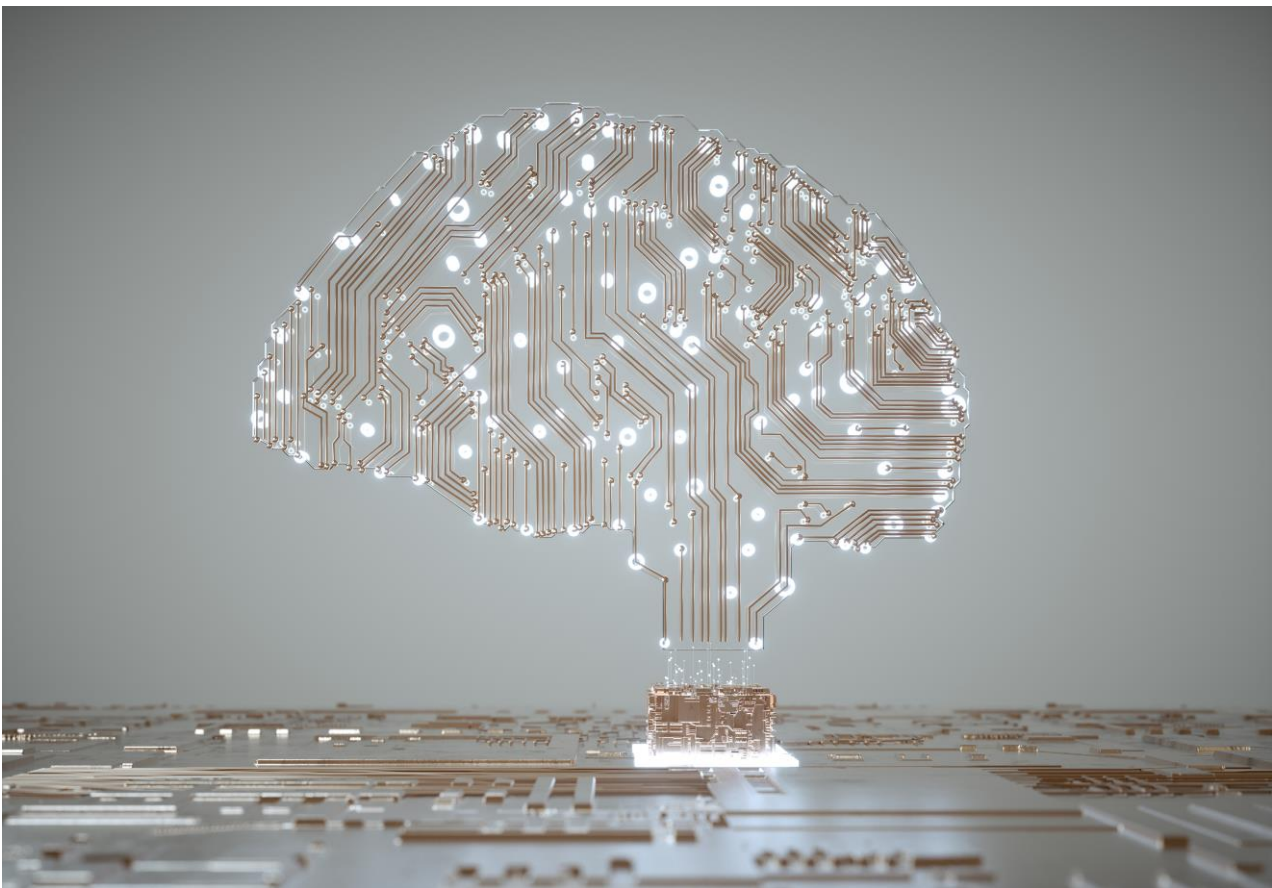


An Evaluation of the Small Business Research Initiative: Appendix G: Counterfactual Impact Assessment



UK Research & Innovation (UKRI)

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G Counterfactual Impact Assessment

Introduction

- G.1 In order to give the additionality assessment full rigour, we undertook a formal counterfactual impact evaluation (comprising a non-treatment control group and subsequent econometric modelling, matched with SBRI's full beneficiary pool) to enable robust difference in difference analysis. Counterfactual analysis enables the evaluation to attribute cause and effect between interventions and outcomes. The 'counterfactual' measures what would have happened to beneficiaries in the absence of the SBRI, and impact is estimated by comparing counterfactual outcomes to those observed under SBRI.

Data-Matching

- G.2 The SBRI database was imported into the UKDS Secure Lab and merged via enterprise reference number (ENTREF) to the longitudinal version of the ONS Business Structure Database (BSD)¹ which was created by the research team at the Enterprise Research Centre (ERC). In total, the SBRI dataset contained 410 beneficiary records (including 27 universities) and 888 non-beneficiary records (including 14 universities) which were those firms who applied to the SBRI but were not successful.
- G.3 An initial review of this dataset by the IDBR data-matching team indicated some concerns about the data quality and as a result the percentage match that will be possible with the data is difficult to estimate. In particular, the issues were summarised as follows:
- CRNs: Some of the company numbers (CRNs) have missing leading zeroes that can be handled by the matching team, but there were some companies registered in Germany and Spain, Royal Charters (i.e., universities) and Northern Ireland and Scottish companies with missing middle zeroes and what looks like telephone numbers are problematic.
 - Incomplete Addresses: – most have towns/counties missing. As a result, they will fail the 105-character namekey matching.
- G.4 This is an important issue for the SBRI scheme and if the evaluation methodology includes a data-matching element then it is crucial that more attention is paid to the recording of complete and accurate data for each firm that applies to the programme and especially those that went on and received awards.
- G.5 At the end of the data-matching exercise the SBRI dataset obtained a 72.8% match with the IDBR, but this dropped to 67.9% when we matched with the ERC's longitudinal BSD (which excludes universities) non-UK owned firms. The split between beneficiaries and non-beneficiaries was 77.1% match for beneficiaries and 64.0% match for non-beneficiaries. So that meant in total we had a dataset of 316 firms to undertake the econometric analysis: 316 SBRI award recipients and 565 unsuccessful award applicants.

¹ The Business Structure Database is itself constructed from annual abstracts from the Inter-Departmental Business Register created in March each year.

- G.6 Before we report on the method and results it is important to emphasise the small number of SBRI award recipients for the econometric analysis, especially as the treatment period is between 2011-19 meaning there are less than 50 treated firms each year. For all years there are only 316 firms.

Method

- G.7 OLS regressions were run as a first step to assess the impact of treatment (i.e., the SBRI award) on 3 separate growth metrics (employment, turnover, and productivity – i.e., turnover per employee) over a range of time periods dependent upon when the money was awarded after each competition - competition years were between 2011-2019. The latest annual BSD dataset available was that extracted in March 2020 with lagged data referring to 2019 and indeed 2018 in some cases. As a result, we defined the envelope of the treatment period as the competition years from 2011 to 2018.
- G.8 The dependent variable in each model was growth, the independent variables represented size, age, ownership, prior growth, and productivity level of the firm. Control variables for 2-digit SIC group and Government Office Region (GOR) were also included.
- G.9 OLS provides a computationally simpler model than treatment effects models, particularly where there are a limited number of variables. As it does not control for selection or endogeneity, the coefficients may over or underestimate the true impact of the treatment, but this can only be properly estimated where there are sufficient variable(s) to instrument the model.

Results

- G.10 The tables in ‘Econometric Results: Control Group of Unsuccessful SBRI Applicants’ show the output from running a range of OLS models looking at the impact of being a beneficiary of an SBRI award on employment, turnover and productivity (turnover per employee) growth.
- G.11 None of the models using the originally intended control group of unsuccessful SBRI applicants provided significant results despite using a range of treatment periods (i.e., bundled competition years). Additionally, the control group of unsuccessful SBRI applicants was found to be less appropriate given the difference in characteristics of the firms in this control group when compared to the beneficiary treatment group, for example, SBRI award recipients that were matched to the BSD are smaller in terms of employment and turnover, and the differences are quite large depending on the treatment periods that were selected for the models. Therefore, we are unable to conclude whether SBRI awards had any impact on the recipient firms.
- G.12 To enhance these basic OLS models, using the original control group, we investigated linking to other ONC datasets such as BERD but the overlap between the SBRI beneficiary dataset and BERD would not produce sufficient observations to run the OLS regressions. We also investigated the construction of interaction effects (SBRI X Competition Year) but we run into issues of low observations.
- G.13 In consultation with Innovate UK it was decided to create an additional control group for the analysis based on the size and sector of the SBRI award recipients. The additional control group was created by reviewing the firm level characteristics to understand the distribution of different sized firms within the beneficiary group, then control group firms were then randomly chosen from within each size band from the BSD in the Secure Lab setting, proportionate to the overall beneficiary sample. For example, if there were 200 firms with 250+ employees, of all firms within the BSD that have 250+ employees, an equivalent number was randomly chosen using the sample function in Stata.
- G.14 The econometric models using this new control group are reported in ‘Econometric Results: Random Control Group from BSD’. In most models there is positive and significant impact on employment if in receipt of an SBRI award. Turnover and productivity show mixed stories and when they are significant, they are negative. However, when looked at the models with the most observations (2011-2018

treatment period) 2019-20 employment growth is positive and significant while turnover and productivity are insignificant².

To find positive and significant employment effects and the absence of any turnover or productivity effects is not that unusual as it is often the case that businesses hire key individuals as the first step upon receiving an award in the anticipation that productivity effects will come a few years down the line³⁴.

Table G-1: Employment Growth Models: SBRI awards Dummy Coefficients with Standard Errors

	(1)	(2)	(3)	(4)	(5)
Treatment Period	emp1920	emp1820	emp1720	emp1620	emp1520
2011-15	0.0315 (0.0466)	0.155** (0.0778)	0.125 (0.0796)	0.163* (0.0901)	0.229** (0.0935)
2011-16	0.0532 (0.0412)	0.219*** (0.0680)	0.178** (0.0696)	0.208*** (0.0790)	
2011-17	0.0764** (0.0382)	0.232*** (0.0626)	0.188*** (0.0643)		
2011-18	0.0944** (0.0372)	0.242*** (0.0605)			

*** p<0.01, ** p<0.05, * p<0.1

² There were no differences to the results when we drop SBRI award recipients in the early years of the scheme - that is, 2011-14. There were very few of these cases in the SBRI dataset.

³ For example, the most recent impact report in 2018 for the Goldman Sachs *10,000 Small Businesses Programme* found that productivity gains are observed 4-5 years after participating in the programme. <https://www.goldmansachs.com/citizenship/10000-small-businesses/UK/news-and-events/building-business-britain-f/report.pdf>

⁴ Turner et al, 2020, Pathways to efficiency, pathways to growth: Evidence from the UK Innovation Survey. <https://www.enterpriseresearch.ac.uk/wp-content/uploads/2020/02/ERC-ResPap83-TurnerRoperHewitt-Dundas-Revised.pdf>

Table G-2: Turnover Growth Models: SBRI Awards Dummy Coefficients with Standard Errors

	(1)	(2)	(3)	(4)	(5)
Treatment Period	turn1920	turn1820	turn1720	turn1620	turn1520
2011-15	-0.202* (0.108)	-0.178 (0.145)	-0.0795 (0.151)	-0.430** (0.198)	-0.0103 (0.205)
2011-16	-0.112 (0.0947)	0.148 (0.132)	0.0571 (0.138)	-0.112 (0.177)	
2011-17	-0.0427 (0.0882)	0.169 (0.122)	0.104 (0.126)		
2011-18	0.0647 (0.0880)	0.178 (0.117)			

*** p<0.01, ** p<0.05, * p<0.1

Table G-3: Productivity Growth Models: SBRI Awards Dummy Coefficients with Standard Errors

	(1)	(2)	(3)	(4)	(5)
Treatment Period	prod1920	prod1820	prod1720	prod1620	prod1520
2011-15	-0.181** (0.0901)	-0.299** (0.127)	-0.215* (0.128)	-0.534*** (0.161)	-0.281 (0.174)
2011-16	-0.137* (0.0811)	-0.0772 (0.114)	-0.151 (0.116)	-0.282* (0.145)	
2011-17	-0.108 (0.0752)	-0.0730 (0.106)	-0.122 (0.107)		
2011-18	-0.0373 (0.0743)	-0.0828 (0.101)			

*** p<0.01, ** p<0.05, * p<0.1

Reflections

G.15 Creating a control group from the wider business population has several challenges:

- The treated firms are of all ages – we have a birth range of 1997-2019 and so basing a control group on the proportion of firms born by year is not feasible as there are many years where just one firm was born in that year.
- Sampling based on same turnover and employment before they are treated is difficult due to the different competition years and we would need to sample based on each treated firm. Even then, this doesn't guarantee a good counterfactual since there are other things to take into consideration such as GOR, Size and Sector.
- When looking at the competition year, which varies from 2011-2019, with more being treated post 2014, there are approximately 20/30 per year so we are unable able to focus on firms treated by year hence the treatment range used in our preferred models.

- The treatment ranges (2015-16, 2015-17, 2015-18), mean the 315 treated firms drops to as low as 70 when looking at the treatment period 2015-16. They are somewhat better with 2015-18 but numbers are still only around 200 once we add in control variables.

G.16 There have been three major challenges with the data-matching element of the SBRI evaluation which have resulted in a set of results surrounded with caveats.

- Quality of the data provided for matching was less than optimal and resulted in around a third of all observations being excluded from the analysis – especially SBRI award recipients;
- Related to this the small number of award recipients in each competition year, especially, in the 2011-14 period meant that a long treatment period had to be created – i.e., 2011-18; and
- Lags in the ONS BSD it is difficult to undertake rigorous econometric analysis for a treatment period so close to the available outcome period.

Econometric Results: Control Group of Unsuccessful SBRI Applicants

G.17 Table G-4 to Table G-6 show employment growth, turnover growth, and productivity growth (2019-20, 2018-20, 2017-20, 2016-20, 2015-20) where only beneficiaries and non-beneficiaries that applied to competitions between 2011-2015 are included in the sample. Standard errors are shown under coefficients and the data used is the BSD.

Table G-4: Employment Growth OLS regression of firms receiving an award between 2011-2015

	(1)	(2)	(3)	(4)	(5)
VARIABLES	emp1920	emp1820	emp1720	emp1620	emp1520
SBRI Awards	-0.0616	-0.160*	-0.160	-0.0505	0.0612
	(0.0788)	(0.0892)	(0.104)	(0.110)	(0.126)
Log(Employment2019)	-0.214***				
	(0.0418)				
(Employment2019)^2	1.14e-08				
	(9.43e-09)				
Log(Age)	0.0885	-0.112	-0.346	-0.828*	-0.0792
	(0.172)	(0.212)	(0.309)	(0.430)	(0.585)
(Age)^2	-0.000479	5.91e-05	0.000579	0.00132	-3.87e-05
	(0.000529)	(0.000613)	(0.000783)	(0.000905)	(0.00110)
Log(EmpGrowth2017-19)	-0.0460				
	(0.0741)				
Log(Productivity2019)	0.0180				
	(0.0274)				
UK Owned Firm	0.0672	0.0967	0.0653	-0.0263	-0.0468
	(0.127)	(0.147)	(0.174)	(0.202)	(0.218)
10-49 employees	0.692***	0.876***	1.090***	0.871***	0.967***
	(0.110)	(0.121)	(0.139)	(0.156)	(0.165)
50-99 employees	0.902***	1.349***	1.712***	1.326***	1.488***
	(0.217)	(0.237)	(0.263)	(0.295)	(0.302)
100-249 employees	1.122***	1.307***	1.611***	1.226***	1.610***
	(0.258)	(0.298)	(0.340)	(0.384)	(0.396)
250+ employees	1.506***	1.776***	2.058***	1.485***	1.918***
	(0.295)	(0.324)	(0.394)	(0.428)	(0.448)
Competition year 2012	-0.324	-1.389***	-1.421**	-1.159*	-1.357
	(0.477)	(0.528)	(0.606)	(0.615)	(0.819)
Competition year 2013	-0.361	-1.521***	-1.472***	-1.255**	-1.371**
	(0.422)	(0.469)	(0.535)	(0.545)	(0.575)
Competition year 2014	-0.355	-1.429***	-1.345**	-1.134**	-1.212**
	(0.423)	(0.469)	(0.535)	(0.548)	(0.588)
Competition year 2015	-0.359	-1.404***	-1.312**	-1.016*	-1.285**
	(0.416)	(0.465)	(0.523)	(0.539)	(0.579)
Log(Employment2018)		-0.269***			

	(1)	(2)	(3)	(4)	(5)
		(0.0493)			
(Employment2018)^2		1.50e-08			
		(1.04e-08)			
Log(EmpGrowth2016-18)		-0.0306			
		(0.0722)			
Log(Productivity2018)		0.0452			
		(0.0304)			
Log(Employment2017)			-0.315***		
			(0.0574)		
(Employment2017)^2			1.57e-08		
			(1.07e-08)		
Log(EmpGrowth2015-17)			-0.0560		
			(0.0768)		
Log(Productivity2017)			0.0148		
			(0.0335)		
Log(Employment2016)				-0.228***	
				(0.0669)	
(Employment2016)^2				7.29e-09	
				(1.04e-08)	
Log(EmpGrowth2014-16)				-0.108	
				(0.0764)	
Log(Productivity2016)				0.0344	
				(0.0415)	
Log(Employment2015)					-0.307***
					(0.0731)
(Employment2015)^2					6.27e-09
					(7.45e-09)
Log(EmpGrowth2013-15)					0.109
					(0.103)
Log(Productivity2015)					0.132**
					(0.0532)
Constant	0.208	1.369*	2.050**	2.446**	1.094
	(0.618)	(0.716)	(0.943)	(1.205)	(1.470)
Observations	164	163	148	132	115
R-squared	0.353	0.481	0.535	0.487	0.615
Standard errors in parentheses					
*** p<0.01, ** p<0.05, * p<0.1					

Table G-5: Turnover Growth OLS regression of firms receiving an award between 2011-2015

	(1)	(2)	(3)	(4)	(5)
VARIABLES	turn1920	turn1820	turn1720	turn1620	turn1520
SBRI Awards	-0.328	-0.407	-0.604*	-0.466	-0.0307
	(0.234)	(0.280)	(0.314)	(0.326)	(0.380)
Log(Employment2019)	-0.0317				
	(0.127)				
(Employment2019)^2	4.55e-09				
	(2.86e-08)				
Log(Age)	0.469	-0.159	0.687	-0.110	2.104
	(0.498)	(0.646)	(0.910)	(1.221)	(1.789)
(Age)^2	-0.000597	-0.000321	-0.00253	-0.00131	-0.00444
	(0.00160)	(0.00195)	(0.00238)	(0.00265)	(0.00350)
Log(EmpGrowth2017-19)	0.0288				
	(0.0791)				
Log(Productivity2019)	-0.187**				
	(0.0814)				
UK Owned Firm	0.307	-0.222	-0.190	-0.407	0.0353
	(0.391)	(0.463)	(0.524)	(0.600)	(0.690)
10-49 employees	0.497	0.907**	0.958**	0.0559	0.597
	(0.331)	(0.380)	(0.419)	(0.463)	(0.513)
50-99 employees	0.681	1.303*	1.446*	0.169	1.245
	(0.650)	(0.751)	(0.792)	(0.862)	(0.940)
100-249 employees	0.286	0.596	0.422	-0.898	0.0910
	(0.785)	(0.927)	(0.996)	(1.121)	(1.218)
250+ employees	0.715	1.179	0.322	-1.497	-0.555
	(0.885)	(1.009)	(1.165)	(1.192)	(1.354)
Competition year 2012	-0.0948	0.0854	-0.0205	0.339	0.402
	(1.412)	(1.665)	(1.824)	(1.821)	(2.526)
Competition year 2013	-0.397	-0.916	-0.469	1.020	0.892
	(1.242)	(1.496)	(1.615)	(1.591)	(1.767)
Competition year 2014	-0.362	-0.861	-0.405	0.983	0.717
	(1.242)	(1.501)	(1.614)	(1.607)	(1.807)
Competition year 2015	-0.208	-0.746	0.115	1.199	0.622
	(1.228)	(1.497)	(1.576)	(1.581)	(1.777)
Log(Employment2018)		-0.0824			
		(0.152)			
(Employment2018)^2		1.87e-08			
		(3.29e-08)			
Log(EmpGrowth2016-18)		-0.0598			
		(0.0981)			

	(1)	(2)	(3)	(4)	(5)
Log(Productivity2018)		-0.317***			
		(0.106)			
Log(Employment2017)			0.103		
			(0.166)		
(Employment2017)^2			2.00e-08		
			(3.23e-08)		
Log(EmpGrowth2015-17)			-0.0397		
			(0.108)		
Log(Productivity2017)			-0.530***		
			(0.127)		
Log(Employment2016)				0.450**	
				(0.186)	
(Employment2016)^2				-1.11e-08	
				(3.13e-08)	
Log(EmpGrowth2014-16)				-0.406***	
				(0.124)	
Log(Productivity2016)				-0.465***	
				(0.136)	
Log(Employment2015)					0.287
					(0.211)
(Employment2015)^2					5.07e-09
					(2.28e-08)
Log(EmpGrowth2013-15)					-0.538***
					(0.170)
Log(Productivity2015)					-0.640***
					(0.177)
Constant	-0.671	2.285	1.000	1.337	-2.440
	(1.775)	(2.289)	(2.825)	(3.349)	(4.541)
Observations	164	163	148	132	115
R-squared	0.180	0.275	0.402	0.485	0.473
Standard errors in parentheses					
*** p<0.01, ** p<0.05, * p<0.1					

Table G-6: Productivity Growth OLS regression of firms receiving an award between 2011-2015

	(1)	(2)	(3)	(4)	(5)
VARIABLES	prod1920	prod1820	prod1720	prod1620	prod1520
SBRI Awards	-0.255	-0.181	-0.443*	-0.428	-0.275
	(0.183)	(0.219)	(0.244)	(0.276)	(0.312)
Log(Employment2019)	0.184*				
	(0.0981)				

	(1)	(2)	(3)	(4)	(5)
(Employment2019)^2	-5.81e-09				
	(2.25e-08)				
Log(Age)	0.314	0.0490	0.688	0.956	2.774*
	(0.394)	(0.513)	(0.722)	(1.074)	(1.545)
(Age)^2	-9.94e-05	-0.000283	-0.00209	-0.00272	-0.00478
	(0.00129)	(0.00156)	(0.00189)	(0.00231)	(0.00295)
Log(EmpGrowth2017-19)	-0.00327				
	(0.0803)				
Log(Productivity2019)	-0.171**				
	(0.0657)				
UK Owned Firm	0.220	-0.200	-0.275	-0.320	0.0598
	(0.308)	(0.363)	(0.405)	(0.513)	(0.572)
10-49 employees	-0.227	0.0275	-0.184	-0.627	-0.272
	(0.261)	(0.299)	(0.323)	(0.392)	(0.425)
50-99 employees	-0.175	0.0902	-0.171	-0.815	-0.215
	(0.513)	(0.591)	(0.611)	(0.734)	(0.779)
100-249 employees	-0.909	-0.585	-1.372*	-1.704*	-1.090
	(0.617)	(0.725)	(0.772)	(0.954)	(1.009)
250+ employees	-0.860	-0.377	-1.565*	-2.161**	-1.625
	(0.692)	(0.787)	(0.892)	(1.010)	(1.125)
Competition year 2012	0.229	1.408	1.294	2.099	2.393
	(1.114)	(1.307)	(1.413)	(1.537)	(2.088)
Competition year 2013	-0.00191	0.480	0.725	2.535*	2.642*
	(0.978)	(1.171)	(1.259)	(1.352)	(1.467)
Competition year 2014	-0.0240	0.420	0.608	2.384*	2.334
	(0.977)	(1.177)	(1.259)	(1.362)	(1.498)
Competition year 2015	0.168	0.458	1.101	2.533*	2.317
	(0.969)	(1.169)	(1.226)	(1.335)	(1.471)
Log(Employment2018)		0.123			
		(0.117)			
(Employment2018)^2		8.58e-09			
		(2.57e-08)			
Log(EmpGrowth2016-18)		0.0275			
		(0.0927)			
Log(Productivity2018)		-0.343***			
		(0.0888)			
Log(Employment2017)			0.367***		
			(0.125)		
(Employment2017)^2			4.62e-09		
			(2.48e-08)		
Log(EmpGrowth2015-17)			0.130		

	(1)	(2)	(3)	(4)	(5)
			(0.107)		
Log(Productivity2017)			-0.562***		
			(0.104)		
Log(Employment2016)				0.518***	
				(0.156)	
(Employment2016)^2				-9.89e-09	
				(2.65e-08)	
Log(EmpGrowth2014-16)				-0.298**	
				(0.116)	
Log(Productivity2016)				-0.480***	
				(0.119)	
Log(Employment2015)					0.385**
					(0.176)
(Employment2015)^2					6.43e-09
					(1.88e-08)
Log(EmpGrowth2013-15)					-0.478***
					(0.165)
Log(Productivity2015)					-0.627***
					(0.153)
Constant	-0.678	0.784	-0.140	-2.110	-5.288
	(1.394)	(1.821)	(2.248)	(2.943)	(3.925)
Observations	164	163	148	132	115
R-squared	0.177	0.257	0.428	0.504	0.524
Standard errors in parentheses					
*** p<0.01, ** p<0.05, * p<0.1					

G.18 Table G-7 to

G.20 Table G-9 show the mean employment, turnover and productivity of firms included in the samples used in Table G-4 to Table G-6. Model 1 refers to Model 1 (first column of regression Table G-4 to Table G-6) of the corresponding regression table. There is no restriction on birth and death, and this is a subsample of the main sample based on the variables included in the regression.

Table G-7: Average employment of firms included in the OLS sample in Table G-4 to Table G-6

	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 1	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	50	291.5	56	262.2	60	248.1	68	182	79	152.9	87	118.8	90	119.2	90	116.3	90	120.4	90	128.5
Beneficiary	40	252.3	45	203.1	53	176.7	62	157.5	68	153.5	74	149.5	74	148.1	74	146.9	74	141.4	74	144.4
Total	90	274.1	101	235.9	113	214.6	130	170.3	147	153.2	161	132.9	164	132.3	164	130.1	164	129.9	164	135.7
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 2	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	50	291.5	56	262.2	60	248.1	69	179.3	80	151	88	117.5	88	121.9	88	118.9	87	124.4	88	131.3
Beneficiary	40	252.3	45	203.1	54	174.6	63	167.8	69	157.2	75	153.4	74	148.1	75	150.5	75	145.6	75	149
Total	90	274.1	101	235.9	114	213.3	132	173.8	149	153.9	163	134	162	133.9	163	133.4	162	134.2	163	139.4
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 3	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	50	291.5	56	262.2	60	248.1	69	179.3	80	151	80	128.9	80	133.5	80	129.8	79	135.9	80	143.1
Beneficiary	40	252.3	45	203.1	53	176.7	62	157.5	68	153.5	68	162.4	68	160.9	68	159.5	68	153.5	68	156.8
Total	90	274.1	101	235.9	113	214.6	131	169	148	152.1	148	144.3	148	146.1	148	143.4	147	144	148	149.4
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 4	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	49	297.3	55	266.9	60	248.1	69	179.3	69	174.6	69	148.9	69	153.9	69	149.2	68	155.7	69	163.6
Beneficiary	40	252.3	45	203.1	54	174.6	63	167.8	63	168	63	178.2	62	172.3	63	174.4	63	169.4	63	173.7
Total	89	277.1	100	238.2	114	213.3	132	173.8	132	171.5	132	162.9	131	162.6	132	161.2	131	162.3	132	168.4
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 5	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	49	297.3	55	266.9	61	244.1	61	202.6	61	197.1	60	170.3	60	175.6	60	170.5	60	175.3	61	183.8
Beneficiary	40	252.3	45	203.1	54	174.6	54	195.5	54	195.6	54	207.3	53	200.8	54	202.6	54	196.8	54	201.8
Total	89	277.1	100	238.2	115	211.4	115	199.3	115	196.4	114	187.8	113	187.4	114	185.7	114	185.4	115	192.3

Table G-8: Average turnover of firms included in the OLS sample in Table G-4 to Table G-6

	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 1	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	50	123,447.60	56	116,970.80	60	109,392.90	68	90,428.80	79	78,021.60	87	71,996.70	90	71,916.60	90	72,613.40	90	72,840.80	90	71,347.10
Beneficiary	40	32,769.20	45	28,685.50	53	36,697.20	62	29,335.40	68	25,918.40	74	18,690.20	74	18,360.20	74	19,969.00	74	20,723.80	74	22,348.30
Total	90	83,146.10	101	77,635.80	113	75,296.70	130	61,292.00	147	53,919.40	161	47,495.60	164	47,750.90	164	48,859.20	164	49,324.60	164	49,237.80
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 2	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	50	123,447.60	56	116,970.80	60	109,392.90	69	89,119.40	80	77,047.30	88	71,179.40	88	73,542.00	88	74,254.60	87	75,347.50	88	72,964.80
Beneficiary	40	32,769.20	45	28,685.50	54	36,091.70	63	28,933.30	69	25,600.80	75	18,885.00	74	18,360.20	75	20,076.10	75	21,013.60	75	22,616.50
Total	90	83,146.10	101	77,635.80	114	74,671.30	132	60,394.20	149	53,223.10	163	47,117.60	162	48,335.50	163	49,325.80	162	50,192.90	163	49,798.40
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 3	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	50	123,447.60	56	116,970.80	60	109,392.90	69	89,119.40	80	77,047.30	80	78,284.00	80	80,886.50	80	81,666.20	79	82,948.00	80	80,228.40
Beneficiary	40	32,769.20	45	28,685.50	53	36,697.20	62	29,335.40	68	25,918.40	68	20,314.40	68	19,954.70	68	21,711.90	68	22,535.90	68	24,299.80
Total	90	83,146.10	101	77,635.80	113	75,296.70	131	60,824.70	148	53,555.70	148	51,649.80	148	52,890.80	148	54,119.60	147	55,002.30	148	54,531.50

	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 4	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	49	125,964.40	55	119,095.30	60	109,392.90	69	89,119.40	69	89,295.20	69	90,734.20	69	93,746.00	69	94,645.80	68	96,299.60	69	92,926.70
Beneficiary	40	32,769.20	45	28,685.50	54	36,091.70	63	28,933.30	63	27,954.10	63	22,373.70	62	21,628.40	63	23,470.70	63	24,565.10	63	26,555.30
Total	89	84,078.90	100	78,410.90	114	74,671.30	132	60,394.20	132	60,018.70	132	58,107.60	131	59,614.00	132	60,675.90	131	61,801.30	132	61,249.40
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 5	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	49	125,964.40	55	119,095.30	61	107,600.40	61	100,788.80	61	100,987.10	60	104,315.30	60	107,756.80	60	108,790.20	60	109,094.90	61	105,059.00
Beneficiary	40	32,769.20	45	28,685.50	54	36,091.70	54	33,699.80	54	32,556.60	54	26,074.80	53	25,278.90	54	27,334.10	54	28,601.00	54	30,940.30
Total	89	84,078.90	100	78,410.90	115	74,022.40	115	69,286.10	115	68,854.60	114	67,254.00	113	69,072.50	114	70,205.70	114	70,966.30	115	70,255.40

Table G-9: Average productivity of firms included in the OLS sample in Table G-4 to Table G-6

	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 1	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	50	96.3	56	91.6	60	83	68	80.5	79	87.8	87	90.9	90	88.4	90	102	90	86.8	90	80
Beneficiary	39	141.7	44	91	53	78.5	62	106.4	68	88.7	74	84.8	74	78.1	74	73.8	74	75.2	74	72.5
Total	89	116.2	100	91.3	113	80.9	130	92.9	147	88.3	161	88.1	164	83.8	164	89.3	164	81.6	164	76.6
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 2	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	50	96.3	56	91.6	60	83	69	80.5	80	87.7	88	90.7	88	88.2	88	95.3	87	87.9	88	80.9
Beneficiary	39	141.7	44	91	54	78.3	63	104.8	69	87.6	75	84.6	74	78.1	75	73.7	75	75.4	75	72.7
Total	89	116.2	100	91.3	114	80.7	132	92.1	149	87.7	163	87.9	162	83.6	163	85.3	162	82.1	163	77.1
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 3	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	50	96.3	56	91.6	60	83	69	80.5	80	87.7	80	94.1	80	93.7	80	102.2	79	93	80	85.4
Beneficiary	39	141.7	44	91	53	78.5	62	106.4	68	88.7	68	84.3	68	77.9	68	74.6	68	77.2	68	74.3
Total	89	116.2	100	91.3	113	80.9	131	92.8	148	88.2	148	89.6	148	86.4	148	89.5	147	85.7	148	80.3
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 4	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	49	97.9	55	92.8	60	83	69	80.5	69	85.7	69	99	69	98.8	69	111.8	68	101.5	69	93.5
Beneficiary	39	141.7	44	91	54	78.3	63	104.8	63	88	63	86.5	62	80.1	63	76.2	63	78.6	63	76.2
Total	88	117.3	99	92	114	80.7	132	92.1	132	86.8	132	93	131	89.9	132	94.8	131	90.5	132	85.2
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 5	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	49	97.9	55	92.8	61	82.4	61	80.3	61	89.4	60	104.8	60	101.5	60	112.3	60	103.2	61	93.5
Beneficiary	39	141.7	44	91	54	78.3	54	82.3	54	71	54	84.9	53	82.3	54	77.9	54	82.1	54	80.6
Total	88	117.3	99	92	115	80.5	115	81.3	115	80.8	114	95.4	113	92.5	114	96	114	93.2	115	87.4

G.21 Table G-10 to Table G-12 show employment growth, turnover growth and productivity growth (2019-20, 2018-20, 2017-20, 2016-20) where only beneficiaries and non-beneficiaries that applied for awards between 2011-2016 are included in the sample. Standard errors are shown under coefficients and the data used is the BSD.

Table G-10: Employment Growth OLS regression of firms receiving an award between 2011-2016

VARIABLES	(1)	(2)	(3)	(4)
	emp1920	emp1820	emp1720	emp1620
SBRI Awards	-0.0174 (0.0606)	-0.0354 (0.0753)	-0.00571 (0.0888)	0.0666 (0.0932)
Log(Employment2019)	-0.201*** (0.0362)			
(Employment2019)^2	6.13e-09 (4.88e-09)			
Log(Age)	-0.0188 (0.126)	-0.216 (0.179)	-0.160 (0.258)	-0.538 (0.333)
(Age)^2	-0.000119 (0.000415)	0.000316 (0.000536)	9.17e-05 (0.000673)	0.000669 (0.000755)
Log(EmpGrowth2017-19)	-0.0446 (0.0476)			
Log(Productivity2019)	0.0211 (0.0224)			
UK Owned Firm	0.00357 (0.100)	0.0187 (0.125)	-0.0180 (0.143)	-0.0570 (0.150)
10-49 employees	0.634*** (0.0892)	0.939*** (0.106)	1.288*** (0.115)	1.202*** (0.119)
50-99 employees	0.799*** (0.160)	1.167*** (0.194)	1.653*** (0.211)	1.449*** (0.221)
100-249 employees	0.972*** (0.207)	1.407*** (0.252)	2.060*** (0.273)	1.926*** (0.286)
250+ employees	1.377*** (0.250)	1.908*** (0.296)	2.655*** (0.337)	2.278*** (0.350)
Competition year 2012	-0.342 (0.453)	-1.355** (0.548)	-1.353** (0.613)	-1.142* (0.601)
Competition year 2013	-0.340 (0.400)	-1.376*** (0.485)	-1.371** (0.542)	-1.175** (0.530)
Competition year 2014	-0.389 (0.398)	-1.263*** (0.484)	-1.203** (0.539)	-0.979* (0.529)
Competition year 2015	-0.350 (0.397)	-1.294*** (0.483)	-1.241** (0.533)	-0.955* (0.526)
Competition year 2016	-0.304 (0.394)	-1.109** (0.480)	-1.106** (0.533)	-0.871* (0.522)

	(1)	(2)	(3)	(4)
Log(Employment2018)		-0.290***		
		(0.0447)		
(Employment2018)^2		6.35e-09		
		(5.84e-09)		
Log(EmpGrowth2016-18)		-0.0585		
		(0.0623)		
Log(Productivity2018)		0.0188		
		(0.0283)		
Log(Employment2017)			-0.423***	
			(0.0501)	
(Employment2017)^2			1.28e-08*	
			(6.60e-09)	
Log(EmpGrowth2015-17)			-0.0527	
			(0.0695)	
Log(Productivity2017)			0.0273	
			(0.0299)	
Log(Employment2016)				-0.359***
				(0.0551)
(Employment2016)^2				8.10e-09
				(6.56e-09)
Log(EmpGrowth2014-16)				-0.0615
				(0.0660)
Log(Productivity2016)				0.0481
				(0.0374)
Constant	0.527	1.994***	1.896**	2.084**
	(0.512)	(0.646)	(0.826)	(0.968)
Observations	234	227	203	181
R-squared	0.291	0.425	0.541	0.559
Standard errors in parentheses				
*** p<0.01, ** p<0.05, * p<0.1				

Table G-11: Turnover Growth OLS regression of firms receiving an award between 2011-2016

	(1)	(2)	(3)	(4)
VARIABLES	turn1920	turn1820	turn1720	turn1620
SBRI Awards	-0.214	-0.0673	-0.153	-0.0292
	(0.164)	(0.217)	(0.254)	(0.255)
Log(Employment2019)	-0.00139			
	(0.0982)			
(Employment2019)^2	3.13e-09			
	(1.32e-08)			

	(1)	(2)	(3)	(4)
Log(Age)	-0.0211	-0.465	0.618	0.574
	(0.331)	(0.504)	(0.722)	(0.887)
(Age)^2	0.000371	0.000608	-0.00187	-0.00164
	(0.00113)	(0.00156)	(0.00193)	(0.00207)
Log(EmpGrowth2017-19)	0.0559			
	(0.0548)			
Log(Productivity2019)	-0.204***			
	(0.0621)			
UK Owned Firm	0.153	-0.145	-0.0636	0.140
	(0.272)	(0.360)	(0.405)	(0.418)
10-49 employees	0.371	0.849***	1.144***	0.623*
	(0.241)	(0.303)	(0.326)	(0.327)
50-99 employees	0.483	1.006*	1.366**	0.531
	(0.434)	(0.558)	(0.594)	(0.601)
100-249 employees	0.0918	0.531	0.851	0.138
	(0.564)	(0.727)	(0.768)	(0.779)
250+ employees	0.484	1.217	1.171	0.00441
	(0.675)	(0.852)	(0.939)	(0.913)
Competition year 2012	0.116	0.152	0.0404	0.314
	(1.215)	(1.575)	(1.741)	(1.657)
Competition year 2013	-0.131	-0.414	-0.101	1.161
	(1.071)	(1.407)	(1.544)	(1.450)
Competition year 2014	-0.101	-0.252	0.0517	1.395
	(1.067)	(1.405)	(1.536)	(1.449)
Competition year 2015	-0.0146	-0.348	0.186	1.208
	(1.061)	(1.409)	(1.517)	(1.443)
Competition year 2016	0.0496	0.0438	0.291	1.768
	(1.056)	(1.396)	(1.520)	(1.428)
Log(Employment2018)		-0.0882		
		(0.128)		
(Employment2018)^2		6.54e-09		
		(1.69e-08)		
Log(EmpGrowth2016-18)		-0.0995		
		(0.0808)		
Log(Productivity2018)		-0.361***		
		(0.0933)		
Log(Employment2017)			-0.0536	
			(0.136)	
(Employment2017)^2			2.36e-08	
			(1.87e-08)	
Log(EmpGrowth2015-17)			-0.0173	

	(1)	(2)	(3)	(4)
			(0.0892)	
Log(Productivity2017)			-0.634***	
			(0.107)	
Log(Employment2016)				0.142
				(0.142)
(Employment2016)^2				5.90e-09
				(1.81e-08)
Log(EmpGrowth2014-16)				-0.345***
				(0.0973)
Log(Productivity2016)				-0.476***
				(0.113)
Constant	0.372	2.745	1.288	-0.269
	(1.343)	(1.885)	(2.364)	(2.554)
Observations	234	227	203	181
R-squared	0.157	0.287	0.378	0.453
Standard errors in parentheses				
*** p<0.01, ** p<0.05, * p<0.1				

Table G-12: Productivity Growth OLS regression of firms receiving an award between 2011-2016

VARIABLES	(1)	(2)	(3)	(4)
	prod1920	prod1820	prod1720	prod1620
SBRI Awards	-0.187	-0.00811	-0.177	-0.134
	(0.138)	(0.173)	(0.203)	(0.213)
Log(Employment2019)	0.211**			
	(0.0813)			
(Employment2019)^2	-4.42e-09			
	(1.11e-08)			
Log(Age)	-0.0172	-0.130	0.640	1.198
	(0.280)	(0.406)	(0.582)	(0.772)
(Age)^2	0.000413	0.000252	-0.00172	-0.00226
	(0.000963)	(0.00126)	(0.00154)	(0.00177)
Log(EmpGrowth2017-19)	0.0254			
	(0.0577)			
Log(Productivity2019)	-0.194***			
	(0.0536)			
UK Owned Firm	0.164	-0.0748	-0.0902	0.168
	(0.230)	(0.287)	(0.321)	(0.352)
10-49 employees	-0.304	-0.118	-0.228	-0.505*
	(0.203)	(0.242)	(0.258)	(0.274)
50-99 employees	-0.364	-0.0960	-0.300	-0.647

	(1)	(2)	(3)	(4)
	(0.365)	(0.445)	(0.470)	(0.502)
100-249 employees	-0.967**	-0.779	-1.277**	-1.548**
	(0.474)	(0.579)	(0.608)	(0.654)
250+ employees	-0.991*	-0.503	-1.431*	-1.635**
	(0.565)	(0.677)	(0.739)	(0.763)
Competition year 2012	0.341	1.386	1.299	1.948
	(1.023)	(1.256)	(1.378)	(1.384)
Competition year 2013	0.143	0.799	1.101	2.516**
	(0.901)	(1.120)	(1.226)	(1.214)
Competition year 2014	0.170	0.810	1.034	2.521**
	(0.897)	(1.119)	(1.219)	(1.213)
Competition year 2015	0.262	0.740	1.210	2.402**
	(0.894)	(1.119)	(1.203)	(1.206)
Competition year 2016	0.265	0.943	1.167	2.761**
	(0.890)	(1.109)	(1.206)	(1.195)
Log(Employment2018)		0.152		
		(0.101)		
(Employment2018)^2		1.85e-09		
		(1.35e-08)		
Log(EmpGrowth2016-18)		-0.0240		
		(0.0760)		
Log(Productivity2018)		-0.365***		
		(0.0794)		
Log(Employment2017)			0.348***	
			(0.106)	
(Employment2017)^2			9.15e-09	
			(1.48e-08)	
Log(EmpGrowth2015-17)			0.0682	
			(0.0861)	
Log(Productivity2017)			-0.626***	
			(0.0890)	
Log(Employment2016)				0.381***
				(0.119)
(Employment2016)^2				-5.44e-10
				(1.52e-08)
Log(EmpGrowth2014-16)				-0.248***
				(0.0894)
Log(Productivity2016)				-0.498***
				(0.0978)
Constant	0.0740	0.703	-0.0357	-2.847
	(1.129)	(1.529)	(1.929)	(2.218)

	(1)	(2)	(3)	(4)
Observations	234	227	203	181
R-squared	0.155	0.263	0.415	0.472
Standard errors in parentheses				
*** p<0.01, ** p<0.05, * p<0.1				

G.22 Table G-13 to Table G-15 show the mean employment, turnover and productivity of firms included in the samples used in Table G-10 to Table G-12. Model 1 refers to Model 1 (first column of regression Table G-10 to Table G-12) of the corresponding regression table. There is no restriction on birth and death and this is a subsample of the main sample based on the variables included in the regression.

Table G-13: Average employment of firms included in the OLS sample in Table G-10 to Table G-12

	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Model 1	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	63	449.4	70	398.3	74	340	86	291	100	254.1	111	212.2	115	203.2	115	198.4	115	200.1	115	202.3
Beneficiary	58	195.4	65	159.2	78	136	93	119.2	102	115.7	114	109.5	119	104.5	119	104	119	101.4	119	104.6
Total	121	327.7	135	283.2	152	235.3	179	201.8	202	184.2	225	160.2	234	153	234	150.4	234	149.9	234	152.6
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 2	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	63	449.4	70	398.3	74	340	87	287.7	101	251.6	112	210.3	112	208.6	112	203.7	111	207.3	112	207.6
Beneficiary	58	195.4	65	159.2	79	135.1	94	126.5	103	118.6	115	112.3	114	109	115	111.1	115	108.6	115	112.2
Total	121	327.7	135	283.2	153	234.2	181	204	204	184.4	227	160.7	226	158.3	227	156.7	226	157.1	227	159.3
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 3	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	63	449.4	70	398.3	74	340	87	287.7	101	251.6	101	232.9	101	230.7	101	224.8	100	228.8	101	228.6
Beneficiary	57	198.9	64	161.7	77	137.7	92	120.5	102	115.7	102	122	102	121.4	102	120.6	102	117.1	102	120.7
Total	120	330.4	134	285.3	151	236.9	179	201.8	203	183.3	203	177.2	203	175.8	203	172.5	202	172.4	203	174.4
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 4	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	62	456.5	69	403.9	74	340	87	287.7	87	291.7	87	269.9	87	267.1	87	260	86	264.2	87	263.5
Beneficiary	57	198.9	65	159.2	79	135.1	94	126.5	93	128.4	94	134.3	93	130.3	94	132.3	94	129.5	94	133.9
Total	119	333.1	134	285.2	153	234.2	181	204	180	207.4	181	199.4	180	196.4	181	193.7	180	193.9	181	196.2

Table G-14: Average turnover of firms included in the OLS sample in Table G-10 to Table G-12

	20 11		20 12		20 13		20 14		20 15		20 16		20 17		20 18		20 19		20 20	
Model 1	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	63	156,45 3.40	70	150,83 0.60	74	140,43 5.30	86	115,91 1.60	10 0	102,48 2.20	11 1	95,232. 10	11 5	93,614. 30	11 5	97,384. 20	11 5	98,044. 90	11 5	96,524. 30
Beneficiary	58	24,236. 50	65	21,098. 60	78	25,880. 60	93	20,390. 40	10 2	18,019. 90	11 4	12,841. 50	11 9	12,215. 10	11 9	13,186. 60	11 9	13,766. 10	11 9	14,771. 90
Total	12 1	93,076. 70	13 5	88,367. 10	15 2	81,650. 60	17 9	66,283. 30	20 2	59,832. 90	22 5	53,487. 50	23 4	52,219. 00	23 4	54,565. 80	23 4	55,185. 20	23 4	54,949. 40
	20 11		20 12		20 13		20 14		20 15		20 16		20 17		20 18		20 19		20 20	
Model 2	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	63	156,45 3.40	70	150,83 0.60	74	140,43 5.30	87	114,58 0.20	10 1	101,46 8.40	11 2	94,382. 60	11 2	96,113. 30	11 2	99,984. 30	11 1	101,57 2.80	11 2	99,106. 30
Beneficiary	58	24,236. 50	65	21,098. 60	79	25,603. 60	94	20,216. 00	10 3	17,883. 80	11 5	13,019. 40	11 4	12,748. 80	11 5	13,885. 80	11 5	14,607. 30	11 5	15,645. 60
Total	12 1	93,076. 70	13 5	88,367. 10	15 3	81,143. 10	18 1	65,573. 40	20 4	59,266. 30	22 7	53,163. 30	22 6	54,062. 20	22 7	56,366. 10	22 6	57,320. 40	22 7	56,824. 40
	20 11		20 12		20 13		20 14		20 15		20 16		20 17		20 18		20 19		20 20	
Model 3	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	63	156,45 3.40	70	150,83 0.60	74	140,43 5.30	87	114,58 0.20	10 1	101,46 8.40	10 1	104,64 5.20	10 1	106,56 7.40	10 1	110,85 9.10	10 0	112,71 8.10	10 1	109,86 9.80
Beneficiary	57	24,661. 60	64	21,426. 00	77	26,216. 60	92	20,612. 00	10 2	18,019. 90	10 2	14,327. 70	10 2	14,228. 00	10 2	15,365. 10	10 2	16,015. 50	10 2	17,183. 10
Total	12 0	93,852. 30	13 4	89,025. 50	15 1	82,191. 30	17 9	66,283. 70	20 3	59,538. 60	20 3	59,264. 00	20 3	60,170. 30	20 3	62,876. 90	20 2	63,888. 10	20 3	63,298. 10
	20 11		20 12		20 13		20 14		20 15		20 16		20 17		20 18		20 19		20 20	
Model 4	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Non-Beneficiary	62 158,974.90	69 153,014.80	74 140,435.30	87 114,580.20	87 117,764.40	87 121,456.70	87 123,682.00	87 128,666.60	86 131,013.40	87 127,474.90
Beneficiary	57 24,661.70	65 21,098.60	79 25,603.60	94 20,216.00	93 19,745.10	94 15,843.60	93 15,429.20	94 16,693.30	94 17,535.90	94 18,861.60
Total	119 94,640.00	134 89,025.60	153 81,143.10	181 65,573.40	180 67,121.10	181 66,607.90	180 67,751.40	181 70,514.70	180 71,752.90	181 71,068.00

Table G-15: Average productivity of firms included in the OLS sample in Table G-10 to Table G-12

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Model 1	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	63	99.4	70	92.3	74	86.8	86	84.9	100	90.5
Beneficiary	57	110.8	64	81.1	78	83.7	93	91.6	102	73.3
Total	120	104.8	134	86.9	152	85.2	179	88.4	202	81.8
	2011		2012		2013		2014		2015	
Model 2	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	63	99.4	70	92.3	74	86.8	87	84.9	101	90.4
Beneficiary	57	110.8	64	81.1	79	83.5	94	90.7	103	72.7
Total	120	104.8	134	86.9	153	85.1	181	87.9	204	81.5
	2011		2012		2013		2014		2015	
Model 3	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	63	99.4	70	92.3	74	86.8	87	84.9	101	90.4
Beneficiary	56	112.7	63	80.1	77	84.7	92	92.6	102	73.3
Total	119	105.7	133	86.5	151	85.8	179	88.8	203	81.8

	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 4	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	62	100.7	69	93.3	74	86.8	87	84.9	87	87.9	87	95.4	87	95.3	87	106.6	86	96.5	87	91.1
Beneficiary	56	112.8	64	81.1	79	83.5	94	90.7	93	72.8	94	74.5	93	78.6	94	71.4	94	79.1	94	76.1
Total	118	106.4	133	87.4	153	85.1	181	87.9	180	80.1	181	84.5	180	86.7	181	88.3	180	87.4	181	83.3

G.23 Table G-16 to Table G-18 show employment growth, turnover growth and productivity growth (2019-20, 2018-20, 2017-20) where only beneficiaries and non-beneficiaries that applied for awards between 2011-2017 are included in the sample. Standard errors are shown under coefficients and the data used is the BSD.

Table G-16: Employment Growth OLS regression of firms receiving an award between 2011-2017

VARIABLES	(1)	(2)	(3)
	emp1920	emp1820	emp1720
SBRI Award	0.0606	0.0610	0.0794
	(0.0531)	(0.0678)	(0.0770)
Log(Employment2019)	-0.221***		
	(0.0331)		
(Employment2019)^2	8.30e-09*		
	(4.73e-09)		
Log(Age)	0.0658	-0.147	0.0292
	(0.110)	(0.164)	(0.227)
(Age)^2	6.66e-05	0.000379	3.23e-05
	(0.000362)	(0.000482)	(0.000583)
Log(EmpGrowth2017-19)	-0.00581		
	(0.0430)		
Log(Productivity2019)	0.00648		
	(0.0207)		
UK Owned Firm	0.154*	0.0834	0.0917
	(0.0890)	(0.115)	(0.129)
10-49 employees	0.667***	1.020***	1.301***
	(0.0826)	(0.0984)	(0.104)
50-99 employees	0.971***	1.527***	1.873***
	(0.142)	(0.169)	(0.182)
100-249 employees	1.065***	1.729***	2.202***
	(0.186)	(0.225)	(0.239)
250+ employees	1.450***	2.260***	2.812***
	(0.212)	(0.251)	(0.276)
Competition year 2012	-0.323	-1.393**	-1.343**
	(0.458)	(0.562)	(0.603)
Competition year 2013	-0.284	-1.365***	-1.297**
	(0.403)	(0.497)	(0.533)
Competition year 2014	-0.302	-1.242**	-1.118**
	(0.402)	(0.496)	(0.530)
Competition year 2015	-0.301	-1.305***	-1.185**
	(0.401)	(0.494)	(0.526)
Competition year 2016	-0.266	-1.133**	-1.061**
	(0.398)	(0.492)	(0.525)
Competition year 2017	-0.303	-1.266**	-1.198**

	(1)	(2)	(3)
	(0.402)	(0.496)	(0.530)
Log(Employment2018)		-0.370***	
		(0.0399)	
(Employment2018)^2		1.02e-08*	
		(5.67e-09)	
Log(EmpGrowth2016-18)		0.0222	
		(0.0586)	
Log(Productivity2018)		0.0275	
		(0.0269)	
Log(Employment2017)			-0.469***
			(0.0437)
(Employment2017)^2			1.54e-08**
			(6.11e-09)
Log(EmpGrowth2015-17)			0.0108
			(0.0627)
Log(Productivity2017)			0.0192
			(0.0279)
Constant	0.134	1.635***	1.257*
	(0.492)	(0.629)	(0.760)
Observations	294	278	247
R-squared	0.276	0.428	0.538
Standard errors in parentheses			
*** p<0.01, ** p<0.05, * p<0.1			

Table G-17: Turnover Growth OLS regression of firms receiving an award between 2011-2017

VARIABLES	(1)	(2)	(3)
	turn1920	turn1820	turn1720
treatment	-0.0818	0.00929	-0.0100
	(0.132)	(0.175)	(0.206)
Log(Employment2019)	-0.0295		
	(0.0821)		
(Employment2019)^2	6.07e-09		
	(1.17e-08)		
Log(Age)	0.141	-0.276	0.497
	(0.264)	(0.415)	(0.599)
(Age)^2	0.000810	0.000897	-0.000655
	(0.000902)	(0.00125)	(0.00156)
Log(EmpGrowth2017-19)	0.0473		
	(0.0470)		
Log(Productivity2019)	-0.260***		

	(1)	(2)	(3)
	(0.0528)		
UK Owned Firm	0.417*	0.0488	0.121
	(0.221)	(0.297)	(0.344)
10-49 employees	0.468**	0.895***	1.113***
	(0.204)	(0.253)	(0.277)
50-99 employees	0.650*	1.104**	1.431***
	(0.353)	(0.435)	(0.485)
100-249 employees	0.169	0.834	1.119*
	(0.463)	(0.583)	(0.633)
250+ employees	0.597	1.414**	1.453**
	(0.526)	(0.649)	(0.725)
Competition year 2012	0.0412	0.0321	-0.212
	(1.128)	(1.451)	(1.606)
Competition year 2013	-0.116	-0.501	-0.204
	(0.994)	(1.292)	(1.422)
Competition year 2014	-0.0599	-0.374	-0.0873
	(0.990)	(1.291)	(1.415)
Competition year 2015	-0.0541	-0.461	0.0455
	(0.986)	(1.291)	(1.402)
Competition year 2016	0.0557	-0.0387	0.175
	(0.982)	(1.282)	(1.403)
Competition year 2017	0.286	0.157	0.631
	(0.993)	(1.290)	(1.415)
Log(Employment2018)		-0.161	
		(0.102)	
(Employment2018)^2		9.43e-09	
		(1.47e-08)	
Log(EmpGrowth2016-18)		-0.0666	
		(0.0674)	
Log(Productivity2018)		-0.415***	
		(0.0802)	
Log(Employment2017)			-0.151
			(0.112)
(Employment2017)^2			2.26e-08
			(1.63e-08)
Log(EmpGrowth2015-17)			-0.0160
			(0.0762)
Log(Productivity2017)			-0.655***
			(0.0911)
Constant	-0.0924	2.231	1.245
	(1.182)	(1.654)	(2.058)

	(1)	(2)	(3)
Observations	294	278	247
R-squared	0.190	0.300	0.375
Standard errors in parentheses			
*** p<0.01, ** p<0.05, * p<0.1			

Table G-18: Productivity Growth OLS regression of firms receiving an award between 2011-2017

VARIABLES	(1)	(2)	(3)
	prod1920	prod1820	prod1720
treatment	-0.134 (0.111)	-0.0395 (0.142)	-0.103 (0.163)
Log(Employment2019)	0.192*** (0.0683)		
(Employment2019)^2	-3.35e-09 (9.84e-09)		
Log(Age)	0.0829 (0.221)	0.0192 (0.337)	0.398 (0.482)
(Age)^2	0.000606 (0.000765)	0.000336 (0.00102)	-0.000513 (0.00125)
Log(EmpGrowth2017-19)	0.0140 (0.0496)		
Log(Productivity2019)	-0.228*** (0.0458)		
UK Owned Firm	0.263 (0.185)	0.0310 (0.240)	0.0184 (0.273)
10-49 employees	-0.242 (0.171)	-0.181 (0.204)	-0.263 (0.220)
50-99 employees	-0.331 (0.297)	-0.396 (0.352)	-0.431 (0.384)
100-249 employees	-0.942** (0.388)	-0.846* (0.471)	-1.101** (0.501)
250+ employees	-0.887** (0.441)	-0.716 (0.523)	-1.297** (0.571)
Competition year 2012	0.292 (0.945)	1.285 (1.171)	1.004 (1.275)
Competition year 2013	0.149 (0.832)	0.691 (1.041)	0.918 (1.132)
Competition year 2014	0.168 (0.829)	0.668 (1.040)	0.818 (1.127)
Competition year 2015	0.223 (0.827)	0.644 (1.040)	0.997 (1.116)

	(1)	(2)	(3)
Competition year 2016	0.274	0.878	0.993
	(0.823)	(1.032)	(1.117)
Competition year 2017	0.492	1.171	1.549
	(0.832)	(1.039)	(1.125)
Log(Employment2018)		0.169**	
		(0.0822)	
(Employment2018)^2		9.04e-11	
		(1.19e-08)	
Log(EmpGrowth2016-18)		-0.00871	
		(0.0649)	
Log(Productivity2018)		-0.407***	
		(0.0682)	
Log(Employment2017)			0.292***
			(0.0881)
(Employment2017)^2			6.14e-09
			(1.29e-08)
Log(EmpGrowth2015-17)			0.0591
			(0.0745)
Log(Productivity2017)			-0.631***
			(0.0771)
Constant	-0.142	0.446	0.323
	(0.990)	(1.352)	(1.670)
Observations	294	278	247
R-squared	0.175	0.283	0.406
Standard errors in parentheses			
*** p<0.01, ** p<0.05, * p<0.1			

G.24 Table G-19 to Table G-21 show the mean employment, turnover and productivity of firms included in the samples used in Model 1 refers to Model 1 (first column of regression Table G-16 to Table G-18) of the corresponding regression table. There is no restriction on birth and death and this is a subsample of the main sample based on the variables included in the regression.

Table G-19: Average employment of firms included in the OLS sample in Table G-16 to Table G-18

	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 1	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	75	486.1	82	441.9	88	382.5	102	329.8	118	284.6	132	244.2	139	229.7	139	226.8	139	219.6	139	220.9
Beneficiary	74	166.9	83	137.1	97	121.2	114	108	128	102.4	144	97	155	90.4	155	91.5	155	91.2	155	94.3
Total	149	327.6	165	288.6	185	245.5	216	212.8	246	189.8	276	167.4	294	156.2	294	155.5	294	151.9	294	154.1
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 2	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	75	486.1	82	441.9	88	382.5	103	326.7	119	282.2	133	242.3	133	240	133	237	132	231.1	133	230.7
Beneficiary	74	166.9	83	137.1	98	120.6	115	114.1	129	104.8	145	99.4	144	97.1	145	100.4	145	100.2	145	103.8
Total	149	327.6	165	288.6	186	244.5	218	214.5	248	189.9	278	167.8	277	165.7	278	165.8	277	162.6	278	164.5
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 3	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	75	486.1	82	441.9	88	382.5	103	326.7	119	282.2	119	270.5	119	267.7	119	264	118	257.4	119	256.5
Beneficiary	73	169.2	82	138.7	96	122.4	113	109	128	102.4	128	108.8	128	108.8	128	109.8	128	108.9	128	112.3
Total	148	329.8	164	290.3	184	246.8	216	212.8	247	189	247	186.7	247	185.3	247	184.1	246	180.2	247	181.8

Table G-20: Average turnover of firms included in the OLS sample in Table G-16 to Table G-18

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Model 1	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	75	166,755.70	82	172,603.30	88	153,329.30	102	127,731.20	111	112,389.80
Beneficiary	74	20,871.50	83	18,420.20	97	22,586.90	111	18,520.50	122	16,013.90
Total	149	94,303.10	165	95,044.50	185	84,777.80	216	70,092.20	246	62,243.00
	2011		2012		2013		2014		2015	
	2011		2012		2013		2014		2015	

	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 2	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	75	166,755.70	82	172,603.30	88	153,329.30	103	126,491.90	119	111,446.00	133	103,032.00	139	106,573.00	139	109,522.20	139	100,113.10	139	97,373.40
Beneficiary	74	20,871.50	83	18,420.20	98	22,397.20	115	18,394.30	128	15,920.80	144	11,847.70	155	11,925.60	144	12,623.30	144	13,246.10	144	14,082.60
Total	149	94,303.10	165	95,044.50	186	84,343.60	218	69,467.90	247	61,757.50	277	55,471.80	294	57,372.50	277	58,981.40	277	54,641.20	277	53,930.40
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 3	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	75	166,755.70	82	172,603.30	88	153,329.30	103	126,491.90	119	111,446.00	119	115,137.40	119	119,103.10	119	122,393.90	119	111,968.60	119	108,802.30
Beneficiary	73	21,157.40	82	18,643.10	96	22,822.10	113	18,684.40	128	16,013.90	128	13,132.30	128	13,391.90	128	14,062.80	128	14,637.60	128	15,576.60
Total	148	94,940.30	164	95,623.20	184	85,238.60	216	70,092.60	247	61,991.30	247	62,276.50	247	64,321.70	247	66,254.70	247	61,323.80	247	60,491.00

Table G-21: Average productivity of firms included in the OLS sample in Table G-16 to Table G-18

	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 1	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	75	118.7	82	116	88	108.3	102	103.3	118	104.4	132	95.5	139	99.3	139	102.4	139	93.1	139	86.9
Beneficiary	73	126.3	82	95.3	97	98.2	114	112.3	128	87.1	144	85.8	155	85.8	155	74.6	155	87.2	155	85.9
Total	148	122.5	164	105.7	185	103	216	108.1	246	95.4	276	90.4	294	92.2	294	87.8	294	90	294	86.4
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 2	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	75	118.7	82	116	88	108.3	103	103.1	119	104.1	133	95.4	133	99.2	133	99.1	132	93.7	133	88.8
Beneficiary	73	126.3	82	95.3	98	97.9	115	111.4	129	86.5	145	85.7	144	87.8	145	76.4	145	82.2	145	82.7
Total	148	122.5	164	105.7	186	102.8	218	107.5	248	94.9	278	90.4	277	93.3	278	87.3	277	87.7	278	85.7

	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 3	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	75	118.7	82	116	88	108.3	103	103.1	119	104.1	119	100	119	106	119	106.8	118	101.1	119	95.4
Beneficiary	72	128.1	81	94.6	96	99.2	113	113.3	128	87.1	128	86.8	128	90.8	128	80.5	128	85.6	128	86
Total	147	123.3	163	105.4	184	103.5	216	108.4	247	95.3	247	93.2	247	98.1	247	93.2	246	93	247	90.5

G.25 Table G-22 to Table G-24 show employment growth, turnover growth and productivity growth (2019-20, 2018-20) where only beneficiaries and non-beneficiaries that applied for awards between 2011-2018 are included in the sample. Standard errors are shown under coefficients and the data used is the BSD.

Table G-22: Employment Growth OLS regression of firms receiving an award between 2011-2018

VARIABLES	(1)	(2)
	emp1920	emp1820
SBRI Awards	0.0656 (0.0415)	0.0830 (0.0573)
Log(Employment2019)	-0.167*** (0.0264)	
(Employment2019)^2	7.77e-10 (5.88e-10)	
Log(Age)	0.0193 (0.0827)	-0.0973 (0.136)
(Age)^2	0.000238 (0.000277)	0.000260 (0.000399)
Log(EmpGrowth2017-19)	0.0286 (0.0347)	
Log(Productivity2019)	0.00737 (0.0157)	
UK Owned Firm	0.173** (0.0708)	0.101 (0.0962)
10-49 employees	0.494*** (0.0644)	0.884*** (0.0813)
50-99 employees	0.728*** (0.118)	1.374*** (0.148)
100-249 employees	0.828*** (0.152)	1.539*** (0.201)
250+ employees	1.099*** (0.169)	2.044*** (0.218)
Competition year 2012	-0.271 (0.424)	-1.506*** (0.548)
Competition year 2013	-0.213 (0.374)	-1.443*** (0.485)
Competition year 2014	-0.237 (0.372)	-1.350*** (0.484)
Competition year 2015	-0.226 (0.372)	-1.405*** (0.483)
Competition year 2016	-0.220 (0.370)	-1.234** (0.481)
Competition year 2017	-0.257	-1.360***

	(1)	(2)
	(0.372)	(0.484)
Competition year 2018	-0.158	-1.313***
	(0.370)	(0.482)
Log(Employment2018)		-0.328***
		(0.0344)
(Employment2018)^2		1.83e-09**
		(8.24e-10)
Log(EmpGrowth2016-18)		0.0471
		(0.0479)
Log(Productivity2018)		0.0226
		(0.0217)
Constant	0.129	1.672***
	(0.431)	(0.585)
Observations	401	365
R-squared	0.211	0.370
Standard errors in parentheses		
*** p<0.01, ** p<0.05, * p<0.1		

Table G-23: Turnover Growth OLS regression of firms receiving an award between 2011-2018

	(1)	(2)
VARIABLES	turn1920	turn1820
SBRI Awards	-0.00807	0.0646
	(0.110)	(0.143)
Log(Employment2019)	-0.0510	
	(0.0696)	
(Employment2019)^2	-2.79e-09*	
	(1.56e-09)	
Log(Age)	-0.141	-0.195
	(0.212)	(0.337)
(Age)^2	0.000975	0.000305
	(0.000737)	(0.00101)
Log(EmpGrowth2017-19)	0.0165	
	(0.0399)	
Log(Productivity2019)	-0.278***	
	(0.0432)	
UK Owned Firm	0.211	-0.0511
	(0.187)	(0.242)
10-49 employees	0.498***	0.914***
	(0.170)	(0.204)
50-99 employees	0.704**	1.151***

	(1)	(2)
	(0.312)	(0.371)
100-249 employees	0.688*	0.931*
	(0.405)	(0.506)
250+ employees	0.851*	1.511***
	(0.449)	(0.546)
Competition year 2012	0.0619	0.114
	(1.117)	(1.377)
Competition year 2013	0.0717	-0.161
	(0.986)	(1.224)
Competition year 2014	0.174	0.00818
	(0.982)	(1.222)
Competition year 2015	0.0687	-0.145
	(0.981)	(1.223)
Competition year 2016	0.196	0.280
	(0.977)	(1.216)
Competition year 2017	0.386	0.470
	(0.984)	(1.221)
Competition year 2018	0.348	0.178
	(0.978)	(1.215)
Log(Employment2018)		-0.154*
		(0.0850)
(Employment2018)^2		-1.74e-09
		(2.07e-09)
Log(EmpGrowth2016-18)		-0.112**
		(0.0551)
Log(Productivity2018)		-0.412***
		(0.0618)
Constant	0.611	1.789
	(1.115)	(1.497)
Observations	401	365
R-squared	0.207	0.327
Standard errors in parentheses		
*** p<0.01, ** p<0.05, * p<0.1		

Table G-24: Productivity Growth OLS regression of firms receiving an award between 2011-2018

	(1)	(2)
VARIABLES	prod1920	prod1820
SBRI Awards	-0.0542	-0.0234
	(0.0936)	(0.117)
Log(Employment2019)	0.106*	

	(1)	(2)
	(0.0590)	
(Employment2019)^2	-3.62e-09***	
	(1.33e-09)	
Log(Age)	-0.106	0.00359
	(0.181)	(0.278)
(Age)^2	0.000604	-5.72e-05
	(0.000632)	(0.000829)
Log(EmpGrowth2017-19)	-0.0252	
	(0.0415)	
Log(Productivity2019)	-0.244***	
	(0.0384)	
UK Owned Firm	0.0602	-0.142
	(0.160)	(0.197)
10-49 employees	-0.0471	-0.0373
	(0.145)	(0.166)
50-99 employees	-0.0521	-0.216
	(0.267)	(0.303)
100-249 employees	-0.191	-0.563
	(0.345)	(0.412)
250+ employees	-0.260	-0.393
	(0.383)	(0.445)
Competition year 2012	0.339	1.470
	(0.952)	(1.123)
Competition year 2013	0.329	1.048
	(0.840)	(0.996)
Competition year 2014	0.405	1.090
	(0.836)	(0.995)
Competition year 2015	0.339	1.005
	(0.836)	(0.996)
Competition year 2016	0.422	1.237
	(0.833)	(0.990)
Competition year 2017	0.611	1.507
	(0.838)	(0.994)
Competition year 2018	0.503	1.169
	(0.833)	(0.989)
Log(Employment2018)		0.123*
		(0.0691)
(Employment2018)^2		-3.54e-09**
		(1.69e-09)
Log(EmpGrowth2016-18)		-0.0771
		(0.0544)

	(1)	(2)
Log(Productivity2018)		-0.365***
		(0.0533)
Constant	0.355	0.0760
	(0.950)	(1.235)
Observations	401	365
R-squared	0.193	0.300
Standard errors in parentheses		
*** p<0.01, ** p<0.05, * p<0.1		

G.26 Table G-25 to Table G-27 show the mean employment, turnover and productivity of firms included in the samples used in Table G-22 to Table G-24. Model 1 refers to Model 1 (first column of regression Table G-22 to Table G-24) of the corresponding regression table. There is no restriction on birth and death and this is a subsample of the main sample based on the variables included in the regression.

Table G-25: Average employment of firms included in the OLS sample in Table G-22 to Table G-24

	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 1	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	112	523.2	122	479.6	133	450.8	152	393	172	348.3	193	310.4	211	295.1	210	293.7	211	293.1	211	298.4
Beneficiary	89	142.3	100	117.5	118	102.9	137	93	151	90.1	171	84.8	190	77.2	190	79.3	190	80	190	82.6
Total	201	354.6	222	316.5	251	287.2	289	250.8	323	227.6	364	204.4	401	191.8	400	191.9	401	192.1	401	196.1
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 2	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	111	527.9	121	483.6	132	454.2	152	392.9	172	348.3	193	310.4	193	322.4	193	319.4	192	321.4	193	325.1
Beneficiary	88	143.9	99	118.7	118	103.4	138	98.1	152	92.2	172	86.9	171	85.3	172	88.7	172	89	172	91.8
Total	199	358.1	220	319.4	250	288.6	290	252.7	324	228.1	365	205.1	364	211	365	210.7	364	211.6	365	215.2

Table G-26: Average turnover of firms included in the OLS sample in Table G-22 to Table G-24

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Model 1	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	112	200,878.90	122	241,173.30	133	231,265.90	152	193,116.10	172	182,890.90
Beneficiary	89	17,761.60	100	15,626.90	118	18,908.80	137	15,696.30	151	13,854.80
Total	201	119,797.10	222	139,575.80	251	131,432.70	289	109,010.50	323	103,867.80
	2011		2012		2013		2014		2015	
Model 2	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	111	202,686.40	121	243,166.30	132	233,017.90	152	193,116.30	172	182,890.10
Beneficiary	88	17,963.10	99	15,784.50	118	18,942.60	138	15,611.80	152	13,790.20
Total	199	120,650.50	220	160,951.80	250	152,960.50	290	118,926.70	324	116,658.00

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020										
Total	199	120,990	220	140,840	250	131,970	290	108,640	320	103,550	360	92,259.10	360	90,898.70	360	101,140	360	96,831.10	360	48,567.40

Table G-27: Average productivity of firms included in the OLS sample in Table G-22 to Table G-24

	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 1	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	111	125.3	121	131.7	133	129.3	152	122.4	172	121.1	193	110.8	211	127.2	210	122.8	211	111.2	211	87.7
Beneficiary	88	117.9	99	90.5	118	93.2	137	109.4	151	95.4	171	93.8	190	84.5	190	72.2	190	81.3	190	80.8
Total	199	122	220	113.1	251	112.3	289	116.3	323	109.1	364	102.8	401	107	400	98.8	401	97.1	401	84.4
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 2	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Non-Beneficiary	110	125.3	120	132.7	132	130.2	152	122.8	172	121.1	193	110.1	193	131.6	193	125.6	192	117.3	193	92
Beneficiary	87	118.9	98	91.1	118	93.6	138	108.7	152	94.8	172	93.7	171	87	172	75.2	172	79.5	172	78.4
Total	197	122.5	218	114	250	112.9	290	116.1	324	108.8	365	102.3	364	110.6	365	101.8	364	99.5	365	85.6

Econometric Results: Random Control Group from BSD

G.27 Table G-28 to Table G-30 show employment growth, turnover growth and productivity growth (2019-20, 2018-20, 2017-20, 2016-20, 2015-20) where only beneficiaries in receipt of awards between 2011-15 and a random control group constructed from the BSD using the profile of SBRI beneficiaries are included. Standard errors are shown under coefficients and the data used is the BSD.

Table G-28: Employment Growth OLS regression of firms treated between 2011-2015

VARIABLES	(1)	(2)	(3)	(4)	(5)
	emp1920	emp1820	emp1720	emp1620	emp1520
SBRI Awards	0.0315 (0.0466)	0.155** (0.0778)	0.125 (0.0796)	0.163* (0.0901)	0.229** (0.0935)
Log(Employment2019)	-0.225*** (0.0235)				
(Employment2019)^2	2.66e-09* (1.37e-09)				
Log(Age)	0.0186 (0.0667)	0.0814 (0.140)	0.0861 (0.179)	-0.00766 (0.268)	0.130 (0.361)
(Age)^2	-0.000169 (0.000195)	-0.000578 (0.000354)	-0.000534 (0.000396)	-0.000327 (0.000514)	-0.000588 (0.000614)
Log(EmpGrowth2017-19)	0.0270 (0.0250)				
Log(Productivity2019)	0.0173 (0.0134)				
UK Owned Firm	-0.0176 (0.0578)	-0.156 (0.0976)	-0.159 (0.0976)	-0.159 (0.111)	-0.115 (0.118)
10-49 employees	0.580*** (0.0567)	1.329*** (0.0814)	1.190*** (0.0867)	1.323*** (0.0934)	1.313*** (0.0934)
50-99 employees	0.868*** (0.0927)	2.198*** (0.126)	1.964*** (0.134)	2.199*** (0.142)	2.280*** (0.137)
100-249 employees	1.150*** (0.107)	2.752*** (0.144)	2.448*** (0.155)	2.702*** (0.170)	2.744*** (0.164)
250+ employees	1.382*** (0.141)	3.671*** (0.184)	3.365*** (0.194)	3.716*** (0.210)	3.738*** (0.207)
Log(Employment2018)		-0.606*** (0.0313)			
(Employment2018)^2		8.71e-09*** (2.61e-09)			

	(1)	(2)	(3)	(4)	(5)
Log(EmpGrowth2016-18)		0.0210			
		(0.0461)			
Log(Productivity2018)		0.0908***			
		(0.0216)			
Log(Employment2017)			-0.562***		
			(0.0331)		
(Employment2017)^2			6.70e-09***		
			(2.14e-09)		
Log(EmpGrowth2015-17)			0.219***		
			(0.0606)		
Log(Productivity2017)			0.0950***		
			(0.0223)		
Log(Employment2016)				-0.627***	
				(0.0362)	
(Employment2016)^2				6.98e-09***	
				(2.09e-09)	
Log(EmpGrowth2014-16)				0.116*	
				(0.0593)	
Log(Productivity2016)				0.0779***	
				(0.0269)	
Log(Employment2015)					-0.638***
					(0.0362)
(Employment2015)^2					7.63e-09***
					(2.15e-09)
Log(EmpGrowth2013-15)					0.0473
					(0.0557)
Log(Productivity2015)					0.108***
					(0.0247)
Constant	0.0756	-0.00722	-0.0173	0.154	-0.144
	(0.199)	(0.373)	(0.441)	(0.648)	(0.865)
Observations	452	424	389	357	335
R-squared	0.291	0.599	0.555	0.567	0.632
Standard errors in parentheses					
*** p<0.01, ** p<0.05, * p<0.1					

Table G-29: Turnover Growth OLS regression of firms treated between 2011-2015

	(1)	(2)	(3)	(4)	(5)
VARIABLES	turn1920	turn1820	turn1720	turn1620	turn1520
SBRI Awards	-0.202*	-0.178	-0.0795	-0.430**	-0.0103
	(0.108)	(0.145)	(0.151)	(0.198)	(0.205)
Log(Employment2019)	-0.0671				
	(0.0548)				
(Employment2019)^2	2.49e-09				
	(3.02e-09)				
Log(Age)	-0.249	-0.652***	-0.388	-0.603	-0.305
	(0.155)	(0.251)	(0.334)	(0.567)	(0.731)
(Age)^2	0.000351	0.00117*	0.000292	0.000741	0.000126
	(0.000454)	(0.000650)	(0.000744)	(0.00111)	(0.00129)
Log(EmpGrowth2017-19)	-0.0711				
	(0.0467)				
Log(Productivity2019)	-0.0403				
	(0.0318)				
UK Owned Firm	-0.134	-0.131	-0.174	-0.0578	0.146
	(0.134)	(0.182)	(0.185)	(0.248)	(0.260)
10-49 employees	0.324**	0.779***	0.631***	0.905***	0.924***
	(0.132)	(0.151)	(0.163)	(0.203)	(0.201)
50-99 employees	0.463**	1.206***	0.963***	1.307***	1.586***
	(0.216)	(0.232)	(0.252)	(0.311)	(0.296)
100-249 employees	0.519**	1.375***	1.063***	1.490***	1.691***
	(0.250)	(0.264)	(0.293)	(0.376)	(0.357)
250+ employees	0.489	1.601***	1.109***	1.650***	1.997***
	(0.329)	(0.337)	(0.369)	(0.463)	(0.445)
Log(Employment2018)		-0.247***			
		(0.0565)			
(Employment2018)^2		4.75e-09			
		(4.85e-09)			
Log(EmpGrowth2016-18)		-0.186***			
		(0.0496)			
Log(Productivity2018)		-0.0659			
		(0.0432)			

	(1)	(2)	(3)	(4)	(5)
Log(Employment2017)			-0.169***		
			(0.0633)		
(Employment2017)^2			3.41e-09		
			(4.04e-09)		
Log(EmpGrowth2015-17)			-0.0419		
			(0.0532)		
Log(Productivity2017)			-0.123***		
			(0.0435)		
Log(Employment2016)				-0.216***	
				(0.0799)	
(Employment2016)^2				2.91e-09	
				(4.60e-09)	
Log(EmpGrowth2014-16)				-0.127*	
				(0.0726)	
Log(Productivity2016)				-0.275***	
				(0.0581)	
Log(Employment2015)					-0.298***
					(0.0765)
(Employment2015)^2					4.35e-09
					(4.66e-09)
Log(EmpGrowth2013-15)					-0.342***
					(0.0764)
Log(Productivity2015)					-0.232***
					(0.0574)
Constant	0.694	1.824***	1.483*	2.490*	2.065
	(0.458)	(0.678)	(0.829)	(1.376)	(1.767)
Observations	452	426	390	358	337
R-squared	0.108	0.201	0.118	0.205	0.254
Standard errors in parentheses					
*** p<0.01, ** p<0.05, * p<0.1					

Table G-30: Productivity Growth OLS regression of firms treated between 2011-2015

	(1)	(2)	(3)	(4)	(5)
VARIABLES	prod1920	prod1820	prod1720	prod1620	prod1520

	(1)	(2)	(3)	(4)	(5)
SBRI Awards	-0.181**	-0.299**	-0.215*	-0.534***	-0.281
	(0.0901)	(0.127)	(0.128)	(0.161)	(0.174)
Log(Employment2019)	0.141***				
	(0.0452)				
(Employment2019)^2	-3.93e-09				
	(2.63e-09)				
Log(Age)	-0.211*	-0.515**	-0.403	-0.198	0.220
	(0.127)	(0.225)	(0.286)	(0.482)	(0.665)
(Age)^2	0.000463	0.00131**	0.000652	0.000440	-0.000120
	(0.000376)	(0.000578)	(0.000634)	(0.000923)	(0.00114)
Log(EmpGrowth2017-19)	-0.153***				
	(0.0392)				
Log(Productivity2019)	-0.0416				
	(0.0269)				
UK Owned Firm	-0.0863	0.00444	-0.0986	0.0845	0.232
	(0.111)	(0.160)	(0.157)	(0.202)	(0.224)
10-49 employees	-0.264**	-0.492***	-0.608***	-0.462***	-0.429**
	(0.110)	(0.132)	(0.138)	(0.168)	(0.174)
50-99 employees	-0.385**	-0.889***	-1.041***	-0.936***	-0.692***
	(0.179)	(0.203)	(0.215)	(0.257)	(0.255)
100-249 employees	-0.579***	-1.206***	-1.380***	-1.188***	-1.022***
	(0.207)	(0.230)	(0.249)	(0.310)	(0.306)
250+ employees	-0.822***	-1.792***	-2.184***	-1.988***	-1.602***
	(0.272)	(0.290)	(0.314)	(0.381)	(0.384)
Log(Employment2018)		0.306***			
		(0.0483)			
(Employment2018)^2		-3.08e-09			
		(4.26e-09)			
Log(EmpGrowth2016-18)		-0.156***			
		(0.0529)			
Log(Productivity2018)		-0.177***			
		(0.0398)			
Log(Employment2017)			0.373***		
			(0.0536)		
(Employment2017)^2			-3.38e-09		

	(1)	(2)	(3)	(4)	(5)
			(3.42e-09)		
Log(EmpGrowth2015-17)			0.0224		
			(0.0541)		
Log(Productivity2017)			-0.229***		
			(0.0378)		
Log(Employment2016)				0.378***	
				(0.0650)	
(Employment2016)^2				-3.48e-09	
				(3.74e-09)	
Log(EmpGrowth2014-16)				-0.184***	
				(0.0678)	
Log(Productivity2016)				-0.311***	
				(0.0486)	
Log(Employment2015)					0.298***
					(0.0661)
(Employment2015)^2					-2.56e-09
					(3.98e-09)
Log(EmpGrowth2013-15)					-0.279***
					(0.0769)
Log(Productivity2015)					-0.344***
					(0.0500)
Constant	0.437	1.609***	1.567**	1.281	0.709
	(0.381)	(0.615)	(0.709)	(1.174)	(1.623)
Observations	452	424	389	357	335
R-squared	0.136	0.268	0.276	0.309	0.363
Standard errors in parentheses					
*** p<0.01, ** p<0.05, * p<0.1					

G.28 Table G-31 to Table G-33 show the mean employment, turnover and productivity of firms included in the samples used in Table G-28 to Table G-30. Model 1 refers to Model 1 (first column of regression Table G-28 to Table G-30) of the corresponding regression table. There is no restriction on birth and death and this is a subsample of the main sample based on the variables included in the regression.

Table G-31: Average employment of firms included in the OLS sample in Table G-28 to Table G-30

	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 1	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	258	198.3	275	185.2	287	181.8	301	179.3	326	165.6	357	157.2	382	154.4	382	154.7	382	194.5	382	190.7
Treatment	38	405.5	43	344.8	51	294.2	57	257	64	239.4	69	237.5	70	236.1	70	217.1	70	227.9	70	231.8
Total	296	224.9	318	206.8	338	198.8	358	191.7	390	177.7	426	170.2	452	167.1	452	164.3	452	199.7	452	197.1
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 2	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	258	198.3	275	185.2	287	181.8	301	179.3	326	165.6	355	158.1	355	161.5	355	161.8	355	201.9	355	202.7
Treatment	38	405.5	43	344.8	51	294.2	57	257	64	239.4	69	237.5	69	239.5	69	220.1	69	231.1	69	235
Total	296	224.9	318	206.8	338	198.8	358	191.7	390	177.7	424	171	424	174.2	424	171.3	424	206.7	424	207.9
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 3	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	257	199.1	274	185.9	286	182.5	300	179.9	325	166.1	325	172.2	325	174.8	325	175.4	325	219.2	325	218.9
Treatment	38	405.5	43	344.8	51	294.2	57	257	64	239.4	64	255.1	64	257	64	235.8	64	247.7	64	251.8
Total	295	225.7	317	207.4	337	199.4	357	192.2	389	178.2	389	185.8	389	188.3	389	185.4	389	223.9	389	224.3
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 4	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	257	199.1	274	185.9	286	182.5	300	179.9	300	177.4	300	183.6	300	186.3	300	186.7	300	233.6	300	232.9
Treatment	38	405.5	43	344.8	51	294.2	57	257	57	264.1	57	281.9	57	284	57	259.9	57	274	57	278.9
Total	295	225.7	317	207.4	337	199.4	357	192.2	357	191.2	357	199.3	357	201.9	357	198.4	357	240.1	357	240.2
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 5	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	256	199.9	272	187.2	284	183.7	284	188	284	185.7	284	192.2	284	195.1	284	193.7	284	243.1	284	241.5

	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Treatment	38	405.5	43	344.8	51	294.2	51	287.1	51	294.9	51	314.5	51	316.5	51	289.4	51	305.2	51	310.4
Total	294	226.4	315	208.7	335	200.6	335	203.1	335	202.4	335	210.8	335	213.6	335	208.3	335	252.5	335	252

Table G-32: Average turnover of firms included in the OLS sample in Table G-28 to Table G-30

	201		201		201		201		201		201		201		201		201		202	
	1		2		3		4		5		6		7		8		9		0	
Model 1	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	258	26,305.40	275	47,291.30	287	47,573.10	301	68,599.20	326	46,860.90	357	42,855.40	382	34,382.50	382	40,468.10	382	40,838.80	382	41,643.30
Treatment	38	54,847.80	43	48,000.20	51	54,196.30	57	46,281.50	64	40,543.00	69	32,089.50	70	30,308.60	70	33,073.60	70	33,922.70	70	35,694.00
Total	296	29,969.60	318	47,387.20	338	48,572.40	358	65,045.90	390	45,824.10	426	41,111.60	452	33,751.60	452	39,323.00	452	39,767.70	452	40,721.90
	201		201		201		201		201		201		201		201		201		202	
Model 2	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	258	26,305.40	275	47,291.30	287	47,573.10	301	68,599.20	326	46,860.90	357	42,855.40	357	36,486.90	357	42,999.30	357	43,201.90	357	44,368.00
Treatment	38	54,847.80	43	48,000.20	51	54,196.30	57	46,281.50	64	40,543.00	69	32,089.50	69	30,744.30	69	33,549.30	69	34,411.40	69	36,208.50
Total	296	29,969.60	318	47,387.20	338	48,572.40	358	65,045.90	390	45,824.10	426	41,111.60	426	35,556.80	426	41,468.60	426	41,778.10	426	43,046.40
	201		201		201		201		201		201		201		201		201		202	
Model 3	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	258	26,305.40	275	47,291.30	287	47,573.10	301	68,599.20	326	46,860.90	326	46,885.20	326	39,923.60	326	47,016.60	326	47,186.00	326	48,320.90
Treatment	38	54,847.80	43	48,000.20	51	54,196.30	57	46,281.50	64	40,543.00	64	34,497.20	64	33,046.40	64	36,055.20	64	36,956.60	64	38,861.30
Total	296	29,969.60	318	47,387.20	338	48,572.40	358	65,045.90	390	45,824.10	390	44,852.30	390	38,795.00	390	45,217.80	390	45,507.40	390	46,768.60

	201		201		201		201		201		201		201		201		201		202	
	1		2		3		4		5		6		7		8		9		0	
	201		201		201		201		201		201		201		201		201		202	
	1		2		3		4		5		6		7		8		9		0	
Model 4	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	258	26,305.40	275	47,291.30	287	47,573.10	301	68,599.20	301	50,663.50	301	50,680.90	301	43,102.60	301	50,773.00	301	50,957.20	301	52,129.60
Treatment	38	54,847.80	43	48,000.20	51	54,196.30	57	46,281.50	57	45,422.40	57	38,640.10	57	36,818.20	57	40,016.50	57	40,996.40	57	43,217.50
Total	296	29,969.60	318	47,387.20	338	48,572.40	358	65,045.90	358	49,829.00	358	48,763.80	358	42,102.00	358	49,060.40	358	49,371.20	358	50,710.60
	201		201		201		201		201		201		201		201		201		202	
	1		2		3		4		5		6		7		8		9		0	
Model 5	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	257	26,405.80	274	47,462.10	286	47,739.00	286	72,046.70	286	53,168.00	286	53,128.20	286	45,135.80	286	53,194.80	286	53,360.90	286	54,420.10
Treatment	38	54,847.80	43	48,000.20	51	54,196.30	51	51,702.20	51	50,742.00	51	43,161.50	51	41,119.40	51	44,673.30	51	45,747.50	51	48,250.50
Total	295	30,069.50	317	47,535.10	337	48,716.20	337	68,967.90	337	52,800.80	337	51,619.90	337	44,528.00	337	51,905.20	337	52,208.70	337	53,486.40

Table G-33: Average productivity of firms included in the OLS sample in Table G-28 to Table G-30

	201		201		201		201		201		201		201		201		201		202	
	1		2		3		4		5		6		7		8		9		0	
Model 1	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	254	144.7	271	162.4	284	384.3	300	4,951.30	325	5,138.30	355	343.6	382	1,419.30	382	2,832.80	382	175.5	382	160.7
Treatment	37	147.1	42	90.1	51	75.8	57	93.8	64	86.5	69	90.7	70	76.9	70	76.7	70	79	70	75.2

	201 1		201 2		201 3		201 4		201 5		201 6		201 7		201 8		201 9		202 0	
Total	291	145	313	152.7	335	337.4	357	4,175.70	389	4,307.10	424	302.4	452	1,211.40	452	2,406.00	452	160.5	452	147.4
	201 1		201 2		201 3		201 4		201 5		201 6		201 7		201 8		201 9		202 0	
Model 2	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	254	144.7	271	162.4	284	384.3	300	4,951.30	325	5,138.30	355	343.6	355	1,519.90	355	3,042.60	355	182.1	355	165.6
Treatment	37	147.1	42	90.1	51	75.8	57	93.8	64	86.5	69	90.7	69	76.2	69	76.9	69	79.7	69	76
Total	291	145	313	152.7	335	337.4	357	4,175.70	389	4,307.10	424	302.4	424	1,285.00	424	2,560.00	424	165.4	424	151
	201 1		201 2		201 3		201 4		201 5		201 6		201 7		201 8		201 9		202 0	
Model 3	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	254	144.7	271	162.4	284	384.3	300	4,951.30	325	5,138.30	325	365.8	325	1,630.60	325	3,311.40	325	173.8	325	166
Treatment	37	147.1	42	90.1	51	75.8	57	93.8	64	86.5	64	90	64	75.7	64	77.9	64	80.9	64	76.7
Total	291	145	313	152.7	335	337.4	357	4,175.70	389	4,307.10	389	320.4	389	1,374.80	389	2,779.40	389	158.5	389	151.3
	201 1		201 2		201 3		201 4		201 5		201 6		201 7		201 8		201 9		202 0	
Model 4	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	254	144.7	271	162.4	284	384.3	300	4,951.30	300	5,558.70	300	386.1	300	1,758.20	300	3,577.90	300	177.8	300	171.4
Treatment	37	147.1	42	90.1	51	75.8	57	93.8	57	84.5	57	90.8	57	77.6	57	78.9	57	81.6	57	76.9

	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Total	291	145	313	152.7	335	337.4	357	4,175.70	357	4,684.60	357	339	357	1,489.80	357	3,019.20	357	162.5	357	156.3
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 5	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	254	144.7	271	162.4	284	384.3	284	5,225.40	284	5,866.70	284	403.4	284	1,852.50	284	3,775.00	284	182.5	284	175.7
Treatment	37	147.1	42	90.1	51	75.8	51	81.6	51	72.6	51	86.6	51	81.2	51	85.3	51	85.8	51	82.1
Total	291	145	313	152.7	335	337.4	335	4,442.30	335	4,984.60	335	355.2	335	1,582.80	335	3,213.30	335	167.8	335	161.4

G.29 Table G-34 to Table G-36 show employment growth, turnover growth and productivity growth (2019-20, 2018-20, 2017-20, 2016-20) where only beneficiaries and a random control group constructed from the BSD using the profile of SBRI beneficiaries are included. Standard errors are shown under coefficients and the data used is the BSD.

Table G-34: Employment Growth OLS regression of firms treated between 2011-2016

VARIABLES	(1)	(2)	(3)	(4)
	emp1920	emp1820	emp1720	emp1620
SBRI Awards	0.0532 (0.0412)	0.219*** (0.0680)	0.178** (0.0696)	0.208*** (0.0790)
Log(Employment2019)	-0.229*** (0.0233)			
(Employment2019)^2	3.13e-09** (1.38e-09)			
Log(Age)	-0.00700 (0.0646)	0.0444 (0.135)	0.105 (0.171)	-0.0309 (0.247)
(Age)^2	-0.000163 (0.000191)	-0.000540 (0.000344)	-0.000610 (0.000384)	-0.000334 (0.000485)
Log(EmpGrowth2017-19)	0.0103 (0.0235)			
Log(Productivity2019)	0.0189 (0.0133)			
UK Owned Firm	-0.0503 (0.0559)	-0.177* (0.0923)	-0.180* (0.0919)	-0.178* (0.102)
10-49 employees	0.595*** (0.0548)	1.311*** (0.0770)	1.201*** (0.0818)	1.329*** (0.0856)
50-99 employees	0.874*** (0.0900)	2.149*** (0.121)	1.962*** (0.127)	2.174*** (0.131)
100-249 employees	1.165*** (0.105)	2.713*** (0.140)	2.476*** (0.148)	2.703*** (0.160)
250+ employees	1.391*** (0.139)	3.634*** (0.178)	3.406*** (0.187)	3.718*** (0.198)
Log(Employment2018)		-0.604*** (0.0303)		
(Employment2018)^2		8.81e-09*** (2.61e-09)		
Log(EmpGrowth2016-18)		0.0128		

	(1)	(2)	(3)	(4)
		(0.0441)		
Log(Productivity2018)		0.0720***		
		(0.0210)		
Log(Employment2017)			-0.574***	
			(0.0318)	
(Employment2017)^2			7.04e-09***	
			(2.13e-09)	
Log(EmpGrowth2015-17)			0.186***	
			(0.0578)	
Log(Productivity2017)			0.0894***	
			(0.0216)	
Log(Employment2016)				-0.629***
				(0.0342)
(Employment2016)^2				7.06e-09***
				(2.05e-09)
Log(EmpGrowth2014-16)				0.108**
				(0.0544)
Log(Productivity2016)				0.0683***
				(0.0260)
Constant	0.145	0.232	-0.0151	0.269
	(0.191)	(0.350)	(0.420)	(0.600)
Observations	491	459	419	384
R-squared	0.279	0.582	0.559	0.582
Standard errors in parentheses				
*** p<0.01, ** p<0.05, * p<0.1				

Table G-35: Turnover Growth OLS regression of firms treated between 2011-2016

	(1)	(2)	(3)	(4)
VARIABLES	turn1920	turn1820	turn1720	turn1620
SBRI Awards	-0.112	0.148	0.0571	-0.112
	(0.0947)	(0.132)	(0.138)	(0.177)
Log(Employment2019)	-0.0533			
	(0.0533)			
(Employment2019)^2	1.99e-09			

	(1)	(2)	(3)	(4)
	(3.02e-09)			
Log(Age)	-0.333**	-0.662***	-0.220	-0.487
	(0.147)	(0.250)	(0.333)	(0.533)
(Age)^2	0.000632	0.00125*	8.78e-05	0.000634
	(0.000437)	(0.000659)	(0.000755)	(0.00106)
Log(EmpGrowth2017-19)	-0.0398			
	(0.0410)			
Log(Productivity2019)	-0.0603*			
	(0.0310)			
UK Owned Firm	-0.116	-0.0640	-0.0819	0.0516
	(0.128)	(0.179)	(0.182)	(0.233)
10-49 employees	0.269**	0.767***	0.610***	0.927***
	(0.125)	(0.150)	(0.161)	(0.190)
50-99 employees	0.392*	1.267***	0.956***	1.417***
	(0.206)	(0.232)	(0.250)	(0.295)
100-249 employees	0.428*	1.425***	1.055***	1.593***
	(0.241)	(0.268)	(0.293)	(0.359)
250+ employees	0.394	1.730***	1.185***	1.841***
	(0.319)	(0.343)	(0.370)	(0.445)
Log(Employment2018)		-0.279***		
		(0.0573)		
(Employment2018)^2		4.98e-09		
		(5.06e-09)		
Log(EmpGrowth2016-18)		-0.209***		
		(0.0493)		
Log(Productivity2018)		-0.113**		
		(0.0441)		
Log(Employment2017)			-0.185***	
			(0.0631)	
(Employment2017)^2			3.20e-09	
			(4.21e-09)	
Log(EmpGrowth2015-17)			-0.0553	
			(0.0510)	
Log(Productivity2017)			-0.173***	
			(0.0442)	

	(1)	(2)	(3)	(4)
Log(Employment2016)				-0.257***
				(0.0766)
(Employment2016)^2				2.95e-09
				(4.60e-09)
Log(EmpGrowth2014-16)				-0.149**
				(0.0685)
Log(Productivity2016)				-0.302***
				(0.0575)
Constant	0.971**	2.247***	1.336	2.442*
	(0.429)	(0.661)	(0.826)	(1.295)
Observations	491	461	420	385
R-squared	0.094	0.212	0.117	0.210
Standard errors in parentheses				
*** p<0.01, ** p<0.05, * p<0.1				

Table G-36: Productivity Growth OLS regression of firms treated between 2011-2016

	(1)	(2)	(3)	(4)
VARIABLES	prod1920	prod1820	prod1720	prod1620
SBRI Awards	-0.137*	-0.0772	-0.151	-0.282*
	(0.0811)	(0.114)	(0.116)	(0.145)
Log(Employment2019)	0.164***			
	(0.0453)			
(Employment2019)^2	-4.25e-09			
	(2.70e-09)			
Log(Age)	-0.276**	-0.471**	-0.247	-0.0475
	(0.125)	(0.220)	(0.285)	(0.455)
(Age)^2	0.000714*	0.00134**	0.000509	0.000322
	(0.000374)	(0.000575)	(0.000642)	(0.000891)
Log(EmpGrowth2017-19)	-0.135***			
	(0.0371)			
Log(Productivity2019)	-0.0613**			
	(0.0270)			
UK Owned Firm	-0.0437	0.0915	0.0165	0.208
	(0.109)	(0.155)	(0.154)	(0.191)

	(1)	(2)	(3)	(4)
10-49 employees	-0.333***	-0.511***	-0.639***	-0.428***
	(0.108)	(0.129)	(0.136)	(0.158)
50-99 employees	-0.466***	-0.795***	-1.043***	-0.765***
	(0.176)	(0.200)	(0.211)	(0.244)
100-249 employees	-0.692***	-1.135***	-1.421***	-1.039***
	(0.206)	(0.230)	(0.248)	(0.297)
250+ employees	-0.944***	-1.642***	-2.164***	-1.741***
	(0.272)	(0.291)	(0.313)	(0.366)
Log(Employment2018)		0.272***		
		(0.0483)		
(Employment2018)^2		-3.01e-09		
		(4.36e-09)		
Log(EmpGrowth2016-18)		-0.174***		
		(0.0521)		
Log(Productivity2018)		-0.202***		
		(0.0401)		
Log(Employment2017)			0.372***	
			(0.0532)	
(Employment2017)^2			-3.89e-09	
			(3.55e-09)	
Log(EmpGrowth2015-17)			-0.0199	
			(0.0511)	
Log(Productivity2017)			-0.262***	
			(0.0384)	
Log(Employment2016)				0.329***
				(0.0624)
(Employment2016)^2				-3.34e-09
				(3.76e-09)
Log(EmpGrowth2014-16)				-0.182***
				(0.0635)
Log(Productivity2016)				-0.329***
				(0.0485)
Constant	0.638*	1.728***	1.351*	1.092
	(0.369)	(0.592)	(0.706)	(1.109)

	(1)	(2)	(3)	(4)
Observations	491	459	419	384
R-squared	0.130	0.276	0.283	0.288
Standard errors in parentheses				
*** p<0.01, ** p<0.05, * p<0.1				

G.30 Table G-37 to Table G-39 show the mean employment, turnover and productivity of firms included in the samples used in Table G-34 to Table G-36. Model 1 refers to Model 1 (first column of regression Table G-34 to Table G-36) of the corresponding regression table. There is no restriction on birth and death and this is a subsample of the main sample based on the variables included in the regression.

Table G-37: Average employment of firms included in the OLS sample in Table G-34 to Table G-36

	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Model 1	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	258	198.3	275	185.2	287	181.8	301	179.3	326	165.6	357	157.2	382	154.4	382	154.7	382	194.5	382	190.7
Treatment	52	320.2	60	267.2	73	222.5	84	190.1	94	177.4	104	171.1	109	165	109	153	109	160.7	109	164.7
Total	310	218.8	335	199.9	360	190.1	385	181.7	420	168.3	461	160.4	491	156.8	491	154.3	491	187	491	184.9
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 2	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	258	198.3	275	185.2	287	181.8	301	179.3	326	165.6	355	158.1	355	161.5	355	161.8	355	201.9	355	202.7
Treatment	52	320.2	60	267.2	73	222.5	84	190.1	94	177.4	104	171.1	104	172.9	104	160.2	104	168.3	104	172.4
Total	310	218.8	335	199.9	360	190.1	385	181.7	420	168.3	459	161.1	459	164.1	459	161.5	459	194.3	459	195.8
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 3	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	257	199.1	274	185.9	286	182.5	300	179.9	325	166.1	325	172.2	325	174.8	325	175.4	325	219.2	325	218.9
Treatment	52	320.2	60	267.2	73	222.5	84	190.1	94	177.4	94	188.5	94	190.2	94	175.9	94	184.5	94	188.8
Total	309	219.5	334	200.5	359	190.6	384	182.2	419	168.7	419	175.8	419	178.3	419	175.5	419	211.4	419	212.1
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 4	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	257	199.1	274	185.9	286	182.5	300	179.9	300	177.4	300	183.6	300	186.3	300	186.7	300	233.6	300	232.9
Treatment	52	320.2	60	267.2	73	222.5	84	190.1	84	195.4	84	207.8	84	209.7	84	193.4	84	203.6	84	208.6
Total	309	219.5	334	200.5	359	190.6	384	182.2	384	181.3	384	188.9	384	191.4	384	188.2	384	227.1	384	227.6

Table G-38: Average turnover of firms included in the OLS sample in Table G-34 to Table G-36

	201		201		201		201		201		201		201		201		201		202	
	1		2		3		4		5		6		7		8		9		0	
Model	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
1																				
Control	258	26,305.40	275	47,291.30	287	47,573.10	301	68,599.20	326	46,860.90	357	42,855.40	382	34,382.50	382	40,468.10	382	40,838.80	382	41,643.30
Treatment	52	41,905.70	60	35,739.40	73	38,872.40	84	32,327.20	94	28,406.80	104	22,064.80	109	20,333.00	109	22,075.30	109	22,738.10	109	23,866.60
Total	310	28,922.20	335	45,222.30	360	45,808.80	385	60,685.40	420	42,730.70	461	38,165.10	491	31,263.60	491	36,385.00	491	36,820.50	491	37,696.90
	201		201		201		201		201		201		201		201		201		202	
	1		2		3		4		5		6		7		8		9		0	
Model	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
2																				
Control	258	26,305.40	275	47,291.30	287	47,573.10	301	68,599.20	326	46,860.90	357	42,855.40	357	36,486.90	357	42,999.30	357	43,201.90	357	44,368.00
Treatment	52	41,905.70	60	35,739.40	73	38,872.40	84	32,327.20	94	28,406.80	104	22,064.80	104	21,306.00	104	23,131.80	104	23,821.70	104	25,001.80
Total	310	28,922.20	335	45,222.30	360	45,808.80	385	60,685.40	420	42,730.70	461	38,165.10	461	33,062.20	461	38,517.20	461	38,829.80	461	39,999.10
	201		201		201		201		201		201		201		201		201		202	
	1		2		3		4		5		6		7		8		9		0	
Model	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
3																				
Control	258	26,305.40	275	47,291.30	287	47,573.10	301	68,599.20	326	46,860.90	326	46,885.20	326	39,923.60	326	47,016.60	326	47,186.00	326	48,320.90
Treatment	52	41,905.70	60	35,739.40	73	38,872.40	84	32,327.20	94	28,406.80	94	24,336.70	94	23,501.60	94	25,511.10	94	26,230.70	94	27,513.10
Total	310	28,922.20	335	45,222.30	360	45,808.80	385	60,685.40	420	42,730.70	420	41,838.60	420	36,248.20	420	42,203.50	420	42,496.00	420	43,664.00

	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 4	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	258	26,305.40	275	47,291.30	287	47,573.10	301	68,599.20	301	50,663.50	301	50,680.90	301	43,102.60	301	50,773.00	301	50,957.20	301	52,129.60
Treatment	52	41,905.70	60	35,739.40	73	38,872.40	84	32,327.20	84	31,716.70	84	27,166.50	84	26,100.70	84	28,228.50	84	29,009.90	84	30,502.40
Total	310	28,922.20	335	45,222.30	360	45,808.80	385	60,685.40	385	46,529.70	385	45,550.50	385	39,393.10	385	45,854.20	385	46,168.70	385	47,410.90

Table G-39: Average productivity of firms included in the OLS sample in Table G-34 to Table G-36

	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 1	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	254	144.7	271	162.4	284	162.4	300	162.4	325	162.4	355	162.4	382	162.4	382	162.4	382	162.4	382	162.4
Treatment	51	120.9	59	80.7	73	84.5	84	85.7	94	73.3	104	78.1	109	75.5	109	68.5	109	78.7	109	76.2
Total	305	140.7	330	147.8	357	147.8	384	147.8	419	147.8	459	147.8	491	147.8	491	147.8	491	147.8	491	147.8
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 2	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	254	144.7	271	162.4	284	162.4	300	162.4	325	162.4	355	162.4	355	162.4	355	162.4	355	162.4	355	162.4
Treatment	51	120.9	59	80.7	73	84.5	84	85.7	94	73.3	104	78.1	104	76.2	104	69.7	104	79.4	104	76.2

	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Total	305	140.7	330	147.8	357	323	384	3,886.90	419	4,002.00	459	283.4	459	1,192.80	459	2,369.00	459	158.8	459	145.3
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 3	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	254	144.7	271	162.4	284	384.3	300	4,951.30	325	5,138.30	325	365.8	325	1,630.60	325	3,311.40	325	173.8	325	166
Treatment	51	120.9	59	80.7	73	84.5	84	85.7	94	73.3	94	77.5	94	77.2	94	72.6	94	80.3	94	75.8
Total	305	140.7	330	147.8	357	323	384	3,886.90	419	4,002.00	419	301.1	419	1,282.10	419	2,584.80	419	152.8	419	145.8
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 4	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	254	144.7	271	162.4	284	384.3	300	4,951.30	300	5,558.70	300	386.1	300	1,758.20	300	3,577.90	300	177.8	300	171.4
Treatment	51	120.9	59	80.7	73	84.5	84	85.7	84	71.2	84	77.8	84	79.3	84	74.1	84	81.8	84	77.5
Total	305	140.7	330	147.8	357	323	384	3,886.90	384	4,358.30	384	318.7	384	1,390.90	384	2,811.40	384	156.8	384	150.9

G.31 Table G-40 to Table G-42 show employment growth, turnover growth and productivity growth (2019-20, 2018-20, 2017-20) where only beneficiaries receiving an award in the period 2011-17 and a random control group constructed from the BSD using the profile of SBRI beneficiaries are included. Standard errors are shown under coefficients and the data used is the BSD.

Table G-40: Employment Growth OLS regression of firms treated between 2011-2017

	(1)	(2)	(3)
VARIABLES	emp1920	emp1820	emp1720
SBRI Awards	0.0764**	0.232***	0.188***
	(0.0382)	(0.0626)	(0.0643)
Log(Employment2019)	-0.231***		
	(0.0223)		
(Employment2019)^2	3.00e-09**		
	(1.37e-09)		
Log(Age)	-0.00428	0.00709	0.0742
	(0.0613)	(0.129)	(0.165)
(Age)^2	-0.000110	-0.000424	-0.000514
	(0.000183)	(0.000329)	(0.000369)
Log(EmpGrowth2017-19)	0.0218		
	(0.0227)		
Log(Productivity2019)	0.0168		
	(0.0127)		
UK Owned Firm	-0.0225	-0.173**	-0.177**
	(0.0532)	(0.0879)	(0.0892)
10-49 employees	0.591***	1.291***	1.212***
	(0.0525)	(0.0731)	(0.0774)
50-99 employees	0.896***	2.125***	1.989***
	(0.0851)	(0.112)	(0.119)
100-249 employees	1.165***	2.675***	2.488***
	(0.101)	(0.133)	(0.142)
250+ employees	1.395***	3.563***	3.403***
	(0.132)	(0.168)	(0.177)
Log(Employment2018)		-0.599***	
		(0.0288)	
(Employment2018)^2		9.08e-09***	
		(2.57e-09)	

	(1)	(2)	(3)
Log(EmpGrowth2016-18)		0.0179	
		(0.0424)	
Log(Productivity2018)		0.0727***	
		(0.0200)	
Log(Employment2017)			-0.579***
			(0.0304)
(Employment2017)^2			7.34e-09***
			(2.09e-09)
Log(EmpGrowth2015-17)			0.193***
			(0.0556)
Log(Productivity2017)			0.0901***
			(0.0206)
Constant	0.114	0.282	0.0364
	(0.180)	(0.331)	(0.404)
Observations	524	486	443
R-squared	0.276	0.585	0.574
Standard errors in parentheses			
*** p<0.01, ** p<0.05, * p<0.1			

Table G-41: Turnover Growth OLS regression of firms treated between 2011-2017

	(1)	(2)	(3)
VARIABLES	turn1920	turn1820	turn1720
SBRI Awards	-0.0427	0.169	0.104
	(0.0882)	(0.122)	(0.126)
Log(Employment2019)	-0.0448		
	(0.0514)		
(Employment2019)^2	1.52e-09		
	(3.01e-09)		
Log(Age)	-0.343**	-0.608**	-0.215
	(0.140)	(0.239)	(0.319)
(Age)^2	0.000802*	0.00123*	0.000227
	(0.000422)	(0.000631)	(0.000720)
Log(EmpGrowth2017-19)	-0.0543		

	(1)	(2)	(3)
	(0.0396)		
Log(Productivity2019)	-0.0741**		
	(0.0298)		
UK Owned Firm	-0.0464	-0.0292	-0.0315
	(0.122)	(0.171)	(0.175)
10-49 employees	0.287**	0.758***	0.611***
	(0.121)	(0.142)	(0.151)
50-99 employees	0.394**	1.205***	0.932***
	(0.196)	(0.218)	(0.233)
100-249 employees	0.402*	1.360***	1.024***
	(0.233)	(0.256)	(0.278)
250+ employees	0.369	1.657***	1.159***
	(0.305)	(0.324)	(0.347)
Log(Employment2018)		-0.268***	
		(0.0547)	
(Employment2018)^2		4.58e-09	
		(4.98e-09)	
Log(EmpGrowth2016-18)		-0.203***	
		(0.0478)	
Log(Productivity2018)		-0.115***	
		(0.0422)	
Log(Employment2017)			-0.183***
			(0.0598)
(Employment2017)^2			2.93e-09
			(4.11e-09)
Log(EmpGrowth2015-17)			-0.0599
			(0.0496)
Log(Productivity2017)			-0.167***
			(0.0421)
Constant	0.939**	2.031***	1.164
	(0.406)	(0.623)	(0.788)
Observations	524	488	444
R-squared	0.090	0.206	0.122

	(1)	(2)	(3)
Standard errors in parentheses			
*** p<0.01, ** p<0.05, * p<0.1			

Table G-42: Productivity Growth OLS regression of firms treated between 2011-2017

VARIABLES	(1)	(2)	(3)
	prod1920	prod1820	prod1720
SBRI Awards	-0.108	-0.0730	-0.122
	(0.0752)	(0.106)	(0.107)
Log(Employment2019)	0.173***		
	(0.0437)		
(Employment2019)^2	-4.90e-09*		
	(2.68e-09)		
Log(Age)	-0.268**	-0.372*	-0.204
	(0.118)	(0.211)	(0.273)
(Age)^2	0.000805**	0.00122**	0.000554
	(0.000361)	(0.000554)	(0.000614)
Log(EmpGrowth2017-19)	-0.144***		
	(0.0360)		
Log(Productivity2019)	-0.0677***		
	(0.0260)		
UK Owned Firm	0.00117	0.136	0.0658
	(0.104)	(0.148)	(0.149)
10-49 employees	-0.323***	-0.509***	-0.646***
	(0.103)	(0.123)	(0.128)
50-99 employees	-0.498***	-0.858***	-1.093***
	(0.167)	(0.188)	(0.198)
100-249 employees	-0.728***	-1.179***	-1.462***
	(0.199)	(0.221)	(0.236)
250+ employees	-0.983***	-1.670***	-2.186***
	(0.259)	(0.277)	(0.295)
Log(Employment2018)		0.282***	
		(0.0465)	
(Employment2018)^2		-3.73e-09	
		(4.31e-09)	

	(1)	(2)	(3)
Log(EmpGrowth2016-18)		-0.163***	
		(0.0506)	
Log(Productivity2018)		-0.205***	
		(0.0384)	
Log(Employment2017)			0.378***
			(0.0506)
(Employment2017)^2			-4.44e-09
			(3.48e-09)
Log(EmpGrowth2015-17)			-0.0239
			(0.0495)
Log(Productivity2017)			-0.256***
			(0.0366)
Constant			(0.301)
Constant	0.565	1.430**	1.101
	(0.349)	(0.561)	(0.675)
Observations	524	486	443
R-squared	0.131	0.272	0.287
Standard errors in parentheses			
*** p<0.01, ** p<0.05, * p<0.1			

G.32 Table G-43 to Table G-45 show the mean employment, turnover and productivity of firms included in the samples used in Table G-40 to Table G-42. Model 1 refers to Model 1 (first column of regression Table G-40 to Table G-42 of the corresponding regression table. There is no restriction on birth and death and this is a subsample of the main sample based on the variables included in the regression.

Table G-43: Average employment of firms included in the OLS sample in Table G-40 to Table G-42

	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 1	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	259	202.9	276	189.5	288	185.9	302	181.9	327	167.3	358	159	383	156.1	383	157	383	197	383	193.4
Treatment	67	263.6	77	221.5	91	191.1	103	166.9	117	153.6	130	148.2	141	138.6	141	130.9	141	138.8	141	142.6
Total	326	215.4	353	196.5	379	187.1	405	178.1	444	163.7	488	156.1	524	151.4	524	150	524	181.3	524	179.7
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 2	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	259	202.9	276	189.5	288	185.9	302	181.9	327	167.3	356	159.9	356	163.2	356	164.3	356	204.6	356	205.6
Treatment	67	263.6	77	221.5	91	191.1	103	166.9	117	153.6	130	148.2	130	150.2	130	141.7	130	150.3	130	154.3
Total	326	215.4	353	196.5	379	187.1	405	178.1	444	163.7	486	156.8	486	159.7	486	158.3	486	190.1	486	191.9
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 3	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	258	203.7	275	190.2	287	186.5	301	182.5	326	167.8	326	174.1	326	176.7	326	178.1	326	222	326	222
Treatment	67	263.6	77	221.5	91	191.1	103	166.9	117	153.6	117	164	117	165.9	117	156.2	117	165.2	117	169.3
Total	325	216.1	352	197	378	187.6	404	178.5	443	164.1	443	171.4	443	173.9	443	172.3	443	207	443	208.1

Table G-44: Average turnover of firms included in the OLS sample in Table G-40 to Table G-42

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Model 1	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	259	27,549.90	276	48,468.70	288	48,820.90	302	69,353.20	327	47,514.60
Treatment	67	34,593.30	77	29,893.20	91	33,075.40	103	28,449.90	117	24,629.40
Total	326	30,549.50	353	36,125.30	379	37,468.70	405	50,257.00	444	38,758.00

	201		201		201		201		201		201		201		201		201		202	
	1		2		3		4		5		6		7		8		9		0	
Total	326	28,997.50	353	44,416.80	379	45,040.30	405	58,950.70	444	41,484.00	488	36,996.60	524	30,637.10	524	35,378.90	524	36,266.00	524	37,193.80
	201		201		201		201		201		201		201		201		201		202	
Model 2	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	259	27,549.90	276	48,468.70	288	48,820.90	302	69,353.20	327	47,514.60	358	43,407.50	358	37,613.90	358	44,108.00	358	44,986.00	358	46,299.80
Treatment	67	34,593.30	77	29,893.20	91	33,075.40	103	28,449.90	117	24,629.40	130	19,342.00	130	19,066.00	130	20,296.60	130	20,905.00	130	21,865.50
Total	326	28,997.50	353	44,416.80	379	45,040.30	405	58,950.70	444	41,484.00	488	36,996.60	488	32,672.80	488	37,764.80	488	38,571.00	488	39,790.70
	201		201		201		201		201		201		201		201		201		202	
Model 3	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	259	27,549.90	276	48,468.70	288	48,820.90	302	69,353.20	327	47,514.60	327	47,477.30	327	41,146.80	327	48,218.20	327	49,127.10	327	50,423.80
Treatment	67	34,593.30	77	29,893.20	91	33,075.40	103	28,449.90	117	24,629.40	117	21,426.80	117	21,125.10	117	22,480.70	117	23,121.40	117	24,163.60
Total	326	28,997.50	353	44,416.80	379	45,040.30	405	58,950.70	444	41,484.00	444	40,612.70	444	35,870.80	444	41,436.00	444	42,274.20	444	43,503.90

Table G-45: Average productivity of firms included in the OLS sample in Table G-40 to Table G-42

	201		201		201		201		201		201		201		201		201		202	
	1		2		3		4		5		6		7		8		9		0	
Model 1	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	255	145.1	272	162.8	285	384	301	4,935.90	326	5,123.60	356	343.5	383	1,417.00	383	2,826.50	383	176.6	383	161.8

	201 1		201 2		201 3		201 4		201 5		201 6		201 7		201 8		201 9		202 0	
Treatment	66	136.5	76	96.9	91	100.5	103	110.3	117	88.6	130	92	141	88.9	141	78.7	141	91.9	141	90.4
Total	321	143.4	348	148.4	376	315.4	404	3,705.60	443	3,793.80	486	276.2	524	1,059.60	524	2,087.10	524	153.8	524	142.6
	201 1		201 2		201 3		201 4		201 5		201 6		201 7		201 8		201 9		202 0	
Model 2	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	255	145.1	272	162.8	285	384	301	4,935.90	326	5,123.60	356	343.5	356	1,517.20	356	3,035.20	356	183.3	356	166.8
Treatment	66	136.5	76	96.9	91	100.5	103	110.3	117	88.6	130	92	130	90.5	130	80.6	130	86.3	130	87.1
Total	321	143.4	348	148.4	376	315.4	404	3,705.60	443	3,793.80	486	276.2	486	1,135.60	486	2,244.90	486	157.3	486	145.5
	201 1		201 2		201 3		201 4		201 5		201 6		201 7		201 8		201 9		202 0	
Model 3	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	255	145.1	272	162.8	285	384	301	4,935.90	326	5,123.60	326	365.6	326	1,627.30	326	3,302.50	326	175	326	167.3
Treatment	66	136.5	76	96.9	91	100.5	103	110.3	117	88.6	117	93.2	117	93.7	117	84.6	117	89.4	117	89.5
Total	321	143.4	348	148.4	376	315.4	404	3,705.60	443	3,793.80	443	293.6	443	1,222.30	443	2,452.60	443	152.4	443	146.8

G.33 Table G-46 to Table G-48 show employment growth, turnover growth and productivity growth (2019-20, 2018-20) where only beneficiaries that received awards between 2011-2018 and a random control group constructed from the BSD using the profile of SBRI beneficiaries are included. Standard errors are shown under coefficients and the data used is the BSD.

Table G-46: Employment Growth OLS regression of firms treated between 2011-2018

	(1)	(2)
VARIABLES	emp1920	emp1820
SBRI Awards	0.0944** (0.0372)	0.242*** (0.0605)
Log(Employment2019)	-0.222*** (0.0218)	
(Employment2019)^2	2.84e-09** (1.39e-09)	
Log(Age)	-0.0154 (0.0596)	-0.000519 (0.125)
(Age)^2	-4.77e-05 (0.000180)	-0.000429 (0.000321)
Log(EmpGrowth2017-19)	0.0258 (0.0226)	
Log(Productivity2019)	0.0116 (0.0123)	
UK Owned Firm	-0.00767 (0.0526)	-0.167* (0.0858)
10-49 employees	0.560*** (0.0508)	1.249*** (0.0709)
50-99 employees	0.840*** (0.0836)	2.060*** (0.111)
100-249 employees	1.112*** (0.0992)	2.601*** (0.131)
250+ employees	1.315*** (0.128)	3.452*** (0.165)
Log(Employment2018)		-0.584*** (0.0283)
(Employment2018)^2		8.95e-09*** (2.57e-09)

	(1)	(2)
Log(EmpGrowth2016-18)		0.0134
		(0.0413)
Log(Productivity2018)		0.0669***
		(0.0194)
Constant	0.162	0.370
	(0.177)	(0.324)
Observations	557	511
R-squared	0.250	0.568
Standard errors in parentheses*** p<0.01, ** p<0.05, * p<0.1		

Table G-47: Turnover Growth OLS regression of firms treated between 2011-2018

VARIABLES	(1)	(2)
	turn1920	turn1820
SBRI Awards	0.0647	0.178
	(0.0880)	(0.117)
Log(Employment2019)	-0.0706	
	(0.0518)	
(Employment2019)^2	1.62e-09	
	(3.14e-09)	
Log(Age)	-0.398***	-0.652***
	(0.139)	(0.232)
(Age)^2	0.000888**	0.00118*
	(0.000425)	(0.000611)
Log(EmpGrowth2017-19)	-0.0930**	
	(0.0386)	
Log(Productivity2019)	-0.0864***	
	(0.0300)	
UK Owned Firm	-0.0812	-0.0978
	(0.124)	(0.165)
10-49 employees	0.290**	0.761***
	(0.120)	(0.137)
50-99 employees	0.476**	1.235***
	(0.198)	(0.213)

	(1)	(2)
100-249 employees	0.506**	1.375***
	(0.235)	(0.251)
250+ employees	0.537*	1.674***
	(0.305)	(0.316)
Log(Employment2018)		-0.272***
		(0.0534)
(Employment2018)^2		4.63e-09
		(4.96e-09)
Log(EmpGrowth2016-18)		-0.232***
		(0.0457)
Log(Productivity2018)		-0.129***
		(0.0412)
Constant	1.137***	2.265***
	(0.407)	(0.606)
Observations	557	513
R-squared	0.094	0.233
Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1		

Table G-48: Productivity Growth OLS regression of firms treated between 2011-2018

	(1)	(2)
VARIABLES	prod1920	prod1820
SBRI Awards	-0.0373	-0.0828
	(0.0743)	(0.101)
Log(Employment2019)	0.135***	
	(0.0436)	
(Employment2019)^2	-5.33e-09*	
	(2.75e-09)	
Log(Age)	-0.288**	-0.432**
	(0.116)	(0.204)
(Age)^2	0.000814**	0.00125**
	(0.000360)	(0.000536)
Log(EmpGrowth2017-19)	-0.180***	

	(1)	(2)
	(0.0345)	
Log(Productivity2019)	-0.0723***	
	(0.0260)	
UK Owned Firm	-0.0378	0.0611
	(0.105)	(0.144)
10-49 employees	-0.282***	-0.452***
	(0.102)	(0.119)
50-99 employees	-0.365**	-0.755***
	(0.168)	(0.184)
100-249 employees	-0.568***	-1.075***
	(0.199)	(0.217)
250+ employees	-0.732***	-1.514***
	(0.257)	(0.270)
Log(Employment2018)		0.258***
		(0.0454)
(Employment2018)^2		-3.42e-09
		(4.30e-09)
Log(EmpGrowth2016-18)		-0.175***
		(0.0475)
Log(Productivity2018)		-0.211***
		(0.0374)
Constant	0.647*	1.620***
	(0.348)	(0.546)
Observations	557	511
R-squared	0.143	0.274
Standard errors in parentheses		
*** p<0.01, ** p<0.05, * p<0.1		

G.34 Table G-49 to Table G-51 show the mean employment, turnover and productivity of firms included in the samples used in Table G-46 to Table G-48. Model 1 refers to Model 1 (first column of regression Table G-46 to Table G-48) of the corresponding regression table. There is no restriction on birth and death and this is a subsample of the main sample based on the variables included in the regression.

Control	259	202.9	276	189.5	288	185.9	302	181.9	327	167.3	356	159.9	356	163.2	356	164.3	356	204.6	356	205.6
Treatment	80	224.7	91	191.5	109	163	124	142	138	133.7	155	127.7	155	129.7	155	123.1	155	130.6	155	133.9
Total	339	208.1	367	190	397	179.6	426	170.3	465	157.3	511	150.1	511	153.1	511	151.8	511	182.2	511	183.8

Table G-50: Average turnover of firms included in the OLS sample in Table G-46 to Table G-48

	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 1	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	259	27,549.90	276	48,468.70	288	48,820.90	302	69,353.20	327	47,514.60	356	43,407.80	356	35,349.40	356	41,403.00	356	42,402.40	356	43,342.90
Treatment	80	29,425.10	91	25,664.00	109	27,982.00	124	23,946.10	138	21,187.40	155	16,578.50	155	14,669.30	155	15,616.50	155	16,142.30	155	17,298.60
Total	339	27,992.50	367	42,814.10	397	43,099.40	426	56,136.10	465	39,701.40	511	35,301.40	511	28,926.70	511	33,393.90	511	34,246.20	511	35,253.80
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 2	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	259	27,549.90	276	48,468.70	288	48,820.90	302	69,353.20	327	47,514.60	356	43,407.80	356	37,613.90	356	44,108.00	356	44,986.00	356	46,299.80

	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Treatment	80	29,425	91	25,664	109	27,982	124	23,946	138	21,187	155	16,578	158	16,339	155	17,395	158	17,968	155	18,762
		.10		.00		.00		.10		.40		.80		.00		.80		.20		.80
Total	339	27,992	367	42,814	397	43,099	426	56,136	465	39,701	513	35,301	513	31,185	513	36,037	513	36,822	513	37,979
		.50		.10		.40		.10		.40		.40		.80		.10		.70		.60

Table G-51: Average productivity of firms included in the OLS sample in Table G-46 to Table G-48

	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 1	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	255	145.1	272	162.8	285	384	301	4,935.90	326	5,123.60	356	343.5	384	1,413.40	384	2,819.20	384	176.2	384	161.4
Treatment	79	128.2	90	92.8	109	96.4	124	108.7	138	98.7	155	100.8	173	87.4	173	75.6	173	85.4	173	84.4
Total	334	141.1	362	145.4	394	304.4	425	3,527.50	464	3,629.10	511	269.9	557	1,001.50	557	1,967.10	557	148	557	137.5
	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
Model 2	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Control	255	145.1	272	162.8	285	384	301	4,935.90	326	5,123.60	356	343.5	356	1,517.20	356	3,035.20	356	183.3	356	166.8
Treatment	79	128.2	90	92.8	109	96.4	124	108.7	138	98.7	155	100.8	155	89.4	155	78.8	155	83.4	155	82.2
Total	334	141.1	362	145.4	394	304.4	425	3,527.50	464	3,629.10	511	269.9	511	1,084.10	511	2,138.50	511	153	511	141.1