

Estimating the long-term social benefits of a programme aiming to re-engage NEETs in education

An evaluation of the Youth Contract for 16- and 17-year-olds

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Introduction

- The evaluation of the Youth Contract (YC) for 16- and 17-year-olds NEETs was conducted 14 months after the inception of the programme
- Aims of the paper:
 - Estimate the impact of the YC on re-engagement in learning using a dataset combing various administrative records
 - Value the social benefits of the additional qualifications generated by the YC
 - Compare cost-effectiveness of YC provision across areas
 - Compute the social cost of NEETs

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The Youth Contract for 16 and 17 year olds

- In most areas of England, the YC is run by specialist providers and funded by the Education Funding Agency (EFA)
- Providers are given complete freedom to design a programme of support to engage young people in education and training
- In Liverpool, Newcastle-Gateshead and Leeds-Bradford-Wakefield the programme is run by the local authorities
- Eligibility criteria (EFA-areas):
 - One or no GCSEs at A*-C ; or are
 - young offenders released from custody/serving a community sentence; or
 - young people in care
- No strict eligibility criteria in core cities
- Payment-by-result system

Data sources

Table 1: Data sources

Database	Time period	Information
Providers management records	08/2012 to 08/2013	YC participation (11,144 participants in EFA-areas; 1,431 in core cities)
National Client Caseload Management Information System (NCCIS)	04/2012 to 11/2013	Monthly activity status
School Census and National Pupil Data (NPD)	2009/10 to 2012/13	Key stages attainment; Socio-demographic characteristics
Individualised Learner Records (ILR)	2012/13 and 2013/14	Post-16 education and learning

GCSE achievement of YC participants

Table 2: GCSE achievement of YC participants

	EFA	Leeds City Area	N and G	Liverpool
No GCSEs A*-C	84%	61%	73%	45%
One GCSEs A*-C	12%	13%	12%	24%
Two or more GCSEs A*-C	5%	26%	15%	31%
Total	100%	100%	100%	100%
Base	4,439	712	211	80
All participants in year 1	11,144	1,074	253	104

Source: Youth Contract programme data merged to NPD (2009/10-2012/13).

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Method

- Impact analysis on **re-engagement in learning activities** at particular level
- Propensity scores estimated separately for particular groups (by age, gender, areas) on the basis of:
 - Ethnicity
 - Regional or local areas
 - Educational achievement in GCSE and at KS3
 - Exclusions and Absence in year of KS4
 - Time since leaving secondary education
 - Duration of the initial NEET spell
 - Young person's level of needs
 - Pre-Youth Contract employment and education experiences.
- Counterfactual outcomes are estimated using non-parametric local linear regressions with p-score as only covariate and explicit conditioning on GCSE achievement
- Balancing tests suggest propensity score matching worked effectively

Results

Table 3: YC impact on engagement in further education

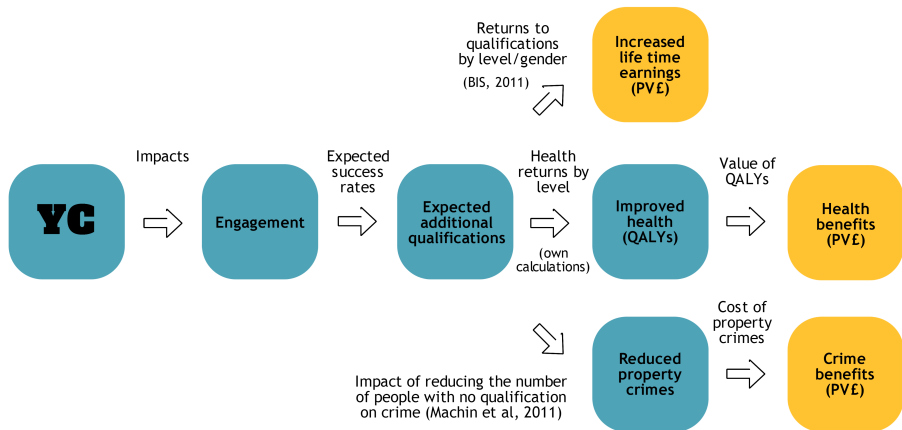
	EFA areas						Leeds City Area		N and G
	Males				Females				All
	16	17	18	16	17	18	16	17	
Entry Level	2.0**	1.0**	-	1.4	-	-	-	-	-
Level 1	11.0***	10.1***	16.0***	9.1***	11.3***	23.3***	6.2*	4.8*	7.1**
Level 2	-0.1	3.6***	1.5	1.9	3.9**	-2.5	4.3	5.3**	1.9
Level 3	-2.4***	-2.3***	-	-2.1**	-3.5***	-	-0.1	-1.2	-
Level 2 App.	0.3	-0.4	-	-0.2	0.2	-	5.0**	1.4	2.0

Note: Weighted estimates; -: cell size less than 12 ; * $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$. Source: Youth Contract programme data merged to NPD (2009/10-2012/13), NCCIS (04/2012-11/2013) and ILR (2012/13-2013/14).

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Outline



Lifetime earnings

Table 4: PV benefits arising from increased lifetime earnings in EFA areas

		YC impact on re-engagement (p.p)	Success rate	Additional qualifications*	Lifetime NPV benefits per qualification	PV benefits
Level 1	M	10.7	80%	602	£62,889	£37,840,656
	F	10.7		356	£41,148	£14,739,552
Level 2	M	2.0	84%	115	£68,336	£7,841,002
	F	2.0		70	£30,975	£2,166,771
Level 2 App.	M	0.0	72%	0	£125,981	£0
	F	0.0		0	£42,321	£0
Level 3	M	-2.3	83%	-133	£100,873	-£13,371,615
	F	-1.8		-62	£57,289	-£3,575,528
Total social benefits from increased earnings						£45,640,839
Number of YC participants in EFA areas						11,144
Expected social benefits from increased lifetime earnings per participant						£4,096

Improved health

Table 5: PV benefits arising from improved health

	Entry level/ level 1	Level 2	Level 2 App.	Level 3
YC impact on re-engagement (p.p)	11.6	2.0	0.0	-2.1
Average success rate	80%	84%	72%	83%
Effect on QALY weight of holding a qualification by level	0.033	0.032	0.028	0.033
Annual additional QALYs attributed to the YC	33.8	5.9	0.0	-6.4
Annual value of additional QALYs	£1,014,463	£177,006	£0	-£192,743
Lifetime PV value of additional QALYs	£41,935,303	£7,316,958	£0	-£7,967,499
Total PV benefits			£41,284,762	
YC participants in EFA areas			11,144	
Expected individual PV benefits per participant			£3,705	

Reduced criminal activity

Table 6: Valuing benefits generated by reduced crime

Crime and qualification		
Share of male offenders ^a	91%	
Number of people aged 16-49 without qualification ^b in England	M: 916,682	F: 829,054
Total number of property crimes ^c	9,541,673	
Average cost of property crimes ^d	£1,414	
Estimated number of crimes committed by male and female	M: 8,682,922	F: 858,751
Impact of education on crime		
Elasticity of crime with respect to reducing the share of people without qualification ^e	0.88%	
YC impact on achievement		
	M	F
Number of YC participants (2012/13) with no qualification	5,890	3,388
YC impact on obtaining a qualification ^f	0.094	0.088
Decrease in number of people without qualification	556	298
% change in the number of people without qualification	0.06%	0.04%
YC impact on crime		
Number of property crimes prevented per year	4,631	272
Benefits in £ per year	£6,708,970	£393,517
PV benefits (10 years) ^g	£62,879,172	£ 3,688,203

Net social benefits by areas

Table 7: NPV benefits and rate of return by area

	EFA (£)	Leeds, Bradford and Wakefield (£)	Newcastle-Gateshead (£)
Total PV Benefits	£153,492,976	£11,682,196	£2,290,642
Cost ^a	£9,616,128	£935,660	£435,380
Total NPV benefits	£143,876,848	£10,746,536	£1,855,262
Internal rate of return	64.6%	45.8%	19.3%

Note: NPV benefits are computed over 60 years.a) Costs include direct costs (cost of delivery) and indirect costs (opportunity cost). More on costs: [▶ Cost estimates](#)

Net benefits per participant

Figure 1: Net benefits per participants by areas

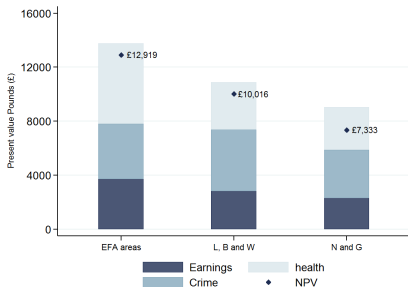
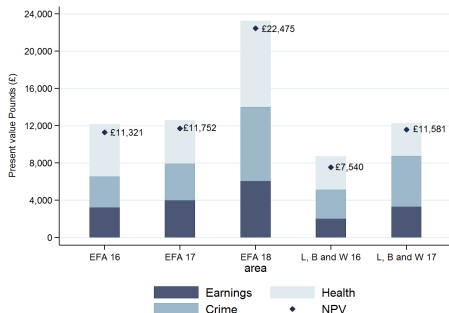


Figure 2: Net benefits per participants by age and areas



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Programme targeting

- Benefits per participant are higher for groups with lower initial educational attainment
- Targeting programmes aiming to re-engage NEETs in education to those with initially lower education outcomes increases social benefits per participants
- At the same time, targeting may reduce total social benefits
- Trade-off between value for money and welfare gains

Social cost of today's 16-18 year-old NEETs

- Use the estimated benefits of the YC to construct an estimate of the lifetime social costs of 16 and 17 year old young people being NEET
- Benefits per YC participant who re-engaged in a learning activity measure the welfare gains associated with decreasing the number of NEET young people by one
- The lifetime social cost of a 16 or 17 young person who is NEET is estimated to amount to £112,000.
- In the end of 2012, there were 190,100 16-18 year old young people who were NEET
- The total cost is about £21 billion, which is consistent with the findings of Coles et. al (2010)

Thank you!

▶ [YC Evaluation report](#)

▶ [YC Technical report](#)

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Computing PV benefits: Lifetime earnings

$$PVbenefits_{earnings} = \sum_k (\Delta Qual_{m,k} \times returns_{m,k} + \Delta Qual_{f,k} \times returns_{f,k})$$

with:

$$\Delta Qual_{g,k} = N_g \times YC_{g,k} \times Success_k$$

- N_g : number of YC participants of sex g
- $YC_{g,k}$: impact of participating in the YC (measured in percentage points) on the probability of engaging in a learning activity k .
- $Success_k$ average success rate of learning at level k
- k : Level 1, Level 2 Apprenticeship, Level 2 and Level 3 courses other than apprenticeship

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Computing PV benefits: Health

$$PVbenefits_{health} = N \times \sum_k (YC_k \times Success_k \times \Delta QALY_{w_k}) \times QALYV \times \frac{1 - (1 + \delta)^{(-n)}}{\delta}$$

with

- N : Number of YC participants
- YC_k : Impact of participating in the YC (measured in percentage points) on the probability of engaging in a learning activity k
- $Success_k$ average success rate of learning at level k (Level 1, Level 2 Apprenticeship, Level 2 and 3 courses other than apprenticeship)
- $\Delta QALY_{w_k}$: Increase in QALY weight induced by holding a vocational qualification k
- $QALYV$: Value of a QALY
- δ : Discount rate
- n : Life expectancy at 18 (years)
- k : Level 1/Entry level qualifications, Level 2 Apprenticeship, Level 2 and Level 3 courses other than apprenticeship

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Health and vocational qualifications

- Estimate the effects of holding vocational qualification on adult health status using data from Understanding Society
- Health status is measured by a preference-based utility index, the SF-6D, which can be interpreted as a QALY weight
- Numerous studies (Grossman, 2006) have shown that education strongly correlate with health, however establishing a causal relationship is problematic (Reverse causality)
- Estimate the equation:

$$QALYw_i = \alpha + \beta Voc_i + X_i \gamma + \varepsilon_i$$

- X_i include demographic characteristics parental occupation when aged 14, and a binary variable indicating whether the individual suffers from a long-lasting condition since childhood.

Effects of vocational education on health

Table 8: Health impacts of vocational qualifications

	(1)	(2)	(3)
Below level 2	0.0438*** (0.00506)	0.0373*** (0.00510)	0.0327*** (0.00507)
Level 2	0.0603*** (0.00260)	0.0359*** (0.00292)	0.0319*** (0.00291)
Level 3	0.0659*** (0.00266)	0.0377*** (0.00306)	0.0330*** (0.00311)
Apprenticeship	0.0572*** (0.00386)	0.0327*** (0.00403)	0.0277*** (0.00403)
Demographic characteristics	No	Yes	Yes
Parental occupation and individual health during childhood	No	No	Yes
Observations	24,734	23,537	23,537
R-squared	0.039	0.074	0.092

Note: OLS regression model. Demographic characteristics include gender, age, ethnicity, migration status and area of residency (government region). Weighted estimates *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ Source: Understanding Society (2009), own calculations

Computing PV benefits: Criminal activity

$$PVbenefits_{Crime} = \Delta Crime \times \bar{C}_{crime} \times \frac{1 - (1 + \delta)^{(-n)}}{\delta}$$

with

$$\Delta Crime = YC_{Qual} \times \frac{N_{YC_{NoQual}}}{N_{NoQual}} \times \varepsilon_{C/E} \times N_{Crime}$$

where

- YC_{Qual} : YC impact on the probability of gaining a qualification
- $N_{YC_{NoQual}}$: Number of YC participants with no qualification when joining the YC
- N_{NoQual} : Total number of people aged 16-49 without qualification
- $\varepsilon_{C/E}$: Elasticity of crime with respect to reducing the share of people without qualification
- N_{Crime} : Number of property crimes committed every year
- \bar{C}_{crime} : Average cost of property crimes
- δ : Discount rate
- n : Life expectancy at 18 (years)

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Crime: Sources

- a: Surveying Prisoner Crime Reduction (SPCR). In the absence of information on the demographic profile of offenders, we assume that the age and education profile of prisoners and offenders are similar.
- b: LFS 2013 Q1, own calculations
- c: Crimes detected in England and Wales 2012/13. Adjusted by the number committed per crime detected.
- d: Crimes detected in England and Wales 2012/13, HOOR 30/05 (revised 2011); Uprated by inflation
- e: Machin, Marie and Vujić (2011)
- f: Impact analysis, own calculations
- g: The period for which the benefits are computed depend on the length of the criminal career

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Cost estimates

Table 9: Cost estimates of the Youth Contract by area

	EFA (£)	Leeds, Bradford and Wakefield (£)	Newcastle-Gateshead (£)
Initial payment	£4,903,360	£472,560	£111,320
Re-engagement	£3,138,300	£217,800	£135,960
Sustained re-engagement	£683,100	£245,300	£188,100
Total	£8,724,760	£935,660	£435,380
Number of participants	11,144	1,074	253
Delivery cost per participant	£783	£871	£1,721
Total cost per participant (Including opportunity cost)	£862	£950	£1,800

Note: we assume the following payment schedule - initial payment: 20%; re-engagement: 30%; sustainable re-engagement: 50%. The maximum payment is assumed to amount to £2,200.

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