

Unpublished Appendix

Variable Definitions

Variable	Definition	Source
<i>Turnover</i>	Establishment turnover in 2006	CIS5
<i>Intermediate Inputs</i>	Establishment intermediate inputs	ARD
<i>Knowledge sourced from HEIs</i>	Whether HEIs was used as information source for the establishment's innovation activities; or firm co-operated with HEIs at regional, national or international level	CIS5
<i>Employment</i>	Number of employees in the establishment	ARD
<i>Capital</i>	Plant and machinery capital stock for establishment in 2006 (source: Harris and Drinkwater, 2000, updated) (£m 1995 prices)	ARD
<i>Foreign ownership</i>	Whether the establishment was owned by foreign enterprises	ARD
<i>Exporting</i>	Whether the establishment sold goods and services outside the UK (coded 1) or not in 2006	CIS5
<i>Age</i>	Age of establishment in years	ARD
<i>Size of graduates workforce</i>	Proportion of employees educated to degree level or above in the establishment	CIS5
<i>Herfindahl</i>	Herfindahl index of industry concentration (5-digit level)	ARD
<i>Diversification</i>	% of 5-digit industries (from over 650) located in travel-to-work area in which establishment is located	ARD
<i>Single-plant enterprise</i>	Whether the establishment was a single-plant enterprise	ARD
<i>Knowledge sourcing strategies</i>	Whether the establishment used the following strategies in sourcing R&D (coded 1): 1-Not used; 2 "Make only"; 3 "Buy only"; 4 "Co-operate only" 5 "Make and Buy" 6 "Make and Co-operate" 7 "Buy and Co-operate" 8 "Make and buy and co-operate"	CIS5
<i>Industry</i>	Whether the establishment was located in a particular industry SIC (2-digit)	CIS5
<i>GO regions</i>	Whether the establishment was located in a particular GB region	CIS5
<i>Weight</i>	Population weights based on the ratio between population employment and sample employment	CIS5

Weighted probit model of collaborating with HEIs

	All Industries	Production	Non-Production
<i>Ln(Employment)</i>	-0.011 (0.015)	-0.052 (0.032)	0.004 (0.016)
<i>Ln(Capital)</i>	0.023** (0.012)	0.071*** (0.023)	0.001 (0.013)
<i>Foreign Ownership</i>	0.133*** (0.039)	0.302*** (0.067)	0.005 (0.048)
<i>Exporting</i>	0.304*** (0.034)	0.361*** (0.058)	0.259*** (0.042)
<i>Ln(Age)</i>	-0.001 (0.022)	-0.082* (0.046)	0.039 (0.024)
<i>Graduates</i>	0.611*** (0.049)	0.748*** (0.107)	0.574*** (0.054)
<i>Ln(Herfindahl)</i>	-0.028*** (0.009)	-0.029 (0.018)	-0.030*** (0.011)
<i>Ln(Diversification)</i>	0.006 (0.014)	0.016 (0.024)	0.003 (0.018)
<i>Single-plant enterprise</i>	-0.122*** (0.034)	-0.056 (0.058)	-0.143*** (0.041)
<i>Yorkshire/Humberside</i>	-0.091 (0.061)	-0.014 (0.106)	-0.143* (0.074)
<i>Knowledge Sourcing Strategy – Make Only</i>	0.670*** (0.040)	0.632*** (0.066)	0.687*** (0.050)
<i>Knowledge Sourcing Strategy – Buy Only</i>	0.841*** (0.059)	0.727*** (0.121)	0.891*** (0.066)
<i>Knowledge Sourcing Strategy – Co-operate Only</i>	0.673*** (0.118)	0.621** (0.262)	0.667*** (0.132)
<i>Knowledge Sourcing Strategy – Make and Buy</i>	1.046*** (0.041)	1.064*** (0.074)	1.031*** (0.049)
<i>Knowledge Sourcing Strategy – Make and Co-operate</i>	0.970*** (0.097)	0.561*** (0.153)	1.335*** (0.127)
<i>Knowledge Sourcing Strategy – Buy and Co-operate</i>	0.508** (0.202)	0.442 (0.466)	0.526** (0.222)
<i>Knowledge Sourcing Strategy – Make and Buy and Co-operate</i>	1.105*** (0.088)	1.259*** (0.138)	0.953*** (0.113)
<i>North-West</i>	-0.119* (0.063)	-0.138 (0.110)	-0.110 (0.074)
<i>West Midlands</i>	-0.158** (0.063)	-0.210* (0.107)	-0.117 (0.077)
<i>East Midlands</i>	-0.097 (0.063)	-0.175 (0.107)	-0.042 (0.077)
<i>South-West</i>	-0.178*** (0.063)	-0.147 (0.115)	-0.190** (0.075)
<i>South-East</i>	-0.154** (0.063)	-0.206* (0.116)	-0.132* (0.075)
<i>East</i>	-0.255*** (0.063)	-0.333*** (0.112)	-0.219*** (0.076)

<i>London</i>	-0.176** (0.079)	-0.170 (0.158)	-0.175* (0.092)
<i>Scotland</i>	-0.049 (0.062)	-0.042 (0.113)	-0.047 (0.074)
<i>Wales</i>	0.001 (0.064)	0.100 (0.110)	-0.062 (0.079)
<i>SIC11</i>	-0.232 (0.519)	-0.467 (0.533)	
<i>SIC14</i>	0.029 (0.311)	-0.282 (0.344)	
<i>SIC15</i>	0.087 (0.116)	-0.141 (0.166)	
<i>SIC17</i>	0.286* (0.164)	0.061 (0.207)	
<i>SIC18</i>	-0.252 (0.313)	-0.432 (0.339)	
<i>SIC19</i>	-0.187 (0.335)	-0.337 (0.339)	
<i>SIC20</i>	0.269 (0.176)	0.078 (0.212)	
<i>SIC21</i>	-0.168 (0.177)	-0.425* (0.220)	
<i>SIC22</i>	0.039 (0.119)	-0.217 (0.171)	
<i>SIC24</i>	0.501*** (0.134)	0.154 (0.186)	
<i>SIC25</i>	0.060 (0.126)	-0.180 (0.176)	
<i>SIC26</i>	0.195 (0.138)	-0.082 (0.187)	
<i>SIC27</i>	0.310* (0.186)	0.068 (0.224)	
<i>SIC28</i>	0.133 (0.108)	-0.071 (0.161)	
<i>SIC29</i>	0.210* (0.113)	-0.042 (0.163)	
<i>SIC30</i>	0.098 (0.314)	-0.205 (0.349)	
<i>SIC31</i>	0.360** (0.149)	0.093 (0.192)	
<i>SIC32</i>	0.181 (0.203)	-0.135 (0.245)	
<i>SIC33</i>	0.467*** (0.150)	0.246 (0.194)	
<i>SIC34</i>	0.378** (0.167)	0.141 (0.206)	
<i>SIC35</i>	0.272 (0.213)	0.004 (0.239)	
<i>SIC36</i>	0.023 (0.140)	-0.191 (0.184)	

<i>SIC37</i>	0.289 (0.191)	0.015 (0.227)	
<i>SIC40</i>	0.156 (0.543)	-0.131 (0.550)	
<i>SIC41</i>	0.602 (0.679)	0.225 (0.664)	
<i>SIC45</i>	0.137 (0.155)		
<i>SIC51</i>	0.066 (0.092)		0.107 (0.091)
<i>SIC52</i>	0.127 (0.088)		0.145* (0.087)
<i>SIC55</i>	0.198** (0.095)		0.203** (0.094)
<i>SIC60</i>	0.231** (0.098)		0.246** (0.097)
<i>SIC61</i>	-0.670 (0.413)		-0.612 (0.409)
<i>SIC62</i>	-0.630* (0.377)		-0.511 (0.376)
<i>SIC63</i>	-0.036 (0.107)		-0.012 (0.106)
<i>SIC64</i>	0.162 (0.129)		0.239* (0.128)
<i>SIC65</i>	-0.274 (0.290)		-0.266 (0.292)
<i>SIC67</i>	0.380 (0.291)		0.445 (0.295)
<i>SIC70</i>	0.236** (0.105)		0.206** (0.104)
<i>SIC71</i>	0.079 (0.112)		0.124 (0.112)
<i>SIC72</i>	-0.021 (0.110)		0.038 (0.110)
<i>SIC73</i>	0.685*** (0.170)		0.748*** (0.170)
<i>SIC74</i>	0.322*** (0.086)		0.334*** (0.085)
<i>SIC92</i>	-0.171 (0.203)		-0.096 (0.201)
<i>Constant</i>	-1.269*** (0.134)	-0.765*** (0.283)	-1.401*** (0.145)
<i>R-squared</i>	0.169	0.193	0.159
<i>Observations^a</i>	17 353	5131	12 222

Notes: ***/**/* denotes significance at the 10%/5%/1% levels

^a Establishments with plants in more than one region were retained in each region; hence the number of observations exceeds the number of establishments in the CIS database.