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THE FACTORS INFLUENCING DWI IN NORTH CAROLINA

Final Report

for

the Governor's Highway Safety Program

90-03-C-308-07

Carol L. Popkin

and

Carol Martell

The University of North Carolina
Highway Safety Research Center

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The opinions and findings contained in this report are solely those of the authors and are not necessarily those of the project sponsor.

AN EVALUATION
OF
FACTORS INFLUENCING DWI IN NORTH CAROLINA

The Safe Roads Act of 1983 made significant changes in the laws affecting drinking and driving. Initial analyses (Lacey, Popkin, et al., 1984) indicated that the law was effective in reducing driving while impaired (DWI). Yet in 1988, over 76,500 North Carolinians were arrested for DWI, an arrest rate or 1.76 per hundred licensed drivers. In spite of a general reduction in driving while impaired (DWI) activity, drinking and driving continues to be a contributing factor in a large proportion of motor vehicle crashes. In 1988 there were 15,301 alcohol related (A/R) crashes in North Carolina in which 15,618 people were injured. Apparently drinking and driving is still a large problem in North Carolina.

This work was sponsored through funding from the Governor's Highway Safety Program. This report presents an updated evaluation of the effectiveness of the Safe Roads Act as of 1988 in terms of reducing A/R crash involvement, nighttime crash involvement (an often used proxy measure of DWI involvement), DWI arrests, and BAC levels over the period from 1980 to 1988. In addition, it presents the levels of conviction for DWI for all those persons arrested for DWI and for those arrested for DWI who exceed the per se.

In conjunction with this project, HSRC produced a DWI Factbook which presented a substantial amount of information on alcohol-related driving activity in North Carolina during 1988. (This book is available under separate cover.)

This report also examines trends in DWI arrest rates and A/R crashes in order to determine the effectiveness of this legislation on various sub-groups of the population to determine if all groups were responding in a positive fashion to the law. The DWI arrest rates and alcohol related crash trends are presented by age, race and sex.

Background

Throughout the United States in the early 1980's, the passage of stiff drunken driving countermeasures became the focus of considerable legislative action. In June of 1983, the North Carolina General Assembly enacted the Safe Roads Act (SRA) which made sweeping changes in North Carolina's drunk driving laws. These changes were designed to deter persons from driving while impaired (DWI) by imposing more certain and uniformly severe sanctions on those arrested and convicted of DWI. The new law includes an immediate, short term license revocation for persons arrested for DWI who have a blood alcohol concentration (BAC) of .10 or more or who refuse to submit to a chemical test; mandatory jail terms for multiple offenders and those involved in especially serious cases; strict sentencing guidelines for less serious offenders; the elimination of lesser included offenses which had been plea bargaining alternatives; and several special provisions designed to deter drinking and driving by the youthful driving population including raising the drinking age for beer and fortified wine from 18 to 19. This was subsequently increased to 21 in 1986. Reported changes in alcohol-related driving behavior follow.

THE LONG TERM DETERRENT EFFECT OF THE SAFE ROADS ACT*

DWI Arrests in North Carolina

One measure of the SRA's effect is the volume of DWI arrest activity. As may be seen in Figure 1, the number of DWI arrests per licensed driver has declined since enactment. Nonetheless, there were still 76,563 arrests for DWI in 1988. This represents a 2% increase over 1987 DWI arrest activity. In 1988 1.76 out of every 100 licensed drivers was arrested for DWI.

Table 1 provides the A/R arrest rates by age and sex. The number of DWI arrests per 100 licensed drivers varies considerably by age and sex. Eighty-nine percent of those arrested are male. The highest rates are for males aged 21 to 24 ;

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*This section was prepared to fulfill HSRC's previous commitment to produce an updated Evaluation of the Safe Roads Act (10-1-87 to 9-30-88).

Figure 1

Alcohol-Related Arrest Trends

Total Population

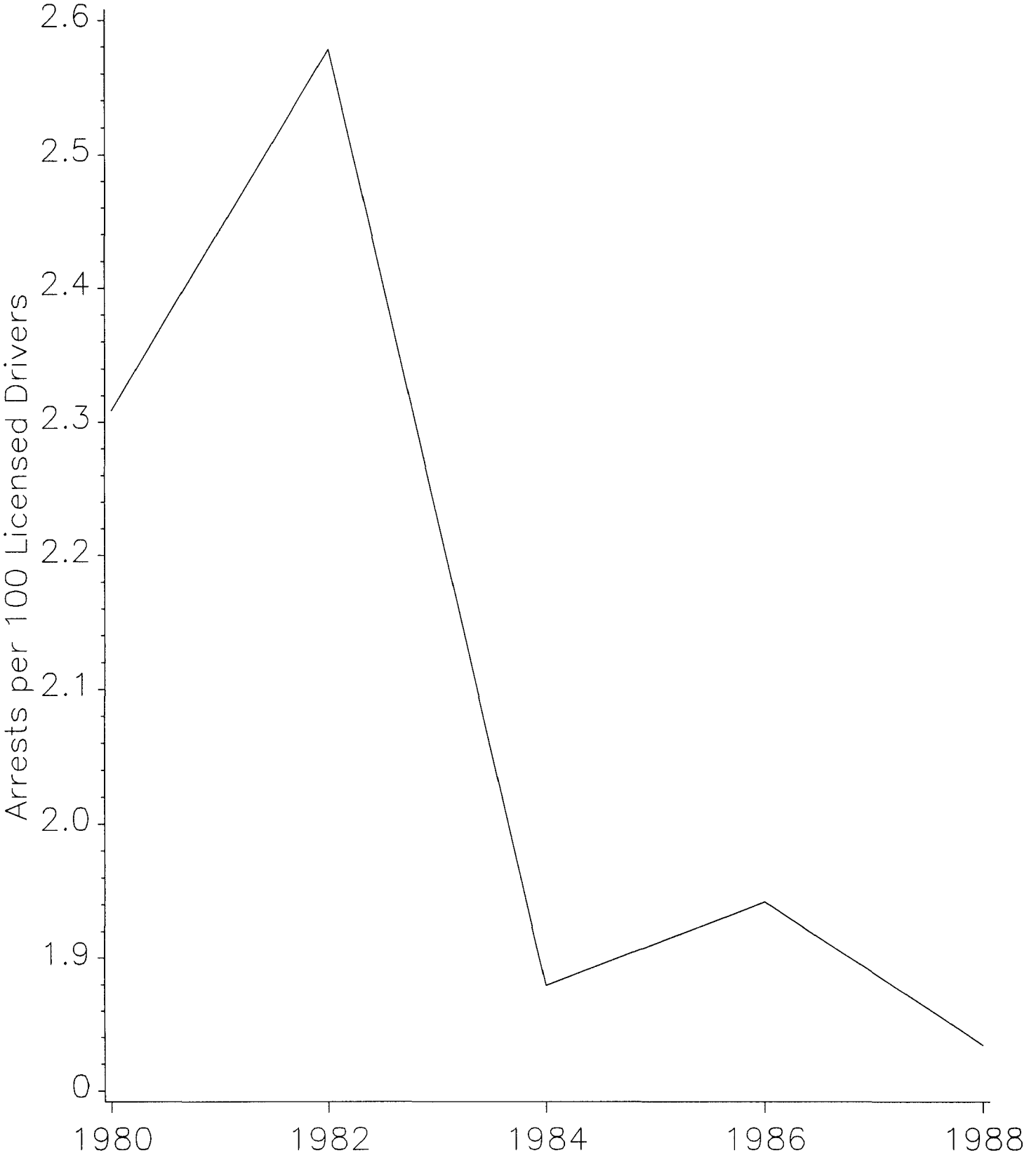


Table 1

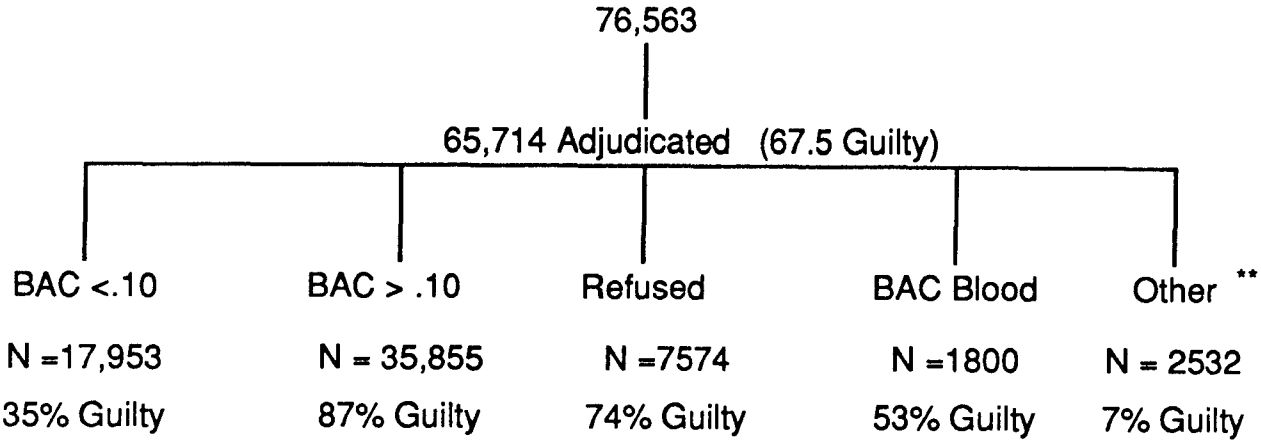
1988 ALCOHOL-RELATED ARREST RATES BY AGE GROUP AND BY SEX

		NUMBER OF ARRESTS	DISTRIBUTION (AS %) OF ARRESTS OVER AGE	DISTRIBUTION (AS %) OF ARRESTS OVER SEX	ARRESTS PER 100 LICENSED DRIVERS	NUMBER OF LICENSED DRIVERS	PERCENT OF DRIVERS
<16		18					
	M	13	72.22	0.02			
	F	5	27.78	0.06			
16-17		2,098			1.6760	125,177	2.89
	M	1,869	89.08	2.76	2.8020	66,703	1.54
	F	229	10.92	2.62	0.3916	58,474	1.35
18-20		7,168			2.7706	258,721	5.96
	M	6,470	90.26	9.54	4.7818	135,306	3.12
	F	698	9.74	7.97	0.5656	123,415	2.85
21-24		13,920			3.6122	385,363	8.88
	M	12,471	89.59	18.39	6.2469	199,634	4.60
	F	1,449	10.41	16.55	0.7802	185,729	4.28
25-54		49,796			1.9364	2,571,580	59.29
	M	43,681	87.72	64.42	3.4055	1,282,672	29.57
	F	6,115	12.28	69.86	0.4744	1,288,908	29.72
55-64		2,711			0.5428	499,489	11.52
	M	2,501	92.25	3.69	1.0018	249,663	5.76
	F	210	7.75	2.40	0.0841	249,826	5.76
65-74		758			0.2134	355,128	8.19
	M	713	94.06	1.05	0.3965	179,842	4.15
	F	45	5.94	0.51	0.0257	175,286	4.04
75+		94			0.0662	141,937	3.27
	M	92	97.87	0.14	0.1238	74,315	1.71
	F	2	2.13	0.02	0.0030	67,622	1.56
TOTAL		76,563	100.00	100.00	1.7652	4,337,395	100.00
	M	67,797	% of total	88.57	3.0984	2,188,135	50.45
	F	8,748	arrests:	11.43	0.4070	2,149,260	49.55

Prepared by: The Highway Safety Research Center

University of North Carolina

the lowest are for females 75+. On the basis of age, those 21 to 24 have the highest arrest rates - 3.61 per hundred licensed drivers. In spite of the raising of the drinking age, drivers aged 18 to 20 continue to be arrested for DWI (2.77).



* Based on N.C. Driver History file as of 3-30-90.
** Inludes 2073 BAC not stated, 28 BAC injured, 4 BAC unavailable, 427 BAC A/A.

Figure 2. DWI Arrests in 1988 by Verdict

Figure 2 presents information on the adjudication of 1988 arrestees. As of March 1990, 65,714 of the 76,563 arrested were adjudicated. Of these, 68% were found guilty. In keeping with the intent of the law, 87% of those whose BAC level was at or exceeded the per se of .10 were found guilty. (In 1982, 72 percent of these people were found guilty. In 1984 92 percent were found guilty). On the other hand, thirty-five percent of those with a BAC less than the per se level were found guilty. Only 74% of those who refused to take the breath test were found guilty.

Statewide DWI conviction rates by county, presented in Table 2, indicate that there is considerable variation in the conviction rates. For the entire state, 67.5% of those arrested for DWI are found guilty. This table also presents information on the number found guilty with counsel. Information about representation by counsel is only computerized for those found guilty. Of those

Table 2

CONVICTION RATES STATEWIDE AND BY COUNTY FOR ALL ALCOHOL-RELATED ARRESTS IN 1988

	NUMBER OF ARRESTS	NUMBER ADJUDICATED	% GUILTY	% OF GUILTY W/COUNSEL
STATEWIDE	76563	65714	67.4	63.0
COUNTY				
NOT STATED	7624	6944	83.4	55.6
ALAMANCE	1266	1186	76.9	64.6
ALEXANDER	274	250	74.8	63.1
ALLEGHANY	102	92	65.2	75.0
ANSON	347	309	65.0	72.1
ASHE	167	150	62.7	60.6
AVERY	158	142	35.2	66.0
BEAUFORT	507	463	68.3	50.6
BERTIE	292	266	50.8	35.6
BLADEN	495	445	51.5	72.1
BRUNSWICK	458	395	81.8	59.4
BUNCOMBE	1563	1371	78.6	50.8
BURKE	742	636	73.3	81.8
CABARRUS	1330	1181	69.3	69.7
CALDWELL	737	608	62.5	70.5
CAMDEN	34	33	72.7	66.7
CARTERET	749	652	61.0	71.9
CASWELL	228	201	81.6	73.8
CATAWBA	1405	1197	62.3	76.5
CHATHAM	372	322	71.7	73.6
CHEROKEE	148	120	60.0	40.3
CHOWAN	47	45	46.7	66.7
CLAY	70	66	69.7	13.0
CLEVELAND	1087	917	59.4	60.4
COLUMBUS	638	570	54.0	59.1
CRAVEN	942	815	54.7	73.1
CUMBERLAND	3093	2518	48.7	65.9
CURRITUCK	154	142	81.0	60.0
DARE	551	484	67.4	66.9
DAVIDSON	1174	996	64.6	66.7
DAVIE	311	259	67.2	74.7
DUPLIN	525	462	71.2	47.4
DURHAM	2170	1889	73.5	79.8
EDGECOMBE	890	651	59.0	56.3
FORSYTH	2403	1998	81.5	67.4
FRANKLIN	369	319	64.3	69.3
GASTON	1963	1464	56.9	58.1
GATES	110	101	58.4	59.3
GRAHAM	83	74	67.6	24.0
GRANVILLE	225	190	68.9	71.8
GREENE	128	104	65.4	44.1
GUILFORD	3675	3050	51.1	70.3
HALIFAX	697	595	68.1	34.8
HARNETT	1145	946	63.7	35.0
HAYWOOD	512	461	71.8	40.2
HENDERSON	514	448	78.1	64.6
HERTFORD	527	480	46.5	39.5
HOKE	539	501	59.3	48.1
HYDE	65	61	42.6	69.2
IREDELL	1040	908	73.7	67.1
JACKSON	160	149	71.8	47.7
JOHNSTON	981	815	56.1	66.1
JONES	80	68	55.9	50.0
LEE	428	379	64.1	74.1
LENOIR	834	715	60.7	53.0
LINCOLN	436	385	73.5	68.9
MC DOWELL	154	141	70.9	43.0
MACON	159	123	65.9	60.5
MADISON	272	254	58.3	58.1
MARTIN	226	195	75.4	45.6
MECKLENBURG	2905	2576	70.9	63.6
MITCHELL	127	115	52.2	83.3
MONTGOMERY	328	288	65.6	68.8
MOORE	616	536	65.3	75.4
NASH	1102	864	51.6	53.1
NEW HANOVER	1273	1102	73.1	64.9
NORTHAMPTON	287	246	61.0	30.0
ONSLOW	1309	1143	77.3	59.6
ORANGE	591	518	75.5	71.9
PAMLICO	113	104	54.8	71.9
PASQUOTANK	164	146	76.7	56.3
PENDER	359	309	68.3	65.9
PERQUIMANS	56	47	59.6	67.9
PERSON	189	163	79.1	84.5
PITT	1557	1415	57.4	72.0
POLK	149	116	76.7	57.3
RANDOLPH	734	607	57.7	67.7
RICHMOND	627	566	55.5	66.6
ROBESON	1268	1089	71.5	38.1
ROCKINGHAM	845	735	68.4	83.7
ROWAN	1152	1028	70.1	75.0
RUTHERFORD	638	549	66.7	63.9
SAMPSON	494	431	57.1	59.3
SCOTLAND	392	341	80.1	33.0
STANLY	449	407	60.4	71.1
STOKES	316	287	71.4	78.5
SURRY	634	543	77.7	67.5
SWAIN	195	165	66.1	16.5
TRANSYLVANIA	137	111	63.1	64.3
TYRRELL	106	94	55.3	59.6
UNION	708	635	68.2	73.7
VANCE	627	511	52.4	76.9
WAKE	4075	3095	77.9	68.5
WARREN	247	203	57.6	64.1
WASHINGTON	72	67	44.8	56.7
WATAUGA	461	421	53.9	74.9
WAYNE	1020	869	48.6	75.6
WILKES	703	632	72.5	66.8
WILSON	775	589	69.3	58.8
YADKIN	283	252	68.7	68.8
YANCEY	35	98	64.3	76.2

found guilty, 63% were represented by counsel.

Table 3 presents conviction rates for the state and by county of those people who had a BAC equal to or exceeding the per se of .10. Eighty-seven percent of those considered to be legally intoxicated were found guilty. Figure 3 shows the previous DWI activity of those arrested in 1988 and convicted. Thirty-two percent of those people arrested for DWI in 1988 and subsequently adjudicated had one or more previous DWI convictions. If a DWI arrestee had a previous conviction for DWI, there was an increased chance of their being found guilty.

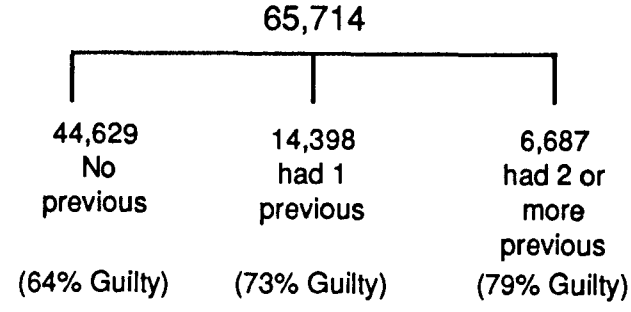


Figure 3. Previous DWI Convictions of Those 1988 DWI Arrestees Adjudicated

The SRA provides five levels of the DWI offense with Level 1 being the most severe and Level 5 the least. The level of offense influences the sanctions imposed and is determined by the judge evaluating certain aggravating and mitigating factors only after the determination of guilt on the basic offense of DWI is made. It was intended that the most severe sanctions should be imposed on those guilty of a higher level of offense. Thus, levels 1 and 2 carry mandatory active jail terms of 14 and 7 days respectively, as well as other judicially imposed sanctions such as license suspension, fines, community service or an alcohol problem assessment.

Sanctions imposed by level of offense are presented in Table 4. This table is based on dispositions received by DMV for those arrested during 1988. The

Table 3

CONVICTION RATES STATEWIDE AND BY COUNTY FOR ALCOHOL-RELATED ARRESTS IN 1988 WITH BAC READING >.09

	NUMBER OF ARRESTS	NUMBER ADJUDICATED	% GUILTY	% OF GUILTY W/COUNSEL
STATEWIDE	41092	35855	87.2	63.7
COUNTY				
ALAMANCE	750	730	96.0	65.8
ALEXANDER	157	147	97.3	62.2
ALLEGHANY	58	54	90.7	77.6
ANSON	207	186	88.2	70.1
ASHE	92	86	91.9	59.5
AVERY	67	57	71.9	63.4
BEAUFORT	323	301	88.0	48.3
BERTIE	137	129	90.7	33.3
BLADEN	244	220	88.2	71.6
BRUNSWICK	304	278	92.8	59.7
BUNCOMBE	1032	927	97.5	48.2
BURKE	482	417	93.5	82.8
CABARRUS	803	713	95.7	70.5
CALDWELL	407	351	83.5	71.0
CAMDEN	21	20	90.0	55.6
CARTERET	455	394	82.7	70.2
CASWELL	160	141	96.5	72.8
CATAWBA	840	714	83.6	77.4
CHATHAM	239	216	92.1	71.9
CHEROKEE	72	66	92.4	32.8
CHOWAN	21	20	80.0	56.3
CLAY	48	47	83.0	12.8
CLEVELAND	621	544	83.3	58.5
COLUMBUS	365	327	75.8	56.9
CRAVEN	491	431	77.0	72.6
CUMBERLAND	1844	1500	65.2	66.7
CURRITUCK	107	101	95.0	59.4
DARE	352	320	84.1	63.9
DAVIDSON	684	595	85.5	65.6
DAVIE	172	147	94.6	79.1
DUPLIN	338	311	92.9	48.1
DURHAM	1373	1220	89.3	80.6
EDGECOMBE	550	387	81.4	56.5
FORSYTH	1449	1327	95.5	66.5
FRANKLIN	215	191	86.4	72.1
GASTON	1087	826	79.2	57.5
GATES	55	52	96.2	62.0
GRAHAM	44	40	95.0	15.8
GRANVILLE	138	118	89.0	68.6
GREENE	71	64	84.4	48.1
GUILFORD	2221	1884	69.4	70.8
HALIFAX	382	349	94.0	32.6
HARNETT	681	570	88.1	33.7
HAYWOOD	334	307	90.9	36.9
HENDERSON	338	294	94.6	66.5
HERTFORD	235	218	85.8	36.4
HOKE	295	275	89.8	48.6
HYDE	22	21	85.7	72.2
IREDELL	614	537	96.8	66.0
JACKSON	101	96	89.6	45.3
JOHNSTON	554	460	82.4	68.6
JONES	46	40	85.0	52.9
LEE	237	213	86.9	72.4
LENOIR	500	438	86.5	53.8
LINCOLN	260	231	95.7	67.0
MC DOWELL	105	95	90.5	41.9
MACON	97	73	95.9	58.6
MADISON	156	145	86.2	56.8
MARTIN	135	121	93.4	46.0
MECKLENBURG	1803	1672	88.6	63.4
MITCHELL	61	56	78.6	81.8
MONTGOMERY	196	173	88.4	68.6
MOORE	372	333	87.4	74.9
NASH	647	482	75.1	54.7
NEW HANOVER	817	731	88.4	65.8
NORTHAMPTON	155	134	96.3	27.9
ONSLOW	834	745	97.4	57.4
ORANGE	378	342	95.9	70.7
PAMLICO	48	44	90.9	72.5
PASQUOTANK	95	83	98.8	57.3
PENDER	204	182	92.3	66.1
PERQUIMANS	33	26	88.5	60.9
PERSON	122	104	98.1	85.3
PITT	883	796	88.1	70.3
POLK	95	79	98.7	56.4
RANDOLPH	409	350	84.0	68.4
RICHMOND	358	322	83.9	66.7
ROBESON	709	629	96.2	37.4
ROCKINGHAM	516	447	96.0	83.2
ROWAN	710	630	96.0	75.0
RUTHERFORD	326	290	95.5	62.1
SAMPSON	281	250	76.4	58.1
SCOTLAND	228	213	95.8	30.4
STANLY	259	238	89.1	69.8
STOKES	208	190	94.7	78.3
SURRY	402	352	97.4	67.1
SWAIN	122	104	91.3	18.9
TRANSYLVANIA	65	56	83.9	68.1
TYRRELL	54	48	95.8	56.5
UNION	415	373	90.6	73.4
VANCE	365	303	74.6	77.0
WAKE	2453	2020	92.5	67.8
WARREN	147	122	83.6	64.7
WASHINGTON	25	22	86.4	52.6
WATAUGA	286	268	72.4	78.4
WAYNE	645	559	66.9	77.3
WILKES	450	410	96.6	66.7
WILSON	515	402	84.1	59.8
YADKIN	154	138	96.4	66.9
YANCEY	59	55	89.1	77.6

Table 4

Judicially Imposed Sanctions Under the Safe Roads Act by Level of Conviction for Persons Arrested in 1988

Level	Total Dispositions Received*	Active Jail	Community Service	No Operation of Motor Vehicle	Adets	Assessment	Limited Privilege
1	5670	5425 96%	506 9%	447 8%	1072 19%	4180 74%	6 0%
2	8411	8009 95%	1130 13%	835 10%	2492 30%	6916 82%	15 0%
3	4101	829 20%	2783 68%	646 16%	2736 67%	2834 69%	806 20%
4	5651	809 14%	4199 74%	841 15%	4084 72%	3659 65%	1666 29%
5	20169	2884 14%	15432 77%	2614 13%	15037 75%	10803 54%	9066 45%
Total	44002	17956 41%	24050 55%	5383 12%	25421 58%	28392 65%	11559 26.3%

*Excludes 306 cases where a level other than 1 through 5 is listed.

first column indicates the total number of dispositions received, and the subsequent columns show the number and percent of people by level who received a particular sanction. At levels 1 and 2 almost all offenders receive the active jail sanction mandated by the law. At levels 3 through 5, offenders receive less severe sanctions such as community service and attendance at ADETS. This table also shows the granting of the limited driving privilege which is afforded to those at the lower levels of offense.

This table shows that 65% of those convicted of DWI were required to get a substance abuse assessment. As might be expected, a larger proportion of those offenders in levels 1 and 2 were so ordered. In 1988, a mandatory substance abuse assessment was required for anyone in ten pilot counties who was arrested for DWI. Elsewhere in the state, an assessment was mandatory for anyone who a.) refused the breath test; b.) blew a .15 or greater; and/or c.) had a previous DWI conviction.

Table 5 shows the subsequent arrests for DWI of those 44002 found guilty of DWI. At Level 1, 79% had no subsequent arrest up to March 1990, Level 2,

Table 5 Subsequent A/R Arrests for those Arrested for DWI in 1988 and Adjudicated

		Number of Subsequent Arrests		
	N	0	1	2±
Level 1	5670	79%	16%	4%
Level 2	8411	85%	13%	3%
Level 3	4101	81%	16%	3%
Level 4	5651	78%	18%	4%
Level 5	20,169	87%	11%	2%

The data presented on this table uses those people with an alias counted only under the license with most 1988 DWI activity.

85%; Level 3, 81%; Level 4, 78%, and Level 5 87%. This is a rudimentary estimate since no adjustment has been made for the passage of time. Similarly, it should be remembered that licensing sanctions may differ for these five groups with those at Levels 1 and 2 having their licenses suspended for a minimum of four years by DMV.

Alcohol Related Crashes

The most important objective of the SRA was the reduction of A/R crashes and injuries. Figure 4 presents the percentage of crashes by month. There is a clear decrease during the period after the law took effect, but the proportion of decrease has leveled out. The overall level is lower than that observed prior to the passage of the law.

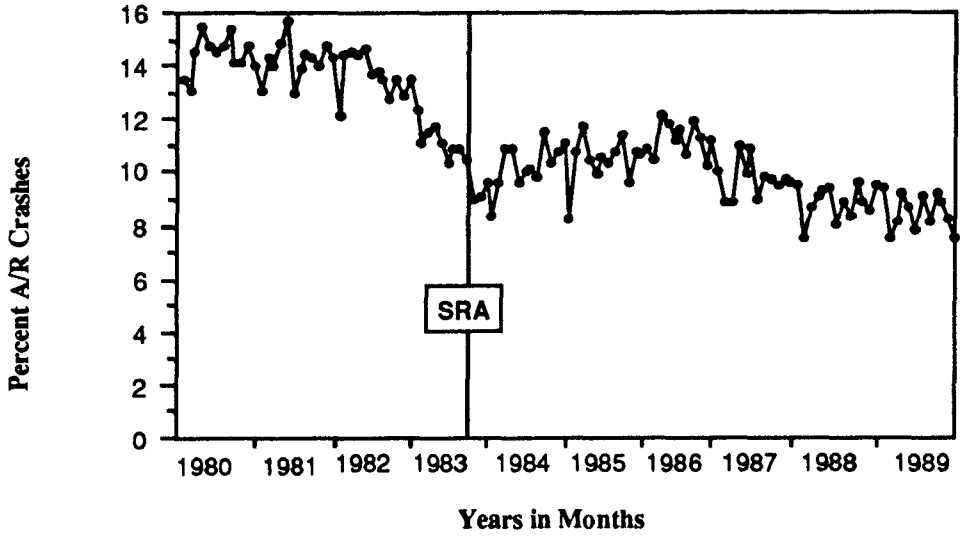


Figure 4. Percentage of A/R Crashes by Month
Jan 1980 to Dec. 1989

Figure 5 presents the percentage of crashes which occurred at night. This is an often used proxy measure of A/R crashes. (74% of A/R crashes occurred at night in North Carolina). This table shows a relatively consistent decline in nighttime crashes after the passage of the SRA and a stabilization. Both these

figures substantiate the reduction in A/R crashes immediately following the passage of the law. In subsequent years this decrease has slowed, and we now observe a stabilized situation.

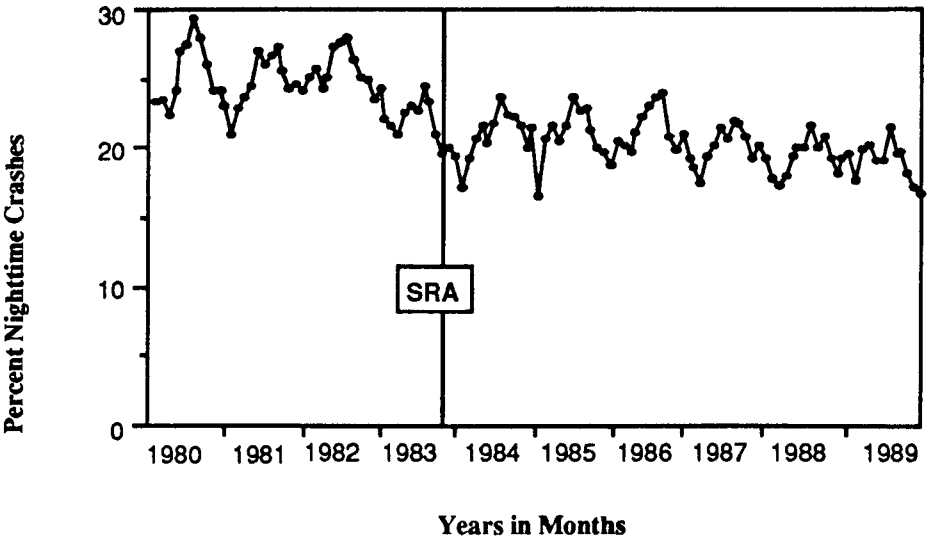


Figure 5. Percentage of Nighttime Crashes by Month Jan. 1980 to Dec. 1989

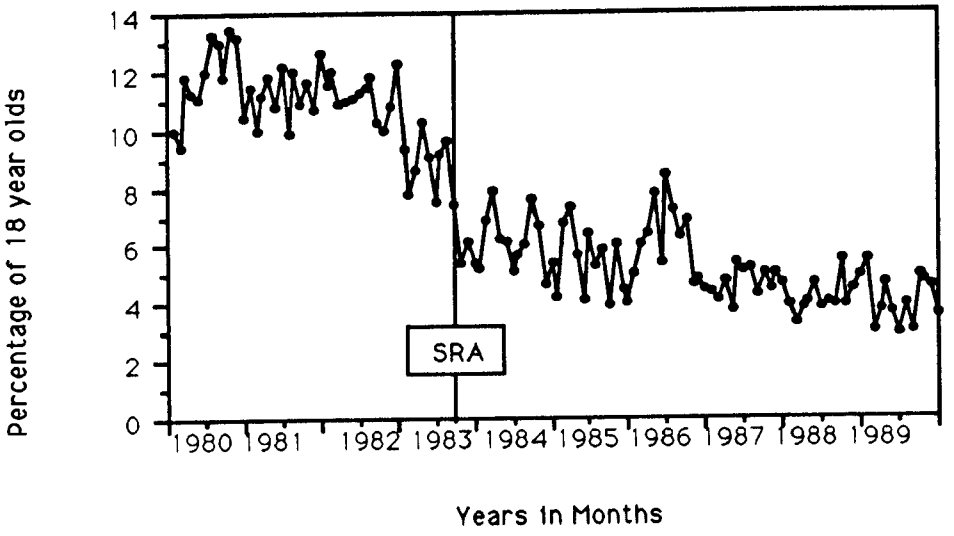


Figure 6. Percentage of Alcohol Related Crashes by Month for Eighteen Year Olds.

Since the SRA emphasized the youthful offender it is of particular interest to look at the effect of the law on these groups. Figure 6 shows the percentage of A/R crashes for 18 year olds. Figure 7 presents the percentage of crashes for young people that occurred at night. As mentioned earlier, nighttime crashes are a useful proxy measure for alcohol related driving. There have been reported biases in the police reporting of alcohol use for young people. For this reason, nighttime crashes are particularly important. Figures 6 and 7 show a clear decrease in 1983 and another in 1986 when the drinking age was raised to 21.

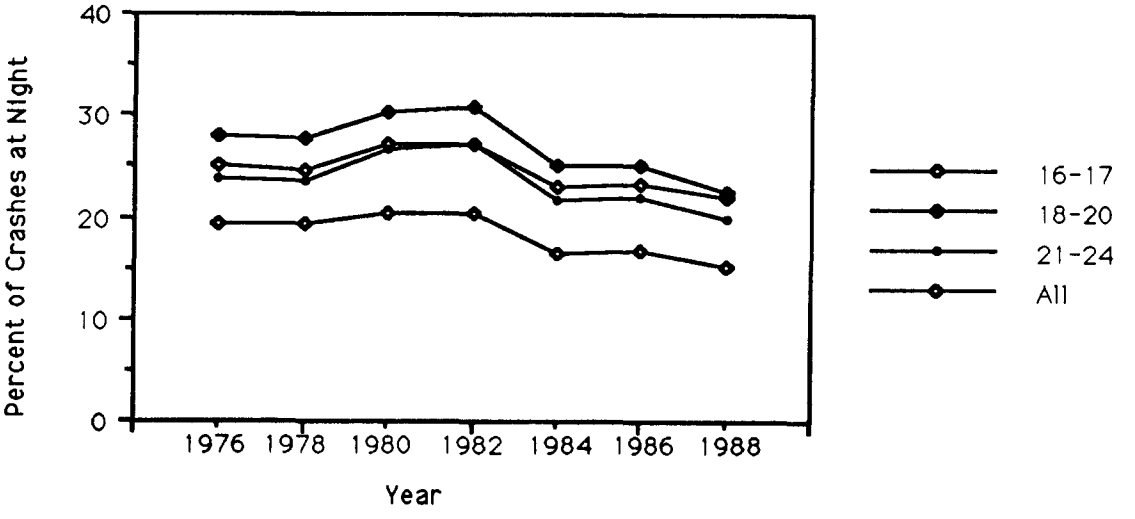
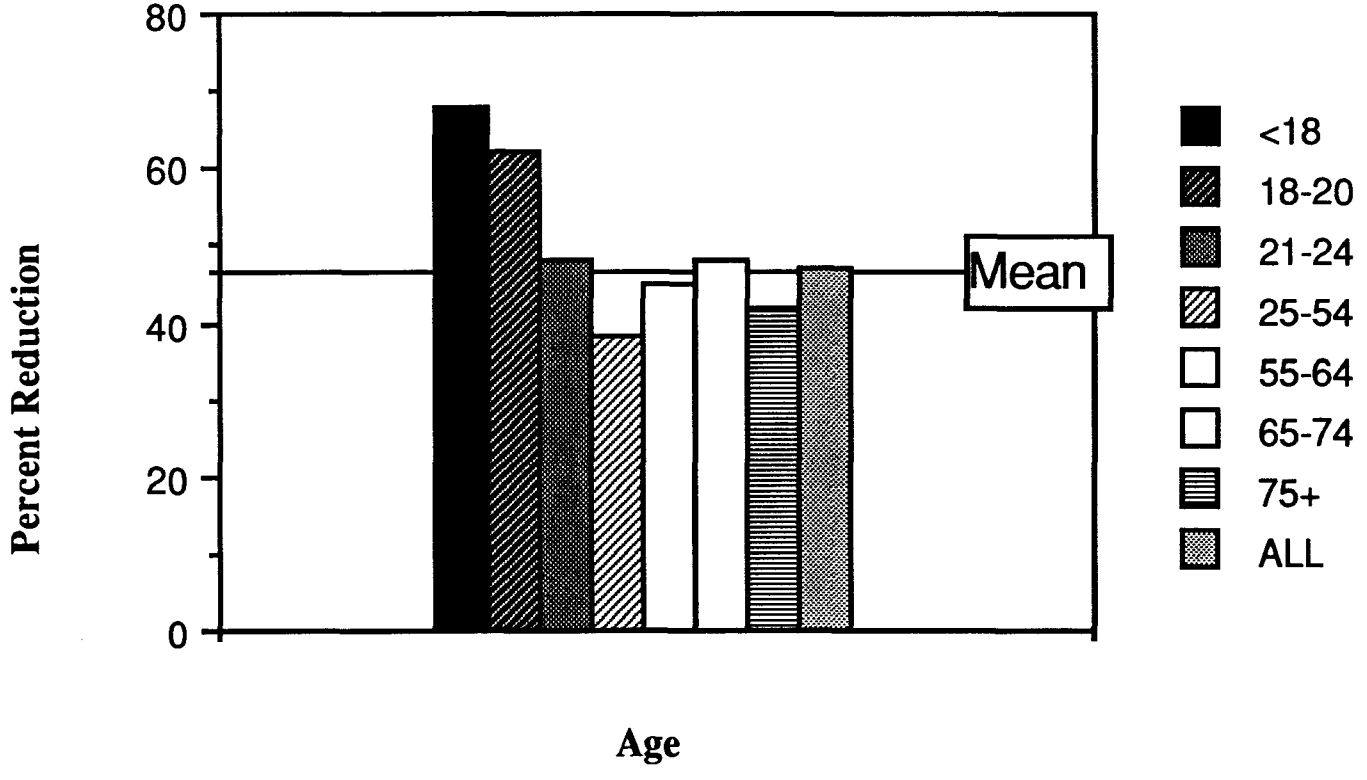


Figure 7. Percentage of Crashes at Night For Young Drivers.

Alcohol related crashes decreased among other age groups. Figure 8 shows the reduction in the proportion of A/R crashes by age group comparing 1982 with 1988. This figure shows that the greatest impact of the legislation was on those less than 18 years of age. There was an overall 47% reduction in alcohol-related crashes between 1982 and 1988. Figures 9 and 10 show the percentages of A/R crashes and nighttime crashes by year. In Figure 10 it will be observed that nighttime crashes increased slightly for people older than 74.

Figure 8
Reduction in the Proportion of A/R Crashes by Age Comparing 1982 with 1988



Prepared by the HIghway Safety Research Center,
University of North Carolina, Chapel Hill

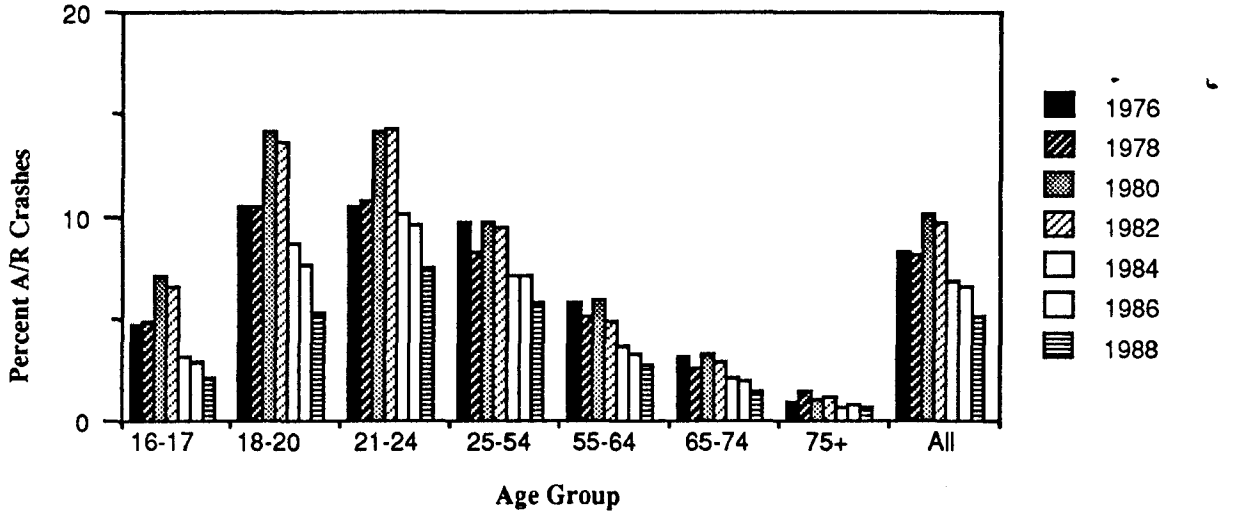


Figure 9. Percentage of Alcohol Related Crashes 1976-1988.

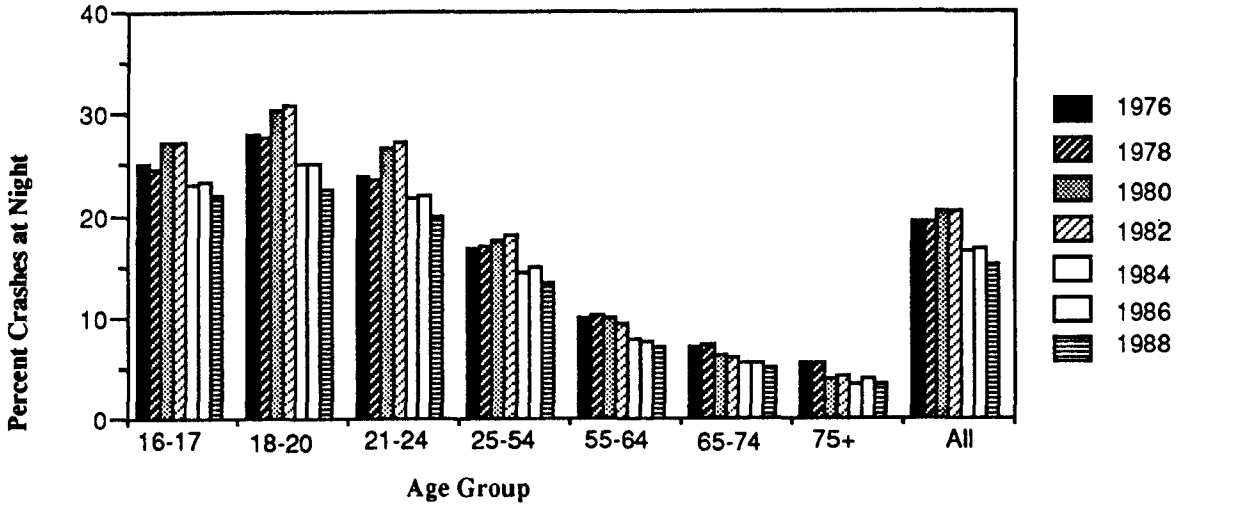


Figure 10. Percentage of Crashes at Night . 8pm - 4 am. 1976-1988.

Table 6

1988 NORTH CAROLINA MOTOR VEHICLE ACCIDENT STATISTICS

ALL CRASHES

	ALL CRASHES				FATAL CRASHES			
	TOTAL	SINGLE VEHICLE	WEEKEND	NIGHT	TOTAL	SINGLE VEHICLE	WEEKEND	NIGHT
# OF ACCIDENTS	173283	41637	53605	54155	1413	530	628	712
# OF DRIVERS	316531	41636	91323	87338	2212	530	918	997
# DRIVERS DRINKING	15082	8040	8876	11250	357	193	218	280
% OF DRIVERS	4.76	19.31	9.72	12.88	16.14	36.42	23.75	28.08
# DRIVERS FATALLY INJURED	923	410	398	436	923	410	398	436
# DRINKING DRIVERS FATALLY INJURED	186	126	116	144	186	126	116	144
% OF DEAD DRIVERS	20.15	30.73	29.15	33.03	20.15	30.73	29.15	33.03
# OF PEOPLE FATALLY INJURED	1565	551	694	773	1565	551	694	773
# OF PEOPLE INJURED	111319	26721	40963	40402	3088	916	1409	1449
# OF TEENS 15-19 FATALLY INJURED	203	96	94	103	203	96	94	103
# OF TEENS 15-19 INJURED	21780	7636	8677	9699	498	183	248	263

ALCOHOL-RELATED CRASHES

	ALL CRASHES				FATAL CRASHES			
	TOTAL	SINGLE VEHICLE	WEEKEND	NIGHT	TOTAL	SINGLE VEHICLE	WEEKEND	NIGHT
# OF ACCIDENTS	15301	8040	8971	11396	393	193	239	311
# OF DRIVERS	22849	8040	13281	16563	562	193	329	436
# DRIVERS DRINKING	15082	8040	8876	11250	357	193	218	280
% OF DRIVERS	66.01	100.00	66.83	67.92	63.52	100.00	66.26	64.22
# DRIVERS FATALLY INJURED	226	126	136	171	226	126	136	171
# DRINKING DRIVERS FATALLY INJURED	186	126	116	144	186	126	116	144
% OF DEAD DRIVERS	82.30	100.00	85.29	84.21	82.30	100.00	85.29	84.21
# OF PEOPLE FATALLY INJURED	416	198	252	327	416	198	252	327
# OF PEOPLE INJURED	15618	7399	9427	11529	870	389	523	683
# OF TEENS 15-19 FATALLY INJURED	46	25	31	37	46	25	31	37
# OF TEENS 15-19 INJURED	2478	1352	1590	1991	136	68	83	111

Prepared by: The Highway Safety Research Center
University of North Carolina

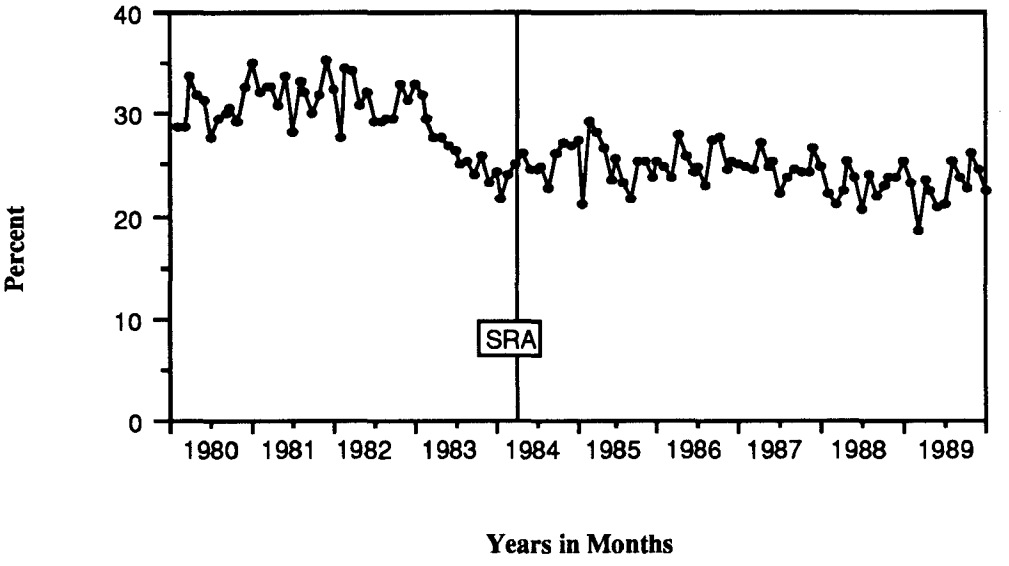
As shown in Table 6, there were 15,301 crashes involving 22,849 drivers. There were 15, 618 people injured in these crashes including 416 who were fatally injured. Thirty-one percent of drivers killed in single vehicle crashes were intoxicated. Most fatal A/R crashes occur at night (79%). Fifty-nine percent of these fatal crashes occur on the weekend.

The SRA appears to have had a positive effect on serious injury crashes. This effect is shown in Figure 11. Information on the blood alcohol levels of fatally injured drivers is provided by the N.C. Medical Examiner and appears in Table 7. This table shows that of those people tested, 42% had some alcohol in their bodies, and 37% had levels at or above the per se level of .10.

Table 7. BAC Levels of Fatally Injured Drivers Tested by N.C. Medical Examiner - 1988

Age	Number Tested	BAC Level 0	.001-.079	.08-.99	.10-.149	≥ .15
15	2	100%				
16-17	48	88%	--	--	4%	8%
18-20	91	52%	7%	4%	10%	27%
21-24	89	43%	12%	3%	10%	31%
25-54	365	52%	3%	1%	6%	38%
55-64	57	68%	5%	--	9%	18%
65-74	40	78%	3%	-	3%	18%
75+	31	100%	--	--	--	--
All	723	58%	5%	2%	7%	30%

Figure 11. Percent of A & K Crashes which are A/R



DRINKING DRIVING TRENDS IN NORTH CAROLINA BY SUBPOPULATIONS

As was seen in Figure 1 the SRA had a substantial effect on the DWI arrest rate in North Carolina. The line shows the trend for the total population and indicates that with the exception of a small increase in 1986, DWI arrests have continue to remain lower since the passage of the SRA. Of interest and concern should be the large group of drivers aged 25 to 54 whose arrest rate appears to be returning toward its pre-SRA high.

Figure 12 shows the arrest trends for males by age group. This figure indicates reduced DWI arrests per licensed driver for all age groups between 1982 and 1988. Clearly arrests per licensed driver have remained higher among the younger age groups with particularly high rates for males 18 to 20 and a disturbingly high rate for 21 to 24 year olds. The arrest rates for 25 to 54 year old males has continued to increase since 1984.

Figure 13 shows the arrest trends for females. Their rates continue to be less than those of similarly aged males. As was observed for males, the effect of the law seems to have shifted the most at risk group from the 18 to 20 year olds to the 21 to 24 year olds. Females aged 25 to 54 seem to be increasing their DWI involvement. While this trend is small, it does represent a group which might benefit from specific targeting.

Figures 14 through 20 show alcohol related arrest rates by age, race, sex group. Figure 14 depicts trends for 16 to 17 year olds. White males reduced their DWI arrest behavior since the passage of this legislation. On the other hand non-white males while initially reducing their DWI activity after the passage of the SRA had by the end of 1988 increased it to a level higher than that in 1982. Nonetheless, their DWI rates are lower than those for white males. Females in this age group do not have as much DWI arrest activity. Their response to the law was negligible. In fact, non-white females appear to be increasing their drinking driving behavior.

Figure 12

Alcohol-Related Arrest Trends

Total Population and Males by Age Group

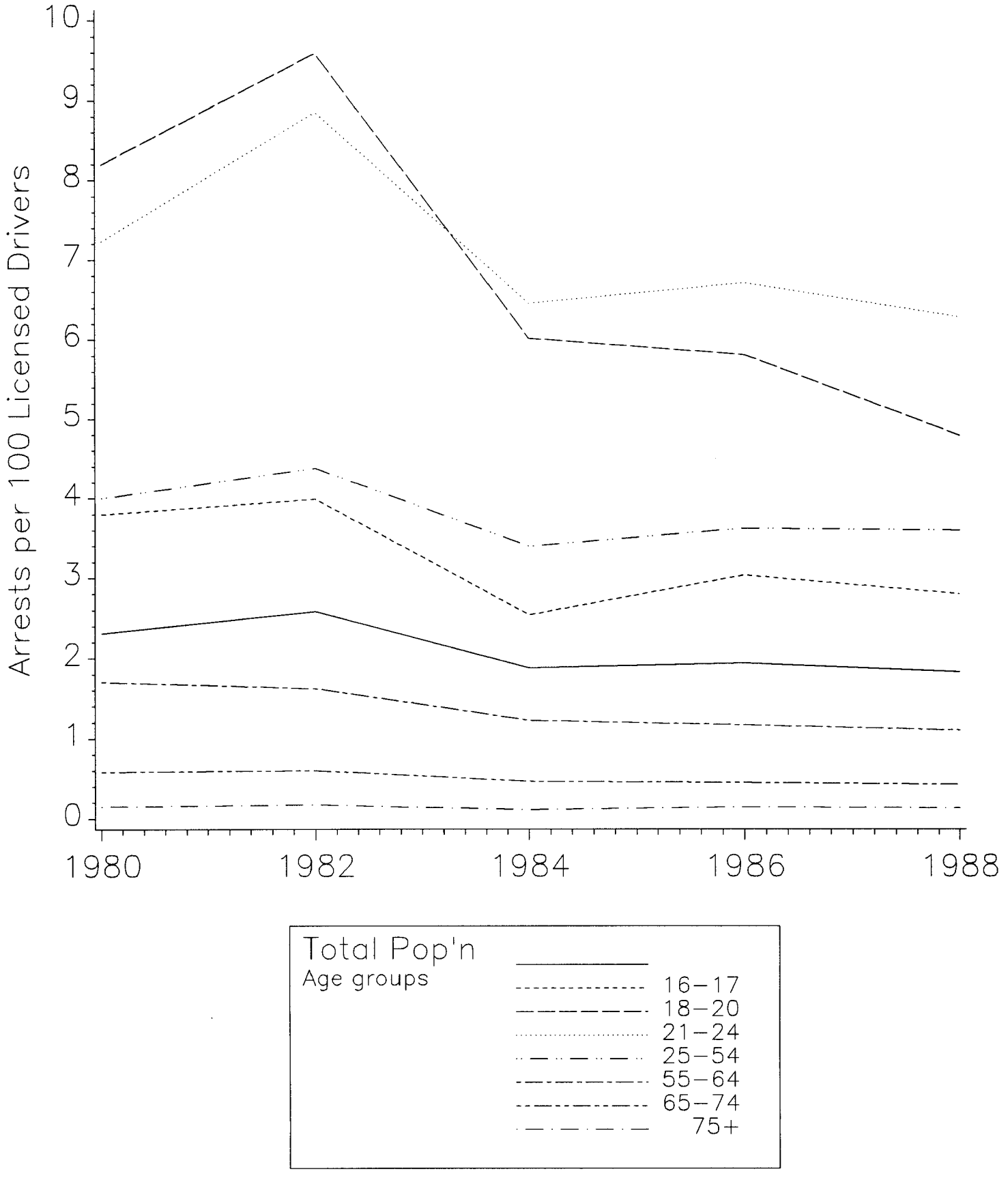


Figure 13

Alcohol–Related Arrest Trends

Total Population and Females by Age Group

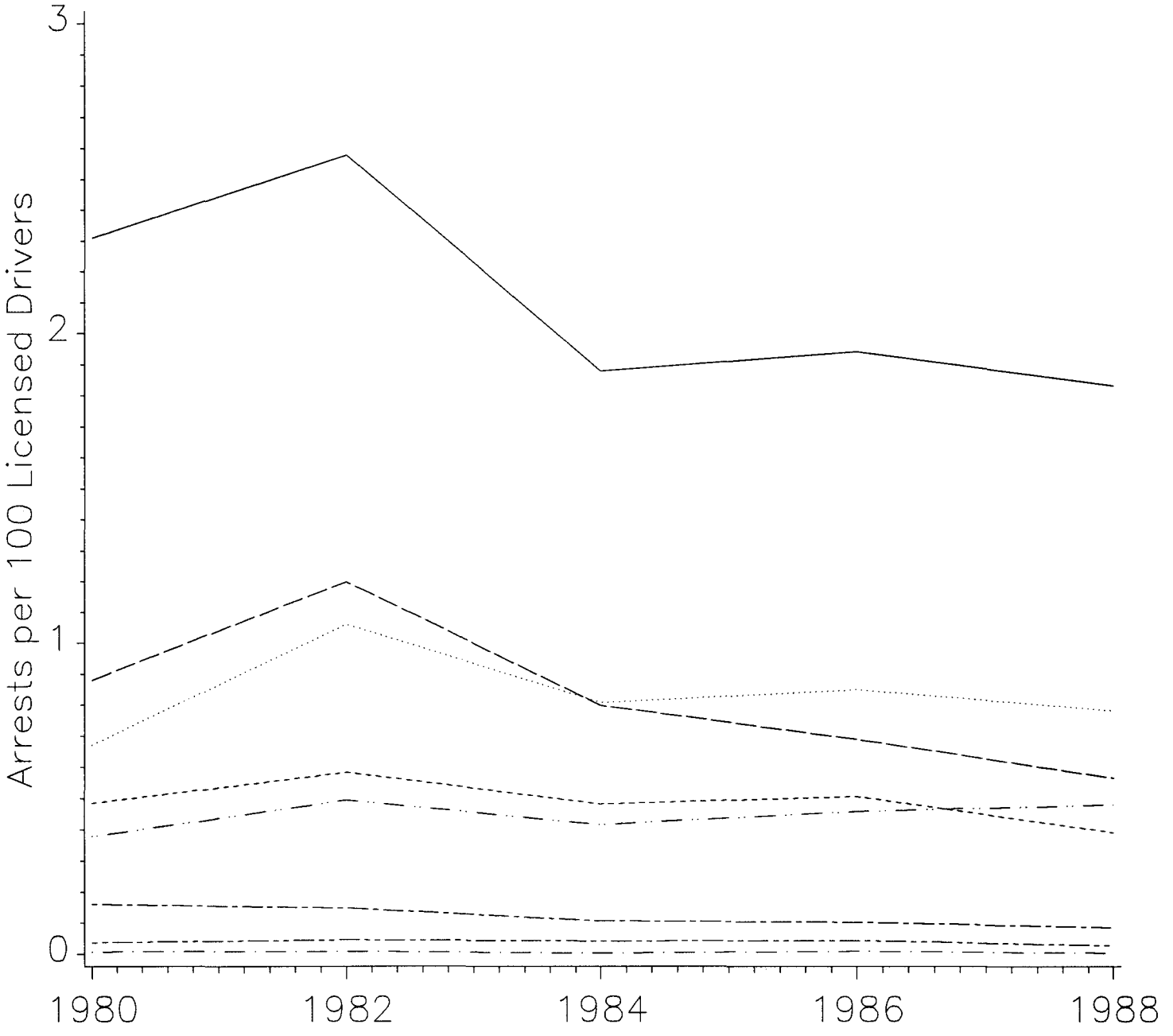


Figure 14

ARRESTS/LIC DRIVER FOR AGES 16–17

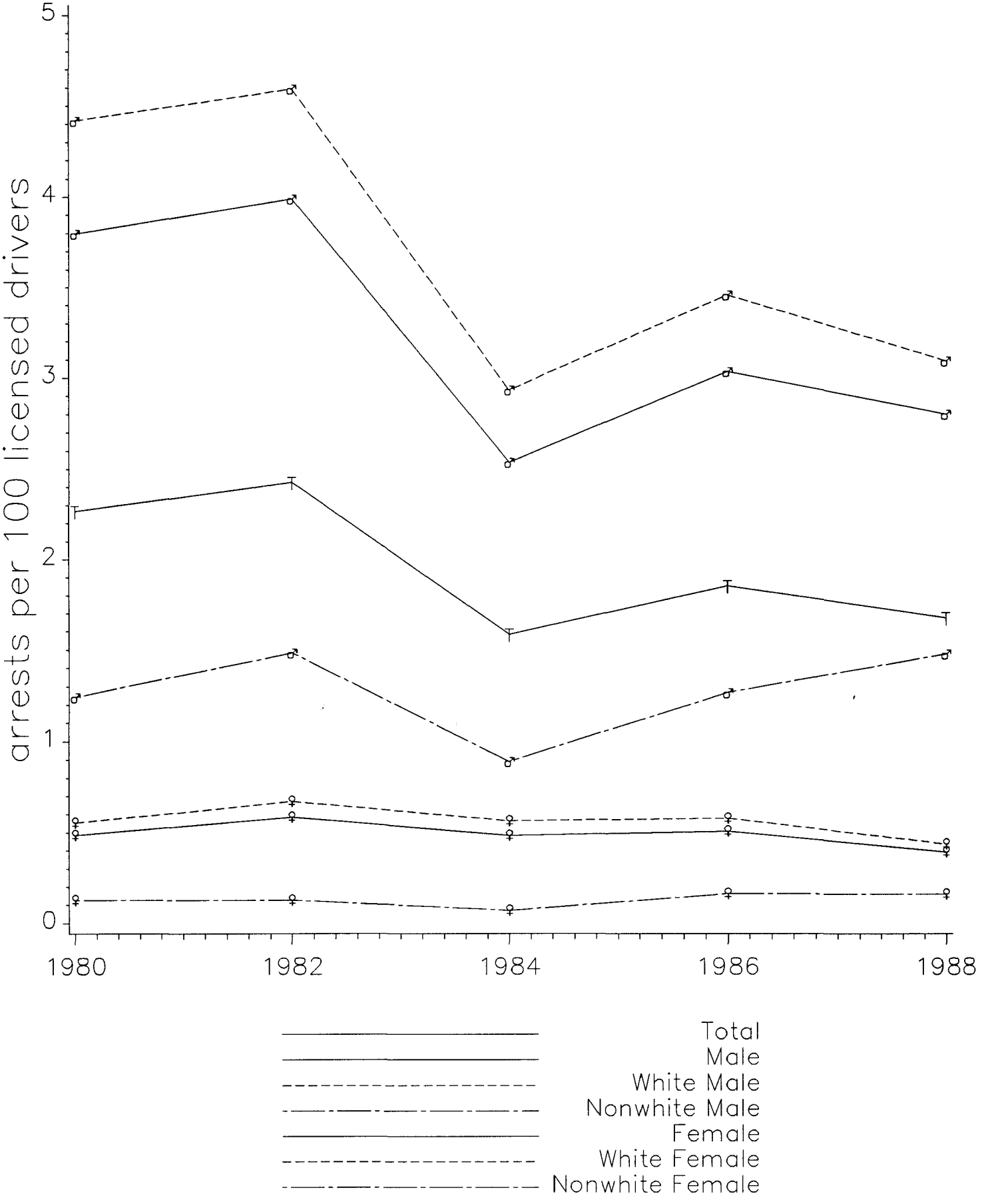


Figure 15

ARRESTS/LIC DRIVER FOR AGES 18–20

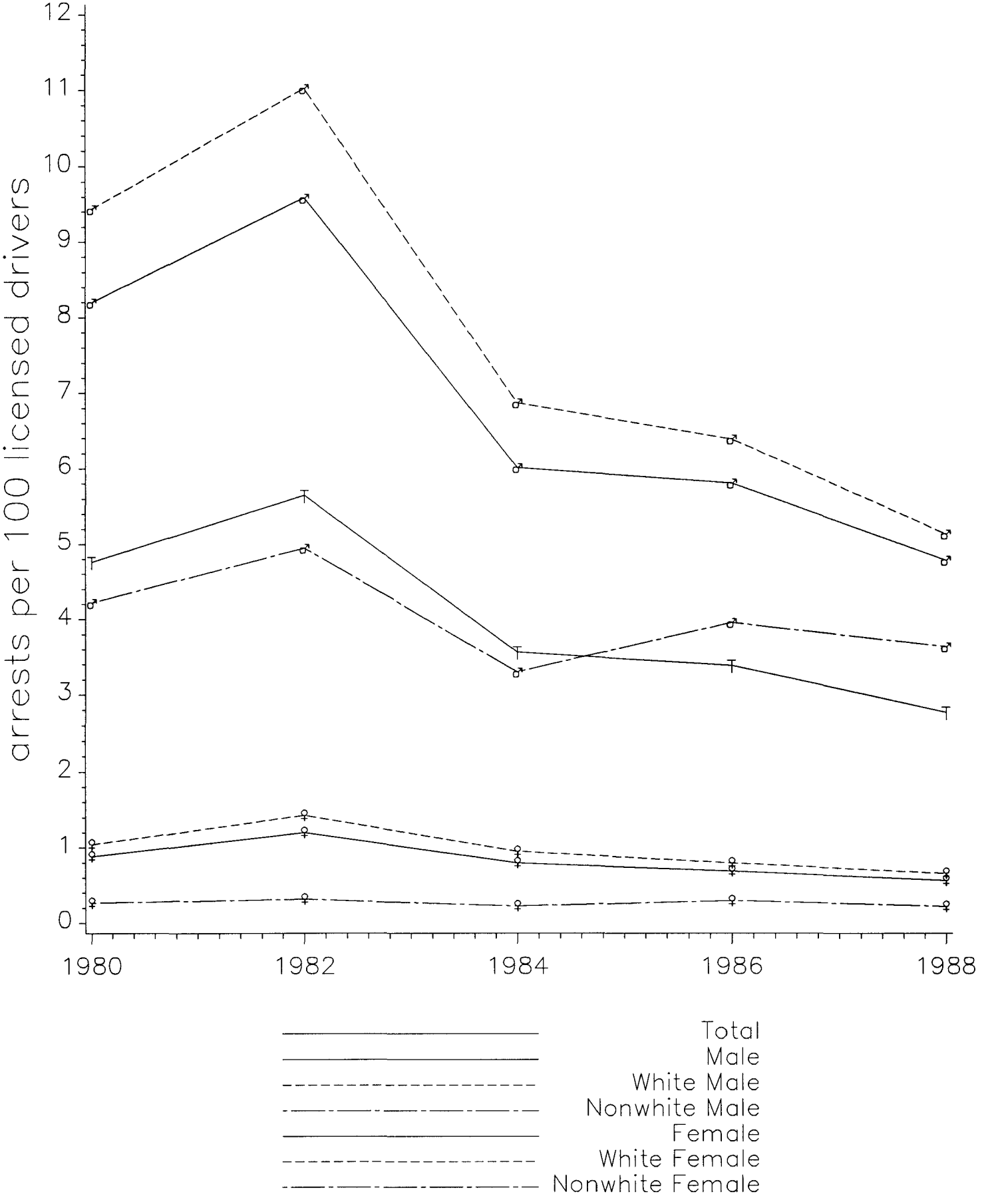


Figure 16

ARRESTS/LIC DRIVER FOR AGES 21–24

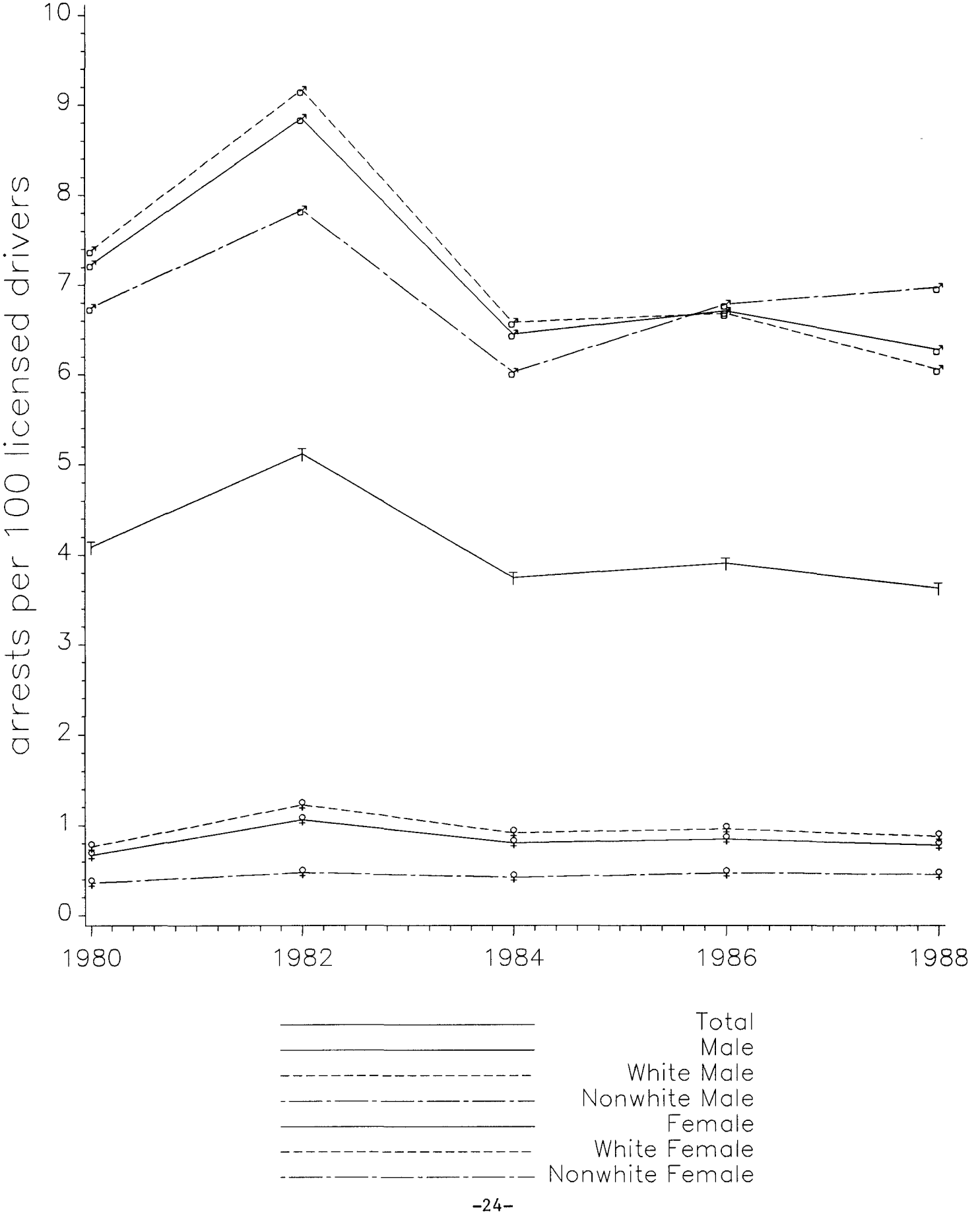


Figure 17

ARRESTS/LIC DRIVER FOR AGES 25–54

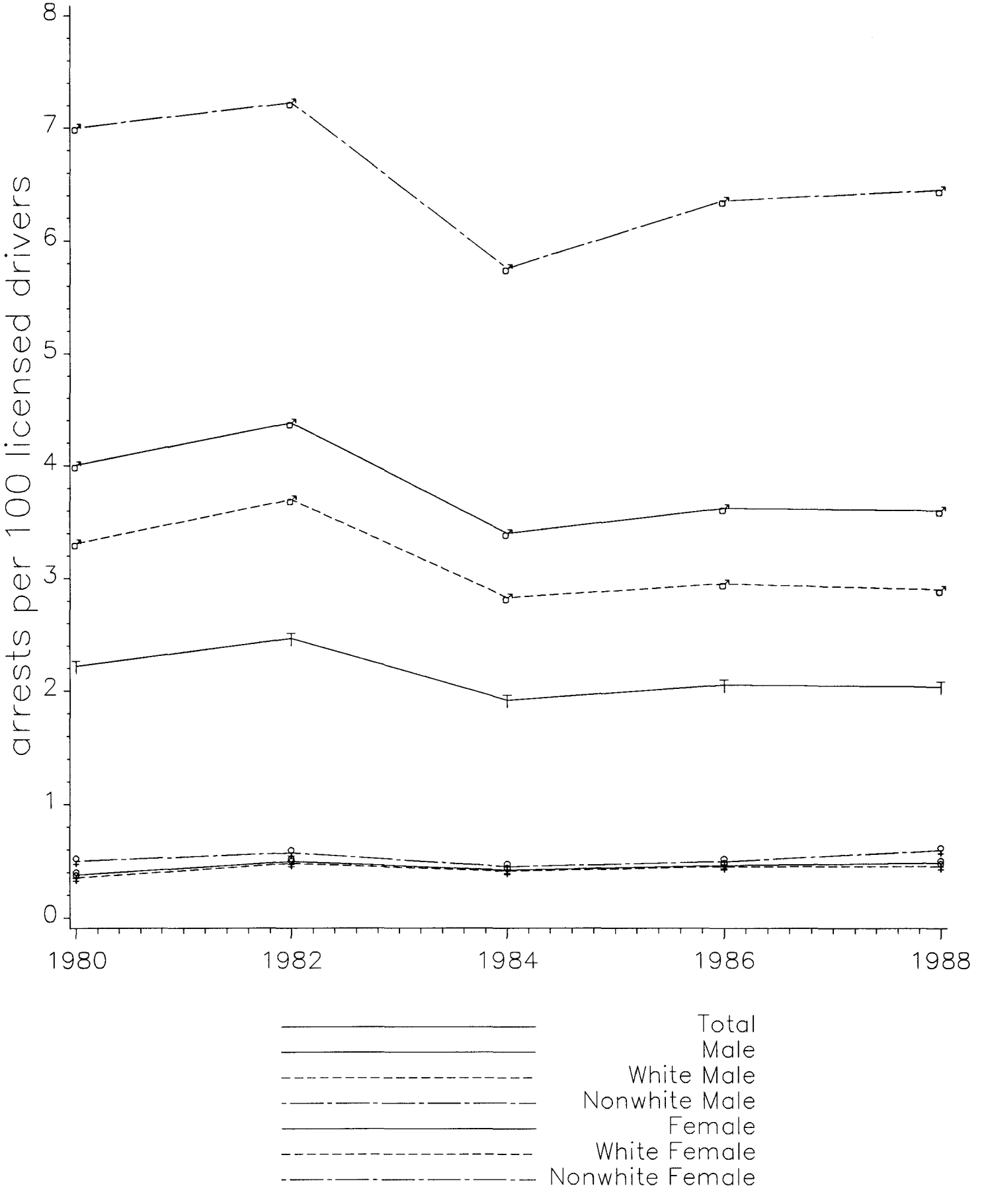


Figure 18

ARRESTS/LIC DRIVER FOR AGES 55-64

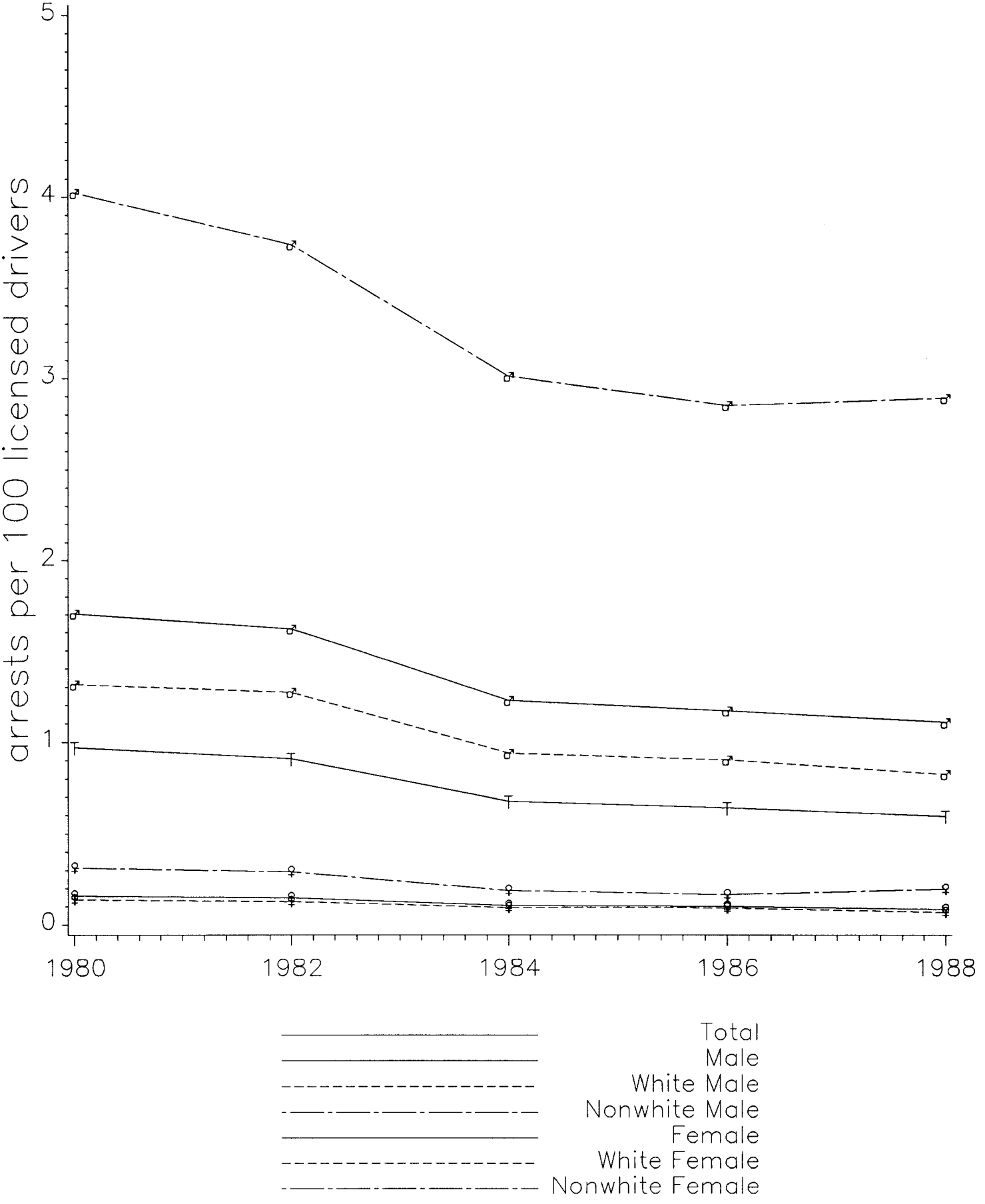


Figure 19

ARRESTS/LIC DRIVER FOR AGES 65-74

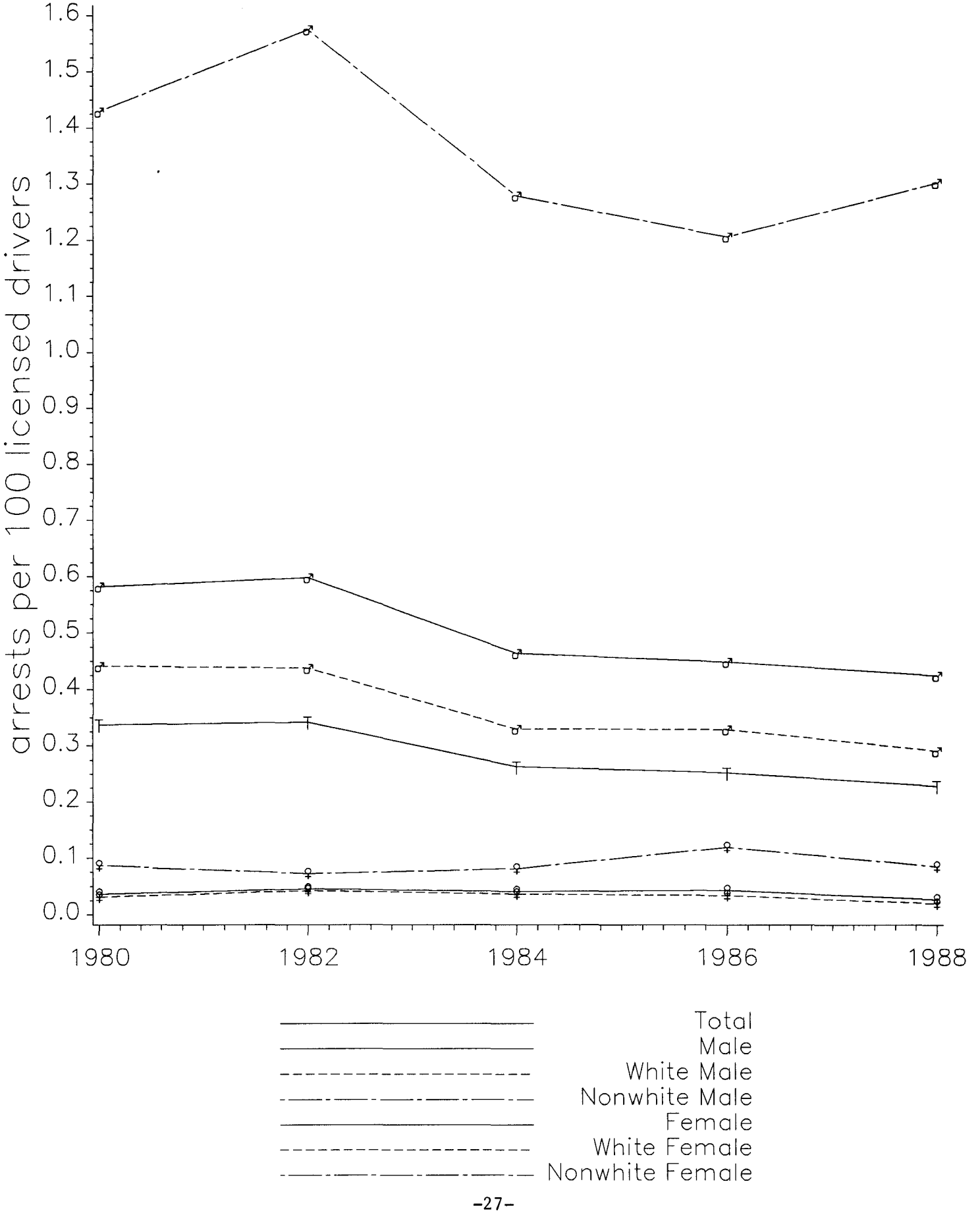


Figure 20

ARRESTS/LIC DRIVER FOR AGES 75+

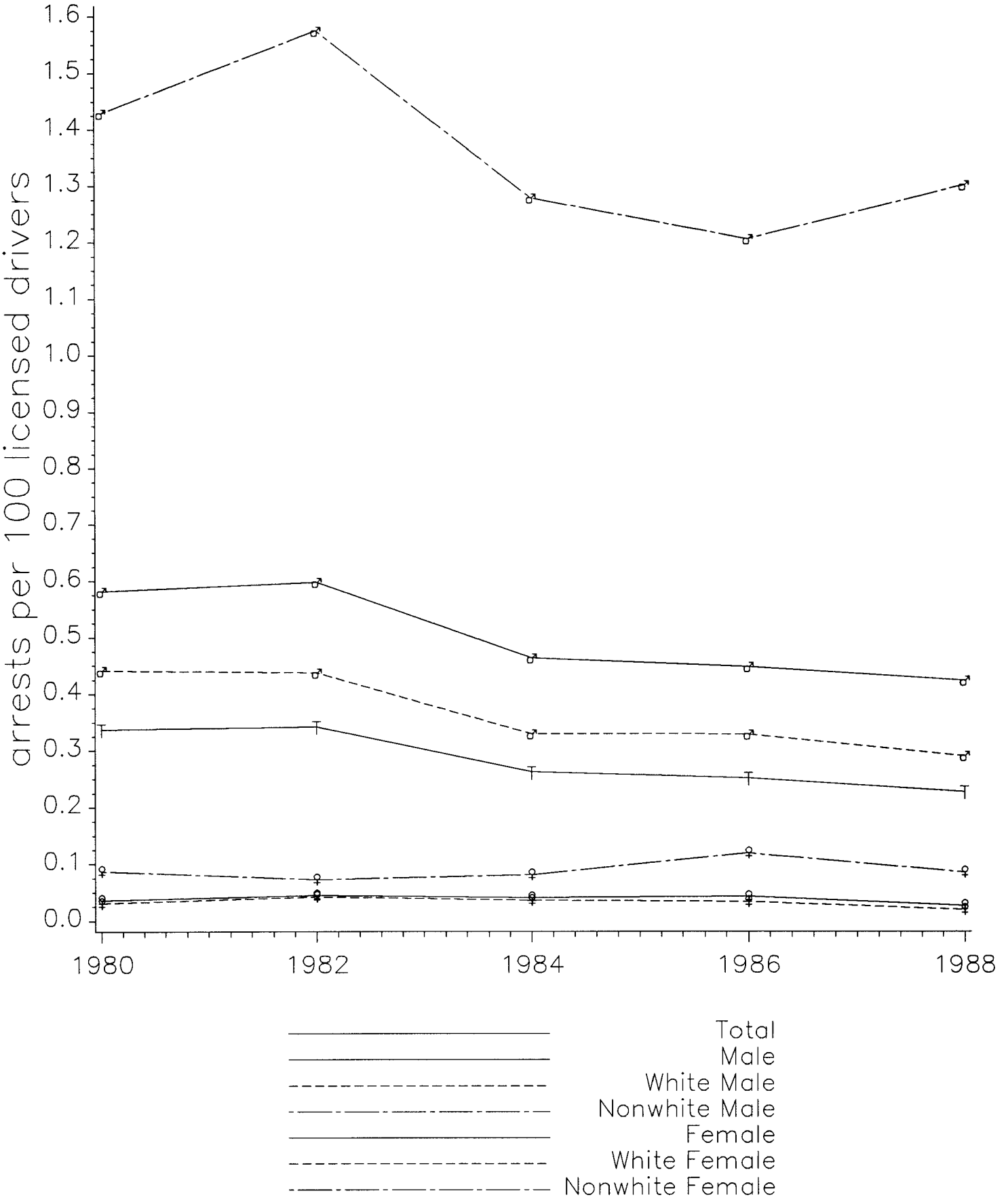


Figure 15 depicts DWI activity for 18 to 20 year olds. This is the other group of young people specifically targeted by the SRA. Among males and females of this age there is an apparent decline in DWI activity. As in the younger group the DWI rates for white males is higher than that for non-white males. The proportion of 18 to 20 year old males arrested has declined from a high of about 11 per hundred drivers to 6. This still represents a rate that is approximately three times that of the general driving population.

DWI arrests have declined for 21 to 24 year olds as a group (Figure 16). Nonetheless, non-white males in this group appear to be increasing their DWI activity. White females in the age group have a much higher arrest rate than their non-white counterparts.

As may be seen in Figure 17, drivers aged 25 to 54 of all genders and races did not experience the same decline in DWI arrest rates as those experienced in the younger age groups. A clear problem area is shown for non-white males whose arrest rate is about twice that of white males. This same trend may be seen for women of both sexes but especially for non-white females.

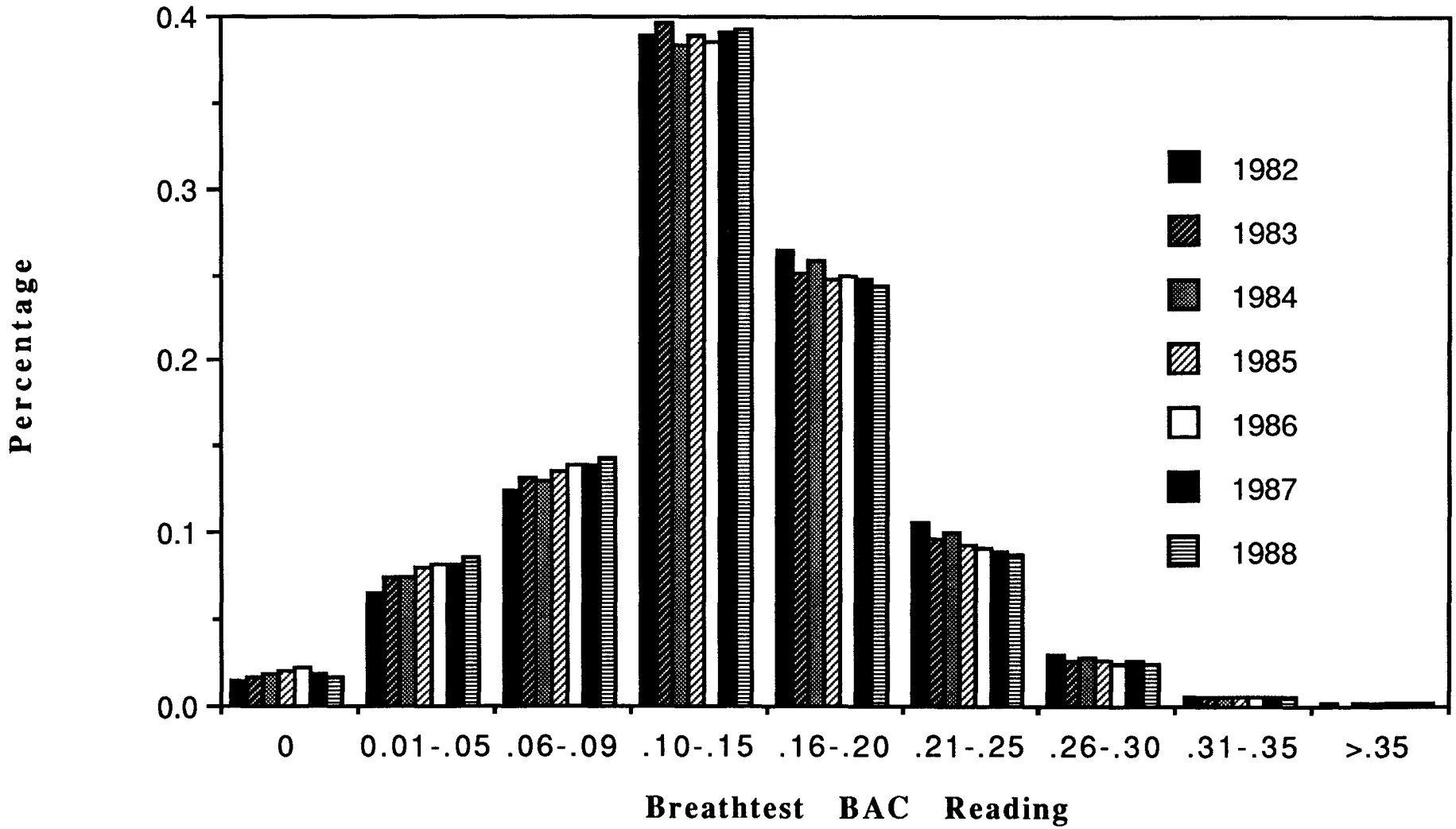
Figure 18 shows arrest rates for drivers aged 55 to 64. Male rates appear to be almost twice as high as those of females. Once again there is a substantially higher DWI arrest rate for non-whites of both sexes.

Figure 19 depicts DWI arrest activity for 65 to 74 year olds. In general there was a slight decrease in DWI activity in this age group. Nonetheless, non-whites have substantially higher rates than whites. In addition among non-white males DWI activity appears to be increasing.

Figure 20 shows the DWI arrest rates for our oldest drivers. Trends for non-whites appear to be similar to those for the 65 to 74 year old group. In general, DWI activity for this group is much lower than that for the general driving population.

Figure 21 shows the trend in the distribution of breath test readings. This figure shows that in 1982 and 1983 more of those people arrested and tested blew higher BAC's. In 1988 in particular, BAC levels appear to be shifting downward.

Figure 21. Distribution of Breathtest Readings



Alcohol Related Crashes.

Most DWI laws have been enacted with the objective of reducing the carnage on our highways caused by the drinking driver. Figure 4 showed the trend in alcohol related crashes over time. Clearly the SRA has had an enduring effect on A/R crashes. Figure 5 shows a relatively consistent decline in the proportion of crashes that occur at night beginning in mid 1982 which was the time when most of the publicity about N.C.'s drunk driving laws began. Declines such as this have been reported in conjunction with high media coverage.

Figures 22 through 27 present A/R crash rates by various age, race, sex groups. In Figure 22, which depicts these trends for 16 to 17 year olds, there is a substantial shift in A/R crash rates for these younger drivers. The only group which did not have a reaction to the SRA appears to be non-white females, the group presenting the lowest rates for this age group. As may be seen in Figure 23, a very similar pattern is presented for those aged 18 to 20.

The crash rates for 21 to 24 year olds is at variance with their arrest rates. As might be expected, females have a lower crash involvement rate than males. In Figure 24, it will be observed that the crash involvement rate for non-white females exceeds that for white females. Similarly, it will be seen that non-white males have a substantially higher crash involvement rate -- a rate that is almost twice that for white males. This high involvement of non-white males continues in all higher age groups.

CONCLUSIONS

In summary, under the Safe Roads Act of 1983, the drinking and driving behavior among North Carolina drivers has continued to remain lower than that prior to the law's enactment. However, the dramatic declines have not continued. It appears that these rates have stabilized and are not declining substantially from year to year. There has been a slight erosion in the DWI

Figure 22

Alcohol-Related Accidents for Drivers Aged 16-17

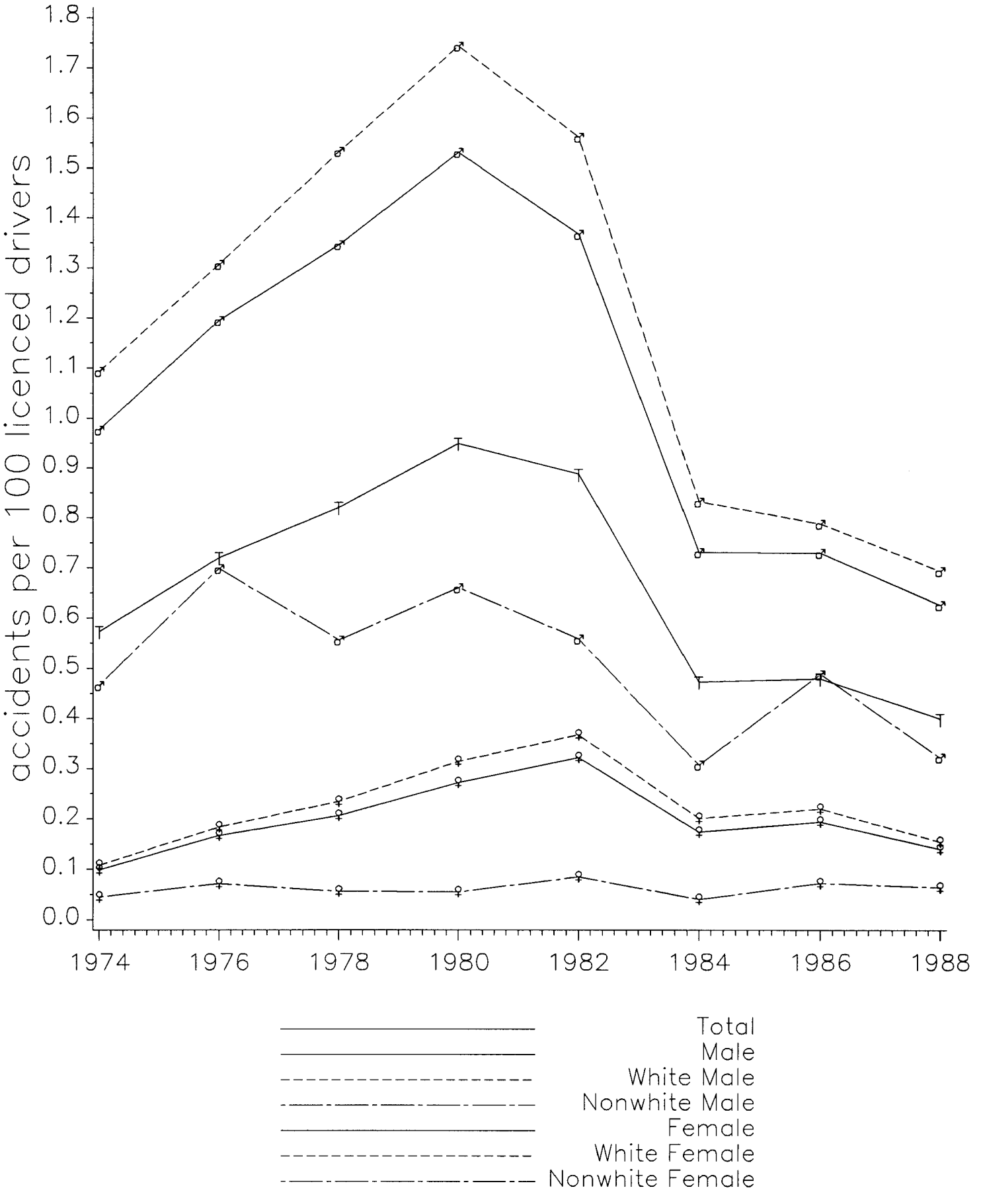


Figure 23

Alcohol-Related Accidents for Drivers Aged 18-20

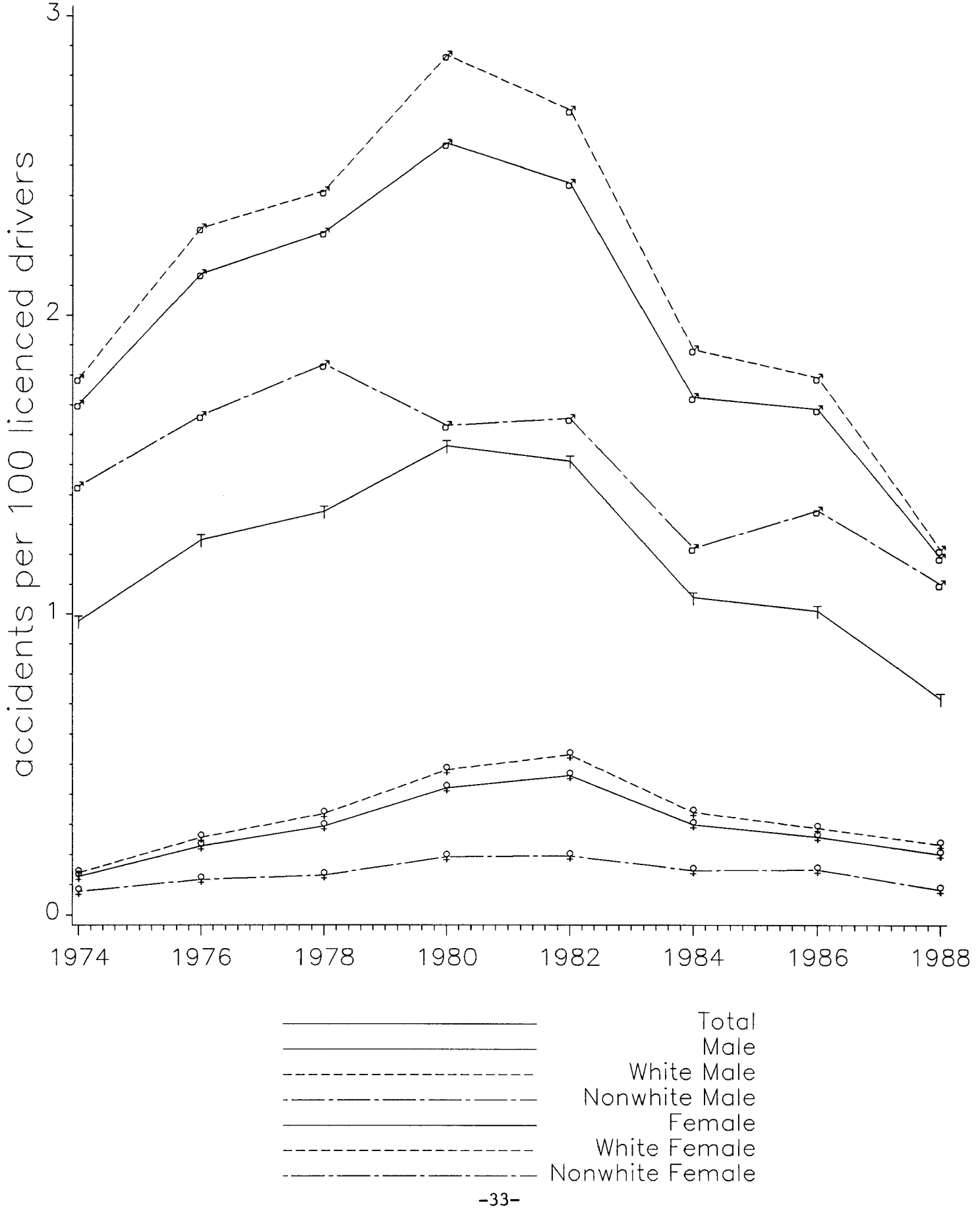


Figure 24

Alcohol-Related Accidents for Drivers Aged 21-24

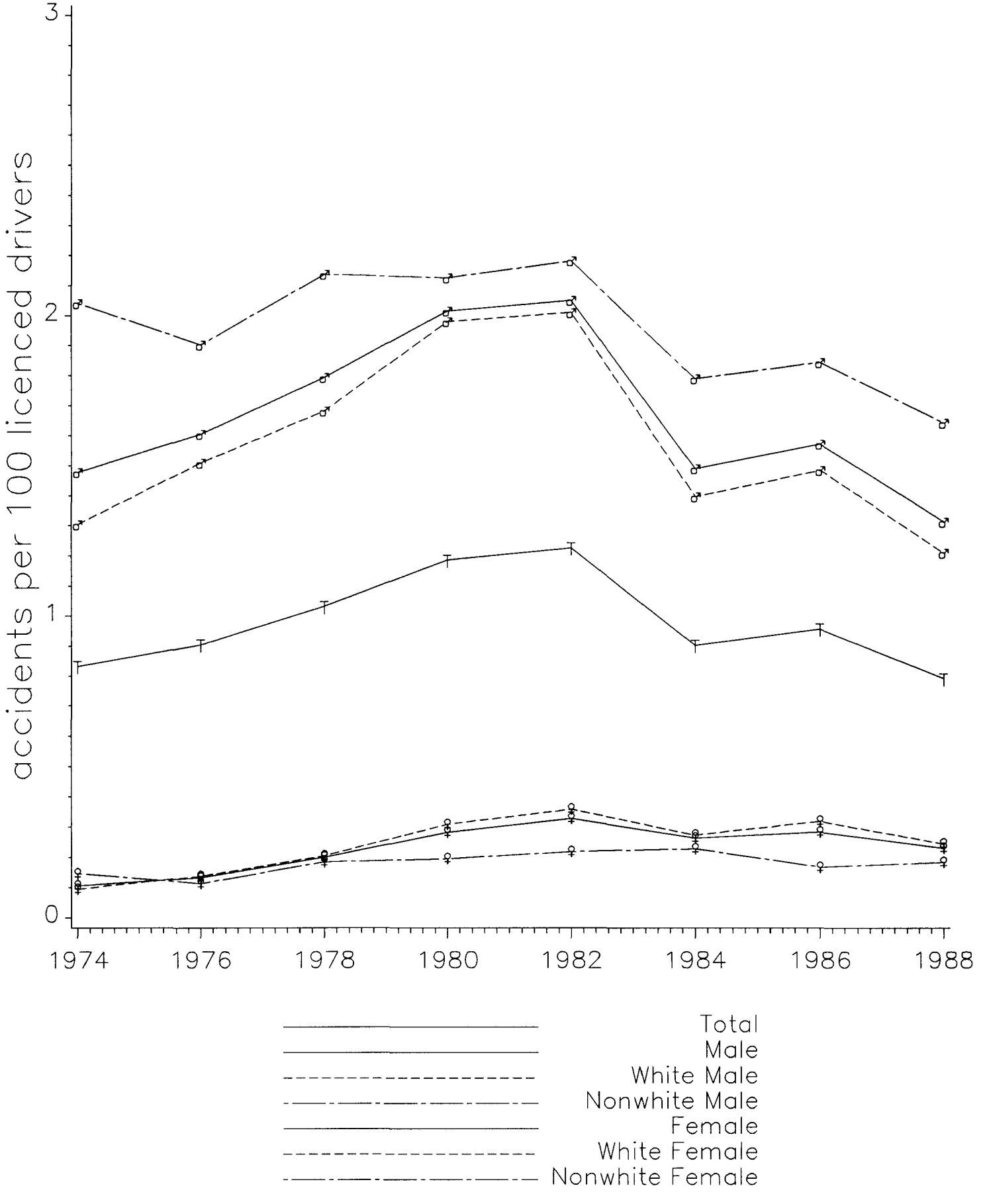


Figure 25

Alcohol-Related Accidents for Drivers Aged 25-54

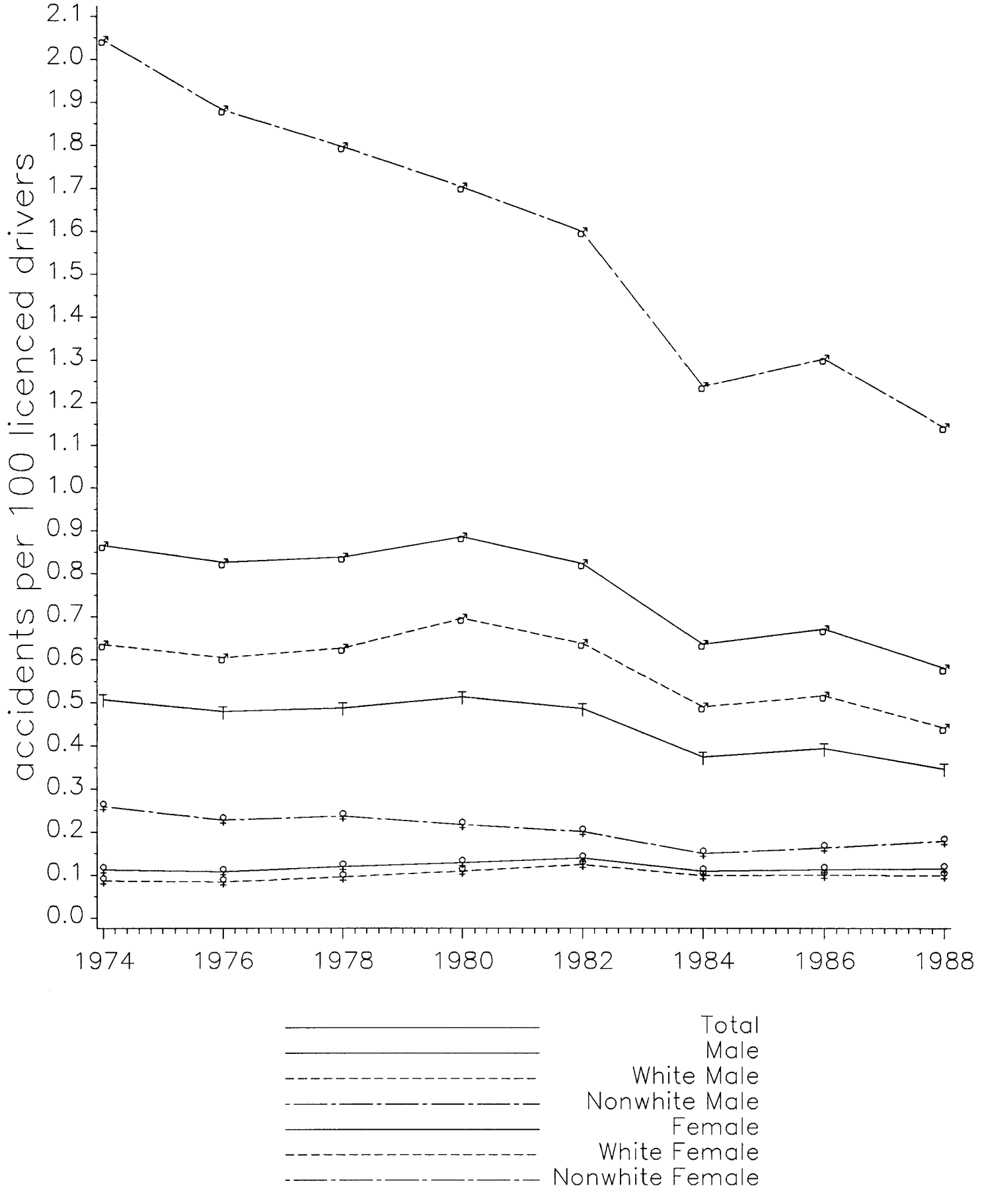


Figure 26

Alcohol-Related Accidents for Drivers Aged 55-64

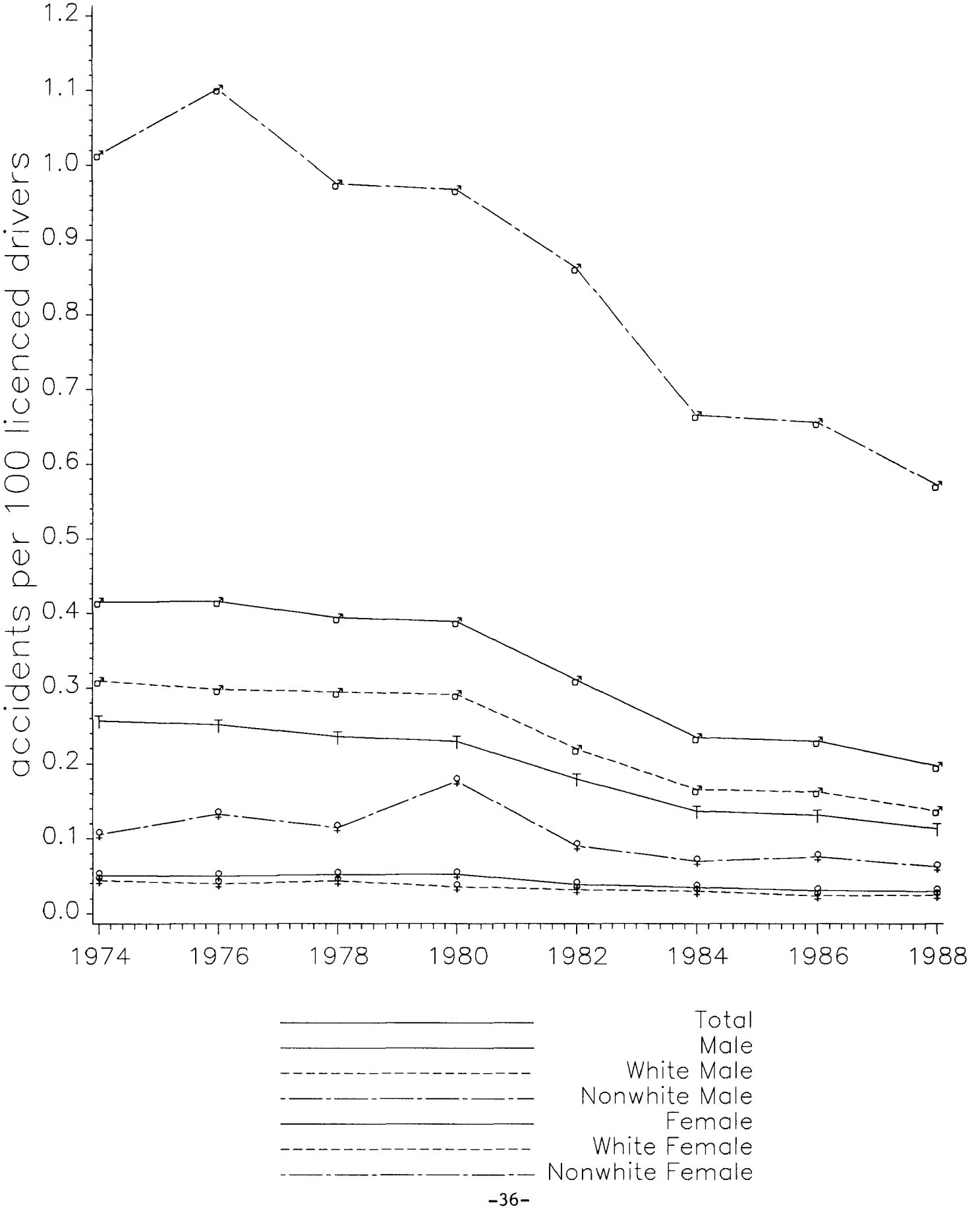
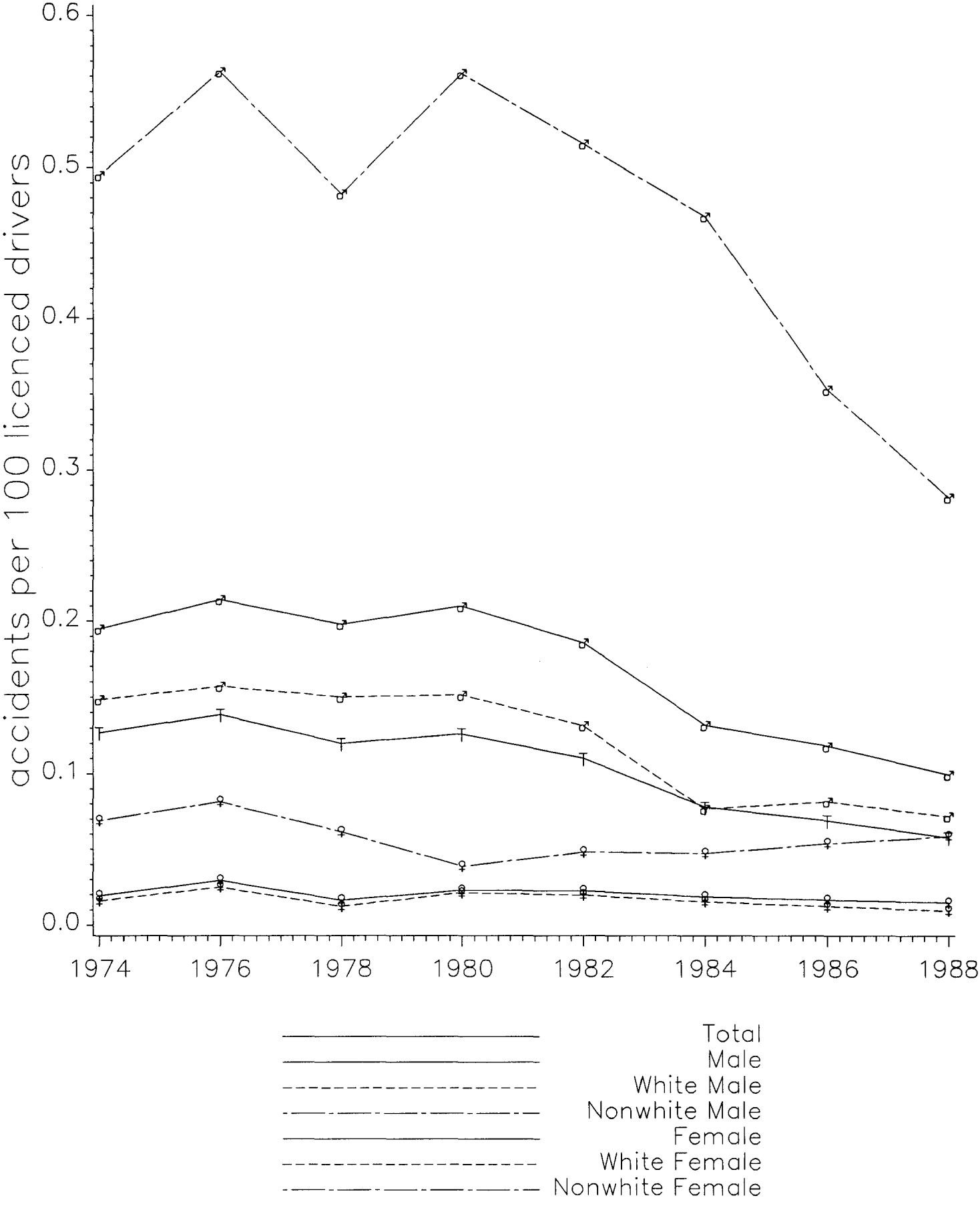


Figure 27

Alcohol-Related Accidents for Drivers Aged 65-74



conviction rate for those at or exceeding the per se level of .10. During 1984 the conviction rate was 92%; in 1988 it has decreased to 87%. Nonetheless, the rate is 15 points higher than it was in 1982 when conviction was 72%.

Sanctions for DWI convictees for the most part appear to be levied in accordance with the intent of the legislation with more serious sanctions being given for more serious offense levels.

In reviewing current trends in both arrest and crash rates, it appears that non-whites have substantially higher rates than their white counterparts in every age group between the ages of 25 and 64. This is a new finding and an important one. DWI arrest rates remain high for white male drivers under the age of 21. Similarly, it appears that 21 to 24 year olds have the highest rates of any age group.

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