

## CONSUMER DEBT, ALCOHOL USE, AND DOMESTIC VIOLENCE IN GUAM

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Using community-level economic and crime data derived from secondary sources, this brief study explores the relationships between consumer debt, alcohol use, and domestic violence in Guam for the years 1982 through 1993. The results of the analysis indicate that higher levels of consumer debt are strongly related to greater alcohol consumption and domestic violence, thus suggesting that “financial strain” may be an important variable for understanding patterns of substance abuse and family violence in Guam. The implications of these results for theory and future research on substance abuse and domestic violence are also discussed.

**THIS RESEARCH NOTE** explores the relationships between consumer debt, alcohol use, and the prevalence of domestic violence in Guam. A number of earlier studies have examined similar associations for U.S. mainland populations (see Catalano et al. 1993 and the studies cited therein). The current literature, however, reveals virtually no analyses of this kind for Guam or Micronesia, where domestic violence resulting from alcohol abuse appears to be pervasive (e.g., Hoff 1992; Nero 1990).<sup>1</sup> The results of previous studies indicate that contracting economies contribute to higher rates of unemployment, which in turn relate to greater sales of beverage alcohol, arrests for

alcohol-related problems (Brenner 1975, 1977; Catalano et al. 1993; Catalano 1991; Crawford et al. 1987; Greenburg and Grunberg 1995; Layne and Lowe 1979), and potentially higher rates of domestic violence (Hoff 1992; Nero 1990; Pinhey 1997).

This brief study examines increases in alcohol use and domestic violence as functions of “financial strain” (Peirce et al. 1994), which is operationalized here as the annual rate of consumer debt for Guam residents.<sup>2</sup> We argue that consumer debt is a relatively recent phenomenon in Guam, and that such debt may have previously been a family-shared obligation rather than an individual burden. Additionally, persons in Guam may now be obligated to formal lending institutions outside of the family for financing, resulting in rigidly scheduled payments and the potential besetment of collection agents upon individuals when payment schedules are not met.<sup>3</sup> Just as unemployment may result in a significant loss of family income, thus producing economic strain, so increasing consumer debt is likely to reduce a family’s discretionary spending, resulting in financial strain, greater alcohol use, and increasing domestic violence. We therefore anticipate that greater consumer debt in Guam will correspond to increasing alcohol consumption, and that growth in both of these measures will correlate with increasing reports of domestic violence.

### **Methods and Measures**

Three community-level variables were analyzed to explore the potential effects of financial strain on alcohol consumption and domestic violence in Guam: *consumer debt*, *beverage alcohol taxes*, and *family violence offenses*. Complete data for these variables were available for twelve years (1982–1993 inclusive). The consumer debt measure reflects annual levels of outstanding installment loans (excluding real property) for Guam residents. Alcohol use is measured using the annual total tax receipts received from the sale of malted beverages on the island. The domestic violence measure reflects annual summaries of family violence offenses reported to the Guam Police Department.<sup>4</sup> To attain comparability for graphing the relationships of these variables, they were standardized so that each has a mean of zero and a standard deviation of 1. Additional calculations were performed on unstandardized measures.

### **Results**

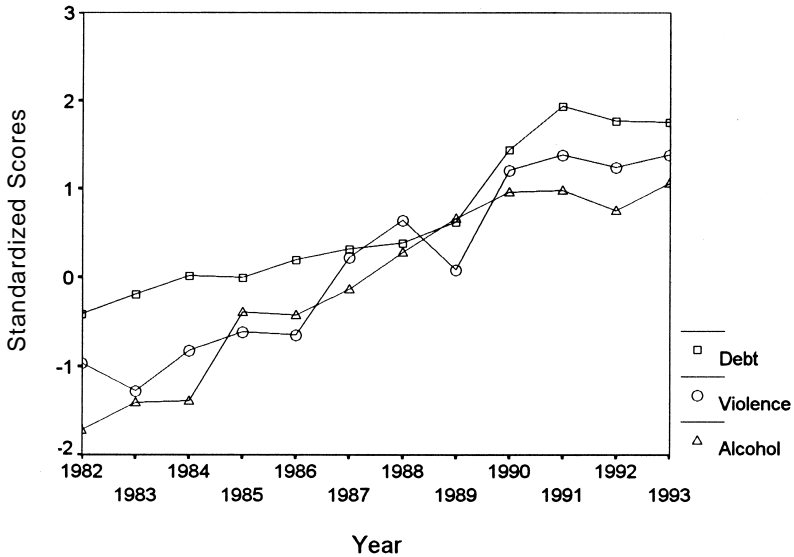
An inspection of the data presented in Table 1 suggests that consumer debt, malted beverage tax receipts, and reports of domestic violence in Guam are

**TABLE 1. Measures of Consumer Debt, Alcohol Taxes, and Reports of Domestic Violence in Guam (1982–1993)**

Year	Consumer Debt (millions of US\$)	Alcohol Tax (US\$)	Domestic Violence (no. of incidents)
1982	98.0	232,757	28
1983	121.0	369,216	19
1984	143.9	377,394	32
1985	142.0	818,428	38
1986	163.2	804,603	37
1987	176.1	930,766	62
1988	183.3	1,114,120	74
1989	207.8	1,282,748	58
1990	294.5	1,413,714	90
1991	347.2	1,421,469	95
1992	329.7	1,322,426	91
1993	328.4	1,459,070	95
Mean	211.3	962,225.92	55.9
Increase	235%	526%	239%

correlated for the years studied. Indeed, the values for each measure indicate a clear pattern of linear increase. Since the mean scores in Table 1 may be interpreted as the average annual increase for each of the three measures, it can also be seen that consumer debt, alcohol use (as measured by malted beverage tax receipts), and reports of domestic violence are growing rapidly in Guam. To further explore increases for these three measures, we calculated the percentage increase for each variable using the first and last entry in each column as our data points (see Blalock 1972:12–15; Sanders and Pinhey 1982:277). These calculations reveal that reports of domestic violence in Guam have increased by 239 percent over the twelve years studied ( $95 - 28/28 = 239\%$ ), that alcohol sales taxes have increased by 526 percent for the same period, and that consumer debt has increased by 235 percent.

The strong associations between the three variables may be seen more clearly in Figure 1, which presents the graphic results for the three standardized measures. The portion of the graph beginning with 1989 is particularly remarkable. As may be seen, beginning in 1989 there is a clear and sharp increase in both consumer debt and reports of domestic violence in Guam that correspond with increasing alcohol sales. Consumer debt, family violence, and malted beverage tax receipts all decrease slightly in 1992. Between 1992 and 1993, the three measures appear to converge as consumer debt begins to level off and family violence and alcohol use increase slightly.



**FIGURE 1. Consumer debt, alcohol taxes, and domestic violence in Guam.**

The strong similarity in patterns of change for these variables beginning in 1989 suggests that family financial conditions may have a significant influence on substance abuse and violent behavior in Guam.

Finally, to further explore these relationships, we conducted an autoregression analysis using the three measures (Table 2). Autoregression techniques are preferred when estimating regression coefficients for time-series data (SPSS 1994). As may be seen in Table 2, consumer debt is related significantly and positively with alcohol sales taxes (equation 1) and reports of domestic violence (equation 2). Alcohol sales taxes are also related significantly and positively with reports of domestic violence (equation 3). When domestic violence is regressed on both variables simultaneously, the coefficients retain their significant and positive associations (equation 4).

### Discussion and Conclusions

This research note explored the linkages between economic conditions, alcohol consumption, and family violence in Guam by examining the relationships between consumer debt, alcohol tax levels, and reports of domestic violence. The results of the analysis indicate strong and positive correlations

**TABLE 2. Standardized Prais-Winsten Autoregression Coefficients for Regression of Alcohol Taxes and Reports of Domestic Violence on Consumer Debt and Alcohol Taxes in Guam (1982–1993)**

	Alcohol	Domestic Violence		
	(1)	(2)	(3)	(4)
Debt	.778**	.922***		.498°
Alcohol			.934***	.502°
$R^2$	.605	.851	.874	.951
$R^2$ adjusted	.527	.824	.846	.933

°  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

between these measures, suggesting that financial strain produces greater alcohol consumption (e.g., Pinhey 1997), which in turn leads to increasing levels of family violence (e.g., Nero 1990). This interpretation presupposes that individuals in Guam are integrated into the economic system such that unemployment or consumer debt would result in their greater distress, and that two outcomes of this distress are greater alcohol consumption and violent behavior.<sup>5</sup> Although empirical documentation supporting these assumptions for Western Pacific populations is limited (e.g., Pinhey 1997), the results of the present study provide evidence suggesting that economic conditions may significantly influence alcohol use and violent behavior in Guam. Thus, future researchers concerned with substance abuse and domestic violence in Micronesia and Guam may wish to systematically explore the effects of contracting economies on mental health, substance abuse, and violent behavior.

An additional implication of our results for theory and future research centers on recent findings showing that women and men respond differently to the same stress-producing circumstances (for reviews, see Horwitz and Davies 1994; Horwitz, White, and Howell-White 1996; Pinhey and Ellison 1997). In summary, gender differences have been shown in response to stress resulting from divorce and bereavement, with greater alcohol consumption among men and greater depression among women. Whether Asian-Pacific women and men respond differently to the stress produced by financial strain is not clear from the present study. Future researchers may wish to systematically examine the influence of financial strain (e.g., job loss, underemployment, consumer debt) on gender differences in response to stress, and the influence of stress resulting from financial conditions on depression and substance abuse in Guam. Moreover, since the current legal drinking

age in Guam is eighteen, certain aspects of our results may also have public policy implications. For example, our findings suggest a significant increase in beverage alcohol use in Guam for the period studied, and several earlier investigations have linked states' enactment of higher minimum legal drinking ages to substantial reductions in morbidity and mortality resulting from traffic crashes (see U.S. General Accounting Office 1987). Researchers may wish to explore the potential impact of similar legislation for Guam.

The potential limitations of this study deserve mention. First, our analysis is limited to three variables, and multivariate analyses using a greater number of measures may produce different patterns and results. Second, although our measures appear appropriate for the study (annual summaries for consumer debt, malted beverage tax receipts, and domestic violence offenses reported to the police), alternate measures may result in different conclusions. For example, annual tax receipts for malted beverages may be inflated since they reflect alcohol consumed by increasing numbers of tourists in Guam, and the use of unemployment rates or other similar measures may prove more enlightening than consumer debt.<sup>6</sup> Moreover, since our analysis relied on community-level measures, we could not identify specific social characteristics (gender, social class, ethnicity, age) that may be important for describing individuals who are at risk for participating in alcohol abuse and family violence. And finally, our study covered only twelve years. It is conceivable that the associations we found for this period may not be representative of the entire history of the relationships of financial strain to alcohol use and domestic violence in Guam. Thus, it is possible that studies examining these or similar variables over longer periods may detect different patterns and relationships.

These potential limitations aside, the results of our analysis support the conjecture that economic conditions contribute to greater alcohol consumption and family violence. Systematic studies focusing on the influence of variations in family economic circumstances for mental health, substance abuse, and violent behavior should therefore be an important priority for future research in Guam and Micronesia.

## NOTES

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1. Although no analyses could be found that directly linked alcohol use with domestic violence in Guam, an early study conducted by Marshall clearly linked alcohol consumption with violent behavior in Chuuk (1979). For additional studies of alcohol use in Guam,

see Pinhey, Workman, and Borja 1992 and Pinhey 1997. For additional studies focusing on alcohol use in Micronesia, see Marshall 1987, 1991, 1993. Finally, see Nero's excellent qualitative analysis, which links alcohol use with domestic violence in Palau (1990).

2. Financial strain is conceptualized elsewhere as "economic stress" (Hoyt, O'Donnell, and Mack 1995; Ortega et al. 1994) and "economic pressure" (Lorenz et al. 1993). Each of these conceptualizations refer to economic circumstances—such as increased debt, job loss, or underemployment—that have negative impacts on emotional well-being, alcohol use, and domestic violence (e.g., Gelles and Cornell 1990).

3. See Thompson 1947:151 and Rogers 1995:105, 137 for brief descriptions of the origins and history of banking and "small loans" in Guam.

4. Data for consumer debt were taken from Section X of the annually published *Guam Annual Economic Review* (Economic Research Center 1979–1994). Data for gross receipt taxes received from the sale of malted beverages were derived from the Business Privilege Tax Collection section of the *Guam Annual Economic Review*. Data for family violence offenses reported to the Guam Police Department are summarized under Part II offenses and may be found in the annually published *Guam Police Department Uniform Crime Report* (Guam Police Department 1980–1994).

5. Nero notes that in Palau drinking is an accepted outlet for "frustration" and suggests that "stress" leads to violence (Nero 1990:86, 80). Whether these relationships hold for Guam or for other locations in Micronesia is unclear. Thus, an important research question for the region centers on the identification of sources of stress and the effects of stress for substance abuse and violent behavior. The present study assumes that greater debt produces distress, which in turn contributes to increased alcohol consumption and domestic violence.

6. Regarding employment characteristics and domestic violence, Gelles and Cornell report that unemployed men commit double the rate of wife batterings as employed men, and men working part-time have an even higher rate of assault (1990). Unemployment rates for Guam were unavailable for the present study but may prove particularly useful measures for future researchers wishing to better understand the causes of domestic violence.

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