Cannabis Use and Support for Cannabis Legalization

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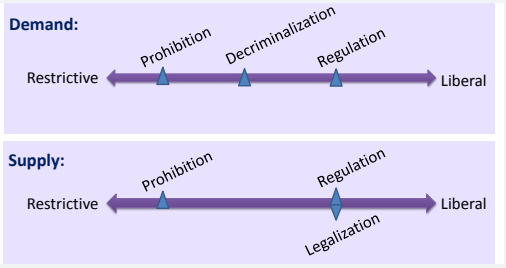
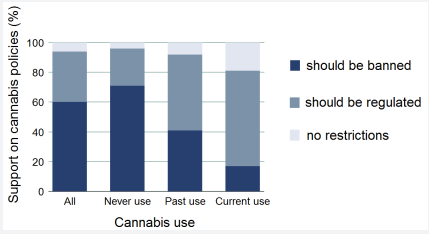
1.1. Introduction: Cannabis policies in the world

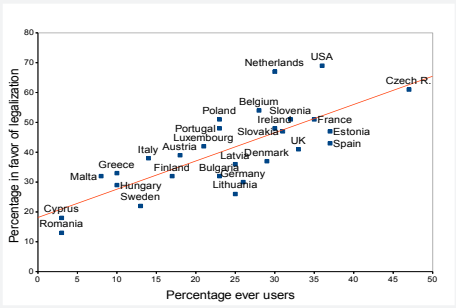


1.2. Introduction: Opinions on cannabis policies

- Individual data
  - ▷ Support on cannabis policies based on self use of cannabis; youngsters between 15-25 in 27 EU countries



- Cross-country data
  - ▷ Support on cannabis policies and % of those who used cannabis in the last year; youngsters between 15-25 in 27 EU countries



Source: European Commission 2011

2. Motivation- Self interest and inside information

- Cannabis users are more in favor of legalization/regulation rather than prohibition. We relate this to 2 reasons:
  - ▷ **Self interest:** Cost minimization behavior. Prohibition means more cost for users.
  - ▷ **Inside information:** Learning behavior. Cannabis users know more about the potential dangers of cannabis. Assessment of dangers.

Current users of cannabis will be affected by both self interest and inside information, whereas *past users* will be affected by only inside information as such there will be no cost increase for them in case of a prohibition.

3. Cannabis policy in the Netherlands

(A coffeeshop in Amsterdam.)

- Cannabis-use is quasi-legalized. Small quantities of cannabis can be bought at *coffeeshops*.
- Main concern of Dutch policies: *Tolerance* and *Public health*.
- Since 1976: A distinction between soft and hard drugs. Only soft drugs are tolerated.
- In 1999: 846 coffeeshops. In 2011: 651.
- A recent licensing attempt failed.

4. Data

The LISS Panel provides detailed information about cannabis use dynamics and opinions on cannabis policies:

- At what age, approximately, did you first use cannabis? (30% is ever user.)
- Have you used cannabis in the last 30 days. (17% of ever users says yes.)
- Please indicate if you agree or disagree to the following statement in a scale of 1-5.
  - ▷ "Cannabis should not be prohibited" & "Coffeeshops should be permitted."

5. Econometric Methodology

- **Cannabis use dynamics:** Age of onset of cannabis use and quitting rates are modeled within a mixed proportional hazard setting with unobserved heterogeneity.
- **Opinions on cannabis policies:** Opinions on cannabis policy statements are analyzed with an ordered probit model. Unconditional probability of reporting a level of agreement in a scale of 1-5 is specified as

$$\Pr(y = j|x_3) = \int_{\epsilon} Prob(y = j|x_3, \epsilon) dG(\epsilon) \quad (1)$$

where $j \in \{1, 2, 3, 4, 5\}$, denoting ordered responses. $G(\epsilon)$ is a discrete mixing distribution capturing unobserved heterogeneity in the opinions.

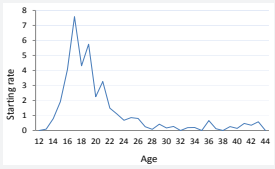
- **Joint model:** Opinions on cannabis policies and cannabis use dynamics might be simultaneously determined by a set of unobserved factors. To control for correlation between such unobserved characteristics and establish a causal effect, we jointly estimate the ordered probit model and the mixed proportional hazard models.

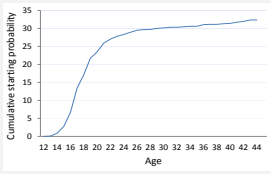
$$g_2(t_c, t_q, y = j \mid x_1, x_2, x_3) = \int_{\epsilon} \int_{v} \int_{w} f_c(t_c \mid x_1, v) f_q(t_q \mid x_2, w) Prob(y = j \mid x_3, \epsilon) dG(v, w, \epsilon) \quad (2)$$

where $G(v, w, \epsilon)$ is a discrete mixing distribution capturing correlation between unobserved heterogeneity affecting cannabis use dynamics and the opinions. t_c and t_q are durations of the first use and total duration of use, respectively.

6. Cannabis use: A simple overview of the dynamics

- Starting rates of cannabis use
- Cumulative probability of cannabis use





7. Opinions: Results of the joint model & Falsification Analysis

	Univariate model		Joint model	
	Past use	Current use	Past use	Current use
Legalization & prohibition				
1. Cannabis not prohibited	1.04 (12.9)**	1.70 (10.1)**	0.69 (5.2)**	1.34 (7.8)**
2. Coffeeshops permitted	0.86 (11.9)**	1.45 (9.9)**	0.46 (3.7)**	1.05 (7.0)**
Placebo 1. Alcohol legislation				
3. No sale under 16	-0.13 (2.0)**	-0.37 (2.4)**	0.16 (1.1)	-0.09 (0.1)
4. No sale at meetings 16	-0.48 (7.8)**	-0.50 (3.1)**	-0.19 (1.5)	-0.21 (1.2)
Placebo 2. Non-substance use policies				
5. Citizens' influences	0.19 (1.9)*	0.21 (0.7)	-0.18 (1.0)	0.19 (0.7)
6. Student loans	-0.04 (0.1)	0.03 (0.1)	-0.01 (0.3)	0.01 (0.1)

Absolute t-statistics in parentheses. * and ** are for statistical significance at 10% and 5%, respectively. Sample size is 2016.

- Univariate model: High correlation. Joint model: A large part of this correlation is due to non-causal mechanisms.
- Evidence for causal effect of current and past use of cannabis.
- The effect of cannabis use on opinions about alcohol disappears in the joint model.
- **It is not the case that cannabis users and non-users are different anyway regardless of the nature of the policy.**

8. Conclusions

Both current use and past use increases the chances of supporting more liberal cannabis policies.

- **The effect of inside information suggests that cannabis use may not be as harmful as cannabis users originally thought it was and not as harmful as non-users are inclined to think it is.**

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