The Canberra Paradox and its Implications – a Safe City whose Drivers have a High Crash Rate.

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ABSTRACT

The objective of this research was to determine the size of the crash problem for ACT controllers and to compare that with the size of the crash problem in the ACT. Crashes in NSW between 1992 and June 1999 which involved controllers holding ACT licences or vehicles registered in the ACT were identified. Approximately as many fatalities occurred to ACT licensed controllers or vehicles outside the ACT as happened within the ACT. The number of serious injury accidents involving ACT controllers or vehicles in NSW was approximately double the number of serious injury crashes occurring in the ACT. Of accidents occurring in the ACT, 6 per cent involve only interstate controllers or vehicles, and a further 24 per cent involve collisions between interstate controllers or vehicles and ACT based controllers or vehicles. The majority of fatal crashes occur along the major highways servicing Sydney and the major tourist destinations within the State. However, the highest concentration of crashes of all severities is in Sydney, particularly those involving pedestrian and intersection type collisions. These findings raise the question of how to protect populations of road users in contrast to the provision of safe infrastructure. In particular, this highlights the issues faced by many local government road safety programs where either many crashes involve controllers who are passing through the area and who cannot greatly be influenced, or many crashes involving local people happen in other local government areas so it is difficult to adequately access the results of programs. Much more attention should be given to monitoring the road safety record of populations of road users in addition to the continuing monitoring of crashes at different geographical locations.

INTRODUCTION

It has long been established that the ACT has the lowest road fatality rate of all the Australian jurisdictions. At 7.13 fatalities per 100,000 population, this is considerably better than Queensland, Victoria, or New South Wales, the jurisdictions with the next lowest fatality rates with between eight and nine fatalities per 100,000 population (FORS 1998). It is close to the best-performing countries such as the United Kingdom and Sweden, with 6.3 and 6.1 fatalities per 100,000 population respectively (DETR 1999).

However, this fatality rate is unlikely to be a true representation of the crash experience of the ACT driving population. In other Australian jurisdictions, half or more of the fatalities typically occur outside the metropolitan area. Since the ACT covers a relatively small area and Canberra residents seek many of their recreational activities outside the ACT, it seems likely that they also have many crashes outside the ACT. On the other hand, as the national capital, Canberra attracts large numbers of visitors, either as persons attending to governmental or parliamentary business, or as tourists. A proportion of crashes in the ACT would therefore be expected to involve controllers or vehicles from interstate.

This investigation was intended to discover how many crashes involving ACT controllers or vehicle occurred in New South Wales, and to discover more about the location and circumstances of these crashes. It also attempted to discover the extent to which these crashes were balanced by controllers and vehicles from outside the ACT had crashes in the ACT.

METHOD

New South Wales crash records dating from 1992 to June 1999 were examined, and all crashes involving ACT registered vehicles or ACT licensed controllers and riders were extracted for further analysis. The inclusion of both ACT registered vehicles and ACT licensed controllers captures all possible scenarios where either the controller, rider or vehicle originated in the ACT. Sydney and the major traffic routes connecting the ACT to major towns and tourist locations within New South Wales were the focus of a spatial distribution of crashes (see Table 1).

The crash records were made available by the NSW Roads and Traffic Authority. These crash records are based on Police accident reports, subject to subsequent coding of other variables and consistency checks.

ACT crash records between January 1992 and December 1999 were examined, with a primary focus on the origin of vehicles and controllers involved in each crash. For comparative purposes with the NSW database, crash characteristics such as driver demographics and crash types were also retrieved. There are differences between the data bases, e.g. in the criteria for including damage-only crashes. However, these differences are unlikely to affect the main points developed in this paper.

Table 1: Routes and regions on which crash analysis focussed

Region/Route	Between	Route Length (km)*
Metropolitan Sydney region	-	-
Hume Hwy	Ashfield to Albury	560 km
King's Hwy	Queanbeyan to Bateman's Bay	110 km
Federal Hwy	Goulburn to Sutton	190 km
Pacific Hwy	Nth Sydney to Tweed Heads	860 km
Princes Hwy	Sydney to Victorian Border	550 km
Monaro Hwy	ACT border near Canberra to Victorian border near Rockton	250 km

RESULTS

Crashes in NSW involving NSW controllers or vehicles

Table 2 lists the number of fatal and serious injury crashes involving ACT vehicles or controllers which occurred in NSW compared to the crashes which occurred in the ACT.

Table 2: ACT crashes outside the ACT compared to crashes within the ACT

	Fatal crashes		Serious Injury crashes	
	Fatal Crashes within ACT	Fatal Crashes of ACT vehicles/ controllers in NSW	Serious Injury Crashes within ACT	Serious Injury Crashes of ACT vehicles/ controllers in NSW
1992	18	22	155	306
1993	11	11	143	312
1994	15	17	146	283
1995	14	12	161	261
1996	17	13	na	241
1997	17	8	na	226
1998	20	12	na	271

In the years 1992 to 1994, the number of fatal crashes outside the ACT was actually equal to or greater than the number occurring within it. Since 1995, the number of fatal crashes within the ACT has increased and the number outside has decreased. In 1998, 12 fatal crashes involving an ACT vehicle or controller occurred in NSW compared to 20 fatal crashes in the ACT itself.

From 1992 to 1994, the number of serious injury accidents in the ACT was approximately half (50 per cent) the number of serious injury crashes involving ACT controllers/vehicles in NSW. In 1995, the last year for which FORS data was available at the time of writing, this had increased to 62 per cent, due to an increase in serious injury accidents in the ACT and a reduction in NSW.

Crashes in the ACT involving controllers or vehicles from outside the ACT

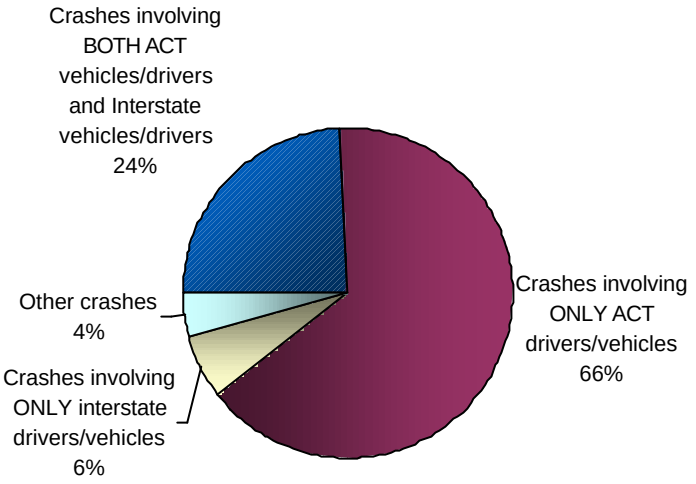
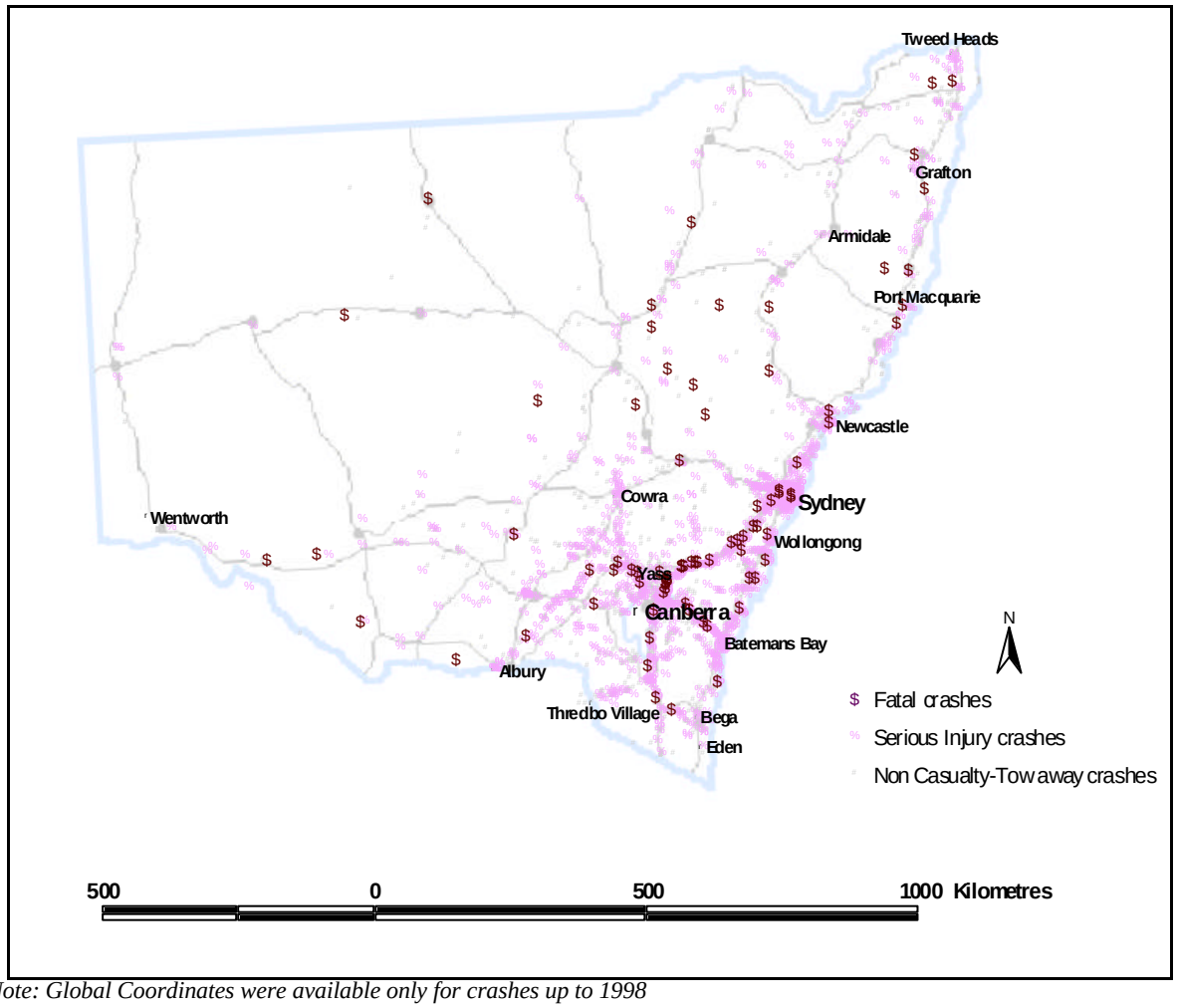


Figure 1: Origin of vehicles/controllers involved in ACT crashes (1992 to 1999)

The relative frequency of crashes in the ACT involving vehicles or controllers from outside the ACT is shown in Figure 1. Six per cent of crashes involved only interstate controllers or vehicles, while a further 24 per cent involved collisions between ACT controllers or vehicles and interstate controllers or vehicles. Of these interstate vehicle/controller involved in crashes, 90 per cent originated in neighbouring NSW. The temporal characteristics of interstate crashes in the ACT suggest that the majority of these motorists travel within the ACT, not for recreational purposes, but for work-related commuter purposes.

Location of crashes in NSW involving ACT vehicles or controllers.

The locations of crashes involving ACT controllers in NSW is shown in Figure 2. It can be seen that a large proportion of the crashes take place in the Sydney region or along the main routes leading to Sydney, the coast, or the snowfields. This is confirmed by the figures in Table 3. Thirty-three percent of crashes occurred in Sydney, and a further 24 per cent along the main routes.



Note: Global Coordinates were available only for crashes up to 1998

*Figure 2: Crashes in NSW involving an ACT licensed driver or an ACT registered vehicle (1992 to 1998)**

Table 3: Spatial distribution of crashes in NSW involving ACT vehicles/controllers (All crashes 1992 to June 1999)

Region/Route	Fatal crashes	(%)*	Serious Injury crashes	(%)	Non Casualty crashes	(%)	TOTAL	(%)
Metro Sydney	8	8%	556	27%	1422	37%	1986	33%
Hume Hwy	15	15%	148	7%	245	6%	408	7%
King's Hwy	7	7%	153	8%	258	7%	418	7%
Federal Hwy	10	10%	59	3%	90	2%	159	3%
Pacific Hwy	9	9%	60	3%	78	2%	147	2%
Princes Hwy	5	5%	69	3%	91	2%	165	3%
Monaro Hwy	5	5%	40	2%	75	2%	120	2%
Other	43	42%	949	47%	1567	41%	2559	43%
TOTAL	102	100%	2034	100%	3826	100%	5962	100%

**Percentages refer to proportion of all crashes between 1992 and June 1999 involving ACT vehicles or controllers of the severity specified*

Table 4: Crashes in NSW involving ACT registered vehicles or controllers (1992 to 1998)
-Vehicle Crash Types (Pedestrian crashes omitted)-

	Vehicles from adjacent directions (Intersect-ions only)	Vehicles from opposing directions	Vehicles from same direction	Manoeuvring	Over-taking	On Path	Off Path-on straight	Off path-on curve or turning	Other
Sydney Metro	**368**	**316**	**878**	**102**	9	**65**	130	56	**8**
Hume Hwy	15	31	103	7	4	23	**153**	67	1
King's Hwy	25	54	70	8	**15**	16	70	**153**	0
Federal Hwy	1	19	21	4	0	13	52	49	0
Pacific Hwy	9	28	65	3	1	6	16	16	1
Princes Hwy	17	30	47	10	5	3	16	31	1
Monaro Hwy	6	13	9	1	3	14	40	33	1
Other	355	321	337	94	62	134	453	755	15
TOTAL	796	812	1530	229	99	274	930	1160	27

Different types of crash were more prevalent in different locations. In the Sydney region, crashes involving vehicles from adjacent directions (i.e. intersection crashes), vehicles from the opposing direction (i.e. head-on and side-swipe crashes) and vehicles from the same direction (i.e. rear-end crashes) were predominant. Off-path on straight were the most frequent crash type on the Hume, Federal and Monaro Highways, while off-path on curve was the predoinant crash type of King's Highway.

Other factors which were evident from the analysis included:

?? A slight over representation of crashes during school holiday periods (outside public holidays).

?? Weekends are over represented on the Highways connecting the ACT with the coast and mountains, but are not over represented in Sydney or the coastal highways.

?? Use of alcohol hours as an indicator tends to over-estimate the effects of alcohol on crashes on major highways, since some peak travel times (i.e. weekend late night travel) may coincide with high alcohol times even though the social context of the travel is such that it is unlikely to lead controllers to consume alcohol before setting out on these journeys.

IMPLICATIONS

Pragmatic Implications

The results of this investigation have shown that ACT controllers are at considerable risk driving in New South Wales. Potential actions which may be taken by the ACT to reduce these crashes could include:

?? Campaigns aimed at helping ACT motorists cope with heavy congestion and higher traffic volumes e.g. keeping a safe distance from the vehicle in front (high level of rear-end crashes in Sydney). An on-road style campaign at Canberra exits to Sydney may be an option. However, whatever method is adopted, such a campaign would be difficult to assess and a substantial shift in behaviour would be unlikely.

?? Workplace education programs in the ACT for organisations regularly sending staff into Sydney for business focusing on driving skills, reinforcing traffic rules which are most relevant to the Sydney

environment could also be a possibility especially if linked into any existing workplace road safety initiatives.

?? Educational and advertising type initiatives such as those mentioned above could be undertaken in an effort to reduce the number of ACT crashes outside the ACT.

Philosophical Implications

It is generally recognised that the appropriate indices for road trauma as a health issue are in terms of crash rate per population, and these are generally reported for jurisdictions in aggregate form. Disaggregations within jurisdictions, however, are generally based either on disaggregations based on jurisdiction-wide statistics, such as breakdowns by age or gender, or breakdowns based on the geographical location of the accident. As this investigation amply demonstrates, breakdowns in terms of the geographical location of the crash can be misleading in terms of the risk to the population living in that particular geographical area.

This may be of little consequence for road-based countermeasures as they are concerned with addressing infrastructure problems at specific locations, but is of great concern for education and publicity campaigns. For State-wide campaigns, knowledge of sub-populations which are over-represented in crashes would be valuable both in targeting at-risk groups and assessing the effectiveness of that targeting. For locally-based campaigns, it provides a more accurate measure of effectiveness than crashes occurring in the local area as it can take account of the benefits of the campaign for people living in the area but travelling outside, while discounting people from outside the area who have crashes in the target area. Current commitment to locally based road safety strategies adds to the importance of this point.

More attention should therefore be given to understanding crash patterns experienced by sub-populations in the community as well as the crash patterns associated with particular locations.

ACKNOWLEDGEMENT

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