2nd February 2017

**Replication of Youth Studies paper using data from YCS cohort 5 – 11**

Table 1. Agglomerate measures of GCSE attainment: YCS Cohort 5-11.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Summary Measures | **1990** | **1992** | **1993** | **1995** | **1997** | **1999** | **2001** | **Total** |
| 0 A\*-C passes | 19% | 18% | 18% | 17% | 16% | 15% | 14% | **17%** |
| 1-4 A\*-C passes | 38% | 36% | 32% | 29% | 27% | 26% | 27% | **31%** |
| 5+ A\*-C passes | 43% | 46% | 51% | 54% | 57% | 59% | 59% | **52%** |
|  |  |  |  |  |  |  |  |  |
| 0 A\*-C inc E & M | 60% | 56% | 54% | 54% | 52% | 49% | 48% | **53%** |
| 1-4 A\*-C inc E & M | 5% | 5% | 4% | 2% | 2% | 2% | 3% | **3%** |
| 5+ A\*-C inc E & M | 36% | 39% | 43% | 44% | 46% | 48% | 50% | **43%** |
|  |  |  |  |  |  |  |  |  |
| Mean GCSE points score | 34.9 | 37.2 | 39.1 | 42.8 | 42.9 | 45 | 41.7 | **40.2** |
|  |  |  |  |  |  |  |  |  |
| Mean number of GCSEs studied | 8.5 | 8.1 | 8.1 | 8.6 | 8.4 | 8.7 | 8.6 | **8.4** |
| Mean number of A\*–C passes | 4.1 | 4.3 | 4.7 | 5.1 | 5.3 | 5.6 | 5.3 | **4.9** |
| Mean number of A\*–F passes | 7.5 | 7.9 | 8.2 | 8.9 | 8.8 | 9.2 | 8.4 | **8.4** |

n = 67,937; weighted data

Table 2.Year 11 School GCSE Subject Areas, YCS Cohort 6.

|  |  |  |
| --- | --- | --- |
| **Subject Groups** | **GCSEs** | **Number of pupils gaining**  **A\*-C award** |
| English | English | **51,668** |
| Maths | Mathematics | **40,416** |
| Science | Biology; Physics; Chemistry; Double Science; Other Science | **41,577** |
| Humanity | History; Geography; Other Humanity; Religious Education | **44,277** |
| Other Subject | French; CDT; Other Language; Arts; Physical Education; Other GCSEs | **52,112** |
| **TOTAL** |  | **67,937** |

**Note:** The 17 most frequently undertaken GCSEs; Unweighted data.

Table 3.Year 11 School GCSE Attainment: Tetrachoric Correlations.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **English** | **Mathematics** | **Science** | **Humanity** | **Other subject** |
| **English** | 1.00 |  |  |  |  |
| **Mathematics** | 0.97 | 1.00 |  |  |  |
| **Science** | 0.97 | 0.94 | 1.00 |  |  |
| **Humanity** | 0.98 | 0.93 | 0.94 | 1.00 |  |
| **Other subject** | 0.99 | 0.95 | 0.96 | 0.97 | 1.00 |

n=67,937; Unweighted data, YCS Cohorts 5-11.

Table 4. Latent Educational Group Models (Goodness of Fit Statistics)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Model** | **χ2** | **Deviance** | **DF** | **Entropy R-squared** | **AIC** | **BIC** | **Adj. BIC** |
| **2 Group** | 5784.3 | 333101.5 | 20 | 0.83 | 5806.3 | 5906.7 | 5871.8 |
| **3 Group** | 1080.6 | 328397.8 | 14 | 0.71 | 1114.6 | 1269.8 | 1215.7 |
| **4 Group** | 19.8 | 327337 | 8 | 0.7 | 65.8 | 275.7 | 202.6 |
| **5 Group** | 3.8 | 327321 | 2 | 0.69 | 61.8 | 326.5 | 234.3 |

n=67,937; Unweighted data, YCS Cohorts 5-11.

Table 5. Latent Group Model Results (Four Group Model)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Latent group** | **1. Poor Grades** | **2. Science** | **3. Non-Science** | **4. Good Grades** |
| *Prior Probabilities* | *19%* | *8%* | *21%* | *52%* |
|  |  |  |  |  |
| *(Posterior Probabilities)*  *Percentage*  *Assigned to Group* | *20%* | *4%* | *19%* | *57%* |
| *(Prior Probabilities)* |  |  |  |  |
| English A\*-C | 18% | 49% | 85% | 99% |
| English D-G | 82% | 51% | 15% | 1% |
|  |  |  |  |  |
| Maths A\*-C | 4% | 60% | 26% | 93% |
| Maths D-G | 96% | 40% | 74% | 7% |
|  |  |  |  |  |
| Science A\*-C | 5% | 79% | 23% | 95% |
| Science D-G | 95% | 21% | 77% | 5% |
|  |  |  |  |  |
| Humanity A\*-C | 7% | 43% | 54% | 95% |
| Humanity D-G | 93% | 57% | 46% | 5% |
|  |  |  |  |  |
| Other A\*-C | 30% | 64% | 78% | 96% |
| Other D-G | 70% | 36% | 22% | 4% |
|  |  |  |  |  |
| *n (based on posterior)* | *13,595* | *2,934* | *12,602* | *38,806* |

School GCSE Attainment – Posterior Probabilities and Prior Probabilities (percentages), YCS Cohorts 5-11.

All pupils gaining a GCSE pass at grades A\*-G; n=67,937;

Probabilities reported as percentages.

Table 6. Agglomerate Measures of School GCSE Attainment by Latent Group

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Latent group** | **1. Poor Grades** | **2. Science** | **3. Non-Science** | **4. Good Grades** | **All** |
| Mean Number of A\*-C Passes | 0.5 | 3.5 | 3.6 | 8.1 | 4.9 |
| Mean Number of A\*-F Passes | 7.1 | 8.2 | 8.4 | 9.1 | 8.4 |
|  |  |  |  |  |  |
| Mean GCSE Points Score (A) | 24.2 | 35.1 | 36.3 | 51.7 | 40.2 |
| Mean Number of GCSEs Studied (B) | 7.9 | 8.1 | 8.4 | 8.7 | 8.4 |
| Mean Points Score per GCSE Studied (A/B) | 3.1 | 4.3 | 4.3 | 5.9 | 4.8 |
| Grade of Mean Points Score per GCSE Studied | E | D | D | B | C |

All pupils gaining a GCSE pass at grades A\*-G, n=67,937, weighted data, YCS Cohort 6.

Table 7. Benchmark School GCSE Attainment by Latent Group (Column Percentages)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Latent group** | **1. Poor Grades** | **2. Science** | **3. Non-Science** | **4. Good Grades** | **All** |
|  |  |  |  |  |  |
| GCSE English (Grade A\*-C) | 12% | 14% | 87% | 98% | 68% |
| GCSE Maths (Grades A\*-C) | 2% | 57% | 21% | 92% | 52% |
| Both GCSE English and Maths (Grades A\*-C) | 0% | 14% | 15% | 90% | 47% |
|  |  |  |  |  |  |
| 5+ A-C Passes (any subject) | 0% | 17% | 23% | 98% | 52% |
| 5+ A-C Passes (including English & Maths) | 0% | 4% | 4% | 88% | 43% |

All pupils gaining a GCSE pass at grades A\*-G, n=67,937, weighted data.

Table 8. Characteristics of the Latent Educational Groups (Row Percentages)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Latent Group** | **1. Poor Grades** | **2. Science** | **3. Non-Science** | **4. Good Grades** |
| **Year** |  |  |  |  |
| 1990 | 32% | 6% | 21% | 41% |
| 1992 | 31% | 5% | 21% | 43% |
| 1993 | 29% | 5% | 20% | 47% |
| 1995 | 29% | 4% | 18% | 48% |
| 1997 | 26% | 4% | 18% | 52% |
| 1999 | 25% | 4% | 18% | 53% |
| 2001 | 23% | 4% | 18% | 55% |
| **Gender** |  |  |  |  |
| Boys | 33% | 7% | 15% | 45% |
| Girls | 24% | 2% | 23% | 51% |
| **Ethnicity** |  |  |  |  |
| White | 28% | 5% | 19% | 48% |
| Black | 31% | 4% | 28% | 37% |
| Indian | 25% | 5% | 19% | 51% |
| Pakistani | 37% | 4% | 24% | 35% |
| Bangladeshi | 32% | 5% | 26% | 37% |
| Other Asian | 18% | 5% | 15% | 63% |
| Other Ethnicity | 24% | 4% | 23% | 49% |
| **Housing** |  |  |  |  |
| Owned | 25% | 5% | 19% | 52% |
| Rented | 47% | 5% | 23% | 26% |
| Other Housing | 30% | 7% | 20% | 43% |
| **Household Type** |  |  |  |  |
| Lives with both parents | 27% | 5% | 19% | 49% |
| Only lives with Mother | 32% | 5% | 21% | 43% |
| Only lives with Father | 36% | 6% | 21% | 37% |
| Other Household | 40% | 4% | 24% | 32% |
| **Parental Occupation NS-SEC** |  |  |  |  |
| 1.1 Large employers and higher managerial | 17% | 4% | 17% | 63% |
| 1.2 Higher professional | 11% | 4% | 13% | 73% |
| 2 Lower managerial and professional | 20% | 4% | 18% | 58% |
| 3 Intermediate | 27% | 5% | 21% | 48% |
| 4 Small employers and own account | 32% | 6% | 21% | 41% |
| 5 Lower supervisory and technical | 39% | 5% | 21% | 35% |
| 6 Semi-routine | 43% | 5% | 22% | 30% |
| 7 Routine | 49% | 5% | 21% | 26% |
| **All** | **28%** | **5%** | **19%** | **48%** |
| n | 19141 | 3163 | 12970 | 32663 |

All pupils gaining a GCSE pass at grades A-G, n=67,937, weighted data, YCS Cohorts 5-11.

Table 9. Multinomial Logistic Regression Model Results – Latent Educational Group Membership

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **‘Good Grades’** | **‘Poor Grades’** | | | **‘Science’** | | | **‘Non-Science’** | | |
|  | **Coefficient** | **Coefficient** | **SE** |  | **Coefficient** | **SE** |  | **Coefficient** | **SE** |  |
| **Year completed compulsory schooling** |  |  |  |  |  |  |  |  |  |  |
| 1990 | 0.00 | 0.00 | 0.00 |  | 0.00 | 0.00 |  | 0.00 | 0.00 |  |
| 1992 | 0.00 | -0.07 | 0.04 | \* | -0.16 | 0.07 | \*\* | -0.03 | 0.04 |  |
| 1993 | 0.00 | -0.25 | 0.04 | \*\*\* | -0.33 | 0.08 | \*\*\* | -0.18 | 0.04 | \*\*\* |
| 1995 | 0.00 | -0.32 | 0.04 | \*\*\* | -0.43 | 0.08 | \*\*\* | -0.30 | 0.04 | \*\*\* |
| 1997 | 0.00 | -0.48 | 0.04 | \*\*\* | -0.56 | 0.08 | \*\*\* | -0.42 | 0.04 | \*\*\* |
| 1999 | 0.00 | -0.55 | 0.05 | \*\*\* | -0.55 | 0.09 | \*\*\* | -0.44 | 0.05 | \*\*\* |
| 2001 | 0.00 | -0.74 | 0.05 | \*\*\* | -0.69 | 0.08 | \*\*\* | -0.50 | 0.04 | \*\*\* |
| **Gender** |  |  |  |  |  |  |  |  |  |  |
| Male | 0.00 | 0.54 | 0.02 | \*\*\* | 1.46 | 0.05 | \*\*\* | -0.23 | 0.02 | \*\*\* |
| Female | 0.00 | 0.00 | 0.00 |  | 0.00 | 0.00 |  | 0.00 | 0.00 |  |
| **Ethnicity** |  |  |  |  |  |  |  |  |  |  |
| White | 0.00 | 0.00 | 0.00 |  | 0.00 | 0.00 |  | 0.00 | 0.00 |  |
| Black | 0.00 | 0.21 | 0.11 | \*\* | -0.07 | 0.22 |  | 0.57 | 0.09 | \*\*\* |
| Indian | 0.00 | -0.35 | 0.08 | \*\*\* | -0.14 | 0.14 |  | -0.16 | 0.07 | \*\* |
| Pakistani | 0.00 | 0.25 | 0.10 | \*\* | -0.02 | 0.19 |  | 0.36 | 0.10 | \*\*\* |
| Bangladeshi | 0.00 | -0.32 | 0.20 |  | -0.19 | 0.32 |  | 0.18 | 0.18 |  |
| Other Asian | 0.00 | -0.98 | 0.14 | \*\*\* | -0.51 | 0.24 | \*\* | -0.62 | 0.13 | \*\*\* |
| Other Ethnicity | 0.00 | -0.10 | 0.14 |  | -0.13 | 0.23 |  | 0.24 | 0.11 | \*\* |
| **Housing** |  |  |  |  |  |  |  |  |  |  |
| Owned | 0.00 | 0.00 | 0.00 |  | 0.00 | 0.00 |  | 0.00 | 0.00 |  |
| Rented | 0.00 | 0.94 | 0.03 | \*\*\* | 0.55 | 0.07 | \*\*\* | 0.60 | 0.04 | \*\*\* |
| Other Housing | 0.00 | 0.27 | 0.10 | \*\*\* | 0.63 | 0.16 | \*\*\* | 0.19 | 0.10 | \* |
| **Household Type** |  |  |  |  |  |  |  |  |  |  |
| Lives with both parents | 0.00 | 0.00 | 0.00 |  | 0.00 | 0.00 |  | 0.00 | 0.00 |  |
| Only lives with Mother | 0.00 | 0.03 | 0.04 |  | 0.09 | 0.07 |  | 0.08 | 0.04 | \*\* |
| Only lives with Father | 0.00 | 0.48 | 0.07 | \*\*\* | 0.46 | 0.12 | \*\*\* | 0.39 | 0.07 | \*\*\* |
| Other Household | 0.00 | 0.53 | 0.10 | \*\*\* | 0.19 | 0.20 |  | 0.44 | 0.10 | \*\*\* |
| **Parental Occupation NS-SEC** |  |  |  |  |  |  |  | 0.44 | 0.06 | \*\*\* |
| 1.1 Large employers and higher managerial | 0.00 | 0.56 | 0.07 | \*\*\* | 0.15 | 0.12 |  |  |  |  |
| 1.2 Higher professional | 0.00 | 0.00 | 0.00 |  | 0.00 | 0.00 |  | 0.00 | 0.00 |  |
| 2 Lower managerial and professional | 0.00 | 0.78 | 0.06 | \*\*\* | 0.34 | 0.09 | \*\*\* | 0.52 | 0.05 | \*\*\* |
| 3 Intermediate | 0.00 | 1.24 | 0.06 | \*\*\* | 0.70 | 0.09 | \*\*\* | 0.86 | 0.05 | \*\*\* |
| 4 Small employers and own account | 0.00 | 1.58 | 0.06 | \*\*\* | 1.06 | 0.09 | \*\*\* | 1.01 | 0.05 | \*\*\* |
| 5 Lower supervisory and technical | 0.00 | 1.89 | 0.07 | \*\*\* | 1.11 | 0.11 | \*\*\* | 1.17 | 0.06 | \*\*\* |
| 6 Semi-routine | 0.00 | 2.10 | 0.06 | \*\*\* | 1.24 | 0.09 | \*\*\* | 1.34 | 0.05 | \*\*\* |
| 7 Routine | 0.00 | 2.28 | 0.07 | \*\*\* | 1.31 | 0.11 | \*\*\* | 1.37 | 0.06 | \*\*\* |
| Constant | 0.00 | -1.91 | 0.06 | \*\*\* | -3.61 | 0.10 | \*\*\* | -1.45 | 0.05 | \*\*\* |
| **Observations** | 67937 |  |  |  |  | | |  | | |
| **AIC** | 136984.4 |  |  |  | Log Likelihood | | | -68414.2 | | |
| **BIC** | 137696.2 |  |  |  | Pseudo R Squared | | | 0.067 | | |
| Survey weighted data with linearized standard errors; \* p<.10, \*\* p<.05, \*\*\* p<.01 . |  | Log Likelihood is estimated for unweighted data. Pseudo R Squared reported for weighted data. | | | | | | | | |