

The Dispersion of Motor Vehicle Theft and Recovery Incidents in South Australia

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Figures published in *Motor Vehicle Theft in South Australia, 1998*¹ revealed a significant increase in motor vehicle theft in South Australia since 1997² (see Table 1). However, this increase was not characteristic of every region in the state with some statistical local areas^a (SLAs) recording an increase in theft and others recording a decrease. Studying and analysing the distributive pattern of crime allows the resources most appropriate to that pattern to be determined and employed. An understanding of the dispersal of motor vehicle theft across South Australia enables crime prevention and policing resources to be appropriately allocated to particular areas or the state as a whole.

This paper aims to graphically illustrate the dispersion of motor vehicle theft during 1998 and to show how the increase since 1997 was apportioned. The method used for the following graphs and calculations was derived from *Crime and Justice Bulletin Number 39: Measuring Crime Dispersion*³ published by the New South Wales Bureau of Crime Statistics and Research.

Table 1 Motor vehicle thefts and recoveries in South Australia, 1997 to 1998.

	<i>Number of incidents 1997</i>	<i>Number of incidents 1998</i>	<i>Absolute increase 1997 to 1998</i>	<i>Percentage increase '97 to '98</i>
Thefts	7,645	10,487	2,842	37.2
Recoveries	6,674	9,382	2,708	40.6

Firstly, the pattern of distribution of motor vehicle theft and recovery incidents during 1998 will be examined using population comparisons, the Lorenz curve and the corresponding Gini index. Secondly, the dispersal of the *increase* in motor vehicle theft and recoveries since 1997 will be charted in order to decipher whether or not a small number of SLAs were responsible for a considerable proportion of the increase.

One way to visualise the concentration of motor vehicle thefts and recoveries across the state is through the chart in Figure 1. This chart compares the contribution each SLA makes to the number of thefts, recoveries and the population in South Australia. All 119 SLAs are first ranked from the SLA with the highest incidence of theft to the lowest (see Appendix 1). The 1st ranked SLA is then removed from the state total and the new incident count is calculated as a

^a Statistical Local Areas (SLAs) are as defined by the Australian Bureau of Statistics in the 1996 census and do not directly correspond to council Local Government Areas.

percentage of the original state total of 10,487 thefts. Subsequently, the 1st and 2nd ranked SLAs are removed and the new incident count is again calculated as a percentage of the original state total. This procedure continues until all SLAs are removed from the incident count and the percentage of the state total reaches zero. This procedure is then carried out in relation to vehicles recovered during 1998 (see Appendix 2). SLAs are ranked from the SLA with the highest number of recoveries to the lowest, the same calculations are carried out as in Appendix 1 and the contribution each SLA makes to the total state recovery rate may be discerned. Finally, SLAs are ranked again but this time in order of the SLA with the greatest 1998 Estimated Resident Population⁴ (Appendix 3). The same operations are carried out as in Appendix 1 and 2 and the three series are charted together (Figure 1). It must be noted however, that the SLA with the highest incidence of theft may not have the highest number of recoveries or population. Consequently, the SLAs removed from the motor vehicle theft calculations are not necessarily the same SLAs that are removed from the recovery or population calculations. For example, the Adelaide (C) SLA is ranked 1st in order of thefts (Appendix 1), 4th in order of recoveries (Appendix 2) and 31st in order of population (Appendix 3).

Figure 1 Relative distribution of motor vehicle thefts, recoveries and population, 1998.

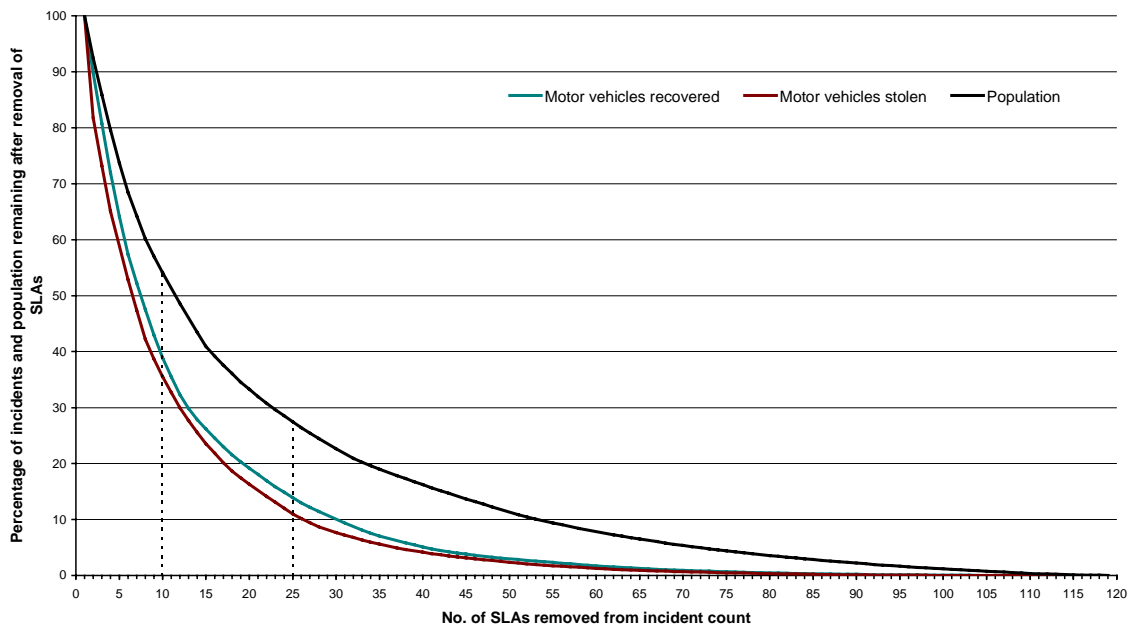


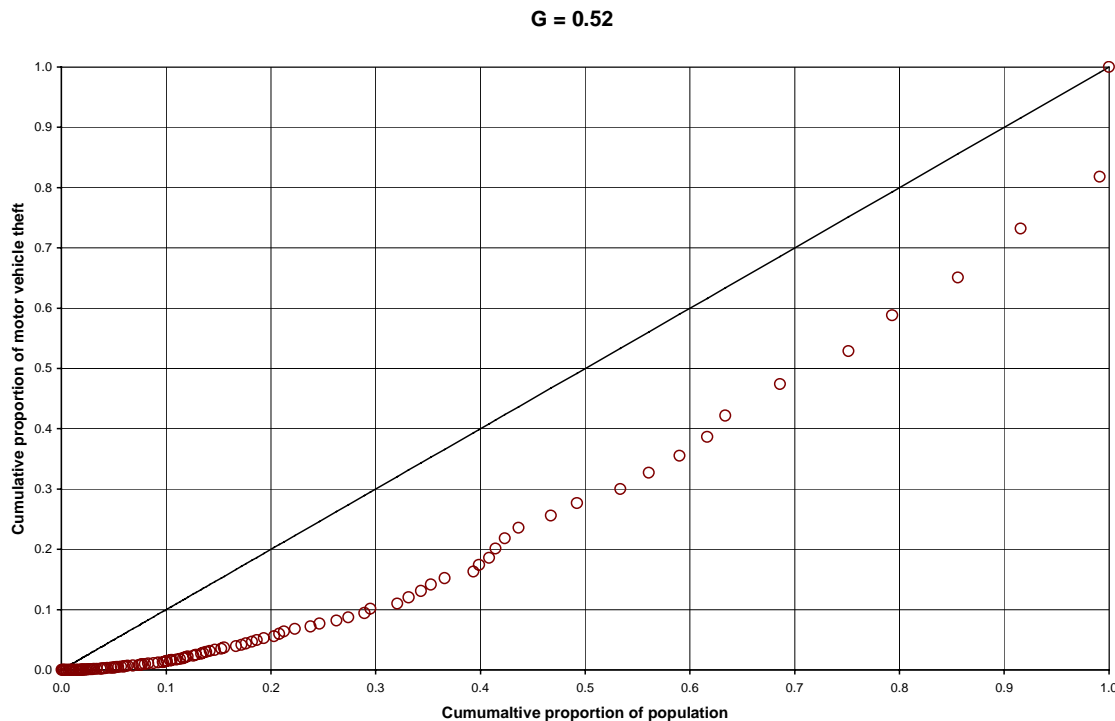
Figure 1 shows the percentage of motor vehicle theft and recovery incidents remaining after the removal of a certain number of SLAs from the incident count of the state in comparison to the population. The distance the motor vehicle theft and recovery curves lie from the population curve is descriptive of the extent to which the incidents were distributed across the state during 1998. The dashed vertical lines on the graph help to illustrate that after the removal of the 10 SLAs with the greatest number of recorded thefts from the state total, only 32.7% of theft incidents remain. In comparison, 35.5% of recovery incidents remain but over half (51.3%) of the population remain after the removal of the top 10 SLAs. Furthermore, after the 25 top ranking SLAs are removed from the state theft, recovery and population totals, only 10.2% of theft incidents remain compared to 13.0% of recovery incidents and over one quarter (26.4%) of the population.

This suggests that motor vehicle thefts and recoveries in South Australia were relatively concentrated to a small number of areas during 1998. In fact, over half (52.6%) of motor vehicle thefts occurred in only 6 SLAs, namely: Adelaide (C), Salisbury (C), Hindmarsh & Woodville (C), Noarlunga (C), Enfield (C) and Tea Tree Gully (C) (see Appendix 1). Also only six SLAs were responsible for close to half (47.8%) of vehicles recovered during 1998, these were: Salisbury (C), Enfield (C), Hindmarsh & Woodville (C), Adelaide (C), Noarlunga (C) and Marion (C) (see Appendix 2). In contrast, nearly double the number of SLAs (the top ranking 11) are needed to make up half of the population (51.4% - see Appendix 3).

A second method applied to analyse the dispersion of motor vehicle theft in South Australia during 1998 is by using the Lorenz curve and the associated Gini index. The Lorenz curve is constructed by ranking the 119 SLAs in descending order according to the number of motor vehicle theft or recovery incidents occurring in each SLA (see Appendix 4 and 5). Cumulative proportions of the state thefts and recoveries are calculated and these proportions are graphed against the cumulative proportion of the population for the same SLAs.

The Lorenz curve in Figure 2 represents the cumulative proportion of motor vehicle thefts in South Australia against the cumulative proportion of the corresponding population. As with Figure 1, the distance between the curves on the graph demonstrates the degree of concentration or dispersal of motor vehicle theft incidents. If the incidence of motor vehicle theft in each SLA make up exactly the same proportion of the state total as the population does, the Lorenz curve would follow the diagonal line. If there is variation in the incidence of motor vehicle theft relative to the population, the curve will deviate from the diagonal.

Figure 2 Lorenz curve and associated Gini index (G) for motor vehicle theft, 1998.

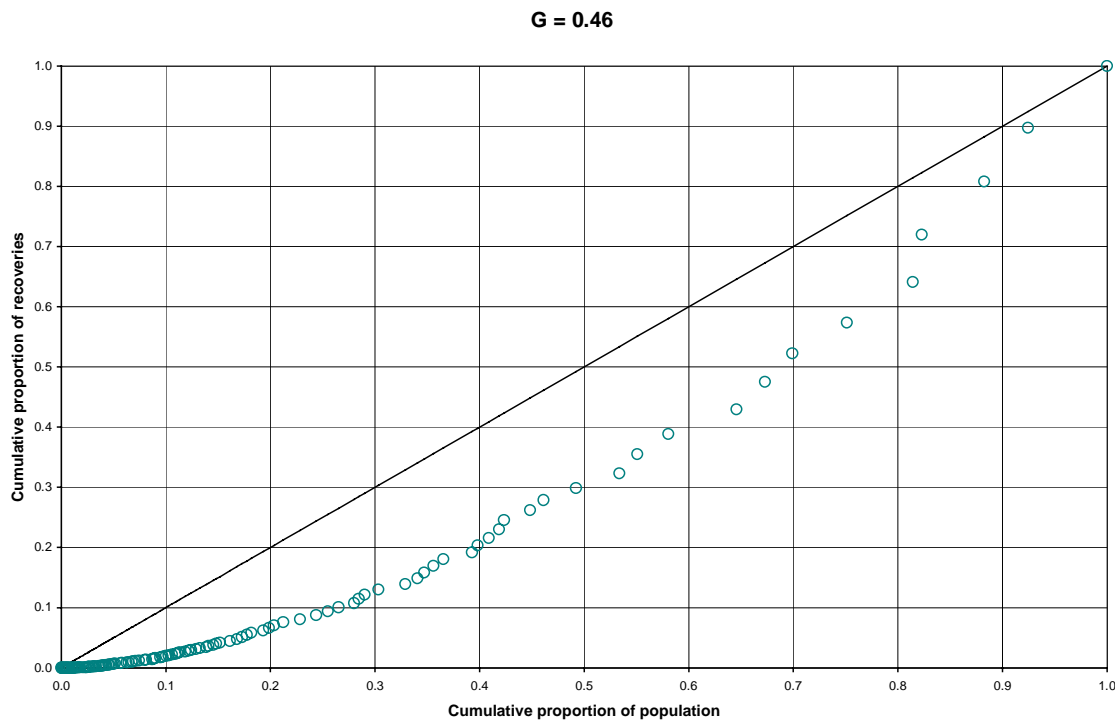


As can be seen in Figure 2 from the strong veering of the Lorenz curve from the diagonal, motor vehicle theft appears to be concentrated in particular areas. The far left points on the curve show that many SLAs in South Australia made no contribution to the incidence of motor vehicle theft (see Appendix 4). By the time the cumulative proportion of the population reached 10%, motor

vehicle theft made up only 2% of the state total. To the far right side of the Lorenz curve the great distance between the points on the curve and the diagonal, indicate that a high number and proportion of motor vehicle theft occurred relative to the population in these few SLAs. Specifically, the fifth data point from the right indicates that five SLAs account for approximately 20% of the State's population but slightly more than 40% of the total thefts.

The Gini index associated with the Lorenz curve is a mathematical measure of “twice the area between the diagonal line and the Lorenz curve, or equivalently as the ratio of the aforementioned area to the area of the triangle below the line”⁵. The Gini index can range from 0 to 1 with low values representing wider dispersion and high numbers representing a concentration of incidents. The Gini index derived for motor vehicle theft in 1998 is reflective of the results found in Figures 1 and 2 with an index of 0.52 being descriptive of a high proportion of localized motor vehicle theft incidents. The Gini index for motor vehicle recoveries during 1998 is slightly lower at 0.46 indicating recoveries were not as concentrated as thefts (see Figure 3).

Figure 3 Lorenz curve and associated Gini index (G) for motor vehicle recoveries^b, 1998.



Appendix 5 shows the SLAs in the order they accumulate on the to the Lorenz curve in Figure 3. Again many SLAs did not make much of a contribution to the total state recovery rate and some did not record any recoveries in 1998. Although there is some diversion of the curve from the diagonal, it is not as pronounced as in Figure 2 and the curve comes quite close to following the diagonal towards the end.

^b Recovery location is not independent of theft location with most vehicles being recovered in close proximity to the theft location. In 1998, recovered vehicles were found an average of only 10.3km from the theft location.

Given the high level of dispersion of motor vehicle theft and recovery across the state it also becomes important to understand how the characteristics of theft and recovery are dispersed in the state. Do the characteristics of vehicle theft vary between areas to the same extent as theft incidence overall? In order to achieve this, the six SLAs with the highest incidence of theft were selected and the characteristics of their theft patterns scrutinized in detail. Table 2 shows the theft characteristics of the six SLAs with the highest incidence of theft in the state. Immediately apparent is the temporal variation between the SLAs.

Table 2 *Theft characteristics of motor vehicles stolen from the six SLAs with the highest theft rates in 1998.*

	<i>Adelaide</i>		<i>Salisbury</i>		<i>Hindmarsh & Woodville</i>	
	No. of thefts 1,909		No. of thefts 901		No. of thefts 853	
	N	%	N	%	N	%
Weekday Stolen						
Sunday	243	12.7	116	12.9	96	11.3
Monday	195	10.2	139	15.4	104	12.2
Tuesday	204	10.7	116	12.9	135	15.8
Wednesday	255	13.4	110	12.2	101	11.8
Thursday	190	10.0	145	16.1	143	16.8
Friday	426	22.3	132	14.7	129	15.1
Saturday	396	20.7	141	15.6	145	17.0
Stolen during day	748	39.2	308	34.2	360	42.2
Stolen at night	1,161	60.8	591	65.6	493	57.8
Location Stolen						
Car-park	329	17.2	248	27.5	293	34.3
House/residence	30	1.6	331	36.7	199	23.3
Street	1,521	79.7	278	30.9	299	35.1
Other	29	1.5	42	4.7	62	7.3
Anti-theft device	361	18.9	128	14.2	129	15.1
Recovered	1,755	91.9	801	89.1	757	88.7
Stripped*	152	8.7	55	6.9	59	7.8
Burnt-out*	45	2.6	29	3.6	31	4.1
Stereo missing*	238	13.6	76	9.5	91	12.0
	<i>Noarlunga</i>		<i>Enfield</i>		<i>Tea Tree Gully</i>	
	No. of thefts 656		No. of thefts 626		No. of thefts 570	
	N	%	N	%	N	%
Weekday Stolen						
Sunday	78	11.9	86	13.7	65	11.4
Monday	84	12.8	86	13.7	72	12.7
Tuesday	91	13.9	98	15.7	87	15.3
Wednesday	101	15.4	83	13.3	56	9.8
Thursday	96	14.6	89	14.2	113	19.9
Friday	105	16.0	98	15.7	80	14.1
Saturday	101	15.4	86	13.7	96	16.9
Stolen during day	228	34.8	250	39.9	241	42.4
Stolen at night	428	65.2	376	60.1	328	57.6
Location Stolen						
Car-park	204	31.1	147	23.5	263	46.1
House/residence	199	30.3	168	26.8	154	27.1
Street	227	34.6	252	40.3	145	25.5
Other	26	4.0	59	9.4	7	1.2
Anti-theft device	69	10.5	72	11.5	108	18.9
Recovered	586	89.3	563	89.9	507	89.1
Stripped*	50	8.5	33	5.9	28	5.5
Burnt-out*	25	4.3	9	1.6	19	3.7
Stereo missing*	63	10.8	55	9.8	47	9.3

* Percentages are calculated as a function of only those vehicles that were recovered.

Temporal Characteristics

The weekday on which a given vehicle was stolen was particularly unique in the SLA of Adelaide. The high incidence of thefts on Friday and Saturday and low incidence on Thursday make the area significantly different to all the other five SLAs $\chi^2(30)=146.97, p<.01$. This difference is readily explainable in terms of the pool of vehicles available to the thief at any given point in time. Friday had the highest incidence of vehicle theft in Adelaide probably due to the combination of late night shopping and entertainment activities that dominate the city on Friday nights. The comparably high rate on Saturdays was also likely to be due to the high level of entertainment activity in the city on Saturday nights. Further support for this assertion comes from the fact that vehicles stolen at night increase on Fridays to 66.9% and on Saturdays to 74.2% from the overall total of 60.8%. The other five SLAs all appear to show a higher rate of theft on Thursday nights. This is also probably due to the presence of large shopping centres open for trade on Thursday nights. The particularly high rate on Thursday in Tea Tree Gully coupled with the high rate of car park thefts in this SLA support this explanation.

Whether a motor vehicle was stolen during the daylight hours or at night also revealed some important differences between the SLAs. For the sake of the current analysis daylight was defined as anything falling between the hours of 6.00am and 6.00pm^c. Chi-square analysis showed that Salisbury and Noarlunga had a significantly lower incidence of daylight theft than the other four SLAs $\chi^2(5)=19.97, p<.01$. A number of explanations of these differences are possible:

1. Lower incidence of thefts from car parks may have contributed to the difference, as car park thefts are much more likely to occur during the day than thefts occurring outside of car parks. However, the even lower rates of car park theft in Enfield, coupled with the higher rate of daytime thefts, suggest that this cannot account for the total difference.
2. Lower levels of professional theft and greater numbers of joyriding offences in these areas may have contributed to the difference, as vehicles not recovered are more likely to be stolen during the day than those that are recovered. However, the numbers of vehicles not recovered or stripped, which are assumed to be professional thefts, do not lend support to this explanation.
3. Situational determinants such as a lack of easy targets (eg. Car parks hidden from view or quiet streets with numerous parked vehicles) may have influenced the level of daylight theft.

It seems likely that the accurate explanation of this difference is a combination of the above reasons but it is difficult to be certain without closer examination.

Spatial Characteristics

Theft location also revealed unambiguous differences between the six SLAs $\chi^2(15)=1365.21, p<.01$. Adelaide was particularly distinctive because of its situational and usage differences. Car park thefts were particularly low compared with the other SLAs, as were thefts from homes/residences. Theft from the street, on the other hand, were comparatively high. These differences are really just a reflection of the vehicle usage patterns observed in the city. The majority of vehicles are parked on the street, many of the car parks are attended and off-street residential parking is rare. The location of thefts seems to be an accurate indicator of these situational factors. It is difficult to address the problem of street theft as there is no specific location to focus an intervention. However, constructive approaches would be to increase street lighting, the removal of visual obstructions in parking areas and higher levels of police visibility in problem areas.

^c The approximate nature of this definition is acknowledged and inferences made from this analysis should be read with caution.

Salisbury theft rates were particularly high from homes/residences compared to the other SLAs. Coupled with the fact that theft was more common at night it is likely that the area has a problem with thieves roaming the suburbs at night in search of targets in people's homes. An educational program in this SLA aimed at persuading people to secure their cars even when they are at home may help address this problem. The involvement of any *Neighbourhood Watch* programs that exist in the area would also be of great value to this kind of approach.

Hindmarsh and Woodville exhibited a pattern of thefts predominantly occurring from car parks and streets. The higher rate of car park thefts is also reflected in the high rate of thefts during the day. This large SLA contains various shopping centres, Football Park, hospitals, the Entertainment Centre, Hindmarsh Oval and the Clipsal Powerhouse. The large car parks associated with these locations provide thieves with a large pool of target vehicles to choose from and a predictable time when the owner is likely to return to the car park. Attempts to improve car park security by improving visibility, the use of electronic surveillance techniques, security patrols, restricting pedestrian access, and educational approaches aimed at reminding people to secure their vehicles in car parks would help improve the problem.

Theft rates in Tea Tree Gully were very high from car parks with almost half (46.1%) of all stolen vehicles being taken from car parks. It is very likely that most of these were taken from the car parks of the Tea Tree Plaza shopping centre, Modbury Hospital, the O'Bahn car park and TAFE college making the design of a specifically targeted intervention possible. A number of options are available including:

1. Situational changes such as increasing visibility, improved lighting, the use of closed circuit television apparatus and the presence of security staff.
2. Educational campaigns such as reminder signs in the car parks about car security, car security messages repeated regularly over the centre's public address system and the distribution of printed information to users of the centre.
3. Increased police presence. Because of the specific nature of the locations an increase in the number of drive-through activity by local police would be easily achievable.

Joyriders or Professionals

There was no meaningful statistical difference in the rate of recovered vehicles that had been stripped in the six SLAs under examination suggesting that the rates of professional theft for parts distribution were the same. In spite of this, there was a significant difference in the recovery rates of the six SLAs^d suggesting that there may well be some difference in rates of professional theft for re-birthing and joyriding $\chi^2(5)=11.08, p<.05$. Adelaide had the highest recovery rate suggesting a predominance of joyriding activity in the area. The lowest recovery rate was found in Hindmarsh and Woodville but recovery rates were only 3.2% points lower than that seen in Adelaide. However, given that the difference is significant it suggests a higher level of professional theft in this area.

Whether a vehicle was recovered burnt out also showed different rates between the six SLAs $\chi^2(5)=12.08, p<.05$. While the rates are quite low overall (3.2%), Noarlunga and Hindmarsh-Woodville revealed a higher rate of vehicle arson associated with theft than the other four SLAs. While the numbers are quite small and the motivations of offenders unknown, the problem does need to be addressed to avoid the growth of this activity seen recently in both Great Britain⁶ (200% increase in 10 years) and the USA.

^d While the differences are statistically significant the percentages are still reasonably similar so inferences should be interpreted with caution.

The theft of a sound system from a stolen vehicle was assumed in the present analysis to reflect the actions of an amateur thief or joyrider who also uses the opportunity to generate some income. The 1998 data revealed significant differences in the rate at which this occurred between the six selected SLAs $\chi^2(5)=15.20, p<.05$. Higher levels of this activity were found in both Adelaide and Hindmarsh-Woodville suggesting that more joyriders in these areas had secondary economic motivations to their theft activities.

The presence of an anti-theft device refers to anything from a simple steering lock to an engine immobiliser. The data revealed significant differences between the six SLAs in the frequency with which motor vehicles had an anti-theft device fitted $\chi^2(5)=42.81, p<.01$. Motor vehicles stolen from both Adelaide and Tea Tree Gully were significantly more likely to have a device fitted than those stolen from the other four SLAs. It is difficult to make any inferences from this data because of the unrefined measure used in the present analysis, such as the fact that there was no assumption that the device was in use at the time of theft. However, it does indicate that the effectiveness of anti-theft devices does warrant some closer examination.

Apprehension Reports

Given the dispersion of vehicle theft and theft characteristics across South Australia discussed above it is important to also examine the associated police activity. Using the same six SLAs employed above Table 3 shows the number of police apprehensions made for thefts occurring in each SLA and the number of reported thefts.

If we use the percentage of vehicle theft incidents to predict the expected number of apprehensions it enables an evaluation of police responses to motor vehicle theft within each SLA. This approach shows that the apprehension numbers within the six SLAs differ significantly from what would be expected based on theft rates. Adelaide showed a much lower number of apprehensions than would be expected. However, the unique nature of theft patterns in Adelaide such as the lack of specific *hot spots*, and transient character of the population, make policing difficult in this SLA.

Table 3 Number and percentage of police apprehensions and reported thefts for the six SLAs with the highest incidence of motor vehicle theft, 1998.

	Number of	Percentage of	Number of	Percentage of	Tests of difference	
	apprehensions	apprehensions	incidents	incidents	z	significance
	1998	1998 ^e	1998	1998 ^e		
Adelaide	167	12.0	1,909	18.2	5.67	< 0.001
Salisbury	115	8.3	901	8.6	0.37	n.s.
Hind. & Woodv.	66	4.8	853	8.1	4.41	< 0.001
Noarlunga	77	5.6	656	6.3	1.02	n.s.
Enfield	129	9.3	626	6.0	4.79	< 0.001
Tea Tree Gully	54	3.9	570	5.4	2.41	< 0.05
Total	608	43.9	5,515	52.6	6.11	< 0.001

Apprehension rates in Salisbury and Noarlunga were very close to what would be expected from theft rates while both Hindmarsh-Woodville and Tea Tree Gully exhibited lower numbers of apprehensions than would be expected from theft rates. Enfield was the only SLA that displayed a higher than expected number of apprehensions suggesting police practices carried out in this

^e Percentages are reported as a function of the South Australian total (Total apprehensions = 1,386 / Total thefts = 10,487).

SLA were particularly successful. The difference cannot be attributed to any particular operation as there was an even spread of apprehension reports over the entire year.

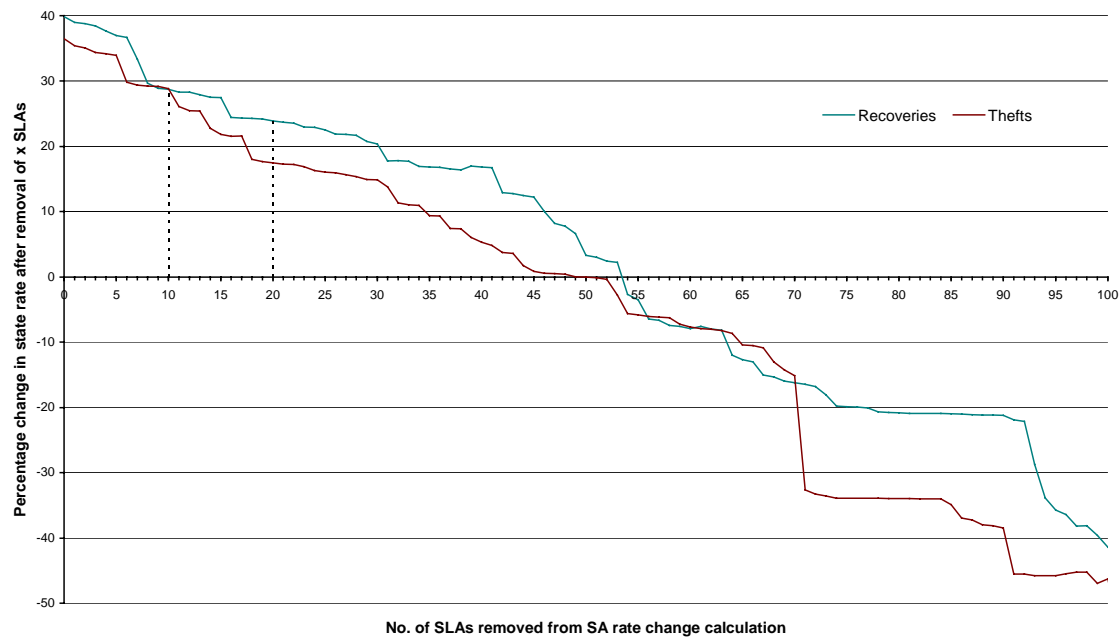
Like the dispersion of theft incidents around the state, theft characteristics have also shown a great deal of variation between SLAs. This variation came in the form of temporal, spatial and motivational characteristics often the product of differences in the nature of the built environment and resulting usage patterns. The implications of this dispersion for interventions and other police responses are that they must be tailored to the specific area where they are applied. It would be of little use to focus an educational campaign in an area where theft was not a problem.

The Dispersion of Theft Increases

With the characteristics of motor vehicle theft dispersion across South Australia during 1998 established, we will now consider the dispersion of the *increase* in motor vehicle theft since 1997. With this understanding we may have some insight into the reasons why South Australia experienced such a marked increase in motor vehicle theft between 1997 and 1998. As a result, crime preventative action and research may be focussed and applied more appropriately. Figure 4 was used to give a graphical representation of the change in the rate of motor vehicle thefts and recoveries in South Australia between 1997 and 1998. To do this the state's 119 SLAs were ranked from highest to lowest in order of the SLA with the highest absolute rate change (negative values represent a decrease in the rate of theft or recovery - see Appendix 6 and 7). The percentage change in the state rate of motor vehicle thefts and recoveries since 1997 is calculated for all 119 SLAs. Then the top ranking SLA is removed and a new calculation for the percentage change in the state rate is made with the remaining 118 SLAs. Next, the top two SLAs are removed and the percentage change in the state rate is calculated again. This continues until all SLAs are eliminated.

If the removal of a small number of SLAs has a considerable affect on the percentage change in the state rate of motor vehicle theft or recoveries it signifies that the increase between 1997 and 1998 was confined to a limited number of regions. Conversely, if the percentage change in the state rate decreases very slowly with the successive removal of SLAs, the increase in vehicle theft or recoveries across the state is likely to be more widespread.

Figure 4 Dispersion of the percentage change in motor vehicle theft and recovery rates, 1997 to 1998¹.



The lack of a sharply defined steep or gentle curve in Figure 3 suggests that the percentage change in motor vehicle theft between 1997 and 1998 was neither widespread nor particularly concentrated. As the graph shows, in order for South Australia to have experienced zero change in its state rate of motor vehicle theft, the 49 top ranking SLAs need to be removed from the calculation. In other words, over two fifths (41.2%) of the state accounted for the increase in the percentage change in the motor vehicle theft rate between 1997 and 1998. The dashed lines in Figure 3 help to show that after the removal of the top 10 SLAs, the percentage change in the state rate falls from 36.5% to 28.8%. The percentage change in the state rate continues to fall considerably when a further 10 SLAs are removed from the calculation, dropping from 28.8% to 17.5%. Similarly, the percentage change in the state recovery rate between 1997 and 1998 was not particularly concentrated. At least the top ranking 54 SLAs must be removed for the percentage change in the state recovery rate to reach zero. This amounts to 45.4% of the state. After the top ranking 10 SLAs are removed the percentage change in the state rate of recoveries nearly matches the percentage change in the theft rate at 28.7% (down from 39.9%). Although, after 20 SLAs are removed, the percentage change in the state recovery rate declines to 23.9% indicating the increase in the recovery rate was more widespread than the increase in the vehicle theft rate (at 17.5%).

While the data for theft and recovery increases does not show the differences being particularly concentrated in any specific SLAs, it was again decided to select the six SLAs that had experienced the biggest increase and focus on the characteristics of the increase. Meningie, which ranked 5th highest, was removed from the analysis as the increase was from only 5 to 21 making meaningful comparisons difficult. Table 4 shows the temporal and situational increases of the five SLAs with the largest 1997-98 increases per head of population.

¹ The 19 SLAs with the smallest level of change have been removed from the graph as the numbers of vehicles stolen becomes too small to make meaningful interpretations.

Table 4 Theft increase characteristics of the five SLAs with the largest increases per head of population, 1997 to 1998.

	Adelaide			Kensington & Norwood		
	1997	1998	Δ%	1997	1998	Δ%
Total rate change	1,344	1,909	42.0	97	156	60.8
Weekday Stolen						
Sunday	166	243	46.4	9	17	88.9
Monday	147	195	32.7	12	22	83.3
Tuesday	139	204	46.8	11	15	36.4
Wednesday	154	255	65.6	13	26	100.0
Thursday	173	190	9.8	14	25	78.6
Friday	276	426	54.3	15	27	80.0
Saturday	289	396	37.0	23	24	4.3
Stolen during day	583	748	28.3	45	68	51.1
Stolen at night	761	1,161	52.6	52	88	69.2
Location Stolen						
Car-park	212	329	55.2	36	42	16.7
House	20	30	50.0	8	14	75.0
Street	1,096	1,521	38.8	50	93	86.0
Other	16	29	81.3	3	7	133.3
Anti-theft device	234	361	54.3	14	24	71.4
Recovered	1,171	1,755	49.9	86	145	68.6
Stripped	92	152	65.2	7	10	42.9
Burnt-out	26	45	73.1	4	3	-25.0
Stereo missing	155	238	53.5	11	15	36.4

	Pt Augusta			Glenelg			Marion		
	1997	1998	Δ%	1997	1998	Δ%	1997	1998	Δ%
Total rate change	52	112	115.4	125	180	44.0	230	548	138.3
Weekday									
Sunday	10	20	100.0	24	28	16.7	28	51	82.1
Monday	8	12	50.0	12	35	191.7	22	77	250.0
Tuesday	5	15	200.0	20	19	-5.0	27	89	229.6
Wednesday	12	19	58.3	13	21	61.6	27	74	174.1
Thursday	4	13	225.0	10	15	50.0	45	109	142.2
Friday	5	15	200.0	23	20	-13.0	47	74	57.4
Saturday	8	18	125.0	23	42	82.6	34	74	117.6
Stolen during day	16	33	106.3	47	62	31.9	100	211	111.0
Stolen at night	36	79	119.4	78	18	51.3	130	337	159.2
Location Stolen									
Car-park	9	17	88.9	39	46	17.9	79	205	157.0
House	19	45	136.8	16	23	43.8	54	119	120.4
Street	16	39	143.8	69	107	55.1	90	197	118.9
Other	8	11	37.5	1	4	300.0	7	27	285.7
Anti-theft device	0	1	-	19	44	131.6	38	76	100.0
Recovered	47	105	123.4	105	158	50.5	195	483	147.7
Stripped	1	0	-100	5	13	160.0	12	37	208.3
Burnt-out	0	2	-	5	13	160.0	10	15	50.0
Stereo missing	1	3	200.0	9	11	22.2	8	39	387.5

Note: Meningie has been removed from the table as the number of thefts increased from only 5 – 21 in the 1997-98 period.

In order to interpret the numbers in Table 4 the total rate change was used as the expected rate of change for all the characteristics listed.

Temporal Characteristics

Adelaide showed a total increase of 42.0% over the 1997-98 period. The temporal characteristics of these data revealed increases bigger than expected on Sunday, Tuesday, Wednesday and Friday. The very small increase on Thursday perhaps reflects the lack of activity in the city, and the corresponding greater number of thefts in the suburbs on this day. The larger than anticipated increase of night thefts probably reflects a move to safer operating times by thieves. Kensington and Norwood showed larger than expected increases on Sunday, Monday, Wednesday, Thursday and Friday. Recent developments in the area, particularly those around the Parade probably account for this temporal shift with more activity in the area on these previously quiet nights. The lower than projected increase on Saturday probably reflects no change in usage of the area on Saturday. Like Adelaide, the Kensington and Norwood region also showed a greater than expected increase in thefts at night. In contrast to the Adelaide and Kensington-Norwood SLAs Port Augusta showed a greater than expected increase on Tuesday, Thursday, Friday and Saturday. The SLA did show a slightly higher than expected increase in thefts at night, but the difference was relatively small in comparison to the other SLAs.

Glenelg was the only SLA out of the top 5 to show decreases in theft on some days of the week. Tuesday and Friday both exhibited small decreases which are difficult to explain. The area did experience striking increases on both Monday and Saturday. The increase on Saturday could perhaps be attributed to usage patterns, but the colossal increase on Monday is confusing. Once again theft at night in Glenelg increased more than those carried out in the daylight hours.

Marion, which had a total increase of 138.3%, revealed increases larger than expected on Monday, Tuesday and Wednesday which was probably due to increased usage patterns of the local shopping centre. Large increases were again seen for thefts occurring at night adding more evidence to the notion that thieves are moving their operations to times when the probability of apprehension is lower.

Spatial Characteristics

Adelaide showed a larger than expected increase of thefts from car parks. This increase was mainly due to an increase in thefts from small unattended car parks of which there are many in the city. The bulk of the increase in Kensington and Norwood came as a result of a proliferation of thefts from the street and houses. The same pattern was seen in Port Augusta which exhibited large increases in theft from the street and houses. The increase in Glenelg, on the other hand, was only due to an increase in thefts from the street. In contrast, Marion showed a significant increase in car park thefts compared to the other listed locations. The listed increases all reflect the importance of situational determinants in the prediction of motor vehicle theft. Changes in usage patterns of a spatial nature need to be addressed by law enforcement and policy makers to reduce the risks of motor vehicle theft for users of the area.

Joyriders or Professionals

Recovery rates in all 5 SLAs showed a slightly larger than expected increase in the number of recovered vehicles over the 1997 – 1998 period. The finding suggests that joyriding activities are on the increase at a relatively fixed rate across the state. While it cannot be concluded that theft for the purpose of rebirth and resale is not on the increase, it appears that it is not increasing as quickly as joyriding. Due to the small numbers of vehicles recovered stripped it is only possible to make inferences on the basis of Adelaide and Marion data. The other three SLAs did not have sufficiently large enough incidences to draw any conclusions. Both Adelaide and Marion showed larger than expected increases of vehicles recovered stripped suggesting an increase in the demand for stolen parts. However, it is difficult to make a judgement about the dispersion of this increase across the state as a whole based on these two SLAs. The same problem exists for

cars that were recovered burnt out, with only Adelaide and Marion having sufficient numbers to make speculations about the cause. In Adelaide the number of burnt out vehicles recovered revealed a greater than expected increase. In contrast, the increase in Marion was less than would be predicted from total increase numbers. This result is evidence that the problem of vehicle theft and arson increase was probably concentrated in a few problem areas. However, more detailed examination of this problem is required to corroborate this assertion.

Conclusion

It has been observed that during 1998 motor vehicle thefts and recoveries were concentrated quite considerably in South Australia, although recoveries were slightly more widespread. Figures 1, 2 and 3 helped to demonstrate how motor vehicle theft and recoveries were not dispersed in relation to population, rather, a small number of SLAs were responsible for a considerable proportion of theft and recovery incidence. The analysis of temporal characteristics of theft for the six SLAs with the highest 1998 totals suggests that the times of high risk for vehicle theft were also dispersed unevenly across the state. It was also possible to explain many of these differences in terms of usage patterns and other situational factors making the application of interventions such as environmental redesign and educational programs more focussed and appropriate.

The analysis of the spatial characteristics of theft also revealed patterns consistent with the assertion that motor vehicle theft was concentrated to particular areas. Many of the differences found in the analysis were readily explainable in terms of usage patterns and the nature of the built environment highlighting problem areas and offering possible solutions. The investigation of recovery characteristics also showed an uneven distribution between the SLAs examined. While it is acknowledged that the majority of thefts were for joyriding, the rates of vehicles stolen and stripped or burnt out showed significant differences between the SLAs examined making police responses in high-risk areas possible.

Apprehension rates also showed significant differences between the SLAs. Police in Enfield in particular proved to be very efficient in apprehending suspected car thieves even in the absence of any special operations.

In contrast to the dispersion seen in 1998 theft for the state, Figure 4 revealed that the increase in the state rate of motor vehicle theft and recoveries could not be attributed to a small number of regions. Rather, the considerable increase in the state rate of thefts and recoveries between 1997 and 1998 was the result of increases in a relatively large number of SLAs. In spite of this, the examination of increases in theft characteristics did show differences between the SLAs scrutinized. Results showed that days early in the week were becoming more popular to thieves and theft at night was increasing faster than expected. The spatial analysis revealed that the location of thefts increased differently in different SLAs and was once again explainable in terms of changes in usage patterns. The characteristics of recovered vehicles also showed some dispersion anomalies across SLAs examined. Increases in vehicles recovered and those recovered stripped appeared to be relatively consistent across the five SLAs, but arson problems could well be concentrated in a few problem areas. However, all of these assertions warrant further examination to be sure of their authenticity.

¹ Zeman, K. and Thomas, P. (1999), *Motor Vehicle Theft in South Australia, 1998: A Statistical Report from the CARS Database*, Adelaide, Office of Crime Statistics.

² Thomas, P. and Zeman, K. (1998), *Motor Vehicle Theft in South Australia, 1997: A Statistical Report from the CARS Database*, Adelaide, Office of Crime Statistics.

³ Method derived from:

Chilvers, M. (1998), *Crime and Justice Bulletin, Number 39: Measuring Crime Dispersion*, Sydney, New South Wales Bureau of Crime Statistics and Research.

⁴ The 1997 Estimated Resident Population was obtained from the Australian Bureau of Statistics Catalogue number 3311.4 - *Demography, South Australia, 1997*. The 1998 Estimated Resident Population was as provided to the Office of Crime Statistics by the ABS.

⁵ Lee, W.- C. (1996), 'Analysis of Seasonal Data Using the Lorenz Curve and the Associated Gini Index', in *International Journal of Epidemiology*, Great Britain, International Epidemiological Association, vol. 25, no. 2, pp. 426-434.

⁶ Arson Prevention Bureau (1998), *Safer Communities: Toward Effective Arson Control*, London.

Appendix 1 **Calculations for Figure 1: South Australian SLAs ranked in order of those with the highest number of recorded thefts to those with the lowest number of recorded thefts in 1998.**

<i>SLA Rank (from highest to lowest number of thefts)</i>	<i>Statistical Local Area (SLA)</i>	<i>Number of thefts in 1998</i>	<i>Number of state thefts remaining after the removal of top ranking SLAs</i>	<i>Percentage of state thefts remaining after removal of top ranking SLAs</i>
1	Adelaide (C)	1,909	10,487	100.0
2	Salisbury (C)	901	8,578	81.8
3	Hindmarsh & Woodville (C)	853	7,677	73.2
4	Noarlunga (C)	656	6,824	65.1
5	Enfield (C)	626	6,168	58.8
6	Tea Tree Gully (C)	570	5,542	52.8
7	Marion (C)	548	4,972	47.4
8	Elizabeth (C)	371	4,424	42.2
9	Port Adelaide (C)	331	4,053	38.6
10	West Torrens (C)	291	3,722	35.5
11	Munno Para (C)	286	3,431	32.7
12	Mitcham (C)	243	3,145	30.0
13	Unley (C)	220	2,902	27.7
14	Campbelltown (C)	210	2,682	25.6
15	Prospect (C)	185	2,472	23.6
16	Glenelg (C)	180	2,287	21.8
17	Kensington & Norwood (C)	156	2,107	20.1
18	Henley & Grange (C)	124	1,951	18.6
19	Thebarton (M)	116	1,827	17.4
20	Burnside (C)	115	1,711	16.3
21	Brighton (C)	113	1,596	15.2
22	Port Augusta (C)	112	1,483	14.1
23	Gawler (M)	111	1,371	13.1
24	Payneham (C)	108	1,260	12.0
25	Happy Valley (C)	87	1,152	11.0
26	St Peters (M)	77	1,065	10.2
27	Mount Gambier (C)	74	988	9.4
28	Murray Bridge (RC)	57	914	8.7
29	Whyalla (C)	52	857	8.2
30	Port Lincoln (C)	50	805	7.7
31	Mount Barker (DC)	44	755	7.2
32	Willunga (DC)	43	711	6.8
33	Mallala (DC)	41	668	6.4
34	Walkerville (M)	41	627	6.0
35	Port Pirie (C)	36	586	5.6
36	Victor Harbor (DC)	32	550	5.2
37	Berri (DC)	30	518	4.9
38	Unincorporated regions	29	488	4.7
39	Renmark (M)	24	459	4.4
40	Gumeracha (DC)	24	435	4.1
41	Stirling (DC)	23	411	3.9
42	Meningie (DC)	21	388	3.7

Appendix 1 **Calculations for Figure 1: South Australian SLAs ranked in order of those with the highest number of recorded thefts to those with the lowest number of recorded thefts in 1998 (continued).**

<i>SLA Rank (from highest to lowest number of thefts)</i>	<i>Statistical Local Area (SLA)</i>	<i>Number of thefts in 1998</i>	<i>Number of state thefts remaining after the removal of top ranking SLAs</i>	<i>Percentage of state thefts remaining after removal of top ranking SLAs</i>
43	Port Elliot & Goolwa (DC)	20	367	3.5
44	Loxton (DC)	19	347	3.3
45	Barmera (DC)	17	328	3.1
46	Central Yorke Peninsula (DC)	17	311	3.0
47	Strathalbyn (DC)	16	294	2.8
48	Ridley & Truro (DC)	16	278	2.7
49	Roxby Downs (DC)	15	262	2.5
50	Onkaparinga (DC)	15	247	2.4
51	Ceduna (DC)	15	232	2.2
52	Coober Pedy (DC)	14	217	2.1
53	Waikerie (DC)	11	203	1.9
54	Wakefield Plains (DC)	11	192	1.8
55	East Torrens (DC)	9	181	1.7
56	Light (DC)	9	172	1.6
57	Mannum (DC)	9	163	1.6
58	Mount Pleasant (DC)	9	154	1.5
59	Naracoorte (M)	9	145	1.4
60	Paringa (DC)	9	136	1.3
61	Tatiara (DC)	9	127	1.2
62	Millicent (DC)	8	118	1.1
63	Clare (DC)	7	110	1.0
64	Morgan (DC)	6	103	1.0
65	Yankalilla (DC)	6	97	0.9
66	Angaston (DC)	5	91	0.9
67	Northern Yorke Peninsula (DC)	5	86	0.8
68	Kanyaka - Quorn (DC)	5	81	0.8
69	Saddleworth & Auburn (DC)	5	76	0.7
70	Kapunda (DC)	4	71	0.7
71	Lower Eyre Peninsula (DC)	4	67	0.6
72	Peterborough (M)	4	63	0.6
73	Port MacDonnell (DC)	4	59	0.6
74	Yorke town (DC)	4	55	0.5
75	Barossa (DC)	3	51	0.5
76	Blyth & Snowtown (DC)	3	48	0.5
77	Burra Burra (DC)	3	45	0.4
78	Crystal Brook & Redhill (DC)	3	42	0.4
79	Kingscote (DC)	3	39	0.4
80	Mount Gambier (DC)	3	36	0.3
81	Mount Remarkable (DC)	3	33	0.3
82	Port Broughton (DC)	3	30	0.3
83	Riverton (DC)	3	27	0.3
84	Robe (DC)	3	24	0.2

Appendix 1 **Calculations for Figure 1: South Australian SLAs ranked in order of those with the highest number of recorded thefts to those with the lowest number of recorded thefts in 1998 (continued).**

<i>SLA Rank (from highest to lowest number of thefts)</i>	<i>Statistical Local Area (SLA)</i>	<i>Number of thefts in 1998</i>	<i>Number of state thefts remaining after the removal of top ranking SLAs</i>	<i>Percentage of state thefts remaining after removal of top ranking SLAs</i>
85	Tumby Bay (DC)	3	21	0.2
86	Cleve (DC)	2	18	0.2
87	Minlaton (DC)	2	16	0.2
88	Pirie (DC)	2	14	0.1
89	Tanunda (DC)	2	12	0.1
90	Beachport (DC)	1	10	0.1
91	Coonalpyn Downs (DC)	1	9	0.1
92	Dudley (DC)	1	8	0.1
93	Franklin Harbor (DC)	1	7	0.1
94	Karoonda - East Murray (DC)	1	6	0.1
95	Rocky River (DC)	1	5	0.0
96	Spalding (DC)	1	4	0.0
97	Streaky Bay (DC)	1	3	0.0
98	Naracoorte (DC)	1	2	0.0
99	Peterborough (DC)	1	1	0.0
100	Browns Well (DC)	0	0	0.0
101	Ellistown (DC)	0	0	0.0
102	Eudunda (DC)	0	0	0.0
103	Hallett (DC)	0	0	0.0
104	Hawker (DC)	0	0	0.0
105	Jamestown (DC)	0	0	0.0
106	Kimba (DC)	0	0	0.0
107	Lacepede (DC)	0	0	0.0
108	Lameroo (DC)	0	0	0.0
109	Le Hunte (DC)	0	0	0.0
110	Lucindale (DC)	0	0	0.0
111	Pinnaroo (DC)	0	0	0.0
112	Robertstown (DC)	0	0	0.0
113	Orroroo	0	0	0.0
114	Peake (DC)	0	0	0.0
115	Penola (DC)	0	0	0.0
116	Bute (DC)	0	0	0.0
117	Carrieton (DC)	0	0	0.0
118	Walleroo (M)	0	0	0.0
119	Warooka (DC)	0	0	0.0

Appendix 2 **Calculations for Figure1: South Australian SLAs ranked in order of those with the highest number of recoveries to those with the lowest number of recoveries in 1998.**

<i>SLA Rank (from highest to lowest number of recoveries)</i>	<i>Statistical Local Area (SLA)</i>	<i>Number of recoveries in 1998</i>	<i>Number of state thefts remaining after the removal of top ranking SLAs</i>	<i>Percentage of state thefts remaining after removal of top ranking SLAs</i>
1	Salisbury (C)	963	9382	100.0
2	Enfield (C)	839	8419	89.7
3	Hindmarsh & Woodville (C)	826	7580	80.8
4	Adelaide (C)	738	6754	72.0
5	Noarlunga (C)	638	6016	64.1
6	Marion (C)	476	5378	57.3
7	Port Adelaide (C)	443	4902	52.2
8	Munno Para (C)	431	4459	47.5
9	Tea Tree Gully (C)	383	4028	42.9
10	West Torrens (C)	314	3645	38.9
11	Elizabeth (C)	300	3331	35.5
12	Mitcham (C)	232	3031	32.3
13	Campbelltown (C)	185	2799	29.8
14	Prospect (C)	158	2614	27.9
15	Unley (C)	153	2456	26.2
16	Mallala (DC)	148	2303	24.5
17	Henley & Grange (C)	134	2155	23.0
18	Payneham (C)	116	2021	21.5
19	Thebarton (M)	108	1905	20.3
20	Burnside (C)	105	1797	19.2
21	Port Augusta (C)	104	1692	18.0
22	Glenelg (C)	101	1588	16.9
23	Kensington & Norwood (C)	96	1487	15.8
24	Gawler (M)	88	1391	14.8
25	Happy Valley (C)	84	1303	13.9
26	Brighton (C)	78	1219	13.0
27	St Peters (M)	67	1141	12.2
28	Gumeracha (DC)	66	1074	11.4
29	Mount Barker (DC)	64	1008	10.7
30	Willunga (DC)	63	944	10.1
31	Murray Bridge (RC)	62	881	9.4
32	Mount Gambier (C)	60	819	8.7
33	Whyalla (C)	49	759	8.1
34	Port Lincoln (C)	48	710	7.6
35	East Torrens (DC)	41	662	7.1
36	Unincorporated regions	38	621	6.6
37	Stirling (DC)	36	583	6.2
38	Berri (DC)	34	547	5.8
39	Light (DC)	34	513	5.5
40	Walkerville (M)	32	479	5.1
41	Victor Harbor (DC)	29	447	4.8
42	Port Pirie (C)	24	418	4.5

Appendix 2 **Calculations for Figure 1: South Australian SLAs ranked in order of those with the highest number of recoveries to those with the lowest number of recoveries in 1998 (continued).**

<i>SLA Rank (from highest to lowest number of recoveries)</i>	<i>Statistical Local Area (SLA)</i>	<i>Number of recoveries in 1998</i>	<i>Number of state thefts remaining after the removal of top ranking SLAs</i>	<i>Percentage of state thefts remaining after removal of top ranking SLAs</i>
43	Central Yorke Peninsula (DC)	19	394	4.2
44	Meningie (DC)	18	375	4.0
45	Strathalbyn (DC)	17	357	3.8
46	Mount Gambier (DC)	16	340	3.6
47	Port Elliot & Goolwa (DC)	16	324	3.5
48	Ridley & Truro (DC)	16	308	3.3
49	Ceduna (DC)	13	292	3.1
50	Loxton (DC)	13	279	3.0
51	Barossa (DC)	12	266	2.8
52	Cooper Pedy (DC)	12	254	2.7
53	Mannum (DC)	12	242	2.6
54	Renmark (M)	12	230	2.5
55	Waikerie (DC)	12	218	2.3
56	Roxby Downs (DC)	11	206	2.2
57	Wakefield Plains (DC)	11	195	2.1
58	Yankalilla (DC)	11	184	2.0
59	Barmera (DC)	11	173	1.8
60	Angaston (DC)	10	162	1.7
61	Paringa (DC)	9	152	1.6
62	Millicent (DC)	8	143	1.5
63	Mount Pleasant (DC)	8	135	1.4
64	Onkaparinga (DC)	8	127	1.4
65	Port MacDonnell (DC)	8	119	1.3
66	Clare (DC)	6	111	1.2
67	Crystal Brook & Redhill (DC)	6	105	1.1
68	Kapunda (DC)	6	99	1.1
69	Naracoorte (M)	6	93	1.0
70	Northern Yorke Peninsula (DC)	5	87	0.9
71	Port Broughton (DC)	5	82	0.9
72	Tatiara (DC)	5	77	0.8
73	Tumby Bay (DC)	5	72	0.8
74	Karoonda - East Murray (DC)	4	67	0.7
75	Kingscote (DC)	4	63	0.7
76	Peterborough (M)	4	59	0.6
77	Saddleworth & Auburn (DC)	4	55	0.6
78	Streaky Bay (DC)	4	51	0.5
79	Beachport (DC)	3	47	0.5
80	Blyth & Snowtown (DC)	3	44	0.5
81	Cleve (DC)	3	41	0.4
82	Kanyaka - Quorn (DC)	3	38	0.4
83	Minlaton (DC)	3	35	0.4
84	Morgan (DC)	3	32	0.3

Appendix 2 **Calculations for Figure 1: South Australian SLAs ranked in order of those with the highest number of recoveries to those with the lowest number of recoveries in 1998 (continued).**

<i>SLA Rank (from highest to lowest number of recoveries)</i>	<i>Statistical Local Area (SLA)</i>	<i>Number of recoveries in 1998</i>	<i>Number of state thefts remaining after the removal of top ranking SLAs</i>	<i>Percentage of state thefts remaining after removal of top ranking SLAs</i>
85	Yorke town (DC)	3	29	0.3
86	Bute (DC)	2	26	0.3
87	Franklin Harbor (DC)	2	24	0.3
88	Mount Remarkable (DC)	2	22	0.2
89	Naracoorte (DC)	2	20	0.2
90	Robe (DC)	2	18	0.2
91	Rocky River (DC)	2	16	0.2
92	Tanunda (DC)	2	14	0.1
93	Burra Burra (DC)	1	12	0.1
94	Coonalpyn Downs (DC)	1	11	0.1
95	Hawker (DC)	1	10	0.1
96	Jamestown (DC)	1	9	0.1
97	Lacepede (DC)	1	8	0.1
98	Lameroo (DC)	1	7	0.1
99	Le Hunte (DC)	1	6	0.1
100	Lower Eyre Peninsula (DC)	1	5	0.1
101	Penola (DC)	1	4	0.0
102	Peterborough (DC)	1	3	0.0
103	Pirie (DC)	1	2	0.0
104	Spalding (DC)	1	1	0.0
105	Browns Well (DC)	0	0	0.0
106	Carrieton (DC)	0	0	0.0
107	Dudley (DC)	0	0	0.0
108	Ellistown (DC)	0	0	0.0
109	Eudunda (DC)	0	0	0.0
110	Hallett (DC)	0	0	0.0
111	Kimba (DC)	0	0	0.0
112	Lucindale (DC)	0	0	0.0
113	Orroroo (DC)	0	0	0.0
114	Peake (DC)	0	0	0.0
115	Pinnaroo (DC)	0	0	0.0
116	Riverton (DC)	0	0	0.0
117	Robertstown (DC)	0	0	0.0
118	Wallaroo (M)	0	0	0.0
119	Warooka (DC)	0	0	0.0

Appendix 3 **Calculations for Figure 1: South Australian SLAs ranked in order of those with the highest estimated resident population to those with the lowest in 1998.**

<i>SLA Rank (from highest to lowest pop.)</i>	<i>Statistical Local Area (SLA)</i>	<i>1998 Estimated Resident Population (ERP)</i>	<i>State ERP remaining after removal of top ranking SLAs</i>	<i>Percentage of state ERP remaining after removal of top ranking SLAs</i>
1	Salisbury (C)	112,344	1,487,294	100.0
2	Tea Tree Gully (C)	96,972	1,374,950	92.4
3	Noarlunga (C)	93,653	1,277,978	85.9
4	Hindmarsh & Woodville (C)	88,730	1,184,325	79.6
5	Marion (C)	77,547	1,095,595	73.7
6	Enfield (C)	62,263	1,018,048	68.4
7	Mitcham (C)	61,533	955,785	64.3
8	Campbelltown (C)	46,174	894,252	60.1
9	West Torrens (C)	43,817	848,078	57.0
10	Burnside (C)	40,738	804,261	54.1
11	Munno Para (C)	40,555	763,523	51.3
12	Port Adelaide (C)	38,962	722,968	48.6
13	Happy Valley (C)	38,091	684,006	46.0
14	Unley (C)	36,997	645,915	43.4
15	Elizabeth (C)	25,900	608,918	40.9
16	Whyalla (C)	23,980	583,018	39.2
17	Mount Gambier (C)	23,055	559,038	37.6
18	Mount Barker (DC)	22,080	535,983	36.0
19	Brighton (C)	19,452	513,903	34.6
20	Prospect (C)	19,125	494,451	33.2
21	Gawler (M)	17,622	475,326	32.0
22	Stirling (DC)	16,886	457,704	30.8
23	Murray Bridge (RC)	16,664	440,818	29.6
24	Payneham (C)	16,125	424,154	28.5
25	Willunga (DC)	15,301	408,029	27.4
26	Port Pirie (C)	14,428	392,728	26.4
27	Henley & Grange (C)	14,282	378,300	25.4
28	Port Augusta (C)	13,995	364,018	24.5
29	Glenelg (C)	13,216	350,023	23.5
30	Port Lincoln (C)	13,006	336,807	22.6
31	Adelaide (C)	12,922	323,801	21.8
32	Victor Harbor (DC)	9,903	310,879	20.9
33	Kensington & Norwood (C)	9,360	300,976	20.2
34	Port Elliot & Goolwa (DC)	9,013	291,616	19.6
35	St Peters (M)	8,548	282,603	19.0
36	Unincorporated regions	8,453	274,055	18.4
37	Onkaparinga (DC)	8,328	265,602	17.9
38	Northern Yorke Peninsula (DC)	8,129	257,274	17.3
39	Thebarton (M)	8,033	249,145	16.8
40	Renmark (M)	7,916	241,112	16.2
41	Millicent (DC)	7,778	233,196	15.7
42	Angaston (DC)	7,351	225,418	15.2
43	Loxton (DC)	7,242	218,067	14.7

Appendix 3 **Calculations for Figure1: South Australian SLAs ranked in order of those with the highest estimated resident population to those with the lowest in 1998 (continued).**

<i>SLA Rank (from highest to lowest pop.)</i>	<i>Statistical Local Area (SLA)</i>	<i>1998 Estimated Resident Population (ERP)</i>	<i>State ERP remaining after removal of top ranking SLAs</i>	<i>Percentage of state ERP remaining after removal of top ranking SLAs</i>
44	Mallala (DC)	7,190	210,825	14.2
45	Strathalbyn (DC)	7,169	203,635	13.7
46	Berri (DC)	7,093	196,466	13.2
47	Tatiara (DC)	7,062	189,373	12.7
48	Walkerville (M)	6,995	182,311	12.3
49	East Torrens (DC)	6,865	175,316	11.8
50	Gumeracha (DC)	6,507	168,451	11.3
51	Light (DC)	6,370	161,944	10.9
52	Mount Gambier (DC)	5,342	155,574	10.5
53	Barossa (DC)	5,331	150,232	10.1
54	Central Yorke Peninsula (DC)	5,288	144,901	9.7
55	Naracoorte (M)	4,918	139,613	9.4
56	Waikerie (DC)	4,915	134,695	9.1
57	Wakefield Plains (DC)	4,584	129,780	8.7
58	Barmera (DC)	4,391	125,196	8.4
59	Tanunda (DC)	4,390	120,805	8.1
60	Clare (DC)	4,342	116,415	7.8
61	Lower Eyre Peninsula (DC)	4,087	112,073	7.5
62	Meningie (DC)	3,883	107,986	7.3
63	Yankalilla (DC)	3,839	104,103	7.0
64	Kingscote (DC)	3,611	100,264	6.7
65	Kapunda (DC)	3,541	96,653	6.5
66	Ceduna (DC)	3,502	93,112	6.3
67	Roxby Downs (DC)	3,446	89,610	6.0
68	Penola (DC)	3,377	86,164	5.8
69	Mannum (DC)	3,193	82,787	5.6
70	Mount Remarkable (DC)	3,107	79,594	5.4
71	Yorke town (DC)	2,941	76,487	5.1
72	Ridley & Truro (DC)	2,882	73,546	4.9
73	Port MacDonnell (DC)	2,700	70,664	4.8
74	Tumby Bay (DC)	2,662	67,964	4.6
75	Cooper Pedy (DC)	2,637	65,302	4.4
76	Mount Pleasant (DC)	2,416	62,665	4.2
77	Lacepede (DC)	2,416	60,249	4.1
78	Walleroo (M)	2,411	57,833	3.9
79	Minlaton (DC)	2,373	55,422	3.7
80	Rocky River (DC)	2,195	53,049	3.6
81	Jamestown (DC)	2,177	50,854	3.4
82	Saddleworth & Auburn (DC)	2,159	48,677	3.3
83	Crystal Brook & Redhill (DC)	2,143	46,518	3.1
84	Blyth & Snowtown (DC)	2,067	44,375	3.0
85	Streaky Bay (DC)	1,930	42,308	2.8
86	Peterborough (M)	1,896	40,378	2.7

Appendix 3 **Calculations for Figure 1: South Australian SLAs ranked in order of those with the highest estimated resident population to those with the lowest in 1998 (continued).**

<i>SLA Rank (from highest to lowest pop.)</i>	<i>Statistical Local Area (SLA)</i>	<i>1998 Estimated Resident Population (ERP)</i>	<i>State ERP remaining after removal of top ranking SLAs</i>	<i>Percentage of state ERP remaining after removal of top ranking SLAs</i>
87	Cleve (DC)	1,895	38,482	2.6
88	Naracoorte (DC)	1,882	36,587	2.5
89	Burra Burra (DC)	1,848	34,705	2.3
90	Paringa (DC)	1,841	32,857	2.2
91	Riverton (DC)	1,700	31,016	2.1
92	Beachport (DC)	1,619	29,316	2.0
93	Le Hunte (DC)	1,552	27,697	1.9
94	Pirie (DC)	1,523	26,145	1.8
95	Coonalpyn Downs (DC)	1,436	24,622	1.7
96	Port Broughton (DC)	1,425	23,186	1.6
97	Kanyaka - Quorn (DC)	1,405	21,761	1.5
98	Karoonda - East Murray (DC)	1,340	20,356	1.4
99	Eudunda (DC)	1,340	19,016	1.3
100	Robe (DC)	1,333	17,676	1.2
101	Morgan (DC)	1,332	16,343	1.1
102	Lucindale (DC)	1,294	15,011	1.0
103	Kimba (DC)	1,245	13,717	0.9
104	Lameroo (DC)	1,232	12,472	0.8
105	Elliston (DC)	1,226	11,240	0.8
106	Franklin Harbor (DC)	1,209	10,014	0.7
107	Warooka (DC)	1,126	8,805	0.6
108	Pinnaroo (DC)	1,087	7,679	0.5
109	Bute (DC)	1,058	6,592	0.4
110	Orroroo	947	5,534	0.4
111	Peake (DC)	780	4,587	0.3
112	Dudley (DC)	762	3,807	0.3
113	Robertstown (DC)	745	3,045	0.2
114	Hallett (DC)	567	2,300	0.2
115	Spalding (DC)	489	1,733	0.1
116	Hawker (DC)	470	1,244	0.1
117	Browns Well (DC)	309	774	0.1
118	Peterborough (DC)	297	465	0.0
119	Carrieton (DC)	168	168	0.0

Appendix 4 **Calculations for Figure 2: South Australian SLAs ranked in order of those with the lowest number of thefts to those with the highest in 1998.**

<i>SLA Rank (from lowest no. of thefts)</i>	<i>Statistical Local Area (SLA)</i>	<i>Number of thefts 1998</i>	<i>Cumulative proportion of state thefts</i>	<i>98 ERP</i>	<i>Cumulative proportion of state population</i>
1	Browns Well (DC)	0	0.000	309	0.000
2	Ellistown (DC)	0	0.000	1,226	0.001
3	Eudunda (DC)	0	0.000	1,340	0.002
4	Hallett (DC)	0	0.000	567	0.002
5	Hawker (DC)	0	0.000	470	0.003
6	Jamestown (DC)	0	0.000	2,177	0.004
7	Kimba (DC)	0	0.000	1,245	0.005
8	Lacepede (DC)	0	0.000	2,416	0.007
9	Lameroo (DC)	0	0.000	1,232	0.007
10	Le Hunte (DC)	0	0.000	1,552	0.008
11	Lucindale (DC)	0	0.000	1,294	0.009
12	Pinnaroo (DC)	0	0.000	1,087	0.010
13	Robertstown (DC)	0	0.000	745	0.011
14	Orroroo	0	0.000	947	0.011
15	Peake (DC)	0	0.000	780	0.012
16	Penola (DC)	0	0.000	3,377	0.014
17	Bute (DC)	0	0.000	1,058	0.015
18	Carrieton (DC)	0	0.000	168	0.015
19	Walleroo (M)	0	0.000	2,411	0.016
20	Warooka (DC)	0	0.000	1,126	0.017
21	Beachport (DC)	1	0.000	1,619	0.018
22	Coonalpyn Downs (DC)	1	0.000	1,436	0.019
23	Dudley (DC)	1	0.000	762	0.020
24	Franklin Harbor (DC)	1	0.000	1,209	0.021
25	Karoonda - East Murray (DC)	1	0.000	1,340	0.021
26	Rocky River (DC)	1	0.001	2,195	0.023
27	Spalding (DC)	1	0.001	489	0.023
28	Streaky Bay (DC)	1	0.001	1,930	0.025
29	Naracoorte (DC)	1	0.001	1,882	0.026
30	Peterborough (DC)	1	0.001	1,896	0.027
31	Cleve (DC)	2	0.001	1,895	0.028
32	Minlaton (DC)	2	0.001	2,373	0.030
33	Pirie (DC)	2	0.002	1,523	0.031
34	Tanunda (DC)	2	0.002	4,390	0.034
35	Barossa (DC)	3	0.002	5,331	0.038
36	Blyth & Snowtown (DC)	3	0.002	2,067	0.039
37	Burra Burra (DC)	3	0.003	1,848	0.040
38	Crystal Brook & Redhill (DC)	3	0.003	2,143	0.042
39	Kingscote (DC)	3	0.003	3,611	0.044
40	Mount Gambier (DC)	3	0.003	5,342	0.048
41	Mount Remarkable (DC)	3	0.004	3,107	0.050
42	Port Broughton (DC)	3	0.004	1,425	0.051
43	Riverton (DC)	3	0.004	1,700	0.052
44	Robe (DC)	3	0.005	1,333	0.053
45	Tumby Bay (DC)	3	0.005	2,662	0.054

Appendix 4 **Calculations for Figure 2: South Australian SLAs ranked in order of those with the lowest number of thefts to those with the highest in 1998 (continued).**

<i>SLA Rank (from lowest no. of thefts)</i>	<i>Statistical Local Area (SLA)</i>	<i>Number of thefts 1998</i>	<i>Cumulative proportion of state thefts</i>	<i>98 ERP</i>	<i>Cumulative proportion of state population</i>
46	Kapunda (DC)	4	0.005	3,541	0.057
47	Lower Eyre Peninsula (DC)	4	0.006	4,087	0.060
48	Peterborough (M)	4	0.006	297	0.060
49	Port MacDonnell (DC)	4	0.006	2,700	0.062
50	Yorke town (DC)	4	0.007	2,941	0.064
51	Angaston (DC)	5	0.007	7,351	0.069
52	Northern Yorke Peninsula (DC)	5	0.008	8,129	0.074
53	Kanyaka - Quorn (DC)	5	0.008	1,405	0.075
54	Saddleworth & Auburn (DC)	5	0.009	2,159	0.076
55	Morgan (DC)	6	0.009	1,332	0.077
56	Yankalilla (DC)	6	0.010	3,839	0.080
57	Clare (DC)	7	0.010	4,342	0.083
58	Millicent (DC)	8	0.011	7,778	0.088
59	East Torrens (DC)	9	0.012	6,865	0.093
60	Light (DC)	9	0.013	6,370	0.097
61	Mannum (DC)	9	0.014	3,193	0.099
62	Mount Pleasant (DC)	9	0.015	2,416	0.101
63	Naracoorte (M)	9	0.016	4,918	0.104
64	Paringa (DC)	9	0.016	1,841	0.105
65	Tatiara (DC)	9	0.017	7,062	0.110
66	Waikerie (DC)	11	0.018	4,915	0.113
67	Wakefield Plains (DC)	11	0.019	4,584	0.116
68	Cooper Pedy (DC)	14	0.021	2,637	0.118
69	Roxby Downs (DC)	15	0.022	3,446	0.120
70	Onkaparinga (DC)	15	0.024	8,328	0.126
71	Ceduna (DC)	15	0.025	3,502	0.128
72	Strathalbyn (DC)	16	0.027	7,169	0.133
73	Ridley & Truro (DC)	16	0.028	2,882	0.135
74	Barmera (DC)	17	0.030	4,391	0.138
75	Central Yorke Peninsula (DC)	17	0.031	5,288	0.142
76	Loxton (DC)	19	0.033	7,242	0.147
77	Port Elliot & Goolwa (DC)	20	0.035	9,013	0.153
78	Meningie (DC)	21	0.037	3,883	0.155
79	Stirling (DC)	23	0.039	16,886	0.167
80	Renmark (M)	24	0.041	7,916	0.172
81	Gumeracha (DC)	24	0.044	6,507	0.176
82	Unincorporated regions	29	0.047	8,453	0.182
83	Berri (DC)	30	0.049	7,093	0.187
84	Victor Harbor (DC)	32	0.052	9,903	0.193
85	Port Pirie (C)	36	0.056	14,428	0.203
86	Mallala (DC)	41	0.060	7,190	0.208
87	Walkerville (M)	41	0.064	6,995	0.213
88	Willunga (DC)	43	0.068	15,301	0.223
89	Mount Barker (DC)	44	0.072	22,080	0.238

Appendix 4 **Calculations for Figure 2: South Australian SLAs ranked in order of those with the lowest number of thefts to those with the highest in 1998 (continued).**

<i>SLA Rank (from lowest no. of thefts)</i>	<i>Statistical Local Area (SLA)</i>	<i>Number of thefts 1998</i>	<i>Cumulative proportion of state thefts</i>	<i>98 ERP</i>	<i>Cumulative proportion of state population</i>
90	Port Lincoln (C)	50	0.077	13,006	0.247
91	Whyalla (C)	52	0.082	23,980	0.263
92	Murray Bridge (RC)	57	0.087	16,664	0.274
93	Mount Gambier (C)	74	0.094	23,055	0.289
94	St Peters (M)	77	0.102	8,548	0.295
95	Happy Valley (C)	87	0.110	38,091	0.321
96	Payneham (C)	108	0.120	16,125	0.332
97	Gawler (M)	111	0.131	17,622	0.343
98	Port Augusta (C)	112	0.141	13,995	0.353
99	Brighton (C)	113	0.152	19,452	0.366
100	Burnside (C)	115	0.163	40,738	0.393
101	Thebarton (M)	116	0.174	8,033	0.399
102	Henley & Grange (C)	124	0.186	14,282	0.408
103	Kensington & Norwood (C)	156	0.201	9,360	0.415
104	Glenelg (C)	180	0.218	13,216	0.423
105	Prospect (C)	185	0.236	19,125	0.436
106	Campbelltown (C)	210	0.256	46,174	0.467
107	Unley (C)	220	0.277	36,997	0.492
108	Mitcham (C)	243	0.300	61,533	0.534
109	Munno Para (C)	286	0.327	40,555	0.561
110	West Torrens (C)	291	0.355	43,817	0.590
111	Port Adelaide (C)	331	0.386	38,962	0.617
112	Elizabeth (C)	371	0.422	25,900	0.634
113	Marion (C)	548	0.474	77,547	0.686
114	Tea Tree Gully (C)	570	0.528	96,972	0.751
115	Enfield (C)	626	0.588	62,263	0.793
116	Noarlunga (C)	656	0.651	93,653	0.856
117	Hindmarsh & Woodville (C)	853	0.732	88,730	0.916
118	Salisbury (C)	901	0.818	112,344	0.991
119	Adelaide (C)	1,909	1.000	12,922	1.000

Appendix 5 **Calculations for Figure 3: South Australian SLAs ranked in order of those with the lowest number of recoveries to those with the highest in 1998.**

<i>SLA Rank (from lowest no. recoveries)</i>	<i>Statistical Local Area (SLA)</i>	<i>Number recovered in 1998</i>	<i>Cumulative in proportion of state recoveries</i>	<i>98 ERP</i>	<i>Cumulative proportion of state population</i>
1	Browns Well (DC)	0	0.0000	309	0.0002
2	Carrieton (DC)	0	0.0000	168	0.0003
3	Dudley (DC)	0	0.0000	762	0.0008
4	Ellistown (DC)	0	0.0000	1,226	0.0017
5	Eudunda (DC)	0	0.0000	1,340	0.0026
6	Hallett (DC)	0	0.0000	567	0.0029
7	Kimba (DC)	0	0.0000	1,245	0.0038
8	Lucindale (DC)	0	0.0000	1,294	0.0046
9	Orroroo (DC)	0	0.0000	947	0.0053
10	Peake (DC)	0	0.0000	780	0.0058
11	Pinnaroo (DC)	0	0.0000	1,087	0.0065
12	Riverton (DC)	0	0.0000	1,700	0.0077
13	Robertstown (DC)	0	0.0000	745	0.0082
14	Walleroo (M)	0	0.0000	2,411	0.0098
15	Warooka (DC)	0	0.0000	1,126	0.0106
16	Burra Burra (DC)	1	0.0001	1,848	0.0118
17	Coonalpyn Downs (DC)	1	0.0002	1,436	0.0128
18	Hawker (DC)	1	0.0003	470	0.0131
19	Jamestown (DC)	1	0.0004	2,177	0.0145
20	Lacepede (DC)	1	0.0005	2,416	0.0162
21	Lameroo (DC)	1	0.0006	1,232	0.0170
22	Le Hunte (DC)	1	0.0007	1,552	0.0180
23	Lower Eyre Peninsula (DC)	1	0.0009	4,087	0.0208
24	Penola (DC)	1	0.0010	3,377	0.0231
25	Peterborough (DC)	1	0.0011	1,896	0.0243
26	Pirie (DC)	1	0.0012	1,523	0.0254
27	Spalding (DC)	1	0.0013	489	0.0257
28	Bute (DC)	2	0.0015	1,058	0.0264
29	Franklin Harbor (DC)	2	0.0017	1,209	0.0272
30	Mount Remarkable (DC)	2	0.0019	3,107	0.0293
31	Naracoorte (DC)	2	0.0021	1,882	0.0306
32	Robe (DC)	2	0.0023	1,333	0.0315
33	Rocky River (DC)	2	0.0026	2,195	0.0329
34	Tanunda (DC)	2	0.0028	4,390	0.0359
35	Beachport (DC)	3	0.0031	1,619	0.0370
36	Blyth & Snowtown (DC)	3	0.0034	2,067	0.0384
37	Cleve (DC)	3	0.0037	1,895	0.0396
38	Kanyaka - Quorn (DC)	3	0.0041	1,405	0.0406
39	Minlaton (DC)	3	0.0044	2,373	0.0422
40	Morgan (DC)	3	0.0047	1,332	0.0431
41	Yorke town (DC)	3	0.0050	2,941	0.0451
42	Karoonda - East Murray (DC)	4	0.0054	1,340	0.0460
43	Kingscote (DC)	4	0.0059	3,611	0.0484
44	Peterborough (M)	4	0.0063	297	0.0486

Appendix 5 **Calculations for Figure 3: South Australian SLAs ranked in order of those with the lowest number of recoveries to those with the highest in 1998 (continued).**

<i>SLA Rank (from lowest no. recoveries)</i>	<i>Statistical Local Area (SLA)</i>	<i>Number recovered in 1998</i>	<i>Cumulative in proportion of state recoveries</i>	<i>98 ERP</i>	<i>Cumulative proportion of state population</i>
45	Saddleworth & Auburn (DC)	4	0.0067	2,159	0.0500
46	Streaky Bay (DC)	4	0.0071	1,930	0.0513
47	Northern Yorke Peninsula (DC)	5	0.0077	8,129	0.0568
48	Port Broughton (DC)	5	0.0082	1,425	0.0578
49	Tatiara (DC)	5	0.0087	7,062	0.0625
50	Tumby Bay (DC)	5	0.0093	2,662	0.0643
51	Clare (DC)	6	0.0099	4,342	0.0672
52	Crystal Brook & Redhill (DC)	6	0.0106	2,143	0.0687
53	Kapunda (DC)	6	0.0112	3,541	0.0710
54	Naracoorte (M)	6	0.0118	4,918	0.0743
55	Millicent (DC)	8	0.0127	7,778	0.0796
56	Mount Pleasant (DC)	8	0.0135	2,416	0.0812
57	Onkaparinga (DC)	8	0.0144	8,328	0.0868
58	Port MacDonnell (DC)	8	0.0152	2,700	0.0886
59	Paringa (DC)	9	0.0162	1,841	0.0899
60	Angaston (DC)	10	0.0173	7,351	0.0948
61	Roxby Downs (DC)	11	0.0184	3,446	0.0971
62	Wakefield Plains (DC)	11	0.0196	4,584	0.1002
63	Yankalilla (DC)	11	0.0208	3,839	0.1028
64	Barmera (DC)	11	0.0220	4,391	0.1057
65	Barossa (DC)	12	0.0232	5,331	0.1093
66	Cooper Pedy (DC)	12	0.0245	2,637	0.1111
67	Mannum (DC)	12	0.0258	3,193	0.1132
68	Renmark (M)	12	0.0271	7,916	0.1186
69	Waikerie (DC)	12	0.0284	4,915	0.1219
70	Ceduna (DC)	13	0.0297	3,502	0.1242
71	Loxton (DC)	13	0.0311	7,242	0.1291
72	Mount Gambier (DC)	16	0.0328	5,342	0.1327
73	Port Elliot & Goolwa (DC)	16	0.0345	9,013	0.1387
74	Ridley & Truro (DC)	16	0.0362	2,882	0.1407
75	Strathalbyn (DC)	17	0.0381	7,169	0.1455
76	Meningie (DC)	18	0.0400	3,883	0.1481
77	Central Yorke Peninsula (DC)	19	0.0420	5,288	0.1517
78	Port Pirie (C)	24	0.0446	14,428	0.1614
79	Victor Harbor (DC)	29	0.0476	9,903	0.1680
80	Walkerville (M)	32	0.0511	6,995	0.1727
81	Berri (DC)	34	0.0547	7,093	0.1775
82	Light (DC)	34	0.0583	6,370	0.1818
83	Stirling (DC)	36	0.0621	16,886	0.1931
84	Unincorporated regions	38	0.0662	8,453	0.1988
85	East Torrens (DC)	41	0.0706	6,865	0.2034
86	Port Lincoln (C)	48	0.0757	13,006	0.2122
87	Whyalla (C)	49	0.0809	23,980	0.2283
88	Mount Gambier (C)	60	0.0873	23,055	0.2438

Appendix 5 **Calculations for Figure 3: South Australian SLAs ranked in order of those with the lowest number of recoveries to those with the highest in 1998 (continued).**

<i>SLA Rank (from lowest no. recoveries)</i>	<i>Statistical Local Area (SLA)</i>	<i>Number recovered in 1998</i>	<i>Cumulative in proportion of state recoveries</i>	<i>98 ERP</i>	<i>Cumulative proportion of state population</i>
89	Murray Bridge (RC)	62	0.0939	16,664	0.2550
90	Willunga (DC)	63	0.1006	15,301	0.2653
91	Mount Barker (DC)	64	0.1074	22,080	0.2801
92	Gumeracha (DC)	66	0.1145	6,507	0.2845
93	St Peters (M)	67	0.1216	8,548	0.2903
94	Brighton (C)	78	0.1299	19,452	0.3033
95	Happy Valley (C)	84	0.1389	38,091	0.3289
96	Gawler (M)	88	0.1483	17,622	0.3408
97	Kensington & Norwood (C)	96	0.1585	9,360	0.3471
98	Glenelg (C)	101	0.1693	13,216	0.3560
99	Port Augusta (C)	104	0.1803	13,995	0.3654
100	Burnside (C)	105	0.1915	40,738	0.3928
101	Thebarton (M)	108	0.2030	8,033	0.3982
102	Payneham (C)	116	0.2154	16,125	0.4090
103	Henley & Grange (C)	134	0.2297	14,282	0.4186
104	Mallala (DC)	148	0.2455	7,190	0.4235
105	Unley (C)	153	0.2618	36,997	0.4483
106	Prospect (C)	158	0.2786	19,125	0.4612
107	Campbelltown (C)	185	0.2983	46,174	0.4922
108	Mitcham (C)	232	0.3231	61,533	0.5336
109	Elizabeth (C)	300	0.3550	25,900	0.5510
110	West Torrens (C)	314	0.3885	43,817	0.5805
111	Tea Tree Gully (C)	383	0.4293	96,972	0.6457
112	Munno Para (C)	431	0.4753	40,555	0.6729
113	Port Adelaide (C)	443	0.5225	38,962	0.6991
114	Marion (C)	476	0.5732	77,547	0.7513
115	Noarlunga (C)	638	0.6412	93,653	0.8143
116	Adelaide (C)	738	0.7199	12,922	0.8229
117	Hindmarsh & Woodville (C)	826	0.8079	88,730	0.8826
118	Enfield (C)	839	0.8974	62,263	0.9245
119	Salisbury (C)	963	1.0000	112,344	1.0000

Appendix 6 **Calculations for Figure4: South Australian SLAs ranked in order of those with the highest 1997-1998 rate change in vehicle theft to those with the lowest.**

SLA Rank (from highest to lowest rate change)	Statistical Local Area (SLA)	Theft rate 1998	Theft rate 1997	1997-1998 rate change	Percentage change in state rate after removal of top ranking SLAs
1	Adelaide (C)	1,477.3	1,040.2	437.1	36.5
2	Kensington & Norwood (C)	166.7	103.2	63.5	35.4
3	Port Augusta (C)	80.0	37.0	43.0	35.1
4	Glenelg (C)	136.2	94.3	41.9	34.4
5	Meningie (DC)	54.1	12.7	41.4	34.2
6	Marion (C)	70.7	29.8	40.9	33.9
7	Mallala (DC)	57.0	17.0	40.0	29.8
8	Ridley & Truro (DC)	55.5	17.3	38.3	29.4
9	Peterborough (DC)	33.7	0.0	33.7	29.2
10	Henley & Grange (C)	86.8	55.5	31.3	29.2
11	Salisbury (C)	80.2	52.5	27.7	28.8
12	Brighton (C)	58.1	33.2	24.9	26.1
13	Mount Pleasant (DC)	37.3	12.4	24.8	25.5
14	Noarlunga (C)	70.0	45.6	24.5	25.4
15	Enfield (C)	100.5	76.8	23.7	22.8
16	Walkerville (M)	58.6	36.1	22.6	21.8
17	Thebarton (M)	144.4	122.1	22.3	21.6
18	Tea Tree Gully (C)	58.8	37.1	21.7	21.6
19	Gumeracha (DC)	36.9	15.5	21.4	18.0
20	St Peters (M)	90.1	68.7	21.4	17.7
21	Barmera (DC)	38.7	18.1	20.6	17.5
22	Spalding (DC)	20.4	0.0	20.4	17.3
23	Loxton (DC)	26.2	7.0	19.2	17.2
24	Port Lincoln (C)	38.4	19.4	19.1	16.9
25	Central Yorke Peninsula (DC)	32.1	13.3	18.8	16.3
26	Saddleworth & Auburn (DC)	23.2	4.6	18.5	16.1
27	Prospect (C)	96.7	78.2	18.5	15.9
28	Berri (DC)	42.3	24.4	17.9	15.6
29	Victor Harbor (DC)	32.3	15.6	16.7	15.3
30	Peterborough (M)	21.1	5.2	15.9	14.9
31	Unley (C)	59.5	43.8	15.6	14.8
32	Mitcham (C)	39.5	24.1	15.4	13.8
33	Strathalbyn (DC)	22.3	8.4	13.9	11.4
34	Yorke town (DC)	13.6	0.0	13.6	11.1
35	Hindmarsh & Woodville (C)	96.1	83.0	13.1	10.9
36	Pirie (DC)	13.1	0.0	13.1	9.4
37	Campbelltown (C)	45.5	33.5	12.0	9.3
38	Cleve (DC)	10.6	0.0	10.6	7.4
39	Munno Para (C)	70.5	60.4	10.1	7.3
40	Willunga (DC)	28.1	18.5	9.6	6.0
41	Payneham (C)	67.0	57.8	9.2	5.3
42	Mount Gambier (C)	32.1	23.0	9.1	4.8
43	Roxby Downs (DC)	43.5	34.8	8.8	3.8

Appendix 6 **Calculations for Figure 4: South Australian SLAs ranked in order of those with the highest 1997-1998 rate change in vehicle theft to those with the lowest (continued).**

<i>SLA Rank (from highest to lowest rate change)</i>	<i>Statistical Local Area (SLA)</i>	<i>Theft rate 1998</i>	<i>Theft rate 1997</i>	<i>1997-1998 rate change</i>	<i>Percentage change in state rate after removal of top ranking SLAs</i>
44	West Torrens (C)	66.4	57.9	8.5	3.6
45	Murray Bridge (RC)	34.2	26.0	8.2	1.7
46	Naracoorte (M)	18.3	10.2	8.1	0.9
47	Robe (DC)	22.5	14.9	7.6	0.6
48	Karoonda - East Murray (DC)	7.5	0.0	7.5	0.5
49	Onkaparinga (DC)	18.0	10.9	7.1	0.4
50	Port Broughton (DC)	21.1	14.0	7.1	0.0
51	Coonalpyn Downs (DC)	7.0	0.0	7.0	0.0
52	Wakefield Plains (DC)	24.0	17.1	6.9	-0.1
53	Port Adelaide (C)	85.0	78.3	6.6	-0.4
54	Burnside (C)	28.2	21.6	6.6	-2.8
55	Mount Remarkable (DC)	9.7	3.2	6.5	-5.6
56	Mannum (DC)	28.2	21.8	6.4	-5.8
57	Beachport (DC)	6.2	0.0	6.2	-6.0
58	Riverton (DC)	17.6	11.7	6.0	-6.1
59	Port Pirie (C)	25.0	19.4	5.5	-6.3
60	Millicent (DC)	10.3	5.1	5.2	-7.2
61	Clare (DC)	16.1	11.5	4.6	-7.7
62	Minlaton (DC)	8.4	4.2	4.2	-7.9
63	Paringa (DC)	48.9	45.1	3.7	-8.0
64	Renmark (M)	30.3	26.7	3.7	-8.2
65	Gawler (M)	63.0	60.1	2.9	-8.7
66	Kapunda (DC)	11.3	8.5	2.8	-10.4
67	Tatiara (DC)	12.7	10.0	2.8	-10.5
68	Happy Valley (C)	22.8	20.8	2.0	-10.9
69	Mount Barker (DC)	19.9	17.9	2.0	-13.0
70	Stirling (DC)	13.6	11.8	1.8	-14.3
71	Elizabeth (C)	143.2	141.9	1.4	-15.1
72	Morgan (DC)	45.0	44.7	0.3	-32.7
73	Blyth & Snowtown (DC)	14.5	14.3	0.2	-33.3
74	Tumby Bay (DC)	11.3	11.3	0.0	-33.6
75	Browns Well (DC)	0.0	0.0	0.0	-33.9
76	Carrieton (DC)	0.0	0.0	0.0	-33.9
77	Eudunda (DC)	0.0	0.0	0.0	-33.9
78	Hallett (DC)	0.0	0.0	0.0	-33.9
79	Hawker (DC)	0.0	0.0	0.0	-33.9
80	Kimba (DC)	0.0	0.0	0.0	-33.9
81	Le Hunte (DC)	0.0	0.0	0.0	-33.9
82	Orroroo	0.0	0.0	0.0	-34.0
83	Pinnaroo (DC)	0.0	0.0	0.0	-34.0
84	Robertstown (DC)	0.0	0.0	0.0	-34.0
85	Light (DC)	14.1	14.5	-0.4	-34.0
86	Port Elliot & Goolwa (DC)	22.2	24.2	-2.0	-34.9

Appendix 6 **Calculations for Figure 4: South Australian SLAs ranked in order of those with the highest 1997-1998 rate change in vehicle theft to those with the lowest (continued).**

<i>SLA Rank (from highest to lowest rate change)</i>	<i>Statistical Local Area (SLA)</i>	<i>Theft rate 1998</i>	<i>Theft rate 1997</i>	<i>1997-1998 rate change</i>	<i>Percentage change in state rate after removal of top ranking SLAs</i>
87	Lower Eyre Peninsula (DC)	9.8	12.3	-2.5	-36.9
88	East Torrens (DC)	13.1	16.0	-2.9	-37.2
89	Kingscote (DC)	8.3	11.3	-3.0	-38.0
90	Port MacDonnell (DC)	14.8	18.6	-3.8	-38.1
91	Whyalla (C)	21.7	25.7	-4.0	-38.5
92	Rocky River (DC)	4.6	8.8	-4.2	-45.5
93	Angaston (DC)	6.8	11.0	-4.2	-45.5
94	Streaky Bay (DC)	5.2	10.1	-4.9	-45.8
95	Northern Yorke Peninsula (DC)	6.2	11.1	-5.0	-45.8
96	Lucindale (DC)	0.0	7.5	-7.5	-45.8
97	Lameroo (DC)	0.0	7.8	-7.8	-45.5
98	Franklin Harbor (DC)	8.3	16.3	-8.0	-45.2
99	Waikerie (DC)	22.4	30.6	-8.2	-45.2
100	Walleroo (M)	0.0	8.4	-8.4	-46.9
101	Unincorporated regions	34.3	42.9	-8.6	-46.2
102	Jamestown (DC)	0.0	8.8	-8.8	-54.0
103	Mount Gambier (DC)	5.6	15.0	-9.4	-53.3
104	Bute (DC)	0.0	9.4	-9.4	-52.6
105	Crystal Brook & Redhill (DC)	14.0	23.7	-9.7	-52.2
106	Burra Burra (DC)	16.2	26.5	-10.2	-52.7
107	Naracoorte (DC)	5.3	15.9	-10.6	-53.4
108	Tanunda (DC)	4.6	16.2	-11.6	-53.0
109	Penola (DC)	0.0	11.7	-11.7	-51.4
110	Lacepede (DC)	0.0	12.3	-12.3	-49.2
111	Peake (DC)	0.0	12.5	-12.5	-47.5
112	Kanyaka - Quorn (DC)	35.6	49.0	-13.4	-46.9
113	Yankalilla (DC)	15.6	29.2	-13.5	-48.6
114	Dudley (DC)	13.1	26.7	-13.6	-48.9
115	Elliston (DC)	0.0	16.1	-16.1	-48.9
116	Warooka (DC)	0.0	17.8	-17.8	-47.2
117	Barossa (DC)	5.6	24.5	-18.9	-45.4
118	Cooper Pedy (DC)	53.1	78.4	-25.3	-35.9
119	Ceduna (DC)	42.8	70.1	-27.3	-38.9

Appendix 7 **Calculations for Figure 4: South Australian SLAs ranked in order of those with the highest 1997-1998 rate change in vehicle recoveries to those with the lowest.**

SLA Rank (from highest to lowest rate change)	Statistical Local Area (SLA)	Recovery rate 1998	Recovery rate 1997	1997-1998 rate change	Percentage change in state rate after removal of top ranking SLAs
1	Adelaide (C)	571.1	376.9	194.2	39.9
2	Peterborough (M)	134.7	0.0	134.7	39.0
3	Mallala (DC)	205.8	130.5	75.3	38.8
4	Henley & Grange (C)	93.8	42.8	51.0	38.5
5	Port Augusta (C)	74.3	33.4	40.9	37.7
6	St Peters (M)	78.4	41.9	36.5	37.0
7	Salisbury (C)	85.7	50.8	35.0	36.7
8	Marion (C)	61.4	27.7	33.7	33.3
9	Port Adelaide (C)	113.7	80.1	33.6	29.7
10	Gumeracha (DC)	101.4	69.8	31.6	28.9
11	Glenelg (C)	76.4	46.8	29.7	28.7
12	Enfield (C)	134.8	105.4	29.3	28.3
13	Berri (DC)	47.9	20.1	27.9	28.3
14	Payneham (C)	71.9	47.9	24.1	27.9
15	Kensington & Norwood (C)	102.6	78.7	23.8	27.5
16	Noarlunga (C)	68.1	44.3	23.8	27.5
17	Karoonda - East Murray (DC)	29.9	7.3	22.6	24.4
18	Hawker (DC)	21.3	0.0	21.3	24.3
19	Port Broughton (DC)	35.1	14.0	21.1	24.3
20	Prospect (C)	82.6	61.5	21.1	24.2
21	Meningie (DC)	46.4	25.4	20.9	23.9
22	Streaky Bay (DC)	20.7	0.0	20.7	23.7
23	Port Lincoln (C)	36.9	16.3	20.6	23.6
24	Spalding (DC)	20.4	0.0	20.4	22.9
25	Strathalbyn (DC)	23.7	4.2	19.5	22.9
26	Willunga (DC)	41.2	21.8	19.4	22.5
27	Bute (DC)	18.9	0.0	18.9	21.9
28	Mannum (DC)	37.6	18.7	18.9	21.8
29	West Torrens (C)	71.7	53.6	18.1	21.7
30	Victor Harbor (DC)	29.3	12.5	16.8	20.8
31	Mitcham (C)	37.7	21.0	16.7	20.3
32	Thebarton (M)	134.4	118.3	16.2	17.7
33	Cleve (DC)	15.8	0.0	15.8	17.8
34	Brighton (C)	40.1	24.4	15.7	17.7
35	Munno Para (C)	106.3	91.6	14.6	16.9
36	Ridley & Truro (DC)	55.5	41.4	14.1	16.9
37	Walkerville (M)	45.7	31.7	14.0	16.8
38	Crystal Brook & Redhill (DC)	28.0	14.2	13.8	16.5
39	Elizabeth (C)	115.8	102.4	13.5	16.4
40	Minlaton (DC)	12.6	0.0	12.6	17.0
41	Beachport (DC)	18.5	6.1	12.4	16.8
42	Tea Tree Gully (C)	39.5	27.4	12.1	16.7
43	Tumby Bay (DC)	18.8	7.5	11.3	12.9

Appendix 7 **Calculations for Figure 4: South Australian SLAs ranked in order of those with the highest 1997-1998 rate change in vehicle recoveries to those with the lowest (continued).**

<i>SLA Rank (from highest to lowest rate change)</i>	<i>Statistical Local Area (SLA)</i>	<i>Recovery rate 1998</i>	<i>Recovery rate 1997</i>	<i>1997-1998 rate change</i>	<i>Percentage change in state rate after removal of top ranking SLAs</i>
44	Mount Gambier (DC)	30.0	18.8	11.2	12.7
45	Hindmarsh & Woodville (C)	93.1	82.2	10.9	12.5
46	Unley (C)	41.4	31.3	10.0	12.2
47	Mount Gambier (C)	26.0	16.5	9.5	10.0
48	Clare (DC)	13.8	4.6	9.2	8.2
49	Murray Bridge (RC)	37.2	28.4	8.8	7.8
50	Burnside (C)	25.8	17.4	8.4	6.6
51	Kapunda (DC)	16.9	8.5	8.4	3.3
52	Light (DC)	53.4	45.1	8.3	3.0
53	Mount Pleasant (DC)	33.1	24.9	8.2	2.4
54	Campbelltown (C)	40.1	32.0	8.1	2.2
55	Loxton (DC)	18.0	9.8	8.1	-2.6
56	Mount Barker (DC)	29.0	21.1	7.9	-3.5
57	Morgan (DC)	22.5	14.9	7.6	-6.5
58	Central Yorke Peninsula (DC)	35.9	28.5	7.4	-6.6
59	Pirie (DC)	6.6	0.0	6.6	-7.4
60	Mount Remarkable (DC)	6.4	0.0	6.4	-7.6
61	Peterborough (DC)	5.3	0.0	5.3	-7.9
62	Yankalilla (DC)	28.7	23.9	4.8	-7.6
63	Saddleworth & Auburn (DC)	18.5	13.9	4.7	-8.0
64	Happy Valley (C)	22.1	18.2	3.9	-8.2
65	Millicent (DC)	10.3	6.4	3.9	-12.0
66	Paringa (DC)	48.9	45.1	3.7	-12.7
67	Stirling (DC)	21.3	17.7	3.6	-13.0
68	Yorke town (DC)	10.2	6.8	3.4	-15.0
69	Angaston (DC)	13.6	11.0	2.6	-15.3
70	Kingscote (DC)	11.1	8.4	2.6	-15.9
71	Tanunda (DC)	4.6	2.3	2.2	-16.2
72	Naracoorte (M)	12.2	10.2	2.0	-16.4
73	Port Pirie (C)	16.6	15.3	1.4	-16.8
74	Unincorporated regions	45.0	44.1	0.9	-18.1
75	Franklin Harbor (DC)	16.5	16.3	0.3	-19.8
76	Lameroo (DC)	8.1	7.8	0.3	-19.9
77	Rocky River (DC)	9.1	8.8	0.3	-19.9
78	Barmera (DC)	25.1	24.9	0.2	-20.1
79	Jamestown (DC)	4.6	4.4	0.2	-20.6
80	Coonalpyn Downs (DC)	7.0	6.8	0.1	-20.7
81	Robe (DC)	15.0	14.9	0.1	-20.8
82	Browns Well (DC)	0.0	0.0	0.0	-20.9
83	Carrieton (DC)	0.0	0.0	0.0	-20.9
84	Hallett (DC)	0.0	0.0	0.0	-20.9
85	Kimba (DC)	0.0	0.0	0.0	-20.9
86	Le Hunte (DC)	6.4	6.4	0.0	-20.9

Appendix 7 **Calculations for Figure 4: South Australian SLAs ranked in order of those with the highest 1997-1998 rate change in vehicle recoveries to those with the lowest (continued).**

<i>SLA Rank (from highest to lowest rate change)</i>	<i>Statistical Local Area (SLA)</i>	<i>Recovery rate 1998</i>	<i>Recovery rate 1997</i>	<i>1997-1998 rate change</i>	<i>Percentage change in state rate after removal of top ranking SLAs</i>
87	Naracoorte (DC)	10.6	10.6	0.0	-21.0
88	Orroroo (DC)	0.0	0.0	0.0	-21.1
89	Peake (DC)	0.0	0.0	0.0	-21.1
90	Penola (DC)	3.0	2.9	0.0	-21.1
91	Renmark (M)	15.2	15.2	-0.1	-21.2
92	Tatiara (DC)	7.1	7.1	-0.1	-21.9
93	Gawler (M)	49.9	50.4	-0.5	-22.1
94	Whyalla (C)	20.4	21.5	-1.1	-28.7
95	Port Elliot & Goolwa (DC)	17.8	19.6	-1.9	-33.9
96	Onkaparinga (DC)	9.6	12.1	-2.5	-35.7
97	Roxby Downs (DC)	31.9	34.8	-2.8	-36.4
98	Northern Yorke Peninsula (DC)	6.2	9.9	-3.7	-38.2
99	Barossa (DC)	22.5	28.3	-5.7	-38.1
100	Waikerie (DC)	24.4	30.6	-6.2	-39.6
101	Eudunda (DC)	0.0	7.3	-7.3	-41.4
102	Lucindale (DC)	0.0	7.5	-7.5	-41.1
103	Port MacDonnell (DC)	29.6	37.2	-7.6	-40.7
104	Lacepede (DC)	4.1	12.3	-8.1	-42.1
105	Walleroo (M)	0.0	8.4	-8.4	-41.6
106	Pinnaroo (DC)	0.0	8.9	-8.9	-40.8
107	Lower Eyre Peninsula (DC)	2.4	12.3	-9.8	-40.4
108	Wakefield Plains (DC)	24.0	34.2	-10.2	-38.9
109	East Torrens (DC)	59.7	71.4	-11.6	-40.1
110	Robertstown (DC)	0.0	13.2	-13.2	-56.2
111	Blyth & Snowtown (DC)	14.5	28.6	-14.1	-55.6
112	Burra Burra (DC)	5.4	21.2	-15.8	-56.2
113	Elliston (DC)	0.0	16.1	-16.1	-55.0
114	Warooka (DC)	0.0	17.8	-17.8	-53.6
115	Kanyaka - Quorn (DC)	21.4	42.0	-20.7	-51.9
116	Riverton (DC)	0.0	23.3	-23.3	-52.2
117	Dudley (DC)	0.0	26.7	-26.7	-48.3
118	Cooper Pedy (DC)	45.5	78.4	-32.9	-45.9
119	Ceduna (DC)	37.1	73.0	-35.8	-49.1