



impac**TEEN**

*A Policy Research Partnership
to Reduce Youth Substance Use*

YES!

Youth,
Education,
& Society



Supported by
The Robert Wood Johnson Foundation



Supported by
The Robert Wood Johnson Foundation

Alcohol and Risky Sexual Behaviors among College Students

Lan Liang

University of Illinois at Chicago

Department of Economics

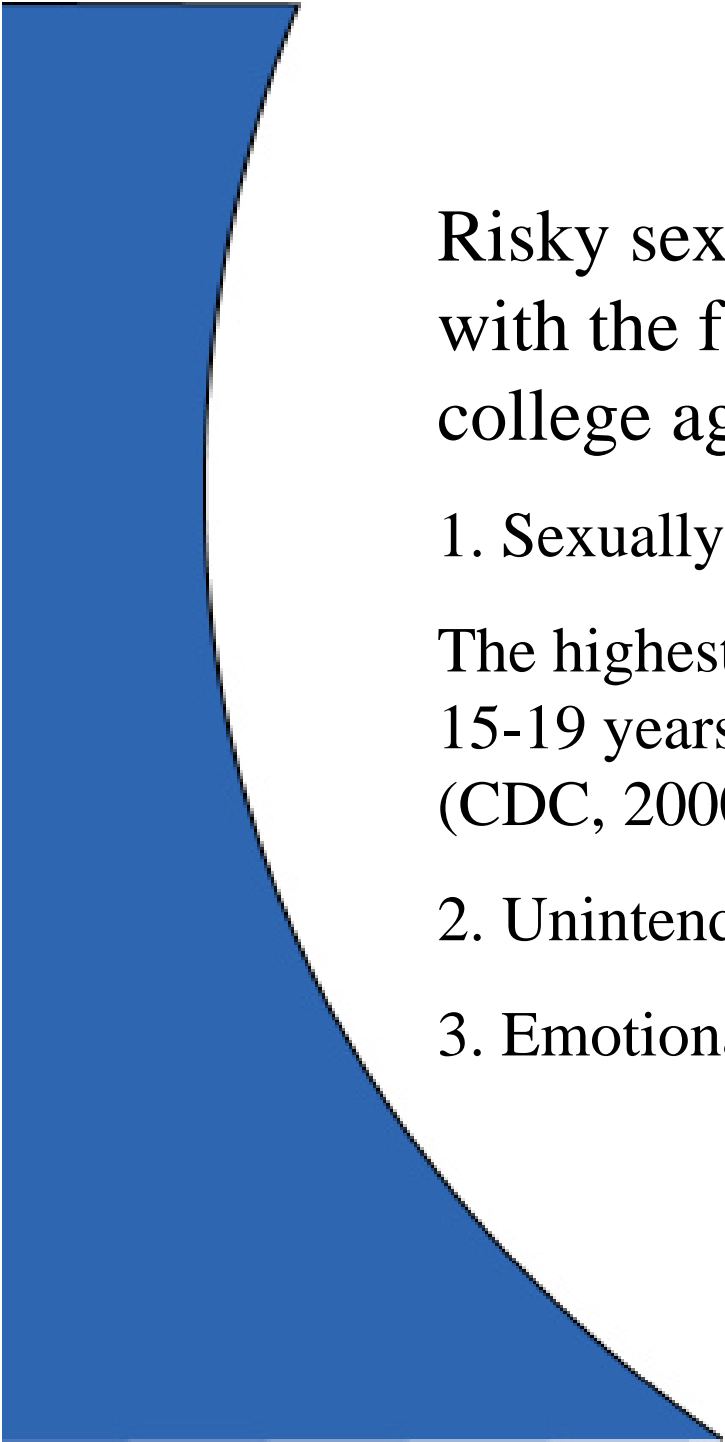
lliang@uic.edu

and

Frank J. Chaloupka

Christina Czar

Henry Wechsler



Risky sexual practices have been linked with the following adverse outcomes among college age young adults:

1. Sexually Transmitted Diseases (STDs)

The highest rates of most STDs are among women 15-19 years of age and men 20-24 years of age (CDC, 2000)

2. Unintended pregnancies

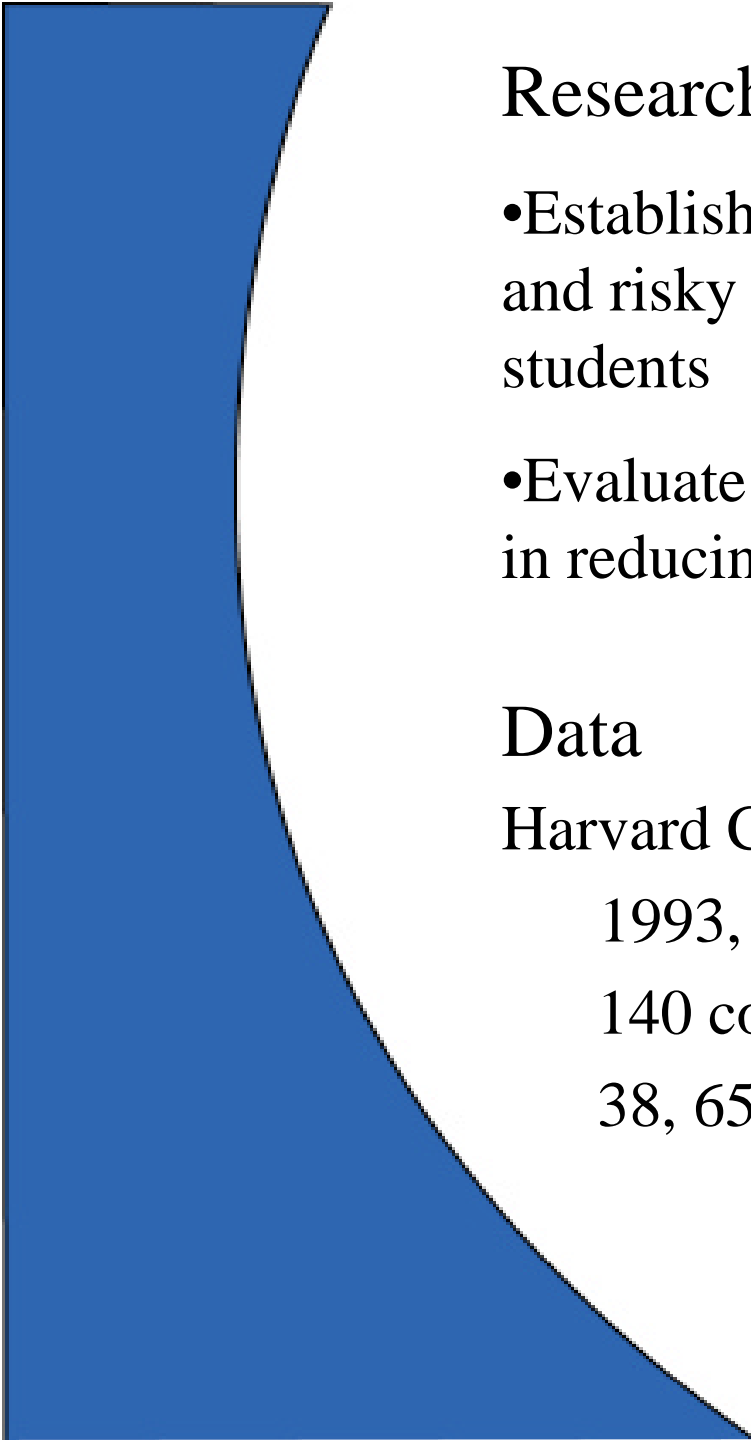
3. Emotional distress



Supported by
The Robert Wood Johnson Foundation

Risky Sexual Behaviors and Alcohol Use on Campus:

- Alcohol has often been cited as a contributing factor for abandoning safe sex techniques, which, in turn, leads to possible infection with HIV or other STDs (CDC, 1995).
- Prevalence of drinking and binge drinking among college students is higher than estimates from the general population (USDHHS, 1996; NIDA 1996).



Research Questions

- Establish the causality between alcohol use and risky sexual behavior among college students
- Evaluate the effectiveness of alcohol policies in reducing risky sexual incidents

Data

Harvard College Alcohol Survey

1993, 1997, and 1999

140 colleges

38, 656 students in the full sample

Analytical Framework

- 1) $SB_i = \alpha_0 + \alpha_1 A_i + \alpha_2 X_{1i} + \alpha_3 u_i + \varepsilon_i.$
- 2) $A_i = \beta_0 + \beta_1 P + \beta_2 X_{2i} + \beta_3 u_i + \omega_i.$

SB: sexual behavior

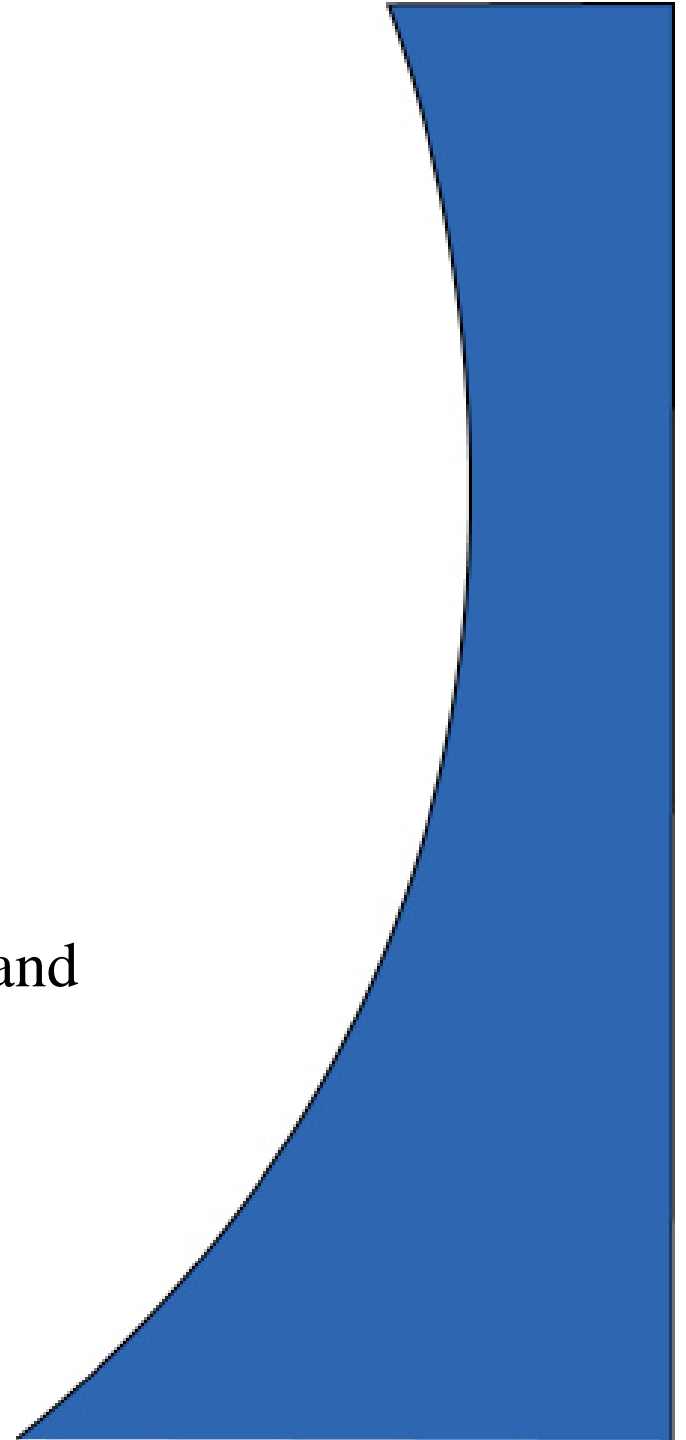
A: alcohol use

P: full price of alcohol use

X: observed individual characteristics and
other observed factors

u: common unobservables

ε, ω : random error terms



Measures of Risky Sexual Behaviors:

The survey asks:

“How many people have you had sexual intercours with in the past 30 days? ”

“When you have sexual intercourse, how often do you or your partner use a condom?”

“When you have sexual intercourse, how often do you or your partner use a contraceptive other than a condom?”
(1993 survey only.)

Four dichotomous variables were created from the these questions:

Had sex in the previous 30 days

Had sex with multiple partners

Had sex without condom

Had sex without contraception



Measures of Risky Sexual Incidents

- Four ordinal variables of zero, one, and two are defined from the following survey questions.

- Since the beginning of the school year, how often has your drinking caused you to :

 - Engage in unplanned sexual activity

 - Not use protection when you had sex

- Since the beginning of the school year, how often have you experienced the following because of other students' drinking:


 - Experienced an unwanted sexual advance

 - Been a victim of sexual assault and “date rape”





Drinking Measures

- Any drinking in the previous 30 days
 - Binge drinking in the past two weeks
 - 5 drinks in a row for men, and 4 drinks in a row for women
 - Number of drinks consumed in the previous 30 days
- 



Empirical Strategy

- Participation in various sexual behaviors:

1. Endogeneity of Alcohol Use

Discrete measure : bivariate probit

Continuous measure: Amemiya Generalized Least Square for Probit (AGLS)


2. Identification: Alcohol policies enter only the drinking decisions and serve as instruments

- Frequency of risky sexual incidents

ordered probit



Alcohol Policies

- Beer tax
 - Alcohol consumption prohibited on campus
 - Alcohol availability measures
 - pub on campus; bar within a mile; dry community
 - Access restriction
 - public consumption restriction; social host; dram shop liability law
 - Advertising restriction
 - Pricing restriction
 - happy hour; pitcher sale; low price sale
- 



Other Explanatory Variables


- Demographic information
 - Parental education and drinking
 - Fraternity membership and living arrangement
 - Employment and income
 - College descriptions
 - Year and region dummy
- 

Table 1				
Discriptive Statistics				
<u>Risky Sexual Behaviors</u>		<u>Percent</u>		
Had sex in the previous 30 days		58.65		
Had sex with multiple partners		5.01		
Had sex without condom		39.25		
Had sex without birth control		14.93		
		Percent		
<u>Risky Sexual Consequences</u>		<u>Never</u>	<u>Once</u>	<u>Twice or More</u>
Had unplanned sex due to own drinking		82.68	9.15	8.17
Had unprotected sex due to own drinking		91.43	4.81	3.76
Experienced unwanted sexual advance due to others' drinking		77.26	11.64	11.10
Experienced sexual assault or "date rape" due to others' drinking		98.47	1.26	0.27
<u>Drinking Measures</u>		<u>Percent</u>		
Had any drink in the previous 30 days		67.63		
Had five or four drinks in a row		43.46		
		<u>Mean</u>	<u>S.D.</u>	
Number of drinks consumed in the previous 30 days		18.09	39.52	

Table 2								
Effects of Drinking and Binge Drinking Participation on Sexual Behaviors Among College Students								
			Drinking Measures					
			Drinking participation			Binge drinking participation		
Behaviors	N		Coeff.	(S.E)	M.E.	Coeff.	(S.E)	M.E.
Had sex in the previous 30 days	34791							
Bivariate Probit			1.267 ^a	(0.131)	0.493	0.643 ^b	(0.252)	0.254
Wald test of rho=0			0.0000			0.1874		
Simple Probit			0.416 ^a	0.252	0.162	0.301 ^a	0.022	0.115
2SLS			0.424 ^a	0.059		0.426 ^a	0.687	
Exogeneity test			0.0000			0.0000		
Overidentification test			0.0111			0.0000		
Had sex with multiple partners	34791							
Bivariate Probit			0.512 ^a	(0.136)	0.373	0.264	(0.179)	0.028
Wald test of rho=0			0.3859			0.3512		
Simple Probit			0.393 ^a	0.032	0.031	0.426 ^a	0.027	0.040
2SLS			0.000	0.0270		0.016	0.031	
Exogeneity test			0.2234			0.394		
Overidentification test			0.3155			0.326		
Had sex without condom	34694							
Bivariate Probit			0.671 ^a	(0.138)	0.232	0.426 ^a	(0.146)	0.158
Wald test of rho=0			0.0091			0.1734		
Simple Probit			0.297 ^a	0.022	0.111	0.227 ^a	0.019	0.087
2SLS			0.195 ^a	0.057		0.211 ^a	0.648	
Exogeneity test			0.0789			0.0375		
Overidentification test			0.4122			0.3489		
Had sex without birth control	13853							
Bivariate Probit			-0.187	(0.197)	-0.048	0.065	(0.273)	0.016
Wald test of rho=0			0.0416			0.4589		
Simple Probit			0.215 ^a	0.035	0.045	0.267 ^a	0.026	0.059
2SLS			-0.316	0.533		0.016	0.067	
Exogeneity test			0.1563			0.562		
Overidentification test			0.8040			0.779		

Table 3					
Effects of Alcohol Consumption Intensity on Sexual Behaviors Among College Students					
			Number of drinks consumed		
Behaviors	<i>N</i>		Coeff.	(S.E)	M.E.
Had sex in the previous 30 days	34791				
AGLS			0.021 ^a	(0.004)	0.008
2SLS			0.008 ^a	0.001	
Exogeneity test			0.0000		
Overidentification test			0.0000		
Had sex with multiple partners	34791				
AGLS			0.005	(0.006)	0.0004
2SLS			0.0004	0.0006	
Exogeneity test			0.4375		
Overidentification test			0.3299		
Had sex without condom	34694				
AGLS			0.011 ^a	(0.004)	0.004
2SLS			0.003 ^a	0.001	
Exogeneity test			0.0257		
Overidentification test			0.2244		
Had sex without birth control	13853				
AGLS			-0.0003	(0.006)	-0.0001
2SLS			-0.0002	0.001	
Exogeneity test			0.4262		
Overidentification test			0.7809		

Policies	Had unplanned sex			Had unprotected sex		
	Coeff.	S.E.	M.E.	Coeff.	S.E.	M.E.
Real beer tax	-0.097	0.076	-0.0123	0.006	0.091	0.0004
On campus alcohol consumption prohibited to all	-0.047	0.042	-0.0058	-0.029	0.040	-0.0020
Pub on campus	0.002	0.031	0.0003	-0.033	0.034	-0.0023
Alcohol outlets within	0.091 ^c	0.049	0.0109	0.072	0.047	0.0048
Dry community	0.079	0.057	0.0106	0.047	0.049	0.0035
Public consumption restricted	-0.081	0.058	-0.0109	-0.041	0.056	-0.0030
Social host liability	0.070 ^c	0.038	0.0093	0.028	0.048	0.0020
Dram shop liability	-0.009	0.029	-0.0011	-0.010	0.031	-0.0007
Responsible server training	0.018	0.027	0.0023	0.038	0.030	0.0026
Warning sign posted	-0.023	0.036	-0.0030	-0.043	0.034	-0.0030
Minimum age to sell or serve	-0.035	0.035	-0.0044	-0.023	0.037	-0.0016
Home delivery restriction	-0.005	0.039	-0.0006	-0.014	0.046	-0.0010
Keg registration	0.114 ^a	0.040	0.0151	0.094 ^b	0.039	0.0069
Advertising restriction	0.058 ^b	0.028	0.0074	0.067 ^b	0.033	0.0048
Restriction on happy hours	-0.099 ^a	0.033	-0.0125	-0.022	0.038	-0.0015
Low price sale restriction	-0.009	0.037	-0.0012	-0.051	0.040	-0.0036
Restriction on pitcher sales	-0.069	0.078	-0.0083	-0.072	0.080	-0.0048
<i>N</i>	38192			38189		
Log-Likelihood	-20910.478			-12896.379		
P-value	0.0000			0.0000		

Policies	Experienced unwanted sexual advance			Experienced sexual assault or "date rape"		
	Coeff.	S.E.	M.E.	Coeff.	S.E.	M.E.
Real beer tax	-0.134	0.085	-0.0220	0.111	0.072	0.0006
On campus alcohol consumption prohibited to all	-0.083 ^a	0.038	-0.0132	0.038	0.054	0.0002
Pub on campus	-0.011	0.027	-0.0018	-0.010	0.035	-0.0001
Alcohol outlets within	0.084	0.051	0.0132	0.113	0.092	0.0006
Dry community	-0.004	0.054	-0.0007	0.109	0.087	0.0007
Public consumption restricted	-0.123 ^a	0.042	-0.0219	-0.066	0.074	-0.0004
Social host liability	0.040	0.038	0.0067	-0.022	0.048	-0.0001
Dram shop liability	-0.057 ^b	0.027	-0.0096	-0.038	0.049	-0.0002
Responsible server training	0.001	0.025	0.0001	0.026	0.038	0.0002
Warning sign posted	0.011	0.035	0.0018	0.026	0.043	0.0002
Minimum age to sell or serve	-0.036	0.035	-0.0058	-0.040	0.041	-0.0002
Home delivery restriction	-0.001	0.037	-0.0001	-0.019	0.053	-0.0001
Keg registration	0.055	0.037	0.0092	0.047	0.050	0.0003
Advertising restriction	0.024	0.024	0.0039	0.055	0.043	0.0003
Restriction on happy hours	-0.078 ^b	0.039	-0.0128	0.043	0.044	0.0003
Low price sale restriction	-0.014	0.039	-0.0023	-0.023	0.043	-0.0001
Restriction on pitcher sales	-0.053	0.082	-0.0085	-0.035	0.115	-0.0002
<i>N</i>	38352			38382		
Log-Likelihood	-25069.134			-3150.4301		
P-value	0.0000			0.0000		

Conclusion:

- Our results suggest a causal relationship between alcohol use and risky behavior in certain scenarios.
- Certain alcohol policies are effective in preventing risky sexual incidents.

