Comparing Homicides to Capital Cases

East Baton Rouge Parish, 1990-2008

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Introduction

In this report we examine the racial characteristics of homicides occurring in East Baton Rouge (EBR) Louisiana parish during the nineteen years from 1990 through 2008, and then compare them to the racial characteristics of cases prosecuted during the same period that were initially considered a capital (first degree murder) case. We want to know if these prosecuted cases are a statistically random, race-neutral subset of the homicides that occurred. What we find is that there is a less than one-in-ten-thousand chance that the prosecuted cases were a racially random sample drawn from the homicide group.

The Homicides

According to the FBI's "Supplemental Homicide Reports," 1454 homicides occurred in the parish during the 19-year period of the study.[1] Of these victims, 1220 were black, 221 were white, and 13 were of other or unknown race. Thus, for an average year during the period, homicides were:

Total victims (avg. per year)	Black victims (avg. per year)	White victims (avg. per year)	Other victims (avg. per year)
77	64	12	1

Potential cases

To view these homicides as *potential* court cases, in order to compare them with the *prosecuted* cases, we need to subtract multiple victims from the homicide count, but to add into the count extra suspects. 55 of the homicide victims were second (or more) victims of one homicide incident. 114 suspects were second (or more) suspects of one homicide incident, and as liable for prosecution as any other suspect.[2] The total number of potential cases, then, is 1513 (1454 + 114 – 55).

Removing potential cases with unknown suspects

Of these 1513 potential cases, 401 were recorded by the FBI as having suspects of unknown race. Three more cases had suspects of a race other than black or white;

[1] We can be confident in these data, compiled by the FBI through forms required of police personnel, because they are closely corroborated by the Dimattia study, online at http://etd.lsu.edu/docs/available/etd-0611102-141208/unrestricted/Dimattia_thesis.pdf. The Dimattia study counted homicides that passed through the EBR Coroner's office. For the 11 years 1991-2001, the study found 878 homicides, as opposed to the FBI's count of 868 homicides. The black victim count for this period is identical in both sources at 727. White victims number 148 in Dimattia, 131 by the FBI; other/unknown victims number 3 in Dimattia, 10 by the FBI. These small discrepancies can be attributed to minor clerical error, and to the fact that the coroner was able to determine the race of some victims classified as other/unknown by the police.

[2] The FBI's Supplemental Homicide Reports record these multiple victims and suspects for each homicide incident, as well as weapon used, relationship to victim, age, and circumstance, as appropriate and available. In cases where there are multiple victims or suspects of different race, the white victim or suspect is treated as primary and the black as secondary, to be arbitrarily consistent.

and four more cases had victims of a race other than black or white. Thus 1105 (1513 – 408) is the number of potential cases involving blacks and whites only.

In these 1105 potential cases, we have the following victim counts:

Total victims	Black victims	White victims
1105	911	194
percent:	*82.4%*	*17.6%*

And, in these 1105 potential cases, we have the following suspect counts:

Total suspects	Black suspects	White suspects
1105	978	127
percent:	*88.5%*	*11.5%*

The four race categories

When white and black victims and suspects are looked at in combination, four categories occur: black kills black (BkB), black kills white (BkW), white kills black (WkB), and white kills white (WkW). Here are the number of cases and percentage of the total for each category:

***Potential* cases, from homicide count:**

BkB	BkW	WkB	WkW
884	94	27	100
80.00%	*8.51%*	*2.44%*	*9.05%*

In general, then, four out of five potential cases are for black-on-black homicides. For the fifth case, a little less than half the time it will be white-on-white; a tiny bit less often than that, it will be black-on-white; and once out of every eight times, the fifth case will be white-on-black.

The Capital Cases

A count of capital cases brought to prosecution was initiated from a list of "Death Eligible Cases From 1976 To Present," a document generated by the East Baton Rouge Criminal Records department, who queried their database for all cases that had the 14:30 statutory code for first degree murder attached to them at any time.

Through a research process,[3] 340 cases were identified with corroborating evidence of being considered at some initial stage a capital case, all of them occurring in the study time period with black or white suspects and victims only. These are the cases

[3] The computer list of 504 cases between 1990 and 2008 grew to 578 by adding other possible first degree murder cases from EBR Minutes, Jail Calls, and other sources, and by separating out multiple suspects into individual cases.

Then, the case files were examined. Cases without murder victims, among other flaws, were eliminated, and the list was cut down to the 420-case range. We decided to include all case dates after 1/1/90 and crime dates before 12/31/08, the dates of the tenure of the same District Attorney.

Finally, the cases were researched through newspaper records, appeal records, coroner's reports, police reports, and the Criminal Records department's intranet, to identify 406 cases that had evidence of being considered a first degree murder case, for however brief a time, during the designated period.

Of the 360 of these cases with complete racial demographics, 20 involved suspects or victims of other race, leaving 340 cases involving blacks and whites only.

whose race category percentages we want to compare to those of the potential cases culled from the FBI's actual homicide count. For these 340 capital cases, here are the number of cases and percentage of the total for each category:

***Prosecuted* cases, initial prosecution as capital cases:**

BkB	BkW	WkB	WkW
243	55	7	35
71.47%	*16.18%*	*2.06%*	*10.29%*

How can we determine if this table's variance from the homicide record is within the realm of randomness? The answer is to do some chi-square testing.

A Comparison of Capital Case Frequency by Race

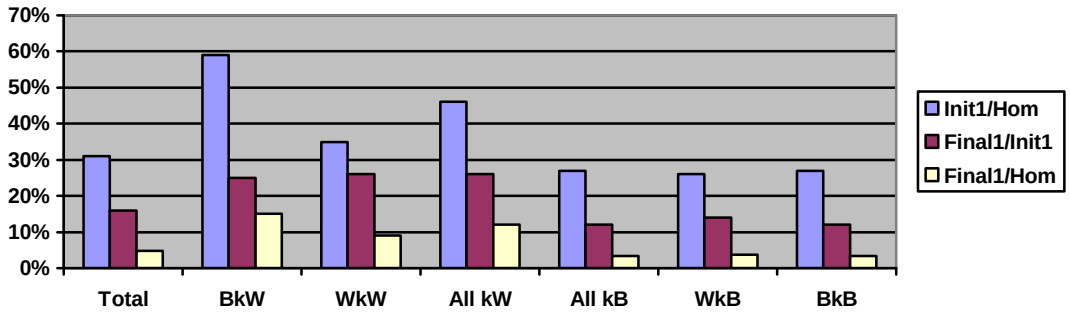
Before turning to chi-square testing, let us first look at the frequency or rate at which capital prosecutions arise and are completed for each category of race. We have just seen a table of all cases ever considered capital cases. Here is a table of the cases *finally* prosecuted as capital (first degree murder) cases:

Final prosecution as capital cases:

BkB	BkW	WkB	WkW
29	14	1	9
54.72%	*26.42%*	*1.89%*	*16.98%*

The graph below compares the three percentage rates across the four race categories, plus the Total (all cases) on the left, and All-White-Victim and All-Black-Victim cases in the middle:

- **Blue –** Initially capital cases as a percentage of homicides.
- **Maroon –** Finally capital cases as a percentage of initially capital cases.
- **Yellow –** Finally capital cases as a percentage of homicides.



Here are the counts and percentages upon which the graph is based:

EBR	Total	**%**	BkW	**%**	WkW	**%**	AllkW	**%**	AllkB	**%**	WkB	**%**	BkB	**%**
Homs	1105		94		100		194		911		27		884	
Init1/Hom		*31%*		*59%*		*35%*		*46%*		*27%*		*26%*		*27%*
Initial 1º	340		55		35		90		250		7		243	
Final1/Init1		*16%*		*25%*		*26%*		*26%*		*12%*		*14%*		*12%*
Final 1º	53		14		9		23		30		1		29	
Final1/Hom		*4.8%*		*15%*		*9%*		*12%*		*3.3%*		*3.7%*		*3.3%*

Blue Bars. The Black-on-White homicides are initially charged capitally at a much higher rate (59%) than the other categories, all of which fall within four or five percentage points of the mean of 31%. The Black-on-White rate outlies the mean by a wide enough margin to skew the All-White-Victim rate high above the White-on-White rate.

Maroon Bars. All-White-Victim rates of capital cases remaining at the end of the judicial process are more than twice that of All-Black-Victim rates. This is true across the board, with no rate changes based on race of suspect.

Yellow Bars. Effectively adding the skews of the blue bars and the maroon bars, the yellow bars show a rate of final capital prosecutions per homicide for Black-on-White cases 312% higher (15%/4.8%) than the rate category mean; and an All-White-Victim rate 364% higher (12%/3.3%) than the All-Black-Victim rate.

We can see that the rates of prosecution vary for the different racial categories. To determine if the variance is within the realm of randomness, let us turn to chi-square testing.[4]

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[4]The one-way or "goodness of fit" chi-square test, which we will use to further evaluate the prosecuted cases, is a way to measure the variance, or skew, of observed data compared with expected data. It is made up of three elements: *degrees of freedom*, a *p-value*, and the *chi-square statistic*.

Degrees of freedom (*df*) might better be named "degrees of arbitrariness." It is an index of random variability, and is fixed in our testing as *df*=3. It is fixed because we are examining four case categories: BB, BW, WB, and WW crimes. The logic of *df* is that of, say we have 1105 homicide cases, and we know that 884 are BB, how many other variables are there to deal with? Three, the three other categories.

P-value is a probability expressed as a percentage. The conventionally accepted p-value to reject a null hypothesis is 0.05, or 5%, meaning that there is only a 5% chance that the variations can be explained by randomness. Depending on the type of experiment, researchers may choose a more stringent p-value as their *significance level*, or point of hypothesis rejection. In the table below, the column headings are p-values of the following percentages: 50% (0.5), 10% (0.10), 5% (0.05), 2% (0.02), 1% (0.01), and .1% (0.001), this last equal to one in a thousand.

Df	0.5	0.10	0.05	0.02	0.01	0.001
1	0.455	2.706	3.841	5.412	6.635	10.827
2	1.386	4.605	5.991	7.824	9.210	13.815
3	2.366	6.251	**7.815**	9.837	11.345	16.268
4	3.357	7.779	9.488	11.668	13.277	18.465
5	4.351	9.236	11.070	13.388	15.086	20.517

The final element is the chi-square statistic, the *significance levels* of which are shown in the above table as values in the white cells. (Dfs are the row headings down the left side.) Since our *df*=3, and the 5% level is conventional in terms of rejecting the null hypothesis, the cell in bold (**7.815**) will be our starting point in assessing whether a chi-square statistic is *significant*, that is to say, at a level that calls into question the null hypothesis.

The chi-square statistic (χ^2) is calculated by finding the difference between each observed and expected frequency for each possible outcome, squaring them, dividing each by the expected frequency, and taking the sum of the results.

One final value will be computed here: each cell's Standardized Residual (*R*). This is used to determine which categories (cells) were major contributors to rejecting the null hypothesis, and is simply the square root of the cell's contribution to the chi-square statistic. "When the absolute value of the residual (*R*) is greater than 2.00, the researcher can conclude it was a major influence on a significant chi-square test statistic," according to AcaStat software documentation: http://www.acastat.com/Statbook/chisqresid.htm.

Chi-Square Testing

The basic method of a chi-square test is to posit a "null hypothesis" — in this case, that races of suspect and victim play no role in decisions to charge cases capitally — and then specify Expected values (here, the *potential* case percentages), then compare these to Observed values (here, the *prosecuted* case percentages), and finally measure the variance between Observed and Expected values to see if they are significant — that is, outside of the range of randomness. If they are significant, the null hypothesis is rejected.

All prosecuted cases

Let us look at the chart of the chi-square statistic (χ^2) for all *prosecuted* cases in our study (Expected values are derived by applying *potential* case percentages to the case count):

All Cases	Cat.	Observed	Expected	*R* (Std Resid)	% of χ^2
cases = 340	BkB	243	272.0	-1.76	11 %
χ^2 = **27.36**	BkW	55	28.9	+4.85	86 %
	WkB	7	8.3	-0.45	1 %
p = <.0001	WkW	35	30.8	+0.76	2 %

The chi-square value of 27.36 is bolded because it is statistically significant, exceeding our level of significance of 7.815 by a wide margin. The p value indicates a less than one-in-ten-thousand probability of these observed values occurring strictly by chance, given that the null hypothesis is true. Categories with *R* values greater than +/– 2 are highlighted as a "major influence" to a significant chi-square value. Indeed, the BkW category is responsible for 86% of the very significant chi-square value. These results show that the races of defendant and victim are significantly associated with the probability that a homicide in EBR will involve capital charges.

Cases with final charges of first degree

Let us look at the chart of the chi-square statistic (χ^2) for all prosecuted cases in our study that had *final* capital charges:

1º Cases	Cat.	Observed	Expected	*R* (Std Resid)	% of χ^2
cases = 53	BkB	29	42.4	-2.06	15 %
χ^2 = **27.95**	BkW	14	4.5	+4.47	72 %
	WkB[5]	1	1.3	-0.26	0 %
p = <.0001	WkW	9	4.8	+1.92	13 %

Here, the chi-square value of 27.95 is even higher, and two categories with *R* values greater than +/– 2 are highlighted as a "major influence" to a significant chi-square value. The BkW category is responsible for 72% of the very significant chi-square value, and the underrepresentation of BkB cases is also a major influence.

[5] It should be noted that chi-square testing results become less reliable when expected values become too low. A rule of thumb for being too low is when an expected cell value is under 5; two expected values in this table may be rounded to 5.

The WkB category falls below the critical level of 5 in all the tables except the *All Cases* table. And yet, it's *R* value in each table is at the same negligible level of influence as in the *All Cases* table, inviting us to ignore this category.

Cases with final charges of second degree, manslaughter, and negligent homicide

Let us look at the chart of the chi-square statistic (χ^2) for all the prosecuted cases of our study that had final charges of second degree murder, manslaughter, and negligent homicide:

All 2º to 4º	Cat.	Observed	Expected	*R* (Std Resid)	% of χ^2
cases = 147	BkB	111	112.0	-0.61	10 %
χ^2 = 3.61	BkW	16	12.5	+0.99	26 %
	WkB	2	3.6	-0.84	19 %
p = .3068	WkW	18	13.3	+1.29	45 %

Here, the chi-square value of 3.61 is not significant, meaning the variance of observed values can be attributed to randomness. The p value indicates there is a 30% probability of these observed values occurring strictly by chance, given that the null hypothesis is true. This is not enough probability to reject the null hypothesis for these cases.

Cases with lesser or dropped charges

Let us look at the chart of the chi-square statistic (χ^2) for all the prosecuted cases of our study that had final charges of less than murder, or dropped charges:

All < 4º	Cat.	Observed	Expected	*R* (Std Resid)	% of χ^2
cases = 114	BkB	84	91.2	-0.75	4 %
χ^2 = **12.58**	BkW	20	9.7	+3.31	87 %
	WkB	3	2.8	-0.13	0 %
p = .0056	WkW	7	10.3	+1.03	8 %

The chi-square value of 12.58 is bolded because it is significant, exceeding our level of significance of 7.815. The p value indicates an approximately six-in-one-thousand probability of these observed values occurring strictly by chance, given that the null hypothesis is true. The BkW category is a "major influence" to a significant chi-square value, responsible for 87% of it here.

Conclusions

We have looked at chi-square test results for the whole group (all initially capital cases in our study frame), as well as three subgroups: the most severe group (first degree murder final charges), the medium group (second degree to negligent homicide final charges), and the mildest group (less than murder or dropped final charges).

The whole group and the most severe group have very significant chi-square results. The mildest group has a significant chi-square result. The chi-square result for the medium group is not significant.

The over-representation of the black-on-white crime category is the clear major influence on each significant result. Black-on-black crimes are clearly under-represented in each group, and a major influence on the severe group's significant result. White-on-white crimes are generally over-represented but not a major influence. White-on-black crimes are too few in number to judge, but appear to be properly represented.

All results

Below is a table representing major and minor groupings of the prosecuted case data, their chi-square results (χ^2), p values, and the *R* (Standard Residual) value of each race category, with the exception of the insufficiently-represented WkB cases; and the percentage of the group's chi-square result that each race category represents:

Major Group	Minor Group	Case #	χ^2	P value	BkW *R*	BkW % of χ^2	BkB *R*	BkB % of χ^2	WkW *R*	WkW % of χ^2
All Cases		340	**27.36**	<.0001	4.85	86%	-1.76	11%	0.76	2%
All 1º		53	**27.95**	<.0001	4.47	72%	-2.06	15%	1.92	13%
	1º, Death	23	**29.31**	<.0001	5.04	87%	-1.73	10%	0.63	1%
	1º, Life/NG	30	**7.88**	.0486	1.53	30%	-1.22	19%	1.98	50%
All 2º to 4º		147	3.61	.3068	0.99	26%	-0.61	10%	1.29	45%
	All 2º	70	1.53	.6754	-0.39	10%	-0.13	1%	1.04	71%
	2º, Life	61	1.30	.7291	-0.08	0%	-0.26	5%	1.04	83%
	3º and 4º	77	4.50	.2123	1.74	67%	-0.71	11%	0.75	13%
All 5, 8, TBD		140	**17.03**	.0007	3.79	84%	-0.85	4%	-1.33	10%
	All 5 and 8	114	**12.58**	.0056	3.31	87%	-0.75	4%	-1.03	8%
	5 (Lesser)	38	6.22	.1014	2.10	71%	-0.25	1%	-1.32	28%
	8 (Drop)	76	7.31	.0626	2.57	90%	-0.74	7%	-0.35	2%
	TBD (not completed)	26	4.69	.1960	1.88	75%	-0.39	3%	-0.89	17%

As before, significant chi-square values are in bold, and major influence *R* values are highlighted by a gray background.