Correction to: Measuring the persistence of high firm growth: choices and consequences

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Correction to: Small Bus Econ <https://doi.org/10.1007/s11187-019-00229-7>

Unfortunately, the original version of this article was published online with error.

In equations (1) and (2) the variable ‘epsilon’ has disappeared. The corrected equation is shown below.

$$E(g_{it+\tau} | HGF_{it}, x_{it-3}) = \beta_0 + \beta_1 HGF_{it} + \beta_2 x_{it-3} + \epsilon_{it+\tau} \quad (1)$$

if survival_{it+\tau}

$$E(g_{it+\tau} | HGF_{it}, x_{it-3}) = \beta_0 + \beta_1 HGF_{it} + \beta_2 x_{it-3} + \epsilon_{it+\tau}$$

if exit_{it+\tau}

(2)

The data in Tables 1, 3, 4, 5, 6, 13, 14, 15, 16, 17 and 18 were incorrectly displayed and aligned by the Springer proofreaders/or in the proofread stage of Springer.

The corrected Tables 1, 3, 4, 5, 6, 13, 14, 15, 16, 17 and 18 are shown in the next page.

Further, in the section Introduction, third line, the word ‘fact’ has been replaced with the word ‘view’.

The original article has been corrected.

The online version of the original article can be found at
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Table 1 Findings and methodological choices of previous studies on the persistence of high-growth

Study	Country	Time	Findings ^a	Growth formula			Other choices				
				Repetition high-growth	Future growth	Overall growth	Absolute	Relative	Composite		
									OECD	Other	
Acs (2011)	United States	1998–2006	–	+				x	Employees, sales	4-year	T
Capasso et al. (2013)	Netherlands	1994–2004	–	–			x		Employees	1-year	O/A
Coad (2007)	France	1996–2002	–	–			x		Employees, sales	1-year	O
Coad and Hözl (2009)	Austria	1975–2004	–	–			x		Employees	1-year	T
Daunfeldt and Halvarsson (2015)	Sweden	1997–2008	–	–			x		Employees	3-year	T
Daunfeldt et al. (2014)	Sweden	1997–2010	–				x	x	Employees, sales, productivity, value added	3-year	T
Dillen et al. (2014)	Belgium	2000–2009	–	–				x	Employees, value added	3-year	T
Du and Temouri (2015)	UK	2001–2010		+				x	Sales, productivity	3-year	T
Gabrielsson et al. (2014)	Sweden	2001–2007	–					x	Employees, sales	3-year	O
Hözl (2013)	Austria	1985–2007	–	+		+		x	Employees	3-year	T
Moschella et al. (2018)	China	1998–2007	–				x		Employees, sales	3-year	T
Satterthwaite and Hamilton (2016)	New Zealand	2005–2014	–	+				x	Employees	3-year	T
Senderovitz et al. (2016)	Denmark	2004–2010		+				x	Employees, sales, profits, equity	4-year	T

^a Repetition high-growth: + more than 50%, – less than 50%; Future growth (survivors): + positive, – negative; Overall growth (survivors and exits): + positive, – negative

^b Indicators used for either explanatory (high-growth-firms) and dependent variables (persistence of high-growth)

^c T total, O organic, A acquired

Table 3 Summary statistics of control variables

Control variables	Absolute HGFs		Relative HGFs		OECD HGFs		Total sample	
In mean (S.D.)								
Firm size in levels	114.83	(237.89)	2.71	(6.73)	33.60	(52.91)	11.83	(70.18)
Age	3.24	(2.25)	1.91	(1.50)	2.81	(1.90)	2.49	(1.79)
Industry size	31.62	(59.10)	15.55	(34.70)	19.82	(32.39)	9.52	(22.49)
Industry growth								
Absolute	−6.72	(20.17)			−0.08	(0.05)	−2.37	(7.62)
Relative (percent)			−0.09	(0.05)			−0.09	(0.05)
In share of total								
Firm size in categories ^a								
Micro (< 10)	0.22		0.96		—		0.82	
Small (10–49)	0.31		0.04		0.85		0.14	
Medium (50–250)	0.36		—		0.14		0.03	
Large (>250)	0.11		—		0.01		0.01	
Industry code								
Primary	0.04		0.04		0.04		0.03	
Secondary	0.42		0.29		0.37		0.19	
Tertiary	0.55		0.66		0.60		0.78	
Districts	yes		yes		yes		yes	
Legal form	yes		yes		yes		yes	
Observations	3669		3655		5406		369,294	

Notes. Average values for periods 2001–2004, 2004–2007, and 2007–2010

^a According to Eurostat

Table 4 Transition probabilities from t to $t + 3$, absolute HGFs

	$g_{i,t+3}^{(0)}$ exit	$g_{i,t+3}^{(1)}$ negative growth	$g_{i,t+3}^{(2)}$ zero growth	$g_{i,t+3}^{(3)}$ positive growth	$g_{i,t+3}^{(4)}$ absolute HGF	Total
$g_{i,t}^{(1)}$	0.352	0.310	0.129	0.205	0.005	1.000
$g_{i,t}^{(2)}$	0.452	0.086	0.353	0.109	0.001	1.000
$g_{i,t}^{(3)}$	0.209	0.400	0.063	0.313	0.015	1.000
$g_{i,t}^{(4)}$ = absolute HGF	0.068	0.521	0.002	0.124	0.286	1.000

Table 5 Transition probabilities from t to $t + 3$, relative HGFs

	$g_{i,t+3}^{(0)}$ exit	$g_{i,t+3}^{(1)}$ negative growth	$g_{i,t+3}^{(2)}$ zero growth	$g_{i,t+3}^{(3)}$ positive growth	$g_{i,t+3}^{(4)}$ relative HGF	Total
$g_{i,t}^{(1)}$	0.352	0.310	0.129	0.204	0.005	1.000
$g_{i,t}^{(2)}$	0.452	0.086	0.353	0.106	0.004	1.000
$g_{i,t}^{(3)}$	0.203	0.404	0.062	0.323	0.004	1.000
$g_{i,t}^{(4)} = \text{relative HGF}$	0.271	0.376	0.021	0.325	0.007	1.000

Table 6 Transition probabilities from t to $t + 3$, OECD HGFs

	$g_{i,t+3}^{(0)}$ exit	$g_{i,t+3}^{(1)}$ negative growth	$g_{i,t+3}^{(2)}$ zero growth	$g_{i,t+3}^{(3)}$ positive growth	$g_{i,t+3}^{(4)}$ OECD HGF	Total
$g_{i,t}^{(1)}$	0.352	0.310	0.129	0.204	0.006	1.000
$g_{i,t}^{(2)}$	0.452	0.086	0.353	0.108	0.001	1.000
$g_{i,t}^{(3)}$	0.215	0.399	0.063	0.293	0.029	1.000
$g_{i,t}^{(4)} = \text{OECD HGF}$	0.078	0.464	0.018	0.326	0.115	1.000

Transition probabilities are calculated using frequencies. Growth brackets are defined based on annualized percentage change in employees as follows: $g_{i,t+\tau}^{(0)} = -1$ (exit), $-1 < g_{i,t+\tau}^{(1)} < 0$ (negative growth), $g_{i,t+\tau}^{(2)} = 0$ (zero growth), $g_{i,t+\tau}^{(3)} > 0$ (positive growth), and $g_{i,t+\tau}^{(4)} = \text{HGF}$. The definition of growth brackets based on absolute growth or log-differences does not alter results

Table 13 Transition probabilities from t to $t + 6$, absolute HGFs

	$g_{i,t+3}^{(0)}$ exit	$g_{i,t+3}^{(1)}$ negative growth	$g_{i,t+3}^{(2)}$ zero growth	$g_{i,t+3}^{(3)}$ positive growth	$g_{i,t+3}^{(4)}$ absolute HGF
$g_{i,t}^{(1)}$	0.438	0.298	0.115	0.141	0.008
$g_{i,t}^{(2)}$	0.627	0.116	0.169	0.087	0.002
$g_{i,t}^{(3)}$	0.315	0.396	0.083	0.189	0.018
$g_{i,t}^{(4)} = \text{absolute HGF}$	0.098	0.697	0.010	0.052	0.142

Table 14 Transition probabilities from t to $t + 6$, relative HGFs

	$g_{i,t+3}^{(0)}$ exit	$g_{i,t+3}^{(1)}$ negative growth	$g_{i,t+3}^{(2)}$ zero growth	$g_{i,t+3}^{(3)}$ positive growth	$g_{i,t+3}^{(4)}$ relative HGF
$g_{i,t}^{(1)}$	0.438	0.298	0.115	0.147	0.003
$g_{i,t}^{(2)}$	0.627	0.116	0.169	0.087	0.002
$g_{i,t}^{(3)}$	0.312	0.400	0.082	0.204	0.002
$g_{i,t}^{(4)} = \text{relative HGF}$	0.202	0.540	0.026	0.224	0.008

Table 15 Transition probabilities from t to $t + 6$, OECD HGFs

	$g_{i,t+3}^{(0)}$ exit	$g_{i,t+3}^{(1)}$ negative growth	$g_{i,t+3}^{(2)}$ zero growth	$g_{i,t+3}^{(3)}$ positive growth	$g_{i,t+3}^{(4)}$ OECD HGF
$g_{i,t}^{(1)}$	0.438	0.298	0.115	0.143	0.006
$g_{i,t}^{(2)}$	0.627	0.116	0.169	0.086	0.003
$g_{i,t}^{(3)}$	0.324	0.386	0.082	0.192	0.014
$g_{i,t}^{(4)} = \text{OECD HGF}$	0.127	0.622	0.028	0.199	0.024

Transition probabilities are calculated using frequencies. Growth brackets are defined based on annualized percentage change in employees as follows: $g_{i,t+\tau}^{(0)} = -1$ (exit), $-1 < g_{i,t+\tau}^{(1)} < 0$ (negative growth), $g_{i,t+\tau}^{(2)} = 0$ (zero growth), $g_{i,t+\tau}^{(3)} > 0$ (positive growth), and $g_{i,t+\tau}^{(4)} = \text{HGF}$. The definition of growth brackets based on absolute growth or log-differences does not alter results

Table 16 OLS estimates for growth of surviving firms

	$\tau = 3$			$\tau = 6$		
	Absolute HGFs	Relative HGFs	OECD HGFs	Absolute HGFs	Relative HGFs	OECD HGFs
Dependent variable: $g_{it+\tau}$ if $\text{survival}_{it+\tau}$	(1)	(2)	(3)	(4)	(5)	(6)
Explanatory variable: HGF_{it}	17.077*** (4.624)	-0.069*** (0.010)	0.039*** (0.004)	-52.395*** (8.268)	-0.084*** (0.013)	-0.034*** (0.006)
Control variables						
Firm size dummy (Reference category: 25–49 employees)						
1–4	3.780*** (0.598)	0.106*** (0.003)	0.109*** (0.003)	5.261*** (0.844)	0.078*** (0.006)	0.071*** (0.006)
5–9	3.995*** (0.521)	0.051*** (0.003)	0.054*** (0.003)	4.585*** (0.833)	0.043*** (0.006)	0.038*** (0.006)
10–14	4.101*** (0.467)	0.030*** (0.004)	0.028*** (0.004)	3.791*** (0.824)	0.024*** (0.006)	0.025*** (0.006)
15–19	3.392*** (0.509)	0.022*** (0.004)	0.020*** (0.004)	3.070*** (0.919)	0.008 (0.007)	0.010 (0.007)
20–24	3.087*** (0.576)	0.019*** (0.005)	0.018*** (0.005)	1.747 (1.133)	0.017* (0.009)	0.017*** (0.009)
50–99	-6.346*** (1.006)	-0.020*** (0.005)	-0.020*** (0.005)	-6.229*** (1.496)	-0.016** (0.007)	-0.016** (0.007)
100–249	-16.757*** (1.660)	-0.030*** (0.005)	-0.028*** (0.005)	-14.695*** (2.379)	-0.026*** (0.008)	-0.027*** (0.008)
250–499	-58.492*** (5.299)	-0.060*** (0.009)	-0.056*** (0.009)	-47.508*** (7.745)	-0.041*** (0.015)	-0.042*** (0.015)
500–1000	-158.630*** (16.392)	-0.050*** (0.012)	-0.045*** (0.011)	-127.839*** (17.243)	-0.032* (0.018)	-0.033* (0.018)
Age	-1.710*** (0.097)	-0.014*** (0.001)	-0.014*** (0.001)	no	no	no
Industry size	0.371*** (0.087)	0.000*** (0.000)	0.000*** (0.000)	0.388*** (0.149)	0.000*** (0.000)	0.000*** (0.000)
Industry growth	1.822*** (0.685)	0.427*** (0.017)	0.421*** (0.017)	2.295* (1.289)	0.340*** (0.032)	0.347*** (0.032)
Industry code	yes	yes	yes	yes	yes	yes
District	yes	yes	yes	yes	yes	yes
Legal	yes	yes	yes	yes	yes	yes
Constant	-1.267 (0.815)	-0.060*** (0.004)	-0.064*** (0.004)	0.930 (3.073)	-0.102*** (0.007)	-0.095*** (0.007)
Observations	95,761	95,761	95,761	28,694	28,694	28,694
R ²	0.176	0.061	0.061	0.234	0.052	0.051

Dependent variable: Future growth after high-growth period of surviving firms based on Eq. (1). Growth measure (dependent variable): absolute formula for absolute HGFs = $S_{it+\tau} - S_{it-\tau}$; relative formula for relative and OECD HGFs = $\left(\frac{S_{it+\tau}}{S_{t-1+1+\tau}}\right)^{\frac{1}{3}} - 1$, where S indicates size measured in number of employees. Robust standard errors in parentheses. Coefficients for industry code, district, and legal are available upon request

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 17 OLS estimates for growth of exiting firms

Dependent variable: $g_{it+\tau}$ if $exit_{it+\tau}$	$\tau = 3$ Absolute HGFs (1)	$\tau = 6$ Absolute HGFs (2)
Explanatory variable: HGF_{it}	-187.468*** (13.251)	-41.561* (29.600)
Control variables		
Firm size dummy (Reference category: 25–49 employees)		
1–4	16.729*** (0.689)	8.363*** (0.802)
5–9	13.559*** (0.684)	7.139*** (0.789)
10–14	10.557*** (0.697)	5.490*** (0.839)
15–19	8.326*** (0.788)	4.435*** (0.917)
20–24	5.347*** (0.910)	3.843*** (1.064)
50–99	-15.406*** (1.910)	-4.795 (2.964)
100–249	-41.836*** (4.917)	-29.717*** (5.561)
250–499	-197.855*** (24.533)	-48.961** (19.715)
500–1000	-305.331*** (73.982)	-125.530 (98.184)
Age	-0.037 (0.046)	no
Industry size	0.040 (0.042)	0.036* (0.022)
Industry growth	0.205 (0.177)	0.136** (0.067)
Industry code	yes	yes
District	yes	yes
Legal	yes	yes
Constant	-19.306*** (0.716)	-8.855 (0.925)***
Observations	44,514	19,206
R ²	0.643	0.163

Dependent variable: Growth after high-growth period of exiting firms based on Eq. (2). Growth measure: absolute formula = $S_{it+\tau} - S_{it+\tau-3}$, where S indicates size measured in number of employees. For relative growth, Eq. (2) equals -1 and is not estimated. Robust standard errors in parentheses. Coefficients for industry code, district, and legal are available upon request

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 18 Standard probit estimates for probability of survival

Dependent variable: $\text{survival}_{it+\tau}$	$\tau = 3$			$\tau = 6$		
	Absolute HGFs (1)	Relative HGFs (2)	OECD HGFs (3)	Absolute HGFs (7)	Relative HGFs (8)	OECD HGFs (9)
Explanatory variable						
HGF _{it}	0.084*** (0.016)	0.058*** (0.011)	0.125*** (0.004)	0.136*** (0.026)	0.230*** (0.016)	0.160*** (0.013)
Control variables						
Firm size dummy (Reference category: 25–49 employees)						
1–4	–0.243*** (0.005)	–0.248*** (0.005)	–0.238*** (0.005)	–0.294*** (0.009)	–0.306*** (0.008)	–0.287*** (0.009)
5–9	–0.108*** (0.005)	–0.112*** (0.005)	–0.104*** (0.005)	–0.147*** (0.009)	–0.155*** (0.009)	–0.144*** (0.009)
10–14	–0.063*** (0.006)	–0.066*** (0.006)	–0.070*** (0.006)	–0.100*** (0.011)	–0.104*** (0.010)	–0.111*** (0.011)
15–19	–0.029*** (0.007)	–0.030*** (0.007)	–0.032*** (0.007)	–0.049*** (0.012)	–0.051*** (0.012)	–0.056*** (0.012)
20–24	–0.015* (0.008)	–0.016** (0.008)	–0.017** (0.008)	–0.034** (0.014)	–0.038*** (0.014)	–0.040*** (0.014)
50–99	0.025*** (0.007)	0.026*** (0.007)	0.027*** (0.007)	0.020 (0.012)	0.021* (0.012)	0.023** (0.013)
100–249	0.045*** (0.008)	0.048*** (0.007)	0.051*** (0.008)	0.078*** (0.012)	0.080*** (0.012)	0.085*** (0.012)
250–499	0.055*** (0.013)	0.061*** (0.012)	0.064*** (0.013)	0.071*** (0.023)	0.078*** (0.022)	0.084*** (0.022)
500–1000	0.083*** (0.015)	0.084*** (0.014)	0.088*** (0.014)	0.095*** (0.029)	0.101*** (0.026)	0.107*** (0.027)
Age	–0.063*** (0.001)	–0.063*** 0.001	–0.063*** (0.001)	no	no	no
Industry code	yes	yes	yes	yes	yes	yes
Industry size	0.001*** (0.000)	0.000*** (0.000)	0.000*** (0.001)	0.002*** (0.000)	0.001*** (0.000)	0.001*** (0.000)
Industry growth	0.003*** (0.001)	0.016*** (0.026)	0.0709*** (0.026)	0.004*** (0.001)	0.954*** (0.044)	0.938*** (0.044)
District	yes	yes	yes	yes	yes	yes
Legal	yes	yes	yes	yes	yes	yes
Constant	0.682*** (0.001)	0.682*** (0.001)	0.682*** (0.001)	0.583*** (0.002)	0.583*** (0.002)	0.583*** (0.002)
Observations	140,274	140,274	140,274	49,134	49,134	49,134
Pseudo R ²	0.114	0.118	0.119	0.134	0.146	0.146

Dependent variable: Conditional probability of survival based on Eq. (1). It equals 1 for firms which survive until $t + \tau$, and zero in case of firm exit. Average marginal effects presented. HGF and industry growth measured from $t - 3$ to t , all other variables measured at $t - 3$. Robust standard errors in parentheses. For growth in $t + 6$, the indirect measure of age cannot be included as control, because surviving firms are of identical age. Coefficients for industry code, district, and legal can be made available upon request

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$