Technical Appendix to

UNIVERSAL PRE-SCHOOL EDUCATION: THE CASE OF PUBLIC FUNDING WITH PRIVATE PROVISION

Jo Blanden, Emilia Del Bono, Sandra McNally and Birgitta Rabe

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Appendix C. Supporting Tables

Table C1

Child Outcomes at Ages 5, 7 and 11

|                              | All Mean | Girls Mean | Boys Mean | FSM Mean | Not FSM Mean |
|------------------------------|----------|------------|----------|----------|--------------|
|                              | (1)      | (2)        | (3)      | (4)      | (5)          |
| **Raw Foundation Stage Profile (FSP) point scores (age 5)** |          |            |          |          |              |
| FSP total                    | 87.48    | 90.17      | 84.84    | 78.44    | 89.36        |
|                              | (18.58)  | (17.46)    | (19.32)  | (20.13)  | (17.71)      |
| Literacy                     | 25.22    | 26.35      | 24.13    | 21.77    | 25.95        |
|                              | (7.02)   | (6.65)     | (7.21)   | (7.31)   | (6.74)       |
| Numeracy                     | 20.42    | 20.72      | 20.11    | 18.18    | 20.89        |
|                              | (4.77)   | (4.50)     | (5.01)   | (5.37)   | (4.50)       |
| Social Development           | 21.09    | 21.80      | 20.40    | 19.42    | 21.44        |
|                              | (4.33)   | (3.99)     | (4.54)   | (4.68)   | (4.18)       |
| **Raw Key Stage 2 point scores (age 7)** |          |            |          |          |              |
| Reading                      | 15.78    | 16.08      | 14.99    | 13.57    | 16.00        |
|                              | (3.86)   | (3.95)     | (4.27)   | (4.35)   | (3.91)       |
| Writing                      | 14.72    | 15.14      | 13.82    | 12.70    | 14.87        |
|                              | (3.59)   | (3.67)     | (4.01)   | (4.26)   | (3.63)       |
| Mathematics                  | 15.87    | 15.60      | 15.70    | 14.21    | 15.98        |
|                              | (3.24)   | (3.28)     | (3.76)   | (3.68)   | (3.39)       |
| **Raw Key Stage 2 point scores (age 11)** |          |            |          |          |              |
| Reading                      | 30.99    | 32.03      | 29.98    | 27.06    | 31.80        |
|                              | (9.29)   | (9.07)     | (9.40)   | (9.44)   | (9.05)       |
| Mathematics                  | 68.94    | 67.67      | 70.19    | 60.81    | 70.61        |
|                              | (20.44)  | (20.37)    | (20.42)  | (21.13)  | (19.88)      |

Notes. National Pupil Database. Weights applied for age 5 outcomes. FSM is eligibility for free school meals. Literacy refers to the learning area ‘communication, language and literacy’; Numeracy is ‘problem solving, reasoning and numeracy’; Social Development stands for ‘personal, social and emotional development’. Standard deviations in parentheses.
### Table C2

**Individual and LEA-level Characteristics**

| Characteristics                                      | Mean (1) | SD (2) |
|------------------------------------------------------|----------|--------|
| Female                                               | 0.489    |        |
| Eligible for free school meals                       | 0.176    |        |
| No. of months older than August-born                  | 5.479    | 3.483  |
| English additional language                           | 0.144    |        |
| White                                                | 0.798    |        |
| Indian                                               | 0.024    |        |
| Chinese                                              | 0.003    |        |
| Black                                                | 0.047    |        |
| Pakistani/Bangladeshi                                | 0.054    |        |
| Mixed ethnicity                                      | 0.040    |        |
| Other ethnicity                                       | 0.033    |        |
| IDACI deprivation score                              | 0.229    | 0.186  |

**LEA-level characteristics, population weighted**

| Characteristics                                      | Mean (1) | SD (2) |
|------------------------------------------------------|----------|--------|
| Prop. three-year olds with free place                | 80.12    | 13.56  |
| Other early years expenditure (£/child aged 0–4), moving average | 186.1    | 136.0  |
| Mean gross hourly pay (£)                            | 12.03    | 1.920  |
| % qualified at NVQ4 level or higher (16–64)          | 25.19    | 6.584  |
| % qualified at NVQ3 level or higher (16–64)          | 44.95    | 6.523  |
| Employment rate (16–64), women                       | 67.98    | 6.448  |
| Low birth weight rate                                | 7.476    | 1.188  |
| Conservative                                         | 0.382    |        |
| Labour                                               | 0.295    |        |
| Liberal democrats                                    | 0.055    |        |

Notes. National Pupil Database; Department for Education; Office for National Statistics; NOMIS workplace analysis and the Election Centre, Plymouth University. IDACI is Income Deprivation Affecting Children Index; deprivation is controlled for in the estimates using deciles.

### Table C3

**Effect of Availability of Free Childcare Places on Total FSP Score, Full Results**

| Characteristics                                      | Coefficient (1) | SE (2) |
|------------------------------------------------------|------------------|--------|
| Prop. three-year olds with free place/10             | 0.018***         | 0.009  |
| Eligible for free school meals                       | −0.410***        | 0.009  |
| Female                                               | 0.285***         | 0.004  |
| No. of months older than August-born                  | 0.071***         | 0.001  |
| English additional language                           | −0.284***        | 0.011  |
| White                                                | 1.314***         | 0.025  |
| Indian                                               | 1.424***         | 0.027  |
| Chinese                                              | 1.464***         | 0.040  |
| Black                                                | 1.273***         | 0.028  |
| Pakistani/Bangladeshi                                | 1.148***         | 0.032  |
| Mixed ethnicity                                      | 1.382***         | 0.025  |
| Other ethnicity                                       | 1.285***         | 0.028  |
| IDACI deprivation decile 2                           | −0.065***        | 0.008  |
| IDACI deprivation decile 3                           | −0.114***        | 0.008  |
| IDACI deprivation decile 4                           | −0.169***        | 0.008  |
| IDACI deprivation decile 5                           | −0.242***        | 0.010  |
| IDACI deprivation decile 6                           | −0.314***        | 0.010  |
| IDACI deprivation decile 7                           | −0.387***        | 0.011  |

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### Table C3 (Continued)

|                                | Coefficient (1) | SE (2) |
|--------------------------------|-----------------|--------|
| IDACI deprivation decile 8     | −0.452***       | 0.011  |
| IDACI deprivation decile 9     | −0.501***       | 0.012  |
| IDACI deprivation decile (deprived) | −0.546***     | 0.012  |
| Mean gross hourly pay (£)      | −0.002          | 0.008  |
| % qualified at NVQ4 level or higher (16–64) | 0.005*        | 0.003  |
| % qualified at NVQ3 level or higher (16–64) | −0.003       | 0.003  |
| Employment rate (16–64), women | −0.006***       | 0.002  |
| Conservative                   | 0.014           | 0.021  |
| Labour                         | −0.020          | 0.042  |
| Liberal Democrat               | −0.005          | 0.027  |
| Other early years expenditure (2013 £ per child aged 0–4), moving average | −0.001***     | 0.000  |

*Notes.* National Pupil Database. Results are from a linear regression, also controlling for cohort and LEA dummies, 2002 levels of free places interacted with cohort dummies. Weights are applied for age 5 outcomes. Standard errors clustered at LEA level. *p < 0.10, **p < 0.05, ***p < 0.01.

### Table C4

**Characteristics of Complier and Crowd-out LEAs**

|                                | Complier LEAs (1) | Crowd-out LEAs (2) | Difference (1)−(2) (p-value) (3) |
|--------------------------------|-------------------|--------------------|----------------------------------|
| **Mean student characteristics (population weighted), 2002 cohort** |                    |                    |                                  |
| Eligible for free school meals | 0.198             | 0.166              | 0.032*** (0.00)                  |
| No. of months older than August-born | 5.468            | 5.459              | 0.009 (0.35)                     |
| English additional language    | 0.122             | 0.121              | 0.001 (0.25)                     |
| White British                  | 0.817             | 0.816              | 0.001 (0.70)                     |
| Indian                         | 0.023             | 0.022              | 0.001*** (0.00)                  |
| Chinese                        | 0.003             | 0.003              | 0.000 (0.41)                     |
| Black                          | 0.051             | 0.035              | 0.016*** (0.00)                  |
| Pakistani/Bangladeshi          | 0.039             | 0.053              | −0.015*** (0.00)                 |
| Mixed ethnicity                | 0.035             | 0.035              | 0.000 (0.47)                     |
| Other ethnicity                | 0.033             | 0.036              | −0.003*** (0.00)                 |
| Female                         | 0.489             | 0.488              | 0.001 (0.29)                     |

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### Table C4
(Continued)

| IDACI deprivation decile (affluent) | Complier LEAs | Crowd-out LEAs | Difference (1)–(2) (p-value) |
|------------------------------------|---------------|----------------|-----------------------------|
| (1) | (2) | (3) | |
| 0.083 | 0.114 | −0.031*** | (0.00) |
| 0.089 | 0.108 | −0.019*** | (0.00) |
| 0.089 | 0.109 | −0.020*** | (0.00) |
| 0.090 | 0.108 | −0.018*** | (0.00) |
| 0.096 | 0.103 | −0.007*** | (0.00) |
| 0.101 | 0.099 | 0.002** | (0.01) |
| 0.107 | 0.094 | 0.013*** | (0.00) |
| 0.116 | 0.087 | 0.029*** | (0.00) |
| 0.116 | 0.087 | 0.039*** | (0.00) |
| 0.111 | 0.091 | 0.020*** | (0.00) |

*LEA characteristics (population weighted), 2002*

- Other early years exp. (£/child aged 0–4), mov. av. 74.78
- Free places (%) 75.88
- Mean gross hourly pay (£) 11.49
- % qualified at NVQ4 level or higher (16–64) 22.64
- % qualified at NVQ3 level or higher (16–64) 41.46
- Employment rate (16–64), women 68.15
- Low birth weight rate 7.72
- Conservative 0.173
- Labour 0.523
- Liberal democrats 0.0252

| Notes. National Pupil Database; Department for Education; Office for National Statistics; NOMIS workplace analysis and the Election Centre, Plymouth University. IDACI is Income Deprivation Affecting Children Index. For definitions of complier and crowd-out LEAs see notes to Table 7. *p < 0.10, **p < 0.05, ***p < 0.01. |