/> <input type="text"/> 2 0 %
HIGHEST	£ <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> 7 , <input type="text"/> 5 0 0 , <input type="text"/> 0 0 0	<input type="text"/> <input type="text"/> 5 %
Total		<input type="text"/> <input type="text"/> 1 0 0 %

Questions for:

- Turnover
- Expenditure
- Investment
- Employment

Calculate:

- Uncertainty using the log standard deviation of expected growth rates: **3.0**

Uncertainty

$$= \ln \left(\sqrt{\sum_i (Growth_i - Growth_{wavg})^2 * Likelihood_i} \right)$$

Higher uncertainty for smaller, younger, less productive, domestically-owned and family-owned and -managed firms

	Dependent variable: Turnover uncertainty						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Log Employment	-0.164*** (0.02)						-0.135*** (0.02)
Management Score		-0.040 (0.12)					0.207 (0.13)
Age			-0.024*** (0.00)				-0.020*** (0.00)
Foreign-owned				-0.279*** (0.06)			-0.105* (0.06)
Family-owned and non-family-managed					0.060 (0.08)		-0.033 (0.07)
Family-owned and family-managed					0.196*** (0.05)		0.106* (0.06)
Log GVA/Worker						-0.086*** (0.03)	-0.064** (0.03)
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Location Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7170	6926	7170	7170	7141	6826	6567
R ²	0.137	0.109	0.147	0.114	0.119	0.117	0.174

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Businesses' uncertainty is positively correlated to past volatility of their industry

	Turnover Uncertainty	Expenditure Uncertainty	Investment Uncertainty	Employment Uncertainty
Industry Turnover Volatility	0.205*** (0.04)			
Industry Expenditure Volatility		0.240*** (0.05)		
Industry Investment Volatility			0.042 (0.05)	
Industry Employment Volatility				0.086*** (0.02)
Observations	6535	6448	5574	6271
R^2	0.091	0.072	0.035	0.265
Controls: Log Employment, Age, Family Ownership, Foreign Ownership, Management Score, Log GVA, Location				

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Businesses' expectations of their own performance is positively correlated to their expectations of GDP growth

	Expected Turnover Growth 2016-2018	Expected Expenditure Growth 2016-2018	Expected Investment Growth 2016-2018	Expected Employment Growth 2016-2018
Expected UK Real GDP Growth 2018	2.028*** (0.51)	1.103* (0.59)	0.083 (4.37)	1.109* (0.64)
Observations	6345	6281	5452	6110
R^2	0.097	0.088	0.034	0.110
Controls: Log Employment, Age, Family Ownership, Foreign Ownership, Management Score, Log GVA, Industry, Location				

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Businesses' uncertainty of their own future performance is positively correlated to their uncertainty of GDP growth

	Uncertainty of Turnover Growth	Uncertainty of Expenditure Growth	Uncertainty of Investment Growth	Uncertainty of Employment Growth
Uncertainty of UK Real GDP Growth	0.275*** (0.05)	0.248*** (0.05)	-0.023 (0.08)	0.383*** (0.04)
Observations	6087	6030	5277	5910
R^2	0.197	0.152	0.071	0.333

Controls: Log Employment, Age, Family Ownership, Foreign Ownership, Management Score, Log GVA, Industry, Location

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Measurement of forecast error

(ABS 2017 – MES 2017 Forecast)

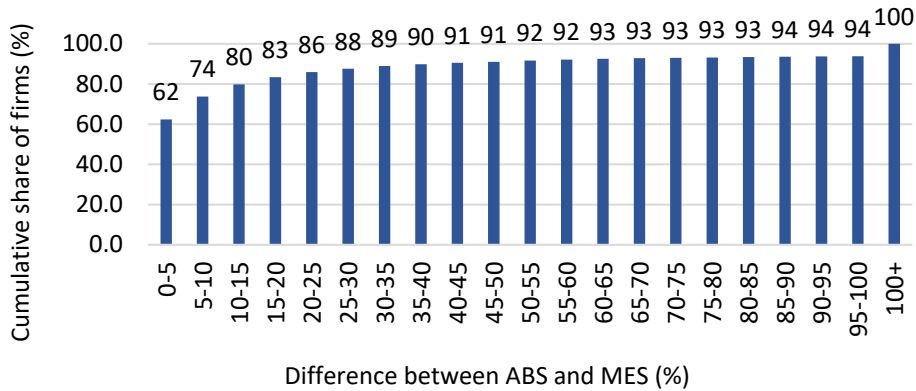
$\frac{1}{2}$ (ABS 2017 + MES 2017 Forecast)

Key points

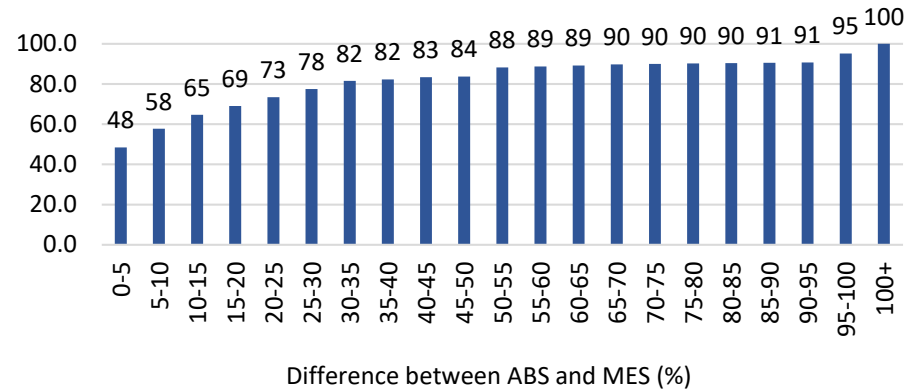
- Symmetric growth rate bound between -2 and 2
- **Positive** forecast error = realised > forecast
- **Negative** forecast error = realised < forecast

We exclude businesses with 20+% difference

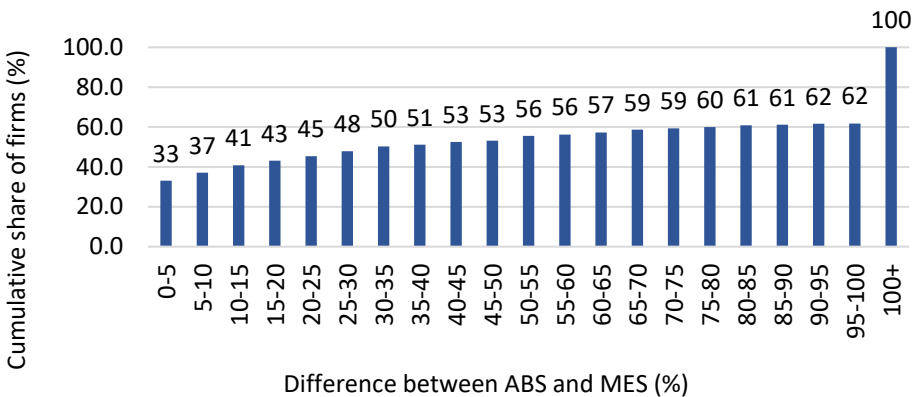
Turnover



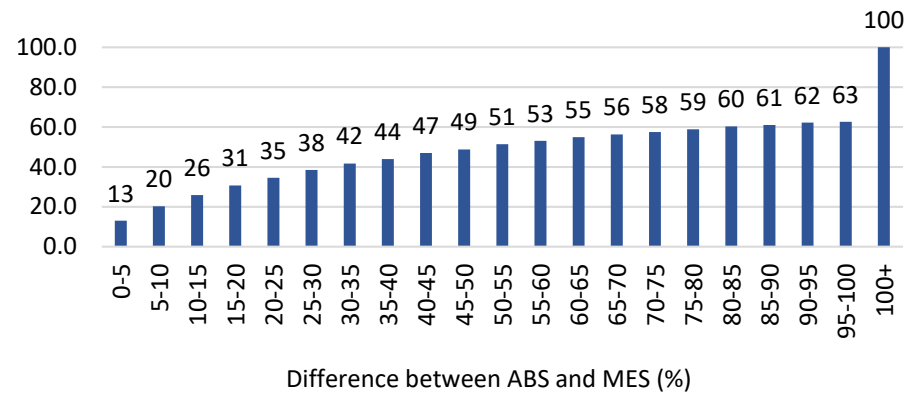
Employment



Capital expenditure

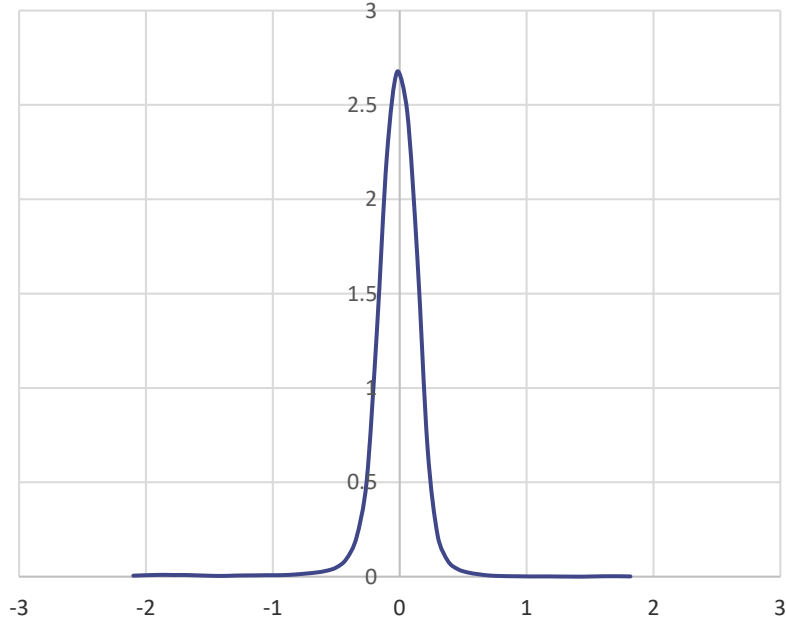


Intermediate consumption

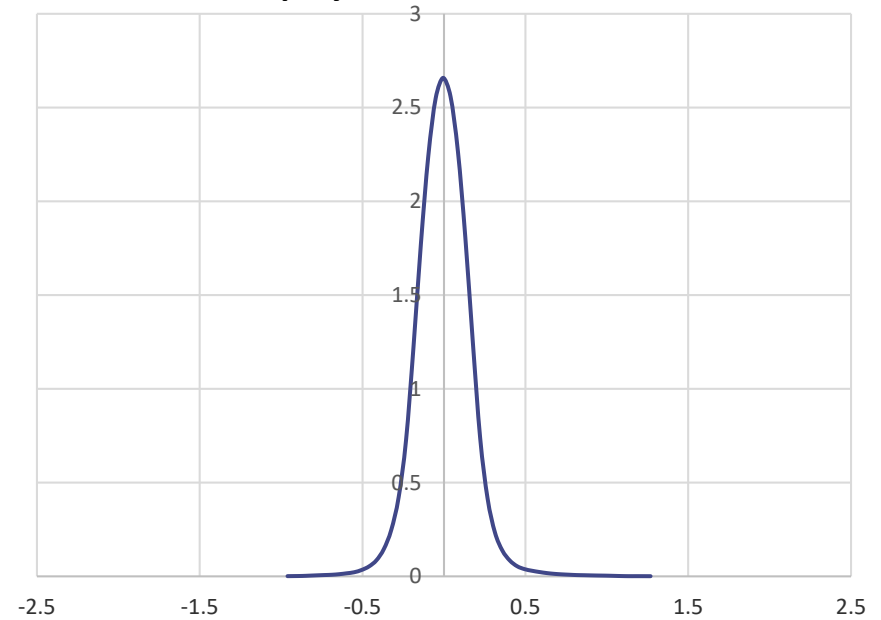


Businesses' uncertainty of their own future performance is positively correlated to their uncertainty of GDP growth

Turnover Forecast Error

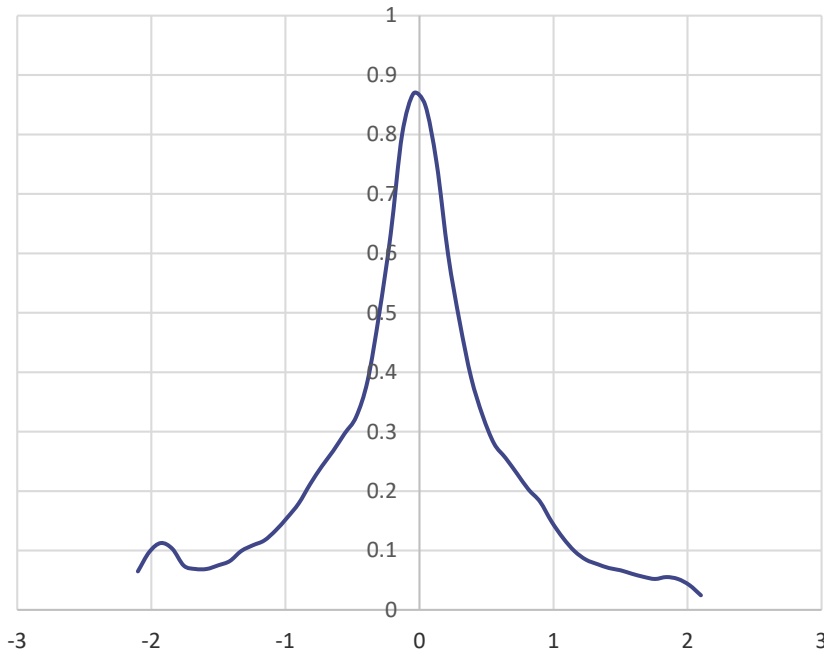


Employment Forecast Error

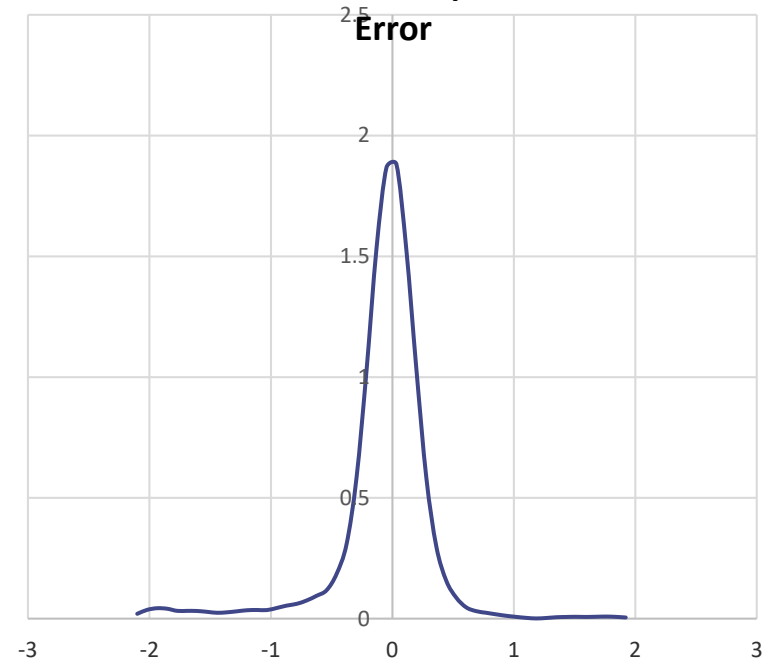


Businesses' uncertainty of their own future performance is positively correlated to their uncertainty of GDP growth

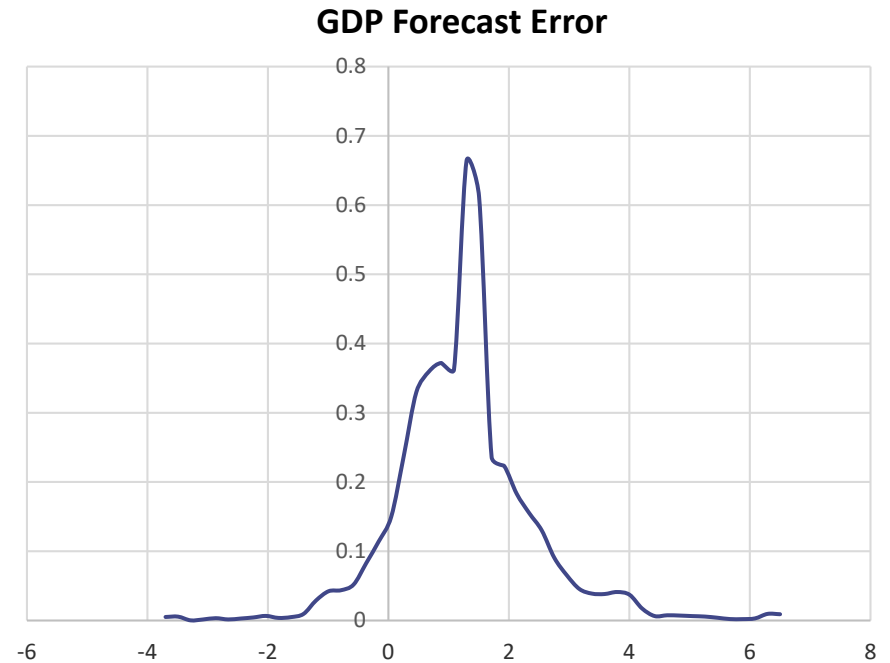
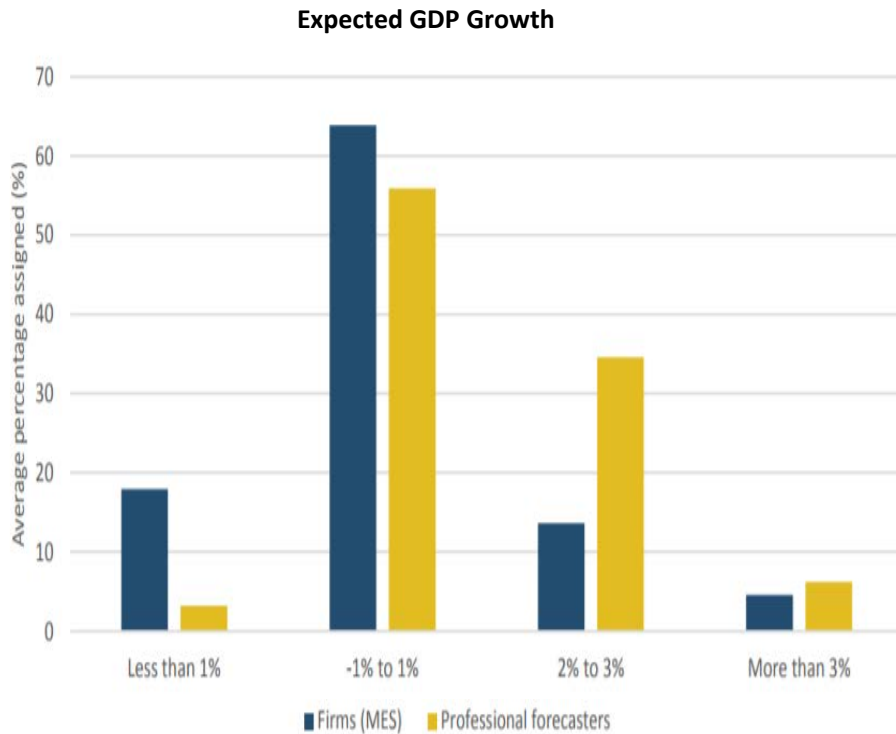
Capital Expenditure Forecast Error



Intermediate Consumption Forecast Error



Businesses' uncertainty of their own future performance is positively correlated to their uncertainty of GDP growth



Older businesses make smaller turnover forecast errors

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(10)	(11)
	Absolute Turnover FE	Absolute Turnover FE	Absolute Turnover FE	Absolute Turnover FE	Absolute Turnover FE	Absolute Turnover FE	Absolute Turnover FE	Absolute Turnover FE	Absolute Turnover FE
Log Employment	-0.007*** (0.00)						-0.005*** (0.00)	-0.005*** (0.00)	-0.003 (0.00)
Management Score		-0.041*** (0.01)					-0.024* (0.01)	-0.028** (0.01)	-0.023 (0.01)
Age			-0.002*** (0.00)				-0.001*** (0.00)	-0.001*** (0.00)	-0.001*** (0.00)
EU Owned				-0.006 (0.01)			-0.002 (0.01)	-0.001 (0.01)	-0.003 (0.01)
Non-EU Owned				-0.004 (0.01)			-0.000 (0.01)	0.000 (0.01)	0.000 (0.01)
Family owned but not family run					-0.001 (0.01)		-0.001 (0.01)	-0.001 (0.01)	-0.004 (0.01)
Family owned and family run					0.002 (0.00)		-0.005 (0.01)	-0.006 (0.01)	-0.010* (0.01)
Log GVA/Worker						-0.006** (0.00)	-0.004 (0.00)	-0.004 (0.00)	-0.002 (0.00)
Turnover Growth 2016-2017								0.000*** (0.00)	
Turnover Uncertainty									0.022*** (0.00)
Turnover MES ABS 2016 Difference	0.004*** (0.00)	0.004*** (0.00)	0.004*** (0.00)	0.004*** (0.00)	0.004*** (0.00)	0.004*** (0.00)	0.004*** (0.00)	0.004*** (0.00)	0.004*** (0.00)
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Location Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3809	3717	3809	3809	3796	3744	3643	3643	3643
R ²	0.045	0.043	0.047	0.040	0.040	0.043	0.053	0.058	0.070

Older businesses make smaller employment forecast errors

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(10)	(11)
	Absolute Employment FE	Absolute Employment FE	Absolute Employment FE	Absolute Employment FE	Absolute Employment FE	Absolute Employment FE	Absolute Employment FE	Absolute Employment FE	Absolute Employment FE
Log Employment	-0.004*** (0.00)						-0.004*** (0.00)	-0.004*** (0.00)	-0.001 (0.00)
Management Score		-0.002 (0.01)					0.016 (0.01)	0.013 (0.01)	0.016 (0.01)
Age			-0.001*** (0.00)				-0.001*** (0.00)	-0.001*** (0.00)	-0.001*** (0.00)
EU Owned				-0.004 (0.01)			0.000 (0.01)	0.001 (0.01)	0.001 (0.01)
Non-EU Owned				-0.008 (0.01)			-0.004 (0.01)	-0.002 (0.01)	-0.001 (0.01)
Family owned but not family run					-0.002 (0.00)		0.000 (0.01)	-0.000 (0.01)	-0.002 (0.01)
Family owned and family run					0.010*** (0.00)		0.007* (0.00)	0.007* (0.00)	0.005 (0.00)
Log GVA/Worker						-0.002 (0.00)	-0.002 (0.00)	-0.002 (0.00)	-0.000 (0.00)
Employment Growth 2016- 2017								0.000*** (0.00)	
Employment Uncertainty									0.015*** (0.00)
Employment MES	0.004*** (0.00)	0.004***	0.004***	0.004***	0.004***	0.004***	0.004***	0.004***	0.004***
ABS 2016 Difference	0.004*** (0.00)	0.004*** (0.00)	0.004*** (0.00)	0.004*** (0.00)	0.004*** (0.00)	0.004*** (0.00)	0.004*** (0.00)	0.004*** (0.00)	0.004*** (0.00)
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Location Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3318	3248	3318	3318	3305	3156	3078	3078	3078
R ²	0.091	0.085	0.093	0.088	0.091	0.090	0.098	0.102	0.114

Standard errors in parentheses
* p < 0.1, ** p < 0.05, *** p < 0.01

Larger and well-managed businesses make smaller GDP forecast errors

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(9)
	Absolute GDP FE	Absolute GDP FE	Absolute GDP FE	Absolute GDP FE	Absolute GDP FE	Absolute GDP FE	Absolute GDP FE	Absolute GDP FE
Log Employment	-0.061*** (0.01)						-0.044*** (0.01)	-0.042*** (0.01)
Management Score		-0.402*** (0.08)					-0.262*** (0.09)	-0.246*** (0.09)
Age			-0.001 (0.00)				-0.001 (0.00)	-0.000 (0.00)
EU Owned				-0.037 (0.05)			0.054 (0.06)	0.062 (0.06)
Non-EU Owned				-0.101** (0.05)			-0.006 (0.05)	-0.016 (0.05)
Family owned but not family run					0.005 (0.04)		0.002 (0.05)	0.002 (0.05)
Family owned and family run					0.081*** (0.03)		0.012 (0.03)	0.007 (0.03)
Log GVA/Worker						-0.035** (0.01)	-0.022 (0.02)	-0.020 (0.02)
GDP Uncertainty								0.195*** (0.03)
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Location Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4749	4615	4749	4749	4725	4485	4341	4127
R ²	0.017	0.015	0.009	0.010	0.011	0.010	0.020	0.031

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Key findings

- Substantial variation in management scores amongst GB businesses
- Management scores are highest among:
 - ✓ Larger than smaller firms
 - ✓ Not family owned than family owned
 - ✓ Multinationals than domestic
 - ✓ Services than production
- Management practice score is strongly correlated with productivity
- Firms whose GDP expectations most align with professional forecasters were larger and had higher management scores
- Firms whose uncertainty is high were smaller, younger, less productive, domestically-owned and family-owned and -managed firms