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A Robust One-Sided Variability Control Chart

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A new control charting technique to monitor the variability of any distribution is proposed. The simulation study shows that the new method outperforms all the existing methods in controlling the Type I error rates and it also has good power performance for all distributions considered in the study.

Key words: Edgeworth expansion, Type I error rate, power performance.

Introduction

A major objective of statistical quality control is to quickly detect any sustained shift of central tendency and variability of a process. The control chart, proposed by Shewhart (1931), is an on-line process-monitoring technique widely used for this purpose. The Shewhart chart contains three lines: the center line, which represents the average value of the quality characteristic, and two control limit lines, the UCL (Upper Control Limit) and LCL (Lower Control Limit). These lines are chosen in such a way that, if the process is in control, nearly all the sample points will fall between the lines. If a sample point plots between the two control limits, the process is assumed to be in control. If any point plots above UCL or below LCL, then it is reasonable to suspect that the process is out of control. In this case, investigations and corrective actions are required to find and to eliminate the assignable cause responsible for this behavior.

Much work has been done to develop and improve control charts that are able to detect small and large shifts in the process mean. However, less work has been done to control the process variability. One of the most widely used methods to control variability of a process is the Shewhart R-chart. The UCL and LCL for the standard three-sigma chart are as follows:

$$UCL = \bar{R} + 3\hat{\sigma}_R = \bar{R} + 3d_3 \frac{\bar{R}}{d_2},$$

and

$$LCL = \bar{R} - 3\hat{\sigma}_R = \bar{R} - 3d_3 \frac{\bar{R}}{d_2},$$

with a Center line = \bar{R} , where

$$\bar{R} = \frac{R_1 + R_2 + \dots + R_m}{m},$$

and R_i is the range (difference between the largest and the smallest observation) of the i^{th} preliminary sample; d_2 and d_3 are the mean and the standard deviation of $W = \frac{R}{\sigma}$, respectively. Tables of d_2 and d_3 are available for various sample sizes (Montgomery, 1996). The Shewhart R-charts are constructed under the assumption that the underlying process is normally distributed.

An alternative to the R-chart is the S-chart. Rather than using range as a measure of

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variability, the S-chart uses the standard deviation. The UCL and the LCL of an S-chart are formulated as follows:

$$UCL = \bar{s} + 3 \frac{\bar{s}}{c_4} \sqrt{1 - c_4^2},$$

and

$$LCL = \bar{s} - 3 \frac{\bar{s}}{c_4} \sqrt{1 - c_4^2},$$

with a Center line \bar{s} where

$$\bar{s} = \frac{1}{m} \sum_{i=1}^m s_i, \quad s_i$$

is the sample standard deviation of the i^{th} preliminary sample, c_4 is a constant such that the statistic s is an unbiased estimator of $c_4 \sigma$. Tables of c_4 for various sample sizes are available in many statistical quality control books (Montgomery, 1996). Similar to the R-chart, all c_4 tables are constructed under the assumption of normal process.

Another alternative charting technique recommended by many practitioners, is the Shewhart S^2 -chart. In the construction of a S^2 -chart, the fact that $\frac{(n-1)S^2}{\sigma^2}$ has $\chi^2_{(n-1)}$ distribution under normality is used. The control limits for this chart are:

$$UCL = \frac{\bar{s}^2}{n-1} \chi^2_{\frac{\alpha}{2}, n-1},$$

with Center line = \bar{s}^2 and

$$LCL = \frac{\bar{s}^2}{n-1} \chi^2_{1-(\frac{\alpha}{2}), n-1}$$

where $\chi^2_{\frac{\alpha}{2}, n-1}$ and $\chi^2_{1-(\frac{\alpha}{2}), n-1}$ denote the upper

and lower $\frac{\alpha}{2}$ percentage points of the Chi-

square distribution with $n-1$ degrees of freedom, and \bar{s}^2 is the average sample variances of m preliminary samples.

In many situations the underlying distribution of the process might not be normal. For example, the distributions of measurements from chemical processes and cutting tool wear processes are often skewed. Burr (1967) and Chan, Hapuarachchi and Macpherson (1988) have examined the effect of non-normality on R-charts. They found that, for skewed populations, Type I risk probabilities grow larger as the skewness of the distribution increases. The problem is in the “discrepancy between the variability pattern of the asymmetric distribution and the normality assumed in placing control limits on Shewhart R-chart.” (Bai & Choi, 1995, p. 120). The impact of non-normality on the S-chart and S^2 -chart is also expected.

To remedy the non-normal problem, Bai and Choi (1995) proposed a heuristic method for controlling variability of the skewed distributions based on the Weighted Variance (WV) method. Their chart is an R chart with 3-sigma control limits:

$$UCL = \bar{R} \left[1 + 3 \frac{d'_3}{d'_2} \sqrt{2 \hat{P}_X} \right] = V_U \bar{R},$$

and

$$LCL = \bar{R} \left[1 - 3 \frac{d'_3}{d'_2} \sqrt{2(1 - \hat{P}_X)} \right] = V_L \bar{R},$$

where

$$\hat{P}_X = \frac{\sum_{i=1}^m \sum_{j=1}^n \delta(\bar{X} - X_{ij})}{m \cdot n}$$

with

$$\delta(x) = \begin{cases} 1 & \text{for } x \geq 0 \\ 0 & \text{for } x < 0 \end{cases}$$

n is the sample size and m is the number of preliminary samples. Therefore, \hat{P}_X is the proportion of observations from pre-run stage that are less than or equal to the estimated process mean. Bai and Choi (1995) used \hat{P}_X as

an estimator of the measure of the degree of skewness of the process. They claimed that, if the underlying distribution is symmetric, then $P_X = 0.5$. If the population is positively or negatively skewed then P_X becomes greater than 0.5 or less than 0.5, respectively. The constants d'_2 and d'_3 are the mean and the standard deviation of $W = \frac{R}{\sigma}$ for the given skewed population.

Bai and Choi investigated five different families of distributions: Weibull, lognormal and three different forms of distributions from Burr's family. For each of the five families, they selected the proper parameter values, such that P_X is equal to a fixed quantity. For each value of P_X considered, they computed d'_2 and d'_3 via numerical integration for each distribution. They found that the values of d'_2 and d'_3 are similar across the distributions for each given P_X , so they took the average of those d'_2 and d'_3 as constants to construct tables for V_L and V_U for selected values of n and P_X .

Although Bai and Choi only considered five families of distributions in the computation of d'_2 and d'_3 , they used the results to apply to all skewed distributions. Due to the limited choices of the skewed distributions, one may suspect that any distribution other than those considered, even with the same skewness but different kurtosis, may produce different constants d'_2 and d'_3 . Furthermore, Chan and Cui (2003) raised the question of using P_X as a measure of the degree of skewness in the WV method. They indicated that many skewed distributions may have a P_X value of 0.5, which leads to an incorrect control charting procedure.

To correct the skewness problem produced by WV method, Chan and Cui (2003) proposed the Skewness Correction (SC) method to construct R-control charts for skewed process distributions. The two control limits for SC R-chart are:

$$UCL = \bar{R} \left[1 + (3 + d_4^*) \frac{d_3^*}{d_2^*} \right] = D_4^* \bar{R}$$

and

$$LCL = \bar{R} \left[1 + (-3 + d_4^*) \frac{d_3^*}{d_2^*} \right]^+ = D_3^* \bar{R}$$

where chart constants d_2^* and d_3^* , as d_2 and d_3 in Shewhart control charts for the normal distribution, are defined as the mean and standard deviation of the relative range $\frac{R}{\sigma}$,

$$a^+ = \begin{cases} a & \text{for } a \geq 0 \\ 0 & \text{for } a < 0 \end{cases},$$

$$d_4^* = \frac{\frac{4}{3} k_3(R)}{1 + 0.2 k_3^2(R)},$$

where $k_3(R)$ is the coefficient of skewness of the sample range R . The values of d_2^* , d_3^* and d_4^* can be obtained directly through numerical integration if the process distribution and sample size are specified.

In Chan and Cui's (2003) research, a collection of Weibull, lognormal, and four forms of distributions from the Burr's family are considered as representatives of all skewed distributions. The values of d_2^* , d_3^* and d_4^* are computed for selected values of k_3 , the skewness of the distribution, in each family of distributions. Due to the similar values of the six d_2^* , d_3^* and d_4^* across the distributions for each given k_3 , Chan and Cui took the averages of these d_2^* , d_3^* and d_4^* as constants for all the skewed distribution with a given k_3 to construct tables of D_4^* and D_3^* for various sample sizes. Skewness of the distribution k_3 is estimated by the sample skewness

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$$k_3^* = \frac{1}{nm-1} \sum_{i=1}^m \sum_{j=1}^n \left(\frac{X_{ij} - \bar{X}}{S_{nm}} \right)^3,$$

where

$$\bar{X} = \frac{1}{nm} \sum_{i=1}^m \sum_{j=1}^n X_{ij},$$

and

$$S_{nm} = \sqrt{\frac{1}{nm-1} \sum_{i=1}^m \sum_{j=1}^n (X_{ij} - \bar{X})^2}.$$

Although the authors introduced the skewness correction to resolve the problem with P_x , the other potential problem is still unsolved. The tables are constructed based on three families with coefficient of skewness ranging from -4 to 4 . It would be problematic for the practitioner to determine the control limits if the estimated coefficient of skewness is outside of this range. For example, the Weibull distribution with unit scale parameter and 0.5 shape parameter has $k_3 = 6.62$.

In a real life situation, it is more important to detect upper sustained shift than the lower shift in the process variability because the goal of statistical process control is to reduce the variability in the process as much as possible, the upper limit becomes more critical. As noted, it is common that the data has a non-normal underlying distribution; hence, the goal of this study is to develop an upper control chart for controlling the variability of the process that will work for any non-normal distribution, including both skewed and symmetric distributions.

Methodology

Long and Sa (2005) proposed a method that uses Edgeworth expansions to perform a hypothesis test for the variance for non-normally distributed populations. Their test controls type I error rates well and has power performance comparable to tests that have been developed in the past. The proposed control chart is an adaptation of their test.

Edgeworth expansion is an approximation to the distribution of the estimate

$\hat{\theta}$ of the unknown quantity θ_0 . If $\sqrt{n}(\hat{\theta} - \theta_0)$ is asymptotically normally distributed with mean zero and variance σ^2 , then the distribution function of $\sqrt{n}(\hat{\theta} - \theta_0)$ may be expanded as a power series in \sqrt{n} (Hall, 1992):

$$P \left\{ \frac{\sqrt{n}(\hat{\theta} - \theta_0)}{\sigma} \leq x \right\} =$$

$$\Phi(x) + n^{-\frac{1}{2}} p_1(x) \phi(x) + \dots + n^{-\frac{j}{2}} p_j(x) \phi(x) + \dots,$$

where $\phi(x) = (2\pi)^{-\frac{1}{2}} e^{-\frac{x^2}{2}}$ is the standard normal density function and $\Phi(x) = \int_{-\infty}^x \phi(u) du$ is the standard normal distribution function. The functions $p_j(x)$ are polynomials with coefficients depending on cumulants of $\hat{\theta} - \theta_0$.

Hall (1992) provided the Edgeworth expansion for the sample variance

$$P \left\{ \frac{\sqrt{n}(S^2 - \sigma^2)}{\tau} \leq x \right\} =$$

$$\Phi(x) + n^{-\frac{1}{2}} p_1(x) \phi(x) + \dots + n^{-\frac{j}{2}} p_j(x) \phi(x) + \dots,$$

where

$$p_1 = - \left(B_1 + B_2 \frac{x^2 - 1}{6} \right),$$

$$B_1 = -(\nu_4 - 1)^{\frac{1}{2}},$$

$$B_2 = (\nu_4 - 1)^{-\frac{3}{2}} (\nu_6 - 3\nu_4 - 6\nu_3^2 + 2),$$

$$\nu_j = E \left[\frac{X - \mu}{\sigma} \right]^j,$$

and

$$\tau = \sqrt{E(X - \mu)^4 - \sigma^4},$$

where τ/\sqrt{n} is the standard deviation of the estimator S^2 .

The variable S^2 admits the inversion of Edgeworth expansion as follows:

$$P\left\{\frac{\sqrt{n}(S^2 - \sigma^2)}{\tau} \leq x + n^{-\frac{1}{2}}\left(B_1 + B_2 \frac{x^2 - 1}{6}\right)\right\} = \Phi(x) + o(n^{-\frac{1}{2}}).$$

Long and Sa (2005) adapted the inversion formula of the Edgeworth Expansion to test $H_0 : \sigma^2 = \sigma_0^2$ versus $H_a : \sigma^2 > \sigma_0^2$. An intuitive decision rule is to reject H_0 if

$$Z > z_\alpha + n^{-\frac{1}{2}}\left(B_1 + B_2 \frac{z_\alpha^2 - 1}{6}\right), \quad (1)$$

where z_α is the upper α percentage point of the standard normal distribution and

$$Z = \frac{S^2 - \sigma_0^2}{\tau/\sqrt{n}}.$$

They first estimated B_1 and B_2 by

$$\hat{B}_1 = -\left(\frac{S^4}{\kappa_4 + 2S^4}\right)^{\frac{1}{2}}$$

and

$$\hat{B}_2 = \frac{\kappa_6 + 12\kappa_4 S^2 + 4\kappa_3^2 + 8(S^2)^3}{(\kappa_4 + 2S^4)^{\frac{3}{2}}},$$

where κ_3, κ_4 , and κ_6 are the third, fourth and sixth sample cumulants, respectively. They then investigated six different forms of Z and found that

$$Z6 = \frac{S^2 - \sigma_0^2}{\sqrt{\frac{\kappa_4 \sigma_0^2}{nS^2} + \frac{2\sigma_0^4}{n-1}}} \quad (2)$$

yields the best results for controlling the type I error rates as well as satisfying power performance; their final decision rule is to reject H_0 if:

$$Z6 > z_\alpha + n^{-\frac{1}{2}}\left(\hat{B}_1 + \hat{B}_2 \frac{z_\alpha^2 - 1}{6}\right). \quad (3)$$

The decision rule (3) of Long and Sa (2005) can be used in the construction of the upper-sided control chart for variability with some modifications. Population variance σ_0^2 can be estimated in the preliminary stage by the sample variance \tilde{S}^2 . \hat{B}_1 and \hat{B}_2 can also be calculated based on the preliminary samples.

The upper control limit can then be set as:

$$UCL = z_\alpha + n^{-\frac{1}{2}}\left(\hat{B}_1 + \hat{B}_2 \frac{z_\alpha^2 - 1}{6}\right). \quad (4)$$

In the control charting stage, a sample is selected and

$$Z6 = \frac{S_{(i)}^2 - \tilde{S}^2}{\sqrt{\frac{\kappa_{4,(i)} \tilde{S}^2}{nS_{(i)}^2} + \frac{2\tilde{S}^4}{n-1}}}, \quad (5)$$

where $S_{(i)}^2$ and $\kappa_{4,(i)}$ are variance and fourth cumulant of the i^{th} sample, is calculated. An out-of-control signal occurs when:

$$Z6 > UCL. \quad (6)$$

The proposed Variability Control Chart can be constructed as follows:

1. Based on process requirements, select a significance level α and find the corresponding critical point z_α ;
2. Assuming the process is under statistical control, select m preliminary samples of size n to calculate all the process quantities ($\tilde{S}^2, \kappa_3, \kappa_4, \kappa_6, \hat{B}_1, \hat{B}_2$). Two methods are employed to calculate these quantities. The

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first is called the combined sample method, which merges all m samples in the preliminary run as one sample with $m \cdot n$ observations to compute the process quantities. The second is the not combined sample method in which all the process quantities are equal to the averages of the m corresponding preliminary sample values.

3. Calculate UCL using (4);
4. Start the quality control stage. Select samples of size n periodically. After the i^{th} sample is selected, calculate the sample variance $S_{(i)}^2$ and sample cumulant $\kappa_{4,(i)}$;
5. Plug them into (5) to get the sample point $Z6$ for this sample;
6. Plot the sample point $Z6$ on the chart and draw the conclusion about this sample (in-control or out-of-control);
7. If the process is in-control, then go back to step 4 to select next sample; otherwise quality control team should investigate and possibly remove the assignable causes.

Simulation Study

In order to compare different control charts for variability of a process, a simulation study to investigate the type I error rates and power performance is performed. The methods compared include the Shewhart R-chart, S-chart, S^2 -chart, WV R-chart, SC R-chart and the proposed control charts.

Distributions Examined

A large collection of distributions with a wide range of skewness and kurtosis are investigated via a simulation study. Distributions considered are separated into two groups: skewed and symmetric.

The skewed family includes eight Weibull distributions with scale parameter $\lambda = 1$ and shape parameter k from 0.5 to 3.5; exponential with $\lambda = 1$; Gamma with scale parameter $\beta = 1$ and shape parameters

$\alpha = 0.15, 1.2$ and 4.0 ; Chi-square with ν degrees of freedom ($\nu = 1$ to 24); lognormal with $\mu = 0$ and $\sigma^2 = 1$; and the Barnes2 distribution which is a polynomial function of the standard normal distribution (Fleishman, 1978). For comparison purposes, the standard normal distribution is also studied and reported.

The symmetric distributions considered include: Student's T ($\nu = 5, 6, 8, 16, 32, 40$), JTB ($\mu = 0, \sigma = 1, \alpha, \tau$) with various α and τ (Johnson, Tietjen & Beckman, 1980) and special designed distributions Barnes1 and Barnes3 with respective kurtosis 6.89 and 1049 (Fleishman, 1978). All the distributions in this group are symmetric with the exception of Barnes3 with a coefficient of skewness of 3.00, which is negligible in comparison to its kurtosis of 1049.

Random number generators from the Fortran 90 IMSL library are used to generate normal, Weibull, exponential, lognormal, Chi-square, Gamma and Student's T variates. In addition, the Barnes1, Barnes2, Barnes3 and JTB random variates were created with Fortran 90 program subroutines using IMSL library's random number generators for standard normal, gamma and uniform distributions in various parts of the program.

Simulation Description

The simulation study includes two parts: (1). Process is in-control (type I error rate comparisons) and (2). Process is shifted (the power study). In both studies, the process parameters are assumed unknown and therefore need to be estimated. The number of samples used in the preliminary run is $m = 30$; a relatively small sample size of 10 and a moderate sample size of 25 are used in the study. The steps of the simulation take place in two parts: steps 1 – 4 are preliminary runs and steps 5 – 9 are the quality control stages.

Preliminary Runs (assumes the process is in-control):

1. Set up the nominal level $\alpha = 0.0027$ (which corresponds to the frequently used Average Run Length, ARL, = 370) and select the parent distribution;

2. Generate 30 samples of size n from the parent distribution;
3. Calculate the necessary quantities used in different methods:
 $\bar{R}, \bar{S}, \bar{S}^2, \hat{P}_X, k_3, \hat{B}_1, \hat{B}_2, \tilde{S}^2, \kappa_3, \kappa_4, \kappa_6$;
 both the combined sample method and not combined sample method are used to calculate the process quantities for the proposed methods.
4. Calculate the appropriate upper control limit for each of the control methods; the control limits of the Shewhart R-chart, S-chart, S²-chart, WV R-chart and SC R-chart are adjusted to meet the purpose of the comparisons. In order to achieve the desired nominal level of $\alpha = 0.0027$ for a one-sided control chart, $z_\alpha = 2.78215$ is used to construct the appropriate upper control limits for all the methods.

The Quality Control Stage: Steps (5) – (9)

5. Generate 1,000 samples of size n from the same parent distribution and calculate the statistic to be plotted for each of the control methods (sample range R for the Shewhart, WV and SC R-charts, sample standard deviation S for S-chart, sample variance for S²-char, and Z6 for the proposed method);
6. Compare the statistic with the corresponding control limits and tabulate the number of out-of-control signals;
7. Calculate type I error rate for each method by finding the proportion of out-of-control signals in the 1000 samples;
8. Repeat steps (2) – (7) 4,000 times;
9. Calculate the average of 4,000 type I error rates.

In the power study each generated variate is multiplied by a pre-determined \sqrt{k} , where $k = 1, 2, 3, 4, 5, 6$; thus, a new set of observations is created with variance k times

larger than the variance of the original distribution. Steps (5) – (9) are then repeated for each value of k to investigate the power of each charting technique. The corresponding ARL can be calculated for an in-control or an out-of-control process by inverting the average type I error rate or power from step (9).

Results

The Study of Type I Error Rates

Tables 1 through 4 provide comparisons of type I error rates for skewed and symmetric distributions with sample sizes $n = 10$ and $n = 25$. The first and the second columns are the type I error rates of the proposed method Z6 using the combined sample and the not combined sample methods in the calculations of the process quantities. Three critical points z_α , $\frac{z_\alpha + t_{n-1, \alpha}}{2}$ and $t_{n-1, \alpha}$ are used in construction of the upper control limits for the proposed method with sample size $n = 10$; results shown are the first, second and third numbers in the respective column.

Skewed Distributions

Table 1 shows that all traditional control charts (the Shewhart R-chart, S-chart and S²-chart) fail to maintain the type I error rates under nominal level $\alpha = 0.0027$ when the parent distribution is skewed. In general, the larger the degree of skewness, the bigger the type I error rate. For example, considering a $\chi^2_{(24)}$ distribution with skewness 0.58, the type I error rates of the three traditional charts are 0.0235, 0.0224 and 0.00566 with corresponding ARLs 42.55, 44.64 and 176.68 for the Shewhart R-chart, S-chart and S²-chart respectively. Those rates change to 0.124, 0.132 and 0.0624 with respective ARLs 8.06, 7.58 and 16.03 when the parent distribution is $\chi^2_{(1)}$, with a more severe skewness of 2.83.

Among the three traditional charts, the S²-chart tends to outperform the other two, however, it still consistently yields inflated type I error rates which result in very short ARLs. It usually performs reasonably well for distributions with low skewness. The best cases

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Table 1: Skewed Distributions, Comparisons of Type I Error Rates when $n = 10$

Distribution (skewness) (kurtosis)	Combined Sample	Not Combined	R-chart	S-chart	S ² -chart	WV-chart	SC-chart
Normal (0,1)	3.97E-03	1.09E-02	1.45E-02	1.24E-02	1.86E-03	1.24E-02	6.40E-03
(0.00)	1.23E-03	9.36E-03					
(0.00)	3.58E-04	9.77E-03					
Exponential (1)	5.82E-03	4.71E-02	8.71E-02	9.26E-02	4.10E-02	1.15E-02	7.58E-03
(2.00)	2.73E-03	5.00E-02					
(6.00)	1.31E-03	5.39E-02					
Lognormal (0,1)	5.80E-03	4.19E-02	1.37E-01	1.44E-01	7.61E-02	2.52E-02	2.33E-02
(6.18)	2.85E-03	4.23E-02					
(110.93)	1.48E-03	4.38E-02					
Weibull (0.5)	5.83E-03	4.10E-02	1.66E-01	1.75E-01	8.74E-02	3.11E-02	3.07E-02
(6.62)	2.82E-03	4.28E-02					
(84.72)	1.48E-03	4.48E-02					
Weibull (0.75)	5.50E-03	4.64E-02	1.27E-01	1.35E-01	6.62E-02	1.18E-02	1.30E-02
(3.12)	2.69E-03	4.85E-02					
(16.0)	1.38E-03	5.10E-02					
Weibull (0.85)	5.70E-03	4.70E-02	1.10E-01	1.17E-01	5.56E-02	1.14E-02	1.02E-02
(2.56)	2.76E-03	4.95E-02					
(10.35)	1.41E-03	5.26E-02					
Weibull (1)	5.82E-03	4.71E-02	8.71E-02	9.26E-02	4.10E-02	1.15E-02	7.58E-03
(2.00)	2.73E-03	5.00E-02					
(6.00)	1.31E-03	5.39E-02					
Weibull (1.2)	5.70E-03	4.56E-02	6.24E-02	6.61E-02	2.59E-02	1.06E-02	5.52E-03
(1.52)	2.53E-03	4.89E-02					
(3.24)	1.14E-03	5.34E-02					
Weibull (1.5)	5.10E-03	4.13E-02	3.73E-02	3.91E-02	1.22E-02	8.87E-03	3.90E-03
(1.07)	2.05E-03	4.48E-02					
(1.39)	8.18E-04	4.97E-02					
Weibull (2.0)	4.08E-03	2.85E-02	1.71E-02	1.77E-02	3.65E-03	7.41E-03	2.70E-03
(0.63)	1.41E-03	3.12E-02					
(0.25)	4.66E-04	3.57E-02					
Weibull (3.5)	3.36E-03	1.07E-02	6.53E-03	7.07E-03	6.93E-04	5.43E-03	2.10E-03
(0.03)	9.14E-04	9.33E-03					
(-0.29)	2.13E-04	1.00E-02					
Barnes 2	7.25E-03	4.86E-02	7.41E-02	7.82E-02	2.95E-02	4.77E-03	3.90E-03
(1.75)	3.39E-03	5.19E-02					
(3.75)	1.63E-03	5.69E-02					

Table 1 (Continued): Skewed Distributions, Comparisons of Type I Error Rates when $n = 10$

Distribution (skewness) (kurtosis)	Combined Sample	Not Combined	R-chart	S-chart	S ² -chart	WV-chart	SC-chart
Chi (1)	6.31E-03	5.13E-02	1.24E-01	1.32E-01	6.24E-02	7.89E-03	1.06E-02
(2.83)	3.13E-03	5.48E-02					
(12.0)	1.64E-03	5.84E-02					
Chi (2)	5.82E-03	4.71E-02	8.71E-02	9.26E-02	4.10E-02	1.15E-02	7.58E-03
(2.00)	2.73E-03	5.00E-02					
(6.00)	1.31E-03	5.39E-02					
Chi (3)	5.72E-03	4.46E-02	6.86E-02	7.28E-02	3.05E-02	1.27E-02	6.74E-03
(1.63)	2.60E-03	4.75E-02					
(4.00)	1.19E-03	5.10E-02					
Chi (4)	5.44E-03	4.30E-02	5.83E-02	6.14E-02	2.43E-02	1.32E-02	6.54E-03
(1.41)	2.42E-03	4.56E-02					
(3.00)	1.07E-03	4.91E-02					
Chi (8)	4.87E-03	3.81E-02	3.93E-02	4.03E-02	1.37E-02	1.30E-02	6.03E-03
(1.00)	1.99E-03	4.12E-02					
(1.50)	8.23E-04	4.51E-02					
Chi (10)	4.67E-03	3.48E-02	3.49E-02	3.53E-02	1.14E-02	1.32E-02	6.10E-03
(0.89)	1.88E-03	3.76E-02					
(1.20)	7.45E-04	4.15E-02					
Chi (12)	4.52E-03	3.37E-02	3.16E-02	3.16E-02	9.71E-03	1.29E-02	5.95E-03
(0.82)	1.77E-03	3.64E-02					
(1.00)	6.77E-04	4.05E-02					
Chi (16)	4.45E-03	2.62E-02	2.82E-02	2.75E-02	7.89E-03	1.35E-02	6.08E-03
(0.71)	1.71E-03	2.76E-02					
(0.75)	6.39E-04	3.01E-02					
Chi (24)	4.22E-03	2.51E-02	2.35E-02	2.24E-02	5.66E-03	1.30E-02	5.71E-03
(0.58)	1.54E-03	2.64E-02					
(0.50)	5.42E-04	2.95E-02					
Gamma (0.15)	6.00E-03	4.54E-02	1.85E-01	1.97E-01	9.43E-02	2.91E-02	2.82E-02
(5.16)	2.99E-03	4.71E-02					
(40.0)	1.61E-03	4.90E-02					
Gamma (1.2)	6.07E-03	5.12E-02	7.89E-02	8.38E-02	3.65E-02	1.23E-02	7.27E-03
(1.83)	2.87E-03	5.46E-02					
(5.00)	1.34E-03	5.88E-02					
Gamma (4.0)	4.95E-03	3.97E-02	3.91E-02	3.99E-02	1.36E-02	1.29E-02	6.02E-03
(1.00)	2.07E-03	4.22E-02					
(1.50)	8.29E-04	4.58E-02					

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Table 2: Skewed Distributions, Comparisons of Type I Error Rates when $n = 25$

Distribution	(skewness) (kurtosis)	Combined Sample	Not Combined	R-chart	S-chart	S2-chart	WV-chart
Normal (0,1)	(0.00) (0.00)	3.41E-03	3.50E-03	1.83E-02	1.64E-02	1.82E-03	1.70E-02
Exponential (1)	(2.00) (6.00)	2.59E-03	3.03E-03	1.09E-01	1.19E-01	5.32E-02	8.16E-03
Lognormal (0,1)	(6.18) (110.93)	1.72E-03	2.51E-03	1.68E-01	1.85E-01	1.05E-01	2.49E-02
Weibull (0.5)	(6.62) (84.72)	1.97E-03	2.98E-03	1.97E-01	2.20E-01	1.24E-01	2.84E-02
Weibull (0.75)	(0.12) (1.23)	1.67E-03	2.22E-03	1.53E-01	1.71E-01	9.10E-02	9.19E-03
Weibull (0.85)	(2.56) (10.35)	2.02E-03	2.51E-03	1.35E-01	1.49E-01	7.49E-02	8.71E-03
Weibull (1)	(2.00) (6.00)	2.59E-03	3.03E-03	1.09E-01	1.19E-01	5.32E-02	8.16E-03
Weibull (1.2)	(1.52) (3.24)	3.18E-03	3.61E-03	8.06E-02	8.47E-02	3.16E-02	8.08E-03
Weibull (1.5)	(1.07) (1.39)	3.50E-03	3.88E-03	4.98E-02	5.03E-02	1.35E-02	8.91E-03
Weibull (2.0)	(0.63) (0.25)	3.20E-03	3.45E-03	2.27E-02	2.30E-02	3.54E-03	9.28E-03
Weibull (3.5)	(0.03) (-0.29)	2.72E-03	2.77E-03	6.67E-03	9.91E-03	7.08E-04	6.08E-03
Chi (1)	(2.83) (12.0)	2.10E-03	2.60E-03	1.46E-01	1.65E-01	8.38E-02	5.01E-03
Chi (2)	(2.00) (6.00)	2.59E-03	3.03E-03	1.09E-01	1.19E-01	5.32E-02	8.16E-03
Chi (3)	(1.63) (4.00)	2.78E-03	3.24E-03	8.80E-02	9.35E-02	3.77E-02	9.73E-03
Chi (4)	(1.41) (3.00)	2.84E-03	3.31E-03	7.58E-02	7.88E-02	2.92E-02	1.17E-02
Chi (8)	(1.00) (1.50)	2.90E-03	3.26E-03	5.17E-02	5.15E-02	1.51E-02	1.47E-02
Chi (10)	(0.89) (1.20)	2.92E-03	3.27E-03	4.61E-02	4.49E-02	1.22E-02	1.56E-02
Chi (12)	(0.82) (1.00)	3.03E-03	3.32E-03	4.24E-02	4.12E-02	1.06E-02	1.63E-02
Chi (16)	(0.71) (0.75)	3.03E-03	3.28E-03	3.71E-02	3.56E-02	8.25E-03	1.69E-02
Chi (24)	(0.58) (0.50)	3.16E-03	3.43E-03	3.14E-02	2.95E-02	5.79E-03	1.70E-02
Gamma (0.15)	(5.16) (40.0)	1.52E-03	2.26E-03	2.04E-01	2.36E-01	1.30E-01	1.77E-02
Gamma (1.2)	(1.83) (5.00)	2.56E-03	3.06E-03	9.83E-02	1.06E-01	4.51E-02	8.31E-03
Gamma (4.0)	(1.00) (1.50)	2.97E-03	3.38E-03	5.19E-02	5.15E-02	1.51E-02	1.46E-02
Barnes 2	(1.75) (3.75)	4.09E-03	4.73E-03	8.85E-02	9.66E-02	3.55E-02	2.08E-03

Table 3: Symmetric Distributions, Comparisons of Type I Error Rates when $n = 10$

Distribution	Combined Sample	Not Combined	R-chart	S-chart	S ² -chart	WV-chart	SC-chart
(skewness)							
(kurtosis)							
Normal (0,1)	3.97E-03	1.09E-02	1.45E-02	1.24E-02	1.86E-03	1.24E-02	6.40E-03
(0.00)	1.23E-03	9.36E-03					
(0.00)	3.58E-04	9.77E-03					
JTB (2.0, 1.0)	4.58E-03	1.50E-02	6.60E-02	6.30E-02	2.39E-02	5.77E-02	4.23E-02
(0.00)	1.89E-03	1.39E-02					
(3.00)	7.78E-04	1.46E-02					
JTB (0.75, 0.5)	5.69E-03	1.37E-02	3.93E-02	3.62E-02	9.57E-03	3.33E-02	2.21E-02
(0.00)	2.22E-03	1.10E-02					
(1.20)	8.52E-04	1.06E-02					
JTB (4.0, 1.0)	4.33E-03	1.43E-02	3.31E-02	2.78E-02	7.42E-03	2.95E-02	1.88E-02
(0.00)	1.59E-03	1.31E-02					
(0.78)	5.71E-04	1.35E-02					
JTB (1.0, 0.5)	5.08E-03	1.30E-02	2.71E-02	2.41E-02	5.18E-03	2.34E-02	1.40E-02
(0.00)	1.83E-03	1.07E-02					
(0.60)	6.38E-04	1.09E-02					
JTB (1.25, 0.5)	4.47E-03	1.30E-02	1.94E-02	1.68E-02	3.03E-03	1.67E-02	9.29E-03
(0.00)	1.52E-03	1.13E-02					
(0.24)	4.69E-04	1.17E-02					
JTB (1.35, 0.5)	4.19E-03	1.12E-02	1.69E-02	1.45E-02	2.44E-03	1.46E-02	7.86E-03
(0.00)	1.38E-03	9.34E-03					
(0.13)	4.11E-04	9.76E-03					
JTB (1.5, 0.5)	4.00E-03	1.18E-02	1.45E-02	1.24E-02	1.88E-03	1.25E-02	6.44E-03
(0.00)	1.26E-03	1.01E-02					
(0.00)	3.70E-04	1.05E-02					
JTB (2.0, 0.5)	3.22E-03	1.26E-02	8.52E-03	7.47E-03	8.68E-04	7.08E-03	3.27E-03
(0.00)	9.07E-04	1.18E-02					
(-0.30)	2.43E-04	1.29E-02					
JTB (4.0, 0.5)	1.65E-03	1.22E-02	1.55E-03	2.00E-03	1.02E-04	1.20E-03	3.71E-04
(0.00)	3.43E-04	1.28E-02					
(-0.75)	6.33E-05	1.52E-02					
JTB (9.0, 0.5)	8.09E-04	1.86E-02	6.28E-05	4.81E-04	9.75E-06	4.28E-05	5.75E-06
(0.00)	1.28E-04	2.27E-02					
(-1.00)	1.33E-05	2.92E-02					

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Table 3 (continued): Symmetric Distributions, Comparisons of Type I Error Rates when $n = 10$

Distribution	Combined Sample	Not Combined	R-chart	S-chart	S ² -chart	WV-chart	SC-chart
(skewness)							
(kurtosis)							
Barnes 3	2.04E-03	1.73E-02	1.10E-01	9.09E-02	6.07E-02	1.06E-01	7.76E-02
(3.00)	8.02E-04	1.71E-02					
(1049)	3.41E-04	1.77E-02					
Barnes 1	3.97E-03	1.09E-02	1.45E-02	1.24E-02	1.86E-03	1.24E-02	6.40E-03
(0.00)	1.23E-03	9.36E-03					
(6.89)	3.58E-04	9.77E-03					
Student (5)	3.27E-03	1.66E-02	6.24E-02	5.61E-02	2.52E-02	5.76E-02	4.17E-02
(0.00)	1.27E-03	1.58E-02					
(6.00)	5.04E-04	1.66E-02					
Student (6)	3.41E-03	1.43E-02	5.31E-02	4.67E-02	1.90E-02	4.87E-02	3.44E-02
(0.00)	1.31E-03	1.35E-02					
(3.00)	5.15E-04	1.40E-02					
Student (8)	3.79E-03	1.44E-02	4.23E-02	3.63E-02	1.27E-02	3.84E-02	2.62E-02
(0.00)	1.41E-03	1.35E-02					
(1.50)	5.15E-04	1.39E-02					
Student (16)	4.09E-03	1.32E-02	2.68E-02	2.22E-02	5.48E-03	2.38E-02	1.46E-02
(0.00)	1.42E-03	1.22E-02					
(0.50)	4.80E-04	1.27E-02					
Student (25)	4.20E-03	1.15E-02	2.22E-02	1.83E-02	3.86E-03	1.94E-02	1.13E-02
(0.00)	1.41E-03	9.63E-03					
(0.29)	4.68E-04	9.64E-03					
Student (32)	4.01E-03	9.66E-03	1.97E-02	1.64E-02	3.21E-03	1.72E-02	9.79E-03
(0.00)	1.35E-03	7.51E-03					
(0.21)	4.24E-04	7.32E-03					
Student (40)	4.08E-03	1.26E-02	1.89E-02	1.57E-02	2.93E-03	1.65E-02	9.18E-03
(0.00)	1.34E-03	1.09E-02					
(0.17)	4.14E-04	1.11E-02					

Table 4: Symmetric Distributions, Comparisons of Type I Error Rates when $n = 25$

Distribution	(skewness) (kurtosis)	Combined Sample	Not Combined	R-chart	S-chart	S2-chart	WV-chart
Normal (0,1)	(0.00) (0.00)	3.41E-03	3.50E-03	1.83E-02	1.64E-02	1.82E-03	1.70E-02
JTB (2.0, 1.0)	(0.00) (3.00)	2.31E-03	2.51E-03	8.16E-02	7.97E-02	2.84E-02	7.63E-02
JTB (0.75, 0.5)	(0.00) (1.20)	4.42E-03	4.57E-03	4.41E-02	4.45E-02	9.86E-03	4.03E-02
JTB (4.0, 1.0)	(0.00) (0.78)	3.26E-03	3.38E-03	4.47E-02	3.55E-02	7.69E-03	4.24E-02
JTB (1.0, 0.5)	(0.00) (0.60)	4.36E-03	4.48E-03	3.18E-02	3.05E-02	5.21E-03	2.97E-02
JTB (1.25, 0.5)	(0.00) (0.24)	3.81E-03	3.96E-03	2.36E-02	2.16E-02	2.86E-03	2.20E-02
JTB (1.35, 0.5)	(0.00) (0.13)	3.72E-03	3.83E-03	2.15E-02	1.97E-02	2.39E-03	2.00E-02
JTB (1.5, 0.5)	(0.00) (0.00)	3.36E-03	3.46E-03	1.80E-02	1.63E-02	1.77E-03	1.68E-02
JTB (2.0, 0.5)	(0.00) (-0.30)	2.42E-03	2.50E-03	1.11E-02	9.94E-03	7.17E-04	1.02E-02
JTB (4.0, 0.5)	(0.00) (-0.75)	9.33E-04	9.70E-04	2.29E-03	3.03E-03	8.20E-05	2.02E-03
JTB (9.0, 0.5)	(0.00) (-1.00)	3.23E-04	3.33E-04	1.01E-04	8.21E-04	8.25E-06	8.53E-05
Barnes 3	(3.00) (1.49)	6.14E-04	9.31E-04	1.91E-01	1.47E-01	9.66E-02	1.88E-01
Barnes 1	(0.00) (6.89)	3.41E-03	3.50E-03	1.83E-02	1.64E-02	1.82E-03	1.70E-02
Student (5)	(0.00) (6.00)	1.30E-03	1.42E-03	9.00E-02	7.69E-02	3.36E-02	8.69E-02
Student (6)	(0.00) (3.00)	1.64E-03	1.75E-03	7.67E-02	6.35E-02	2.45E-02	7.39E-02
Student (8)	(0.00) (1.50)	2.32E-03	2.46E-03	6.11E-02	4.82E-02	1.50E-02	5.86E-02
Student (16)	(0.00) (0.50)	3.16E-03	3.29E-03	3.76E-02	2.88E-02	5.56E-03	3.56E-02
Student (25)	(0.00) (0.29)	3.28E-03	3.43E-03	2.95E-02	2.32E-02	3.64E-03	2.78E-02
Student (32)	(0.00) (0.21)	3.42E-03	3.50E-03	2.72E-02	2.17E-02	3.17E-03	2.56E-02
Student (40)	(0.00) (0.17)	3.35E-03	3.44E-03	2.50E-02	2.04E-02	2.75E-03	2.35E-02

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other than the standard normal distribution produced by S^2 -chart are for the Weibull(2.0) with skewness 0.63 and Weibull(3.5) with skewness 0.03 which result respective type I error rates 0.00365 and 0.000693 equivalent to ARLs 273.97 and 1443. However, when skewness increases, such as $\chi_{(8)}^2$ with skewness of 1.00, the performance goes down dramatically with type I error rate 0.0137 and $ARL = 72.99$.

The WV R-chart is also unable to maintain the type I error rate for skewed distributions; although it works well for a few distributions, in general it produces false alarms too often. The SC R-chart has better performances among the existing variability control charts. It shows a degree of robustness when the coefficient of skewness is small, but if the skewness becomes somewhat severe, it fails to keep the type I error rates close to the nominal level. For example, the SC R-chart produces type I error rates of 0.0233 and 0.0307 with corresponding ARL of 42.92 and 32.57 for the standard lognormal with skewness = 6.18 and Weibull (0.5) with skewness = 6.62.

For the proposed method, results show that the combined sample method, which merges all the samples in the preliminary runs as one large sample to compute the process quantities, consistently outperforms all the other methods with very few exceptions. The worst case is for the Barnes2 distribution with skewness 1.75. It produces the highest type I error rate of 0.0075 with a corresponding ARL 137.93 when z_α is used as the critical point. However, it drops to 0.00339 with ARL 294.99 when $\frac{z_\alpha + t_{n-1,\alpha}}{2}$ is used. When $t_{n-1,\alpha}$ is used as a critical point, the proposed method becomes too conservative, which is not recommended because it will become more difficult to detect shifts if present.

When a larger sample size $n = 25$ is used in the simulation study (see Table 2), the performances of the Shewhart R-chart, S-chart, S^2 -chart and WV R-chart do not change much. Type I errors rates for these charts are still inflated for distributions with high degrees of skewness such as the standard lognormal and

Weibull with shape = 0.5, etc. Conversely, the proposed method with combined sample produces type I error rates close to the nominal level even with z_α as the critical point. The highest type I error rate produced by the proposed method is 0.00409 ($ARL = 244.5$) for the Barnes2 distribution.

Table 1 shows that the proposed method with combined sample can also be used for the standard normal distribution. The type I error rates produced are smaller than those of all the charts except the S^2 -chart, even though it is not designed for the normal distribution. This nice performance adds another desirable property to the proposed method.

Note that the SC R-chart is not used in the simulation study with sample size $n = 25$ because Chan and Cui (2003) do not provide constants for calculations of the control limits for any sample size larger than 10. It is extremely difficult for the practitioners to implement this control chart if the situation requires collecting a sample size larger than 10.

Symmetric Distributions

Table 3 provides type I error rate comparisons for the symmetric distributions with sample size 10. The proposed method is the only one that holds the type I error rates almost all the time. Although some of the type I error rates for the proposed method are a little higher than 0.0027, they are all within an acceptable range. The worst case found in the study is for the JTB distribution ($\alpha = 0.75$, $\tau = 0.5$) with kurtosis 1.2 using z_α as a critical point producing the lowest $ARL = 175.75$ with type I error rate 0.0057. However, once the critical point is changed to $\frac{z_\alpha + t_{n-1,\alpha}}{2}$, the ARL increases to 454.55 with type I error = 0.0022. Again when the critical point $t_{n-1,\alpha}$ is used, the proposed method becomes unnecessarily conservative.

The two traditional methods, Shewhart R-chart and S-chart, are not robust at all, but the S^2 -chart performs surprisingly well when the kurtosis of the distribution is either very close to zero or negative. However, the good performance soon disappears once the

distribution has a kurtosis larger than 0.5. It is expected that WV and SC methods will not perform very well, because they only try to correct the skewness of the distribution, not the kurtosis.

It can be observed that the type I error rates for all the existing charts are strongly affected by the kurtosis of the distributions. The type I error rate increases when the kurtosis increases. When Barnes3 with kurtosis 1049 is the parent distribution, all the other charting techniques fail. The type I error rates for Shewhart R-chart, S-chart, S²-chart, WV R-chart and SC R-chart are 0.11, 0.091, 0.0607, 0.106 and 0.0776 with corresponding ARL 9.09, 11, 16.47, 9.43 and 13.04, respectively.

Table 4 provides type I error rate comparisons for the symmetric distributions with sample size 25. Similar results to those shown in Table 3 are observed in this table. The proposed method is the only one with robust performance. The highest type I error rate is 0.00442 with ARL = 226.24 for JTB ($\alpha = 0.75$, $\tau = 0.5$) with kurtosis = 1.2. All other methods are not able to maintain type I error rates for distributions with kurtosis greater than 0.78. When the coefficient of kurtosis is in negative values, the type I error rates are generally much lower than the desired nominal level; this is observed in all the methods studied except in R-chart which generally fails in nearly all cases.

Power Study

The primary goal of the power study is to find the control charts with improved type I error rates and power performance comparable to other charts. It is reasonable to expect that more conservative charts might produce lower power than other charts because it is more difficult to detect an out-of-control state with these charts.

The results of the power study for skewed distributions are presented in Table 5 for sample size 10 with z_α and $\frac{z_\alpha + t_{n-1,\alpha}}{2}$ as critical points; results for symmetric distributions are reported in Table 6 for sample size 10. A power study was also conducted for cases with sample size 25. For complete

simulation results, please see Borysov and Sa (2010).

The following similarities in the power performances of all the control charting methods are observed: As sample size increases from 10 to 25, power increases; as k in $k\sigma^2$ increases, the power increases; as the skewness of the skewed distribution increases, the power tends to decrease; and as kurtosis of the symmetric distributions increases, the power also tends to decrease.

It can be observed that the power performance of the proposed method is relatively good and is similar to other charts. In the cases of highly skewed distributions with large kurtosis (e.g., standard lognormal with skewness 6.18 and kurtosis 110, Weibull (0.5) with skewness 6.62 and kurtosis 84.72, Gamma (0.15) with skewness 5.16 and kurtosis 40), the power of the proposed method tends to be lower than those of other charts. However, recall that the proposed chart is the only one able to control the type I error rates for those distributions. When the shift in process variability increases

the proposed scheme with $\frac{z_\alpha + t_{n-1,\alpha}}{2}$ becomes compatible to the WV and SC control charts.

Although the three Shewhart charts generally have higher power than the proposed control chart, it must be restated that power performance of the control chart is useless if it cannot preserve an appropriate type I error rate. Frequent false alarms can create more damage than quick shift detections can benefit. If sample size 25 is used, the proposed method has better power performance than the WV R-chart for almost all the distributions considered, even for small shifts of the variability.

Simulation Study Summary

The proposed Variability Control Chart which plots Z_6 against UCL with combined sample should be used with decision rule (6) in order to achieve controllable type I error rates as well as to detect shifts in variability. It can be implemented for a process with any form of the underlying distribution consisting of skewed and and/or symmetric distributions including normal.

A ROBUST ONE-SIDED VARIABILITY CONTROL CHART

Table 5: Power Comparison Study for Skewed Distributions ($n = 10$)

Distribution	(skewness) (kurtosis)	k	Combined Sample	R-chart	S-chart	S2-chart	WV-chart	SC-chart
Normal (0,1)	(0.00)	k=1	3.97E-03	1.24E-02	1.86E-03	1.24E-02	6.40E-03	1.24E-02
	(0.00)		1.23E-03					
Exponential (1)	(2.00)		5.82E-03	8.71E-02	9.26E-02	4.10E-02	1.15E-02	7.58E-03
	(6.00)		2.73E-03					
Lognormal (0,1)	(6.18)		5.80E-03	1.37E-01	1.44E-01	7.61E-02	2.52E-02	2.33E-02
	(110)		2.85E-03					
Weibull (0.5)	(6.62)		5.83E-03	1.66E-01	1.75E-01	8.74E-02	3.11E-02	3.07E-02
	(84.72)		2.82E-03					
Weibull (0.85)	(0.12)		5.50E-03	1.27E-01	1.35E-01	6.62E-02	1.18E-02	1.30E-02
	(1.23)		2.69E-03					
Weibull (0.75)	(2.56)		5.70E-03	1.10E-01	1.17E-01	5.56E-02	1.14E-02	1.02E-02
	(10.35)		2.76E-03					
Weibull (1)	(2.00)		5.82E-03	8.71E-02	9.26E-02	4.10E-02	1.15E-02	7.58E-03
	(6.00)		2.73E-03					
Weibull (1.2)	(1.52)		5.70E-03	6.24E-02	6.61E-02	2.59E-02	1.06E-02	5.52E-03
	(3.24)		2.53E-03					
Weibull (1.5)	(1.07)		5.10E-03	3.73E-02	3.91E-02	1.22E-02	8.87E-03	3.90E-03
	(1.39)		2.05E-03					
Weibull (2.0)	(0.63)		4.08E-03	1.71E-02	1.77E-02	3.65E-03	7.41E-03	2.70E-03
	(0.25)		1.41E-03					
Weibull (3.5)	(0.03)	3.36E-03	6.53E-03	7.07E-03	6.93E-04	5.43E-03	2.10E-03	
	(-0.29)	9.14E-04						
Barnes2	(1.75)	7.25E-03	7.41E-02	7.82E-02	2.95E-02	4.77E-03	3.90E-03	
	(3.75)	3.39E-03						
Normal(0,1)	(0.00)	k=2	1.66E-01	2.54E-01	2.95E-01	1.46E-01	2.37E-01	1.78E-01
	(0.00)		1.01E-01					
Exponential (1)	(2.00)		6.02E-02	2.94E-01	3.25E-01	1.97E-01	7.20E-02	5.44E-02
	(6.00)		3.53E-02					
Lognormal (0,1)	(6.18)		2.54E-02	2.78E-01	2.98E-01	1.75E-01	6.53E-02	6.12E-02
	(110)		1.41E-02					
Weibull (0.5)	(6.62)		2.16E-02	2.89E-01	3.07E-01	1.76E-01	7.48E-02	7.38E-02
	(84.72)		1.18E-02					
Weibull (0.85)	(0.12)		3.69E-02	3.01E-01	3.26E-01	1.99E-01	5.08E-02	5.48E-02
	(1.23)		2.10E-02					
Weibull (0.75)	(2.56)		4.56E-02	2.99E-01	3.27E-01	2.00E-01	5.74E-02	5.35E-02
	(10.35)		2.64E-02					
Weibull (1)	(2.00)		6.02E-02	2.94E-01	3.25E-01	1.97E-01	7.20E-02	5.44E-02
	(6.00)		3.53E-02					
Weibull (1.2)	(1.52)		8.02E-02	2.84E-01	3.20E-01	1.88E-01	8.99E-02	5.90E-02
	(3.24)		4.74E-02					
Weibull (1.5)	(1.07)		1.09E-01	2.69E-01	3.09E-01	1.73E-01	1.14E-01	7.05E-02
	(1.39)		6.45E-02					
Weibull (2.0)	(0.63)		1.48E-01	2.51E-01	2.96E-01	1.51E-01	1.58E-01	9.67E-02
	(0.25)		8.89E-02					
Weibull (3.5)	(0.03)	1.97E-01	2.45E-01	2.90E-01	1.35E-01	2.28E-01	1.62E-01	
	(-0.29)	1.23E-01						
Barnes2	(1.75)	8.32E-02	3.01E-01	3.35E-01	2.00E-01	5.57E-02	5.13E-02	
	(3.75)	5.13E-02						

Table 5 (continued): Power Comparison Study for Skewed Distributions ($n = 10$)

Distribution	(skewness) (kurtosis)	k	Combined Sample	R-chart	S-chart	S2-chart	WV-chart	SC-chart																																																																																																																																																																																																																																	
Chi (1)	(2.83)	k=1	6.31E-03	1.24E-01	1.32E-01	6.24E-02	7.89E-03	1.06E-02																																																																																																																																																																																																																																	
	(12.0)		3.13E-03						Chi (2)	(2.00)	5.82E-03	8.71E-02	9.26E-02	4.10E-02	1.15E-02	7.58E-03	(6.00)	2.73E-03	Chi (3)	(1.63)	5.72E-03	6.86E-02	7.28E-02	3.05E-02	1.27E-02	6.74E-03	(4.00)	2.60E-03	Chi (4)	(1.41)	5.44E-03	5.83E-02	6.14E-02	2.43E-02	1.32E-02	6.54E-03	(3.00)	2.42E-03	Chi (8)	(1.00)	4.87E-03	3.93E-02	4.03E-02	1.37E-02	1.30E-02	6.03E-03	(1.50)	1.99E-03	Chi (10)	(0.89)	4.67E-03	3.49E-02	3.53E-02	1.14E-02	1.32E-02	6.10E-03	(1.20)	1.88E-03	Chi (12)	(0.82)	4.52E-03	3.16E-02	3.16E-02	9.71E-03	1.29E-02	5.95E-03	(1.00)	1.77E-03	Chi (16)	(0.71)	4.45E-03	2.82E-02	2.75E-02	7.89E-03	1.35E-02	6.08E-03	(0.75)	1.71E-03	Chi (24)	(0.58)	4.22E-03	2.35E-02	2.24E-02	5.66E-03	1.30E-02	5.71E-03	(0.50)	1.54E-03	Gamma (0.15)	(5.16)	6.00E-03	1.85E-01	1.97E-01	9.43E-02	2.91E-02	2.82E-02	(40.0)	2.99E-03	Gamma (1.2)	(1.83)	6.07E-03	7.89E-02	8.38E-02	3.65E-02	1.23E-02	7.27E-03	(5.00)	2.87E-03	Gamma (4.0)	(1.00)	4.95E-03	3.91E-02	3.99E-02	1.36E-02	1.29E-02	6.02E-03	(1.50)	2.07E-03	Chi (1)	(2.83)	k=2	4.35E-02	3.09E-01	3.35E-01	2.05E-01	4.31E-02	5.37E-02	(12.0)	2.55E-02	Chi (2)	(2.00)	6.02E-02	2.94E-01	3.25E-01	1.97E-01	7.20E-02	5.44E-02	(6.00)	3.53E-02	Chi (3)	(1.63)	7.21E-02	2.84E-01	3.18E-01	1.89E-01	9.10E-02	5.90E-02	(4.00)	4.24E-02	Chi (4)	(1.41)	8.05E-02	2.79E-01	3.14E-01	1.84E-01	1.04E-01	6.44E-02	(3.00)	4.72E-02	Chi (8)	(1.00)	1.02E-01	2.67E-01	3.05E-01	1.70E-01	1.33E-01	8.13E-02	(1.50)	6.01E-02	Chi (10)	(0.89)	1.09E-01	2.64E-01	3.02E-01	1.66E-01	1.43E-01	8.88E-02	(1.20)	6.73E-02	Chi (12)	(0.82)	1.15E-01	2.61E-01	3.00E-01	1.63E-01	1.51E-01	9.40E-02	(1.00)	7.28E-02	Chi (16)	(0.71)	1.24E-01	2.60E-01	2.99E-01	1.60E-01	1.66E-01	1.04E-01	(0.75)	6.42E-02	Chi (24)	(0.58)	1.32E-01	2.56E-01	2.95E-01	1.54E-01	1.80E-01	1.15E-01	(0.50)	7.81E-02	Gamma (0.15)	(5.16)	2.42E-02	3.15E-01	3.34E-01	1.96E-01	8.04E-02	7.84E-02	(40.0)	1.34E-02	Gamma (1.2)	(1.83)	6.66E-02	2.90E-01	3.23E-01	1.95E-01	8.15E-02	5.72E-02	(5.00)	3.94E-02	Gamma (4.0)	(1.00)	1.03E-01	2.66E-01
Chi (2)	(2.00)		5.82E-03	8.71E-02	9.26E-02	4.10E-02	1.15E-02	7.58E-03																																																																																																																																																																																																																																	
	(6.00)		2.73E-03						Chi (3)	(1.63)	5.72E-03	6.86E-02	7.28E-02	3.05E-02	1.27E-02	6.74E-03	(4.00)	2.60E-03	Chi (4)	(1.41)	5.44E-03	5.83E-02	6.14E-02	2.43E-02	1.32E-02	6.54E-03	(3.00)	2.42E-03	Chi (8)	(1.00)	4.87E-03	3.93E-02	4.03E-02	1.37E-02	1.30E-02	6.03E-03	(1.50)	1.99E-03	Chi (10)	(0.89)	4.67E-03	3.49E-02	3.53E-02	1.14E-02	1.32E-02	6.10E-03	(1.20)	1.88E-03	Chi (12)	(0.82)	4.52E-03	3.16E-02	3.16E-02	9.71E-03	1.29E-02	5.95E-03	(1.00)	1.77E-03	Chi (16)	(0.71)	4.45E-03	2.82E-02	2.75E-02	7.89E-03	1.35E-02	6.08E-03	(0.75)	1.71E-03	Chi (24)	(0.58)	4.22E-03	2.35E-02	2.24E-02	5.66E-03	1.30E-02	5.71E-03	(0.50)	1.54E-03	Gamma (0.15)	(5.16)	6.00E-03	1.85E-01	1.97E-01	9.43E-02	2.91E-02	2.82E-02	(40.0)	2.99E-03	Gamma (1.2)	(1.83)	6.07E-03	7.89E-02	8.38E-02	3.65E-02	1.23E-02	7.27E-03	(5.00)	2.87E-03	Gamma (4.0)	(1.00)	4.95E-03	3.91E-02	3.99E-02	1.36E-02	1.29E-02	6.02E-03	(1.50)	2.07E-03	Chi (1)	(2.83)	k=2	4.35E-02	3.09E-01	3.35E-01	2.05E-01	4.31E-02	5.37E-02	(12.0)	2.55E-02	Chi (2)		(2.00)	6.02E-02	2.94E-01	3.25E-01	1.97E-01	7.20E-02	5.44E-02	(6.00)	3.53E-02	Chi (3)	(1.63)	7.21E-02	2.84E-01	3.18E-01	1.89E-01	9.10E-02	5.90E-02	(4.00)	4.24E-02	Chi (4)	(1.41)	8.05E-02	2.79E-01	3.14E-01	1.84E-01	1.04E-01	6.44E-02	(3.00)	4.72E-02	Chi (8)	(1.00)	1.02E-01	2.67E-01	3.05E-01	1.70E-01	1.33E-01	8.13E-02	(1.50)	6.01E-02	Chi (10)	(0.89)	1.09E-01	2.64E-01	3.02E-01	1.66E-01	1.43E-01	8.88E-02	(1.20)	6.73E-02	Chi (12)	(0.82)	1.15E-01	2.61E-01	3.00E-01	1.63E-01	1.51E-01	9.40E-02	(1.00)	7.28E-02	Chi (16)	(0.71)	1.24E-01	2.60E-01	2.99E-01	1.60E-01	1.66E-01	1.04E-01	(0.75)	6.42E-02	Chi (24)	(0.58)	1.32E-01	2.56E-01	2.95E-01	1.54E-01	1.80E-01	1.15E-01	(0.50)	7.81E-02	Gamma (0.15)	(5.16)	2.42E-02	3.15E-01	3.34E-01	1.96E-01	8.04E-02	7.84E-02	(40.0)	1.34E-02	Gamma (1.2)	(1.83)	6.66E-02	2.90E-01	3.23E-01	1.95E-01	8.15E-02	5.72E-02	(5.00)	3.94E-02	Gamma (4.0)	(1.00)	1.03E-01	2.66E-01	3.04E-01	1.70E-01	1.32E-01	8.13E-02	(1.50)	6.05E-02			
Chi (3)	(1.63)		5.72E-03	6.86E-02	7.28E-02	3.05E-02	1.27E-02	6.74E-03																																																																																																																																																																																																																																	
	(4.00)		2.60E-03						Chi (4)	(1.41)	5.44E-03	5.83E-02	6.14E-02	2.43E-02	1.32E-02	6.54E-03	(3.00)	2.42E-03	Chi (8)	(1.00)	4.87E-03	3.93E-02	4.03E-02	1.37E-02	1.30E-02	6.03E-03	(1.50)	1.99E-03	Chi (10)	(0.89)	4.67E-03	3.49E-02	3.53E-02	1.14E-02	1.32E-02	6.10E-03	(1.20)	1.88E-03	Chi (12)	(0.82)	4.52E-03	3.16E-02	3.16E-02	9.71E-03	1.29E-02	5.95E-03	(1.00)	1.77E-03	Chi (16)	(0.71)	4.45E-03	2.82E-02	2.75E-02	7.89E-03	1.35E-02	6.08E-03	(0.75)	1.71E-03	Chi (24)	(0.58)	4.22E-03	2.35E-02	2.24E-02	5.66E-03	1.30E-02	5.71E-03	(0.50)	1.54E-03	Gamma (0.15)	(5.16)	6.00E-03	1.85E-01	1.97E-01	9.43E-02	2.91E-02	2.82E-02	(40.0)	2.99E-03	Gamma (1.2)	(1.83)	6.07E-03	7.89E-02	8.38E-02	3.65E-02	1.23E-02	7.27E-03	(5.00)	2.87E-03	Gamma (4.0)	(1.00)	4.95E-03	3.91E-02	3.99E-02	1.36E-02	1.29E-02	6.02E-03	(1.50)	2.07E-03	Chi (1)	(2.83)	k=2	4.35E-02	3.09E-01	3.35E-01	2.05E-01	4.31E-02	5.37E-02	(12.0)	2.55E-02	Chi (2)		(2.00)	6.02E-02	2.94E-01	3.25E-01	1.97E-01	7.20E-02	5.44E-02	(6.00)	3.53E-02		Chi (3)	(1.63)	7.21E-02	2.84E-01	3.18E-01	1.89E-01	9.10E-02	5.90E-02	(4.00)	4.24E-02	Chi (4)	(1.41)	8.05E-02	2.79E-01	3.14E-01	1.84E-01	1.04E-01	6.44E-02	(3.00)	4.72E-02	Chi (8)	(1.00)	1.02E-01	2.67E-01	3.05E-01	1.70E-01	1.33E-01	8.13E-02	(1.50)	6.01E-02	Chi (10)	(0.89)	1.09E-01	2.64E-01	3.02E-01	1.66E-01	1.43E-01	8.88E-02	(1.20)	6.73E-02	Chi (12)	(0.82)	1.15E-01	2.61E-01	3.00E-01	1.63E-01	1.51E-01	9.40E-02	(1.00)	7.28E-02	Chi (16)	(0.71)	1.24E-01	2.60E-01	2.99E-01	1.60E-01	1.66E-01	1.04E-01	(0.75)	6.42E-02	Chi (24)	(0.58)	1.32E-01	2.56E-01	2.95E-01	1.54E-01	1.80E-01	1.15E-01	(0.50)	7.81E-02	Gamma (0.15)	(5.16)	2.42E-02	3.15E-01	3.34E-01	1.96E-01	8.04E-02	7.84E-02	(40.0)	1.34E-02	Gamma (1.2)	(1.83)	6.66E-02	2.90E-01	3.23E-01	1.95E-01	8.15E-02	5.72E-02	(5.00)	3.94E-02	Gamma (4.0)	(1.00)	1.03E-01	2.66E-01	3.04E-01	1.70E-01	1.32E-01	8.13E-02	(1.50)	6.05E-02												
Chi (4)	(1.41)		5.44E-03	5.83E-02	6.14E-02	2.43E-02	1.32E-02	6.54E-03																																																																																																																																																																																																																																	
	(3.00)		2.42E-03						Chi (8)	(1.00)	4.87E-03	3.93E-02	4.03E-02	1.37E-02	1.30E-02	6.03E-03	(1.50)	1.99E-03	Chi (10)	(0.89)	4.67E-03	3.49E-02	3.53E-02	1.14E-02	1.32E-02	6.10E-03	(1.20)	1.88E-03	Chi (12)	(0.82)	4.52E-03	3.16E-02	3.16E-02	9.71E-03	1.29E-02	5.95E-03	(1.00)	1.77E-03	Chi (16)	(0.71)	4.45E-03	2.82E-02	2.75E-02	7.89E-03	1.35E-02	6.08E-03	(0.75)	1.71E-03	Chi (24)	(0.58)	4.22E-03	2.35E-02	2.24E-02	5.66E-03	1.30E-02	5.71E-03	(0.50)	1.54E-03	Gamma (0.15)	(5.16)	6.00E-03	1.85E-01	1.97E-01	9.43E-02	2.91E-02	2.82E-02	(40.0)	2.99E-03	Gamma (1.2)	(1.83)	6.07E-03	7.89E-02	8.38E-02	3.65E-02	1.23E-02	7.27E-03	(5.00)	2.87E-03	Gamma (4.0)	(1.00)	4.95E-03	3.91E-02	3.99E-02	1.36E-02	1.29E-02	6.02E-03	(1.50)	2.07E-03	Chi (1)	(2.83)	k=2	4.35E-02	3.09E-01	3.35E-01	2.05E-01	4.31E-02	5.37E-02	(12.0)	2.55E-02	Chi (2)		(2.00)	6.02E-02	2.94E-01	3.25E-01	1.97E-01	7.20E-02	5.44E-02	(6.00)	3.53E-02		Chi (3)	(1.63)	7.21E-02	2.84E-01	3.18E-01	1.89E-01	9.10E-02	5.90E-02	(4.00)		4.24E-02	Chi (4)	(1.41)	8.05E-02	2.79E-01	3.14E-01	1.84E-01	1.04E-01	6.44E-02	(3.00)	4.72E-02	Chi (8)	(1.00)	1.02E-01	2.67E-01	3.05E-01	1.70E-01	1.33E-01	8.13E-02	(1.50)	6.01E-02	Chi (10)	(0.89)	1.09E-01	2.64E-01	3.02E-01	1.66E-01	1.43E-01	8.88E-02	(1.20)	6.73E-02	Chi (12)	(0.82)	1.15E-01	2.61E-01	3.00E-01	1.63E-01	1.51E-01	9.40E-02	(1.00)	7.28E-02	Chi (16)	(0.71)	1.24E-01	2.60E-01	2.99E-01	1.60E-01	1.66E-01	1.04E-01	(0.75)	6.42E-02	Chi (24)	(0.58)	1.32E-01	2.56E-01	2.95E-01	1.54E-01	1.80E-01	1.15E-01	(0.50)	7.81E-02	Gamma (0.15)	(5.16)	2.42E-02	3.15E-01	3.34E-01	1.96E-01	8.04E-02	7.84E-02	(40.0)	1.34E-02	Gamma (1.2)	(1.83)	6.66E-02	2.90E-01	3.23E-01	1.95E-01	8.15E-02	5.72E-02	(5.00)	3.94E-02	Gamma (4.0)	(1.00)	1.03E-01	2.66E-01	3.04E-01	1.70E-01	1.32E-01	8.13E-02	(1.50)	6.05E-02																					
Chi (8)	(1.00)		4.87E-03	3.93E-02	4.03E-02	1.37E-02	1.30E-02	6.03E-03																																																																																																																																																																																																																																	
	(1.50)		1.99E-03						Chi (10)	(0.89)	4.67E-03	3.49E-02	3.53E-02	1.14E-02	1.32E-02	6.10E-03	(1.20)	1.88E-03	Chi (12)	(0.82)	4.52E-03	3.16E-02	3.16E-02	9.71E-03	1.29E-02	5.95E-03	(1.00)	1.77E-03	Chi (16)	(0.71)	4.45E-03	2.82E-02	2.75E-02	7.89E-03	1.35E-02	6.08E-03	(0.75)	1.71E-03	Chi (24)	(0.58)	4.22E-03	2.35E-02	2.24E-02	5.66E-03	1.30E-02	5.71E-03	(0.50)	1.54E-03	Gamma (0.15)	(5.16)	6.00E-03	1.85E-01	1.97E-01	9.43E-02	2.91E-02	2.82E-02	(40.0)	2.99E-03	Gamma (1.2)	(1.83)	6.07E-03	7.89E-02	8.38E-02	3.65E-02	1.23E-02	7.27E-03	(5.00)	2.87E-03	Gamma (4.0)	(1.00)	4.95E-03	3.91E-02	3.99E-02	1.36E-02	1.29E-02	6.02E-03	(1.50)	2.07E-03	Chi (1)	(2.83)	k=2	4.35E-02	3.09E-01	3.35E-01	2.05E-01	4.31E-02	5.37E-02	(12.0)	2.55E-02	Chi (2)		(2.00)	6.02E-02	2.94E-01	3.25E-01	1.97E-01	7.20E-02	5.44E-02	(6.00)	3.53E-02		Chi (3)	(1.63)	7.21E-02	2.84E-01	3.18E-01	1.89E-01	9.10E-02	5.90E-02	(4.00)		4.24E-02	Chi (4)	(1.41)	8.05E-02	2.79E-01	3.14E-01	1.84E-01	1.04E-01	6.44E-02		(3.00)	4.72E-02	Chi (8)	(1.00)	1.02E-01	2.67E-01	3.05E-01	1.70E-01	1.33E-01	8.13E-02	(1.50)	6.01E-02	Chi (10)	(0.89)	1.09E-01	2.64E-01	3.02E-01	1.66E-01	1.43E-01	8.88E-02	(1.20)	6.73E-02	Chi (12)	(0.82)	1.15E-01	2.61E-01	3.00E-01	1.63E-01	1.51E-01	9.40E-02	(1.00)	7.28E-02	Chi (16)	(0.71)	1.24E-01	2.60E-01	2.99E-01	1.60E-01	1.66E-01	1.04E-01	(0.75)	6.42E-02	Chi (24)	(0.58)	1.32E-01	2.56E-01	2.95E-01	1.54E-01	1.80E-01	1.15E-01	(0.50)	7.81E-02	Gamma (0.15)	(5.16)	2.42E-02	3.15E-01	3.34E-01	1.96E-01	8.04E-02	7.84E-02	(40.0)	1.34E-02	Gamma (1.2)	(1.83)	6.66E-02	2.90E-01	3.23E-01	1.95E-01	8.15E-02	5.72E-02	(5.00)	3.94E-02	Gamma (4.0)	(1.00)	1.03E-01	2.66E-01	3.04E-01	1.70E-01	1.32E-01	8.13E-02	(1.50)	6.05E-02																														
Chi (10)	(0.89)		4.67E-03	3.49E-02	3.53E-02	1.14E-02	1.32E-02	6.10E-03																																																																																																																																																																																																																																	
	(1.20)		1.88E-03						Chi (12)	(0.82)	4.52E-03	3.16E-02	3.16E-02	9.71E-03	1.29E-02	5.95E-03	(1.00)	1.77E-03	Chi (16)	(0.71)	4.45E-03	2.82E-02	2.75E-02	7.89E-03	1.35E-02	6.08E-03	(0.75)	1.71E-03	Chi (24)	(0.58)	4.22E-03	2.35E-02	2.24E-02	5.66E-03	1.30E-02	5.71E-03	(0.50)	1.54E-03	Gamma (0.15)	(5.16)	6.00E-03	1.85E-01	1.97E-01	9.43E-02	2.91E-02	2.82E-02	(40.0)	2.99E-03	Gamma (1.2)	(1.83)	6.07E-03	7.89E-02	8.38E-02	3.65E-02	1.23E-02	7.27E-03	(5.00)	2.87E-03	Gamma (4.0)	(1.00)	4.95E-03	3.91E-02	3.99E-02	1.36E-02	1.29E-02	6.02E-03	(1.50)	2.07E-03	Chi (1)	(2.83)	k=2	4.35E-02	3.09E-01	3.35E-01	2.05E-01	4.31E-02	5.37E-02	(12.0)	2.55E-02	Chi (2)		(2.00)	6.02E-02	2.94E-01	3.25E-01	1.97E-01	7.20E-02	5.44E-02	(6.00)	3.53E-02		Chi (3)	(1.63)	7.21E-02	2.84E-01	3.18E-01	1.89E-01	9.10E-02	5.90E-02	(4.00)		4.24E-02	Chi (4)	(1.41)	8.05E-02	2.79E-01	3.14E-01	1.84E-01	1.04E-01	6.44E-02		(3.00)	4.72E-02	Chi (8)	(1.00)	1.02E-01	2.67E-01	3.05E-01	1.70E-01	1.33E-01		8.13E-02	(1.50)	6.01E-02	Chi (10)	(0.89)	1.09E-01	2.64E-01	3.02E-01	1.66E-01	1.43E-01	8.88E-02	(1.20)	6.73E-02	Chi (12)	(0.82)	1.15E-01	2.61E-01	3.00E-01	1.63E-01	1.51E-01	9.40E-02	(1.00)	7.28E-02	Chi (16)	(0.71)	1.24E-01	2.60E-01	2.99E-01	1.60E-01	1.66E-01	1.04E-01	(0.75)	6.42E-02	Chi (24)	(0.58)	1.32E-01	2.56E-01	2.95E-01	1.54E-01	1.80E-01	1.15E-01	(0.50)	7.81E-02	Gamma (0.15)	(5.16)	2.42E-02	3.15E-01	3.34E-01	1.96E-01	8.04E-02	7.84E-02	(40.0)	1.34E-02	Gamma (1.2)	(1.83)	6.66E-02	2.90E-01	3.23E-01	1.95E-01	8.15E-02	5.72E-02	(5.00)	3.94E-02	Gamma (4.0)	(1.00)	1.03E-01	2.66E-01	3.04E-01	1.70E-01	1.32E-01	8.13E-02	(1.50)	6.05E-02																																							
Chi (12)	(0.82)		4.52E-03	3.16E-02	3.16E-02	9.71E-03	1.29E-02	5.95E-03																																																																																																																																																																																																																																	
	(1.00)		1.77E-03						Chi (16)	(0.71)	4.45E-03	2.82E-02	2.75E-02	7.89E-03	1.35E-02	6.08E-03	(0.75)	1.71E-03	Chi (24)	(0.58)	4.22E-03	2.35E-02	2.24E-02	5.66E-03	1.30E-02	5.71E-03	(0.50)	1.54E-03	Gamma (0.15)	(5.16)	6.00E-03	1.85E-01	1.97E-01	9.43E-02	2.91E-02	2.82E-02	(40.0)	2.99E-03	Gamma (1.2)	(1.83)	6.07E-03	7.89E-02	8.38E-02	3.65E-02	1.23E-02	7.27E-03	(5.00)	2.87E-03	Gamma (4.0)	(1.00)	4.95E-03	3.91E-02	3.99E-02	1.36E-02	1.29E-02	6.02E-03	(1.50)	2.07E-03	Chi (1)	(2.83)	k=2	4.35E-02	3.09E-01	3.35E-01	2.05E-01	4.31E-02	5.37E-02	(12.0)	2.55E-02	Chi (2)		(2.00)	6.02E-02	2.94E-01	3.25E-01	1.97E-01	7.20E-02	5.44E-02	(6.00)	3.53E-02		Chi (3)	(1.63)	7.21E-02	2.84E-01	3.18E-01	1.89E-01	9.10E-02	5.90E-02	(4.00)		4.24E-02	Chi (4)	(1.41)	8.05E-02	2.79E-01	3.14E-01	1.84E-01	1.04E-01	6.44E-02		(3.00)	4.72E-02	Chi (8)	(1.00)	1.02E-01	2.67E-01	3.05E-01	1.70E-01	1.33E-01		8.13E-02	(1.50)	6.01E-02	Chi (10)	(0.89)	1.09E-01	2.64E-01	3.02E-01	1.66E-01		1.43E-01	8.88E-02	(1.20)	6.73E-02	Chi (12)	(0.82)	1.15E-01	2.61E-01	3.00E-01	1.63E-01	1.51E-01	9.40E-02	(1.00)	7.28E-02	Chi (16)	(0.71)	1.24E-01	2.60E-01	2.99E-01	1.60E-01	1.66E-01	1.04E-01	(0.75)	6.42E-02	Chi (24)	(0.58)	1.32E-01	2.56E-01	2.95E-01	1.54E-01	1.80E-01	1.15E-01	(0.50)	7.81E-02	Gamma (0.15)	(5.16)	2.42E-02	3.15E-01	3.34E-01	1.96E-01	8.04E-02	7.84E-02	(40.0)	1.34E-02	Gamma (1.2)	(1.83)	6.66E-02	2.90E-01	3.23E-01	1.95E-01	8.15E-02	5.72E-02	(5.00)	3.94E-02	Gamma (4.0)	(1.00)	1.03E-01	2.66E-01	3.04E-01	1.70E-01	1.32E-01	8.13E-02	(1.50)	6.05E-02																																																
Chi (16)	(0.71)		4.45E-03	2.82E-02	2.75E-02	7.89E-03	1.35E-02	6.08E-03																																																																																																																																																																																																																																	
	(0.75)		1.71E-03						Chi (24)	(0.58)	4.22E-03	2.35E-02	2.24E-02	5.66E-03	1.30E-02	5.71E-03	(0.50)	1.54E-03	Gamma (0.15)	(5.16)	6.00E-03	1.85E-01	1.97E-01	9.43E-02	2.91E-02	2.82E-02	(40.0)	2.99E-03	Gamma (1.2)	(1.83)	6.07E-03	7.89E-02	8.38E-02	3.65E-02	1.23E-02	7.27E-03	(5.00)	2.87E-03	Gamma (4.0)	(1.00)	4.95E-03	3.91E-02	3.99E-02	1.36E-02	1.29E-02	6.02E-03	(1.50)	2.07E-03	Chi (1)	(2.83)	k=2	4.35E-02	3.09E-01	3.35E-01	2.05E-01	4.31E-02	5.37E-02	(12.0)	2.55E-02	Chi (2)		(2.00)	6.02E-02	2.94E-01	3.25E-01	1.97E-01	7.20E-02	5.44E-02	(6.00)	3.53E-02		Chi (3)	(1.63)	7.21E-02	2.84E-01	3.18E-01	1.89E-01	9.10E-02	5.90E-02	(4.00)		4.24E-02	Chi (4)	(1.41)	8.05E-02	2.79E-01	3.14E-01	1.84E-01	1.04E-01	6.44E-02		(3.00)	4.72E-02	Chi (8)	(1.00)	1.02E-01	2.67E-01	3.05E-01	1.70E-01	1.33E-01		8.13E-02	(1.50)	6.01E-02	Chi (10)	(0.89)	1.09E-01	2.64E-01	3.02E-01	1.66E-01		1.43E-01	8.88E-02	(1.20)	6.73E-02	Chi (12)	(0.82)	1.15E-01	2.61E-01	3.00E-01		1.63E-01	1.51E-01	9.40E-02	(1.00)	7.28E-02	Chi (16)	(0.71)	1.24E-01	2.60E-01	2.99E-01	1.60E-01	1.66E-01	1.04E-01	(0.75)	6.42E-02	Chi (24)	(0.58)	1.32E-01	2.56E-01	2.95E-01	1.54E-01	1.80E-01	1.15E-01	(0.50)	7.81E-02	Gamma (0.15)	(5.16)	2.42E-02	3.15E-01	3.34E-01	1.96E-01	8.04E-02	7.84E-02	(40.0)	1.34E-02	Gamma (1.2)	(1.83)	6.66E-02	2.90E-01	3.23E-01	1.95E-01	8.15E-02	5.72E-02	(5.00)	3.94E-02	Gamma (4.0)	(1.00)	1.03E-01	2.66E-01	3.04E-01	1.70E-01	1.32E-01	8.13E-02	(1.50)	6.05E-02																																																									
Chi (24)	(0.58)		4.22E-03	2.35E-02	2.24E-02	5.66E-03	1.30E-02	5.71E-03																																																																																																																																																																																																																																	
	(0.50)		1.54E-03						Gamma (0.15)	(5.16)	6.00E-03	1.85E-01	1.97E-01	9.43E-02	2.91E-02	2.82E-02	(40.0)	2.99E-03	Gamma (1.2)	(1.83)	6.07E-03	7.89E-02	8.38E-02	3.65E-02	1.23E-02	7.27E-03	(5.00)	2.87E-03	Gamma (4.0)	(1.00)	4.95E-03	3.91E-02	3.99E-02	1.36E-02	1.29E-02	6.02E-03	(1.50)	2.07E-03	Chi (1)	(2.83)	k=2	4.35E-02	3.09E-01	3.35E-01	2.05E-01	4.31E-02	5.37E-02	(12.0)	2.55E-02	Chi (2)		(2.00)	6.02E-02	2.94E-01	3.25E-01	1.97E-01	7.20E-02	5.44E-02	(6.00)	3.53E-02		Chi (3)	(1.63)	7.21E-02	2.84E-01	3.18E-01	1.89E-01	9.10E-02	5.90E-02	(4.00)		4.24E-02	Chi (4)	(1.41)	8.05E-02	2.79E-01	3.14E-01	1.84E-01	1.04E-01	6.44E-02		(3.00)	4.72E-02	Chi (8)	(1.00)	1.02E-01	2.67E-01	3.05E-01	1.70E-01	1.33E-01		8.13E-02	(1.50)	6.01E-02	Chi (10)	(0.89)	1.09E-01	2.64E-01	3.02E-01	1.66E-01		1.43E-01	8.88E-02	(1.20)	6.73E-02	Chi (12)	(0.82)	1.15E-01	2.61E-01	3.00E-01		1.63E-01	1.51E-01	9.40E-02	(1.00)	7.28E-02	Chi (16)	(0.71)	1.24E-01	2.60E-01		2.99E-01	1.60E-01	1.66E-01	1.04E-01	(0.75)	6.42E-02	Chi (24)	(0.58)	1.32E-01	2.56E-01	2.95E-01	1.54E-01	1.80E-01	1.15E-01	(0.50)	7.81E-02	Gamma (0.15)	(5.16)	2.42E-02	3.15E-01	3.34E-01	1.96E-01	8.04E-02	7.84E-02	(40.0)	1.34E-02	Gamma (1.2)	(1.83)	6.66E-02	2.90E-01	3.23E-01	1.95E-01	8.15E-02	5.72E-02	(5.00)	3.94E-02	Gamma (4.0)	(1.00)	1.03E-01	2.66E-01	3.04E-01	1.70E-01	1.32E-01	8.13E-02	(1.50)	6.05E-02																																																																		
Gamma (0.15)	(5.16)		6.00E-03	1.85E-01	1.97E-01	9.43E-02	2.91E-02	2.82E-02																																																																																																																																																																																																																																	
	(40.0)		2.99E-03						Gamma (1.2)	(1.83)	6.07E-03	7.89E-02	8.38E-02	3.65E-02	1.23E-02	7.27E-03	(5.00)	2.87E-03	Gamma (4.0)	(1.00)	4.95E-03	3.91E-02	3.99E-02	1.36E-02	1.29E-02	6.02E-03	(1.50)	2.07E-03	Chi (1)	(2.83)	k=2	4.35E-02	3.09E-01	3.35E-01	2.05E-01	4.31E-02	5.37E-02	(12.0)	2.55E-02	Chi (2)		(2.00)	6.02E-02	2.94E-01	3.25E-01	1.97E-01	7.20E-02	5.44E-02	(6.00)	3.53E-02		Chi (3)	(1.63)	7.21E-02	2.84E-01	3.18E-01	1.89E-01	9.10E-02	5.90E-02	(4.00)		4.24E-02	Chi (4)	(1.41)	8.05E-02	2.79E-01	3.14E-01	1.84E-01	1.04E-01	6.44E-02		(3.00)	4.72E-02	Chi (8)	(1.00)	1.02E-01	2.67E-01	3.05E-01	1.70E-01	1.33E-01		8.13E-02	(1.50)	6.01E-02	Chi (10)	(0.89)	1.09E-01	2.64E-01	3.02E-01	1.66E-01		1.43E-01	8.88E-02	(1.20)	6.73E-02	Chi (12)	(0.82)	1.15E-01	2.61E-01	3.00E-01		1.63E-01	1.51E-01	9.40E-02	(1.00)	7.28E-02	Chi (16)	(0.71)	1.24E-01	2.60E-01		2.99E-01	1.60E-01	1.66E-01	1.04E-01	(0.75)	6.42E-02	Chi (24)	(0.58)	1.32E-01		2.56E-01	2.95E-01	1.54E-01	1.80E-01	1.15E-01	(0.50)	7.81E-02	Gamma (0.15)	(5.16)	2.42E-02	3.15E-01	3.34E-01	1.96E-01	8.04E-02	7.84E-02	(40.0)	1.34E-02	Gamma (1.2)	(1.83)	6.66E-02	2.90E-01	3.23E-01	1.95E-01	8.15E-02	5.72E-02	(5.00)	3.94E-02	Gamma (4.0)	(1.00)	1.03E-01	2.66E-01	3.04E-01	1.70E-01	1.32E-01	8.13E-02	(1.50)	6.05E-02																																																																											
Gamma (1.2)	(1.83)	6.07E-03	7.89E-02	8.38E-02	3.65E-02	1.23E-02	7.27E-03																																																																																																																																																																																																																																		
	(5.00)	2.87E-03						Gamma (4.0)	(1.00)	4.95E-03	3.91E-02	3.99E-02	1.36E-02	1.29E-02	6.02E-03	(1.50)	2.07E-03	Chi (1)	(2.83)	k=2	4.35E-02	3.09E-01	3.35E-01	2.05E-01	4.31E-02	5.37E-02	(12.0)	2.55E-02	Chi (2)	(2.00)		6.02E-02	2.94E-01	3.25E-01	1.97E-01	7.20E-02	5.44E-02	(6.00)	3.53E-02	Chi (3)		(1.63)	7.21E-02	2.84E-01	3.18E-01	1.89E-01	9.10E-02	5.90E-02	(4.00)	4.24E-02		Chi (4)	(1.41)	8.05E-02	2.79E-01	3.14E-01	1.84E-01	1.04E-01	6.44E-02	(3.00)		4.72E-02	Chi (8)	(1.00)	1.02E-01	2.67E-01	3.05E-01	1.70E-01	1.33E-01	8.13E-02		(1.50)	6.01E-02	Chi (10)	(0.89)	1.09E-01	2.64E-01	3.02E-01	1.66E-01	1.43E-01		8.88E-02	(1.20)	6.73E-02	Chi (12)	(0.82)	1.15E-01	2.61E-01	3.00E-01	1.63E-01		1.51E-01	9.40E-02	(1.00)	7.28E-02	Chi (16)	(0.71)	1.24E-01	2.60E-01	2.99E-01		1.60E-01	1.66E-01	1.04E-01	(0.75)	6.42E-02	Chi (24)	(0.58)	1.32E-01	2.56E-01		2.95E-01	1.54E-01	1.80E-01	1.15E-01	(0.50)	7.81E-02	Gamma (0.15)	(5.16)	2.42E-02	3.15E-01	3.34E-01	1.96E-01	8.04E-02	7.84E-02	(40.0)	1.34E-02	Gamma (1.2)	(1.83)	6.66E-02	2.90E-01	3.23E-01	1.95E-01	8.15E-02	5.72E-02	(5.00)	3.94E-02	Gamma (4.0)	(1.00)	1.03E-01	2.66E-01	3.04E-01	1.70E-01	1.32E-01	8.13E-02	(1.50)	6.05E-02																																																																																						
Gamma (4.0)	(1.00)	4.95E-03	3.91E-02	3.99E-02	1.36E-02	1.29E-02	6.02E-03																																																																																																																																																																																																																																		
	(1.50)	2.07E-03						Chi (1)	(2.83)	k=2	4.35E-02	3.09E-01	3.35E-01	2.05E-01	4.31E-02	5.37E-02	(12.0)	2.55E-02	Chi (2)		(2.00)	6.02E-02	2.94E-01	3.25E-01	1.97E-01	7.20E-02	5.44E-02	(6.00)	3.53E-02	Chi (3)		(1.63)	7.21E-02	2.84E-01	3.18E-01	1.89E-01	9.10E-02	5.90E-02	(4.00)	4.24E-02		Chi (4)	(1.41)	8.05E-02	2.79E-01	3.14E-01	1.84E-01	1.04E-01	6.44E-02	(3.00)		4.72E-02	Chi (8)	(1.00)	1.02E-01	2.67E-01	3.05E-01	1.70E-01	1.33E-01	8.13E-02		(1.50)	6.01E-02	Chi (10)	(0.89)	1.09E-01	2.64E-01	3.02E-01	1.66E-01	1.43E-01		8.88E-02	(1.20)	6.73E-02	Chi (12)	(0.82)	1.15E-01	2.61E-01	3.00E-01	1.63E-01		1.51E-01	9.40E-02	(1.00)	7.28E-02	Chi (16)	(0.71)	1.24E-01	2.60E-01	2.99E-01		1.60E-01	1.66E-01	1.04E-01	(0.75)	6.42E-02	Chi (24)	(0.58)	1.32E-01	2.56E-01		2.95E-01	1.54E-01	1.80E-01	1.15E-01	(0.50)	7.81E-02	Gamma (0.15)	(5.16)	2.42E-02	3.15E-01	3.34E-01	1.96E-01	8.04E-02	7.84E-02	(40.0)	1.34E-02	Gamma (1.2)	(1.83)	6.66E-02	2.90E-01	3.23E-01	1.95E-01	8.15E-02	5.72E-02	(5.00)	3.94E-02	Gamma (4.0)	(1.00)	1.03E-01	2.66E-01	3.04E-01	1.70E-01	1.32E-01	8.13E-02	(1.50)	6.05E-02																																																																																																
Chi (1)	(2.83)	k=2	4.35E-02	3.09E-01	3.35E-01	2.05E-01	4.31E-02		5.37E-02																																																																																																																																																																																																																																
	(12.0)		2.55E-02					Chi (2)			(2.00)	6.02E-02	2.94E-01	3.25E-01	1.97E-01	7.20E-02	5.44E-02	(6.00)	3.53E-02		Chi (3)	(1.63)	7.21E-02	2.84E-01	3.18E-01	1.89E-01	9.10E-02	5.90E-02	(4.00)	4.24E-02		Chi (4)	(1.41)	8.05E-02	2.79E-01	3.14E-01	1.84E-01	1.04E-01	6.44E-02	(3.00)		4.72E-02	Chi (8)	(1.00)	1.02E-01	2.67E-01	3.05E-01	1.70E-01	1.33E-01	8.13E-02		(1.50)	6.01E-02	Chi (10)	(0.89)	1.09E-01	2.64E-01	3.02E-01	1.66E-01	1.43E-01		8.88E-02	(1.20)	6.73E-02	Chi (12)	(0.82)	1.15E-01	2.61E-01	3.00E-01	1.63E-01		1.51E-01	9.40E-02	(1.00)	7.28E-02	Chi (16)	(0.71)	1.24E-01	2.60E-01	2.99E-01		1.60E-01	1.66E-01	1.04E-01	(0.75)	6.42E-02	Chi (24)	(0.58)	1.32E-01	2.56E-01		2.95E-01	1.54E-01	1.80E-01	1.15E-01	(0.50)	7.81E-02	Gamma (0.15)	(5.16)	2.42E-02	3.15E-01	3.34E-01	1.96E-01	8.04E-02	7.84E-02	(40.0)	1.34E-02	Gamma (1.2)	(1.83)	6.66E-02	2.90E-01	3.23E-01	1.95E-01	8.15E-02	5.72E-02	(5.00)	3.94E-02	Gamma (4.0)	(1.00)	1.03E-01	2.66E-01	3.04E-01	1.70E-01	1.32E-01	8.13E-02	(1.50)	6.05E-02																																																																																																										
Chi (2)	(2.00)		6.02E-02	2.94E-01	3.25E-01	1.97E-01	7.20E-02		5.44E-02																																																																																																																																																																																																																																
	(6.00)		3.53E-02					Chi (3)			(1.63)	7.21E-02	2.84E-01	3.18E-01	1.89E-01	9.10E-02	5.90E-02	(4.00)	4.24E-02		Chi (4)	(1.41)	8.05E-02	2.79E-01	3.14E-01	1.84E-01	1.04E-01	6.44E-02	(3.00)	4.72E-02		Chi (8)	(1.00)	1.02E-01	2.67E-01	3.05E-01	1.70E-01	1.33E-01	8.13E-02	(1.50)		6.01E-02	Chi (10)	(0.89)	1.09E-01	2.64E-01	3.02E-01	1.66E-01	1.43E-01	8.88E-02		(1.20)	6.73E-02	Chi (12)	(0.82)	1.15E-01	2.61E-01	3.00E-01	1.63E-01	1.51E-01		9.40E-02	(1.00)	7.28E-02	Chi (16)	(0.71)	1.24E-01	2.60E-01	2.99E-01	1.60E-01		1.66E-01	1.04E-01	(0.75)	6.42E-02	Chi (24)	(0.58)	1.32E-01	2.56E-01	2.95E-01		1.54E-01	1.80E-01	1.15E-01	(0.50)	7.81E-02	Gamma (0.15)	(5.16)	2.42E-02	3.15E-01	3.34E-01	1.96E-01	8.04E-02	7.84E-02	(40.0)	1.34E-02	Gamma (1.2)	(1.83)	6.66E-02	2.90E-01	3.23E-01	1.95E-01	8.15E-02	5.72E-02	(5.00)	3.94E-02	Gamma (4.0)	(1.00)	1.03E-01	2.66E-01	3.04E-01	1.70E-01	1.32E-01	8.13E-02	(1.50)	6.05E-02																																																																																																																					
Chi (3)	(1.63)		7.21E-02	2.84E-01	3.18E-01	1.89E-01	9.10E-02		5.90E-02																																																																																																																																																																																																																																
	(4.00)		4.24E-02					Chi (4)			(1.41)	8.05E-02	2.79E-01	3.14E-01	1.84E-01	1.04E-01	6.44E-02	(3.00)	4.72E-02		Chi (8)	(1.00)	1.02E-01	2.67E-01	3.05E-01	1.70E-01	1.33E-01	8.13E-02	(1.50)	6.01E-02		Chi (10)	(0.89)	1.09E-01	2.64E-01	3.02E-01	1.66E-01	1.43E-01	8.88E-02	(1.20)		6.73E-02	Chi (12)	(0.82)	1.15E-01	2.61E-01	3.00E-01	1.63E-01	1.51E-01	9.40E-02		(1.00)	7.28E-02	Chi (16)	(0.71)	1.24E-01	2.60E-01	2.99E-01	1.60E-01	1.66E-01		1.04E-01	(0.75)	6.42E-02	Chi (24)	(0.58)	1.32E-01	2.56E-01	2.95E-01	1.54E-01		1.80E-01	1.15E-01	(0.50)	7.81E-02	Gamma (0.15)	(5.16)	2.42E-02	3.15E-01	3.34E-01	1.96E-01	8.04E-02	7.84E-02	(40.0)	1.34E-02	Gamma (1.2)	(1.83)	6.66E-02	2.90E-01	3.23E-01	1.95E-01	8.15E-02	5.72E-02	(5.00)	3.94E-02	Gamma (4.0)	(1.00)	1.03E-01	2.66E-01	3.04E-01	1.70E-01	1.32E-01	8.13E-02	(1.50)	6.05E-02																																																																																																																																
Chi (4)	(1.41)		8.05E-02	2.79E-01	3.14E-01	1.84E-01	1.04E-01		6.44E-02																																																																																																																																																																																																																																
	(3.00)		4.72E-02					Chi (8)			(1.00)	1.02E-01	2.67E-01	3.05E-01	1.70E-01	1.33E-01	8.13E-02	(1.50)	6.01E-02		Chi (10)	(0.89)	1.09E-01	2.64E-01	3.02E-01	1.66E-01	1.43E-01	8.88E-02	(1.20)	6.73E-02		Chi (12)	(0.82)	1.15E-01	2.61E-01	3.00E-01	1.63E-01	1.51E-01	9.40E-02	(1.00)		7.28E-02	Chi (16)	(0.71)	1.24E-01	2.60E-01	2.99E-01	1.60E-01	1.66E-01	1.04E-01		(0.75)	6.42E-02	Chi (24)	(0.58)	1.32E-01	2.56E-01	2.95E-01	1.54E-01	1.80E-01		1.15E-01	(0.50)	7.81E-02	Gamma (0.15)	(5.16)	2.42E-02	3.15E-01	3.34E-01	1.96E-01	8.04E-02	7.84E-02	(40.0)	1.34E-02	Gamma (1.2)	(1.83)	6.66E-02	2.90E-01	3.23E-01	1.95E-01	8.15E-02	5.72E-02	(5.00)	3.94E-02	Gamma (4.0)	(1.00)	1.03E-01	2.66E-01	3.04E-01	1.70E-01	1.32E-01	8.13E-02	(1.50)	6.05E-02																																																																																																																																											
Chi (8)	(1.00)		1.02E-01	2.67E-01	3.05E-01	1.70E-01	1.33E-01		8.13E-02																																																																																																																																																																																																																																
	(1.50)		6.01E-02					Chi (10)			(0.89)	1.09E-01	2.64E-01	3.02E-01	1.66E-01	1.43E-01	8.88E-02	(1.20)	6.73E-02		Chi (12)	(0.82)	1.15E-01	2.61E-01	3.00E-01	1.63E-01	1.51E-01	9.40E-02	(1.00)	7.28E-02		Chi (16)	(0.71)	1.24E-01	2.60E-01	2.99E-01	1.60E-01	1.66E-01	1.04E-01	(0.75)		6.42E-02	Chi (24)	(0.58)	1.32E-01	2.56E-01	2.95E-01	1.54E-01	1.80E-01	1.15E-01		(0.50)	7.81E-02	Gamma (0.15)	(5.16)	2.42E-02	3.15E-01	3.34E-01	1.96E-01	8.04E-02	7.84E-02	(40.0)	1.34E-02	Gamma (1.2)	(1.83)	6.66E-02	2.90E-01	3.23E-01	1.95E-01	8.15E-02	5.72E-02	(5.00)	3.94E-02	Gamma (4.0)	(1.00)	1.03E-01	2.66E-01	3.04E-01	1.70E-01	1.32E-01	8.13E-02	(1.50)	6.05E-02																																																																																																																																																						
Chi (10)	(0.89)		1.09E-01	2.64E-01	3.02E-01	1.66E-01	1.43E-01		8.88E-02																																																																																																																																																																																																																																
	(1.20)		6.73E-02					Chi (12)			(0.82)	1.15E-01	2.61E-01	3.00E-01	1.63E-01	1.51E-01	9.40E-02	(1.00)	7.28E-02		Chi (16)	(0.71)	1.24E-01	2.60E-01	2.99E-01	1.60E-01	1.66E-01	1.04E-01	(0.75)	6.42E-02		Chi (24)	(0.58)	1.32E-01	2.56E-01	2.95E-01	1.54E-01	1.80E-01	1.15E-01	(0.50)		7.81E-02	Gamma (0.15)	(5.16)	2.42E-02	3.15E-01	3.34E-01	1.96E-01	8.04E-02	7.84E-02	(40.0)	1.34E-02	Gamma (1.2)	(1.83)	6.66E-02	2.90E-01	3.23E-01	1.95E-01	8.15E-02	5.72E-02	(5.00)	3.94E-02	Gamma (4.0)	(1.00)	1.03E-01	2.66E-01	3.04E-01	1.70E-01	1.32E-01	8.13E-02	(1.50)	6.05E-02																																																																																																																																																																	
Chi (12)	(0.82)		1.15E-01	2.61E-01	3.00E-01	1.63E-01	1.51E-01		9.40E-02																																																																																																																																																																																																																																
	(1.00)		7.28E-02					Chi (16)			(0.71)	1.24E-01	2.60E-01	2.99E-01	1.60E-01	1.66E-01	1.04E-01	(0.75)	6.42E-02		Chi (24)	(0.58)	1.32E-01	2.56E-01	2.95E-01	1.54E-01	1.80E-01	1.15E-01	(0.50)	7.81E-02		Gamma (0.15)	(5.16)	2.42E-02	3.15E-01	3.34E-01	1.96E-01	8.04E-02	7.84E-02	(40.0)	1.34E-02	Gamma (1.2)	(1.83)	6.66E-02	2.90E-01	3.23E-01	1.95E-01	8.15E-02	5.72E-02	(5.00)	3.94E-02	Gamma (4.0)	(1.00)	1.03E-01	2.66E-01	3.04E-01	1.70E-01	1.32E-01	8.13E-02	(1.50)	6.05E-02																																																																																																																																																																												
Chi (16)	(0.71)		1.24E-01	2.60E-01	2.99E-01	1.60E-01	1.66E-01		1.04E-01																																																																																																																																																																																																																																
	(0.75)		6.42E-02					Chi (24)			(0.58)	1.32E-01	2.56E-01	2.95E-01	1.54E-01	1.80E-01	1.15E-01	(0.50)	7.81E-02		Gamma (0.15)	(5.16)	2.42E-02	3.15E-01	3.34E-01	1.96E-01	8.04E-02	7.84E-02	(40.0)	1.34E-02	Gamma (1.2)	(1.83)	6.66E-02	2.90E-01	3.23E-01	1.95E-01	8.15E-02	5.72E-02	(5.00)	3.94E-02	Gamma (4.0)	(1.00)	1.03E-01	2.66E-01	3.04E-01	1.70E-01	1.32E-01	8.13E-02	(1.50)	6.05E-02																																																																																																																																																																																							
Chi (24)	(0.58)		1.32E-01	2.56E-01	2.95E-01	1.54E-01	1.80E-01		1.15E-01																																																																																																																																																																																																																																
	(0.50)		7.81E-02					Gamma (0.15)			(5.16)	2.42E-02	3.15E-01	3.34E-01	1.96E-01	8.04E-02	7.84E-02	(40.0)	1.34E-02	Gamma (1.2)	(1.83)	6.66E-02	2.90E-01	3.23E-01	1.95E-01	8.15E-02	5.72E-02	(5.00)	3.94E-02	Gamma (4.0)	(1.00)	1.03E-01	2.66E-01	3.04E-01	1.70E-01	1.32E-01	8.13E-02	(1.50)	6.05E-02																																																																																																																																																																																																		
Gamma (0.15)	(5.16)		2.42E-02	3.15E-01	3.34E-01	1.96E-01	8.04E-02		7.84E-02																																																																																																																																																																																																																																
	(40.0)		1.34E-02					Gamma (1.2)		(1.83)	6.66E-02	2.90E-01	3.23E-01	1.95E-01	8.15E-02	5.72E-02	(5.00)	3.94E-02	Gamma (4.0)	(1.00)	1.03E-01	2.66E-01	3.04E-01	1.70E-01	1.32E-01	8.13E-02	(1.50)	6.05E-02																																																																																																																																																																																																													
Gamma (1.2)	(1.83)	6.66E-02	2.90E-01	3.23E-01	1.95E-01	8.15E-02	5.72E-02																																																																																																																																																																																																																																		
	(5.00)	3.94E-02						Gamma (4.0)	(1.00)	1.03E-01	2.66E-01	3.04E-01	1.70E-01	1.32E-01	8.13E-02	(1.50)	6.05E-02																																																																																																																																																																																																																								
Gamma (4.0)	(1.00)	1.03E-01	2.66E-01	3.04E-01	1.70E-01	1.32E-01	8.13E-02																																																																																																																																																																																																																																		
	(1.50)	6.05E-02																																																																																																																																																																																																																																							

A ROBUST ONE-SIDED VARIABILITY CONTROL CHART

Table 5 (continued): Power Comparison Study for Skewed Distributions ($n = 10$)

Distribution	(skewness) (kurtosis)	k	Combined Sample	R-chart	S-chart	S2-chart	WV-chart	SC-chart																																																																																																																																																																																																																																	
Normal (0,1)	(0.00)	k=3	4.36E-01	5.49E-01	6.17E-01	4.38E-01	5.28E-01	4.54E-01																																																																																																																																																																																																																																	
	(0.00)		3.29E-01						Exponential (1)	(2.00)	1.53E-01	4.72E-01	5.17E-01	3.63E-01	1.59E-01	1.29E-01	(6.00)	9.96E-02	Lognormal (0,1)	(6.18)	5.36E-02	3.91E-01	4.19E-01	2.65E-01	1.08E-01	1.02E-01	(110)	3.19E-02	Weibull (0.5)	(6.62)	4.13E-02	3.78E-01	4.00E-01	2.48E-01	1.16E-01	1.14E-01	(84.72)	2.42E-02	Weibull (0.85)	(0.12)	8.54E-02	4.37E-01	4.72E-01	3.20E-01	1.01E-01	1.07E-01	(1.23)	5.28E-02	Weibull (0.75)	(2.56)	1.10E-01	4.53E-01	4.92E-01	3.40E-01	1.20E-01	1.14E-01	(10.35)	7.00E-02	Weibull (1)	(2.00)	1.53E-01	4.72E-01	5.17E-01	3.63E-01	1.59E-01	1.29E-01	(6.00)	9.96E-02	Weibull (1.2)	(1.52)	2.12E-01	4.93E-01	5.44E-01	3.85E-01	2.14E-01	1.56E-01	(3.24)	1.43E-01	Weibull (1.5)	(1.07)	2.96E-01	5.17E-01	5.74E-01	4.07E-01	2.91E-01	2.09E-01	(1.39)	2.08E-01	Weibull (2.0)	(0.63)	4.03E-01	5.44E-01	6.07E-01	4.29E-01	4.12E-01	3.10E-01	(0.25)	2.99E-01	Weibull (3.5)	(0.03)	4.93E-01	5.65E-01	6.30E-01	4.47E-01	5.45E-01	4.63E-01	(-0.29)	3.88E-01	Barnes 2	(1.75)	2.02E-01	4.94E-01	5.40E-01	3.87E-01	1.46E-01	1.39E-01	(3.75)	1.40E-01	Normal (0,1)	(0.00)	k=4	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.21E-01	6.60E-01	(0.00)	5.30E-01	Exponential (1)	(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01	Lognormal (0,1)	(6.18)	8.59E-02	4.80E-01	5.13E-01	3.43E-01	1.49E-01	1.41E-01	(110)	5.37E-02	Weibull (0.5)	(6.62)	6.24E-02	4.44E-01	4.70E-01	3.07E-01	1.53E-01	1.51E-01	(84.72)	3.82E-02	Weibull (0.85)	(0.12)	1.40E-01	5.38E-01	5.76E-01	4.21E-01	1.53E-01	1.62E-01	(1.23)	9.13E-02	Weibull (0.75)	(2.56)	1.83E-01	5.67E-01	6.09E-01	4.56E-01	1.86E-01	1.78E-01	(10.35)	1.23E-01	Weibull (1)	(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01	Weibull (1.2)	(1.52)	3.47E-01	6.44E-01	6.94E-01	5.46E-01	3.41E-01	2.67E-01	(3.24)	2.54E-01	Weibull (1.5)	(1.07)	4.70E-01	6.90E-01	7.42E-01	5.97E-01	4.62E-01	3.64E-01	(1.39)	3.63E-01	Weibull (2.0)	(0.63)	6.04E-01	7.36E-01	7.87E-01	6.47E-01	6.20E-01	5.18E-01	(0.25)	4.96E-01	Weibull (3.5)	(0.03)	6.91E-01	7.60E-01	8.12E-01	6.80E-01	7.45E-01	6.80E-01	(-0.29)	5.96E-01	Barnes 2	(1.75)	3.19E-01	6.28E-01
Exponential (1)	(2.00)		1.53E-01	4.72E-01	5.17E-01	3.63E-01	1.59E-01	1.29E-01																																																																																																																																																																																																																																	
	(6.00)		9.96E-02						Lognormal (0,1)	(6.18)	5.36E-02	3.91E-01	4.19E-01	2.65E-01	1.08E-01	1.02E-01	(110)	3.19E-02	Weibull (0.5)	(6.62)	4.13E-02	3.78E-01	4.00E-01	2.48E-01	1.16E-01	1.14E-01	(84.72)	2.42E-02	Weibull (0.85)	(0.12)	8.54E-02	4.37E-01	4.72E-01	3.20E-01	1.01E-01	1.07E-01	(1.23)	5.28E-02	Weibull (0.75)	(2.56)	1.10E-01	4.53E-01	4.92E-01	3.40E-01	1.20E-01	1.14E-01	(10.35)	7.00E-02	Weibull (1)	(2.00)	1.53E-01	4.72E-01	5.17E-01	3.63E-01	1.59E-01	1.29E-01	(6.00)	9.96E-02	Weibull (1.2)	(1.52)	2.12E-01	4.93E-01	5.44E-01	3.85E-01	2.14E-01	1.56E-01	(3.24)	1.43E-01	Weibull (1.5)	(1.07)	2.96E-01	5.17E-01	5.74E-01	4.07E-01	2.91E-01	2.09E-01	(1.39)	2.08E-01	Weibull (2.0)	(0.63)	4.03E-01	5.44E-01	6.07E-01	4.29E-01	4.12E-01	3.10E-01	(0.25)	2.99E-01	Weibull (3.5)	(0.03)	4.93E-01	5.65E-01	6.30E-01	4.47E-01	5.45E-01	4.63E-01	(-0.29)	3.88E-01	Barnes 2	(1.75)	2.02E-01	4.94E-01	5.40E-01	3.87E-01	1.46E-01	1.39E-01	(3.75)	1.40E-01	Normal (0,1)	(0.00)	k=4	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.21E-01	6.60E-01	(0.00)	5.30E-01	Exponential (1)		(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01	Lognormal (0,1)	(6.18)	8.59E-02	4.80E-01	5.13E-01	3.43E-01	1.49E-01	1.41E-01	(110)	5.37E-02	Weibull (0.5)	(6.62)	6.24E-02	4.44E-01	4.70E-01	3.07E-01	1.53E-01	1.51E-01	(84.72)	3.82E-02	Weibull (0.85)	(0.12)	1.40E-01	5.38E-01	5.76E-01	4.21E-01	1.53E-01	1.62E-01	(1.23)	9.13E-02	Weibull (0.75)	(2.56)	1.83E-01	5.67E-01	6.09E-01	4.56E-01	1.86E-01	1.78E-01	(10.35)	1.23E-01	Weibull (1)	(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01	Weibull (1.2)	(1.52)	3.47E-01	6.44E-01	6.94E-01	5.46E-01	3.41E-01	2.67E-01	(3.24)	2.54E-01	Weibull (1.5)	(1.07)	4.70E-01	6.90E-01	7.42E-01	5.97E-01	4.62E-01	3.64E-01	(1.39)	3.63E-01	Weibull (2.0)	(0.63)	6.04E-01	7.36E-01	7.87E-01	6.47E-01	6.20E-01	5.18E-01	(0.25)	4.96E-01	Weibull (3.5)	(0.03)	6.91E-01	7.60E-01	8.12E-01	6.80E-01	7.45E-01	6.80E-01	(-0.29)	5.96E-01	Barnes 2	(1.75)	3.19E-01	6.28E-01	6.74E-01	5.33E-01	2.46E-01	2.39E-01	(3.75)	2.37E-01			
Lognormal (0,1)	(6.18)		5.36E-02	3.91E-01	4.19E-01	2.65E-01	1.08E-01	1.02E-01																																																																																																																																																																																																																																	
	(110)		3.19E-02						Weibull (0.5)	(6.62)	4.13E-02	3.78E-01	4.00E-01	2.48E-01	1.16E-01	1.14E-01	(84.72)	2.42E-02	Weibull (0.85)	(0.12)	8.54E-02	4.37E-01	4.72E-01	3.20E-01	1.01E-01	1.07E-01	(1.23)	5.28E-02	Weibull (0.75)	(2.56)	1.10E-01	4.53E-01	4.92E-01	3.40E-01	1.20E-01	1.14E-01	(10.35)	7.00E-02	Weibull (1)	(2.00)	1.53E-01	4.72E-01	5.17E-01	3.63E-01	1.59E-01	1.29E-01	(6.00)	9.96E-02	Weibull (1.2)	(1.52)	2.12E-01	4.93E-01	5.44E-01	3.85E-01	2.14E-01	1.56E-01	(3.24)	1.43E-01	Weibull (1.5)	(1.07)	2.96E-01	5.17E-01	5.74E-01	4.07E-01	2.91E-01	2.09E-01	(1.39)	2.08E-01	Weibull (2.0)	(0.63)	4.03E-01	5.44E-01	6.07E-01	4.29E-01	4.12E-01	3.10E-01	(0.25)	2.99E-01	Weibull (3.5)	(0.03)	4.93E-01	5.65E-01	6.30E-01	4.47E-01	5.45E-01	4.63E-01	(-0.29)	3.88E-01	Barnes 2	(1.75)	2.02E-01	4.94E-01	5.40E-01	3.87E-01	1.46E-01	1.39E-01	(3.75)	1.40E-01	Normal (0,1)	(0.00)	k=4	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.21E-01	6.60E-01	(0.00)	5.30E-01	Exponential (1)		(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01		Lognormal (0,1)	(6.18)	8.59E-02	4.80E-01	5.13E-01	3.43E-01	1.49E-01	1.41E-01	(110)	5.37E-02	Weibull (0.5)	(6.62)	6.24E-02	4.44E-01	4.70E-01	3.07E-01	1.53E-01	1.51E-01	(84.72)	3.82E-02	Weibull (0.85)	(0.12)	1.40E-01	5.38E-01	5.76E-01	4.21E-01	1.53E-01	1.62E-01	(1.23)	9.13E-02	Weibull (0.75)	(2.56)	1.83E-01	5.67E-01	6.09E-01	4.56E-01	1.86E-01	1.78E-01	(10.35)	1.23E-01	Weibull (1)	(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01	Weibull (1.2)	(1.52)	3.47E-01	6.44E-01	6.94E-01	5.46E-01	3.41E-01	2.67E-01	(3.24)	2.54E-01	Weibull (1.5)	(1.07)	4.70E-01	6.90E-01	7.42E-01	5.97E-01	4.62E-01	3.64E-01	(1.39)	3.63E-01	Weibull (2.0)	(0.63)	6.04E-01	7.36E-01	7.87E-01	6.47E-01	6.20E-01	5.18E-01	(0.25)	4.96E-01	Weibull (3.5)	(0.03)	6.91E-01	7.60E-01	8.12E-01	6.80E-01	7.45E-01	6.80E-01	(-0.29)	5.96E-01	Barnes 2	(1.75)	3.19E-01	6.28E-01	6.74E-01	5.33E-01	2.46E-01	2.39E-01	(3.75)	2.37E-01												
Weibull (0.5)	(6.62)		4.13E-02	3.78E-01	4.00E-01	2.48E-01	1.16E-01	1.14E-01																																																																																																																																																																																																																																	
	(84.72)		2.42E-02						Weibull (0.85)	(0.12)	8.54E-02	4.37E-01	4.72E-01	3.20E-01	1.01E-01	1.07E-01	(1.23)	5.28E-02	Weibull (0.75)	(2.56)	1.10E-01	4.53E-01	4.92E-01	3.40E-01	1.20E-01	1.14E-01	(10.35)	7.00E-02	Weibull (1)	(2.00)	1.53E-01	4.72E-01	5.17E-01	3.63E-01	1.59E-01	1.29E-01	(6.00)	9.96E-02	Weibull (1.2)	(1.52)	2.12E-01	4.93E-01	5.44E-01	3.85E-01	2.14E-01	1.56E-01	(3.24)	1.43E-01	Weibull (1.5)	(1.07)	2.96E-01	5.17E-01	5.74E-01	4.07E-01	2.91E-01	2.09E-01	(1.39)	2.08E-01	Weibull (2.0)	(0.63)	4.03E-01	5.44E-01	6.07E-01	4.29E-01	4.12E-01	3.10E-01	(0.25)	2.99E-01	Weibull (3.5)	(0.03)	4.93E-01	5.65E-01	6.30E-01	4.47E-01	5.45E-01	4.63E-01	(-0.29)	3.88E-01	Barnes 2	(1.75)	2.02E-01	4.94E-01	5.40E-01	3.87E-01	1.46E-01	1.39E-01	(3.75)	1.40E-01	Normal (0,1)	(0.00)	k=4	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.21E-01	6.60E-01	(0.00)	5.30E-01	Exponential (1)		(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01		Lognormal (0,1)	(6.18)	8.59E-02	4.80E-01	5.13E-01	3.43E-01	1.49E-01	1.41E-01	(110)		5.37E-02	Weibull (0.5)	(6.62)	6.24E-02	4.44E-01	4.70E-01	3.07E-01	1.53E-01	1.51E-01	(84.72)	3.82E-02	Weibull (0.85)	(0.12)	1.40E-01	5.38E-01	5.76E-01	4.21E-01	1.53E-01	1.62E-01	(1.23)	9.13E-02	Weibull (0.75)	(2.56)	1.83E-01	5.67E-01	6.09E-01	4.56E-01	1.86E-01	1.78E-01	(10.35)	1.23E-01	Weibull (1)	(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01	Weibull (1.2)	(1.52)	3.47E-01	6.44E-01	6.94E-01	5.46E-01	3.41E-01	2.67E-01	(3.24)	2.54E-01	Weibull (1.5)	(1.07)	4.70E-01	6.90E-01	7.42E-01	5.97E-01	4.62E-01	3.64E-01	(1.39)	3.63E-01	Weibull (2.0)	(0.63)	6.04E-01	7.36E-01	7.87E-01	6.47E-01	6.20E-01	5.18E-01	(0.25)	4.96E-01	Weibull (3.5)	(0.03)	6.91E-01	7.60E-01	8.12E-01	6.80E-01	7.45E-01	6.80E-01	(-0.29)	5.96E-01	Barnes 2	(1.75)	3.19E-01	6.28E-01	6.74E-01	5.33E-01	2.46E-01	2.39E-01	(3.75)	2.37E-01																					
Weibull (0.85)	(0.12)		8.54E-02	4.37E-01	4.72E-01	3.20E-01	1.01E-01	1.07E-01																																																																																																																																																																																																																																	
	(1.23)		5.28E-02						Weibull (0.75)	(2.56)	1.10E-01	4.53E-01	4.92E-01	3.40E-01	1.20E-01	1.14E-01	(10.35)	7.00E-02	Weibull (1)	(2.00)	1.53E-01	4.72E-01	5.17E-01	3.63E-01	1.59E-01	1.29E-01	(6.00)	9.96E-02	Weibull (1.2)	(1.52)	2.12E-01	4.93E-01	5.44E-01	3.85E-01	2.14E-01	1.56E-01	(3.24)	1.43E-01	Weibull (1.5)	(1.07)	2.96E-01	5.17E-01	5.74E-01	4.07E-01	2.91E-01	2.09E-01	(1.39)	2.08E-01	Weibull (2.0)	(0.63)	4.03E-01	5.44E-01	6.07E-01	4.29E-01	4.12E-01	3.10E-01	(0.25)	2.99E-01	Weibull (3.5)	(0.03)	4.93E-01	5.65E-01	6.30E-01	4.47E-01	5.45E-01	4.63E-01	(-0.29)	3.88E-01	Barnes 2	(1.75)	2.02E-01	4.94E-01	5.40E-01	3.87E-01	1.46E-01	1.39E-01	(3.75)	1.40E-01	Normal (0,1)	(0.00)	k=4	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.21E-01	6.60E-01	(0.00)	5.30E-01	Exponential (1)		(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01		Lognormal (0,1)	(6.18)	8.59E-02	4.80E-01	5.13E-01	3.43E-01	1.49E-01	1.41E-01	(110)		5.37E-02	Weibull (0.5)	(6.62)	6.24E-02	4.44E-01	4.70E-01	3.07E-01	1.53E-01	1.51E-01		(84.72)	3.82E-02	Weibull (0.85)	(0.12)	1.40E-01	5.38E-01	5.76E-01	4.21E-01	1.53E-01	1.62E-01	(1.23)	9.13E-02	Weibull (0.75)	(2.56)	1.83E-01	5.67E-01	6.09E-01	4.56E-01	1.86E-01	1.78E-01	(10.35)	1.23E-01	Weibull (1)	(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01	Weibull (1.2)	(1.52)	3.47E-01	6.44E-01	6.94E-01	5.46E-01	3.41E-01	2.67E-01	(3.24)	2.54E-01	Weibull (1.5)	(1.07)	4.70E-01	6.90E-01	7.42E-01	5.97E-01	4.62E-01	3.64E-01	(1.39)	3.63E-01	Weibull (2.0)	(0.63)	6.04E-01	7.36E-01	7.87E-01	6.47E-01	6.20E-01	5.18E-01	(0.25)	4.96E-01	Weibull (3.5)	(0.03)	6.91E-01	7.60E-01	8.12E-01	6.80E-01	7.45E-01	6.80E-01	(-0.29)	5.96E-01	Barnes 2	(1.75)	3.19E-01	6.28E-01	6.74E-01	5.33E-01	2.46E-01	2.39E-01	(3.75)	2.37E-01																														
Weibull (0.75)	(2.56)		1.10E-01	4.53E-01	4.92E-01	3.40E-01	1.20E-01	1.14E-01																																																																																																																																																																																																																																	
	(10.35)		7.00E-02						Weibull (1)	(2.00)	1.53E-01	4.72E-01	5.17E-01	3.63E-01	1.59E-01	1.29E-01	(6.00)	9.96E-02	Weibull (1.2)	(1.52)	2.12E-01	4.93E-01	5.44E-01	3.85E-01	2.14E-01	1.56E-01	(3.24)	1.43E-01	Weibull (1.5)	(1.07)	2.96E-01	5.17E-01	5.74E-01	4.07E-01	2.91E-01	2.09E-01	(1.39)	2.08E-01	Weibull (2.0)	(0.63)	4.03E-01	5.44E-01	6.07E-01	4.29E-01	4.12E-01	3.10E-01	(0.25)	2.99E-01	Weibull (3.5)	(0.03)	4.93E-01	5.65E-01	6.30E-01	4.47E-01	5.45E-01	4.63E-01	(-0.29)	3.88E-01	Barnes 2	(1.75)	2.02E-01	4.94E-01	5.40E-01	3.87E-01	1.46E-01	1.39E-01	(3.75)	1.40E-01	Normal (0,1)	(0.00)	k=4	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.21E-01	6.60E-01	(0.00)	5.30E-01	Exponential (1)		(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01		Lognormal (0,1)	(6.18)	8.59E-02	4.80E-01	5.13E-01	3.43E-01	1.49E-01	1.41E-01	(110)		5.37E-02	Weibull (0.5)	(6.62)	6.24E-02	4.44E-01	4.70E-01	3.07E-01	1.53E-01	1.51E-01		(84.72)	3.82E-02	Weibull (0.85)	(0.12)	1.40E-01	5.38E-01	5.76E-01	4.21E-01	1.53E-01		1.62E-01	(1.23)	9.13E-02	Weibull (0.75)	(2.56)	1.83E-01	5.67E-01	6.09E-01	4.56E-01	1.86E-01	1.78E-01	(10.35)	1.23E-01	Weibull (1)	(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01	Weibull (1.2)	(1.52)	3.47E-01	6.44E-01	6.94E-01	5.46E-01	3.41E-01	2.67E-01	(3.24)	2.54E-01	Weibull (1.5)	(1.07)	4.70E-01	6.90E-01	7.42E-01	5.97E-01	4.62E-01	3.64E-01	(1.39)	3.63E-01	Weibull (2.0)	(0.63)	6.04E-01	7.36E-01	7.87E-01	6.47E-01	6.20E-01	5.18E-01	(0.25)	4.96E-01	Weibull (3.5)	(0.03)	6.91E-01	7.60E-01	8.12E-01	6.80E-01	7.45E-01	6.80E-01	(-0.29)	5.96E-01	Barnes 2	(1.75)	3.19E-01	6.28E-01	6.74E-01	5.33E-01	2.46E-01	2.39E-01	(3.75)	2.37E-01																																							
Weibull (1)	(2.00)		1.53E-01	4.72E-01	5.17E-01	3.63E-01	1.59E-01	1.29E-01																																																																																																																																																																																																																																	
	(6.00)		9.96E-02						Weibull (1.2)	(1.52)	2.12E-01	4.93E-01	5.44E-01	3.85E-01	2.14E-01	1.56E-01	(3.24)	1.43E-01	Weibull (1.5)	(1.07)	2.96E-01	5.17E-01	5.74E-01	4.07E-01	2.91E-01	2.09E-01	(1.39)	2.08E-01	Weibull (2.0)	(0.63)	4.03E-01	5.44E-01	6.07E-01	4.29E-01	4.12E-01	3.10E-01	(0.25)	2.99E-01	Weibull (3.5)	(0.03)	4.93E-01	5.65E-01	6.30E-01	4.47E-01	5.45E-01	4.63E-01	(-0.29)	3.88E-01	Barnes 2	(1.75)	2.02E-01	4.94E-01	5.40E-01	3.87E-01	1.46E-01	1.39E-01	(3.75)	1.40E-01	Normal (0,1)	(0.00)	k=4	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.21E-01	6.60E-01	(0.00)	5.30E-01	Exponential (1)		(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01		Lognormal (0,1)	(6.18)	8.59E-02	4.80E-01	5.13E-01	3.43E-01	1.49E-01	1.41E-01	(110)		5.37E-02	Weibull (0.5)	(6.62)	6.24E-02	4.44E-01	4.70E-01	3.07E-01	1.53E-01	1.51E-01		(84.72)	3.82E-02	Weibull (0.85)	(0.12)	1.40E-01	5.38E-01	5.76E-01	4.21E-01	1.53E-01		1.62E-01	(1.23)	9.13E-02	Weibull (0.75)	(2.56)	1.83E-01	5.67E-01	6.09E-01	4.56E-01		1.86E-01	1.78E-01	(10.35)	1.23E-01	Weibull (1)	(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01	Weibull (1.2)	(1.52)	3.47E-01	6.44E-01	6.94E-01	5.46E-01	3.41E-01	2.67E-01	(3.24)	2.54E-01	Weibull (1.5)	(1.07)	4.70E-01	6.90E-01	7.42E-01	5.97E-01	4.62E-01	3.64E-01	(1.39)	3.63E-01	Weibull (2.0)	(0.63)	6.04E-01	7.36E-01	7.87E-01	6.47E-01	6.20E-01	5.18E-01	(0.25)	4.96E-01	Weibull (3.5)	(0.03)	6.91E-01	7.60E-01	8.12E-01	6.80E-01	7.45E-01	6.80E-01	(-0.29)	5.96E-01	Barnes 2	(1.75)	3.19E-01	6.28E-01	6.74E-01	5.33E-01	2.46E-01	2.39E-01	(3.75)	2.37E-01																																																
Weibull (1.2)	(1.52)		2.12E-01	4.93E-01	5.44E-01	3.85E-01	2.14E-01	1.56E-01																																																																																																																																																																																																																																	
	(3.24)		1.43E-01						Weibull (1.5)	(1.07)	2.96E-01	5.17E-01	5.74E-01	4.07E-01	2.91E-01	2.09E-01	(1.39)	2.08E-01	Weibull (2.0)	(0.63)	4.03E-01	5.44E-01	6.07E-01	4.29E-01	4.12E-01	3.10E-01	(0.25)	2.99E-01	Weibull (3.5)	(0.03)	4.93E-01	5.65E-01	6.30E-01	4.47E-01	5.45E-01	4.63E-01	(-0.29)	3.88E-01	Barnes 2	(1.75)	2.02E-01	4.94E-01	5.40E-01	3.87E-01	1.46E-01	1.39E-01	(3.75)	1.40E-01	Normal (0,1)	(0.00)	k=4	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.21E-01	6.60E-01	(0.00)	5.30E-01	Exponential (1)		(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01		Lognormal (0,1)	(6.18)	8.59E-02	4.80E-01	5.13E-01	3.43E-01	1.49E-01	1.41E-01	(110)		5.37E-02	Weibull (0.5)	(6.62)	6.24E-02	4.44E-01	4.70E-01	3.07E-01	1.53E-01	1.51E-01		(84.72)	3.82E-02	Weibull (0.85)	(0.12)	1.40E-01	5.38E-01	5.76E-01	4.21E-01	1.53E-01		1.62E-01	(1.23)	9.13E-02	Weibull (0.75)	(2.56)	1.83E-01	5.67E-01	6.09E-01	4.56E-01		1.86E-01	1.78E-01	(10.35)	1.23E-01	Weibull (1)	(2.00)	2.52E-01	6.03E-01	6.50E-01		5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01	Weibull (1.2)	(1.52)	3.47E-01	6.44E-01	6.94E-01	5.46E-01	3.41E-01	2.67E-01	(3.24)	2.54E-01	Weibull (1.5)	(1.07)	4.70E-01	6.90E-01	7.42E-01	5.97E-01	4.62E-01	3.64E-01	(1.39)	3.63E-01	Weibull (2.0)	(0.63)	6.04E-01	7.36E-01	7.87E-01	6.47E-01	6.20E-01	5.18E-01	(0.25)	4.96E-01	Weibull (3.5)	(0.03)	6.91E-01	7.60E-01	8.12E-01	6.80E-01	7.45E-01	6.80E-01	(-0.29)	5.96E-01	Barnes 2	(1.75)	3.19E-01	6.28E-01	6.74E-01	5.33E-01	2.46E-01	2.39E-01	(3.75)	2.37E-01																																																									
Weibull (1.5)	(1.07)		2.96E-01	5.17E-01	5.74E-01	4.07E-01	2.91E-01	2.09E-01																																																																																																																																																																																																																																	
	(1.39)		2.08E-01						Weibull (2.0)	(0.63)	4.03E-01	5.44E-01	6.07E-01	4.29E-01	4.12E-01	3.10E-01	(0.25)	2.99E-01	Weibull (3.5)	(0.03)	4.93E-01	5.65E-01	6.30E-01	4.47E-01	5.45E-01	4.63E-01	(-0.29)	3.88E-01	Barnes 2	(1.75)	2.02E-01	4.94E-01	5.40E-01	3.87E-01	1.46E-01	1.39E-01	(3.75)	1.40E-01	Normal (0,1)	(0.00)	k=4	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.21E-01	6.60E-01	(0.00)	5.30E-01	Exponential (1)		(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01		Lognormal (0,1)	(6.18)	8.59E-02	4.80E-01	5.13E-01	3.43E-01	1.49E-01	1.41E-01	(110)		5.37E-02	Weibull (0.5)	(6.62)	6.24E-02	4.44E-01	4.70E-01	3.07E-01	1.53E-01	1.51E-01		(84.72)	3.82E-02	Weibull (0.85)	(0.12)	1.40E-01	5.38E-01	5.76E-01	4.21E-01	1.53E-01		1.62E-01	(1.23)	9.13E-02	Weibull (0.75)	(2.56)	1.83E-01	5.67E-01	6.09E-01	4.56E-01		1.86E-01	1.78E-01	(10.35)	1.23E-01	Weibull (1)	(2.00)	2.52E-01	6.03E-01	6.50E-01		5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01	Weibull (1.2)	(1.52)	3.47E-01	6.44E-01		6.94E-01	5.46E-01	3.41E-01	2.67E-01	(3.24)	2.54E-01	Weibull (1.5)	(1.07)	4.70E-01	6.90E-01	7.42E-01	5.97E-01	4.62E-01	3.64E-01	(1.39)	3.63E-01	Weibull (2.0)	(0.63)	6.04E-01	7.36E-01	7.87E-01	6.47E-01	6.20E-01	5.18E-01	(0.25)	4.96E-01	Weibull (3.5)	(0.03)	6.91E-01	7.60E-01	8.12E-01	6.80E-01	7.45E-01	6.80E-01	(-0.29)	5.96E-01	Barnes 2	(1.75)	3.19E-01	6.28E-01	6.74E-01	5.33E-01	2.46E-01	2.39E-01	(3.75)	2.37E-01																																																																		
Weibull (2.0)	(0.63)		4.03E-01	5.44E-01	6.07E-01	4.29E-01	4.12E-01	3.10E-01																																																																																																																																																																																																																																	
	(0.25)		2.99E-01						Weibull (3.5)	(0.03)	4.93E-01	5.65E-01	6.30E-01	4.47E-01	5.45E-01	4.63E-01	(-0.29)	3.88E-01	Barnes 2	(1.75)	2.02E-01	4.94E-01	5.40E-01	3.87E-01	1.46E-01	1.39E-01	(3.75)	1.40E-01	Normal (0,1)	(0.00)	k=4	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.21E-01	6.60E-01	(0.00)	5.30E-01	Exponential (1)		(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01		Lognormal (0,1)	(6.18)	8.59E-02	4.80E-01	5.13E-01	3.43E-01	1.49E-01	1.41E-01	(110)		5.37E-02	Weibull (0.5)	(6.62)	6.24E-02	4.44E-01	4.70E-01	3.07E-01	1.53E-01	1.51E-01		(84.72)	3.82E-02	Weibull (0.85)	(0.12)	1.40E-01	5.38E-01	5.76E-01	4.21E-01	1.53E-01		1.62E-01	(1.23)	9.13E-02	Weibull (0.75)	(2.56)	1.83E-01	5.67E-01	6.09E-01	4.56E-01		1.86E-01	1.78E-01	(10.35)	1.23E-01	Weibull (1)	(2.00)	2.52E-01	6.03E-01	6.50E-01		5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01	Weibull (1.2)	(1.52)	3.47E-01	6.44E-01		6.94E-01	5.46E-01	3.41E-01	2.67E-01	(3.24)	2.54E-01	Weibull (1.5)	(1.07)	4.70E-01		6.90E-01	7.42E-01	5.97E-01	4.62E-01	3.64E-01	(1.39)	3.63E-01	Weibull (2.0)	(0.63)	6.04E-01	7.36E-01	7.87E-01	6.47E-01	6.20E-01	5.18E-01	(0.25)	4.96E-01	Weibull (3.5)	(0.03)	6.91E-01	7.60E-01	8.12E-01	6.80E-01	7.45E-01	6.80E-01	(-0.29)	5.96E-01	Barnes 2	(1.75)	3.19E-01	6.28E-01	6.74E-01	5.33E-01	2.46E-01	2.39E-01	(3.75)	2.37E-01																																																																											
Weibull (3.5)	(0.03)		4.93E-01	5.65E-01	6.30E-01	4.47E-01	5.45E-01	4.63E-01																																																																																																																																																																																																																																	
	(-0.29)		3.88E-01						Barnes 2	(1.75)	2.02E-01	4.94E-01	5.40E-01	3.87E-01	1.46E-01	1.39E-01	(3.75)	1.40E-01	Normal (0,1)	(0.00)	k=4	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.21E-01	6.60E-01	(0.00)	5.30E-01	Exponential (1)		(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01		Lognormal (0,1)	(6.18)	8.59E-02	4.80E-01	5.13E-01	3.43E-01	1.49E-01	1.41E-01	(110)		5.37E-02	Weibull (0.5)	(6.62)	6.24E-02	4.44E-01	4.70E-01	3.07E-01	1.53E-01	1.51E-01		(84.72)	3.82E-02	Weibull (0.85)	(0.12)	1.40E-01	5.38E-01	5.76E-01	4.21E-01	1.53E-01		1.62E-01	(1.23)	9.13E-02	Weibull (0.75)	(2.56)	1.83E-01	5.67E-01	6.09E-01	4.56E-01		1.86E-01	1.78E-01	(10.35)	1.23E-01	Weibull (1)	(2.00)	2.52E-01	6.03E-01	6.50E-01		5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01	Weibull (1.2)	(1.52)	3.47E-01	6.44E-01		6.94E-01	5.46E-01	3.41E-01	2.67E-01	(3.24)	2.54E-01	Weibull (1.5)	(1.07)	4.70E-01		6.90E-01	7.42E-01	5.97E-01	4.62E-01	3.64E-01	(1.39)	3.63E-01	Weibull (2.0)	(0.63)		6.04E-01	7.36E-01	7.87E-01	6.47E-01	6.20E-01	5.18E-01	(0.25)	4.96E-01	Weibull (3.5)	(0.03)	6.91E-01	7.60E-01	8.12E-01	6.80E-01	7.45E-01	6.80E-01	(-0.29)	5.96E-01	Barnes 2	(1.75)	3.19E-01	6.28E-01	6.74E-01	5.33E-01	2.46E-01	2.39E-01	(3.75)	2.37E-01																																																																																				
Barnes 2	(1.75)		2.02E-01	4.94E-01	5.40E-01	3.87E-01	1.46E-01	1.39E-01																																																																																																																																																																																																																																	
	(3.75)		1.40E-01						Normal (0,1)	(0.00)	k=4	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.21E-01	6.60E-01	(0.00)	5.30E-01	Exponential (1)		(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01		Lognormal (0,1)	(6.18)	8.59E-02	4.80E-01	5.13E-01	3.43E-01	1.49E-01	1.41E-01	(110)		5.37E-02	Weibull (0.5)	(6.62)	6.24E-02	4.44E-01	4.70E-01	3.07E-01	1.53E-01	1.51E-01		(84.72)	3.82E-02	Weibull (0.85)	(0.12)	1.40E-01	5.38E-01	5.76E-01	4.21E-01	1.53E-01		1.62E-01	(1.23)	9.13E-02	Weibull (0.75)	(2.56)	1.83E-01	5.67E-01	6.09E-01	4.56E-01		1.86E-01	1.78E-01	(10.35)	1.23E-01	Weibull (1)	(2.00)	2.52E-01	6.03E-01	6.50E-01		5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01	Weibull (1.2)	(1.52)	3.47E-01	6.44E-01		6.94E-01	5.46E-01	3.41E-01	2.67E-01	(3.24)	2.54E-01	Weibull (1.5)	(1.07)	4.70E-01		6.90E-01	7.42E-01	5.97E-01	4.62E-01	3.64E-01	(1.39)	3.63E-01	Weibull (2.0)	(0.63)		6.04E-01	7.36E-01	7.87E-01	6.47E-01	6.20E-01	5.18E-01	(0.25)	4.96E-01	Weibull (3.5)		(0.03)	6.91E-01	7.60E-01	8.12E-01	6.80E-01	7.45E-01	6.80E-01	(-0.29)	5.96E-01	Barnes 2	(1.75)	3.19E-01	6.28E-01	6.74E-01	5.33E-01	2.46E-01	2.39E-01	(3.75)	2.37E-01																																																																																													
Normal (0,1)	(0.00)		k=4	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.21E-01		6.60E-01																																																																																																																																																																																																																															
	(0.00)			5.30E-01					Exponential (1)			(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01		Lognormal (0,1)	(6.18)	8.59E-02	4.80E-01	5.13E-01	3.43E-01	1.49E-01	1.41E-01	(110)		5.37E-02	Weibull (0.5)	(6.62)	6.24E-02	4.44E-01	4.70E-01	3.07E-01	1.53E-01	1.51E-01		(84.72)	3.82E-02	Weibull (0.85)	(0.12)	1.40E-01	5.38E-01	5.76E-01	4.21E-01	1.53E-01		1.62E-01	(1.23)	9.13E-02	Weibull (0.75)	(2.56)	1.83E-01	5.67E-01	6.09E-01	4.56E-01		1.86E-01	1.78E-01	(10.35)	1.23E-01	Weibull (1)	(2.00)	2.52E-01	6.03E-01	6.50E-01		5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01	Weibull (1.2)	(1.52)	3.47E-01	6.44E-01		6.94E-01	5.46E-01	3.41E-01	2.67E-01	(3.24)	2.54E-01	Weibull (1.5)	(1.07)	4.70E-01		6.90E-01	7.42E-01	5.97E-01	4.62E-01	3.64E-01	(1.39)	3.63E-01	Weibull (2.0)	(0.63)		6.04E-01	7.36E-01	7.87E-01	6.47E-01	6.20E-01	5.18E-01	(0.25)	4.96E-01	Weibull (3.5)		(0.03)	6.91E-01	7.60E-01	8.12E-01	6.80E-01	7.45E-01	6.80E-01	(-0.29)	5.96E-01		Barnes 2	(1.75)	3.19E-01	6.28E-01	6.74E-01	5.33E-01	2.46E-01	2.39E-01	(3.75)	2.37E-01																																																																																																						
Exponential (1)	(2.00)			2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01		2.11E-01																																																																																																																																																																																																																															
	(6.00)			1.77E-01					Lognormal (0,1)			(6.18)	8.59E-02	4.80E-01	5.13E-01	3.43E-01	1.49E-01	1.41E-01	(110)	5.37E-02		Weibull (0.5)	(6.62)	6.24E-02	4.44E-01	4.70E-01	3.07E-01	1.53E-01	1.51E-01	(84.72)		3.82E-02	Weibull (0.85)	(0.12)	1.40E-01	5.38E-01	5.76E-01	4.21E-01	1.53E-01	1.62E-01		(1.23)	9.13E-02	Weibull (0.75)	(2.56)	1.83E-01	5.67E-01	6.09E-01	4.56E-01	1.86E-01		1.78E-01	(10.35)	1.23E-01	Weibull (1)	(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01		2.51E-01	2.11E-01	(6.00)	1.77E-01	Weibull (1.2)	(1.52)	3.47E-01	6.44E-01	6.94E-01		5.46E-01	3.41E-01	2.67E-01	(3.24)	2.54E-01	Weibull (1.5)	(1.07)	4.70E-01	6.90E-01		7.42E-01	5.97E-01	4.62E-01	3.64E-01	(1.39)	3.63E-01	Weibull (2.0)	(0.63)	6.04E-01		7.36E-01	7.87E-01	6.47E-01	6.20E-01	5.18E-01	(0.25)	4.96E-01	Weibull (3.5)	(0.03)		6.91E-01	7.60E-01	8.12E-01	6.80E-01	7.45E-01	6.80E-01	(-0.29)	5.96E-01	Barnes 2		(1.75)	3.19E-01	6.28E-01	6.74E-01	5.33E-01	2.46E-01	2.39E-01	(3.75)	2.37E-01																																																																																																																	
Lognormal (0,1)	(6.18)	8.59E-02		4.80E-01	5.13E-01	3.43E-01	1.49E-01	1.41E-01																																																																																																																																																																																																																																	
	(110)	5.37E-02							Weibull (0.5)	(6.62)		6.24E-02	4.44E-01	4.70E-01	3.07E-01	1.53E-01	1.51E-01	(84.72)	3.82E-02	Weibull (0.85)		(0.12)	1.40E-01	5.38E-01	5.76E-01	4.21E-01	1.53E-01	1.62E-01	(1.23)	9.13E-02		Weibull (0.75)	(2.56)	1.83E-01	5.67E-01	6.09E-01	4.56E-01	1.86E-01	1.78E-01	(10.35)		1.23E-01	Weibull (1)	(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01		(6.00)	1.77E-01	Weibull (1.2)	(1.52)	3.47E-01	6.44E-01	6.94E-01	5.46E-01	3.41E-01		2.67E-01	(3.24)	2.54E-01	Weibull (1.5)	(1.07)	4.70E-01	6.90E-01	7.42E-01	5.97E-01		4.62E-01	3.64E-01	(1.39)	3.63E-01	Weibull (2.0)	(0.63)	6.04E-01	7.36E-01	7.87E-01		6.47E-01	6.20E-01	5.18E-01	(0.25)	4.96E-01	Weibull (3.5)	(0.03)	6.91E-01	7.60E-01		8.12E-01	6.80E-01	7.45E-01	6.80E-01	(-0.29)	5.96E-01	Barnes 2	(1.75)	3.19E-01		6.28E-01	6.74E-01	5.33E-01	2.46E-01	2.39E-01	(3.75)	2.37E-01																																																																																																																													
Weibull (0.5)	(6.62)	6.24E-02		4.44E-01	4.70E-01	3.07E-01	1.53E-01	1.51E-01																																																																																																																																																																																																																																	
	(84.72)	3.82E-02							Weibull (0.85)	(0.12)		1.40E-01	5.38E-01	5.76E-01	4.21E-01	1.53E-01	1.62E-01	(1.23)	9.13E-02	Weibull (0.75)		(2.56)	1.83E-01	5.67E-01	6.09E-01	4.56E-01	1.86E-01	1.78E-01	(10.35)	1.23E-01		Weibull (1)	(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)		1.77E-01	Weibull (1.2)	(1.52)	3.47E-01	6.44E-01	6.94E-01	5.46E-01	3.41E-01	2.67E-01		(3.24)	2.54E-01	Weibull (1.5)	(1.07)	4.70E-01	6.90E-01	7.42E-01	5.97E-01	4.62E-01		3.64E-01	(1.39)	3.63E-01	Weibull (2.0)	(0.63)	6.04E-01	7.36E-01	7.87E-01	6.47E-01		6.20E-01	5.18E-01	(0.25)	4.96E-01	Weibull (3.5)	(0.03)	6.91E-01	7.60E-01	8.12E-01		6.80E-01	7.45E-01	6.80E-01	(-0.29)	5.96E-01	Barnes 2	(1.75)	3.19E-01	6.28E-01		6.74E-01	5.33E-01	2.46E-01	2.39E-01	(3.75)	2.37E-01																																																																																																																																								
Weibull (0.85)	(0.12)	1.40E-01		5.38E-01	5.76E-01	4.21E-01	1.53E-01	1.62E-01																																																																																																																																																																																																																																	
	(1.23)	9.13E-02							Weibull (0.75)	(2.56)		1.83E-01	5.67E-01	6.09E-01	4.56E-01	1.86E-01	1.78E-01	(10.35)	1.23E-01	Weibull (1)		(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01		Weibull (1.2)	(1.52)	3.47E-01	6.44E-01	6.94E-01	5.46E-01	3.41E-01	2.67E-01	(3.24)		2.54E-01	Weibull (1.5)	(1.07)	4.70E-01	6.90E-01	7.42E-01	5.97E-01	4.62E-01	3.64E-01		(1.39)	3.63E-01	Weibull (2.0)	(0.63)	6.04E-01	7.36E-01	7.87E-01	6.47E-01	6.20E-01		5.18E-01	(0.25)	4.96E-01	Weibull (3.5)	(0.03)	6.91E-01	7.60E-01	8.12E-01	6.80E-01		7.45E-01	6.80E-01	(-0.29)	5.96E-01	Barnes 2	(1.75)	3.19E-01	6.28E-01	6.74E-01		5.33E-01	2.46E-01	2.39E-01	(3.75)	2.37E-01																																																																																																																																																			
Weibull (0.75)	(2.56)	1.83E-01		5.67E-01	6.09E-01	4.56E-01	1.86E-01	1.78E-01																																																																																																																																																																																																																																	
	(10.35)	1.23E-01							Weibull (1)	(2.00)		2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01	Weibull (1.2)		(1.52)	3.47E-01	6.44E-01	6.94E-01	5.46E-01	3.41E-01	2.67E-01	(3.24)	2.54E-01		Weibull (1.5)	(1.07)	4.70E-01	6.90E-01	7.42E-01	5.97E-01	4.62E-01	3.64E-01	(1.39)		3.63E-01	Weibull (2.0)	(0.63)	6.04E-01	7.36E-01	7.87E-01	6.47E-01	6.20E-01	5.18E-01		(0.25)	4.96E-01	Weibull (3.5)	(0.03)	6.91E-01	7.60E-01	8.12E-01	6.80E-01	7.45E-01		6.80E-01	(-0.29)	5.96E-01	Barnes 2	(1.75)	3.19E-01	6.28E-01	6.74E-01	5.33E-01		2.46E-01	2.39E-01	(3.75)	2.37E-01																																																																																																																																																														
Weibull (1)	(2.00)	2.52E-01		6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01																																																																																																																																																																																																																																	
	(6.00)	1.77E-01							Weibull (1.2)	(1.52)		3.47E-01	6.44E-01	6.94E-01	5.46E-01	3.41E-01	2.67E-01	(3.24)	2.54E-01	Weibull (1.5)		(1.07)	4.70E-01	6.90E-01	7.42E-01	5.97E-01	4.62E-01	3.64E-01	(1.39)	3.63E-01		Weibull (2.0)	(0.63)	6.04E-01	7.36E-01	7.87E-01	6.47E-01	6.20E-01	5.18E-01	(0.25)		4.96E-01	Weibull (3.5)	(0.03)	6.91E-01	7.60E-01	8.12E-01	6.80E-01	7.45E-01	6.80E-01		(-0.29)	5.96E-01	Barnes 2	(1.75)	3.19E-01	6.28E-01	6.74E-01	5.33E-01	2.46E-01		2.39E-01	(3.75)	2.37E-01																																																																																																																																																																									
Weibull (1.2)	(1.52)	3.47E-01		6.44E-01	6.94E-01	5.46E-01	3.41E-01	2.67E-01																																																																																																																																																																																																																																	
	(3.24)	2.54E-01							Weibull (1.5)	(1.07)		4.70E-01	6.90E-01	7.42E-01	5.97E-01	4.62E-01	3.64E-01	(1.39)	3.63E-01	Weibull (2.0)		(0.63)	6.04E-01	7.36E-01	7.87E-01	6.47E-01	6.20E-01	5.18E-01	(0.25)	4.96E-01		Weibull (3.5)	(0.03)	6.91E-01	7.60E-01	8.12E-01	6.80E-01	7.45E-01	6.80E-01	(-0.29)		5.96E-01	Barnes 2	(1.75)	3.19E-01	6.28E-01	6.74E-01	5.33E-01	2.46E-01	2.39E-01		(3.75)	2.37E-01																																																																																																																																																																																				
Weibull (1.5)	(1.07)	4.70E-01		6.90E-01	7.42E-01	5.97E-01	4.62E-01	3.64E-01																																																																																																																																																																																																																																	
	(1.39)	3.63E-01							Weibull (2.0)	(0.63)		6.04E-01	7.36E-01	7.87E-01	6.47E-01	6.20E-01	5.18E-01	(0.25)	4.96E-01	Weibull (3.5)		(0.03)	6.91E-01	7.60E-01	8.12E-01	6.80E-01	7.45E-01	6.80E-01	(-0.29)	5.96E-01		Barnes 2	(1.75)	3.19E-01	6.28E-01	6.74E-01	5.33E-01	2.46E-01	2.39E-01	(3.75)		2.37E-01																																																																																																																																																																																															
Weibull (2.0)	(0.63)	6.04E-01		7.36E-01	7.87E-01	6.47E-01	6.20E-01	5.18E-01																																																																																																																																																																																																																																	
	(0.25)	4.96E-01							Weibull (3.5)	(0.03)		6.91E-01	7.60E-01	8.12E-01	6.80E-01	7.45E-01	6.80E-01	(-0.29)	5.96E-01	Barnes 2		(1.75)	3.19E-01	6.28E-01	6.74E-01	5.33E-01	2.46E-01	2.39E-01	(3.75)	2.37E-01																																																																																																																																																																																																											
Weibull (3.5)	(0.03)	6.91E-01		7.60E-01	8.12E-01	6.80E-01	7.45E-01	6.80E-01																																																																																																																																																																																																																																	
	(-0.29)	5.96E-01							Barnes 2	(1.75)		3.19E-01	6.28E-01	6.74E-01	5.33E-01	2.46E-01	2.39E-01	(3.75)	2.37E-01																																																																																																																																																																																																																						
Barnes 2	(1.75)	3.19E-01		6.28E-01	6.74E-01	5.33E-01	2.46E-01	2.39E-01																																																																																																																																																																																																																																	
	(3.75)	2.37E-01																																																																																																																																																																																																																																							

Table 5 (continued): Power Comparison Study for Skewed Distributions ($n = 10$)

Distribution	(skewness) (kurtosis)	k	Combined Sample	R-chart	S-chart	S2-chart	WV-chart	SC-chart																																																																																																																																																																																																																																	
Chi (1)	(2.83)	k=3	9.98E-02	4.49E-01	4.85E-01	3.35E-01	9.30E-02	1.11E-01																																																																																																																																																																																																																																	
	(12.0)		6.36E-02						Chi (2)	(2.00)	1.53E-01	4.72E-01	5.17E-01	3.63E-01	1.59E-01	1.29E-01	(6.00)	9.96E-02	Chi (3)	(1.63)	1.90E-01	4.84E-01	5.33E-01	3.76E-01	2.08E-01	1.49E-01	(4.00)	1.27E-01	Chi (4)	(1.41)	2.18E-01	4.94E-01	5.47E-01	3.85E-01	2.42E-01	1.68E-01	(3.00)	1.47E-01	Chi (8)	(1.00)	2.86E-01	5.14E-01	5.73E-01	4.04E-01	3.20E-01	2.26E-01	(1.50)	1.98E-01	Chi (10)	(0.89)	3.07E-01	5.19E-01	5.79E-01	4.08E-01	3.46E-01	2.49E-01	(1.20)	2.15E-01	Chi (12)	(0.82)	3.21E-01	5.22E-01	5.83E-01	4.11E-01	3.65E-01	2.66E-01	(1.00)	2.26E-01	Chi (16)	(0.71)	3.44E-01	5.29E-01	5.91E-01	4.17E-01	3.97E-01	2.94E-01	(0.75)	2.46E-01	Chi (24)	(0.58)	3.66E-01	5.33E-01	5.96E-01	4.19E-01	4.29E-01	3.26E-01	(0.50)	2.65E-01	Gamma (0.15)	(5.16)	4.69E-02	4.00E-01	4.21E-01	2.73E-01	1.29E-01	1.26E-01	(40.0)	2.77E-02	Gamma (1.2)	(1.83)	1.72E-01	4.79E-01	5.26E-01	3.71E-01	1.82E-01	1.39E-01	(5.00)	1.14E-01	Gamma (4.0)	(1.00)	2.88E-01	5.13E-01	5.72E-01	4.03E-01	3.19E-01	2.27E-01	(1.50)	2.00E-01	Chi (1)	(2.83)	k=4	1.61E-01	5.52E-01	5.90E-01	4.40E-01	1.47E-01	1.71E-01	(12.0)	1.08E-01	Chi (2)	(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01	Chi (3)	(1.63)	3.15E-01	6.31E-01	6.81E-01	5.30E-01	3.27E-01	2.50E-01	(4.00)	2.27E-01	Chi (4)	(1.41)	3.60E-01	6.51E-01	7.03E-01	5.53E-01	3.80E-01	2.86E-01	(3.00)	2.64E-01	Chi (8)	(1.00)	4.61E-01	6.89E-01	7.44E-01	5.96E-01	4.94E-01	3.84E-01	(1.50)	3.52E-01	Chi (10)	(0.89)	4.89E-01	6.98E-01	7.53E-01	6.06E-01	5.29E-01	4.19E-01	(1.20)	3.78E-01	Chi (12)	(0.82)	5.07E-01	7.03E-01	7.59E-01	6.13E-01	5.53E-01	4.43E-01	(1.00)	3.96E-01	Chi (16)	(0.71)	5.35E-01	7.12E-01	7.69E-01	6.24E-01	5.90E-01	4.82E-01	(0.75)	4.23E-01	Chi (24)	(0.58)	5.62E-01	7.19E-01	7.76E-01	6.33E-01	6.25E-01	5.24E-01	(0.50)	4.50E-01	Gamma (0.15)	(5.16)	7.02E-02	4.60E-01	4.83E-01	3.32E-01	1.71E-01	1.68E-01	(40.0)	4.34E-02	Gamma (1.2)	(1.83)	2.83E-01	6.17E-01	6.66E-01	5.16E-01	2.87E-01	2.30E-01	(5.00)	2.02E-01	Gamma (4.0)	(1.00)	4.63E-01	6.88E-01
Chi (2)	(2.00)		1.53E-01	4.72E-01	5.17E-01	3.63E-01	1.59E-01	1.29E-01																																																																																																																																																																																																																																	
	(6.00)		9.96E-02						Chi (3)	(1.63)	1.90E-01	4.84E-01	5.33E-01	3.76E-01	2.08E-01	1.49E-01	(4.00)	1.27E-01	Chi (4)	(1.41)	2.18E-01	4.94E-01	5.47E-01	3.85E-01	2.42E-01	1.68E-01	(3.00)	1.47E-01	Chi (8)	(1.00)	2.86E-01	5.14E-01	5.73E-01	4.04E-01	3.20E-01	2.26E-01	(1.50)	1.98E-01	Chi (10)	(0.89)	3.07E-01	5.19E-01	5.79E-01	4.08E-01	3.46E-01	2.49E-01	(1.20)	2.15E-01	Chi (12)	(0.82)	3.21E-01	5.22E-01	5.83E-01	4.11E-01	3.65E-01	2.66E-01	(1.00)	2.26E-01	Chi (16)	(0.71)	3.44E-01	5.29E-01	5.91E-01	4.17E-01	3.97E-01	2.94E-01	(0.75)	2.46E-01	Chi (24)	(0.58)	3.66E-01	5.33E-01	5.96E-01	4.19E-01	4.29E-01	3.26E-01	(0.50)	2.65E-01	Gamma (0.15)	(5.16)	4.69E-02	4.00E-01	4.21E-01	2.73E-01	1.29E-01	1.26E-01	(40.0)	2.77E-02	Gamma (1.2)	(1.83)	1.72E-01	4.79E-01	5.26E-01	3.71E-01	1.82E-01	1.39E-01	(5.00)	1.14E-01	Gamma (4.0)	(1.00)	2.88E-01	5.13E-01	5.72E-01	4.03E-01	3.19E-01	2.27E-01	(1.50)	2.00E-01	Chi (1)	(2.83)	k=4	1.61E-01	5.52E-01	5.90E-01	4.40E-01	1.47E-01	1.71E-01	(12.0)	1.08E-01	Chi (2)		(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01	Chi (3)	(1.63)	3.15E-01	6.31E-01	6.81E-01	5.30E-01	3.27E-01	2.50E-01	(4.00)	2.27E-01	Chi (4)	(1.41)	3.60E-01	6.51E-01	7.03E-01	5.53E-01	3.80E-01	2.86E-01	(3.00)	2.64E-01	Chi (8)	(1.00)	4.61E-01	6.89E-01	7.44E-01	5.96E-01	4.94E-01	3.84E-01	(1.50)	3.52E-01	Chi (10)	(0.89)	4.89E-01	6.98E-01	7.53E-01	6.06E-01	5.29E-01	4.19E-01	(1.20)	3.78E-01	Chi (12)	(0.82)	5.07E-01	7.03E-01	7.59E-01	6.13E-01	5.53E-01	4.43E-01	(1.00)	3.96E-01	Chi (16)	(0.71)	5.35E-01	7.12E-01	7.69E-01	6.24E-01	5.90E-01	4.82E-01	(0.75)	4.23E-01	Chi (24)	(0.58)	5.62E-01	7.19E-01	7.76E-01	6.33E-01	6.25E-01	5.24E-01	(0.50)	4.50E-01	Gamma (0.15)	(5.16)	7.02E-02	4.60E-01	4.83E-01	3.32E-01	1.71E-01	1.68E-01	(40.0)	4.34E-02	Gamma (1.2)	(1.83)	2.83E-01	6.17E-01	6.66E-01	5.16E-01	2.87E-01	2.30E-01	(5.00)	2.02E-01	Gamma (4.0)	(1.00)	4.63E-01	6.88E-01	7.43E-01	5.95E-01	4.94E-01	3.84E-01	(1.50)	3.54E-01			
Chi (3)	(1.63)		1.90E-01	4.84E-01	5.33E-01	3.76E-01	2.08E-01	1.49E-01																																																																																																																																																																																																																																	
	(4.00)		1.27E-01						Chi (4)	(1.41)	2.18E-01	4.94E-01	5.47E-01	3.85E-01	2.42E-01	1.68E-01	(3.00)	1.47E-01	Chi (8)	(1.00)	2.86E-01	5.14E-01	5.73E-01	4.04E-01	3.20E-01	2.26E-01	(1.50)	1.98E-01	Chi (10)	(0.89)	3.07E-01	5.19E-01	5.79E-01	4.08E-01	3.46E-01	2.49E-01	(1.20)	2.15E-01	Chi (12)	(0.82)	3.21E-01	5.22E-01	5.83E-01	4.11E-01	3.65E-01	2.66E-01	(1.00)	2.26E-01	Chi (16)	(0.71)	3.44E-01	5.29E-01	5.91E-01	4.17E-01	3.97E-01	2.94E-01	(0.75)	2.46E-01	Chi (24)	(0.58)	3.66E-01	5.33E-01	5.96E-01	4.19E-01	4.29E-01	3.26E-01	(0.50)	2.65E-01	Gamma (0.15)	(5.16)	4.69E-02	4.00E-01	4.21E-01	2.73E-01	1.29E-01	1.26E-01	(40.0)	2.77E-02	Gamma (1.2)	(1.83)	1.72E-01	4.79E-01	5.26E-01	3.71E-01	1.82E-01	1.39E-01	(5.00)	1.14E-01	Gamma (4.0)	(1.00)	2.88E-01	5.13E-01	5.72E-01	4.03E-01	3.19E-01	2.27E-01	(1.50)	2.00E-01	Chi (1)	(2.83)	k=4	1.61E-01	5.52E-01	5.90E-01	4.40E-01	1.47E-01	1.71E-01	(12.0)	1.08E-01	Chi (2)		(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01		Chi (3)	(1.63)	3.15E-01	6.31E-01	6.81E-01	5.30E-01	3.27E-01	2.50E-01	(4.00)	2.27E-01	Chi (4)	(1.41)	3.60E-01	6.51E-01	7.03E-01	5.53E-01	3.80E-01	2.86E-01	(3.00)	2.64E-01	Chi (8)	(1.00)	4.61E-01	6.89E-01	7.44E-01	5.96E-01	4.94E-01	3.84E-01	(1.50)	3.52E-01	Chi (10)	(0.89)	4.89E-01	6.98E-01	7.53E-01	6.06E-01	5.29E-01	4.19E-01	(1.20)	3.78E-01	Chi (12)	(0.82)	5.07E-01	7.03E-01	7.59E-01	6.13E-01	5.53E-01	4.43E-01	(1.00)	3.96E-01	Chi (16)	(0.71)	5.35E-01	7.12E-01	7.69E-01	6.24E-01	5.90E-01	4.82E-01	(0.75)	4.23E-01	Chi (24)	(0.58)	5.62E-01	7.19E-01	7.76E-01	6.33E-01	6.25E-01	5.24E-01	(0.50)	4.50E-01	Gamma (0.15)	(5.16)	7.02E-02	4.60E-01	4.83E-01	3.32E-01	1.71E-01	1.68E-01	(40.0)	4.34E-02	Gamma (1.2)	(1.83)	2.83E-01	6.17E-01	6.66E-01	5.16E-01	2.87E-01	2.30E-01	(5.00)	2.02E-01	Gamma (4.0)	(1.00)	4.63E-01	6.88E-01	7.43E-01	5.95E-01	4.94E-01	3.84E-01	(1.50)	3.54E-01												
Chi (4)	(1.41)		2.18E-01	4.94E-01	5.47E-01	3.85E-01	2.42E-01	1.68E-01																																																																																																																																																																																																																																	
	(3.00)		1.47E-01						Chi (8)	(1.00)	2.86E-01	5.14E-01	5.73E-01	4.04E-01	3.20E-01	2.26E-01	(1.50)	1.98E-01	Chi (10)	(0.89)	3.07E-01	5.19E-01	5.79E-01	4.08E-01	3.46E-01	2.49E-01	(1.20)	2.15E-01	Chi (12)	(0.82)	3.21E-01	5.22E-01	5.83E-01	4.11E-01	3.65E-01	2.66E-01	(1.00)	2.26E-01	Chi (16)	(0.71)	3.44E-01	5.29E-01	5.91E-01	4.17E-01	3.97E-01	2.94E-01	(0.75)	2.46E-01	Chi (24)	(0.58)	3.66E-01	5.33E-01	5.96E-01	4.19E-01	4.29E-01	3.26E-01	(0.50)	2.65E-01	Gamma (0.15)	(5.16)	4.69E-02	4.00E-01	4.21E-01	2.73E-01	1.29E-01	1.26E-01	(40.0)	2.77E-02	Gamma (1.2)	(1.83)	1.72E-01	4.79E-01	5.26E-01	3.71E-01	1.82E-01	1.39E-01	(5.00)	1.14E-01	Gamma (4.0)	(1.00)	2.88E-01	5.13E-01	5.72E-01	4.03E-01	3.19E-01	2.27E-01	(1.50)	2.00E-01	Chi (1)	(2.83)	k=4	1.61E-01	5.52E-01	5.90E-01	4.40E-01	1.47E-01	1.71E-01	(12.0)	1.08E-01	Chi (2)		(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01		Chi (3)	(1.63)	3.15E-01	6.31E-01	6.81E-01	5.30E-01	3.27E-01	2.50E-01	(4.00)		2.27E-01	Chi (4)	(1.41)	3.60E-01	6.51E-01	7.03E-01	5.53E-01	3.80E-01	2.86E-01	(3.00)	2.64E-01	Chi (8)	(1.00)	4.61E-01	6.89E-01	7.44E-01	5.96E-01	4.94E-01	3.84E-01	(1.50)	3.52E-01	Chi (10)	(0.89)	4.89E-01	6.98E-01	7.53E-01	6.06E-01	5.29E-01	4.19E-01	(1.20)	3.78E-01	Chi (12)	(0.82)	5.07E-01	7.03E-01	7.59E-01	6.13E-01	5.53E-01	4.43E-01	(1.00)	3.96E-01	Chi (16)	(0.71)	5.35E-01	7.12E-01	7.69E-01	6.24E-01	5.90E-01	4.82E-01	(0.75)	4.23E-01	Chi (24)	(0.58)	5.62E-01	7.19E-01	7.76E-01	6.33E-01	6.25E-01	5.24E-01	(0.50)	4.50E-01	Gamma (0.15)	(5.16)	7.02E-02	4.60E-01	4.83E-01	3.32E-01	1.71E-01	1.68E-01	(40.0)	4.34E-02	Gamma (1.2)	(1.83)	2.83E-01	6.17E-01	6.66E-01	5.16E-01	2.87E-01	2.30E-01	(5.00)	2.02E-01	Gamma (4.0)	(1.00)	4.63E-01	6.88E-01	7.43E-01	5.95E-01	4.94E-01	3.84E-01	(1.50)	3.54E-01																					
Chi (8)	(1.00)		2.86E-01	5.14E-01	5.73E-01	4.04E-01	3.20E-01	2.26E-01																																																																																																																																																																																																																																	
	(1.50)		1.98E-01						Chi (10)	(0.89)	3.07E-01	5.19E-01	5.79E-01	4.08E-01	3.46E-01	2.49E-01	(1.20)	2.15E-01	Chi (12)	(0.82)	3.21E-01	5.22E-01	5.83E-01	4.11E-01	3.65E-01	2.66E-01	(1.00)	2.26E-01	Chi (16)	(0.71)	3.44E-01	5.29E-01	5.91E-01	4.17E-01	3.97E-01	2.94E-01	(0.75)	2.46E-01	Chi (24)	(0.58)	3.66E-01	5.33E-01	5.96E-01	4.19E-01	4.29E-01	3.26E-01	(0.50)	2.65E-01	Gamma (0.15)	(5.16)	4.69E-02	4.00E-01	4.21E-01	2.73E-01	1.29E-01	1.26E-01	(40.0)	2.77E-02	Gamma (1.2)	(1.83)	1.72E-01	4.79E-01	5.26E-01	3.71E-01	1.82E-01	1.39E-01	(5.00)	1.14E-01	Gamma (4.0)	(1.00)	2.88E-01	5.13E-01	5.72E-01	4.03E-01	3.19E-01	2.27E-01	(1.50)	2.00E-01	Chi (1)	(2.83)	k=4	1.61E-01	5.52E-01	5.90E-01	4.40E-01	1.47E-01	1.71E-01	(12.0)	1.08E-01	Chi (2)		(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01		Chi (3)	(1.63)	3.15E-01	6.31E-01	6.81E-01	5.30E-01	3.27E-01	2.50E-01	(4.00)		2.27E-01	Chi (4)	(1.41)	3.60E-01	6.51E-01	7.03E-01	5.53E-01	3.80E-01	2.86E-01		(3.00)	2.64E-01	Chi (8)	(1.00)	4.61E-01	6.89E-01	7.44E-01	5.96E-01	4.94E-01	3.84E-01	(1.50)	3.52E-01	Chi (10)	(0.89)	4.89E-01	6.98E-01	7.53E-01	6.06E-01	5.29E-01	4.19E-01	(1.20)	3.78E-01	Chi (12)	(0.82)	5.07E-01	7.03E-01	7.59E-01	6.13E-01	5.53E-01	4.43E-01	(1.00)	3.96E-01	Chi (16)	(0.71)	5.35E-01	7.12E-01	7.69E-01	6.24E-01	5.90E-01	4.82E-01	(0.75)	4.23E-01	Chi (24)	(0.58)	5.62E-01	7.19E-01	7.76E-01	6.33E-01	6.25E-01	5.24E-01	(0.50)	4.50E-01	Gamma (0.15)	(5.16)	7.02E-02	4.60E-01	4.83E-01	3.32E-01	1.71E-01	1.68E-01	(40.0)	4.34E-02	Gamma (1.2)	(1.83)	2.83E-01	6.17E-01	6.66E-01	5.16E-01	2.87E-01	2.30E-01	(5.00)	2.02E-01	Gamma (4.0)	(1.00)	4.63E-01	6.88E-01	7.43E-01	5.95E-01	4.94E-01	3.84E-01	(1.50)	3.54E-01																														
Chi (10)	(0.89)		3.07E-01	5.19E-01	5.79E-01	4.08E-01	3.46E-01	2.49E-01																																																																																																																																																																																																																																	
	(1.20)		2.15E-01						Chi (12)	(0.82)	3.21E-01	5.22E-01	5.83E-01	4.11E-01	3.65E-01	2.66E-01	(1.00)	2.26E-01	Chi (16)	(0.71)	3.44E-01	5.29E-01	5.91E-01	4.17E-01	3.97E-01	2.94E-01	(0.75)	2.46E-01	Chi (24)	(0.58)	3.66E-01	5.33E-01	5.96E-01	4.19E-01	4.29E-01	3.26E-01	(0.50)	2.65E-01	Gamma (0.15)	(5.16)	4.69E-02	4.00E-01	4.21E-01	2.73E-01	1.29E-01	1.26E-01	(40.0)	2.77E-02	Gamma (1.2)	(1.83)	1.72E-01	4.79E-01	5.26E-01	3.71E-01	1.82E-01	1.39E-01	(5.00)	1.14E-01	Gamma (4.0)	(1.00)	2.88E-01	5.13E-01	5.72E-01	4.03E-01	3.19E-01	2.27E-01	(1.50)	2.00E-01	Chi (1)	(2.83)	k=4	1.61E-01	5.52E-01	5.90E-01	4.40E-01	1.47E-01	1.71E-01	(12.0)	1.08E-01	Chi (2)		(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01		Chi (3)	(1.63)	3.15E-01	6.31E-01	6.81E-01	5.30E-01	3.27E-01	2.50E-01	(4.00)		2.27E-01	Chi (4)	(1.41)	3.60E-01	6.51E-01	7.03E-01	5.53E-01	3.80E-01	2.86E-01		(3.00)	2.64E-01	Chi (8)	(1.00)	4.61E-01	6.89E-01	7.44E-01	5.96E-01	4.94E-01		3.84E-01	(1.50)	3.52E-01	Chi (10)	(0.89)	4.89E-01	6.98E-01	7.53E-01	6.06E-01	5.29E-01	4.19E-01	(1.20)	3.78E-01	Chi (12)	(0.82)	5.07E-01	7.03E-01	7.59E-01	6.13E-01	5.53E-01	4.43E-01	(1.00)	3.96E-01	Chi (16)	(0.71)	5.35E-01	7.12E-01	7.69E-01	6.24E-01	5.90E-01	4.82E-01	(0.75)	4.23E-01	Chi (24)	(0.58)	5.62E-01	7.19E-01	7.76E-01	6.33E-01	6.25E-01	5.24E-01	(0.50)	4.50E-01	Gamma (0.15)	(5.16)	7.02E-02	4.60E-01	4.83E-01	3.32E-01	1.71E-01	1.68E-01	(40.0)	4.34E-02	Gamma (1.2)	(1.83)	2.83E-01	6.17E-01	6.66E-01	5.16E-01	2.87E-01	2.30E-01	(5.00)	2.02E-01	Gamma (4.0)	(1.00)	4.63E-01	6.88E-01	7.43E-01	5.95E-01	4.94E-01	3.84E-01	(1.50)	3.54E-01																																							
Chi (12)	(0.82)		3.21E-01	5.22E-01	5.83E-01	4.11E-01	3.65E-01	2.66E-01																																																																																																																																																																																																																																	
	(1.00)		2.26E-01						Chi (16)	(0.71)	3.44E-01	5.29E-01	5.91E-01	4.17E-01	3.97E-01	2.94E-01	(0.75)	2.46E-01	Chi (24)	(0.58)	3.66E-01	5.33E-01	5.96E-01	4.19E-01	4.29E-01	3.26E-01	(0.50)	2.65E-01	Gamma (0.15)	(5.16)	4.69E-02	4.00E-01	4.21E-01	2.73E-01	1.29E-01	1.26E-01	(40.0)	2.77E-02	Gamma (1.2)	(1.83)	1.72E-01	4.79E-01	5.26E-01	3.71E-01	1.82E-01	1.39E-01	(5.00)	1.14E-01	Gamma (4.0)	(1.00)	2.88E-01	5.13E-01	5.72E-01	4.03E-01	3.19E-01	2.27E-01	(1.50)	2.00E-01	Chi (1)	(2.83)	k=4	1.61E-01	5.52E-01	5.90E-01	4.40E-01	1.47E-01	1.71E-01	(12.0)	1.08E-01	Chi (2)		(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01		Chi (3)	(1.63)	3.15E-01	6.31E-01	6.81E-01	5.30E-01	3.27E-01	2.50E-01	(4.00)		2.27E-01	Chi (4)	(1.41)	3.60E-01	6.51E-01	7.03E-01	5.53E-01	3.80E-01	2.86E-01		(3.00)	2.64E-01	Chi (8)	(1.00)	4.61E-01	6.89E-01	7.44E-01	5.96E-01	4.94E-01		3.84E-01	(1.50)	3.52E-01	Chi (10)	(0.89)	4.89E-01	6.98E-01	7.53E-01	6.06E-01		5.29E-01	4.19E-01	(1.20)	3.78E-01	Chi (12)	(0.82)	5.07E-01	7.03E-01	7.59E-01	6.13E-01	5.53E-01	4.43E-01	(1.00)	3.96E-01	Chi (16)	(0.71)	5.35E-01	7.12E-01	7.69E-01	6.24E-01	5.90E-01	4.82E-01	(0.75)	4.23E-01	Chi (24)	(0.58)	5.62E-01	7.19E-01	7.76E-01	6.33E-01	6.25E-01	5.24E-01	(0.50)	4.50E-01	Gamma (0.15)	(5.16)	7.02E-02	4.60E-01	4.83E-01	3.32E-01	1.71E-01	1.68E-01	(40.0)	4.34E-02	Gamma (1.2)	(1.83)	2.83E-01	6.17E-01	6.66E-01	5.16E-01	2.87E-01	2.30E-01	(5.00)	2.02E-01	Gamma (4.0)	(1.00)	4.63E-01	6.88E-01	7.43E-01	5.95E-01	4.94E-01	3.84E-01	(1.50)	3.54E-01																																																
Chi (16)	(0.71)		3.44E-01	5.29E-01	5.91E-01	4.17E-01	3.97E-01	2.94E-01																																																																																																																																																																																																																																	
	(0.75)		2.46E-01						Chi (24)	(0.58)	3.66E-01	5.33E-01	5.96E-01	4.19E-01	4.29E-01	3.26E-01	(0.50)	2.65E-01	Gamma (0.15)	(5.16)	4.69E-02	4.00E-01	4.21E-01	2.73E-01	1.29E-01	1.26E-01	(40.0)	2.77E-02	Gamma (1.2)	(1.83)	1.72E-01	4.79E-01	5.26E-01	3.71E-01	1.82E-01	1.39E-01	(5.00)	1.14E-01	Gamma (4.0)	(1.00)	2.88E-01	5.13E-01	5.72E-01	4.03E-01	3.19E-01	2.27E-01	(1.50)	2.00E-01	Chi (1)	(2.83)	k=4	1.61E-01	5.52E-01	5.90E-01	4.40E-01	1.47E-01	1.71E-01	(12.0)	1.08E-01	Chi (2)		(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01		Chi (3)	(1.63)	3.15E-01	6.31E-01	6.81E-01	5.30E-01	3.27E-01	2.50E-01	(4.00)		2.27E-01	Chi (4)	(1.41)	3.60E-01	6.51E-01	7.03E-01	5.53E-01	3.80E-01	2.86E-01		(3.00)	2.64E-01	Chi (8)	(1.00)	4.61E-01	6.89E-01	7.44E-01	5.96E-01	4.94E-01		3.84E-01	(1.50)	3.52E-01	Chi (10)	(0.89)	4.89E-01	6.98E-01	7.53E-01	6.06E-01		5.29E-01	4.19E-01	(1.20)	3.78E-01	Chi (12)	(0.82)	5.07E-01	7.03E-01	7.59E-01		6.13E-01	5.53E-01	4.43E-01	(1.00)	3.96E-01	Chi (16)	(0.71)	5.35E-01	7.12E-01	7.69E-01	6.24E-01	5.90E-01	4.82E-01	(0.75)	4.23E-01	Chi (24)	(0.58)	5.62E-01	7.19E-01	7.76E-01	6.33E-01	6.25E-01	5.24E-01	(0.50)	4.50E-01	Gamma (0.15)	(5.16)	7.02E-02	4.60E-01	4.83E-01	3.32E-01	1.71E-01	1.68E-01	(40.0)	4.34E-02	Gamma (1.2)	(1.83)	2.83E-01	6.17E-01	6.66E-01	5.16E-01	2.87E-01	2.30E-01	(5.00)	2.02E-01	Gamma (4.0)	(1.00)	4.63E-01	6.88E-01	7.43E-01	5.95E-01	4.94E-01	3.84E-01	(1.50)	3.54E-01																																																									
Chi (24)	(0.58)		3.66E-01	5.33E-01	5.96E-01	4.19E-01	4.29E-01	3.26E-01																																																																																																																																																																																																																																	
	(0.50)		2.65E-01						Gamma (0.15)	(5.16)	4.69E-02	4.00E-01	4.21E-01	2.73E-01	1.29E-01	1.26E-01	(40.0)	2.77E-02	Gamma (1.2)	(1.83)	1.72E-01	4.79E-01	5.26E-01	3.71E-01	1.82E-01	1.39E-01	(5.00)	1.14E-01	Gamma (4.0)	(1.00)	2.88E-01	5.13E-01	5.72E-01	4.03E-01	3.19E-01	2.27E-01	(1.50)	2.00E-01	Chi (1)	(2.83)	k=4	1.61E-01	5.52E-01	5.90E-01	4.40E-01	1.47E-01	1.71E-01	(12.0)	1.08E-01	Chi (2)		(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01		Chi (3)	(1.63)	3.15E-01	6.31E-01	6.81E-01	5.30E-01	3.27E-01	2.50E-01	(4.00)		2.27E-01	Chi (4)	(1.41)	3.60E-01	6.51E-01	7.03E-01	5.53E-01	3.80E-01	2.86E-01		(3.00)	2.64E-01	Chi (8)	(1.00)	4.61E-01	6.89E-01	7.44E-01	5.96E-01	4.94E-01		3.84E-01	(1.50)	3.52E-01	Chi (10)	(0.89)	4.89E-01	6.98E-01	7.53E-01	6.06E-01		5.29E-01	4.19E-01	(1.20)	3.78E-01	Chi (12)	(0.82)	5.07E-01	7.03E-01	7.59E-01		6.13E-01	5.53E-01	4.43E-01	(1.00)	3.96E-01	Chi (16)	(0.71)	5.35E-01	7.12E-01		7.69E-01	6.24E-01	5.90E-01	4.82E-01	(0.75)	4.23E-01	Chi (24)	(0.58)	5.62E-01	7.19E-01	7.76E-01	6.33E-01	6.25E-01	5.24E-01	(0.50)	4.50E-01	Gamma (0.15)	(5.16)	7.02E-02	4.60E-01	4.83E-01	3.32E-01	1.71E-01	1.68E-01	(40.0)	4.34E-02	Gamma (1.2)	(1.83)	2.83E-01	6.17E-01	6.66E-01	5.16E-01	2.87E-01	2.30E-01	(5.00)	2.02E-01	Gamma (4.0)	(1.00)	4.63E-01	6.88E-01	7.43E-01	5.95E-01	4.94E-01	3.84E-01	(1.50)	3.54E-01																																																																		
Gamma (0.15)	(5.16)		4.69E-02	4.00E-01	4.21E-01	2.73E-01	1.29E-01	1.26E-01																																																																																																																																																																																																																																	
	(40.0)		2.77E-02						Gamma (1.2)	(1.83)	1.72E-01	4.79E-01	5.26E-01	3.71E-01	1.82E-01	1.39E-01	(5.00)	1.14E-01	Gamma (4.0)	(1.00)	2.88E-01	5.13E-01	5.72E-01	4.03E-01	3.19E-01	2.27E-01	(1.50)	2.00E-01	Chi (1)	(2.83)	k=4	1.61E-01	5.52E-01	5.90E-01	4.40E-01	1.47E-01	1.71E-01	(12.0)	1.08E-01	Chi (2)		(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01		Chi (3)	(1.63)	3.15E-01	6.31E-01	6.81E-01	5.30E-01	3.27E-01	2.50E-01	(4.00)		2.27E-01	Chi (4)	(1.41)	3.60E-01	6.51E-01	7.03E-01	5.53E-01	3.80E-01	2.86E-01		(3.00)	2.64E-01	Chi (8)	(1.00)	4.61E-01	6.89E-01	7.44E-01	5.96E-01	4.94E-01		3.84E-01	(1.50)	3.52E-01	Chi (10)	(0.89)	4.89E-01	6.98E-01	7.53E-01	6.06E-01		5.29E-01	4.19E-01	(1.20)	3.78E-01	Chi (12)	(0.82)	5.07E-01	7.03E-01	7.59E-01		6.13E-01	5.53E-01	4.43E-01	(1.00)	3.96E-01	Chi (16)	(0.71)	5.35E-01	7.12E-01		7.69E-01	6.24E-01	5.90E-01	4.82E-01	(0.75)	4.23E-01	Chi (24)	(0.58)	5.62E-01		7.19E-01	7.76E-01	6.33E-01	6.25E-01	5.24E-01	(0.50)	4.50E-01	Gamma (0.15)	(5.16)	7.02E-02	4.60E-01	4.83E-01	3.32E-01	1.71E-01	1.68E-01	(40.0)	4.34E-02	Gamma (1.2)	(1.83)	2.83E-01	6.17E-01	6.66E-01	5.16E-01	2.87E-01	2.30E-01	(5.00)	2.02E-01	Gamma (4.0)	(1.00)	4.63E-01	6.88E-01	7.43E-01	5.95E-01	4.94E-01	3.84E-01	(1.50)	3.54E-01																																																																											
Gamma (1.2)	(1.83)	1.72E-01	4.79E-01	5.26E-01	3.71E-01	1.82E-01	1.39E-01																																																																																																																																																																																																																																		
	(5.00)	1.14E-01						Gamma (4.0)	(1.00)	2.88E-01	5.13E-01	5.72E-01	4.03E-01	3.19E-01	2.27E-01	(1.50)	2.00E-01	Chi (1)	(2.83)	k=4	1.61E-01	5.52E-01	5.90E-01	4.40E-01	1.47E-01	1.71E-01	(12.0)	1.08E-01	Chi (2)	(2.00)		2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01	Chi (3)		(1.63)	3.15E-01	6.31E-01	6.81E-01	5.30E-01	3.27E-01	2.50E-01	(4.00)	2.27E-01		Chi (4)	(1.41)	3.60E-01	6.51E-01	7.03E-01	5.53E-01	3.80E-01	2.86E-01	(3.00)		2.64E-01	Chi (8)	(1.00)	4.61E-01	6.89E-01	7.44E-01	5.96E-01	4.94E-01	3.84E-01		(1.50)	3.52E-01	Chi (10)	(0.89)	4.89E-01	6.98E-01	7.53E-01	6.06E-01	5.29E-01		4.19E-01	(1.20)	3.78E-01	Chi (12)	(0.82)	5.07E-01	7.03E-01	7.59E-01	6.13E-01		5.53E-01	4.43E-01	(1.00)	3.96E-01	Chi (16)	(0.71)	5.35E-01	7.12E-01	7.69E-01		6.24E-01	5.90E-01	4.82E-01	(0.75)	4.23E-01	Chi (24)	(0.58)	5.62E-01	7.19E-01		7.76E-01	6.33E-01	6.25E-01	5.24E-01	(0.50)	4.50E-01	Gamma (0.15)	(5.16)	7.02E-02	4.60E-01	4.83E-01	3.32E-01	1.71E-01	1.68E-01	(40.0)	4.34E-02	Gamma (1.2)	(1.83)	2.83E-01	6.17E-01	6.66E-01	5.16E-01	2.87E-01	2.30E-01	(5.00)	2.02E-01	Gamma (4.0)	(1.00)	4.63E-01	6.88E-01	7.43E-01	5.95E-01	4.94E-01	3.84E-01	(1.50)	3.54E-01																																																																																						
Gamma (4.0)	(1.00)	2.88E-01	5.13E-01	5.72E-01	4.03E-01	3.19E-01	2.27E-01																																																																																																																																																																																																																																		
	(1.50)	2.00E-01						Chi (1)	(2.83)	k=4	1.61E-01	5.52E-01	5.90E-01	4.40E-01	1.47E-01	1.71E-01	(12.0)	1.08E-01	Chi (2)		(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01	Chi (3)		(1.63)	3.15E-01	6.31E-01	6.81E-01	5.30E-01	3.27E-01	2.50E-01	(4.00)	2.27E-01		Chi (4)	(1.41)	3.60E-01	6.51E-01	7.03E-01	5.53E-01	3.80E-01	2.86E-01	(3.00)		2.64E-01	Chi (8)	(1.00)	4.61E-01	6.89E-01	7.44E-01	5.96E-01	4.94E-01	3.84E-01		(1.50)	3.52E-01	Chi (10)	(0.89)	4.89E-01	6.98E-01	7.53E-01	6.06E-01	5.29E-01		4.19E-01	(1.20)	3.78E-01	Chi (12)	(0.82)	5.07E-01	7.03E-01	7.59E-01	6.13E-01		5.53E-01	4.43E-01	(1.00)	3.96E-01	Chi (16)	(0.71)	5.35E-01	7.12E-01	7.69E-01		6.24E-01	5.90E-01	4.82E-01	(0.75)	4.23E-01	Chi (24)	(0.58)	5.62E-01	7.19E-01		7.76E-01	6.33E-01	6.25E-01	5.24E-01	(0.50)	4.50E-01	Gamma (0.15)	(5.16)	7.02E-02	4.60E-01	4.83E-01	3.32E-01	1.71E-01	1.68E-01	(40.0)	4.34E-02	Gamma (1.2)	(1.83)	2.83E-01	6.17E-01	6.66E-01	5.16E-01	2.87E-01	2.30E-01	(5.00)	2.02E-01	Gamma (4.0)	(1.00)	4.63E-01	6.88E-01	7.43E-01	5.95E-01	4.94E-01	3.84E-01	(1.50)	3.54E-01																																																																																																
Chi (1)	(2.83)	k=4	1.61E-01	5.52E-01	5.90E-01	4.40E-01	1.47E-01		1.71E-01																																																																																																																																																																																																																																
	(12.0)		1.08E-01					Chi (2)			(2.00)	2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01	2.11E-01	(6.00)	1.77E-01		Chi (3)	(1.63)	3.15E-01	6.31E-01	6.81E-01	5.30E-01	3.27E-01	2.50E-01	(4.00)	2.27E-01		Chi (4)	(1.41)	3.60E-01	6.51E-01	7.03E-01	5.53E-01	3.80E-01	2.86E-01	(3.00)		2.64E-01	Chi (8)	(1.00)	4.61E-01	6.89E-01	7.44E-01	5.96E-01	4.94E-01	3.84E-01		(1.50)	3.52E-01	Chi (10)	(0.89)	4.89E-01	6.98E-01	7.53E-01	6.06E-01	5.29E-01		4.19E-01	(1.20)	3.78E-01	Chi (12)	(0.82)	5.07E-01	7.03E-01	7.59E-01	6.13E-01		5.53E-01	4.43E-01	(1.00)	3.96E-01	Chi (16)	(0.71)	5.35E-01	7.12E-01	7.69E-01		6.24E-01	5.90E-01	4.82E-01	(0.75)	4.23E-01	Chi (24)	(0.58)	5.62E-01	7.19E-01		7.76E-01	6.33E-01	6.25E-01	5.24E-01	(0.50)	4.50E-01	Gamma (0.15)	(5.16)	7.02E-02	4.60E-01	4.83E-01	3.32E-01	1.71E-01	1.68E-01	(40.0)	4.34E-02	Gamma (1.2)	(1.83)	2.83E-01	6.17E-01	6.66E-01	5.16E-01	2.87E-01	2.30E-01	(5.00)	2.02E-01	Gamma (4.0)	(1.00)	4.63E-01	6.88E-01	7.43E-01	5.95E-01	4.94E-01	3.84E-01	(1.50)	3.54E-01																																																																																																										
Chi (2)	(2.00)		2.52E-01	6.03E-01	6.50E-01	5.00E-01	2.51E-01		2.11E-01																																																																																																																																																																																																																																
	(6.00)		1.77E-01					Chi (3)			(1.63)	3.15E-01	6.31E-01	6.81E-01	5.30E-01	3.27E-01	2.50E-01	(4.00)	2.27E-01		Chi (4)	(1.41)	3.60E-01	6.51E-01	7.03E-01	5.53E-01	3.80E-01	2.86E-01	(3.00)	2.64E-01		Chi (8)	(1.00)	4.61E-01	6.89E-01	7.44E-01	5.96E-01	4.94E-01	3.84E-01	(1.50)		3.52E-01	Chi (10)	(0.89)	4.89E-01	6.98E-01	7.53E-01	6.06E-01	5.29E-01	4.19E-01		(1.20)	3.78E-01	Chi (12)	(0.82)	5.07E-01	7.03E-01	7.59E-01	6.13E-01	5.53E-01		4.43E-01	(1.00)	3.96E-01	Chi (16)	(0.71)	5.35E-01	7.12E-01	7.69E-01	6.24E-01		5.90E-01	4.82E-01	(0.75)	4.23E-01	Chi (24)	(0.58)	5.62E-01	7.19E-01	7.76E-01		6.33E-01	6.25E-01	5.24E-01	(0.50)	4.50E-01	Gamma (0.15)	(5.16)	7.02E-02	4.60E-01	4.83E-01	3.32E-01	1.71E-01	1.68E-01	(40.0)	4.34E-02	Gamma (1.2)	(1.83)	2.83E-01	6.17E-01	6.66E-01	5.16E-01	2.87E-01	2.30E-01	(5.00)	2.02E-01	Gamma (4.0)	(1.00)	4.63E-01	6.88E-01	7.43E-01	5.95E-01	4.94E-01	3.84E-01	(1.50)	3.54E-01																																																																																																																					
Chi (3)	(1.63)		3.15E-01	6.31E-01	6.81E-01	5.30E-01	3.27E-01		2.50E-01																																																																																																																																																																																																																																
	(4.00)		2.27E-01					Chi (4)			(1.41)	3.60E-01	6.51E-01	7.03E-01	5.53E-01	3.80E-01	2.86E-01	(3.00)	2.64E-01		Chi (8)	(1.00)	4.61E-01	6.89E-01	7.44E-01	5.96E-01	4.94E-01	3.84E-01	(1.50)	3.52E-01		Chi (10)	(0.89)	4.89E-01	6.98E-01	7.53E-01	6.06E-01	5.29E-01	4.19E-01	(1.20)		3.78E-01	Chi (12)	(0.82)	5.07E-01	7.03E-01	7.59E-01	6.13E-01	5.53E-01	4.43E-01		(1.00)	3.96E-01	Chi (16)	(0.71)	5.35E-01	7.12E-01	7.69E-01	6.24E-01	5.90E-01		4.82E-01	(0.75)	4.23E-01	Chi (24)	(0.58)	5.62E-01	7.19E-01	7.76E-01	6.33E-01		6.25E-01	5.24E-01	(0.50)	4.50E-01	Gamma (0.15)	(5.16)	7.02E-02	4.60E-01	4.83E-01	3.32E-01	1.71E-01	1.68E-01	(40.0)	4.34E-02	Gamma (1.2)	(1.83)	2.83E-01	6.17E-01	6.66E-01	5.16E-01	2.87E-01	2.30E-01	(5.00)	2.02E-01	Gamma (4.0)	(1.00)	4.63E-01	6.88E-01	7.43E-01	5.95E-01	4.94E-01	3.84E-01	(1.50)	3.54E-01																																																																																																																																
Chi (4)	(1.41)		3.60E-01	6.51E-01	7.03E-01	5.53E-01	3.80E-01		2.86E-01																																																																																																																																																																																																																																
	(3.00)		2.64E-01					Chi (8)			(1.00)	4.61E-01	6.89E-01	7.44E-01	5.96E-01	4.94E-01	3.84E-01	(1.50)	3.52E-01		Chi (10)	(0.89)	4.89E-01	6.98E-01	7.53E-01	6.06E-01	5.29E-01	4.19E-01	(1.20)	3.78E-01		Chi (12)	(0.82)	5.07E-01	7.03E-01	7.59E-01	6.13E-01	5.53E-01	4.43E-01	(1.00)		3.96E-01	Chi (16)	(0.71)	5.35E-01	7.12E-01	7.69E-01	6.24E-01	5.90E-01	4.82E-01		(0.75)	4.23E-01	Chi (24)	(0.58)	5.62E-01	7.19E-01	7.76E-01	6.33E-01	6.25E-01		5.24E-01	(0.50)	4.50E-01	Gamma (0.15)	(5.16)	7.02E-02	4.60E-01	4.83E-01	3.32E-01	1.71E-01	1.68E-01	(40.0)	4.34E-02	Gamma (1.2)	(1.83)	2.83E-01	6.17E-01	6.66E-01	5.16E-01	2.87E-01	2.30E-01	(5.00)	2.02E-01	Gamma (4.0)	(1.00)	4.63E-01	6.88E-01	7.43E-01	5.95E-01	4.94E-01	3.84E-01	(1.50)	3.54E-01																																																																																																																																											
Chi (8)	(1.00)		4.61E-01	6.89E-01	7.44E-01	5.96E-01	4.94E-01		3.84E-01																																																																																																																																																																																																																																
	(1.50)		3.52E-01					Chi (10)			(0.89)	4.89E-01	6.98E-01	7.53E-01	6.06E-01	5.29E-01	4.19E-01	(1.20)	3.78E-01		Chi (12)	(0.82)	5.07E-01	7.03E-01	7.59E-01	6.13E-01	5.53E-01	4.43E-01	(1.00)	3.96E-01		Chi (16)	(0.71)	5.35E-01	7.12E-01	7.69E-01	6.24E-01	5.90E-01	4.82E-01	(0.75)		4.23E-01	Chi (24)	(0.58)	5.62E-01	7.19E-01	7.76E-01	6.33E-01	6.25E-01	5.24E-01		(0.50)	4.50E-01	Gamma (0.15)	(5.16)	7.02E-02	4.60E-01	4.83E-01	3.32E-01	1.71E-01	1.68E-01	(40.0)	4.34E-02	Gamma (1.2)	(1.83)	2.83E-01	6.17E-01	6.66E-01	5.16E-01	2.87E-01	2.30E-01	(5.00)	2.02E-01	Gamma (4.0)	(1.00)	4.63E-01	6.88E-01	7.43E-01	5.95E-01	4.94E-01	3.84E-01	(1.50)	3.54E-01																																																																																																																																																						
Chi (10)	(0.89)		4.89E-01	6.98E-01	7.53E-01	6.06E-01	5.29E-01		4.19E-01																																																																																																																																																																																																																																
	(1.20)		3.78E-01					Chi (12)			(0.82)	5.07E-01	7.03E-01	7.59E-01	6.13E-01	5.53E-01	4.43E-01	(1.00)	3.96E-01		Chi (16)	(0.71)	5.35E-01	7.12E-01	7.69E-01	6.24E-01	5.90E-01	4.82E-01	(0.75)	4.23E-01		Chi (24)	(0.58)	5.62E-01	7.19E-01	7.76E-01	6.33E-01	6.25E-01	5.24E-01	(0.50)		4.50E-01	Gamma (0.15)	(5.16)	7.02E-02	4.60E-01	4.83E-01	3.32E-01	1.71E-01	1.68E-01	(40.0)	4.34E-02	Gamma (1.2)	(1.83)	2.83E-01	6.17E-01	6.66E-01	5.16E-01	2.87E-01	2.30E-01	(5.00)	2.02E-01	Gamma (4.0)	(1.00)	4.63E-01	6.88E-01	7.43E-01	5.95E-01	4.94E-01	3.84E-01	(1.50)	3.54E-01																																																																																																																																																																	
Chi (12)	(0.82)		5.07E-01	7.03E-01	7.59E-01	6.13E-01	5.53E-01		4.43E-01																																																																																																																																																																																																																																
	(1.00)		3.96E-01					Chi (16)			(0.71)	5.35E-01	7.12E-01	7.69E-01	6.24E-01	5.90E-01	4.82E-01	(0.75)	4.23E-01		Chi (24)	(0.58)	5.62E-01	7.19E-01	7.76E-01	6.33E-01	6.25E-01	5.24E-01	(0.50)	4.50E-01		Gamma (0.15)	(5.16)	7.02E-02	4.60E-01	4.83E-01	3.32E-01	1.71E-01	1.68E-01	(40.0)	4.34E-02	Gamma (1.2)	(1.83)	2.83E-01	6.17E-01	6.66E-01	5.16E-01	2.87E-01	2.30E-01	(5.00)	2.02E-01	Gamma (4.0)	(1.00)	4.63E-01	6.88E-01	7.43E-01	5.95E-01	4.94E-01	3.84E-01	(1.50)	3.54E-01																																																																																																																																																																												
Chi (16)	(0.71)		5.35E-01	7.12E-01	7.69E-01	6.24E-01	5.90E-01		4.82E-01																																																																																																																																																																																																																																
	(0.75)		4.23E-01					Chi (24)			(0.58)	5.62E-01	7.19E-01	7.76E-01	6.33E-01	6.25E-01	5.24E-01	(0.50)	4.50E-01		Gamma (0.15)	(5.16)	7.02E-02	4.60E-01	4.83E-01	3.32E-01	1.71E-01	1.68E-01	(40.0)	4.34E-02	Gamma (1.2)	(1.83)	2.83E-01	6.17E-01	6.66E-01	5.16E-01	2.87E-01	2.30E-01	(5.00)	2.02E-01	Gamma (4.0)	(1.00)	4.63E-01	6.88E-01	7.43E-01	5.95E-01	4.94E-01	3.84E-01	(1.50)	3.54E-01																																																																																																																																																																																							
Chi (24)	(0.58)		5.62E-01	7.19E-01	7.76E-01	6.33E-01	6.25E-01		5.24E-01																																																																																																																																																																																																																																
	(0.50)		4.50E-01					Gamma (0.15)			(5.16)	7.02E-02	4.60E-01	4.83E-01	3.32E-01	1.71E-01	1.68E-01	(40.0)	4.34E-02	Gamma (1.2)	(1.83)	2.83E-01	6.17E-01	6.66E-01	5.16E-01	2.87E-01	2.30E-01	(5.00)	2.02E-01	Gamma (4.0)	(1.00)	4.63E-01	6.88E-01	7.43E-01	5.95E-01	4.94E-01	3.84E-01	(1.50)	3.54E-01																																																																																																																																																																																																		
Gamma (0.15)	(5.16)		7.02E-02	4.60E-01	4.83E-01	3.32E-01	1.71E-01		1.68E-01																																																																																																																																																																																																																																
	(40.0)		4.34E-02					Gamma (1.2)		(1.83)	2.83E-01	6.17E-01	6.66E-01	5.16E-01	2.87E-01	2.30E-01	(5.00)	2.02E-01	Gamma (4.0)	(1.00)	4.63E-01	6.88E-01	7.43E-01	5.95E-01	4.94E-01	3.84E-01	(1.50)	3.54E-01																																																																																																																																																																																																													
Gamma (1.2)	(1.83)	2.83E-01	6.17E-01	6.66E-01	5.16E-01	2.87E-01	2.30E-01																																																																																																																																																																																																																																		
	(5.00)	2.02E-01						Gamma (4.0)	(1.00)	4.63E-01	6.88E-01	7.43E-01	5.95E-01	4.94E-01	3.84E-01	(1.50)	3.54E-01																																																																																																																																																																																																																								
Gamma (4.0)	(1.00)	4.63E-01	6.88E-01	7.43E-01	5.95E-01	4.94E-01	3.84E-01																																																																																																																																																																																																																																		
	(1.50)	3.54E-01																																																																																																																																																																																																																																							

A ROBUST ONE-SIDED VARIABILITY CONTROL CHART

Table 5 (continued): Power Comparison Study for Skewed Distributions ($n = 10$)

Distribution	(skewness) (kurtosis)	k	Combined Sample	R-chart	S-chart	S2-chart	WV-chart	SC-chart																																																																																																																																																																																																																																	
Normal (0,1)	(0.00)	k=5	7.61E-01	8.44E-01	8.88E-01	7.95E-01	8.33E-01	7.88E-01																																																																																																																																																																																																																																	
	(0.00)		6.71E-01						Exponential (1)	(2.00)	3.46E-01	6.97E-01	7.41E-01	6.05E-01	3.38E-01	2.92E-01	(6.00)	2.54E-01	Lognormal (0,1)	(6.18)	1.20E-01	5.52E-01	5.87E-01	4.10E-01	1.89E-01	1.79E-01	(110)	7.75E-02	Weibull (0.5)	(6.62)	8.36E-02	4.97E-01	5.25E-01	3.56E-01	1.87E-01	1.85E-01	(84.72)	5.29E-02	Weibull (0.85)	(0.12)	1.94E-01	6.15E-01	6.54E-01	5.02E-01	2.04E-01	2.15E-01	(1.23)	1.32E-01	Weibull (0.75)	(2.56)	2.53E-01	6.51E-01	6.93E-01	5.48E-01	2.50E-01	2.41E-01	(10.35)	1.78E-01	Weibull (1)	(2.00)	3.46E-01	6.97E-01	7.41E-01	6.05E-01	3.38E-01	2.92E-01	(6.00)	2.54E-01	Weibull (1.2)	(1.52)	4.64E-01	7.47E-01	7.90E-01	6.64E-01	4.55E-01	3.73E-01	(3.24)	3.58E-01	Weibull (1.5)	(1.07)	6.05E-01	7.99E-01	8.40E-01	7.27E-01	5.99E-01	5.02E-01	(1.39)	4.94E-01	Weibull (2.0)	(0.63)	7.36E-01	8.45E-01	8.81E-01	7.83E-01	7.56E-01	6.73E-01	(0.25)	6.39E-01	Weibull (3.5)	(0.03)	8.06E-01	8.63E-01	8.99E-01	8.14E-01	8.53E-01	8.09E-01	(-0.29)	7.29E-01	Barnes 2	(1.75)	4.21E-01	7.20E-01	7.62E-01	6.40E-01	3.41E-01	3.35E-01	(3.75)	3.26E-01	Normal (0,1)	(0.00)	k=6	8.38E-01	9.04E-01	9.35E-01	8.73E-01	8.96E-01	8.65E-01	(0.00)	7.64E-01	Exponential (1)	(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01	Lognormal (0,1)	(6.18)	1.54E-01	6.10E-01	6.46E-01	4.67E-01	2.26E-01	2.16E-01	(110)	1.02E-01	Weibull (0.5)	(6.62)	1.04E-01	5.40E-01	5.69E-01	3.99E-01	2.18E-01	2.15E-01	(84.72)	6.77E-02	Weibull (0.85)	(0.12)	2.47E-01	6.74E-01	7.12E-01	5.68E-01	2.52E-01	2.64E-01	(1.23)	1.73E-01	Weibull (0.75)	(2.56)	3.19E-01	7.15E-01	7.54E-01	6.20E-01	3.10E-01	3.01E-01	(10.35)	2.32E-01	Weibull (1)	(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01	Weibull (1.2)	(1.52)	5.60E-01	8.16E-01	8.53E-01	7.49E-01	5.50E-01	4.67E-01	(3.24)	4.49E-01	Weibull (1.5)	(1.07)	7.02E-01	8.67E-01	8.97E-01	8.12E-01	7.01E-01	6.13E-01	(1.39)	5.98E-01	Weibull (2.0)	(0.63)	8.19E-01	9.05E-01	9.30E-01	8.64E-01	8.41E-01	7.78E-01	(0.25)	7.38E-01	Weibull (3.5)	(0.03)	8.73E-01	9.19E-01	9.43E-01	8.88E-01	9.12E-01	8.82E-01	(-0.29)	8.13E-01	Barnes 2	(1.75)	5.05E-01	7.84E-01
Exponential (1)	(2.00)		3.46E-01	6.97E-01	7.41E-01	6.05E-01	3.38E-01	2.92E-01																																																																																																																																																																																																																																	
	(6.00)		2.54E-01						Lognormal (0,1)	(6.18)	1.20E-01	5.52E-01	5.87E-01	4.10E-01	1.89E-01	1.79E-01	(110)	7.75E-02	Weibull (0.5)	(6.62)	8.36E-02	4.97E-01	5.25E-01	3.56E-01	1.87E-01	1.85E-01	(84.72)	5.29E-02	Weibull (0.85)	(0.12)	1.94E-01	6.15E-01	6.54E-01	5.02E-01	2.04E-01	2.15E-01	(1.23)	1.32E-01	Weibull (0.75)	(2.56)	2.53E-01	6.51E-01	6.93E-01	5.48E-01	2.50E-01	2.41E-01	(10.35)	1.78E-01	Weibull (1)	(2.00)	3.46E-01	6.97E-01	7.41E-01	6.05E-01	3.38E-01	2.92E-01	(6.00)	2.54E-01	Weibull (1.2)	(1.52)	4.64E-01	7.47E-01	7.90E-01	6.64E-01	4.55E-01	3.73E-01	(3.24)	3.58E-01	Weibull (1.5)	(1.07)	6.05E-01	7.99E-01	8.40E-01	7.27E-01	5.99E-01	5.02E-01	(1.39)	4.94E-01	Weibull (2.0)	(0.63)	7.36E-01	8.45E-01	8.81E-01	7.83E-01	7.56E-01	6.73E-01	(0.25)	6.39E-01	Weibull (3.5)	(0.03)	8.06E-01	8.63E-01	8.99E-01	8.14E-01	8.53E-01	8.09E-01	(-0.29)	7.29E-01	Barnes 2	(1.75)	4.21E-01	7.20E-01	7.62E-01	6.40E-01	3.41E-01	3.35E-01	(3.75)	3.26E-01	Normal (0,1)	(0.00)	k=6	8.38E-01	9.04E-01	9.35E-01	8.73E-01	8.96E-01	8.65E-01	(0.00)	7.64E-01	Exponential (1)		(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01	Lognormal (0,1)	(6.18)	1.54E-01	6.10E-01	6.46E-01	4.67E-01	2.26E-01	2.16E-01	(110)	1.02E-01	Weibull (0.5)	(6.62)	1.04E-01	5.40E-01	5.69E-01	3.99E-01	2.18E-01	2.15E-01	(84.72)	6.77E-02	Weibull (0.85)	(0.12)	2.47E-01	6.74E-01	7.12E-01	5.68E-01	2.52E-01	2.64E-01	(1.23)	1.73E-01	Weibull (0.75)	(2.56)	3.19E-01	7.15E-01	7.54E-01	6.20E-01	3.10E-01	3.01E-01	(10.35)	2.32E-01	Weibull (1)	(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01	Weibull (1.2)	(1.52)	5.60E-01	8.16E-01	8.53E-01	7.49E-01	5.50E-01	4.67E-01	(3.24)	4.49E-01	Weibull (1.5)	(1.07)	7.02E-01	8.67E-01	8.97E-01	8.12E-01	7.01E-01	6.13E-01	(1.39)	5.98E-01	Weibull (2.0)	(0.63)	8.19E-01	9.05E-01	9.30E-01	8.64E-01	8.41E-01	7.78E-01	(0.25)	7.38E-01	Weibull (3.5)	(0.03)	8.73E-01	9.19E-01	9.43E-01	8.88E-01	9.12E-01	8.82E-01	(-0.29)	8.13E-01	Barnes 2	(1.75)	5.05E-01	7.84E-01	8.21E-01	7.17E-01	4.25E-01	4.20E-01	(3.75)	4.05E-01			
Lognormal (0,1)	(6.18)		1.20E-01	5.52E-01	5.87E-01	4.10E-01	1.89E-01	1.79E-01																																																																																																																																																																																																																																	
	(110)		7.75E-02						Weibull (0.5)	(6.62)	8.36E-02	4.97E-01	5.25E-01	3.56E-01	1.87E-01	1.85E-01	(84.72)	5.29E-02	Weibull (0.85)	(0.12)	1.94E-01	6.15E-01	6.54E-01	5.02E-01	2.04E-01	2.15E-01	(1.23)	1.32E-01	Weibull (0.75)	(2.56)	2.53E-01	6.51E-01	6.93E-01	5.48E-01	2.50E-01	2.41E-01	(10.35)	1.78E-01	Weibull (1)	(2.00)	3.46E-01	6.97E-01	7.41E-01	6.05E-01	3.38E-01	2.92E-01	(6.00)	2.54E-01	Weibull (1.2)	(1.52)	4.64E-01	7.47E-01	7.90E-01	6.64E-01	4.55E-01	3.73E-01	(3.24)	3.58E-01	Weibull (1.5)	(1.07)	6.05E-01	7.99E-01	8.40E-01	7.27E-01	5.99E-01	5.02E-01	(1.39)	4.94E-01	Weibull (2.0)	(0.63)	7.36E-01	8.45E-01	8.81E-01	7.83E-01	7.56E-01	6.73E-01	(0.25)	6.39E-01	Weibull (3.5)	(0.03)	8.06E-01	8.63E-01	8.99E-01	8.14E-01	8.53E-01	8.09E-01	(-0.29)	7.29E-01	Barnes 2	(1.75)	4.21E-01	7.20E-01	7.62E-01	6.40E-01	3.41E-01	3.35E-01	(3.75)	3.26E-01	Normal (0,1)	(0.00)	k=6	8.38E-01	9.04E-01	9.35E-01	8.73E-01	8.96E-01	8.65E-01	(0.00)	7.64E-01	Exponential (1)		(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01		Lognormal (0,1)	(6.18)	1.54E-01	6.10E-01	6.46E-01	4.67E-01	2.26E-01	2.16E-01	(110)	1.02E-01	Weibull (0.5)	(6.62)	1.04E-01	5.40E-01	5.69E-01	3.99E-01	2.18E-01	2.15E-01	(84.72)	6.77E-02	Weibull (0.85)	(0.12)	2.47E-01	6.74E-01	7.12E-01	5.68E-01	2.52E-01	2.64E-01	(1.23)	1.73E-01	Weibull (0.75)	(2.56)	3.19E-01	7.15E-01	7.54E-01	6.20E-01	3.10E-01	3.01E-01	(10.35)	2.32E-01	Weibull (1)	(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01	Weibull (1.2)	(1.52)	5.60E-01	8.16E-01	8.53E-01	7.49E-01	5.50E-01	4.67E-01	(3.24)	4.49E-01	Weibull (1.5)	(1.07)	7.02E-01	8.67E-01	8.97E-01	8.12E-01	7.01E-01	6.13E-01	(1.39)	5.98E-01	Weibull (2.0)	(0.63)	8.19E-01	9.05E-01	9.30E-01	8.64E-01	8.41E-01	7.78E-01	(0.25)	7.38E-01	Weibull (3.5)	(0.03)	8.73E-01	9.19E-01	9.43E-01	8.88E-01	9.12E-01	8.82E-01	(-0.29)	8.13E-01	Barnes 2	(1.75)	5.05E-01	7.84E-01	8.21E-01	7.17E-01	4.25E-01	4.20E-01	(3.75)	4.05E-01												
Weibull (0.5)	(6.62)		8.36E-02	4.97E-01	5.25E-01	3.56E-01	1.87E-01	1.85E-01																																																																																																																																																																																																																																	
	(84.72)		5.29E-02						Weibull (0.85)	(0.12)	1.94E-01	6.15E-01	6.54E-01	5.02E-01	2.04E-01	2.15E-01	(1.23)	1.32E-01	Weibull (0.75)	(2.56)	2.53E-01	6.51E-01	6.93E-01	5.48E-01	2.50E-01	2.41E-01	(10.35)	1.78E-01	Weibull (1)	(2.00)	3.46E-01	6.97E-01	7.41E-01	6.05E-01	3.38E-01	2.92E-01	(6.00)	2.54E-01	Weibull (1.2)	(1.52)	4.64E-01	7.47E-01	7.90E-01	6.64E-01	4.55E-01	3.73E-01	(3.24)	3.58E-01	Weibull (1.5)	(1.07)	6.05E-01	7.99E-01	8.40E-01	7.27E-01	5.99E-01	5.02E-01	(1.39)	4.94E-01	Weibull (2.0)	(0.63)	7.36E-01	8.45E-01	8.81E-01	7.83E-01	7.56E-01	6.73E-01	(0.25)	6.39E-01	Weibull (3.5)	(0.03)	8.06E-01	8.63E-01	8.99E-01	8.14E-01	8.53E-01	8.09E-01	(-0.29)	7.29E-01	Barnes 2	(1.75)	4.21E-01	7.20E-01	7.62E-01	6.40E-01	3.41E-01	3.35E-01	(3.75)	3.26E-01	Normal (0,1)	(0.00)	k=6	8.38E-01	9.04E-01	9.35E-01	8.73E-01	8.96E-01	8.65E-01	(0.00)	7.64E-01	Exponential (1)		(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01		Lognormal (0,1)	(6.18)	1.54E-01	6.10E-01	6.46E-01	4.67E-01	2.26E-01	2.16E-01	(110)		1.02E-01	Weibull (0.5)	(6.62)	1.04E-01	5.40E-01	5.69E-01	3.99E-01	2.18E-01	2.15E-01	(84.72)	6.77E-02	Weibull (0.85)	(0.12)	2.47E-01	6.74E-01	7.12E-01	5.68E-01	2.52E-01	2.64E-01	(1.23)	1.73E-01	Weibull (0.75)	(2.56)	3.19E-01	7.15E-01	7.54E-01	6.20E-01	3.10E-01	3.01E-01	(10.35)	2.32E-01	Weibull (1)	(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01	Weibull (1.2)	(1.52)	5.60E-01	8.16E-01	8.53E-01	7.49E-01	5.50E-01	4.67E-01	(3.24)	4.49E-01	Weibull (1.5)	(1.07)	7.02E-01	8.67E-01	8.97E-01	8.12E-01	7.01E-01	6.13E-01	(1.39)	5.98E-01	Weibull (2.0)	(0.63)	8.19E-01	9.05E-01	9.30E-01	8.64E-01	8.41E-01	7.78E-01	(0.25)	7.38E-01	Weibull (3.5)	(0.03)	8.73E-01	9.19E-01	9.43E-01	8.88E-01	9.12E-01	8.82E-01	(-0.29)	8.13E-01	Barnes 2	(1.75)	5.05E-01	7.84E-01	8.21E-01	7.17E-01	4.25E-01	4.20E-01	(3.75)	4.05E-01																					
Weibull (0.85)	(0.12)		1.94E-01	6.15E-01	6.54E-01	5.02E-01	2.04E-01	2.15E-01																																																																																																																																																																																																																																	
	(1.23)		1.32E-01						Weibull (0.75)	(2.56)	2.53E-01	6.51E-01	6.93E-01	5.48E-01	2.50E-01	2.41E-01	(10.35)	1.78E-01	Weibull (1)	(2.00)	3.46E-01	6.97E-01	7.41E-01	6.05E-01	3.38E-01	2.92E-01	(6.00)	2.54E-01	Weibull (1.2)	(1.52)	4.64E-01	7.47E-01	7.90E-01	6.64E-01	4.55E-01	3.73E-01	(3.24)	3.58E-01	Weibull (1.5)	(1.07)	6.05E-01	7.99E-01	8.40E-01	7.27E-01	5.99E-01	5.02E-01	(1.39)	4.94E-01	Weibull (2.0)	(0.63)	7.36E-01	8.45E-01	8.81E-01	7.83E-01	7.56E-01	6.73E-01	(0.25)	6.39E-01	Weibull (3.5)	(0.03)	8.06E-01	8.63E-01	8.99E-01	8.14E-01	8.53E-01	8.09E-01	(-0.29)	7.29E-01	Barnes 2	(1.75)	4.21E-01	7.20E-01	7.62E-01	6.40E-01	3.41E-01	3.35E-01	(3.75)	3.26E-01	Normal (0,1)	(0.00)	k=6	8.38E-01	9.04E-01	9.35E-01	8.73E-01	8.96E-01	8.65E-01	(0.00)	7.64E-01	Exponential (1)		(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01		Lognormal (0,1)	(6.18)	1.54E-01	6.10E-01	6.46E-01	4.67E-01	2.26E-01	2.16E-01	(110)		1.02E-01	Weibull (0.5)	(6.62)	1.04E-01	5.40E-01	5.69E-01	3.99E-01	2.18E-01	2.15E-01		(84.72)	6.77E-02	Weibull (0.85)	(0.12)	2.47E-01	6.74E-01	7.12E-01	5.68E-01	2.52E-01	2.64E-01	(1.23)	1.73E-01	Weibull (0.75)	(2.56)	3.19E-01	7.15E-01	7.54E-01	6.20E-01	3.10E-01	3.01E-01	(10.35)	2.32E-01	Weibull (1)	(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01	Weibull (1.2)	(1.52)	5.60E-01	8.16E-01	8.53E-01	7.49E-01	5.50E-01	4.67E-01	(3.24)	4.49E-01	Weibull (1.5)	(1.07)	7.02E-01	8.67E-01	8.97E-01	8.12E-01	7.01E-01	6.13E-01	(1.39)	5.98E-01	Weibull (2.0)	(0.63)	8.19E-01	9.05E-01	9.30E-01	8.64E-01	8.41E-01	7.78E-01	(0.25)	7.38E-01	Weibull (3.5)	(0.03)	8.73E-01	9.19E-01	9.43E-01	8.88E-01	9.12E-01	8.82E-01	(-0.29)	8.13E-01	Barnes 2	(1.75)	5.05E-01	7.84E-01	8.21E-01	7.17E-01	4.25E-01	4.20E-01	(3.75)	4.05E-01																														
Weibull (0.75)	(2.56)		2.53E-01	6.51E-01	6.93E-01	5.48E-01	2.50E-01	2.41E-01																																																																																																																																																																																																																																	
	(10.35)		1.78E-01						Weibull (1)	(2.00)	3.46E-01	6.97E-01	7.41E-01	6.05E-01	3.38E-01	2.92E-01	(6.00)	2.54E-01	Weibull (1.2)	(1.52)	4.64E-01	7.47E-01	7.90E-01	6.64E-01	4.55E-01	3.73E-01	(3.24)	3.58E-01	Weibull (1.5)	(1.07)	6.05E-01	7.99E-01	8.40E-01	7.27E-01	5.99E-01	5.02E-01	(1.39)	4.94E-01	Weibull (2.0)	(0.63)	7.36E-01	8.45E-01	8.81E-01	7.83E-01	7.56E-01	6.73E-01	(0.25)	6.39E-01	Weibull (3.5)	(0.03)	8.06E-01	8.63E-01	8.99E-01	8.14E-01	8.53E-01	8.09E-01	(-0.29)	7.29E-01	Barnes 2	(1.75)	4.21E-01	7.20E-01	7.62E-01	6.40E-01	3.41E-01	3.35E-01	(3.75)	3.26E-01	Normal (0,1)	(0.00)	k=6	8.38E-01	9.04E-01	9.35E-01	8.73E-01	8.96E-01	8.65E-01	(0.00)	7.64E-01	Exponential (1)		(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01		Lognormal (0,1)	(6.18)	1.54E-01	6.10E-01	6.46E-01	4.67E-01	2.26E-01	2.16E-01	(110)		1.02E-01	Weibull (0.5)	(6.62)	1.04E-01	5.40E-01	5.69E-01	3.99E-01	2.18E-01	2.15E-01		(84.72)	6.77E-02	Weibull (0.85)	(0.12)	2.47E-01	6.74E-01	7.12E-01	5.68E-01	2.52E-01		2.64E-01	(1.23)	1.73E-01	Weibull (0.75)	(2.56)	3.19E-01	7.15E-01	7.54E-01	6.20E-01	3.10E-01	3.01E-01	(10.35)	2.32E-01	Weibull (1)	(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01	Weibull (1.2)	(1.52)	5.60E-01	8.16E-01	8.53E-01	7.49E-01	5.50E-01	4.67E-01	(3.24)	4.49E-01	Weibull (1.5)	(1.07)	7.02E-01	8.67E-01	8.97E-01	8.12E-01	7.01E-01	6.13E-01	(1.39)	5.98E-01	Weibull (2.0)	(0.63)	8.19E-01	9.05E-01	9.30E-01	8.64E-01	8.41E-01	7.78E-01	(0.25)	7.38E-01	Weibull (3.5)	(0.03)	8.73E-01	9.19E-01	9.43E-01	8.88E-01	9.12E-01	8.82E-01	(-0.29)	8.13E-01	Barnes 2	(1.75)	5.05E-01	7.84E-01	8.21E-01	7.17E-01	4.25E-01	4.20E-01	(3.75)	4.05E-01																																							
Weibull (1)	(2.00)		3.46E-01	6.97E-01	7.41E-01	6.05E-01	3.38E-01	2.92E-01																																																																																																																																																																																																																																	
	(6.00)		2.54E-01						Weibull (1.2)	(1.52)	4.64E-01	7.47E-01	7.90E-01	6.64E-01	4.55E-01	3.73E-01	(3.24)	3.58E-01	Weibull (1.5)	(1.07)	6.05E-01	7.99E-01	8.40E-01	7.27E-01	5.99E-01	5.02E-01	(1.39)	4.94E-01	Weibull (2.0)	(0.63)	7.36E-01	8.45E-01	8.81E-01	7.83E-01	7.56E-01	6.73E-01	(0.25)	6.39E-01	Weibull (3.5)	(0.03)	8.06E-01	8.63E-01	8.99E-01	8.14E-01	8.53E-01	8.09E-01	(-0.29)	7.29E-01	Barnes 2	(1.75)	4.21E-01	7.20E-01	7.62E-01	6.40E-01	3.41E-01	3.35E-01	(3.75)	3.26E-01	Normal (0,1)	(0.00)	k=6	8.38E-01	9.04E-01	9.35E-01	8.73E-01	8.96E-01	8.65E-01	(0.00)	7.64E-01	Exponential (1)		(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01		Lognormal (0,1)	(6.18)	1.54E-01	6.10E-01	6.46E-01	4.67E-01	2.26E-01	2.16E-01	(110)		1.02E-01	Weibull (0.5)	(6.62)	1.04E-01	5.40E-01	5.69E-01	3.99E-01	2.18E-01	2.15E-01		(84.72)	6.77E-02	Weibull (0.85)	(0.12)	2.47E-01	6.74E-01	7.12E-01	5.68E-01	2.52E-01		2.64E-01	(1.23)	1.73E-01	Weibull (0.75)	(2.56)	3.19E-01	7.15E-01	7.54E-01	6.20E-01		3.10E-01	3.01E-01	(10.35)	2.32E-01	Weibull (1)	(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01	Weibull (1.2)	(1.52)	5.60E-01	8.16E-01	8.53E-01	7.49E-01	5.50E-01	4.67E-01	(3.24)	4.49E-01	Weibull (1.5)	(1.07)	7.02E-01	8.67E-01	8.97E-01	8.12E-01	7.01E-01	6.13E-01	(1.39)	5.98E-01	Weibull (2.0)	(0.63)	8.19E-01	9.05E-01	9.30E-01	8.64E-01	8.41E-01	7.78E-01	(0.25)	7.38E-01	Weibull (3.5)	(0.03)	8.73E-01	9.19E-01	9.43E-01	8.88E-01	9.12E-01	8.82E-01	(-0.29)	8.13E-01	Barnes 2	(1.75)	5.05E-01	7.84E-01	8.21E-01	7.17E-01	4.25E-01	4.20E-01	(3.75)	4.05E-01																																																
Weibull (1.2)	(1.52)		4.64E-01	7.47E-01	7.90E-01	6.64E-01	4.55E-01	3.73E-01																																																																																																																																																																																																																																	
	(3.24)		3.58E-01						Weibull (1.5)	(1.07)	6.05E-01	7.99E-01	8.40E-01	7.27E-01	5.99E-01	5.02E-01	(1.39)	4.94E-01	Weibull (2.0)	(0.63)	7.36E-01	8.45E-01	8.81E-01	7.83E-01	7.56E-01	6.73E-01	(0.25)	6.39E-01	Weibull (3.5)	(0.03)	8.06E-01	8.63E-01	8.99E-01	8.14E-01	8.53E-01	8.09E-01	(-0.29)	7.29E-01	Barnes 2	(1.75)	4.21E-01	7.20E-01	7.62E-01	6.40E-01	3.41E-01	3.35E-01	(3.75)	3.26E-01	Normal (0,1)	(0.00)	k=6	8.38E-01	9.04E-01	9.35E-01	8.73E-01	8.96E-01	8.65E-01	(0.00)	7.64E-01	Exponential (1)		(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01		Lognormal (0,1)	(6.18)	1.54E-01	6.10E-01	6.46E-01	4.67E-01	2.26E-01	2.16E-01	(110)		1.02E-01	Weibull (0.5)	(6.62)	1.04E-01	5.40E-01	5.69E-01	3.99E-01	2.18E-01	2.15E-01		(84.72)	6.77E-02	Weibull (0.85)	(0.12)	2.47E-01	6.74E-01	7.12E-01	5.68E-01	2.52E-01		2.64E-01	(1.23)	1.73E-01	Weibull (0.75)	(2.56)	3.19E-01	7.15E-01	7.54E-01	6.20E-01		3.10E-01	3.01E-01	(10.35)	2.32E-01	Weibull (1)	(2.00)	4.28E-01	7.65E-01	8.04E-01		6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01	Weibull (1.2)	(1.52)	5.60E-01	8.16E-01	8.53E-01	7.49E-01	5.50E-01	4.67E-01	(3.24)	4.49E-01	Weibull (1.5)	(1.07)	7.02E-01	8.67E-01	8.97E-01	8.12E-01	7.01E-01	6.13E-01	(1.39)	5.98E-01	Weibull (2.0)	(0.63)	8.19E-01	9.05E-01	9.30E-01	8.64E-01	8.41E-01	7.78E-01	(0.25)	7.38E-01	Weibull (3.5)	(0.03)	8.73E-01	9.19E-01	9.43E-01	8.88E-01	9.12E-01	8.82E-01	(-0.29)	8.13E-01	Barnes 2	(1.75)	5.05E-01	7.84E-01	8.21E-01	7.17E-01	4.25E-01	4.20E-01	(3.75)	4.05E-01																																																									
Weibull (1.5)	(1.07)		6.05E-01	7.99E-01	8.40E-01	7.27E-01	5.99E-01	5.02E-01																																																																																																																																																																																																																																	
	(1.39)		4.94E-01						Weibull (2.0)	(0.63)	7.36E-01	8.45E-01	8.81E-01	7.83E-01	7.56E-01	6.73E-01	(0.25)	6.39E-01	Weibull (3.5)	(0.03)	8.06E-01	8.63E-01	8.99E-01	8.14E-01	8.53E-01	8.09E-01	(-0.29)	7.29E-01	Barnes 2	(1.75)	4.21E-01	7.20E-01	7.62E-01	6.40E-01	3.41E-01	3.35E-01	(3.75)	3.26E-01	Normal (0,1)	(0.00)	k=6	8.38E-01	9.04E-01	9.35E-01	8.73E-01	8.96E-01	8.65E-01	(0.00)	7.64E-01	Exponential (1)		(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01		Lognormal (0,1)	(6.18)	1.54E-01	6.10E-01	6.46E-01	4.67E-01	2.26E-01	2.16E-01	(110)		1.02E-01	Weibull (0.5)	(6.62)	1.04E-01	5.40E-01	5.69E-01	3.99E-01	2.18E-01	2.15E-01		(84.72)	6.77E-02	Weibull (0.85)	(0.12)	2.47E-01	6.74E-01	7.12E-01	5.68E-01	2.52E-01		2.64E-01	(1.23)	1.73E-01	Weibull (0.75)	(2.56)	3.19E-01	7.15E-01	7.54E-01	6.20E-01		3.10E-01	3.01E-01	(10.35)	2.32E-01	Weibull (1)	(2.00)	4.28E-01	7.65E-01	8.04E-01		6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01	Weibull (1.2)	(1.52)	5.60E-01	8.16E-01		8.53E-01	7.49E-01	5.50E-01	4.67E-01	(3.24)	4.49E-01	Weibull (1.5)	(1.07)	7.02E-01	8.67E-01	8.97E-01	8.12E-01	7.01E-01	6.13E-01	(1.39)	5.98E-01	Weibull (2.0)	(0.63)	8.19E-01	9.05E-01	9.30E-01	8.64E-01	8.41E-01	7.78E-01	(0.25)	7.38E-01	Weibull (3.5)	(0.03)	8.73E-01	9.19E-01	9.43E-01	8.88E-01	9.12E-01	8.82E-01	(-0.29)	8.13E-01	Barnes 2	(1.75)	5.05E-01	7.84E-01	8.21E-01	7.17E-01	4.25E-01	4.20E-01	(3.75)	4.05E-01																																																																		
Weibull (2.0)	(0.63)		7.36E-01	8.45E-01	8.81E-01	7.83E-01	7.56E-01	6.73E-01																																																																																																																																																																																																																																	
	(0.25)		6.39E-01						Weibull (3.5)	(0.03)	8.06E-01	8.63E-01	8.99E-01	8.14E-01	8.53E-01	8.09E-01	(-0.29)	7.29E-01	Barnes 2	(1.75)	4.21E-01	7.20E-01	7.62E-01	6.40E-01	3.41E-01	3.35E-01	(3.75)	3.26E-01	Normal (0,1)	(0.00)	k=6	8.38E-01	9.04E-01	9.35E-01	8.73E-01	8.96E-01	8.65E-01	(0.00)	7.64E-01	Exponential (1)		(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01		Lognormal (0,1)	(6.18)	1.54E-01	6.10E-01	6.46E-01	4.67E-01	2.26E-01	2.16E-01	(110)		1.02E-01	Weibull (0.5)	(6.62)	1.04E-01	5.40E-01	5.69E-01	3.99E-01	2.18E-01	2.15E-01		(84.72)	6.77E-02	Weibull (0.85)	(0.12)	2.47E-01	6.74E-01	7.12E-01	5.68E-01	2.52E-01		2.64E-01	(1.23)	1.73E-01	Weibull (0.75)	(2.56)	3.19E-01	7.15E-01	7.54E-01	6.20E-01		3.10E-01	3.01E-01	(10.35)	2.32E-01	Weibull (1)	(2.00)	4.28E-01	7.65E-01	8.04E-01		6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01	Weibull (1.2)	(1.52)	5.60E-01	8.16E-01		8.53E-01	7.49E-01	5.50E-01	4.67E-01	(3.24)	4.49E-01	Weibull (1.5)	(1.07)	7.02E-01		8.67E-01	8.97E-01	8.12E-01	7.01E-01	6.13E-01	(1.39)	5.98E-01	Weibull (2.0)	(0.63)	8.19E-01	9.05E-01	9.30E-01	8.64E-01	8.41E-01	7.78E-01	(0.25)	7.38E-01	Weibull (3.5)	(0.03)	8.73E-01	9.19E-01	9.43E-01	8.88E-01	9.12E-01	8.82E-01	(-0.29)	8.13E-01	Barnes 2	(1.75)	5.05E-01	7.84E-01	8.21E-01	7.17E-01	4.25E-01	4.20E-01	(3.75)	4.05E-01																																																																											
Weibull (3.5)	(0.03)		8.06E-01	8.63E-01	8.99E-01	8.14E-01	8.53E-01	8.09E-01																																																																																																																																																																																																																																	
	(-0.29)		7.29E-01						Barnes 2	(1.75)	4.21E-01	7.20E-01	7.62E-01	6.40E-01	3.41E-01	3.35E-01	(3.75)	3.26E-01	Normal (0,1)	(0.00)	k=6	8.38E-01	9.04E-01	9.35E-01	8.73E-01	8.96E-01	8.65E-01	(0.00)	7.64E-01	Exponential (1)		(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01		Lognormal (0,1)	(6.18)	1.54E-01	6.10E-01	6.46E-01	4.67E-01	2.26E-01	2.16E-01	(110)		1.02E-01	Weibull (0.5)	(6.62)	1.04E-01	5.40E-01	5.69E-01	3.99E-01	2.18E-01	2.15E-01		(84.72)	6.77E-02	Weibull (0.85)	(0.12)	2.47E-01	6.74E-01	7.12E-01	5.68E-01	2.52E-01		2.64E-01	(1.23)	1.73E-01	Weibull (0.75)	(2.56)	3.19E-01	7.15E-01	7.54E-01	6.20E-01		3.10E-01	3.01E-01	(10.35)	2.32E-01	Weibull (1)	(2.00)	4.28E-01	7.65E-01	8.04E-01		6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01	Weibull (1.2)	(1.52)	5.60E-01	8.16E-01		8.53E-01	7.49E-01	5.50E-01	4.67E-01	(3.24)	4.49E-01	Weibull (1.5)	(1.07)	7.02E-01		8.67E-01	8.97E-01	8.12E-01	7.01E-01	6.13E-01	(1.39)	5.98E-01	Weibull (2.0)	(0.63)		8.19E-01	9.05E-01	9.30E-01	8.64E-01	8.41E-01	7.78E-01	(0.25)	7.38E-01	Weibull (3.5)	(0.03)	8.73E-01	9.19E-01	9.43E-01	8.88E-01	9.12E-01	8.82E-01	(-0.29)	8.13E-01	Barnes 2	(1.75)	5.05E-01	7.84E-01	8.21E-01	7.17E-01	4.25E-01	4.20E-01	(3.75)	4.05E-01																																																																																				
Barnes 2	(1.75)		4.21E-01	7.20E-01	7.62E-01	6.40E-01	3.41E-01	3.35E-01																																																																																																																																																																																																																																	
	(3.75)		3.26E-01						Normal (0,1)	(0.00)	k=6	8.38E-01	9.04E-01	9.35E-01	8.73E-01	8.96E-01	8.65E-01	(0.00)	7.64E-01	Exponential (1)		(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01		Lognormal (0,1)	(6.18)	1.54E-01	6.10E-01	6.46E-01	4.67E-01	2.26E-01	2.16E-01	(110)		1.02E-01	Weibull (0.5)	(6.62)	1.04E-01	5.40E-01	5.69E-01	3.99E-01	2.18E-01	2.15E-01		(84.72)	6.77E-02	Weibull (0.85)	(0.12)	2.47E-01	6.74E-01	7.12E-01	5.68E-01	2.52E-01		2.64E-01	(1.23)	1.73E-01	Weibull (0.75)	(2.56)	3.19E-01	7.15E-01	7.54E-01	6.20E-01		3.10E-01	3.01E-01	(10.35)	2.32E-01	Weibull (1)	(2.00)	4.28E-01	7.65E-01	8.04E-01		6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01	Weibull (1.2)	(1.52)	5.60E-01	8.16E-01		8.53E-01	7.49E-01	5.50E-01	4.67E-01	(3.24)	4.49E-01	Weibull (1.5)	(1.07)	7.02E-01		8.67E-01	8.97E-01	8.12E-01	7.01E-01	6.13E-01	(1.39)	5.98E-01	Weibull (2.0)	(0.63)		8.19E-01	9.05E-01	9.30E-01	8.64E-01	8.41E-01	7.78E-01	(0.25)	7.38E-01	Weibull (3.5)		(0.03)	8.73E-01	9.19E-01	9.43E-01	8.88E-01	9.12E-01	8.82E-01	(-0.29)	8.13E-01	Barnes 2	(1.75)	5.05E-01	7.84E-01	8.21E-01	7.17E-01	4.25E-01	4.20E-01	(3.75)	4.05E-01																																																																																													
Normal (0,1)	(0.00)		k=6	8.38E-01	9.04E-01	9.35E-01	8.73E-01	8.96E-01		8.65E-01																																																																																																																																																																																																																															
	(0.00)			7.64E-01					Exponential (1)			(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01		Lognormal (0,1)	(6.18)	1.54E-01	6.10E-01	6.46E-01	4.67E-01	2.26E-01	2.16E-01	(110)		1.02E-01	Weibull (0.5)	(6.62)	1.04E-01	5.40E-01	5.69E-01	3.99E-01	2.18E-01	2.15E-01		(84.72)	6.77E-02	Weibull (0.85)	(0.12)	2.47E-01	6.74E-01	7.12E-01	5.68E-01	2.52E-01		2.64E-01	(1.23)	1.73E-01	Weibull (0.75)	(2.56)	3.19E-01	7.15E-01	7.54E-01	6.20E-01		3.10E-01	3.01E-01	(10.35)	2.32E-01	Weibull (1)	(2.00)	4.28E-01	7.65E-01	8.04E-01		6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01	Weibull (1.2)	(1.52)	5.60E-01	8.16E-01		8.53E-01	7.49E-01	5.50E-01	4.67E-01	(3.24)	4.49E-01	Weibull (1.5)	(1.07)	7.02E-01		8.67E-01	8.97E-01	8.12E-01	7.01E-01	6.13E-01	(1.39)	5.98E-01	Weibull (2.0)	(0.63)		8.19E-01	9.05E-01	9.30E-01	8.64E-01	8.41E-01	7.78E-01	(0.25)	7.38E-01	Weibull (3.5)		(0.03)	8.73E-01	9.19E-01	9.43E-01	8.88E-01	9.12E-01	8.82E-01	(-0.29)	8.13E-01		Barnes 2	(1.75)	5.05E-01	7.84E-01	8.21E-01	7.17E-01	4.25E-01	4.20E-01	(3.75)	4.05E-01																																																																																																						
Exponential (1)	(2.00)			4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01		3.67E-01																																																																																																																																																																																																																															
	(6.00)			3.26E-01					Lognormal (0,1)			(6.18)	1.54E-01	6.10E-01	6.46E-01	4.67E-01	2.26E-01	2.16E-01	(110)	1.02E-01		Weibull (0.5)	(6.62)	1.04E-01	5.40E-01	5.69E-01	3.99E-01	2.18E-01	2.15E-01	(84.72)		6.77E-02	Weibull (0.85)	(0.12)	2.47E-01	6.74E-01	7.12E-01	5.68E-01	2.52E-01	2.64E-01		(1.23)	1.73E-01	Weibull (0.75)	(2.56)	3.19E-01	7.15E-01	7.54E-01	6.20E-01	3.10E-01		3.01E-01	(10.35)	2.32E-01	Weibull (1)	(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01		4.16E-01	3.67E-01	(6.00)	3.26E-01	Weibull (1.2)	(1.52)	5.60E-01	8.16E-01	8.53E-01		7.49E-01	5.50E-01	4.67E-01	(3.24)	4.49E-01	Weibull (1.5)	(1.07)	7.02E-01	8.67E-01		8.97E-01	8.12E-01	7.01E-01	6.13E-01	(1.39)	5.98E-01	Weibull (2.0)	(0.63)	8.19E-01		9.05E-01	9.30E-01	8.64E-01	8.41E-01	7.78E-01	(0.25)	7.38E-01	Weibull (3.5)	(0.03)		8.73E-01	9.19E-01	9.43E-01	8.88E-01	9.12E-01	8.82E-01	(-0.29)	8.13E-01	Barnes 2		(1.75)	5.05E-01	7.84E-01	8.21E-01	7.17E-01	4.25E-01	4.20E-01	(3.75)	4.05E-01																																																																																																																	
Lognormal (0,1)	(6.18)	1.54E-01		6.10E-01	6.46E-01	4.67E-01	2.26E-01	2.16E-01																																																																																																																																																																																																																																	
	(110)	1.02E-01							Weibull (0.5)	(6.62)		1.04E-01	5.40E-01	5.69E-01	3.99E-01	2.18E-01	2.15E-01	(84.72)	6.77E-02	Weibull (0.85)		(0.12)	2.47E-01	6.74E-01	7.12E-01	5.68E-01	2.52E-01	2.64E-01	(1.23)	1.73E-01		Weibull (0.75)	(2.56)	3.19E-01	7.15E-01	7.54E-01	6.20E-01	3.10E-01	3.01E-01	(10.35)		2.32E-01	Weibull (1)	(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01		(6.00)	3.26E-01	Weibull (1.2)	(1.52)	5.60E-01	8.16E-01	8.53E-01	7.49E-01	5.50E-01		4.67E-01	(3.24)	4.49E-01	Weibull (1.5)	(1.07)	7.02E-01	8.67E-01	8.97E-01	8.12E-01		7.01E-01	6.13E-01	(1.39)	5.98E-01	Weibull (2.0)	(0.63)	8.19E-01	9.05E-01	9.30E-01		8.64E-01	8.41E-01	7.78E-01	(0.25)	7.38E-01	Weibull (3.5)	(0.03)	8.73E-01	9.19E-01		9.43E-01	8.88E-01	9.12E-01	8.82E-01	(-0.29)	8.13E-01	Barnes 2	(1.75)	5.05E-01		7.84E-01	8.21E-01	7.17E-01	4.25E-01	4.20E-01	(3.75)	4.05E-01																																																																																																																													
Weibull (0.5)	(6.62)	1.04E-01		5.40E-01	5.69E-01	3.99E-01	2.18E-01	2.15E-01																																																																																																																																																																																																																																	
	(84.72)	6.77E-02							Weibull (0.85)	(0.12)		2.47E-01	6.74E-01	7.12E-01	5.68E-01	2.52E-01	2.64E-01	(1.23)	1.73E-01	Weibull (0.75)		(2.56)	3.19E-01	7.15E-01	7.54E-01	6.20E-01	3.10E-01	3.01E-01	(10.35)	2.32E-01		Weibull (1)	(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)		3.26E-01	Weibull (1.2)	(1.52)	5.60E-01	8.16E-01	8.53E-01	7.49E-01	5.50E-01	4.67E-01		(3.24)	4.49E-01	Weibull (1.5)	(1.07)	7.02E-01	8.67E-01	8.97E-01	8.12E-01	7.01E-01		6.13E-01	(1.39)	5.98E-01	Weibull (2.0)	(0.63)	8.19E-01	9.05E-01	9.30E-01	8.64E-01		8.41E-01	7.78E-01	(0.25)	7.38E-01	Weibull (3.5)	(0.03)	8.73E-01	9.19E-01	9.43E-01		8.88E-01	9.12E-01	8.82E-01	(-0.29)	8.13E-01	Barnes 2	(1.75)	5.05E-01	7.84E-01		8.21E-01	7.17E-01	4.25E-01	4.20E-01	(3.75)	4.05E-01																																																																																																																																								
Weibull (0.85)	(0.12)	2.47E-01		6.74E-01	7.12E-01	5.68E-01	2.52E-01	2.64E-01																																																																																																																																																																																																																																	
	(1.23)	1.73E-01							Weibull (0.75)	(2.56)		3.19E-01	7.15E-01	7.54E-01	6.20E-01	3.10E-01	3.01E-01	(10.35)	2.32E-01	Weibull (1)		(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01		Weibull (1.2)	(1.52)	5.60E-01	8.16E-01	8.53E-01	7.49E-01	5.50E-01	4.67E-01	(3.24)		4.49E-01	Weibull (1.5)	(1.07)	7.02E-01	8.67E-01	8.97E-01	8.12E-01	7.01E-01	6.13E-01		(1.39)	5.98E-01	Weibull (2.0)	(0.63)	8.19E-01	9.05E-01	9.30E-01	8.64E-01	8.41E-01		7.78E-01	(0.25)	7.38E-01	Weibull (3.5)	(0.03)	8.73E-01	9.19E-01	9.43E-01	8.88E-01		9.12E-01	8.82E-01	(-0.29)	8.13E-01	Barnes 2	(1.75)	5.05E-01	7.84E-01	8.21E-01		7.17E-01	4.25E-01	4.20E-01	(3.75)	4.05E-01																																																																																																																																																			
Weibull (0.75)	(2.56)	3.19E-01		7.15E-01	7.54E-01	6.20E-01	3.10E-01	3.01E-01																																																																																																																																																																																																																																	
	(10.35)	2.32E-01							Weibull (1)	(2.00)		4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01	Weibull (1.2)		(1.52)	5.60E-01	8.16E-01	8.53E-01	7.49E-01	5.50E-01	4.67E-01	(3.24)	4.49E-01		Weibull (1.5)	(1.07)	7.02E-01	8.67E-01	8.97E-01	8.12E-01	7.01E-01	6.13E-01	(1.39)		5.98E-01	Weibull (2.0)	(0.63)	8.19E-01	9.05E-01	9.30E-01	8.64E-01	8.41E-01	7.78E-01		(0.25)	7.38E-01	Weibull (3.5)	(0.03)	8.73E-01	9.19E-01	9.43E-01	8.88E-01	9.12E-01		8.82E-01	(-0.29)	8.13E-01	Barnes 2	(1.75)	5.05E-01	7.84E-01	8.21E-01	7.17E-01		4.25E-01	4.20E-01	(3.75)	4.05E-01																																																																																																																																																														
Weibull (1)	(2.00)	4.28E-01		7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01																																																																																																																																																																																																																																	
	(6.00)	3.26E-01							Weibull (1.2)	(1.52)		5.60E-01	8.16E-01	8.53E-01	7.49E-01	5.50E-01	4.67E-01	(3.24)	4.49E-01	Weibull (1.5)		(1.07)	7.02E-01	8.67E-01	8.97E-01	8.12E-01	7.01E-01	6.13E-01	(1.39)	5.98E-01		Weibull (2.0)	(0.63)	8.19E-01	9.05E-01	9.30E-01	8.64E-01	8.41E-01	7.78E-01	(0.25)		7.38E-01	Weibull (3.5)	(0.03)	8.73E-01	9.19E-01	9.43E-01	8.88E-01	9.12E-01	8.82E-01		(-0.29)	8.13E-01	Barnes 2	(1.75)	5.05E-01	7.84E-01	8.21E-01	7.17E-01	4.25E-01		4.20E-01	(3.75)	4.05E-01																																																																																																																																																																									
Weibull (1.2)	(1.52)	5.60E-01		8.16E-01	8.53E-01	7.49E-01	5.50E-01	4.67E-01																																																																																																																																																																																																																																	
	(3.24)	4.49E-01							Weibull (1.5)	(1.07)		7.02E-01	8.67E-01	8.97E-01	8.12E-01	7.01E-01	6.13E-01	(1.39)	5.98E-01	Weibull (2.0)		(0.63)	8.19E-01	9.05E-01	9.30E-01	8.64E-01	8.41E-01	7.78E-01	(0.25)	7.38E-01		Weibull (3.5)	(0.03)	8.73E-01	9.19E-01	9.43E-01	8.88E-01	9.12E-01	8.82E-01	(-0.29)		8.13E-01	Barnes 2	(1.75)	5.05E-01	7.84E-01	8.21E-01	7.17E-01	4.25E-01	4.20E-01		(3.75)	4.05E-01																																																																																																																																																																																				
Weibull (1.5)	(1.07)	7.02E-01		8.67E-01	8.97E-01	8.12E-01	7.01E-01	6.13E-01																																																																																																																																																																																																																																	
	(1.39)	5.98E-01							Weibull (2.0)	(0.63)		8.19E-01	9.05E-01	9.30E-01	8.64E-01	8.41E-01	7.78E-01	(0.25)	7.38E-01	Weibull (3.5)		(0.03)	8.73E-01	9.19E-01	9.43E-01	8.88E-01	9.12E-01	8.82E-01	(-0.29)	8.13E-01		Barnes 2	(1.75)	5.05E-01	7.84E-01	8.21E-01	7.17E-01	4.25E-01	4.20E-01	(3.75)		4.05E-01																																																																																																																																																																																															
Weibull (2.0)	(0.63)	8.19E-01		9.05E-01	9.30E-01	8.64E-01	8.41E-01	7.78E-01																																																																																																																																																																																																																																	
	(0.25)	7.38E-01							Weibull (3.5)	(0.03)		8.73E-01	9.19E-01	9.43E-01	8.88E-01	9.12E-01	8.82E-01	(-0.29)	8.13E-01	Barnes 2		(1.75)	5.05E-01	7.84E-01	8.21E-01	7.17E-01	4.25E-01	4.20E-01	(3.75)	4.05E-01																																																																																																																																																																																																											
Weibull (3.5)	(0.03)	8.73E-01		9.19E-01	9.43E-01	8.88E-01	9.12E-01	8.82E-01																																																																																																																																																																																																																																	
	(-0.29)	8.13E-01							Barnes 2	(1.75)		5.05E-01	7.84E-01	8.21E-01	7.17E-01	4.25E-01	4.20E-01	(3.75)	4.05E-01																																																																																																																																																																																																																						
Barnes 2	(1.75)	5.05E-01		7.84E-01	8.21E-01	7.17E-01	4.25E-01	4.20E-01																																																																																																																																																																																																																																	
	(3.75)	4.05E-01																																																																																																																																																																																																																																							

Table 5 (continued): Power Comparison Study for Skewed Distributions ($n = 10$)

Distribution	(skewness) (kurtosis)	k	Combined Sample	R-chart	S-chart	S2-chart	WV-chart	SC-chart																																																																																																																																																																																																																																	
Chi (1)	(2.83)	k=5	2.21E-01	6.28E-01	6.66E-01	5.23E-01	2.00E-01	2.29E-01																																																																																																																																																																																																																																	
	(12.0)		1.54E-01						Chi (2)	(2.00)	3.46E-01	6.97E-01	7.41E-01	6.05E-01	3.38E-01	2.92E-01	(6.00)	2.54E-01	Chi (3)	(1.63)	4.27E-01	7.33E-01	7.78E-01	6.47E-01	4.35E-01	3.48E-01	(4.00)	3.24E-01	Chi (4)	(1.41)	4.83E-01	7.58E-01	8.02E-01	6.76E-01	5.00E-01	3.97E-01	(3.00)	3.74E-01	Chi (8)	(1.00)	5.96E-01	8.00E-01	8.44E-01	7.28E-01	6.31E-01	5.21E-01	(1.50)	4.84E-01	Chi (10)	(0.89)	6.26E-01	8.09E-01	8.52E-01	7.40E-01	6.66E-01	5.62E-01	(1.20)	5.15E-01	Chi (12)	(0.82)	6.45E-01	8.14E-01	8.58E-01	7.48E-01	6.90E-01	5.89E-01	(1.00)	5.35E-01	Chi (16)	(0.71)	6.71E-01	8.22E-01	8.65E-01	7.60E-01	7.23E-01	6.29E-01	(0.75)	5.64E-01	Chi (24)	(0.58)	6.96E-01	8.29E-01	8.72E-01	7.69E-01	7.55E-01	6.71E-01	(0.50)	5.93E-01	Gamma (0.15)	(5.16)	9.29E-02	5.07E-01	5.30E-01	3.80E-01	2.09E-01	2.05E-01	(40.0)	5.93E-02	Gamma (1.2)	(1.83)	3.86E-01	7.15E-01	7.59E-01	6.26E-01	3.84E-01	3.19E-01	(5.00)	2.89E-01	Gamma (4.0)	(1.00)	5.99E-01	7.99E-01	8.43E-01	7.28E-01	6.30E-01	5.22E-01	(1.50)	4.87E-01	Chi (1)	(2.83)	k=6	2.77E-01	6.86E-01	7.23E-01	5.90E-01	2.51E-01	2.83E-01	(12.0)	1.99E-01	Chi (2)	(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01	Chi (3)	(1.63)	5.22E-01	8.04E-01	8.42E-01	7.32E-01	5.27E-01	4.37E-01	(4.00)	4.11E-01	Chi (4)	(1.41)	5.82E-01	8.29E-01	8.65E-01	7.63E-01	5.98E-01	4.95E-01	(3.00)	4.69E-01	Chi (8)	(1.00)	6.96E-01	8.68E-01	9.01E-01	8.16E-01	7.30E-01	6.31E-01	(1.50)	5.89E-01	Chi (10)	(0.89)	7.24E-01	8.76E-01	9.08E-01	8.27E-01	7.62E-01	6.71E-01	(1.20)	6.20E-01	Chi (12)	(0.82)	7.41E-01	8.80E-01	9.13E-01	8.34E-01	7.83E-01	6.98E-01	(1.00)	6.40E-01	Chi (16)	(0.71)	7.63E-01	8.87E-01	9.19E-01	8.44E-01	8.11E-01	7.35E-01	(0.75)	6.68E-01	Chi (24)	(0.58)	7.85E-01	8.92E-01	9.24E-01	8.53E-01	8.38E-01	7.72E-01	(0.50)	6.95E-01	Gamma (0.15)	(5.16)	1.15E-01	5.44E-01	5.67E-01	4.19E-01	2.42E-01	2.37E-01	(40.0)	7.52E-02	Gamma (1.2)	(1.83)	4.75E-01	7.85E-01	8.23E-01	7.08E-01	4.69E-01	4.00E-01	(5.00)	3.68E-01	Gamma (4.0)	(1.00)	6.99E-01	8.67E-01
Chi (2)	(2.00)		3.46E-01	6.97E-01	7.41E-01	6.05E-01	3.38E-01	2.92E-01																																																																																																																																																																																																																																	
	(6.00)		2.54E-01						Chi (3)	(1.63)	4.27E-01	7.33E-01	7.78E-01	6.47E-01	4.35E-01	3.48E-01	(4.00)	3.24E-01	Chi (4)	(1.41)	4.83E-01	7.58E-01	8.02E-01	6.76E-01	5.00E-01	3.97E-01	(3.00)	3.74E-01	Chi (8)	(1.00)	5.96E-01	8.00E-01	8.44E-01	7.28E-01	6.31E-01	5.21E-01	(1.50)	4.84E-01	Chi (10)	(0.89)	6.26E-01	8.09E-01	8.52E-01	7.40E-01	6.66E-01	5.62E-01	(1.20)	5.15E-01	Chi (12)	(0.82)	6.45E-01	8.14E-01	8.58E-01	7.48E-01	6.90E-01	5.89E-01	(1.00)	5.35E-01	Chi (16)	(0.71)	6.71E-01	8.22E-01	8.65E-01	7.60E-01	7.23E-01	6.29E-01	(0.75)	5.64E-01	Chi (24)	(0.58)	6.96E-01	8.29E-01	8.72E-01	7.69E-01	7.55E-01	6.71E-01	(0.50)	5.93E-01	Gamma (0.15)	(5.16)	9.29E-02	5.07E-01	5.30E-01	3.80E-01	2.09E-01	2.05E-01	(40.0)	5.93E-02	Gamma (1.2)	(1.83)	3.86E-01	7.15E-01	7.59E-01	6.26E-01	3.84E-01	3.19E-01	(5.00)	2.89E-01	Gamma (4.0)	(1.00)	5.99E-01	7.99E-01	8.43E-01	7.28E-01	6.30E-01	5.22E-01	(1.50)	4.87E-01	Chi (1)	(2.83)	k=6	2.77E-01	6.86E-01	7.23E-01	5.90E-01	2.51E-01	2.83E-01	(12.0)	1.99E-01	Chi (2)		(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01	Chi (3)	(1.63)	5.22E-01	8.04E-01	8.42E-01	7.32E-01	5.27E-01	4.37E-01	(4.00)	4.11E-01	Chi (4)	(1.41)	5.82E-01	8.29E-01	8.65E-01	7.63E-01	5.98E-01	4.95E-01	(3.00)	4.69E-01	Chi (8)	(1.00)	6.96E-01	8.68E-01	9.01E-01	8.16E-01	7.30E-01	6.31E-01	(1.50)	5.89E-01	Chi (10)	(0.89)	7.24E-01	8.76E-01	9.08E-01	8.27E-01	7.62E-01	6.71E-01	(1.20)	6.20E-01	Chi (12)	(0.82)	7.41E-01	8.80E-01	9.13E-01	8.34E-01	7.83E-01	6.98E-01	(1.00)	6.40E-01	Chi (16)	(0.71)	7.63E-01	8.87E-01	9.19E-01	8.44E-01	8.11E-01	7.35E-01	(0.75)	6.68E-01	Chi (24)	(0.58)	7.85E-01	8.92E-01	9.24E-01	8.53E-01	8.38E-01	7.72E-01	(0.50)	6.95E-01	Gamma (0.15)	(5.16)	1.15E-01	5.44E-01	5.67E-01	4.19E-01	2.42E-01	2.37E-01	(40.0)	7.52E-02	Gamma (1.2)	(1.83)	4.75E-01	7.85E-01	8.23E-01	7.08E-01	4.69E-01	4.00E-01	(5.00)	3.68E-01	Gamma (4.0)	(1.00)	6.99E-01	8.67E-01	9.01E-01	8.15E-01	7.30E-01	6.32E-01	(1.50)	5.92E-01			
Chi (3)	(1.63)		4.27E-01	7.33E-01	7.78E-01	6.47E-01	4.35E-01	3.48E-01																																																																																																																																																																																																																																	
	(4.00)		3.24E-01						Chi (4)	(1.41)	4.83E-01	7.58E-01	8.02E-01	6.76E-01	5.00E-01	3.97E-01	(3.00)	3.74E-01	Chi (8)	(1.00)	5.96E-01	8.00E-01	8.44E-01	7.28E-01	6.31E-01	5.21E-01	(1.50)	4.84E-01	Chi (10)	(0.89)	6.26E-01	8.09E-01	8.52E-01	7.40E-01	6.66E-01	5.62E-01	(1.20)	5.15E-01	Chi (12)	(0.82)	6.45E-01	8.14E-01	8.58E-01	7.48E-01	6.90E-01	5.89E-01	(1.00)	5.35E-01	Chi (16)	(0.71)	6.71E-01	8.22E-01	8.65E-01	7.60E-01	7.23E-01	6.29E-01	(0.75)	5.64E-01	Chi (24)	(0.58)	6.96E-01	8.29E-01	8.72E-01	7.69E-01	7.55E-01	6.71E-01	(0.50)	5.93E-01	Gamma (0.15)	(5.16)	9.29E-02	5.07E-01	5.30E-01	3.80E-01	2.09E-01	2.05E-01	(40.0)	5.93E-02	Gamma (1.2)	(1.83)	3.86E-01	7.15E-01	7.59E-01	6.26E-01	3.84E-01	3.19E-01	(5.00)	2.89E-01	Gamma (4.0)	(1.00)	5.99E-01	7.99E-01	8.43E-01	7.28E-01	6.30E-01	5.22E-01	(1.50)	4.87E-01	Chi (1)	(2.83)	k=6	2.77E-01	6.86E-01	7.23E-01	5.90E-01	2.51E-01	2.83E-01	(12.0)	1.99E-01	Chi (2)		(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01		Chi (3)	(1.63)	5.22E-01	8.04E-01	8.42E-01	7.32E-01	5.27E-01	4.37E-01	(4.00)	4.11E-01	Chi (4)	(1.41)	5.82E-01	8.29E-01	8.65E-01	7.63E-01	5.98E-01	4.95E-01	(3.00)	4.69E-01	Chi (8)	(1.00)	6.96E-01	8.68E-01	9.01E-01	8.16E-01	7.30E-01	6.31E-01	(1.50)	5.89E-01	Chi (10)	(0.89)	7.24E-01	8.76E-01	9.08E-01	8.27E-01	7.62E-01	6.71E-01	(1.20)	6.20E-01	Chi (12)	(0.82)	7.41E-01	8.80E-01	9.13E-01	8.34E-01	7.83E-01	6.98E-01	(1.00)	6.40E-01	Chi (16)	(0.71)	7.63E-01	8.87E-01	9.19E-01	8.44E-01	8.11E-01	7.35E-01	(0.75)	6.68E-01	Chi (24)	(0.58)	7.85E-01	8.92E-01	9.24E-01	8.53E-01	8.38E-01	7.72E-01	(0.50)	6.95E-01	Gamma (0.15)	(5.16)	1.15E-01	5.44E-01	5.67E-01	4.19E-01	2.42E-01	2.37E-01	(40.0)	7.52E-02	Gamma (1.2)	(1.83)	4.75E-01	7.85E-01	8.23E-01	7.08E-01	4.69E-01	4.00E-01	(5.00)	3.68E-01	Gamma (4.0)	(1.00)	6.99E-01	8.67E-01	9.01E-01	8.15E-01	7.30E-01	6.32E-01	(1.50)	5.92E-01												
Chi (4)	(1.41)		4.83E-01	7.58E-01	8.02E-01	6.76E-01	5.00E-01	3.97E-01																																																																																																																																																																																																																																	
	(3.00)		3.74E-01						Chi (8)	(1.00)	5.96E-01	8.00E-01	8.44E-01	7.28E-01	6.31E-01	5.21E-01	(1.50)	4.84E-01	Chi (10)	(0.89)	6.26E-01	8.09E-01	8.52E-01	7.40E-01	6.66E-01	5.62E-01	(1.20)	5.15E-01	Chi (12)	(0.82)	6.45E-01	8.14E-01	8.58E-01	7.48E-01	6.90E-01	5.89E-01	(1.00)	5.35E-01	Chi (16)	(0.71)	6.71E-01	8.22E-01	8.65E-01	7.60E-01	7.23E-01	6.29E-01	(0.75)	5.64E-01	Chi (24)	(0.58)	6.96E-01	8.29E-01	8.72E-01	7.69E-01	7.55E-01	6.71E-01	(0.50)	5.93E-01	Gamma (0.15)	(5.16)	9.29E-02	5.07E-01	5.30E-01	3.80E-01	2.09E-01	2.05E-01	(40.0)	5.93E-02	Gamma (1.2)	(1.83)	3.86E-01	7.15E-01	7.59E-01	6.26E-01	3.84E-01	3.19E-01	(5.00)	2.89E-01	Gamma (4.0)	(1.00)	5.99E-01	7.99E-01	8.43E-01	7.28E-01	6.30E-01	5.22E-01	(1.50)	4.87E-01	Chi (1)	(2.83)	k=6	2.77E-01	6.86E-01	7.23E-01	5.90E-01	2.51E-01	2.83E-01	(12.0)	1.99E-01	Chi (2)		(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01		Chi (3)	(1.63)	5.22E-01	8.04E-01	8.42E-01	7.32E-01	5.27E-01	4.37E-01	(4.00)		4.11E-01	Chi (4)	(1.41)	5.82E-01	8.29E-01	8.65E-01	7.63E-01	5.98E-01	4.95E-01	(3.00)	4.69E-01	Chi (8)	(1.00)	6.96E-01	8.68E-01	9.01E-01	8.16E-01	7.30E-01	6.31E-01	(1.50)	5.89E-01	Chi (10)	(0.89)	7.24E-01	8.76E-01	9.08E-01	8.27E-01	7.62E-01	6.71E-01	(1.20)	6.20E-01	Chi (12)	(0.82)	7.41E-01	8.80E-01	9.13E-01	8.34E-01	7.83E-01	6.98E-01	(1.00)	6.40E-01	Chi (16)	(0.71)	7.63E-01	8.87E-01	9.19E-01	8.44E-01	8.11E-01	7.35E-01	(0.75)	6.68E-01	Chi (24)	(0.58)	7.85E-01	8.92E-01	9.24E-01	8.53E-01	8.38E-01	7.72E-01	(0.50)	6.95E-01	Gamma (0.15)	(5.16)	1.15E-01	5.44E-01	5.67E-01	4.19E-01	2.42E-01	2.37E-01	(40.0)	7.52E-02	Gamma (1.2)	(1.83)	4.75E-01	7.85E-01	8.23E-01	7.08E-01	4.69E-01	4.00E-01	(5.00)	3.68E-01	Gamma (4.0)	(1.00)	6.99E-01	8.67E-01	9.01E-01	8.15E-01	7.30E-01	6.32E-01	(1.50)	5.92E-01																					
Chi (8)	(1.00)		5.96E-01	8.00E-01	8.44E-01	7.28E-01	6.31E-01	5.21E-01																																																																																																																																																																																																																																	
	(1.50)		4.84E-01						Chi (10)	(0.89)	6.26E-01	8.09E-01	8.52E-01	7.40E-01	6.66E-01	5.62E-01	(1.20)	5.15E-01	Chi (12)	(0.82)	6.45E-01	8.14E-01	8.58E-01	7.48E-01	6.90E-01	5.89E-01	(1.00)	5.35E-01	Chi (16)	(0.71)	6.71E-01	8.22E-01	8.65E-01	7.60E-01	7.23E-01	6.29E-01	(0.75)	5.64E-01	Chi (24)	(0.58)	6.96E-01	8.29E-01	8.72E-01	7.69E-01	7.55E-01	6.71E-01	(0.50)	5.93E-01	Gamma (0.15)	(5.16)	9.29E-02	5.07E-01	5.30E-01	3.80E-01	2.09E-01	2.05E-01	(40.0)	5.93E-02	Gamma (1.2)	(1.83)	3.86E-01	7.15E-01	7.59E-01	6.26E-01	3.84E-01	3.19E-01	(5.00)	2.89E-01	Gamma (4.0)	(1.00)	5.99E-01	7.99E-01	8.43E-01	7.28E-01	6.30E-01	5.22E-01	(1.50)	4.87E-01	Chi (1)	(2.83)	k=6	2.77E-01	6.86E-01	7.23E-01	5.90E-01	2.51E-01	2.83E-01	(12.0)	1.99E-01	Chi (2)		(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01		Chi (3)	(1.63)	5.22E-01	8.04E-01	8.42E-01	7.32E-01	5.27E-01	4.37E-01	(4.00)		4.11E-01	Chi (4)	(1.41)	5.82E-01	8.29E-01	8.65E-01	7.63E-01	5.98E-01	4.95E-01		(3.00)	4.69E-01	Chi (8)	(1.00)	6.96E-01	8.68E-01	9.01E-01	8.16E-01	7.30E-01	6.31E-01	(1.50)	5.89E-01	Chi (10)	(0.89)	7.24E-01	8.76E-01	9.08E-01	8.27E-01	7.62E-01	6.71E-01	(1.20)	6.20E-01	Chi (12)	(0.82)	7.41E-01	8.80E-01	9.13E-01	8.34E-01	7.83E-01	6.98E-01	(1.00)	6.40E-01	Chi (16)	(0.71)	7.63E-01	8.87E-01	9.19E-01	8.44E-01	8.11E-01	7.35E-01	(0.75)	6.68E-01	Chi (24)	(0.58)	7.85E-01	8.92E-01	9.24E-01	8.53E-01	8.38E-01	7.72E-01	(0.50)	6.95E-01	Gamma (0.15)	(5.16)	1.15E-01	5.44E-01	5.67E-01	4.19E-01	2.42E-01	2.37E-01	(40.0)	7.52E-02	Gamma (1.2)	(1.83)	4.75E-01	7.85E-01	8.23E-01	7.08E-01	4.69E-01	4.00E-01	(5.00)	3.68E-01	Gamma (4.0)	(1.00)	6.99E-01	8.67E-01	9.01E-01	8.15E-01	7.30E-01	6.32E-01	(1.50)	5.92E-01																														
Chi (10)	(0.89)		6.26E-01	8.09E-01	8.52E-01	7.40E-01	6.66E-01	5.62E-01																																																																																																																																																																																																																																	
	(1.20)		5.15E-01						Chi (12)	(0.82)	6.45E-01	8.14E-01	8.58E-01	7.48E-01	6.90E-01	5.89E-01	(1.00)	5.35E-01	Chi (16)	(0.71)	6.71E-01	8.22E-01	8.65E-01	7.60E-01	7.23E-01	6.29E-01	(0.75)	5.64E-01	Chi (24)	(0.58)	6.96E-01	8.29E-01	8.72E-01	7.69E-01	7.55E-01	6.71E-01	(0.50)	5.93E-01	Gamma (0.15)	(5.16)	9.29E-02	5.07E-01	5.30E-01	3.80E-01	2.09E-01	2.05E-01	(40.0)	5.93E-02	Gamma (1.2)	(1.83)	3.86E-01	7.15E-01	7.59E-01	6.26E-01	3.84E-01	3.19E-01	(5.00)	2.89E-01	Gamma (4.0)	(1.00)	5.99E-01	7.99E-01	8.43E-01	7.28E-01	6.30E-01	5.22E-01	(1.50)	4.87E-01	Chi (1)	(2.83)	k=6	2.77E-01	6.86E-01	7.23E-01	5.90E-01	2.51E-01	2.83E-01	(12.0)	1.99E-01	Chi (2)		(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01		Chi (3)	(1.63)	5.22E-01	8.04E-01	8.42E-01	7.32E-01	5.27E-01	4.37E-01	(4.00)		4.11E-01	Chi (4)	(1.41)	5.82E-01	8.29E-01	8.65E-01	7.63E-01	5.98E-01	4.95E-01		(3.00)	4.69E-01	Chi (8)	(1.00)	6.96E-01	8.68E-01	9.01E-01	8.16E-01	7.30E-01		6.31E-01	(1.50)	5.89E-01	Chi (10)	(0.89)	7.24E-01	8.76E-01	9.08E-01	8.27E-01	7.62E-01	6.71E-01	(1.20)	6.20E-01	Chi (12)	(0.82)	7.41E-01	8.80E-01	9.13E-01	8.34E-01	7.83E-01	6.98E-01	(1.00)	6.40E-01	Chi (16)	(0.71)	7.63E-01	8.87E-01	9.19E-01	8.44E-01	8.11E-01	7.35E-01	(0.75)	6.68E-01	Chi (24)	(0.58)	7.85E-01	8.92E-01	9.24E-01	8.53E-01	8.38E-01	7.72E-01	(0.50)	6.95E-01	Gamma (0.15)	(5.16)	1.15E-01	5.44E-01	5.67E-01	4.19E-01	2.42E-01	2.37E-01	(40.0)	7.52E-02	Gamma (1.2)	(1.83)	4.75E-01	7.85E-01	8.23E-01	7.08E-01	4.69E-01	4.00E-01	(5.00)	3.68E-01	Gamma (4.0)	(1.00)	6.99E-01	8.67E-01	9.01E-01	8.15E-01	7.30E-01	6.32E-01	(1.50)	5.92E-01																																							
Chi (12)	(0.82)		6.45E-01	8.14E-01	8.58E-01	7.48E-01	6.90E-01	5.89E-01																																																																																																																																																																																																																																	
	(1.00)		5.35E-01						Chi (16)	(0.71)	6.71E-01	8.22E-01	8.65E-01	7.60E-01	7.23E-01	6.29E-01	(0.75)	5.64E-01	Chi (24)	(0.58)	6.96E-01	8.29E-01	8.72E-01	7.69E-01	7.55E-01	6.71E-01	(0.50)	5.93E-01	Gamma (0.15)	(5.16)	9.29E-02	5.07E-01	5.30E-01	3.80E-01	2.09E-01	2.05E-01	(40.0)	5.93E-02	Gamma (1.2)	(1.83)	3.86E-01	7.15E-01	7.59E-01	6.26E-01	3.84E-01	3.19E-01	(5.00)	2.89E-01	Gamma (4.0)	(1.00)	5.99E-01	7.99E-01	8.43E-01	7.28E-01	6.30E-01	5.22E-01	(1.50)	4.87E-01	Chi (1)	(2.83)	k=6	2.77E-01	6.86E-01	7.23E-01	5.90E-01	2.51E-01	2.83E-01	(12.0)	1.99E-01	Chi (2)		(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01		Chi (3)	(1.63)	5.22E-01	8.04E-01	8.42E-01	7.32E-01	5.27E-01	4.37E-01	(4.00)		4.11E-01	Chi (4)	(1.41)	5.82E-01	8.29E-01	8.65E-01	7.63E-01	5.98E-01	4.95E-01		(3.00)	4.69E-01	Chi (8)	(1.00)	6.96E-01	8.68E-01	9.01E-01	8.16E-01	7.30E-01		6.31E-01	(1.50)	5.89E-01	Chi (10)	(0.89)	7.24E-01	8.76E-01	9.08E-01	8.27E-01		7.62E-01	6.71E-01	(1.20)	6.20E-01	Chi (12)	(0.82)	7.41E-01	8.80E-01	9.13E-01	8.34E-01	7.83E-01	6.98E-01	(1.00)	6.40E-01	Chi (16)	(0.71)	7.63E-01	8.87E-01	9.19E-01	8.44E-01	8.11E-01	7.35E-01	(0.75)	6.68E-01	Chi (24)	(0.58)	7.85E-01	8.92E-01	9.24E-01	8.53E-01	8.38E-01	7.72E-01	(0.50)	6.95E-01	Gamma (0.15)	(5.16)	1.15E-01	5.44E-01	5.67E-01	4.19E-01	2.42E-01	2.37E-01	(40.0)	7.52E-02	Gamma (1.2)	(1.83)	4.75E-01	7.85E-01	8.23E-01	7.08E-01	4.69E-01	4.00E-01	(5.00)	3.68E-01	Gamma (4.0)	(1.00)	6.99E-01	8.67E-01	9.01E-01	8.15E-01	7.30E-01	6.32E-01	(1.50)	5.92E-01																																																
Chi (16)	(0.71)		6.71E-01	8.22E-01	8.65E-01	7.60E-01	7.23E-01	6.29E-01																																																																																																																																																																																																																																	
	(0.75)		5.64E-01						Chi (24)	(0.58)	6.96E-01	8.29E-01	8.72E-01	7.69E-01	7.55E-01	6.71E-01	(0.50)	5.93E-01	Gamma (0.15)	(5.16)	9.29E-02	5.07E-01	5.30E-01	3.80E-01	2.09E-01	2.05E-01	(40.0)	5.93E-02	Gamma (1.2)	(1.83)	3.86E-01	7.15E-01	7.59E-01	6.26E-01	3.84E-01	3.19E-01	(5.00)	2.89E-01	Gamma (4.0)	(1.00)	5.99E-01	7.99E-01	8.43E-01	7.28E-01	6.30E-01	5.22E-01	(1.50)	4.87E-01	Chi (1)	(2.83)	k=6	2.77E-01	6.86E-01	7.23E-01	5.90E-01	2.51E-01	2.83E-01	(12.0)	1.99E-01	Chi (2)		(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01		Chi (3)	(1.63)	5.22E-01	8.04E-01	8.42E-01	7.32E-01	5.27E-01	4.37E-01	(4.00)		4.11E-01	Chi (4)	(1.41)	5.82E-01	8.29E-01	8.65E-01	7.63E-01	5.98E-01	4.95E-01		(3.00)	4.69E-01	Chi (8)	(1.00)	6.96E-01	8.68E-01	9.01E-01	8.16E-01	7.30E-01		6.31E-01	(1.50)	5.89E-01	Chi (10)	(0.89)	7.24E-01	8.76E-01	9.08E-01	8.27E-01		7.62E-01	6.71E-01	(1.20)	6.20E-01	Chi (12)	(0.82)	7.41E-01	8.80E-01	9.13E-01		8.34E-01	7.83E-01	6.98E-01	(1.00)	6.40E-01	Chi (16)	(0.71)	7.63E-01	8.87E-01	9.19E-01	8.44E-01	8.11E-01	7.35E-01	(0.75)	6.68E-01	Chi (24)	(0.58)	7.85E-01	8.92E-01	9.24E-01	8.53E-01	8.38E-01	7.72E-01	(0.50)	6.95E-01	Gamma (0.15)	(5.16)	1.15E-01	5.44E-01	5.67E-01	4.19E-01	2.42E-01	2.37E-01	(40.0)	7.52E-02	Gamma (1.2)	(1.83)	4.75E-01	7.85E-01	8.23E-01	7.08E-01	4.69E-01	4.00E-01	(5.00)	3.68E-01	Gamma (4.0)	(1.00)	6.99E-01	8.67E-01	9.01E-01	8.15E-01	7.30E-01	6.32E-01	(1.50)	5.92E-01																																																									
Chi (24)	(0.58)		6.96E-01	8.29E-01	8.72E-01	7.69E-01	7.55E-01	6.71E-01																																																																																																																																																																																																																																	
	(0.50)		5.93E-01						Gamma (0.15)	(5.16)	9.29E-02	5.07E-01	5.30E-01	3.80E-01	2.09E-01	2.05E-01	(40.0)	5.93E-02	Gamma (1.2)	(1.83)	3.86E-01	7.15E-01	7.59E-01	6.26E-01	3.84E-01	3.19E-01	(5.00)	2.89E-01	Gamma (4.0)	(1.00)	5.99E-01	7.99E-01	8.43E-01	7.28E-01	6.30E-01	5.22E-01	(1.50)	4.87E-01	Chi (1)	(2.83)	k=6	2.77E-01	6.86E-01	7.23E-01	5.90E-01	2.51E-01	2.83E-01	(12.0)	1.99E-01	Chi (2)		(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01		Chi (3)	(1.63)	5.22E-01	8.04E-01	8.42E-01	7.32E-01	5.27E-01	4.37E-01	(4.00)		4.11E-01	Chi (4)	(1.41)	5.82E-01	8.29E-01	8.65E-01	7.63E-01	5.98E-01	4.95E-01		(3.00)	4.69E-01	Chi (8)	(1.00)	6.96E-01	8.68E-01	9.01E-01	8.16E-01	7.30E-01		6.31E-01	(1.50)	5.89E-01	Chi (10)	(0.89)	7.24E-01	8.76E-01	9.08E-01	8.27E-01		7.62E-01	6.71E-01	(1.20)	6.20E-01	Chi (12)	(0.82)	7.41E-01	8.80E-01	9.13E-01		8.34E-01	7.83E-01	6.98E-01	(1.00)	6.40E-01	Chi (16)	(0.71)	7.63E-01	8.87E-01		9.19E-01	8.44E-01	8.11E-01	7.35E-01	(0.75)	6.68E-01	Chi (24)	(0.58)	7.85E-01	8.92E-01	9.24E-01	8.53E-01	8.38E-01	7.72E-01	(0.50)	6.95E-01	Gamma (0.15)	(5.16)	1.15E-01	5.44E-01	5.67E-01	4.19E-01	2.42E-01	2.37E-01	(40.0)	7.52E-02	Gamma (1.2)	(1.83)	4.75E-01	7.85E-01	8.23E-01	7.08E-01	4.69E-01	4.00E-01	(5.00)	3.68E-01	Gamma (4.0)	(1.00)	6.99E-01	8.67E-01	9.01E-01	8.15E-01	7.30E-01	6.32E-01	(1.50)	5.92E-01																																																																		
Gamma (0.15)	(5.16)		9.29E-02	5.07E-01	5.30E-01	3.80E-01	2.09E-01	2.05E-01																																																																																																																																																																																																																																	
	(40.0)		5.93E-02						Gamma (1.2)	(1.83)	3.86E-01	7.15E-01	7.59E-01	6.26E-01	3.84E-01	3.19E-01	(5.00)	2.89E-01	Gamma (4.0)	(1.00)	5.99E-01	7.99E-01	8.43E-01	7.28E-01	6.30E-01	5.22E-01	(1.50)	4.87E-01	Chi (1)	(2.83)	k=6	2.77E-01	6.86E-01	7.23E-01	5.90E-01	2.51E-01	2.83E-01	(12.0)	1.99E-01	Chi (2)		(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01		Chi (3)	(1.63)	5.22E-01	8.04E-01	8.42E-01	7.32E-01	5.27E-01	4.37E-01	(4.00)		4.11E-01	Chi (4)	(1.41)	5.82E-01	8.29E-01	8.65E-01	7.63E-01	5.98E-01	4.95E-01		(3.00)	4.69E-01	Chi (8)	(1.00)	6.96E-01	8.68E-01	9.01E-01	8.16E-01	7.30E-01		6.31E-01	(1.50)	5.89E-01	Chi (10)	(0.89)	7.24E-01	8.76E-01	9.08E-01	8.27E-01		7.62E-01	6.71E-01	(1.20)	6.20E-01	Chi (12)	(0.82)	7.41E-01	8.80E-01	9.13E-01		8.34E-01	7.83E-01	6.98E-01	(1.00)	6.40E-01	Chi (16)	(0.71)	7.63E-01	8.87E-01		9.19E-01	8.44E-01	8.11E-01	7.35E-01	(0.75)	6.68E-01	Chi (24)	(0.58)	7.85E-01		8.92E-01	9.24E-01	8.53E-01	8.38E-01	7.72E-01	(0.50)	6.95E-01	Gamma (0.15)	(5.16)	1.15E-01	5.44E-01	5.67E-01	4.19E-01	2.42E-01	2.37E-01	(40.0)	7.52E-02	Gamma (1.2)	(1.83)	4.75E-01	7.85E-01	8.23E-01	7.08E-01	4.69E-01	4.00E-01	(5.00)	3.68E-01	Gamma (4.0)	(1.00)	6.99E-01	8.67E-01	9.01E-01	8.15E-01	7.30E-01	6.32E-01	(1.50)	5.92E-01																																																																											
Gamma (1.2)	(1.83)	3.86E-01	7.15E-01	7.59E-01	6.26E-01	3.84E-01	3.19E-01																																																																																																																																																																																																																																		
	(5.00)	2.89E-01						Gamma (4.0)	(1.00)	5.99E-01	7.99E-01	8.43E-01	7.28E-01	6.30E-01	5.22E-01	(1.50)	4.87E-01	Chi (1)	(2.83)	k=6	2.77E-01	6.86E-01	7.23E-01	5.90E-01	2.51E-01	2.83E-01	(12.0)	1.99E-01	Chi (2)	(2.00)		4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01	Chi (3)		(1.63)	5.22E-01	8.04E-01	8.42E-01	7.32E-01	5.27E-01	4.37E-01	(4.00)	4.11E-01		Chi (4)	(1.41)	5.82E-01	8.29E-01	8.65E-01	7.63E-01	5.98E-01	4.95E-01	(3.00)		4.69E-01	Chi (8)	(1.00)	6.96E-01	8.68E-01	9.01E-01	8.16E-01	7.30E-01	6.31E-01		(1.50)	5.89E-01	Chi (10)	(0.89)	7.24E-01	8.76E-01	9.08E-01	8.27E-01	7.62E-01		6.71E-01	(1.20)	6.20E-01	Chi (12)	(0.82)	7.41E-01	8.80E-01	9.13E-01	8.34E-01		7.83E-01	6.98E-01	(1.00)	6.40E-01	Chi (16)	(0.71)	7.63E-01	8.87E-01	9.19E-01		8.44E-01	8.11E-01	7.35E-01	(0.75)	6.68E-01	Chi (24)	(0.58)	7.85E-01	8.92E-01		9.24E-01	8.53E-01	8.38E-01	7.72E-01	(0.50)	6.95E-01	Gamma (0.15)	(5.16)	1.15E-01	5.44E-01	5.67E-01	4.19E-01	2.42E-01	2.37E-01	(40.0)	7.52E-02	Gamma (1.2)	(1.83)	4.75E-01	7.85E-01	8.23E-01	7.08E-01	4.69E-01	4.00E-01	(5.00)	3.68E-01	Gamma (4.0)	(1.00)	6.99E-01	8.67E-01	9.01E-01	8.15E-01	7.30E-01	6.32E-01	(1.50)	5.92E-01																																																																																						
Gamma (4.0)	(1.00)	5.99E-01	7.99E-01	8.43E-01	7.28E-01	6.30E-01	5.22E-01																																																																																																																																																																																																																																		
	(1.50)	4.87E-01						Chi (1)	(2.83)	k=6	2.77E-01	6.86E-01	7.23E-01	5.90E-01	2.51E-01	2.83E-01	(12.0)	1.99E-01	Chi (2)		(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01	Chi (3)		(1.63)	5.22E-01	8.04E-01	8.42E-01	7.32E-01	5.27E-01	4.37E-01	(4.00)	4.11E-01		Chi (4)	(1.41)	5.82E-01	8.29E-01	8.65E-01	7.63E-01	5.98E-01	4.95E-01	(3.00)		4.69E-01	Chi (8)	(1.00)	6.96E-01	8.68E-01	9.01E-01	8.16E-01	7.30E-01	6.31E-01		(1.50)	5.89E-01	Chi (10)	(0.89)	7.24E-01	8.76E-01	9.08E-01	8.27E-01	7.62E-01		6.71E-01	(1.20)	6.20E-01	Chi (12)	(0.82)	7.41E-01	8.80E-01	9.13E-01	8.34E-01		7.83E-01	6.98E-01	(1.00)	6.40E-01	Chi (16)	(0.71)	7.63E-01	8.87E-01	9.19E-01		8.44E-01	8.11E-01	7.35E-01	(0.75)	6.68E-01	Chi (24)	(0.58)	7.85E-01	8.92E-01		9.24E-01	8.53E-01	8.38E-01	7.72E-01	(0.50)	6.95E-01	Gamma (0.15)	(5.16)	1.15E-01	5.44E-01	5.67E-01	4.19E-01	2.42E-01	2.37E-01	(40.0)	7.52E-02	Gamma (1.2)	(1.83)	4.75E-01	7.85E-01	8.23E-01	7.08E-01	4.69E-01	4.00E-01	(5.00)	3.68E-01	Gamma (4.0)	(1.00)	6.99E-01	8.67E-01	9.01E-01	8.15E-01	7.30E-01	6.32E-01	(1.50)	5.92E-01																																																																																																
Chi (1)	(2.83)	k=6	2.77E-01	6.86E-01	7.23E-01	5.90E-01	2.51E-01		2.83E-01																																																																																																																																																																																																																																
	(12.0)		1.99E-01					Chi (2)			(2.00)	4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01	3.67E-01	(6.00)	3.26E-01		Chi (3)	(1.63)	5.22E-01	8.04E-01	8.42E-01	7.32E-01	5.27E-01	4.37E-01	(4.00)	4.11E-01		Chi (4)	(1.41)	5.82E-01	8.29E-01	8.65E-01	7.63E-01	5.98E-01	4.95E-01	(3.00)		4.69E-01	Chi (8)	(1.00)	6.96E-01	8.68E-01	9.01E-01	8.16E-01	7.30E-01	6.31E-01		(1.50)	5.89E-01	Chi (10)	(0.89)	7.24E-01	8.76E-01	9.08E-01	8.27E-01	7.62E-01		6.71E-01	(1.20)	6.20E-01	Chi (12)	(0.82)	7.41E-01	8.80E-01	9.13E-01	8.34E-01		7.83E-01	6.98E-01	(1.00)	6.40E-01	Chi (16)	(0.71)	7.63E-01	8.87E-01	9.19E-01		8.44E-01	8.11E-01	7.35E-01	(0.75)	6.68E-01	Chi (24)	(0.58)	7.85E-01	8.92E-01		9.24E-01	8.53E-01	8.38E-01	7.72E-01	(0.50)	6.95E-01	Gamma (0.15)	(5.16)	1.15E-01	5.44E-01	5.67E-01	4.19E-01	2.42E-01	2.37E-01	(40.0)	7.52E-02	Gamma (1.2)	(1.83)	4.75E-01	7.85E-01	8.23E-01	7.08E-01	4.69E-01	4.00E-01	(5.00)	3.68E-01	Gamma (4.0)	(1.00)	6.99E-01	8.67E-01	9.01E-01	8.15E-01	7.30E-01	6.32E-01	(1.50)	5.92E-01																																																																																																										
Chi (2)	(2.00)		4.28E-01	7.65E-01	8.04E-01	6.84E-01	4.16E-01		3.67E-01																																																																																																																																																																																																																																
	(6.00)		3.26E-01					Chi (3)			(1.63)	5.22E-01	8.04E-01	8.42E-01	7.32E-01	5.27E-01	4.37E-01	(4.00)	4.11E-01		Chi (4)	(1.41)	5.82E-01	8.29E-01	8.65E-01	7.63E-01	5.98E-01	4.95E-01	(3.00)	4.69E-01		Chi (8)	(1.00)	6.96E-01	8.68E-01	9.01E-01	8.16E-01	7.30E-01	6.31E-01	(1.50)		5.89E-01	Chi (10)	(0.89)	7.24E-01	8.76E-01	9.08E-01	8.27E-01	7.62E-01	6.71E-01		(1.20)	6.20E-01	Chi (12)	(0.82)	7.41E-01	8.80E-01	9.13E-01	8.34E-01	7.83E-01		6.98E-01	(1.00)	6.40E-01	Chi (16)	(0.71)	7.63E-01	8.87E-01	9.19E-01	8.44E-01		8.11E-01	7.35E-01	(0.75)	6.68E-01	Chi (24)	(0.58)	7.85E-01	8.92E-01	9.24E-01		8.53E-01	8.38E-01	7.72E-01	(0.50)	6.95E-01	Gamma (0.15)	(5.16)	1.15E-01	5.44E-01	5.67E-01	4.19E-01	2.42E-01	2.37E-01	(40.0)	7.52E-02	Gamma (1.2)	(1.83)	4.75E-01	7.85E-01	8.23E-01	7.08E-01	4.69E-01	4.00E-01	(5.00)	3.68E-01	Gamma (4.0)	(1.00)	6.99E-01	8.67E-01	9.01E-01	8.15E-01	7.30E-01	6.32E-01	(1.50)	5.92E-01																																																																																																																					
Chi (3)	(1.63)		5.22E-01	8.04E-01	8.42E-01	7.32E-01	5.27E-01		4.37E-01																																																																																																																																																																																																																																
	(4.00)		4.11E-01					Chi (4)			(1.41)	5.82E-01	8.29E-01	8.65E-01	7.63E-01	5.98E-01	4.95E-01	(3.00)	4.69E-01		Chi (8)	(1.00)	6.96E-01	8.68E-01	9.01E-01	8.16E-01	7.30E-01	6.31E-01	(1.50)	5.89E-01		Chi (10)	(0.89)	7.24E-01	8.76E-01	9.08E-01	8.27E-01	7.62E-01	6.71E-01	(1.20)		6.20E-01	Chi (12)	(0.82)	7.41E-01	8.80E-01	9.13E-01	8.34E-01	7.83E-01	6.98E-01		(1.00)	6.40E-01	Chi (16)	(0.71)	7.63E-01	8.87E-01	9.19E-01	8.44E-01	8.11E-01		7.35E-01	(0.75)	6.68E-01	Chi (24)	(0.58)	7.85E-01	8.92E-01	9.24E-01	8.53E-01		8.38E-01	7.72E-01	(0.50)	6.95E-01	Gamma (0.15)	(5.16)	1.15E-01	5.44E-01	5.67E-01	4.19E-01	2.42E-01	2.37E-01	(40.0)	7.52E-02	Gamma (1.2)	(1.83)	4.75E-01	7.85E-01	8.23E-01	7.08E-01	4.69E-01	4.00E-01	(5.00)	3.68E-01	Gamma (4.0)	(1.00)	6.99E-01	8.67E-01	9.01E-01	8.15E-01	7.30E-01	6.32E-01	(1.50)	5.92E-01																																																																																																																																
Chi (4)	(1.41)		5.82E-01	8.29E-01	8.65E-01	7.63E-01	5.98E-01		4.95E-01																																																																																																																																																																																																																																
	(3.00)		4.69E-01					Chi (8)			(1.00)	6.96E-01	8.68E-01	9.01E-01	8.16E-01	7.30E-01	6.31E-01	(1.50)	5.89E-01		Chi (10)	(0.89)	7.24E-01	8.76E-01	9.08E-01	8.27E-01	7.62E-01	6.71E-01	(1.20)	6.20E-01		Chi (12)	(0.82)	7.41E-01	8.80E-01	9.13E-01	8.34E-01	7.83E-01	6.98E-01	(1.00)		6.40E-01	Chi (16)	(0.71)	7.63E-01	8.87E-01	9.19E-01	8.44E-01	8.11E-01	7.35E-01		(0.75)	6.68E-01	Chi (24)	(0.58)	7.85E-01	8.92E-01	9.24E-01	8.53E-01	8.38E-01		7.72E-01	(0.50)	6.95E-01	Gamma (0.15)	(5.16)	1.15E-01	5.44E-01	5.67E-01	4.19E-01	2.42E-01	2.37E-01	(40.0)	7.52E-02	Gamma (1.2)	(1.83)	4.75E-01	7.85E-01	8.23E-01	7.08E-01	4.69E-01	4.00E-01	(5.00)	3.68E-01	Gamma (4.0)	(1.00)	6.99E-01	8.67E-01	9.01E-01	8.15E-01	7.30E-01	6.32E-01	(1.50)	5.92E-01																																																																																																																																											
Chi (8)	(1.00)		6.96E-01	8.68E-01	9.01E-01	8.16E-01	7.30E-01		6.31E-01																																																																																																																																																																																																																																
	(1.50)		5.89E-01					Chi (10)			(0.89)	7.24E-01	8.76E-01	9.08E-01	8.27E-01	7.62E-01	6.71E-01	(1.20)	6.20E-01		Chi (12)	(0.82)	7.41E-01	8.80E-01	9.13E-01	8.34E-01	7.83E-01	6.98E-01	(1.00)	6.40E-01		Chi (16)	(0.71)	7.63E-01	8.87E-01	9.19E-01	8.44E-01	8.11E-01	7.35E-01	(0.75)		6.68E-01	Chi (24)	(0.58)	7.85E-01	8.92E-01	9.24E-01	8.53E-01	8.38E-01	7.72E-01		(0.50)	6.95E-01	Gamma (0.15)	(5.16)	1.15E-01	5.44E-01	5.67E-01	4.19E-01	2.42E-01	2.37E-01	(40.0)	7.52E-02	Gamma (1.2)	(1.83)	4.75E-01	7.85E-01	8.23E-01	7.08E-01	4.69E-01	4.00E-01	(5.00)	3.68E-01	Gamma (4.0)	(1.00)	6.99E-01	8.67E-01	9.01E-01	8.15E-01	7.30E-01	6.32E-01	(1.50)	5.92E-01																																																																																																																																																						
Chi (10)	(0.89)		7.24E-01	8.76E-01	9.08E-01	8.27E-01	7.62E-01		6.71E-01																																																																																																																																																																																																																																
	(1.20)		6.20E-01					Chi (12)			(0.82)	7.41E-01	8.80E-01	9.13E-01	8.34E-01	7.83E-01	6.98E-01	(1.00)	6.40E-01		Chi (16)	(0.71)	7.63E-01	8.87E-01	9.19E-01	8.44E-01	8.11E-01	7.35E-01	(0.75)	6.68E-01		Chi (24)	(0.58)	7.85E-01	8.92E-01	9.24E-01	8.53E-01	8.38E-01	7.72E-01	(0.50)		6.95E-01	Gamma (0.15)	(5.16)	1.15E-01	5.44E-01	5.67E-01	4.19E-01	2.42E-01	2.37E-01	(40.0)	7.52E-02	Gamma (1.2)	(1.83)	4.75E-01	7.85E-01	8.23E-01	7.08E-01	4.69E-01	4.00E-01	(5.00)	3.68E-01	Gamma (4.0)	(1.00)	6.99E-01	8.67E-01	9.01E-01	8.15E-01	7.30E-01	6.32E-01	(1.50)	5.92E-01																																																																																																																																																																	
Chi (12)	(0.82)		7.41E-01	8.80E-01	9.13E-01	8.34E-01	7.83E-01		6.98E-01																																																																																																																																																																																																																																
	(1.00)		6.40E-01					Chi (16)			(0.71)	7.63E-01	8.87E-01	9.19E-01	8.44E-01	8.11E-01	7.35E-01	(0.75)	6.68E-01		Chi (24)	(0.58)	7.85E-01	8.92E-01	9.24E-01	8.53E-01	8.38E-01	7.72E-01	(0.50)	6.95E-01		Gamma (0.15)	(5.16)	1.15E-01	5.44E-01	5.67E-01	4.19E-01	2.42E-01	2.37E-01	(40.0)	7.52E-02	Gamma (1.2)	(1.83)	4.75E-01	7.85E-01	8.23E-01	7.08E-01	4.69E-01	4.00E-01	(5.00)	3.68E-01	Gamma (4.0)	(1.00)	6.99E-01	8.67E-01	9.01E-01	8.15E-01	7.30E-01	6.32E-01	(1.50)	5.92E-01																																																																																																																																																																												
Chi (16)	(0.71)		7.63E-01	8.87E-01	9.19E-01	8.44E-01	8.11E-01		7.35E-01																																																																																																																																																																																																																																
	(0.75)		6.68E-01					Chi (24)			(0.58)	7.85E-01	8.92E-01	9.24E-01	8.53E-01	8.38E-01	7.72E-01	(0.50)	6.95E-01		Gamma (0.15)	(5.16)	1.15E-01	5.44E-01	5.67E-01	4.19E-01	2.42E-01	2.37E-01	(40.0)	7.52E-02	Gamma (1.2)	(1.83)	4.75E-01	7.85E-01	8.23E-01	7.08E-01	4.69E-01	4.00E-01	(5.00)	3.68E-01	Gamma (4.0)	(1.00)	6.99E-01	8.67E-01	9.01E-01	8.15E-01	7.30E-01	6.32E-01	(1.50)	5.92E-01																																																																																																																																																																																							
Chi (24)	(0.58)		7.85E-01	8.92E-01	9.24E-01	8.53E-01	8.38E-01		7.72E-01																																																																																																																																																																																																																																
	(0.50)		6.95E-01					Gamma (0.15)			(5.16)	1.15E-01	5.44E-01	5.67E-01	4.19E-01	2.42E-01	2.37E-01	(40.0)	7.52E-02	Gamma (1.2)	(1.83)	4.75E-01	7.85E-01	8.23E-01	7.08E-01	4.69E-01	4.00E-01	(5.00)	3.68E-01	Gamma (4.0)	(1.00)	6.99E-01	8.67E-01	9.01E-01	8.15E-01	7.30E-01	6.32E-01	(1.50)	5.92E-01																																																																																																																																																																																																		
Gamma (0.15)	(5.16)		1.15E-01	5.44E-01	5.67E-01	4.19E-01	2.42E-01		2.37E-01																																																																																																																																																																																																																																
	(40.0)		7.52E-02					Gamma (1.2)		(1.83)	4.75E-01	7.85E-01	8.23E-01	7.08E-01	4.69E-01	4.00E-01	(5.00)	3.68E-01	Gamma (4.0)	(1.00)	6.99E-01	8.67E-01	9.01E-01	8.15E-01	7.30E-01	6.32E-01	(1.50)	5.92E-01																																																																																																																																																																																																													
Gamma (1.2)	(1.83)	4.75E-01	7.85E-01	8.23E-01	7.08E-01	4.69E-01	4.00E-01																																																																																																																																																																																																																																		
	(5.00)	3.68E-01						Gamma (4.0)	(1.00)	6.99E-01	8.67E-01	9.01E-01	8.15E-01	7.30E-01	6.32E-01	(1.50)	5.92E-01																																																																																																																																																																																																																								
Gamma (4.0)	(1.00)	6.99E-01	8.67E-01	9.01E-01	8.15E-01	7.30E-01	6.32E-01																																																																																																																																																																																																																																		
	(1.50)	5.92E-01																																																																																																																																																																																																																																							

A ROBUST ONE-SIDED VARIABILITY CONTROL CHART

Table 6: Power Comparison Study for Symmetric Distributions ($n = 10$)

Distribution	(skewness) (kurtosis)	k	Combined Sample	R-chart	S-chart	S2-chart	WV-chart	SC-chart																																																																																																																																																																																																																																	
Barnes 3	(3.00)	k=1	2.04E-03	1.10E-01	9.09E-02	6.07E-02	1.06E-01	7.76E-02																																																																																																																																																																																																																																	
	(1049)		8.02E-04						Barnes 1	(0.00)	3.97E-03	1.45E-02	1.24E-02	1.86E-03	1.24E-02	6.40E-03	(6.89)	1.23E-03	JTB (2.0, 1.0)	(0.00)	4.58E-03	6.60E-02	6.30E-02	2.39E-02	5.77E-02	4.23E-02	(3.00)	1.89E-03	JTB (0.75, 0.5)	(0.00)	5.69E-03	3.93E-02	3.62E-02	9.57E-03	3.33E-02	2.21E-02	(1.20)	2.22E-03	JTB (4.0, 1.0)	(0.00)	4.33E-03	3.31E-02	2.78E-02	7.42E-03	2.95E-02	1.88E-02	(0.78)	1.59E-03	JTB (1.0, 0.5)	(0.00)	5.08E-03	2.71E-02	2.41E-02	5.18E-03	2.34E-02	1.40E-02	(0.60)	1.83E-03	JTB (1.25, 0.5)	(0.00)	4.47E-03	1.94E-02	1.68E-02	3.03E-03	1.67E-02	9.29E-03	(0.24)	1.52E-03	JTB (1.35, 0.5)	(0.00)	4.19E-03	1.69E-02	1.45E-02	2.44E-03	1.46E-02	7.86E-03	(0.13)	1.38E-03	JTB (1.5, 0.5)	(0.00)	4.00E-03	1.45E-02	1.24E-02	1.88E-03	1.25E-02	6.44E-03	(0.00)	1.26E-03	JTB (2.0, 0.5)	(0.00)	3.22E-03	8.52E-03	7.47E-03	8.68E-04	7.08E-03	3.27E-03	(-0.30)	9.07E-04	JTB (4.0, 0.5)	(0.00)	1.65E-03	1.55E-03	2.00E-03	1.02E-04	1.20E-03	3.71E-04	(-0.75)	3.43E-04	JTB (9.0, 0.5)	(0.00)	8.09E-04	6.28E-05	4.81E-04	9.75E-06	4.28E-05	5.75E-06	(-1.00)	1.28E-04	Barnes 3	(3.00)	k=2	9.49E-03	1.80E-01	1.76E-01	1.19E-01	1.76E-01	1.35E-01	(1049)	4.20E-03	Barnes 1	(0.00)	1.66E-01	2.54E-01	2.95E-01	1.46E-01	2.37E-01	1.78E-01	(6.89)	1.01E-01	JTB (2.0, 1.0)	(0.00)	7.00E-02	2.90E-01	3.20E-01	1.87E-01	2.68E-01	2.22E-01	(3.00)	3.93E-02	JTB (0.75, 0.5)	(0.00)	1.14E-01	2.85E-01	3.20E-01	1.78E-01	2.62E-01	2.15E-01	(1.20)	6.86E-02	JTB (4.0, 1.0)	(0.00)	1.18E-01	2.68E-01	3.03E-01	1.63E-01	2.52E-01	1.98E-01	(0.78)	6.85E-02	JTB (1.0, 0.5)	(0.00)	1.36E-01	2.73E-01	3.10E-01	1.64E-01	2.54E-01	2.00E-01	(0.60)	8.27E-02	JTB (1.25, 0.5)	(0.00)	1.52E-01	2.61E-01	3.00E-01	1.53E-01	2.44E-01	1.87E-01	(0.24)	9.25E-02	JTB (1.35, 0.5)	(0.00)	1.57E-01	2.57E-01	2.96E-01	1.49E-01	2.40E-01	1.82E-01	(0.13)	9.54E-02	JTB (1.5, 0.5)	(0.00)	1.66E-01	2.54E-01	2.95E-01	1.45E-01	2.38E-01	1.78E-01	(0.00)	1.01E-01	JTB (2.0, 0.5)	(0.00)	1.87E-01	2.40E-01	2.85E-01	1.33E-01	2.22E-01	1.62E-01	(-0.30)	1.14E-01	JTB (4.0, 0.5)	(0.00)	2.34E-01	2.09E-01	2.67E-01	1.09E-01	1.89E-01	1.24E-01	(-0.75)	1.44E-01	JTB (9.0, 0.5)	(0.00)	2.80E-01	1.72E-01
Barnes 1	(0.00)		3.97E-03	1.45E-02	1.24E-02	1.86E-03	1.24E-02	6.40E-03																																																																																																																																																																																																																																	
	(6.89)		1.23E-03						JTB (2.0, 1.0)	(0.00)	4.58E-03	6.60E-02	6.30E-02	2.39E-02	5.77E-02	4.23E-02	(3.00)	1.89E-03	JTB (0.75, 0.5)	(0.00)	5.69E-03	3.93E-02	3.62E-02	9.57E-03	3.33E-02	2.21E-02	(1.20)	2.22E-03	JTB (4.0, 1.0)	(0.00)	4.33E-03	3.31E-02	2.78E-02	7.42E-03	2.95E-02	1.88E-02	(0.78)	1.59E-03	JTB (1.0, 0.5)	(0.00)	5.08E-03	2.71E-02	2.41E-02	5.18E-03	2.34E-02	1.40E-02	(0.60)	1.83E-03	JTB (1.25, 0.5)	(0.00)	4.47E-03	1.94E-02	1.68E-02	3.03E-03	1.67E-02	9.29E-03	(0.24)	1.52E-03	JTB (1.35, 0.5)	(0.00)	4.19E-03	1.69E-02	1.45E-02	2.44E-03	1.46E-02	7.86E-03	(0.13)	1.38E-03	JTB (1.5, 0.5)	(0.00)	4.00E-03	1.45E-02	1.24E-02	1.88E-03	1.25E-02	6.44E-03	(0.00)	1.26E-03	JTB (2.0, 0.5)	(0.00)	3.22E-03	8.52E-03	7.47E-03	8.68E-04	7.08E-03	3.27E-03	(-0.30)	9.07E-04	JTB (4.0, 0.5)	(0.00)	1.65E-03	1.55E-03	2.00E-03	1.02E-04	1.20E-03	3.71E-04	(-0.75)	3.43E-04	JTB (9.0, 0.5)	(0.00)	8.09E-04	6.28E-05	4.81E-04	9.75E-06	4.28E-05	5.75E-06	(-1.00)	1.28E-04	Barnes 3	(3.00)	k=2	9.49E-03	1.80E-01	1.76E-01	1.19E-01	1.76E-01	1.35E-01	(1049)	4.20E-03	Barnes 1		(0.00)	1.66E-01	2.54E-01	2.95E-01	1.46E-01	2.37E-01	1.78E-01	(6.89)	1.01E-01	JTB (2.0, 1.0)	(0.00)	7.00E-02	2.90E-01	3.20E-01	1.87E-01	2.68E-01	2.22E-01	(3.00)	3.93E-02	JTB (0.75, 0.5)	(0.00)	1.14E-01	2.85E-01	3.20E-01	1.78E-01	2.62E-01	2.15E-01	(1.20)	6.86E-02	JTB (4.0, 1.0)	(0.00)	1.18E-01	2.68E-01	3.03E-01	1.63E-01	2.52E-01	1.98E-01	(0.78)	6.85E-02	JTB (1.0, 0.5)	(0.00)	1.36E-01	2.73E-01	3.10E-01	1.64E-01	2.54E-01	2.00E-01	(0.60)	8.27E-02	JTB (1.25, 0.5)	(0.00)	1.52E-01	2.61E-01	3.00E-01	1.53E-01	2.44E-01	1.87E-01	(0.24)	9.25E-02	JTB (1.35, 0.5)	(0.00)	1.57E-01	2.57E-01	2.96E-01	1.49E-01	2.40E-01	1.82E-01	(0.13)	9.54E-02	JTB (1.5, 0.5)	(0.00)	1.66E-01	2.54E-01	2.95E-01	1.45E-01	2.38E-01	1.78E-01	(0.00)	1.01E-01	JTB (2.0, 0.5)	(0.00)	1.87E-01	2.40E-01	2.85E-01	1.33E-01	2.22E-01	1.62E-01	(-0.30)	1.14E-01	JTB (4.0, 0.5)	(0.00)	2.34E-01	2.09E-01	2.67E-01	1.09E-01	1.89E-01	1.24E-01	(-0.75)	1.44E-01	JTB (9.0, 0.5)	(0.00)	2.80E-01	1.72E-01	2.54E-01	9.03E-02	1.50E-01	8.22E-02	(-1.00)	1.76E-01			
JTB (2.0, 1.0)	(0.00)		4.58E-03	6.60E-02	6.30E-02	2.39E-02	5.77E-02	4.23E-02																																																																																																																																																																																																																																	
	(3.00)		1.89E-03						JTB (0.75, 0.5)	(0.00)	5.69E-03	3.93E-02	3.62E-02	9.57E-03	3.33E-02	2.21E-02	(1.20)	2.22E-03	JTB (4.0, 1.0)	(0.00)	4.33E-03	3.31E-02	2.78E-02	7.42E-03	2.95E-02	1.88E-02	(0.78)	1.59E-03	JTB (1.0, 0.5)	(0.00)	5.08E-03	2.71E-02	2.41E-02	5.18E-03	2.34E-02	1.40E-02	(0.60)	1.83E-03	JTB (1.25, 0.5)	(0.00)	4.47E-03	1.94E-02	1.68E-02	3.03E-03	1.67E-02	9.29E-03	(0.24)	1.52E-03	JTB (1.35, 0.5)	(0.00)	4.19E-03	1.69E-02	1.45E-02	2.44E-03	1.46E-02	7.86E-03	(0.13)	1.38E-03	JTB (1.5, 0.5)	(0.00)	4.00E-03	1.45E-02	1.24E-02	1.88E-03	1.25E-02	6.44E-03	(0.00)	1.26E-03	JTB (2.0, 0.5)	(0.00)	3.22E-03	8.52E-03	7.47E-03	8.68E-04	7.08E-03	3.27E-03	(-0.30)	9.07E-04	JTB (4.0, 0.5)	(0.00)	1.65E-03	1.55E-03	2.00E-03	1.02E-04	1.20E-03	3.71E-04	(-0.75)	3.43E-04	JTB (9.0, 0.5)	(0.00)	8.09E-04	6.28E-05	4.81E-04	9.75E-06	4.28E-05	5.75E-06	(-1.00)	1.28E-04	Barnes 3	(3.00)	k=2	9.49E-03	1.80E-01	1.76E-01	1.19E-01	1.76E-01	1.35E-01	(1049)	4.20E-03	Barnes 1		(0.00)	1.66E-01	2.54E-01	2.95E-01	1.46E-01	2.37E-01	1.78E-01	(6.89)	1.01E-01		JTB (2.0, 1.0)	(0.00)	7.00E-02	2.90E-01	3.20E-01	1.87E-01	2.68E-01	2.22E-01	(3.00)	3.93E-02	JTB (0.75, 0.5)	(0.00)	1.14E-01	2.85E-01	3.20E-01	1.78E-01	2.62E-01	2.15E-01	(1.20)	6.86E-02	JTB (4.0, 1.0)	(0.00)	1.18E-01	2.68E-01	3.03E-01	1.63E-01	2.52E-01	1.98E-01	(0.78)	6.85E-02	JTB (1.0, 0.5)	(0.00)	1.36E-01	2.73E-01	3.10E-01	1.64E-01	2.54E-01	2.00E-01	(0.60)	8.27E-02	JTB (1.25, 0.5)	(0.00)	1.52E-01	2.61E-01	3.00E-01	1.53E-01	2.44E-01	1.87E-01	(0.24)	9.25E-02	JTB (1.35, 0.5)	(0.00)	1.57E-01	2.57E-01	2.96E-01	1.49E-01	2.40E-01	1.82E-01	(0.13)	9.54E-02	JTB (1.5, 0.5)	(0.00)	1.66E-01	2.54E-01	2.95E-01	1.45E-01	2.38E-01	1.78E-01	(0.00)	1.01E-01	JTB (2.0, 0.5)	(0.00)	1.87E-01	2.40E-01	2.85E-01	1.33E-01	2.22E-01	1.62E-01	(-0.30)	1.14E-01	JTB (4.0, 0.5)	(0.00)	2.34E-01	2.09E-01	2.67E-01	1.09E-01	1.89E-01	1.24E-01	(-0.75)	1.44E-01	JTB (9.0, 0.5)	(0.00)	2.80E-01	1.72E-01	2.54E-01	9.03E-02	1.50E-01	8.22E-02	(-1.00)	1.76E-01												
JTB (0.75, 0.5)	(0.00)		5.69E-03	3.93E-02	3.62E-02	9.57E-03	3.33E-02	2.21E-02																																																																																																																																																																																																																																	
	(1.20)		2.22E-03						JTB (4.0, 1.0)	(0.00)	4.33E-03	3.31E-02	2.78E-02	7.42E-03	2.95E-02	1.88E-02	(0.78)	1.59E-03	JTB (1.0, 0.5)	(0.00)	5.08E-03	2.71E-02	2.41E-02	5.18E-03	2.34E-02	1.40E-02	(0.60)	1.83E-03	JTB (1.25, 0.5)	(0.00)	4.47E-03	1.94E-02	1.68E-02	3.03E-03	1.67E-02	9.29E-03	(0.24)	1.52E-03	JTB (1.35, 0.5)	(0.00)	4.19E-03	1.69E-02	1.45E-02	2.44E-03	1.46E-02	7.86E-03	(0.13)	1.38E-03	JTB (1.5, 0.5)	(0.00)	4.00E-03	1.45E-02	1.24E-02	1.88E-03	1.25E-02	6.44E-03	(0.00)	1.26E-03	JTB (2.0, 0.5)	(0.00)	3.22E-03	8.52E-03	7.47E-03	8.68E-04	7.08E-03	3.27E-03	(-0.30)	9.07E-04	JTB (4.0, 0.5)	(0.00)	1.65E-03	1.55E-03	2.00E-03	1.02E-04	1.20E-03	3.71E-04	(-0.75)	3.43E-04	JTB (9.0, 0.5)	(0.00)	8.09E-04	6.28E-05	4.81E-04	9.75E-06	4.28E-05	5.75E-06	(-1.00)	1.28E-04	Barnes 3	(3.00)	k=2	9.49E-03	1.80E-01	1.76E-01	1.19E-01	1.76E-01	1.35E-01	(1049)	4.20E-03	Barnes 1		(0.00)	1.66E-01	2.54E-01	2.95E-01	1.46E-01	2.37E-01	1.78E-01	(6.89)	1.01E-01		JTB (2.0, 1.0)	(0.00)	7.00E-02	2.90E-01	3.20E-01	1.87E-01	2.68E-01	2.22E-01	(3.00)		3.93E-02	JTB (0.75, 0.5)	(0.00)	1.14E-01	2.85E-01	3.20E-01	1.78E-01	2.62E-01	2.15E-01	(1.20)	6.86E-02	JTB (4.0, 1.0)	(0.00)	1.18E-01	2.68E-01	3.03E-01	1.63E-01	2.52E-01	1.98E-01	(0.78)	6.85E-02	JTB (1.0, 0.5)	(0.00)	1.36E-01	2.73E-01	3.10E-01	1.64E-01	2.54E-01	2.00E-01	(0.60)	8.27E-02	JTB (1.25, 0.5)	(0.00)	1.52E-01	2.61E-01	3.00E-01	1.53E-01	2.44E-01	1.87E-01	(0.24)	9.25E-02	JTB (1.35, 0.5)	(0.00)	1.57E-01	2.57E-01	2.96E-01	1.49E-01	2.40E-01	1.82E-01	(0.13)	9.54E-02	JTB (1.5, 0.5)	(0.00)	1.66E-01	2.54E-01	2.95E-01	1.45E-01	2.38E-01	1.78E-01	(0.00)	1.01E-01	JTB (2.0, 0.5)	(0.00)	1.87E-01	2.40E-01	2.85E-01	1.33E-01	2.22E-01	1.62E-01	(-0.30)	1.14E-01	JTB (4.0, 0.5)	(0.00)	2.34E-01	2.09E-01	2.67E-01	1.09E-01	1.89E-01	1.24E-01	(-0.75)	1.44E-01	JTB (9.0, 0.5)	(0.00)	2.80E-01	1.72E-01	2.54E-01	9.03E-02	1.50E-01	8.22E-02	(-1.00)	1.76E-01																					
JTB (4.0, 1.0)	(0.00)		4.33E-03	3.31E-02	2.78E-02	7.42E-03	2.95E-02	1.88E-02																																																																																																																																																																																																																																	
	(0.78)		1.59E-03						JTB (1.0, 0.5)	(0.00)	5.08E-03	2.71E-02	2.41E-02	5.18E-03	2.34E-02	1.40E-02	(0.60)	1.83E-03	JTB (1.25, 0.5)	(0.00)	4.47E-03	1.94E-02	1.68E-02	3.03E-03	1.67E-02	9.29E-03	(0.24)	1.52E-03	JTB (1.35, 0.5)	(0.00)	4.19E-03	1.69E-02	1.45E-02	2.44E-03	1.46E-02	7.86E-03	(0.13)	1.38E-03	JTB (1.5, 0.5)	(0.00)	4.00E-03	1.45E-02	1.24E-02	1.88E-03	1.25E-02	6.44E-03	(0.00)	1.26E-03	JTB (2.0, 0.5)	(0.00)	3.22E-03	8.52E-03	7.47E-03	8.68E-04	7.08E-03	3.27E-03	(-0.30)	9.07E-04	JTB (4.0, 0.5)	(0.00)	1.65E-03	1.55E-03	2.00E-03	1.02E-04	1.20E-03	3.71E-04	(-0.75)	3.43E-04	JTB (9.0, 0.5)	(0.00)	8.09E-04	6.28E-05	4.81E-04	9.75E-06	4.28E-05	5.75E-06	(-1.00)	1.28E-04	Barnes 3	(3.00)	k=2	9.49E-03	1.80E-01	1.76E-01	1.19E-01	1.76E-01	1.35E-01	(1049)	4.20E-03	Barnes 1		(0.00)	1.66E-01	2.54E-01	2.95E-01	1.46E-01	2.37E-01	1.78E-01	(6.89)	1.01E-01		JTB (2.0, 1.0)	(0.00)	7.00E-02	2.90E-01	3.20E-01	1.87E-01	2.68E-01	2.22E-01	(3.00)		3.93E-02	JTB (0.75, 0.5)	(0.00)	1.14E-01	2.85E-01	3.20E-01	1.78E-01	2.62E-01	2.15E-01		(1.20)	6.86E-02	JTB (4.0, 1.0)	(0.00)	1.18E-01	2.68E-01	3.03E-01	1.63E-01	2.52E-01	1.98E-01	(0.78)	6.85E-02	JTB (1.0, 0.5)	(0.00)	1.36E-01	2.73E-01	3.10E-01	1.64E-01	2.54E-01	2.00E-01	(0.60)	8.27E-02	JTB (1.25, 0.5)	(0.00)	1.52E-01	2.61E-01	3.00E-01	1.53E-01	2.44E-01	1.87E-01	(0.24)	9.25E-02	JTB (1.35, 0.5)	(0.00)	1.57E-01	2.57E-01	2.96E-01	1.49E-01	2.40E-01	1.82E-01	(0.13)	9.54E-02	JTB (1.5, 0.5)	(0.00)	1.66E-01	2.54E-01	2.95E-01	1.45E-01	2.38E-01	1.78E-01	(0.00)	1.01E-01	JTB (2.0, 0.5)	(0.00)	1.87E-01	2.40E-01	2.85E-01	1.33E-01	2.22E-01	1.62E-01	(-0.30)	1.14E-01	JTB (4.0, 0.5)	(0.00)	2.34E-01	2.09E-01	2.67E-01	1.09E-01	1.89E-01	1.24E-01	(-0.75)	1.44E-01	JTB (9.0, 0.5)	(0.00)	2.80E-01	1.72E-01	2.54E-01	9.03E-02	1.50E-01	8.22E-02	(-1.00)	1.76E-01																														
JTB (1.0, 0.5)	(0.00)		5.08E-03	2.71E-02	2.41E-02	5.18E-03	2.34E-02	1.40E-02																																																																																																																																																																																																																																	
	(0.60)		1.83E-03						JTB (1.25, 0.5)	(0.00)	4.47E-03	1.94E-02	1.68E-02	3.03E-03	1.67E-02	9.29E-03	(0.24)	1.52E-03	JTB (1.35, 0.5)	(0.00)	4.19E-03	1.69E-02	1.45E-02	2.44E-03	1.46E-02	7.86E-03	(0.13)	1.38E-03	JTB (1.5, 0.5)	(0.00)	4.00E-03	1.45E-02	1.24E-02	1.88E-03	1.25E-02	6.44E-03	(0.00)	1.26E-03	JTB (2.0, 0.5)	(0.00)	3.22E-03	8.52E-03	7.47E-03	8.68E-04	7.08E-03	3.27E-03	(-0.30)	9.07E-04	JTB (4.0, 0.5)	(0.00)	1.65E-03	1.55E-03	2.00E-03	1.02E-04	1.20E-03	3.71E-04	(-0.75)	3.43E-04	JTB (9.0, 0.5)	(0.00)	8.09E-04	6.28E-05	4.81E-04	9.75E-06	4.28E-05	5.75E-06	(-1.00)	1.28E-04	Barnes 3	(3.00)	k=2	9.49E-03	1.80E-01	1.76E-01	1.19E-01	1.76E-01	1.35E-01	(1049)	4.20E-03	Barnes 1		(0.00)	1.66E-01	2.54E-01	2.95E-01	1.46E-01	2.37E-01	1.78E-01	(6.89)	1.01E-01		JTB (2.0, 1.0)	(0.00)	7.00E-02	2.90E-01	3.20E-01	1.87E-01	2.68E-01	2.22E-01	(3.00)		3.93E-02	JTB (0.75, 0.5)	(0.00)	1.14E-01	2.85E-01	3.20E-01	1.78E-01	2.62E-01	2.15E-01		(1.20)	6.86E-02	JTB (4.0, 1.0)	(0.00)	1.18E-01	2.68E-01	3.03E-01	1.63E-01	2.52E-01		1.98E-01	(0.78)	6.85E-02	JTB (1.0, 0.5)	(0.00)	1.36E-01	2.73E-01	3.10E-01	1.64E-01	2.54E-01	2.00E-01	(0.60)	8.27E-02	JTB (1.25, 0.5)	(0.00)	1.52E-01	2.61E-01	3.00E-01	1.53E-01	2.44E-01	1.87E-01	(0.24)	9.25E-02	JTB (1.35, 0.5)	(0.00)	1.57E-01	2.57E-01	2.96E-01	1.49E-01	2.40E-01	1.82E-01	(0.13)	9.54E-02	JTB (1.5, 0.5)	(0.00)	1.66E-01	2.54E-01	2.95E-01	1.45E-01	2.38E-01	1.78E-01	(0.00)	1.01E-01	JTB (2.0, 0.5)	(0.00)	1.87E-01	2.40E-01	2.85E-01	1.33E-01	2.22E-01	1.62E-01	(-0.30)	1.14E-01	JTB (4.0, 0.5)	(0.00)	2.34E-01	2.09E-01	2.67E-01	1.09E-01	1.89E-01	1.24E-01	(-0.75)	1.44E-01	JTB (9.0, 0.5)	(0.00)	2.80E-01	1.72E-01	2.54E-01	9.03E-02	1.50E-01	8.22E-02	(-1.00)	1.76E-01																																							
JTB (1.25, 0.5)	(0.00)		4.47E-03	1.94E-02	1.68E-02	3.03E-03	1.67E-02	9.29E-03																																																																																																																																																																																																																																	
	(0.24)		1.52E-03						JTB (1.35, 0.5)	(0.00)	4.19E-03	1.69E-02	1.45E-02	2.44E-03	1.46E-02	7.86E-03	(0.13)	1.38E-03	JTB (1.5, 0.5)	(0.00)	4.00E-03	1.45E-02	1.24E-02	1.88E-03	1.25E-02	6.44E-03	(0.00)	1.26E-03	JTB (2.0, 0.5)	(0.00)	3.22E-03	8.52E-03	7.47E-03	8.68E-04	7.08E-03	3.27E-03	(-0.30)	9.07E-04	JTB (4.0, 0.5)	(0.00)	1.65E-03	1.55E-03	2.00E-03	1.02E-04	1.20E-03	3.71E-04	(-0.75)	3.43E-04	JTB (9.0, 0.5)	(0.00)	8.09E-04	6.28E-05	4.81E-04	9.75E-06	4.28E-05	5.75E-06	(-1.00)	1.28E-04	Barnes 3	(3.00)	k=2	9.49E-03	1.80E-01	1.76E-01	1.19E-01	1.76E-01	1.35E-01	(1049)	4.20E-03	Barnes 1		(0.00)	1.66E-01	2.54E-01	2.95E-01	1.46E-01	2.37E-01	1.78E-01	(6.89)	1.01E-01		JTB (2.0, 1.0)	(0.00)	7.00E-02	2.90E-01	3.20E-01	1.87E-01	2.68E-01	2.22E-01	(3.00)		3.93E-02	JTB (0.75, 0.5)	(0.00)	1.14E-01	2.85E-01	3.20E-01	1.78E-01	2.62E-01	2.15E-01		(1.20)	6.86E-02	JTB (4.0, 1.0)	(0.00)	1.18E-01	2.68E-01	3.03E-01	1.63E-01	2.52E-01		1.98E-01	(0.78)	6.85E-02	JTB (1.0, 0.5)	(0.00)	1.36E-01	2.73E-01	3.10E-01	1.64E-01		2.54E-01	2.00E-01	(0.60)	8.27E-02	JTB (1.25, 0.5)	(0.00)	1.52E-01	2.61E-01	3.00E-01	1.53E-01	2.44E-01	1.87E-01	(0.24)	9.25E-02	JTB (1.35, 0.5)	(0.00)	1.57E-01	2.57E-01	2.96E-01	1.49E-01	2.40E-01	1.82E-01	(0.13)	9.54E-02	JTB (1.5, 0.5)	(0.00)	1.66E-01	2.54E-01	2.95E-01	1.45E-01	2.38E-01	1.78E-01	(0.00)	1.01E-01	JTB (2.0, 0.5)	(0.00)	1.87E-01	2.40E-01	2.85E-01	1.33E-01	2.22E-01	1.62E-01	(-0.30)	1.14E-01	JTB (4.0, 0.5)	(0.00)	2.34E-01	2.09E-01	2.67E-01	1.09E-01	1.89E-01	1.24E-01	(-0.75)	1.44E-01	JTB (9.0, 0.5)	(0.00)	2.80E-01	1.72E-01	2.54E-01	9.03E-02	1.50E-01	8.22E-02	(-1.00)	1.76E-01																																																
JTB (1.35, 0.5)	(0.00)		4.19E-03	1.69E-02	1.45E-02	2.44E-03	1.46E-02	7.86E-03																																																																																																																																																																																																																																	
	(0.13)		1.38E-03						JTB (1.5, 0.5)	(0.00)	4.00E-03	1.45E-02	1.24E-02	1.88E-03	1.25E-02	6.44E-03	(0.00)	1.26E-03	JTB (2.0, 0.5)	(0.00)	3.22E-03	8.52E-03	7.47E-03	8.68E-04	7.08E-03	3.27E-03	(-0.30)	9.07E-04	JTB (4.0, 0.5)	(0.00)	1.65E-03	1.55E-03	2.00E-03	1.02E-04	1.20E-03	3.71E-04	(-0.75)	3.43E-04	JTB (9.0, 0.5)	(0.00)	8.09E-04	6.28E-05	4.81E-04	9.75E-06	4.28E-05	5.75E-06	(-1.00)	1.28E-04	Barnes 3	(3.00)	k=2	9.49E-03	1.80E-01	1.76E-01	1.19E-01	1.76E-01	1.35E-01	(1049)	4.20E-03	Barnes 1		(0.00)	1.66E-01	2.54E-01	2.95E-01	1.46E-01	2.37E-01	1.78E-01	(6.89)	1.01E-01		JTB (2.0, 1.0)	(0.00)	7.00E-02	2.90E-01	3.20E-01	1.87E-01	2.68E-01	2.22E-01	(3.00)		3.93E-02	JTB (0.75, 0.5)	(0.00)	1.14E-01	2.85E-01	3.20E-01	1.78E-01	2.62E-01	2.15E-01		(1.20)	6.86E-02	JTB (4.0, 1.0)	(0.00)	1.18E-01	2.68E-01	3.03E-01	1.63E-01	2.52E-01		1.98E-01	(0.78)	6.85E-02	JTB (1.0, 0.5)	(0.00)	1.36E-01	2.73E-01	3.10E-01	1.64E-01		2.54E-01	2.00E-01	(0.60)	8.27E-02	JTB (1.25, 0.5)	(0.00)	1.52E-01	2.61E-01	3.00E-01		1.53E-01	2.44E-01	1.87E-01	(0.24)	9.25E-02	JTB (1.35, 0.5)	(0.00)	1.57E-01	2.57E-01	2.96E-01	1.49E-01	2.40E-01	1.82E-01	(0.13)	9.54E-02	JTB (1.5, 0.5)	(0.00)	1.66E-01	2.54E-01	2.95E-01	1.45E-01	2.38E-01	1.78E-01	(0.00)	1.01E-01	JTB (2.0, 0.5)	(0.00)	1.87E-01	2.40E-01	2.85E-01	1.33E-01	2.22E-01	1.62E-01	(-0.30)	1.14E-01	JTB (4.0, 0.5)	(0.00)	2.34E-01	2.09E-01	2.67E-01	1.09E-01	1.89E-01	1.24E-01	(-0.75)	1.44E-01	JTB (9.0, 0.5)	(0.00)	2.80E-01	1.72E-01	2.54E-01	9.03E-02	1.50E-01	8.22E-02	(-1.00)	1.76E-01																																																									
JTB (1.5, 0.5)	(0.00)		4.00E-03	1.45E-02	1.24E-02	1.88E-03	1.25E-02	6.44E-03																																																																																																																																																																																																																																	
	(0.00)		1.26E-03						JTB (2.0, 0.5)	(0.00)	3.22E-03	8.52E-03	7.47E-03	8.68E-04	7.08E-03	3.27E-03	(-0.30)	9.07E-04	JTB (4.0, 0.5)	(0.00)	1.65E-03	1.55E-03	2.00E-03	1.02E-04	1.20E-03	3.71E-04	(-0.75)	3.43E-04	JTB (9.0, 0.5)	(0.00)	8.09E-04	6.28E-05	4.81E-04	9.75E-06	4.28E-05	5.75E-06	(-1.00)	1.28E-04	Barnes 3	(3.00)	k=2	9.49E-03	1.80E-01	1.76E-01	1.19E-01	1.76E-01	1.35E-01	(1049)	4.20E-03	Barnes 1		(0.00)	1.66E-01	2.54E-01	2.95E-01	1.46E-01	2.37E-01	1.78E-01	(6.89)	1.01E-01		JTB (2.0, 1.0)	(0.00)	7.00E-02	2.90E-01	3.20E-01	1.87E-01	2.68E-01	2.22E-01	(3.00)		3.93E-02	JTB (0.75, 0.5)	(0.00)	1.14E-01	2.85E-01	3.20E-01	1.78E-01	2.62E-01	2.15E-01		(1.20)	6.86E-02	JTB (4.0, 1.0)	(0.00)	1.18E-01	2.68E-01	3.03E-01	1.63E-01	2.52E-01		1.98E-01	(0.78)	6.85E-02	JTB (1.0, 0.5)	(0.00)	1.36E-01	2.73E-01	3.10E-01	1.64E-01		2.54E-01	2.00E-01	(0.60)	8.27E-02	JTB (1.25, 0.5)	(0.00)	1.52E-01	2.61E-01	3.00E-01		1.53E-01	2.44E-01	1.87E-01	(0.24)	9.25E-02	JTB (1.35, 0.5)	(0.00)	1.57E-01	2.57E-01		2.96E-01	1.49E-01	2.40E-01	1.82E-01	(0.13)	9.54E-02	JTB (1.5, 0.5)	(0.00)	1.66E-01	2.54E-01	2.95E-01	1.45E-01	2.38E-01	1.78E-01	(0.00)	1.01E-01	JTB (2.0, 0.5)	(0.00)	1.87E-01	2.40E-01	2.85E-01	1.33E-01	2.22E-01	1.62E-01	(-0.30)	1.14E-01	JTB (4.0, 0.5)	(0.00)	2.34E-01	2.09E-01	2.67E-01	1.09E-01	1.89E-01	1.24E-01	(-0.75)	1.44E-01	JTB (9.0, 0.5)	(0.00)	2.80E-01	1.72E-01	2.54E-01	9.03E-02	1.50E-01	8.22E-02	(-1.00)	1.76E-01																																																																		
JTB (2.0, 0.5)	(0.00)		3.22E-03	8.52E-03	7.47E-03	8.68E-04	7.08E-03	3.27E-03																																																																																																																																																																																																																																	
	(-0.30)		9.07E-04						JTB (4.0, 0.5)	(0.00)	1.65E-03	1.55E-03	2.00E-03	1.02E-04	1.20E-03	3.71E-04	(-0.75)	3.43E-04	JTB (9.0, 0.5)	(0.00)	8.09E-04	6.28E-05	4.81E-04	9.75E-06	4.28E-05	5.75E-06	(-1.00)	1.28E-04	Barnes 3	(3.00)	k=2	9.49E-03	1.80E-01	1.76E-01	1.19E-01	1.76E-01	1.35E-01	(1049)	4.20E-03	Barnes 1		(0.00)	1.66E-01	2.54E-01	2.95E-01	1.46E-01	2.37E-01	1.78E-01	(6.89)	1.01E-01		JTB (2.0, 1.0)	(0.00)	7.00E-02	2.90E-01	3.20E-01	1.87E-01	2.68E-01	2.22E-01	(3.00)		3.93E-02	JTB (0.75, 0.5)	(0.00)	1.14E-01	2.85E-01	3.20E-01	1.78E-01	2.62E-01	2.15E-01		(1.20)	6.86E-02	JTB (4.0, 1.0)	(0.00)	1.18E-01	2.68E-01	3.03E-01	1.63E-01	2.52E-01		1.98E-01	(0.78)	6.85E-02	JTB (1.0, 0.5)	(0.00)	1.36E-01	2.73E-01	3.10E-01	1.64E-01		2.54E-01	2.00E-01	(0.60)	8.27E-02	JTB (1.25, 0.5)	(0.00)	1.52E-01	2.61E-01	3.00E-01		1.53E-01	2.44E-01	1.87E-01	(0.24)	9.25E-02	JTB (1.35, 0.5)	(0.00)	1.57E-01	2.57E-01		2.96E-01	1.49E-01	2.40E-01	1.82E-01	(0.13)	9.54E-02	JTB (1.5, 0.5)	(0.00)	1.66E-01		2.54E-01	2.95E-01	1.45E-01	2.38E-01	1.78E-01	(0.00)	1.01E-01	JTB (2.0, 0.5)	(0.00)	1.87E-01	2.40E-01	2.85E-01	1.33E-01	2.22E-01	1.62E-01	(-0.30)	1.14E-01	JTB (4.0, 0.5)	(0.00)	2.34E-01	2.09E-01	2.67E-01	1.09E-01	1.89E-01	1.24E-01	(-0.75)	1.44E-01	JTB (9.0, 0.5)	(0.00)	2.80E-01	1.72E-01	2.54E-01	9.03E-02	1.50E-01	8.22E-02	(-1.00)	1.76E-01																																																																											
JTB (4.0, 0.5)	(0.00)		1.65E-03	1.55E-03	2.00E-03	1.02E-04	1.20E-03	3.71E-04																																																																																																																																																																																																																																	
	(-0.75)		3.43E-04						JTB (9.0, 0.5)	(0.00)	8.09E-04	6.28E-05	4.81E-04	9.75E-06	4.28E-05	5.75E-06	(-1.00)	1.28E-04	Barnes 3	(3.00)	k=2	9.49E-03	1.80E-01	1.76E-01	1.19E-01	1.76E-01	1.35E-01	(1049)	4.20E-03	Barnes 1		(0.00)	1.66E-01	2.54E-01	2.95E-01	1.46E-01	2.37E-01	1.78E-01	(6.89)	1.01E-01		JTB (2.0, 1.0)	(0.00)	7.00E-02	2.90E-01	3.20E-01	1.87E-01	2.68E-01	2.22E-01	(3.00)		3.93E-02	JTB (0.75, 0.5)	(0.00)	1.14E-01	2.85E-01	3.20E-01	1.78E-01	2.62E-01	2.15E-01		(1.20)	6.86E-02	JTB (4.0, 1.0)	(0.00)	1.18E-01	2.68E-01	3.03E-01	1.63E-01	2.52E-01		1.98E-01	(0.78)	6.85E-02	JTB (1.0, 0.5)	(0.00)	1.36E-01	2.73E-01	3.10E-01	1.64E-01		2.54E-01	2.00E-01	(0.60)	8.27E-02	JTB (1.25, 0.5)	(0.00)	1.52E-01	2.61E-01	3.00E-01		1.53E-01	2.44E-01	1.87E-01	(0.24)	9.25E-02	JTB (1.35, 0.5)	(0.00)	1.57E-01	2.57E-01		2.96E-01	1.49E-01	2.40E-01	1.82E-01	(0.13)	9.54E-02	JTB (1.5, 0.5)	(0.00)	1.66E-01		2.54E-01	2.95E-01	1.45E-01	2.38E-01	1.78E-01	(0.00)	1.01E-01	JTB (2.0, 0.5)	(0.00)		1.87E-01	2.40E-01	2.85E-01	1.33E-01	2.22E-01	1.62E-01	(-0.30)	1.14E-01	JTB (4.0, 0.5)	(0.00)	2.34E-01	2.09E-01	2.67E-01	1.09E-01	1.89E-01	1.24E-01	(-0.75)	1.44E-01	JTB (9.0, 0.5)	(0.00)	2.80E-01	1.72E-01	2.54E-01	9.03E-02	1.50E-01	8.22E-02	(-1.00)	1.76E-01																																																																																				
JTB (9.0, 0.5)	(0.00)		8.09E-04	6.28E-05	4.81E-04	9.75E-06	4.28E-05	5.75E-06																																																																																																																																																																																																																																	
	(-1.00)		1.28E-04						Barnes 3	(3.00)	k=2	9.49E-03	1.80E-01	1.76E-01	1.19E-01	1.76E-01	1.35E-01	(1049)	4.20E-03	Barnes 1		(0.00)	1.66E-01	2.54E-01	2.95E-01	1.46E-01	2.37E-01	1.78E-01	(6.89)	1.01E-01		JTB (2.0, 1.0)	(0.00)	7.00E-02	2.90E-01	3.20E-01	1.87E-01	2.68E-01	2.22E-01	(3.00)		3.93E-02	JTB (0.75, 0.5)	(0.00)	1.14E-01	2.85E-01	3.20E-01	1.78E-01	2.62E-01	2.15E-01		(1.20)	6.86E-02	JTB (4.0, 1.0)	(0.00)	1.18E-01	2.68E-01	3.03E-01	1.63E-01	2.52E-01		1.98E-01	(0.78)	6.85E-02	JTB (1.0, 0.5)	(0.00)	1.36E-01	2.73E-01	3.10E-01	1.64E-01		2.54E-01	2.00E-01	(0.60)	8.27E-02	JTB (1.25, 0.5)	(0.00)	1.52E-01	2.61E-01	3.00E-01		1.53E-01	2.44E-01	1.87E-01	(0.24)	9.25E-02	JTB (1.35, 0.5)	(0.00)	1.57E-01	2.57E-01		2.96E-01	1.49E-01	2.40E-01	1.82E-01	(0.13)	9.54E-02	JTB (1.5, 0.5)	(0.00)	1.66E-01		2.54E-01	2.95E-01	1.45E-01	2.38E-01	1.78E-01	(0.00)	1.01E-01	JTB (2.0, 0.5)	(0.00)		1.87E-01	2.40E-01	2.85E-01	1.33E-01	2.22E-01	1.62E-01	(-0.30)	1.14E-01	JTB (4.0, 0.5)		(0.00)	2.34E-01	2.09E-01	2.67E-01	1.09E-01	1.89E-01	1.24E-01	(-0.75)	1.44E-01	JTB (9.0, 0.5)	(0.00)	2.80E-01	1.72E-01	2.54E-01	9.03E-02	1.50E-01	8.22E-02	(-1.00)	1.76E-01																																																																																													
Barnes 3	(3.00)	k=2	9.49E-03	1.80E-01	1.76E-01	1.19E-01	1.76E-01	1.35E-01																																																																																																																																																																																																																																	
	(1049)		4.20E-03						Barnes 1	(0.00)		1.66E-01	2.54E-01	2.95E-01	1.46E-01	2.37E-01	1.78E-01	(6.89)	1.01E-01	JTB (2.0, 1.0)		(0.00)	7.00E-02	2.90E-01	3.20E-01	1.87E-01	2.68E-01	2.22E-01	(3.00)	3.93E-02		JTB (0.75, 0.5)	(0.00)	1.14E-01	2.85E-01	3.20E-01	1.78E-01	2.62E-01	2.15E-01	(1.20)		6.86E-02	JTB (4.0, 1.0)	(0.00)	1.18E-01	2.68E-01	3.03E-01	1.63E-01	2.52E-01	1.98E-01		(0.78)	6.85E-02	JTB (1.0, 0.5)	(0.00)	1.36E-01	2.73E-01	3.10E-01	1.64E-01	2.54E-01		2.00E-01	(0.60)	8.27E-02	JTB (1.25, 0.5)	(0.00)	1.52E-01	2.61E-01	3.00E-01	1.53E-01		2.44E-01	1.87E-01	(0.24)	9.25E-02	JTB (1.35, 0.5)	(0.00)	1.57E-01	2.57E-01	2.96E-01		1.49E-01	2.40E-01	1.82E-01	(0.13)	9.54E-02	JTB (1.5, 0.5)	(0.00)	1.66E-01	2.54E-01		2.95E-01	1.45E-01	2.38E-01	1.78E-01	(0.00)	1.01E-01	JTB (2.0, 0.5)	(0.00)	1.87E-01		2.40E-01	2.85E-01	1.33E-01	2.22E-01	1.62E-01	(-0.30)	1.14E-01	JTB (4.0, 0.5)	(0.00)		2.34E-01	2.09E-01	2.67E-01	1.09E-01	1.89E-01	1.24E-01	(-0.75)	1.44E-01	JTB (9.0, 0.5)	(0.00)	2.80E-01	1.72E-01	2.54E-01	9.03E-02	1.50E-01	8.22E-02	(-1.00)	1.76E-01																																																																																																								
Barnes 1	(0.00)		1.66E-01	2.54E-01	2.95E-01	1.46E-01	2.37E-01	1.78E-01																																																																																																																																																																																																																																	
	(6.89)		1.01E-01						JTB (2.0, 1.0)	(0.00)		7.00E-02	2.90E-01	3.20E-01	1.87E-01	2.68E-01	2.22E-01	(3.00)	3.93E-02	JTB (0.75, 0.5)		(0.00)	1.14E-01	2.85E-01	3.20E-01	1.78E-01	2.62E-01	2.15E-01	(1.20)	6.86E-02		JTB (4.0, 1.0)	(0.00)	1.18E-01	2.68E-01	3.03E-01	1.63E-01	2.52E-01	1.98E-01	(0.78)		6.85E-02	JTB (1.0, 0.5)	(0.00)	1.36E-01	2.73E-01	3.10E-01	1.64E-01	2.54E-01	2.00E-01		(0.60)	8.27E-02	JTB (1.25, 0.5)	(0.00)	1.52E-01	2.61E-01	3.00E-01	1.53E-01	2.44E-01		1.87E-01	(0.24)	9.25E-02	JTB (1.35, 0.5)	(0.00)	1.57E-01	2.57E-01	2.96E-01	1.49E-01		2.40E-01	1.82E-01	(0.13)	9.54E-02	JTB (1.5, 0.5)	(0.00)	1.66E-01	2.54E-01	2.95E-01		1.45E-01	2.38E-01	1.78E-01	(0.00)	1.01E-01	JTB (2.0, 0.5)	(0.00)	1.87E-01	2.40E-01		2.85E-01	1.33E-01	2.22E-01	1.62E-01	(-0.30)	1.14E-01	JTB (4.0, 0.5)	(0.00)	2.34E-01		2.09E-01	2.67E-01	1.09E-01	1.89E-01	1.24E-01	(-0.75)	1.44E-01	JTB (9.0, 0.5)	(0.00)	2.80E-01	1.72E-01	2.54E-01	9.03E-02	1.50E-01	8.22E-02	(-1.00)	1.76E-01																																																																																																																			
JTB (2.0, 1.0)	(0.00)		7.00E-02	2.90E-01	3.20E-01	1.87E-01	2.68E-01	2.22E-01																																																																																																																																																																																																																																	
	(3.00)		3.93E-02						JTB (0.75, 0.5)	(0.00)		1.14E-01	2.85E-01	3.20E-01	1.78E-01	2.62E-01	2.15E-01	(1.20)	6.86E-02	JTB (4.0, 1.0)		(0.00)	1.18E-01	2.68E-01	3.03E-01	1.63E-01	2.52E-01	1.98E-01	(0.78)	6.85E-02		JTB (1.0, 0.5)	(0.00)	1.36E-01	2.73E-01	3.10E-01	1.64E-01	2.54E-01	2.00E-01	(0.60)		8.27E-02	JTB (1.25, 0.5)	(0.00)	1.52E-01	2.61E-01	3.00E-01	1.53E-01	2.44E-01	1.87E-01		(0.24)	9.25E-02	JTB (1.35, 0.5)	(0.00)	1.57E-01	2.57E-01	2.96E-01	1.49E-01	2.40E-01		1.82E-01	(0.13)	9.54E-02	JTB (1.5, 0.5)	(0.00)	1.66E-01	2.54E-01	2.95E-01	1.45E-01		2.38E-01	1.78E-01	(0.00)	1.01E-01	JTB (2.0, 0.5)	(0.00)	1.87E-01	2.40E-01	2.85E-01		1.33E-01	2.22E-01	1.62E-01	(-0.30)	1.14E-01	JTB (4.0, 0.5)	(0.00)	2.34E-01	2.09E-01		2.67E-01	1.09E-01	1.89E-01	1.24E-01	(-0.75)	1.44E-01	JTB (9.0, 0.5)	(0.00)	2.80E-01	1.72E-01	2.54E-01	9.03E-02	1.50E-01	8.22E-02	(-1.00)	1.76E-01																																																																																																																														
JTB (0.75, 0.5)	(0.00)		1.14E-01	2.85E-01	3.20E-01	1.78E-01	2.62E-01	2.15E-01																																																																																																																																																																																																																																	
	(1.20)		6.86E-02						JTB (4.0, 1.0)	(0.00)		1.18E-01	2.68E-01	3.03E-01	1.63E-01	2.52E-01	1.98E-01	(0.78)	6.85E-02	JTB (1.0, 0.5)		(0.00)	1.36E-01	2.73E-01	3.10E-01	1.64E-01	2.54E-01	2.00E-01	(0.60)	8.27E-02		JTB (1.25, 0.5)	(0.00)	1.52E-01	2.61E-01	3.00E-01	1.53E-01	2.44E-01	1.87E-01	(0.24)		9.25E-02	JTB (1.35, 0.5)	(0.00)	1.57E-01	2.57E-01	2.96E-01	1.49E-01	2.40E-01	1.82E-01		(0.13)	9.54E-02	JTB (1.5, 0.5)	(0.00)	1.66E-01	2.54E-01	2.95E-01	1.45E-01	2.38E-01		1.78E-01	(0.00)	1.01E-01	JTB (2.0, 0.5)	(0.00)	1.87E-01	2.40E-01	2.85E-01	1.33E-01		2.22E-01	1.62E-01	(-0.30)	1.14E-01	JTB (4.0, 0.5)	(0.00)	2.34E-01	2.09E-01	2.67E-01		1.09E-01	1.89E-01	1.24E-01	(-0.75)	1.44E-01	JTB (9.0, 0.5)	(0.00)	2.80E-01	1.72E-01	2.54E-01	9.03E-02	1.50E-01	8.22E-02	(-1.00)	1.76E-01																																																																																																																																									
JTB (4.0, 1.0)	(0.00)		1.18E-01	2.68E-01	3.03E-01	1.63E-01	2.52E-01	1.98E-01																																																																																																																																																																																																																																	
	(0.78)		6.85E-02						JTB (1.0, 0.5)	(0.00)		1.36E-01	2.73E-01	3.10E-01	1.64E-01	2.54E-01	2.00E-01	(0.60)	8.27E-02	JTB (1.25, 0.5)		(0.00)	1.52E-01	2.61E-01	3.00E-01	1.53E-01	2.44E-01	1.87E-01	(0.24)	9.25E-02		JTB (1.35, 0.5)	(0.00)	1.57E-01	2.57E-01	2.96E-01	1.49E-01	2.40E-01	1.82E-01	(0.13)		9.54E-02	JTB (1.5, 0.5)	(0.00)	1.66E-01	2.54E-01	2.95E-01	1.45E-01	2.38E-01	1.78E-01		(0.00)	1.01E-01	JTB (2.0, 0.5)	(0.00)	1.87E-01	2.40E-01	2.85E-01	1.33E-01	2.22E-01		1.62E-01	(-0.30)	1.14E-01	JTB (4.0, 0.5)	(0.00)	2.34E-01	2.09E-01	2.67E-01	1.09E-01		1.89E-01	1.24E-01	(-0.75)	1.44E-01	JTB (9.0, 0.5)	(0.00)	2.80E-01	1.72E-01	2.54E-01	9.03E-02	1.50E-01	8.22E-02	(-1.00)	1.76E-01																																																																																																																																																				
JTB (1.0, 0.5)	(0.00)		1.36E-01	2.73E-01	3.10E-01	1.64E-01	2.54E-01	2.00E-01																																																																																																																																																																																																																																	
	(0.60)		8.27E-02						JTB (1.25, 0.5)	(0.00)		1.52E-01	2.61E-01	3.00E-01	1.53E-01	2.44E-01	1.87E-01	(0.24)	9.25E-02	JTB (1.35, 0.5)		(0.00)	1.57E-01	2.57E-01	2.96E-01	1.49E-01	2.40E-01	1.82E-01	(0.13)	9.54E-02		JTB (1.5, 0.5)	(0.00)	1.66E-01	2.54E-01	2.95E-01	1.45E-01	2.38E-01	1.78E-01	(0.00)		1.01E-01	JTB (2.0, 0.5)	(0.00)	1.87E-01	2.40E-01	2.85E-01	1.33E-01	2.22E-01	1.62E-01		(-0.30)	1.14E-01	JTB (4.0, 0.5)	(0.00)	2.34E-01	2.09E-01	2.67E-01	1.09E-01	1.89E-01		1.24E-01	(-0.75)	1.44E-01	JTB (9.0, 0.5)	(0.00)	2.80E-01	1.72E-01	2.54E-01	9.03E-02	1.50E-01	8.22E-02	(-1.00)	1.76E-01																																																																																																																																																															
JTB (1.25, 0.5)	(0.00)		1.52E-01	2.61E-01	3.00E-01	1.53E-01	2.44E-01	1.87E-01																																																																																																																																																																																																																																	
	(0.24)		9.25E-02						JTB (1.35, 0.5)	(0.00)		1.57E-01	2.57E-01	2.96E-01	1.49E-01	2.40E-01	1.82E-01	(0.13)	9.54E-02	JTB (1.5, 0.5)		(0.00)	1.66E-01	2.54E-01	2.95E-01	1.45E-01	2.38E-01	1.78E-01	(0.00)	1.01E-01		JTB (2.0, 0.5)	(0.00)	1.87E-01	2.40E-01	2.85E-01	1.33E-01	2.22E-01	1.62E-01	(-0.30)		1.14E-01	JTB (4.0, 0.5)	(0.00)	2.34E-01	2.09E-01	2.67E-01	1.09E-01	1.89E-01	1.24E-01		(-0.75)	1.44E-01	JTB (9.0, 0.5)	(0.00)	2.80E-01	1.72E-01	2.54E-01	9.03E-02	1.50E-01	8.22E-02	(-1.00)	1.76E-01																																																																																																																																																																										
JTB (1.35, 0.5)	(0.00)		1.57E-01	2.57E-01	2.96E-01	1.49E-01	2.40E-01	1.82E-01																																																																																																																																																																																																																																	
	(0.13)		9.54E-02						JTB (1.5, 0.5)	(0.00)		1.66E-01	2.54E-01	2.95E-01	1.45E-01	2.38E-01	1.78E-01	(0.00)	1.01E-01	JTB (2.0, 0.5)		(0.00)	1.87E-01	2.40E-01	2.85E-01	1.33E-01	2.22E-01	1.62E-01	(-0.30)	1.14E-01		JTB (4.0, 0.5)	(0.00)	2.34E-01	2.09E-01	2.67E-01	1.09E-01	1.89E-01	1.24E-01	(-0.75)		1.44E-01	JTB (9.0, 0.5)	(0.00)	2.80E-01	1.72E-01	2.54E-01	9.03E-02	1.50E-01	8.22E-02	(-1.00)	1.76E-01																																																																																																																																																																																					
JTB (1.5, 0.5)	(0.00)		1.66E-01	2.54E-01	2.95E-01	1.45E-01	2.38E-01	1.78E-01																																																																																																																																																																																																																																	
	(0.00)		1.01E-01						JTB (2.0, 0.5)	(0.00)		1.87E-01	2.40E-01	2.85E-01	1.33E-01	2.22E-01	1.62E-01	(-0.30)	1.14E-01	JTB (4.0, 0.5)		(0.00)	2.34E-01	2.09E-01	2.67E-01	1.09E-01	1.89E-01	1.24E-01	(-0.75)	1.44E-01		JTB (9.0, 0.5)	(0.00)	2.80E-01	1.72E-01	2.54E-01	9.03E-02	1.50E-01	8.22E-02	(-1.00)	1.76E-01																																																																																																																																																																																																
JTB (2.0, 0.5)	(0.00)		1.87E-01	2.40E-01	2.85E-01	1.33E-01	2.22E-01	1.62E-01																																																																																																																																																																																																																																	
	(-0.30)		1.14E-01						JTB (4.0, 0.5)	(0.00)		2.34E-01	2.09E-01	2.67E-01	1.09E-01	1.89E-01	1.24E-01	(-0.75)	1.44E-01	JTB (9.0, 0.5)		(0.00)	2.80E-01	1.72E-01	2.54E-01	9.03E-02	1.50E-01	8.22E-02	(-1.00)	1.76E-01																																																																																																																																																																																																											
JTB (4.0, 0.5)	(0.00)		2.34E-01	2.09E-01	2.67E-01	1.09E-01	1.89E-01	1.24E-01																																																																																																																																																																																																																																	
	(-0.75)		1.44E-01						JTB (9.0, 0.5)	(0.00)		2.80E-01	1.72E-01	2.54E-01	9.03E-02	1.50E-01	8.22E-02	(-1.00)	1.76E-01																																																																																																																																																																																																																						
JTB (9.0, 0.5)	(0.00)		2.80E-01	1.72E-01	2.54E-01	9.03E-02	1.50E-01	8.22E-02																																																																																																																																																																																																																																	
	(-1.00)		1.76E-01																																																																																																																																																																																																																																						

Table 6 (continued): Power Comparison Study for Symmetric Distributions ($n = 10$)

Distribution	(skewness) (kurtosis)	k	Combined Sample	R-chart	S-chart	S2-chart	WV-chart	SC-chart																																																																																																																																																																																																				
Student (5)	(0.00)	k=1	3.27E-03	6.24E-02	5.61E-02	2.52E-02	5.76E-02	4.17E-02																																																																																																																																																																																																				
	(6.00)		1.27E-03						Student (6)	(0.00)	3.41E-03	5.31E-02	4.67E-02	1.90E-02	4.87E-02	3.44E-02	(3.00)	1.31E-03	Student (8)	(0.00)	3.79E-03	4.23E-02	3.63E-02	1.27E-02	3.84E-02	2.62E-02	(1.50)	1.41E-03	Student (16)	(0.00)	4.09E-03	2.68E-02	2.22E-02	5.48E-03	2.38E-02	1.46E-02	(0.50)	1.42E-03	Student (25)	(0.00)	4.20E-03	2.22E-02	1.83E-02	3.86E-03	1.94E-02	1.13E-02	(0.29)	1.41E-03	Student (32)	(0.00)	4.01E-03	1.97E-02	1.64E-02	3.21E-03	1.72E-02	9.79E-03	(0.21)	1.35E-03	Student (40)	(0.00)	4.08E-03	1.89E-02	1.57E-02	2.93E-03	1.65E-02	9.18E-03	(0.17)	1.34E-03	Student (5)	(0.00)	k=2	6.15E-02	2.69E-01	2.98E-01	1.69E-01	2.54E-01	2.00E-01	(6.00)	3.24E-02	Student (6)	(0.00)	7.43E-02	2.67E-01	2.97E-01	1.66E-01	2.51E-01	1.97E-01	(3.00)	4.02E-02	Student (8)	(0.00)	9.47E-02	2.66E-01	3.00E-01	1.64E-01	2.50E-01	1.96E-01	(1.50)	5.30E-02	Student (16)	(0.00)	1.30E-01	2.61E-01	2.99E-01	1.56E-01	2.45E-01	1.89E-01	(0.50)	7.59E-02	Student (25)	(0.00)	1.44E-01	2.60E-01	2.98E-01	1.53E-01	2.43E-01	1.86E-01	(0.29)	8.55E-02	Student (32)	(0.00)	1.47E-01	2.56E-01	2.95E-01	1.50E-01	2.39E-01	1.82E-01	(0.21)	8.77E-02	Student (40)	(0.00)	1.52E-01	2.57E-01	2.96E-01	1.50E-01	2.41E-01	1.83E-01	(0.17)	9.15E-02	Student (5)	(0.00)	k=3	1.88E-01	4.81E-01	5.45E-01	3.73E-01	4.62E-01	3.86E-01	(6.00)	1.17E-01	Student (6)	(0.00)	2.24E-01	4.91E-01	5.57E-01	3.86E-01	4.72E-01	3.97E-01	(3.00)	1.45E-01	Student (8)	(0.00)	2.77E-01	5.08E-01	5.77E-01	4.03E-01	4.88E-01	4.16E-01	(1.50)	1.87E-01	Student (16)	(0.00)	3.60E-01	5.29E-01	5.98E-01	4.23E-01	5.10E-01	4.38E-01	(0.50)	2.58E-01	Student (25)	(0.00)	3.90E-01	5.37E-01	6.06E-01	4.29E-01	5.18E-01	4.45E-01	(0.29)	2.86E-01	Student (32)	(0.00)	3.97E-01	5.37E-01	6.06E-01	4.29E-01	5.17E-01	4.44E-01	(0.21)	2.93E-01	Student (40)	(0.00)	4.07E-01	5.41E-01
Student (6)	(0.00)		3.41E-03	5.31E-02	4.67E-02	1.90E-02	4.87E-02	3.44E-02																																																																																																																																																																																																				
	(3.00)		1.31E-03						Student (8)	(0.00)	3.79E-03	4.23E-02	3.63E-02	1.27E-02	3.84E-02	2.62E-02	(1.50)	1.41E-03	Student (16)	(0.00)	4.09E-03	2.68E-02	2.22E-02	5.48E-03	2.38E-02	1.46E-02	(0.50)	1.42E-03	Student (25)	(0.00)	4.20E-03	2.22E-02	1.83E-02	3.86E-03	1.94E-02	1.13E-02	(0.29)	1.41E-03	Student (32)	(0.00)	4.01E-03	1.97E-02	1.64E-02	3.21E-03	1.72E-02	9.79E-03	(0.21)	1.35E-03	Student (40)	(0.00)	4.08E-03	1.89E-02	1.57E-02	2.93E-03	1.65E-02	9.18E-03	(0.17)	1.34E-03	Student (5)	(0.00)	k=2	6.15E-02	2.69E-01	2.98E-01	1.69E-01	2.54E-01	2.00E-01	(6.00)	3.24E-02	Student (6)		(0.00)	7.43E-02	2.67E-01	2.97E-01	1.66E-01	2.51E-01	1.97E-01	(3.00)	4.02E-02	Student (8)	(0.00)	9.47E-02	2.66E-01	3.00E-01	1.64E-01	2.50E-01	1.96E-01	(1.50)	5.30E-02	Student (16)	(0.00)	1.30E-01	2.61E-01	2.99E-01	1.56E-01	2.45E-01	1.89E-01	(0.50)	7.59E-02	Student (25)	(0.00)	1.44E-01	2.60E-01	2.98E-01	1.53E-01	2.43E-01	1.86E-01	(0.29)	8.55E-02	Student (32)	(0.00)	1.47E-01	2.56E-01	2.95E-01	1.50E-01	2.39E-01	1.82E-01	(0.21)	8.77E-02	Student (40)	(0.00)	1.52E-01	2.57E-01	2.96E-01	1.50E-01	2.41E-01	1.83E-01	(0.17)	9.15E-02	Student (5)	(0.00)	k=3	1.88E-01	4.81E-01	5.45E-01	3.73E-01	4.62E-01	3.86E-01	(6.00)	1.17E-01		Student (6)	(0.00)	2.24E-01	4.91E-01	5.57E-01	3.86E-01	4.72E-01	3.97E-01	(3.00)	1.45E-01	Student (8)	(0.00)	2.77E-01	5.08E-01	5.77E-01	4.03E-01	4.88E-01	4.16E-01	(1.50)	1.87E-01	Student (16)	(0.00)	3.60E-01	5.29E-01	5.98E-01	4.23E-01	5.10E-01	4.38E-01	(0.50)	2.58E-01	Student (25)	(0.00)	3.90E-01	5.37E-01	6.06E-01	4.29E-01	5.18E-01	4.45E-01	(0.29)	2.86E-01	Student (32)	(0.00)	3.97E-01	5.37E-01	6.06E-01	4.29E-01	5.17E-01	4.44E-01	(0.21)	2.93E-01	Student (40)	(0.00)	4.07E-01	5.41E-01	6.10E-01	4.32E-01	5.22E-01	4.48E-01	(0.17)	3.03E-01		
Student (8)	(0.00)		3.79E-03	4.23E-02	3.63E-02	1.27E-02	3.84E-02	2.62E-02																																																																																																																																																																																																				
	(1.50)		1.41E-03						Student (16)	(0.00)	4.09E-03	2.68E-02	2.22E-02	5.48E-03	2.38E-02	1.46E-02	(0.50)	1.42E-03	Student (25)	(0.00)	4.20E-03	2.22E-02	1.83E-02	3.86E-03	1.94E-02	1.13E-02	(0.29)	1.41E-03	Student (32)	(0.00)	4.01E-03	1.97E-02	1.64E-02	3.21E-03	1.72E-02	9.79E-03	(0.21)	1.35E-03	Student (40)	(0.00)	4.08E-03	1.89E-02	1.57E-02	2.93E-03	1.65E-02	9.18E-03	(0.17)	1.34E-03	Student (5)	(0.00)	k=2	6.15E-02	2.69E-01	2.98E-01	1.69E-01	2.54E-01	2.00E-01	(6.00)	3.24E-02	Student (6)		(0.00)	7.43E-02	2.67E-01	2.97E-01	1.66E-01	2.51E-01	1.97E-01	(3.00)	4.02E-02		Student (8)	(0.00)	9.47E-02	2.66E-01	3.00E-01	1.64E-01	2.50E-01	1.96E-01	(1.50)	5.30E-02	Student (16)	(0.00)	1.30E-01	2.61E-01	2.99E-01	1.56E-01	2.45E-01	1.89E-01	(0.50)	7.59E-02	Student (25)	(0.00)	1.44E-01	2.60E-01	2.98E-01	1.53E-01	2.43E-01	1.86E-01	(0.29)	8.55E-02	Student (32)	(0.00)	1.47E-01	2.56E-01	2.95E-01	1.50E-01	2.39E-01	1.82E-01	(0.21)	8.77E-02	Student (40)	(0.00)	1.52E-01	2.57E-01	2.96E-01	1.50E-01	2.41E-01	1.83E-01	(0.17)	9.15E-02	Student (5)	(0.00)	k=3	1.88E-01	4.81E-01	5.45E-01	3.73E-01	4.62E-01	3.86E-01	(6.00)	1.17E-01		Student (6)	(0.00)	2.24E-01	4.91E-01	5.57E-01	3.86E-01	4.72E-01	3.97E-01		(3.00)	1.45E-01	Student (8)	(0.00)	2.77E-01	5.08E-01	5.77E-01	4.03E-01	4.88E-01	4.16E-01	(1.50)	1.87E-01	Student (16)	(0.00)	3.60E-01	5.29E-01	5.98E-01	4.23E-01	5.10E-01	4.38E-01	(0.50)	2.58E-01	Student (25)	(0.00)	3.90E-01	5.37E-01	6.06E-01	4.29E-01	5.18E-01	4.45E-01	(0.29)	2.86E-01	Student (32)	(0.00)	3.97E-01	5.37E-01	6.06E-01	4.29E-01	5.17E-01	4.44E-01	(0.21)	2.93E-01	Student (40)	(0.00)	4.07E-01	5.41E-01	6.10E-01	4.32E-01	5.22E-01	4.48E-01	(0.17)	3.03E-01										
Student (16)	(0.00)		4.09E-03	2.68E-02	2.22E-02	5.48E-03	2.38E-02	1.46E-02																																																																																																																																																																																																				
	(0.50)		1.42E-03						Student (25)	(0.00)	4.20E-03	2.22E-02	1.83E-02	3.86E-03	1.94E-02	1.13E-02	(0.29)	1.41E-03	Student (32)	(0.00)	4.01E-03	1.97E-02	1.64E-02	3.21E-03	1.72E-02	9.79E-03	(0.21)	1.35E-03	Student (40)	(0.00)	4.08E-03	1.89E-02	1.57E-02	2.93E-03	1.65E-02	9.18E-03	(0.17)	1.34E-03	Student (5)	(0.00)	k=2	6.15E-02	2.69E-01	2.98E-01	1.69E-01	2.54E-01	2.00E-01	(6.00)	3.24E-02	Student (6)		(0.00)	7.43E-02	2.67E-01	2.97E-01	1.66E-01	2.51E-01	1.97E-01	(3.00)	4.02E-02		Student (8)	(0.00)	9.47E-02	2.66E-01	3.00E-01	1.64E-01	2.50E-01	1.96E-01	(1.50)		5.30E-02	Student (16)	(0.00)	1.30E-01	2.61E-01	2.99E-01	1.56E-01	2.45E-01	1.89E-01	(0.50)	7.59E-02	Student (25)	(0.00)	1.44E-01	2.60E-01	2.98E-01	1.53E-01	2.43E-01	1.86E-01	(0.29)	8.55E-02	Student (32)	(0.00)	1.47E-01	2.56E-01	2.95E-01	1.50E-01	2.39E-01	1.82E-01	(0.21)	8.77E-02	Student (40)	(0.00)	1.52E-01	2.57E-01	2.96E-01	1.50E-01	2.41E-01	1.83E-01	(0.17)	9.15E-02	Student (5)	(0.00)	k=3	1.88E-01	4.81E-01	5.45E-01	3.73E-01	4.62E-01	3.86E-01	(6.00)	1.17E-01		Student (6)	(0.00)	2.24E-01	4.91E-01	5.57E-01	3.86E-01	4.72E-01	3.97E-01		(3.00)	1.45E-01	Student (8)	(0.00)	2.77E-01	5.08E-01	5.77E-01	4.03E-01		4.88E-01	4.16E-01	(1.50)	1.87E-01	Student (16)	(0.00)	3.60E-01	5.29E-01	5.98E-01	4.23E-01	5.10E-01	4.38E-01	(0.50)	2.58E-01	Student (25)	(0.00)	3.90E-01	5.37E-01	6.06E-01	4.29E-01	5.18E-01	4.45E-01	(0.29)	2.86E-01	Student (32)	(0.00)	3.97E-01	5.37E-01	6.06E-01	4.29E-01	5.17E-01	4.44E-01	(0.21)	2.93E-01	Student (40)	(0.00)	4.07E-01	5.41E-01	6.10E-01	4.32E-01	5.22E-01	4.48E-01	(0.17)	3.03E-01																		
Student (25)	(0.00)		4.20E-03	2.22E-02	1.83E-02	3.86E-03	1.94E-02	1.13E-02																																																																																																																																																																																																				
	(0.29)		1.41E-03						Student (32)	(0.00)	4.01E-03	1.97E-02	1.64E-02	3.21E-03	1.72E-02	9.79E-03	(0.21)	1.35E-03	Student (40)	(0.00)	4.08E-03	1.89E-02	1.57E-02	2.93E-03	1.65E-02	9.18E-03	(0.17)	1.34E-03	Student (5)	(0.00)	k=2	6.15E-02	2.69E-01	2.98E-01	1.69E-01	2.54E-01	2.00E-01	(6.00)	3.24E-02	Student (6)		(0.00)	7.43E-02	2.67E-01	2.97E-01	1.66E-01	2.51E-01	1.97E-01	(3.00)	4.02E-02		Student (8)	(0.00)	9.47E-02	2.66E-01	3.00E-01	1.64E-01	2.50E-01	1.96E-01	(1.50)		5.30E-02	Student (16)	(0.00)	1.30E-01	2.61E-01	2.99E-01	1.56E-01	2.45E-01	1.89E-01		(0.50)	7.59E-02	Student (25)	(0.00)	1.44E-01	2.60E-01	2.98E-01	1.53E-01	2.43E-01	1.86E-01	(0.29)	8.55E-02	Student (32)	(0.00)	1.47E-01	2.56E-01	2.95E-01	1.50E-01	2.39E-01	1.82E-01	(0.21)	8.77E-02	Student (40)	(0.00)	1.52E-01	2.57E-01	2.96E-01	1.50E-01	2.41E-01	1.83E-01	(0.17)	9.15E-02	Student (5)	(0.00)	k=3	1.88E-01	4.81E-01	5.45E-01	3.73E-01	4.62E-01	3.86E-01	(6.00)	1.17E-01		Student (6)	(0.00)	2.24E-01	4.91E-01	5.57E-01	3.86E-01	4.72E-01	3.97E-01		(3.00)	1.45E-01	Student (8)	(0.00)	2.77E-01	5.08E-01	5.77E-01	4.03E-01		4.88E-01	4.16E-01	(1.50)	1.87E-01	Student (16)	(0.00)	3.60E-01	5.29E-01		5.98E-01	4.23E-01	5.10E-01	4.38E-01	(0.50)	2.58E-01	Student (25)	(0.00)	3.90E-01	5.37E-01	6.06E-01	4.29E-01	5.18E-01	4.45E-01	(0.29)	2.86E-01	Student (32)	(0.00)	3.97E-01	5.37E-01	6.06E-01	4.29E-01	5.17E-01	4.44E-01	(0.21)	2.93E-01	Student (40)	(0.00)	4.07E-01	5.41E-01	6.10E-01	4.32E-01	5.22E-01	4.48E-01	(0.17)	3.03E-01																										
Student (32)	(0.00)		4.01E-03	1.97E-02	1.64E-02	3.21E-03	1.72E-02	9.79E-03																																																																																																																																																																																																				
	(0.21)		1.35E-03						Student (40)	(0.00)	4.08E-03	1.89E-02	1.57E-02	2.93E-03	1.65E-02	9.18E-03	(0.17)	1.34E-03	Student (5)	(0.00)	k=2	6.15E-02	2.69E-01	2.98E-01	1.69E-01	2.54E-01	2.00E-01	(6.00)	3.24E-02	Student (6)		(0.00)	7.43E-02	2.67E-01	2.97E-01	1.66E-01	2.51E-01	1.97E-01	(3.00)	4.02E-02		Student (8)	(0.00)	9.47E-02	2.66E-01	3.00E-01	1.64E-01	2.50E-01	1.96E-01	(1.50)		5.30E-02	Student (16)	(0.00)	1.30E-01	2.61E-01	2.99E-01	1.56E-01	2.45E-01	1.89E-01		(0.50)	7.59E-02	Student (25)	(0.00)	1.44E-01	2.60E-01	2.98E-01	1.53E-01	2.43E-01		1.86E-01	(0.29)	8.55E-02	Student (32)	(0.00)	1.47E-01	2.56E-01	2.95E-01	1.50E-01	2.39E-01	1.82E-01	(0.21)	8.77E-02	Student (40)	(0.00)	1.52E-01	2.57E-01	2.96E-01	1.50E-01	2.41E-01	1.83E-01	(0.17)	9.15E-02	Student (5)	(0.00)	k=3	1.88E-01	4.81E-01	5.45E-01	3.73E-01	4.62E-01	3.86E-01	(6.00)	1.17E-01		Student (6)	(0.00)	2.24E-01	4.91E-01	5.57E-01	3.86E-01	4.72E-01	3.97E-01		(3.00)	1.45E-01	Student (8)	(0.00)	2.77E-01	5.08E-01	5.77E-01	4.03E-01		4.88E-01	4.16E-01	(1.50)	1.87E-01	Student (16)	(0.00)	3.60E-01	5.29E-01		5.98E-01	4.23E-01	5.10E-01	4.38E-01	(0.50)	2.58E-01	Student (25)	(0.00)		3.90E-01	5.37E-01	6.06E-01	4.29E-01	5.18E-01	4.45E-01	(0.29)	2.86E-01	Student (32)	(0.00)	3.97E-01	5.37E-01	6.06E-01	4.29E-01	5.17E-01	4.44E-01	(0.21)	2.93E-01	Student (40)	(0.00)	4.07E-01	5.41E-01	6.10E-01	4.32E-01	5.22E-01	4.48E-01	(0.17)	3.03E-01																																		
Student (40)	(0.00)		4.08E-03	1.89E-02	1.57E-02	2.93E-03	1.65E-02	9.18E-03																																																																																																																																																																																																				
	(0.17)		1.34E-03						Student (5)	(0.00)	k=2	6.15E-02	2.69E-01	2.98E-01	1.69E-01	2.54E-01	2.00E-01	(6.00)	3.24E-02	Student (6)		(0.00)	7.43E-02	2.67E-01	2.97E-01	1.66E-01	2.51E-01	1.97E-01	(3.00)	4.02E-02		Student (8)	(0.00)	9.47E-02	2.66E-01	3.00E-01	1.64E-01	2.50E-01	1.96E-01	(1.50)		5.30E-02	Student (16)	(0.00)	1.30E-01	2.61E-01	2.99E-01	1.56E-01	2.45E-01	1.89E-01		(0.50)	7.59E-02	Student (25)	(0.00)	1.44E-01	2.60E-01	2.98E-01	1.53E-01	2.43E-01		1.86E-01	(0.29)	8.55E-02	Student (32)	(0.00)	1.47E-01	2.56E-01	2.95E-01	1.50E-01		2.39E-01	1.82E-01	(0.21)	8.77E-02	Student (40)	(0.00)	1.52E-01	2.57E-01	2.96E-01	1.50E-01	2.41E-01	1.83E-01	(0.17)	9.15E-02	Student (5)	(0.00)	k=3	1.88E-01	4.81E-01	5.45E-01	3.73E-01	4.62E-01	3.86E-01	(6.00)	1.17E-01		Student (6)	(0.00)	2.24E-01	4.91E-01	5.57E-01	3.86E-01	4.72E-01	3.97E-01		(3.00)	1.45E-01	Student (8)	(0.00)	2.77E-01	5.08E-01	5.77E-01	4.03E-01		4.88E-01	4.16E-01	(1.50)	1.87E-01	Student (16)	(0.00)	3.60E-01	5.29E-01		5.98E-01	4.23E-01	5.10E-01	4.38E-01	(0.50)	2.58E-01	Student (25)	(0.00)		3.90E-01	5.37E-01	6.06E-01	4.29E-01	5.18E-01	4.45E-01	(0.29)	2.86E-01		Student (32)	(0.00)	3.97E-01	5.37E-01	6.06E-01	4.29E-01	5.17E-01	4.44E-01	(0.21)	2.93E-01	Student (40)	(0.00)	4.07E-01	5.41E-01	6.10E-01	4.32E-01	5.22E-01	4.48E-01	(0.17)	3.03E-01																																										
Student (5)	(0.00)		k=2	6.15E-02	2.69E-01	2.98E-01	1.69E-01	2.54E-01		2.00E-01																																																																																																																																																																																																		
	(6.00)			3.24E-02					Student (6)			(0.00)	7.43E-02	2.67E-01	2.97E-01	1.66E-01	2.51E-01	1.97E-01	(3.00)	4.02E-02		Student (8)	(0.00)	9.47E-02	2.66E-01	3.00E-01	1.64E-01	2.50E-01	1.96E-01	(1.50)		5.30E-02	Student (16)	(0.00)	1.30E-01	2.61E-01	2.99E-01	1.56E-01	2.45E-01	1.89E-01		(0.50)	7.59E-02	Student (25)	(0.00)	1.44E-01	2.60E-01	2.98E-01	1.53E-01	2.43E-01		1.86E-01	(0.29)	8.55E-02	Student (32)	(0.00)	1.47E-01	2.56E-01	2.95E-01	1.50E-01		2.39E-01	1.82E-01	(0.21)	8.77E-02	Student (40)	(0.00)	1.52E-01	2.57E-01	2.96E-01		1.50E-01	2.41E-01	1.83E-01	(0.17)	9.15E-02	Student (5)	(0.00)	k=3	1.88E-01	4.81E-01	5.45E-01	3.73E-01	4.62E-01	3.86E-01	(6.00)	1.17E-01		Student (6)	(0.00)	2.24E-01	4.91E-01	5.57E-01	3.86E-01	4.72E-01	3.97E-01		(3.00)	1.45E-01	Student (8)	(0.00)	2.77E-01	5.08E-01	5.77E-01	4.03E-01		4.88E-01	4.16E-01	(1.50)	1.87E-01	Student (16)	(0.00)	3.60E-01	5.29E-01		5.98E-01	4.23E-01	5.10E-01	4.38E-01	(0.50)	2.58E-01	Student (25)	(0.00)		3.90E-01	5.37E-01	6.06E-01	4.29E-01	5.18E-01	4.45E-01	(0.29)	2.86E-01		Student (32)	(0.00)	3.97E-01	5.37E-01	6.06E-01	4.29E-01	5.17E-01	4.44E-01		(0.21)	2.93E-01	Student (40)	(0.00)	4.07E-01	5.41E-01	6.10E-01	4.32E-01	5.22E-01	4.48E-01	(0.17)	3.03E-01																																																		
Student (6)	(0.00)			7.43E-02	2.67E-01	2.97E-01	1.66E-01	2.51E-01		1.97E-01																																																																																																																																																																																																		
	(3.00)			4.02E-02					Student (8)			(0.00)	9.47E-02	2.66E-01	3.00E-01	1.64E-01	2.50E-01	1.96E-01	(1.50)	5.30E-02		Student (16)	(0.00)	1.30E-01	2.61E-01	2.99E-01	1.56E-01	2.45E-01	1.89E-01	(0.50)		7.59E-02	Student (25)	(0.00)	1.44E-01	2.60E-01	2.98E-01	1.53E-01	2.43E-01	1.86E-01		(0.29)	8.55E-02	Student (32)	(0.00)	1.47E-01	2.56E-01	2.95E-01	1.50E-01	2.39E-01		1.82E-01	(0.21)	8.77E-02	Student (40)	(0.00)	1.52E-01	2.57E-01	2.96E-01	1.50E-01		2.41E-01	1.83E-01	(0.17)	9.15E-02	Student (5)	(0.00)	k=3	1.88E-01	4.81E-01		5.45E-01	3.73E-01	4.62E-01	3.86E-01	(6.00)	1.17E-01	Student (6)		(0.00)	2.24E-01	4.91E-01	5.57E-01	3.86E-01	4.72E-01	3.97E-01	(3.00)		1.45E-01	Student (8)	(0.00)	2.77E-01	5.08E-01	5.77E-01	4.03E-01	4.88E-01		4.16E-01	(1.50)	1.87E-01	Student (16)	(0.00)	3.60E-01	5.29E-01	5.98E-01		4.23E-01	5.10E-01	4.38E-01	(0.50)	2.58E-01	Student (25)	(0.00)	3.90E-01		5.37E-01	6.06E-01	4.29E-01	5.18E-01	4.45E-01	(0.29)	2.86E-01	Student (32)		(0.00)	3.97E-01	5.37E-01	6.06E-01	4.29E-01	5.17E-01	4.44E-01	(0.21)		2.93E-01	Student (40)	(0.00)	4.07E-01	5.41E-01	6.10E-01	4.32E-01	5.22E-01		4.48E-01	(0.17)	3.03E-01																																																											
Student (8)	(0.00)	9.47E-02		2.66E-01	3.00E-01	1.64E-01	2.50E-01	1.96E-01																																																																																																																																																																																																				
	(1.50)	5.30E-02							Student (16)	(0.00)		1.30E-01	2.61E-01	2.99E-01	1.56E-01	2.45E-01	1.89E-01	(0.50)	7.59E-02	Student (25)		(0.00)	1.44E-01	2.60E-01	2.98E-01	1.53E-01	2.43E-01	1.86E-01	(0.29)	8.55E-02		Student (32)	(0.00)	1.47E-01	2.56E-01	2.95E-01	1.50E-01	2.39E-01	1.82E-01	(0.21)		8.77E-02	Student (40)	(0.00)	1.52E-01	2.57E-01	2.96E-01	1.50E-01	2.41E-01	1.83E-01		(0.17)	9.15E-02	Student (5)	(0.00)	k=3	1.88E-01	4.81E-01	5.45E-01	3.73E-01		4.62E-01	3.86E-01	(6.00)	1.17E-01	Student (6)	(0.00)		2.24E-01	4.91E-01	5.57E-01	3.86E-01	4.72E-01	3.97E-01	(3.00)	1.45E-01	Student (8)	(0.00)		2.77E-01	5.08E-01	5.77E-01	4.03E-01	4.88E-01	4.16E-01	(1.50)	1.87E-01		Student (16)	(0.00)	3.60E-01	5.29E-01	5.98E-01	4.23E-01	5.10E-01	4.38E-01		(0.50)	2.58E-01	Student (25)	(0.00)	3.90E-01	5.37E-01	6.06E-01	4.29E-01		5.18E-01	4.45E-01	(0.29)	2.86E-01	Student (32)	(0.00)	3.97E-01	5.37E-01		6.06E-01	4.29E-01	5.17E-01	4.44E-01	(0.21)	2.93E-01	Student (40)	(0.00)		4.07E-01	5.41E-01	6.10E-01	4.32E-01	5.22E-01	4.48E-01	(0.17)	3.03E-01																																																																								
Student (16)	(0.00)	1.30E-01		2.61E-01	2.99E-01	1.56E-01	2.45E-01	1.89E-01																																																																																																																																																																																																				
	(0.50)	7.59E-02							Student (25)	(0.00)		1.44E-01	2.60E-01	2.98E-01	1.53E-01	2.43E-01	1.86E-01	(0.29)	8.55E-02	Student (32)		(0.00)	1.47E-01	2.56E-01	2.95E-01	1.50E-01	2.39E-01	1.82E-01	(0.21)	8.77E-02		Student (40)	(0.00)	1.52E-01	2.57E-01	2.96E-01	1.50E-01	2.41E-01	1.83E-01	(0.17)		9.15E-02	Student (5)	(0.00)	k=3	1.88E-01	4.81E-01	5.45E-01	3.73E-01	4.62E-01		3.86E-01	(6.00)	1.17E-01	Student (6)		(0.00)	2.24E-01	4.91E-01	5.57E-01	3.86E-01	4.72E-01	3.97E-01	(3.00)	1.45E-01	Student (8)	(0.00)		2.77E-01	5.08E-01	5.77E-01	4.03E-01	4.88E-01	4.16E-01	(1.50)	1.87E-01	Student (16)	(0.00)		3.60E-01	5.29E-01	5.98E-01	4.23E-01	5.10E-01	4.38E-01	(0.50)	2.58E-01		Student (25)	(0.00)	3.90E-01	5.37E-01	6.06E-01	4.29E-01	5.18E-01	4.45E-01		(0.29)	2.86E-01	Student (32)	(0.00)	3.97E-01	5.37E-01	6.06E-01	4.29E-01		5.17E-01	4.44E-01	(0.21)	2.93E-01	Student (40)	(0.00)	4.07E-01	5.41E-01		6.10E-01	4.32E-01	5.22E-01	4.48E-01	(0.17)	3.03E-01																																																																																			
Student (25)	(0.00)	1.44E-01		2.60E-01	2.98E-01	1.53E-01	2.43E-01	1.86E-01																																																																																																																																																																																																				
	(0.29)	8.55E-02							Student (32)	(0.00)		1.47E-01	2.56E-01	2.95E-01	1.50E-01	2.39E-01	1.82E-01	(0.21)	8.77E-02	Student (40)		(0.00)	1.52E-01	2.57E-01	2.96E-01	1.50E-01	2.41E-01	1.83E-01	(0.17)	9.15E-02		Student (5)	(0.00)	k=3	1.88E-01	4.81E-01	5.45E-01	3.73E-01	4.62E-01	3.86E-01		(6.00)	1.17E-01	Student (6)		(0.00)	2.24E-01	4.91E-01	5.57E-01	3.86E-01	4.72E-01	3.97E-01	(3.00)	1.45E-01	Student (8)		(0.00)	2.77E-01	5.08E-01	5.77E-01	4.03E-01	4.88E-01	4.16E-01	(1.50)	1.87E-01	Student (16)	(0.00)		3.60E-01	5.29E-01	5.98E-01	4.23E-01	5.10E-01	4.38E-01	(0.50)	2.58E-01	Student (25)	(0.00)		3.90E-01	5.37E-01	6.06E-01	4.29E-01	5.18E-01	4.45E-01	(0.29)	2.86E-01		Student (32)	(0.00)	3.97E-01	5.37E-01	6.06E-01	4.29E-01	5.17E-01	4.44E-01		(0.21)	2.93E-01	Student (40)	(0.00)	4.07E-01	5.41E-01	6.10E-01	4.32E-01		5.22E-01	4.48E-01	(0.17)	3.03E-01																																																																																														
Student (32)	(0.00)	1.47E-01		2.56E-01	2.95E-01	1.50E-01	2.39E-01	1.82E-01																																																																																																																																																																																																				
	(0.21)	8.77E-02							Student (40)	(0.00)		1.52E-01	2.57E-01	2.96E-01	1.50E-01	2.41E-01	1.83E-01	(0.17)	9.15E-02	Student (5)		(0.00)	k=3	1.88E-01	4.81E-01	5.45E-01	3.73E-01	4.62E-01	3.86E-01	(6.00)		1.17E-01	Student (6)		(0.00)	2.24E-01	4.91E-01	5.57E-01	3.86E-01	4.72E-01	3.97E-01	(3.00)	1.45E-01	Student (8)		(0.00)	2.77E-01	5.08E-01	5.77E-01	4.03E-01	4.88E-01	4.16E-01	(1.50)	1.87E-01	Student (16)		(0.00)	3.60E-01	5.29E-01	5.98E-01	4.23E-01	5.10E-01	4.38E-01	(0.50)	2.58E-01	Student (25)	(0.00)		3.90E-01	5.37E-01	6.06E-01	4.29E-01	5.18E-01	4.45E-01	(0.29)	2.86E-01	Student (32)	(0.00)		3.97E-01	5.37E-01	6.06E-01	4.29E-01	5.17E-01	4.44E-01	(0.21)	2.93E-01		Student (40)	(0.00)	4.07E-01	5.41E-01	6.10E-01	4.32E-01	5.22E-01	4.48E-01		(0.17)	3.03E-01																																																																																																									
Student (40)	(0.00)	1.52E-01		2.57E-01	2.96E-01	1.50E-01	2.41E-01	1.83E-01																																																																																																																																																																																																				
	(0.17)	9.15E-02							Student (5)	(0.00)		k=3	1.88E-01	4.81E-01	5.45E-01	3.73E-01	4.62E-01	3.86E-01	(6.00)	1.17E-01		Student (6)		(0.00)	2.24E-01	4.91E-01	5.57E-01	3.86E-01	4.72E-01	3.97E-01	(3.00)	1.45E-01	Student (8)		(0.00)	2.77E-01	5.08E-01	5.77E-01	4.03E-01	4.88E-01	4.16E-01	(1.50)	1.87E-01	Student (16)		(0.00)	3.60E-01	5.29E-01	5.98E-01	4.23E-01	5.10E-01	4.38E-01	(0.50)	2.58E-01	Student (25)		(0.00)	3.90E-01	5.37E-01	6.06E-01	4.29E-01	5.18E-01	4.45E-01	(0.29)	2.86E-01	Student (32)	(0.00)		3.97E-01	5.37E-01	6.06E-01	4.29E-01	5.17E-01	4.44E-01	(0.21)	2.93E-01	Student (40)	(0.00)		4.07E-01	5.41E-01	6.10E-01	4.32E-01	5.22E-01	4.48E-01	(0.17)	3.03E-01																																																																																																																					
Student (5)	(0.00)	k=3		1.88E-01	4.81E-01	5.45E-01	3.73E-01	4.62E-01		3.86E-01																																																																																																																																																																																																		
	(6.00)			1.17E-01					Student (6)				(0.00)	2.24E-01	4.91E-01	5.57E-01	3.86E-01	4.72E-01	3.97E-01	(3.00)	1.45E-01	Student (8)		(0.00)	2.77E-01	5.08E-01	5.77E-01	4.03E-01	4.88E-01	4.16E-01	(1.50)	1.87E-01	Student (16)		(0.00)	3.60E-01	5.29E-01	5.98E-01	4.23E-01	5.10E-01	4.38E-01	(0.50)	2.58E-01	Student (25)		(0.00)	3.90E-01	5.37E-01	6.06E-01	4.29E-01	5.18E-01	4.45E-01	(0.29)	2.86E-01	Student (32)		(0.00)	3.97E-01	5.37E-01	6.06E-01	4.29E-01	5.17E-01	4.44E-01	(0.21)	2.93E-01	Student (40)	(0.00)		4.07E-01	5.41E-01	6.10E-01	4.32E-01	5.22E-01	4.48E-01	(0.17)	3.03E-01																																																																																																																																
Student (6)	(0.00)			2.24E-01	4.91E-01	5.57E-01	3.86E-01	4.72E-01		3.97E-01																																																																																																																																																																																																		
	(3.00)			1.45E-01					Student (8)		(0.00)		2.77E-01	5.08E-01	5.77E-01	4.03E-01	4.88E-01	4.16E-01	(1.50)	1.87E-01	Student (16)	(0.00)		3.60E-01	5.29E-01	5.98E-01	4.23E-01	5.10E-01	4.38E-01	(0.50)	2.58E-01	Student (25)	(0.00)		3.90E-01	5.37E-01	6.06E-01	4.29E-01	5.18E-01	4.45E-01	(0.29)	2.86E-01	Student (32)	(0.00)		3.97E-01	5.37E-01	6.06E-01	4.29E-01	5.17E-01	4.44E-01	(0.21)	2.93E-01	Student (40)	(0.00)		4.07E-01	5.41E-01	6.10E-01	4.32E-01	5.22E-01	4.48E-01	(0.17)	3.03E-01																																																																																																																																												
Student (8)	(0.00)		2.77E-01	5.08E-01	5.77E-01	4.03E-01	4.88E-01	4.16E-01																																																																																																																																																																																																				
	(1.50)		1.87E-01						Student (16)	(0.00)	3.60E-01		5.29E-01	5.98E-01	4.23E-01	5.10E-01	4.38E-01	(0.50)	2.58E-01	Student (25)	(0.00)	3.90E-01		5.37E-01	6.06E-01	4.29E-01	5.18E-01	4.45E-01	(0.29)	2.86E-01	Student (32)	(0.00)	3.97E-01		5.37E-01	6.06E-01	4.29E-01	5.17E-01	4.44E-01	(0.21)	2.93E-01	Student (40)	(0.00)	4.07E-01		5.41E-01	6.10E-01	4.32E-01	5.22E-01	4.48E-01	(0.17)	3.03E-01																																																																																																																																																								
Student (16)	(0.00)		3.60E-01	5.29E-01	5.98E-01	4.23E-01	5.10E-01	4.38E-01																																																																																																																																																																																																				
	(0.50)		2.58E-01						Student (25)	(0.00)	3.90E-01		5.37E-01	6.06E-01	4.29E-01	5.18E-01	4.45E-01	(0.29)	2.86E-01	Student (32)	(0.00)	3.97E-01		5.37E-01	6.06E-01	4.29E-01	5.17E-01	4.44E-01	(0.21)	2.93E-01	Student (40)	(0.00)	4.07E-01		5.41E-01	6.10E-01	4.32E-01	5.22E-01	4.48E-01	(0.17)	3.03E-01																																																																																																																																																																			
Student (25)	(0.00)		3.90E-01	5.37E-01	6.06E-01	4.29E-01	5.18E-01	4.45E-01																																																																																																																																																																																																				
	(0.29)		2.86E-01						Student (32)	(0.00)	3.97E-01		5.37E-01	6.06E-01	4.29E-01	5.17E-01	4.44E-01	(0.21)	2.93E-01	Student (40)	(0.00)	4.07E-01		5.41E-01	6.10E-01	4.32E-01	5.22E-01	4.48E-01	(0.17)	3.03E-01																																																																																																																																																																														
Student (32)	(0.00)		3.97E-01	5.37E-01	6.06E-01	4.29E-01	5.17E-01	4.44E-01																																																																																																																																																																																																				
	(0.21)		2.93E-01						Student (40)	(0.00)	4.07E-01		5.41E-01	6.10E-01	4.32E-01	5.22E-01	4.48E-01	(0.17)	3.03E-01																																																																																																																																																																																									
Student (40)	(0.00)		4.07E-01	5.41E-01	6.10E-01	4.32E-01	5.22E-01	4.48E-01																																																																																																																																																																																																				
	(0.17)		3.03E-01																																																																																																																																																																																																									

A ROBUST ONE-SIDED VARIABILITY CONTROL CHART

Table 6 (continued): Power Comparison Study for Symmetric Distributions ($n = 10$)

Distribution	(skewness) (kurtosis)	k	Combined Sample	R-chart	S-chart	S2-chart	WV-chart	SC-chart																																																																																																																																																																																																																																	
Barnes 3	(3.00)	k=3	3.00E-02	2.41E-01	3.62E-01	1.91E-01	2.33E-01	1.78E-01																																																																																																																																																																																																																																	
	(1049)		1.32E-02						Barnes 1	(0.00)	4.36E-01	5.49E-01	6.17E-01	4.38E-01	5.28E-01	4.54E-01	(6.89)	3.29E-01	JTB (2.0, 1.0)	(0.00)	1.91E-01	4.93E-01	5.47E-01	3.88E-01	4.66E-01	4.10E-01	(3.00)	1.24E-01	JTB (0.75, 0.5)	(0.00)	2.95E-01	5.23E-01	5.82E-01	4.18E-01	4.97E-01	4.40E-01	(1.20)	2.09E-01	JTB (4.0, 1.0)	(0.00)	3.28E-01	5.22E-01	5.90E-01	4.17E-01	5.02E-01	4.34E-01	(0.78)	2.31E-01	JTB (1.0, 0.5)	(0.00)	3.55E-01	5.34E-01	5.97E-01	4.27E-01	5.13E-01	4.47E-01	(0.60)	2.59E-01	JTB (1.25, 0.5)	(0.00)	3.99E-01	5.41E-01	6.06E-01	4.31E-01	5.21E-01	4.49E-01	(0.24)	2.97E-01	JTB (1.35, 0.5)	(0.00)	4.13E-01	5.42E-01	6.09E-01	4.32E-01	5.22E-01	4.50E-01	(0.13)	3.09E-01	JTB (1.5, 0.5)	(0.00)	4.36E-01	5.49E-01	6.17E-01	4.37E-01	5.30E-01	4.54E-01	(0.00)	3.30E-01	JTB (2.0, 0.5)	(0.00)	4.88E-01	5.60E-01	6.29E-01	4.44E-01	5.39E-01	4.59E-01	(-0.30)	3.78E-01	JTB (4.0, 0.5)	(0.00)	5.92E-01	5.90E-01	6.57E-01	4.59E-01	5.66E-01	4.72E-01	(-0.75)	4.84E-01	JTB (9.0, 0.5)	(0.00)	6.69E-01	6.24E-01	6.78E-01	4.72E-01	5.96E-01	4.89E-01	(-1.00)	5.70E-01	Barnes 3	(3.00)	k=4	7.68E-02	3.92E-01	6.06E-01	3.16E-01	3.67E-01	2.52E-01	(1049)	3.47E-02	Barnes 1	(0.00)	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.21E-01	6.60E-01	(6.89)	5.30E-01	JTB (2.0, 1.0)	(0.00)	3.20E-01	6.37E-01	6.97E-01	5.51E-01	6.12E-01	5.57E-01	(3.00)	2.25E-01	JTB (0.75, 0.5)	(0.00)	4.59E-01	6.83E-01	7.42E-01	6.03E-01	6.60E-01	6.09E-01	(1.20)	3.54E-01	JTB (4.0, 1.0)	(0.00)	5.15E-01	6.97E-01	7.64E-01	6.21E-01	6.80E-01	6.18E-01	(0.78)	4.02E-01	JTB (1.0, 0.5)	(0.00)	5.38E-01	7.06E-01	7.67E-01	6.29E-01	6.88E-01	6.31E-01	(0.60)	4.30E-01	JTB (1.25, 0.5)	(0.00)	5.92E-01	7.23E-01	7.83E-01	6.45E-01	7.06E-01	6.46E-01	(0.24)	4.86E-01	JTB (1.35, 0.5)	(0.00)	6.09E-01	7.28E-01	7.88E-01	6.50E-01	7.12E-01	6.51E-01	(0.13)	5.03E-01	JTB (1.5, 0.5)	(0.00)	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.23E-01	6.60E-01	(0.00)	5.30E-01	JTB (2.0, 0.5)	(0.00)	6.91E-01	7.60E-01	8.15E-01	6.80E-01	7.43E-01	6.80E-01	(-0.30)	5.93E-01	JTB (4.0, 0.5)	(0.00)	7.86E-01	8.07E-01	8.47E-01	7.19E-01	7.92E-01	7.27E-01	(-0.75)	7.07E-01	JTB (9.0, 0.5)	(0.00)	8.41E-01	8.46E-01
Barnes 1	(0.00)		4.36E-01	5.49E-01	6.17E-01	4.38E-01	5.28E-01	4.54E-01																																																																																																																																																																																																																																	
	(6.89)		3.29E-01						JTB (2.0, 1.0)	(0.00)	1.91E-01	4.93E-01	5.47E-01	3.88E-01	4.66E-01	4.10E-01	(3.00)	1.24E-01	JTB (0.75, 0.5)	(0.00)	2.95E-01	5.23E-01	5.82E-01	4.18E-01	4.97E-01	4.40E-01	(1.20)	2.09E-01	JTB (4.0, 1.0)	(0.00)	3.28E-01	5.22E-01	5.90E-01	4.17E-01	5.02E-01	4.34E-01	(0.78)	2.31E-01	JTB (1.0, 0.5)	(0.00)	3.55E-01	5.34E-01	5.97E-01	4.27E-01	5.13E-01	4.47E-01	(0.60)	2.59E-01	JTB (1.25, 0.5)	(0.00)	3.99E-01	5.41E-01	6.06E-01	4.31E-01	5.21E-01	4.49E-01	(0.24)	2.97E-01	JTB (1.35, 0.5)	(0.00)	4.13E-01	5.42E-01	6.09E-01	4.32E-01	5.22E-01	4.50E-01	(0.13)	3.09E-01	JTB (1.5, 0.5)	(0.00)	4.36E-01	5.49E-01	6.17E-01	4.37E-01	5.30E-01	4.54E-01	(0.00)	3.30E-01	JTB (2.0, 0.5)	(0.00)	4.88E-01	5.60E-01	6.29E-01	4.44E-01	5.39E-01	4.59E-01	(-0.30)	3.78E-01	JTB (4.0, 0.5)	(0.00)	5.92E-01	5.90E-01	6.57E-01	4.59E-01	5.66E-01	4.72E-01	(-0.75)	4.84E-01	JTB (9.0, 0.5)	(0.00)	6.69E-01	6.24E-01	6.78E-01	4.72E-01	5.96E-01	4.89E-01	(-1.00)	5.70E-01	Barnes 3	(3.00)	k=4	7.68E-02	3.92E-01	6.06E-01	3.16E-01	3.67E-01	2.52E-01	(1049)	3.47E-02	Barnes 1		(0.00)	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.21E-01	6.60E-01	(6.89)	5.30E-01	JTB (2.0, 1.0)	(0.00)	3.20E-01	6.37E-01	6.97E-01	5.51E-01	6.12E-01	5.57E-01	(3.00)	2.25E-01	JTB (0.75, 0.5)	(0.00)	4.59E-01	6.83E-01	7.42E-01	6.03E-01	6.60E-01	6.09E-01	(1.20)	3.54E-01	JTB (4.0, 1.0)	(0.00)	5.15E-01	6.97E-01	7.64E-01	6.21E-01	6.80E-01	6.18E-01	(0.78)	4.02E-01	JTB (1.0, 0.5)	(0.00)	5.38E-01	7.06E-01	7.67E-01	6.29E-01	6.88E-01	6.31E-01	(0.60)	4.30E-01	JTB (1.25, 0.5)	(0.00)	5.92E-01	7.23E-01	7.83E-01	6.45E-01	7.06E-01	6.46E-01	(0.24)	4.86E-01	JTB (1.35, 0.5)	(0.00)	6.09E-01	7.28E-01	7.88E-01	6.50E-01	7.12E-01	6.51E-01	(0.13)	5.03E-01	JTB (1.5, 0.5)	(0.00)	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.23E-01	6.60E-01	(0.00)	5.30E-01	JTB (2.0, 0.5)	(0.00)	6.91E-01	7.60E-01	8.15E-01	6.80E-01	7.43E-01	6.80E-01	(-0.30)	5.93E-01	JTB (4.0, 0.5)	(0.00)	7.86E-01	8.07E-01	8.47E-01	7.19E-01	7.92E-01	7.27E-01	(-0.75)	7.07E-01	JTB (9.0, 0.5)	(0.00)	8.41E-01	8.46E-01	8.67E-01	7.46E-01	8.31E-01	7.70E-01	(-1.00)	7.80E-01			
JTB (2.0, 1.0)	(0.00)		1.91E-01	4.93E-01	5.47E-01	3.88E-01	4.66E-01	4.10E-01																																																																																																																																																																																																																																	
	(3.00)		1.24E-01						JTB (0.75, 0.5)	(0.00)	2.95E-01	5.23E-01	5.82E-01	4.18E-01	4.97E-01	4.40E-01	(1.20)	2.09E-01	JTB (4.0, 1.0)	(0.00)	3.28E-01	5.22E-01	5.90E-01	4.17E-01	5.02E-01	4.34E-01	(0.78)	2.31E-01	JTB (1.0, 0.5)	(0.00)	3.55E-01	5.34E-01	5.97E-01	4.27E-01	5.13E-01	4.47E-01	(0.60)	2.59E-01	JTB (1.25, 0.5)	(0.00)	3.99E-01	5.41E-01	6.06E-01	4.31E-01	5.21E-01	4.49E-01	(0.24)	2.97E-01	JTB (1.35, 0.5)	(0.00)	4.13E-01	5.42E-01	6.09E-01	4.32E-01	5.22E-01	4.50E-01	(0.13)	3.09E-01	JTB (1.5, 0.5)	(0.00)	4.36E-01	5.49E-01	6.17E-01	4.37E-01	5.30E-01	4.54E-01	(0.00)	3.30E-01	JTB (2.0, 0.5)	(0.00)	4.88E-01	5.60E-01	6.29E-01	4.44E-01	5.39E-01	4.59E-01	(-0.30)	3.78E-01	JTB (4.0, 0.5)	(0.00)	5.92E-01	5.90E-01	6.57E-01	4.59E-01	5.66E-01	4.72E-01	(-0.75)	4.84E-01	JTB (9.0, 0.5)	(0.00)	6.69E-01	6.24E-01	6.78E-01	4.72E-01	5.96E-01	4.89E-01	(-1.00)	5.70E-01	Barnes 3	(3.00)	k=4	7.68E-02	3.92E-01	6.06E-01	3.16E-01	3.67E-01	2.52E-01	(1049)	3.47E-02	Barnes 1		(0.00)	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.21E-01	6.60E-01	(6.89)	5.30E-01		JTB (2.0, 1.0)	(0.00)	3.20E-01	6.37E-01	6.97E-01	5.51E-01	6.12E-01	5.57E-01	(3.00)	2.25E-01	JTB (0.75, 0.5)	(0.00)	4.59E-01	6.83E-01	7.42E-01	6.03E-01	6.60E-01	6.09E-01	(1.20)	3.54E-01	JTB (4.0, 1.0)	(0.00)	5.15E-01	6.97E-01	7.64E-01	6.21E-01	6.80E-01	6.18E-01	(0.78)	4.02E-01	JTB (1.0, 0.5)	(0.00)	5.38E-01	7.06E-01	7.67E-01	6.29E-01	6.88E-01	6.31E-01	(0.60)	4.30E-01	JTB (1.25, 0.5)	(0.00)	5.92E-01	7.23E-01	7.83E-01	6.45E-01	7.06E-01	6.46E-01	(0.24)	4.86E-01	JTB (1.35, 0.5)	(0.00)	6.09E-01	7.28E-01	7.88E-01	6.50E-01	7.12E-01	6.51E-01	(0.13)	5.03E-01	JTB (1.5, 0.5)	(0.00)	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.23E-01	6.60E-01	(0.00)	5.30E-01	JTB (2.0, 0.5)	(0.00)	6.91E-01	7.60E-01	8.15E-01	6.80E-01	7.43E-01	6.80E-01	(-0.30)	5.93E-01	JTB (4.0, 0.5)	(0.00)	7.86E-01	8.07E-01	8.47E-01	7.19E-01	7.92E-01	7.27E-01	(-0.75)	7.07E-01	JTB (9.0, 0.5)	(0.00)	8.41E-01	8.46E-01	8.67E-01	7.46E-01	8.31E-01	7.70E-01	(-1.00)	7.80E-01												
JTB (0.75, 0.5)	(0.00)		2.95E-01	5.23E-01	5.82E-01	4.18E-01	4.97E-01	4.40E-01																																																																																																																																																																																																																																	
	(1.20)		2.09E-01						JTB (4.0, 1.0)	(0.00)	3.28E-01	5.22E-01	5.90E-01	4.17E-01	5.02E-01	4.34E-01	(0.78)	2.31E-01	JTB (1.0, 0.5)	(0.00)	3.55E-01	5.34E-01	5.97E-01	4.27E-01	5.13E-01	4.47E-01	(0.60)	2.59E-01	JTB (1.25, 0.5)	(0.00)	3.99E-01	5.41E-01	6.06E-01	4.31E-01	5.21E-01	4.49E-01	(0.24)	2.97E-01	JTB (1.35, 0.5)	(0.00)	4.13E-01	5.42E-01	6.09E-01	4.32E-01	5.22E-01	4.50E-01	(0.13)	3.09E-01	JTB (1.5, 0.5)	(0.00)	4.36E-01	5.49E-01	6.17E-01	4.37E-01	5.30E-01	4.54E-01	(0.00)	3.30E-01	JTB (2.0, 0.5)	(0.00)	4.88E-01	5.60E-01	6.29E-01	4.44E-01	5.39E-01	4.59E-01	(-0.30)	3.78E-01	JTB (4.0, 0.5)	(0.00)	5.92E-01	5.90E-01	6.57E-01	4.59E-01	5.66E-01	4.72E-01	(-0.75)	4.84E-01	JTB (9.0, 0.5)	(0.00)	6.69E-01	6.24E-01	6.78E-01	4.72E-01	5.96E-01	4.89E-01	(-1.00)	5.70E-01	Barnes 3	(3.00)	k=4	7.68E-02	3.92E-01	6.06E-01	3.16E-01	3.67E-01	2.52E-01	(1049)	3.47E-02	Barnes 1		(0.00)	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.21E-01	6.60E-01	(6.89)	5.30E-01		JTB (2.0, 1.0)	(0.00)	3.20E-01	6.37E-01	6.97E-01	5.51E-01	6.12E-01	5.57E-01	(3.00)		2.25E-01	JTB (0.75, 0.5)	(0.00)	4.59E-01	6.83E-01	7.42E-01	6.03E-01	6.60E-01	6.09E-01	(1.20)	3.54E-01	JTB (4.0, 1.0)	(0.00)	5.15E-01	6.97E-01	7.64E-01	6.21E-01	6.80E-01	6.18E-01	(0.78)	4.02E-01	JTB (1.0, 0.5)	(0.00)	5.38E-01	7.06E-01	7.67E-01	6.29E-01	6.88E-01	6.31E-01	(0.60)	4.30E-01	JTB (1.25, 0.5)	(0.00)	5.92E-01	7.23E-01	7.83E-01	6.45E-01	7.06E-01	6.46E-01	(0.24)	4.86E-01	JTB (1.35, 0.5)	(0.00)	6.09E-01	7.28E-01	7.88E-01	6.50E-01	7.12E-01	6.51E-01	(0.13)	5.03E-01	JTB (1.5, 0.5)	(0.00)	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.23E-01	6.60E-01	(0.00)	5.30E-01	JTB (2.0, 0.5)	(0.00)	6.91E-01	7.60E-01	8.15E-01	6.80E-01	7.43E-01	6.80E-01	(-0.30)	5.93E-01	JTB (4.0, 0.5)	(0.00)	7.86E-01	8.07E-01	8.47E-01	7.19E-01	7.92E-01	7.27E-01	(-0.75)	7.07E-01	JTB (9.0, 0.5)	(0.00)	8.41E-01	8.46E-01	8.67E-01	7.46E-01	8.31E-01	7.70E-01	(-1.00)	7.80E-01																					
JTB (4.0, 1.0)	(0.00)		3.28E-01	5.22E-01	5.90E-01	4.17E-01	5.02E-01	4.34E-01																																																																																																																																																																																																																																	
	(0.78)		2.31E-01						JTB (1.0, 0.5)	(0.00)	3.55E-01	5.34E-01	5.97E-01	4.27E-01	5.13E-01	4.47E-01	(0.60)	2.59E-01	JTB (1.25, 0.5)	(0.00)	3.99E-01	5.41E-01	6.06E-01	4.31E-01	5.21E-01	4.49E-01	(0.24)	2.97E-01	JTB (1.35, 0.5)	(0.00)	4.13E-01	5.42E-01	6.09E-01	4.32E-01	5.22E-01	4.50E-01	(0.13)	3.09E-01	JTB (1.5, 0.5)	(0.00)	4.36E-01	5.49E-01	6.17E-01	4.37E-01	5.30E-01	4.54E-01	(0.00)	3.30E-01	JTB (2.0, 0.5)	(0.00)	4.88E-01	5.60E-01	6.29E-01	4.44E-01	5.39E-01	4.59E-01	(-0.30)	3.78E-01	JTB (4.0, 0.5)	(0.00)	5.92E-01	5.90E-01	6.57E-01	4.59E-01	5.66E-01	4.72E-01	(-0.75)	4.84E-01	JTB (9.0, 0.5)	(0.00)	6.69E-01	6.24E-01	6.78E-01	4.72E-01	5.96E-01	4.89E-01	(-1.00)	5.70E-01	Barnes 3	(3.00)	k=4	7.68E-02	3.92E-01	6.06E-01	3.16E-01	3.67E-01	2.52E-01	(1049)	3.47E-02	Barnes 1		(0.00)	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.21E-01	6.60E-01	(6.89)	5.30E-01		JTB (2.0, 1.0)	(0.00)	3.20E-01	6.37E-01	6.97E-01	5.51E-01	6.12E-01	5.57E-01	(3.00)		2.25E-01	JTB (0.75, 0.5)	(0.00)	4.59E-01	6.83E-01	7.42E-01	6.03E-01	6.60E-01	6.09E-01		(1.20)	3.54E-01	JTB (4.0, 1.0)	(0.00)	5.15E-01	6.97E-01	7.64E-01	6.21E-01	6.80E-01	6.18E-01	(0.78)	4.02E-01	JTB (1.0, 0.5)	(0.00)	5.38E-01	7.06E-01	7.67E-01	6.29E-01	6.88E-01	6.31E-01	(0.60)	4.30E-01	JTB (1.25, 0.5)	(0.00)	5.92E-01	7.23E-01	7.83E-01	6.45E-01	7.06E-01	6.46E-01	(0.24)	4.86E-01	JTB (1.35, 0.5)	(0.00)	6.09E-01	7.28E-01	7.88E-01	6.50E-01	7.12E-01	6.51E-01	(0.13)	5.03E-01	JTB (1.5, 0.5)	(0.00)	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.23E-01	6.60E-01	(0.00)	5.30E-01	JTB (2.0, 0.5)	(0.00)	6.91E-01	7.60E-01	8.15E-01	6.80E-01	7.43E-01	6.80E-01	(-0.30)	5.93E-01	JTB (4.0, 0.5)	(0.00)	7.86E-01	8.07E-01	8.47E-01	7.19E-01	7.92E-01	7.27E-01	(-0.75)	7.07E-01	JTB (9.0, 0.5)	(0.00)	8.41E-01	8.46E-01	8.67E-01	7.46E-01	8.31E-01	7.70E-01	(-1.00)	7.80E-01																														
JTB (1.0, 0.5)	(0.00)		3.55E-01	5.34E-01	5.97E-01	4.27E-01	5.13E-01	4.47E-01																																																																																																																																																																																																																																	
	(0.60)		2.59E-01						JTB (1.25, 0.5)	(0.00)	3.99E-01	5.41E-01	6.06E-01	4.31E-01	5.21E-01	4.49E-01	(0.24)	2.97E-01	JTB (1.35, 0.5)	(0.00)	4.13E-01	5.42E-01	6.09E-01	4.32E-01	5.22E-01	4.50E-01	(0.13)	3.09E-01	JTB (1.5, 0.5)	(0.00)	4.36E-01	5.49E-01	6.17E-01	4.37E-01	5.30E-01	4.54E-01	(0.00)	3.30E-01	JTB (2.0, 0.5)	(0.00)	4.88E-01	5.60E-01	6.29E-01	4.44E-01	5.39E-01	4.59E-01	(-0.30)	3.78E-01	JTB (4.0, 0.5)	(0.00)	5.92E-01	5.90E-01	6.57E-01	4.59E-01	5.66E-01	4.72E-01	(-0.75)	4.84E-01	JTB (9.0, 0.5)	(0.00)	6.69E-01	6.24E-01	6.78E-01	4.72E-01	5.96E-01	4.89E-01	(-1.00)	5.70E-01	Barnes 3	(3.00)	k=4	7.68E-02	3.92E-01	6.06E-01	3.16E-01	3.67E-01	2.52E-01	(1049)	3.47E-02	Barnes 1		(0.00)	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.21E-01	6.60E-01	(6.89)	5.30E-01		JTB (2.0, 1.0)	(0.00)	3.20E-01	6.37E-01	6.97E-01	5.51E-01	6.12E-01	5.57E-01	(3.00)		2.25E-01	JTB (0.75, 0.5)	(0.00)	4.59E-01	6.83E-01	7.42E-01	6.03E-01	6.60E-01	6.09E-01		(1.20)	3.54E-01	JTB (4.0, 1.0)	(0.00)	5.15E-01	6.97E-01	7.64E-01	6.21E-01	6.80E-01		6.18E-01	(0.78)	4.02E-01	JTB (1.0, 0.5)	(0.00)	5.38E-01	7.06E-01	7.67E-01	6.29E-01	6.88E-01	6.31E-01	(0.60)	4.30E-01	JTB (1.25, 0.5)	(0.00)	5.92E-01	7.23E-01	7.83E-01	6.45E-01	7.06E-01	6.46E-01	(0.24)	4.86E-01	JTB (1.35, 0.5)	(0.00)	6.09E-01	7.28E-01	7.88E-01	6.50E-01	7.12E-01	6.51E-01	(0.13)	5.03E-01	JTB (1.5, 0.5)	(0.00)	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.23E-01	6.60E-01	(0.00)	5.30E-01	JTB (2.0, 0.5)	(0.00)	6.91E-01	7.60E-01	8.15E-01	6.80E-01	7.43E-01	6.80E-01	(-0.30)	5.93E-01	JTB (4.0, 0.5)	(0.00)	7.86E-01	8.07E-01	8.47E-01	7.19E-01	7.92E-01	7.27E-01	(-0.75)	7.07E-01	JTB (9.0, 0.5)	(0.00)	8.41E-01	8.46E-01	8.67E-01	7.46E-01	8.31E-01	7.70E-01	(-1.00)	7.80E-01																																							
JTB (1.25, 0.5)	(0.00)		3.99E-01	5.41E-01	6.06E-01	4.31E-01	5.21E-01	4.49E-01																																																																																																																																																																																																																																	
	(0.24)		2.97E-01						JTB (1.35, 0.5)	(0.00)	4.13E-01	5.42E-01	6.09E-01	4.32E-01	5.22E-01	4.50E-01	(0.13)	3.09E-01	JTB (1.5, 0.5)	(0.00)	4.36E-01	5.49E-01	6.17E-01	4.37E-01	5.30E-01	4.54E-01	(0.00)	3.30E-01	JTB (2.0, 0.5)	(0.00)	4.88E-01	5.60E-01	6.29E-01	4.44E-01	5.39E-01	4.59E-01	(-0.30)	3.78E-01	JTB (4.0, 0.5)	(0.00)	5.92E-01	5.90E-01	6.57E-01	4.59E-01	5.66E-01	4.72E-01	(-0.75)	4.84E-01	JTB (9.0, 0.5)	(0.00)	6.69E-01	6.24E-01	6.78E-01	4.72E-01	5.96E-01	4.89E-01	(-1.00)	5.70E-01	Barnes 3	(3.00)	k=4	7.68E-02	3.92E-01	6.06E-01	3.16E-01	3.67E-01	2.52E-01	(1049)	3.47E-02	Barnes 1		(0.00)	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.21E-01	6.60E-01	(6.89)	5.30E-01		JTB (2.0, 1.0)	(0.00)	3.20E-01	6.37E-01	6.97E-01	5.51E-01	6.12E-01	5.57E-01	(3.00)		2.25E-01	JTB (0.75, 0.5)	(0.00)	4.59E-01	6.83E-01	7.42E-01	6.03E-01	6.60E-01	6.09E-01		(1.20)	3.54E-01	JTB (4.0, 1.0)	(0.00)	5.15E-01	6.97E-01	7.64E-01	6.21E-01	6.80E-01		6.18E-01	(0.78)	4.02E-01	JTB (1.0, 0.5)	(0.00)	5.38E-01	7.06E-01	7.67E-01	6.29E-01		6.88E-01	6.31E-01	(0.60)	4.30E-01	JTB (1.25, 0.5)	(0.00)	5.92E-01	7.23E-01	7.83E-01	6.45E-01	7.06E-01	6.46E-01	(0.24)	4.86E-01	JTB (1.35, 0.5)	(0.00)	6.09E-01	7.28E-01	7.88E-01	6.50E-01	7.12E-01	6.51E-01	(0.13)	5.03E-01	JTB (1.5, 0.5)	(0.00)	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.23E-01	6.60E-01	(0.00)	5.30E-01	JTB (2.0, 0.5)	(0.00)	6.91E-01	7.60E-01	8.15E-01	6.80E-01	7.43E-01	6.80E-01	(-0.30)	5.93E-01	JTB (4.0, 0.5)	(0.00)	7.86E-01	8.07E-01	8.47E-01	7.19E-01	7.92E-01	7.27E-01	(-0.75)	7.07E-01	JTB (9.0, 0.5)	(0.00)	8.41E-01	8.46E-01	8.67E-01	7.46E-01	8.31E-01	7.70E-01	(-1.00)	7.80E-01																																																
JTB (1.35, 0.5)	(0.00)		4.13E-01	5.42E-01	6.09E-01	4.32E-01	5.22E-01	4.50E-01																																																																																																																																																																																																																																	
	(0.13)		3.09E-01						JTB (1.5, 0.5)	(0.00)	4.36E-01	5.49E-01	6.17E-01	4.37E-01	5.30E-01	4.54E-01	(0.00)	3.30E-01	JTB (2.0, 0.5)	(0.00)	4.88E-01	5.60E-01	6.29E-01	4.44E-01	5.39E-01	4.59E-01	(-0.30)	3.78E-01	JTB (4.0, 0.5)	(0.00)	5.92E-01	5.90E-01	6.57E-01	4.59E-01	5.66E-01	4.72E-01	(-0.75)	4.84E-01	JTB (9.0, 0.5)	(0.00)	6.69E-01	6.24E-01	6.78E-01	4.72E-01	5.96E-01	4.89E-01	(-1.00)	5.70E-01	Barnes 3	(3.00)	k=4	7.68E-02	3.92E-01	6.06E-01	3.16E-01	3.67E-01	2.52E-01	(1049)	3.47E-02	Barnes 1		(0.00)	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.21E-01	6.60E-01	(6.89)	5.30E-01		JTB (2.0, 1.0)	(0.00)	3.20E-01	6.37E-01	6.97E-01	5.51E-01	6.12E-01	5.57E-01	(3.00)		2.25E-01	JTB (0.75, 0.5)	(0.00)	4.59E-01	6.83E-01	7.42E-01	6.03E-01	6.60E-01	6.09E-01		(1.20)	3.54E-01	JTB (4.0, 1.0)	(0.00)	5.15E-01	6.97E-01	7.64E-01	6.21E-01	6.80E-01		6.18E-01	(0.78)	4.02E-01	JTB (1.0, 0.5)	(0.00)	5.38E-01	7.06E-01	7.67E-01	6.29E-01		6.88E-01	6.31E-01	(0.60)	4.30E-01	JTB (1.25, 0.5)	(0.00)	5.92E-01	7.23E-01	7.83E-01		6.45E-01	7.06E-01	6.46E-01	(0.24)	4.86E-01	JTB (1.35, 0.5)	(0.00)	6.09E-01	7.28E-01	7.88E-01	6.50E-01	7.12E-01	6.51E-01	(0.13)	5.03E-01	JTB (1.5, 0.5)	(0.00)	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.23E-01	6.60E-01	(0.00)	5.30E-01	JTB (2.0, 0.5)	(0.00)	6.91E-01	7.60E-01	8.15E-01	6.80E-01	7.43E-01	6.80E-01	(-0.30)	5.93E-01	JTB (4.0, 0.5)	(0.00)	7.86E-01	8.07E-01	8.47E-01	7.19E-01	7.92E-01	7.27E-01	(-0.75)	7.07E-01	JTB (9.0, 0.5)	(0.00)	8.41E-01	8.46E-01	8.67E-01	7.46E-01	8.31E-01	7.70E-01	(-1.00)	7.80E-01																																																									
JTB (1.5, 0.5)	(0.00)		4.36E-01	5.49E-01	6.17E-01	4.37E-01	5.30E-01	4.54E-01																																																																																																																																																																																																																																	
	(0.00)		3.30E-01						JTB (2.0, 0.5)	(0.00)	4.88E-01	5.60E-01	6.29E-01	4.44E-01	5.39E-01	4.59E-01	(-0.30)	3.78E-01	JTB (4.0, 0.5)	(0.00)	5.92E-01	5.90E-01	6.57E-01	4.59E-01	5.66E-01	4.72E-01	(-0.75)	4.84E-01	JTB (9.0, 0.5)	(0.00)	6.69E-01	6.24E-01	6.78E-01	4.72E-01	5.96E-01	4.89E-01	(-1.00)	5.70E-01	Barnes 3	(3.00)	k=4	7.68E-02	3.92E-01	6.06E-01	3.16E-01	3.67E-01	2.52E-01	(1049)	3.47E-02	Barnes 1		(0.00)	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.21E-01	6.60E-01	(6.89)	5.30E-01		JTB (2.0, 1.0)	(0.00)	3.20E-01	6.37E-01	6.97E-01	5.51E-01	6.12E-01	5.57E-01	(3.00)		2.25E-01	JTB (0.75, 0.5)	(0.00)	4.59E-01	6.83E-01	7.42E-01	6.03E-01	6.60E-01	6.09E-01		(1.20)	3.54E-01	JTB (4.0, 1.0)	(0.00)	5.15E-01	6.97E-01	7.64E-01	6.21E-01	6.80E-01		6.18E-01	(0.78)	4.02E-01	JTB (1.0, 0.5)	(0.00)	5.38E-01	7.06E-01	7.67E-01	6.29E-01		6.88E-01	6.31E-01	(0.60)	4.30E-01	JTB (1.25, 0.5)	(0.00)	5.92E-01	7.23E-01	7.83E-01		6.45E-01	7.06E-01	6.46E-01	(0.24)	4.86E-01	JTB (1.35, 0.5)	(0.00)	6.09E-01	7.28E-01		7.88E-01	6.50E-01	7.12E-01	6.51E-01	(0.13)	5.03E-01	JTB (1.5, 0.5)	(0.00)	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.23E-01	6.60E-01	(0.00)	5.30E-01	JTB (2.0, 0.5)	(0.00)	6.91E-01	7.60E-01	8.15E-01	6.80E-01	7.43E-01	6.80E-01	(-0.30)	5.93E-01	JTB (4.0, 0.5)	(0.00)	7.86E-01	8.07E-01	8.47E-01	7.19E-01	7.92E-01	7.27E-01	(-0.75)	7.07E-01	JTB (9.0, 0.5)	(0.00)	8.41E-01	8.46E-01	8.67E-01	7.46E-01	8.31E-01	7.70E-01	(-1.00)	7.80E-01																																																																		
JTB (2.0, 0.5)	(0.00)		4.88E-01	5.60E-01	6.29E-01	4.44E-01	5.39E-01	4.59E-01																																																																																																																																																																																																																																	
	(-0.30)		3.78E-01						JTB (4.0, 0.5)	(0.00)	5.92E-01	5.90E-01	6.57E-01	4.59E-01	5.66E-01	4.72E-01	(-0.75)	4.84E-01	JTB (9.0, 0.5)	(0.00)	6.69E-01	6.24E-01	6.78E-01	4.72E-01	5.96E-01	4.89E-01	(-1.00)	5.70E-01	Barnes 3	(3.00)	k=4	7.68E-02	3.92E-01	6.06E-01	3.16E-01	3.67E-01	2.52E-01	(1049)	3.47E-02	Barnes 1		(0.00)	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.21E-01	6.60E-01	(6.89)	5.30E-01		JTB (2.0, 1.0)	(0.00)	3.20E-01	6.37E-01	6.97E-01	5.51E-01	6.12E-01	5.57E-01	(3.00)		2.25E-01	JTB (0.75, 0.5)	(0.00)	4.59E-01	6.83E-01	7.42E-01	6.03E-01	6.60E-01	6.09E-01		(1.20)	3.54E-01	JTB (4.0, 1.0)	(0.00)	5.15E-01	6.97E-01	7.64E-01	6.21E-01	6.80E-01		6.18E-01	(0.78)	4.02E-01	JTB (1.0, 0.5)	(0.00)	5.38E-01	7.06E-01	7.67E-01	6.29E-01		6.88E-01	6.31E-01	(0.60)	4.30E-01	JTB (1.25, 0.5)	(0.00)	5.92E-01	7.23E-01	7.83E-01		6.45E-01	7.06E-01	6.46E-01	(0.24)	4.86E-01	JTB (1.35, 0.5)	(0.00)	6.09E-01	7.28E-01		7.88E-01	6.50E-01	7.12E-01	6.51E-01	(0.13)	5.03E-01	JTB (1.5, 0.5)	(0.00)	6.35E-01		7.38E-01	7.97E-01	6.61E-01	7.23E-01	6.60E-01	(0.00)	5.30E-01	JTB (2.0, 0.5)	(0.00)	6.91E-01	7.60E-01	8.15E-01	6.80E-01	7.43E-01	6.80E-01	(-0.30)	5.93E-01	JTB (4.0, 0.5)	(0.00)	7.86E-01	8.07E-01	8.47E-01	7.19E-01	7.92E-01	7.27E-01	(-0.75)	7.07E-01	JTB (9.0, 0.5)	(0.00)	8.41E-01	8.46E-01	8.67E-01	7.46E-01	8.31E-01	7.70E-01	(-1.00)	7.80E-01																																																																											
JTB (4.0, 0.5)	(0.00)		5.92E-01	5.90E-01	6.57E-01	4.59E-01	5.66E-01	4.72E-01																																																																																																																																																																																																																																	
	(-0.75)		4.84E-01						JTB (9.0, 0.5)	(0.00)	6.69E-01	6.24E-01	6.78E-01	4.72E-01	5.96E-01	4.89E-01	(-1.00)	5.70E-01	Barnes 3	(3.00)	k=4	7.68E-02	3.92E-01	6.06E-01	3.16E-01	3.67E-01	2.52E-01	(1049)	3.47E-02	Barnes 1		(0.00)	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.21E-01	6.60E-01	(6.89)	5.30E-01		JTB (2.0, 1.0)	(0.00)	3.20E-01	6.37E-01	6.97E-01	5.51E-01	6.12E-01	5.57E-01	(3.00)		2.25E-01	JTB (0.75, 0.5)	(0.00)	4.59E-01	6.83E-01	7.42E-01	6.03E-01	6.60E-01	6.09E-01		(1.20)	3.54E-01	JTB (4.0, 1.0)	(0.00)	5.15E-01	6.97E-01	7.64E-01	6.21E-01	6.80E-01		6.18E-01	(0.78)	4.02E-01	JTB (1.0, 0.5)	(0.00)	5.38E-01	7.06E-01	7.67E-01	6.29E-01		6.88E-01	6.31E-01	(0.60)	4.30E-01	JTB (1.25, 0.5)	(0.00)	5.92E-01	7.23E-01	7.83E-01		6.45E-01	7.06E-01	6.46E-01	(0.24)	4.86E-01	JTB (1.35, 0.5)	(0.00)	6.09E-01	7.28E-01		7.88E-01	6.50E-01	7.12E-01	6.51E-01	(0.13)	5.03E-01	JTB (1.5, 0.5)	(0.00)	6.35E-01		7.38E-01	7.97E-01	6.61E-01	7.23E-01	6.60E-01	(0.00)	5.30E-01	JTB (2.0, 0.5)	(0.00)		6.91E-01	7.60E-01	8.15E-01	6.80E-01	7.43E-01	6.80E-01	(-0.30)	5.93E-01	JTB (4.0, 0.5)	(0.00)	7.86E-01	8.07E-01	8.47E-01	7.19E-01	7.92E-01	7.27E-01	(-0.75)	7.07E-01	JTB (9.0, 0.5)	(0.00)	8.41E-01	8.46E-01	8.67E-01	7.46E-01	8.31E-01	7.70E-01	(-1.00)	7.80E-01																																																																																				
JTB (9.0, 0.5)	(0.00)		6.69E-01	6.24E-01	6.78E-01	4.72E-01	5.96E-01	4.89E-01																																																																																																																																																																																																																																	
	(-1.00)		5.70E-01						Barnes 3	(3.00)	k=4	7.68E-02	3.92E-01	6.06E-01	3.16E-01	3.67E-01	2.52E-01	(1049)	3.47E-02	Barnes 1		(0.00)	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.21E-01	6.60E-01	(6.89)	5.30E-01		JTB (2.0, 1.0)	(0.00)	3.20E-01	6.37E-01	6.97E-01	5.51E-01	6.12E-01	5.57E-01	(3.00)		2.25E-01	JTB (0.75, 0.5)	(0.00)	4.59E-01	6.83E-01	7.42E-01	6.03E-01	6.60E-01	6.09E-01		(1.20)	3.54E-01	JTB (4.0, 1.0)	(0.00)	5.15E-01	6.97E-01	7.64E-01	6.21E-01	6.80E-01		6.18E-01	(0.78)	4.02E-01	JTB (1.0, 0.5)	(0.00)	5.38E-01	7.06E-01	7.67E-01	6.29E-01		6.88E-01	6.31E-01	(0.60)	4.30E-01	JTB (1.25, 0.5)	(0.00)	5.92E-01	7.23E-01	7.83E-01		6.45E-01	7.06E-01	6.46E-01	(0.24)	4.86E-01	JTB (1.35, 0.5)	(0.00)	6.09E-01	7.28E-01		7.88E-01	6.50E-01	7.12E-01	6.51E-01	(0.13)	5.03E-01	JTB (1.5, 0.5)	(0.00)	6.35E-01		7.38E-01	7.97E-01	6.61E-01	7.23E-01	6.60E-01	(0.00)	5.30E-01	JTB (2.0, 0.5)	(0.00)		6.91E-01	7.60E-01	8.15E-01	6.80E-01	7.43E-01	6.80E-01	(-0.30)	5.93E-01	JTB (4.0, 0.5)		(0.00)	7.86E-01	8.07E-01	8.47E-01	7.19E-01	7.92E-01	7.27E-01	(-0.75)	7.07E-01	JTB (9.0, 0.5)	(0.00)	8.41E-01	8.46E-01	8.67E-01	7.46E-01	8.31E-01	7.70E-01	(-1.00)	7.80E-01																																																																																													
Barnes 3	(3.00)	k=4	7.68E-02	3.92E-01	6.06E-01	3.16E-01	3.67E-01	2.52E-01																																																																																																																																																																																																																																	
	(1049)		3.47E-02						Barnes 1	(0.00)		6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.21E-01	6.60E-01	(6.89)	5.30E-01	JTB (2.0, 1.0)		(0.00)	3.20E-01	6.37E-01	6.97E-01	5.51E-01	6.12E-01	5.57E-01	(3.00)	2.25E-01		JTB (0.75, 0.5)	(0.00)	4.59E-01	6.83E-01	7.42E-01	6.03E-01	6.60E-01	6.09E-01	(1.20)		3.54E-01	JTB (4.0, 1.0)	(0.00)	5.15E-01	6.97E-01	7.64E-01	6.21E-01	6.80E-01	6.18E-01		(0.78)	4.02E-01	JTB (1.0, 0.5)	(0.00)	5.38E-01	7.06E-01	7.67E-01	6.29E-01	6.88E-01		6.31E-01	(0.60)	4.30E-01	JTB (1.25, 0.5)	(0.00)	5.92E-01	7.23E-01	7.83E-01	6.45E-01		7.06E-01	6.46E-01	(0.24)	4.86E-01	JTB (1.35, 0.5)	(0.00)	6.09E-01	7.28E-01	7.88E-01		6.50E-01	7.12E-01	6.51E-01	(0.13)	5.03E-01	JTB (1.5, 0.5)	(0.00)	6.35E-01	7.38E-01		7.97E-01	6.61E-01	7.23E-01	6.60E-01	(0.00)	5.30E-01	JTB (2.0, 0.5)	(0.00)	6.91E-01		7.60E-01	8.15E-01	6.80E-01	7.43E-01	6.80E-01	(-0.30)	5.93E-01	JTB (4.0, 0.5)	(0.00)		7.86E-01	8.07E-01	8.47E-01	7.19E-01	7.92E-01	7.27E-01	(-0.75)	7.07E-01	JTB (9.0, 0.5)	(0.00)	8.41E-01	8.46E-01	8.67E-01	7.46E-01	8.31E-01	7.70E-01	(-1.00)	7.80E-01																																																																																																								
Barnes 1	(0.00)		6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.21E-01	6.60E-01																																																																																																																																																																																																																																	
	(6.89)		5.30E-01						JTB (2.0, 1.0)	(0.00)		3.20E-01	6.37E-01	6.97E-01	5.51E-01	6.12E-01	5.57E-01	(3.00)	2.25E-01	JTB (0.75, 0.5)		(0.00)	4.59E-01	6.83E-01	7.42E-01	6.03E-01	6.60E-01	6.09E-01	(1.20)	3.54E-01		JTB (4.0, 1.0)	(0.00)	5.15E-01	6.97E-01	7.64E-01	6.21E-01	6.80E-01	6.18E-01	(0.78)		4.02E-01	JTB (1.0, 0.5)	(0.00)	5.38E-01	7.06E-01	7.67E-01	6.29E-01	6.88E-01	6.31E-01		(0.60)	4.30E-01	JTB (1.25, 0.5)	(0.00)	5.92E-01	7.23E-01	7.83E-01	6.45E-01	7.06E-01		6.46E-01	(0.24)	4.86E-01	JTB (1.35, 0.5)	(0.00)	6.09E-01	7.28E-01	7.88E-01	6.50E-01		7.12E-01	6.51E-01	(0.13)	5.03E-01	JTB (1.5, 0.5)	(0.00)	6.35E-01	7.38E-01	7.97E-01		6.61E-01	7.23E-01	6.60E-01	(0.00)	5.30E-01	JTB (2.0, 0.5)	(0.00)	6.91E-01	7.60E-01		8.15E-01	6.80E-01	7.43E-01	6.80E-01	(-0.30)	5.93E-01	JTB (4.0, 0.5)	(0.00)	7.86E-01		8.07E-01	8.47E-01	7.19E-01	7.92E-01	7.27E-01	(-0.75)	7.07E-01	JTB (9.0, 0.5)	(0.00)	8.41E-01	8.46E-01	8.67E-01	7.46E-01	8.31E-01	7.70E-01	(-1.00)	7.80E-01																																																																																																																			
JTB (2.0, 1.0)	(0.00)		3.20E-01	6.37E-01	6.97E-01	5.51E-01	6.12E-01	5.57E-01																																																																																																																																																																																																																																	
	(3.00)		2.25E-01						JTB (0.75, 0.5)	(0.00)		4.59E-01	6.83E-01	7.42E-01	6.03E-01	6.60E-01	6.09E-01	(1.20)	3.54E-01	JTB (4.0, 1.0)		(0.00)	5.15E-01	6.97E-01	7.64E-01	6.21E-01	6.80E-01	6.18E-01	(0.78)	4.02E-01		JTB (1.0, 0.5)	(0.00)	5.38E-01	7.06E-01	7.67E-01	6.29E-01	6.88E-01	6.31E-01	(0.60)		4.30E-01	JTB (1.25, 0.5)	(0.00)	5.92E-01	7.23E-01	7.83E-01	6.45E-01	7.06E-01	6.46E-01		(0.24)	4.86E-01	JTB (1.35, 0.5)	(0.00)	6.09E-01	7.28E-01	7.88E-01	6.50E-01	7.12E-01		6.51E-01	(0.13)	5.03E-01	JTB (1.5, 0.5)	(0.00)	6.35E-01	7.38E-01	7.97E-01	6.61E-01		7.23E-01	6.60E-01	(0.00)	5.30E-01	JTB (2.0, 0.5)	(0.00)	6.91E-01	7.60E-01	8.15E-01		6.80E-01	7.43E-01	6.80E-01	(-0.30)	5.93E-01	JTB (4.0, 0.5)	(0.00)	7.86E-01	8.07E-01		8.47E-01	7.19E-01	7.92E-01	7.27E-01	(-0.75)	7.07E-01	JTB (9.0, 0.5)	(0.00)	8.41E-01	8.46E-01	8.67E-01	7.46E-01	8.31E-01	7.70E-01	(-1.00)	7.80E-01																																																																																																																														
JTB (0.75, 0.5)	(0.00)		4.59E-01	6.83E-01	7.42E-01	6.03E-01	6.60E-01	6.09E-01																																																																																																																																																																																																																																	
	(1.20)		3.54E-01						JTB (4.0, 1.0)	(0.00)		5.15E-01	6.97E-01	7.64E-01	6.21E-01	6.80E-01	6.18E-01	(0.78)	4.02E-01	JTB (1.0, 0.5)		(0.00)	5.38E-01	7.06E-01	7.67E-01	6.29E-01	6.88E-01	6.31E-01	(0.60)	4.30E-01		JTB (1.25, 0.5)	(0.00)	5.92E-01	7.23E-01	7.83E-01	6.45E-01	7.06E-01	6.46E-01	(0.24)		4.86E-01	JTB (1.35, 0.5)	(0.00)	6.09E-01	7.28E-01	7.88E-01	6.50E-01	7.12E-01	6.51E-01		(0.13)	5.03E-01	JTB (1.5, 0.5)	(0.00)	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.23E-01		6.60E-01	(0.00)	5.30E-01	JTB (2.0, 0.5)	(0.00)	6.91E-01	7.60E-01	8.15E-01	6.80E-01		7.43E-01	6.80E-01	(-0.30)	5.93E-01	JTB (4.0, 0.5)	(0.00)	7.86E-01	8.07E-01	8.47E-01		7.19E-01	7.92E-01	7.27E-01	(-0.75)	7.07E-01	JTB (9.0, 0.5)	(0.00)	8.41E-01	8.46E-01	8.67E-01	7.46E-01	8.31E-01	7.70E-01	(-1.00)	7.80E-01																																																																																																																																									
JTB (4.0, 1.0)	(0.00)		5.15E-01	6.97E-01	7.64E-01	6.21E-01	6.80E-01	6.18E-01																																																																																																																																																																																																																																	
	(0.78)		4.02E-01						JTB (1.0, 0.5)	(0.00)		5.38E-01	7.06E-01	7.67E-01	6.29E-01	6.88E-01	6.31E-01	(0.60)	4.30E-01	JTB (1.25, 0.5)		(0.00)	5.92E-01	7.23E-01	7.83E-01	6.45E-01	7.06E-01	6.46E-01	(0.24)	4.86E-01		JTB (1.35, 0.5)	(0.00)	6.09E-01	7.28E-01	7.88E-01	6.50E-01	7.12E-01	6.51E-01	(0.13)		5.03E-01	JTB (1.5, 0.5)	(0.00)	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.23E-01	6.60E-01		(0.00)	5.30E-01	JTB (2.0, 0.5)	(0.00)	6.91E-01	7.60E-01	8.15E-01	6.80E-01	7.43E-01		6.80E-01	(-0.30)	5.93E-01	JTB (4.0, 0.5)	(0.00)	7.86E-01	8.07E-01	8.47E-01	7.19E-01		7.92E-01	7.27E-01	(-0.75)	7.07E-01	JTB (9.0, 0.5)	(0.00)	8.41E-01	8.46E-01	8.67E-01	7.46E-01	8.31E-01	7.70E-01	(-1.00)	7.80E-01																																																																																																																																																				
JTB (1.0, 0.5)	(0.00)		5.38E-01	7.06E-01	7.67E-01	6.29E-01	6.88E-01	6.31E-01																																																																																																																																																																																																																																	
	(0.60)		4.30E-01						JTB (1.25, 0.5)	(0.00)		5.92E-01	7.23E-01	7.83E-01	6.45E-01	7.06E-01	6.46E-01	(0.24)	4.86E-01	JTB (1.35, 0.5)		(0.00)	6.09E-01	7.28E-01	7.88E-01	6.50E-01	7.12E-01	6.51E-01	(0.13)	5.03E-01		JTB (1.5, 0.5)	(0.00)	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.23E-01	6.60E-01	(0.00)		5.30E-01	JTB (2.0, 0.5)	(0.00)	6.91E-01	7.60E-01	8.15E-01	6.80E-01	7.43E-01	6.80E-01		(-0.30)	5.93E-01	JTB (4.0, 0.5)	(0.00)	7.86E-01	8.07E-01	8.47E-01	7.19E-01	7.92E-01		7.27E-01	(-0.75)	7.07E-01	JTB (9.0, 0.5)	(0.00)	8.41E-01	8.46E-01	8.67E-01	7.46E-01	8.31E-01	7.70E-01	(-1.00)	7.80E-01																																																																																																																																																															
JTB (1.25, 0.5)	(0.00)		5.92E-01	7.23E-01	7.83E-01	6.45E-01	7.06E-01	6.46E-01																																																																																																																																																																																																																																	
	(0.24)		4.86E-01						JTB (1.35, 0.5)	(0.00)		6.09E-01	7.28E-01	7.88E-01	6.50E-01	7.12E-01	6.51E-01	(0.13)	5.03E-01	JTB (1.5, 0.5)		(0.00)	6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.23E-01	6.60E-01	(0.00)	5.30E-01		JTB (2.0, 0.5)	(0.00)	6.91E-01	7.60E-01	8.15E-01	6.80E-01	7.43E-01	6.80E-01	(-0.30)		5.93E-01	JTB (4.0, 0.5)	(0.00)	7.86E-01	8.07E-01	8.47E-01	7.19E-01	7.92E-01	7.27E-01		(-0.75)	7.07E-01	JTB (9.0, 0.5)	(0.00)	8.41E-01	8.46E-01	8.67E-01	7.46E-01	8.31E-01	7.70E-01	(-1.00)	7.80E-01																																																																																																																																																																										
JTB (1.35, 0.5)	(0.00)		6.09E-01	7.28E-01	7.88E-01	6.50E-01	7.12E-01	6.51E-01																																																																																																																																																																																																																																	
	(0.13)		5.03E-01						JTB (1.5, 0.5)	(0.00)		6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.23E-01	6.60E-01	(0.00)	5.30E-01	JTB (2.0, 0.5)		(0.00)	6.91E-01	7.60E-01	8.15E-01	6.80E-01	7.43E-01	6.80E-01	(-0.30)	5.93E-01		JTB (4.0, 0.5)	(0.00)	7.86E-01	8.07E-01	8.47E-01	7.19E-01	7.92E-01	7.27E-01	(-0.75)		7.07E-01	JTB (9.0, 0.5)	(0.00)	8.41E-01	8.46E-01	8.67E-01	7.46E-01	8.31E-01	7.70E-01	(-1.00)	7.80E-01																																																																																																																																																																																					
JTB (1.5, 0.5)	(0.00)		6.35E-01	7.38E-01	7.97E-01	6.61E-01	7.23E-01	6.60E-01																																																																																																																																																																																																																																	
	(0.00)		5.30E-01						JTB (2.0, 0.5)	(0.00)		6.91E-01	7.60E-01	8.15E-01	6.80E-01	7.43E-01	6.80E-01	(-0.30)	5.93E-01	JTB (4.0, 0.5)		(0.00)	7.86E-01	8.07E-01	8.47E-01	7.19E-01	7.92E-01	7.27E-01	(-0.75)	7.07E-01		JTB (9.0, 0.5)	(0.00)	8.41E-01	8.46E-01	8.67E-01	7.46E-01	8.31E-01	7.70E-01	(-1.00)	7.80E-01																																																																																																																																																																																																
JTB (2.0, 0.5)	(0.00)		6.91E-01	7.60E-01	8.15E-01	6.80E-01	7.43E-01	6.80E-01																																																																																																																																																																																																																																	
	(-0.30)		5.93E-01						JTB (4.0, 0.5)	(0.00)		7.86E-01	8.07E-01	8.47E-01	7.19E-01	7.92E-01	7.27E-01	(-0.75)	7.07E-01	JTB (9.0, 0.5)		(0.00)	8.41E-01	8.46E-01	8.67E-01	7.46E-01	8.31E-01	7.70E-01	(-1.00)	7.80E-01																																																																																																																																																																																																											
JTB (4.0, 0.5)	(0.00)		7.86E-01	8.07E-01	8.47E-01	7.19E-01	7.92E-01	7.27E-01																																																																																																																																																																																																																																	
	(-0.75)		7.07E-01						JTB (9.0, 0.5)	(0.00)		8.41E-01	8.46E-01	8.67E-01	7.46E-01	8.31E-01	7.70E-01	(-1.00)	7.80E-01																																																																																																																																																																																																																						
JTB (9.0, 0.5)	(0.00)		8.41E-01	8.46E-01	8.67E-01	7.46E-01	8.31E-01	7.70E-01																																																																																																																																																																																																																																	
	(-1.00)		7.80E-01																																																																																																																																																																																																																																						

Table 6 (continued): Power Comparison Study for Symmetric Distributions ($n = 10$)

Distribution	(skewness) (kurtosis)	k	Combined Sample	R-chart	S-chart	S2-chart	WV-chart	SC-chart	
Student (5)	(0.00)	k=4	3.29E-01	6.40E-01	7.13E-01	5.51E-01	6.22E-01	5.44E-01	
	(6.00)		2.28E-01						
Student (6)	(0.00)		3.82E-01	6.57E-01	7.29E-01	5.73E-01	6.39E-01	5.63E-01	
	(3.00)		2.74E-01						
Student (8)	(0.00)		4.53E-01	6.81E-01	7.51E-01	6.02E-01	6.63E-01	5.95E-01	
	(1.50)		3.40E-01						
Student (16)	(0.00)		5.54E-01	7.11E-01	7.76E-01	6.35E-01	6.94E-01	6.31E-01	
	(0.50)		4.41E-01						
Student (25)	(0.00)		5.87E-01	7.22E-01	7.85E-01	6.45E-01	7.06E-01	6.43E-01	
	(0.29)		4.76E-01						
Student (32)	(0.00)		5.95E-01	7.23E-01	7.86E-01	6.47E-01	7.07E-01	6.44E-01	
	(0.21)		4.86E-01						
Student (40)	(0.00)		6.06E-01	7.27E-01	7.89E-01	6.51E-01	7.12E-01	6.49E-01	
	(0.17)		4.98E-01						
Student (5)	(0.00)		k=5	4.54E-01	7.50E-01	8.17E-01	6.83E-01	7.34E-01	6.62E-01
	(6.00)			3.37E-01					
Student (6)	(0.00)	5.15E-01		7.68E-01	8.31E-01	7.07E-01	7.53E-01	6.85E-01	
	(3.00)	3.96E-01							
Student (8)	(0.00)	5.90E-01		7.91E-01	8.50E-01	7.37E-01	7.77E-01	7.19E-01	
	(1.50)	4.74E-01							
Student (16)	(0.00)	6.89E-01		8.20E-01	8.71E-01	7.70E-01	8.08E-01	7.58E-01	
	(0.50)	5.83E-01							
Student (25)	(0.00)	7.18E-01		8.30E-01	8.78E-01	7.80E-01	8.18E-01	7.70E-01	
	(0.29)	6.19E-01							
Student (32)	(0.00)	7.26E-01		8.32E-01	8.79E-01	7.82E-01	8.20E-01	7.73E-01	
	(0.21)	6.28E-01							
Student (40)	(0.00)	7.36E-01		8.35E-01	8.81E-01	7.86E-01	8.24E-01	7.77E-01	
	(0.17)	6.40E-01							
Student (5)	(0.00)	k=6		5.57E-01	8.24E-01	8.80E-01	7.75E-01	8.11E-01	7.48E-01
	(6.00)			4.35E-01					
Student (6)	(0.00)		6.19E-01	8.40E-01	8.92E-01	7.97E-01	8.28E-01	7.71E-01	
	(3.00)		5.00E-01						
Student (8)	(0.00)		6.90E-01	8.60E-01	9.07E-01	8.23E-01	8.50E-01	8.04E-01	
	(1.50)		5.80E-01						
Student (16)	(0.00)		7.79E-01	8.85E-01	9.23E-01	8.52E-01	8.76E-01	8.39E-01	
	(0.50)		6.86E-01						
Student (25)	(0.00)		8.04E-01	8.93E-01	9.27E-01	8.61E-01	8.84E-01	8.49E-01	
	(0.29)		7.18E-01						
Student (32)	(0.00)		8.11E-01	8.94E-01	9.28E-01	8.63E-01	8.86E-01	8.52E-01	
	(0.21)		7.28E-01						
Student (40)	(0.00)		8.18E-01	8.97E-01	9.30E-01	8.65E-01	8.89E-01	8.55E-01	
	(0.17)		7.38E-01						

A ROBUST ONE-SIDED VARIABILITY CONTROL CHART

Table 6 (continued): Power Comparison Study for Symmetric Distributions ($n = 10$)

Distribution	(skewness) (kurtosis)	k	Combined Sample	R-chart	S-chart	S2-chart	WV-chart	SC-chart																																																																																																																																																																																																																																	
Barnes 3	(3.00)	k=5	1.53E-01	5.89E-01	7.79E-01	4.59E-01	5.53E-01	3.69E-01																																																																																																																																																																																																																																	
	(1049)		7.54E-02						Barnes 1	(0.00)	7.61E-01	8.44E-01	8.88E-01	7.95E-01	8.33E-01	7.88E-01	(6.89)	6.71E-01	JTB (2.0, 1.0)	(0.00)	4.34E-01	7.36E-01	7.93E-01	6.69E-01	7.14E-01	6.65E-01	(3.00)	3.24E-01	JTB (0.75, 0.5)	(0.00)	5.85E-01	7.84E-01	8.34E-01	7.27E-01	7.65E-01	7.24E-01	(1.20)	4.76E-01	JTB (4.0, 1.0)	(0.00)	6.52E-01	8.06E-01	8.60E-01	7.55E-01	7.93E-01	7.43E-01	(0.78)	5.41E-01	JTB (1.0, 0.5)	(0.00)	6.68E-01	8.11E-01	8.60E-01	7.58E-01	7.97E-01	7.52E-01	(0.60)	5.65E-01	JTB (1.25, 0.5)	(0.00)	7.21E-01	8.29E-01	8.75E-01	7.79E-01	8.17E-01	7.71E-01	(0.24)	6.25E-01	JTB (1.35, 0.5)	(0.00)	7.37E-01	8.35E-01	8.80E-01	7.84E-01	8.23E-01	7.78E-01	(0.13)	6.44E-01	JTB (1.5, 0.5)	(0.00)	7.60E-01	8.45E-01	8.88E-01	7.95E-01	8.34E-01	7.88E-01	(0.00)	6.71E-01	JTB (2.0, 0.5)	(0.00)	8.09E-01	8.66E-01	9.03E-01	8.16E-01	8.55E-01	8.11E-01	(-0.30)	7.30E-01	JTB (4.0, 0.5)	(0.00)	8.80E-01	9.05E-01	9.27E-01	8.53E-01	8.96E-01	8.58E-01	(-0.75)	8.25E-01	JTB (9.0, 0.5)	(0.00)	9.15E-01	9.31E-01	9.40E-01	8.76E-01	9.23E-01	8.92E-01	(-1.00)	8.76E-01	Barnes 3	(3.00)	k=6	2.46E-01	7.49E-01	8.76E-01	5.85E-01	7.16E-01	4.87E-01	(1049)	1.35E-01	Barnes 1	(0.00)	8.38E-01	9.04E-01	9.35E-01	8.73E-01	8.96E-01	8.65E-01	(6.89)	7.64E-01	JTB (2.0, 1.0)	(0.00)	5.29E-01	8.04E-01	8.54E-01	7.53E-01	7.85E-01	7.42E-01	(3.00)	4.12E-01	JTB (0.75, 0.5)	(0.00)	6.79E-01	8.49E-01	8.90E-01	8.08E-01	8.34E-01	8.01E-01	(1.20)	5.74E-01	JTB (4.0, 1.0)	(0.00)	7.47E-01	8.72E-01	9.14E-01	8.38E-01	8.62E-01	8.24E-01	(0.78)	6.46E-01	JTB (1.0, 0.5)	(0.00)	7.58E-01	8.74E-01	9.12E-01	8.39E-01	8.64E-01	8.30E-01	(0.60)	6.64E-01	JTB (1.25, 0.5)	(0.00)	8.05E-01	8.91E-01	9.25E-01	8.58E-01	8.82E-01	8.49E-01	(0.24)	7.23E-01	JTB (1.35, 0.5)	(0.00)	8.19E-01	8.96E-01	9.29E-01	8.64E-01	8.88E-01	8.55E-01	(0.13)	7.40E-01	JTB (1.5, 0.5)	(0.00)	8.38E-01	9.04E-01	9.34E-01	8.73E-01	8.97E-01	8.65E-01	(0.00)	7.64E-01	JTB (2.0, 0.5)	(0.00)	8.76E-01	9.22E-01	9.46E-01	8.91E-01	9.15E-01	8.86E-01	(-0.30)	8.16E-01	JTB (4.0, 0.5)	(0.00)	9.28E-01	9.50E-01	9.62E-01	9.20E-01	9.45E-01	9.23E-01	(-0.75)	8.89E-01	JTB (9.0, 0.5)	(0.00)	9.51E-01	9.65E-01
Barnes 1	(0.00)		7.61E-01	8.44E-01	8.88E-01	7.95E-01	8.33E-01	7.88E-01																																																																																																																																																																																																																																	
	(6.89)		6.71E-01						JTB (2.0, 1.0)	(0.00)	4.34E-01	7.36E-01	7.93E-01	6.69E-01	7.14E-01	6.65E-01	(3.00)	3.24E-01	JTB (0.75, 0.5)	(0.00)	5.85E-01	7.84E-01	8.34E-01	7.27E-01	7.65E-01	7.24E-01	(1.20)	4.76E-01	JTB (4.0, 1.0)	(0.00)	6.52E-01	8.06E-01	8.60E-01	7.55E-01	7.93E-01	7.43E-01	(0.78)	5.41E-01	JTB (1.0, 0.5)	(0.00)	6.68E-01	8.11E-01	8.60E-01	7.58E-01	7.97E-01	7.52E-01	(0.60)	5.65E-01	JTB (1.25, 0.5)	(0.00)	7.21E-01	8.29E-01	8.75E-01	7.79E-01	8.17E-01	7.71E-01	(0.24)	6.25E-01	JTB (1.35, 0.5)	(0.00)	7.37E-01	8.35E-01	8.80E-01	7.84E-01	8.23E-01	7.78E-01	(0.13)	6.44E-01	JTB (1.5, 0.5)	(0.00)	7.60E-01	8.45E-01	8.88E-01	7.95E-01	8.34E-01	7.88E-01	(0.00)	6.71E-01	JTB (2.0, 0.5)	(0.00)	8.09E-01	8.66E-01	9.03E-01	8.16E-01	8.55E-01	8.11E-01	(-0.30)	7.30E-01	JTB (4.0, 0.5)	(0.00)	8.80E-01	9.05E-01	9.27E-01	8.53E-01	8.96E-01	8.58E-01	(-0.75)	8.25E-01	JTB (9.0, 0.5)	(0.00)	9.15E-01	9.31E-01	9.40E-01	8.76E-01	9.23E-01	8.92E-01	(-1.00)	8.76E-01	Barnes 3	(3.00)	k=6	2.46E-01	7.49E-01	8.76E-01	5.85E-01	7.16E-01	4.87E-01	(1049)	1.35E-01	Barnes 1		(0.00)	8.38E-01	9.04E-01	9.35E-01	8.73E-01	8.96E-01	8.65E-01	(6.89)	7.64E-01	JTB (2.0, 1.0)	(0.00)	5.29E-01	8.04E-01	8.54E-01	7.53E-01	7.85E-01	7.42E-01	(3.00)	4.12E-01	JTB (0.75, 0.5)	(0.00)	6.79E-01	8.49E-01	8.90E-01	8.08E-01	8.34E-01	8.01E-01	(1.20)	5.74E-01	JTB (4.0, 1.0)	(0.00)	7.47E-01	8.72E-01	9.14E-01	8.38E-01	8.62E-01	8.24E-01	(0.78)	6.46E-01	JTB (1.0, 0.5)	(0.00)	7.58E-01	8.74E-01	9.12E-01	8.39E-01	8.64E-01	8.30E-01	(0.60)	6.64E-01	JTB (1.25, 0.5)	(0.00)	8.05E-01	8.91E-01	9.25E-01	8.58E-01	8.82E-01	8.49E-01	(0.24)	7.23E-01	JTB (1.35, 0.5)	(0.00)	8.19E-01	8.96E-01	9.29E-01	8.64E-01	8.88E-01	8.55E-01	(0.13)	7.40E-01	JTB (1.5, 0.5)	(0.00)	8.38E-01	9.04E-01	9.34E-01	8.73E-01	8.97E-01	8.65E-01	(0.00)	7.64E-01	JTB (2.0, 0.5)	(0.00)	8.76E-01	9.22E-01	9.46E-01	8.91E-01	9.15E-01	8.86E-01	(-0.30)	8.16E-01	JTB (4.0, 0.5)	(0.00)	9.28E-01	9.50E-01	9.62E-01	9.20E-01	9.45E-01	9.23E-01	(-0.75)	8.89E-01	JTB (9.0, 0.5)	(0.00)	9.51E-01	9.65E-01	9.70E-01	9.35E-01	9.61E-01	9.45E-01	(-1.00)	9.24E-01			
JTB (2.0, 1.0)	(0.00)		4.34E-01	7.36E-01	7.93E-01	6.69E-01	7.14E-01	6.65E-01																																																																																																																																																																																																																																	
	(3.00)		3.24E-01						JTB (0.75, 0.5)	(0.00)	5.85E-01	7.84E-01	8.34E-01	7.27E-01	7.65E-01	7.24E-01	(1.20)	4.76E-01	JTB (4.0, 1.0)	(0.00)	6.52E-01	8.06E-01	8.60E-01	7.55E-01	7.93E-01	7.43E-01	(0.78)	5.41E-01	JTB (1.0, 0.5)	(0.00)	6.68E-01	8.11E-01	8.60E-01	7.58E-01	7.97E-01	7.52E-01	(0.60)	5.65E-01	JTB (1.25, 0.5)	(0.00)	7.21E-01	8.29E-01	8.75E-01	7.79E-01	8.17E-01	7.71E-01	(0.24)	6.25E-01	JTB (1.35, 0.5)	(0.00)	7.37E-01	8.35E-01	8.80E-01	7.84E-01	8.23E-01	7.78E-01	(0.13)	6.44E-01	JTB (1.5, 0.5)	(0.00)	7.60E-01	8.45E-01	8.88E-01	7.95E-01	8.34E-01	7.88E-01	(0.00)	6.71E-01	JTB (2.0, 0.5)	(0.00)	8.09E-01	8.66E-01	9.03E-01	8.16E-01	8.55E-01	8.11E-01	(-0.30)	7.30E-01	JTB (4.0, 0.5)	(0.00)	8.80E-01	9.05E-01	9.27E-01	8.53E-01	8.96E-01	8.58E-01	(-0.75)	8.25E-01	JTB (9.0, 0.5)	(0.00)	9.15E-01	9.31E-01	9.40E-01	8.76E-01	9.23E-01	8.92E-01	(-1.00)	8.76E-01	Barnes 3	(3.00)	k=6	2.46E-01	7.49E-01	8.76E-01	5.85E-01	7.16E-01	4.87E-01	(1049)	1.35E-01	Barnes 1		(0.00)	8.38E-01	9.04E-01	9.35E-01	8.73E-01	8.96E-01	8.65E-01	(6.89)	7.64E-01		JTB (2.0, 1.0)	(0.00)	5.29E-01	8.04E-01	8.54E-01	7.53E-01	7.85E-01	7.42E-01	(3.00)	4.12E-01	JTB (0.75, 0.5)	(0.00)	6.79E-01	8.49E-01	8.90E-01	8.08E-01	8.34E-01	8.01E-01	(1.20)	5.74E-01	JTB (4.0, 1.0)	(0.00)	7.47E-01	8.72E-01	9.14E-01	8.38E-01	8.62E-01	8.24E-01	(0.78)	6.46E-01	JTB (1.0, 0.5)	(0.00)	7.58E-01	8.74E-01	9.12E-01	8.39E-01	8.64E-01	8.30E-01	(0.60)	6.64E-01	JTB (1.25, 0.5)	(0.00)	8.05E-01	8.91E-01	9.25E-01	8.58E-01	8.82E-01	8.49E-01	(0.24)	7.23E-01	JTB (1.35, 0.5)	(0.00)	8.19E-01	8.96E-01	9.29E-01	8.64E-01	8.88E-01	8.55E-01	(0.13)	7.40E-01	JTB (1.5, 0.5)	(0.00)	8.38E-01	9.04E-01	9.34E-01	8.73E-01	8.97E-01	8.65E-01	(0.00)	7.64E-01	JTB (2.0, 0.5)	(0.00)	8.76E-01	9.22E-01	9.46E-01	8.91E-01	9.15E-01	8.86E-01	(-0.30)	8.16E-01	JTB (4.0, 0.5)	(0.00)	9.28E-01	9.50E-01	9.62E-01	9.20E-01	9.45E-01	9.23E-01	(-0.75)	8.89E-01	JTB (9.0, 0.5)	(0.00)	9.51E-01	9.65E-01	9.70E-01	9.35E-01	9.61E-01	9.45E-01	(-1.00)	9.24E-01												
JTB (0.75, 0.5)	(0.00)		5.85E-01	7.84E-01	8.34E-01	7.27E-01	7.65E-01	7.24E-01																																																																																																																																																																																																																																	
	(1.20)		4.76E-01						JTB (4.0, 1.0)	(0.00)	6.52E-01	8.06E-01	8.60E-01	7.55E-01	7.93E-01	7.43E-01	(0.78)	5.41E-01	JTB (1.0, 0.5)	(0.00)	6.68E-01	8.11E-01	8.60E-01	7.58E-01	7.97E-01	7.52E-01	(0.60)	5.65E-01	JTB (1.25, 0.5)	(0.00)	7.21E-01	8.29E-01	8.75E-01	7.79E-01	8.17E-01	7.71E-01	(0.24)	6.25E-01	JTB (1.35, 0.5)	(0.00)	7.37E-01	8.35E-01	8.80E-01	7.84E-01	8.23E-01	7.78E-01	(0.13)	6.44E-01	JTB (1.5, 0.5)	(0.00)	7.60E-01	8.45E-01	8.88E-01	7.95E-01	8.34E-01	7.88E-01	(0.00)	6.71E-01	JTB (2.0, 0.5)	(0.00)	8.09E-01	8.66E-01	9.03E-01	8.16E-01	8.55E-01	8.11E-01	(-0.30)	7.30E-01	JTB (4.0, 0.5)	(0.00)	8.80E-01	9.05E-01	9.27E-01	8.53E-01	8.96E-01	8.58E-01	(-0.75)	8.25E-01	JTB (9.0, 0.5)	(0.00)	9.15E-01	9.31E-01	9.40E-01	8.76E-01	9.23E-01	8.92E-01	(-1.00)	8.76E-01	Barnes 3	(3.00)	k=6	2.46E-01	7.49E-01	8.76E-01	5.85E-01	7.16E-01	4.87E-01	(1049)	1.35E-01	Barnes 1		(0.00)	8.38E-01	9.04E-01	9.35E-01	8.73E-01	8.96E-01	8.65E-01	(6.89)	7.64E-01		JTB (2.0, 1.0)	(0.00)	5.29E-01	8.04E-01	8.54E-01	7.53E-01	7.85E-01	7.42E-01	(3.00)		4.12E-01	JTB (0.75, 0.5)	(0.00)	6.79E-01	8.49E-01	8.90E-01	8.08E-01	8.34E-01	8.01E-01	(1.20)	5.74E-01	JTB (4.0, 1.0)	(0.00)	7.47E-01	8.72E-01	9.14E-01	8.38E-01	8.62E-01	8.24E-01	(0.78)	6.46E-01	JTB (1.0, 0.5)	(0.00)	7.58E-01	8.74E-01	9.12E-01	8.39E-01	8.64E-01	8.30E-01	(0.60)	6.64E-01	JTB (1.25, 0.5)	(0.00)	8.05E-01	8.91E-01	9.25E-01	8.58E-01	8.82E-01	8.49E-01	(0.24)	7.23E-01	JTB (1.35, 0.5)	(0.00)	8.19E-01	8.96E-01	9.29E-01	8.64E-01	8.88E-01	8.55E-01	(0.13)	7.40E-01	JTB (1.5, 0.5)	(0.00)	8.38E-01	9.04E-01	9.34E-01	8.73E-01	8.97E-01	8.65E-01	(0.00)	7.64E-01	JTB (2.0, 0.5)	(0.00)	8.76E-01	9.22E-01	9.46E-01	8.91E-01	9.15E-01	8.86E-01	(-0.30)	8.16E-01	JTB (4.0, 0.5)	(0.00)	9.28E-01	9.50E-01	9.62E-01	9.20E-01	9.45E-01	9.23E-01	(-0.75)	8.89E-01	JTB (9.0, 0.5)	(0.00)	9.51E-01	9.65E-01	9.70E-01	9.35E-01	9.61E-01	9.45E-01	(-1.00)	9.24E-01																					
JTB (4.0, 1.0)	(0.00)		6.52E-01	8.06E-01	8.60E-01	7.55E-01	7.93E-01	7.43E-01																																																																																																																																																																																																																																	
	(0.78)		5.41E-01						JTB (1.0, 0.5)	(0.00)	6.68E-01	8.11E-01	8.60E-01	7.58E-01	7.97E-01	7.52E-01	(0.60)	5.65E-01	JTB (1.25, 0.5)	(0.00)	7.21E-01	8.29E-01	8.75E-01	7.79E-01	8.17E-01	7.71E-01	(0.24)	6.25E-01	JTB (1.35, 0.5)	(0.00)	7.37E-01	8.35E-01	8.80E-01	7.84E-01	8.23E-01	7.78E-01	(0.13)	6.44E-01	JTB (1.5, 0.5)	(0.00)	7.60E-01	8.45E-01	8.88E-01	7.95E-01	8.34E-01	7.88E-01	(0.00)	6.71E-01	JTB (2.0, 0.5)	(0.00)	8.09E-01	8.66E-01	9.03E-01	8.16E-01	8.55E-01	8.11E-01	(-0.30)	7.30E-01	JTB (4.0, 0.5)	(0.00)	8.80E-01	9.05E-01	9.27E-01	8.53E-01	8.96E-01	8.58E-01	(-0.75)	8.25E-01	JTB (9.0, 0.5)	(0.00)	9.15E-01	9.31E-01	9.40E-01	8.76E-01	9.23E-01	8.92E-01	(-1.00)	8.76E-01	Barnes 3	(3.00)	k=6	2.46E-01	7.49E-01	8.76E-01	5.85E-01	7.16E-01	4.87E-01	(1049)	1.35E-01	Barnes 1		(0.00)	8.38E-01	9.04E-01	9.35E-01	8.73E-01	8.96E-01	8.65E-01	(6.89)	7.64E-01		JTB (2.0, 1.0)	(0.00)	5.29E-01	8.04E-01	8.54E-01	7.53E-01	7.85E-01	7.42E-01	(3.00)		4.12E-01	JTB (0.75, 0.5)	(0.00)	6.79E-01	8.49E-01	8.90E-01	8.08E-01	8.34E-01	8.01E-01		(1.20)	5.74E-01	JTB (4.0, 1.0)	(0.00)	7.47E-01	8.72E-01	9.14E-01	8.38E-01	8.62E-01	8.24E-01	(0.78)	6.46E-01	JTB (1.0, 0.5)	(0.00)	7.58E-01	8.74E-01	9.12E-01	8.39E-01	8.64E-01	8.30E-01	(0.60)	6.64E-01	JTB (1.25, 0.5)	(0.00)	8.05E-01	8.91E-01	9.25E-01	8.58E-01	8.82E-01	8.49E-01	(0.24)	7.23E-01	JTB (1.35, 0.5)	(0.00)	8.19E-01	8.96E-01	9.29E-01	8.64E-01	8.88E-01	8.55E-01	(0.13)	7.40E-01	JTB (1.5, 0.5)	(0.00)	8.38E-01	9.04E-01	9.34E-01	8.73E-01	8.97E-01	8.65E-01	(0.00)	7.64E-01	JTB (2.0, 0.5)	(0.00)	8.76E-01	9.22E-01	9.46E-01	8.91E-01	9.15E-01	8.86E-01	(-0.30)	8.16E-01	JTB (4.0, 0.5)	(0.00)	9.28E-01	9.50E-01	9.62E-01	9.20E-01	9.45E-01	9.23E-01	(-0.75)	8.89E-01	JTB (9.0, 0.5)	(0.00)	9.51E-01	9.65E-01	9.70E-01	9.35E-01	9.61E-01	9.45E-01	(-1.00)	9.24E-01																														
JTB (1.0, 0.5)	(0.00)		6.68E-01	8.11E-01	8.60E-01	7.58E-01	7.97E-01	7.52E-01																																																																																																																																																																																																																																	
	(0.60)		5.65E-01						JTB (1.25, 0.5)	(0.00)	7.21E-01	8.29E-01	8.75E-01	7.79E-01	8.17E-01	7.71E-01	(0.24)	6.25E-01	JTB (1.35, 0.5)	(0.00)	7.37E-01	8.35E-01	8.80E-01	7.84E-01	8.23E-01	7.78E-01	(0.13)	6.44E-01	JTB (1.5, 0.5)	(0.00)	7.60E-01	8.45E-01	8.88E-01	7.95E-01	8.34E-01	7.88E-01	(0.00)	6.71E-01	JTB (2.0, 0.5)	(0.00)	8.09E-01	8.66E-01	9.03E-01	8.16E-01	8.55E-01	8.11E-01	(-0.30)	7.30E-01	JTB (4.0, 0.5)	(0.00)	8.80E-01	9.05E-01	9.27E-01	8.53E-01	8.96E-01	8.58E-01	(-0.75)	8.25E-01	JTB (9.0, 0.5)	(0.00)	9.15E-01	9.31E-01	9.40E-01	8.76E-01	9.23E-01	8.92E-01	(-1.00)	8.76E-01	Barnes 3	(3.00)	k=6	2.46E-01	7.49E-01	8.76E-01	5.85E-01	7.16E-01	4.87E-01	(1049)	1.35E-01	Barnes 1		(0.00)	8.38E-01	9.04E-01	9.35E-01	8.73E-01	8.96E-01	8.65E-01	(6.89)	7.64E-01		JTB (2.0, 1.0)	(0.00)	5.29E-01	8.04E-01	8.54E-01	7.53E-01	7.85E-01	7.42E-01	(3.00)		4.12E-01	JTB (0.75, 0.5)	(0.00)	6.79E-01	8.49E-01	8.90E-01	8.08E-01	8.34E-01	8.01E-01		(1.20)	5.74E-01	JTB (4.0, 1.0)	(0.00)	7.47E-01	8.72E-01	9.14E-01	8.38E-01	8.62E-01		8.24E-01	(0.78)	6.46E-01	JTB (1.0, 0.5)	(0.00)	7.58E-01	8.74E-01	9.12E-01	8.39E-01	8.64E-01	8.30E-01	(0.60)	6.64E-01	JTB (1.25, 0.5)	(0.00)	8.05E-01	8.91E-01	9.25E-01	8.58E-01	8.82E-01	8.49E-01	(0.24)	7.23E-01	JTB (1.35, 0.5)	(0.00)	8.19E-01	8.96E-01	9.29E-01	8.64E-01	8.88E-01	8.55E-01	(0.13)	7.40E-01	JTB (1.5, 0.5)	(0.00)	8.38E-01	9.04E-01	9.34E-01	8.73E-01	8.97E-01	8.65E-01	(0.00)	7.64E-01	JTB (2.0, 0.5)	(0.00)	8.76E-01	9.22E-01	9.46E-01	8.91E-01	9.15E-01	8.86E-01	(-0.30)	8.16E-01	JTB (4.0, 0.5)	(0.00)	9.28E-01	9.50E-01	9.62E-01	9.20E-01	9.45E-01	9.23E-01	(-0.75)	8.89E-01	JTB (9.0, 0.5)	(0.00)	9.51E-01	9.65E-01	9.70E-01	9.35E-01	9.61E-01	9.45E-01	(-1.00)	9.24E-01																																							
JTB (1.25, 0.5)	(0.00)		7.21E-01	8.29E-01	8.75E-01	7.79E-01	8.17E-01	7.71E-01																																																																																																																																																																																																																																	
	(0.24)		6.25E-01						JTB (1.35, 0.5)	(0.00)	7.37E-01	8.35E-01	8.80E-01	7.84E-01	8.23E-01	7.78E-01	(0.13)	6.44E-01	JTB (1.5, 0.5)	(0.00)	7.60E-01	8.45E-01	8.88E-01	7.95E-01	8.34E-01	7.88E-01	(0.00)	6.71E-01	JTB (2.0, 0.5)	(0.00)	8.09E-01	8.66E-01	9.03E-01	8.16E-01	8.55E-01	8.11E-01	(-0.30)	7.30E-01	JTB (4.0, 0.5)	(0.00)	8.80E-01	9.05E-01	9.27E-01	8.53E-01	8.96E-01	8.58E-01	(-0.75)	8.25E-01	JTB (9.0, 0.5)	(0.00)	9.15E-01	9.31E-01	9.40E-01	8.76E-01	9.23E-01	8.92E-01	(-1.00)	8.76E-01	Barnes 3	(3.00)	k=6	2.46E-01	7.49E-01	8.76E-01	5.85E-01	7.16E-01	4.87E-01	(1049)	1.35E-01	Barnes 1		(0.00)	8.38E-01	9.04E-01	9.35E-01	8.73E-01	8.96E-01	8.65E-01	(6.89)	7.64E-01		JTB (2.0, 1.0)	(0.00)	5.29E-01	8.04E-01	8.54E-01	7.53E-01	7.85E-01	7.42E-01	(3.00)		4.12E-01	JTB (0.75, 0.5)	(0.00)	6.79E-01	8.49E-01	8.90E-01	8.08E-01	8.34E-01	8.01E-01		(1.20)	5.74E-01	JTB (4.0, 1.0)	(0.00)	7.47E-01	8.72E-01	9.14E-01	8.38E-01	8.62E-01		8.24E-01	(0.78)	6.46E-01	JTB (1.0, 0.5)	(0.00)	7.58E-01	8.74E-01	9.12E-01	8.39E-01		8.64E-01	8.30E-01	(0.60)	6.64E-01	JTB (1.25, 0.5)	(0.00)	8.05E-01	8.91E-01	9.25E-01	8.58E-01	8.82E-01	8.49E-01	(0.24)	7.23E-01	JTB (1.35, 0.5)	(0.00)	8.19E-01	8.96E-01	9.29E-01	8.64E-01	8.88E-01	8.55E-01	(0.13)	7.40E-01	JTB (1.5, 0.5)	(0.00)	8.38E-01	9.04E-01	9.34E-01	8.73E-01	8.97E-01	8.65E-01	(0.00)	7.64E-01	JTB (2.0, 0.5)	(0.00)	8.76E-01	9.22E-01	9.46E-01	8.91E-01	9.15E-01	8.86E-01	(-0.30)	8.16E-01	JTB (4.0, 0.5)	(0.00)	9.28E-01	9.50E-01	9.62E-01	9.20E-01	9.45E-01	9.23E-01	(-0.75)	8.89E-01	JTB (9.0, 0.5)	(0.00)	9.51E-01	9.65E-01	9.70E-01	9.35E-01	9.61E-01	9.45E-01	(-1.00)	9.24E-01																																																
JTB (1.35, 0.5)	(0.00)		7.37E-01	8.35E-01	8.80E-01	7.84E-01	8.23E-01	7.78E-01																																																																																																																																																																																																																																	
	(0.13)		6.44E-01						JTB (1.5, 0.5)	(0.00)	7.60E-01	8.45E-01	8.88E-01	7.95E-01	8.34E-01	7.88E-01	(0.00)	6.71E-01	JTB (2.0, 0.5)	(0.00)	8.09E-01	8.66E-01	9.03E-01	8.16E-01	8.55E-01	8.11E-01	(-0.30)	7.30E-01	JTB (4.0, 0.5)	(0.00)	8.80E-01	9.05E-01	9.27E-01	8.53E-01	8.96E-01	8.58E-01	(-0.75)	8.25E-01	JTB (9.0, 0.5)	(0.00)	9.15E-01	9.31E-01	9.40E-01	8.76E-01	9.23E-01	8.92E-01	(-1.00)	8.76E-01	Barnes 3	(3.00)	k=6	2.46E-01	7.49E-01	8.76E-01	5.85E-01	7.16E-01	4.87E-01	(1049)	1.35E-01	Barnes 1		(0.00)	8.38E-01	9.04E-01	9.35E-01	8.73E-01	8.96E-01	8.65E-01	(6.89)	7.64E-01		JTB (2.0, 1.0)	(0.00)	5.29E-01	8.04E-01	8.54E-01	7.53E-01	7.85E-01	7.42E-01	(3.00)		4.12E-01	JTB (0.75, 0.5)	(0.00)	6.79E-01	8.49E-01	8.90E-01	8.08E-01	8.34E-01	8.01E-01		(1.20)	5.74E-01	JTB (4.0, 1.0)	(0.00)	7.47E-01	8.72E-01	9.14E-01	8.38E-01	8.62E-01		8.24E-01	(0.78)	6.46E-01	JTB (1.0, 0.5)	(0.00)	7.58E-01	8.74E-01	9.12E-01	8.39E-01		8.64E-01	8.30E-01	(0.60)	6.64E-01	JTB (1.25, 0.5)	(0.00)	8.05E-01	8.91E-01	9.25E-01		8.58E-01	8.82E-01	8.49E-01	(0.24)	7.23E-01	JTB (1.35, 0.5)	(0.00)	8.19E-01	8.96E-01	9.29E-01	8.64E-01	8.88E-01	8.55E-01	(0.13)	7.40E-01	JTB (1.5, 0.5)	(0.00)	8.38E-01	9.04E-01	9.34E-01	8.73E-01	8.97E-01	8.65E-01	(0.00)	7.64E-01	JTB (2.0, 0.5)	(0.00)	8.76E-01	9.22E-01	9.46E-01	8.91E-01	9.15E-01	8.86E-01	(-0.30)	8.16E-01	JTB (4.0, 0.5)	(0.00)	9.28E-01	9.50E-01	9.62E-01	9.20E-01	9.45E-01	9.23E-01	(-0.75)	8.89E-01	JTB (9.0, 0.5)	(0.00)	9.51E-01	9.65E-01	9.70E-01	9.35E-01	9.61E-01	9.45E-01	(-1.00)	9.24E-01																																																									
JTB (1.5, 0.5)	(0.00)		7.60E-01	8.45E-01	8.88E-01	7.95E-01	8.34E-01	7.88E-01																																																																																																																																																																																																																																	
	(0.00)		6.71E-01						JTB (2.0, 0.5)	(0.00)	8.09E-01	8.66E-01	9.03E-01	8.16E-01	8.55E-01	8.11E-01	(-0.30)	7.30E-01	JTB (4.0, 0.5)	(0.00)	8.80E-01	9.05E-01	9.27E-01	8.53E-01	8.96E-01	8.58E-01	(-0.75)	8.25E-01	JTB (9.0, 0.5)	(0.00)	9.15E-01	9.31E-01	9.40E-01	8.76E-01	9.23E-01	8.92E-01	(-1.00)	8.76E-01	Barnes 3	(3.00)	k=6	2.46E-01	7.49E-01	8.76E-01	5.85E-01	7.16E-01	4.87E-01	(1049)	1.35E-01	Barnes 1		(0.00)	8.38E-01	9.04E-01	9.35E-01	8.73E-01	8.96E-01	8.65E-01	(6.89)	7.64E-01		JTB (2.0, 1.0)	(0.00)	5.29E-01	8.04E-01	8.54E-01	7.53E-01	7.85E-01	7.42E-01	(3.00)		4.12E-01	JTB (0.75, 0.5)	(0.00)	6.79E-01	8.49E-01	8.90E-01	8.08E-01	8.34E-01	8.01E-01		(1.20)	5.74E-01	JTB (4.0, 1.0)	(0.00)	7.47E-01	8.72E-01	9.14E-01	8.38E-01	8.62E-01		8.24E-01	(0.78)	6.46E-01	JTB (1.0, 0.5)	(0.00)	7.58E-01	8.74E-01	9.12E-01	8.39E-01		8.64E-01	8.30E-01	(0.60)	6.64E-01	JTB (1.25, 0.5)	(0.00)	8.05E-01	8.91E-01	9.25E-01		8.58E-01	8.82E-01	8.49E-01	(0.24)	7.23E-01	JTB (1.35, 0.5)	(0.00)	8.19E-01	8.96E-01		9.29E-01	8.64E-01	8.88E-01	8.55E-01	(0.13)	7.40E-01	JTB (1.5, 0.5)	(0.00)	8.38E-01	9.04E-01	9.34E-01	8.73E-01	8.97E-01	8.65E-01	(0.00)	7.64E-01	JTB (2.0, 0.5)	(0.00)	8.76E-01	9.22E-01	9.46E-01	8.91E-01	9.15E-01	8.86E-01	(-0.30)	8.16E-01	JTB (4.0, 0.5)	(0.00)	9.28E-01	9.50E-01	9.62E-01	9.20E-01	9.45E-01	9.23E-01	(-0.75)	8.89E-01	JTB (9.0, 0.5)	(0.00)	9.51E-01	9.65E-01	9.70E-01	9.35E-01	9.61E-01	9.45E-01	(-1.00)	9.24E-01																																																																		
JTB (2.0, 0.5)	(0.00)		8.09E-01	8.66E-01	9.03E-01	8.16E-01	8.55E-01	8.11E-01																																																																																																																																																																																																																																	
	(-0.30)		7.30E-01						JTB (4.0, 0.5)	(0.00)	8.80E-01	9.05E-01	9.27E-01	8.53E-01	8.96E-01	8.58E-01	(-0.75)	8.25E-01	JTB (9.0, 0.5)	(0.00)	9.15E-01	9.31E-01	9.40E-01	8.76E-01	9.23E-01	8.92E-01	(-1.00)	8.76E-01	Barnes 3	(3.00)	k=6	2.46E-01	7.49E-01	8.76E-01	5.85E-01	7.16E-01	4.87E-01	(1049)	1.35E-01	Barnes 1		(0.00)	8.38E-01	9.04E-01	9.35E-01	8.73E-01	8.96E-01	8.65E-01	(6.89)	7.64E-01		JTB (2.0, 1.0)	(0.00)	5.29E-01	8.04E-01	8.54E-01	7.53E-01	7.85E-01	7.42E-01	(3.00)		4.12E-01	JTB (0.75, 0.5)	(0.00)	6.79E-01	8.49E-01	8.90E-01	8.08E-01	8.34E-01	8.01E-01		(1.20)	5.74E-01	JTB (4.0, 1.0)	(0.00)	7.47E-01	8.72E-01	9.14E-01	8.38E-01	8.62E-01		8.24E-01	(0.78)	6.46E-01	JTB (1.0, 0.5)	(0.00)	7.58E-01	8.74E-01	9.12E-01	8.39E-01		8.64E-01	8.30E-01	(0.60)	6.64E-01	JTB (1.25, 0.5)	(0.00)	8.05E-01	8.91E-01	9.25E-01		8.58E-01	8.82E-01	8.49E-01	(0.24)	7.23E-01	JTB (1.35, 0.5)	(0.00)	8.19E-01	8.96E-01		9.29E-01	8.64E-01	8.88E-01	8.55E-01	(0.13)	7.40E-01	JTB (1.5, 0.5)	(0.00)	8.38E-01		9.04E-01	9.34E-01	8.73E-01	8.97E-01	8.65E-01	(0.00)	7.64E-01	JTB (2.0, 0.5)	(0.00)	8.76E-01	9.22E-01	9.46E-01	8.91E-01	9.15E-01	8.86E-01	(-0.30)	8.16E-01	JTB (4.0, 0.5)	(0.00)	9.28E-01	9.50E-01	9.62E-01	9.20E-01	9.45E-01	9.23E-01	(-0.75)	8.89E-01	JTB (9.0, 0.5)	(0.00)	9.51E-01	9.65E-01	9.70E-01	9.35E-01	9.61E-01	9.45E-01	(-1.00)	9.24E-01																																																																											
JTB (4.0, 0.5)	(0.00)	8.80E-01	9.05E-01	9.27E-01	8.53E-01	8.96E-01	8.58E-01																																																																																																																																																																																																																																		
	(-0.75)	8.25E-01						JTB (9.0, 0.5)	(0.00)	9.15E-01	9.31E-01	9.40E-01	8.76E-01	9.23E-01	8.92E-01	(-1.00)	8.76E-01	Barnes 3	(3.00)	k=6	2.46E-01	7.49E-01	8.76E-01	5.85E-01	7.16E-01	4.87E-01	(1049)	1.35E-01	Barnes 1	(0.00)		8.38E-01	9.04E-01	9.35E-01	8.73E-01	8.96E-01	8.65E-01	(6.89)	7.64E-01	JTB (2.0, 1.0)		(0.00)	5.29E-01	8.04E-01	8.54E-01	7.53E-01	7.85E-01	7.42E-01	(3.00)	4.12E-01		JTB (0.75, 0.5)	(0.00)	6.79E-01	8.49E-01	8.90E-01	8.08E-01	8.34E-01	8.01E-01	(1.20)		5.74E-01	JTB (4.0, 1.0)	(0.00)	7.47E-01	8.72E-01	9.14E-01	8.38E-01	8.62E-01	8.24E-01		(0.78)	6.46E-01	JTB (1.0, 0.5)	(0.00)	7.58E-01	8.74E-01	9.12E-01	8.39E-01	8.64E-01		8.30E-01	(0.60)	6.64E-01	JTB (1.25, 0.5)	(0.00)	8.05E-01	8.91E-01	9.25E-01	8.58E-01		8.82E-01	8.49E-01	(0.24)	7.23E-01	JTB (1.35, 0.5)	(0.00)	8.19E-01	8.96E-01	9.29E-01		8.64E-01	8.88E-01	8.55E-01	(0.13)	7.40E-01	JTB (1.5, 0.5)	(0.00)	8.38E-01	9.04E-01		9.34E-01	8.73E-01	8.97E-01	8.65E-01	(0.00)	7.64E-01	JTB (2.0, 0.5)	(0.00)	8.76E-01	9.22E-01	9.46E-01	8.91E-01	9.15E-01	8.86E-01	(-0.30)	8.16E-01	JTB (4.0, 0.5)	(0.00)	9.28E-01	9.50E-01	9.62E-01	9.20E-01	9.45E-01	9.23E-01	(-0.75)	8.89E-01	JTB (9.0, 0.5)	(0.00)	9.51E-01	9.65E-01	9.70E-01	9.35E-01	9.61E-01	9.45E-01	(-1.00)	9.24E-01																																																																																						
JTB (9.0, 0.5)	(0.00)	9.15E-01	9.31E-01	9.40E-01	8.76E-01	9.23E-01	8.92E-01																																																																																																																																																																																																																																		
	(-1.00)	8.76E-01						Barnes 3	(3.00)	k=6	2.46E-01	7.49E-01	8.76E-01	5.85E-01	7.16E-01	4.87E-01	(1049)	1.35E-01	Barnes 1		(0.00)	8.38E-01	9.04E-01	9.35E-01	8.73E-01	8.96E-01	8.65E-01	(6.89)	7.64E-01	JTB (2.0, 1.0)		(0.00)	5.29E-01	8.04E-01	8.54E-01	7.53E-01	7.85E-01	7.42E-01	(3.00)	4.12E-01		JTB (0.75, 0.5)	(0.00)	6.79E-01	8.49E-01	8.90E-01	8.08E-01	8.34E-01	8.01E-01	(1.20)		5.74E-01	JTB (4.0, 1.0)	(0.00)	7.47E-01	8.72E-01	9.14E-01	8.38E-01	8.62E-01	8.24E-01		(0.78)	6.46E-01	JTB (1.0, 0.5)	(0.00)	7.58E-01	8.74E-01	9.12E-01	8.39E-01	8.64E-01		8.30E-01	(0.60)	6.64E-01	JTB (1.25, 0.5)	(0.00)	8.05E-01	8.91E-01	9.25E-01	8.58E-01		8.82E-01	8.49E-01	(0.24)	7.23E-01	JTB (1.35, 0.5)	(0.00)	8.19E-01	8.96E-01	9.29E-01		8.64E-01	8.88E-01	8.55E-01	(0.13)	7.40E-01	JTB (1.5, 0.5)	(0.00)	8.38E-01	9.04E-01		9.34E-01	8.73E-01	8.97E-01	8.65E-01	(0.00)	7.64E-01	JTB (2.0, 0.5)	(0.00)	8.76E-01	9.22E-01	9.46E-01	8.91E-01	9.15E-01	8.86E-01	(-0.30)	8.16E-01	JTB (4.0, 0.5)	(0.00)	9.28E-01	9.50E-01	9.62E-01	9.20E-01	9.45E-01	9.23E-01	(-0.75)	8.89E-01	JTB (9.0, 0.5)	(0.00)	9.51E-01	9.65E-01	9.70E-01	9.35E-01	9.61E-01	9.45E-01	(-1.00)	9.24E-01																																																																																																
Barnes 3	(3.00)	k=6	2.46E-01	7.49E-01	8.76E-01	5.85E-01	7.16E-01		4.87E-01																																																																																																																																																																																																																																
	(1049)		1.35E-01					Barnes 1			(0.00)	8.38E-01	9.04E-01	9.35E-01	8.73E-01	8.96E-01	8.65E-01	(6.89)	7.64E-01		JTB (2.0, 1.0)	(0.00)	5.29E-01	8.04E-01	8.54E-01	7.53E-01	7.85E-01	7.42E-01	(3.00)	4.12E-01		JTB (0.75, 0.5)	(0.00)	6.79E-01	8.49E-01	8.90E-01	8.08E-01	8.34E-01	8.01E-01	(1.20)		5.74E-01	JTB (4.0, 1.0)	(0.00)	7.47E-01	8.72E-01	9.14E-01	8.38E-01	8.62E-01	8.24E-01		(0.78)	6.46E-01	JTB (1.0, 0.5)	(0.00)	7.58E-01	8.74E-01	9.12E-01	8.39E-01	8.64E-01		8.30E-01	(0.60)	6.64E-01	JTB (1.25, 0.5)	(0.00)	8.05E-01	8.91E-01	9.25E-01	8.58E-01		8.82E-01	8.49E-01	(0.24)	7.23E-01	JTB (1.35, 0.5)	(0.00)	8.19E-01	8.96E-01	9.29E-01		8.64E-01	8.88E-01	8.55E-01	(0.13)	7.40E-01	JTB (1.5, 0.5)	(0.00)	8.38E-01	9.04E-01		9.34E-01	8.73E-01	8.97E-01	8.65E-01	(0.00)	7.64E-01	JTB (2.0, 0.5)	(0.00)	8.76E-01	9.22E-01	9.46E-01	8.91E-01	9.15E-01	8.86E-01	(-0.30)	8.16E-01	JTB (4.0, 0.5)	(0.00)	9.28E-01	9.50E-01	9.62E-01	9.20E-01	9.45E-01	9.23E-01	(-0.75)	8.89E-01	JTB (9.0, 0.5)	(0.00)	9.51E-01	9.65E-01	9.70E-01	9.35E-01	9.61E-01	9.45E-01	(-1.00)	9.24E-01																																																																																																										
Barnes 1	(0.00)		8.38E-01	9.04E-01	9.35E-01	8.73E-01	8.96E-01		8.65E-01																																																																																																																																																																																																																																
	(6.89)		7.64E-01					JTB (2.0, 1.0)			(0.00)	5.29E-01	8.04E-01	8.54E-01	7.53E-01	7.85E-01	7.42E-01	(3.00)	4.12E-01		JTB (0.75, 0.5)	(0.00)	6.79E-01	8.49E-01	8.90E-01	8.08E-01	8.34E-01	8.01E-01	(1.20)	5.74E-01		JTB (4.0, 1.0)	(0.00)	7.47E-01	8.72E-01	9.14E-01	8.38E-01	8.62E-01	8.24E-01	(0.78)		6.46E-01	JTB (1.0, 0.5)	(0.00)	7.58E-01	8.74E-01	9.12E-01	8.39E-01	8.64E-01	8.30E-01		(0.60)	6.64E-01	JTB (1.25, 0.5)	(0.00)	8.05E-01	8.91E-01	9.25E-01	8.58E-01	8.82E-01		8.49E-01	(0.24)	7.23E-01	JTB (1.35, 0.5)	(0.00)	8.19E-01	8.96E-01	9.29E-01	8.64E-01		8.88E-01	8.55E-01	(0.13)	7.40E-01	JTB (1.5, 0.5)	(0.00)	8.38E-01	9.04E-01	9.34E-01		8.73E-01	8.97E-01	8.65E-01	(0.00)	7.64E-01	JTB (2.0, 0.5)	(0.00)	8.76E-01	9.22E-01	9.46E-01	8.91E-01	9.15E-01	8.86E-01	(-0.30)	8.16E-01	JTB (4.0, 0.5)	(0.00)	9.28E-01	9.50E-01	9.62E-01	9.20E-01	9.45E-01	9.23E-01	(-0.75)	8.89E-01	JTB (9.0, 0.5)	(0.00)	9.51E-01	9.65E-01	9.70E-01	9.35E-01	9.61E-01	9.45E-01	(-1.00)	9.24E-01																																																																																																																					
JTB (2.0, 1.0)	(0.00)		5.29E-01	8.04E-01	8.54E-01	7.53E-01	7.85E-01		7.42E-01																																																																																																																																																																																																																																
	(3.00)		4.12E-01					JTB (0.75, 0.5)			(0.00)	6.79E-01	8.49E-01	8.90E-01	8.08E-01	8.34E-01	8.01E-01	(1.20)	5.74E-01		JTB (4.0, 1.0)	(0.00)	7.47E-01	8.72E-01	9.14E-01	8.38E-01	8.62E-01	8.24E-01	(0.78)	6.46E-01		JTB (1.0, 0.5)	(0.00)	7.58E-01	8.74E-01	9.12E-01	8.39E-01	8.64E-01	8.30E-01	(0.60)		6.64E-01	JTB (1.25, 0.5)	(0.00)	8.05E-01	8.91E-01	9.25E-01	8.58E-01	8.82E-01	8.49E-01		(0.24)	7.23E-01	JTB (1.35, 0.5)	(0.00)	8.19E-01	8.96E-01	9.29E-01	8.64E-01	8.88E-01		8.55E-01	(0.13)	7.40E-01	JTB (1.5, 0.5)	(0.00)	8.38E-01	9.04E-01	9.34E-01	8.73E-01		8.97E-01	8.65E-01	(0.00)	7.64E-01	JTB (2.0, 0.5)	(0.00)	8.76E-01	9.22E-01	9.46E-01	8.91E-01	9.15E-01	8.86E-01	(-0.30)	8.16E-01	JTB (4.0, 0.5)	(0.00)	9.28E-01	9.50E-01	9.62E-01	9.20E-01	9.45E-01	9.23E-01	(-0.75)	8.89E-01	JTB (9.0, 0.5)	(0.00)	9.51E-01	9.65E-01	9.70E-01	9.35E-01	9.61E-01	9.45E-01	(-1.00)	9.24E-01																																																																																																																																
JTB (0.75, 0.5)	(0.00)		6.79E-01	8.49E-01	8.90E-01	8.08E-01	8.34E-01		8.01E-01																																																																																																																																																																																																																																
	(1.20)		5.74E-01					JTB (4.0, 1.0)			(0.00)	7.47E-01	8.72E-01	9.14E-01	8.38E-01	8.62E-01	8.24E-01	(0.78)	6.46E-01		JTB (1.0, 0.5)	(0.00)	7.58E-01	8.74E-01	9.12E-01	8.39E-01	8.64E-01	8.30E-01	(0.60)	6.64E-01		JTB (1.25, 0.5)	(0.00)	8.05E-01	8.91E-01	9.25E-01	8.58E-01	8.82E-01	8.49E-01	(0.24)		7.23E-01	JTB (1.35, 0.5)	(0.00)	8.19E-01	8.96E-01	9.29E-01	8.64E-01	8.88E-01	8.55E-01		(0.13)	7.40E-01	JTB (1.5, 0.5)	(0.00)	8.38E-01	9.04E-01	9.34E-01	8.73E-01	8.97E-01		8.65E-01	(0.00)	7.64E-01	JTB (2.0, 0.5)	(0.00)	8.76E-01	9.22E-01	9.46E-01	8.91E-01	9.15E-01	8.86E-01	(-0.30)	8.16E-01	JTB (4.0, 0.5)	(0.00)	9.28E-01	9.50E-01	9.62E-01	9.20E-01	9.45E-01	9.23E-01	(-0.75)	8.89E-01	JTB (9.0, 0.5)	(0.00)	9.51E-01	9.65E-01	9.70E-01	9.35E-01	9.61E-01	9.45E-01	(-1.00)	9.24E-01																																																																																																																																											
JTB (4.0, 1.0)	(0.00)		7.47E-01	8.72E-01	9.14E-01	8.38E-01	8.62E-01		8.24E-01																																																																																																																																																																																																																																
	(0.78)		6.46E-01					JTB (1.0, 0.5)			(0.00)	7.58E-01	8.74E-01	9.12E-01	8.39E-01	8.64E-01	8.30E-01	(0.60)	6.64E-01		JTB (1.25, 0.5)	(0.00)	8.05E-01	8.91E-01	9.25E-01	8.58E-01	8.82E-01	8.49E-01	(0.24)	7.23E-01		JTB (1.35, 0.5)	(0.00)	8.19E-01	8.96E-01	9.29E-01	8.64E-01	8.88E-01	8.55E-01	(0.13)		7.40E-01	JTB (1.5, 0.5)	(0.00)	8.38E-01	9.04E-01	9.34E-01	8.73E-01	8.97E-01	8.65E-01		(0.00)	7.64E-01	JTB (2.0, 0.5)	(0.00)	8.76E-01	9.22E-01	9.46E-01	8.91E-01	9.15E-01	8.86E-01	(-0.30)	8.16E-01	JTB (4.0, 0.5)	(0.00)	9.28E-01	9.50E-01	9.62E-01	9.20E-01	9.45E-01	9.23E-01	(-0.75)	8.89E-01	JTB (9.0, 0.5)	(0.00)	9.51E-01	9.65E-01	9.70E-01	9.35E-01	9.61E-01	9.45E-01	(-1.00)	9.24E-01																																																																																																																																																						
JTB (1.0, 0.5)	(0.00)		7.58E-01	8.74E-01	9.12E-01	8.39E-01	8.64E-01		8.30E-01																																																																																																																																																																																																																																
	(0.60)		6.64E-01					JTB (1.25, 0.5)			(0.00)	8.05E-01	8.91E-01	9.25E-01	8.58E-01	8.82E-01	8.49E-01	(0.24)	7.23E-01		JTB (1.35, 0.5)	(0.00)	8.19E-01	8.96E-01	9.29E-01	8.64E-01	8.88E-01	8.55E-01	(0.13)	7.40E-01		JTB (1.5, 0.5)	(0.00)	8.38E-01	9.04E-01	9.34E-01	8.73E-01	8.97E-01	8.65E-01	(0.00)		7.64E-01	JTB (2.0, 0.5)	(0.00)	8.76E-01	9.22E-01	9.46E-01	8.91E-01	9.15E-01	8.86E-01	(-0.30)	8.16E-01	JTB (4.0, 0.5)	(0.00)	9.28E-01	9.50E-01	9.62E-01	9.20E-01	9.45E-01	9.23E-01	(-0.75)	8.89E-01	JTB (9.0, 0.5)	(0.00)	9.51E-01	9.65E-01	9.70E-01	9.35E-01	9.61E-01	9.45E-01	(-1.00)	9.24E-01																																																																																																																																																																	
JTB (1.25, 0.5)	(0.00)		8.05E-01	8.91E-01	9.25E-01	8.58E-01	8.82E-01		8.49E-01																																																																																																																																																																																																																																
	(0.24)		7.23E-01					JTB (1.35, 0.5)			(0.00)	8.19E-01	8.96E-01	9.29E-01	8.64E-01	8.88E-01	8.55E-01	(0.13)	7.40E-01		JTB (1.5, 0.5)	(0.00)	8.38E-01	9.04E-01	9.34E-01	8.73E-01	8.97E-01	8.65E-01	(0.00)	7.64E-01		JTB (2.0, 0.5)	(0.00)	8.76E-01	9.22E-01	9.46E-01	8.91E-01	9.15E-01	8.86E-01	(-0.30)	8.16E-01	JTB (4.0, 0.5)	(0.00)	9.28E-01	9.50E-01	9.62E-01	9.20E-01	9.45E-01	9.23E-01	(-0.75)	8.89E-01	JTB (9.0, 0.5)	(0.00)	9.51E-01	9.65E-01	9.70E-01	9.35E-01	9.61E-01	9.45E-01	(-1.00)	9.24E-01																																																																																																																																																																												
JTB (1.35, 0.5)	(0.00)		8.19E-01	8.96E-01	9.29E-01	8.64E-01	8.88E-01		8.55E-01																																																																																																																																																																																																																																
	(0.13)		7.40E-01					JTB (1.5, 0.5)			(0.00)	8.38E-01	9.04E-01	9.34E-01	8.73E-01	8.97E-01	8.65E-01	(0.00)	7.64E-01		JTB (2.0, 0.5)	(0.00)	8.76E-01	9.22E-01	9.46E-01	8.91E-01	9.15E-01	8.86E-01	(-0.30)	8.16E-01	JTB (4.0, 0.5)	(0.00)	9.28E-01	9.50E-01	9.62E-01	9.20E-01	9.45E-01	9.23E-01	(-0.75)	8.89E-01	JTB (9.0, 0.5)	(0.00)	9.51E-01	9.65E-01	9.70E-01	9.35E-01	9.61E-01	9.45E-01	(-1.00)	9.24E-01																																																																																																																																																																																							
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	(0.00)		7.64E-01					JTB (2.0, 0.5)			(0.00)	8.76E-01	9.22E-01	9.46E-01	8.91E-01	9.15E-01	8.86E-01	(-0.30)	8.16E-01	JTB (4.0, 0.5)	(0.00)	9.28E-01	9.50E-01	9.62E-01	9.20E-01	9.45E-01	9.23E-01	(-0.75)	8.89E-01	JTB (9.0, 0.5)	(0.00)	9.51E-01	9.65E-01	9.70E-01	9.35E-01	9.61E-01	9.45E-01	(-1.00)	9.24E-01																																																																																																																																																																																																		
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	(-0.30)		8.16E-01					JTB (4.0, 0.5)		(0.00)	9.28E-01	9.50E-01	9.62E-01	9.20E-01	9.45E-01	9.23E-01	(-0.75)	8.89E-01	JTB (9.0, 0.5)	(0.00)	9.51E-01	9.65E-01	9.70E-01	9.35E-01	9.61E-01	9.45E-01	(-1.00)	9.24E-01																																																																																																																																																																																																													
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	(-0.75)	8.89E-01						JTB (9.0, 0.5)	(0.00)	9.51E-01	9.65E-01	9.70E-01	9.35E-01	9.61E-01	9.45E-01	(-1.00)	9.24E-01																																																																																																																																																																																																																								
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	(-1.00)	9.24E-01																																																																																																																																																																																																																																							

Because the method involves higher sample cumulants κ_6 it is recommended to use a sample size of at least 10; the simulation study shows that critical point $\frac{z_\alpha + t_{n-1,\alpha}}{2}$ is preferable when sample size 10 is used.

An Example

Suppose a chemical manufacturer wants to monitor the viscosity of a particular chemical from the production line and that it is important to detect disturbances which could result in increasing the variability of the process. The random measurements of the viscosity are selected until subgroups are obtained, and corresponding sample variances $S_{(i)}^2$, $\kappa_{4,(i)}$ and Z6 are calculated and presented in Table 7.

Necessary process parameters are estimated from the preliminary run stage which contains 30 samples sized 10 each. The estimated process variance $\tilde{S}^2 = 7.398$, process skewness $k_3^* = 1.74$ (positively skewed distribution), and process cumulants are $\kappa_3 = 33.654$, $\kappa_4 = 232.667$ and $\kappa_6 = 9598.75$. Because the proposed method recommends using a combined sample, all quantities are obtained from one large sample, $n = 300$, by merging the 30 size 10 samples together. Equation (4) is then used to obtain the upper limit of the control chart with critical point z_α

$$UCL = z_\alpha + n^{\frac{1}{2}} \left(\hat{B}_1 + \hat{B}_2 \frac{z_\alpha^2 - 1}{6} \right) = 6.049.$$

The new method is used to construct the control chart for the variability of this positively skewed distribution. Each sample point is the test statistic Z6 of the sample where

$$Z6 = \frac{S_{(i)}^2 - \tilde{S}^2}{\sqrt{\frac{\kappa_{4,(i)} \tilde{S}^2}{n S_{(i)}^2} + \frac{2 \tilde{S}^4}{n-1}}};$$

and $S_{(i)}^2$ and $\kappa_{4,(i)}$ are variance and the fourth cumulant of the i^{th} sample; \tilde{S}^2 is estimated process variance calculated from the preliminary stage process. (See Figure 1). It can be observed that the process is under statistical control during the period of time when the 40 samples were collected, that is, all points are under the Upper Control Limit of 6.049.

If the traditional one-sided R-chart, S-chart, S^2 -chart as well as WV and SC charts are also constructed, then one can observe that - in all charts except the SC-chart - at least one sample point, point 18, is above the Upper Control Limit, which gives a false out-of-control signal.

Conclusion

This study proposed a new charting scheme for the variability of a process. This technique is an adaptation of Long and Sa's (2005) testing procedure and is designed to control the variability of a process without any assumption regarding the form of the underlying distribution.

The Monte Carlo simulation study of type I error rates indicates that the proposed method is robust for all distributions studied. It can achieve significant improvement over the Shewhart R-chart, the S-chart and the S^2 -chart, as well as the WV R-chart and the SC R-chart when the distribution is highly skewed and/or has large kurtosis. It can maintain the type I error rates close to the nominal level $\alpha = 0.0027$ and shows reasonably good power.

In a real life situation, control charts are constructed even when there is no information about the form of the distribution of the quality characteristic. The method presented herein works well for all distributions studied, which includes the normal distribution.

If sample size is small, then the average of z_α and $t_{\alpha,n-1}$ as the critical point is recommended to produce a small number of false alarms and detect shifts reasonably well. Because the proposed method involves higher moments, a sample size of at least 10 is recommended.

A ROBUST ONE-SIDED VARIABILITY CONTROL CHART

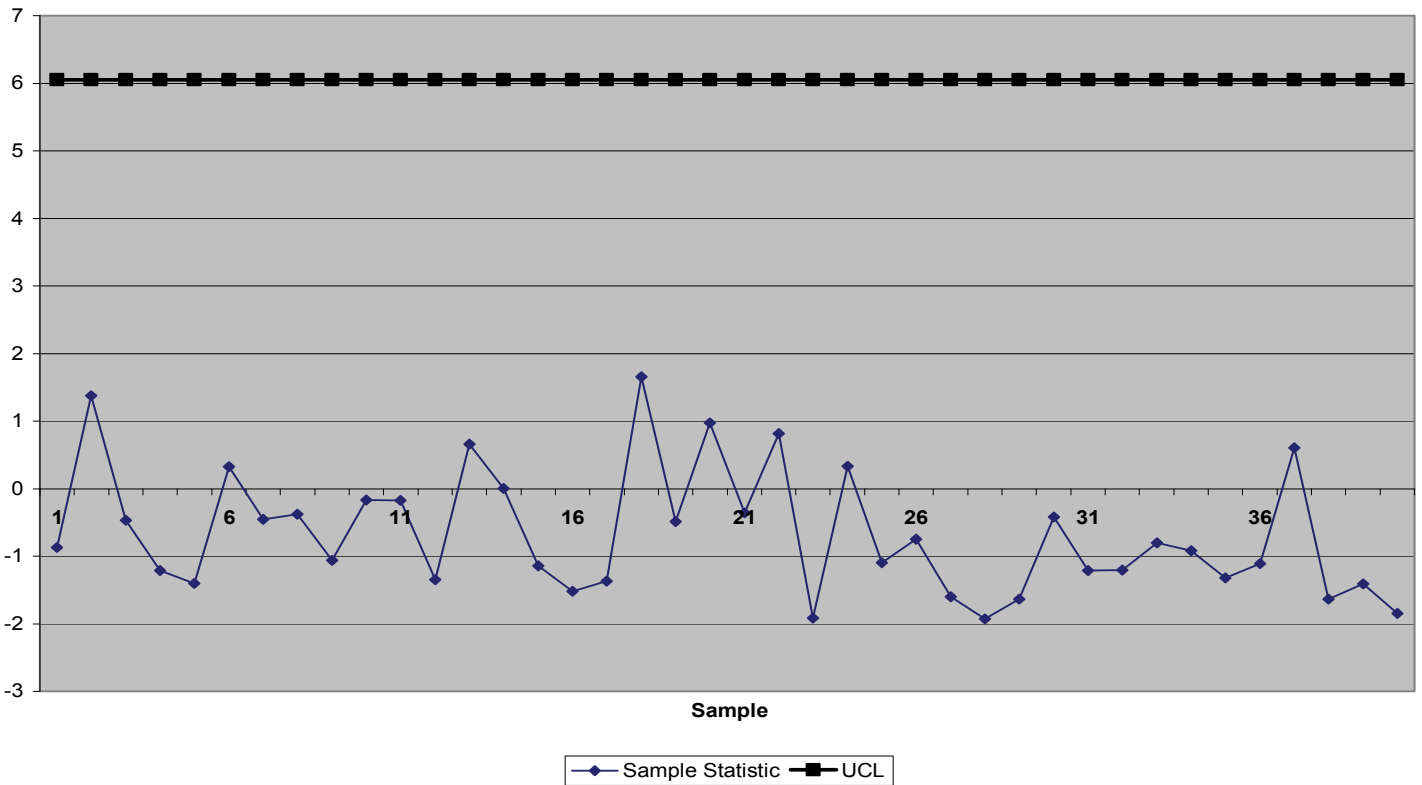
Table 7: Example Data ($n = 10$)

Sample	Data										S^2	κ_4	Z6
1	0.1753	0.1993	2.8990	2.6626	2.4803	3.9687	6.6066	1.7451	5.7174	2.3713	4.3754	0.0000	-0.8679
2	1.8987	9.5414	0.4717	3.7043	2.3586	9.9265	5.6399	0.8266	2.2084	1.0139	12.1981	0.0000	1.3730
3	6.7533	0.2629	4.2325	4.3115	3.1053	1.9042	4.7606	1.2661	8.1081	4.5336	5.7830	0.0000	-0.4647
4	1.3454	2.3209	2.8454	0.7297	2.0158	1.9803	1.0899	5.5295	0.2362	1.0541	2.2310	18.2422	-1.2115
5	1.2494	3.7607	0.7006	5.5135	1.6933	1.4810	3.3468	1.9125	2.0569	1.8984	2.0655	6.2677	-1.4055
6	4.9890	0.9675	11.7036	2.4818	4.8241	1.2914	1.6978	3.6436	4.6315	4.3729	9.5299	392.0086	0.3254
7	6.1313	6.3210	1.1931	1.6164	1.2826	6.4058	2.6711	0.4085	5.4223	4.6664	5.8097	0.0000	-0.4570
8	0.2906	1.7878	0.7905	1.1382	7.7531	0.2521	0.3012	2.1627	2.2058	0.6501	5.0435	179.6856	-0.3803
9	6.2531	6.0388	1.6128	2.8829	3.6935	0.7531	2.0489	4.8375	1.7980	2.1992	3.6892	0.0000	-1.0645
10	3.6747	2.2271	2.6493	4.3548	9.9896	2.9346	0.6846	2.2333	4.4169	2.1832	6.4037	217.7216	-0.1638
11	0.0888	1.1911	5.3541	2.9182	1.2550	8.7974	2.1795	2.0307	1.4277	2.0003	6.4750	138.9135	-0.1755
12	3.4825	2.3265	5.2447	0.7256	5.1806	1.6558	3.5688	2.8752	2.0482	0.5028	2.7078	0.0000	-1.3456
13	5.4607	0.7457	3.3457	9.8583	3.3429	2.9802	2.7684	0.1488	8.5222	5.5548	9.7128	0.0000	0.6611
14	0.6061	1.9028	4.7777	1.7799	0.6848	9.3894	1.4367	3.1679	5.5664	4.1000	7.4303	87.0290	0.0055
15	0.6069	0.2926	1.5002	0.9540	2.3739	3.5945	1.8038	1.7982	5.6449	0.2206	2.8074	15.3712	-1.1409
16	4.9356	2.4603	3.6291	4.4440	1.2951	2.3350	1.7887	1.5324	0.7752	1.0778	2.0949	0.0000	-1.5212
17	1.6166	0.6310	4.9091	3.8633	0.5929	2.9032	0.6788	0.8536	3.9993	1.5527	2.6392	0.0000	-1.3653
18	1.8073	4.3716	0.7548	4.0216	1.9322	17.5866	7.5443	1.2864	1.6462	1.7298	26.0279	4037.2395	1.6522
19	0.7649	3.4767	0.3363	3.7036	8.2392	3.9891	0.8094	4.0438	3.6515	2.9723	5.2400	51.3835	-0.4910
20	0.2054	14.2214	5.3427	2.4460	4.6481	5.7322	2.2885	4.3794	4.2059	0.8869	15.2693	1103.0417	0.9704
21	7.6503	1.8991	1.9254	0.8912	1.6838	2.3336	0.6366	6.2804	2.7257	0.2412	5.9172	38.7200	-0.3605
22	9.8933	7.5309	3.2807	1.5821	0.4120	3.3600	0.6842	0.2074	0.1167	1.4909	11.1675	135.4547	0.8177
23	0.9872	2.0582	0.3003	1.1105	1.9264	1.9017	0.1944	0.3366	1.5401	2.6845	0.7320	0.0000	-1.9116
24	2.8916	11.2486	0.7761	0.6566	1.2512	3.0792	4.1080	1.8494	0.6488	2.3294	9.9941	652.4974	0.3328
25	0.5455	2.9088	2.0852	2.5598	6.5651	0.8456	3.5727	2.9086	5.2798	2.2881	3.3818	5.6749	-1.0979
26	1.9177	2.7938	1.3091	7.1956	4.6303	1.6167	1.2484	0.5885	1.9009	1.5335	3.9685	48.8875	-0.7445
27	0.3927	2.2825	1.5281	1.3541	1.9966	0.3233	1.1659	4.0624	0.6790	0.5122	1.3077	4.0065	-1.6038
28	2.1452	2.2046	2.3803	3.4120	1.8255	3.1891	3.2583	1.5925	2.4079	0.7436	0.6824	0.0000	-1.9258
29	0.3452	1.1206	1.5241	2.0653	1.5242	1.7115	0.8049	3.7092	4.2871	1.6163	1.5126	1.5460	-1.6379
30	0.4881	7.1682	4.6524	0.4335	2.2388	0.8668	0.8453	4.9536	0.7459	0.3920	5.9185	1.4050	-0.4228

Table 7 (continued): Example Data ($n = 10$)

Sample	Data										S^2	κ_4	Z6
31	1.1352	3.7820	6.0729	2.0385	0.6038	4.9635	3.7010	2.3934	2.7716	1.0346	3.1780	0.0000	-1.2109
32	5.3424	1.4407	2.3453	1.5825	5.1191	3.9414	5.9906	2.5694	1.4657	1.6535	3.2021	0.0000	-1.2040
33	5.5480	2.2404	2.3234	3.5577	0.1689	6.1042	1.2915	3.8142	6.3927	1.6449	4.6073	0.0000	-0.8015
34	3.0710	0.6454	1.1600	2.5251	0.7999	3.8018	2.1754	0.6235	6.6516	2.0064	3.4462	29.9413	-0.9175
35	5.7266	2.5197	0.5746	4.0094	1.8757	3.1076	1.5696	2.2175	1.1754	1.2167	2.3779	7.1928	-1.3236
36	0.4678	3.0494	5.3371	2.9850	0.5926	0.8862	0.7395	4.7288	0.4933	0.7294	3.5218	0.0000	-1.1124
37	1.6734	12.9557	0.7857	0.8905	1.7642	0.7138	0.9902	2.1479	2.7973	2.4034	13.4796	1625.8027	0.6029
38	1.8289	2.9504	3.4233	0.5749	1.2637	4.2572	0.2638	1.0693	2.8841	1.8386	1.7003	0.0000	-1.6343
39	1.9636	4.6574	0.7779	1.2897	1.1516	2.1388	1.4726	4.9557	2.1783	4.4767	2.4909	0.0000	-1.4078
40	3.4110	2.8170	1.3172	3.2577	3.4979	1.7006	1.5000	1.0208	1.3976	1.4541	0.9690	0.0000	-1.8437

Figure 1 Example of the Proposed One-Sided Control Chart Method



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