



European Monitoring Centre  
for Drugs and Drug Addiction

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Workshop 'The illicit drug market and its possible regulatory body', Rome

# Estimating the size of drug markets in Europe – (inter)national experiences

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# Dec. 07 expert meeting

- Review national and international experiences in estimating drug consumption (issues, methods, results) – FR, NL, UK (3), USA, UNODC
- Review methodological and data availability issues
- Review options for developing drug consumption estimates at European level



# (Inter)national approaches

- NL – Min. of Justice (2006)
- UK – NERA (2001); NERA (2003)
- UK – Univ. of Essex / ISER (2005-6)
- FR – OFDT (2007)
  
- EC – RAND (2009)
- UNODC – *WDR* (2005)



# NL – Min. of Justice (2006)

*(Van der Heijden)*

## Objectives

- 1) Estimate national consumption of cannabis in the NL
- 2) Estimate national production of cannabis in the NL
- 3) Estimate EU consumption of cannabis

## Methods

- 1-a) last month prevalence x population size (corrected for under-representation of regular users) x annual amount/regular user
- 1-b) ((number of coffee shops x turnover per shop) - % sold to tourists) x 1/share of coffee shops on national market
- 2) (number of large farms x number of plants x number of harvests x yield per plant) + (number of small farms x number of plants x number of harvests x yield per plant)
- 3-a) number of regular users x annual consumption
- 3-b) ((production of Moroccan resin x % destined to Europe) – seizures of resin) + (supply of resin from elsewhere – seizures) + (supply of herb – seizures)



# FR – OFDT (2007)

*(Legleye et al.)*

## Objectives

Estimate the euro value of the illicit market for cannabis in France in 2005

## Methods

2 demand-side approaches:

- 1) price x monthly quantity smoked (average nb days/month x average nb joints/day x amount /joint) x % bought x 12
- 2) monthly expenditures x 12

*(no account of cannabis that is not purchased)*



# UK – NERA (2001) (1)

*(Bramley-Harker)*

## Objectives

Estimate the size of the drugs market: value of the market and quantity used

## Method

1a) Estimate of nb of regular users in the community of amphetamine, crack, cocaine, heroin

Annual nb arrests, annual nb arrests per person, % regular users, proba of been arrested in last 12 months, proba of user being in prison, mean nb months in prison

1b) Estimate of total expenditure of regular users

Nb regu users in the community x estimated expenditure per 'day used' x nb days of use in last month x 12 months x annual average expenditure



# UK – NERA (2001) (2)

## 2) Estimate for cannabis and xtc users

England pop x LYP x average nb uses per year x estimated expenditure per 'day used'

## 3) Estimate for occasional users of other drugs

England pop x LYP x % use 2 or 3 times a month or less x average nb uses per year x estimated expenditure per 'day used'

## 4) (Minimum) Estimate of users in prison of cannabis and heroin

% prisoners testing positive x average prison pop x days used per year x estimated expenditure per 'day used'

## 5) Expenditure / unit price = street quantity

## 6) Extrapolation to the UK – E&W data to the UK based on pop 16-59



# UK – NERA (2003)

*(Barham et al.)*

## Objective

Propose separate methodologies to estimate the prevalence of different groups of users of powder cocaine (underrepresented in NERA 2001)

## Method

- 1) new user classification – rare / occasional / frequent / problem
- 2) methods for estimating prevalence and consumption appropriate to each group
- 3) characteristics strongly correlated with cocaine use -> clubbing and high disposable income, -> use them as proxy variable to ensure these groups are appropriately represented in BCS

Affluent young people under-represented in BCS and response bias in subgroup of frequent clubbers in BCS – prevalence estimates to be further calibrated (after re-weightg for age, sex and geo area) to account for ‘clubbing’ and ‘income

- 4) estimate of expenditure based on expdture question from NA, but suggests question in BCS

## Results

After re-calibration of BCS, LTP from 8.8% to 10.4%, LYP from 4.1% to 5.1%, LMP from 1.8% to 2.5%



# UK – Univ. of Essex / ISER (2005-6)

*(Pudney et al.)*

## Objective

Estimate the size of the UK market for six categories of illicit drugs (cannabis, amphet, xtc, coke, crack, hero) for the reference year 2003/4

## Method

3 sub-populations: adult non-arrestees, adult arrestees, juveniles

1) survey data to derive average frequencies of use in LY in each sub-pop

2) *experimental adjustment of the estimated distribution of frequency of use to deal with under-reporting in arrestees (using saliva tests)*

3) explicit assumptions about prices, quantities per episode and purity as well as the likely level of uncertainty in these assumptions

4) pop aggregate for E&W using external info on size of each sub-pop

5) conversion to pure quantity

6) scale up to UK using relative sizes of each sub-pop in SCO, NI and E&W

7) calculate range of uncertainty associated with the estimates – it stems from the sampling error associated with survey estimation + the possibility of error in the *a priori* assumptions



# EC – RAND (2009)

*(Kilmer and Pacula)*

## Objective

Generate country-level consumption and retail expenditure estimates for cannabis, heroin, cocaine and ATS

## Method

### 1) Cannabis

$(LMP \times \text{nb of days of use per year} \times \text{qty used per day of use (joints per day of use and grams per joint)}) + (LYP \times \text{nb of days of use per year} \times \text{qty used per day of use}) = \text{total consumption}$

### 2) Heroin

$LYP \text{ (UNODC)} \times \text{pop 15-64} \times \text{assumed pure grams per year} = \text{total consumption in pure grams}$ ; then Different scenarios: purity at 20%, 40% and 60%

### 3) Cocaine

$LYP \times \text{pop} \times \% \text{ light /heavy users} \times \text{use days light/heavy users} \times \text{grams per use day light/heavy users} = \text{total consumption light/heavy users}$

1) 2) 3)  $\times$  price per gram = total retail expenditure



# UNODC – WDR (2005)

## Objective

Estimate the value of illicit drug markets (producer, wholesaler and retailer incomes)

## Method

Input-output model integrating both supply-side and demand-side estimates  
Production – (seizures + losses) = available for consumption (in source and destination sub-regions)

Amounts available per region x purity adjusted wholesale prices = sub-regional wholesaler income

User pop x per capita annual consumption per user = estimated actual consumption per year

Estimated actual consumption per year x purity adjusted retail prices = sub-regional retailer income

Calibration to adjust assumptions to the reality (e.g. likely effectiveness of law enforcement -> affects interception rates)



# Results

		CANNABIS	HEROIN	COCAINE + CRACK
FR	OFDT 2005	746-832 ME 186-208 t		
	RAND 2005	997-2232-4647 ME 178-399-830 t	430-576-1031 ME 5 t (pure)	129-488-1257 ME 2-8-21 t
UK	NERA 1998	1578 MP 486 t	2313 MP 31 t	2170 MP 22 t
	ISER 2003/4	1031 MP 412 t	1207 MP 20 t	2454 MP 33 t
	RAND 2005	676-1515-3149 ME 201-450-937 t	1536-2303-4607 ME 11 t (pure)	828-3132-8072 ME 8-31-81 t
NL	van der Heijden	62-81 t 57-79 t		
	RAND 2005	173-387-805 ME 33-73-152 t	52-79-157 ME 1 t (pure)	27-102-262 ME 1-2-6 t
EU	van der Heijden	2055-2875 t 2160-3020 t		
W&C Europe	UNODC 2003	herb 19 BD, 3160 t resin 21 BD, 2891- 3212 t	25 BD, 84-93 t	17 BD, 107 t
EU26 + CH	RAND 2005	6-13-28 BE 1165-2607-5424 t	5-14 BE	1-8 BE



Thank you

