

Valuing the relationship between drug use, drinking behaviour and wellbeing

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Objectives of the paper

- To focus on the relationship between drug use, drinking behaviour and wellbeing in England and Wales
- To distinguish between current and past drug users and between different types of drugs
- To attach a monetary value to the wellbeing cost of taking drugs

The relationship between drug and alcohol use and wellbeing - literature

- ▶ Negative effect of drug use on wellbeing and mental health (Moore et al. 2007; van Ours and Williams 2012)
- ▶ Effect either *direct* or mediated through *stigma and other social and health problems* (Semple et al. 2005; Allen and Holden 2014)
- ▶ Age of first use relevant (Arseneault et al. 2002; Brook et al. 2002)
- ▶ Causality is an issue (Moore et al. 2007)
- ▶ Alcohol as a strategy to deal with stress (Lainer et al. 2001)

The welfare cost of drug use - the Life Satisfaction Approach

- ▶ The literature has mainly looked at the cost of drug use for the society: productivity losses, drug-related health and crime expenditures (e.g. DTORS)
- ▶ The Life Satisfaction approach reflects the point of view of the individual
- ▶ Compensation value reflects the amount of money that would be needed to compensate for the detrimental effect of taking drugs on wellbeing

Data used

- ▶ Crime Survey for England and Wales 2013-2014
- ▶ Self-completion modules on:
 - ▶ Drug use
 - ▶ Alcohol use
 - ▶ Subjective wellbeing
- ▶ **SAMPLE**: Sample of 4,405 individuals aged 16-59

Drug variables in the CSEW 2013-2014

- ▶ Information about use of a large set of drugs
- ▶ We distinguish between: **cannabis** and **other drugs**
- ▶ For each type of drug it is possible to distinguish 3 groups of individuals:
 - ▶ Taken in the last 12 months (**current users**)
 - ▶ Taken only in the past (**past users**)
 - ▶ Never taken (**never users**)
- ▶ Data drawback: questions do not capture frequency and intensity of drug use

Alcohol use in the CSEW 2013-2014

Alcohol consumption in the last month:

- ▶ Never
- ▶ Less than a day a week
- ▶ 1-2 days a week
- ▶ 3-4 days a week
- ▶ 5 or more days a week

Wellbeing variables in the CSEW 2013-2014

ONS4 variables measured on a scale 0-10

- ▶ Life satisfaction
- ▶ Worthwhile
- ▶ Happiness
- ▶ Anxiety

Descriptive statistics: drug and alcohol use

	Cannabis	Other drugs
Current user	5.5%	3.8%
Past user	26.6%	18.3%
Never user	67.9%	77.9%

Source: CSEW 2013-2014

	Alcohol consumption
Never	13.6%
Less than a day a week	33.2%
1-2 days a week	30.9%
3-4 days a week	14.5%
5+ days a week	7.7%

Source: CSEW 2013-2014

Descriptive statistics: life satisfaction

	Mean	SD
Life satisfaction (0-10)	7.35	2.00

Source: CSEW 2013-2014

Multivariate Analysis

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Multivariate analysis

We have run a regression model of Life Satisfaction on:

- ▶ Drug use (cannabis, other drugs / current vs. past and never user)
- ▶ Alcohol consumption
- ▶ Income (either linear or log)
- ▶ Additional controls: gender, age, marital status, educational level, employment condition, number of children

Results of Multivariate Analysis (1)

Life Satisfaction 0-10

Life Satisfaction 0-10

Cannabis use

Current user ref. cat.

Never user

0.541***
(0.160)

0.530**
(0.160)

Past user

0.329***
(0.154)

0.331***
(0.155)

Other drugs

Current user ref. cat

Never user

0.368***
(0.182)

0.388**
(0.182)

Past user

0.343*
(0.180)

0.353*
(0.180)

Results of Multivariate Analysis (2)

	Life Satisfaction 0-10	Life Satisfaction 0-10
Alcohol consumption (never ref. cat.)		
Less than a day a week	0.126 (0.103)	0.118 (0.103)
1-2 days a week	0.270*** (0.103)	0.267** (0.104)
3-4 days a week	0.125 (0.116)	0.131 (0.116)
5+ days a week	-0.115 (0.136)	-0.106 (0.137)

Results of Multivariate Analysis (3)

	Life satisfaction (0-10)	Life satisfaction (0-10)
Male	-0.225*** (0.058)	-0.220*** (0.058)
Age group(16-24 ref cat.)		
25-44	-0.186* (0.109)	-0.184* (0.11)
45-64	-0.159 (0.116)	-0.161 (0.117)
Marital status (single ref. cat.)		
Married/Cohabiting	0.300*** (0.071)	0.290*** (0.071)
Separated/Divorced	-0.228** (0.101)	-0.228** (0.101)
Widowed	-0.505* (0.275)	-0.497* (0.276)
Health status	-0.601*** (0.041)	-0.607*** (0.041)
Education (None/Other ref. cat.)		
Degree	-0.189*** (0.07)	-0.166*** (0.069)
A-level	0.003 (0.082)	0.001 (0.082)
Employment condition (employed ref. cat.)		
Unemployed	-0.788*** (0.168)	-0.754*** (0.17)
Student	0.273 (0.186)	0.317 (0.188)
Other inactive	-0.214** (0.097)	-0.193** (0.098)
Number of children	0.076** (0.033)	0.065* (0.033)
Equivalentised disposable income	0.017*** (0.003)	
Log of Equivalentised disposable income		0.217*** (0.044)
_cons	7.435*** (0.233)	7.161*** (0.247)
N	4405	4405

The Welfare Cost of Taking Drugs

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The compensation value of taking drugs (linear model)

$$LS_i = \alpha + \beta_{\text{never drug}} D_i^{\text{never}} + \beta_{\text{past drug}} D_i^{\text{past}} + \beta_{\text{income}} M_i + \mathbf{X}'_i \boldsymbol{\theta} + \epsilon_i$$



$$LS_{\text{NEVER DRUG}} = \beta_{\text{never drug}} + \beta_{\text{income}} M_0$$

$$LS_{\text{CURRENT USER}} = \beta_{\text{income}} (M_0 + CV)$$



$$LS_{\text{CURRENT USER}} = LS_{\text{NEVER DRUG}}$$



$$\text{Compensation Value} = \frac{\beta_{\text{never drug}}}{\beta_{\text{income}}}$$

The compensation value of taking drugs (semi-log model)

$$LS_i = \alpha + \beta_{never\ drug} D_i^{never} + \beta_{past\ drug} D_i^{past} + \beta_{income} \ln(M_i) + \mathbf{X}'_i \boldsymbol{\theta} + \epsilon_i$$



$$LS_{NEVER\ DRUG} = \beta_{never\ drug} + \beta_{income} \ln(M_0)$$

$$LS_{CURRENT\ USER} = \beta_{income} \ln(M_0 + CV)$$



$$LS_{CURRENT\ USER} = LS_{NEVER\ DRUG}$$



$$Compensation\ Value = e^{\left[\frac{\beta_{never\ drug}}{\beta_{income}} + \ln(M_0) \right]} - M_0$$

The compensation value of taking drugs and drinking

	(1) Linear model	(2) Semi-log model
Cannabis: current user vs.		
never user	£32,788	£187,089
past user	£19,939	£64,083
Other drugs: current user vs.		
never user	£22,303	£88,686
past user	£20,788	£72,822
Drinking: never vs.		
1-2 days a week	£16,364	£43,164

The compensation value of taking drugs and drinking - some comparisons

	(1) Linear model	(2) Semi-log model
Cannabis: current user vs.		
never user	£32,788	£187,089
past user	£19,939	£64,083
Other drugs: current user vs.		
never user	£22,303	£88,686
past user	£20,788	£72,822
Drinking: never vs.		
1-2 days a week	£16,364	£43,164
Some comparisons		
Being a widow/er (vs. single) -	30,606	158,182
Being married (vs. single) +	18,182	49,983
Being separated (vs. single) -	13,818	33,133

Taking into account the endogeneity issue in the relationship between wellbeing and income

	(1) Linear model	(2) Semi-log model	CSEW using Powdthavee (2010) IV estimate
Cannabis: current user vs.			
never user	£32,788	£187,089	£65,724
past user	£19,939	£64,083	£28,950
Other drugs: current user vs.			
never user	£22,303	£88,686	£37,404
past user	£20,788	£72,822	£32,047
Drinking: never vs.			
1-2 days a week	£16,364	£43,164	£20,989

The benefits of giving up drugs at the national level

- ▶ If all current drug users in England and Wales gave up drugs, they could enjoy a wellbeing benefit of £10.7bn per year \approx 0.6% of UK GDP
- ▶ For a comparison, the social cost of smoking in the UK is approximately £13.7bn (Nash and Featherstone 2010)

Conclusions

- ▶ Strong relationship between cannabis use and wellbeing
- ▶ Some evidence of the role of recreational drinking on life satisfaction
- ▶ Taking into account the endogeneity in the relationship between income and wellbeing, we find that the compensating value for being a current (vs. never) drug user is approximately \$65,000

Limitations

- ▶ Reliability of responses to questions about drug use
- ▶ Intensity and frequency of drug use not captured by the data
- ▶ Causality issues in the relationship between drug and wellbeing and between income and wellbeing
- ▶ Effect of different types of drugs not investigated

Data and publication details

- ▶ Office for National Statistics, *Crime Survey for England and Wales, 2013-2014: Special Licence Access, Drug Use Module* [computer file]. Colchester, Essex: UK Data Archive [distributor], January 2015. SN: 7623, <http://dx.doi.org/10.5255/UKDA-SN-7623-1>
- ▶ Office for National Statistics, *Crime Survey for England and Wales, 2013-2014: Special Licence Access, Drinking Behaviour Module* [computer file]. Colchester, Essex: UK Data Archive [distributor], January 2015. SN: 7622, <http://dx.doi.org/10.5255/UKDA-SN-7622-1>
- ▶ Office for National Statistics, *Crime Survey for England and Wales, 2013-2014* [computer file]. *2nd Edition*. Colchester, Essex: UK Data Archive [distributor], May 2015. SN: 7619, <http://dx.doi.org/10.5255/UKDA-SN-7619-2>

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