National-level drug policy and young people's illicit drug use: A multilevel analysis of the European Union

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ABSTRACT

Introduction: Recent research has called upon investigators to exploit cross-national differences to uncover the cultural and structural factors influencing drug use. While the individual-level correlates are well-established, little is known about the association between cross-national variation in drug policies and young people's substance use. This study examines, net of individual-level predictors, the association between national-level drug policy and use of an illicit drug other than cannabis.
Methods: The study uses Eurobarometer repeated cross-sectional surveys in 2002 and 2004 of adolescents aged 15–24 drawn in multistage, random probability samples proportional to population size and density within regions of their country ($N = 15,191$). Participants completed self-reported measures of last month drug use, attitudes toward drugs, school and work participation, and demographics. Gathered from several international bodies, national-level policy measures include drug offense levels, possession decriminalization, and presence and usage of harm reduction strategies.
Results: Hierarchical logistic regression models demonstrate that, while controlling for important individual-level predictors, in countries where there is no restriction on possession of drugs for personal use, the odds of drug use in the last month are 79% lower ($p < 0.05$). On the other hand, higher usage of treatment and drug substitution are associated with higher levels of drug use. These results are robust to several alternate specifications.
Conclusions: Among the strongest and most consistent findings, eliminating punishments for possession for personal use is not associated with higher drug use. The results indicate that researchers should take national-level context into account in individual-level studies of drug use.

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1. Introduction

Despite recent evidence of cross-national differences in substance use rates and calls to exploit cross-national differences to uncover the cultural and structural factors influencing drug use (Teesson et al., 2006; Degenhardt et al., 2008), most examinations of predictors of use are confined within a single national context, neglecting a critical source of variation that may explain differences in use (Ghandour et al., 2012). National-level drug policy, however, provides a specific context for substance use (Vuolo, 2012). Fields such as sociology have a long tradition of examining contextual effects. According to organizational institutionalism, across- and within-nation variation in policy and behavior is a product of institutionalized cultural frames (Meyer et al., 1997). Institutional structure, such as cultural models and discourse, diffusely influence national and regional actors. Resultant loosely coupled changes in law, policies, attitudes, and values engender

an uneven drift towards improvement on a particular outcome (Schofer and Hironaka, 2005). These cultural frames provide a lens through which individual actors understand the world and act within it, shaping the social behaviors and practices that are deemed legitimate, or even thinkable (Bourdieu, 1972; Swidler, 1986). This line of research has shown that national-level context drives individual-level behaviors such as civic engagement (Schofer and Fourcade-Gourinchas, 2001), blood-giving (Healy, 2000), environmentalism (Schofer and Hironaka, 2005), and religiosity (Kelley and De Graaf, 1997). Though connecting national context to related behaviors, this literature has rarely examined policies that were explicitly created to affect behavior. For such policies, the role of cultural diffusion is even more salient, as was recently shown for tobacco policy and youth cigarette use (Vuolo, 2012). Following this approach, this study examines whether national-level drug policies diffuse in a way that is associated with behavior, or whether such policies are too distal.

Both legal (Ewick and Silbey, 1998) and health (Bird and Rieker, 2008) policy create institutionalized cultural frames that influence behavior. The drug policy literature provides reasons to believe such policies may provide frames for behavior. The dominant

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strategy at all levels of government towards illegal drugs has been antidrug legislation and law enforcement (MacCoun and Reuter, 2001). In the limited locations adopting decriminalization, drug use does not increase, unless a substance becomes commercialized (MacCoun and Reuter, 2001; Reinarman et al., 2004). Nonetheless, for decades, common rhetoric has implied that removing penalties will result in increased use and harm to society and send an improper message of tolerance of drug use (Goldstein and Kalant, 1990; Hall, 2001). For health-related policy, while evidence shows reductions in use and harm for current users in the presence of methadone maintenance (Kleber, 2008), syringe exchanges (Des Jarlais et al., 2009), and treatment more generally, little is known about how the presence of such programs are related to young people's drug use in the general population, which is an important effect to explore if one assumes policy provides cultural frames.

Even with evidence of cross-national variation, most research on adolescent substance use has examined the individual-level of variation, producing a well-established, high quality body of research. According to Bachman et al. (2002), the social bonds of school and work are important predictors of substance use for adolescents. Illicit drug use is higher for non-college bound students and remains high following high school (Bachman et al., 1997). During high school, excessive work can lead to increased substance use (Resnick et al., 1997; McMorris and Uggen, 2000). Following high school, those who are neither students nor employed have higher consumption (Schulenberg et al., 2000). Beyond bonds, perceiving a substance as risky results in lower use (Bachman et al., 1998, 1990). The consumption of peers and parents is also central, with such use increasing the likelihood of one's own use (Bauman and Ennett, 1996; Li et al., 2002; Ennett et al., 2006). Finally, demographics also distinguish users, with males (European Monitoring Center for Drugs and Drug Addiction, 2006), older adolescents (Bachman et al., 2002), and residents of particular neighborhoods (Sampson et al., 2002) more likely to use drugs.

It remains important to consider contextual influences on adolescent drug use (Teesson et al., 2006; Degenhardt et al., 2008; Ghandour et al., 2012), particularly the influence of drug policy. While drug policy is often the focus of research, such research has rarely accounted for cross-national policy variation in examinations of the predictors of individual-level use. Thus, the goal of this article is twofold. First, the article examines the extent to which individual-level drug use is better predicted taking into account policy context. In other words, if significant variation exists cross-nationally, do policy differences explain this variation? Second, the article explores to what extent certain policies are associated with individual-level use, using the above studies as a guide for potentially important predictors. The variation across nations in both the qualitative presence of certain policies and their utilization provide the opportunity to examine these often overlooked contextual influences at the individual-level among adolescents.

2. Methods

2.1. Individual-level sample

The individual-level data come from Eurostat, the European Commission's statistics branch, collected by their Eurobarometer survey. Two near identical in-person surveys, conducted in the appropriate national language, were administered with new cross-sections of 15–24-year olds in 2002 (T. Christensen, 2003) and 2004 (European Communities, 2004). Applying an identical sampling technique across nations, households were drawn in multistage, random probability samples proportional to population size and density within the region (NUTS-2) of their country. A random respondent was chosen from the household. Each national sample is representative of the population of 15–24-year olds. Sample sizes are shown in Table 1 (N = 15,191). Weights used at the individual-level ensure appropriate attribution of respondents proportional to their representation across the 15 European Union (EU-15) member states. Using the country indicator in the survey, each respondent was linked to annual national-level drug policy measures.

Table 1
Eurobarometer sample sizes by country and year (N = 15,191).

Country	Sample sizes	
	2002	2004
Belgium	456	493
Denmark	454	500
Germany	1013[a]	514
Ireland	524	500
Greece	469	500
Spain	450	503
France	447	504
Italy	450	537
Luxembourg	189[b]	571
Netherlands	453	507
Austria	541	500
Portugal	457	500
Finland	402	522
Sweden	477	503
United Kingdom	750[c]	505

Note: Sampling for all countries was conducted using an identical method. The survey instrument was also identical each year, but conducted in the appropriate national language. All analyses are weighted to ensure appropriate attribution of respondents proportional to their representation across the 15 European Union (EU-15) member states.

[a] In 2002, East and West Germany constituted two distinct subsamples. This separation was due to the fact that the oversampled survey on youth substance use was part of a larger survey on European identity.

[b] Due to its comparatively small population, a smaller target subsample size was used for Luxembourg in 2002. In 2004, a similar sized subsample to the other countries was taken.

[c] In 2002, Northern Ireland constituted a distinct subsample (N = 202). This separation was due to the fact that the oversampled survey on youth substance use was part of a larger survey on European identity.

2.2. Measures

2.2.1. Drug use other than cannabis.
For all countries, participants were presented a card defining "drugs" as, "ecstasy, LSD, heroin, morphine, cocaine, crack, glue or solvents, cannabis, amphetamines. Alcohol, tobacco, and doping substances are excluded." The survey then asked in a series of substance use questions, "Which of the following applies to you?" The dependent variable is an affirmative response to, "I have used drugs (other than cannabis) over the last month." For ease of language, this outcome is referred to simply as "drug use."

2.2.2. Individual-level variables.
Given the established correlates of substance use at the individual-level, several independent variables are included in order to rule out spurious relationships between national-level drug policy and individual-level drug use. Descriptive statistics for each of these measures are given in Table 2. Demographic measures include gender, age, and self-reported community type. Measures of social bonds to important institutions, as well as socioeconomic indicators, include education level and employment status. For those still in school, they are divided into college and high school students. For those who completed schooling, the reported years of education is used to assign categories ($\leq$12 years = "secondary", 13–15 years = "some postsecondary", and $\geq$16 years = "tertiary").

Finally, several important drug-related predictors are included. Knowing a drug user was an affirmative response to the statement, "I know people who use drugs

Table 2
Individual-level descriptive statistics across all countries and both years.

Variable	Percentage or mean (SD)
Know hard drug user	46.3%
Easy to get drugs	91.8%
Cocaine rated as dangerous	96.7%
Education: secondary	8.2%
Education: some postsecondary	16.4%
Education: tertiary	20.2%
Education: college student	23.9%
Education: high school student	32.3%
Currently working	36.6%
Gender: male	50.2%
Age	19.6 (2.8)
Community type: rural	25.6%
Community type: small town	44.1%
Community type: large city	30.3%
Used drug other than marijuana in last month	2.8%