The effect of alcohol availability on road crashes at varying distances from the Central Business District in Perth, Australia from 2005 to 2015:

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1.1 Postcodes included in the study

Appendix table 1: Perth Greater Capital City postcodes

<table>
<thead>
<tr>
<th>Postcodes</th>
</tr>
</thead>
<tbody>
<tr>
<td>6000 6041 6102 6165</td>
</tr>
<tr>
<td>6003 6042 6103 6166</td>
</tr>
<tr>
<td>6004 6043 6104 6167</td>
</tr>
<tr>
<td>6005 6044 6105 6168</td>
</tr>
<tr>
<td>6006 6050 6107 6169</td>
</tr>
<tr>
<td>6007 6051 6108 6170</td>
</tr>
<tr>
<td>6008 6052 6109 6171</td>
</tr>
<tr>
<td>6009 6053 6110 6172</td>
</tr>
<tr>
<td>6010 6054 6111 6173</td>
</tr>
<tr>
<td>6011 6055 6112 6174</td>
</tr>
<tr>
<td>6012 6056 6121 6175</td>
</tr>
<tr>
<td>6014 6057 6122 6176</td>
</tr>
<tr>
<td>6015 6058 6123 6207</td>
</tr>
<tr>
<td>6016 6059 6124 6208</td>
</tr>
<tr>
<td>6017 6060 6125 6210</td>
</tr>
<tr>
<td>6018 6061 6126 6213</td>
</tr>
<tr>
<td>6019 6062 6147 6214</td>
</tr>
<tr>
<td>6020 6063 6148 6556</td>
</tr>
<tr>
<td>6021 6064 6149 6558</td>
</tr>
<tr>
<td>6022 6065 6150 6560</td>
</tr>
<tr>
<td>6023 6066 6151</td>
</tr>
<tr>
<td>6024 6069 6152</td>
</tr>
<tr>
<td>6025 6070 6153</td>
</tr>
<tr>
<td>6026 6071 6154</td>
</tr>
<tr>
<td>6027 6072 6155</td>
</tr>
<tr>
<td>6028 6073 6156</td>
</tr>
<tr>
<td>6029 6074 6157</td>
</tr>
<tr>
<td>6030 6076 6158</td>
</tr>
<tr>
<td>6031 6081 6159</td>
</tr>
<tr>
<td>6032 6082 6160</td>
</tr>
<tr>
<td>6033 6083 6161</td>
</tr>
<tr>
<td>6035 6084 6162</td>
</tr>
<tr>
<td>6036 6100 6163</td>
</tr>
<tr>
<td>6037 6101 6164</td>
</tr>
</tbody>
</table>
1.2 Descriptive statistics

Appendix table 2: Descriptive statistics of alcohol- and non-alcohol-related crashes from 2005 to 2015

<table>
<thead>
<tr>
<th>Outcome measures</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confirmed alcohol-related crashes (crashes with drivers with BAC ≥ 0.05%)</td>
<td>7,564</td>
<td>2.22</td>
</tr>
<tr>
<td>Surrogate measure of alcohol-related crashes (weekend single vehicle night-time crashes)</td>
<td>11,591</td>
<td>3.39</td>
</tr>
<tr>
<td>Surrogate measure of alcohol-related crashes (single vehicle night-time crashes)</td>
<td>20,708</td>
<td>6.06</td>
</tr>
<tr>
<td>Surrogate measure of alcohol-related crashes (all night-time crashes)</td>
<td>16,698</td>
<td>4.89</td>
</tr>
<tr>
<td>Surrogate measure of non-alcohol-related crashes (single vehicle day-time crashes)</td>
<td>72,409</td>
<td>21.21</td>
</tr>
<tr>
<td>All day-time crashes</td>
<td>252,923</td>
<td>74.07</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>341,467</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

Day-time crashes: 07h00 to 17h59 Night-time crashes: 18h00 to 04h59
### 1.3 Incidence rates of crashes

**Appendix table 3: Incidence rates per 10,000 population by crash type in Perth metropolitan area by year from 2005 to 2015**

<table>
<thead>
<tr>
<th>Outcome measures</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confirmed alcohol-related crashes (crashes with drivers with BAC ≥ 0.05%)</td>
<td>6.08</td>
<td>6.89</td>
<td>7.48</td>
<td>7.48</td>
<td>6.90</td>
<td>5.28</td>
<td>4.90</td>
<td>4.59</td>
<td>3.75</td>
<td>2.99</td>
<td>2.39</td>
<td>5.21</td>
</tr>
<tr>
<td>Surrogate measure of alcohol-related crashes (weekend single vehicle night-time crashes)</td>
<td>9.83</td>
<td>10.86</td>
<td>11.48</td>
<td>10.43</td>
<td>10.14</td>
<td>8.44</td>
<td>7.86</td>
<td>6.95</td>
<td>6.03</td>
<td>4.34</td>
<td>3.67</td>
<td>7.99</td>
</tr>
<tr>
<td>Surrogate measure of alcohol-related crashes (single vehicle night-time crashes)</td>
<td>18.37</td>
<td>19.37</td>
<td>19.90</td>
<td>18.21</td>
<td>17.84</td>
<td>14.94</td>
<td>14.07</td>
<td>13.30</td>
<td>10.70</td>
<td>7.58</td>
<td>6.56</td>
<td>13.85</td>
</tr>
<tr>
<td>Surrogate measure of alcohol-related crashes (all night-time crashes)</td>
<td>62.13</td>
<td>59.49</td>
<td>63.63</td>
<td>58.67</td>
<td>55.42</td>
<td>53.17</td>
<td>49.46</td>
<td>47.91</td>
<td>40.14</td>
<td>35.95</td>
<td>31.96</td>
<td>49.20</td>
</tr>
<tr>
<td>Surrogate measure of non-alcohol-related crashes (single vehicle day-time crashes)</td>
<td>14.14</td>
<td>14.04</td>
<td>14.34</td>
<td>14.17</td>
<td>12.01</td>
<td>11.98</td>
<td>11.74</td>
<td>11.43</td>
<td>10.02</td>
<td>8.01</td>
<td>6.77</td>
<td>11.51</td>
</tr>
<tr>
<td>All day-time crashes</td>
<td>211.25</td>
<td>208.61</td>
<td>210.69</td>
<td>192.35</td>
<td>175.73</td>
<td>185.84</td>
<td>168.34</td>
<td>159.90</td>
<td>147.64</td>
<td>145.32</td>
<td>135.33</td>
<td>174.31</td>
</tr>
<tr>
<td>All crashes</td>
<td>6,134.66</td>
<td>5,947.51</td>
<td>6,089.99</td>
<td>5,580.61</td>
<td>5,156.30</td>
<td>5,352.35</td>
<td>4,870.49</td>
<td>4,698.02</td>
<td>4,228.27</td>
<td>4,016.41</td>
<td>3,679.97</td>
<td>4,998.33</td>
</tr>
</tbody>
</table>

Day-time crashes: 07h00 to 17h59
Night-time crashes: 18h00 to 04h59
Weekend: Friday night to Monday morning
Incidence rate: crashes per 10,000 population
Appendix table 4: Incidence rates per 10,000 population by crash type by zone from the Perth CBD from 2005 to 2015

<table>
<thead>
<tr>
<th>Outcome measures</th>
<th>CBD</th>
<th>Up to 7km from CBD</th>
<th>7km to 15km from CBD</th>
<th>Beyond 15km from CBD</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confirmed alcohol-related crashes (crashes with drivers with BAC ≥ 0.05%)</td>
<td>15.01</td>
<td>5.37</td>
<td>4.77</td>
<td>5.44</td>
<td>5.21</td>
</tr>
<tr>
<td>Surrogate measure of alcohol-related crashes (weekend single vehicle night-time crashes)</td>
<td>20.99</td>
<td>6.56</td>
<td>7.26</td>
<td>9.67</td>
<td>7.99</td>
</tr>
<tr>
<td>Surrogate measure of alcohol-related crashes (single vehicle night-time crashes)</td>
<td>40.06</td>
<td>12.10</td>
<td>13.03</td>
<td>16.88</td>
<td>14.27</td>
</tr>
<tr>
<td>Surrogate measure of alcohol-related crashes (all night-time crashes)</td>
<td>304.71</td>
<td>67.29</td>
<td>45.77</td>
<td>37.32</td>
<td>49.20</td>
</tr>
<tr>
<td>Surrogate measure of non-alcohol-related crashes (single vehicle day-time crashes)</td>
<td>66.31</td>
<td>11.34</td>
<td>11.36</td>
<td>13.98</td>
<td>12.56</td>
</tr>
<tr>
<td>All day-time crashes</td>
<td>952.83</td>
<td>240.06</td>
<td>177.59</td>
<td>107.71</td>
<td>174.31</td>
</tr>
<tr>
<td>All crashes</td>
<td><strong>1,299.18</strong></td>
<td><strong>8,721.65</strong></td>
<td><strong>6,148.35</strong></td>
<td><strong>3,201.91</strong></td>
<td><strong>4,998.33</strong></td>
</tr>
</tbody>
</table>

Day-time crashes: 07h00 to 17h59  Night-time crashes: 18h00 to 04h59
Weekend: Friday night to Monday morning
Incidence rate: crashes per 10,000 population
1.4 Maps of alcohol outlets and road crashes

1.4.1 Alcohol outlets

Appendix map 1: Number of alcohol outlets in the Perth metropolitan area, by postcode, in 2005, 2010 and 2015
Appendix map 2: Number of alcohol outlets per roadway kilometre in the Perth metropolitan area, by postcode, in 2005, 2010 and 2015
Appendix map 3: Number of alcohol outlets per 1,000 population in the Perth metropolitan area, by postcode, in 2005, 2010 and 2015
1.4.2 Road crashes

Crashes involving drivers with a BAC ≥ 0.05%

Appendix map 5: Number of crashes involving drivers with a BAC ≥ 0.05% per roadway kilometre in the Perth metropolitan area, by postcode, in 2005, 2010 and 2015
Appendix map 6: Number of crashes involving drivers with a BAC ≥ 0.05% per 1,000 population in the Perth metropolitan area, by postcode, in 2005, 2010 and 2015
Weekend single vehicle night-time crashes

Appendix map 7: Number of weekend single vehicle night-time crashes in the Perth metropolitan area, by postcode, in 2005, 2010 and 2015
Appendix map 8: Number of weekend single vehicle night-time crashes per roadway kilometre in the Perth metropolitan area, by postcode, in 2005, 2010 and 2015
Appendix map 9: Number of weekend single vehicle night-time crashes per 1,000 population in the Perth metropolitan area, by postcode, in 2005, 2010 and 2015
Appendix map 10: Heat map of weekend single vehicle night-time crashes in Perth metropolitan area in 2005, 2010 and 2015
Single vehicle night-time crashes

Appendix map 11: Number of single vehicle day-time crashes in the Perth metropolitan area, by postcode, in 2005, 2010 and 2015
Appendix map 12: Number of single vehicle night-time crashes in the Perth metropolitan area, by postcode, in 2005, 2010 and 2015
Appendix map 13: Number of single vehicle night-time crashes per roadway kilometre in the Perth metropolitan area, by postcode, in 2005, 2010 and 2015
Appendix map 14: Heat maps of single vehicle day-time crashes in Perth metropolitan area, in 2005, 2010 and 2015
Appendix map 15: Number of single vehicle night-time crashes per 1,000 population in the Perth metropolitan area, by postcode, in 2005, 2010 and 2015
Appendix map 16: Heat maps of single vehicle night-time crashes in Perth metropolitan area, in 2005, 2010 and 2015
All night-time crashes

Appendix map 17: Number of all night-time crashes in the Perth metropolitan area, by postcode, in 2005, 2010 and 2015
Appendix map 18: Number of all night-time crashes per roadway kilometre in the Perth metropolitan area, by postcode, in 2005, 2010 and 2015
Appendix map 19: Number of all night-time crashes per 1,000 population in the Perth metropolitan area, by postcode, in 2005, 2010 and 2015
Appendix map 20: Heat maps of all night-time crashes in Perth metropolitan area, in 2005, 2010 and 2015
Single vehicle day-time crashes

Appendix map 21: Number of single vehicle day-time crashes per roadway kilometre in the Perth metropolitan area, by postcode, in 2005, 2010 and 2015
Appendix map 22: Number of single vehicle day-time crashes per 1,000 population in the Perth metropolitan area, by postcode, in 2005, 2010 and 2015
All day-time crashes

Appendix map 23: Number of all day-time crashes in the Perth metropolitan area, by postcode, in 2005, 2010 and 2015
Appendix map 24: Number of all day-time crashes per roadway kilometre in the Perth metropolitan area, by postcode, in 2005, 2010 and 2015
Appendix map 25: Number of all day-time crashes per 1,000 population in the Perth metropolitan area, by postcode, in 2005, 2010 and 2015
Appendix map 26: Heat maps of all day-time crashes in Perth metropolitan area, in 2005, 2010 and 2015
### 1.5 Distances between crashes and alcohol outlets

**Appendix table 5: Median distance (in metres) from crashes to the closest outlet by postcode**

<table>
<thead>
<tr>
<th>Median distance (IQR$^1$) in metres</th>
<th>BAC $\geq 0.05%$ $^2$ Crashes</th>
<th>Weekend Single Vehicle Night-time Crashes</th>
<th>Single Vehicle Night-time Crashes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bottleshop</td>
<td>On-premise outlet</td>
<td>Bottleshop</td>
</tr>
<tr>
<td>Total</td>
<td>1.327 (688-2,421)</td>
<td>920 (398-1,771)</td>
<td>1,569 (861-2,924)</td>
</tr>
<tr>
<td>CBD</td>
<td>619 (267-1,067)</td>
<td>182 (65-624)</td>
<td>626 (368-1,072)</td>
</tr>
<tr>
<td>Up to 7km from CBD</td>
<td>826 (437-1,362)</td>
<td>503 (213-956)</td>
<td>974 (567-1,588)</td>
</tr>
<tr>
<td>7km to 15km from CBD</td>
<td>1,399 (794-2,466)</td>
<td>1,014 (513-1,771)</td>
<td>1,518 (878-2,775)</td>
</tr>
<tr>
<td>15km+ from CBD</td>
<td>1,894 (1,053-3,362)</td>
<td>1,381 (712-2,562)</td>
<td>2,226 (1,302-4,329)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Median distance (IQR$^1$) in metres</th>
<th>All Night-time Crashes</th>
<th>Single Vehicle Day-time Crashes</th>
<th>All Day-time Crashes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bottleshop</td>
<td>On-premise outlet</td>
<td>Bottleshop</td>
</tr>
<tr>
<td>Total</td>
<td>1,261 (658-2249)</td>
<td>763 (291-1527)</td>
<td>1,504 (779-2,927)</td>
</tr>
<tr>
<td>CBD</td>
<td>584 (323-964)</td>
<td>111 (54-262)</td>
<td>495 (288-779)</td>
</tr>
<tr>
<td>Up to 7km from CBD</td>
<td>899 (476-1,484)</td>
<td>448 (171-871)</td>
<td>933 (505-1,525)</td>
</tr>
<tr>
<td>7km to 15km from CBD</td>
<td>1,432 (817-2,579)</td>
<td>946 (471-1,731)</td>
<td>1,516 (840-2730)</td>
</tr>
<tr>
<td>15km+ from CBD</td>
<td>1,929 (1,064-3,469)</td>
<td>1,305 (599-2,396)</td>
<td>2,432 (1,308-5060)</td>
</tr>
</tbody>
</table>

$^1$IQR: Interquartile range $^2$BAC $\geq 0.05\%$ crash has at least one driver with a BAC of 0.05% or more
### Appendix table 6: Median number of alcohol outlets within 2km of crashes by postcode

<table>
<thead>
<tr>
<th>Median(IQR$^1$) of number of outlets</th>
<th>BAC (\geq 0.05%^{2}$</th>
<th>Weekend Single Vehicle Night-time Crashes</th>
<th>Single Vehicle Night-time Crashes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bottleshop</td>
<td>On-premise outlet</td>
<td>Bottleshop</td>
</tr>
<tr>
<td>Total</td>
<td>1 (0-2)</td>
<td>4 (1-11)</td>
<td>1 (0-2)</td>
</tr>
<tr>
<td>CBD</td>
<td>7 (6-9)</td>
<td>180 (126-235)</td>
<td>7 (6-9)</td>
</tr>
<tr>
<td>Up to 7km from CBD</td>
<td>3 (1-5)</td>
<td>1 (0-2)</td>
<td>2 (1-4)</td>
</tr>
<tr>
<td>7km to 15km from CBD</td>
<td>1 (0-2)</td>
<td>3 (1-6)</td>
<td>1 (0-2)</td>
</tr>
<tr>
<td>15km+ from CBD</td>
<td>1 (0-1)</td>
<td>1 (0-4)</td>
<td>0 (0-2)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Median(IQR$^1$)</th>
<th>All Night-time Crashes</th>
<th>Single Vehicle Day-time Crashes</th>
<th>All Day-time Crashes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bottleshop</td>
<td>On-premise outlet</td>
<td>Bottleshop</td>
</tr>
<tr>
<td>Total</td>
<td>1 (0-3)</td>
<td>5 (1-16)</td>
<td>1 (0-2)</td>
</tr>
<tr>
<td>CBD</td>
<td>7 (6-9)</td>
<td>207 (141-260)</td>
<td>8 (6-10)</td>
</tr>
<tr>
<td>Up to 7km from CBD</td>
<td>2 (1-5)</td>
<td>16 (7-34)</td>
<td>2 (1-4)</td>
</tr>
<tr>
<td>7km to 15km from CBD</td>
<td>1 (0-2)</td>
<td>3 (1-8)</td>
<td>1 (0-2)</td>
</tr>
<tr>
<td>15km+ from CBD</td>
<td>1 (0-1)</td>
<td>1 (0-4)</td>
<td>0 (0-1)</td>
</tr>
</tbody>
</table>

$^1$IQR: Interquartile range  $^2$BAC $\geq 0.05\%$: crash has at least one driver with a BAC of 0.05% or more
Appendix table 7: Median number of alcohol outlets within 5km of crashes by postcode

<table>
<thead>
<tr>
<th>Median(IQR(^1)) of number of outlets</th>
<th>BAC ≥ 0.05(^2) Crashes</th>
<th>Weekend Single Vehicle Night-time Crashes</th>
<th>Single Vehicle Night-time Crashes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bottleshop</td>
<td>On-premise outlet</td>
<td>Bottleshop</td>
</tr>
<tr>
<td>Total</td>
<td>6 (0-10)</td>
<td>22 (9-53)</td>
<td>5 (2-9)</td>
</tr>
<tr>
<td>Up to 7km from CBD</td>
<td>12 (8-19)</td>
<td>74 (47-196)</td>
<td>12 (7-17)</td>
</tr>
<tr>
<td>7km to 15km from CBD</td>
<td>5 (2-9)</td>
<td>19 (9-38)</td>
<td>5 (2-8)</td>
</tr>
<tr>
<td>15km+ from CBD</td>
<td>3 (1-5)</td>
<td>10 (3-17)</td>
<td>3 (1-5)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Median(IQR(^1))</th>
<th>All Night-time Crashes</th>
<th>Single Vehicle Day-time Crashes</th>
<th>All Day-time Crashes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bottleshop</td>
<td>On-premise outlet</td>
<td>Bottleshop</td>
</tr>
<tr>
<td>Total</td>
<td>7 (3-13)</td>
<td>32 (11-80)</td>
<td>5 (2-11)</td>
</tr>
<tr>
<td>Up to 7km from CBD</td>
<td>13 (8-20)</td>
<td>84 (50-315)</td>
<td>13 (8-18)</td>
</tr>
<tr>
<td>7km to 15km from CBD</td>
<td>6 (2-9)</td>
<td>22 (9-44)</td>
<td>6 (2-9)</td>
</tr>
<tr>
<td>15km+ from CBD</td>
<td>3 (1-5)</td>
<td>11 (3-20)</td>
<td>2 (1-5)</td>
</tr>
</tbody>
</table>

\(^1\)IQR: Interquartile range \(^2\)BAC ≥ 0.05%: crash has at least one driver with a BAC of 0.05% or more
1.6 Statistical models

1.6.1 Logistic regression using road network distance to nearest on-premise outlet and bottleshop

Logistic regression models were developed which included the distance (in kilometres) from each crash to the closest on-premise outlet and the closest bottleshop as predictors of alcohol-related crashes.

Appendix table 8: Logistic regression model using the distance from crashes with a driver with a BAC ≥ 0.05% to the nearest alcohol outlets, in Perth metropolitan area, from 2005 to 2015

<table>
<thead>
<tr>
<th>Crash involving a driver with a BAC ≥ 0.05%</th>
<th>OR(^1)</th>
<th>95% CI(^2)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance from closest on-premise outlet to crash (km)</td>
<td>1.036</td>
<td>1.019</td>
<td>1.053</td>
</tr>
<tr>
<td>Distance from closest bottleshop to crash (km)</td>
<td>1.006</td>
<td>0.993</td>
<td>1.018</td>
</tr>
<tr>
<td>Natural log of population density (km(^2))</td>
<td>1.026</td>
<td>0.994</td>
<td>1.060</td>
</tr>
<tr>
<td>Year</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>1.112</td>
<td>0.999</td>
<td>1.239</td>
</tr>
<tr>
<td>2007</td>
<td>1.185</td>
<td>1.064</td>
<td>1.319</td>
</tr>
<tr>
<td>2008</td>
<td>1.343</td>
<td>1.206</td>
<td>1.496</td>
</tr>
<tr>
<td>2009</td>
<td>1.355</td>
<td>1.214</td>
<td>1.514</td>
</tr>
<tr>
<td>2010</td>
<td>0.976</td>
<td>0.866</td>
<td>1.101</td>
</tr>
<tr>
<td>2011</td>
<td>0.989</td>
<td>0.874</td>
<td>1.120</td>
</tr>
<tr>
<td>2012</td>
<td>1.007</td>
<td>0.886</td>
<td>1.145</td>
</tr>
<tr>
<td>2013</td>
<td>0.863</td>
<td>0.751</td>
<td>0.992</td>
</tr>
<tr>
<td>2014</td>
<td>0.708</td>
<td>0.609</td>
<td>0.823</td>
</tr>
<tr>
<td>2015</td>
<td>0.626</td>
<td>0.533</td>
<td>0.736</td>
</tr>
<tr>
<td>Zone from the CBD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBD</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 7km from the CBD</td>
<td>1.375</td>
<td>1.127</td>
<td>1.679</td>
</tr>
<tr>
<td>7km to 15km from the CBD</td>
<td>1.589</td>
<td>1.303</td>
<td>1.939</td>
</tr>
<tr>
<td>More than 15km from the CBD</td>
<td>2.859</td>
<td>2.345</td>
<td>3.485</td>
</tr>
<tr>
<td>SEIFA(^3) quartiles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 1</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 2</td>
<td>1.032</td>
<td>0.946</td>
<td>1.126</td>
</tr>
<tr>
<td>Quartile 3</td>
<td>0.896</td>
<td>0.797</td>
<td>1.007</td>
</tr>
<tr>
<td>Quartile 4</td>
<td>0.885</td>
<td>0.776</td>
<td>1.010</td>
</tr>
<tr>
<td>Proportion of unemployed people</td>
<td>0.968</td>
<td>0.935</td>
<td>1.002</td>
</tr>
<tr>
<td>Proportion of people of Indigenous origin</td>
<td>1.056</td>
<td>1.018</td>
<td>1.094</td>
</tr>
<tr>
<td>Mean age</td>
<td>0.974</td>
<td>0.963</td>
<td>0.984</td>
</tr>
<tr>
<td>Proportion of males between 17 to 24 to all 17 years and older</td>
<td>0.987</td>
<td>0.967</td>
<td>1.008</td>
</tr>
</tbody>
</table>

\(^1\)OR: Odds Ratio \(^2\)95% CI: 95% Confidence Interval \(^3\)SEIFA: Socio-economic Indexes for Areas
Appendix table 9: Logistic regression model using the distance from crashes with a driver with a BAC ≥ 0.05% to the nearest alcohol outlets, in Perth metropolitan area, from 2005 to 2013

<table>
<thead>
<tr>
<th>Crash involving a driver with a BAC ≥ 0.05%</th>
<th>OR(^1)</th>
<th>95% CI(^2)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance from closest on-premise outlet to crash (km)</td>
<td>1.037</td>
<td>1.019</td>
<td>1.055</td>
</tr>
<tr>
<td>Distance from closest bottleshop to crash (km)</td>
<td>1.008</td>
<td>0.995</td>
<td>1.021</td>
</tr>
<tr>
<td>Natural log of population density (km(^2))</td>
<td>1.019</td>
<td>0.984</td>
<td>1.054</td>
</tr>
<tr>
<td>Year</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>1.114</td>
<td>1.000</td>
<td>1.241</td>
</tr>
<tr>
<td>2007</td>
<td>1.191</td>
<td>1.069</td>
<td>1.326</td>
</tr>
<tr>
<td>2008</td>
<td>1.349</td>
<td>1.211</td>
<td>1.502</td>
</tr>
<tr>
<td>2009</td>
<td>1.363</td>
<td>1.219</td>
<td>1.524</td>
</tr>
<tr>
<td>2010</td>
<td>0.984</td>
<td>0.872</td>
<td>1.110</td>
</tr>
<tr>
<td>2011</td>
<td>0.998</td>
<td>0.880</td>
<td>1.132</td>
</tr>
<tr>
<td>2012</td>
<td>1.019</td>
<td>0.894</td>
<td>1.161</td>
</tr>
<tr>
<td>2013</td>
<td>0.875</td>
<td>0.759</td>
<td>1.009</td>
</tr>
<tr>
<td>Zone from the CBD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 7km from the CBD</td>
<td>1.384</td>
<td>1.117</td>
<td>1.715</td>
</tr>
<tr>
<td>7km to 15km from the CBD</td>
<td>1.618</td>
<td>1.305</td>
<td>2.004</td>
</tr>
<tr>
<td>More than 15km from the CBD</td>
<td>2.880</td>
<td>2.327</td>
<td>3.563</td>
</tr>
<tr>
<td>SEIFA(^3) quartiles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 2</td>
<td>1.017</td>
<td>0.926</td>
<td>1.117</td>
</tr>
<tr>
<td>Quartile 3</td>
<td>0.899</td>
<td>0.795</td>
<td>1.017</td>
</tr>
<tr>
<td>Quartile 4</td>
<td>0.877</td>
<td>0.763</td>
<td>1.008</td>
</tr>
<tr>
<td>Proportion of unemployed people</td>
<td>0.962</td>
<td>0.927</td>
<td>0.999</td>
</tr>
<tr>
<td>Proportion of people of Indigenous origin</td>
<td>1.053</td>
<td>1.013</td>
<td>1.095</td>
</tr>
<tr>
<td>Mean age</td>
<td>0.975</td>
<td>0.963</td>
<td>0.986</td>
</tr>
<tr>
<td>Proportion of males between 17 to 24 to all 17 years and older</td>
<td>0.990</td>
<td>0.969</td>
<td>1.012</td>
</tr>
</tbody>
</table>

\(^1\)OR: Odds Ratio \(^2\)95% CI: 95% Confidence Interval \(^3\)SEIFA: Socio-economic Indexes for Areas
### Appendix table 10: Logistic regression model using the distance from weekend single vehicle night-time crashes to the nearest alcohol outlets, in Perth metropolitan area, from 2005 to 2015

<table>
<thead>
<tr>
<th>Weekend single vehicle night-time crash</th>
<th>OR(^1)</th>
<th>95% CI(^2)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance from closest on-premise outlet to crash (km)</td>
<td>0.991</td>
<td>0.976</td>
<td>1.006</td>
</tr>
<tr>
<td>Distance from closest bottleshop to crash (km)</td>
<td>0.990</td>
<td>0.981</td>
<td>1.000</td>
</tr>
<tr>
<td>Natural log of population density (km(^2))</td>
<td>1.064</td>
<td>1.032</td>
<td>1.096</td>
</tr>
<tr>
<td><strong>Year</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>1.121</td>
<td>1.001</td>
<td>1.254</td>
</tr>
<tr>
<td>2007</td>
<td>1.173</td>
<td>1.049</td>
<td>1.312</td>
</tr>
<tr>
<td>2008</td>
<td>1.077</td>
<td>0.961</td>
<td>1.208</td>
</tr>
<tr>
<td>2009</td>
<td>1.245</td>
<td>1.107</td>
<td>1.400</td>
</tr>
<tr>
<td>2010</td>
<td>1.028</td>
<td>0.910</td>
<td>1.162</td>
</tr>
<tr>
<td>2011</td>
<td>1.005</td>
<td>0.885</td>
<td>1.141</td>
</tr>
<tr>
<td>2012</td>
<td>0.930</td>
<td>0.814</td>
<td>1.062</td>
</tr>
<tr>
<td>2013</td>
<td>0.909</td>
<td>0.789</td>
<td>1.046</td>
</tr>
<tr>
<td>2014</td>
<td>0.832</td>
<td>0.712</td>
<td>0.971</td>
</tr>
<tr>
<td>2015</td>
<td>0.820</td>
<td>0.696</td>
<td>0.965</td>
</tr>
<tr>
<td><strong>Zone from the CBD</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 7km from the CBD</td>
<td>1.679</td>
<td>1.379</td>
<td>2.043</td>
</tr>
<tr>
<td>7km to 15km from the CBD</td>
<td>1.948</td>
<td>1.603</td>
<td>2.367</td>
</tr>
<tr>
<td>More than 15km from the CBD</td>
<td>2.410</td>
<td>1.978</td>
<td>2.936</td>
</tr>
<tr>
<td><strong>SEIFA(^3) quartiles</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 2</td>
<td>1.024</td>
<td>0.933</td>
<td>1.125</td>
</tr>
<tr>
<td>Quartile 3</td>
<td>1.019</td>
<td>0.902</td>
<td>1.151</td>
</tr>
<tr>
<td>Quartile 4</td>
<td>1.019</td>
<td>0.885</td>
<td>1.172</td>
</tr>
<tr>
<td>Proportion of unemployed people</td>
<td>0.958</td>
<td>0.924</td>
<td>0.992</td>
</tr>
<tr>
<td>Proportion of people of Indigenous origin</td>
<td>1.009</td>
<td>0.972</td>
<td>1.048</td>
</tr>
<tr>
<td>Mean age</td>
<td>0.984</td>
<td>0.974</td>
<td>0.995</td>
</tr>
<tr>
<td>Proportion of males between 17 to 24 to all 17 years and older</td>
<td>1.011</td>
<td>0.990</td>
<td>1.033</td>
</tr>
</tbody>
</table>

\(^1\)OR: Odds Ratio  \(^2\)95% CI: 95% Confidence Interval  \(^3\)SEIFA: Socio-economic Indexes for Areas
Appendix table 11: Logistic regression model using the distance from weekend single vehicle night-time crashes to the nearest alcohol outlets, in Perth metropolitan area, from 2005 to 2013

<table>
<thead>
<tr>
<th>Weekend single vehicle night-time crash</th>
<th>OR¹</th>
<th>95% CI²</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance from closest on-premise outlet to crash (km)</td>
<td>0.990</td>
<td>0.974</td>
<td>1.006</td>
</tr>
<tr>
<td>Distance from closest bottleshop to crash (km)</td>
<td>0.990</td>
<td>0.980</td>
<td>1.001</td>
</tr>
<tr>
<td>Natural log of population density (km²)</td>
<td>1.070</td>
<td>1.036</td>
<td>1.104</td>
</tr>
<tr>
<td>Year</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>1.121</td>
<td>1.001</td>
<td>1.255</td>
</tr>
<tr>
<td>2007</td>
<td>1.175</td>
<td>1.050</td>
<td>1.314</td>
</tr>
<tr>
<td>2008</td>
<td>1.084</td>
<td>0.966</td>
<td>1.216</td>
</tr>
<tr>
<td>2009</td>
<td>1.255</td>
<td>1.115</td>
<td>1.412</td>
</tr>
<tr>
<td>2010</td>
<td>1.038</td>
<td>0.917</td>
<td>1.174</td>
</tr>
<tr>
<td>2011</td>
<td>1.017</td>
<td>0.894</td>
<td>1.157</td>
</tr>
<tr>
<td>2012</td>
<td>0.946</td>
<td>0.826</td>
<td>1.084</td>
</tr>
<tr>
<td>2013</td>
<td>0.925</td>
<td>0.801</td>
<td>1.069</td>
</tr>
</tbody>
</table>

**Zone from the CBD**

<table>
<thead>
<tr>
<th>Zone from the CBD</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CBD</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 7km from the CBD</td>
<td>1.644</td>
<td>1.332</td>
<td>2.029</td>
<td>0.000</td>
</tr>
<tr>
<td>7km to 15km from the CBD</td>
<td>1.896</td>
<td>1.538</td>
<td>2.338</td>
<td>0.000</td>
</tr>
<tr>
<td>More than 15km from the CBD</td>
<td>2.343</td>
<td>1.897</td>
<td>2.895</td>
<td>0.000</td>
</tr>
</tbody>
</table>

**SEIFA³ quartiles**

<table>
<thead>
<tr>
<th>SEIFA³ quartiles</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Quartile 1</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 2</td>
<td>0.998</td>
<td>0.904</td>
<td>1.102</td>
<td>0.969</td>
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<tr>
<td>Quartile 3</td>
<td>0.991</td>
<td>0.872</td>
<td>1.127</td>
<td>0.891</td>
</tr>
<tr>
<td>Quartile 4</td>
<td>0.955</td>
<td>0.823</td>
<td>1.108</td>
<td>0.544</td>
</tr>
<tr>
<td>Proportion of unemployed people</td>
<td>0.952</td>
<td>0.916</td>
<td>0.990</td>
<td>0.013</td>
</tr>
<tr>
<td>Proportion of people of Indigenous origin</td>
<td>1.000</td>
<td>0.960</td>
<td>1.041</td>
<td>0.988</td>
</tr>
<tr>
<td>Mean age</td>
<td>0.986</td>
<td>0.975</td>
<td>0.997</td>
<td>0.016</td>
</tr>
<tr>
<td>Proportion of males between 17 to 24 to all 17 years and older</td>
<td>1.014</td>
<td>0.991</td>
<td>1.037</td>
<td>0.232</td>
</tr>
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</table>

¹OR: Odds Ratio ²95% CI: 95% Confidence Interval ³SEIFA: Socio-economic Indexes for Areas
Appendix table 12: Logistic regression model using the distance from single vehicle night-time crashes to the nearest alcohol outlets, in Perth metropolitan area, from 2005 to 2015

<table>
<thead>
<tr>
<th>Single vehicle night-time crash</th>
<th>OR¹</th>
<th>95% CI²</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance from closest on-premise outlet to crash (km)</td>
<td>1.002</td>
<td>0.989</td>
<td>1.015</td>
</tr>
<tr>
<td>Distance from closest bottleshop to crash (km)</td>
<td>0.984</td>
<td>0.976</td>
<td>0.992</td>
</tr>
<tr>
<td>Natural log of population density (km²)</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td><strong>Year</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>1.050</td>
<td>0.953</td>
<td>1.156</td>
</tr>
<tr>
<td>2007</td>
<td>1.073</td>
<td>0.974</td>
<td>1.182</td>
</tr>
<tr>
<td>2008</td>
<td>1.002</td>
<td>0.909</td>
<td>1.106</td>
</tr>
<tr>
<td>2009</td>
<td>1.156</td>
<td>1.045</td>
<td>1.279</td>
</tr>
<tr>
<td>2010</td>
<td>0.954</td>
<td>0.859</td>
<td>1.059</td>
</tr>
<tr>
<td>2011</td>
<td>0.949</td>
<td>0.852</td>
<td>1.058</td>
</tr>
<tr>
<td>2012</td>
<td>0.930</td>
<td>0.831</td>
<td>1.041</td>
</tr>
<tr>
<td>2013</td>
<td>0.847</td>
<td>0.751</td>
<td>0.955</td>
</tr>
<tr>
<td>2014</td>
<td>0.759</td>
<td>0.666</td>
<td>0.866</td>
</tr>
<tr>
<td>2015</td>
<td>0.771</td>
<td>0.671</td>
<td>0.885</td>
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<td><strong>Zone from the CBD</strong></td>
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</tr>
<tr>
<td>CBD</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 7km from the CBD</td>
<td>1.620</td>
<td>1.374</td>
<td>1.910</td>
</tr>
<tr>
<td>7km to 15km from the CBD</td>
<td>1.804</td>
<td>1.537</td>
<td>2.118</td>
</tr>
<tr>
<td>More than 15km from the CBD</td>
<td>2.073</td>
<td>1.765</td>
<td>2.436</td>
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<td><strong>SEIFA³ quartiles</strong></td>
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</tr>
<tr>
<td>Quartile 1</td>
<td>1.000</td>
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</tr>
<tr>
<td>Quartile 2</td>
<td>0.988</td>
<td>0.912</td>
<td>1.071</td>
</tr>
<tr>
<td>Quartile 3</td>
<td>0.965</td>
<td>0.868</td>
<td>1.072</td>
</tr>
<tr>
<td>Quartile 4</td>
<td>0.972</td>
<td>0.862</td>
<td>1.096</td>
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<tr>
<td>Proportion of unemployed people</td>
<td>0.967</td>
<td>0.938</td>
<td>0.996</td>
</tr>
<tr>
<td>Proportion of people of Indigenous origin</td>
<td>1.015</td>
<td>0.981</td>
<td>1.049</td>
</tr>
<tr>
<td>Mean age</td>
<td>0.986</td>
<td>0.977</td>
<td>0.995</td>
</tr>
<tr>
<td>Proportion of males between 17 to 24 to all 17 years and older</td>
<td>1.018</td>
<td>1.000</td>
<td>1.037</td>
</tr>
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</table>
Appendix table 13: Logistic regression model using the distance from single vehicle night-time crashes to the nearest alcohol outlets, in Perth metropolitan area, from 2005 to 2013

<table>
<thead>
<tr>
<th>Single vehicle night-time crash</th>
<th>OR(^1)</th>
<th>95% CI(^2)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance from closest on-premise outlet to crash (km)</td>
<td>0.999</td>
<td>0.985</td>
<td>1.013</td>
</tr>
<tr>
<td>Distance from closest bottleshop to crash (km)</td>
<td>0.985</td>
<td>0.976</td>
<td>0.994</td>
</tr>
<tr>
<td>Natural log of population density (km(^2))</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>Year</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>1.049</td>
<td>0.952</td>
<td>1.156</td>
</tr>
<tr>
<td>2007</td>
<td>1.073</td>
<td>0.974</td>
<td>1.182</td>
</tr>
<tr>
<td>2008</td>
<td>1.004</td>
<td>0.910</td>
<td>1.108</td>
</tr>
<tr>
<td>2009</td>
<td>1.158</td>
<td>1.046</td>
<td>1.283</td>
</tr>
<tr>
<td>2010</td>
<td>0.956</td>
<td>0.860</td>
<td>1.063</td>
</tr>
<tr>
<td>2011</td>
<td>0.953</td>
<td>0.854</td>
<td>1.064</td>
</tr>
<tr>
<td>2012</td>
<td>0.936</td>
<td>0.834</td>
<td>1.051</td>
</tr>
<tr>
<td>2013</td>
<td>0.852</td>
<td>0.753</td>
<td>0.964</td>
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<tr>
<td>Zone from the CBD</td>
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</tr>
<tr>
<td>CBD</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 7km from the CBD</td>
<td>1.632</td>
<td>1.365</td>
<td>1.951</td>
</tr>
<tr>
<td>7km to 15km from the CBD</td>
<td>1.816</td>
<td>1.526</td>
<td>2.161</td>
</tr>
<tr>
<td>More than 15km from the CBD</td>
<td>2.085</td>
<td>1.751</td>
<td>2.483</td>
</tr>
<tr>
<td>SEIFA(^3) quartiles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 1</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 2</td>
<td>0.970</td>
<td>0.891</td>
<td>1.056</td>
</tr>
<tr>
<td>Quartile 3</td>
<td>0.946</td>
<td>0.846</td>
<td>1.057</td>
</tr>
<tr>
<td>Quartile 4</td>
<td>0.939</td>
<td>0.827</td>
<td>1.067</td>
</tr>
<tr>
<td>Proportion of unemployed people</td>
<td>0.966</td>
<td>0.934</td>
<td>0.998</td>
</tr>
<tr>
<td>Proportion of people of Indigenous origin</td>
<td>1.007</td>
<td>0.971</td>
<td>1.044</td>
</tr>
<tr>
<td>Mean age</td>
<td>0.987</td>
<td>0.978</td>
<td>0.997</td>
</tr>
<tr>
<td>Proportion of males between 17 to 24 to all 17 years and older</td>
<td>1.020</td>
<td>1.000</td>
<td>1.040</td>
</tr>
</tbody>
</table>

\(^1\)OR: Odds Ratio \(^2\)95% CI: 95% Confidence Interval \(^3\)SEIFA: Socio-economic Indexes for Areas
### Appendix table 14: Logistic regression model using the distance from all night-time crashes to the nearest alcohol outlets, in Perth metropolitan area, from 2005 to 2015

<table>
<thead>
<tr>
<th>All night crashes</th>
<th>OR¹</th>
<th>95% CI²</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance from closest on-premise outlet to crash (km)</td>
<td>0.990</td>
<td>0.983</td>
<td>0.997</td>
</tr>
<tr>
<td>Distance from closest bottleshop to crash (km)</td>
<td>1.042</td>
<td>1.037</td>
<td>1.048</td>
</tr>
<tr>
<td>Natural log of population density (km²)</td>
<td>1.108</td>
<td>1.093</td>
<td>1.123</td>
</tr>
<tr>
<td><strong>Year</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>0.955</td>
<td>0.918</td>
<td>0.994</td>
</tr>
<tr>
<td>2007</td>
<td>1.043</td>
<td>1.003</td>
<td>1.085</td>
</tr>
<tr>
<td>2008</td>
<td>1.027</td>
<td>0.986</td>
<td>1.069</td>
</tr>
<tr>
<td>2009</td>
<td>1.075</td>
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<td>1.120</td>
</tr>
<tr>
<td>2010</td>
<td>0.956</td>
<td>0.916</td>
<td>0.997</td>
</tr>
<tr>
<td>2011</td>
<td>0.980</td>
<td>0.937</td>
<td>1.024</td>
</tr>
<tr>
<td>2012</td>
<td>1.009</td>
<td>0.964</td>
<td>1.056</td>
</tr>
<tr>
<td>2013</td>
<td>0.903</td>
<td>0.860</td>
<td>0.948</td>
</tr>
<tr>
<td>2014</td>
<td>0.818</td>
<td>0.777</td>
<td>0.861</td>
</tr>
<tr>
<td>2015</td>
<td>0.777</td>
<td>0.736</td>
<td>0.820</td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBD</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 7km from the CBD</td>
<td>0.871</td>
<td>0.825</td>
<td>0.919</td>
</tr>
<tr>
<td>7km to 15km from the CBD</td>
<td>0.818</td>
<td>0.775</td>
<td>0.864</td>
</tr>
<tr>
<td>More than 15km from the CBD</td>
<td>1.155</td>
<td>1.093</td>
<td>1.221</td>
</tr>
<tr>
<td><strong>SEIFA³ quartiles</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 1</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 2</td>
<td>1.144</td>
<td>1.106</td>
<td>1.182</td>
</tr>
<tr>
<td>Quartile 3</td>
<td>1.112</td>
<td>1.064</td>
<td>1.162</td>
</tr>
<tr>
<td>Quartile 4</td>
<td>1.113</td>
<td>1.060</td>
<td>1.169</td>
</tr>
<tr>
<td>Proportion of unemployed people</td>
<td>0.979</td>
<td>0.967</td>
<td>0.992</td>
</tr>
<tr>
<td>Proportion of people of Indigenous origin</td>
<td>1.051</td>
<td>1.036</td>
<td>1.065</td>
</tr>
<tr>
<td>Mean age</td>
<td>0.978</td>
<td>0.974</td>
<td>0.982</td>
</tr>
<tr>
<td>Proportion of males between 17 to 24 to all 17 years and older</td>
<td>1.012</td>
<td>1.004</td>
<td>1.020</td>
</tr>
</tbody>
</table>

¹OR: Odds Ratio ²95% CI: 95% Confidence Interval ³SEIFA: Socio-economic Indexes for Areas
Appendix table 15: Logistic regression model using the distance from all night-time crashes to the nearest alcohol outlets, in Perth metropolitan area, from 2005 to 2013

<table>
<thead>
<tr>
<th>All night crashes</th>
<th>OR(^1)</th>
<th>95% CI(^2)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance from closest on-premise outlet to crash (km)</td>
<td>0.984</td>
<td>0.977</td>
<td>0.992</td>
</tr>
<tr>
<td>Distance from closest bottleshop to crash (km)</td>
<td>1.046</td>
<td>1.041</td>
<td>1.052</td>
</tr>
<tr>
<td>Natural log of population density (km(^2))</td>
<td>1.105</td>
<td>1.089</td>
<td>1.121</td>
</tr>
<tr>
<td><strong>Year</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>0.955</td>
<td>0.917</td>
<td>0.993</td>
</tr>
<tr>
<td>2007</td>
<td>1.044</td>
<td>1.003</td>
<td>1.086</td>
</tr>
<tr>
<td>2008</td>
<td>1.023</td>
<td>0.983</td>
<td>1.066</td>
</tr>
<tr>
<td>2009</td>
<td>1.071</td>
<td>1.027</td>
<td>1.117</td>
</tr>
<tr>
<td>2010</td>
<td>0.951</td>
<td>0.911</td>
<td>0.993</td>
</tr>
<tr>
<td>2011</td>
<td>0.974</td>
<td>0.931</td>
<td>1.018</td>
</tr>
<tr>
<td>2012</td>
<td>1.002</td>
<td>0.956</td>
<td>1.050</td>
</tr>
<tr>
<td>2013</td>
<td>0.894</td>
<td>0.850</td>
<td>0.940</td>
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<td><strong>Zone from the CBD</strong></td>
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<td></td>
</tr>
<tr>
<td>CBD</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 7km from the CBD</td>
<td>0.890</td>
<td>0.838</td>
<td>0.945</td>
</tr>
<tr>
<td>7km to 15km from the CBD</td>
<td>0.850</td>
<td>0.800</td>
<td>0.904</td>
</tr>
<tr>
<td><strong>More than 15km from the CBD</strong></td>
<td>1.208</td>
<td>1.136</td>
<td>1.285</td>
</tr>
<tr>
<td><strong>SEIFA(^3) quartiles</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 1</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 2</td>
<td>1.164</td>
<td>1.123</td>
<td>1.207</td>
</tr>
<tr>
<td>Quartile 3</td>
<td>1.143</td>
<td>1.090</td>
<td>1.199</td>
</tr>
<tr>
<td>Quartile 4</td>
<td>1.153</td>
<td>1.093</td>
<td>1.216</td>
</tr>
<tr>
<td>Proportion of unemployed people</td>
<td>0.983</td>
<td>0.969</td>
<td>0.997</td>
</tr>
<tr>
<td>Proportion of people of Indigenous origin</td>
<td>1.058</td>
<td>1.041</td>
<td>1.074</td>
</tr>
<tr>
<td>Mean age</td>
<td>0.980</td>
<td>0.975</td>
<td>0.984</td>
</tr>
</tbody>
</table>

\(^1\)OR: Odds Ratio  
\(^2\)95% CI: 95% Confidence Interval  
\(^3\)SEIFA: Socio-economic Indexes for Areas
1.6.2 Logistic regression using median road network distance to closest five on-premise outlets and closest five bottleshops

Logistic regression models were developed which included the median distance (in kilometres) from each crash to the closest five on-premise outlet and the closest five bottleshops as predictors of alcohol-related crashes.

**Appendix table 16: Logistic regression model using the median distance from crashes with a driver with a BAC ≥ 0.05% to the nearest five alcohol outlets, in Perth metropolitan area, from 2005 to 2015**

<table>
<thead>
<tr>
<th>Crash involving a driver with a BAC ≥ 0.05%</th>
<th>OR$^1$</th>
<th>95% CI$^2$</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median distance from closest 5 on-premise outlets to crash (km)</td>
<td>1.106</td>
<td>1.089</td>
<td>1.124</td>
</tr>
<tr>
<td>Median distance from closest 5 bottleshops to crash (km)</td>
<td>0.956</td>
<td>0.944</td>
<td>0.968</td>
</tr>
<tr>
<td>Natural log of population density (km$^2$)</td>
<td>1.028</td>
<td>0.994</td>
<td>1.064</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
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</thead>
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<td>2014</td>
</tr>
<tr>
<td>2015</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Zone from the CBD</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBD</td>
</tr>
<tr>
<td>Up to 7km from the CBD</td>
</tr>
<tr>
<td>7km to 15km from the CBD</td>
</tr>
<tr>
<td>More than 15km from the CBD</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEIFA$^3$ quartiles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quartile 1</td>
</tr>
<tr>
<td>Quartile 2</td>
</tr>
<tr>
<td>Quartile 3</td>
</tr>
<tr>
<td>Quartile 4</td>
</tr>
<tr>
<td>Proportion of unemployed people</td>
</tr>
<tr>
<td>Proportion of people of Indigenous origin</td>
</tr>
<tr>
<td>Mean age</td>
</tr>
<tr>
<td>Proportion of males between 17 to 24 to all 17 years and older</td>
</tr>
</tbody>
</table>

$^1$OR: Odds Ratio  $^2$95% CI: 95% Confidence Interval  $^3$SEIFA: Socio-economic Indexes for Areas
Table 17: Logistic regression model using the median distance from crashes with a driver with a BAC $\geq 0.05\%$ to the nearest five alcohol outlets, in Perth metropolitan area, from 2005 to 2013

<table>
<thead>
<tr>
<th>Crash involving a driver with a BAC $\geq 0.05%$</th>
<th>OR(^1)</th>
<th>95% CI(^2)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median distance from closest 5 on-premise outlets to crash (km)</td>
<td>1.113</td>
<td>1.095</td>
<td>1.131</td>
</tr>
<tr>
<td>Median distance from closest 5 bottleshops to crash (km)</td>
<td>0.955</td>
<td>0.942</td>
<td>0.968</td>
</tr>
<tr>
<td>Natural log of population density (km(^2))</td>
<td>1.022</td>
<td>0.986</td>
<td>1.060</td>
</tr>
<tr>
<td><strong>Year</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>1.118</td>
<td>1.004</td>
<td>1.246</td>
</tr>
<tr>
<td>2007</td>
<td>1.078</td>
<td>0.966</td>
<td>1.204</td>
</tr>
<tr>
<td>2008</td>
<td>1.346</td>
<td>1.208</td>
<td>1.500</td>
</tr>
<tr>
<td>2009</td>
<td>1.356</td>
<td>1.213</td>
<td>1.516</td>
</tr>
<tr>
<td>2010</td>
<td>0.977</td>
<td>0.866</td>
<td>1.103</td>
</tr>
<tr>
<td>2011</td>
<td>0.989</td>
<td>0.872</td>
<td>1.121</td>
</tr>
<tr>
<td>2012</td>
<td>1.008</td>
<td>0.885</td>
<td>1.149</td>
</tr>
<tr>
<td>2013</td>
<td>0.866</td>
<td>0.751</td>
<td>0.999</td>
</tr>
<tr>
<td><strong>Zone from the CBD</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBD</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 7km from the CBD</td>
<td>1.369</td>
<td>1.104</td>
<td>1.698</td>
</tr>
<tr>
<td>7km to 15km from the CBD</td>
<td>1.574</td>
<td>1.269</td>
<td>1.952</td>
</tr>
<tr>
<td>More than 15km from the CBD</td>
<td>2.750</td>
<td>2.220</td>
<td>3.406</td>
</tr>
<tr>
<td><strong>SEIFA(^3) quartiles</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 2</td>
<td>1.012</td>
<td>0.921</td>
<td>1.112</td>
</tr>
<tr>
<td>Quartile 3</td>
<td>0.901</td>
<td>0.796</td>
<td>1.020</td>
</tr>
<tr>
<td>Quartile 4</td>
<td>0.868</td>
<td>0.755</td>
<td>0.999</td>
</tr>
<tr>
<td>Proportion of unemployed people</td>
<td>0.959</td>
<td>0.923</td>
<td>0.996</td>
</tr>
<tr>
<td>Proportion of people of Indigenous origin</td>
<td>1.054</td>
<td>1.014</td>
<td>1.097</td>
</tr>
<tr>
<td>Mean age</td>
<td>0.979</td>
<td>0.967</td>
<td>0.991</td>
</tr>
<tr>
<td>Proportion of males between 17 to 24 to all 17 years and older</td>
<td>0.990</td>
<td>0.969</td>
<td>1.012</td>
</tr>
</tbody>
</table>

\(^1\)OR: Odds Ratio \(^2\)95% CI: 95% Confidence Interval \(^3\)SEIFA: Socio-economic Indexes for Areas
Appendix table 18: Logistic regression model using the median distance from weekend single vehicle night-time crashes to the nearest five alcohol outlets, in Perth metropolitan area, from 2005 to 2015

<table>
<thead>
<tr>
<th>Weekend single vehicle night-time crash</th>
<th>OR¹</th>
<th>95% CI²</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median distance from closest 5 on-premise outlets to crash (km)</td>
<td>0.983</td>
<td>0.969</td>
<td>0.997</td>
</tr>
<tr>
<td>Median distance from closest 5 bottleshops to crash (km)</td>
<td>1.001</td>
<td>0.992</td>
<td>1.011</td>
</tr>
<tr>
<td>Natural log of population density (km²)</td>
<td>1.064</td>
<td>1.030</td>
<td>1.100</td>
</tr>
<tr>
<td><strong>Year</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>1.119</td>
<td>1.000</td>
<td>1.253</td>
</tr>
<tr>
<td>2007</td>
<td>1.173</td>
<td>1.049</td>
<td>1.312</td>
</tr>
<tr>
<td>2008</td>
<td>1.079</td>
<td>0.962</td>
<td>1.210</td>
</tr>
<tr>
<td>2009</td>
<td>1.248</td>
<td>1.110</td>
<td>1.404</td>
</tr>
<tr>
<td>2010</td>
<td>1.032</td>
<td>0.913</td>
<td>1.166</td>
</tr>
<tr>
<td>2011</td>
<td>1.008</td>
<td>0.888</td>
<td>1.145</td>
</tr>
<tr>
<td>2012</td>
<td>0.933</td>
<td>0.817</td>
<td>1.066</td>
</tr>
<tr>
<td>2013</td>
<td>0.913</td>
<td>0.793</td>
<td>1.051</td>
</tr>
<tr>
<td>2014</td>
<td>0.836</td>
<td>0.716</td>
<td>0.976</td>
</tr>
<tr>
<td>2015</td>
<td>0.825</td>
<td>0.700</td>
<td>0.972</td>
</tr>
<tr>
<td><strong>Zone from the CBD</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBD</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 7km from the CBD</td>
<td>1.686</td>
<td>1.385</td>
<td>2.054</td>
</tr>
<tr>
<td>7km to 15km from the CBD</td>
<td>1.961</td>
<td>1.613</td>
<td>2.385</td>
</tr>
<tr>
<td>More than 15km from the CBD</td>
<td>2.439</td>
<td>2.001</td>
<td>2.973</td>
</tr>
<tr>
<td><strong>SEIFA³ quartiles</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 1</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 2</td>
<td>1.027</td>
<td>0.936</td>
<td>1.128</td>
</tr>
<tr>
<td>Quartile 3</td>
<td>1.022</td>
<td>0.905</td>
<td>1.155</td>
</tr>
<tr>
<td>Quartile 4</td>
<td>1.022</td>
<td>0.888</td>
<td>1.176</td>
</tr>
<tr>
<td>Proportion of unemployed people</td>
<td>0.956</td>
<td>0.923</td>
<td>0.991</td>
</tr>
<tr>
<td>Proportion of people of Indigenous origin</td>
<td>1.011</td>
<td>0.973</td>
<td>1.049</td>
</tr>
<tr>
<td>Mean age</td>
<td>0.984</td>
<td>0.974</td>
<td>0.995</td>
</tr>
<tr>
<td>Proportion of males between 17 to 24 to all 17 years and older</td>
<td>1.012</td>
<td>0.991</td>
<td>1.034</td>
</tr>
</tbody>
</table>

¹OR: Odds Ratio ²95% CI: 95% Confidence Interval ³SEIFA: Socio-economic Indexes for Areas
Appendix table 19: Logistic regression model using the median distance from weekend single vehicle night-time crashes to the nearest five alcohol outlets, in Perth metropolitan area, from 2005 to 2013

<table>
<thead>
<tr>
<th>Weekend single vehicle night-time crash</th>
<th>OR(^1)</th>
<th>95% CI(^2)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median distance from closest 5 on-premise outlets to crash (km)</td>
<td>0.981</td>
<td>0.966</td>
<td>0.995</td>
</tr>
<tr>
<td>Median distance from closest 5 bottleshops to crash (km)</td>
<td>1.003</td>
<td>0.993</td>
<td>1.013</td>
</tr>
<tr>
<td>Natural log of population density (km(^2))</td>
<td>1.074</td>
<td>1.037</td>
<td>1.111</td>
</tr>
<tr>
<td>Year</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>1.119</td>
<td>1.000</td>
<td>1.253</td>
</tr>
<tr>
<td>2007</td>
<td>1.175</td>
<td>1.050</td>
<td>1.314</td>
</tr>
<tr>
<td>2008</td>
<td>1.085</td>
<td>0.967</td>
<td>1.218</td>
</tr>
<tr>
<td>2009</td>
<td>1.258</td>
<td>1.118</td>
<td>1.416</td>
</tr>
<tr>
<td>2010</td>
<td>1.041</td>
<td>0.920</td>
<td>1.178</td>
</tr>
<tr>
<td>2011</td>
<td>1.021</td>
<td>0.898</td>
<td>1.162</td>
</tr>
<tr>
<td>2012</td>
<td>0.950</td>
<td>0.829</td>
<td>1.088</td>
</tr>
<tr>
<td>2013</td>
<td>0.930</td>
<td>0.805</td>
<td>1.074</td>
</tr>
<tr>
<td>Zone from the CBD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBD</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 7km from the CBD</td>
<td>1.646</td>
<td>1.333</td>
<td>2.033</td>
</tr>
<tr>
<td>7km to 15km from the CBD</td>
<td>1.903</td>
<td>1.542</td>
<td>2.348</td>
</tr>
<tr>
<td>More than 15km from the CBD</td>
<td>2.370</td>
<td>1.917</td>
<td>2.929</td>
</tr>
<tr>
<td>SEIFA(^3) quartiles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 1</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 2</td>
<td>1.002</td>
<td>0.907</td>
<td>1.106</td>
</tr>
<tr>
<td>Quartile 3</td>
<td>0.996</td>
<td>0.876</td>
<td>1.132</td>
</tr>
<tr>
<td>Quartile 4</td>
<td>0.959</td>
<td>0.827</td>
<td>1.113</td>
</tr>
<tr>
<td>Proportion of unemployed people</td>
<td>0.951</td>
<td>0.915</td>
<td>0.988</td>
</tr>
<tr>
<td>Proportion of people of Indigenous origin</td>
<td>1.002</td>
<td>0.963</td>
<td>1.044</td>
</tr>
<tr>
<td>Mean age</td>
<td>0.986</td>
<td>0.975</td>
<td>0.998</td>
</tr>
<tr>
<td>Proportion of males between 17 to 24 to all 17 years and older</td>
<td>1.015</td>
<td>0.993</td>
<td>1.039</td>
</tr>
</tbody>
</table>

\(^1\)OR: Odds Ratio \(^2\)95% CI: 95% Confidence Interval \(^3\)SEIFA: Socio-economic Indexes for Areas
Appendix table 20: Logistic regression model using the median distance from single vehicle night-time crashes to the nearest five alcohol outlets, in Perth metropolitan area, from 2005 to 2015

<table>
<thead>
<tr>
<th>Single vehicle night-time crash</th>
<th>OR(^1)</th>
<th>95% CI(^2)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median distance from closest 5 on-premise outlets to crash (km)</td>
<td>0.990</td>
<td>0.978</td>
<td>1.002</td>
</tr>
<tr>
<td>Median distance from closest 5 bottleshops to crash (km)</td>
<td>1.000</td>
<td>0.992</td>
<td>1.009</td>
</tr>
<tr>
<td>Natural log of population density (km(^2))</td>
<td>1.062</td>
<td>1.032</td>
<td>1.092</td>
</tr>
<tr>
<td><strong>Year</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>1.050</td>
<td>0.953</td>
<td>1.157</td>
</tr>
<tr>
<td>2007</td>
<td>1.076</td>
<td>0.977</td>
<td>1.185</td>
</tr>
<tr>
<td>2008</td>
<td>1.008</td>
<td>0.914</td>
<td>1.112</td>
</tr>
<tr>
<td>2009</td>
<td>1.167</td>
<td>1.055</td>
<td>1.292</td>
</tr>
<tr>
<td>2010</td>
<td>0.966</td>
<td>0.870</td>
<td>1.072</td>
</tr>
<tr>
<td>2011</td>
<td>0.963</td>
<td>0.864</td>
<td>1.073</td>
</tr>
<tr>
<td>2012</td>
<td>0.947</td>
<td>0.846</td>
<td>1.060</td>
</tr>
<tr>
<td>2013</td>
<td>0.864</td>
<td>0.766</td>
<td>0.974</td>
</tr>
<tr>
<td>2014</td>
<td>0.779</td>
<td>0.683</td>
<td>0.888</td>
</tr>
<tr>
<td>2015</td>
<td>0.795</td>
<td>0.693</td>
<td>0.914</td>
</tr>
<tr>
<td><strong>Zone from the CBD</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBD</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 7km from the CBD</td>
<td>1.630</td>
<td>1.387</td>
<td>1.915</td>
</tr>
<tr>
<td>7km to 15km from the CBD</td>
<td>1.797</td>
<td>1.531</td>
<td>2.109</td>
</tr>
<tr>
<td>More than 15km from the CBD</td>
<td>2.159</td>
<td>1.835</td>
<td>2.539</td>
</tr>
<tr>
<td><strong>SEIFA(^3) quartiles</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 1</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 2</td>
<td>0.996</td>
<td>0.919</td>
<td>1.079</td>
</tr>
<tr>
<td>Quartile 3</td>
<td>0.965</td>
<td>0.869</td>
<td>1.072</td>
</tr>
<tr>
<td>Quartile 4</td>
<td>0.964</td>
<td>0.855</td>
<td>1.088</td>
</tr>
<tr>
<td>Proportion of unemployed people</td>
<td>0.955</td>
<td>0.927</td>
<td>0.985</td>
</tr>
<tr>
<td>Proportion of people of Indigenous origin</td>
<td>1.021</td>
<td>0.989</td>
<td>1.054</td>
</tr>
<tr>
<td>Mean age</td>
<td>0.989</td>
<td>0.980</td>
<td>0.998</td>
</tr>
<tr>
<td>Proportion of males between 17 to 24 to all 17 years and older</td>
<td>1.020</td>
<td>1.002</td>
<td>1.038</td>
</tr>
</tbody>
</table>

\(^1\)OR: Odds Ratio \(^2\)95% CI: 95% Confidence Interval \(^3\)SEIFA: Socio-economic Indexes for Areas
Appendix table 21: Logistic regression model using the median distance from single vehicle night-time crashes to the nearest five alcohol outlets, in Perth metropolitan area, from 2005 to 2013

<table>
<thead>
<tr>
<th>Single vehicle night-time crash</th>
<th>OR&lt;sup&gt;1&lt;/sup&gt;</th>
<th>95% CI&lt;sup&gt;2&lt;/sup&gt;</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median distance from closest 5 on-premise outlets to crash (km)</td>
<td>0.987</td>
<td>0.974</td>
<td>0.999</td>
</tr>
<tr>
<td>Median distance from closest 5 bottleshops to crash (km)</td>
<td>1.002</td>
<td>0.993</td>
<td>1.011</td>
</tr>
<tr>
<td>Natural log of population density (km&lt;sup&gt;2&lt;/sup&gt;)</td>
<td>1.064</td>
<td>1.033</td>
<td>1.096</td>
</tr>
<tr>
<td>Year</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>1.050</td>
<td>0.952</td>
<td>1.156</td>
</tr>
<tr>
<td>2007</td>
<td>1.076</td>
<td>0.977</td>
<td>1.186</td>
</tr>
<tr>
<td>2008</td>
<td>1.010</td>
<td>0.915</td>
<td>1.115</td>
</tr>
<tr>
<td>2009</td>
<td>1.171</td>
<td>1.057</td>
<td>1.297</td>
</tr>
<tr>
<td>2010</td>
<td>0.968</td>
<td>0.871</td>
<td>1.077</td>
</tr>
<tr>
<td>2011</td>
<td>0.967</td>
<td>0.866</td>
<td>1.080</td>
</tr>
<tr>
<td>2012</td>
<td>0.954</td>
<td>0.850</td>
<td>1.070</td>
</tr>
<tr>
<td>2013</td>
<td>0.870</td>
<td>0.769</td>
<td>0.984</td>
</tr>
<tr>
<td>Zone from the CBD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBD</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 7km from the CBD</td>
<td>1.649</td>
<td>1.385</td>
<td>1.963</td>
</tr>
<tr>
<td>7km to 15km from the CBD</td>
<td>1.809</td>
<td>1.520</td>
<td>2.153</td>
</tr>
<tr>
<td>More than 15km from the CBD</td>
<td>2.164</td>
<td>1.815</td>
<td>2.579</td>
</tr>
<tr>
<td>SEIFA&lt;sup&gt;3&lt;/sup&gt; quartiles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 1</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 2</td>
<td>0.978</td>
<td>0.898</td>
<td>1.065</td>
</tr>
<tr>
<td>Quartile 3</td>
<td>0.947</td>
<td>0.848</td>
<td>1.058</td>
</tr>
<tr>
<td>Quartile 4</td>
<td>0.933</td>
<td>0.821</td>
<td>1.060</td>
</tr>
<tr>
<td>Proportion of unemployed people</td>
<td>0.955</td>
<td>0.924</td>
<td>0.987</td>
</tr>
<tr>
<td>Proportion of people of Indigenous origin</td>
<td>1.012</td>
<td>0.977</td>
<td>1.048</td>
</tr>
<tr>
<td>Mean age</td>
<td>0.990</td>
<td>0.980</td>
<td>1.000</td>
</tr>
<tr>
<td>Proportion of males between 17 to 24 to all 17 years and older</td>
<td>1.021</td>
<td>1.002</td>
<td>1.042</td>
</tr>
</tbody>
</table>

<sup>1</sup>OR: Odds Ratio  
<sup>2</sup>95% CI: 95% Confidence Interval  
<sup>3</sup>SEIFA: Socio-economic Indexes for Areas
### Appendix table 22: Logistic regression model using the median distance from all nighttime crashes to the nearest five alcohol outlets, in Perth metropolitan area, from 2005 to 2015

<table>
<thead>
<tr>
<th>All night crashes</th>
<th>OR(^1)</th>
<th>95% CI(^2)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median distance from closest 5 on-premise outlets to crash (km)</td>
<td>0.971</td>
<td>0.964</td>
<td>0.977</td>
</tr>
<tr>
<td>Median distance from closest 5 bottleshops to crash (km)</td>
<td>1.059</td>
<td>1.054</td>
<td>1.064</td>
</tr>
<tr>
<td>Natural log of population density (km(^2))</td>
<td>1.155</td>
<td>1.139</td>
<td>1.172</td>
</tr>
<tr>
<td><strong>Year</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>0.952</td>
<td>0.915</td>
<td>0.991</td>
</tr>
<tr>
<td>2007</td>
<td>1.075</td>
<td>1.033</td>
<td>1.118</td>
</tr>
<tr>
<td>2008</td>
<td>1.022</td>
<td>0.981</td>
<td>1.064</td>
</tr>
<tr>
<td>2009</td>
<td>1.070</td>
<td>1.026</td>
<td>1.115</td>
</tr>
<tr>
<td>2010</td>
<td>0.949</td>
<td>0.910</td>
<td>0.991</td>
</tr>
<tr>
<td>2011</td>
<td>0.974</td>
<td>0.932</td>
<td>1.017</td>
</tr>
<tr>
<td>2012</td>
<td>1.002</td>
<td>0.957</td>
<td>1.049</td>
</tr>
<tr>
<td>2013</td>
<td>0.897</td>
<td>0.854</td>
<td>0.941</td>
</tr>
<tr>
<td>2014</td>
<td>0.810</td>
<td>0.769</td>
<td>0.852</td>
</tr>
<tr>
<td>2015</td>
<td>0.766</td>
<td>0.726</td>
<td>0.809</td>
</tr>
<tr>
<td><strong>Zone from the CBD</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBD</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 7km from the CBD</td>
<td>0.819</td>
<td>0.775</td>
<td>0.865</td>
</tr>
<tr>
<td>7km to 15km from the CBD</td>
<td>0.760</td>
<td>0.719</td>
<td>0.803</td>
</tr>
<tr>
<td>More than 15km from the CBD</td>
<td>1.086</td>
<td>1.027</td>
<td>1.149</td>
</tr>
<tr>
<td><strong>SEIFA(^3) quartiles</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 1</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 2</td>
<td>1.134</td>
<td>1.097</td>
<td>1.173</td>
</tr>
<tr>
<td>Quartile 3</td>
<td>1.102</td>
<td>1.054</td>
<td>1.151</td>
</tr>
<tr>
<td>Quartile 4</td>
<td>1.127</td>
<td>1.073</td>
<td>1.183</td>
</tr>
<tr>
<td>Proportion of unemployed people</td>
<td>0.986</td>
<td>0.973</td>
<td>0.999</td>
</tr>
<tr>
<td>Proportion of people of Indigenous origin</td>
<td>1.061</td>
<td>1.047</td>
<td>1.076</td>
</tr>
<tr>
<td>Mean age</td>
<td>0.984</td>
<td>0.980</td>
<td>0.988</td>
</tr>
<tr>
<td>Proportion of males between 17 to 24 to all 17 years and older</td>
<td>1.011</td>
<td>1.004</td>
<td>1.019</td>
</tr>
</tbody>
</table>

\(^1\)OR: Odds Ratio \(^2\)95% CI: 95% Confidence Interval \(^3\)SEIFA: Socio-economic Indexes for Areas
Appendix table 23: Logistic regression model using the median distance from all nighttime crashes to the nearest five alcohol outlets, in Perth metropolitan area, from 2005 to 2013

<table>
<thead>
<tr>
<th>All night crashes</th>
<th>OR(^1)</th>
<th>95% CI(^2)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median distance from closest 5 on-premise outlets to crash (km)</td>
<td>0.966</td>
<td>0.959</td>
<td>0.972</td>
</tr>
<tr>
<td>Median distance from closest 5 bottleshops to crash (km)</td>
<td>1.064</td>
<td>1.059</td>
<td>1.070</td>
</tr>
<tr>
<td>Natural log of population density (km(^2))</td>
<td>1.157</td>
<td>1.139</td>
<td>1.175</td>
</tr>
<tr>
<td><strong>Year</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>0.951</td>
<td>0.914</td>
<td>0.990</td>
</tr>
<tr>
<td>2007</td>
<td>1.078</td>
<td>1.036</td>
<td>1.122</td>
</tr>
<tr>
<td>2008</td>
<td>1.018</td>
<td>0.977</td>
<td>1.060</td>
</tr>
<tr>
<td>2009</td>
<td>1.065</td>
<td>1.021</td>
<td>1.110</td>
</tr>
<tr>
<td>2010</td>
<td>0.944</td>
<td>0.904</td>
<td>0.985</td>
</tr>
<tr>
<td>2011</td>
<td>0.967</td>
<td>0.925</td>
<td>1.012</td>
</tr>
<tr>
<td>2012</td>
<td>0.994</td>
<td>0.949</td>
<td>1.042</td>
</tr>
<tr>
<td>2013</td>
<td>0.888</td>
<td>0.844</td>
<td>0.933</td>
</tr>
<tr>
<td><strong>Zone from the CBD</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBD</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 7km from the CBD</td>
<td>0.835</td>
<td>0.785</td>
<td>0.887</td>
</tr>
<tr>
<td>7km to 15km from the CBD</td>
<td>0.787</td>
<td>0.740</td>
<td>0.837</td>
</tr>
<tr>
<td>More than 15km from the CBD</td>
<td>1.134</td>
<td>1.066</td>
<td>1.207</td>
</tr>
<tr>
<td><strong>SEIFA(^3) quartiles</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 1</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 2</td>
<td>1.153</td>
<td>1.112</td>
<td>1.196</td>
</tr>
<tr>
<td>Quartile 3</td>
<td>1.135</td>
<td>1.083</td>
<td>1.190</td>
</tr>
<tr>
<td>Quartile 4</td>
<td>1.170</td>
<td>1.109</td>
<td>1.234</td>
</tr>
<tr>
<td>Proportion of unemployed people</td>
<td>0.990</td>
<td>0.976</td>
<td>1.005</td>
</tr>
<tr>
<td>Proportion of people of Indigenous origin</td>
<td>1.071</td>
<td>1.054</td>
<td>1.088</td>
</tr>
<tr>
<td>Mean age</td>
<td>0.987</td>
<td>0.982</td>
<td>0.991</td>
</tr>
<tr>
<td>Proportion of males between 17 to 24 to all 17 years and older</td>
<td>1.011</td>
<td>1.003</td>
<td>1.019</td>
</tr>
</tbody>
</table>

\(^1\)OR: Odds Ratio \(^2\)95% CI: 95% Confidence Interval \(^3\)SEIFA: Socio-economic Indexes for Areas
1.6.3 Logistic regression using number of on-premise outlets and bottleshops using different buffer zones

Appendix table 24: Logistic regression model using the number of alcohol outlets within specified buffer zones of crashes with a driver with a BAC $\geq 0.05\%$, in Perth metropolitan area, from 2005 to 2013

<table>
<thead>
<tr>
<th>Crash involving driver with BAC $\geq 0.05%$</th>
<th>OR(^1)</th>
<th>95% CI(^2)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of on-premise outlets less than 2km from crash</td>
<td>1.002</td>
<td>1.000</td>
<td>1.003</td>
</tr>
<tr>
<td>Number of on-premise outlets 2km up to 5km from crash</td>
<td>1.000</td>
<td>0.999</td>
<td>1.001</td>
</tr>
<tr>
<td>Number of on-premise outlets 5km up to 10km from crash</td>
<td>1.000</td>
<td>0.999</td>
<td>1.001</td>
</tr>
<tr>
<td>Number of on-premise outlets 10km up to 20km from crash</td>
<td>1.001</td>
<td>1.001</td>
<td>1.001</td>
</tr>
<tr>
<td>Number of bottleshops less than 2km from crash</td>
<td>0.979</td>
<td>0.957</td>
<td>1.002</td>
</tr>
<tr>
<td>Number of bottleshops 2km up to 5km from crash</td>
<td>1.009</td>
<td>0.998</td>
<td>1.020</td>
</tr>
<tr>
<td>Number of bottleshops 5km up to 10km from crash</td>
<td>0.988</td>
<td>0.982</td>
<td>0.994</td>
</tr>
<tr>
<td>Number of bottleshops 10km up to 20km from crash</td>
<td>0.992</td>
<td>0.988</td>
<td>0.995</td>
</tr>
<tr>
<td>Natural log of population density (km(^2))</td>
<td>1.002</td>
<td>0.966</td>
<td>1.038</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>OR(^1)</th>
<th>95% CI(^2)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>1.109</td>
<td>0.995</td>
<td>1.236</td>
</tr>
<tr>
<td>2007</td>
<td>1.199</td>
<td>1.077</td>
<td>1.335</td>
</tr>
<tr>
<td>2008</td>
<td>1.377</td>
<td>1.235</td>
<td>1.535</td>
</tr>
<tr>
<td>2009</td>
<td>1.417</td>
<td>1.266</td>
<td>1.587</td>
</tr>
<tr>
<td>2010</td>
<td>1.041</td>
<td>0.920</td>
<td>1.177</td>
</tr>
<tr>
<td>2011</td>
<td>1.050</td>
<td>0.923</td>
<td>1.194</td>
</tr>
<tr>
<td>2012</td>
<td>1.087</td>
<td>0.951</td>
<td>1.242</td>
</tr>
<tr>
<td>2013</td>
<td>0.931</td>
<td>0.805</td>
<td>1.077</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Zone from the CBD</th>
<th>OR(^1)</th>
<th>95% CI(^2)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBD</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 7km from the CBD</td>
<td>1.516</td>
<td>1.174</td>
<td>1.957</td>
</tr>
<tr>
<td>7km to 15km from the CBD</td>
<td>1.641</td>
<td>1.253</td>
<td>2.150</td>
</tr>
<tr>
<td>More than 15km from the CBD</td>
<td>2.767</td>
<td>2.098</td>
<td>3.650</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEIFA(^3) quartiles</th>
<th>OR(^1)</th>
<th>95% CI(^2)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quartile 1</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 2</td>
<td>0.980</td>
<td>0.889</td>
<td>1.081</td>
</tr>
<tr>
<td>Quartile 3</td>
<td>0.853</td>
<td>0.749</td>
<td>0.971</td>
</tr>
<tr>
<td>Quartile 4</td>
<td>0.830</td>
<td>0.718</td>
<td>0.961</td>
</tr>
<tr>
<td>Proportion of unemployed people</td>
<td>0.952</td>
<td>0.915</td>
<td>0.990</td>
</tr>
<tr>
<td>Proportion of people of Indigenous origin</td>
<td>1.028</td>
<td>0.987</td>
<td>1.071</td>
</tr>
<tr>
<td>Mean age</td>
<td>0.969</td>
<td>0.958</td>
<td>0.981</td>
</tr>
<tr>
<td>Proportion of males between 17 to 24 to all 17 years and older</td>
<td>0.996</td>
<td>0.973</td>
<td>1.020</td>
</tr>
</tbody>
</table>

\(^1\)OR: Odds Ratio \(^2\)95% CI: 95% Confidence Interval \(^3\)SEIFA: Socio-economic Indexes for Areas
Appendix table 25: Logistic regression model using the number of alcohol outlets within specified buffer zones of weekend single vehicle night-time crashes, in Perth metropolitan area, from 2005 to 2013

<table>
<thead>
<tr>
<th>Weekend single vehicle night-time crashes</th>
<th>OR¹</th>
<th>95% CI²</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of on-premise outlets less than 2km from crash</td>
<td>0.998</td>
<td>0.997</td>
<td>1.000</td>
</tr>
<tr>
<td>Number of on-premise outlets 2km up to 5km from crash</td>
<td>1.000</td>
<td>0.999</td>
<td>1.000</td>
</tr>
<tr>
<td>Number of on-premise outlets 5km up to 10km from crash</td>
<td>0.999</td>
<td>0.999</td>
<td>1.000</td>
</tr>
<tr>
<td>Number of on-premise outlets 10km up to 20km from crash</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>Number of bottleshops less than 2km from crash</td>
<td>0.980</td>
<td>0.954</td>
<td>1.006</td>
</tr>
<tr>
<td>Number of bottleshops 2km up to 5km from crash</td>
<td>1.005</td>
<td>0.993</td>
<td>1.018</td>
</tr>
<tr>
<td>Number of bottleshops 5km up to 10km from crash</td>
<td>0.998</td>
<td>0.991</td>
<td>1.004</td>
</tr>
<tr>
<td>Number of bottleshops 10km up to 20km from crash</td>
<td>1.002</td>
<td>0.998</td>
<td>1.006</td>
</tr>
<tr>
<td>Natural log of population density (km²)</td>
<td>1.097</td>
<td>1.061</td>
<td>1.134</td>
</tr>
<tr>
<td>Year</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>1.119</td>
<td>0.999</td>
<td>1.254</td>
</tr>
<tr>
<td>2007</td>
<td>1.162</td>
<td>1.038</td>
<td>1.301</td>
</tr>
<tr>
<td>2008</td>
<td>1.066</td>
<td>0.949</td>
<td>1.197</td>
</tr>
<tr>
<td>2009</td>
<td>1.233</td>
<td>1.094</td>
<td>1.390</td>
</tr>
<tr>
<td>2010</td>
<td>1.022</td>
<td>0.901</td>
<td>1.159</td>
</tr>
<tr>
<td>2011</td>
<td>0.976</td>
<td>0.855</td>
<td>1.113</td>
</tr>
<tr>
<td>2012</td>
<td>0.914</td>
<td>0.795</td>
<td>1.051</td>
</tr>
<tr>
<td>2013</td>
<td>0.889</td>
<td>0.767</td>
<td>1.031</td>
</tr>
</tbody>
</table>

Zone from the CBD

<table>
<thead>
<tr>
<th></th>
<th>CBD</th>
<th>95% CI²</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 7km from the CBD</td>
<td>1.130</td>
<td>0.863</td>
<td>1.479</td>
</tr>
<tr>
<td>7km to 15km from the CBD</td>
<td>1.099</td>
<td>0.825</td>
<td>1.465</td>
</tr>
<tr>
<td>More than 15km from the CBD</td>
<td>1.337</td>
<td>0.995</td>
<td>1.797</td>
</tr>
</tbody>
</table>

SEIFA³ quartiles

<table>
<thead>
<tr>
<th></th>
<th>95% CI²</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quartile 1</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>Quartile 2</td>
<td>1.044</td>
<td>0.942</td>
</tr>
<tr>
<td>Quartile 3</td>
<td>1.046</td>
<td>0.913</td>
</tr>
<tr>
<td>Quartile 4</td>
<td>1.019</td>
<td>0.872</td>
</tr>
<tr>
<td>Proportion of unemployed people</td>
<td>0.973</td>
<td>0.934</td>
</tr>
<tr>
<td>Proportion of people of Indigenous origin</td>
<td>0.999</td>
<td>0.958</td>
</tr>
<tr>
<td>Mean age</td>
<td>0.991</td>
<td>0.980</td>
</tr>
<tr>
<td>Proportion of males between 17 to 24 to all 17 years and older</td>
<td>1.001</td>
<td>0.977</td>
</tr>
</tbody>
</table>

¹OR: Odds Ratio ²95% CI: 95% Confidence Interval ³SEIFA: Socio-economic Indexes for Areas
Appendix table 26: Logistic regression model using the number of alcohol outlets within specified buffer zones of single vehicle night-time crashes, in Perth metropolitan area, from 2005 to 2013

<table>
<thead>
<tr>
<th>Single vehicle night-time crashes</th>
<th>OR(^1)</th>
<th>95% CI(^2)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of on-premise outlets less than 2km from crash</td>
<td>0.992</td>
<td>0.991</td>
<td>0.994</td>
</tr>
<tr>
<td>Number of on-premise outlets 2km up to 5km from crash</td>
<td>0.995</td>
<td>0.994</td>
<td>0.995</td>
</tr>
<tr>
<td>Number of on-premise outlets 5km up to 10km from crash</td>
<td>0.996</td>
<td>0.995</td>
<td>0.996</td>
</tr>
<tr>
<td>Number of on-premise outlets 10km up to 20km from crash</td>
<td>0.997</td>
<td>0.997</td>
<td>0.997</td>
</tr>
<tr>
<td>Number of bottleshops less than 2km from crash</td>
<td>1.079</td>
<td>1.057</td>
<td>1.102</td>
</tr>
<tr>
<td>Number of bottleshops 2km up to 5km from crash</td>
<td>1.065</td>
<td>1.055</td>
<td>1.076</td>
</tr>
<tr>
<td>Number of bottleshops 5km up to 10km from crash</td>
<td>1.031</td>
<td>1.026</td>
<td>1.037</td>
</tr>
<tr>
<td>Number of bottleshops 10km up to 20km from crash</td>
<td>1.032</td>
<td>1.029</td>
<td>1.035</td>
</tr>
<tr>
<td>Natural log of population density (km(^2))</td>
<td>0.954</td>
<td>0.928</td>
<td>0.981</td>
</tr>
<tr>
<td>Year</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>1.070</td>
<td>0.970</td>
<td>1.182</td>
</tr>
<tr>
<td>2007</td>
<td>1.058</td>
<td>0.959</td>
<td>1.168</td>
</tr>
<tr>
<td>2008</td>
<td>0.411</td>
<td>0.367</td>
<td>0.461</td>
</tr>
<tr>
<td>2009</td>
<td>1.022</td>
<td>0.920</td>
<td>1.134</td>
</tr>
<tr>
<td>2010</td>
<td>0.804</td>
<td>0.721</td>
<td>0.896</td>
</tr>
<tr>
<td>2011</td>
<td>0.802</td>
<td>0.716</td>
<td>0.899</td>
</tr>
<tr>
<td>2012</td>
<td>0.785</td>
<td>0.696</td>
<td>0.885</td>
</tr>
<tr>
<td>2013</td>
<td>0.729</td>
<td>0.641</td>
<td>0.829</td>
</tr>
<tr>
<td>Zone from the CBD</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 7km from the CBD</td>
<td>1.005</td>
<td>0.798</td>
<td>1.265</td>
</tr>
<tr>
<td>7km to 15km from the CBD</td>
<td>0.720</td>
<td>0.563</td>
<td>0.922</td>
</tr>
<tr>
<td>More than 15km from the CBD</td>
<td>0.919</td>
<td>0.712</td>
<td>1.187</td>
</tr>
<tr>
<td>SEIFA(^3) quartiles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 1</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 2</td>
<td>0.880</td>
<td>0.803</td>
<td>0.963</td>
</tr>
<tr>
<td>Quartile 3</td>
<td>0.900</td>
<td>0.798</td>
<td>1.014</td>
</tr>
<tr>
<td>Quartile 4</td>
<td>0.909</td>
<td>0.792</td>
<td>1.042</td>
</tr>
<tr>
<td>Proportion of unemployed people</td>
<td>1.031</td>
<td>0.995</td>
<td>1.068</td>
</tr>
<tr>
<td>Proportion of people of Indigenous origin</td>
<td>0.951</td>
<td>0.917</td>
<td>0.986</td>
</tr>
<tr>
<td>Mean age</td>
<td>0.964</td>
<td>0.953</td>
<td>0.974</td>
</tr>
<tr>
<td>Proportion of males between 17 to 24 to all 17 years and older</td>
<td>0.926</td>
<td>0.907</td>
<td>0.946</td>
</tr>
</tbody>
</table>

\(^1\)OR: Odds Ratio \(^2\)95% CI: 95% Confidence Interval \(^3\)SEIFA: Socio-economic Indexes for Areas
Appendix table 27: Logistic regression model using the number of alcohol outlets within specified buffer zones of single vehicle night-time crashes, in Perth metropolitan area, from 2005 to 2015

<table>
<thead>
<tr>
<th>Single vehicle night-time crashes</th>
<th>OR(^1)</th>
<th>95% CI(^2)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of on-premise outlets less than 2km from crash</td>
<td>0.994</td>
<td>0.992 - 0.995</td>
<td>0.000</td>
</tr>
<tr>
<td>Number of on-premise outlets 2km up to 5km from crash</td>
<td>0.995</td>
<td>0.994 - 0.996</td>
<td>0.000</td>
</tr>
<tr>
<td>Number of on-premise outlets 5km up to 10km from crash</td>
<td>0.996</td>
<td>0.995 - 0.996</td>
<td>0.000</td>
</tr>
<tr>
<td>Number of on-premise outlets 10km up to 20km from crash</td>
<td>0.997</td>
<td>0.997 - 0.998</td>
<td>0.000</td>
</tr>
<tr>
<td>Number of bottleshops less than 2km from crash</td>
<td>1.065</td>
<td>1.044 - 1.086</td>
<td>0.000</td>
</tr>
<tr>
<td>Number of bottleshops 2km up to 5km from crash</td>
<td>1.062</td>
<td>1.052 - 1.072</td>
<td>0.000</td>
</tr>
<tr>
<td>Number of bottleshops 5km up to 10km from crash</td>
<td>1.029</td>
<td>1.024 - 1.034</td>
<td>0.000</td>
</tr>
<tr>
<td>Number of bottleshops 10km up to 20km from crash</td>
<td>1.029</td>
<td>1.027 - 1.032</td>
<td>0.000</td>
</tr>
<tr>
<td>Natural log of population density (km(^2))</td>
<td>0.959</td>
<td>0.934 - 0.985</td>
<td>0.002</td>
</tr>
</tbody>
</table>

**Year**

<table>
<thead>
<tr>
<th>Year</th>
<th>OR(^1)</th>
<th>95% CI(^2)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>1.073</td>
<td>0.972 - 1.184</td>
<td>0.164</td>
</tr>
<tr>
<td>2007</td>
<td>1.069</td>
<td>0.969 - 1.179</td>
<td>0.182</td>
</tr>
<tr>
<td>2008</td>
<td>0.441</td>
<td>0.395 - 0.493</td>
<td>0.000</td>
</tr>
<tr>
<td>2009</td>
<td>1.051</td>
<td>0.948 - 1.165</td>
<td>0.346</td>
</tr>
<tr>
<td>2010</td>
<td>0.834</td>
<td>0.750 - 0.929</td>
<td>0.001</td>
</tr>
<tr>
<td>2011</td>
<td>0.836</td>
<td>0.748 - 0.935</td>
<td>0.002</td>
</tr>
<tr>
<td>2012</td>
<td>0.822</td>
<td>0.732 - 0.924</td>
<td>0.001</td>
</tr>
<tr>
<td>2013</td>
<td>0.768</td>
<td>0.678 - 0.869</td>
<td>0.000</td>
</tr>
<tr>
<td>2014</td>
<td>0.677</td>
<td>0.591 - 0.776</td>
<td>0.000</td>
</tr>
<tr>
<td>2015</td>
<td>0.688</td>
<td>0.596 - 0.795</td>
<td>0.000</td>
</tr>
</tbody>
</table>

**Zone from the CBD**

<table>
<thead>
<tr>
<th>Zone from the CBD</th>
<th>OR(^1)</th>
<th>95% CI(^2)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBD</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 7km from the CBD</td>
<td>1.058</td>
<td>0.854 - 1.310</td>
<td>0.607</td>
</tr>
<tr>
<td>7km to 15km from the CBD</td>
<td>0.764</td>
<td>0.607 - 0.960</td>
<td>0.021</td>
</tr>
<tr>
<td>More than 15km from the CBD</td>
<td>0.995</td>
<td>0.785 - 1.261</td>
<td>0.966</td>
</tr>
</tbody>
</table>

**SEIFA\(^3\) quartiles**

<table>
<thead>
<tr>
<th>Quartile</th>
<th>OR(^1)</th>
<th>95% CI(^2)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quartile 1</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 2</td>
<td>0.881</td>
<td>0.809 - 0.959</td>
<td>0.003</td>
</tr>
<tr>
<td>Quartile 3</td>
<td>0.882</td>
<td>0.787 - 0.987</td>
<td>0.029</td>
</tr>
<tr>
<td>Quartile 4</td>
<td>0.887</td>
<td>0.780 - 1.009</td>
<td>0.068</td>
</tr>
<tr>
<td>Proportion of unemployed people</td>
<td>1.003</td>
<td>0.971 - 1.035</td>
<td>0.875</td>
</tr>
<tr>
<td>Proportion of people of Indigenous origin</td>
<td>0.964</td>
<td>0.932 - 0.997</td>
<td>0.032</td>
</tr>
<tr>
<td>Mean age</td>
<td>0.966</td>
<td>0.956 - 0.975</td>
<td>0.000</td>
</tr>
<tr>
<td>Proportion of males between 17 to 24 to all 17 years and older</td>
<td>0.937</td>
<td>0.919 - 0.955</td>
<td>0.000</td>
</tr>
</tbody>
</table>

\(^1\)OR: Odds Ratio \(^2\)95% CI: 95% Confidence Interval \(^3\)SEIFA: Socio-economic Indexes for Areas
Appendix table 28: Logistic regression model using the number of alcohol outlets within specified buffer zones of single vehicle night-time crashes, in Perth metropolitan area, from 2005 to 2013

<table>
<thead>
<tr>
<th>Single vehicle night-time crashes</th>
<th>OR¹</th>
<th>95% CI²</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of on-premise outlets less than 2km from crash</td>
<td>0.992</td>
<td>0.991</td>
<td>0.994</td>
</tr>
<tr>
<td>Number of on-premise outlets 2km up to 5km from crash</td>
<td>0.995</td>
<td>0.994</td>
<td>0.995</td>
</tr>
<tr>
<td>Number of on-premise outlets 5km up to 10km from crash</td>
<td>0.996</td>
<td>0.995</td>
<td>0.996</td>
</tr>
<tr>
<td>Number of on-premise outlets 10km up to 20km from crash</td>
<td>0.997</td>
<td>0.997</td>
<td>0.997</td>
</tr>
<tr>
<td>Number of bottleshops less than 2km from crash</td>
<td>1.079</td>
<td>1.057</td>
<td>1.102</td>
</tr>
<tr>
<td>Number of bottleshops 2km up to 5km from crash</td>
<td>1.065</td>
<td>1.055</td>
<td>1.076</td>
</tr>
<tr>
<td>Number of bottleshops 5km up to 10km from crash</td>
<td>1.031</td>
<td>1.026</td>
<td>1.037</td>
</tr>
<tr>
<td>Number of bottleshops 10km up to 20km from crash</td>
<td>1.032</td>
<td>1.029</td>
<td>1.035</td>
</tr>
<tr>
<td>Natural log of population density (km²)</td>
<td>0.954</td>
<td>0.928</td>
<td>0.981</td>
</tr>
<tr>
<td>Year</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>1.070</td>
<td>0.970</td>
<td>1.182</td>
</tr>
<tr>
<td>2007</td>
<td>1.058</td>
<td>0.959</td>
<td>1.168</td>
</tr>
<tr>
<td>2008</td>
<td>0.411</td>
<td>0.367</td>
<td>0.461</td>
</tr>
<tr>
<td>2009</td>
<td>1.022</td>
<td>0.920</td>
<td>1.134</td>
</tr>
<tr>
<td>2010</td>
<td>0.804</td>
<td>0.721</td>
<td>0.896</td>
</tr>
<tr>
<td>2011</td>
<td>0.802</td>
<td>0.716</td>
<td>0.899</td>
</tr>
<tr>
<td>2012</td>
<td>0.785</td>
<td>0.696</td>
<td>0.885</td>
</tr>
<tr>
<td>2013</td>
<td>0.729</td>
<td>0.641</td>
<td>0.829</td>
</tr>
<tr>
<td>Zone from the CBD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBD</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 7km from the CBD</td>
<td>1.005</td>
<td>0.798</td>
<td>1.265</td>
</tr>
<tr>
<td>7km to 15km from the CBD</td>
<td>0.720</td>
<td>0.563</td>
<td>0.922</td>
</tr>
<tr>
<td>More than 15km from the CBD</td>
<td>0.919</td>
<td>0.712</td>
<td>1.187</td>
</tr>
<tr>
<td>SEIFA³ quartiles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 1</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 2</td>
<td>0.880</td>
<td>0.803</td>
<td>0.963</td>
</tr>
<tr>
<td>Quartile 3</td>
<td>0.900</td>
<td>0.798</td>
<td>1.014</td>
</tr>
<tr>
<td>Quartile 4</td>
<td>0.909</td>
<td>0.792</td>
<td>1.042</td>
</tr>
<tr>
<td>Proportion of unemployed people</td>
<td>1.031</td>
<td>0.995</td>
<td>1.068</td>
</tr>
<tr>
<td>Proportion of people of Indigenous origin</td>
<td>0.951</td>
<td>0.917</td>
<td>0.986</td>
</tr>
<tr>
<td>Mean age</td>
<td>0.964</td>
<td>0.953</td>
<td>0.974</td>
</tr>
<tr>
<td>Proportion of males between 17 to 24 to all 17 years and older</td>
<td>0.926</td>
<td>0.907</td>
<td>0.946</td>
</tr>
</tbody>
</table>

¹OR: Odds Ratio ²95% CI: 95% Confidence Interval ³SEIFA: Socio-economic Indexes for Areas
Appendix table 29: Logistic regression model using the number of alcohol outlets within specified buffer zones of all night-time crashes, in Perth metropolitan area, from 2005 to 2015

<table>
<thead>
<tr>
<th>Night-time crashes</th>
<th>OR(^1)</th>
<th>95% CI(^2)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of on-premise outlets less than 2km from crash</td>
<td>1.005</td>
<td>1.005</td>
<td>1.005</td>
</tr>
<tr>
<td>Number of on-premise outlets 2km up to 5km from crash</td>
<td>1.004</td>
<td>1.004</td>
<td>1.004</td>
</tr>
<tr>
<td>Number of on-premise outlets 5km up to 10km from crash</td>
<td>1.003</td>
<td>1.003</td>
<td>1.003</td>
</tr>
<tr>
<td>Number of on-premise outlets 10km up to 20km from crash</td>
<td>1.003</td>
<td>1.003</td>
<td>1.003</td>
</tr>
<tr>
<td>Number of bottleshops less than 2km from crash</td>
<td>0.924</td>
<td>0.918</td>
<td>0.931</td>
</tr>
<tr>
<td>Number of bottleshops 2km up to 5km from crash</td>
<td>0.962</td>
<td>0.959</td>
<td>0.966</td>
</tr>
<tr>
<td>Number of bottleshops 5km up to 10km from crash</td>
<td>0.969</td>
<td>0.967</td>
<td>0.971</td>
</tr>
<tr>
<td>Number of bottleshops 10km up to 20km from crash</td>
<td>0.974</td>
<td>0.973</td>
<td>0.975</td>
</tr>
<tr>
<td>Natural log of population density (km(^2))</td>
<td>1.142</td>
<td>1.126</td>
<td>1.158</td>
</tr>
<tr>
<td><strong>Year</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>0.930</td>
<td>0.894</td>
<td>0.968</td>
</tr>
<tr>
<td>2007</td>
<td>0.703</td>
<td>0.674</td>
<td>0.733</td>
</tr>
<tr>
<td>2008</td>
<td>1.082</td>
<td>1.039</td>
<td>1.127</td>
</tr>
<tr>
<td>2009</td>
<td>1.249</td>
<td>1.197</td>
<td>1.302</td>
</tr>
<tr>
<td>2010</td>
<td>1.155</td>
<td>1.106</td>
<td>1.206</td>
</tr>
<tr>
<td>2011</td>
<td>1.174</td>
<td>1.122</td>
<td>1.228</td>
</tr>
<tr>
<td>2012</td>
<td>1.195</td>
<td>1.140</td>
<td>1.252</td>
</tr>
<tr>
<td>2013</td>
<td>1.047</td>
<td>0.996</td>
<td>1.101</td>
</tr>
<tr>
<td>2014</td>
<td>0.942</td>
<td>0.893</td>
<td>0.992</td>
</tr>
<tr>
<td>2015</td>
<td>0.901</td>
<td>0.853</td>
<td>0.953</td>
</tr>
<tr>
<td><strong>Zone from the CBD</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBD</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 7km from the CBD</td>
<td>1.145</td>
<td>1.071</td>
<td>1.223</td>
</tr>
<tr>
<td>7km to 15km from the CBD</td>
<td>1.392</td>
<td>1.296</td>
<td>1.495</td>
</tr>
<tr>
<td>More than 15km from the CBD</td>
<td>1.885</td>
<td>1.747</td>
<td>2.033</td>
</tr>
<tr>
<td><strong>SEIFA(^3) quartiles</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 1</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 2</td>
<td>1.218</td>
<td>1.177</td>
<td>1.261</td>
</tr>
<tr>
<td>Quartile 3</td>
<td>1.121</td>
<td>1.070</td>
<td>1.175</td>
</tr>
<tr>
<td>Quartile 4</td>
<td>1.060</td>
<td>1.006</td>
<td>1.117</td>
</tr>
<tr>
<td>Proportion of unemployed people</td>
<td>0.935</td>
<td>0.922</td>
<td>0.947</td>
</tr>
<tr>
<td>Proportion of people of Indigenous origin</td>
<td>1.084</td>
<td>1.068</td>
<td>1.100</td>
</tr>
<tr>
<td>Mean age</td>
<td>0.993</td>
<td>0.988</td>
<td>0.997</td>
</tr>
<tr>
<td>Proportion of males between 17 to 24 to all 17 years and older</td>
<td>1.082</td>
<td>1.074</td>
<td>1.090</td>
</tr>
</tbody>
</table>

\(^1\)OR: Odds Ratio  \(^2\)95% CI: 95% Confidence Interval  \(^3\)SEIFA: Socio-economic Indexes for Areas
Appendix table 30: Logistic regression model using the number of alcohol outlets within specified buffer zones of all night-time crashes, in Perth metropolitan area, from 2005 to 2013

<table>
<thead>
<tr>
<th>Night-time crashes</th>
<th>OR¹</th>
<th>95% CI²</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of on-premise outlets less than 2km from crash</td>
<td>1.005</td>
<td>1.005</td>
<td>1.006</td>
</tr>
<tr>
<td>Number of on-premise outlets 2km up to 5km from crash</td>
<td>1.005</td>
<td>1.004</td>
<td>1.005</td>
</tr>
<tr>
<td>Number of on-premise outlets 5km up to 10km from crash</td>
<td>1.003</td>
<td>1.003</td>
<td>1.003</td>
</tr>
<tr>
<td>Number of on-premise outlets 10km up to 20km from crash</td>
<td>1.003</td>
<td>1.003</td>
<td>1.003</td>
</tr>
<tr>
<td>Number of bottleshops less than 2km from crash</td>
<td>0.919</td>
<td>0.911</td>
<td>0.926</td>
</tr>
<tr>
<td>Number of bottleshops 2km up to 5km from crash</td>
<td>0.959</td>
<td>0.955</td>
<td>0.963</td>
</tr>
<tr>
<td>Number of bottleshops 5km up to 10km from crash</td>
<td>0.966</td>
<td>0.964</td>
<td>0.968</td>
</tr>
<tr>
<td>Number of bottleshops 10km up to 20km from crash</td>
<td>0.970</td>
<td>0.969</td>
<td>0.971</td>
</tr>
<tr>
<td>Natural log of population density (km²)</td>
<td>1.149</td>
<td>1.132</td>
<td>1.167</td>
</tr>
<tr>
<td><strong>Year</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>0.929</td>
<td>0.893</td>
<td>0.967</td>
</tr>
<tr>
<td>2007</td>
<td>0.676</td>
<td>0.648</td>
<td>0.705</td>
</tr>
<tr>
<td>2008</td>
<td>1.096</td>
<td>1.051</td>
<td>1.142</td>
</tr>
<tr>
<td>2009</td>
<td>1.281</td>
<td>1.228</td>
<td>1.337</td>
</tr>
<tr>
<td>2010</td>
<td>1.193</td>
<td>1.141</td>
<td>1.247</td>
</tr>
<tr>
<td>2011</td>
<td>1.214</td>
<td>1.159</td>
<td>1.272</td>
</tr>
<tr>
<td>2012</td>
<td>1.236</td>
<td>1.178</td>
<td>1.297</td>
</tr>
<tr>
<td>2013</td>
<td>1.084</td>
<td>1.029</td>
<td>1.142</td>
</tr>
<tr>
<td><strong>Zone from the CBD</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBD</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 7km from the CBD</td>
<td>1.164</td>
<td>1.082</td>
<td>1.252</td>
</tr>
<tr>
<td>7km to 15km from the CBD</td>
<td>1.465</td>
<td>1.354</td>
<td>1.586</td>
</tr>
<tr>
<td>More than 15km from the CBD</td>
<td>2.010</td>
<td>1.850</td>
<td>2.184</td>
</tr>
<tr>
<td><strong>SEIFA³ quartiles</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 1</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 2</td>
<td>1.225</td>
<td>1.179</td>
<td>1.274</td>
</tr>
<tr>
<td>Quartile 3</td>
<td>1.145</td>
<td>1.087</td>
<td>1.205</td>
</tr>
<tr>
<td>Quartile 4</td>
<td>1.051</td>
<td>0.993</td>
<td>1.114</td>
</tr>
<tr>
<td>Proportion of unemployed people</td>
<td>0.919</td>
<td>0.904</td>
<td>0.933</td>
</tr>
<tr>
<td>Proportion of people of Indigenous origin</td>
<td>1.102</td>
<td>1.083</td>
<td>1.120</td>
</tr>
<tr>
<td>Mean age</td>
<td>0.998</td>
<td>0.993</td>
<td>1.002</td>
</tr>
<tr>
<td>Proportion of males between 17 to 24 to all 17 years and older</td>
<td>1.090</td>
<td>1.081</td>
<td>1.100</td>
</tr>
</tbody>
</table>

¹OR: Odds Ratio ²95% CI: 95% Confidence Interval ³SEIFA: Socio-economic Indexes for Areas