Alcohol outlet density and crime in Observatory, Cape Town

A report compiled for the Observatory Improvement District

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Introduction and summary

Observatory lies on the slopes of Devil's Peak and is one of the relatively affluent Southern Suburbs of Cape Town. It hosts an active and fairly racially-mixed social life of restaurants, cafés, pubs, and nightclubs,¹ and it has a reputation for being bohemian and artistic, similar perhaps to Soho in New York or Notting Hill in London.² A large proportion of its residents are young people (about 36% are between the ages of 20 and 30), many of whom are students, including at the nearby University of Cape Town (UCT). Its residential population of about 9,200 (in 2011) is 40% black African, 34% white, 19% coloured, and 4% Indian or Asian.³ These residents have incomes well above the city average. Whereas the most common household income band in the city is between R1 and R1,600 monthly, that in Observatory is between R12,801 and R25,600. This can be shown as on the graph below.



Figure 1 Comparison of monthly household income in Observatory and Cape Town

¹ Miriam Houssay-Holzschuch and Annika Teppo, 'A Mall for All? Race and Public Space in Post-Apartheid Cape Town', *Cultural Geographies*, 16 (2009), 351–79 (p. 358).

² Amiena Peck and Felix Banda, 'Social Semiotics Observatory's Linguistic Landscape: Semiotic Appropriation and the Reinvention of Space', 2014, 37–41 (p. 303) <http://www.tandfonline.com/loi/csos20>.

³ Data based on Statistics South Africa's Census 2011 results, as available from the City of Cape Town at https://www.capetown.gov.za/en/stats/2011CensusSuburbs/2011_Census_CT_Suburb_Observatory_Profile.p df [Accessed 11 August 2016].

In 2009, the City of Cape Town ratified the suburb's Special Rating Area, the Observatory Improvement District (OBSID). OBSID receives an additional monthly levy from local ratepayers in order to provide supplementary services to those offered by the city. One of its central goals is improving public safety. OBSID's area of coverage is smaller (at about 5,000 residents in 2011,⁴ in an area of about 1.30 km²) than that of the suburb of Observatory as a whole (9,200 residents in 3.11 km²).

Members of OBSID approached the UCT Knowledge Co-op, a platform which connects external constituencies with academics and students within the university who have the knowledge, skills and resources to help address community challenges. The UCT Centre of Criminology was in turn approached to provide assistance in answering OBSID's questions around local liquor outlet density and crime. It was agreed that Anine Kriegler, a Centre of Criminology researcher and Doctoral student, would conduct the proposed research.

Scoping consultations were held with a number of community stakeholders, namely:

- OBSID chief operations officer Hudson McComb,
- OBSID public safety manager Hannes Bronkhorst,
- OBSID director and safety committee member Kris Marais,
- OBSID auxiliary social worker Kenneth Roman,
- Chair of the Observatory Civic Association Carolyn Neville,
- Former OBSID safety committee member Frank Schuitemaker,
- Chair of Observatory Neighbourhood Watch Steve Killick,
- Observatory Civic Association leader for noise and liquor issues Henk Stutterheim,
- OBSID safety committee member Barrie Terblanche.

Many expressed frustration with crime in Observatory and with their powerlessness around local liquor licensing decisions and enforcement. There was a widespread sense that attempts to improve residents' safety and quality of life were hampered by an inability to effectively influence alcohol sales. This report aims to assist the community with assessing, conceptualising and advocating around the possible impact of its density of alcohol outlets on crime. It makes the case that alcohol outlet density should indeed be a key concern for those tasked with improving the safety of any community. It is an entirely appropriate matter of interest and advocacy for those concerned with levels of crime.

There is an indication that an understanding of this connection is taking ascendancy in current policy thinking in the Western Cape Province. In her speech in February 2016, Premier Zille announced that reducing the harms around alcohol had been identified as one of the seven key 'game changers' to be targeted in the province this term.⁵ As such, it was resolved that executive responsibility for the Western Cape Liquor Authority (WCLA) as set

⁴ Own calculations based on Census Small Area layer data, available inter alia from the University of Cape Town's Data First portal, < https://www.datafirst.uct.ac.za/dataportal/index.php/catalog/485 >.

⁵ Helen Zille, 'State of the Province Address 2016', 2016 < https://www.westerncape.gov.za/speech/premierhelen-zilles-state-province-address-2016> [accessed 1 January 2016].

out in the Western Cape Liquor Act would be transferred from the Department of Economic Development and Tourism to the Department of Community Safety.⁶ This is a strong signal that the province has come to acknowledge that alcohol is simply not like other legal commodities and that although economic development and tourism do and should play roles in our thinking around alcohol, these may not provide the best core perspective. Instead, what should lead policy is considerations of the impact of alcohol on the safety of the communities it touches. The province's Alcohol-Related Harms Reduction Green Paper also makes the case for the importance of alcohol availability in determining levels of community harm, including crime.⁷ It remains to be seen what practical difference this policy shift will make to the local regulatory environment, but it will likely require greater acknowledgement of the spatial implications of the availability of alcoholic beverages. This report is therefore particularly timely.

The following section of this report introduces some conceptual and theoretical approaches to help make sense of how and why the availability of alcoholic beverages may impose harms on communities. Alcohol is unlike any other legally traded product. Its characteristics combine to generate a broad range of harms to consumers and others. This is uncontentious. Policy debates often implicitly come down to two sets of assumptions: first about whether the key drivers of alcohol-related harm are primarily rooted in the **supply** of or nature of the product itself or rather in the **demand** for it and the nature of its consumers, and second whether its harmful dynamics are best understood as arising from its interaction with **individuals** or **collectives**. Exploring the impact of alcohol outlet density on crime implies an interest in the effect of supply on collectives. This approach does not require rejection of other possible causal mechanisms.

Next, a summary is made of the state of current knowledge on the nature and strength of the relationship between alcohol outlet density (AOD) and rates of crime. A large body of research has shown a strong association between an area's AOD and its crime rate. Studies tracking the crime impact of marginal changes in AOD over time are relatively rare, but the balance of international evidence strongly suggests that whatever the benefits they may gain from hosting alcohol outlets, communities are also required to carry an associated burden of crime.

Having made the case for its likely significance, the report uses new data obtained from the Western Cape Liquor Authority to determine the density of legal liquor outlets in the suburb of Observatory. This is compared to the level for the city as a whole as well as to selected neighbouring and similar areas. Observatory's legal AOD is about five times the city average in terms of population and is considerably higher than a number of the nearby suburbs to which it is often informally compared. Working to see that this level does not further

⁶ Western Cape Department of Community Safety, *Annual Performance Plan 2016/17*, 2016, p. 11.

⁷ Western Cape Government, Department of the Premier, 'Alcohol-related harms reduction in the Western Cape', 2016 < https://www.westerncape.gov.za/alcohol-harms> [accessed 14 December 2016].

increase, or reduce it by holding the number of liquor licences constant as the suburb grows in population, may well be a productive component in the area's overall safety plan.

To assist in making such a decision, account is given of the crime situation in Observatory, as (imperfectly) reflected in the official recorded crime statistics for the police precinct into which it falls. This is done by comparing crime rates per 100,000 residents within the Woodstock precinct to those of the City of Cape Town and selected similar and neighbouring areas. This analysis shows that the precinct's rates of both violent and non-violent crime have improved in the last decade but remain consistently well above the city average and above the levels of a number of nearby and broadly similar areas.

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In short, it is not possible to determine the extent to which crime levels in Observatory can be blamed on its density of alcohol outlets or any other single factor. There is also no evidence to pinpoint a level of alcohol outlet density that is objectively ideal or 'too high'. However, Observatory does have a relatively high level of alcohol outlet density compared to similar and nearby areas. Based on a comparison of its recorded crime rates to other similar precincts, Woodstock precinct does also have relatively high levels of both violent and property crime. The balance of theoretical understanding and international research suggests that the former is very likely to play some role in the latter.

A number of community leaders in Observatory perceive the area's high alcohol outlet density to be an impediment to residents' safety. Although this position is supported by international evidence, others almost certainly disagree or do not for various reasons consider this a productive approach. Whatever the strategy ultimately deemed most practically or politically feasible, it is hoped that this report will assist in making that decision as informed as possible.

Conceptualising the harm of alcohol

The practice of consuming certain substances not primarily for their nutritional value but instead for their capacity to alter states of consciousness or perception is an ancient one. Thousands of plants are known to have psychoactive effects and of these about 40 have been regularly used by humans to fulfil a range of roles, including as social ritual and lubricant, spiritual rite, stimulant to help endure strain, tranquiliser to help recover from it, and simply as a pleasurable or exciting pastime.⁸ Fermentation and distillation of various organic products into alcohol has long been a popular method and has been largely dominant in European and Western culture.⁹ Debate around how best to regulate access to and use of such substances is as old the practice of their consumption.

South Africa has a particularly fraught history in this regard. The exchange of alcohol between European settlers and indigenous populations, its use as a means to 'manage' labour, the role of illegal outlets and beer halls in both the enforcement of and resistance to apartheid, and racial inequalities in policy approach have created a complex political problem for regulators.¹⁰ Economic isolation under apartheid also discouraged competition in the formal alcoholic beverage industry, such that it is highly concentrated and makes for a powerful lobby group in the policy formation arena.¹¹ It is considered a well-established industry which, as it often stresses, delivers a range of macroeconomic benefits.¹² The industry's influence is such that alcohol policy thinking is often dominated by its claims about maximising its contribution to local and national economies.¹³

National Treasury estimated that the market for alcoholic beverages contributed R73 billion, or 2.9% of South Africa's gross domestic product (GDP) in 2009/10.¹⁴ Another estimate put it at about R93 billion, or 3.9% of GDP.¹⁵ According to the industry, it is responsible for over 20,000 direct jobs and over 500,000 direct, indirect and induced jobs.¹⁶ Furthermore, the consumption of alcohol is an activity for which there is clearly considerable popular

⁸ Michael Gossop, *Living with Drugs*, 6th editio (Aldershot: Ashgate, 2007), p. 5.

⁹ Dwight B Heath, *International Handbook on Alcohol and Culture* (Westport (CT): Greenwood Publishing, 1995), p. 1; Gossop, p. 8.

¹⁰ Charles D H Parry, 'South Africa: Alcohol Today', *Addiction*, 100 (2005), 426–29 (p. 426).

¹¹ See e.g. Anne Mager, "One Beer, One Goal, One Nation, One Soul": South African Breweries, Heritage, Masculinity and Nationalism 1960-1999', *Past & Present*, 188 (2005), 163–94.

¹² Sarah Truen and others, *Baseline Study of the Liquor Industry Including the Impact of the National Liquor Act* 59 of 2003, 2011, p. i

<https://www.thedti.gov.za/business_regulation/docs/nla/other_pdfs/dna_economics_nla_act.pdf> [accessed 5 July 2016].

¹³ R. G. Matzopoulos and others, 'The Cost of Harmful Alcohol Use in South Africa', *South African Medical Journal*, 104 (2014), 127–32 (p. 132).

¹⁴ National Treasury Republic of South Africa, *A Review of the Taxation of Alcoholic Beverages in South Africa*, 2014, p. 6.

¹⁵ Truen and others, p. 156.

¹⁶ Industry Association for Responsible Alcohol Use, *The South African Liquor Industry: Our Contribution*, 2010, p. 2 <http://2015.ara.co.za/wp-content/uploads/2015/01/ARA_About-Us_Brochure.pdf> [accessed 5 July 2016].

demand, with about 28% of the adult population in South Africa reporting that they have done so in the last month.¹⁷ Its average volume of annual alcohol consumption among those who do drink places the country about 11th in the world.¹⁸

Determining the cost that this highly popular activity imposes on the country is rather more difficult. It is, however, vital – because there are a number of ways in which alcohol simply is not like other products. It combines three key features that few other legally traded products share at all or to nearly the same extent, namely that it has major physically toxic effects, that it causes intoxication or compromised physical and cognitive functioning, and that its consumption may for some people become a far less than free and rational choice. These factors interact to cause a huge range of short-term and long-term harms for drinkers, those around them, and the society at large. The basic pathways through which they do so can be presented as follows.¹⁹



Figure 2 Some key mechanisms of the harm related to alcohol

¹⁷ K Peltzer, A Davids and P Njuho, 'Alcohol Use and Problem Drinking in South Africa: Findings from a National Population-Based Survey', *African Journal of Psychiatry*, 14 (2011), 30–37 (p. 32).

¹⁸ Africa Check, 'South Africans are not the world's biggest alcohol consumers', 6 October 2016, < https://africacheck.org/reports/south-africans-not-worlds-biggest-alcohol-consumers/> [accessed 14 December 2016].

¹⁹ Adapted from *Acohol: No Ordinary Commodity: Research and Public Policy*, ed. by Thomas F Babor, 2nd editio (Oxford: Oxford University Press, 2010), p. 22.

A strong cultural reaction against earlier temperance movements has created a situation where even mentioning some of these external costs, especially those that are non-medical and hard to quantify precisely, seems stuffy and old-fashioned.²⁰ However, these harms or costs are multitude and may be borne primarily by the drinkers themselves (known as internal costs) or by government, family members, or society at large (external costs).²¹ Their magnitude is such that by most measures alcohol ranks as considerably more harmful overall than any illegal drugs.²²

Some of the main categories of harm associated with the consumption of alcohol can be summarised as follows.

- Impact on health: this includes harms due to chronic conditions (e.g. cirrhosis), acute conditions (e.g. intentional and unintentional injuries caused by/to intoxicated persons), other conditions directly attributable to alcohol (e.g. foetal alcohol spectrum disorder), and those more indirectly linked (e.g. HIV/AIDS infections facilitated by alcohol-related changes in sexual behaviour);
- **Healthcare costs**: these are the costs to the state and private sector of responding to the health problems above;
- **Treatment, research and prevention**: this includes costs related to providing treatment centres to those with alcohol abuse disorders, and studies on prevention and education programmes;
- **Social security:** these costs include state spending on alcohol-related disability grants, services to people with disabilities, social care and support services to families, and programmes dedicated to substance abuse prevention and rehabilitation;
- **Premature mortality and morbidity:** the alcohol-related early death or incapacitation of economically active individuals reduces the wealth and well-being of families, employers, and the economy as a whole;
- **Road traffic accidents:** over and above medical-related costs, these include damage to road infrastructure and productivity lost to other parties due to road delays;
- Labour supply and productivity: alcohol-related labour costs include those related to absenteeism, high employee turnover, and the effects of hangovers and drunkenness at work;
- Non-financial welfare costs: this is a broad category of harm that is hard to quantify, but components include damage to the quality of life of drinkers' themselves, to their family members, and to others more broadly affected; and
- **Crime:** alcohol-related crime generates costs in terms of responding to crime (i.e. on the part of the criminal justice system that must respond to e.g. alcohol-fuelled assaults),

²⁰ Robin Room and others, 'The Drinker's Effect on the Social Environment: A Conceptual Framework for Studying Alcohol's Harm to Others', *International Journal of Environmental Research and Public Health*, 7 (2010), 1855–71 (p. 1857).

²¹ Matzopoulos and others, p. 127.

²² Matzopoulos and others, p. 131.

costs as a consequence of crime (including such diverse items as medical costs and loss of foreign direct investment), and costs in anticipation of crime (for example through expenditure on bouncers and anti-theft devices).²³

One of the most recent estimates is that the tangible costs related to alcohol consumption in South Africa amounted to R37.9 billion or 1.6% of the 2009 GDP – but that the total tangible *and* intangible costs came to 10-12% of GDP.²⁴ The precise quantification is open to debate, but the fact and broad overall significance of these and other harms wrought by alcohol are hardly contentious or surprising to would-be regulators or those with an interest in alcohol policy. Few could plausibly deny that alcohol at least sometimes causes significant harm. Alcohol policy debates seldom turn on the question of whether alcohol causes any serious problems.

Instead, the debate often implicitly comes down to assumptions about where these problems' most crucial causal processes play out. Attributions can be understood as falling somewhere along two spectrums: first between whether the key drivers of alcohol-related harm are primarily rooted in the **supply** of or nature of the product itself or rather in the **demand** for and nature of its consumers, and second whether its harmful dynamics should best be understood as arising from its interaction with **individuals** or **collectives**. These are not neat dichotomies and it is common to stress that health outcomes and other risks including around alcohol should be understood through a 'biopsychosocial' model which considers the interaction of factors within the physical body, the psyche or mind, and the society.²⁵

However, it is often possible to sort approaches to the conceptualisation of and policy around alcohol (and other products that cause similar concern) into this framework of stressing on the one hand either the demand for or the supply of the product, and on the other the individual or group factors. These positions are not mutually exclusive but they do make sense of many of the different strategic approaches. They can be mapped as overleaf.

²³ Adapted from Truen and others; Matzopoulos and others.

²⁴ Matzopoulos and others, p. 131.

²⁵ See e.g. Mark D Griffiths, 'A "components" Model of Addiction within a Biopsychosocial Framework', *Journal of Substance Use*, 10 (2005), 191–97.

Figure 3 A framework for attributing alcohol harm causation



We can unpack these four broad perspectives. If the key harms from alcohol are understood as being driven to a significant extent by matters of **demand** at the **individual** scale, then the strategies logically required are ones that attempt to influence individuals' consumption decisions and behaviour. If they are understood as matters of **demand** but operating primarily instead at the **collective** scale, then the strategies required are ones that focus on changing the ways that broader communities relate to consumption behaviour. On the other hand, if the problems around alcohol are understood as significantly due to the impact of the extent or nature of its **supply** on **individuals**, then strategies should focus on controlling that with which individuals are supplied. Finally, if alcohol-related harms are located in the impact on the **collective** of alcohol **supply**, then the necessary strategies are ones that try to control that with which a broader community may be supplied.

Different strategies to address alcohol-related harm have fluctuated in popularity over time, for reasons usually having more to do with politics and culture than with any evidence of their effectiveness.²⁶ The disconnection between knowledge and policy is partly due to the fact that the alcohol industry and avid consumers have in many places effectively exercised

²⁶ See e.g. James Kneale and Shaun French, 'Mapping Alcohol: Health, Policy and the Geographies of Problem Drinking in Britain', *Drugs: Education, Prevention, and Policy*, 15 (2008), 233–49.

a veto over any approaches that stress the significance of supply,²⁷ and especially of its public health and social implications.²⁸ Alcohol industry actors are adept at misrepresenting strong evidence as weak, weak evidence as strong, making unsubstantiated claims about unintended consequences, and promoting alternatives without any evidence.²⁹ Concerns with individual choices are usually stressed above concerns with the inherent risks posed by the product to drinkers and those around them. So for example public information programmes are highly popular globally despite there being little evidence in support of their effectiveness, whereas controlling the price and supply of alcohol is highly unpopular despite the relatively good evidence to support it.³⁰

Considering the impact of alcohol outlet density (AOD) implies a position in the fourth quadrant of the graphic above in that it considers the evidence for the significance of the impact of alcohol supply on levels of crime in the spaces around its sale and consumption. Only if the problems around alcohol are understood as significantly (but not necessarily solely or even primarily) determined by its supply does it follow that questions must be raised about the impact of the extent of its physical availability. Only if there is a concern with the collective scale does it follow that questions must be raised about the impact of that supply on a wider group than just the consumer her- or himself. Concern with the collective impact of alcohol supply does not imply that the other mechanisms are not also (or even more) important or that strategies that target them may not be equally (or even more) effective at reducing alcohol-related harm.

Almost certainly, all four of the positions on the graphic have merit. Each of these mechanisms likely play a part in determining overall levels of alcohol-related harm and each of their implied strategy approaches should be considered within a holistic alcohol harm reduction policy. The question is not so much which of these is (more) true, but which is more effective and feasible, given resource constraints and political context.

The following section considers the international evidence on whether AOD is an important determinant of crime levels.

²⁷ Robin Room, Thomas Babor and Jürgen Rehm, 'Alcohol and Public Health', *The Lancet*, 365 (2005), 519–30 (p. 527).

²⁸ Charles Parry, 'African Experience Supports the View That the Global Alcohol Industry Should Have No Role in the Formulation of Public Health Policies', *Addiction*, 109 (2014), 1211–12.

 ²⁹ Jim McCambridge, Ben Hawkins and Chris Holden, 'Industry Use of Evidence to Influence Alcohol Policy: A Case Study of Submissions to the 2008 Scottish Government Consultation', *PLoS Medicine*, 10 (2013), 1–6.
 ³⁰ Room, Babor and Rehm, pp. 525–526.

The evidence base on alcohol outlet density (AOD) and crime

The volume or quantity of alcoholic beverages consumed by an individual or per person in a given population is critical to the magnitude of the effects (including the unintended and negative) on those involved with and affected by that consumption. Although contextual factors such as social norms and styles of drinking certainly play an important role, an overwhelming weight of evidence has shown that the volume of alcohol consumed per individual is itself a key determinant of many of the health and other harms listed in the previous section.³¹ In simple terms: more alcohol consumption by an individual or community generally means more alcohol-related effects, including negative ones. The shape of the dose-response relationship may not be linear – that is, one additional unit consumed may not result in one additional unit of harm (for example, there may be a threshold past which harms begin accruing or escalate) – but as a general rule the higher the consumption of alcohol, the greater are the adverse consequences for its consumers.

What remains slightly more disputed, at least popularly, is the extent to which levels of alcohol consumption are determined by its accessibility. In other words, are levels of consumption and therefore harm significantly determined by ease of supply? In fact, comparative research has shown that places and times with lower economic and opportunity costs (i.e. greater convenience) to obtaining alcohol tend also to be places and times with both higher alcohol consumption levels and alcohol-related problems.³² Little wonder that the norm among most countries is some form of restriction on alcohol availability. They go about this by some combination of policies including:

- Prohibiting the legal production or sale of any alcohol;
- Maintaining a government monopoly on alcohol production or sale;
- Establishing a minimum age for purchase and consumption of alcohol;
- Regulating alcohol consumption in public places;
- Restricting the days and hours of retail alcohol sale;
- Requiring licences for alcohol production or sale; and
- Restricting the location and number of places of alcohol sale.³³

This last is the focus of this report. A key measure of alcohol availability is the number of alcohol outlets in a given geographic area, per length of road in an area, or within a given population.³⁴ This is usually termed alcohol outlet density (AOD). Although there has been

³¹ World Health Organization, *Global Status Report on Alcohol and Health 2014* (Luxembourg: WHO Press, 2014), p. 4.

³² Babor, p. 128.

³³ World Health Organization, *Global Status Report on Alcohol and Health 2014*, p. 71.

³⁴ Michael Sparks, David H Jernigan and James F Mosher, *Strategizer 55: Regulating Alcohol Outlet Density: An Action Guide*, 2011, p. 14 http://www.camy.org/action/Outlet_Density/_includes/Outlet Density Strategizer_Nov_2011.pdf>.

very little explicit research on the impact of AOD in South Africa,³⁵ its international literature is rapidly growing, in tandem with advances in spatial data, technology and methodology.³⁶

There are a number of reasons why one might expect there to be a relationship between AOD and negative social outcomes, including crime. The classic way to conceptualise the relationship is through **availability theory**, which holds simply that greater availability leads to greater average consumption in a population, that greater average consumption leads to a larger number of heavy or problem drinkers, and that a larger number of heavy or problem drinkers, including perpetration of and becoming a victim to crime.³⁷ Excess drinking may, for example, escalate disagreements into assaults that would not otherwise have happened. High AOD may also encourage competitive practices between suppliers, pushing down prices and further encouraging heavy drinking.³⁸ According to availability theory thinking, the consumption of alcohol itself is principally responsible for the relationship between AOD and crime.

There are alternatives. **Routine activities theory** suggests that the key factor is not the alcohol itself but the difference its outlets makes to their social environment. Specifically, AOD attracts a greater number of likely offenders and suitable targets to the same area, raising the exposure of the latter to the former under conditions short on capable guardians.³⁹ For example, patrons of alcohol outlets are likely to have cash on them and to be compromised in their ability to ward off danger,⁴⁰ while the crowds and anonymity typical in alcohol-focused night time recreation spaces may pose particular difficulties for security. The kinds of social mix and environment encouraged by high AOD may also attract other businesses, such as drug markets,⁴¹ which may in turn cause greater problems for communities.

On the other hand, **social disorganisation theory** suggests that AOD is not so much a causal factor as an indicator of and perhaps aggravator of negative community characteristics or values. So high AOD may signal that the neighbourhood in question has low levels of social control and cohesion, and these same social features may encourage (or fail to dissuade) crime.⁴² The presence of certain alcohol outlets may, for example, reflect that the local community values heavy recreational drinking above more peaceful family entertainment

³⁵ Hannah H Leslie and others, 'Collective Efficacy, Alcohol Outlet Density, and Young Men's Alcohol Use in Rural South Africa', *Health & Place*, 34 (2015), 190–98 (p. 191).

³⁶ Michael Livingston, Tanya Chikritzhs and Robin Room, 'Changing the Density of Alcohol Outlets to Reduce Alcohol-Related Problems', *Drug and Alcohol Review*, 26 (2007), 557–66 (p. 562).

³⁷ Livingston, Chikritzhs and Room, p. 560.

³⁸ Bowers and others, p. 154.

³⁹ Livingston, Chikritzhs and Room, p. 560.

⁴⁰ Dennis W Roncek and Pamela A Maier, 'Bars, Blocks, and Crimes Revisited: Linking the Theory of Routine Activities to the Empiricism of "Hot Spots"', *Criminology*, 29 (1991), 725–53 (p. 726).

⁴¹ Eric S McCord and Jerry H Ratcliffe, 'A Micro-Spatial Analysis of the Demographic and Criminogenic Environment of Drug Markets in Philadelphia', *The Aus and NZ J Criminology*, 40 (2007), 43–63 (p. 43).

⁴² Livingston, Chikritzhs and Room, p. 560.

and it may be these values that result in more criminal behaviour.⁴³ AOD may also exacerbate social disorganisation, as it and its common spinoffs signal disorder to residents and visitors, encouraging feelings of powerlessness and mistrust among the former and a lax approach to rules among the latter.⁴⁴ For example, the presence of numerous bars or taverns and their accompanying noise and mess may send and reinforce the message that no one cares about what is happening or is willing to do anything about it.⁴⁵ This perception of disorder may push the neighbourhood along a further downwards trajectory⁴⁶ and can attract other problematic behaviours, such as open drug sales.⁴⁷

It is likely that all of these factors play their part – that the consumption of alcohol itself, the effects that alcohol sales have on the crime possibilities around them, and the signals given by alcohol outlets about and to communities all contribute to the nature of the relationship between AOD and crime.⁴⁸ What isn't in doubt is the fact that a relationship exists.

Systematic reviews of dozens of studies show that as a rule AOD is solidly associated with both consumption levels and a wide range of harms,⁴⁹ including child abuse and neglect, hospital admissions, motor vehicle accidents, pedestrian injuries and a range of mortality outcomes.⁵⁰ A slightly smaller⁵¹ but by now also broad range of research has shown a strong relationship between AOD and violent crimes and, to a lesser extent, property and other crimes.⁵² The places where AOD is higher tend to be the places where violent crime is higher, even when controlling for a range of measures of neighbourhood social characteristics.⁵³ This last is important, because such factors as the socioeconomic, ethnic or age profile of a neighbourhood may of course be independently responsible for both the higher AOD and the higher rates of violence.⁵⁴ Sociodemographic factors have been shown

⁵⁴ Stewart, p. 3.

⁴³ Bowers and others, p. 154.

⁴⁴ C.E. Ross and J. Mirowsky, 'Disorder and Decay: The Concept and Measurement of Perceived Neighborhood Disorder', *Urban Affairs Review*, 34 (1999), 412–32 (p. 426).

⁴⁵ Gorman and others, p. 629.

⁴⁶ Joanna Taylor, Liz Twigg and John Mohan, 'Understanding Neighbourhood Perceptions of Alcohol-Related Anti-Social Behaviour', *Urban Studies*, 52 (2015), 2186–2202 (p. 2187).

⁴⁷ Eric S McCord and Jerry H Ratcliffe, 'A Micro-Spatial Analysis of the Demographic and Criminogenic Environment of Drug Markets in Philadelphia', *The Aus and NZ J Criminology*, 40 (2007), 43–63 (p. 43).

⁴⁸ Kathryn Stewart, *How Alcohol Outlets Affect Neighborhood Violence*, 2005, p. 4.

⁴⁹ Svetlana Popova and others, 'Hours and Days of Sale and Density of Alcohol Outlets: Impacts on Alcohol Consumption and Damage: A Systematic Review', *Alcohol and Alcoholism*, 44 (2009), 500–516.

⁵⁰ Yasmin Bowers and others, 'Liquor Outlet Density, Deprivation and Implications for Foetal Alcohol Syndrome Prevention in the Bergriver Municipality in the Western Cape, South Africa', *South African Geographical Journal*, 96 (2014), 153–65 (p. 154). World Health Organization, *The WHO Global Strategy to Reduce the Harmful Use of Alcohol*, 2010, p. 32.

⁵¹ Heather R Britt and others, 'Neighborhood Level Spatial Analysis of the Relationship between Alcohol Outlet Density and Criminal Violence', *Environmental and Ecological Statistics*, 12 (2005), 411–26 (p. 412).

⁵² Christopher Carpenter and Carlos Dobkin, 'Alcohol Regulation and Crime', in *Controlling Crime: Strategies and Tradeoffs*, ed. by Philip J Cook, Jen Ludwig, and Justin McCrary (University of Chicago Press, 2011), pp. 291–329 (p. 291). Caterina Gouvis Roman and others, *Alcohol Outlets as Attractors of Violence and Disorder: A Closer Look at the Neighborhood Environment* (Washington, D.C., 2009), p. I. Stewart, p. 2.

⁵³ Dennis M Gorman and others, 'Spatial Dynamics of Alcohol Availability, Neighborhood Structure and Violent Crime', *Journal of Studies on Alcohol*, 62 (2001), 628–36 (p. 628).

to be relatively more important determinants of levels of crime and violence, but AOD does seem to be independently significant.⁵⁵

For example, one US study estimated that every additional alcohol establishment in a neighbourhood meant an increase of 5 criminal violence acts per 1,000 individuals per year.⁵⁶ Another found that each additional outlet was associated with 3.4 assaultive violence offences.⁵⁷ Another study estimated that a 20% increase in local AOD would result in a 3.3% to 10.9% increase across crime categories.⁵⁸ Yet another suggested that a reduction of one bar per zip code area would reduce assaults in an area by 1%.⁵⁹

Research has revealed some other interesting features of the relationship. The effect is a localised one – AOD appears to have a stronger relationship with crime and violence at the block or immediate neighbourhood level than at higher levels like cities.⁶⁰ Sometimes the type of alcohol outlets matters as much as their number. Some studies have shown the particular significance of the density of bars and nightclubs,⁶¹ while others have done so for off-premise outlets (i.e. bottle stores) or explored the different mechanisms of the effects from different outlet types.⁶² Other factors around the outlets also aggravate or mitigate their impact. Areas high in single family residences may see quite different results from those high in student housing, public housing, heavy industry, or vacant land.⁶³ Whether the individual outlet owners in an area of a given level of AOD do business and sell their product responsibly or recklessly makes a difference.⁶⁴ Besides whatever the direct effects of high AOD in a population or neighbourhood, shorter distances between outlets can create their own crime problems,⁶⁵ for example through the disruptive and potentially violent outcomes of crowds strolling between outlets.⁶⁶

⁵⁵ RA Scribner, DP MacKinnon and JH Dwyer, 'The Risk of Assaultive Violence and Alcohol Availability in Los Angeles County', *American Journal of Public Health*, 85 (1995), 335–40 (p. 335).

⁵⁶ Britt and others, p. 423.

⁵⁷ Scribner, MacKinnon and Dwyer, p. 335.

⁵⁸ T L Toomey and others, 'Is the Density of Alcohol Establishments Related to Nonviolent Crime?', *Journal of Studies on Alcohol and Drugs*, 73 (2012), 21–25 (p. 21).

⁵⁹ World Health Organization, *Preventing Violence by Reducing the Availability and Harmful Use of Alcohol*, p. 7.

⁶⁰ Paul W Speer and others, 'Violent Crime and Alcohol Availability: Relationships in an Urban Community', *Journal of Public Health Policy*, 19 (1998), 303–18 (p. 311). Roman and others, p. VI.

⁶¹ Michael P Cameron, William Cochrane and Michael Livingstone, *The Locally Specific Impacts of Alcohol Outlet Density in the North Island of New Zealand, 2006-2011* (Wellington, 2013), p. vi.

⁶² Livingston, Chikritzhs and Room, p. 559.

⁶³ William Alex Pridemore and Tony H. Grubesic, 'A Spatial Analysis of the Moderating Effects of Land Use on the Association between Alcohol Outlet Density and Violence in Urban Areas', *Drug and Alcohol Review*, 31 (2012), 385–93 (p. 386).

⁶⁴ William Lugo, 'Alcohol and Crime: Beyond Density', Security Journal, 21 (2008), 229–45.

⁶⁵ Stewart, p. 4.

⁶⁶ Livingston, Chikritzhs and Room, p. 564.

Based on the strength of all this evidence, one of the World Health Organization's key recommendations for reducing violence and other alcohol-related harm is limiting AOD.⁶⁷ Several other national and international organisations have reviewed the evidence and come to the same conclusion.⁶⁸ Government agencies with authority over liquor licenses and/or land use zoning have been advised by experts that one way they can help fight crime is to set rules on minimum distances between licensed premises, limit new licenses in areas with high AOD, not allow new licenses when particular locations go out of business, or permanently close outlets with histories of repeated liquor license violations.⁶⁹

Some cities have begun explicitly restricting the number of liquor licences they issue.⁷⁰ Yet decisions on the number of outlets permitted in an area are often driven not by any assessment of public health interests, but rather by perceived need or market forces.⁷¹ Moreover, proposals for greater restrictions on alcohol availability, including in terms of AOD, are often met with popular derision, with many convinced that the overall impact on consumption and harm is certain to be minimal or even in the opposite direction – that would-be consumers will (more than) compensate by for example simply travelling further to the places where alcohol sales remain legal.⁷² The research results have been highly suggestive but perhaps not entirely conclusive in showing that they are wrong.

The difficulty is that much of the research to date has been cross-sectional – comparing AOD and harmful outcomes between different places at one point in time.⁷³ Almost all such studies find a significant positive relationship between AOD and crime, especially violent crime.⁷⁴ Areas with higher AOD are areas with higher levels of violent crime, even controlling for a number of other likely contributing factors. Unfortunately, such correlational research has limited capacity to generate causal conclusions,⁷⁵ because there is always the possibility that other unidentified factors are the ones actually responsible for the apparent relationship.⁷⁶ In testing causality, correlational research is generally far inferior to experimental evidence.

⁶⁷ World Health Organization, *Preventing Violence by Reducing the Availability and Harmful Use of Alcohol*, 2009, p. 7.

⁶⁸ Carla Alexia Campbell and others, 'The Effectiveness of Limiting Alcohol Outlet Density as a Means of Reducing Excessive Alcohol Consumption and Alcohol-Related Harms', *American Journal of Preventive Medicine*, 37 (2009), 556–69 (p. 557).

⁶⁹ Stewart, p. 2.

⁷⁰ Lugo.

⁷¹ World Health Organization, *Preventing Violence by Reducing the Availability and Harmful Use of Alcohol*, p. 7.

⁷² See, for example, the comment sections of online news reports about plans to restrict Sunday alcohol sales in the City of Cape Town.

⁷³ SeungHoon Han, Charles C. Branas and John M. MacDonald, 'The Effect of a Sunday Liquor-Sales Ban Repeal on Crime: A Triple-Difference Analysis', *Alcoholism: Clinical and Experimental Research*, 40 (2016), 1111–21 (p. 1112).

⁷⁴ Livingston, Chikritzhs and Room, p. 559.

⁷⁵ Cameron, Cochrane and Livingstone, p. 45.

⁷⁶ Carpenter and Dobkin, p. 308.

Unfortunately, there are very few studies that track the effect across time of intentional policy changes to reduce AOD.⁷⁷ There are a fair number that show increasing harms following policy changes that *increased* AOD,⁷⁸ especially for example towards the end of prohibition in the early 20th century, but these results may be confounded by the role of the broader social and political changes possibly implicated in both.⁷⁹ More recent studies of alcohol policy liberalisations are often from small towns and from places with relatively low baseline levels of consumption.⁸⁰ There have been some briefer natural experiments in reducing AOD, for example following worker strikes or accidental alcohol outlet destruction,⁸¹ but these usually represent sudden and dramatic changes rather than the gradual trends more likely in the context of intentional policy shifts.⁸²

There are a few longitudinal studies that indicate that even modest reductions in AOD are associated with decreases in violent crime,⁸³ but overall there is not yet overwhelming evidence to prove that under conditions where there is already an abundance of alcohol outlets, policy changes aimed at reducing the density of alcohol outlets will necessarily result in lower long term negative outcomes, including crime.⁸⁴

The balance of the research that we do have, however, strongly suggests that when the ease of obtaining alcohol increases, so do alcohol-associated problems (including crime), and vice versa.⁸⁵ This is not to say that certain policy changes may not have unintended consequences, for example by encouraging some users to substitute other intoxicants when alcohol falls out of favour.⁸⁶ There are also inevitably trade-offs to be made between different interest groups, different political and economic imperatives, and different rankings of harm. But on balance there is excellent reason to believe that shifts in a neighbourhood's AOD play a role in determining its rate of crime.

⁷⁷ Campbell and others, p. 567.

⁷⁸ Paul J. Gruenewald and Lillian Remer, 'Changes in Outlet Densities Affect Violence Rates', *Alcoholism: Clinical and Experimental Research*, 30 (2006), 1184–93 (p. 1184).

⁷⁹ Room, Babor and Rehm, p. 526.

⁸⁰ Livingston, Chikritzhs and Room, p. 559.

⁸¹ Bowers and others, p. 154.

⁸² Livingston, Chikritzhs and Room, p. 558.

⁸³ X Zhang and others, 'Changes in Density of on-Premises Alcohol Outlets and Impact on Violent Crime,

Atlanta, Georgia, 1997-2007', Prev Chronic Dis, 12 (2015), E84 (p. 1).

⁸⁴ Campbell and others, p. 556; Livingston, Chikritzhs and Room, p. 563.

⁸⁵ Babor, p. 128.

⁸⁶ Benjamin Crost and Santiago Guerrero, 'The Effect of Alcohol Availability on Marijuana Use: Evidence from the Minimum Legal Drinking Age', *Journal of Health Economics*, 31 (2012), 112–21.

Alcohol outlet density in Observatory

Following an unsuccessful request through less formal means, a Promotion of Access to Information Act (PAIA) request was submitted to the Western Cape Liquor Authority (WCLA) for a list and the addresses of all currently valid liquor licences within the Cape Town metropole. The list of 4,012 licences within the city was released in December 2016. Following significant data cleaning (largely correcting for inconsistent address formats and obvious typographical errors), the following licenced establishments were identified as falling within the suburb of Observatory. The names are reproduced exactly as provided by the WCLA.

- 1. 1890 House Sushi
- 2. 58 On Lower Main
- 3. A Touch Of Madness
- 4. All Nations
- 5. Banana Jam Trench Cafe
- 6. Blue Diamond Sports Bar
- 7. Blue Marlin Restaurant
- 8. CAFE GANESH
- 9. Cocoa
- 10. Eat On Main
- 11. Edo Sushi
- 12. Ezthebeni Braai Lounge
- 13. Forex
- 14. GANDALFS
- 15. Groove Lounge
- 16. Gypsy Cafe
- 17. Hello Sailor Bistro
- 18. Honeybun
- 19. Jaggers Bowling Club
- 20. La Verte Cafe
- 21. Lion Corner
- 22. Love This Eatery
- 23. Masa Bouka
- 24. Mimi's The Delicious Food Company
- 25. Model "T" Liquor
- 26. Narona
- 27. Observatory Liquor Store
- 28. Obviouzly Armchair

- 29. OBZ Cafe & Jerrys
- 30. Obz Kwikspar
- 31. Oriental Restaurant (Obsevatory)
- 32. PANCHO'S MEXICAN KITCHEN RESTAURANT
- 33. Park Cafe
- 34. PICK AND PAY LIQUOR OBSERVATORY
- 35. Pick 'n Pay Family Supermarket (Observatory)
- 36. Protea Hotel Mowbray
- 37. RELOAD
- 38. Reservoir Lounge
- 39. Reverie Social Table
- 40. Scrumpy jack
- 41. STATE INFORMATION TECHNOLOGY AGENCY (PTY)LTD
- 42. STICKY FINGERS BBQ
- 43. Stones (Observatory)
- 44. Sushi & Thai Restuarant
- 45. Tagore's
- 46. THE GREEN ELEPHANT BACKPACKERS
- 47. The Medical Alumni Club
- 48. The River Club
- 49. The Sky Bar
- 50. The Web
- 51. Tops at OBZ
- 52. Western Province Hockey Union
- 53. WINE CELLAR CLUB

These names and their associated street addresses, licence numbers and licence types are provided at the end of this report. The premises were mapped as overleaf.



Figure 4 Valid liquor licence locations within Observatory suburb and SRA, December 2016

The red line indicates the boundary of the suburb of Observatory according to Statistics South Africa's 2011 census. The blue line indicates the boundaries of the OBSID Special Rating Area.⁸⁷ The red icons indicate the locations of currently valid liquor licences.

Based on 2011 census population figures, Observatory's 53 liquor licences equates to a density of 5.76 licenced outlets per 1,000 residents or 17 outlets per km². The OBSID SRA area hosts 46 liquor licences, making for a density of 9.22 outlets per 1,000 residents or 35 per km². Cleaning all the data, verifying locations and mapping all the liquor licences in the city is beyond the scope of this project. The prospects for meaningful comparison or estimation of the impact on crime are also seriously compromised by the fact that there are a large number of unlicensed liquor outlets in the city, especially in less affluent areas.

Nevertheless, it is possible to give some indication of how Observatory's concentration of *legal* liquor outlets compares with the city and with neighbouring areas of broadly similar socioeconomic profile and law enforcement environment. See the graph overleaf.

⁸⁷ As shown on the OBSID website, 'About us', <http://www.obsid.org.za/about-us/> [accessed 14 December 2016]



Figure 5 Comparison of rough estimates of liquor licence density by population

Observatory has a legal liquor outlet density about five times higher than that of the city in relation to population size (and about 10 times higher in relation to geographic area). Based on a rough comparison of licence addresses and suburb populations, it also has a considerably higher density than its neighbouring suburbs. Its AOD is about 60% higher than that of neighbouring Mowbray, to which it is often informally compared. Of the areas considered here, only Sea Point, which is not nearby but is similarly known as a peri-central area of night-time recreation, saw a higher density. In terms of its levels of alcohol-related harm, Observatory should be comparing itself to the likes of Sea Point or Woodstock, not to Rosebank or Rondebosch.

This is not necessarily to say that the alcohol outlet density in Observatory is 'too high'. A range of practical considerations, value judgements and trade-offs should go into determining the level that is appropriate for each different area. Still, this simple assessment does lend credence to claims that Observatory may be bearing a higher burden of alcohol-related harms than the average city resident and than those in nearby areas. The

strong international evidence for an association between AOD and crime suggests that part of this burden likely comes in the form of higher crime levels.

The figure of about 5.8 legal alcohol outlets per 1,000 residents can also serve as a baseline for future assessment and policy targeting. As the suburb continues to grow in population, it may be desirable to lobby to keep this AOD level constant, or to reduce it by holding the number of liquor licences constant. On the other hand, it may well be that such strategies are not deemed practically or politically feasible. Indeed, some Observatory community leaders express the view that it is not the density of alcohol outlets *per se* that causes problems, but just the lack of enforcement of existing liquor laws – especially against certain 'rogue' establishments.

Such a decision should take account of the nature of the crime challenge faced by the community in Observatory, which is described in the following section.

Recorded crime in Observatory

This section provides some broad indication of the nature and scope of the crime challenge in Observatory. The suburb falls within the boundaries of the area served by the Woodstock station of the South African Police Service (SAPS). Other areas in the precinct are neighbouring Salt River, Woodstock, University Estate, and Walmer Estate.

On the map below, the location of the Woodstock police station is indicated by the blue icon, the boundaries of the area served by that station (i.e. the precinct) are outlined in blue,⁸⁸ the respective suburbs that fall within that precinct are outlined in red,⁸⁹ and the suburb of Observatory is shaded in red.



Figure 6 The relationship between the Woodstock precinct boundaries and those of Observatory suburb

⁸⁸ Boundaries according to the South African Police Service, available on their website at: http://www.saps.gov.za/services/boundary.php.

⁸⁹ Boundaries according to Statistics South Africa as used for Census 2011, available inter alia from DataFirst services at the University of Cape Town:

https://datafirst.uct.ac.za/dataportal/index.php/catalog/central/about.

Clearly, crime statistics for the Woodstock precinct as a whole are not a perfect reflection of crime statistics in the smaller area of Observatory. Unfortunately, it is SAPS national practice not to publicly release crime statistics for any area smaller than the precinct. This makes it impossible to isolate the crime statistics for Observatory alone. However, indications from Woodstock police are that Observatory has by a fair margin the highest crime rates among the sectors in the precinct.⁹⁰ To the extent that Observatory contributes disproportionately to the precinct's crime totals, its crime profile dominates the other sectors in shaping the precinct's overall statistical patterns.

OBSID does also collect its own crime and other incident figures for Observatory, as provided largely by its private security contractor or local businesses and residents. However, the process of collection and processing of these figures is not consistent with other areas, making it of limited comparative usefulness. This section therefore makes use of the police crime statistics for the Woodstock precinct, as these are the best publicly available, comparable official data on crime in Observatory. It describes the recorded pattern in Woodstock crime rates as compared to the rest of the City of Cape Town metropolitan municipality and a selection of other police precincts for the last 10 years.

Note crucially that what is indicated here are the patterns in the *official statistics*. This can refer only to that proportion of crime that is both reported to and correctly recorded by the police. Victims or witnesses may for many reasons be unable or unwilling to report a crime to the police. These factors can vary based on the nature of the crime, the victim or witness's expectations of the police, their incentives to claim from insurance, and so on. Even should victims opt to report, the police officers on duty may for many reasons be unable or unwilling to correctly record it in the official statistics.

National surveys and other sources show that although a large and steady proportion of crime types including murder, carjacking and car theft make it into the official statistics, fewer than half the incidents of crime types including assault and relatively minor theft ever get reported to the police.⁹¹ Differences and changes in official crime statistics may therefore sometimes reflect not 'real' discrepancies in the incidence of crime, but instead discrepancies in the factors that encourage or discourage crime reporting or recording. This must be taken into account whenever interpreting crime statistics, especially in drastically different social contexts. A number of Observatory community stakeholders expressed the view that residents had to some extent given up on the police and didn't bother reporting many crimes. Police investigation or the ultimate decision of a court may also determine that the original charge as reflected in the crime statistics was not an accurate reflection of events. Still, the official statistics remain an invaluable source of knowledge about the distribution of crime.

⁹⁰ ObsLife, 'October 2015', 2015, p. 8.

⁹¹ Statistics South Africa, Victims of Crime Survey 2014/2015, 2015.

A major difficulty in making sense of the crime figures released by the SAPS is that different police stations vary a great deal in size. A given number of crime incidents represents an entirely different scale of crime problem in a population of 500 as compared to a population of 50,000. It is therefore the norm internationally to compare areas across space or time on the basis not of their recorded raw crime figures but instead on their recorded *crime rate per 100,000 people in the residential population*. The number of people resident within the boundaries of police station precincts in South Africa is not publicly available data, so it was necessary to determine appropriate estimates according to the methodology described in the box below.

Methodological note

Geographic Information System (GIS) technology was used to digitally overlay the spatial boundaries of the police precincts as made public on the SAPS website with the spatial boundaries of the City of Cape Town metropolitan municipality as used by Statistics South Africa. This is necessary because station boundaries do not perfectly overlap with the municipal boundaries. Stations were considered part of the municipality if their geographical areas overlapped by 50% or more with the municipal boundaries. A list of 60 police stations were thus identified for the City of Cape Town.

Next, GIS was used to overlay the station boundaries with the Small Area level boundaries used by Statistics South Africa for the last national census in 2011. These Small Areas are associated with headcounts from the census, which counted the number of people sleeping in each household on the night between 9 and 10 October 2011. The headcounts for the relevant Small Areas were summed for each station. Woodstock station was thus found to serve a resident population of 27,551 (in October 2011).

Expressing crime figures as annual rates per 100,000 people in their residential population makes it possible to draw comparisons between stations of different population size and between a station and the municipality. Note, however, that it does not take account of population size changes within each station since 2011, or the discrepancy between night time and day time populations within a precinct. Areas with large commuter populations (for example that see a large influx of workers during the day or revellers during entertainment hours) may see relatively high rates of certain crimes simply as a result of this skewed relationship between the size of the residential population and the population that can be affected by crime.

The disparities in the population sizes served by different police stations in Cape Town can be shown as on the map overleaf.



Figure 7 Map showing variation in residential populations of Cape Town police precincts

Whereas the raw crime figures give an indication of the burden of work as experienced by the relevant police station, accounting for population size reveals how intense the crime problem is in a certain area, as experienced by the people who live there. It makes it possible to rank each of the City of Cape Town's 60 police precincts according to its recorded rate per 100,000 residents of each type of crime. The crimes for which Woodstock precinct has some of its highest and lowest city rankings in the most recent recording year on record, 2015/16, are as follows.

Low rankings out of 60 CT stations:

- 54th for arson;
- 41st for attempted murder;
- 40th for murder;
- 38th for common assault;
- 35th for assault with intent to inflict grievous bodily harm; and
- 33rd for total sexual offences.

High rankings out of 60 CT stations:

- 1st for robbery at non-residential premises;
- 2nd for burglary at non-residential premises;

- 2nd for robbery with aggravating circumstances;
- 3rd for all theft not mentioned elsewhere;
- 3rd for theft of motor vehicle and motorcycle;
- 3rd for theft out of motor vehicle;
- 3rd for common robbery; and
- 4th for drug-related crime.

Woodstock precinct hosts relatively little of the group of crimes that have been described in South Africa as 'social fabric crimes'. These include murder, attempted murder, assault, and sexual offences, which are also associated with arson, and malicious damage to property.⁹² These crimes often cluster (i.e. are prevalent in the same areas) and share many of the same social circumstances. They often occur between people who are related to or know each other, and in conditions that involve the use of alcohol or other drugs.⁹³ Everywhere in the world, rates of this type of interpersonal violent crime tend to be highest in socially and economically deprived areas, especially those with large scale poverty and informality.⁹⁴ Neighbourhoods with high concentrations of disadvantage tend to be neighbourhoods with high levels of violent crime.⁹⁵

On the other hand, Woodstock precinct ranks very high in the city for a number of violent and non-violent property crimes, as well as for drug-related crime. Middle- and high-income households are often disproportionately targeted for property-focused or acquisitive crimes like burglary and robbery,⁹⁶ but to some extent they may compensate by investing in private security measures like alarm systems and gated communities.⁹⁷ So whereas violent crime is almost invariably concentrated among the less well-off, the concentration of property crimes among the more well-off is often to a lesser extent.⁹⁸

The different distribution of these types of crime is best illustrated as overleaf, on maps of the police precincts in part of Cape Town, with the intensity of the shading indicating the level of each precinct's 2015/16 rate per 100,000 residents of murder and of residential burglary. Woodstock precinct is outlined in blue.

⁹² South African Police Service, Annual Performance Plan 2010/2011, 2011, pp. 32, 34.

 ⁹³ The Centre for the Study of Violence and Reconciliation, *The Violent Nature of Crime in South Africa*, 2007, p.
 186.

⁹⁴ Robert J Sampson and J Robert, 'The Neighborhood Context of Well-Being', *Perspectives in Biology and Medicine*, 46 (2003), pp. S53–64.

⁹⁵ Jeffrey D Morenoff, Robert J Sampson and Stephen W Raudenbush, 'Neighbourhood Inequality, Collective Efficacy, and the Spatial Dynamics of Urban Violence', *Criminology*, 39 (2001), 517–60; Ching-Chi Hsieh and M D Pugh, 'Poverty, Income Inequality, and Violent Cime: A Meta-Analysis of Recent Aggregate Data Studies', *Criminal Justice Review*, 18 (1993), 182–202.

⁹⁶ John van Kesteren, Pat Mayhew and Paul Nieuwbeerta, *Criminal Victimisation in Seventeen Industrialised Countries: Key Findings from the 2000 International Crime Victim Survey* (The Hague: Ministry of Justice, WODC), p. 54.

⁹⁷ Rafael Di Tella, Sebastian Galiani and Ernesto Schargrodsky, *Crime Victimization and Income Distribution*, 2002.

⁹⁸ Anders Nilsson and Felipe Estrada, 'The Inequality of Victimization: Trends in Exposure to Crime among Rich and Poor', *European Journal of Criminology*, 3 (2006), 387–412 (p. 389).

Figure 8 Map of selected Cape Town precinct recorded murder rates per 100,000 in 2015/16



Figure 9 Map of selected Cape Town precinct recorded residential burglary rates per 100,000 in 2015/16



The areas in darker red on the first map include Gugulethu (at 148 murders per 100,000 in 2015/16), Nyanga (138), Philippi (124), and Mfuleni (120). Woodstock takes a relatively light colour with its murder rate of 15 per 100,000, more on par with the wealthier central and southern suburbs. The areas in darker red on the second map include Mowbray (at 2,595 residential burglaries per 100,000 in 2015/16), Rondebosch (2,100), and Camps Bay (1,955). Woodstock's rate of 1,648 gives it a relatively dark colour.

Based on their recorded crime rates, areas tend to have a crime profile dominated by either interpersonal violent crimes like murder or property crimes like burglary. Woodstock precinct clearly finds itself more in the latter category. This is unsurprising given its general socioeconomic profile. The households within the Woodstock precinct receive significantly higher annual incomes than the city average. Whereas the most common income band for the city is between R19,601 and R38,200 annually, that for Woodstock is between R153,801 and R307,600.⁹⁹ Woodstock is not characterised by informal housing on any scale. Given what is known about their typical distribution, it is therefore to be expected that Woodstock should have below average rates of the typical violent 'social fabric crimes' and above average rates of property-related crimes. Comparison between areas of such diverse socioeconomic profile is thus of limited usefulness.

We can compare instead the trends and the discrepancies in the recorded crime rates in a selection of nearby or broadly socioeconomically comparable police precincts. This is done, overleaf, for the category of contact crimes (which include murder, sexual offences, assault, and robbery) and that of property-related crimes (which include residential and business burglary and theft of and out of vehicles) for the last 10 years.

What the graphs show is that Woodstock precinct has seen major improvement in its recorded rates of both contact crimes and property-related crimes over the last decade (although it appears to have seen a significant rise in contact crimes over the last three years). However, its rates of both these crime categories have been consistently well above the city average and also above the levels of most nearby and broadly similar areas. Woodstock precinct, within which Observatory falls and to which Observatory contributes disproportionately in terms of crime totals, suffers from relatively high levels of both contact crimes and property-related crimes. It isn't possible to determine the extent to which alcohol outlet density is responsible for this. This report has made the case, however, there is excellent reason to believe that it may play some part.

⁹⁹ The Woodstock precinct estimate is an aggregate of the results from Census 2011 sub places of Observatory, Salt River, Woodstock, Walmer Estate, and University Estate. Data from: https://census2011.co.za/.



Figure 10 Selected Cape Town precinct total contact crime rates per 100,000 over time



Figure 11 Selected Cape Town precinct total property-related crime rates per 100,000 over time

List of currently valid liquor licences in Observatory, as provided by the Western Cape Liquor Authority and identified from their address

Licence No	Licence Type	Premises Name	Physical Address
WCP/035568	Consumption On	1890 House Sushi	Trill Straat 40; Observatory; 7935
WCP/034570	Consumption On	58 On Lower Main	Erf 27061; 58 Lower Main Road; Observatory
WCP/030138	Consumption On	A Touch Of Madness	12 Nuttal Road; Observatory; 7935
WCP/031293	Consumption On	All Nations	Ground Floor; 42 Lower Main Road ; Observatory; 7405
WCP/038949	Consumption On	Banana Jam Trench Cafe	92 - 96 Station Road; Observatory
WCP/039620	Consumption On	Blue Diamond Sports Bar	Erf 26220; 146/ 148 Lower Main Road; Observatory; 7925
WCP/038337	Consumption On	Blue Marlin Restaurant	48 Lower Main Road ; Observatory;
WCP/022093	Consumption On	CAFE GANESH	CNR TRILL & LOWER MAIN ROADS; OBSERVATORY
WCP/035687	Consumption On	Сосоа	20 Lower Main Road; Observatory
WCP/040897	Consumption On	Eat On Main	Erf 26127; 86 Station Road; Cnr Station & Lower Main Road; Observatory
WCP/040998	Consumption On	Edo Sushi	Erf 27649; Shop 4 ; Gateway To Observatory; Cnr Lower Main Road & Cranko Roads; Observatory
WCP/037089	Consumption On	Ezthebeni Braai Lounge	77 Lower Grove Mews ; Main Road; OBSERVATORY; 7925

WCP/040237	Consumption On	Forex	Erf 26128; Upper Floor; 92-96 Station Road; OBSERVATORY; 7925
WCP/031304	Consumption On	GANDALFS	299a LOWER MAIN ROAD; OBSERVATORY
WCP/036098	Consumption On	Groove Lounge	Erf 2673; Trump Towers; 85 Lower Main Road; Observatory; 7925
WCP/039226	Consumption On	Gypsy Cafe	Erf 26751; 87 Station Road; Observatory; 7925
WCP/038262	Consumption On	Hello Sailor Bistro	86 Lower Main Road; Observatory
WCP/040236	Consumption On	Honeybun	Erf 27011; 107 Lower Main Road; OBSERVATORY; 7925
WCP/005199	Consumption On	Jaggers Bowling Club	Erf 28176; Cnr Strubens & Molenvliet Roads; Mowbray
WCP/033987	Consumption On	La Verte Cafe	333 Main Road; Observatory
WCP/039382	Consumption On	Lion Corner	Erf 123297; 205 Lower Main Road; OBSERVATORY; 7925
WCP/041160	Consumption On	Love This Eatery	Erf 166500; 236 Lower Main Road; Salt River
WCP/032965	Consumption On	Masa Bouka	Erf 26114; 179-181 Lower Main Road; Observatory;
WCP/040296	Consumption On	Mimi's The Delicious Food Company	Erf 27029; 78 Lower Main Road; Observatory; 7925
WCP/034116	Consumption Off	Model "T" Liquor	Erf 116399; 174 Lower Main Road; Observatory
WCP/039146	Consumption On	Narona	39 Trill Road; Observatory
WCP/002231	Consumption Off	Observatory Liquor Store	Erf 27027; 70-72 Lower Main Road; Observatory; 7935

WCP/036933	Consumption On	Obviouzly Armchair	135 Lower Main Road; Observatory
WCP/039277	Consumption On	OBZ Cafe & Jerrys	Erven 22009.27010; 115 -123 Lower Main Road; Observatory
WCP/019446	Consumption Off	Obz Kwikspar	Erf 119069; Station Road; Pepper Square Building; Observatory
WCP/029398	Consumption On	Oriental Restaurant (Obsevatory)	Erf 26033; 337 Main Road; Observatory
WCP/010678	Consumption On	PANCHO'S MEXICAN KITCHEN RESTAURANT	127 LOWER MAIN ROAD; OBSERVATORY
WCP/040193	Consumption On	Park Cafe	Erf 163099; Collingwood Building; Black River Park; Fir Street; Observatory; 7928
WCP/037562	Consumption Off	PICK AND PAY LIQUOR OBSERVATORY	Shop 18; St Peter Square; Cnr Main and Anzio Roads; Observatory
WCP/029695	Consumption Off	Pick 'n Pay Family Supermarket (Observatory)	ERf 27604; Observatory; Cape Town
WCP/041147	Consumption On	Protea Hotel Mowbray	Erf 11887 and 148700; Liesbeeck Avenue ; Observatory
WCP/034421	Consumption On	RELOAD	60 Lower Main Road ; Observatory; 7925
WCP/040197	Consumption On	Reservoir Lounge	381 MAin Road; Cnr Main & Roman Road; Observatory; 7925
WCP/041106	Consumption On	Reverie Social Table	Erf 16527; 226A Lower Main Road; Observatory Centre; Observatory; 9725
WCP/028740	Consumption On	Scrumpy jack	Ground Floor; 92 Lower main road; Observatory

	Sect 4 (on	STATE INFORMATION	SITA HOUSE, BLACK RIVER PARK; FIR STREET; ERF 27961;
WCP/050559	consumption)	TECHNOLOGY AGENCY (PTY)LTD	OBSERVATORY
WCP/038347	Consumption On	STICKY FINGERS BBQ	Portion 3; 92 - 96 Station Road; Observatory; 7925
WCP/021854	Consumption On	Stones (Observatory)	84 & 94 Lower Main Road; Observatory
WCP/038616	Consumption On	Sushi & Thai Restuarant	109 Lower Main Road; Observatory; 7446
WCP/017817	Consumption On	Tagore's	42 Trill Road; Observatory; 7925
WCP/036608	Consumption On	THE GREEN ELEPHANT BACKPACKERS	ERF 26017; 57 MILTON ROAD; OBSERVATORY; 7925
WCP/039178	Consumption On	The Medical Alumni Club	Level 2; Barnard Fuller Building ; Uct Medical Campus; Anzio Road; Observatory
DTI/021643	Consumption On	The River Club	Between The Liesbeeck Park River &; Royal Observatory; Salt River
WCP/040204	Consumption On	The Sky Bar	Ground & First Floors; 79 - 81 Lower Main Road; OBSERVATORY; 7925
WCP/034432	Consumption On	The Web	Ground Floor; 92 Lower Main road; Observatory; 7925
WCP/036884	Consumption Off	Tops at OBZ	Erf 119069; Station Road; Pepper Sqaure ; Observatory
WCP/039224	Consumption On	Western Province Hockey Union	Hartleyvale Stadium; Observatory; 7925
WCP/036272	Consumption Off	WINE CELLAR CLUB	BASEMENT LEVEL ; UNIT 4; PRICES PARK; NELSON ROAD; OBSERVATORY

References

- Babor, Thomas F, ed., *Acohol: No Ordinary Commodity: Research and Public Policy*, 2nd editio (Oxford: Oxford University Press, 2010)
- Bowers, Yasmin, Kirstie Rendall-mkosi, Adlai Davids, Elmarie Nel, Nontobeko Jacobs, and Leslie London, 'Liquor Outlet Density, Deprivation and Implications for Foetal Alcohol Syndrome Prevention in the Bergriver Municipality in the Western Cape, South Africa', South African Geographical Journal, 96 (2014), 153–65
- Britt, Heather R, Bradley P Carlin, Traci L Toomey, and Alexander C Wagenaar,
 'Neighborhood Level Spatial Analysis of the Relationship between Alcohol Outlet
 Density and Criminal Violence', *Environmental and Ecological Statistics*, 12 (2005), 411–26
- Cameron, Michael P, William Cochrane, and Michael Livingstone, *The Locally Specific Impacts of Alcohol Outlet Density in the North Island of New Zealand, 2006-2011* (Wellington, 2013)
- Campbell, Carla Alexia, Robert A. Hahn, Randy Elder, Robert Brewer, Sajal Chattopadhyay, Jonathan Fielding, and others, 'The Effectiveness of Limiting Alcohol Outlet Density as a Means of Reducing Excessive Alcohol Consumption and Alcohol-Related Harms', *American Journal of Preventive Medicine*, 37 (2009), 556–69
- Carpenter, Christopher, and Carlos Dobkin, 'Alcohol Regulation and Crime', in *Controlling Crime: Strategies and Tradeoffs*, ed. by Philip J Cook, Jen Ludwig, and Justin McCrary (University of Chicago Press, 2011), pp. 291–329
- Crost, Benjamin, and Santiago Guerrero, 'The Effect of Alcohol Availability on Marijuana Use: Evidence from the Minimum Legal Drinking Age', *Journal of Health Economics*, 31 (2012), 112–21
- Gorman, Dennis M, P W Speer, P J Gruenewald, and E W Labouvie, 'Spatial Dynamics of Alcohol Availability, Neighborhood Structure and Violent Crime', *Journal of Studies on Alcohol*, 62 (2001), 628–36
- Gossop, Michael, Living with Drugs, 6th editio (Aldershot: Ashgate, 2007)
- Griffiths, Mark D, 'A "components" Model of Addiction within a Biopsychosocial Framework', Journal of Substance Use, 10 (2005), 191–97
- Gruenewald, Paul J., and Lillian Remer, 'Changes in Outlet Densities Affect Violence Rates', Alcoholism: Clinical and Experimental Research, 30 (2006), 1184–93
- Han, SeungHoon, Charles C. Branas, and John M. MacDonald, 'The Effect of a Sunday Liquor-Sales Ban Repeal on Crime: A Triple-Difference Analysis', *Alcoholism: Clinical and Experimental Research*, 40 (2016), 1111–21
- Heath, Dwight B, International Handbook on Alcohol and Culture (Westport (CT): Greenwood Publishing, 1995)

- Houssay-Holzschuch, Miriam, and Annika Teppo, 'A Mall for All? Race and Public Space in Post-Apartheid Cape Town', *Cultural Geographies*, 16 (2009), 351–79
- Hsieh, Ching-Chi, and M D Pugh, 'Poverty, Income Inequality, and Violent Cime: A Meta-Analysis of Recent Aggregate Data Studies', *Criminal Justice Review*, 18 (1993), 182–202
- Industry Association for Responsible Alcohol Use, *The South African Liquor Industry: Our Contribution*, 2010 http://2015.ara.co.za/wp-content/uploads/2015/01/ARA_About-Us_Brochure.pdf> [accessed 5 July 2016]
- van Kesteren, John, Pat Mayhew, and Paul Nieuwbeerta, *Criminal Victimisation in Seventeen Industrialised Countries: Key Findings from the 2000 International Crime Victim Survey* (The Hague: Ministry of Justice, WODC)
- Kneale, James, and Shaun French, 'Mapping Alcohol: Health, Policy and the Geographies of Problem Drinking in Britain', *Drugs: Education, Prevention, and Policy*, 15 (2008), 233– 49
- Leslie, Hannah H, Jennifer Ahern, Audrey E Pettifor, Rhian Twine, Kathleen Kahn, F Xavier Gómez-Olivé, and others, 'Collective Efficacy, Alcohol Outlet Density, and Young Men's Alcohol Use in Rural South Africa', *Health & Place*, 34 (2015), 190–98
- Livingston, Michael, Tanya Chikritzhs, and Robin Room, 'Changing the Density of Alcohol Outlets to Reduce Alcohol-Related Problems', *Drug and Alcohol Review*, 26 (2007), 557–66
- Lugo, William, 'Alcohol and Crime: Beyond Density', Security Journal, 21 (2008), 229-45
- Mager, Anne, "One Beer, One Goal, One Nation, One Soul": South African Breweries, Heritage, Masculinity and Nationalism 1960-1999', *Past & Present*, 188 (2005), 163–94
- Matzopoulos, R. G., S. Truen, B. Bowman, and J. Corrigall, 'The Cost of Harmful Alcohol Use in South Africa', *South African Medical Journal*, 104 (2014), 127–32
- McCambridge, Jim, Ben Hawkins, and Chris Holden, 'Industry Use of Evidence to Influence Alcohol Policy: A Case Study of Submissions to the 2008 Scottish Government Consultation', *PLoS Medicine*, 10 (2013), 1–6
- McCord, Eric S, and Jerry H Ratcliffe, 'A Micro-Spatial Analysis of the Demographic and Criminogenic Environment of Drug Markets in Philadelphia', *The Aus and NZ J Criminology*, 40 (2007), 43–63
- Morenoff, Jeffrey D, Robert J Sampson, and Stephen W Raudenbush, 'Neighbourhood Inequality, Collective Efficacy, and the Spatial Dynamics of Urban Violence', *Criminology*, 39 (2001), 517–60
- National Treasury Republic of South Africa, A Review of the Taxation of Alcoholic Beverages in South Africa, 2014
- Nilsson, Anders, and Felipe Estrada, 'The Inequality of Victimization: Trends in Exposure to Crime among Rich and Poor', *European Journal of Criminology*, 3 (2006), 387–412

ObsLife, 'October 2015', 2015

- Parry, Charles, 'African Experience Supports the View That the Global Alcohol Industry Should Have No Role in the Formulation of Public Health Policies', *Addiction*, 109 (2014), 1211–12
- Parry, Charles D H, 'South Africa: Alcohol Today', Addiction, 100 (2005), 426-29
- Peck, Amiena, and Felix Banda, 'Social Semiotics Observatory's Linguistic Landscape: Semiotic Appropriation and the Reinvention of Space', 2014, 37–41 <http://www.tandfonline.com/loi/csos20>
- Peltzer, K, A Davids, and P Njuho, 'Alcohol Use and Problem Drinking in South Africa: Findings from a National Population-Based Survey', *African Journal of Psychiatry*, 14 (2011), 30–37
- Popova, Svetlana, Norman Giesbrecht, Dennis Bekmuradov, and Jayadeep Patra, 'Hours and Days of Sale and Density of Alcohol Outlets: Impacts on Alcohol Consumption and Damage: A Systematic Review', *Alcohol and Alcoholism*, 44 (2009), 500–516
- Pridemore, William Alex, and Tony H. Grubesic, 'A Spatial Analysis of the Moderating Effects of Land Use on the Association between Alcohol Outlet Density and Violence in Urban Areas', Drug and Alcohol Review, 31 (2012), 385–93
- Roman, Caterina Gouvis, Shannon E Reid, Avinash S Bhati, and Bogdan Tereshchenko, Alcohol Outlets as Attractors of Violence and Disorder: A Closer Look at the Neighborhood Environment (Washington, D.C., 2009)
- Roncek, Dennis W, and Pamela A Maier, 'Bars, Blocks, and Crimes Revisited: Linking the Theory of Routine Activities to the Empiricism of "Hot Spots"', *Criminology*, 29 (1991), 725–53
- Room, Robin, Thomas Babor, and Jürgen Rehm, 'Alcohol and Public Health', *The Lancet*, 365 (2005), 519–30
- Room, Robin, Jason Ferris, Anne Marie Laslett, Michael Livingston, Janette Mugavin, and Claire Wilkinson, 'The Drinker's Effect on the Social Environment: A Conceptual Framework for Studying Alcohol's Harm to Others', *International Journal of Environmental Research and Public Health*, 7 (2010), 1855–71
- Ross, C.E., and J. Mirowsky, 'Disorder and Decay: The Concept and Measurement of Perceived Neighborhood Disorder', *Urban Affairs Review*, 34 (1999), 412–32
- Sampson, Robert J, and J Robert, 'The Neighborhood Context of Well-Being', *Perspectives in Biology and Medicine*, 46 (2003), S53–64
- Scribner, RA, DP MacKinnon, and JH Dwyer, 'The Risk of Assaultive Violence and Alcohol Availability in Los Angeles County', *American Journal of Public Health*, 85 (1995), 335– 40
- South African Police Service, Annual Performance Plan 2010/2011, 2011

- Sparks, Michael, David H Jernigan, and James F Mosher, Strategizer 55: Regulating Alcohol Outlet Density: An Action Guide, 2011 <http://www.camy.org/action/Outlet_Density/_includes/Outlet Density Strategizer Nov 2011.pdf>
- Speer, Paul W, D M Gorman, Erich W Labouvie, and Mark J Ontkush, 'Violent Crime and Alcohol Availability: Relationships in an Urban Community', *Journal of Public Health Policy*, 19 (1998), 303–18

Statistics South Africa, Victims of Crime Survey 2014/2015, 2015

Stewart, Kathryn, How Alcohol Outlets Affect Neighborhood Violence, 2005

- Taylor, Joanna, Liz Twigg, and John Mohan, 'Understanding Neighbourhood Perceptions of Alcohol-Related Anti-Social Behaviour', *Urban Studies*, 52 (2015), 2186–2202
- Di Tella, Rafael, Sebastian Galiani, and Ernesto Schargrodsky, *Crime Victimization and Income Distribution*, 2002
- The Centre for the Study of Violence and Reconciliation, *The Violent Nature of Crime in* South Africa, 2007
- Toomey, T L, D J Erickson, B P Carlin, H S Quick, E M Harwood, K M Lenk, and others, 'Is the Density of Alcohol Establishments Related to Nonviolent Crime?', *Journal of Studies on Alcohol and Drugs*, 73 (2012), 21–25
- Truen, Sarah, Yash Ramkolowan, Joanne Corrigal, and Richard Matzopoutos, *Baseline Study* of the Liquor Industry Including the Impact of the National Liquor Act 59 of 2003, 2011 <https://www.thedti.gov.za/business_regulation/docs/nla/other_pdfs/dna_economics _nla_act.pdf> [accessed 5 July 2016]

Western Cape Department of Community Safety, Annual Performance Plan 2016/17, 2016

- World Health Organization, *Global Status Report on Alcohol and Health 2014* (Luxembourg: WHO Press, 2014)
- ----, Preventing Violence by Reducing the Availability and Harmful Use of Alcohol, 2009
- ----, The WHO Global Strategy to Reduce the Harmful Use of Alcohol, 2010
- Zhang, X, B Hatcher, L Clarkson, J Holt, S Bagchi, D Kanny, and others, 'Changes in Density of on-Premises Alcohol Outlets and Impact on Violent Crime, Atlanta, Georgia, 1997-2007', Prev Chronic Dis, 12 (2015), E84
- Zille, Helen, 'State of the Province Address 2016', 2016 <https://www.westerncape.gov.za/speech/premier-helen-zilles-state-provinceaddress-2016> [accessed 1 January 2016]