"The Writing on the Wall"

by

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> This is an occasion of great dignity and some solemnity.
> It represents the first application of a principle believed by
> many of us to be thoroughly democratic, equal and fair in
> selecting soldiers to defend the national honor abroad and
> at home.
>
> Secretary Baker, War Department
> July 12, 1917 draft lottery

Introduction

Following charges of unfairness in the procedures by which some local draft boards decided who should be drafted during the Vietnam War, in December 1969 young men were chosen for military service at random, by a "draft lottery." Soon after the drawing statisticians charged that the draft lottery was anything but random. In particular, men with birthdays in later months (lower lottery numbers) tended to be drafted before men with birthdays in earlier months (higher lottery numbers). The then prevailing belief was that the capsules (representing each of the 366 days of the year) were put into a two-foot deep bowl in monthly order and were not thoroughly mixed.

Eligible candidates for this draft lottery were men between the ages of 19 and 25. (Subsequent draft lotteries included only men who turned 19 years of age in the following twelve months.) Since September 14 was chosen first, men born on that date were assigned draft number "1" and thus were the first ones inducted in 1970. Since April 24 was chosen second, men born on that date were the second ones inducted, and so forth. Pentagon manpower specialists at the time believed that men with draft numbers over 200 would likely escape the draft entirely. Notable names of draft eligible men in this first post World War II draft lottery included Bill Clinton (lottery number 311), Al Gore (30), and George W. Bush (327).

While there is strong evidence of non-randomness in the 1970 draft lottery (see, for example, Fienberg [1]), no one has examined whether or not the distribution of Vietnam conflict casualties among 1970 draft inductees was also non-random. That is, did this nonuniformity of lottery numbers over days of the year introduce further tragic inequities?

The Data

The Center for Electronic Records, a unit of the National Archives and Records Administration, has custody of the Combat Area Casualties Current File (CACCF), a Department of Defense database containing records of hostile and non-hostile fatal U.S. military casualties during the Vietnam War. While the CACCF has a data field for "Length of Service", there is no CACCF data field specifying the dates of an individual's tour of military service nor does CACCF identify military personnel who may have entered the service as a result of the first draft lottery in December, 1969. However, a brief biographical description of every person whose name appears on The Vietnam Veterans Memorial (or "the Wall") is available at http://thewall-usa.com. The Web site contains data fields for "Date of Birth" and "Age". The short biographies themselves indicate when the individual's tour of duty began and their status as "Selective Service", "Regular", "Reserve", and so forth. From these fields one can (painstakingly) derive at least estimates of the number of casualties in the focus group: "Selective Service" inductees born between January 1, 1944 and December 31, 1950 whose tour of duty began on or after January 1, 1970. Casualties in this focus group by birth month are reported in Table 1.

The Results

Table 2 shows the average monthly draft priority numbers picked during the 1970 draft lottery (note that later months tend to have lower draft numbers than earlier months) and the monthly row totals from Table 1. Are the two columns of numbers linearly related? The Spearman rank correlation coefficient for these data has a value of -.844. The correlation value is significantly different from zero at the .005 level of significance.

That is, a high degree of (negative) rank correlation exists between the average monthly number picked in the first draft lottery in December, 1969 and the number of casualties among draft inductees who may have entered the service as a result of that lottery. Casualties by birth month are low at the beginning of the calendar year and high at the end.

The 1971 draft lottery the following year made use of random-numbers tables. A cursory look at the casualty figures by birth month for young men in this second draft lottery (January: 11, February: 6, March: 4, April: 4, May: 9, June: 9, July: 10, August: 6, September: 8, October: 6, November: 4, December: 4) reveals no discernible time trend. Moreover, the null hypothesis (of the same number of casualties in each month) cannot be rejected ($\chi^2 = 10.704$, $p = .47$ for 11 degrees of freedom).

Conclusion

The lottery numbers that emerged from the 1970 draft lottery caused men with birthdays in later months to be drafted before men with birthdays in earlier months. What (if anything) did this departure from randomness imply for the first men inducted into the army on the basis of these lottery numbers? The answer is (literally) chiseled in stone, among the 58,226 names listed on the mirror-like surface of the black granite Wall. Casualty data suggest that Vietnam conflict fatalities among 1970 draft lottery inductees were not uniformly distributed by birth month, a curious result if one assumes that males are born with equal likelihood throughout the year. More surprising, significantly more men in this focus group with birthdays in later months died in Vietnam than did men with birthdays in earlier months.

**Table 1.   Vietnam War casualties among military personnel
who may have entered the service as a result of the
first draft lottery in December 1969,
by birth month and year**

Year of Birth

Month	1944	1945	1946	1947	1948	1949	1950
January	2	2	0	5	5	29	57
February	1	1	2	5	12	41	67
March	0	1	3	12	14	31	40
April	2	1	4	11	10	36	42
May	4	5	8	4	21	44	33
June	0	3	6	11	16	37	37
July	0	1	5	10	24	51	46
August	1	1	7	8	25	70	66
September	1	3	2	4	26	78	33
October	1	2	12	9	15	68	35
November	2	3	6	12	31	70	48
December	6	4	6	12	31	58	61
Totals	20	27	61	103	230	613	565

**Table 2. Average monthly draft priority numbers picked
and casualties among Selective Service draftees,
by birth month**

Month	Average number picked	Total casualties
January	201.16	100
February	202.97	129
March	225.81	101
April	203.67	106
May	207.97	119
June	195.73	110
July	181.55	137
August	173.45	178
September	157.30	147
October	182.45	142
November	148.73	172
December	121.55	178

Reference

1. S. E. Fienberg, "Randomization and Social Affairs: The 1970 Draft Lottery,"

    Science, January 22, 1971, Vol. 171, No. 3968, pp. 255-261.