

**TIJUANA ALCOHOL CONTROL POLICIES:  
A RESPONSE TO CROSS-BORDER BINGE DRINKING BY YOUNG AMERICANS**

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A RESPONSE TO CROSS BORDER BINGE DRINKING BY YOUNG  
AMERICANS**

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**Abstract**

**Aims:** To document the implementation of Tijuana policies designed to deter binge drinking by underage Americans. Tijuana measures are identified and described. Their impact on reducing the number of Americans arrested for alcohol-related violations in Tijuana is also evaluated.

**Design:** Information on the enforcement of Tijuana alcohol policies was obtained from a survey of bars in Tijuana from 1997 to 1999 made on one randomly selected Wednesday, Friday, and Saturday night of each month. The Tijuana Policy provided data on Americans arrested in Tijuana from 1998 to 1999.

**Setting:** Tijuana's Zona Centro (Avenida Revolución and adjacent streets).

**Participants:** Thirty-two bars catering to Americans in Tijuana.

**Measurement:** Several features were recorded in each bar: clientele's age and ethnicity, presence of alcohol promotional advertising, positive service practice advertising, special sex-oriented attractions, and signs creating pressure for high consumption.

**Findings:** Alcohol regulations in Tijuana have been increasingly enforced during the period studied. However, Tijuana bars tend to differ in their characteristics and compliance with alcohol regulations according to the ethnicity of their targeted American clientele. Although the number of Americans arrested in Tijuana for alcohol

violations declined between 1997 and 1999, the decline seems more related to the enactment of policies to deter binge drinking in San Diego than to measures taken in Tijuana.

**Conclusions:** The enforcement of alcohol regulations in Tijuana has improved during the period analyzed. However, Tijuana alcohol policies were not as successful in reducing underage binge drinking by Americans as San Diego policies. Future alcohol policies should address the behavioral issue of binge drinking and alcohol-related assault as a cross-ethnic behavioral issue.

**Keywords:** binge drinking, Tijuana policies

## **Introduction**

For many US residents near the border of Mexico, binge drinking is a special concern because Mexican bars and nightclubs entice thousands of young Americans to drink every weekend night. Because of the lower minimum age for drinking (18 years old), inexpensive alcohol, and the perception of looser law enforcement, 4 to 7 thousand young Americans visit the bars of Tijuana's Zona Centro each weekend night (Lange & Voas, 2000). The impact of such a massive gathering of alcohol-demanding customers has raised the concern on both sides of the border. A discussion of the problem this causes on the US side of the border and an intervention designed to address these problems is presented in the companion articles in this issue (Lange, Voas & Johnson 2001, this issue; Voas *et al.* 2001, this issue). In Tijuana and the state of Baja California (where Tijuana is located), alcohol-related crimes are also raising concerns. Baja California, for example, had the highest crime rate among Mexican states in 1995 (11.59 robberies per 10,000 inhabitants, far above the Mexican national mean of 4.11), one of the highest incidence of assaults and homicides, and the highest incidence of rape (0.87 per 10,000 inhabitants, far above of the Mexican national average of 0.37) (Gobierno de Baja California, 1995).

Cross-border binge drinking in Tijuana is not a new problem. It dates back to the early part of the 20<sup>th</sup> century. However, it has generally operated outside of the public's perception until the spring of 1997, when television coverage of heavy drinking and erotic dancing by young girls aged 14 to 18 years attracted public attention to the problem. The increased visibility of this issue resulted in San Diego County funding a breath-test survey of youthful county residents returning home after a night of drinking in Tijuana. This survey demonstrated that what once might have been a

relatively minor problem had grown into a mass of young people returning to San Diego too impaired to drive. Moreover, the problem extended to the border area where alcohol-related fights became a focus. Ambulances had to be dispatched to the border several times a night to pick up returnees who were in danger of dying from alcohol poisoning. Added to this picture were the young women who reported being sexually assaulted in Mexico.

The publicity surrounding these problems led to the initiation of a community-level program called “Operation Safe Crossing” (Voas et al, 2001, this issue). This effort consisted basically of two elements: enforcement action and media advocacy. Mexican officials in Tijuana were also invited to the project meetings, and a dialogue with public health, university, police, and alcohol control officials south of the border was initiated.

Although it may have seemed that Mexican authorities were not particularly concerned with the problems caused by free-spending Americans in their local bars, this was not the case. Mexican officials expressed significant concern with the alcohol-related violence in Tijuana associated with drinking by young Americans. Perhaps more important, the unattractive environment created by the drunken youths and the bars that cater to them discourages visits from the more upscale clientele that better restaurants and hotels in Tijuana are trying to attract. In addition, the factories that the North American Free Trade Agreement (NAFTA) has spawned along the border are creating a new middle class who are also concerned with the poor reputation caused by the cross-border binge drinking. Consequently, Mexican officials have shown considerable interest in working with San Diego program managers to improve safety in Tijuana.

As a result of the cross-border coordination, Tijuana officials have put pressure on the bars to (1) remove alcohol promotional signs from the fronts of their premises, (2) check identifications to prevent entry of youths younger than the Mexican drinking age of 18, (3) post notices about the drinking age, (4) implement designated driver programs, and (5) provide responsible beverage training to their wait staffs. In addition, the visibility of the police was increased on weekend nights by assigning more than 100 officers to Zona Centro.

The importance of Tijuana initiating its own efforts to deter binge drinking cannot be overstated. Actions taken in Mexico to reduce cross-border drinking have been very effective in the past. For instance, the closing of Tijuana bars on election weekends has reduced the number of youthful crossers by as much as 75% and has reduced their drinking by almost 100% (Kelley-Baker *et al.*, 2000). In Juárez, south of El Paso, Texas, closing the bars at 2 AM rather than 5 AM reduced youthful crossers by a third and drinking by a half (Voas, Lange & Johnson, 2001, this issue).

This study evaluates Tijuana alcohol policies as an indicator of problems occurring on the south side of the border based on the number of young Americans arrested for alcohol-related offenses in Tijuana. Tijuana alcohol policies were primarily directed at reducing the risk associated with drinking; therefore, it is reasonable to assume that they had an impact on alcohol-related crimes and subsequent arrests. However, it is likely that variations in the number of Americans arrested for alcohol-related violations in Tijuana would be associated not only to the success of Tijuana efforts, but also the Institute for Public Strategies (IPS) efforts in San Diego and the subsequent reduction in the number of crossers documented by Voas *et al.* (2001, this issue). This possibility is also considered in this study.

Success in current alcohol policies against underage binge drinking in Tijuana may also have an indirect effect on bars. A decline in the number of American visitors to Tijuana would put pressure on bar owners to raise the price of alcohol to compensate for profit losses. It has been well established that high alcohol prices lead to a decline in alcohol consumption, particularly for youthful binge drinkers (Abel, 1998; Wechsler *et al.*, 2000). However, the Tijuana bar owners do not have many incentives to raise the price of alcohol. The Tijuana/San Diego binge-drinking market is unique as Tijuana bars compete not only among themselves, but also against the very different San Diego bars. Inexpensive alcohol is one of the main reasons that Americans opt for Tijuana bars instead of San Diego bars (Lange *et al.*, 2001, this issue). The uncertain economic impact of the policies being considered on the price of alcohol in Tijuana is also explored in this study.

Thus, the objectives of this article are threefold. The first objective is to document the 1997-1999 implementation of Tijuana policies designed to deter binge drinking by underage American tourists. Such measures are identified and described, and their evolution assessed. The second objective is to evaluate the evolution of the safety of American visitors to Tijuana by analyzing their involvement in alcohol-related law violations in Tijuana. To the extent possible, an effort is made to evaluate the relative impact of Tijuana and San Diego policies on the evolution of the number of Americans arrested in Tijuana. The third objective is to investigate the impact of both Tijuana and San Diego policies on the amount of money spent by American visitors to Tijuana bars.

## **Alcohol in Tijuana**

A variety of federal, state, and municipal laws and regulations control alcohol sales and drinking in Tijuana. The Federal Ley General de Salud (General Health Bill, Articles 220 and 227) of 1984 prohibits the sale of alcohol to minors 17 years old and younger. Commercial and other civic activities in Tijuana are regulated by the Reglamento del Bando de Policía y Buen Gobierno de Tijuana (Tijuana's Police and Good Government Code) of 1991. Most arrests of Americans in Tijuana are based on violations of Article 79, Chapter III, of this code. Article 79 defines activities that can be considered a violation of "public order, public safety, and moral integrity" (infracciones que afectan el orden público, la seguridad y la moral de las personas).

Most Tijuana bars that attract young Americans are located in a part of town called Zona Centro, particularly on one street, Avenida Revolución. The street runs north and south spanning 10 blocks, with its northernmost end merely 7 to 8 blocks away from the Mexico-US San Ysidro Port of Entry (POE). There are about 40 bars in this area, of which most are one- or two-story buildings. During the day, Avenida Revolución is lined with vendors selling goods and food items to family-oriented tourist. On weekend nights, neon lights and loud music dominate the scene. Recently, on weekend nights, the police have blocked vehicle traffic. Crowds of young and festive pedestrians fill the sidewalks, spilling into the street late at night. Bars attempt to attract customers by displaying signs offering "all you can drink" deals, special discounts, or exotic shows. *Barkers* standing at the door try to entice walkers into their bars. Many bars advertise Wednesday nights as "college nights," offering drinks at 25 cents each.

## **Evaluation Methods**

### *Bar survey*

The effectiveness of alcohol policy regulation in Tijuana was investigated by surveying bars in Zona Centro along Avenida Revolución. From October 22, 1997, to November 20, 1999, 32 bars located in Zona Centro were surveyed on one randomly selected Wednesday, Friday, and Saturday night each month. The survey route brought the observer to each bar twice on each evening a survey was conducted. A total of 4390 visits were recorded. The same Tijuana native served as the observer throughout this period. This ensured consistency and a full understanding of the language, the habits, and the culture of Tijuana. Because the survey was set in a potentially risky environment, the observer not only had to be skillful, well trained, responsible, and reliable, but also inconspicuous enough to meld with the crowd.

To enhance the safety of the observer, direct contact with owners, attendants, or patrons was avoided. The survey relied exclusively on visual inspection. The observer, twice a night, walked a route designed to cover as many bars as possible. The two rounds covered early (from midnight to 2 AM) and late (from 3 AM to 5 AM) activities. As initially designed, the route covered all 36 bars on Avenida Revolución. After a weekend pilot survey, six bars that were not open during the early survey period were dropped. After 10 months, two recently opened, popular bars were added to the route.

A bars' compliance with policies and regulations tended to vary with the characteristics (nationality, ethnicity, age, and gender composition) of the targeted clientele. To explore this possibility, the observer was asked to estimate the place of

residence of bar patrons (Mexican, American, or Resident-Mixed), ethnicity of American visitors (Hispanic-American, White-American, African-American, or Ethnic-Mixed), age (18 to 25 years, 26 years and older, or mixed), and gender (men, mixed) for each bar. Because no interview was possible, these items were recorded based on the observer's subjective impressions. The observer's ability to discern place of residence was based on physical cues, clothing, language, and other cultural differences.

Interestingly, Americans are generally rather easy to spot in Tijuana.

The distribution of bar clients' residences was estimated. Bars where a majority of Americans or Mexicans was spotted during more than 50% of the observer's visits were subsequently classified as American or Mexican bars. Bars where no clear majority could be established were classified as Resident-Mixed bars. Within the bars classified as American, the ethnic characteristics were further defined as Hispanic-American, White-American, African-American or Ethnic-Mixed bars. For example, on 86 of the 89 visits to bar #38, the observer recorded a majority of African-American clients. Hence, bar #38 was identified as African-American. Gender differences between bars were classified into two categories: "mostly male" or "mixed." The clientele was also classified into two age groups: young (25 years and younger) or 26 years and older.

Besides identifying the targeted clientele in each bar, the observer also identified several alcohol-promotion items. Surveyed items included the presence of alcohol promotional advertising (e.g., "free tequila," "women drink free all night"), positive service practice advertising (e.g., "no minors allowed"), special sex-oriented attractions (e.g., "wet T-shirt night"), or signs creating pressure for high consumption (e.g., "poppers," which is a service practice where the patron's head is tipped back from

behind by the server who pours tequila directly down the patron's throat while blowing a whistle to attract the attention of other patrons). The number of security guards, the size of the crowd (almost full, half, almost empty), and the number of barkers employed at each bar were also recorded.

Obviously, there were analytical limitations imposed by information so subjectively obtained. Unfortunately, the potentially dangerous environment in which the survey was conducted precluded a more intensive data collection. The observer's exposure to the bar owners, employees, and patrons in that environment could have not only compromised safety, but also the ability to complete future surveys. Further, it was important to avoid having the data collection process impact the behavior being observed. Consequently, interviews and personal contacts with patrons and owners had to be explicitly avoided. However, the observer's ability to make the requested bar identifications was validated by crosschecking observation records against the border project's survey of returning Americans (Lange, Lauer & Voas, 1999). This survey samples Americans returning from Tijuana at the border POE and asks, among other information, about the last bar visited.

#### *Analysis of bar survey*

Compliance with alcohol-related policies by bars was statistically investigated both by cross-sectional and time series analyses. ANOVA tests were used to measure differences between bars on continuous variables such as number of security guards or barkers. Chi square tests were applied to evaluate discrete variables. Time series analysis was applied to evaluate the evolution of such policies over time.

*Tijuana criminal justice data*

The involvement of American citizens in alcohol violations in Tijuana was evaluated by analyzing the number of Americans arrested in the vicinity of Avenida Revolución. This information, provided by the Tijuana police, contains records on all types of crimes, not just those that are alcohol related. After deleting two deaths, one natural and one self-inflicted, the file showed that 4398 Americans were arrested in Tijuana between June 1, 1998, and November 15, 1999. The police file does not contain information on every crime that took place in Zona Centro in which Americans were involved. For each arrest made each weekend night in Avenida Revolución, there are probably another 10 incidents that either go unreported or do not merit an arrest (Ricardo Arenas, Police Department, Tijuana, personal communication). The police file also contained detailed information on the date, place, time, and cause of the arrest. Personal information other than age was removed.

*Analysis of criminal justice data*

Cross-sectional and time-series analyses were applied to analyze the evolution of alcohol-related law violations caused by American visitors to Tijuana. In addition, a monthly time-series analysis was also applied to investigate the influence of Tijuana and San Diego policies on the number of Americans arrested in Tijuana for alcohol-related violations (dependent variable). Tijuana policies were represented in our model by a variable showing the percentage of bars showing positive ads. The monthly number of Tijuana visitors to Tijuana, as recorded by the Immigration and Naturalization Service (INS), was used as a measure of the effectiveness of the IPS's binge-deterrent policies.

The alcohol policies impact on the price of alcohol in Tijuana was investigated from indirectly obtained data. Detailed price statistics for Avenida Revolución's bars was not available, nor was detailed information on alcohol prices collected during the survey of the Avenida Revolución bars. The pricing of alcohol was too difficult for the observer to record because of specials such as "all you can drink" or "ladies free," the "poppers" ritual, and the perceived variations in the clubs' cover charges (e.g., sometimes including "all you can drink" privileges). However, relevant economic information obtained from Lange *et al.*'s (1999) border survey was applied. In that survey, returning drinkers were asked how many drinks they had had and how much they had spent on alcohol in Tijuana. Using this information permitted a rough estimate of the evolution of cost per reported drink and the total amount spent by cross-border drinkers between January 1998 and December 1999. Such an evolution was investigated by regressing dollars spent on Tijuana bars during the survey. Because data collection involved a complex sampling structure (i.e., observations may be correlated within individual stratum), traditional least squares regression could not be used. Hence, the analysis of the evolution of alcohol price over time was conducted using the Taylor linearization method of estimation in the SUDAAN software system (release 7.5.2). This approach allowed us to account for the particular sampling structure and produced appropriate standard errors.

## **Results**

This section presents a description of Tijuana alcohol policies, then describes the impact of those policies on the number of Americans arrested in Tijuana.

*Characterization of Tijuana bars and alcohol policies*

Tijuana bars are not homogeneous regarding the clientele they serve. Although most of the surveyed bars along Avenida Revolución in Zona Centro serve Americans (25), some bars attract Mexican customers (6), and others have a more balanced clientele (3). Among the predominantly American bars, most attract Hispanic-Americans (11), followed by White-Americans (7), Ethnic-Mixed (6), and African-Americans (1). Because the bars vary in size, the number of bars serving a particular group is not necessarily indicative of the proportional representation of that particular group in the overall cross-border binge-drinking population. (The ethnic composition of border crossers is reported in a companion article in this issue.) Further, the border survey has shown that most American visitors tend to gather around a handful of bars. The border survey shows that more than 50% of Americans returning from Tijuana mentioned either one of two bars as the last bar they visited.

Comparisons between American (of any ethnicity) and Mexican bars showed that American bars had a younger, more gender-balanced (larger presence of females) crowd ( $p < .001$ ). Also, American bars were less crowded later at night than Mexican bars ( $p < .001$ ). Such disparities in crowd composition could be attributed to cultural differences in the way Americans and Mexicans approach Tijuana bars. However, differences in the time of departure may just be a function of the travel distance required by Americans visiting the bars in Tijuana.

Not surprisingly, American and Mexican bars differed on the methods used to elicit their clientele. American bars were more likely to have alcohol-inviting and erotic ads covering their windows such as “All You Can Drink,” “Ladies Night,” and “No Cover” than Mexican bars ( $p < .001$ ). Barkers were also spotted more often trying to lure

pedestrians into American bars. On average, three barkers were seen at American bars, compared to just one at Mexican or Resident-Mixed bars ( $p < .01$ ). Similarly, serving practices that promote excessive consumption (e.g., poppers) were also significantly more often observed in American bars than in Mexican bars. Poppers were reported in 36% of American bars compared to 13% of Resident-Mixed bars and 3% of Mexican bars ( $p < .001$ ). Erotic signs such as “Strip Tease” or “Bikini Contest” were also reported more often in American bars ( $p < .001$ ). Prostitutes, however, were observed with equal frequency in American and Mexican bars (34%) but much less frequently in Resident-Mixed bars (8%). Only one sign announcing “Happy Hours” appeared more often on Mexican bars ( $p < .001$ ).

Positive signs such as “No Minors Allowed,” “No Drugs,” “Designated Driver,” and “Dress Code Requirements” appeared more often on American and Mexican bars (16%) than on Resident-Mixed bars (6%) ( $p < .001$ ). Also, there was no significant difference among Mexican and American bars in the number of security guards employed. An average of 1.4 and 1.2 security guards per night were observed in American and Mexican bars, respectively. The number of security guards in Resident-Mixed bars, however, was significantly lower (.5) ( $p < .001$ ).

Differences were also observed among American bars. White-American and African-American bars attracted a younger crowd ( $p < .01$ ). Additionally, White-American and African-American bars were less crowded late at night than Hispanic-American bars, although the number was not statistically significant. These findings were validated by Lange *et al.*'s (1999) survey of returning American visitors. The analysis of this survey's data confirmed that about 73% of White-Americans and 71% of African-Americans, but only 29% of Hispanic-Americans, returning from Tijuana

were 24 years old or younger ( $p < .001$ ). Lange et al.'s survey also showed that the number of Hispanic-Americans returning from Tijuana bars sampled after 4 AM rose proportionally more than the number of White-Americans or African-Americans ( $p < .001$ ).

Not surprisingly, the ethnicity of the clientele of American bars was related to the method those bars used to attract customers. Erotic signs were more likely to be observed on White-American and African-American bars than Hispanic-American bars ( $p < .001$ ). Prostitutes, however, were more frequently noticed in Hispanic-American and Ethnic-Mixed bars ( $p < .001$ ). "All You Can Drink" signs are displayed significantly more often on White-American and African-American bars ( $p < .001$ ). "No Cover" signs appear more often on Hispanic-American and Ethnic-Mixed bars ( $p < .001$ ). Barkers and whistles were significantly more likely to be observed in Hispanic-American and Ethnic-Mixed bars, while poppers were more frequently seen on White-American and African-American bars ( $p < .001$ ). Positive service ads and security guards were spotted more often in African-American and White-American than in Hispanic-American bars. An average of 2.6, 1.5, and 1 security guards were observed in African-American and White-American, Hispanic-American, and Ethnic-Mixed bars, respectively ( $p < .001$ ).

#### *Evolution of Tijuana bar characteristics*

The number of bars with a majority of American customers declined from October 1997 to November 1999. Figure 1 shows that about 80% of the bars visited in November 1997 had a majority of American patrons. This percentage was reduced to 60% by November 1999. Most of this decline took place during the first year of the bar survey, which coincided with the first year of the San Diego Safe Crossing Project that increased enforcement effort on the US side of the border. Thus, the decline in bar

patrons coincided with the decline in the number of American weekend night visitors to Tijuana (Voas *et al.* 2001, this issue). Although small and not statistically significant, the reduction seemed to be greater among White-Americans and young visitors (ages 18-25 years) than among the other ethnic and age groups.

**Insert Figure 1 here**

Increasing compliance with Mexican policies limiting alcohol promotion seems to have been limited only to American bars as no comparable changes occurred in the Mexican bars. Figure 2 shows that on November 1997, erotic and drink promotions appeared in about 20% of the American bars. By November 1999, erotic promotions declined almost to 0%, and drink promotions declined to 7%. Simultaneously, positive signs increased. In contrast, the number of barkers remained constant, and the number of security guards gradually increased.

**Insert Figure 2 here**

*Americans arrested in Zona Centro*

Most Americans arrested in Zona Centro were in violation of Article 79 of the Municipal Code (n=3,769, about 88% of the data). Such violations are considered misdemeanors and are punishable by up to 36 hours of jail or a fine equivalent to from 3 to 30 days based on a minimum wage salary (Reglamento del Bando de Policía y Buen Gobierno de Tijuana, Articles 88 to 94). The remaining 12% of arrests (n=522) were based on federal violations (felonies). Suspected felons must remain under the custody of the government of Baja California and are subject to a jail sentence of up to 3 months. A limitation of the Article 79 data set is that the Tijuana police do not routinely record the blood alcohol concentration (BAC). In general, only those

appearing to be highly intoxicated are arrested for alcohol-related violations. A judge, who is available at the precinct 24 hours a day, decides the fees and/or jail time for Article 79 misdemeanors. Because of such availability, most Americans arrested on weekends are released after spending only a couple of hours in the precinct jail and paying a fee (Ricardo Arenas, Police Department, Tijuana, and personal communication). Most Americans arrested in the vicinity of Avenida Revolución were very young: 41% were younger than aged 21 years and 8% were younger than aged 18 years. Mean and median ages of those arrested were aged 26 and 23 years, respectively. As expected, mean and median ages were even lower on Fridays and Saturdays (aged 24 and 22 years, respectively).

Most arrests were made on weekends: 50.5% of all arrests were made on Fridays and Saturdays, 10.6% on Wednesdays, and 9.3% on Sundays. Generally, most arrests were made late at night, with 60% occurring between 11 PM and 6 AM. Arrests peaked between 3 AM and 4 AM (20.3% of all arrests). The mean age of those arrested at night was lower than those arrested at daylight (24 years at 3 AM, 32 years at 9 AM).

The Tijuana police classified 67% of misdemeanors (n=2,505) as alcohol related. This figure is conservative because, as mentioned above, only obviously drunk violators are arrested. Among the remaining misdemeanors (i.e., those not clearly defined as alcohol related), the most common were for soliciting sex (579, 15%), nonrespectful behavior (228, 6%), gang-activities (184, 5%), and urinating in public (107, 3%). It is likely that some or most of these violations were also alcohol related.

Among felonies, trespassing and violation of private property were the most common (n=120, 23%), followed by robbery (95, 18%), drug-related offenses (83, 16%),

fights resulting in injuries (59, 11%), gun possession (56, 11%), and others. Unlike misdemeanors, only 5% of felonies were classified by the police as alcohol related.

Figure 3 shows that the total number of Americans arrested in the vicinity of Avenida Revolución has been declining since September 1998. There was an initial surge in arrests recorded in July and August 1998. However, the apparent initial increase may simply reflect improvements in record keeping because during that time arrests of Americans began to be recorded. Given that the number of arrests caused by other misdemeanors and felonies remained stable over time, most of the decline could be attributed to a reduction in misdemeanors clearly associated to alcohol. Most of that decline occurred on weekends.

### **Insert Figure 3**

Table 2 shows the outcome of testing the significance of the decline on comparable months (i.e., July-October, when data for both 1998 and 1999 are fully available). There was an overall significant reduction in total number of arrests ( $p < .001$ ), particularly on Fridays and Saturdays, with almost no change on Mondays and Thursdays, and an increase in arrests on Tuesdays. The reduction on weekends was due mainly to a reduction in misdemeanors, with arrests for felonies remaining stable.

### **Insert Table 2**

The relative influence of San Diego policies (measured as the number of cross-border visitors) on the number of Americans arrested for alcohol violations in Tijuana compared to the impact of the anti-binge-drinking promotions in Tijuana was analyzed under an ARIMA (1,0,0) model. The estimated coefficients for both factors appear with

the correct sign (i.e., negative for positive signs for “no minors allowed”; “designated driver program,” suggesting an inverse relationship with arrests; and negative for number of visitors, showing a direct influence on arrests). However, only the number of visitors is statistically significant ( $p=.001$  level).

#### *Money spent by American visitors to Tijuana bars*

The border survey raw data shows that in 1998, the average American visitor spent \$6.93 per weekend night on Tijuana bars. In 1999, average spending rose to \$11.98 per weekend night (\$11.4 in constant 1998 dollars). Such a raw finding was statistically tested by a regression of the amount of money spent over time.

The analysis of the amount of money spent by American visitors in Tijuana shows that, for both men and women, the total amount spent per individual per night increased significantly over time between January 1998 and December 1999 [ $F(1, 4) = 25.6, p < .01$ ;  $F(1, 4) = 23.3, p < .01$ ]. In contrast, no statistically significant change in the number of drinks consumed by both men and women per night was detected (the median number of drinks per American visitor was 1 both in 1998 and 1999).

An analysis on the amount of money spent on alcohol per individual per night but controlling for the number of drinks consumed confirmed this hypothesis: for both men and women, the amount of money spent per drink in Tijuana increased significantly over time [ $F(1, 4) = 32.7, p < .01$ ;  $F(1, 4) = 23.2, p < .01$ ].

### **Discussion**

Several policies aimed at reducing alcohol-related crimes and improving the safety of American visitors have been enacted in Tijuana. This study shows that although such measures probably were not strictly enforced, several have produced

positive changes in the promotion of alcohol in Tijuana. During the period studied, negative advertising such as alcohol-promoting banners hanging outside bars has been decreasing, and positive signs with more responsible messages have been increasing.

This gradual response to Tijuana ABC authority regulations suggests that authorities in Tijuana, although applying some pressure to reduce advertising specials signage, have tried to avoid being excessively confrontational with bar owners. During this period, the bars on Avenida Revolución received considerable negative publicity in the San Diego papers. Therefore, it is not clear whether the removal by bar owners of promotional signs was in response to Mexican authorities or the US press.

Positive signs such as “no minors allowed” have been more evident on bars catering to American visitors rather than local Mexican residents. Although the larger display of positive signs in American bars may reflect some bar owners’ concerns for the safety of American visitors, it may also be in response to safety requests made by American officials like those from the San Diego’s Operation Safe Crossing Project. In any case, the increasing enforcement of Tijuana alcohol policies over time, albeit slow, is encouraging.

As is typical anywhere, Tijuana bars tend to cater to different types of clients through their advertising, entertainment, or ambiance. For instance, prostitutes are spotted more often in American bars catering to Hispanic-Americans, but erotic shows are advertised more often on the windows of American bars catering to White-Americans. Also, security is particularly tight for African-American and White-American bars. Such a safety distinction may suggest either that the bar environment in Tijuana is more dangerous for African-Americans and White-Americans than Hispanic-Americans, or that the perception of Tijuana dangers may be more acute

among African-Americans and White-Americans and, therefore, greater security is required to attract them. That bars catering to White-Americans and African-Americans are more dangerous is possibly because young Americans surveyed on their way into Mexico indicated that they intended to get drunk and “go a little crazy” (Voas & Lange, 2001, unpublished data).

A better understanding of different cultural and ethnical preferences may be necessary to refine future alcohol policies. For instance, because White-Americans tend to arrive and depart earlier from Tijuana, an earlier closing of Tijuana bars may have a greater impact on Hispanic-Americans than on White-Americans. Regardless, Hispanic-Americans return to the United States with lower average BACs (Lange and Voas, 2000).

The number of Americans arrested in Zona Centro has been declining over time. The Mexican authorities have claimed that this reduction is due to new Tijuana alcohol policies. (Rodríguez Arellano, 1999). However, the decline in arrests can also be explained by the reduction in American visitors caused by the IPS intervention in San Diego (Lange *et al.*, 2001, this issue). Regardless of the relative importance of these factors, the perceived progress in the safety of American visitors is encouraging and may lay the basis for important economic changes in the area.

An economic policy that might have been effective in reducing cross-border bingeing would have been to raise the prices of drinks. In fact, an effort to persuade bar owners to improve amenities to attract upscale clients, which would permit increasing the price of drinks, has been attempted as part of the responsible beverage sales programs provided to Tijuana bars. However, with 40 bars crowded along Avenida Revolución and many more in San Diego, competition was too strong to induce any

voluntary increase in alcohol price. Furthermore, Tijuana bar owners deliberately charge low prices to lure American patrons away from San Diego bars.

However, what persuasion could not achieve was marginally obtained by the induced reduction in demand. Our study shows that the amount of money spent by an American weekend night visitor to Tijuana. This finding, coupled with a lack of change in the reported number of drinks consumed by Americans in Tijuana suggests that the cost per reported drink has increased over time. Hence, our results suggest that with the decline of visitors, Tijuana bars have been raising the price of alcohol as a way to maintain their profit levels.

It is also possible that the observed price increases could have contributed to the decline in the number of American patrons. Demand for alcohol is highly price elastic among young individuals. It is likely, though, that the contribution of the rise in alcohol prices in Tijuana to the observed decrease in visitors was only marginal. The alcohol price differential between Tijuana and San Diego is still high enough to motivate most youthful binge drinkers to go south of the border. Price, however, is only one of many factors making Tijuana bars attractive to Americans. Other factors are the lower minimum drinking age, the lax law enforcement, and a perception of Tijuana bars' environment as more festive (Lange *et al.* 2001, this issue).

The real economic cost of drinking in Tijuana includes the time and cost of travel to Mexico as well as the price of drinks. As long as the cost differential between San Diego and Tijuana is sufficient to provide a buffer zone to account for that expense, youthful drinkers would probably continue to cross the border to drink. Even if prices in Tijuana rose to the real cost of drinking in San Diego, underage youth would still be expected to cross the border to avoid the minimum age law restrictions.

Further, if Tijuana continues to be perceived as a location where social and legal controls are relaxed, youth who want to get drunk and “go a little crazy” might even pay a premium to drink in Mexico.

In summary, our study confirms previous reports that significant progress has been achieved in reducing cross-border binge drinking in the Tijuana/San Diego area. Our study also shows that, although important advances have taken place in Tijuana, so far most of the positive effect has come from programs north of the border. The effect of closing the bars at 2 AM, rather than allowing them to be open all night in Juarez across the border from El Paso (Voas *et al.*, 2001 under review), demonstrated that given the will, Mexican alcohol beverage policies can have a stronger effect on cross-border binge drinking than will US enforcement operations.

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**Table 1.** Evolution over time of the number of Americans arrested in the vicinity of Avenida Revolución, by cause.

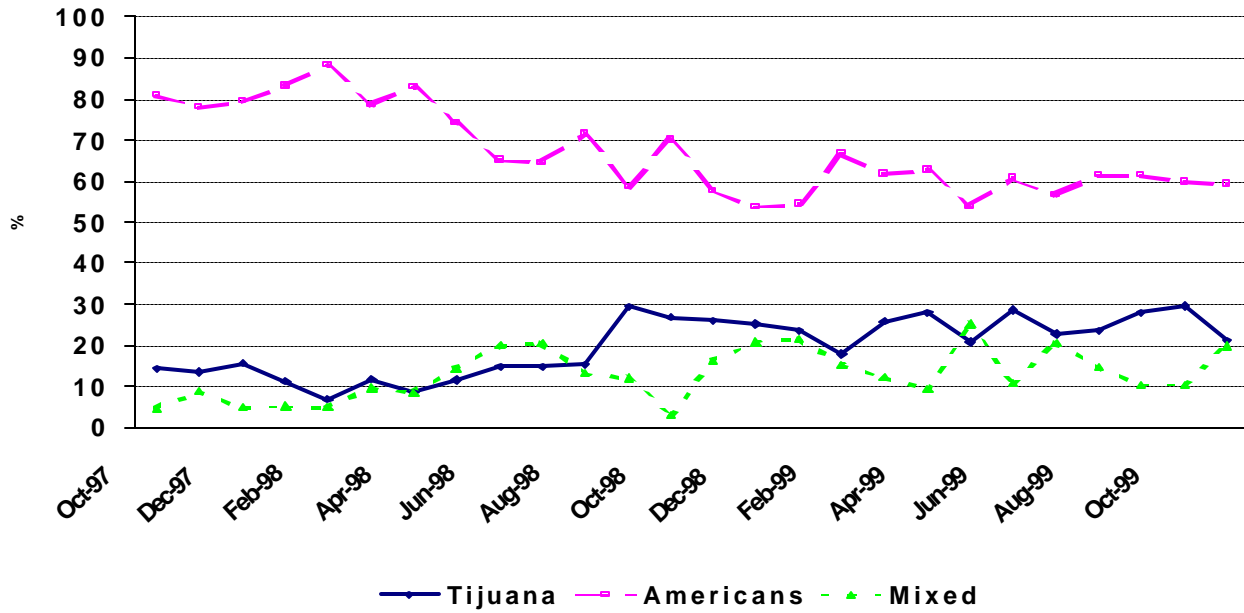
		MISDEMEANORS			FELONIES
		ALL	Alcohol	Other	
1998	JUN				
	JUL	134	66	58	10
	AUG	231	125	96	10
	SEP	333	198	101	34
	OCT	393	231	120	42
	NOV	344	224	97	23
	DEC	266	170	57	39
	JAN	381	242	90	49
	FEB	317	190	94	33
	MAR	360	205	123	32
	APR	311	164	119	28
	MAY	240	127	66	47
1999	JUN	257	151	56	50
	JUL	222	123	62	37
	AUG	203	113	49	41
	SEP	200	107	63	30
	OCT	166	76	54	36
	NOV	139	84	29	26
	DEC	51	36	15	0
	JAN	68	47	21	0
2000	FEB	42	27	13	2
	MAR	64	33	29	2
	APR	73	37	32	4

Source: Department of Police, Tijuana.

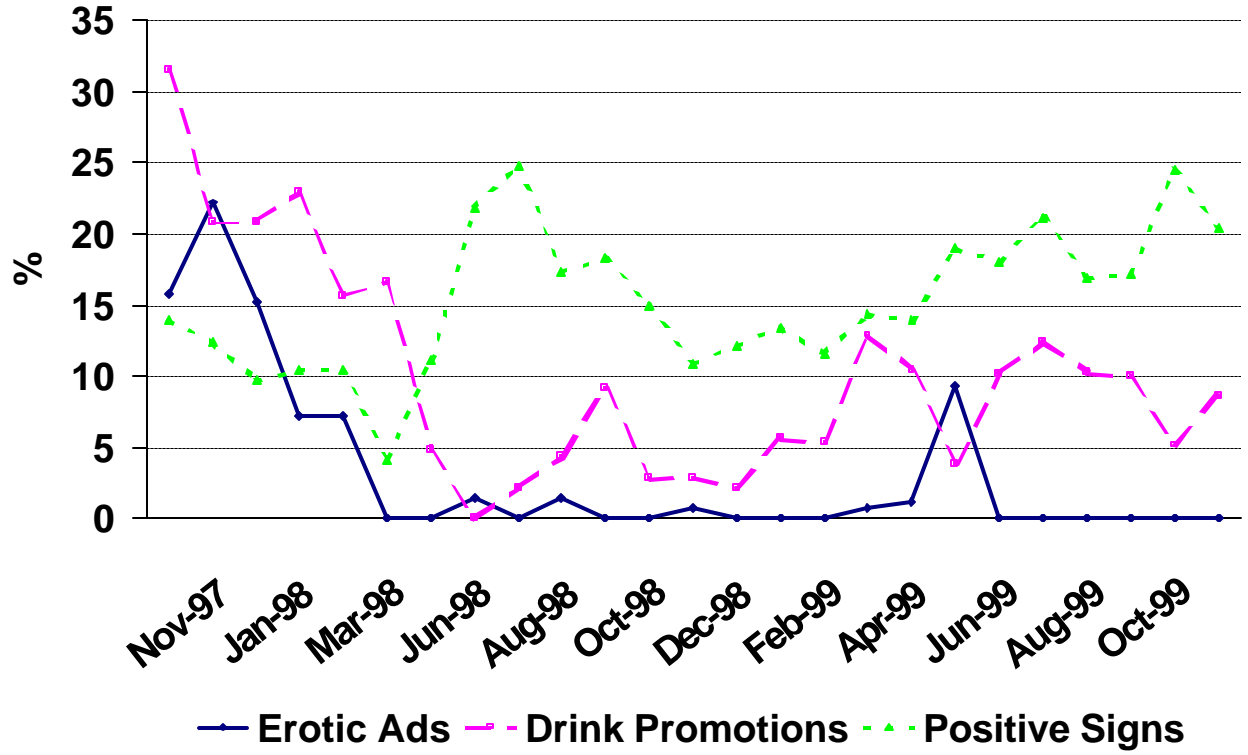
**Table 2.** *Number of Americans arrested in the vicinity of Avenida Revolución on Comparable Months (July-October)*

	ALL		MISDEMEANORS		FELONIES	
	1998	1999	1998	1999	1998	1999
<b>FRIDAY</b>	319	166	268	136	29	30
SATURDAY	435	236	395	208	24	28
SUNDAY	131	89	107	79	16	10
MONDAY	95	95	84	76	5	19
TUESDAY	78	97	68	68	9	29
WEDNESDAY	126	107	109	83	13	24
THURSDAY	93	89	77	67	11	22
Chi-Square		47.137		27.44		16.796
<i>p</i> value		0.001		0.001		0.01

**Figure 1.** Monthly percentage of bars with a majority of American and Mexican clientele  
(October 22, 1997-November 20, 1999)



**Figure 2.** Monthly percentage of American bars showing erotic, drink, and positive promotions (October 22, 1997-November 20, 1999).



**Figure 3.** Monthly number of Americans arrested on Zona Centro by cause  
(July 1998 – April 2000)

