

**EVALUATION OF ALCOHOL OUTLET DENSITY AND
CHARACTERISTICS IN A POOR AREA OF SÃO PAULO -
IN SEARCH OF AN ALCOHOL POLICY FOR THE CITY**

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Abstract

Introduction: The current study set out to investigate alcohol availability in a densely populated, residential area of suburban São Paulo associated with high levels of social deprivation and violence. Gun-related deaths and a heavy concentration of alcohol outlets are notable features of the area surveyed. Given the strong evidence for a link between alcohol availability and a number of alcohol-related problems, including violent crime, measures designed to reduce accessibility have become a favoured choice for alcohol prevention programmes in recent years. By generating a profile of alcohol sales and selling points, it was hoped to gain a better understanding of alcohol access issues within the sample area. **Methods:** The interviewees were 24 residents of the area who were trained for the study. It was selected an area of nineteen streets, covering a total distance of 3.7 km. **Results:** It was found 107 alcohol outlets were recorded. The number of other properties in the same area was counted at 1,202. Two measures of outlet density may thus be calculated: The number of outlets per kilometre of roadway (29outlets/km); and the proportion of all properties that sold alcohol (1 in 12). The main characteristics of the outlet were: 75% of them had no license; the mean number of days per week on which

outlets traded were 6.82; 82.6% of the outlet sold alcohol to customers on credit; the main beverage sold was pinga and cost on average U\$ 0.25. **Conclusions:** The results of this study are compared with others which are mainly from developed countries and the implications in terms of policies are discussed. Future alcohol prevention policy would be well served by such knowledge.

Keywords: alcohol, policies, violence, prevention, public health

AVALIAÇÃO DA DENSIDADE E CARACTERÍSTICAS DE PONTOS DE VENDAS DE ÁLCOOL NUMA REGIÃO POBRE DE SÃO PAULO – EM BUSCA DE UMA POLÍTICA PARA O ÁLCOOL NA CIDADE

Resumo

Introdução: Nesse estudo buscamos investigar a disponibilidade de bebidas alcólicas numa região densamente povoada da cidade de São Paulo, onde existe altos níveis de privação social e violência. Nessa região existe uma alta taxa de mortes atribuídas a armas de fogo, além de grande número de locais onde possa ser comprado bebidas alcólicas. Devido às fortes evidências na literatura de uma ligação entre disponibilidade de álcool e números de problemas relacionados com o álcool, inclusive crimes violentos, medidas que tenham como objetivos reduzir o acesso ao álcool têm se tornado a medida de escolha entre os programas de prevenção, principalmente em iniciativas comunitárias. Ao gerar informações sobre as vendas de álcool e os locais de venda busca-se melhorar o entendimento do acesso do álcool nessa região estudada. **Metodologia:** Foi selecionada uma área de dezenove ruas, cobrindo uma distância de 3.7 km. **Resultados:** Foi registrado 107 pontos de venda de álcool. O número de outras propriedades nessa região foi de 1.202. Duas medidas de densidade de pontos de venda podem ser calculadas. O número de pontos de venda por quilometro de rua (29 pontos/km); e a proporção das propriedades que vendia álcool (1 em 12). As principais características dos pontos de venda foram: 75% desses pontos não tinham licença para funcionar; o número médio de dias abertos era de 6.82; 82.6% dos pontos de vendas vendiam a credito; a principal bebida vendida era pinga e custava em média R\$ 0.45. **Conclusão:** O resultado desse

estudo é comparado com outros estudos internacionais e as implicações em termos de políticas públicas são discutidas. Ações preventivas futuras poderão beneficiar-se dessas informações.

Palavras Chaves: política do álcool, violência, prevenção, saúde pública

EVALUATION OF ALCOHOL OUTLET DENSITY AND CHARACTERISTICS IN A POOR AREA OF SÃO PAULO - IN SEARCH OF AN ALCOHOL POLICY FOR THE CITY

Introduction

The accessibility – or availability – of retail alcohol may be thought of as the ease or difficulty with which it can be obtained. Factors which influence this include the number of outlets that sell alcohol, licensing laws limiting the days and hours when these outlets can trade, minimum drinking ages, clients' disposable income and beverage pricing. A wide range of restrictive policies designed to limit the availability of alcohol have been introduced over the years, in the hope of decreasing both consumption and the incidence of alcohol-related problems, Thom et al (1997); Toomey & Wagenaar (1999); Anderson & Lehto (1994).

There is now a growing body of evidence that alcohol availability is related to rates of alcohol consumption, Edwards et al (1994), and the emergence of alcohol-related problems, Gruenewald et al (1992). For example, consumption has been shown to be influenced by price changes, Chaloupka (1993); Coate & Grossman (1998); Yen (1994); Sutton & Godfrey (1995), whilst increases to the minimum drinking age in many US states have been accompanied by decreases in drinking rates and drinking problems

among 18-20 year-olds, Wagenaar (1993). The latter finding is consistent with research from Australia linking the lowering of the minimum drinking age, from 21 to 18, with increases in assaults, juvenile crime and road crash injuries, Smith (1988); Smith & Burvill (1986).

Increasingly, researchers have concentrated on outlet density as a general measure of the physical availability of alcohol. Several studies support a geographic link between outlet density and a number of alcohol-related problems, including alcoholism rates, Harford et al (1979), cirrhosis mortality, C6lon (1981); Watts & Rabow (1983); MacKinnon et al (1995), violent crime (namely homicide, rape, assault and robbery), Roncek & Maier (1991); Scribner et al (1995); Scribner et al (1999); Speer et al (1998), youth violence, Alaniz et al (1998), drunk driving arrests, Watts & Rabow (1983); MacKinnon et al (1995), traffic injuries and crashes, Van Oers & Garretsen (1993); Scribner et al (1994); Gruenewald et al (1996) , and high-risk sexual behaviour, Scribner et al (1998).

Few researchers would argue that availability alone accounts for variation in rates of alcohol-related problems. The above studies generated statistically significant results after controlling for a variety of sociodemographic variables, as the comfounding effects of characteristics such as poverty, unemployment, population size, age and gender structure are widely acknowledged. For example, Scribner et al (1995) found in an analysis of 74 cities within Los Angeles County, sociodemographic factors alone accounted for 70% of variance in the rate of assaultive violence, although 7% of this variability could be explained by outlet density. The policy implications of the studies

cited in this introduction are that any regulation of the density of alcohol outlets could beneficially reduce alcohol-related problems. Even if sociodemographic measures are more powerful predictors of alcohol problems, the establishment of limits on outlet density is a more achievable goal for community policy makers than, say, reductions in unemployment or poverty.

With respect to violence the evidence is particularly compelling. Roncek & Maier (1991) studied the effects of bars and taverns on crime on residential city blocks in Cleveland. They found the risk of having a violent crime on a block rose by 17.6% with every additional bar or tavern. Speer *et al* (1998) highlight the importance for policy making to recognise the magnitude of alcohol outlet densities' influence on violent crime. Their results showed that a reduction in violence which could be achieved by a 1% decrease in alcohol outlet density would require a 5% increase in median household income or an 8% increase in employment. They also point out that outlet density was more strongly predictive of violent crime at the immediate, neighbourhood level than at municipal levels. This would suggest that efforts to reduce violence through restrictions on alcohol availability may be most effective at the local community level.

The empirical support for a link between alcohol availability and alcohol-related problems has led to the development of a number of community-based prevention programmes directly addressing issues of alcohol access in their prevention efforts, Reynolds *et al* (1997); Casswell & Gilmore(1989); Douglas (1998). Support has also come from evaluations suggesting that earlier projects have been more successful in

reducing alcohol supply than alcohol demand, Moskowitz (1989), and from the fact that interventions aimed solely at the individual (eg treatment for problem drinking) have limited potential for reducing alcohol-related problems, Gorman (1996); Saltz (1988); Gorman & Speer (1996).

Reynolds *et al* (1997) outline the accomplishments of three experimental communities in California and South Carolina, USA, which took part in a 5-year community prevention trial between 1991 and 1996. The communities have been described as medium-sized (population 100,000) and representative of the diverse nature of many communities world-wide, Holder *et al* (1997). Action to reduce access to alcohol was given priority by each of the community coalitions involved in the project. Two important factors which influenced the community members' prioritisation of alcohol access prevention issues are cited as the relative permanence of policy change, in contrast to other forms of intervention, and the theoretical foundation provided by studies such as those described in this article – for a fuller discussion see Gruenewald *et al*, 1996 and Reynolds *et al*, 1997, Gruenewald *et al* (1996); Reynolds *et al* (1997). The first of these coalitions was particularly concerned with high rates of gang violence and associated gun-related deaths and disability, centred in a neighbourhood with the highest population density and the greatest concentration of alcohol outlets. Problems related to over-concentration of alcohol outlets were also recognised by coalition members in the two other communities. By the end of the project, the policy changes implemented by all three communities in order to restrict accessibility to alcohol, including enforced limits on outlet density, had surpassed early predictions.

A restriction on opening hours for the sale of 'take-away' alcohol in a small community in Western Australia demonstrated the beneficial potential of controls on alcohol availability, Douglas (1998). Longitudinal data collected over two years following the intervention showed decreases in alcohol consumption, crime, alcohol-related hospital presentations and presentations resulting from domestic violence.

There are a scarcity of data about the impact of alcohol in developing countries. A recent review sponsored by the WHO (World Health Organization, 1999) highlighted the lack of good scientific data about drinking that can be drawn on for policy purposes. There is a consensus that more research should be done in this area. The reviewers have shown that developing countries, in particular, pay a high price with respect to alcohol-related violence.

In Brazil few scientific data exist discussing violence and alcohol. Minguardi et al (1996) showed that alcohol may play a significant role in homicides in some areas of the city of São Paulo. After analyzing 1,549 police crime reports on homicide attempts or homicides during 1995 they showed that 90.6% of the victims were males between 16 and 30 years of age. The incident leading to the crime occurred between 20 and 24 hours mainly on the weekends. Bar fights and alcohol were one of the main causes of the incidents.

Purpose of the present study

The current study set out to investigate alcohol availability and a profile of alcohol sales and selling points in a densely populated, residential area of suburban São Paulo associated with high levels of social deprivation and violence. Like one of the American communities outlined above, gun-related deaths and a heavy concentration of alcohol outlets are notable features of the area surveyed. Given the strong evidence for a link between alcohol availability and a number of alcohol-related problems, including violent crime, measures designed to reduce accessibility have become a favoured choice for alcohol prevention programmes in recent years, not least amongst local community initiatives. At the time this study was carried out, a community drug and alcohol service was being developed for the region. By generating a profile of alcohol sales and selling points, it was hoped to gain a better understanding of alcohol access issues within the sample area. Future alcohol prevention policy would be well served by such knowledge.

Method

Interviewers

The interviewers were 24 residents of Jardim Ângela and surrounding districts, of whom 23 were training to be volunteer support staff for the a local community drug and alcohol service. Thirteen women and 11 men participated, ranging from 15 to 59 years of age (median age 30). Of the 20 who provided information on their educational history and

present occupation, 7 were either university graduates, current university students or had at some point studied at university level. Three had completed secondary education, 6 had not completed secondary education and 4 were current secondary school students. Interviewers were divided into 12 pairs and trained in data gathering at the pilot stage.

Sample

An area for research was demarcated within the district of Jardim Ângela, in the south of the city of São Paulo, Brazil. The 12 pairs of interviewers who took part surveyed 19 streets between them, covering a total distance of 3.7 km. There is no clean fit between the area studied and available census data. A reliable measure of population size within the sample area is, therefore, unavailable. The survey was carried out between the hours of 10am and 2pm on Saturday 21 November, 1998. The presence of any alcohol outlet within the sample area was recorded and those open for business were asked to participate in the research. Although the time of the interviews meant that several bars would be shut, Jardim Ângela is such a notoriously violent district that by restricting the survey to the morning it was hoped to reduce the chances of encountering alcohol-related ‘troubles’ in the bars.

Instruments

Three instruments were used to collect data. The first of these was simply a sheet of paper upon which interviewers kept a tally of the number of alcohol selling outlets and

the number of other properties on each road surveyed. Such data could then be used to calculate the proportion of all properties that sold alcohol as one measure of outlet density. Another measure – the number of outlets per kilometre of roadway – could also be generated. The second instrument was a 47-item questionnaire, administered to establishment owners or, in their absence, to whomever appeared to be in charge at the time of interview. Questionnaires were filled in by the interviewers and took about 15 minutes to complete. Information was gathered on the following: Owners and their reasons for opening the establishment; employees; quantities and types of beverage sold; opening hours; client profiles, including their drinking habits; take-away sales; and whether the outlet was licensed to sell alcohol. The main purpose of the third instrument was to get information about general characteristics of the place. The outlet's address and whether it was formal (a bar operating within designated premises) or informal (a shop, street stall or someone selling alcohol from their home) was recorded. Some qualitative data on other goods sold by the establishment apart from alcohol was noted, although this was not used for later analysis.

Results

Preliminary analysis of the questionnaires suggested that some of the interviewers were not fully aware of the importance of completing every questionnaire item. As a result a greater volume of missing data was returned than the project organisers anticipated. It is probable that some pairs left spaces blank whenever respondents refused to answer a question. A further possibility is that some interviewers were prone to leave out questions they felt to be intrusive, intimidated by the atmosphere within the bars. The

outcome has been data of varying reliability and, consequently, only those variables believed to be the most reliable have been included in the final analysis.

A total count of alcohol selling points within the sample area was not possible, as three pairs returned incomplete data sheets. Removing these and thereby restricting the count to 19 streets, covering a total distance of 3.7 km, 107 alcohol outlets were recorded. The number of other properties in the same area was counted at 1,202. Two measures of outlet density may thus be calculated: The number of outlets per kilometre of roadway; and the proportion of all properties that sold alcohol. The first of these calculations is straightforward and yields a figure of 29 outlets per kilometre of roadway. The latter measure is less reliable because some of the outlets were street stalls and cannot be regarded as permanent properties. Although their exact number is unknown, interviewers said they had encountered only a handful over the course of the survey. When they are included in the calculation, the proportion of all properties that sold alcohol works out at approximately 1 in 12.

Data from all returned questionnaires were analysed using descriptive statistics. The total sample size of outlet owner who were interviewed was 86, the interviews having been conducted within the original sample area of 19 streets. The number of refusals is unknown, as is the number of outlets that were closed at the time of the survey, due to incomplete data gathering by the interviewers. A rough estimate, based on available data and verbal reports from the interviewers themselves, is that respondents from two-thirds of the alcohol outlets recorded were interviewed.

Profile of respondents

Sixty-three respondents (73.3%) were men and 23 (26.7%) were women. Seventy (81.4%) identified themselves as outlet owners or proprietors, whilst 16 (18.6%) said they were employees. Seventy-eight respondents (90.7%) lived in the area. Respondents ranged in age from 16 to 80 and the mean age was 44.9 years ($SD = 15.07$). The ages of the outlet owners ranged from 18 to 80, the mean age being 47.7 years ($SD = 14.01$; *missing* $n = 4$). Fifty-nine proprietors (84.3%) said they neither worked nor studied outside the establishment, 4 (5.7%) had a second job and 2 (2.9%) were also students (*missing* $n = 4$). The median amount of time that proprietors had worked in the establishment was 36 months (*range*: 1 month - 240 months). For employees this figure was 24 months (*range*: 1 month - 300 months). Table 1 shows owners' occupations prior to working in the alcohol outlet.

Table 1 - Owner's occupation previous to work in the alcohol outlet

	Previous occupation of bar owners interviewed	
	Frequency	%
Worked in a factory	26	37.2
Construction	9	12.9
Retail	7	10.0
Office worker	3	4.3
Maid	3	4.3
Bar work first job	3	4.3
Other occupations	16	22.8
Did not answer	1	1.4
Missing cases	2	2.8
<i>Total</i>	<i>70</i>	<i>100.0</i>

Table 2 shows respondents' reasons for choosing bar work. The category 'made a clear choice to work in bar' has been used to distinguish between people who said they worked in a bar because they had no other option, and people who said they worked in a bar because they wanted to do. Of the 67 outlet owners who had previously worked elsewhere, 14 (20.9%) said their present occupation was more profitable, 49 (73.1%) said it was not and 1 (1.5%) refused to answer.

Table 2 - Reasons for choosing to work in an alcohol outlet

	Reasons bar owners interviewed chose to open outlet	
	Frequency	%
Unemployment	31	44.3
Thought it would be more profitable than previous job	7	10.0
Made a clear choice to work in bar	11	15.7
Retired	10	14.3
Other	7	10.0
Did not answer	1	1.4
Missing cases	3	4.3
<i>Total</i>	<i>70</i>	<i>100.0</i>

Profile of bars

Forty-six bars (53.5%) were identified as formal and 39 (45.3%) as informal. Thirty outlets surveyed (34.9%) were reported to have some form of license. Forty-three respondents (50%) said their establishment was unlicensed (*missing n = 13*). Although referred to as ‘outlet owners’ and ‘proprietors’ in this paper, the results showed that 57 proprietors (66.3%) actually owned the premises and 26 (30.2%) rented. They had run the outlet for a median time of 36 months each (*range 1-300*). Seventy-six (88.4%) had

no other alcohol outlets, whilst 5 proprietors (5.8%) ran establishments elsewhere. Forty-six respondents (53.5%) said the outlet was a good investment, 38 (44.2%) said it was not and 1 (1.2%) did not know. In 22 cases (25.6%) proprietors employed one or more staff (*median* = 2; *range*: 1-7) and in 53 cases (61.6%) no additional members of staff were employed (*missing* *n* = 9). Data available on 75 of the outlets surveyed showed that proprietors employed a total of 48 staff between them. Two employees were friends of their boss's. The other 46 were all members of the outlet owners' families or extended families.

Answers from seventy-eight interviewees showed the mean number of days per week on which outlets traded to be 6.82, with SD 0.75 (*range*: 2-7). Information on the number of hours outlets were open per week was obtained from 50 respondents. The mean number of hours per week that outlets were open for business was 85.76, with SD 19.97 (*range*: 28-133). Seventy people interviewed (81.4%) said their outlet's busiest time fell between Friday and Sunday inclusive.

Profile of clientele

Sixty-three people interviewed estimated the proportion of their clientele who lived in the immediate neighbourhood. The mean percentage of clients said to live in the immediate neighbourhood was 93.84%, with SD 17.20 (*range*: 10-100). Sixty-one respondents gave an estimate of the percentage of their clientele in employment, the mean estimate being 78.23% employed, with SD 29.02 (*range*: 5-100). When asked what percentage of their

clients had families, 54 respondents were able to provide an estimate. A mean of 88.33% of clients were said to have families, with SD 20.47 (*range*: 10-100). The median length of time that clients were said to spend in the bar on each visit was 30 minutes (*range*: 5-270; *missing n* = 12). When asked if there were clients who frequented the bar every day, 59 people (68.6%) said there were daily customers, 16 (18.6%) said there were no daily customers, 1 person (1.2%) did not know and 1 person (1.2%) did not answer (*missing n* = 9). Sixty-seven respondents estimated the proportion of their clients who were 'regulars.' A mean of 42.03% of clients were identified as 'regulars,' with SD 31.50 (*range*: 2-100).

Alcohol consumption

Seventy-one outlets (82.6%) sold alcohol to customers on credit, whilst 13 (15.1%) did not. A total of 78 people gave estimates of the percentage of alcohol they sold to their customers on credit. The mean estimate was 40.77% of all sales, with SD 33.59 (*range*: 0-100). When this calculation is restricted to those outlets which reported selling on credit, 65 respondents estimated the proportion of alcohol they sold in this way, the mean being 48.92% of all sales, with SD 30.86 (*range*: 1-100). The median proportion of all alcohol sold for consumption off the premises was 10% (*range*: 0-100). Respondents were asked which were the most popular drinks they sold. The results are shown in table 3. The most popular beverage – pinga – was sold at an average (mean) price of R\$0.45 per 50ml dose, about US\$0.25 at the time of writing (*SD* 6.75; *range*: 0.30-0.50; *n* = 74). Lager was being sold for an average (mean) price of R\$1.46 per 750ml bottle, approximately US\$0.82 (*SD* 0.09; *range*: 1.20-1.50; *n* = 54).

Table 3 Most popular drink sold

	Frequency	%
Pinga (sugar cane spirit)	62	72.1
Lager (beer)	19	22.0
Contini	1	1.2
Brandy	2	2.3
Missing cases	2	2.3
<i>Total</i>	86	100.0

Discussion

As mentioned in the results, a measure of outlet density for the entire sample area is unavailable, due to difficulties some of the interviewers had collecting data. When the sample is reduced in size the density of alcohol selling points is 29 outlets per kilometre of roadway, or approximately 1 outlet per 12 properties. The first of these figures is more reliable, in part because it depends on interviewers' accuracy at counting outlets only, rather than outlets and other properties. Moreover, the latter figure includes street stalls in its definition of 'properties' and, as such, may be an over-estimate. Even when the analysis is restricted to the outlets/km of roadway calculation, a picture emerges of an area peppered with alcohol vendors. The reader should note that the study area are residential areas comprised solely of single- and two-storey houses. There are thus far

fewer inhabitants along a kilometre of roadway in Jardim Ângela than a similar length of road bordered by apartment blocks.

Consideration of other studies should serve to illustrate the high outlet density found in Jardim Ângela. For example, Roncek & Maier (1991) studied 4,396 city blocks in Cleveland with an average of 129 residents each. They chose Cleveland as their research site because it was regarded as having relatively serious crime problems and was known to have a large number of 'recreational liquor establishments.' Like São Paulo, it is an industrial city. The largest number of bars per residential block they encountered was 4, and this occurred on only one block. Most blocks had one bar on them. Another piece of research showed that in 1995 New Orleans had one alcohol licensee for every 230 residents.²⁵ Unlike the results obtained in Jardim Ângela, these data relate to population size and are city-wide. Whilst this prohibits any concrete comparison with the data obtained in the present study, it is nevertheless apparent that the Jardim Ângela neighbourhoods have a remarkably high outlet density.

Given the evidence for a link between outlet density and numerous alcohol-related problems, a reduction in the number of outlets in the sample area should be made a priority by alcohol prevention efforts. Only 35% of the establishments interviewed reported having a license of any description, and half said they were unlicensed. For so many people to openly admit this fact to unknown interviewers is an indication that laws regarding license possession cannot be rigorously enforced at present. In addition, only 54% of establishments were bona fide bars. The rest were shops, bakeries, street stalls

and private houses opened up to sell alcoholic drinks. Clearly, there are few legal obstacles to opening an alcohol trading post in Jardim Ângela.

Alcohol availability may be regulated by licensing laws designed to limit outlets' opening hours. The findings from this survey belie a strong need for a prevention policy comprising an enforced licensing strategy. Data obtained in Jardim Ângela showed that outlets traded for an average of over 85 hours per week. Only 7 bars reported opening on less than 7 days a week, the mean number of days being 6.82. The impression gained from talking to the interviewers is that many outlets did not adhere to a strict timetable and tended to close at night once the number of clients had dwindled to the point where it was no longer worth their while staying open. If this is the case – that some outlets' night-time opening hours are largely governed by the level of demand for alcoholic drinks – the implication is that this demand for alcohol is being met at virtually any hour of the day or night. There are certainly no licensing restrictions on opening hours; it is up to the proprietors how long they wish to stay open.

The low percentage of 'take-away' sales suggests that easy accessibility to alcohol is affected very little by current opening hours. The results showed that, on average, only 10% of alcohol was sold for consumption off the premises. If there were times of the day or night when alcohol was difficult to obtain, one might expect this to be reflected by a higher prevalence of take-away sales. For most establishments even this low figure gives an artificially high impression, as it includes outlets which only sold alcohol in this way, such as bakeries, shops and street stalls.

Sales of pinga and lager were reported to surpass those of other drinks by a substantial margin. With violence in Jardim Ângela such a major concern, it is interesting to note that an analysis of the impact of different beverage types on assaults and homicide in Sweden found that beer and spirits (consumed on the premises) were more strongly associated with assaults than other drinks, Norström (1998). Furthermore, there are indications that spirits may be more likely to evoke aggression than other forms of alcohol, Smart (1996).

The popularity of pinga – a spirit distilled from sugar cane – is hardly surprising, as it sells at an average price of just US\$0.25 per 50ml dose. The average cost of a 750ml bottle of lager is US\$0.82. By way of comparison, a litre of milk in São Paulo costs US\$0.65. Beverage prices and clients' personal disposable income may be thought of as measures of the ability to purchase alcoholic drinks. Accessibility to retail alcohol is facilitated by low prices and high aggregate income. Although the latter is unlikely to be found in Jardim Ângela, respondents did estimate that, on average, 78% of their clients had jobs. The combination of cheap alcohol and a reasonable level of employment is a further indication of easy accessibility to alcohol within the sample area.

The popularity of pinga outstripped that of other drinks by some considerable margin, with 72% of outlets reporting pinga as their number one seller. No other spirit came close. This is interesting data because a number of studies have found that demand for spirits is more responsive to price changes than demand for other alcoholic beverages,

Chaloupka (1993). Thus, attempts to reduce consumption via price increases may be most effective for spirits. There is also evidence that drinking patterns may be affected more greatly by price changes at lower levels of income, Sutton & Godfrey (1995). With regards to clients within the sample area, data on earnings are not available, yet it can be said with confidence that income levels are low. The neighbourhoods surveyed are characterised by poverty and the mean estimate of the proportion of clients who lived locally was 94%. Specific targeting of pinga prices (perhaps via tax increases at the production stage) may thus be thought of as a potentially effective means of reducing spirit consumption. It is unlikely that clients would simply switch their allegiance to another type of spirit, as prices are notably higher. The availability of cheap pinga is partly a consequence of Brazil's massive sugar cane plantation programme, originally introduced as a way of manufacturing alcohol to act as a petrol substitute for cars. It has been estimated that over two billion litres of pinga are produced each year, or approximately 13.2 litres per head of population, Dunn & Laranjeira (1995).

The availability of retail alcohol is governed by factors which make it easier or harder to obtain. In the same way that credit cards have made a wide range of goods more available, by allowing people to make purchases when cashflow is limited, a credit system amongst the bar staff interviewed affords regular customers a similar privilege. An impressive 83% of respondents said they sold alcohol on credit. When asked what proportion of their total sales were sold in this way, the mean estimate was just under half of all sales. There are few obstacles to buying a drink in this area. Not only are the

streets riddled with alcohol vendors selling cheap alcohol on any day of the week and at most times of the day, but in the event of a cash shortage credit is easy to come by.

The sale and consumption of alcohol within the sample area is very much a community activity. Attempts at regulation must recognise this and carefully weigh up the potential costs to the community of proposals which, albeit well-intentioned, may have damaging consequences. Consideration of some of the data obtained should serve to illustrate this point.

Firstly, around 90% of respondents said they lived in one of the three neighbourhoods surveyed. In those establishments that employed staff, 46 out of 48 employees were members of the proprietor's own family or extended family, who presumably live locally, too. Clearly, it is community members who would have their economic interests challenged by regulations on alcohol outlets, as very few outsiders have any involvement with the local alcohol industry. In seeking to limit alcohol availability, it is one thing to organise a community coalition against 'faceless' breweries or noisy nightclubs; it is something quite different when neighbours' livelihoods are at stake. Nearly 45% of outlet owners said they went into the business in the first place due to unemployment. Around three-quarters of those who had worked elsewhere previously said their current occupation was no more profitable than what they did before. Forty-four percent of respondents said the outlet was not a good investment. It is hard to imagine that so many owners would choose to trade for an average of nearly 86 hours a week, the majority of them employing no additional staff, were it a lucrative business to be in. When these data

are considered, a picture emerges of an industry that has arisen out of necessity. Policy makers should be cautious not to punish members of a community they are seeking to help.

The high incidence of credit sales may be viewed as more than just a measure of alcohol accessibility. It also implies a certain parochialism to the drinking culture of the region, as bar staff would be unlikely to give so much credit were there not a strong degree of trust in the clientele. With an estimated 94% of customers coming from the local area it is easy to see how this might be engendered. Over 40% of clients were described as 'regulars,' on average, and nearly 70% of respondents said they had customers who frequented the bar every day. Even within an environment rich in alcohol outlets, individuals appear to patronise a limited number of drinking establishments. Relationships between patrons and owners may be long-standing in some cases. A prospective clampdown on alcohol selling could encounter resistance from clients as well as proprietors.

A way of balancing competing interests may be to prevent new establishments from opening up, rather than closing down existing vendors. The median length of time that proprietors had run their outlet was 3 years. One interpretation of this figure is that outlets are going in and out of business with relative frequency, and the fact that 44% of respondents said their outlet was not a good investment lends support to this idea. Were limits to be placed on the establishment of new points of sale, the potential for profit for those already in business would be enhanced, as competition decreased. It is unlikely

that vendors would reject such measures. However, in an attempt to secure future markets some proprietors may be tempted to use intimidatory tactics as a way of putting others out of business. In an area as violent as Jardim Ângela such a turn of events would be far from welcome.

Regulations on bars, in particular, may have repercussions related to the localised and somewhat insular nature of clients' drinking habits suggested earlier. The results showed that the overwhelming majority of customers drink within their immediate neighbourhood. If people were forced to travel some distance – to a different residential area, for example – it is conceivable they might encounter some hostility from the 'regulars' of other bars, possibly leading to violence. Restrictions should be enforced uniformly across several neighbourhoods to reduce the chances of such problems occurring.

Crowded, noisy, smoky and hostile environments have been shown to facilitate aggression, Berkowitz (1983), and on-premise drinking often takes place in exactly this type of atmosphere. A reduction in the overall number of bars may lead to greater concentrations of patrons per bar which, in turn, could increase the potential for fights breaking out between clients. This has particular relevance to weekend drinking, as over 81% of respondents said their busiest time fell between Friday and Sunday inclusive. In addition, weekends are associated with elevated levels of assaultive violence in Jardim Ângela. The incidence of violence in or around bars should be closely monitored following the introduction of regulations on alcohol trading in the region, to guard against

unforeseen effects. It cannot be presumed that constraints on alcohol availability will *necessarily* lead to a reduction in violence, even if overall consumption is reduced.

Regulatory measures must be adequately enforced, and as with other alcohol policies this process is greatly facilitated when there is strong public consensus, Jeffrey et al (1990); Room (1984). Community support should be sought prior to any policy implementation in Jardim Ângela or in the city of São Paulo. Informal conversations with local residents betray a generalised weariness of the violence which pervades their community. The increased use of and trafficking in illegal drugs – in particular crack cocaine – in recent years is often cited as the underlying cause of these troubles. Whilst the illegal drugs trade undoubtedly has a part to play in a number of assaults and homicides in the region, this should not be allowed to detract from the issue of alcohol availability and its influence on violent crime, not to mention other alcohol-related problems. Indeed, a recent literature review found no significant evidence to suggest that drug use is associated with violence, and substantial evidence linking alcohol use with violence of all types, Parker & Auerhahn(1998). Such findings cannot be generalised to Brazil, yet they do provide some pointers for future research efforts. A clearer understanding of the respective involvement of drugs and alcohol in violent crimes committed in Jardim Ângela may reveal that alcohol plays a more significant role than is popularly admitted. This evidence, in turn, would help attempts to increase support for alcohol prevention policies. Information gathering from sources such as police crime reports and hospital admissions should be considered as a means to this end.

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