



Packaged liquor in Victoria:

2001 to 2016

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CAPR not only contributes to policy discussions in Australia but also contributes to international studies of significance for the World Health Organization. An example of its international work is the *GENACIS project*, which examines gender alcohol and culture in more than 40 countries.

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Summary

This study investigated the packaged liquor market in Victoria between 2001 and 2016, examining changes in availability, ownership patterns and the socioeconomic distribution of outlets. The data used relate only to outlets specifically licensed as 'packaged liquor' outlets and thus substantially underestimate the actual availability of packaged liquor due to the significant number of bottle shops currently trading under general licences.

The study found that there were 2,023 active packaged liquor licences in Victoria, including 294 (14.5 per cent) owned by Woolworths, 216 (10.7 per cent) by Wesfarmers, 127 by ALDI (6.3 per cent) and 754 (37.3 per cent) operating under one of the Metcash brands. There were a further 632 (31.2 per cent) independent packaged liquor outlets.

The overall number of packaged liquor outlets increased from 1,354 in 2001 to 2,023 in 2016, an increase of 49.4 per cent. Over the same period, the Victorian population increased by 26.5 per cent, meaning that the rate of packaged liquor outlets per 100,000 residents has increased from 28.7 per 100,000 in 2001 to 33.9 in 2016 (an increase of 18.2 per cent). The per capita rate of packaged liquor outlets was stable between 2006 and 2016, potentially due to the increasing prevalence of big-box format stores.

The number of 'big-box' format stores in Victoria increased dramatically over the study period, from three in 2001 to 68 in 2016. The majority of these (43, or 63 per cent) were Dan Murphy's stores. On a per capita basis, the number of big-box liquor stores per 100,000 population grew steadily from 0.06 to 1.14 (an increase of nearly 2,000 per cent, although this is from a very small base).

The increases in availability were not evenly distributed geographically, with per capita rates of packaged liquor outlets more than doubling in Benalla (S), Colac-Otway (S), Golden Plains (S), Hobsons Bay (C), Mount Alexander (S) and Warrnambool (C). There were no clear patterns in the socioeconomic distribution of changes in packaged liquor outlet numbers.

Exploratory hotspot analyses identified a number of small areas with disproportionately high numbers of packaged liquor outlets. Future research should examine the factors that underpin the formation of these hotspots and their relationship with rates of alcohol-related harms.

Introduction

This report examines trends and changes in the packaged liquor market in Victoria between 2001 and 2016. The vast majority of alcohol in Australia – an estimated 80 per cent – is sold in packaged form (1). In regulatory terms, however, packaged liquor has received little attention in Australia, with policies focusing more heavily on managing the acute harms that occur in and around night-time entertainment precincts (2).

Previous research has demonstrated that changes in the supply of alcohol through the density and type of packaged liquor outlets has the potential to influence rates of consumption and alcohol-related harm. For example, longitudinal studies in Victoria have demonstrated that increases in the density of packaged liquor outlets at the postcode level are associated with increases in rates of family violence and chronic disease (3, 4). These findings are broadly supported by a growing international literature, demonstrating that changing alcohol availability (trading hours and outlet density) is an important driver of rates of alcohol-related harm.

While this evidence is a useful starting point for policy decisions around alcohol availability, there has been growing concern among researchers and policymakers about the limitations of using simple counts of packaged outlets to measure alcohol availability. Researchers in Western Australia have argued that the amount of alcohol sold is a more appropriate measure of availability than the number of licences, making the point that large-scale warehouse stores are likely to represent a different quantum of availability than a small bottle shop (5). This argument has been further advanced by Morrison et al., who demonstrated that chain liquor outlets had a stronger relationship with alcohol-related harm than independent outlets (6).

There is also growing evidence that packaged liquor outlets are distributed in unequal ways. Research studies in Victoria, New Zealand and the United States have all found that packaged liquor outlets tend to locate disproportionately in disadvantaged neighbourhoods, with potential impacts on health-related inequalities (7-9).

For many years, the Victorian liquor licensing system incorporated a cap on the proportion of the packaged liquor market that any one business could own. This was set at eight per cent and was introduced in the early 1980s to ensure diversity in the liquor market in the face of the sharp growth of S.E. Dickens outlets (later Liquorland – now owned by Coles/Wesfarmers). Following recommendations by the National Competition Commission and a review by Victorian Government, this cap was lifted in 2000 (10). Since the lifting of this regulatory cap, there has been growing concern about the concentration of the liquor market in Australia, with the proportion of alcohol sales coming from the two major grocery chains estimated to be as high as 60 per cent (11). More recently, the expansion of the ALDI supermarket chain (which usually have packaged liquor licences in Victoria) and the growth of the wholesale and distribution networks managed by Metcash have added to the complexity of the Victorian packaged liquor market.

This report will provide a summary of the current state of the Victorian packaged liquor market, using detailed liquor licensing data from March 2016. It will also summarise recent trends in the market, covering the relative growth of the major chains and the expansion of big-box format stores.

RESEARCH QUESTIONS

In particular, this study will examine:

1. whether trends in the number and rate of packaged liquor outlets have varied between 2001 and 2016 by their ownership
2. how the expansion of the big-box style liquor outlets has occurred, both by ownership type and geographically
3. which Local Government Areas in Victoria have experienced disproportionate increases in packaged liquor availability over the study period
4. whether trends in packaged liquor availability have varied across areas of higher and lower socioeconomic status
5. the characteristics of hotspots of alcohol availability in metropolitan Melbourne.

A summary of the key businesses and their brands

One of the main aims of this report is to provide a summary of the current state of the packaged liquor market in Victoria in terms of concentration of ownership. With this in mind, a brief discussion of the

main businesses involved and their brands is necessary. There are four major categories of packaged liquor outlets in Victoria (as well as independently run outlets):

1. Woolworths Limited

Woolworths are one of the two major supermarket chains in Australia and have been one of the main packaged liquor retailers in Victoria since the packaged liquor market expanded in the 1980s. As of 2016, they operate two main chains: *BWS* (Beer Wine Spirits), a smaller bottle shop often located near a supermarket, and *Dan Murphy's*, a big-box format chain with low prices and a wide range of products. Over the course of the study period (2001-2016), Woolworths stores have also been branded *Safeway* and *Woolworths Liquor*.

2. Wesfarmers Limited

Wesfarmers are a large company with diverse business interests including Coles, Australia's second major supermarket chain and a series of packaged liquor chains. As of 2016, their alcohol retail brands are *Liquorland* (a regular bottle shop, often near a Coles supermarket), *Vintage Cellars* (a wine-focused chain) and *First Choice* (a big-box format chain).

3. ALDI

ALDI, a large German discount supermarket chain, opened their first Australian store in Sydney in 2001 and have steadily expanded since, now operating over 400 stores in Victoria, Queensland, New South Wales and the Australian Capital Territory. In Victoria, ALDI stores typically operate as packaged liquor outlets, focusing on the discount market.

4. Metcash

In addition to the supermarket chains who own packaged outlets, there are conglomerates of independently owned outlets that operate under wholesaling or distribution arrangements with Metcash. These stores trade under a variety of brands: *IGA*, *Duncan's Liquor*, *Thirsty Camel*, *Bottle-O*, *Foodworks*, *Fishers*, *Cellarbrations*, *Liquor Legends*, and *Friendly Grocer*. These stores are not owned by Metcash, but enter into wholesale and distribution agreements with them and use consistent brands.

Methods

DATA

For this study, we used individual liquor licensing data for four years (2001, 2006, 2011 and 2016), provided by the Victorian Commission for Gaming and Liquor Regulation (VCGLR). The licensing database includes records for each 'active licence' at the time of extraction, and we assume here that active licences are active businesses (although it is likely that a small number will have ceased trading but not yet had their licences removed from the database).

All data presented here are based on the packaged liquor licence numbers in the VCGLR database as at March 2016. This will be an underestimate of the actual availability of packaged liquor in Victoria for two main reasons. Firstly, a number of new outlets will have opened since these data were collected and, more importantly, a considerable number of general licences supply packaged liquor in ways indistinguishable from what we think of as a standard packaged liquor outlet. Thus, for example, in this report we note that there are 43 Dan Murphy's outlets trading in Victoria, while the Dan Murphy's

website lists 64 Victorian outlets. This is largely because our analyses exclude the approximately 20 Dan Murphy's that trade under a general licence (typically used for pubs). There is no reliable way to ascertain which general licences were used to licence detached bottle shops over the past 20 years, so this report focuses only on outlets licensed solely as packaged liquor outlets. Future research into the availability of packaged liquor in Victoria would be significantly improved if more precise licensing data were available.

The 2001, 2006 and 2011 data were geocoded by a spatial data consultant (see (12) for full details). More than 99 per cent of packaged liquor outlets were successfully geocoded to at least the street level. The 2016 data were provided by the VCGLR with geocoded coordinates already included, as they have recently developed their own spatial database of liquor outlets (see, <http://www.vcglr.vic.gov.au/home/resources/data+and+research/data/interactive+map+of+victorias+liquor+licences>).

Outlets were coded into the relevant chains based on their trading names in the liquor licensing database. Thus, for example, all outlets with a premise name of First Choice, 1st Choice, Liquorland or Vintage Cellars were classified as 'Coles' outlets.

Reliable data were not available for Metcash-affiliated outlets prior to 2016. As Metcash-related outlets are generally independent businesses, their liquor licensing details often remain unchanged even when they are rebranded via an association with one of the Metcash chains. Thus, for example, an outlet may be listed under the premise name 'Beach Cellars' on the liquor licensing database despite the fact that it is now trading as 'The Bottle-O St Kilda'. For this reason, it is not possible to accurately measure trends in Metcash-affiliated outlet numbers. For 2016 data, each seemingly independent outlet in the database was individually checked (via Google search and Google Maps Street View) to accurately record the current branding. This process more than doubled the number of Metcash-affiliated outlets initially estimated based only on the premise name in the liquor licensing database.

It is also worth noting that our analyses here focus solely on packaged liquor licences. This excludes general liquor licences (pubs), some of which have attached bottle shops. Woolworths, for example, owns more than 320 hotels across Australia (under the Australian Leisure and Hospitality Group), some of which have substantial attached bottle shops, often branded as BWS outlets (13). The scope of packaged liquor trade at each general outlet varies significantly, and no information on the existence or otherwise of attached bottle shops at pubs is available via the liquor licensing database. Thus, the data presented in this report represent an underestimate of the true size of the packaged liquor market.

Geocoded outlets were mapped into Local Government Areas and postcodes to facilitate geographic analyses. Local-level populations were sourced from the Australian Bureau of Statistics (14). We examined changes in the socioeconomic distribution of alcohol outlets between 2001 and 2011 using the Socio-Economic Index for Areas (SEIFA) index of relative socioeconomic disadvantage (15). These data rely on the Census, so trends could only be estimated up to 2011.

ANALYSES

A detailed map of packaged liquor outlets in 2016 was constructed using the Quantum Geographic Information System software (QGIS) (16). Subsequently, trends in the overall number and per capita rates of packaged liquor outlets were estimated for Victoria and for each Local Government Area to examine where alcohol availability was increasing more quickly than expected based on population growth.

Sub-analyses at the state level examined the relative growth of each of the three chains described earlier (Wesfarmers, Woolworths, and ALDI). Separate analyses were also conducted to assess the growth in the big-box format stores (First Choice and Dan Murphy's) in comparison to the smaller outlet types.

Trends in alcohol availability for each socioeconomic quintile were estimated between 2001 and 2011 to examine whether alcohol availability had become more concentrated in disadvantaged neighbourhoods over time. Again, sub-analyses here examined these trends across the different types of outlets.

Results

Figure 1 provides a map of the packaged liquor licences in Victoria by ownership status in 2016. There are 2,023 active packaged liquor licences in Victoria, including 294 owned by Woolworths, 216 by Wesfarmers, 127 by ALDI, and 754 operating under one of the Metcash brands. There were a further 632 independent packaged liquor outlets.

Figure 1 – Distribution of packaged liquor outlets in Victoria, 2016, by owner

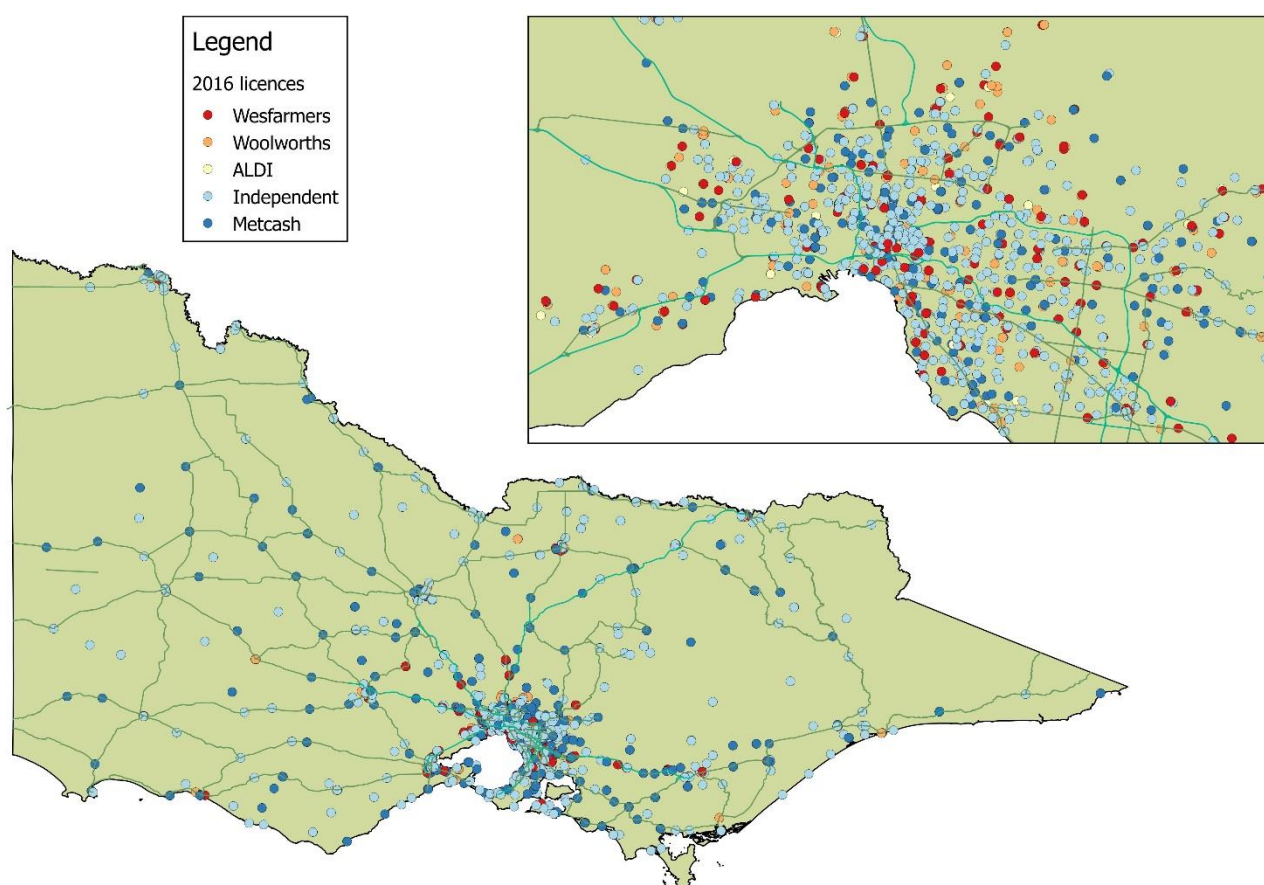


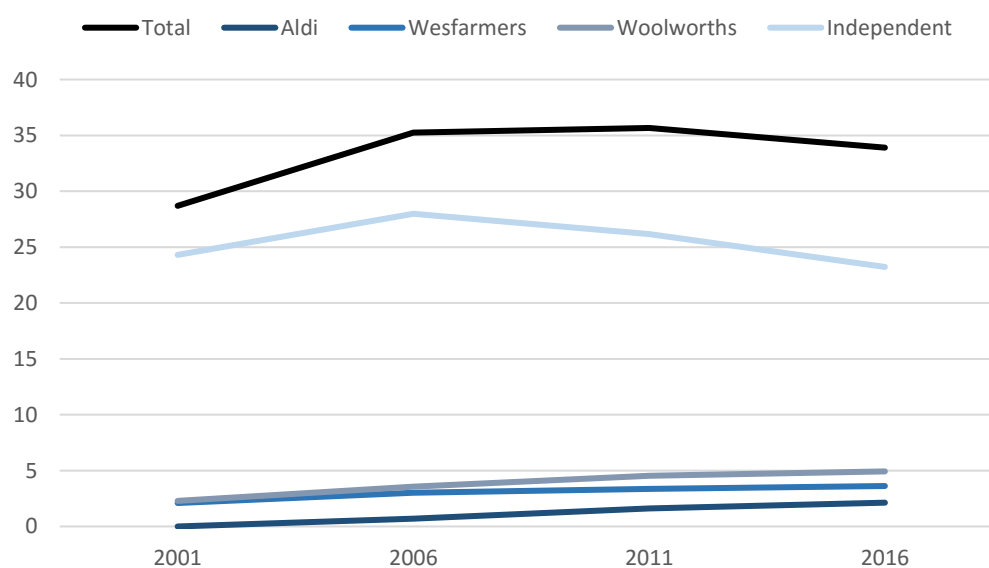
Table 1 outlines broad trends in the packaged liquor market between 2001 and 2016. As noted earlier, the data do not allow for a trend analysis of Metcash-affiliated outlets, so these have been merged with the 'independent' category for these analyses.

Table 1 – Packaged liquor outlet numbers in Victoria, 2001-2016, by owner

YEAR	ALDI	WESFARMERS	WOOLWORTHS	INDEPENDENT/METCASH	TOTAL
2001	0	99	108	1147	1354
2006	35	151	178	1401	1765
2011	88	184	249	1433	1954
2016	127	216	294	1386	2023
% change (2001- 2016)	n.a.	118.2%	172.2%	20.8%	49.4%

The addition of ALDI to the market is notable, with 127 outlets opening in the past 15 years in Victoria, making it a relatively large competitor to the traditional chain outlets. Over the same period, 117 new Wesfarmers-run outlets have opened, along with 186 Woolworths run outlets, and 239 independent (or Metcash-affiliated) outlets. Woolworths and Wesfarmers have more than doubled their numbers of packaged liquor outlets over the study period (with increases of 118 per cent and 172 per cent respectively). The overall number of packaged liquor outlets increased from 1,354 in 2001 to 2,023 in 2016, an increase of 49.4 per cent. Over the same period, the Victorian population increased by 26.5 per cent, meaning that the rate of packaged liquor outlets per 100,000 residents has increased from 28.7 per 100,000 in 2001 to 33.9 in 2016 (an increase of 18.2 per cent). This trend is plotted in Figure 2, highlighting that the growth in alcohol availability (on a per capita basis) happened between 2001 and 2006 (from 28.7 per 100,000 to 35.3 per 100,000), after which the rate of packaged liquor outlets per 100,000 residents has been stable. ALDI, Wesfarmers and Woolworths outlet numbers have continued to grow at rates faster than population growth, while independent outlets have declined on a per capita basis since 2006.

Figure 2 – Packaged outlets per 100,000 residents, Victoria, 2001-2016



BIG-BOX STORES

The number of big-box format stores has increased consistently across the study period, from just three in 2001 up to 68 in 2016. Dan Murphy's has grown from three outlets to 43, while the Wesfarmers equivalent First Choice had no stores in 2001 and now has 25 Victorian outlets. On a per capita basis, the number of big-box liquor stores per 100,000 population grew steadily from 0.06 to 1.14.

REGIONAL TRENDS

Table 2 presents the per capita rate of packaged liquor outlets (per 100,000 population) in each of Victoria's Local Government Areas (LGAs) between 2001 and 2016. The LGAs with the highest densities of packaged liquor outlets (on a per capita basis) were in regional areas – both Buloke (S) and West Wimmera (S) had more than 100 packaged liquor outlets per 100,000 residents, although this was largely due to their low residential populations (both had fewer than 7,000 residents in 2016) and large geographical size (both more than 8000 km²). Within the Melbourne Statistical Division, the cities of Melbourne and Yarra had the highest densities of packaged liquor outlets in 2016, reflecting their central locations and large service populations.

The per capita rates of packaged liquor outlets had more than doubled (compared to a statewide increase of 18.2 per cent) over the past 15 years in Benalla (from four to nine outlets, rate increased by 133.7 per cent), Colac-Otway (from five to ten outlets, rate increased by 107.4 per cent), Golden Plains (from two to seven outlets, rate increased by 154.0 per cent), Hobsons Bay (from 16 to 36 outlets, rate increased by 102.2 per cent), Mount Alexander (from three to nine outlets, rate increased by 183.7 per cent), and Warrnambool (from five to 12 outlets, rate increased by 111.4 per cent).

Some LGAs experienced sharp increases in the raw number of outlets in the context of steadily increasing populations. For example, the City of Melbourne saw an increase from 39 packaged liquor outlets in 2001 to 89 in 2016, while over the same period its population more than doubled. Similarly, the number of packaged liquor outlets in the City of Casey increased from 26 to 59, while the population increased from 180,000 to 290,000.

Table 2 – Outlets per 100,000 residents 2001-2016, by Local Government Area

LGA	2001	2006	2011	2016	CHANGE IN RATE
Alpine (S)	54.2	80.8	91.0	59.0	8.8%
Ararat (RC)	59.7	61.1	70.6	63.5	6.3%
Ballarat (C)	22.7	26.8	32.1	31.5	38.6%
Banyule (C)	20.2	29.0	30.9	26.9	33.2%
Bass Coast (S)	66.3	74.4	67.9	68.7	3.5%
Baw Baw (S)	22.0	27.0	33.3	30.0	36.6%
Bayside (C)	25.9	37.8	34.5	37.5	44.8%
Benalla (RC)	28.5	43.4	65.0	66.7	133.7%
Boroondara (C)	29.3	36.5	33.7	29.8	1.7%
Brimbank (C)	17.2	24.3	29.6	29.1	68.7%
Buloke (S)	109.1	100.1	105.7	117.6	7.8%
Campaspe (S)	46.8	57.1	56.8	38.1	-18.5%

Cardinia (S)	27.7	36.2	30.6	30.8	11.4%
Casey (C)	14.3	19.2	20.4	20.2	41.0%
Central Goldfields (S)	61.1	48.0	71.4	71.6	17.1%
Colac-Otway (S)	23.8	48.3	48.0	49.4	107.4%
Corangamite (S)	68.3	65.2	66.4	63.8	-6.6%
Darebin (C)	28.9	39.1	39.5	37.1	28.3%
East Gippsland (S)	55.8	59.7	59.0	63.6	14.1%
Frankston (C)	21.1	31.2	28.7	27.9	32.8%
Gannawarra (S)	49.8	61.1	56.1	49.9	0.3%
Glen Eira (C)	23.6	26.9	29.3	29.4	24.8%
Glenelg (S)	34.3	39.9	45.1	31.3	-8.8%
Golden Plains (S)	13.2	30.5	32.5	33.6	154.0%
Greater Bendigo (C)	16.6	27.9	24.9	26.7	61.3%
Greater Dandenong (C)	30.3	32.0	30.7	26.8	-11.5%
Greater Geelong (C)	25.7	32.5	37.6	37.0	44.1%
Greater Shepparton (C)	29.2	41.1	43.9	36.3	24.2%
Hepburn (S)	41.4	35.8	41.2	33.8	-18.4%
Hindmarsh (S)	60.6	64.6	67.2	72.8	20.1%
Hobsons Bay (C)	19.2	24.1	32.1	38.8	102.2%
Horsham (RC)	21.5	37.7	41.3	30.3	41.0%
Hume (C)	16.9	20.8	19.3	21.6	28.0%
Indigo (S)	47.6	40.2	58.9	38.9	-18.3%
Kingston (C)	25.4	36.5	38.7	40.8	60.6%
Knox (C)	17.6	25.4	26.5	27.0	53.0%
Latrobe (C)	28.3	35.7	42.4	42.1	48.9%
Loddon (S)	69.7	74.9	91.5	68.7	-1.6%
Macedon Ranges (S)	47.8	48.7	47.4	39.7	-16.9%
Manningham (C)	18.4	24.7	24.9	24.3	31.7%
Mansfield (S)	118.0	126.3	101.7	72.3	-38.7%
Maribyrnong (C)	32.7	54.6	48.9	41.9	28.3%
Maroondah (C)	23.9	30.7	25.3	25.8	7.9%
Melbourne (C)	77.0	102.6	89.1	69.0	-10.3%
Melton (S)	18.9	20.2	18.7	18.1	-4.5%
Mildura (RC)	46.4	50.0	48.4	45.3	-2.3%

Mitchell (S)	31.7	42.6	41.3	38.3	20.9%
Moirra (S)	67.1	66.7	60.0	59.0	-12.1%
Monash (C)	23.3	26.7	25.6	24.6	5.4%
Moonee Valley (C)	25.3	40.0	41.3	39.3	55.1%
Moorabool (S)	19.9	23.3	32.1	28.6	43.4%
Moreland (C)	32.3	32.4	32.2	33.0	2.2%
Mornington Peninsula (S)	28.7	37.7	41.1	39.4	37.1%
Mount Alexander (S)	17.5	34.8	39.3	49.6	183.7%
Moyne (S)	25.4	25.6	31.1	37.0	45.7%
Murrindindi (S)	88.0	96.5	67.6	58.4	-33.6%
Nillumbik (S)	14.8	14.7	17.5	20.8	40.3%
Northern Grampians (S)	46.0	48.8	41.3	43.4	-5.5%
Port Phillip (C)	33.5	50.1	47.7	45.7	36.5%
Pyrenees (S)	60.2	60.6	29.6	29.3	-51.3%
Queenscliffe (B)	91.6	161.1	163.5	99.4	8.6%
South Gippsland (S)	49.7	61.4	69.9	72.2	45.3%
Southern Grampians (S)	35.0	35.5	47.9	57.1	63.2%
Stonnington (C)	37.8	42.0	43.6	41.7	10.3%
Strathbogie (S)	62.2	74.0	41.7	30.5	-50.9%
Surf Coast (S)	33.5	50.4	42.5	31.1	-7.3%
Swan Hill (RC)	56.2	62.0	76.3	68.6	22.0%
Towong (S)	63.4	65.5	50.0	52.1	-17.9%
Wangaratta (RC)	26.3	18.8	22.1	22.2	-15.6%
Warrnambool (C)	16.9	32.7	34.0	35.7	111.4%
Wellington (S)	48.2	56.8	55.0	57.2	18.6%
West Wimmera (S)	81.9	130.9	137.2	103.1	25.9%
Whitehorse (C)	25.2	23.1	24.8	27.8	10.5%
Whittlesea (C)	14.4	15.9	24.2	20.0	38.7%
Wodonga (RC)	33.9	38.7	36.8	38.9	14.8%
Wyndham (C)	17.2	21.1	23.2	20.5	19.0%
Yarra (C)	34.8	62.7	66.3	66.2	90.1%
Yarra Ranges (S)	31.6	37.1	33.7	34.5	9.3%
Yarriambiack (S)	48.1	90.7	68.4	74.0	53.7%
Victoria	28.7	35.3	35.7	33.9	18.2%

SOCIOECONOMIC TRENDS

As data from the 2016 Census is yet to be published, reliable analyses of socioeconomic status at the local level were limited to the period 2001-2011. In these years, neighbourhood measures of socioeconomic disadvantage were available via the Socio-Economic Index for Areas (SEIFA) product produced by the Australian Bureau of Statistics. Using the index of relative disadvantage, we divided Victorian postcodes into quintiles, to examine whether the socioeconomic distribution of packaged liquor outlets varied over time by ownership status. Due to the issues of per capita densities in low population regions discussed above, these analyses are limited to the metropolitan areas of Victoria (as defined in the Australian Standard Geographical Classification - (17)). The total numbers and per capita rates of packaged liquor outlets overall by socioeconomic quintile for 2001 and 2011 are presented in Table 3.

Table 3 – Change in outlet numbers and rates in metropolitan Victoria, 2001-2011, by quintile of socioeconomic disadvantage

QUINTILE OF DISADVANTAGE	NUMBER OF OUTLETS		POPULATION		OUTLETS PER 100,000		CHANGE IN RATE
	2001	2011	2001	2011	2001	2011	
1 (most disadvantaged)	170	226	586,202	593,607	29.0	38.1	31.3%
2	150	142	646,521	472,267	23.2	30.1	29.6%
3	185	256	738,275	700,898	25.1	36.5	45.8%
4	179	264	736,703	791,722	24.3	33.3	37.2%
5 (least disadvantaged)	163	401	531,025	1,278,721	30.7	31.4	2.2%

The per capita increase in packaged outlets between 2001 and 2011 was spread fairly evenly over the four lower quintiles of disadvantage, with no marked change observed in the most advantaged quintile.

The change in outlets per capita by socioeconomic quintile is provided for the Wesfarmers, Woolworths and independent/Metcash outlets in Table 4 (ALDI outlets are not included, as the baseline rates were 0 in all cases).

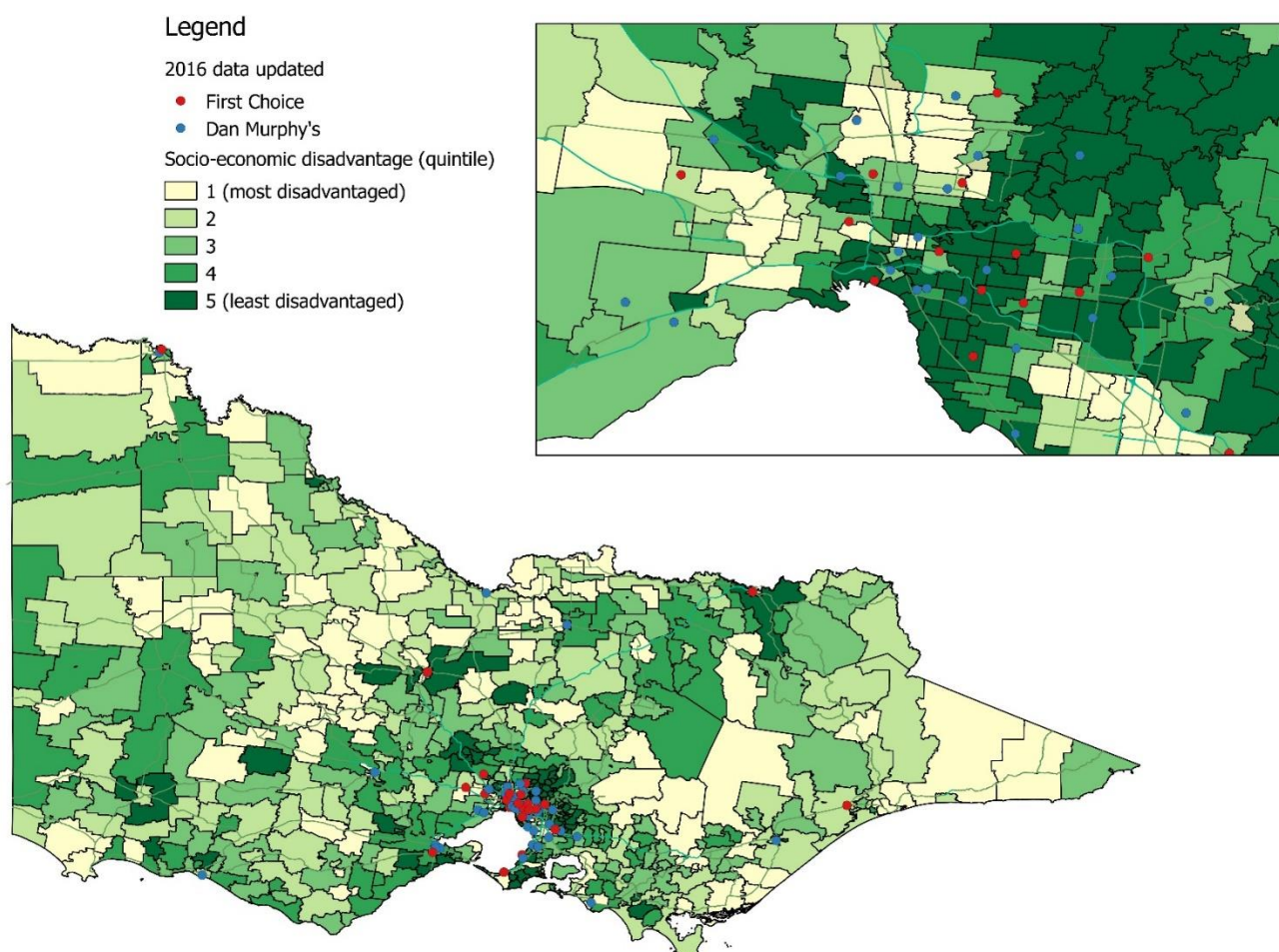
Table 4 – The percentage change in per capita rates of packaged outlets between 2001 and 2011, by quintile of socioeconomic disadvantage and ownership

QUINTILE OF DISADVANTAGE	INDEPENDENT/METCASH	WOOLWORTHS	WESFARMERS
1 (most disadvantaged)	15.0%	185.3%	42.6%
2	15.7%	36.9%	45.5%
3	33.4%	86.7%	27.3%
4	13.0%	86.1%	86.1%
5 (least disadvantaged)	-10.9%	167.0%	39.7%

Again, there were no striking patterns in these changes. Woolworths outlets had increased the fastest in the most and least disadvantaged areas. The only decline has been for independent/Metcash-affiliated outlets in the least disadvantaged areas.

Figure 3 shows the spatial distribution of the big-box stores in Victoria in 2016 superimposed over 2011 socioeconomic disadvantage at the SA1 neighbourhood level. There was not a strong association between 2011 socioeconomic disadvantage and the density of big-box liquor outlets in 2016, however, a more comprehensive analysis using 2016 SEIFA data (when it is released) would provide a more robust examination of any socioeconomic inequalities in exposure to big-box liquor stores.

Figure 3 – Distribution of Dan Murphy's and First Choice Liquor outlets in Victoria, by socioeconomic disadvantage.



HOTSPOT ANALYSIS

Using the 2016 licensing data, a heat-map of packaged liquor licences in Victoria was generated (see Figure 4). These initial analyses simply examine the spatial density of packaged liquor outlets, without adjusting for the underlying service populations. As can be seen in Figure 4, hotspots of packaged liquor outlets were predominantly found in inner-city Melbourne, with the highest densities observed in the CBD.

Figure 5 – Spatial density of packaged liquor outlets in Victoria, 2016

The ten densest spatial concentrations of packaged liquor outlets in Victoria are summarised in Table 5. These clusters include some dense clusters of a small number of outlets (for instance, four outlets within a 50m radius in Fairfield) and some slightly looser clusters of a larger number of outlets (for instance, nine outlets within a 250m radius of the Melbourne CBD).

Table 5 – Clusters of packaged liquor outlets, Melbourne, 2016

LOCATION	DESCRIPTION
Elizabeth & Queen Streets, CBD	Nine licences in a 250m radius
Exhibition/Bourke/Lonsdale Streets, CBD	Nine licences in a 350m radius
Chapel Street/Malvern Road, South Yarra/Prahran	Six licences in a 200m radius
Victoria Street, Richmond/Abbotsford	Six licences in a 225m radius
Toorak Road, South Yarra	Seven licences in a 225m radius
Sunshine Shopping Centre, Sunshine	Nine licences in a 500m radius
Station Street, Fairfield	Five licences in 150m radius
Smith Street, Fitzroy/Collingwood	Six licences in a 250m radius
High Street/Northcote Plaza, Northcote	Eight licences in 400m radius
Macauley Road, Fairfield	Four licences in 50m radius

These clusters were typically made up of a mix of independent, Metcash-affiliated and major chain outlets. An example – the Toorak Road cluster, with one BWS, two Metcash-affiliated outlets, and four independent outlets – is shown below in Figure 6.

Figure 6 – Cluster of liquor licences, Toorak Road, South Yarra.



Discussion

The number of packaged liquor outlets in Victoria grew substantially, from 1,354 in 2001 to 2,023 in 2016. The steepest growth was between 2001 and 2006, with subsequent expansion in outlet numbers more or less tracking population growth. It is not immediately clear why the growth in outlet numbers stabilised after 2006 (with respect to population), as there have been no obvious regulatory changes aimed at stemming packaged liquor growth. It may in part be related to the expansion of the big-box format, with the greatest expansion in big-box stores happening between 2006 (18 outlets) and 2011 (54 outlets). These stores have a substantially higher turnover than smaller outlets and, in the context of stable or declining consumption, it may be that they have curtailed the growth of regular packaged liquor outlets by cannibalising their sales. Proportionally, the big chain outlets have grown dramatically, with Woolworths and Wesfarmers owned outlets more than doubling over the study period, and ALDI expanding from no outlets to 127. In spite of this, the majority of outlets in 2016 were owned independently (1,386 or 69 per cent), although it is worth noting that over half of these independently owned outlets operated via affiliations with Metcash and their brands (such as IGA, Bottle-O, and Foodworks).

The growth in packaged outlets, and particularly in chain and big-box style outlets, has important implications for alcohol-related harm. Previous studies have identified longitudinal relationships between packaged liquor outlet numbers and rates of family violence (3), injury (18), assault and

chronic disease (4), while a number of cross-sectional analyses have suggested that chain outlets (or outlets with high levels of sales) are particularly problematic (5, 6). The recent stabilisation of packaged liquor outlet numbers (on a per capita basis at least) is a promising sign, although it may merely reflect the switch towards larger outlets with higher volumes of sales. Regardless, Victoria still has a high level of packaged liquor availability (roughly the same per capita rate as New South Wales, but higher than other Australian states and territories¹), and updated research into the local-level variation in harm rates and outlet numbers is necessary to ensure appropriate planning and policy controls are implemented.

When examined on a regional and socioeconomic basis, there were no striking patterns to the changes in packaged liquor outlet numbers. A number of LGAs, particularly in regional areas, saw particularly sharp growth in packaged liquor availability, although many of these started from quite low bases. Hotspot analyses pinpointed a number of particularly high-density clusters of packaged liquor outlets across Melbourne, including mostly inner-city and a few more suburban areas. Future research examining how clusters of packaged (and other) liquor outlets correlate with clusters of alcohol-related harm would provide important knowledge for policymakers and planners, who are currently constrained by the relatively broad findings of standard research into the effects of alcohol outlets density (19).

Finally, it is important to note that the data presented in this report represent an underestimate of the actual availability of packaged liquor in Victoria due to the challenge of disentangling the various uses of 'general' licences. These licences have typically been granted to hotels, and provide the ability to sell liquor for both on- and off-premise consumption. However, they are often also used to licence large bottle shops on the same site as hotels. For example, there are around 20 Dan Murphy's outlets trading under general licences. Future research into packaged liquor availability would be simplified if licensing arrangements made it easier to ascertain which outlets were selling predominantly packaged liquor.

¹ Unpublished analyses of liquor licensing data. Note that comparing packaged liquor availability across states and territories is complicated by the differing regulatory regimes – in Queensland for example, packaged liquor outlets are attached to hotel licences.

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