

# **Post 16 educational choices and institutional value added at Key Stage 5**

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# Research questions

- Who stays on in FTE? Who enrolls in FE? Does pattern of provision influence staying on?
- Do FE colleges contribute more/less to the gain in pupil attainment at Key Stage 5 than school based provision?
  - How effective are different types of post 16 provision - accounting for sorting?
- Do post 16 institutions influence HE participation?

# Question 1

- What factors determine staying on and choice of institution at age 16?
- Sequential model
  - Decision to stay on
  - Decision about which institution

# Models I

$$FTE_{ijt} = \alpha_0 + \beta_k \sum_k X_{ijt}^k + \gamma_k \sum_k S_{jt}^k + \lambda_k \sum_k L_i^k + \varepsilon_{ijt}$$

$$FE_{ijt} = \alpha_0 + \beta_k \sum_k X_{ijt}^k + \gamma_k \sum_k S_{jt}^k + \lambda_k \sum_k L_i^k + \varepsilon_{ijt}$$

# Question 2

- Does pupils' value added at KS4 to KS5 vary by type of institution ?
  - FE college, 6<sup>th</sup> form college, school
- Selection and common support issues
  - Focus on GCSE to A level
  - Value added regression allowing for observables
  - Matching model

# Models II

$$KS5_{ikl} = \alpha_0 + \vartheta KS4_{ikl} + \beta INSTTYPE_{kl} + \delta_k \sum_k X_{ikl}^k + \gamma_k \sum_k S_{16l}^k + \lambda_l + \varepsilon_{ikl}$$

# Question 3

- What are the longer run differences in outcomes for those who take the FE route as compared to those who take the school based route?
  - HE participation
  - High status HE participation (defined as Russell Group or institution of equivalent research quality)

# Models III

$$HE_{is} = \alpha + \beta_1 FE_i + \beta_2 X_i + \beta_3 PA_i + \varepsilon_{is} \quad ($$



# Data

- *Longitudinal Study of Young People in England*
- 15,000 young people in England who were aged 13 and 14 in 2003/2004
- Last information available year 11
  - Pupils' personal characteristics
  - Attitudes
  - Behaviours
  - Expectations and aspirations
  - Family background
  - Parents' characteristics and aspirations.

# Data matching

- LSYPE data matched to:
  - *National Pupil Database (NPD)* – gives us attainment data including KS5
  - *Pupil Level Annual School Census (PLASC)* – pupil characteristics
  - *LEASIS* - school level characteristics.

# Measures

- Prior attainment
  - GCSE capped average point score (pupil's eight highest grades) – standardized
  - Dummy variable if achieved 5 A\*-C GCSEs
- KS5 attainment
  - Average A level point score (restricted to those taking A levels)

# Pupil characteristics

- SES
  - FSM
  - Parental occupation
  - Parental education
- Attitudes to school
- Parental aspirations

# School characteristics (age 16 school)

- School has sixth form
- Single-sex school
- Type of school
- School level outcomes
  - % 5 A\*-C GCSE
- Resource inputs
  - pupil-teacher ratio; school size
- Peer group effect
  - % FSM

# LA characteristics

- Unemployment/ local deprivation
- Peer effects (e.g. % staying on)
- Pattern of provision
  - *based on data from the previous cohort*
  - proportion of those who are in full time education post 16 who are enrolled in FE
  - percentage of the total number of secondary schools that have a sixth form

# HE analysis

- Linked administrative data NPD/PLASC/IIR/HESA
- Students in England who sat Key Stage 4 tests in 2001–02
- Not as rich as LSYPE
  - measure of SES based on entitlement to free school meals (recorded at age 16) and neighbourhood
- Complete measures of prior attainment from key stage 2 through to key stage 5

# Descriptive statistics

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	Freq.	Percent	Cum.
FT education	8087	71.87	71.87
full time paid work	968	8.6	80.47
part college part employer	207	1.84	82.31
Apprenticeship	641	5.7	88.01
something else	1350	11.99	100
Total	11,252	100	

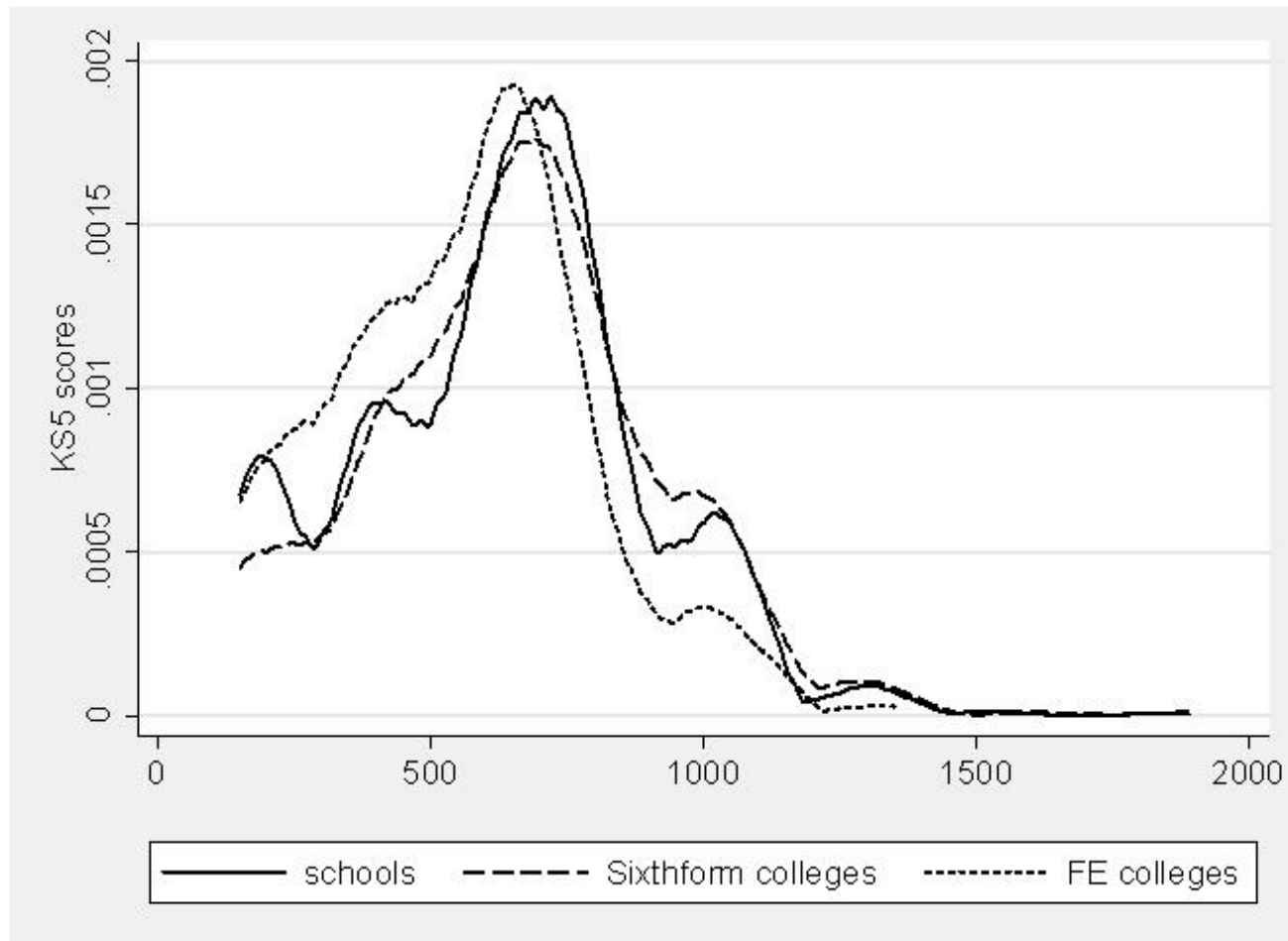
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# Descriptive statistics

<b>post16ed uc</b>	<b>Freq.</b>	<b>Pe rce nt</b>	<b>Cum .</b>
Sch ools	4337	50.12	50.12
Sixth Form College	1156	13.36	63.48
General FE/Tertiary College	2589	29.92	93.41
Other	571	6.59	100
T otal	8,653	100	

# Outcomes by institution



# Question 1

- Who stays on?
  - Higher achieving, socially advantaged students
  - Pattern of provision (FE, 6<sup>th</sup> form, school) does not influence staying on

# Question 1

- Who enrolls in school based provision?
  - More advantaged/ high achieving pupils
  - Pupils in a school with a 6<sup>th</sup> form
  - Pupils in the most advantaged schools
  - Pupils in a single sex school
  - Pupils in a school with a lower pupil teacher ratio
- Comprehensive or community school pupils are significantly more likely to enrol in FE colleges

# Question 1

- Pattern of provision and local area does influence choice of institution
- Once pupils in poorer areas have decided to stay in full time education, they are then more likely to choose FE
- This is a striking result given that the LSYPE data we are using is very rich

# Local area effects – choice of institution

	(1)	(2)	(3)	(4)	(5)	(6)
Unemployment rate 16-19	-0.002 (0.001)					-0.001 (0.001)
DACI score		0.112** (0.055)				0.147** (0.057)
% schools with sixth forms			-0.150*** (0.039)			0.151*** (0.055)
% staying in FTE				-0.004*** (0.001)		-0.008*** (0.001)
% in FE post 16					0.003*** (0.001)	-0.002** (0.001)
<b>All other controls</b>	<b>yes</b>	<b>yes</b>	<b>yes</b>	<b>yes</b>	<b>yes</b>	<b>Yes</b>
Constant	0.787*** (0.057)	0.755*** (0.051)	0.833*** (0.053)	0.901*** (0.053)	0.616*** (0.056)	1.045*** (0.089)
Observations	4744	5073	5069	5065	5073	4733
R-squared	0.242	0.234	0.240	0.251	0.245	0.262

## Question 2

- Does value added vary by institution?
  - Once we allow for FE colleges admitting more disadvantaged pupils from disadvantage schools, the FE penalty remains negative but insignificant
  - **After controlling for LA, FE penalty becomes larger and significant**
  - FE colleges significantly less effective for high SES pupils, and borderline negative significant for high achieving students

## Question 2

- Allowing for pupil prior attainment, pupil characteristics, school characteristics and LA fixed effects, **6<sup>th</sup> form colleges have significantly higher value added**
- Holds only for high achieving pupils



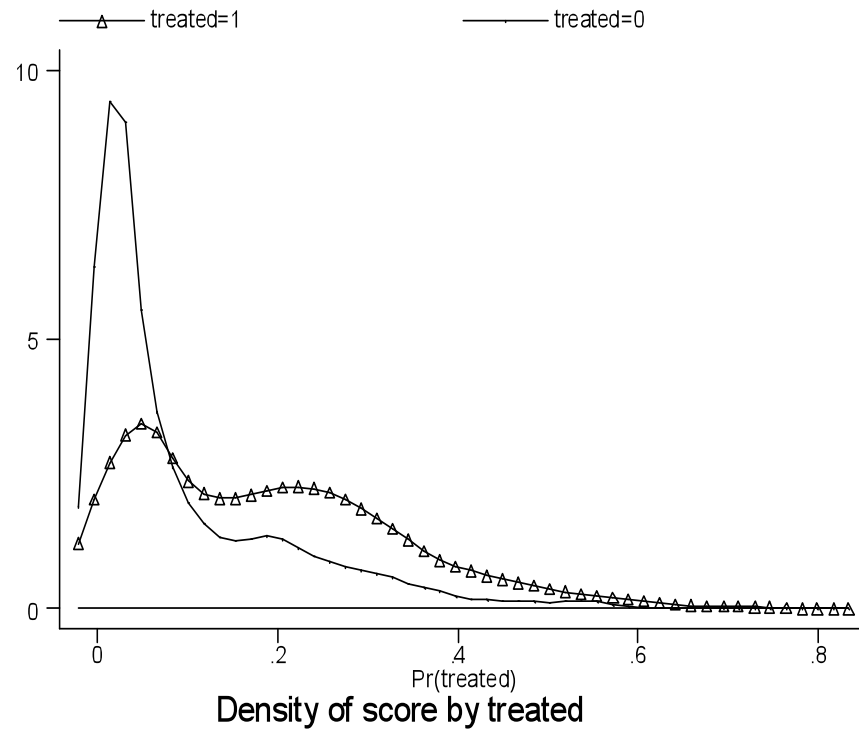
# Question 2

	(1)	(2)	(3)	(4)	(5)
Sixth form Colleges	0.083* (0.050)	0.094** (0.043)	0.127*** (0.042)	0.179*** (0.060)	0.168** (0.068)
FE colleges	-0.223*** (0.068)	-0.111* (0.058)	-0.069 (0.058)	-0.012 (0.067)	-0.153** (0.075)
Other Inst	-0.027 (0.137)	0.068 (0.118)	0.106 (0.116)	0.164 (0.117)	0.114 (0.124)
<i>Prior attainment</i>		v	V	V	v
<i>Pupil characteristics</i>			V	V	v
<i>School characteristics (16)</i>				V	v
<i>LA dummies</i>					v
Observations	2804	2804	2804	2804	2804
R-squared	0.006	0.263	0.304	0.344	0.415

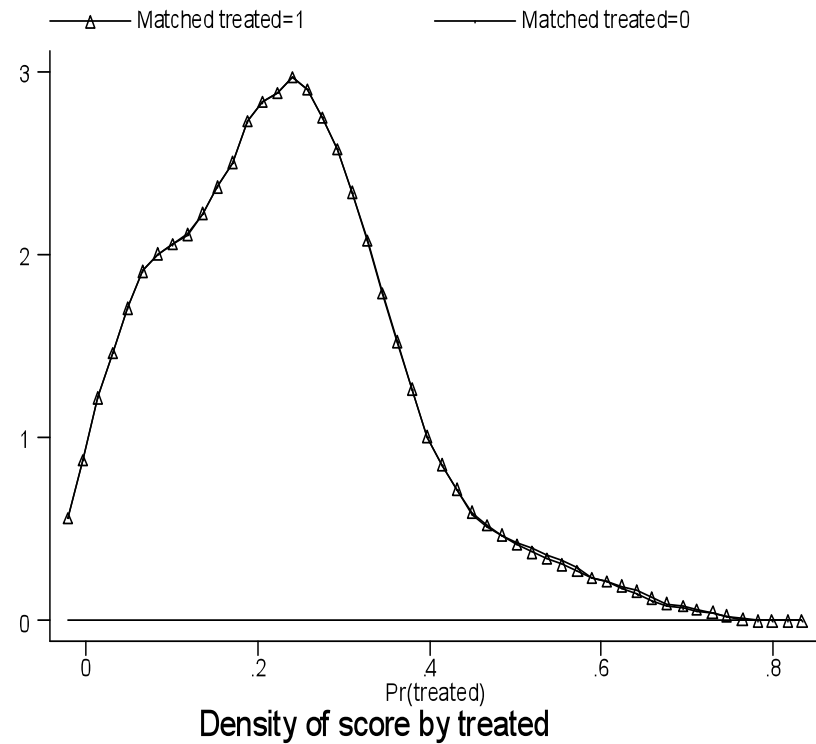
# Matching results

## Distribution of Propensity scores

*Before matching*



*After matching*



# Matching results

## Nearest Neighbour matching

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	<i>Match on all the X</i>	<i>Match on all the X plus LA dummies</i>
ATT	-0.110	-0.239**
(standard error)	(0.099)	(0.134)

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## Question 3

- Fully controlling for prior attainment, those attending FE college are less likely to go to university
- Those who do go are less likely to attend a high status institution

# HE participation

	Overall Participation		Participation in a high status institution	
	Females	Males	Females	Males
Obtained A-levels via FE	-0.041**	-0.047**	-0.028**	-0.012**
Observations	205669	166813	152472	117682
R-squared	0.235	0.265	0.368	0.429

# Implications

- Pattern of provision influences choice of institution but not staying on
- FE negative penalty at KS5 and HE participation is robust
- May be due to selection by unobservables or indeed resourcing
  - No explanation as to why