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POWER TAIL DISTRIBUTIONS AND GROUP MEDICAL EXPENSE INSURANCE PAYMENTS

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INTRODUCTION

It is known that many insurance loss distributions have very "heavy" tails because large losses represent a disproportionate fraction of the total cost [Hogg and Klugman 1984]. In this paper we analyze data from group medical expense insurance claims and show that they indeed have this property in a strict mathematical sense. In fact, these data imply that the underlying distributions emphasize large losses to such a degree that their second, and higher, moments do not exist. We also present a simple model to reproduce and explain the large loss behavior.

Since many applications concern themselves with the behavior of very large claims, this paper will focus on fitting distributions to the tails of the loss distributions. A probability density function (p.d.f.), f(x), has a **Long** or **Heavy Tail** if moments m_j exist only for $j = 1, 2, \ldots, s$; $s<\infty$, [Bratley et.al. 1983]. It includes, as examples, functions with so-called **Power tails**, satisfying asymptotic formulas which follow in the paper. First, let X be the random variable denoting the size of a claim, or loss, and let F(x) be the cumulative distribution function (c.d.f.) of X, then

$$R(x):=P(X>x)=1-F(x)=\int_x^{\infty} f(y)\,dy.$$

We say that R(x) [or f(x)] has **Power Tail Behavior** of order s if:

$$\lim_{x\to\infty} x^j R(x)=0 \quad , \quad for\ j<s,$$

and

$$\lim_{x\to\infty} x^j R(x)=\infty \quad , \quad for\ j>s.$$

The Pareto, and Levi-Pareto distributions have this property, as do the Cauchy, Student's T, Burr, Generalized Pareto [Hogg and Klugman 1984], and the F Distributions. Feller [Vol II], using a somewhat more general definition, calls these "Regularly Varying Functions".

Clearly, every function of the form:

$$R(x)=c\left(\frac{x_0}{x}\right)^s, \qquad for \quad x>x_0 \qquad\qquad 1)$$

has power tail behavior. These distributions are the ones of interest to us here. More loosely, we are interested in distributions for which

$$|R(x)\ -\ c(x_0/x)^s| \qquad\qquad 1a)$$

is negligible for $x>x_0$.

It follows directly that the corresponding p.d.f. is of the form:

$$f(x) = -\frac{dR(x)}{dx} = c\frac{s}{x_0}\left(\frac{x_0}{x}\right)^{s+1}, \qquad for \quad x>x_0.$$

Assuming that f(x) is "well behaved" for $x<x_0$, we now demonstrate the most significant characteristic of power tail distributions, namely that their moments do not exist for j>s. By definition,

$$\begin{aligned} E(X^j) := \int_0^\infty x^j f(x)\,dx = \int_0^{x_0} x^j f(x)\,dx + csx_0^s \int_{x_0}^\infty \frac{x^j}{x^{s+1}}\,dx \\ = m_j + csx_0^s \int_{x_0}^\infty x^{j-s-1}\,dx, \ = m_j + cs\left(\frac{x_0{}^j}{s-j}\right) \ ; s>j \end{aligned} \qquad 2)$$

where

$$m_j = \int_0^{x_0} x^j f(x)\,dx.$$

It is hard to tell by looking at the plot of a p.d.f. f(x) (or R(x)) whether it has a power tail, or say, an exponential tail, but if one plots those two types of curves on a log-log scale, then the difference is striking (See Figure 1). After all:

$$\log R(x) = s \log x_0 - s \log x + \log c$$

Thus log R(x) is a linear function of log x, with slope -s and y-intercept of $\log(cx_0^s)$. Similarly, log f(x) is a linear function of log x with a slope of -(s+1) and a y-intercept of $\log cs + s \log x_0$.

We have analyzed insurance claim data plotted in this way, and have found without exception that a straight line was an excellent fit for the range 5,000 to 100,000 (see Tables 1, 2, and 3). In all 24 cases considered, the slope was between 1.4 and 1.9. This is most interesting, since this implies that the underlying distributions have finite means but infinite variances! According to the converse of the strong law of large numbers [Feller V.II 1968 p.233], the estimator

$$\frac{1}{N}\sum_{n=1}^{N} (x_n)^2$$

grows unboundedly with N since the variance is infinite. But every estimate of the variance is finite. As we shall show later, a sample estimate of the mean will generally fall below the true mean.

If the application is concerned with small as well as large values of losses, then an empirical or Gamma distribution can be used for the small values and a Pareto distribution can be fitted to the large values. This has been done by other authors, see [Hogg and Klugman 1984 p. 156]. The overall distribution is then a mixture of the two. This process is considerably easier and more accurate than fitting a single distribution to the entire range of losses, and is illustrated in the section on simulation.

One reason that a power tail distribution is fitted to the tail of the distribution is that it allows extremely large values of loss to occur in a simulation whereas the empirical distribution is necessarily truncated. Another reason is that the phenomena associated with medical care, combined with some reasonable assumptions, show that the large expenses follow a power tail distribution no matter what the distribution of smaller claims. The latter is demonstrated in the paper.

ANALYTICAL MODEL

This paper will describe a model with two variations that can account for the power tail behavior of medical expense loss insurance. Although they both simplify the mechanisms which are occurring, they are quite robust and can provide a framework for further research. In this model only those insured individuals who make at least one visit to a medical care provider are considered. We assume that, with probability $(1-\theta)$, an insured individual (patient) makes exactly one visit to a medical care provider. The p.d.f. of medical expense for this one visit is denoted $f_0(x)$. Denote these expenses by the random variable X_0. The medical expenses in this case are usually relatively low. If the patient returns, then the first treatment is presumed to be ineffective and more expensive tests and treatments are administered. Assume that the patient visits the doctor exactly twice with probability $(1-\theta)\theta$, and that the total expense for the disability is the random variable X_1, with p.d.f. $f_1(x)$. If the patient visits k+1 times, with probability $(1-\theta)\theta^k$, then the total expense for the disability is X_k, and so on. Then the p.d.f. of the number of doctors visits is Geometric and the p.d.f. of total medical expenses for the disability, given that at least one visit occurs, is the mixture:

$$f(x)=(1-\theta)f_0(x)+(1-\theta)\theta f_1(x)+(1-\theta)\theta^2 f_2(x)+\cdots=(1-\theta)\sum_{k=0}^{\infty}\theta^k f_k(x)\,.$$

This assumption could be generalized to allow θ to depend on k, as long as something like

$$\lim_{n\to\infty}\frac{1}{n}\sum_{k=0}^{n}\theta(k)>0$$

remains true, but the data available at present is not sufficient to warrant such detail. The key to both variations is the ever increasing costs of successive visits. In variation I, we assume that $E(X_k) = \alpha^k E(X_0)$, with $\alpha>1$. As with θ, data available at present are insufficient for us to speculate on the overall shapes of the p.d.f.'s, $f_k(x)$, in particular $f_0(x)$. Therefore we will assume that $X_k = \alpha^k X_0$, so they are similar in shape to $f_0(x)$. That is if f is continuous, then

$$f_k(x)=\frac{1}{\alpha^k}f_0\left(\frac{x}{\alpha^k}\right) \qquad 3)$$

and $E(X_k) = \alpha^k E(X_0)$. As with θ, we could generalize and assume that α depends on k, with a limiting value greater than 1, but again there is no data available to support such flexibility.

It follows directly that

$$f(x)=(1-\theta)\sum_{k=0}^{\infty}\left(\frac{\theta}{\alpha}\right)^k f_0\left(\frac{x}{\alpha^k}\right).$$

It is shown in [Lipsky and Lowrie 1990] that if f(x) is continuous the it has power tail behavior This means that there exists an x_0 which allows Equation 1a) to be satisfied and also,

$s = -\log \theta/\log \alpha$.

Variation II is also concerned with cumulative expenses incurred with each occurrence of a disability. It has the same assumed structure of doctors' visits as Variation I, but the medical expense assumptions change. On the first visit the medical expense is represented by the random variable Y_0. If the patient visits exactly twice, then the expense on the second visit is represented by the random variable Y_1. If there are three visits, then the expense on the third visit is Y_2, and so on. The total expense is $X_{k-1} = Y_0 + Y_1 + Y_2 + \ldots + Y_{k-1}$, for k visits. Next assume that Y_{k-1} has the same distribution as $\alpha^{k-1}Y_0$. It is not hard to see that the p.d.f. for X_k is the convolution of the p.d.f.'s of the Y_k's, and thus is not distributed according to Equation 3). However, it can be shown [Lipsky and Lowrie 1990] that these assumptions also give rise to p.d.f.'s for which no moments exist beyond $s = -\log\theta/\log \alpha$, and that:

$$F^*(\sigma) = (1-\theta) F_0^*(\sigma) + \theta F_0^*(\sigma) F^*(\alpha\sigma),$$

where $F^*(\sigma)$ is the Laplace transform of f(x). Thus Variation II has heavy tail behavior. We think that Variation II has power tail behavior .

Definitions

Let $K(\geq 1)$ be the number of doctors' visits and X be the total medical expense for the disability. As before, $F_{k-1}(x)$ is the probability that a patient's total medical expense will not exceed x given that there are exactly k doctors' visits. Let $H(k) = Pr(K \leq k) = 1 - \theta_k$, for 1,2,3,.... Define $G_m(x)$ to be the sample distribution of X, that is, if there is a sample size m,

let $x_1, x_2, \ldots, x_m$ be the ordered values. Then

$$G_m(x) = \begin{cases} 0 & , \quad for\ x < x_1 \\ \frac{1}{m} sup[n: x_n \leq x] & , \quad for\ x_1 \leq x \leq x_m \\ 1 & , \quad for\ x_m \leq x. \end{cases}$$

Simulation

We present two methods of simulating the models discussed in this paper. The first method is used if an assumption is made about $f_0(x)$ in Variation I or II and if the parameters α and θ are estimated from the data. Otherwise the second method is used where the slope (-s) and x_0 are estimated from the data.

Method 1

If $f_0(x)$, α, and θ are known, then one proceeds by generating a value u' of the uniform (0,1) random variable U'. If $1-\theta^{k-1} < u' \leq 1-\theta^k, k=1,2,3,\ldots,$ then exactly k doctors' visits are generated because $H(k)=1-\theta^k$. Note that $U=1-U'$ is also a uniform (0,1) random variable. It is easy to show that if $U=u$ then

$$k=\left[\frac{\log u}{\log \theta}\right]+1,$$

where is $[x]$ indicates the integer part of x. For Variation I, $F_{k-1}(x)=F_0(x/\alpha^{k-1})$; for Variation II, $F_k(x)$ is the c.d.f. of $Y_0+Y_1+\ldots Y_{k-1}$, so $F_k^*(x)=(F_k^* \bullet F_{k-1}^*)(x)$, where * indicates convolution. In the following let $j=k-1$. The algorithm is as follows:

Step 0: $S:=0$, $I:=1$

Step 1: Generate u from the uniform (0,1) distribution;

Step 2: Let $j=[\log u/\log \theta]$

Step 3: Generate X_j from $f_j(x)$

Step 4: $S:=S+X_j$

Step 5: $I:=I+1$

Step 6: If $I\leq m$ go to step 1

If the number of visits is k, then to generate X_k from Variation I, generate Y from $F_0(x)$, and let $X_{k-1}=\alpha^{k-1}Y$. For Variation II, generate Y_i for i=0 to k from $F_0(x)$, and let $X_{k-1}=Y_0+\alpha Y_1+\alpha^2Y_2+\ldots+\alpha^kY_{k-1}$.

There are generators for the uniform (0,1) random variable built into most programming languages. The random variable Y can be generated using the inversion method or by more sophisticated methods [Bratley et.al., 1983] depending on the distribution of Y. It is critical to recognize that random numbers must be in double precision (or more) to get samples which are arbitrarily close to zero, thus producing arbitrarily large values for k.

Alternatively, one can generate values of K by using the definition of the geometric distribution directly. This method is preferable to the method described above since it can generate arbitrarily large values. Unfortunately it is much slower. The alternate method works in the following way: Generate u_1 from the uniform (0,1) distribution. If $u_1 \le 1-\theta$, deliver K=1: if not, generate u_2 from the uniform (0,1) distribution. If $u_2 \le 1-\theta$, deliver K=2, else generate u_3 from the uniform (0,1). If $u_3 \le 1-\theta$, deliver K=3, and so on.

Method 2

If $F_0(x)$, α, and θ are not known, then the Pareto distribution is fitted as described in the following section on data analysis. This process assumes that the points [$\log x_i$, $\log R(x_i)$] are linear for $x > x_0$ but the fitting is done over the range $UL < x < LL$. The parameter s (the negative of the slope) is thus estimated. Assume that $f_a(x)=0$ for $x > x_0$, then

$$
\begin{aligned}
f(x) &= (1-a)\, f_a(x)\,, && \text{for } 0 \le x \le x_0 \\
f(x) &= a\,\frac{s}{x_0}\left(\frac{x_0}{x}\right)^{s+1}, && \text{for } x \ge x_0
\end{aligned}
$$

or equivalently for the c.d.f.

$$
\begin{aligned}
F(x) &= (1-a)\, F_a(x)\,, && \text{for } 0 \le x < x_0 \\
F(x) &= 1-a\left(\frac{x_0}{x}\right)^{s}, && \text{for } x \ge x_0 .
\end{aligned}
$$

Assume that $f_a(x)=0$ for $x \ge x_0$.

Then for $j=1,2,...$

$$E(X^j) = (1-a)\, m_j + \frac{as}{s-j} x_0^j, \quad s>j$$

where

$$m_j := \int_0^{x_0} x^j f_a(x)\, dx.$$

The parameter a is determined from:

$$G_m(x_0) = 1-a$$

so $a=1-G_m(x_0)$. Then $G_m(x)$ can be used to approximate $F_a(x)$ in the simulation for $x<x_0$.

In the simulation if $U=u\leq 1-a$, sample from $(1-a)F_a(x)$ using

$$x=Min(x:(1-a)F_a(x)\geq u)=Min(x:G_m(x)\geq u), \qquad 4)$$

where the last equality is,of course, approximate.

If $F_a(x)$ is assumed to be continuous and strictly increasing, then

$$x=F_a^{-1}\left(\frac{u}{1-a}\right) \qquad 5).$$

If the simulated values for small x are not important, use the approximation:

$$x := \frac{\sum_{i=1}^{n} x_i}{n}, \quad where \quad n=max[i:x_i\leq x_0].$$

If $U=u>1-a$, then

$$x=Min[x: 1-a\left(\frac{x_0}{x}\right)^s \geq u]$$

which implies that

$$1-a\left(\frac{x_0}{x}\right)^{s}=u,$$

or

$$x=x_0\left(\frac{a}{1-u}\right)^{1/s}.$$

Then the simulation algorithm is:

Step 0: I:=1, S:=0

Step 1: Generate u from the uniform (0,1) distribution

Step 2: If u<1-a, perform step 3, else perform step 4

Step 3: X is determined from equation 4) if empirical or equation 5) if a distribution is fitted. go to step 5

Step 4:

$$x=x_0\left(\frac{a}{1-u}\right)^{\frac{1}{s}}$$

go to step 5

Step 5: S:=S+X

Step 6: If m≥I, go to step 1

DATA ANALYSIS

Source of Data

The background for the data in this paper was a study of group major medical expense claims done at The Guardian Life Insurance Company of America. The original sources of the claim data were the company's paid claim files produced from data entered by the claim settlement department. These files contain claims data for the years 1983 to 1987. Data is entered in these files for each medical procedure that is performed or service that is rendered. Codes are entered for type of disability, claim number, policy number, date, and so on. The study first tabulated medical expense claims per claimant per calendar year from these files for the five years separately. The amounts were summarized in cells. The characteristics defining the cells were:

Age:	-Adult
	-Child
Coverage:	-Comprehensive
	-Supplemental
Year:	1983 - 1987

Some terms should be defined. Comprehensive major medical insurance reimburses a proportion (e.g. 80%) of medical expense claims over a certain deductible (e.g. 100 dollars per year). Supplemental major medical acts the same way except that it is superimposed over a basic hospital and surgical plan such as Blue Cross (hospital only) or Blue Cross and Blue Shield (hospital and surgical expenses). With supplemental, the deductible and the basic hospital benefits are subtracted from the total expense.

Then a portion (e.g. 80%) of the remainder is reimbursed.

In the discussion that follows, the word "inflation" is used in a more general sense. Inflation includes, but is not limited to:

1) The usual increase in medical costs due to wage increases, operating expense increases, equipment cost increases, additional equipment, additional testing and supplies used on account of AIDS, etc.
2) Indirect increases due to malpractice insurance
3) Indirect increases due to cost shifting

An example of item 3) occurred when President Reagan decreased the amounts payable under Medicare. Hospitals then changed their billing procedures so that private medical insurance paid more of the cost of medical treatment for all patients.

The date a claim is incurred is the date the patient visits the medical care provider. Paid claims during a year approximate incurred claims during that year because the tails of claims incurred in the previous year are included and the tails of claims incurred in the current year are truncated at the end of the year. If inflation is high, the truncated claims are larger at the end than they are at the beginning so the approximation is not as good.

The empirical c.d.f.'s $F(x)=G_m(x)$ were calculated from the data for x=5000,7500,...,100000. then the function $\log R(x)=\log(1-F(x))$ was graphed against $\log x$. These graphs were linear to a striking degree in this range. This indicated that a power tail distribution would fit the distribution of the large values of medical insurance claims very closely.

There is a display on each page of Table 2 analyzing the process of fitting weighted least squares regression lines between the limits LL<x<UL. The variable T determines the cut-off point below which the empirical mean is calculated and above which the Pareto mean is calculated. The limits LL and UL define the range of values of x where the regression line is fitted because log R(x) is assumed to be linear with respect to log x in that range. The weights used were the numbers of claims in each sub-range. Each page represents a cell. These cells are:

Comprehensive-Adult-1983, 4, 5, 6, and 7 (CA3, CA4, CA5, CA6, CA7)
Comprehensive-Adult-all years (CA)
Comprehensive-Child-1983, 4, 5, 6, and 7 (CC3, CC4, CC5, CC6, CC7)
Comprehensive-Child-all years (CC)
Supplemental-Adult-1983, 4, 5, 6, and 7 (SA3, SA4, SA5, SA6, SA7)
Supplemental-Adult-all years (SA)
Supplemental-Child-1983, 4, 5, 6, and 7 (SC3, SC4, SC5, SC6, SC7)
Supplemental-Child-all years (SC)

In each page there are two sections. In the first section, the columns have the following meaning:

1) Y-intercept of the fitted weighted least squares line.
2) Slope of the weighted least squares line.
3) Empirical mean of X given X>T.
4) The mean of X | X>T assuming a power tail (Pareto) model for X>T.
5) Composite mean of the distribution assuming the empirical mean for X<T and the mean from a power tail model for X>T.
6) Ratios of the composite mean in 5) to the empirical mean.
7), 8) and 9) Values of T, LL, and UL respectively in 1000's.
10) Weighted sum of squares.

Changes in slope and y-intercept occurred when the interval over which the weighted least squares regression line was fitted, was shifted. This is seen on comparing the first and second lines of the first section in each page of Table 2. This effect is evident for Comprehensive-Adult and Child, and Supplemental-Child. This behavior may indicate that there are two slopes in the tail, but if so, then there must be some cut-off phenomenon occurring for the smaller slope. Supplemental-Adult does not show this behavior. Supplemental-Child, in the early years, shows differences in slope and y-intercept both when the interval is shifted and when it is expanded.

The first 4 lines in the first section serve to test the sensitivity of the y-intercept and slope to various choices of LL and UL. The last five lines in the first section keep LL=5,000 and UL=100,000 fixed, but set values of T successively to: 5,000, 10,000, 25,000, 50,000, and 100,000. An examination of columns 3 and 4 shows that the Pareto mean E(X|X>T), is much larger than the empirical mean of claims greater than T. The difference between the means grows larger as T gets larger. The composite mean in column 5 is fairly close to the empirical mean since the probability, Pr(X>T), gets small as T gets large thus de-emphasizing the growing differences in E(X|X>T). These results indicate that the power tail model, rather than the empirical distribution, should be used for any purpose involving the distribution of large claims. The reason is that the finite size of the sample will almost always omit large claims predicted by the power tail model.

Table 3 is a sample SAS (statistical package) output for the cell CA7. The output for the other cells was very similar and was omitted to save space. A graph of log R(x) against log x, from the data, is shown first. Then the output from the SAS General Linear Model procedure for fitting weighted least squares regression line is shown. For every cell the fit, indicated by the extremely small values of "PR>F", is excellent. The small values of "PR>|T|" indicate that it is highly unlikely that either the slope or the y-intercept are zero. The fact that the linear regression model fits so well, from cell to cell, indicates that our model is correct. In other words, power tail distributions describe the tail behavior of group medical insurance claims very well. Then graphs of the actual data, log R(x) vs. log x, are plotted along with the predicted values from the weighted least squares regression lines. The weighted residuals are also graphed. The fact that the residuals increase, then decrease for comprehensive may indicate that the slope of the graph of log R(x) vs log x changes at around 25,000. This behavior is not understood and doesn't appear to occur for supplemental.

Difference Between Adult and Child Claim Distributions

The slopes and y-intercepts for adults and children are strikingly different. Other work, not presented in this paper, showed that children have more very small claims, and more very large claims, relative to adults. The fact that the slope and absolute value of the y-intercept are lower for children indicates that their distribution of claims has a much broader tail.

Analysis by Year

Table 1 shows inflation rates for the overall empirical mean. These figures represent the inflation due to increases in the amount of claims and do not include utilization increases. These inflation rates rise and fall by year. The pattern of rise and fall needs more study.

For comprehensive coverage, it looks like both the y-intercept and absolute value of the slope are decreasing by year. However, these decreases are not steady.

For example, for Comprehensive-Child the slope and absolute value of the y-intercept increased in 1987.

For the supplemental coverage, only the slopes for child claims seem to decreasing by year. The pattern of annual progression for y-intercept and slope for adults and y-intercept for children isn't easily discerned.

Statistically, the slopes and y-intercepts are the same when compared to their corresponding values in the previous year, with two exceptions. The exceptions are Comprehensive-Child 1986 (CC6) and Supplemental-Adult 1984 (SA4). The column of Table 2, labelled "Diff Y-Int" gives the differences in values of the y-intercepts over their corresponding values in previous years. The column labelled "Sigma Diff Y-Int" gives the standard deviations of these differences. The column labelled "No. Sdev Y-Int" gives the differences expressed in units of standard deviations. A similar description applies to the last three columns but with respect to slopes.

For some reason, the absolute value of the slopes and the y-intercepts for Comprehensive-Child 1986 and Supplemental-Adult 1984 appear low in relation to the adjoining years. The inflation rate for Comprehensive-Child for 1986 over 1985 was large. The reason for this is not known. These conditions indicate a larger spread in the distribution of claims.

Other Relationships

The most striking relationship is between age and y-intercept and slope. The y-intercept is much smaller for children and the absolute value of the slope is smaller for children. Both of these aspects of distribution of child claims indicate that child claims have a larger spread than adult claims.

Composite means were calculated in Table 2 combining the mean of the power tail distribution for claims over T with the empirical mean for claims under T. The ratios of the composite means to empirical means were much larger for children than adults. This leads to the same conclusion as before, namely that child claims have a much larger spread.

The power tail means for child claims are much larger than for adult claims. Both empirical and composite means are larger for comprehensive than supplemental which is expected since supplemental claims have the lower portions covered by Blue Cross-Blue Shield.

Overall empirical means increase by year. This is expected since claim amounts increase each year due to wage inflation, cost inflation, purchase of expensive equipment, cost shifting, and the cost of malpractice lawsuits. Note that this type of increase is over and above increase in utilization (e.g. number of hospital visits per year).

Conclusion

This paper proposes a model for group major medical claims that fits the data very well for large claims and has a very reasonable rationale. The model is robust and provides a means of simulation for dealing with real problems concerning group major medical expenses. For example, the problem of pricing aggregate stoploss insurance being addressed using Monte Carlo simulation with these methods, by the first mentioned author, at The Guardian Life Insurance Company.

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FIGURE 1

HEAVY TAIL VS. EXPONENTIAL

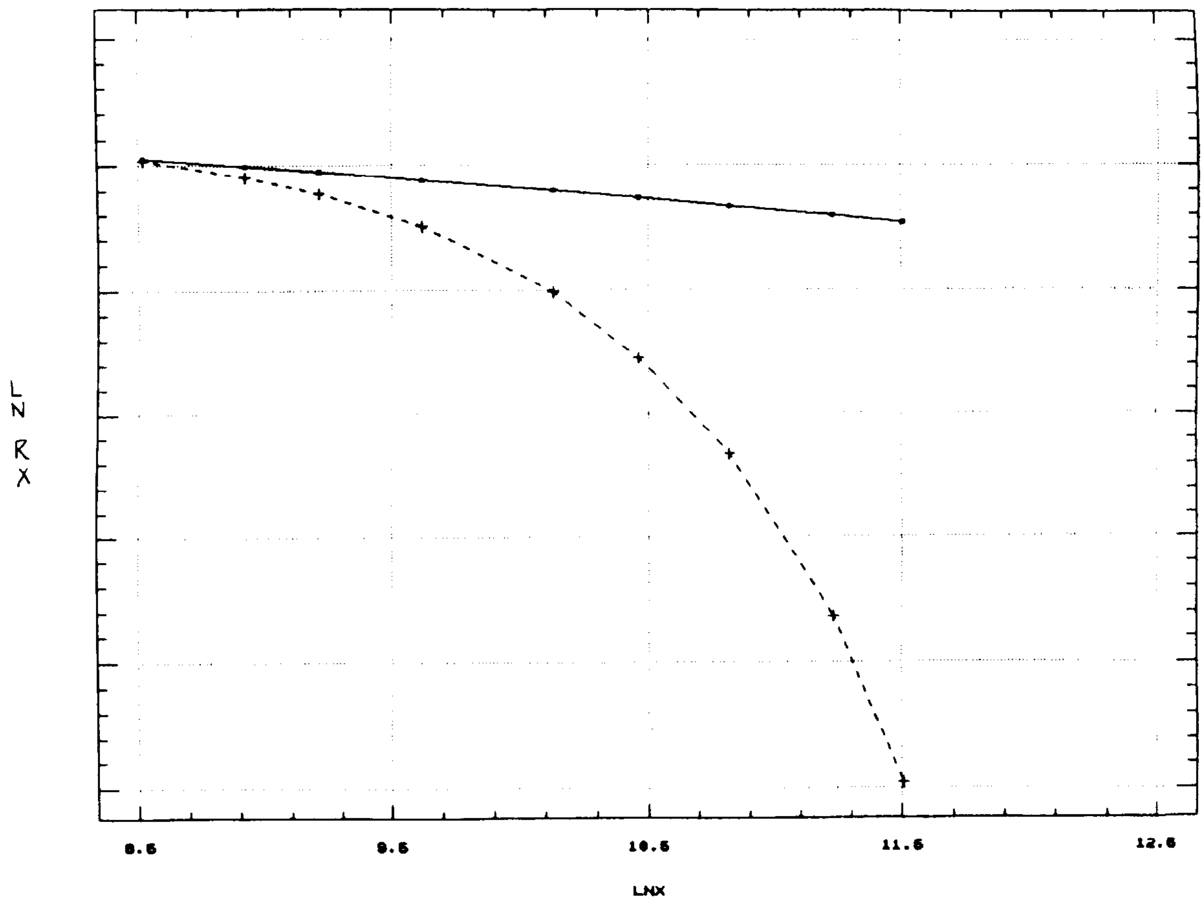


Table 1

Supplemental Adult

Yr	Y-Int	Std Err Y-Int	Slope	Std Err Slope	Empirical Mean	Emp Mean X>T	Infl Rate	Diff Y-Int	Sigma Diff Y-Int	No. Sdev Y-Int	Diff Slope	Sigma Diff Slope	No. Sdev Slope
83	11.59	0.20	-1.83	0.02	878	10790	-	-	-	-	-	-	-
84	10.93	0.14	-1.75	0.02	929	11087	5.8	-0.66	0.25	-2.66	0.08	0.03	2.94
85	12.07	0.23	-1.86	0.03	992	10741	6.8	1.14	0.27	4.20	-0.11	0.03	-3.71
86	11.81	0.20	-1.82	0.02	1083	10952	9.2	-0.26	0.30	-0.85	0.04	0.03	1.20
87	11.87	0.23	-1.80	0.03	1202	11056	11.0	0.06	0.30	0.20	0.02	0.03	0.60

Supplemental Child

Yr	Y-Int	Std Err Y-Int	Slope	Std Err Slope	Empirical Mean	Emp Mean X>T	Infl Rate	Diff Y-Int	Sigma Diff Y-Int	No. Sdev Y-Int	Diff Slope	Sigma Diff Slope	No. Sdev Slope
83	8.06	0.40	-1.52	0.04	538	13417	-	-	-	-	-	-	-
84	7.19	0.57	-1.42	0.06	563	14910	4.6	-0.87	0.70	-1.24	0.10	0.07	1.34
85	7.20	0.33	-1.40	0.04	608	14593	8.0	0.01	0.66	0.02	0.02	0.07	0.28
86	7.43	0.24	-1.41	0.03	648	14869	6.6	0.23	0.40	0.57	-0.01	0.04	-0.23
87	7.14	0.31	-1.36	0.03	694	15648	7.1	-0.29	0.39	-0.74	0.05	0.04	1.19

Comprehensive Adult

Yr	Y-Int	Std Err Y-Int	Slope	Std Err Slope	Empirical Mean	Emp Mean X>T	Infl Rate	Diff Y-Int	Sigma Diff Y-Int	No. Sdev Y-Int	Diff Slope	Sigma Diff Slope	No. Sdev Slope
83	12.29	0.44	-1.76	0.05	1578	11416	-	-	-	-	-	-	-
84	12.13	0.33	-1.74	0.04	1630	11544	3.3	-0.16	0.55	-0.29	0.02	0.06	0.34
85	11.54	0.30	-1.66	0.03	1711	11768	5.0	-0.59	0.44	-1.33	0.08	0.05	1.66
86	11.72	0.27	-1.67	0.03	1785	12041	4.3	0.18	0.40	0.45	-0.01	0.04	-0.23
87	11.55	0.24	-1.64	0.03	1903	12402	6.6	-0.17	0.36	-0.47	0.03	0.04	0.77

Comprehensive Child

Yr	Y-Int	Std Err Y-Int	Slope	Std Err Slope	Empirical Mean	Emp Mean X>T	Infl Rate	Diff Y-Int	Sigma Diff Y-Int	No. Sdev Y-Int	Diff Slope	Sigma Diff Slope	No. Sdev Slope
83	9.08	0.40	-1.48	0.04	963	14474	-	-	-	-	-	-	-
84	8.26	0.53	-1.38	0.06	1038	15714	7.8	-0.82	0.66	-1.24	0.10	0.07	1.41
85	7.90	0.28	-1.34	0.03	1081	16059	4.1	-0.36	0.60	-0.60	0.04	0.06	0.62
86	7.07	0.26	-1.23	0.03	1193	18268	10.4	-0.83	0.38	-2.17	0.11	0.04	2.68
87	8.18	0.39	-1.34	0.04	1220	17066	2.3	1.11	0.47	2.35	-0.11	0.05	-2.18

TABLE 2

COMPREHENSIVE ADULT 1983 THROUGH 1987

SECTION 1

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
		EMPIR. MEAN	PARETO MEAN	EMPIR. COMB. PARETO	RATIO (5) TO EMPIR.				WTD SUM
Y-INT	SLOPE	X>T	X>T	MEAN	MEAN	T	LL	UL	SQRS
11.56	-1.64	22286	25542	2000	1.05	10	5	50	42.94
12.41	-1.73	22286	23681	1948	1.02	10	10	100	50.96
12.01	-1.69	22286	24503	1971	1.03	10	10	50	23.32
11.79	-1.67	12072	12469	1941	1.02	5	5	100	92.42
11.79	-1.67	22286	24938	1983	1.04	10	5	100	92.42
11.79	-1.67	48511	62346	1997	1.05	25	5	100	92.42
11.79	-1.67	90498	124691	1965	1.03	50	5	100	92.42
11.79	-1.67	159180	249383	1947	1.02	100	5	100	92.42

SECTION 2

X	MID-POINT	NUMBER CLAIMS	C.D.F. F(X)	X	LN(X)	LN R(X) EMPIR	LN R(X) PRED
150	131	24598	0.057632				
250	198	62827	0.204832				
400	320	69178	0.366912				
500	448	31836	0.441501				
600	548	24159	0.498105				
1000	774	58225	0.634522				
1250	1119	21634	0.685209				
1500	1370	16299	0.723397				
2000	1734	23576	0.778634				
2500	2240	16821	0.818045				
3000	2738	12575	0.847507				
4000	3464	17554	0.888635				
4500	4245	6549	0.903979				
5000	4742	5299	0.916394	5000	8.517193	-2.481646	-2.424834
7500	6071	16452	0.954941	7500	8.922658	-3.099773	-3.101726
10000	8604	7141	0.971672	10000	9.210340	-3.563887	-3.581989
15000	12057	5882	0.985453	15000	9.615805	-4.230348	-4.258881
25000	18923	3470	0.993583	25000	10.126631	-5.048755	-5.111664
35000	29496	1272	0.996563	35000	10.463103	-5.673129	-5.673378
50000	41213	759	0.998341	50000	10.819778	-6.401660	-6.268819
75000	59667	394	0.999264	75000	11.225243	-7.214711	-6.945712
100000	85597	128	0.999564	100000	11.512925	-7.738357	-7.425974
150000	121999	116	0.999836				
200000	169943	34	0.999916				
400000	254284	34	0.999995				
600000	409918	1	0.999998				
800000	621970	1	1.000000				

TOTAL 426814

EMPIRICAL: MEAN 1908 STANDARD DEVIATION 7063

TABLE 2

COMPREHENSIVE ADULT 1983

SECTION 1

(1) Y-INT	(2) SLOPE	(3) EMPIR. MEAN X>T	(4) PARETO MEAN X>T	(5) EMPIR. COMB. PARETO MEAN	(6) RATIO (5) TO EMPIR. MEAN	(7) T	(8) LL	(9) UL	(10) WTD SUM SQRS
12.02	-1.73	20954	23754	1636	1.04	10	5	50	15.50
13.19	-1.85	20954	21797	1595	1.01	10	10	100	15.18
12.74	-1.80	20954	22501	1610	1.02	10	10	50	9.80
12.29	-1.76	11416	11607	1590	1.01	5	5	100	25.39
12.29	-1.76	20954	23214	1625	1.03	10	5	100	25.39
12.29	-1.76	43920	58034	1641	1.04	25	5	100	25.39
12.29	-1.76	84360	116068	1607	1.02	50	5	100	25.39
12.29	-1.76	149781	232136	1595	1.01	100	5	100	25.39

SECTION 2

X	MID-POINT	NUMBER CLAIMS	C.D.F. F(X)	X	LN(X)	LN R(X) EMPIR	LN R(X) PRED
150	127	6500	0.098098				
250	197	11582	0.272895				
400	317	10873	0.436991				
500	447	4557	0.505765				
600	549	3224	0.554422				
1000	773	7625	0.669499				
1250	1119	3105	0.716360				
1500	1371	2331	0.751539				
2000	1740	3637	0.806429				
2500	2236	2577	0.845321				
3000	2734	1834	0.873000				
4000	3455	2579	0.911923				
4500	4236	874	0.925113				
5000	4738	710	0.935829	5000	8.517193	-2.746197	-2.668698
7500	6052	1985	0.965786	7500	8.922658	-3.375129	-3.381017
10000	8609	889	0.979203	10000	9.210340	-3.872953	-3.886416
15000	12047	666	0.989254	15000	9.615805	-4.533264	-4.598735
25000	18932	417	0.995548	25000	10.126631	-5.414366	-5.496151
35000	28743	147	0.997766	35000	10.463103	-6.104129	-6.087264
50000	41210	87	0.999079	50000	10.819778	-6.990468	-6.713869
75000	57485	34	0.999593	75000	11.225243	-7.805505	-7.426188
100000	84194	13	0.999789	100000	11.512925	-8.462284	-7.931587
150000	117628	8	0.999909				
200000	177414	4	0.999970				
400000	223126	2	1.000000				

TOTAL 66260

EMPIRICAL: MEAN 1578 STANDARD DEVIATION 5357

TABLE 2

COMPREHENSIVE ADULT 1984

SECTION 1

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
				EMPIR.	RATIO				
		EMPIR.	PARETO	COMB.	(5) TO				WTD
		MEAN	MEAN	PARETO	EMPIR.				SUM
Y-INT	SLOPE	X>T	X>T	MEAN	MEAN	T	LL	UL	SQRS
11.88	-1.71	21538	24111	1686	1.03	10	5	50	8.43
12.90	-1.81	21538	22284	1646	1.01	10	10	100	9.98
12.48	-1.77	21538	23002	1662	1.02	10	10	50	4.90
12.13	-1.74	11544	11795	1647	1.01	5	5	100	17.56
12.13	-1.74	21538	23589	1675	1.03	10	5	100	17.56
12.13	-1.74	46779	58973	1687	1.03	25	5	100	17.56
12.13	-1.74	90900	117946	1660	1.02	50	5	100	17.56
12.13	-1.74	164656	235892	1651	1.01	100	5	100	17.56

SECTION 2

X	MID-POINT	NUMBER CLAIMS	C.D.F. F(X)	X	LN(X)	LN R(X) EMPIR	LN R(X) PRED
150	126	6934	0.090219				
250	197	12700	0.255461				
400	318	12573	0.419051				
500	448	5458	0.490066				
600	548	3977	0.541811				
1000	773	9483	0.665196				
1250	1119	3679	0.713065				
1500	1368	2728	0.748559				
2000	1735	4129	0.802282				
2500	2235	2943	0.840574				
3000	2744	2085	0.867702				
4000	3475	3058	0.907491				
4500	4238	1086	0.921621				
5000	4744	898	0.933305	5000	8.517193	-2.707621	-2.656353
7500	6016	2459	0.965299	7500	8.922658	-3.360992	-3.360190
10000	8592	1009	0.978427	10000	9.210340	-3.836334	-3.859570
15000	12078	824	0.989149	15000	9.615805	-4.523468	-4.563408
25000	19048	478	0.995368	25000	10.126631	-5.374771	-5.450138
35000	28785	179	0.997697	35000	10.463103	-6.073552	-6.034212
50000	41563	93	0.998907	50000	10.819778	-6.818885	-6.653355
75000	60224	50	0.999558	75000	11.225243	-7.723341	-7.357193
100000	83499	12	0.999714	100000	11.512925	-8.158659	-7.856573
150000	116377	10	0.999844				
200000	169947	8	0.999948				
400000	274771	4	1.000000				

TOTAL 76857

EMPIRICAL: MEAN 1630 STANDARD DEVIATION 5866

TABLE 2

COMPREHENSIVE ADULT 1985

SECTION 1

(1) Y-INT	(2) SLOPE	(3) EMPIR. MEAN X>T	(4) PARETO MEAN X>T	(5) EMPIR. COMB. PARETO MEAN	(6) RATIO (5) TO EMPIR. MEAN	(7) T	(8) LL	(9) UL	(10) WTD SUM SQRS
11.31	-1.64	22402	25705	1786	1.04	10	5	50	8.55
11.92	-1.70	22402	24268	1753	1.02	10	10	100	14.91
11.45	-1.65	22402	25349	1778	1.04	10	10	50	8.30
11.54	-1.66	11768	12544	1766	1.03	5	5	100	17.09
11.54	-1.66	22402	25089	1772	1.04	10	5	100	17.09
11.54	-1.66	46293	62721	1801	1.05	25	5	100	17.09
11.54	-1.66	84481	125443	1767	1.03	50	5	100	17.09
11.54	-1.66	137509	250886	1750	1.02	100	5	100	17.09

SECTION 2

X	MID-POINT	NUMBER CLAIMS	C.D.F. F(X)	X	LN(X)	LN R(X) EMPIR	LN R(X) PRED
150	126	6771	0.081132				
250	197	12870	0.235343				
400	319	13572	0.397965				
500	448	6193	0.472171				
600	548	4354	0.524342				
1000	773	10796	0.653702				
1250	1118	4097	0.702793				
1500	1370	3128	0.740273				
2000	1730	4631	0.795763				
2500	2236	3255	0.834765				
3000	2738	2472	0.864385				
4000	3460	3220	0.902968				
4500	4242	1161	0.916879				
5000	4734	1007	0.928945	5000	8.517193	-2.644307	-2.621307
7500	6027	2847	0.963059	7500	8.922658	-3.298428	-3.295495
10000	8576	1189	0.977306	10000	9.210340	-3.785641	-3.773839
15000	12070	877	0.987814	15000	9.615805	-4.407474	-4.448027
25000	18938	557	0.994488	25000	10.126631	-5.200860	-5.297404
35000	29339	223	0.997160	35000	10.463103	-5.864027	-5.856874
50000	41636	123	0.998634	50000	10.819778	-6.595888	-6.449936
75000	59345	62	0.999377	75000	11.225243	-7.380843	-7.124124
100000	85375	23	0.999653	100000	11.512925	-7.964791	-7.602468
150000	121485	21	0.999904				
200000	169477	6	0.999976				
400000	209860	2	1.000000				

TOTAL 83457

EMPIRICAL: MEAN 1711 STANDARD DEVIATION 5855

TABLE 2

COMPREHENSIVE ADULT 1986

SECTION 1

(1) Y-INT	(2) SLOPE	(3) EMPIR. MEAN X>T	(4) PARETO MEAN X>T	(5) EMPIR. COMB. PARETO MEAN	(6) RATIO (5) TO EMPIR. MEAN	(7) T	(8) LL	(9) UL	(10) WTD SUM SQRS
11.60	-1.66	22042	25144	1865	1.04	10	5	50	12.17
12.34	-1.74	22042	23598	1825	1.02	10	10	100	7.57
12.20	-1.72	22042	23862	1832	1.03	10	10	50	6.39
11.72	-1.67	12041	12429	1814	1.02	5	5	100	15.27
11.72	-1.67	22042	24859	1857	1.04	10	5	100	15.27
11.72	-1.67	48237	62147	1865	1.04	25	5	100	15.27
11.72	-1.67	93307	124293	1828	1.02	50	5	100	15.27
11.72	-1.67	142721	248586	1838	1.03	100	5	100	15.27

SECTION 2

X	MID-POINT	NUMBER CLAIMS	C.D.F. F(X)	X	LN(X)	LN R(X) EMPIR	LN R(X) PRED
150	127	6721	0.075536				
250	197	12850	0.219956				
400	319	14549	0.383470				
500	448	6601	0.457658				
600	549	4884	0.512548				
1000	772	12132	0.648898				
1250	1116	4574	0.700305				
1500	1370	3412	0.738652				
2000	1734	4773	0.792295				
2500	2238	3417	0.830698				
3000	2742	2435	0.858064				
4000	3467	3586	0.898367				
4500	4239	1339	0.913416				
5000	4744	1023	0.924913	5000	8.517193	-2.589110	-2.532112
7500	6066	3078	0.959506	7500	8.922658	-3.206611	-3.210459
10000	8597	1312	0.974252	10000	9.210340	-3.659390	-3.691754
15000	12071	1156	0.987244	15000	9.615805	-4.361745	-4.370101
25000	19015	623	0.994246	25000	10.126631	-5.157809	-5.224717
35000	29526	248	0.997033	35000	10.463103	-5.820184	-5.787638
50000	41091	139	0.998595	50000	10.819778	-6.567819	-6.384359
75000	60071	63	0.999303	75000	11.225243	-7.268999	-7.062706
100000	85676	17	0.999494	100000	11.512925	-7.589471	-7.544001
150000	120091	34	0.999876				
200000	170745	7	0.999955				
400000	286038	4	1.000000				

TOTAL 88977

EMPIRICAL: MEAN 1785 STANDARD DEVIATION 6376

TABLE 2

COMPREHENSIVE ADULT 1987

SECTION 1

(1) Y-INT	(2) SLOPE	(3) EMPIR. MEAN X>T	(4) PARETO MEAN X>T	(5) EMPIR. COMB. PARETO MEAN	(6) RATIO (5) TO EMPIR. MEAN	(7) T	(8) LL	(9) UL	(10) WTD SUM SQRS
11.35	-1.62	22917	26161	1997	1.05	10	5	50	8.99
12.06	-1.69	22917	24444	1947	1.02	10	10	100	9.10
11.74	-1.66	22917	25187	1969	1.03	10	10	50	4.40
11.55	-1.64	12402	12801	1937	1.02	5	5	100	17.80
11.55	-1.64	22917	25603	1981	1.04	10	5	100	17.80
11.55	-1.64	50603	64007	1992	1.05	25	5	100	17.80
11.55	-1.64	95161	128014	1962	1.03	50	5	100	17.80
11.55	-1.64	169239	256029	1946	1.02	100	5	100	17.80

SECTION 2

X	MID-POINT	NUMBER CLAIMS	C.D.F. F(X)	X	LN(X)	LN R(X) EMPIR	LN R(X) PRED
150	127	8062	0.072459				
250	197	15632	0.212955				
400	319	17729	0.372298				
500	448	8421	0.447984				
600	549	6204	0.503743				
1000	774	15654	0.644437				
1250	1117	5932	0.697752				
1500	1369	4189	0.735402				
2000	1731	5900	0.788429				
2500	2243	4055	0.824874				
3000	2741	3047	0.852260				
4000	3470	4304	0.890943				
4500	4250	1574	0.905090				
5000	4749	1292	0.916702	5000	8.517193	-2.485329	-2.428562
7500	6090	4205	0.954495	7500	8.922658	-3.089938	-3.093893
10000	8597	1864	0.971248	10000	9.210340	-3.549059	-3.565953
15000	12047	1550	0.985179	15000	9.615805	-4.211728	-4.231283
25000	19019	912	0.993376	25000	10.126631	-5.017064	-5.069501
35000	29580	331	0.996351	35000	10.463103	-5.613299	-5.621620
50000	41121	206	0.998202	50000	10.819778	-6.321335	-6.206891
75000	60542	106	0.999155	75000	11.225243	-7.076357	-6.872222
100000	84783	39	0.999506	100000	11.512925	-7.612319	-7.344281
150000	120136	33	0.999802				
200000	171959	9	0.999883				
400000	264506	12	0.999991				
600000	500000	0	0.999991				
800000	621970	1	1.000000				

TOTAL 111263

EMPIRICAL: MEAN 1903 STANDARD DEVIATION 7693

TABLE 2

COMPREHENSIVE CHILD 1983 THROUGH 1987

SECTION 1

(1) Y-INT	(2) SLOPE	(3) EMPIR. MEAN X>T	(4) PARETO MEAN X>T	(5) EMPIR. COMB. PARETO MEAN	(6) RATIO (5) TO EMPIR. MEAN	(7) T	(8) LL	(9) UL	(10) WTD SUM SQRS
7.72	-1.30	28784	43616	1444	1.18	10	5	50	15.32
8.82	-1.41	28784	34537	1306	1.07	10	10	100	4.38
8.68	-1.39	28784	35406	1320	1.08	10	10	50	3.78
7.92	-1.32	16654	20684	1356	1.11	5	5	100	20.29
7.92	-1.32	28784	41368	1410	1.16	10	5	100	20.29
7.92	-1.32	61586	103419	1405	1.15	25	5	100	20.29
7.92	-1.32	111223	206839	1371	1.12	50	5	100	20.29
7.92	-1.32	182378	413678	1361	1.12	100	5	100	20.29

SECTION 2

X	MID-POINT	NUMBER CLAIMS	C.D.F. F(X)	X	LN(X)	LN R(X) EMPIR	LN R(X) PRED
150	131	16328	0.092686				
250	197	38143	0.309206				
400	317	35439	0.510377				
500	447	14723	0.593952				
600	548	10543	0.653800				
1000	770	23073	0.784774				
1250	1117	7587	0.827842				
1500	1368	5358	0.858257				
2000	1729	6831	0.897033				
2500	2231	4351	0.921732				
3000	2735	2750	0.937342				
4000	3442	3250	0.955791				
4500	4241	1015	0.961553				
5000	4731	788	0.966026	5000	8.517193	-3.382159	-3.316093
7500	6073	2304	0.979105	7500	8.922658	-3.868231	-3.850820
10000	8636	1006	0.984815	10000	9.210340	-4.187466	-4.230215
15000	12107	1039	0.990713	15000	9.615805	-4.679161	-4.764941
25000	18987	853	0.995555	25000	10.126631	-5.416038	-5.438617
35000	29414	317	0.997355	35000	10.463103	-5.934985	-5.882356
50000	41694	186	0.998411	50000	10.819778	-6.444381	-6.352739
75000	59663	126	0.999126	75000	11.225243	-7.042218	-6.887465
100000	85392	46	0.999387	100000	11.512925	-7.397039	-7.266860
150000	122232	55	0.999699				
200000	174587	20	0.999813				
400000	271048	30	0.999983				
600000	450281	3	1.000000				

TOTAL 176164

EMPIRICAL: MEAN 1219 STANDARD DEVIATION 7826

TABLE 2

COMPREHENSIVE CHILD 1983

SECTION 1

(1) Y-INT	(2) SLOPE	(3) EMPIR. MEAN X>T	(4) PARETO MEAN X>T	(5) EMPIR. COMB. PARETO MEAN	(6) RATIO (5) TO EMPIR. MEAN	(7) T	(8) LL	(9) UL	(10) WTD SUM SQRS
8.71	-1.44	24958	32795	1049	1.09	10	5	50	2.20
10.06	-1.58	24958	27322	989	1.03	10	10	100	1.33
9.57	-1.53	24958	29006	1007	1.05	10	10	50	.46
9.08	-1.48	14474	15434	988	1.03	5	5	100	4.33
9.08	-1.48	24958	30869	1028	1.07	10	5	100	4.33
9.08	-1.48	55006	77172	1022	1.06	25	5	100	4.33
9.08	-1.48	91957	154345	1023	1.06	50	5	100	4.33
9.08	-1.48	155453	308690	1007	1.05	100	5	100	4.33

SECTION 2

X	MID-POINT	NUMBER CLAIMS	C.D.F. F(X)	X	LN(X)	LN R(X) EMPIR	LN R(X) PRED
150	127	4129	0.148264				
250	195	6985	0.399081				
400	315	5183	0.585192				
500	448	2003	0.657115				
600	549	1417	0.707997				
1000	768	2958	0.814212				
1250	1117	1108	0.853998				
1500	1370	766	0.881504				
2000	1724	978	0.916622				
2500	2242	572	0.937161				
3000	2718	355	0.949908				
4000	3442	418	0.964918				
4500	4252	143	0.970053				
5000	4712	102	0.973715	5000	8.517193	-3.638772	-3.521858
7500	5948	278	0.983698	7500	8.922658	-4.116455	-4.121614
10000	8704	147	0.988976	10000	9.210340	-4.507705	-4.547148
15000	12246	130	0.993644	15000	9.615805	-5.058403	-5.146904
25000	19065	102	0.997307	25000	10.126631	-5.917064	-5.902507
35000	29074	28	0.998312	35000	10.463103	-6.384405	-6.400210
50000	41428	20	0.999030	50000	10.819778	-6.938715	-6.927796
75000	61061	16	0.999605	75000	11.225243	-7.836657	-7.527552
100000	87416	3	0.999713	100000	11.512925	-8.155111	-7.953086
150000	115725	5	0.999892				
200000	184711	1	0.999928				
400000	240145	2	1.000000				

TOTAL 27849

EMPIRICAL: MEAN 963 STANDARD DEVIATION 5340

TABLE 2

COMPREHENSIVE CHILD 1986

SECTION 1

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
				EMPIR.	RATIO				
		EMPIR.	PARETO	COMB.	(5) TO				WTD
		MEAN	MEAN	PARETO	EMPIR.				SUM
Y-INT	SLOPE	X>T	X>T	MEAN	MEAN	T	LL	UL	SQRS
7.15	-1.24	31327	51802	1492	1.25	10	5	50	2.82
7.66	-1.29	31327	44670	1388	1.16	10	10	100	1.69
8.03	-1.33	31327	40567	1328	1.11	10	10	50	.78
7.07	-1.23	18268	26673	1456	1.22	5	5	100	3.08
7.07	-1.23	31327	53345	1514	1.27	10	5	100	3.08
7.07	-1.23	67440	133364	1489	1.25	25	5	100	3.08
7.07	-1.23	120284	266727	1447	1.21	50	5	100	3.08
7.07	-1.23	160530	533454	1553	1.30	100	5	100	3.08

SECTION 2

X	MID-POINT	NUMBER CLAIMS	C.D.F. F(X)	X	LN(X)	LN R(X) EMPIR	LN R(X) PRED
150	127	4454	0.122825				
250	196	7630	0.333232				
400	316	7222	0.532388				
500	448	2936	0.613352				
600	548	2073	0.670518				
1000	769	4670	0.799300				
1250	1115	1565	0.842456				
1500	1365	999	0.870005				
2000	1727	1332	0.906737				
2500	2236	830	0.929625				
3000	2735	490	0.943138				
4000	3425	579	0.959104				
4500	4254	196	0.964509				
5000	4740	152	0.968701	5000	8.517193	-3.464165	-3.407761
7500	6048	409	0.979980	7500	8.922658	-3.911003	-3.906769
10000	8572	197	0.985412	10000	9.210340	-4.227565	-4.260820
15000	12017	194	0.990762	15000	9.615805	-4.684423	-4.759828
25000	18885	172	0.995505	25000	10.126631	-5.404803	-5.388504
35000	29604	63	0.997242	35000	10.463103	-5.893383	-5.802602
50000	41884	37	0.998263	50000	10.819778	-6.355418	-6.241564
75000	61173	19	0.998787	75000	11.225243	-6.714364	-6.740571
100000	88562	9	0.999035	100000	11.512925	-6.943205	-7.094623
150000	121679	21	0.999614				
200000	171730	7	0.999807				
400000	265881	7	1.000000				

TOTAL 36263

EMPIRICAL: MEAN 1193 STANDARD DEVIATION 8138

TABLE 2

COMPREHENSIVE CHILD 1984

SECTION 1

(1) Y-INT	(2) SLOPE	(3) EMPIR. MEAN X>T	(4) PARETO MEAN X>T	(5) EMPIR. COMB. PARETO MEAN	(6) RATIO (5) TO EMPIR. MEAN	(7) T	(8) LL	(9) UL	(10) WTD SUM SQRS
7.84	-1.33	26972	40206	1201	1.16	10	5	50	6.39
9.47	-1.50	26972	30119	1077	1.04	10	10	100	5.73
8.88	-1.44	26972	32955	1112	1.07	10	10	50	3.89
8.26	-1.38	15714	18245	1109	1.07	5	5	100	10.60
8.26	-1.38	26972	36490	1155	1.11	10	5	100	10.60
8.26	-1.38	52346	91226	1191	1.15	25	5	100	10.60
8.26	-1.38	104603	182451	1119	1.08	50	5	100	10.60
8.26	-1.38	186890	364902	1093	1.05	100	5	100	10.60

SECTION 2

X	MID-POINT	NUMBER CLAIMS	C.D.F. F(X)	X	LN(X)	LN R(X) EMPIR	LN R(X) PRED
150	127	4633	0.142800				
250	196	7600	0.377050				
400	316	6260	0.569998				
500	448	2404	0.644094				
600	546	1697	0.696400				
1000	768	3707	0.810658				
1250	1116	1263	0.849587				
1500	1367	882	0.876772				
2000	1738	1129	0.911571				
2500	2229	675	0.932376				
3000	2733	478	0.947109				
4000	3459	520	0.963136				
4500	4238	163	0.968161				
5000	4746	123	0.971952	5000	8.517193	-3.573826	-3.469456
7500	5985	343	0.982524	7500	8.922658	-4.046912	-4.027984
10000	8618	166	0.987640	10000	9.210340	-4.393309	-4.424265
15000	12052	157	0.992479	15000	9.615805	-4.890103	-4.982792
25000	19168	116	0.996055	25000	10.126631	-5.535241	-5.686453
35000	28878	61	0.997935	35000	10.463103	-6.182578	-6.149943
50000	41886	33	0.998952	50000	10.819778	-6.860910	-6.641262
75000	61908	16	0.999445	75000	11.225243	-7.496899	-7.199789
100000	87135	8	0.999692	100000	11.512925	-8.084686	-7.596070
150000	114778	4	0.999815				
200000	177048	2	0.999877				
400000	263923	4	1.000000				

TOTAL 32444

EMPIRICAL: MEAN 1038 STANDARD DEVIATION 6252

TABLE 2

COMPREHENSIVE CHILD 1985

SECTION 1

(1) Y-INT	(2) SLOPE	(3) EMPIR. MEAN X>T	(4) PARETO MEAN X>T	(5) EMPIR. COMB. PARETO MEAN	(6) RATIO (5) TO EMPIR. MEAN	(7) T	(8) LL	(9) UL	(10) WTD SUM SQRS
7.66	-1.31	27229	42418	1282	1.19	10	5	50	1.95
8.83	-1.43	27229	33456	1163	1.08	10	10	100	.47
8.62	-1.40	27229	34728	1180	1.09	10	10	50	.21
7.90	-1.34	16059	19925	1194	1.10	5	5	100	3.18
7.90	-1.34	27229	39850	1248	1.15	10	5	100	3.18
7.90	-1.34	60733	99625	1220	1.13	25	5	100	3.18
7.90	-1.34	99608	199250	1226	1.13	50	5	100	3.18
7.90	-1.34	163438	398499	1204	1.11	100	5	100	3.18

SECTION 2

X	MID-POINT	NUMBER CLAIMS	C.D.F. F(X)	X	LN(X)	LN R(X) EMPIR	LN R(X) PRED
150	126	4565	0.132734				
250	195	7490	0.350518				
400	317	6823	0.548907				
500	447	2767	0.629361				
600	547	1916	0.685072				
1000	770	4166	0.806205				
1250	1116	1391	0.846650				
1500	1370	879	0.872209				
2000	1730	1260	0.908845				
2500	2225	772	0.931292				
3000	2729	482	0.945307				
4000	3443	560	0.961590				
4500	4222	160	0.966242				
5000	4743	154	0.970720	5000	8.517193	-3.530848	-3.468272
7500	6068	392	0.982118	7500	8.922658	-4.023957	-4.009571
10000	8657	159	0.986741	10000	9.210340	-4.323086	-4.393630
15000	12217	193	0.992353	15000	9.615805	-4.873425	-4.934929
25000	18487	140	0.996424	25000	10.126631	-5.633395	-5.616886
35000	29095	44	0.997703	35000	10.463103	-6.076131	-6.066080
50000	41711	29	0.998546	50000	10.819778	-6.533556	-6.542244
75000	58567	26	0.999302	75000	11.225243	-7.267525	-7.083544
100000	85964	6	0.999477	100000	11.512925	-7.555208	-7.467602
150000	111498	10	0.999767				
200000	185846	3	0.999855				
400000	253872	5	1.000000				

TOTAL 34392

EMPIRICAL: MEAN 1081 STANDARD DEVIATION 6882

TABLE 2

COMPREHENSIVE CHILD 1987

SECTION 1

(1) Y-INT	(2) SLOPE	(3) EMPIR. MEAN X>T	(4) PARETO MEAN X>T	(5) EMPIR. COMB. PARETO MEAN	(6) RATIO (5) TO EMPIR. MEAN	(7) T	(8) LL	(9) UL	(10) WTD SUM SQRS
7.94	-1.32	29045	41483	1414	1.16	10	5	50	6.63
9.25	-1.45	29045	32214	1269	1.04	10	10	100	2.82
9.01	-1.43	29045	33515	1290	1.06	10	10	50	2.06
8.18	-1.34	17066	19504	1303	1.07	5	5	100	9.24
8.18	-1.34	29045	39009	1376	1.13	10	5	100	9.24
8.18	-1.34	62353	97522	1382	1.13	25	5	100	9.24
8.18	-1.34	123180	195043	1326	1.09	50	5	100	9.24
8.18	-1.34	206040	390086	1334	1.09	100	5	100	9.24

SECTION 2

X	MID-POINT	NUMBER CLAIMS	C.D.F. F(X)	X	LN(X)	LN R(X) EMPIR	LN R(X) PRED
150	127	5295	0.117105				
250	196	9017	0.316525				
400	318	8851	0.512274				
500	447	3903	0.598593				
600	548	2720	0.658749				
1000	769	5945	0.790229				
1250	1113	1964	0.833665				
1500	1370	1393	0.864473				
2000	1731	1690	0.901849				
2500	2231	1029	0.924606				
3000	2730	654	0.939070				
4000	3443	765	0.955989				
4500	4242	254	0.961607				
5000	4718	190	0.965809	5000	8.517193	-3.375780	-3.268809
7500	6146	560	0.978194	7500	8.922658	-3.825550	-3.814048
10000	8631	279	0.984364	10000	9.210340	-4.158176	-4.200902
15000	12122	278	0.990512	15000	9.615805	-4.657749	-4.746141
25000	18787	220	0.995378	25000	10.126631	-5.376872	-5.433061
35000	29008	91	0.997390	35000	10.463103	-5.948522	-5.885523
50000	41940	51	0.998518	50000	10.819778	-6.514514	-6.365153
75000	59124	32	0.999226	75000	11.225243	-7.163858	-6.910392
100000	84571	7	0.999381	100000	11.512925	-7.387002	-7.297246
150000	124422	12	0.999646				
200000	180745	5	0.999757				
400000	271506	9	0.999956				
600000	464384	2	1.000000				

TOTAL 45216

EMPIRICAL: MEAN 1220 STANDARD DEVIATION 8591

TABLE 2

SUPPLEMENTAL ADULT 1983 THROUGH 1987

SECTION 1

(1) Y-INT	(2) SLOPE	(3) EMPIR. MEAN X>T	(4) PARETO MEAN X>T	(5) EMPIR. COMB. PARETO MEAN	(6) RATIO (5) TO EMPIR. MEAN	(7) T	(8) LL	(9) UL	(10) WTD SUM SQRS
11.99	-1.82	21330	22238	1198	1.01	10	5	50	6.04
11.98	-1.82	21330	22268	1199	1.01	10	10	100	9.16
12.20	-1.84	21330	21925	1196	1.00	10	10	50	4.41
11.92	-1.81	11003	11181	1196	1.00	5	5	100	9.62
11.92	-1.81	21330	22362	1199	1.01	10	5	100	9.62
11.92	-1.81	53239	55905	1194	1.00	25	5	100	9.62
11.92	-1.81	97416	111810	1197	1.01	50	5	100	9.62
11.92	-1.81	155883	223619	1201	1.01	100	5	100	9.62

SECTION 2

X	MID-POINT	NUMBER CLAIMS	C.D.F. F(X)	X	LN(X)	LN R(X) EMPIR	LN R(X) PRED
150	132	39236	0.056142				
250	198	113035	0.217881				
400	320	115201	0.382719				
500	448	53664	0.459506				
600	548	43207	0.521329				
1000	779	114914	0.685757				
1250	1119	44846	0.749926				
1500	1369	33751	0.798219				
2000	1728	44614	0.862056				
2500	2231	27117	0.900858				
3000	2734	17666	0.926135				
4000	3442	20155	0.954975				
4500	4237	5843	0.963335				
5000	4737	4497	0.969770	5000	8.517193	-3.498917	-3.491230
7500	6010	10872	0.985326	7500	8.922658	-4.221704	-4.224690
10000	8580	4048	0.991119	10000	9.210340	-4.723791	-4.745089
15000	12079	3332	0.995886	15000	9.615805	-5.493416	-5.478549
25000	18726	1765	0.998412	25000	10.126631	-6.445109	-6.402600
35000	29014	466	0.999079	35000	10.463103	-6.989526	-7.011257
50000	41333	306	0.999516	50000	10.819778	-7.634178	-7.656459
75000	61016	167	0.999755	75000	11.225243	-8.315561	-8.389919
100000	85900	56	0.999835	100000	11.512925	-8.712292	-8.910317
150000	121583	65	0.999928				
200000	167580	26	0.999966				
400000	236109	24	1.000000				

TOTAL 698873

EMPIRICAL: MEAN 1190 STANDARD DEVIATION 4150

TABLE 2

SUPPLEMENTAL ADULT 1983

SECTION 1

(1) Y-INT	(2) SLOPE	(3) EMPIR. MEAN X>T	(4) PARETO MEAN X>T	(5) EMPIR. COMB. PARETO MEAN	(6) RATIO (5) TO EMPIR. MEAN	(7) T	(8) LL	(9) UL	(10) WTD SUM SQRS
11.47	-1.82	20454	22216	887	1.01	10	5	50	1.55
11.66	-1.84	20454	21914	886	1.01	10	10	100	1.48
11.40	-1.81	20454	22317	888	1.01	10	10	50	.91
11.59	-1.83	10790	11015	882	1.00	5	5	100	2.18
11.59	-1.83	20454	22031	886	1.01	10	5	100	2.18
11.59	-1.83	45942	55077	887	1.01	25	5	100	2.18
11.59	-1.83	82122	110154	886	1.01	50	5	100	2.18
11.59	-1.83	130105	220307	883	1.01	100	5	100	2.18

SECTION 2

X	MID-POINT	NUMBER CLAIMS	C.D.F. F(X)
150	127	11431	0.110681
250	197	19607	0.300526
400	320	17909	0.473930
500	449	8145	0.552794
600	550	6566	0.616369
1000	778	16278	0.773981
1250	1119	5926	0.831360
1500	1365	4039	0.870467
2000	1724	4829	0.917224
2500	2226	2660	0.942980
3000	2730	1539	0.957881
4000	3433	1710	0.974438
4500	4241	482	0.979105
5000	4745	345	0.982446
7500	6037	905	0.991208
10000	8653	379	0.994878
15000	11906	287	0.997657
25000	18825	137	0.998983
35000	29157	53	0.999497
50000	40797	24	0.999729
75000	63044	16	0.999884
100000	85013	6	0.999942
150000	116608	4	0.999981
200000	157099	2	1.000000

X	LN(X)	LN R(X) EMPIR	LN R(X) PRED
5000	8.517193	-4.042451	-4.008656
7500	8.922658	-4.733945	-4.751146
10000	9.210340	-5.274201	-5.277951
15000	9.615805	-6.056252	-6.020440
25000	10.126631	-6.891229	-6.955866
35000	10.463103	-7.593946	-7.572016
50000	10.819778	-8.212985	-8.225160
75000	11.225243	-9.060283	-8.967650
100000	11.512925	-9.753430	-9.494455

TOTAL 103279

EMPIRICAL: MEAN 878 STANDARD DEVIATION 2624

TABLE 2

SUPPLEMENTAL ADULT 1984

SECTION 1

(1) Y-INT	(2) SLOPE	(3) EMPIR. MEAN X>T	(4) PARETO MEAN X>T	(5) EMPIR. COMB. PARETO MEAN	(6) RATIO (5) TO EMPIR. MEAN	(7) T	(8) LL	(9) UL	(10) WTD SUM SQRS
10.80	-1.73	21463	23615	941	1.01	10	5	50	.39
10.85	-1.74	21463	23500	940	1.01	10	10	100	1.43
10.49	-1.70	21463	24228	945	1.02	10	10	50	.04
10.93	-1.75	11087	11680	940	1.01	5	5	100	1.49
10.93	-1.75	21463	23360	940	1.01	10	5	100	1.49
10.93	-1.75	48018	58399	941	1.01	25	5	100	1.49
10.93	-1.75	80222	116798	943	1.01	50	5	100	1.49
10.93	-1.75	135110	233597	937	1.01	100	5	100	1.49

SECTION 2

X	MID-POINT	NUMBER CLAIMS	C.D.F. F(X)	X	LN(X)	LN R(X) EMPIR	LN R(X) PRED
150	127	12903	0.107355				
250	197	21591	0.286996				
400	320	20559	0.458050				
500	449	9243	0.534953				
600	549	7620	0.598353				
1000	778	19264	0.758632				
1250	1118	7017	0.817015				
1500	1369	4861	0.857459				
2000	1726	6081	0.908054				
2500	2228	3432	0.936609				
3000	2730	2067	0.953806				
4000	3444	2214	0.972227				
4500	4225	595	0.977178				
5000	4747	466	0.981055	5000	8.517193	-3.966215	-3.963397
7500	6022	1148	0.990607	7500	8.922658	-4.667742	-4.672361
10000	8607	459	0.994425	10000	9.210340	-5.189551	-5.175379
15000	12114	338	0.997238	15000	9.615805	-5.891694	-5.884344
25000	18558	192	0.998835	25000	10.126631	-6.755187	-6.777533
35000	28727	61	0.999343	35000	10.463103	-7.327381	-7.365862
50000	41152	35	0.999634	50000	10.819778	-7.912639	-7.989516
75000	58644	25	0.999842	75000	11.225243	-8.752390	-8.698480
100000	84770	10	0.999925	100000	11.512925	-9.499605	-9.201498
150000	125188	7	0.999983				
200000	169836	2	1.000000				

TOTAL 120190

EMPIRICAL: MEAN 929 STANDARD DEVIATION 2850

TABLE 2

SUPPLEMENTAL ADULT 1985

SECTION 1

(1) Y-INT	(2) SLOPE	(3) EMPIR. MEAN X>T	(4) PARETO MEAN X>T	(5) EMPIR. COMB. PARETO MEAN	(6) RATIO (5) TO EMPIR. MEAN	(7) T	(8) LL	(9) UL	(10) WTD SUM SQRS
12.20	-1.88	20688	21382	997	1.00	10	5	50	2.68
12.02	-1.86	20688	21634	998	1.01	10	10	100	3.86
12.37	-1.90	20688	21155	995	1.00	10	10	50	1.86
12.07	-1.86	10741	10785	993	1.00	5	5	100	4.50
12.07	-1.86	20688	21571	998	1.01	10	5	100	4.50
12.07	-1.86	53105	53927	993	1.00	25	5	100	4.50
12.07	-1.86	98424	107855	995	1.00	50	5	100	4.50
12.07	-1.86	142177	215710	1002	1.01	100	5	100	4.50

SECTION 2

X	MID-POINT	NUMBER CLAIMS	C.D.F. F(X)	X	LN(X)	LN R(X) EMPIR	LN R(X) PRED
150	127	14284	0.101119				
250	197	24631	0.275485				
400	320	23202	0.439735				
500	448	10593	0.514725				
600	549	8677	0.576150				
1000	778	22597	0.736118				
1250	1118	8646	0.797324				
1500	1370	6035	0.840047				
2000	1727	7762	0.894995				
2500	2226	4430	0.926356				
3000	2729	2821	0.946326				
4000	3438	2972	0.967365				
4500	4236	907	0.973786				
5000	4736	619	0.978168	5000	8.517193	-3.824375	-3.803915
7500	5993	1585	0.989388	7500	8.922658	-4.545804	-4.559796
10000	8639	613	0.993728	10000	9.210340	-5.071640	-5.096102
15000	11983	498	0.997253	15000	9.615805	-5.897352	-5.851983
25000	18616	239	0.998945	25000	10.126631	-6.854411	-6.804280
35000	29545	59	0.999363	35000	10.463103	-7.358548	-7.431542
50000	41219	47	0.999696	50000	10.819778	-8.097157	-8.096467
75000	59441	19	0.999830	75000	11.225243	-8.680304	-8.852348
100000	90608	6	0.999873	100000	11.512925	-8.967986	-9.388654
150000	117354	11	0.999950				
200000	163900	5	0.999986				
400000	224397	2	1.000000				

TOTAL 141260

EMPIRICAL: MEAN 992 STANDARD DEVIATION 3331

TABLE 2

SUPPLEMENTAL ADULT 1986

SECTION 1

(1) Y-INT	(2) SLOPE	(3) EMPIR. MEAN X>T	(4) PARETO MEAN X>T	(5) EMPIR. COMB. PARETO MEAN	(6) RATIO (5) TO EMPIR. MEAN	(7) T	(8) LL	(9) UL	(10) WTD SUM SQRS
11.96	-1.83	21198	21990	1089	1.01	10	5	50	1.89
11.94	-1.83	21198	22034	1089	1.01	10	10	100	4.45
12.41	-1.88	21198	21365	1084	1.00	10	10	50	.88
11.81	-1.82	10952	11118	1087	1.00	5	5	100	4.58
11.81	-1.82	21198	22235	1090	1.01	10	5	100	4.58
11.81	-1.82	53724	55588	1085	1.00	25	5	100	4.58
11.81	-1.82	100080	111175	1087	1.00	50	5	100	4.58
11.81	-1.82	155712	222351	1093	1.01	100	5	100	4.58

SECTION 2

X	MID-POINT	NUMBER CLAIMS	C.D.F. F(X)	X	LN(X)	LN R(X) EMPIR	LN R(X) PRED
150	127	14870	0.094693				
250	197	26068	0.260697				
400	320	25513	0.423166				
500	449	11613	0.497118				
600	549	9414	0.557068				
1000	778	24409	0.712506				
1250	1119	9518	0.773118				
1500	1368	7092	0.818280				
2000	1727	9324	0.877656				
2500	2231	5452	0.912375				
3000	2731	3596	0.935275				
4000	3441	4093	0.961339				
4500	4233	1214	0.969070				
5000	4741	868	0.974598	5000	8.517193	-3.672915	-3.670525
7500	6028	2080	0.987843	7500	8.922658	-4.409876	-4.407386
10000	8588	739	0.992549	10000	9.210340	-4.899452	-4.930196
15000	12012	629	0.996555	15000	9.615805	-5.670792	-5.667057
25000	18654	337	0.998701	25000	10.126631	-6.646091	-6.595392
35000	29280	96	0.999312	35000	10.463103	-7.282080	-7.206870
50000	39628	44	0.999592	50000	10.819778	-7.805328	-7.855063
75000	57627	29	0.999777	75000	11.225243	-8.408863	-8.591924
100000	84117	10	0.999841	100000	11.512925	-8.745335	-9.114735
150000	123873	15	0.999936				
200000	179761	7	0.999981				
400000	258790	3	1.000000				

TOTAL 157033

EMPIRICAL: MEAN 1083 STANDARD DEVIATION 3706

TABLE 2

SUPPLEMENTAL ADULT 1987

SECTION 1

(1) Y-INT	(2) SLOPE	(3) EMPIR. MEAN X>T	(4) PARETO MEAN X>T	(5) EMPIR. COMB. PARETO MEAN	(6) RATIO (5) TO EMPIR. MEAN	(7) T	(8) LL	(9) UL	(10) WTD SUM SQRS
12.04	-1.82	21937	22207	1205	1.00	10	5	50	4.51
11.54	-1.77	21937	23053	1212	1.01	10	10	100	7.40
11.93	-1.81	21937	22381	1206	1.00	10	10	50	4.42
11.87	-1.80	11056	11256	1208	1.01	5	5	100	8.55
11.87	-1.80	21937	22512	1207	1.00	10	5	100	8.55
11.87	-1.80	56900	56280	1201	1.00	25	5	100	8.55
11.87	-1.80	99255	112560	1210	1.01	50	5	100	8.55
11.87	-1.80	164061	225120	1213	1.01	100	5	100	8.55

SECTION 2

X	MID-POINT	NUMBER CLAIMS	C.D.F. F(X)	X	LN(X)	LN R(X) EMPIR	LN R(X) PRED
150	127	15689	0.088583				
250	198	27728	0.245140				
400	320	27506	0.400444				
500	449	12755	0.472461				
600	550	10751	0.533163				
1000	779	27432	0.688049				
1250	1120	10868	0.749411				
1500	1369	8096	0.795123				
2000	1728	10902	0.856677				
2500	2234	6908	0.895681				
3000	2735	4644	0.921902				
4000	3448	5418	0.952493				
4500	4235	1571	0.961363				
5000	4738	1204	0.968161	5000	8.517193	-3.447070	-3.459314
7500	6004	2946	0.984795	7500	8.922658	-4.186121	-4.188840
10000	8585	1080	0.990893	10000	9.210340	-4.698681	-4.706446
15000	12079	866	0.995782	15000	9.615805	-5.468467	-5.435971
25000	18766	461	0.998385	25000	10.126631	-6.428540	-6.355064
35000	28752	108	0.998995	35000	10.463103	-6.902748	-6.960455
50000	41571	78	0.999435	50000	10.819778	-7.479362	-7.602195
75000	60955	47	0.999701	75000	11.225243	-8.114240	-8.331720
100000	86224	21	0.999819	100000	11.512925	-8.618796	-8.849327
150000	125718	18	0.999921				
200000	168802	5	0.999949				
400000	238114	9	1.000000				

TOTAL 177111

EMPIRICAL: MEAN 1202 STANDARD DEVIATION 4507

TABLE 2

SUPPLEMENTAL CHILD 1983 THROUGH 1987

SECTION 1

(1) Y-INT	(2) SLOPE	(3) EMPIR. MEAN X>T	(4) PARETO MEAN X>T	(5) EMPIR. COMB. PARETO MEAN	(6) RATIO (5) TO EMPIR. MEAN	(7) T	(8) LL	(9) UL	(10) WTD SUM SQRS
7.33	-1.39	27037	35884	752	1.05	10	5	50	4.99
7.99	-1.45	27037	32114	736	1.03	10	10	100	2.50
8.02	-1.46	27037	31950	735	1.03	10	10	50	2.42
7.39	-1.39	14886	17713	744	1.04	5	5	100	5.33
7.39	-1.39	27037	35426	750	1.05	10	5	100	5.33
7.39	-1.39	57298	88566	752	1.05	25	5	100	5.33
7.39	-1.39	104166	177132	743	1.04	50	5	100	5.33
7.39	-1.39	156487	354263	747	1.05	100	5	100	5.33

SECTION 2

X	MID-POINT	NUMBER CLAIMS	C.D.F. F(X)	X	LN(X)	LN R(X) EMPIR	LN R(X) PRED
150	132	25887	0.101087				
250	196	67727	0.365557				
400	317	53643	0.575029				
500	447	20968	0.656908				
600	548	15240	0.716419				
1000	770	34792	0.852280				
1250	1116	10914	0.894899				
1500	1365	7107	0.922651				
2000	1717	7609	0.952364				
2500	2227	3792	0.967171				
3000	2729	2110	0.975411				
4000	3441	2304	0.984408				
4500	4223	665	0.987004				
5000	4743	496	0.988941	5000	8.517193	-4.504530	-4.473852
7500	6012	1189	0.993584	7500	8.922658	-5.048989	-5.038783
10000	8581	510	0.995576	10000	9.210340	-5.420644	-5.439609
15000	12343	454	0.997349	15000	9.615805	-5.932647	-6.004540
25000	18967	362	0.998762	25000	10.126631	-6.694367	-6.716270
35000	29739	138	0.999301	35000	10.463103	-7.265883	-7.185074
50000	41343	73	0.999586	50000	10.819778	-7.789830	-7.682027
75000	59246	44	0.999758	75000	11.225243	-8.326134	-8.246959
100000	86075	18	0.999828	100000	11.512925	-8.669079	-8.647784
150000	121204	23	0.999918				
200000	167967	13	0.999969				
400000	239268	8	1.000000				

TOTAL 256086

EMPIRICAL: MEAN 713 STANDARD DEVIATION 3740

TABLE 2

SUPPLEMENTAL CHILD 1983

SECTION 1

(1) Y-INT	(2) SLOPE	(3) EMPIR. MEAN X>T	(4) PARETO MEAN X>T	(5) EMPIR. COMB. PARETO MEAN	(6) RATIO (5) TO EMPIR. MEAN	(7) T	(8) LL	(9) UL	(10) WTD SUM SQRS
7.98	-1.51	22264	29682	560	1.04	10	5	50	1.36
9.19	-1.63	22264	25889	549	1.02	10	10	100	.35
9.28	-1.64	22264	25637	548	1.02	10	10	50	.32
8.06	-1.52	13417	14674	547	1.02	5	5	100	1.43
8.06	-1.52	22264	29348	559	1.04	10	5	100	1.43
8.06	-1.52	48047	73371	556	1.03	25	5	100	1.43
8.06	-1.52	92032	146742	548	1.02	50	5	100	1.43
8.06	-1.52	129603	293484	551	1.03	100	5	100	1.43

SECTION 2

X	MID-POINT	NUMBER CLAIMS	C.D.F. F(X)	X	LN(X)	LN R(X) EMPIR	LN R(X) PRED
150	127	7220	0.200400				
250	194	9793	0.472216				
400	316	6984	0.666065				
500	448	2581	0.737704				
600	547	1960	0.792106				
1000	765	3976	0.902465				
1250	1112	1105	0.933135				
1500	1365	649	0.951149				
2000	1713	652	0.969246				
2500	2223	369	0.979488				
3000	2728	180	0.984484				
4000	3432	203	0.990119				
4500	4264	64	0.991895				
5000	4742	40	0.993005	5000	8.517193	-4.962623	-4.854744
7500	6016	99	0.995753	7500	8.922658	-5.461614	-5.469769
10000	8769	46	0.997030	10000	9.210340	-5.819223	-5.906137
15000	12023	53	0.998501	15000	9.615805	-6.503068	-6.521162
25000	17707	28	0.999278	25000	10.126631	-7.233955	-7.296002
35000	27115	13	0.999639	35000	10.463103	-7.927102	-7.806376
50000	42085	6	0.999806	50000	10.819778	-8.546142	-8.347395
75000	56289	3	0.999889	75000	11.225243	-9.105757	-8.962420
100000	86547	1	0.999917	100000	11.512925	-9.393439	-9.398787
150000	111168	2	0.999972				
200000	166472	1	1.000000				

TOTAL 36028

EMPIRICAL: MEAN 538 STANDARD DEVIATION 2294

TABLE 2

SUPPLEMENTAL CHILD 1984

SECTION 1

(1) Y-INT	(2) SLOPE	(3) EMPIR. MEAN X>T	(4) PARETO MEAN X>T	(5) EMPIR. COMB. PARETO MEAN	(6) RATIO (5) TO EMPIR. MEAN	(7) T	(8) LL	(9) UL	(10) WTD SUM SQRS
7.30	-1.43	24773	33360	591	1.05	10	5	50	3.80
8.63	-1.56	24773	27880	574	1.02	10	10	100	2.37
9.53	-1.65	24773	25326	565	1.00	10	10	50	1.54
7.19	-1.42	14910	16999	578	1.03	5	5	100	3.88
7.19	-1.42	24773	33998	593	1.05	10	5	100	3.88
7.19	-1.42	52955	84996	590	1.05	25	5	100	3.88
7.19	-1.42	98848	169992	583	1.04	50	5	100	3.88
7.19	-1.42	142285	339985	586	1.04	100	5	100	3.88

SECTION 2

X	MID-POINT	NUMBER CLAIMS	C.D.F. F(X)	X	LN(X)	LN R(X) EMPIR	LN R(X) PRED
150	127	8305	0.193459				
250	195	11629	0.464348				
400	316	8230	0.656060				
500	448	3069	0.727550				
600	547	2345	0.782175				
1000	768	4881	0.895875				
1250	1115	1418	0.928906				
1500	1365	794	0.947402				
2000	1722	925	0.968949				
2500	2221	396	0.978173				
3000	2732	251	0.984020				
4000	3430	257	0.990007				
4500	4245	70	0.991637				
5000	4748	49	0.992779	5000	8.517193	-4.930731	-4.872092
7500	6114	130	0.995807	7500	8.922658	-5.474346	-5.446512
10000	8974	40	0.996739	10000	9.210340	-5.725660	-5.854069
15000	12037	65	0.998253	15000	9.615805	-6.349815	-6.428489
25000	19987	39	0.999161	25000	10.126631	-7.083784	-7.152172
35000	28929	21	0.999651	35000	10.463103	-7.959253	-7.628850
50000	37563	3	0.999720	50000	10.819778	-8.182396	-8.134149
75000	54729	4	0.999814	75000	11.225243	-8.587861	-8.708568
100000	85278	3	0.999884	100000	11.512925	-9.057865	-9.116126
150000	113557	3	0.999953				
200000	153123	1	0.999977				
400000	217632	1	1.000000				

TOTAL 42929

EMPIRICAL: MEAN 563 STANDARD DEVIATION 3096

TABLE 2

SUPPLEMENTAL CHILD 1985

SECTION 1

(1) Y-INT	(2) SLOPE	(3) EMPIR. MEAN X>T	(4) PARETO MEAN X>T	(5) EMPIR. COMB. PARETO MEAN	(6) RATIO (5) TO EMPIR. MEAN	(7) T	(8) LL	(9) UL	(10) WTD SUM SQRS
7.16	-1.39	24359	35444	651	1.07	10	5	50	1.49
8.19	-1.50	24359	30192	630	1.04	10	10	100	.70
8.57	-1.53	24359	28715	625	1.03	10	10	50	.13
7.20	-1.40	14593	17600	634	1.04	5	5	100	1.90
7.20	-1.40	24359	35201	650	1.07	10	5	100	1.90
7.20	-1.40	57153	88002	636	1.05	25	5	100	1.90
7.20	-1.40	95689	176005	636	1.05	50	5	100	1.90
7.20	-1.40	130500	352009	634	1.04	100	5	100	1.90

SECTION 2

X	MID-POINT	NUMBER CLAIMS	C.D.F. F(X)	X	LN(X)	LN R(X) EMPIR	LN R(X) PRED
150	127	9182	0.179028				
250	195	13296	0.438270				
400	316	9829	0.629913				
500	447	3863	0.705233				
600	548	3015	0.764019				
1000	767	6091	0.882780				
1250	1113	1867	0.919182				
1500	1363	1137	0.941351				
2000	1711	1154	0.963851				
2500	2223	561	0.974789				
3000	2733	287	0.980385				
4000	3446	384	0.987872				
4500	4247	102	0.989861				
5000	4732	74	0.991304	5000	8.517193	-4.744893	-4.701105
7500	6075	187	0.994950	7500	8.922658	-5.288384	-5.267463
10000	8481	59	0.996100	10000	9.210340	-5.546895	-5.669301
15000	11888	95	0.997953	15000	9.615805	-6.191252	-6.235659
25000	18213	58	0.999084	25000	10.126631	-6.995064	-6.949185
35000	27732	18	0.999435	35000	10.463103	-7.477916	-7.419173
50000	42237	11	0.999649	50000	10.819778	-7.954840	-7.917381
75000	68981	5	0.999747	75000	11.225243	-8.280263	-8.483739
100000	84928	7	0.999883	100000	11.512925	-9.053453	-8.885576
150000	122051	5	0.999981				
200000	172743	1	1.000000				

TOTAL 51288

EMPIRICAL: MEAN 608 STANDARD DEVIATION 2735

TABLE 2

SUPPLEMENTAL CHILD 1986

SECTION 1

(1) Y-INT	(2) SLOPE	(3) EMPIR. MEAN X>T	(4) PARETO MEAN X>T	(5) EMPIR. COMB. PARETO MEAN	(6) RATIO (5) TO EMPIR. MEAN	(7) T	(8) LL	(9) UL	(10) WTD SUM SQRS
7.46	-1.41	27628	34174	673	1.04	10	5	50	1.16
7.70	-1.44	27628	32847	668	1.03	10	10	100	1.03
7.84	-1.45	27628	32102	665	1.03	10	10	50	.91
7.43	-1.41	14869	17191	671	1.04	5	5	100	1.22
7.43	-1.41	27628	34381	674	1.04	10	5	100	1.22
7.43	-1.41	58715	85953	678	1.05	25	5	100	1.22
7.43	-1.41	116901	171905	666	1.03	50	5	100	1.22
7.43	-1.41	157920	343811	680	1.05	100	5	100	1.22

SECTION 2

X	MID-POINT	NUMBER CLAIMS	C.D.F. F(X)	X	LN(X)	LN R(X) EMPIR	LN R(X) PRED
150	127	9938	0.169988				
250	195	14725	0.421857				
400	317	11393	0.616732				
500	447	4411	0.692181				
600	549	3341	0.749329				
1000	771	7124	0.871183				
1250	1115	2339	0.911192				
1500	1366	1324	0.933838				
2000	1716	1444	0.958538				
2500	2221	734	0.971093				
3000	2734	429	0.978431				
4000	3440	481	0.986658				
4500	4250	105	0.988454				
5000	4728	96	0.990096	5000	8.517193	-4.614847	-4.583171
7500	5990	240	0.994201	7500	8.922658	-5.150149	-5.154939
10000	8713	116	0.996186	10000	9.210340	-5.568978	-5.560615
15000	12030	90	0.997725	15000	9.615805	-6.085800	-6.132384
25000	19139	69	0.998905	25000	10.126631	-6.817266	-6.852726
35000	28438	26	0.999350	35000	10.463103	-7.338563	-7.327204
50000	41962	19	0.999675	50000	10.819778	-8.031710	-7.830171
75000	59675	6	0.999778	75000	11.225243	-8.411200	-8.401939
100000	94621	3	0.999829	100000	11.512925	-8.673564	-8.807615
150000	128798	6	0.999932				
200000	173352	2	0.999966				
400000	229854	2	1.000000				

TOTAL 58463

EMPIRICAL: MEAN 648 STANDARD DEVIATION 3644

TABLE 2

SUPPLEMENTAL CHILD 1987

SECTION 1

(1) Y-INT	(2) SLOPE	(3) EMPIR. MEAN X>T	(4) PARETO MEAN X>T	(5) EMPIR. COMB. PARETO MEAN	(6) RATIO (5) TO EMPIR. MEAN	(7) T	(8) LL	(9) UL	(10) WTD SUM SQRS
6.79	-1.32	27740	41063	756	1.09	10	5	50	1.23
7.95	-1.44	27740	32715	717	1.03	10	10	100	1.36
7.45	-1.39	27740	35786	732	1.05	10	10	50	.54
7.14	-1.36	15648	18910	730	1.05	5	5	100	3.06
7.14	-1.36	27740	37819	741	1.07	10	5	100	3.06
7.14	-1.36	57175	94548	745	1.07	25	5	100	3.06
7.14	-1.36	97642	189095	739	1.06	50	5	100	3.06
7.14	-1.36	169627	378191	725	1.04	100	5	100	3.06

SECTION 2

X	MID-POINT	NUMBER CLAIMS	C.D.F. F(X)	X	LN(X)	LN R(X) EMPIR	LN R(X) PRED
150	127	10578	0.156995				
250	196	16740	0.405444				
400	317	13015	0.598608				
500	447	5192	0.675666				
600	548	3939	0.734127				
1000	770	8574	0.861379				
1250	1116	2746	0.902134				
1500	1366	1721	0.927677				
2000	1713	1829	0.954822				
2500	2225	944	0.968833				
3000	2725	499	0.976239				
4000	3448	580	0.984847				
4500	4205	151	0.987088				
5000	4769	122	0.988898	5000	8.517193	-4.500671	-4.443345
7500	6072	297	0.993306	7500	8.922658	-5.006606	-4.994561
10000	8556	136	0.995325	10000	9.210340	-5.365501	-5.385655
15000	12346	120	0.997106	15000	9.615805	-5.845074	-5.936871
25000	19382	103	0.998635	25000	10.126631	-6.596285	-6.631321
35000	29891	36	0.999169	35000	10.463103	-7.092722	-7.088743
50000	41820	23	0.999510	50000	10.819778	-7.621566	-7.573631
75000	59418	17	0.999763	75000	11.225243	-8.345485	-8.124847
100000	85968	6	0.999852	100000	11.512925	-8.815489	-8.515941
150000	125769	4	0.999911				
200000	177461	4	0.999970				
400000	241673	2	1.000000				

TOTAL 67378

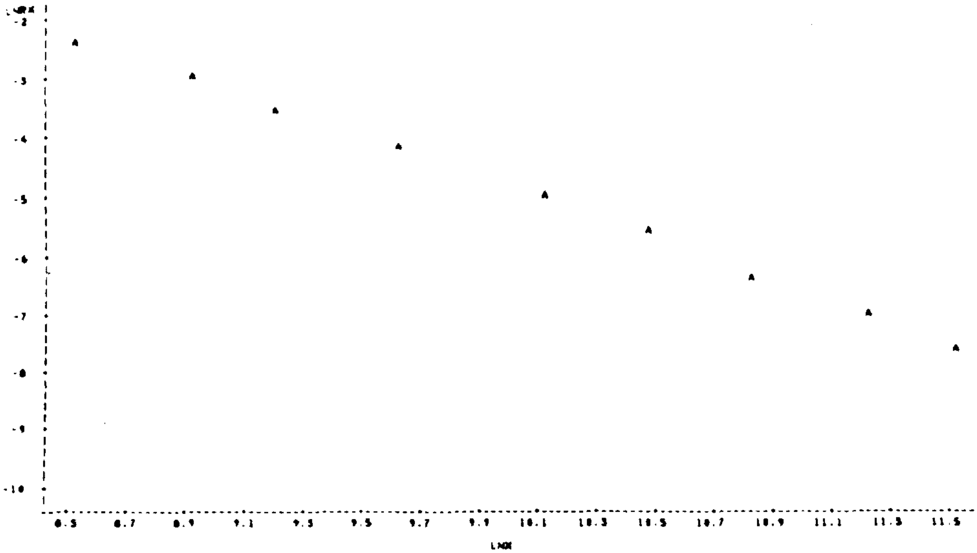
EMPIRICAL: MEAN 694 STANDARD DEVIATION 3771

Table 3

SAS

COV=CA7

PLOT OF LNRK*LNX   LEGEND: A = 1 OBS, B = 2 OBS, ETC.



SAS

COV=CA7

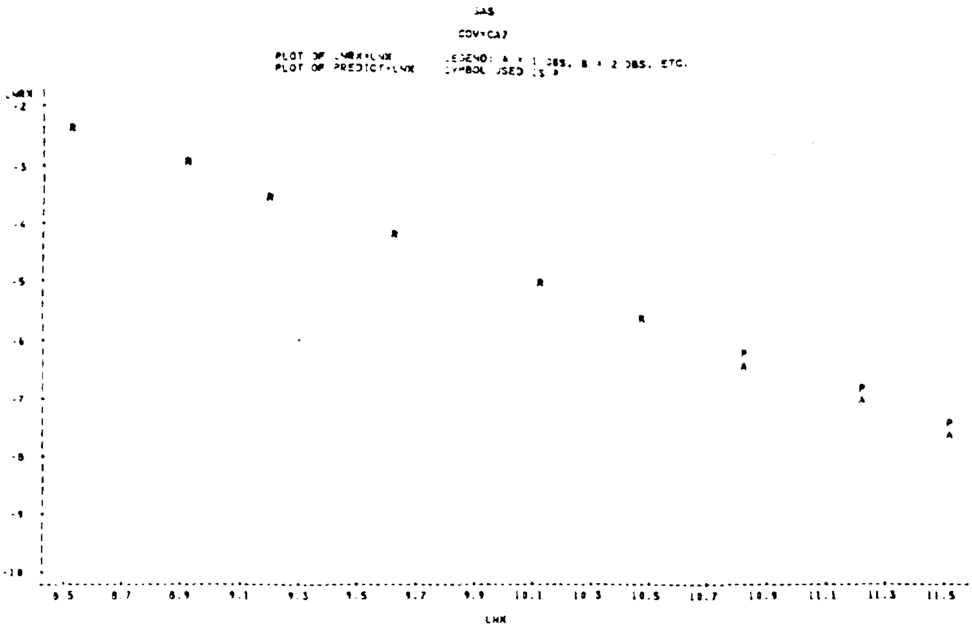
GENERAL LINEAR MODELS PROCEDURE

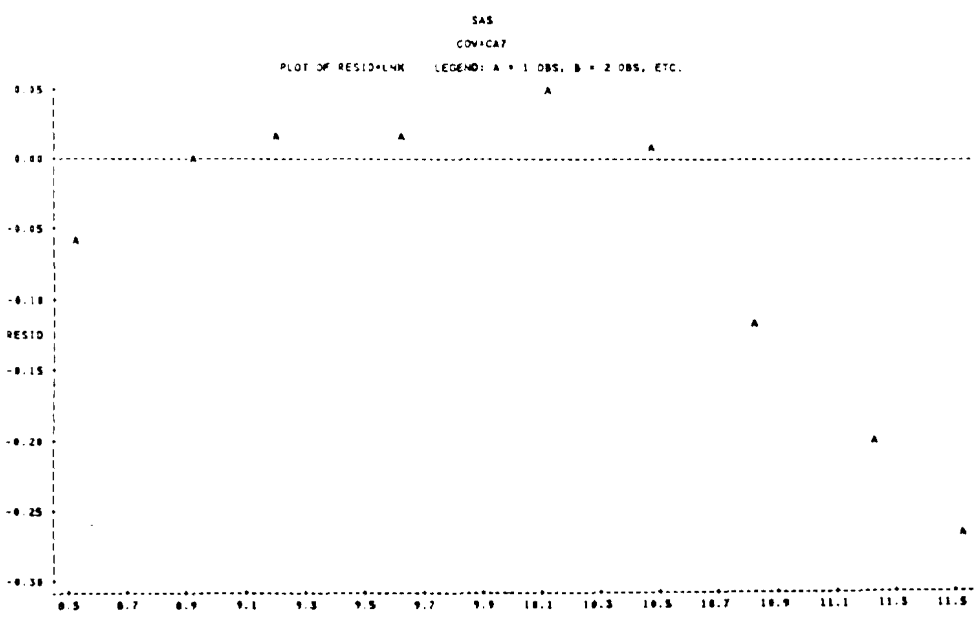
DEPENDENT VARIABLE: LNRK
WEIGHT: W

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	1	9864.50546869	9864.50546869	3878.95	0.0001	0.998199	43.9342
ERROR	7	17.80159416	2.54308488		ROOT MSE		LNRK MEAN
CORRECTED TOTAL	8	9882.30706286			1.59470526		-3.62975653

SOURCE	DF	TYPE I SS	F VALUE	PR > F	DF	TYPE III SS	F VALUE	PR > F
LNX	1	9864.50546869	3878.95	0.0001	1	9864.50546869	3878.95	0.0001

PARAMETER	ESTIMATE	T FOR H0: PARAMETER=0	PR > |T|	STD ERROR OF ESTIMATE
INTERCEPT	11.54736140	47.29	0.0001	0.24418305
LNX	-1.64090730	-62.28	0.0001	0.02634674


SAS
COV=CA7
PLOT OF LMRX*LNX LEGEND: A = 1 OBS, B = 2 OBS, ETC.
PLOT OF PREDICT*LNX SYMBOL USED IS P
LMRX
LNX


SAS
COV=CA7
PLOT OF RESID*LNX LEGEND: A = 1 OBS, B = 2 OBS, ETC.
RESID
LNX