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## "Great reversal" or continued expansion?: The evolution of job skills in Britain over the last two decades

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# Skills are important: Changes in the occupational structure within education groups, 1997-2017 (in %pts)

Level of educational attainment	Top earnings	Middle earnings	Bottom earnings
Level 2 (e.g., GCSE)	2.3	-16.2	13.9
Level 3 (e.g., A-Levels)	-3.4	-11.4	14.8
Level 4 and above (e.g.,			
First degree)	-3.6	-6.4	10.0

# **Skills are important**

# Skilled jobs benefit workers and the economy Optimists:

New technologies improve the productivity of skilled workersAs a result, the demand for skills continues to rise

#### **Pessimists:**

- Information and communication technologies have matured and have become less skill biased
- •Demand for cognitive skills will grow slower than in the past

#### Literature

- USA: No growth of cognitive occupations after 2000 with adverse employment effects especially for young people (Beaudry et al 2014 AER, Beaudry et al 2016 J Lab Econ)
- UK: Rising job skill requirements until 2012; at least partly driven by skill-biased technical change (Green et al 2016 J Lab Market Res)
- UK: Stable graduate wage premium through ICTenabled organisational change, despite HE massification (Blundell et al 2016)

# **Dataset: SES Survey Series**

- More than 30,000 interviews across eight surveys
- Spanning three decades from 1986 to 2017
- Delivering key indicators for Britain's workforce around well-being, job quality, participation at work, job security, skills utilisation, training and technology use.
- For this analysis, sample restricted to 20-34 year-olds

# Indicators of Job Skills, Knowledge Requirements and Computerization

### **High level Generic Skills:**

• Literacy, numeracy, complex problem-solving, and interpersonal skills

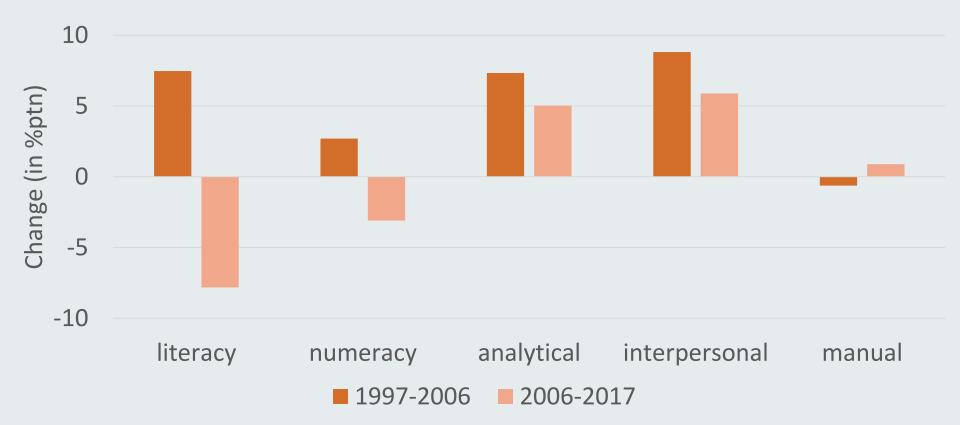
### **Qualification Requirements:**

• Degree, no qualification

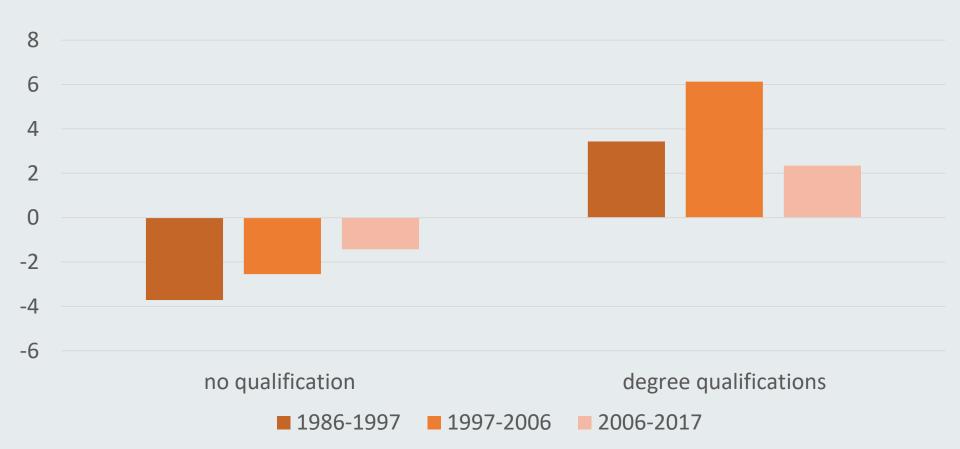
# Occupation rank in pay distribution (QLFS) Computerization:

• Importance and level of computer use on the job

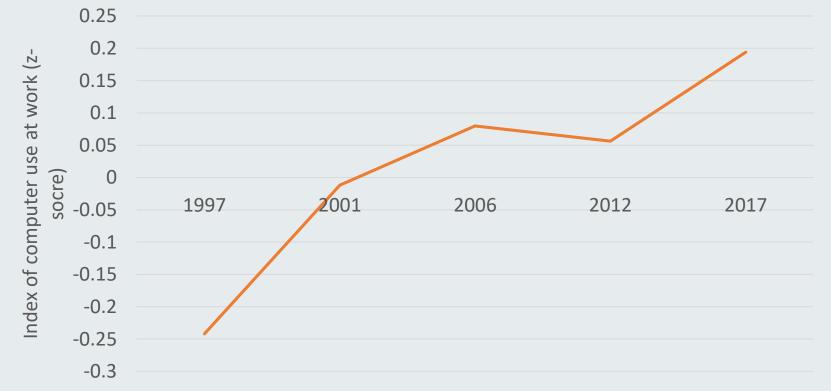
#### High level generic job skills among workers aged 20-34 years



#### **Trends in qualification requirements**



# Trends in computer use in the young workforce



#### **Oaxaca decomposition model**

#### Raw difference: $jbsk_t - jbsk_{t-1} = \Delta b_0$

#### **Adjusted for computerization:**

$$jbsk_t - jbsk_{t-1} = \Delta b \cdot jbict_t + \Delta jbict \cdot b^{t-1}$$

#### **Skills trends and Computerization: 1997-2006**

	Literacy	Numeracy	Analytical	Interpersonal	Manual	Degree		
Raw								
Change in	0.070***	0.024	0.074**	0.085***	-0.004	0.057**		
	(0.019)	(0.017)	(0.023)	(0.024)	(0.016)	(0.021)		
Computerization								
Change in	0.029	-0.010	0.023	0.045*	0.021	0.007		
	(0.019)	(0.016)	(0.022)	(0.023)	(0.015)	(0.018)		
Computerization and Industrial Change								
Change in	0.016	-0.008	0.019	0.024	0.023	-0.016		
	(0.019)	(0.017)	(0.022)	(0.023)	(0.015)	(0.017)		
N	2715	2715	2715	2715	2715	2693		

#### Skills trends and Computerization: 2006-2017

	Literacy	Numeracy	Analytical	Interpersonal	Manual	Degree		
Raw								
Change in	-0.065**	-0.023	0.055*	0.065**	0.011	0.039		
	(0.021)	(0.018)	(0.025)	(0.024)	(0.016)	(0.023)		
Computerization								
Change in	-0.084***	-0.033	0.030	0.028	0.017	0.010		
	(0.020)	(0.017)	(0.024)	(0.024)	(0.016)	(0.020)		
Computerization and Industrial Change								
Change in	-0.075***	-0.037*	0.037	0.024	0.022	0.009		
	(0.018)	(0.016)	(0.022)	(0.023)	(0.016)	(0.018)		
N	2715	2715	2715	2715	2715	2693		

# Conclusion

- 1997-2006 was a period of upskilling
- But initial gains in cognitive skills (numeracy, literacy) reversed over the period 2006-2017, while the use of analytical and interpersonal skills continued to expand
- Computerisation has become less skill biased: a potential sign of maturation
- Growing skills supply appears to have outpaced the skills demand growth. Future trends?