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Letter to the Editor—Comments on Two Charts

Giyora Doeh,

Let us find that k which *minimizes* the function y. We obtain

$$k_{\min}=n(n-\tfrac{3}{2}q)/[2n+q(n-2)], \qquad z_{\min}=-n^2(n-\tfrac{3}{2}q)^2/[4n+2q(n-2)]$$

When n is large we find, for $q=0$, $k_{\min}=\frac{1}{2}n$, $z_{\min}=-\frac{1}{4}n^3$, for $q=1$, $k_{\min}\approx\frac{1}{3}n$, $z_{\min}\approx-\frac{1}{6}n^3$, and for $q=2$, $k_{\min}\approx\frac{1}{4}n$, $z_{\min}\approx-\frac{1}{8}n^3$. It seems that case $q=\frac{1}{2}$ is the most realistic one. In this case we have $k_{\min}\approx\frac{2}{5}n$, $z_{\min}\approx-\frac{1}{5}n^3$ and $(z_{\min}+u)/u\approx{}^{11}\!/_{15}$ for large n.

REFERENCES

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COMMENTS ON TWO CHARTS

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IN ANDREW VAZSONYI'S "Comments on a Paper by Karush," appearing in the May–June 1960 issue of OPERATIONS RESEARCH, a chart is presented which depicts in graphical form the quotient of the discrete probability distribution divided by the cumulative probability distribution (Poisson). This is the same as the chart in my Letter, "A Graphical Tool for the No-Queue Model," published in the January–February 1960 issue. The following comments are noteworthy.

1. Mr. Vazsonyi's chart extends into a higher range of inventory level (service channels).

2. My chart extends into a considerably lower range of probability of system failure (lost sales/total demand).

3. Apparently, very good use is being made of Molina's tables of the Poisson distribution.