Online Supplement:
"Cycle Cost Considerations in a Continuous Review Inventory Control Model"

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A. Notation

Variables:	
Q	order quantity
R	re-order point
Cost Parameters:	
h	inventory holding cost per unit per unit time
K	setup cost per order
p	penalty cost per unit short (unit backordering cost)
Demand, Lead Time, and Inventory Parameters:	
λ	mean of the demand per unit time
τ	lead time
D	lead time demand, a random variable
d_ℓ	lower bound of the lead time demand, $d_\ell > 0$
d_u	upper bound of the lead time demand, $d_u > d_\ell$
$\mathbf{d}$	the range of the lead time demand, $D \in \mathbf{d} = [d_\ell, d_u]$
μ	mean lead time demand
σ	standard deviation of the lead time demand
$f(D)$	probability density function of the lead time demand
$F(D)$	cumulative distribution function of the lead time demand
$F^{-1}(D)$	inverse cumulative distribution function of the lead time demand
I	beginning inventory of a cycle, a random variable
i_ℓ	the minimum beginning inventory possible, $i_u = R - d_u + Q$
i_u	the maximum beginning inventory possible, $i_u = R - d_\ell + Q$
$\mathbf{i}$	the range of the beginning inventory of a cycle, $I \in \mathbf{i} = [i_\ell, i_u]$
Functions:	
$EC(Q,R)$	expected cost per unit time as a function of Q and R
$EC(Q)$	expected cost per unit time as a function of Q given R, $EC(Q) = EC(Q,R\|R)$
$EC(R)$	expected cost per unit time as a function of R given Q, $EC(R) = EC(Q,R\|Q)$
$MC(Q,R)$	maximum cycle cost as a function of Q and R
$MC(Q)$	maximum cycle cost as a function of Q given R, $MC(Q) = MC(Q,R\|R)$
$MC(R)$	maximum cycle cost as a function of R given Q, $MC(R) = MC(Q,R\|Q)$
Specific Q and R Parameters:	
(Q^C, R^C)	the cost-minimizing (Q,R) policy
(Q^G, R^G)	Gallego (1992)'s distribution-free minmax (Q,R) policy
(Q^E, R^E)	the cost-minimizing (Q,R) policy based on the maximum entropy distribution
(Q^M, R^M)	maximum cycle cost minimizing (Q,R) policy
(Q^e, R^e)	a Pareto efficient (Q,R) policy
$R^m(Q)$	minimizer of $MC(R)$ such that $R \in \mathbf{d}$
$R^c(Q)$	minimizer of $EC(R)$ such that $R \in \mathbf{d}$
$Q^m(R)$	minimizer of $MC(Q)$ such that $Q \geq d_u$
$Q^c(R)$	minimizer of $EC(Q)$ such that $Q \geq d_u$
Pareto fronts (PF):	
PF^1	approximated PF from Routine 1 with calculated $EC(Q,R)$ and $MC(Q,R)$
PF^2	approximated PF from Routine 2 with calculated $EC(Q,R)$ and $MC(Q,R)$
PF	approximated PF from Algorithm with calculated $EC(Q,R)$ and $MC(Q,R)$
SPF^1	approximated PF from Routine 1 with simulated $EC(Q,R)$ and $MC(Q,R)$
SPF^2	approximated PF from Routine 2 with simulated $EC(Q,R)$ and $MC(Q,R)$
SPF	approximated PF from Algorithm with simulated $EC(Q,R)$ and $MC(Q,R)$
$PE(S)$	Pareto efficient solutions within set S

B. Hadley and Whitin (1963)'s Iterative Algorithm and Details of $n(R)$ Calculation

Given $f(D)$, $F(D)$, and $F^{-1}(D)$, the Hadley and Whitin (1963)'s iterative algorithm to determine (Q^C, R^C) is stated below:

(1) Let $q^0 = \sqrt{\frac{2\lambda K}{h}}$ and calculate r^0 such that $1 - F(r^0) = \frac{q^0 h}{p\lambda}$. Set $i = 1$.

(2) Calculate $q^i = \sqrt{\frac{2\lambda(K+pn(r^{i-1}))}{h}}$ and calculate r^i such that $1 - F(r^i) = \frac{q^i h}{p\lambda}$.

(3) If $|q^i - q^{i-1}| \le \epsilon_q$ and $|r^i - r^{i-1}| \le \epsilon_r$, let $(Q^C, R^C) = (q^i, r^i)$. Else, set $i = i + 1$ and go to step 2.

In Steps 1 and 2, one needs to calculate $F(r)$ and $n(r)$ values. For normal distribution, one can easily use the standard loss function to do so. For triangular distribution, $F(r)$ and $n(r)$ can be directly characterized as integration with $f(D)$ is relatively simple. For gamma distribution, we use the gamma loss function discussed for (Q, R) models (see, e.g., Tyworth, Guo, & Ganeshan, 1996 and Tyworth & Ganeshan, 2000). For truncated normal, we use Matlab's integration (`integral` function) as well as the Matlab codes for calculating $F(r)$ and $F^{-1}(r)$ values, which are freely available at `https://people.sc.fsu.edu/~jburkardt/m_src/truncated_normal/truncated_normal.html`.

For other distributions, one can use Matlab's `fsolve` function or, noting that r is defined as the minimizer of $EC(Q, R|Q)$, one can also use Matlab's `fmincon` function to calculate the r values in Steps 1 and 2. Furthermore, for a given r, $n(r)$ can be calculated using numeric integration methods (e.g., Matlab's `integral` function).

C. Proofs of the Propositions and Theorems

C.1. Proof of Proposition 2.1

It follows from Equations (4) and (5) that $MC(Q,R) = \max\{\max_{I\in\mathbf{i},D\in\mathbf{d}}\{C_1(I,D|Q,R) : D \le R\}, \max_{I\in\mathbf{i},D\in\mathbf{d}}\{C_2(I,D|Q,R) : D \ge R\}\}$, where $C_1(I,D|Q,R)$ and $C_2(I,D|Q,R)$ are defined in Equations (2) and (3), respectively. Note that both $\max_{I\in\mathbf{i},D\in\mathbf{d}}\{C_1(I,D|Q,R) : D \le R\}$ and $\max_{I\in\mathbf{i},D\in\mathbf{d}}\{C_2(I,D|Q,R) : D \ge R\}$ are feasible for $R \in \mathbf{d}$.

First, let us consider $\max_{I\in\mathbf{i},D\in\mathbf{d}}\{C_1(I,D|Q,R) : D \le R\}$ and let $(I^{\le}, D^{\le}) = \arg\max_{I\in\mathbf{i},D\in\mathbf{d}}\{C_1(I,D|Q,R) : D \le R\}$. Notice that $\frac{\partial C_1(I,D|Q,R)}{\partial I} = \frac{h\tau I}{D} > 0$ for $I > 0$ and any $D \in \mathbf{d}$, that is, $C_1(I,D|Q,R)$ is increasing with $I > 0$ for any possible lead time demand realization. Therefore, $I^{\le} = i_u$ and, it then follows that $\max_{I\in\mathbf{i},D\in\mathbf{d}}\{C_1(I,D|Q,R) : D \le R\} = \max_{D\in\mathbf{d}}\{C_1(D|Q,R,I = i_u) : D \le R\}$ and $D^{\le} = \arg\max_{D\in\mathbf{d}}\{C_1(D|Q,R,I = i_u) : D \le R\}$. It can be noted that $\frac{dC_1(D|Q,R,I=i_u)}{dD} = -\frac{h\tau(i_u^2-R^2)}{2D^2} - \frac{h\tau}{2} < 0$ as $i_u \ge R$ when $Q \ge d_u$, which means that $C_1(D|Q,R,I = i_u)$ is decreasing with D. Therefore, $D^{\le} = d_\ell$. It then follows that $(I^{\le}, D^{\le}) = (i_u, d_\ell)$ and $\max_{I\in\mathbf{i},D\in\mathbf{d}}\{C_1(I,D|Q,R) : D \le R\} = C_1(i_u, d_\ell|Q,R)$.

Second, let us consider $\max_{I\in\mathbf{i},D\in\mathbf{d}}\{C_2(I,D|Q,R) : D \ge R\}$ and let $(I^{\ge}, D^{\ge}) = \arg\max_{I\in\mathbf{i},D\in\mathbf{d}}\{C_2(I,D|Q,R) : D \ge R\}$. Notice that $\frac{\partial C_2(I,D|Q,R)}{\partial I} = \frac{h\tau I}{D} > 0$ for $I > 0$ and any $D \in \mathbf{d}$, that is, $C_2(I,D|Q,R)$ is increasing with $I > 0$ for any possible lead time demand realization. Therefore, $I^{\ge} = i_u$ and, it then follows that $\max_{I\in\mathbf{i},D\in\mathbf{d}}\{C_2(I,D|Q,R) : D \ge R\} = \max_{D\in\mathbf{d}}\{C_2(D|Q,R,I = i_u) : D \ge R\}$ and $D^{\ge} = \arg\max_{D\in\mathbf{d}}\{C_2(D|Q,R,I = i_u) : D \ge R\}$. It can be noted that $\frac{dC_2^2(D|Q,R,I=i_u)}{dD^2} = \frac{h\tau(i_u^2-R^2)}{D^3} + \frac{h\tau R^2}{D^3} > 0$ as $i_u \ge R$ when $Q \ge d_u$, which means that $C_2(D|Q,R,I = i_u)$ is strictly convex with respect to D. This indicates that either $D^{\ge} = R$ or $D^{\ge} = d_u$ and $\max_{I\in\mathbf{i},D\in\mathbf{d}}\{C_2(I,D|Q,R) : D \le R\} = \max\{C_2(i_u, R|Q,R), C_2(i_u, d_u|Q,R)\}$.

It follows from the first and second results above that $MC(Q,R) = \max\{C_1(i_u, d_\ell|Q,R), \max\{C_2(i_u, R|Q,R), C_2(i_u, d_u|Q,R)\}\} = \max\{C_1(i_u, d_\ell|Q,R), C_2(i_u, R|Q,R), C_2(i_u, d_u|Q,R)\}$. Equations (2) and (3) imply that $C_1(i_u, R|Q,R) = C_2(i_u, R|Q,R)$ and, $(I^{\le}, D^{\le}) = (i_u, d_\ell)$ as noted above. It then follows that $C_1(i_u, R|Q,R) \le C_1(i_u, d_\ell|Q,R)$; and thus, $C_2(i_u, R|Q,R) \le C_1(i_u, d_\ell|Q,R)$. This indicates that $MC(Q,R) = \max\{C_1(i_u, d_\ell|Q,R), C_2(i_u, d_u|Q,R)\}$, which concludes the proof. □

C.2. Proof of Proposition 3.1

First, we prove (i) and (ii). Recall that $G_1(R)$ is an increasing linear function and $G_2(R)$ is a strictly convex function of R. Therefore, $\exists r_\ell \in \mathbb{R}$ and $\exists r_u \in \mathbb{R}$ such that $r_\ell \ne r_u$, $G_1(r_\ell) = G_2(r_\ell)$, and $G_1(r_u) = G_2(r_u)$ if and only if $\exists R \in \mathbb{R}$ such that $G_1(R) > G_2(R)$. Now, let $R = d_u$ and suppose that $G_1(d_u) \le G_2(d_u)$. Using Equations (6) and (7), one can show that $G_1(d_u) \le G_2(d_u)$ implies that $Q \le d_u/2$, which contradicts that $Q \ge d_u$ because $d_u > 0$. This contradiction shows that $G_1(d_u) > G_2(d_u)$; and thus, $\exists r_\ell \in \mathbb{R}$ and $\exists r_u \in \mathbb{R}$ such that $G_1(r_\ell) = G_2(r_\ell)$ and $G_1(r_u) = G_2(r_u)$, which prove (i). Furthermore, since $G_2(R)$ is strictly convex, $G_1(d_u) > G_2(d_u)$, and $r_\ell \le r_u$ based on Equations (9) and (10), it then follows that $r_\ell < d_u < r_u$, which proves (ii).

Next, we prove (iii) and (iv). Suppose that $h\tau Q^2 \ge 2pd_u d_\ell$ and assume $d_\ell < r_\ell$, which implies that $G_1(d_\ell) < G_2(d_\ell)$; however, based on Equations (6) and (7), $G_1(d_\ell) < G_2(d_\ell)$ indicates that $h\tau Q^2 < 2pd_u d_\ell$, which contradicts that $h\tau Q^2 \ge 2pd_u d_\ell$. Therefore, if $h\tau Q^2 \ge 2pd_u d_\ell$, then $r_\ell \le d_\ell$, which proves (iii). Similarly, suppose that $h\tau Q^2 < 2pd_u d_\ell$ and assume $r_\ell \le d_\ell$, which implies that $G_1(d_\ell) \ge G_2(d_\ell)$; however, based on Equations (6) and (7), $G_1(d_\ell) \ge G_2(d_\ell)$ indicates that $h\tau Q^2 \ge 2pd_u d_\ell$, which contradicts that $h\tau Q^2 < 2pd_u d_\ell$. Therefore, if $h\tau Q^2 < 2pd_u d_\ell$, then $d_\ell < r_\ell$, which proves (iv). □

C.3. Proof of Theorem 3.2

We first prove (i). Given $h\tau Q^2 \geq 2pd_u d_\ell$, it follows from Proposition 3.1 that $r_\ell \leq d_\ell < d_u < r_u$; therefore, $\min_{R\in\mathbf{d}}\{MC(R)\} = \min_{R\in\mathbf{d}}\{G_1(R)\}$. As $G_1(R)$ is increasing with R, it then follows that $d_\ell = \arg\min_{R\in\mathbf{d}}\{G_1(R)\}$, i.e., $R^m(Q) = d_\ell$ and $MC(R^m(Q)) = G_1(d_\ell)$.

Next, we prove (ii). Given $h\tau Q^2 < 2pd_u d_\ell$, it follows from Proposition 3.1 that $d_\ell < r_\ell < d_u < r_u$. It can be noticed that $\min_{R\in\mathbf{d}}\{MC(R)\} = \min\{\min\{MC(R) : d_\ell \leq R \leq r_\ell\}, \min\{MC(R) : r_\ell < R \leq d_u\}\}$. By definitions of $MC(R)$, r_ℓ and r_u, it then follows that $\min_{R\in\mathbf{d}}\{MC(R)\} = \min\{\min\{G_2(R) : d_\ell \leq R \leq r_\ell\}, \min\{G_1(R) : r_\ell < R \leq d_u\}\}$. Recall that $G_1(R)$ is a linearly increasing function of R; therefore, $G_1(r^\ell) < \min\{G_1(R) : r_\ell < R \leq d_u\}$. Also, by definition of r_ℓ, we have $G_1(r_\ell) = G_2(r_\ell)$. These mean that $G_2(r_\ell) < \min\{G_1(R) : r_\ell < R \leq d_u\}$. Furthermore, noticing that $\min\{G_2(R) : d_\ell \leq R \leq r_\ell\} \leq G_2(r_\ell)$, it then follows that $\min_{R\in\mathbf{d}}\{MC(R)\} = \min\{G_2(R) : d_\ell \leq R \leq r_\ell\}$. Now let us consider $\min\{G_2(R) : d_\ell \leq R \leq r_\ell\}$. Recall that $G_2(R)$ is strictly convex with unique minimizer r^0, which is defined in Equation (8). We consider two cases:

Case-1. $r_\ell \leq r_0$: In this case, it follows from the convexity of $G_2(R)$ and the definition of r_0 that $G_2(R)$ is strictly decreasing with R over $d_\ell \leq R \leq r_\ell$; therefore, r_ℓ solves $\min\{G_2(R) : d_\ell \leq R \leq r_\ell\}$. This implies that $R^m(Q) = r_\ell$ and $MC(R^m(Q)) = G_2(r_\ell)$.
Case-2. $r_\ell > r_0$: In this case, it follows from convexity of $G_2(R)$ and the definition of r_0 that $G_2(R)$ is strictly decreasing with R over $R \leq r_0$ and increasing with R for $r_0 < R \leq r_\ell$. Therefore, if $r_0 \leq d_\ell$, $G_2(R)$ increases with R over $d_\ell \leq R \leq r_\ell$, which means that d_ℓ solves $\min\{G_2(R) : d_\ell \leq R \leq r_\ell\}$. On the other hand, if $d_\ell < r_0 \leq r_\ell$, r_0 solves $\min\{G_2(R) : d_\ell \leq R \leq r_\ell\}$. These mean that, when $r_\ell > r_0$, $\max\{r_0, d_\ell\}$ solves $\min\{G_2(R) : d_\ell \leq R \leq r_\ell\}$, i.e., $R^m(Q) = \max\{r_0, d_\ell\}$ and $MC(R^m(Q)) = G_2(\max\{r_0, d_\ell\})$.

Cases 1-2 prove (ii). □

C.4. Proof of Proposition 3.3

We consider two cases:

Case-1. $G_2(q_0) \geq G_1(q_0)$: In this case, q_ℓ and q_u exist such that $q_\ell \leq q_0$. Note that $q_0 \leq 0$ for $R \in \mathbf{d}$; therefore, $q_\ell \leq 0$. If $q_u \leq d_u$, $\min_{Q\geq d_u}\{MC(Q)\} = \min_{Q\geq d_u}\{G_1(Q)\}$, and $\frac{dG_1(Q)}{dQ} > 0$ for $Q \geq d_u$. Therefore, $Q^m(R) = d_u$ when $q_u \leq d_u$. If $q_u > d_u$, $\min_{Q\geq d_u}\{MC(Q)\} = \min\{\min\{G_2(Q) : d_u \leq Q < q_u\}, \min\{G_1(Q) : Q \geq q_u\}\}$. As $\frac{dG_1(Q)}{dQ} > 0$ for $Q \geq d_u$, $G_1(q_u) = \min\{G_1(Q) : Q \geq q_u\}$. Similarly, since $\frac{dG_2(Q)}{dQ} > 0$ for $Q \geq d_u$, $G_2(d_u) = \min\{G_2(Q) : d_u \leq Q < q_u\}$. Noting that $G_2(d_u) < G_2(q_u) = G_1(q_u)$, it follows that $Q^m(R) = d_u$ when $q_u > d_u$.
Case-2. $G_2(q_0) < G_1(q_0)$: In this case, $MC(Q) = G_1(Q)$ for any Q; therefore, $\min_{Q\geq d_u}\{MC(Q)\} = \min_{Q\geq d_u}\{G_1(Q)\}$. Noting that $\frac{dG_1(Q)}{dQ} > 0$ for $Q \geq d_u$, it then follows that $Q^m(R) = d_u$.

Cases 1-2 imply that $Q^m(R) = d_u$. □

C.5. Proof of Theorem 3.4

Proposition 3.3 notes that $Q^m(R) = d_u$ for any given $R \in \mathbf{d}$. As $Q^M = Q^m(R^M)$, it then follows that $Q^M = d_u$. Finally, noting that $R^M = R^m(Q^M)$, we have $R^M = R^m(d_u)$. □

C.6. Proof of Proposition 5.1

Suppose that $(Q^e, R^e) \in \mathcal{PF}$. We first prove (i). Recall that $EC(Q, R|Q)$ is convex with respect to R and one can discuss that $MC(Q, R|Q)$ is also convex with respect to R (see, e.g., proof of Proposition 3.1). Therefore, if $R^e > \max\{R^c(Q^e), R^m(Q^e)$, then $EC(Q^e, \max\{R^c(Q^e), R^m(Q^e)) < EC(Q^e, R^e)$ and $MC(Q^e, \max\{R^c(Q^e), R^m(Q^e)) < MC(Q^e, R^e)$; and similarly, if $R^e < \min\{R^c(Q^e), R^m(Q^e)$, then $EC(Q^e, \min\{R^c(Q^e), R^m(Q^e)) < EC(Q^e, R^e)$ and $MC(Q^e, \min\{R^c(Q^e), R^m(Q^e)) < MC(Q^e, R^e)$. These imply that, if $R^e \notin [\min\{R^c(Q^e), R^m(Q^e)\}, \max\{R^c(Q^e), R^m(Q^e)\}]$, then (Q^e, R^e) is not Pareto efficient, which contradicts that $(Q^e, R^e) \in \mathcal{PF}$.

Next, we prove (ii). Note that, by definition $(Q^e, R^e) \in F$; thus, $Q^e \geq d_u$. Recall that $EC(Q, R|R)$ is convex with respect to R and $MC(Q, R|R)$ is linearly increasing (also convex) in R (see, e.g, proof of Proposition 3.3). Furthermore, if $Q^e > Q^c(R^e)$, then $EC(Q^c(R^e), R^e) < EC(Q^e, R^e)$ and $MC(Q^c(R^e), R^e) < MC(Q^e, R^e)$. These imply that if $Q^e \notin [d_u, Q^c(R^e)]$, then (Q^e, R^e) is either infeasible or not Pareto efficient, which contradicts that $(Q^e, R^e) \in \mathcal{PF}$. □

D. Details of Problem Instance Generation

Cost-related parameters are generated as follows. Setup cost per order is randomly generated from a continuous uniform distribution such that $K \sim U[50, 150]$. In order to capture the tradeoff between the inventory holding cost per unit per unit time (h) and penalty cost per unit short (p), we set $h = 1$ to keep experiments at a manageable level and vary p as discussed below. Demand rate (λ) and lead time (τ) are generated randomly from continuous uniform distributions such that $\lambda \sim U[2{,}000, 10{,}000]$ and $\tau \sim U[0.02, 1]$ for each problem instance. Expected demand during the lead time (μ) is then calculated by multiplying the generated pairs of demand rate and the lead time values for each problem instance. The lead time demand's coefficient of variance CV is generated as discussed below. Once CV is known, we calculate the lead time demand's standard deviation (σ) using the CV and μ values.

For analyzing the effects of p under a lead time demand distribution, four classes of problem instances are generated such that each class of problem instances has the lead time demand's coefficient of variation being randomly and uniformly generated from within one of the four intervals $\{[0.05, 0.10], [0.10, 0.20], [0.20, 0.30], [0.30, 0.35]\}$. For each class, i.e., CV interval, under a given lead time demand distribution, 100 problem instances are generated. Each of the 100 problem instances from each CV interval is solved with 10 different p values such that $p \in \{0.25, 0.50, 0.75, 1, 2, 3, 4, 6, 8, 10\}$. Note that the set of p values includes values smaller than, equal to, and larger than h.

For analyzing the effects of CV under a lead time demand distribution, four classes of problem instances are generated such that each class of problem instances has the penalty cost per unit short being randomly and uniformly generated from within one of the four intervals $\{[0.25, 1], [1, 4], [4, 7], [7, 10]\}$. For each class, i.e., p interval, under a given lead time demand distribution, 100 problem instances are generated. Each of the 100 problem instances from each p interval is solved with 10 different CV values such that $CV \in \{0.035, 0.07, 0.105, 0.14, 0.175, 0.21, 0.245, 0.28, 0.315, 0.35\}$.

It is worthwhile to note that similar parameter values are used in the literature (see, e.g., Hariga, 2010, Tamjidzad & Mirmohammadi, 2015, Schaefer & Konur, 2015, Konur, Campbell, & Monfared, 2017). Also, we note that the maximum coefficient of variation is set at 0.35, a value close to the largest allowable value of CV (0.3642) that renders all parameter values feasible under all considered lead time demand distributions. In particular, bounds on the lead time demand $[d_\ell, d_u]$ for a triangular distribution are the minimum and maximum values of its compact support. Solving for the standard deviation of the lead time demand σ in $CV = \sigma/\mu$ and using the mean and variance equations involving parameters of each distribution, one can obtain an upper bound on the CV value that yields a nonnegative value of d_ℓ. Maximum allowable coefficient of variation values are $1/\sqrt{6} \cong 0.4082$, $\sqrt{13/50} \cong 0.5099$ and $\sqrt{13/98} \cong 0.3642$ for symmetric, right-skewed and left-skewed triangular distributions, respectively. As noted in Section 4, for normal and gamma distributions, we define $d_\ell = F^{-1}(0.005)$ and $d_u = F^{-1}(0.995)$ so that the probability of $D \in \mathbf{d}$ is 0.99. For truncated normal distribution, we first generate a *parent* normal distribution, then randomly generate a coverage between $cov \sim U[0.75, 0.95]$, and use this coverage to calculate the bounds of the support of the truncated normal lead time demand, i.e., we set $d_\ell = F^{-1}((1 - cov)/2)$ and $d_u = F^{-1}((1 + cov)/2)$ using the parent normal distribution's cumulative distribution function $F(D)$. Once d_ℓ and d_u are determined, we calculate the μ and σ for the truncated normal (note that, since truncation is symmetric, μ of the truncated normal and the parent normal are identical, but σ will be different, and we calculate it using the Matlab functions available at `https://people.sc.fsu.edu/~jburkardt/m_src/truncated_normal/truncated_normal.html`). Finally, if the resulting CV of the truncated normal is ∓ 0.001 of the targeted CV value or CV interval, we accept the problem instance.

In all of the problem instances generated, it is assured that $d_\ell > 0$; thus Assumption 1(i) is satisfied for all problem instances. For each problem instance, (Q^C, R^C), $(Q^C, R^m(Q^C))$, (Q^G, R^G), $(Q^G, R^m(Q^G))$, and (Q^M, R^M) are determined and their corresponding $EC(Q, R)$ and $MC(Q, R)$ values are calculated. For each problem instance solved, $R^C \in \mathbf{d}$ and $Q^C \geq d_u$, and $R^G \in \mathbf{d}$ and $Q^G \geq d_u$; hence, Assumption 1(ii) and (iii) are satisfied for each problem instance's (Q^C, R^C) and (Q^G, R^G) (note that $(Q^C, R^m(Q^C))$, $(Q^G, R^m(Q^G))$, and (Q^M, R^M) also satisfy Assumption 1 by definition).

E. Details of the Maximum Entropy Principle Used to Determine (Q^E, R^E)

The distribution-free approach based on the maximum entropy principle works as follows: first, (i) the maximum entropy distribution is determined corresponding to the given information about the lead time demand distribution, and then, (ii) maximum entropy distribution is used to calculate the (Q, R) policy minimizing $EC(Q, R)$ via Hadley and Whitin (1963)'s iterative algorithm.

(i) The maximum entropy principle is used to estimate the underlying lead time demand distribution given the lead time demand distribution's mean (μ), standard deviation (σ), and support (i.e., $\mathbf{d} = [d_\ell, d_u]$). The probability density function, g, maximizing the entropy over all distributions, is then given by: $g(x) = e^{ax^2+bx+c}$ for $d_\ell \leq x \leq d_u$ and zero otherwise (see, e.g., Andersson, Jörnsten, Nonås, Sandal, & Ubøe, 2013; Castellano, 2016). The values of the constants a, b, c can be found by solving the three nonlinear constraints given in Equation (1):

$$\begin{cases} \int_{d_\ell}^{d_u} g(x)\,\mathrm{d}x = \int_{d_\ell}^{d_u} e^{ax^2+bx+c}\,\mathrm{d}x = 1 \\ \int_{d_\ell}^{d_u} x\,g(x)\,\mathrm{d}x = \int_{d_\ell}^{d_u} x\,e^{ax^2+bx+c}\,\mathrm{d}x = \mu \\ \int_{d_\ell}^{d_u} x^2\,g(x)\,\mathrm{d}x = \int_{d_\ell}^{d_u} x^2\,e^{ax^2+bx+c}\,\mathrm{d}x = \mu^2 + \sigma^2 \end{cases} \tag{1}$$

Note that the first equality assures that the sum of the probabilities is 1, the second and the third equalities are the mean and variance definitions. A unique solution exists for Equation (1) (see, e.g., Dowson & Wragg, 1973) and numerical methods are typically used for solving Equation (1) (see, e.g., Andersson et al., 2013; Castellano, 2016). For a given problem instance (i.e., given μ, σ, d_ℓ, and d_u values), we used three methods to solve for the constants in Equation (1): Matlab's `fmincon` function for an optimization model with a dummy objective function and equality constraints in Equation (1) (with varying embedded methods of Matlab) and `fsolve` function (with varying embedded methods of Matlab) from its Optimization Toolbox as well as Newton-Raphson method (with 10,000 iterations). Then, we accepted the solution with the minimum error (defined as the maximum deviation in the equalities obtained from the numerical integration of the solution).

(ii) Upon finding the values of the constants of the maximum entropy distribution, the optimum (Q, R) policy corresponding to this distribution, namely (Q^E, R^E) is obtained by applying Hadley and Whitin (1963)'s iterative algorithm. In doing so, as noted in Section B of this supplement, one needs to solve for $F(r)$ and $n(r)$ iteratively. Given the maximum entropy distribution, we use Matlab's `fsolve` function and Matlab's `fmincon` function, and accept the one with the minimum error as the r value in Steps 1 and 2 of Hadley and Whitin (1963)'s iterative algorithm.

F. Determining Pareto Efficient Solutions and Details of Simulation

Below, an iterative procedure to determine the set of Pareto efficient solutions, $PE(S)$, out of a given set of solutions S is presented. For notational brevity, given $(Q_i, R_i) \in S$, let $EC^i = EC(Q_i, R_i)$ and $MC^i = MC(Q_i, R_i)$.

Routine 0: Iterative routine to determine $PE(S)$

Set $k = 0$.
while $k \leq |S| - 1$ **do**
    Set $m = k + 1$.
    while $m \leq |S|$ **do**
        If $EC^k = EC^m$ and $MC^k = MC^m$, set $m := m + 1$.
        Else if $EC^k \leq EC^m$ and $MC^k \leq MC^m$, set $S := S/\{(Q_m, R_m)\}$.
        Else if $EC^k \geq EC^m$ and $MC^k \geq MC^m$, set $S := S/\{(Q_k, R_k)\}$, $k := k - 1$, and $m = |S| + 1$.
    Set $k := k + 1$.
Return $PE(S) = S$.

Similar procedures have been used in the literature (see, e.g., Konur & Golias, 2013, Konur & Dagli, 2015, Schaefer & Konur, 2015, Konur & Schaefer, 2016, Konur et al., 2017).

Next, we explain the details of the simple simulation setup used to evaluate the estimated $EC(Q, R)$ and $MC(Q, R)$ values of the (Q, R) policies considered. We used 25 repetitions (simulation runs), such that each simulation run randomly generated lead time demand values for 2,500 warmup cycles (which are not used in the evaluation) and 5,000 actual cycles using the given lead time demand distribution such that the randomly generated demands are within the d_ℓ and d_u values. These values are used to calculate the simulated $EC(Q, R)$ and $MC(Q, R)$ values for any (Q, R) policy considered as follows. For a given (Q, R) policy, the on-hand inventory at the beginning of a cycle is calculated using Q, R, and the randomly generated lead time demand for the previous cycle. Note that the beginning inventory for cycle c will be $R - d_{c-1} + Q$, where d_{c-1} is the randomly generated lead time demand for cycle $c - 1$ (we assumed that the beginning inventory in the first cycle is the expected beginning inventory, i.e., $R - \mu + Q$). Then, using the beginning inventory of a cycle $(R - d_{c-1} + Q)$ and the randomly generated lead time demand (d_c) for that cycle, we calculate the cycle time for cycle c assuming that the inventory stationarily decreases over the cycle. Notice that the ending inventory for cycle c is $R - d_c$, and d_c is the demand observed over the lead time τ; then the total demand during the cycle is $Q + d_c - d_{c-1}$. Considering that the demand rate for the cycle is d_c/τ, it can be concluded that the cycle length for cycle c is $T_c = \tau(Q + d_c - d_{c-1})/d_c$. Once the cycle length is calculated, one can easily determine the cycle cost depending on the ending inventory for the cycle (see, e.g., Equations (2) and (3)). To calculate simulated $EC(Q, R)$ value, we calculated the total cost (sum of the cycle costs over 5,000 cycles simulated) and divided it by the total duration (sum of the cycle times over 5,000 cycles simulated) for each simulation run and took the average over 25 simulation runs. To calculate the simulated $MC(Q, R)$ value, we found the maximum cycle cost over the 5,000 cycles simulated and took the average over 25 simulation runs. We note that further detailed simulation procedures can be devised and we refer the reader to Nahmias and Wang (1979), Nahmias (1981), Chiu (1995), Olsson (2014), and Braglia, Castellano, Marrazzini, and Song (2019) for several examples.

G. Figures for Analysis of Cycle Cost Considerations on (Q^C, R^C)

G.1. Effects of Penalty Cost per Unit Short on $EC(Q, R)$ and $MC(Q, R)$

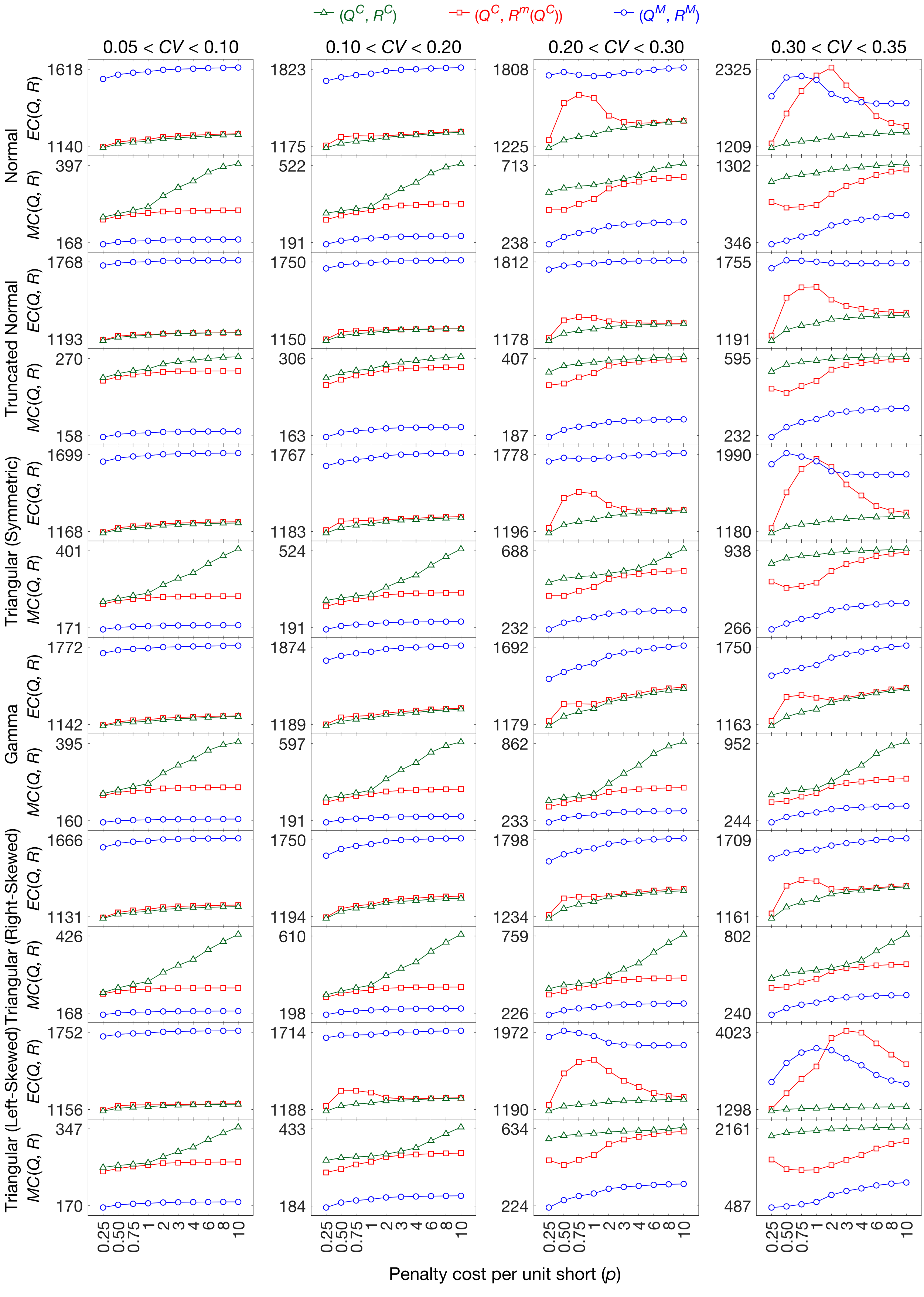

Figure 1. Effects of p on $EC(Q, R)$ and $MC(Q, R)$ for (Q^C, R^C), $(Q^C, R^m(Q^C))$, and (Q^M, R^M).

G.2. Effects of Coefficient of Variation on $EC(Q,R)$ and $MC(Q,R)$

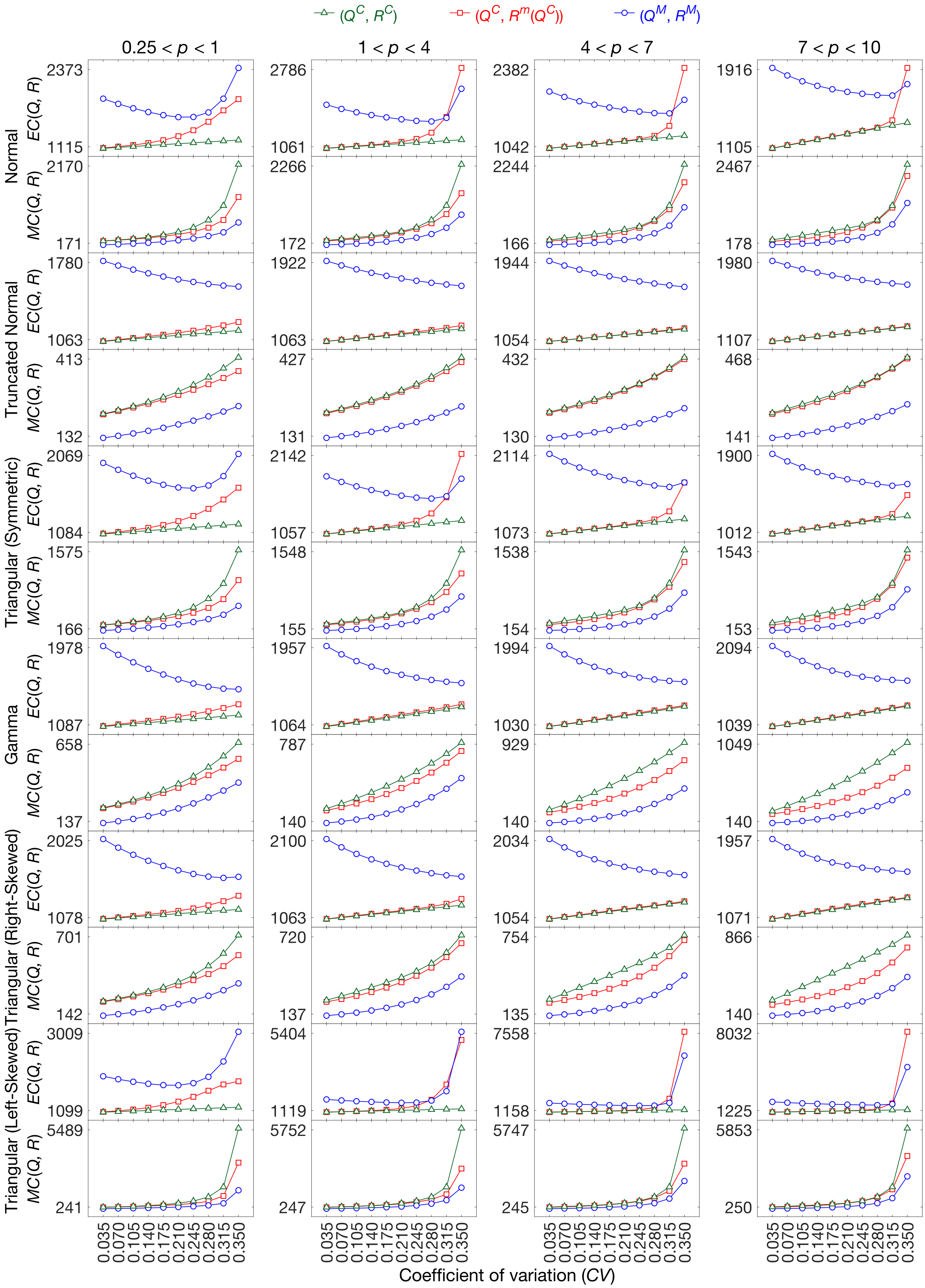

Figure 2. Effects of CV on $EC(Q,R)$ and $MC(Q,R)$ for (Q^C, R^C), $(Q^C, R^m(Q^C))$, and (Q^M, R^M).

G.3. Effects of Penalty Cost per Unit Short and Coefficient of Variation on ΔEC and ΔMC

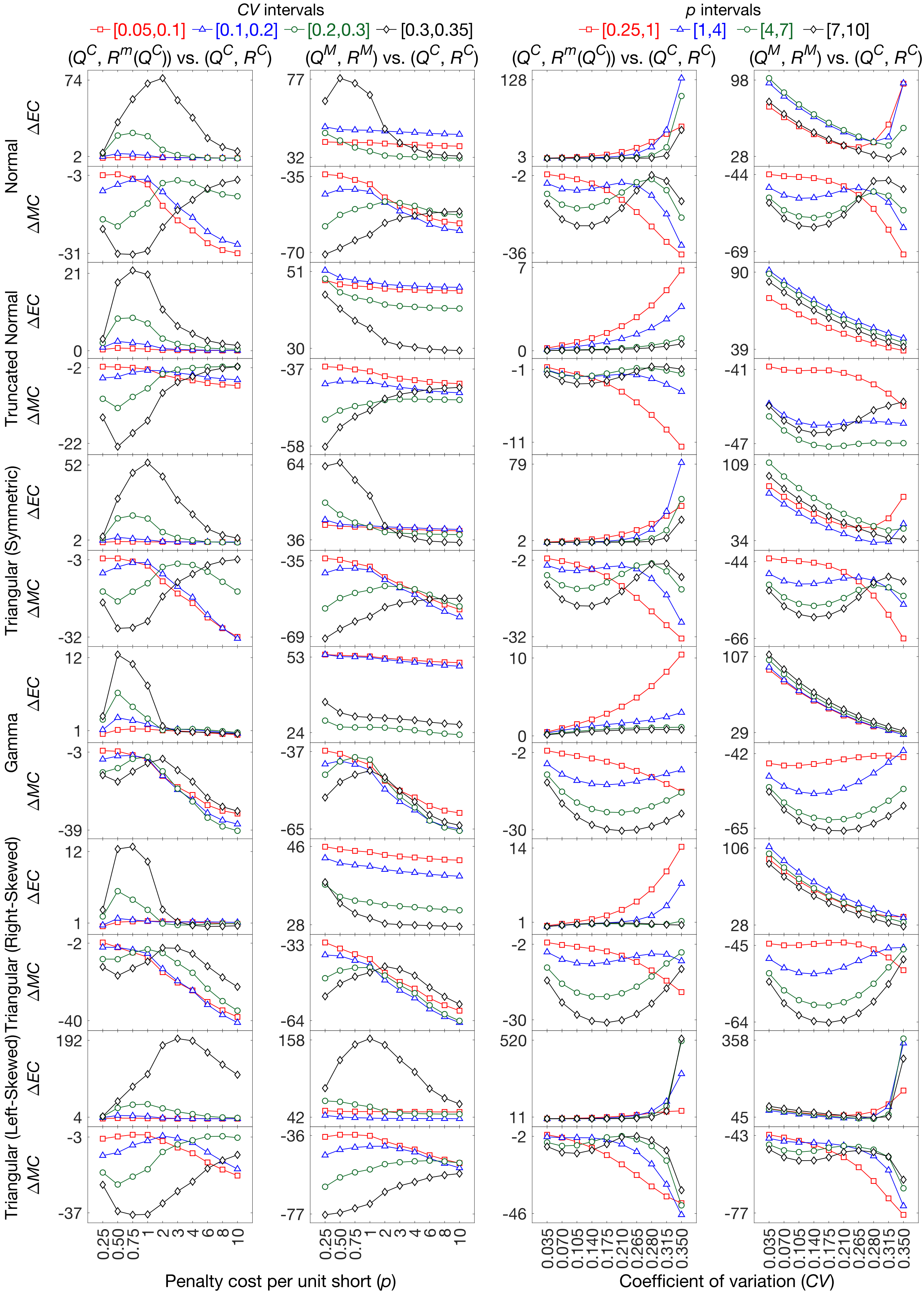

Figure 3. Effects of p and CV on ΔEC and ΔMC for (Q^C, R^C) vs. $(Q^C, R^m(Q^C))$ and (Q^C, R^C) vs. (Q^M, R^M).

H. Figures for Analysis of Cycle Cost Considerations on (Q^G, R^G)

H.1. Effects of Penalty Cost per Unit Short on $EC(Q, R)$ and $MC(Q, R)$

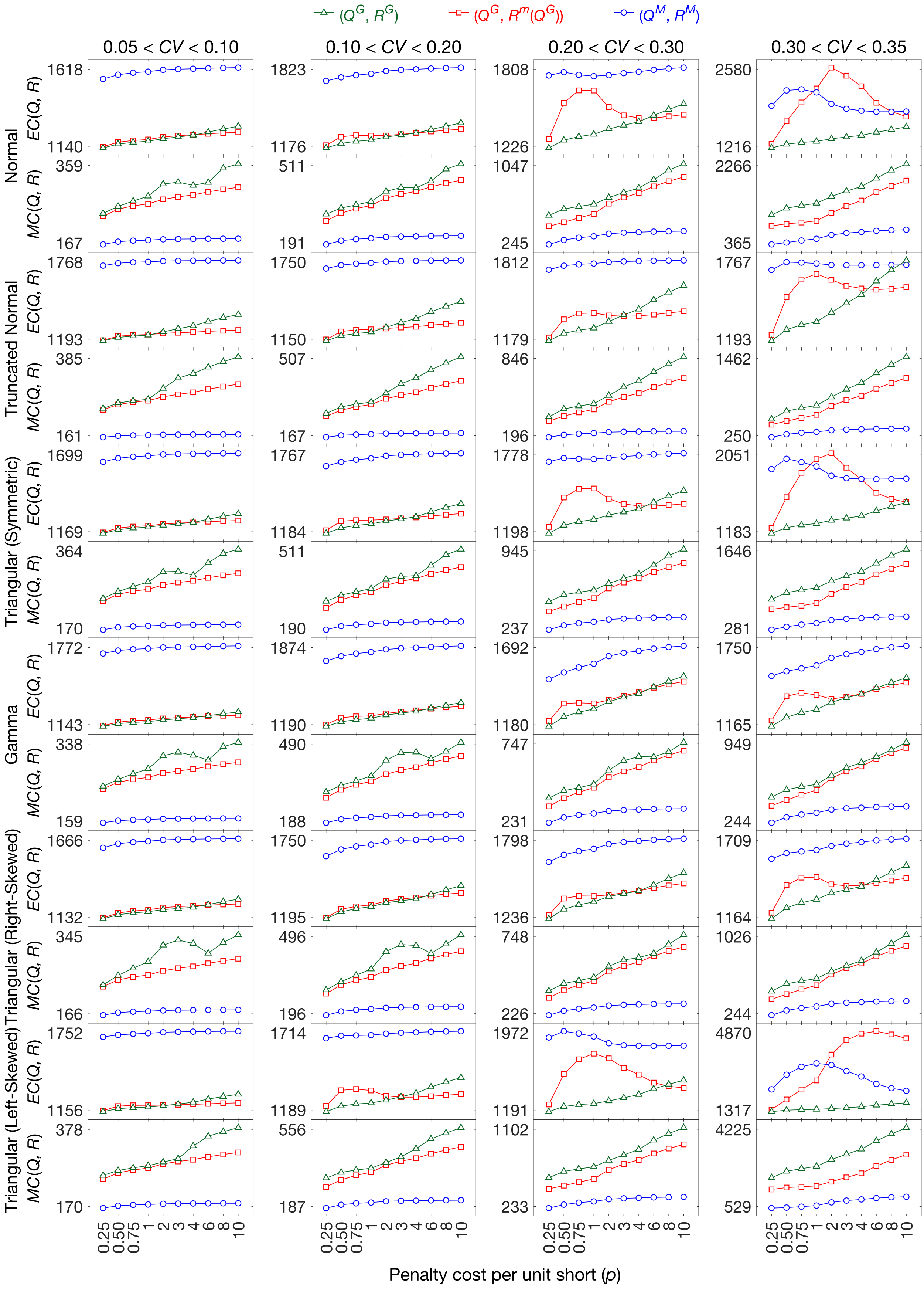

Figure 4. Effects of p on $EC(Q, R)$ and $MC(Q, R)$ for (Q^G, R^G), $(Q^G, R^m(Q^G))$, and (Q^M, R^M).

H.2. Effects of Coefficient of Variation on $EC(Q,R)$ and $MC(Q,R)$

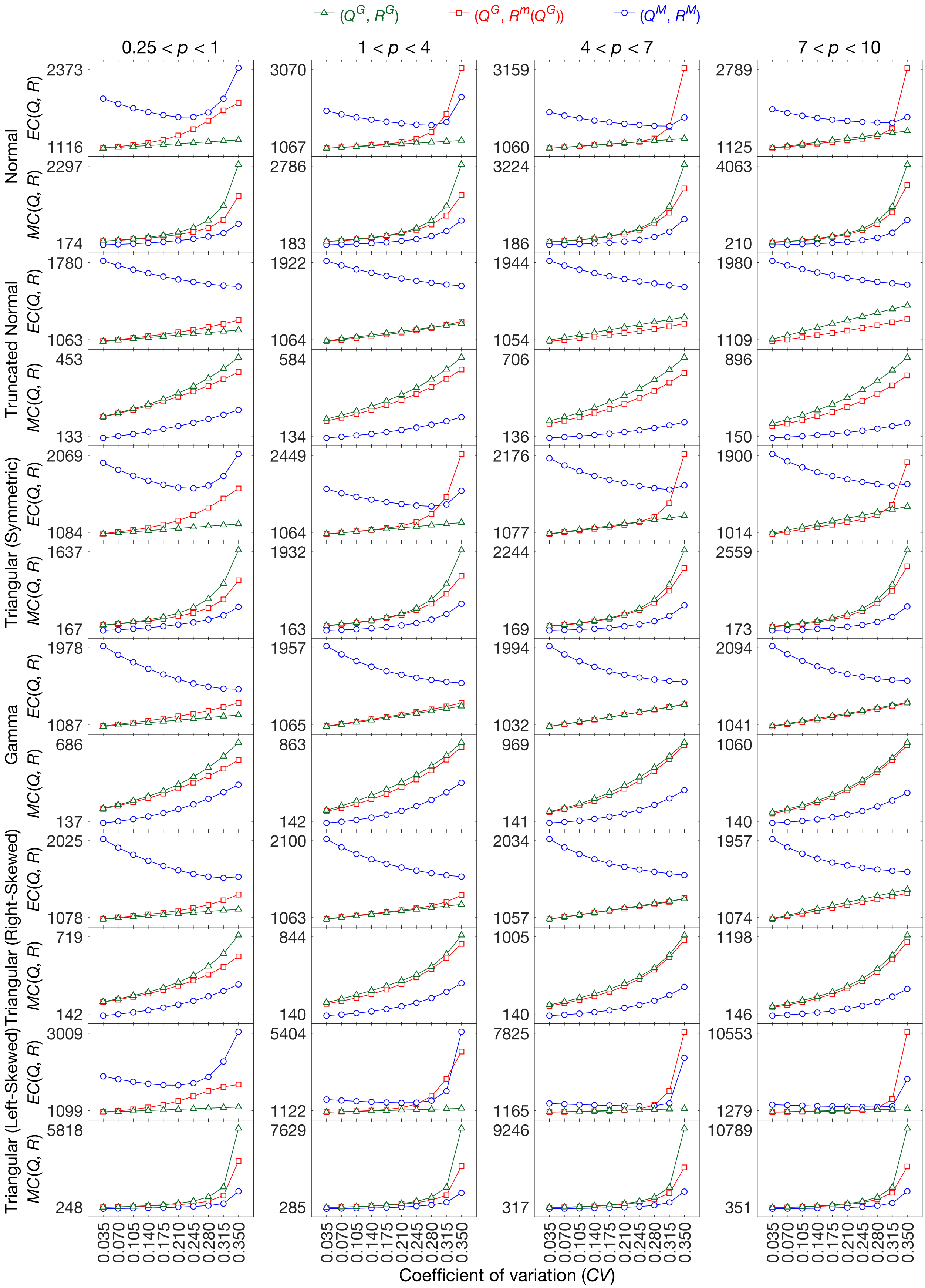

Figure 5. Effects of CV on $EC(Q,R)$ and $MC(Q,R)$ for (Q^G, R^G), $(Q^G, R^m(Q^G))$, and (Q^M, R^M).

H.3. Effects of Penalty Cost per Unit Short and Coefficient of Variation on ΔEC and ΔMC

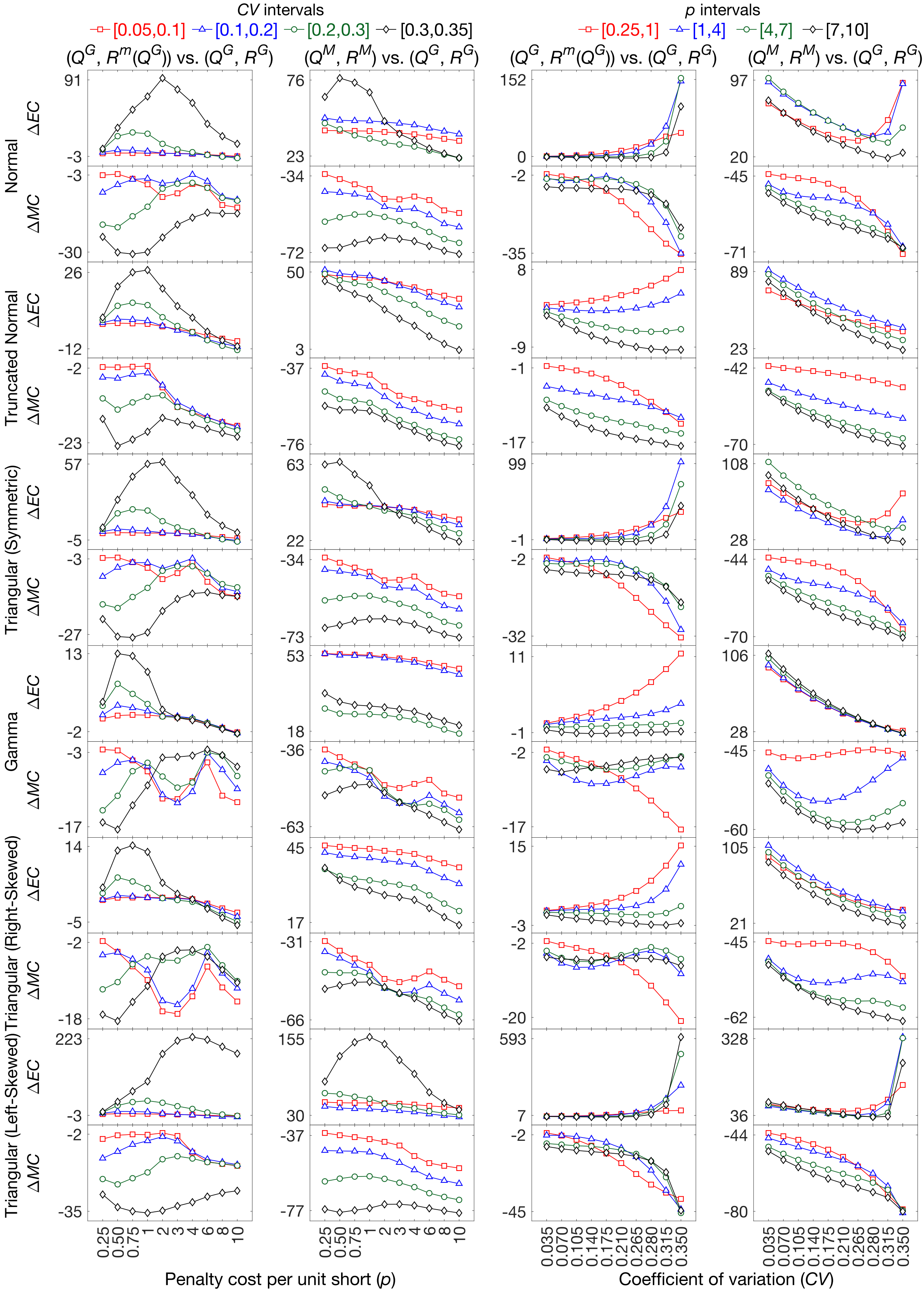

Figure 6. Effects of p and CV on ΔEC and ΔMC for (Q^G, R^G) vs. $(Q^G, R^m(Q^G))$ and (Q^G, R^G) vs. (Q^M, R^M).

I. Figures for Analysis of Cycle Cost Considerations on (Q^E, R^E)

I.1. Effects of Penalty Cost per Unit Short on $EC(Q, R)$ and $MC(Q, R)$

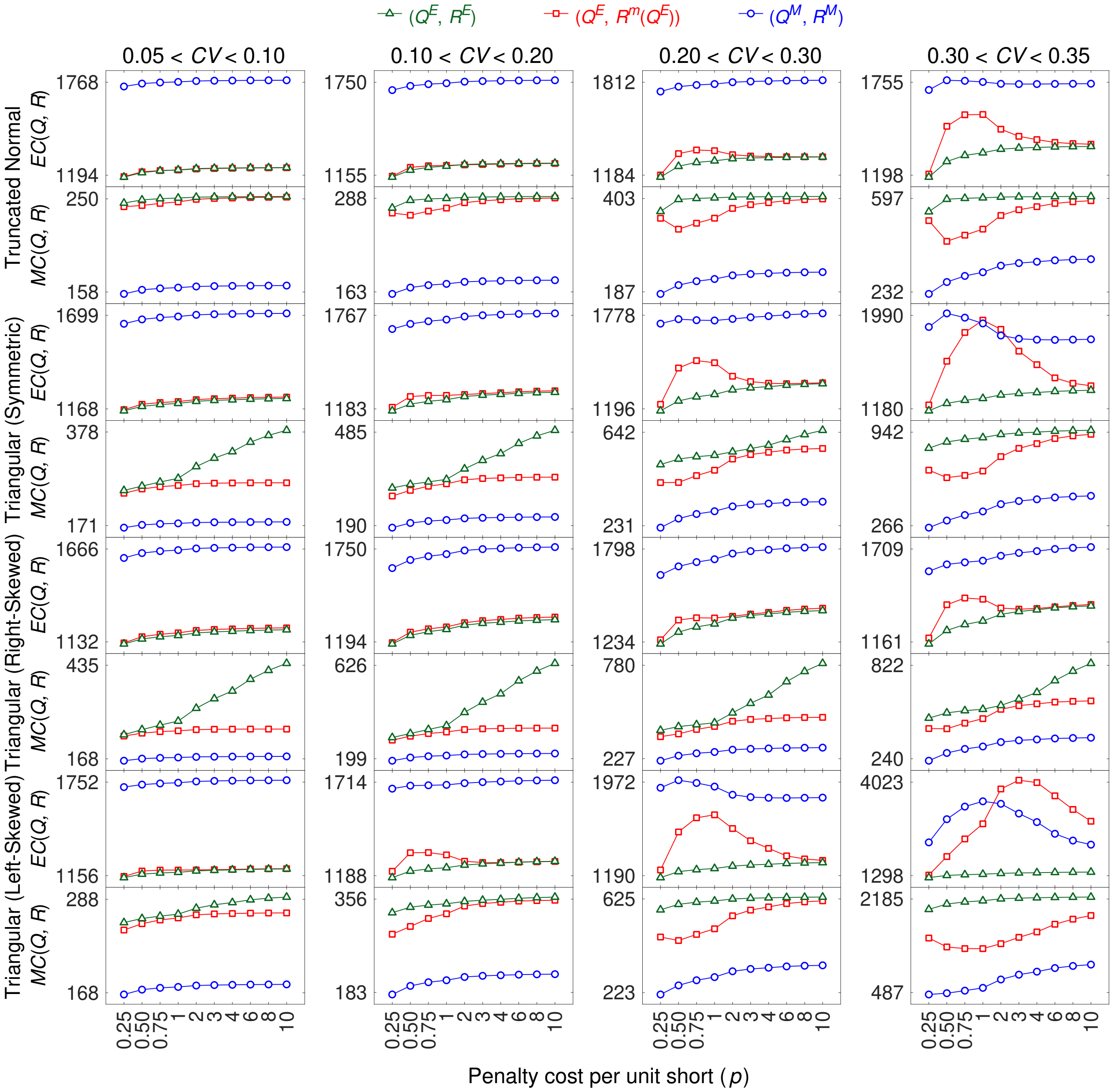

Figure 7. Effects of p on $EC(Q, R)$ and $MC(Q, R)$ for (Q^E, R^E), $(Q^E, R^m(Q^E))$, and (Q^M, R^M).

I.2. Effects of Coefficient of Variation on $EC(Q, R)$ and $MC(Q, R)$

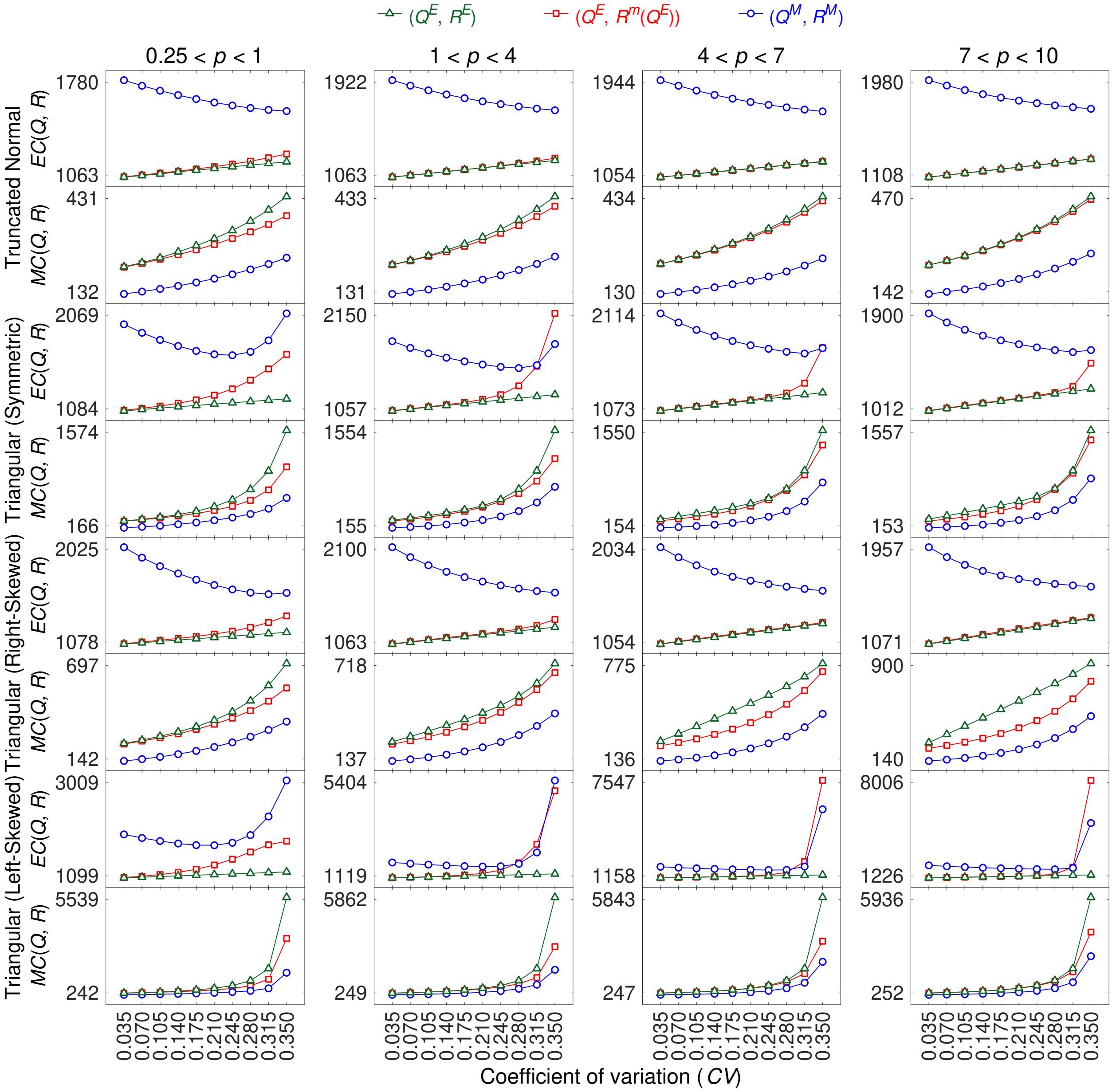

Figure 8. Effects of CV on $EC(Q, R)$ and $MC(Q, R)$ for (Q^E, R^E), $(Q^E, R^m(Q^E))$, and (Q^M, R^M).

I.3. Effects of Penalty Cost per Unit Short and Coefficient of Variation on ΔEC and ΔMC

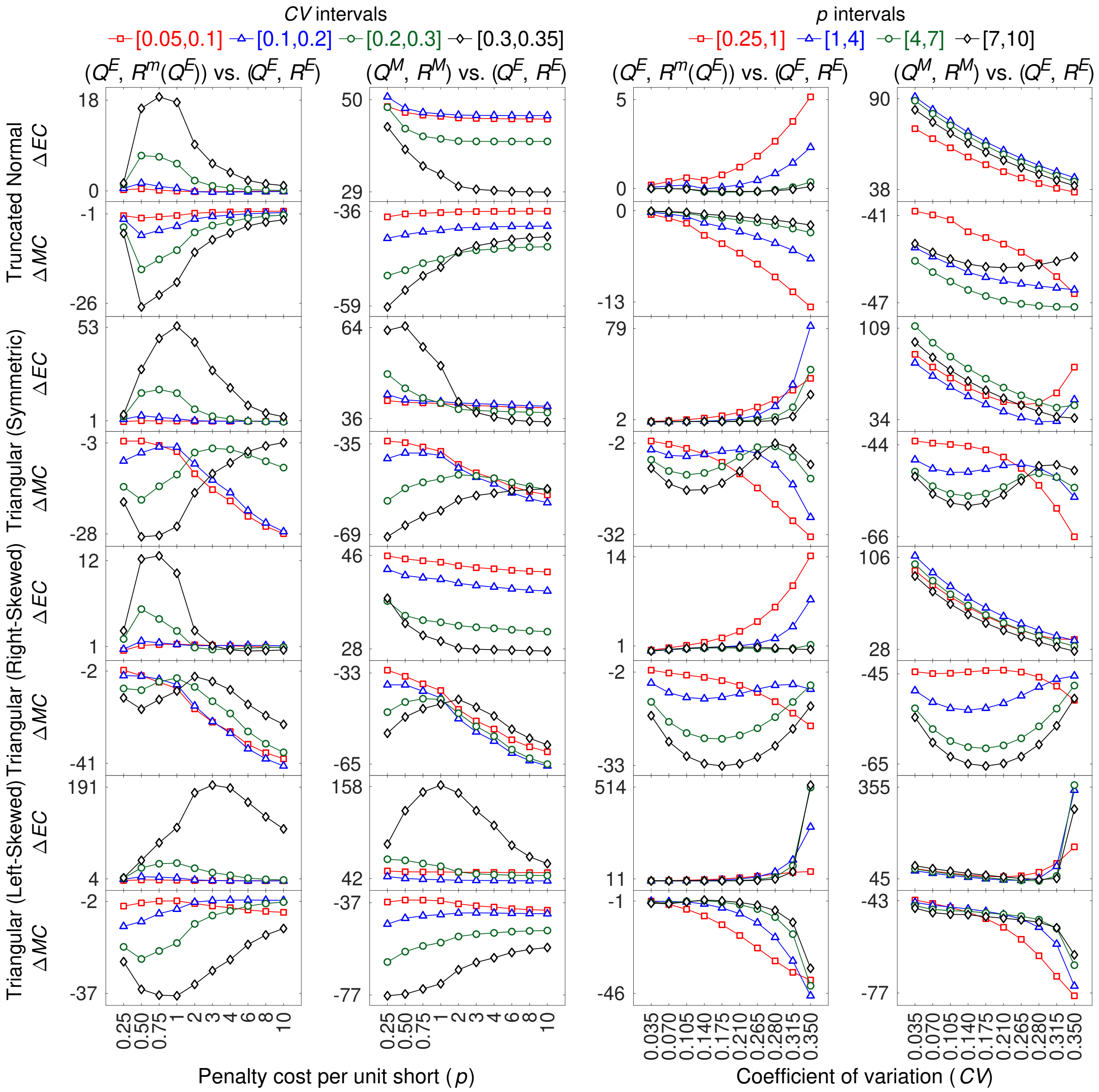

Figure 9. Effects of p and CV on ΔEC and ΔMC for (Q^E, R^E) vs. $(Q^E, R^m(Q^E))$ and (Q^E, R^E) vs. (Q^M, R^M).

J. Comparison of Results with (Q^C, R^C) Policy

J.1. Comparison of Results with (Q^C, R^C) Policy when Penalty Cost per Unit Short is Varied

J.1.1. Normal Distribution

Table 1. Comparisons of results with (Q^C, R^C) policy when penalty cost per unit short is varied (D∼Normal, $h = 1$, $K \in [50, 150]$, $\lambda \in [2{,}000, 10{,}000]$, $\tau \in [0.02, 1]$).

		p									
CV	Policy	0.25	0.50	0.75	1	2	3	4	6	8	10
		Expected Costs per Unit Time									
$[0.05, 0.10]$	(Q^C, R^C)	1129.9	1153.9	1164.4	1171.1	1185.4	1192.9	1197.8	1204.5	1209.0	1212.4
	$(Q^C, R^m(Q^C))$	1137.8	1165.9	1176.4	1182.8	1197.3	1204.1	1208.0	1212.5	1215.2	1217.2
	(Q^M, R^M)	1557.3	1584.0	1596.2	1602.9	1614.1	1618.4	1621.0	1624.1	1626.4	1628.3
$[0.10, 0.20]$	(Q^C, R^C)	1161.6	1199.9	1216.7	1227.3	1249.9	1261.7	1269.5	1280.1	1287.2	1292.5
	$(Q^C, R^m(Q^C))$	1182.0	1253.3	1264.2	1261.4	1263.3	1272.2	1279.3	1288.2	1293.8	1297.7
	(Q^M, R^M)	1724.6	1754.8	1773.1	1785.2	1807.9	1817.2	1822.5	1829.0	1833.4	1836.9
$[0.20, 0.30]$	(Q^C, R^C)	1212.7	1271.0	1296.8	1313.2	1348.2	1366.5	1378.7	1395.1	1406.2	1414.5
	$(Q^C, R^m(Q^C))$	1271.3	1551.7	1614.7	1591.3	1456.4	1409.8	1399.5	1402.8	1410.5	1417.4
	(Q^M, R^M)	1760.9	1786.0	1765.6	1755.5	1763.0	1778.0	1789.0	1803.4	1813.0	1820.4
$[0.30, 0.35]$	(Q^C, R^C)	1185.8	1251.6	1280.5	1298.8	1338.0	1358.5	1372.2	1390.5	1402.8	1412.1
	$(Q^C, R^m(Q^C))$	1249.9	1682.6	2009.9	2233.2	2347.9	2089.1	1879.5	1642.6	1545.2	1502.4
	(Q^M, R^M)	1931.8	2204.1	2223.2	2169.3	1965.9	1879.7	1845.3	1826.8	1826.9	1831.3
		Maximum Cyle Costs									
$[0.05, 0.10]$	(Q^C, R^C)	243.8	253.9	264.1	274.0	307.1	331.8	350.7	377.2	393.3	401.7
	$(Q^C, R^m(Q^C))$	236.6	247.4	252.9	255.9	260.6	262.1	262.9	263.5	263.9	264.0
	(Q^M, R^M)	163.5	170.2	172.7	174.0	176.0	176.6	177.0	177.3	177.5	177.6
$[0.10, 0.20]$	(Q^C, R^C)	317.2	327.9	336.1	345.8	386.3	421.7	449.7	489.7	515.1	528.9
	$(Q^C, R^m(Q^C))$	289.5	307.2	320.9	329.9	345.1	350.4	353.1	355.7	356.9	357.7
	(Q^M, R^M)	184.1	199.4	205.8	209.2	214.7	216.7	217.6	218.6	219.2	219.5
$[0.20, 0.30]$	(Q^C, R^C)	547.4	573.3	585.3	593.0	611.2	630.7	651.3	686.3	710.2	722.8
	$(Q^C, R^m(Q^C))$	440.0	440.8	477.0	507.2	571.8	599.2	614.0	629.4	637.3	642.0
	(Q^M, R^M)	228.5	273.8	297.8	312.5	339.2	349.7	355.3	361.1	364.1	366.0
$[0.30, 0.35]$	(Q^C, R^C)	1100.2	1160.7	1189.2	1207.5	1246.9	1267.6	1281.5	1300.2	1312.8	1322.3
	$(Q^C, R^m(Q^C))$	849.4	781.4	790.3	814.8	951.3	1050.0	1112.5	1186.2	1227.1	1253.0
	(Q^M, R^M)	325.9	371.4	421.5	464.0	559.3	604.3	630.6	660.3	676.5	686.8
		% Change in Expected Costs per Unit Time									
$[0.05, 0.10]$	$(Q^C, R^m(Q^C))$	0.7	1.1	1.1	1.1	1.0	0.9	0.8	0.6	0.5	0.4
	(Q^M, R^M)	40.9	40.7	40.6	40.5	39.9	39.6	39.3	38.9	38.6	38.4
$[0.10, 0.20]$	$(Q^C, R^m(Q^C))$	1.8	4.7	4.1	2.8	1.0	0.8	0.7	0.6	0.5	0.4
	(Q^M, R^M)	49.5	48.0	47.7	47.6	47.1	46.7	46.3	45.8	45.4	45.2
$[0.20, 0.30]$	$(Q^C, R^m(Q^C))$	4.9	21.7	24.2	21.0	8.3	3.3	1.6	0.6	0.3	0.2
	(Q^M, R^M)	46.0	41.7	37.7	35.5	33.1	32.5	32.3	31.9	31.6	31.5
$[0.30, 0.35]$	$(Q^C, R^m(Q^C))$	5.5	34.1	56.0	70.7	75.8	55.0	38.5	19.2	10.8	6.8
	(Q^M, R^M)	64.4	77.5	74.6	67.9	48.4	40.4	36.9	34.2	33.2	32.8
		% Change in Maximum Cycle Costs									
$[0.05, 0.10]$	$(Q^C, R^m(Q^C))$	-2.9	-2.6	-4.2	-6.3	-13.9	-19.2	-22.8	-27.3	-29.8	-30.9
	(Q^M, R^M)	-34.0	-34.6	-36.5	-38.5	-44.6	-48.4	-51.0	-54.2	-55.8	-56.6
$[0.10, 0.20]$	$(Q^C, R^m(Q^C))$	-8.6	-6.3	-4.6	-4.4	-9.0	-14.2	-18.1	-23.2	-26.3	-27.8
	(Q^M, R^M)	-43.2	-40.9	-41.0	-41.9	-47.0	-51.0	-53.7	-57.1	-59.1	-60.0
$[0.20, 0.30]$	$(Q^C, R^m(Q^C))$	-18.8	-21.3	-16.9	-13.1	-5.8	-4.8	-5.7	-8.1	-9.8	-10.5
	(Q^M, R^M)	-58.0	-52.7	-50.1	-48.6	-46.5	-47.2	-48.5	-50.8	-52.1	-52.7
$[0.30, 0.35]$	$(Q^C, R^m(Q^C))$	-22.3	-31.1	-31.4	-30.1	-21.6	-15.5	-11.8	-7.8	-5.8	-4.6
	(Q^M, R^M)	-71.0	-68.0	-64.5	-61.8	-56.4	-54.2	-53.0	-51.9	-51.4	-51.1

J.1.2. Truncated Normal Distribution

Table 2. Comparisons of results with (Q^C, R^C) policy when penalty cost per unit short is varied (D~Truncated Normal, $h = 1$, $K \in [50, 150]$, $\lambda \in [2{,}000, 10{,}000]$, $\tau \in [0.02, 1]$).

		p									
CV	Policy	0.25	0.50	0.75	1	2	3	4	6	8	10
		Expected Costs per Unit Time									
$[0.05, 0.10]$	(Q^C, R^C)	1180.8	1205.8	1215.4	1220.7	1230.0	1233.6	1235.6	1237.7	1238.7	1239.4
	$(Q^C, R^m(Q^C))$	1184.7	1214.7	1222.5	1226.0	1232.5	1235.3	1236.9	1238.6	1239.5	1240.0
	(Q^M, R^M)	1741.6	1759.5	1766.3	1769.9	1775.4	1777.3	1778.3	1779.3	1779.7	1780.0
$[0.10, 0.20]$	(Q^C, R^C)	1137.3	1176.4	1191.3	1199.8	1214.4	1220.1	1223.2	1226.5	1228.2	1229.3
	$(Q^C, R^m(Q^C))$	1147.8	1205.5	1215.7	1218.3	1221.2	1224.0	1225.9	1228.2	1229.5	1230.3
	(Q^M, R^M)	1699.7	1726.6	1737.6	1743.7	1753.8	1757.4	1759.2	1761.1	1762.1	1762.7
$[0.20, 0.30]$	(Q^C, R^C)	1165.1	1224.6	1246.9	1259.4	1281.0	1289.4	1293.9	1298.7	1301.2	1302.8
	$(Q^C, R^m(Q^C))$	1189.4	1331.6	1358.3	1353.0	1323.6	1313.8	1310.4	1308.4	1308.0	1307.9
	(Q^M, R^M)	1749.2	1782.3	1793.3	1799.8	1812.0	1817.1	1819.9	1822.8	1824.4	1825.3
$[0.30, 0.35]$	(Q^C, R^C)	1179.5	1259.2	1289.3	1306.2	1335.4	1346.8	1353.0	1359.5	1363.0	1365.1
	$(Q^C, R^m(Q^C))$	1216.4	1493.8	1569.0	1573.1	1479.8	1434.1	1413.0	1395.1	1387.8	1384.0
	(Q^M, R^M)	1708.6	1766.7	1763.3	1756.5	1745.4	1743.9	1744.0	1744.9	1745.6	1746.2
		Maximum Cyle Costs									
$[0.05, 0.10]$	(Q^C, R^C)	242.1	248.3	252.3	255.2	262.1	265.6	267.7	270.3	271.8	272.8
	$(Q^C, R^m(Q^C))$	238.1	243.7	246.9	248.6	250.9	251.5	251.8	252.0	252.1	252.2
	(Q^M, R^M)	156.1	160.1	161.6	162.3	163.4	163.8	164.0	164.2	164.3	164.3
$[0.10, 0.20]$	(Q^C, R^C)	269.5	278.9	283.4	286.5	294.1	298.6	301.6	305.3	307.5	308.9
	$(Q^C, R^m(Q^C))$	256.6	266.5	274.1	278.4	285.0	287.1	288.0	288.8	289.2	289.4
	(Q^M, R^M)	160.3	168.7	172.0	173.7	176.4	177.3	177.8	178.2	178.5	178.6
$[0.20, 0.30]$	(Q^C, R^C)	367.5	385.8	392.2	395.7	401.7	404.3	406.4	409.2	410.8	412.0
	$(Q^C, R^m(Q^C))$	330.5	335.3	352.8	364.9	386.5	394.0	397.7	401.4	403.1	404.2
	(Q^M, R^M)	182.2	202.6	211.6	216.7	225.2	228.2	229.8	231.4	232.2	232.7
$[0.30, 0.35]$	(Q^C, R^C)	532.7	565.8	577.5	583.8	593.8	597.4	599.3	601.1	602.0	602.6
	$(Q^C, R^m(Q^C))$	452.7	432.9	464.2	489.1	541.8	562.3	573.0	583.7	589.1	592.3
	(Q^M, R^M)	224.6	270.9	294.7	309.1	334.8	344.7	350.0	355.4	358.2	360.0
		% Change in Expected Costs per Unit Time									
$[0.05, 0.10]$	$(Q^C, R^m(Q^C))$	0.3	0.7	0.6	0.4	0.2	0.1	0.1	0.1	0.1	0.0
	(Q^M, R^M)	48.6	47.5	47.0	46.8	46.3	46.1	46.0	45.8	45.8	45.7
$[0.10, 0.20]$	$(Q^C, R^m(Q^C))$	0.9	2.5	2.1	1.6	0.6	0.3	0.2	0.1	0.1	0.1
	(Q^M, R^M)	51.3	49.3	48.6	48.2	47.5	47.2	47.0	46.8	46.7	46.7
$[0.20, 0.30]$	$(Q^C, R^m(Q^C))$	2.1	8.7	8.9	7.4	3.3	1.9	1.3	0.7	0.5	0.4
	(Q^M, R^M)	49.0	45.3	43.9	43.1	42.0	41.5	41.3	41.1	40.9	40.9
$[0.30, 0.35]$	$(Q^C, R^m(Q^C))$	3.2	18.5	21.8	20.7	11.2	6.7	4.6	2.7	1.9	1.4
	(Q^M, R^M)	44.7	40.8	37.5	35.4	31.9	30.8	30.3	29.8	29.5	29.4
		% Change in Maximum Cycle Costs									
$[0.05, 0.10]$	$(Q^C, R^m(Q^C))$	-1.7	-1.8	-2.0	-2.4	-3.9	-4.8	-5.4	-6.1	-6.5	-6.7
	(Q^M, R^M)	-36.3	-36.6	-37.1	-37.6	-38.9	-39.6	-40.0	-40.5	-40.8	-41.0
$[0.10, 0.20]$	$(Q^C, R^m(Q^C))$	-4.8	-4.4	-3.2	-2.7	-2.8	-3.4	-3.9	-4.5	-4.9	-5.2
	(Q^M, R^M)	-41.1	-40.3	-40.3	-40.5	-41.3	-42.0	-42.4	-43.0	-43.3	-43.5
$[0.20, 0.30]$	$(Q^C, R^m(Q^C))$	-10.2	-12.7	-9.7	-7.5	-3.7	-2.5	-2.1	-1.8	-1.7	-1.7
	(Q^M, R^M)	-50.8	-48.3	-47.1	-46.5	-45.5	-45.2	-45.2	-45.3	-45.3	-45.4
$[0.30, 0.35]$	$(Q^C, R^m(Q^C))$	-15.1	-22.9	-19.3	-16.0	-8.7	-5.8	-4.4	-2.9	-2.1	-1.7
	(Q^M, R^M)	-58.2	-52.9	-50.0	-48.2	-45.1	-43.9	-43.2	-42.6	-42.2	-42.0

J.1.3. Triangular Distribution (Symmetric)

Table 3. Comparisons of results with (Q^C, R^C) policy when penalty cost per unit short is varied (D∼Triangular (Symmetric), $h = 1$, $K \in [50, 150]$, $\lambda \in [2{,}000, 10{,}000]$, $\tau \in [0.02, 1]$).

CV	Policy	p 0.25	0.50	0.75	1	2	3	4	6	8	10
		Expected Costs per Unit Time									
$[0.05, 0.10]$	(Q^C, R^C)	1157.3	1182.3	1192.9	1199.2	1211.1	1216.4	1219.5	1223.2	1225.4	1227.0
	$(Q^C, R^m(Q^C))$	1163.7	1194.3	1204.2	1209.7	1220.7	1225.9	1228.9	1232.2	1234.0	1235.1
	(Q^M, R^M)	1651.2	1676.0	1686.6	1692.5	1702.0	1705.3	1707.0	1708.8	1709.7	1710.2
$[0.10, 0.20]$	(Q^C, R^C)	1171.2	1212.7	1230.2	1240.6	1260.2	1268.9	1274.0	1280.1	1283.8	1286.3
	$(Q^C, R^m(Q^C))$	1193.0	1260.3	1266.8	1267.3	1272.7	1278.8	1283.7	1289.9	1293.6	1296.0
	(Q^M, R^M)	1681.6	1713.4	1730.0	1740.4	1759.8	1767.4	1771.4	1775.7	1777.9	1779.2
$[0.20, 0.30]$	(Q^C, R^C)	1183.9	1245.0	1270.5	1285.6	1314.1	1326.6	1334.1	1342.9	1348.2	1351.8
	$(Q^C, R^m(Q^C))$	1223.7	1449.8	1495.5	1481.9	1397.6	1365.0	1354.8	1352.4	1354.9	1357.8
	(Q^M, R^M)	1725.9	1753.7	1747.4	1745.4	1755.2	1765.3	1772.4	1781.2	1786.3	1789.6
$[0.30, 0.35]$	(Q^C, R^C)	1162.6	1226.9	1253.9	1269.9	1300.0	1313.2	1321.1	1330.4	1336.0	1339.8
	$(Q^C, R^m(Q^C))$	1212.9	1591.8	1841.0	1946.6	1862.9	1675.1	1559.3	1446.4	1400.3	1378.9
	(Q^M, R^M)	1889.2	2006.9	1969.9	1919.9	1815.2	1787.2	1779.0	1777.1	1779.4	1782.1
		Maximum Cyle Costs									
$[0.05, 0.10]$	(Q^C, R^C)	248.8	258.5	267.1	274.8	299.5	318.8	335.1	362.5	385.6	406.0
	$(Q^C, R^m(Q^C))$	242.6	252.1	257.0	259.5	263.2	264.3	264.7	265.1	265.3	265.4
	(Q^M, R^M)	166.4	172.5	174.8	175.9	177.7	178.3	178.6	178.9	179.0	179.1
$[0.10, 0.20]$	(Q^C, R^C)	309.1	320.4	327.9	335.2	366.2	393.8	418.4	461.4	498.5	531.2
	$(Q^C, R^m(Q^C))$	283.4	301.6	314.3	321.7	333.7	337.6	339.5	341.3	342.0	342.4
	(Q^M, R^M)	183.6	198.5	204.5	207.8	213.0	214.8	215.7	216.6	217.1	217.4
$[0.20, 0.30]$	(Q^C, R^C)	500.2	524.7	535.0	541.0	554.1	567.4	583.5	618.6	658.6	698.0
	$(Q^C, R^m(Q^C))$	421.9	421.8	451.3	474.3	522.1	541.4	551.4	561.5	566.4	569.3
	(Q^M, R^M)	222.6	262.5	282.6	294.7	316.0	324.2	328.5	333.0	335.3	336.7
$[0.30, 0.35]$	(Q^C, R^C)	826.8	872.4	891.6	902.7	922.8	931.3	936.3	942.2	946.8	952.1
	$(Q^C, R^m(Q^C))$	669.7	614.8	629.5	660.0	761.9	820.5	854.7	892.3	912.2	924.5
	(Q^M, R^M)	252.3	303.6	343.3	369.7	422.2	444.7	457.1	470.5	477.6	482.0
		% Change in Expected Costs per Unit Time									
$[0.05, 0.10]$	$(Q^C, R^m(Q^C))$	0.5	1.0	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.6
	(Q^M, R^M)	41.5	41.0	40.8	40.7	40.3	40.0	39.8	39.6	39.5	39.4
$[0.10, 0.20]$	$(Q^C, R^m(Q^C))$	1.8	3.8	2.9	2.1	1.0	0.8	0.8	0.8	0.8	0.8
	(Q^M, R^M)	43.4	41.8	41.4	41.2	40.8	40.6	40.4	40.2	40.0	39.9
$[0.20, 0.30]$	$(Q^C, R^m(Q^C))$	3.3	16.5	18.4	16.3	7.3	3.5	1.9	0.8	0.5	0.4
	(Q^M, R^M)	49.7	45.3	42.4	40.8	38.9	38.5	38.3	38.1	38.0	37.9
$[0.30, 0.35]$	$(Q^C, R^m(Q^C))$	4.4	29.6	46.8	53.6	44.3	28.7	19.1	9.5	5.3	3.2
	(Q^M, R^M)	63.2	64.5	58.1	52.3	41.2	37.9	36.5	35.5	35.2	35.1
		% Change in Maximum Cycle Costs									
$[0.05, 0.10]$	$(Q^C, R^m(Q^C))$	-2.5	-2.5	-3.6	-5.2	-11.1	-15.7	-19.2	-24.7	-28.7	-31.9
	(Q^M, R^M)	-33.9	-34.6	-36.1	-37.6	-42.3	-45.6	-48.2	-51.9	-54.6	-56.8
$[0.10, 0.20]$	$(Q^C, R^m(Q^C))$	-8.0	-5.7	-4.1	-4.1	-8.4	-13.1	-17.1	-23.7	-28.6	-32.5
	(Q^M, R^M)	-40.5	-38.4	-38.4	-39.1	-43.5	-47.2	-50.1	-54.5	-57.8	-60.2
$[0.20, 0.30]$	$(Q^C, R^m(Q^C))$	-14.9	-18.6	-15.0	-11.8	-5.7	-4.5	-5.0	-7.5	-11.3	-14.9
	(Q^M, R^M)	-56.4	-51.7	-49.4	-48.1	-46.3	-46.7	-47.7	-50.2	-53.0	-55.4
$[0.30, 0.35]$	$(Q^C, R^m(Q^C))$	-19.0	-28.7	-28.5	-26.0	-16.8	-11.4	-8.4	-5.1	-3.5	-2.9
	(Q^M, R^M)	-69.8	-65.6	-62.2	-60.0	-55.8	-54.0	-53.1	-52.2	-51.8	-51.8

J.1.4. Gamma Distribution

Table 4. Comparisons of results with (Q^C, R^C) policy when penalty cost per unit short is varied (D∼Gamma, $h = 1$, $K \in [50, 150]$, $\lambda \in [2{,}000, 10{,}000]$, $\tau \in [0.02, 1]$).

		p									
CV	Policy	0.25	0.50	0.75	1	2	3	4	6	8	10
		Expected Costs per Unit Time									
[0.05, 0.10]	(Q^C, R^C)	1129.2	1150.7	1160.4	1166.7	1180.2	1187.3	1192.1	1198.6	1203.0	1206.3
	$(Q^C, R^m(Q^C))$	1134.7	1163.1	1175.2	1181.2	1192.8	1198.9	1202.5	1206.8	1209.4	1211.2
	(Q^M, R^M)	1723.1	1747.6	1757.9	1763.5	1772.6	1776.2	1778.3	1781.2	1783.4	1785.2
[0.10, 0.20]	(Q^C, R^C)	1174.7	1215.0	1233.5	1245.5	1271.7	1285.8	1295.3	1308.2	1317.0	1323.6
	$(Q^C, R^m(Q^C))$	1188.9	1250.3	1261.5	1267.1	1288.1	1302.0	1310.8	1321.1	1327.4	1331.8
	(Q^M, R^M)	1754.7	1797.2	1819.9	1833.5	1857.1	1866.5	1872.1	1879.1	1884.0	1888.1
[0.20, 0.30]	(Q^C, R^C)	1168.1	1231.9	1262.3	1282.2	1326.4	1350.4	1366.8	1389.1	1404.5	1416.2
	$(Q^C, R^m(Q^C))$	1199.7	1313.7	1315.0	1313.1	1340.6	1367.1	1384.6	1405.5	1418.1	1427.0
	(Q^M, R^M)	1481.2	1526.8	1559.9	1584.5	1634.9	1656.6	1669.3	1684.6	1694.7	1702.6
[0.30, 0.35]	(Q^C, R^C)	1150.6	1220.6	1254.7	1277.3	1327.9	1355.6	1374.7	1400.8	1418.9	1432.7
	$(Q^C, R^m(Q^C))$	1188.3	1372.1	1385.5	1366.0	1347.0	1367.2	1386.3	1412.5	1429.0	1440.9
	(Q^M, R^M)	1534.0	1570.0	1592.0	1614.1	1671.6	1700.0	1717.1	1738.1	1751.9	1762.5
		Maximum Cyle Costs									
[0.05, 0.10]	(Q^C, R^C)	242.8	253.1	263.4	273.1	305.2	329.2	347.9	374.6	391.0	400.0
	$(Q^C, R^m(Q^C))$	237.3	246.3	251.2	254.0	258.4	259.9	260.6	261.3	261.6	261.8
	(Q^M, R^M)	154.9	159.8	161.6	162.5	163.8	164.3	164.5	164.8	164.9	165.0
[0.10, 0.20]	(Q^C, R^C)	309.6	322.9	336.4	351.8	410.6	458.5	496.6	551.5	586.1	605.7
	$(Q^C, R^m(Q^C))$	288.6	307.1	321.4	330.0	344.7	349.9	352.5	355.1	356.3	357.0
	(Q^M, R^M)	182.2	195.9	201.4	204.5	209.3	211.0	211.8	212.7	213.1	213.4
[0.20, 0.30]	(Q^C, R^C)	398.1	421.0	434.2	451.6	537.7	619.3	685.3	781.1	841.0	874.8
	$(Q^C, R^m(Q^C))$	348.3	375.5	407.3	428.4	466.9	481.5	489.1	496.8	500.6	502.9
	(Q^M, R^M)	220.1	255.5	272.2	282.0	298.6	304.8	308.0	311.3	313.0	314.0
[0.30, 0.35]	(Q^C, R^C)	480.2	513.0	529.1	539.9	603.4	682.6	753.4	860.7	928.8	966.7
	$(Q^C, R^m(Q^C))$	413.6	425.5	465.8	497.6	562.4	589.1	603.5	618.4	626.0	630.5
	(Q^M, R^M)	229.3	278.4	304.4	320.4	349.5	360.9	367.0	373.3	376.6	378.6
		% Change in Expected Costs per Unit Time									
[0.05, 0.10]	$(Q^C, R^m(Q^C))$	0.5	1.1	1.3	1.2	1.0	0.9	0.8	0.7	0.5	0.4
	(Q^M, R^M)	54.0	53.7	53.5	53.2	52.6	52.1	51.8	51.3	51.0	50.9
[0.10, 0.20]	$(Q^C, R^m(Q^C))$	1.1	2.9	2.5	1.9	1.3	1.2	1.1	0.9	0.7	0.6
	(Q^M, R^M)	54.0	53.2	53.1	52.9	52.1	51.4	51.0	50.3	49.8	49.5
[0.20, 0.30]	$(Q^C, R^m(Q^C))$	2.7	6.7	4.6	2.8	1.1	1.2	1.2	1.1	0.9	0.7
	(Q^M, R^M)	28.6	26.2	26.0	26.1	25.9	25.4	24.9	24.2	23.6	23.2
[0.30, 0.35]	$(Q^C, R^m(Q^C))$	3.2	12.5	11.0	7.8	1.7	0.9	0.8	0.7	0.6	0.5
	(Q^M, R^M)	35.8	31.7	30.2	29.9	29.6	29.2	28.8	28.0	27.5	27.1
		% Change in Maximum Cycle Costs									
[0.05, 0.10]	$(Q^C, R^m(Q^C))$	-2.3	-2.6	-4.4	-6.5	-14.0	-19.1	-22.8	-27.5	-30.1	-31.4
	(Q^M, R^M)	-36.7	-37.8	-39.9	-41.8	-47.6	-51.1	-53.6	-56.7	-58.3	-59.2
[0.10, 0.20]	$(Q^C, R^m(Q^C))$	-6.3	-4.8	-4.5	-6.0	-13.9	-20.4	-25.1	-31.1	-34.5	-36.3
	(Q^M, R^M)	-41.5	-40.4	-41.7	-43.7	-50.6	-55.1	-58.2	-61.9	-64.0	-65.0
[0.20, 0.30]	$(Q^C, R^m(Q^C))$	-12.3	-10.4	-6.1	-5.2	-11.8	-19.9	-25.8	-33.3	-37.3	-39.3
	(Q^M, R^M)	-45.4	-40.6	-39.0	-39.9	-47.2	-53.2	-57.2	-61.9	-64.4	-65.6
[0.30, 0.35]	$(Q^C, R^m(Q^C))$	-13.7	-16.7	-12.0	-8.1	-6.1	-11.3	-16.7	-24.0	-28.2	-30.2
	(Q^M, R^M)	-53.6	-48.0	-45.4	-43.9	-46.3	-51.2	-55.1	-59.9	-62.4	-63.7

J.1.5. Triangular Distribution (Right-Skewed)

Table 5. Comparisons of results with (Q^C, R^C) policy when penalty cost per unit short is varied (D∼Triangular (Right-Skewed), $h = 1$, $K \in [50, 150]$, $\lambda \in [2{,}000, 10{,}000]$, $\tau \in [0.02, 1]$).

		p									
CV	Policy	0.25	0.50	0.75	1	2	3	4	6	8	10
		Expected Costs per Unit Time									
[0.05, 0.10]	(Q^C, R^C)	1120.4	1148.9	1161.5	1168.9	1183.0	1189.2	1193.0	1197.3	1200.0	1201.7
	$(Q^C, R^m(Q^C))$	1126.1	1161.7	1175.6	1184.0	1197.9	1203.6	1206.6	1209.9	1211.5	1212.6
	(Q^M, R^M)	1614.5	1642.6	1653.7	1659.7	1669.1	1672.3	1674.0	1675.7	1676.5	1677.0
[0.10, 0.20]	(Q^C, R^C)	1182.0	1233.1	1255.5	1268.8	1293.8	1304.8	1311.3	1319.1	1323.7	1326.9
	$(Q^C, R^m(Q^C))$	1190.0	1252.4	1272.4	1283.7	1309.1	1321.3	1328.3	1336.0	1340.1	1342.7
	(Q^M, R^M)	1635.6	1684.1	1706.3	1719.0	1740.9	1749.0	1753.2	1757.6	1759.8	1761.1
[0.20, 0.30]	(Q^C, R^C)	1222.2	1293.8	1325.1	1343.6	1378.4	1393.7	1402.8	1413.5	1419.9	1424.3
	$(Q^C, R^m(Q^C))$	1247.6	1368.4	1381.5	1379.5	1389.5	1403.2	1413.4	1426.2	1433.7	1438.6
	(Q^M, R^M)	1640.3	1692.2	1718.4	1735.7	1770.2	1784.9	1793.1	1801.9	1806.5	1809.4
[0.30, 0.35]	(Q^C, R^C)	1149.3	1229.0	1263.7	1284.2	1322.7	1339.7	1349.7	1361.6	1368.7	1373.5
	$(Q^C, R^m(Q^C))$	1184.3	1382.7	1421.6	1413.7	1360.7	1354.3	1357.9	1368.0	1375.9	1381.8
	(Q^M, R^M)	1577.9	1618.4	1630.4	1640.2	1669.1	1686.1	1696.7	1709.1	1716.1	1720.5
		Maximum Cyle Costs									
[0.05, 0.10]	(Q^C, R^C)	236.8	252.5	264.1	274.0	304.6	328.0	347.5	380.1	407.4	431.5
	$(Q^C, R^m(Q^C))$	232.9	242.1	246.1	248.1	250.9	251.7	252.0	252.2	252.3	252.3
	(Q^M, R^M)	162.6	168.6	170.8	171.9	173.6	174.1	174.4	174.7	174.9	174.9
[0.10, 0.20]	(Q^C, R^C)	295.7	316.1	333.0	348.1	397.8	437.2	471.1	528.4	576.6	618.9
	$(Q^C, R^m(Q^C))$	283.3	303.6	315.2	321.6	331.4	334.4	335.7	336.9	337.3	337.5
	(Q^M, R^M)	189.8	204.5	210.4	213.6	218.6	220.4	221.3	222.2	222.7	223.0
[0.20, 0.30]	(Q^C, R^C)	394.2	419.1	430.6	440.3	483.7	529.2	571.5	646.2	711.9	770.1
	$(Q^C, R^m(Q^C))$	354.4	376.6	402.1	418.7	446.9	456.7	461.4	465.9	467.9	469.0
	(Q^M, R^M)	215.0	244.9	258.8	266.7	280.2	285.1	287.7	290.3	291.7	292.5
[0.30, 0.35]	(Q^C, R^C)	492.1	529.3	544.2	552.6	569.7	593.1	624.9	692.4	755.6	814.2
	$(Q^C, R^m(Q^C))$	424.8	431.1	464.2	490.7	545.4	566.5	577.3	588.1	593.2	596.1
	(Q^M, R^M)	228.1	276.3	301.3	316.6	344.1	354.8	360.5	366.4	369.5	371.3
		% Change in Expected Costs per Unit Time									
[0.05, 0.10]	$(Q^C, R^m(Q^C))$	0.5	1.1	1.2	1.3	1.2	1.2	1.1	1.0	0.9	0.9
	(Q^M, R^M)	45.9	45.3	45.0	44.7	44.0	43.7	43.5	43.2	43.0	42.8
[0.10, 0.20]	$(Q^C, R^m(Q^C))$	0.7	1.7	1.5	1.3	1.1	1.2	1.2	1.2	1.1	1.1
	(Q^M, R^M)	43.3	42.1	41.7	41.4	40.7	40.3	40.0	39.6	39.3	39.2
[0.20, 0.30]	$(Q^C, R^m(Q^C))$	2.0	5.9	4.6	3.0	0.9	0.7	0.7	0.8	0.9	0.9
	(Q^M, R^M)	37.2	34.4	33.5	33.1	32.5	32.3	32.0	31.7	31.5	31.3
[0.30, 0.35]	$(Q^C, R^m(Q^C))$	3.0	12.4	12.7	10.4	3.1	1.2	0.6	0.5	0.5	0.6
	(Q^M, R^M)	37.8	32.9	30.6	29.5	28.3	28.0	27.9	27.8	27.7	27.6
		% Change in Maximum Cycle Costs									
[0.05, 0.10]	$(Q^C, R^m(Q^C))$	-1.7	-4.0	-6.5	-8.8	-16.2	-21.3	-25.2	-30.8	-34.9	-38.2
	(Q^M, R^M)	-32.0	-34.5	-36.8	-38.8	-44.4	-48.1	-50.9	-54.9	-57.7	-59.9
[0.10, 0.20]	$(Q^C, R^m(Q^C))$	-4.0	-4.1	-5.3	-7.1	-14.6	-20.5	-25.2	-32.2	-37.2	-41.0
	(Q^M, R^M)	-37.1	-37.5	-39.4	-41.3	-47.4	-51.6	-54.8	-59.3	-62.4	-64.8
[0.20, 0.30]	$(Q^C, R^m(Q^C))$	-9.8	-9.8	-6.6	-5.0	-6.8	-11.7	-16.5	-24.3	-30.4	-35.1
	(Q^M, R^M)	-46.6	-43.5	-42.3	-42.2	-45.5	-49.5	-52.8	-57.7	-61.4	-64.1
[0.30, 0.35]	$(Q^C, R^m(Q^C))$	-13.7	-17.9	-14.3	-11.0	-4.3	-4.5	-7.2	-13.3	-18.7	-23.4
	(Q^M, R^M)	-54.0	-48.8	-46.0	-44.3	-41.8	-43.0	-45.6	-50.4	-54.2	-57.3

J.1.6. Triangular Distribution (Left-Skewed)

Table 6. Comparisons of results with (Q^C, R^C) policy when penalty cost per unit short is varied ($D\sim$Triangular (Left-Skewed), $h = 1$, $K \in [50, 150]$, $\lambda \in [2{,}000, 10{,}000]$, $\tau \in [0.02, 1]$).

CV	Policy	p 0.25	0.50	0.75	1	2	3	4	6	8	10
		Expected Costs per Unit Time									
$[0.05, 0.10]$	(Q^C, R^C)	1143.6	1165.6	1173.0	1177.3	1185.4	1189.0	1191.2	1193.7	1195.2	1196.2
	$(Q^C, R^m(Q^C))$	1150.9	1185.3	1191.2	1191.6	1192.3	1194.1	1195.8	1198.1	1199.6	1200.5
	(Q^M, R^M)	1720.4	1736.2	1743.6	1748.2	1756.4	1759.5	1761.1	1762.8	1763.7	1764.2
$[0.10, 0.20]$	(Q^C, R^C)	1177.3	1213.6	1225.9	1233.1	1246.6	1252.5	1256.1	1260.3	1262.8	1264.5
	$(Q^C, R^m(Q^C))$	1212.4	1315.9	1316.6	1303.9	1269.2	1262.1	1261.5	1263.9	1266.3	1268.2
	(Q^M, R^M)	1677.6	1694.6	1696.6	1698.9	1708.6	1714.3	1717.8	1721.7	1723.8	1725.1
$[0.20, 0.30]$	(Q^C, R^C)	1173.5	1223.1	1239.9	1249.6	1268.0	1276.1	1280.9	1286.6	1290.0	1292.4
	$(Q^C, R^m(Q^C))$	1237.2	1555.8	1670.6	1694.3	1582.2	1481.4	1418.1	1355.5	1329.8	1317.5
	(Q^M, R^M)	1924.7	1988.0	1964.9	1934.5	1866.4	1846.7	1841.0	1839.6	1840.9	1842.5
$[0.30, 0.35]$	(Q^C, R^C)	1240.8	1304.6	1326.0	1338.5	1362.0	1372.4	1378.6	1385.9	1390.3	1393.2
	$(Q^C, R^m(Q^C))$	1314.0	1869.6	2382.5	2816.9	3822.2	4079.6	4014.5	3633.2	3237.5	2894.5
	(Q^M, R^M)	2267.8	2943.1	3310.0	3464.4	3392.1	3108.1	2859.0	2518.2	2320.8	2201.6
		Maximum Cyle Costs									
$[0.05, 0.10]$	(Q^C, R^C)	258.3	262.7	265.5	268.8	282.7	294.4	304.7	322.5	337.5	350.9
	$(Q^C, R^m(Q^C))$	248.9	255.5	260.4	263.3	267.7	269.1	269.8	270.4	270.7	270.8
	(Q^M, R^M)	165.8	172.0	174.3	175.5	177.3	177.9	178.2	178.5	178.7	178.8
$[0.10, 0.20]$	(Q^C, R^C)	331.3	339.6	342.7	344.7	351.4	361.0	371.8	394.7	417.3	438.6
	$(Q^C, R^m(Q^C))$	292.2	303.0	318.0	327.1	342.4	347.7	350.3	352.9	354.1	354.7
	(Q^M, R^M)	179.1	195.1	201.8	205.6	211.6	213.7	214.8	215.9	216.5	216.8
$[0.20, 0.30]$	(Q^C, R^C)	579.7	597.6	604.7	609.0	617.0	620.4	622.4	626.1	632.5	642.1
	$(Q^C, R^m(Q^C))$	465.8	441.1	468.5	493.5	551.2	576.7	591.2	606.6	614.5	619.2
	(Q^M, R^M)	215.0	254.1	276.0	289.6	314.6	324.5	329.9	335.4	338.3	340.1
$[0.30, 0.35]$	(Q^C, R^C)	2003.9	2073.4	2102.9	2120.8	2153.8	2168.0	2176.4	2186.2	2192.0	2195.9
	$(Q^C, R^m(Q^C))$	1494.1	1283.2	1261.4	1268.7	1369.1	1488.4	1589.2	1732.3	1826.5	1893.8
	(Q^M, R^M)	451.9	475.3	521.1	572.1	724.1	811.4	866.3	931.8	969.8	994.6
		% Change in Expected Costs per Unit Time									
$[0.05, 0.10]$	$(Q^C, R^m(Q^C))$	0.7	1.8	1.6	1.3	0.6	0.4	0.4	0.4	0.3	0.3
	(Q^M, R^M)	51.7	50.6	50.5	50.4	50.3	50.1	50.1	49.9	49.9	49.8
$[0.10, 0.20]$	$(Q^C, R^m(Q^C))$	3.0	8.3	7.4	5.8	1.9	0.8	0.5	0.3	0.3	0.3
	(Q^M, R^M)	44.7	42.3	41.2	40.7	40.1	40.0	39.9	39.8	39.7	39.7
$[0.20, 0.30]$	$(Q^C, R^m(Q^C))$	5.4	26.7	34.6	35.8	25.7	17.2	11.6	6.0	3.5	2.2
	(Q^M, R^M)	66.5	65.1	61.1	57.6	50.5	48.4	47.5	46.9	46.7	46.6
$[0.30, 0.35]$	$(Q^C, R^m(Q^C))$	6.0	42.9	78.7	109.3	179.9	196.2	190.8	162.2	132.7	107.8
	(Q^M, R^M)	85.6	127.7	151.1	160.0	150.4	128.5	109.9	84.9	70.5	61.8
		% Change in Maximum Cycle Costs									
$[0.05, 0.10]$	$(Q^C, R^m(Q^C))$	-3.8	-2.8	-2.0	-2.0	-4.8	-7.7	-10.3	-14.4	-17.6	-20.3
	(Q^M, R^M)	-36.7	-35.6	-35.6	-36.2	-39.0	-41.4	-43.3	-46.3	-48.6	-50.5
$[0.10, 0.20]$	$(Q^C, R^m(Q^C))$	-11.3	-10.0	-6.7	-4.7	-2.5	-3.6	-5.5	-9.8	-13.8	-17.4
	(Q^M, R^M)	-46.3	-43.5	-42.3	-41.7	-41.6	-43.0	-44.7	-47.9	-50.6	-52.9
$[0.20, 0.30]$	$(Q^C, R^m(Q^C))$	-18.9	-24.3	-20.8	-17.5	-9.7	-6.3	-4.5	-2.8	-2.6	-3.3
	(Q^M, R^M)	-62.8	-57.9	-55.3	-53.7	-51.0	-50.0	-49.5	-49.2	-49.5	-50.3
$[0.30, 0.35]$	$(Q^C, R^m(Q^C))$	-24.4	-36.3	-37.9	-37.7	-32.8	-27.3	-23.0	-17.1	-13.5	-11.0
	(Q^M, R^M)	-77.4	-76.3	-74.0	-71.7	-65.5	-62.3	-60.3	-58.0	-56.7	-55.9

J.2. Comparison of Results with (Q^C, R^C) Policy when Coefficient of Variation is Varied

J.2.1. Normal Distribution

Table 7. Comparisons of results with (Q^C, R^C) policy when coefficient of variation is varied (D∼Normal, $h = 1$, $K \in [50, 150]$, $\lambda \in [2{,}000, 10{,}000]$, $\tau \in [0.02, 1]$).

		CV									
p	Policy	0.035	0.070	0.105	0.140	0.175	0.210	0.245	0.280	0.315	0.350
		Expected Costs per Unit Time									
$[0.25, 1]$	(Q^C, R^C)	1089.3	1104.5	1119.6	1134.7	1149.6	1164.5	1179.3	1193.9	1208.5	1223.0
	$(Q^C, R^m(Q^C))$	1095.1	1117.5	1143.4	1176.3	1221.1	1286.9	1383.2	1521.6	1707.2	1890.6
	(Q^M, R^M)	1898.3	1813.3	1741.5	1680.2	1630.0	1597.6	1599.8	1673.8	1897.7	2399.1
$[1, 4]$	(Q^C, R^C)	1024.8	1046.1	1067.4	1088.6	1109.8	1131.0	1152.1	1173.2	1194.3	1215.3
	$(Q^C, R^m(Q^C))$	1028.1	1052.3	1076.2	1101.2	1129.9	1169.2	1235.7	1375.1	1726.6	2822.4
	(Q^M, R^M)	1998.1	1905.2	1830.1	1768.4	1716.7	1673.1	1638.4	1625.5	1705.5	2356.6
$[4, 7]$	(Q^C, R^C)	1014.2	1038.6	1063.1	1087.5	1111.9	1136.3	1160.6	1184.9	1209.2	1233.5
	$(Q^C, R^m(Q^C))$	1016.3	1042.4	1067.9	1092.9	1117.6	1143.2	1174.3	1229.9	1404.7	2410.3
	(Q^M, R^M)	2000.0	1906.6	1831.9	1771.9	1723.5	1683.9	1651.4	1625.6	1621.2	1856.3
$[7, 10]$	(Q^C, R^C)	1088.2	1118.3	1148.3	1178.3	1208.3	1238.2	1268.2	1298.1	1328.0	1357.9
	$(Q^C, R^m(Q^C))$	1090.0	1121.5	1152.5	1182.9	1212.6	1241.7	1271.0	1305.7	1382.1	1932.5
	(Q^M, R^M)	1932.3	1853.2	1791.8	1744.6	1708.5	1681.2	1660.9	1646.4	1642.9	1762.2
		Maximum Cyle Costs									
$[0.25, 1]$	(Q^C, R^C)	230.3	256.5	287.9	328.3	383.0	460.6	576.7	768.5	1144.6	2211.4
	$(Q^C, R^m(Q^C))$	227.1	250.2	277.4	310.0	350.0	400.8	469.2	573.8	773.1	1368.1
	(Q^M, R^M)	129.7	143.4	160.9	183.1	211.2	247.3	294.4	357.8	453.9	708.3
$[1, 4]$	(Q^C, R^C)	247.0	285.0	325.2	369.2	420.8	490.0	601.0	800.0	1193.8	2310.1
	$(Q^C, R^m(Q^C))$	233.6	261.4	295.4	337.8	392.2	464.1	563.9	712.1	961.9	1528.7
	(Q^M, R^M)	128.5	141.5	158.8	182.1	213.9	258.2	322.5	421.8	591.6	947.1
$[4, 7]$	(Q^C, R^C)	251.9	302.7	354.5	407.8	464.9	530.3	617.1	789.0	1178.7	2286.8
	$(Q^C, R^m(Q^C))$	225.1	253.3	288.2	332.6	390.7	469.8	583.8	761.8	1078.7	1805.8
	(Q^M, R^M)	123.0	135.6	152.5	175.6	207.6	253.3	322.1	433.7	639.6	1132.6
$[7, 10]$	(Q^C, R^C)	277.4	344.4	412.1	480.9	550.9	624.2	709.2	863.6	1290.4	2514.7
	$(Q^C, R^m(Q^C))$	236.6	267.7	306.3	355.7	420.7	510.2	640.9	849.3	1233.2	2173.6
	(Q^M, R^M)	130.1	144.2	163.2	189.1	225.3	277.6	357.0	488.0	737.0	1371.3
		% Change in Expected Costs per Unit Time									
$[0.25, 1]$	$(Q^C, R^m(Q^C))$	0.5	1.2	2.1	3.7	6.2	10.5	17.1	26.9	39.9	51.9
	(Q^M, R^M)	73.6	63.9	55.5	48.3	42.2	37.7	36.4	40.9	57.2	94.7
$[1, 4]$	$(Q^C, R^m(Q^C))$	0.3	0.6	0.9	1.2	2.0	3.8	8.0	18.4	45.9	130.5
	(Q^M, R^M)	95.2	83.0	72.9	64.2	56.8	50.2	44.7	41.3	45.6	95.2
$[4, 7]$	$(Q^C, R^m(Q^C))$	0.2	0.4	0.4	0.5	0.5	0.7	1.4	4.4	18.1	101.5
	(Q^M, R^M)	99.7	86.6	75.7	66.5	58.8	52.0	46.2	41.1	38.0	54.0
$[7, 10]$	$(Q^C, R^m(Q^C))$	0.2	0.3	0.4	0.4	0.4	0.3	0.2	0.7	4.6	46.3
	(Q^M, R^M)	78.1	66.8	57.6	49.9	43.5	38.1	33.4	29.3	26.2	32.7
		% Change in Maximum Cycle Costs									
$[0.25, 1]$	$(Q^C, R^m(Q^C))$	-1.5	-2.5	-3.6	-5.5	-8.4	-12.6	-18.0	-24.4	-31.2	-36.7
	(Q^M, R^M)	-43.9	-44.5	-44.8	-45.2	-46.0	-47.8	-50.6	-55.1	-61.9	-69.9
$[1, 4]$	$(Q^C, R^m(Q^C))$	-5.5	-7.9	-8.5	-7.8	-6.3	-5.1	-6.1	-10.8	-18.9	-32.7
	(Q^M, R^M)	-48.2	-50.7	-51.7	-51.6	-50.5	-49.0	-48.4	-49.7	-53.1	-61.3
$[4, 7]$	$(Q^C, R^m(Q^C))$	-10.1	-14.8	-16.4	-15.7	-13.3	-9.4	-4.9	-3.6	-8.4	-20.5
	(Q^M, R^M)	-51.5	-55.6	-57.6	-58.0	-57.2	-55.1	-51.7	-49.6	-50.9	-55.6
$[7, 10]$	$(Q^C, R^m(Q^C))$	-14.3	-21.2	-24.1	-24.1	-21.5	-16.3	-8.6	-1.8	-4.4	-13.3
	(Q^M, R^M)	-53.2	-58.2	-60.6	-61.1	-60.0	-57.0	-52.0	-46.1	-45.9	-48.7

J.2.2. Truncated Normal Distribution

Table 8. Comparisons of results with (Q^C, R^C) policy when coefficient of variation is varied (D∼Truncated Normal, $h = 1$, $K \in [50, 150]$, $\lambda \in [2{,}000, 10{,}000]$, $\tau \in [0.02, 1]$).

		CV									
p	Policy	0.035	0.070	0.105	0.140	0.175	0.210	0.245	0.280	0.315	0.350
		Expected Costs per Unit Time									
$[0.25, 1]$	(Q^C, R^C)	1047.6	1059.1	1070.5	1081.8	1093.0	1104.2	1115.4	1126.4	1137.4	1148.4
	$(Q^C, R^m(Q^C))$	1050.0	1064.1	1078.4	1093.5	1109.7	1127.5	1147.4	1170.0	1196.2	1227.2
	(Q^M, R^M)	1795.2	1752.3	1714.2	1680.3	1650.0	1623.2	1600.1	1580.8	1566.1	1557.1
$[1, 4]$	(Q^C, R^C)	1045.1	1060.5	1076.0	1091.4	1106.8	1122.2	1137.7	1153.1	1168.5	1183.8
	$(Q^C, R^m(Q^C))$	1046.1	1062.6	1079.3	1096.2	1113.6	1131.7	1150.9	1171.7	1194.9	1221.7
	(Q^M, R^M)	1939.9	1890.1	1846.4	1808.0	1774.3	1744.8	1719.0	1696.7	1677.7	1662.4
$[4, 7]$	(Q^C, R^C)	1035.2	1050.7	1066.2	1081.8	1097.3	1112.8	1128.4	1143.9	1159.4	1175.0
	$(Q^C, R^m(Q^C))$	1035.4	1051.2	1067.0	1082.8	1098.8	1115.0	1131.5	1148.6	1166.6	1186.0
	(Q^M, R^M)	1962.2	1909.1	1862.5	1821.5	1785.5	1753.9	1726.2	1702.0	1681.1	1663.3
$[7, 10]$	(Q^C, R^C)	1089.2	1107.3	1125.5	1143.7	1161.9	1180.1	1198.3	1216.4	1234.6	1252.8
	$(Q^C, R^m(Q^C))$	1089.3	1107.7	1126.1	1144.4	1162.9	1181.4	1200.1	1219.2	1238.8	1259.2
	(Q^M, R^M)	1997.8	1948.0	1904.6	1867.0	1834.4	1806.3	1782.1	1761.5	1744.1	1729.8
		Maximum Cyle Costs									
$[0.25, 1]$	(Q^C, R^C)	212.8	226.0	240.2	255.8	273.6	294.3	318.4	346.4	379.4	418.7
	$(Q^C, R^m(Q^C))$	211.4	223.4	236.3	250.4	265.7	282.4	300.7	321.1	343.7	369.1
	(Q^M, R^M)	125.9	133.4	142.0	151.6	162.6	174.8	188.6	204.2	221.7	241.4
$[1, 4]$	(Q^C, R^C)	220.9	235.9	251.6	268.2	286.3	306.5	330.2	358.7	392.7	433.1
	$(Q^C, R^m(Q^C))$	218.6	231.9	246.6	262.9	281.1	301.4	324.4	350.6	380.5	415.3
	(Q^M, R^M)	124.6	131.2	138.9	147.9	158.4	170.6	184.9	201.7	221.6	245.3
$[4, 7]$	(Q^C, R^C)	224.5	239.9	256.0	273.0	291.4	311.8	335.2	363.4	397.4	437.9
	$(Q^C, R^m(Q^C))$	221.9	235.6	250.7	267.6	286.6	308.0	332.4	360.5	393.0	431.1
	(Q^M, R^M)	124.2	130.2	137.4	145.8	155.6	167.1	180.8	197.0	216.4	239.8
$[7, 10]$	(Q^C, R^C)	240.0	258.1	276.8	296.3	317.0	339.5	364.1	393.1	430.1	474.9
	$(Q^C, R^m(Q^C))$	236.0	251.2	268.0	286.8	308.0	331.9	359.3	390.8	427.4	470.6
	(Q^M, R^M)	134.7	142.1	150.8	161.0	173.0	187.1	203.9	223.8	247.7	276.7
		% Change in Expected Costs per Unit Time									
$[0.25, 1]$	$(Q^C, R^m(Q^C))$	0.2	0.5	0.7	1.1	1.5	2.1	2.8	3.8	5.1	6.7
	(Q^M, R^M)	72.9	67.2	62.1	57.4	53.2	49.3	45.9	42.8	40.2	38.2
$[1, 4]$	$(Q^C, R^m(Q^C))$	0.1	0.2	0.4	0.5	0.7	1.0	1.4	1.9	2.7	3.7
	(Q^M, R^M)	91.1	83.9	77.4	71.5	66.2	61.4	57.1	53.1	49.5	46.3
$[4, 7]$	$(Q^C, R^m(Q^C))$	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.5	0.7	1.0
	(Q^M, R^M)	88.9	81.5	74.9	68.9	63.5	58.7	54.3	50.3	46.6	43.3
$[7, 10]$	$(Q^C, R^m(Q^C))$	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.4	0.6
	(Q^M, R^M)	83.7	76.6	70.4	64.7	59.7	55.1	50.9	47.2	43.8	40.7
		% Change in Maximum Cycle Costs									
$[0.25, 1]$	$(Q^C, R^m(Q^C))$	-0.7	-1.2	-1.6	-2.2	-2.9	-4.0	-5.5	-7.2	-9.3	-11.6
	(Q^M, R^M)	-40.8	-41.0	-41.1	-41.1	-41.1	-41.3	-41.7	-42.2	-43.0	-44.0
$[1, 4]$	$(Q^C, R^m(Q^C))$	-1.1	-1.7	-1.9	-1.9	-1.8	-1.6	-1.7	-2.3	-3.1	-4.0
	(Q^M, R^M)	-43.8	-44.7	-45.3	-45.5	-45.5	-45.3	-45.2	-45.2	-45.3	-45.4
$[4, 7]$	$(Q^C, R^m(Q^C))$	-1.1	-1.7	-2.0	-1.9	-1.5	-1.1	-0.8	-0.8	-1.1	-1.6
	(Q^M, R^M)	-44.8	-45.9	-46.7	-47.1	-47.2	-47.2	-47.0	-46.9	-47.0	-47.0
$[7, 10]$	$(Q^C, R^m(Q^C))$	-1.6	-2.6	-3.0	-2.9	-2.5	-2.0	-1.2	-0.6	-0.7	-0.9
	(Q^M, R^M)	-43.9	-45.1	-45.9	-46.1	-46.1	-45.7	-45.0	-44.3	-43.9	-43.6

J.2.3. Triangular Distribution (Symmetric)

Table 9. Comparisons of results with (Q^C, R^C) policy when coefficient of variation is varied ($D\sim$Triangular (Symmetric), $h = 1$, $K \in [50, 150]$, $\lambda \in [2{,}000, 10{,}000]$, $\tau \in [0.02, 1]$).

p	Policy	*CV* 0.035	0.070	0.105	0.140	0.175	0.210	0.245	0.280	0.315	0.350
		Expected Costs per Unit Time									
[0.25, 1]	(Q^C, R^C)	1063.4	1077.9	1092.3	1106.5	1120.7	1134.7	1148.6	1162.3	1175.9	1189.4
	$(Q^C, R^m(Q^C))$	1069.2	1090.5	1114.3	1142.9	1179.4	1228.0	1294.5	1386.0	1504.7	1656.7
	(Q^M, R^M)	1974.4	1885.6	1810.2	1746.1	1694.2	1658.7	1648.8	1684.6	1805.1	2089.0
[1, 4]	(Q^C, R^C)	1034.6	1055.8	1076.9	1098.0	1119.0	1140.1	1161.1	1182.1	1203.1	1224.0
	$(Q^C, R^m(Q^C))$	1036.8	1059.7	1082.5	1106.3	1133.2	1168.1	1222.4	1325.2	1552.2	2164.5
	(Q^M, R^M)	1847.9	1769.8	1706.6	1654.8	1611.8	1575.9	1547.8	1534.3	1567.5	1815.0
[4, 7]	(Q^C, R^C)	1051.7	1074.2	1096.8	1119.4	1141.9	1164.5	1187.0	1209.5	1232.0	1254.5
	$(Q^C, R^m(Q^C))$	1053.8	1078.0	1101.7	1125.0	1148.3	1172.8	1202.3	1248.6	1357.7	1748.2
	(Q^M, R^M)	2135.6	2034.5	1952.1	1884.5	1828.5	1781.6	1741.9	1708.7	1689.2	1749.5
[7, 10]	(Q^C, R^C)	993.1	1016.3	1039.4	1062.5	1085.6	1108.7	1131.9	1155.0	1178.1	1201.1
	$(Q^C, R^m(Q^C))$	995.1	1019.8	1044.1	1067.8	1091.0	1113.9	1137.6	1167.0	1223.7	1443.3
	(Q^M, R^M)	1918.5	1832.7	1763.6	1707.9	1662.7	1625.9	1595.5	1570.0	1551.2	1570.4
		Maximum Cyle Costs									
[0.25, 1]	(Q^C, R^C)	238.7	264.3	295.2	334.0	385.2	456.0	557.6	715.3	992.5	1604.4
	$(Q^C, R^m(Q^C))$	235.7	258.1	284.1	314.8	351.9	398.2	459.8	549.6	707.4	1056.0
	(Q^M, R^M)	136.6	150.6	168.0	189.5	216.0	249.1	290.7	344.2	424.4	585.7
[1, 4]	(Q^C, R^C)	238.8	271.9	307.1	346.0	392.6	454.2	547.9	702.2	975.2	1577.0
	$(Q^C, R^m(Q^C))$	228.6	254.3	285.4	323.7	371.7	434.0	517.7	636.5	820.2	1155.1
	(Q^M, R^M)	126.2	138.4	154.3	175.4	203.6	242.0	296.2	376.3	504.2	739.1
[4, 7]	(Q^C, R^C)	252.0	295.3	339.6	385.5	434.6	490.9	567.6	703.5	971.2	1566.6
	$(Q^C, R^m(Q^C))$	231.2	257.3	289.2	329.0	380.0	447.8	541.9	681.5	909.6	1352.7
	(Q^M, R^M)	125.3	136.5	151.4	171.2	198.3	236.0	290.7	374.8	517.2	802.5
[7, 10]	(Q^C, R^C)	258.1	311.6	365.9	421.0	477.6	538.5	610.4	721.5	972.6	1572.0
	$(Q^C, R^m(Q^C))$	227.1	253.5	285.8	326.4	378.7	448.5	546.5	693.9	940.4	1436.1
	(Q^M, R^M)	123.7	135.3	150.6	171.2	199.4	238.9	296.7	386.7	542.0	864.6
		% Change in Expected Costs per Unit Time									
[0.25, 1]	$(Q^C, R^m(Q^C))$	0.6	1.2	2.0	3.3	5.3	8.2	12.6	18.8	26.9	36.9
	(Q^M, R^M)	87.6	77.1	68.1	60.3	53.8	48.9	46.3	47.6	55.9	77.1
[1, 4]	$(Q^C, R^m(Q^C))$	0.2	0.4	0.5	0.8	1.3	2.7	5.8	13.2	31.3	80.5
	(Q^M, R^M)	80.5	69.8	60.8	53.1	46.4	40.6	35.7	32.2	32.8	50.5
[4, 7]	$(Q^C, R^m(Q^C))$	0.2	0.3	0.4	0.5	0.6	0.9	1.7	4.2	12.4	43.8
	(Q^M, R^M)	110.7	97.1	85.7	76.0	67.6	60.4	53.9	48.3	43.9	45.8
[7, 10]	$(Q^C, R^m(Q^C))$	0.2	0.3	0.4	0.5	0.5	0.5	0.6	1.3	4.7	23.0
	(Q^M, R^M)	97.6	85.1	74.6	65.7	58.2	51.6	45.9	40.8	36.5	35.4
		% Change in Maximum Cycle Costs									
[0.25, 1]	$(Q^C, R^m(Q^C))$	-1.3	-2.4	-3.7	-5.6	-8.3	-12.1	-16.7	-22.1	-27.5	-32.7
	(Q^M, R^M)	-43.1	-43.6	-43.9	-44.3	-45.2	-47.0	-49.6	-53.7	-59.2	-66.0
[1, 4]	$(Q^C, R^m(Q^C))$	-4.1	-5.9	-6.2	-5.5	-4.6	-4.2	-5.5	-9.3	-15.7	-26.4
	(Q^M, R^M)	-47.5	-49.6	-50.4	-50.3	-49.7	-48.8	-48.5	-49.4	-51.5	-56.3
[4, 7]	$(Q^C, R^m(Q^C))$	-7.9	-11.8	-13.2	-12.8	-10.7	-7.4	-4.1	-3.3	-6.4	-13.4
	(Q^M, R^M)	-50.6	-54.2	-56.1	-56.7	-56.1	-54.4	-52.1	-50.7	-51.4	-53.8
[7, 10]	$(Q^C, R^m(Q^C))$	-11.6	-17.3	-19.8	-20.0	-18.0	-14.2	-8.8	-3.6	-3.4	-8.6
	(Q^M, R^M)	-52.3	-56.8	-59.1	-59.9	-59.4	-57.5	-54.1	-50.0	-48.3	-49.6

J.2.4. Gamma Distribution

Table 10. Comparisons of results with (Q^C, R^C) policy when coefficient of variation is varied (D∼Gamma, $h = 1$, $K \in [50, 150]$, $\lambda \in [2{,}000, 10{,}000]$, $\tau \in [0.02, 1]$).

p	Policy	*CV* 0.035	0.070	0.105	0.140	0.175	0.210	0.245	0.280	0.315	0.350
		Expected Costs per Unit Time									
[0.25, 1]	(Q^C, R^C)	1068.1	1082.7	1097.3	1112.0	1126.7	1141.4	1156.0	1170.6	1185.1	1199.5
	$(Q^C, R^m(Q^C))$	1073.2	1092.8	1112.9	1134.0	1156.8	1181.9	1210.1	1242.7	1280.6	1324.0
	(Q^M, R^M)	1996.3	1895.3	1808.7	1733.4	1667.8	1611.1	1563.8	1527.3	1504.1	1497.6
[1, 4]	(Q^C, R^C)	1045.6	1068.4	1091.8	1115.9	1140.5	1165.7	1191.4	1217.7	1244.3	1271.5
	$(Q^C, R^m(Q^C))$	1049.2	1075.3	1101.7	1128.3	1155.0	1182.0	1209.5	1237.9	1268.2	1301.5
	(Q^M, R^M)	1975.9	1880.0	1801.5	1737.5	1685.6	1643.8	1610.3	1583.7	1562.9	1547.8
[4, 7]	(Q^C, R^C)	1009.4	1033.8	1059.1	1085.3	1112.4	1140.3	1169.0	1198.5	1228.8	1259.8
	$(Q^C, R^m(Q^C))$	1011.5	1038.0	1065.3	1093.3	1122.0	1151.2	1180.9	1211.0	1241.5	1272.7
	(Q^M, R^M)	2014.0	1910.1	1824.6	1755.2	1699.5	1655.6	1621.9	1596.8	1578.9	1567.0
[7, 10]	(Q^C, R^C)	1017.3	1043.9	1071.5	1100.3	1130.2	1161.1	1193.0	1225.9	1259.9	1294.7
	$(Q^C, R^m(Q^C))$	1018.8	1046.9	1076.2	1106.5	1137.7	1169.8	1202.6	1236.2	1270.3	1304.9
	(Q^M, R^M)	2115.5	2004.5	1913.1	1838.7	1779.0	1732.2	1696.6	1670.6	1653.0	1642.4
		Maximum Cyle Costs									
[0.25, 1]	(Q^C, R^C)	228.5	252.5	279.5	310.2	346.2	389.0	440.5	502.5	577.5	669.0
	$(Q^C, R^m(Q^C))$	225.5	246.7	270.6	297.8	328.5	363.5	403.2	448.3	499.7	559.2
	(Q^M, R^M)	126.0	138.0	153.3	172.4	195.9	224.3	258.3	298.3	344.9	398.5
[1, 4]	(Q^C, R^C)	247.4	288.5	333.1	381.7	434.5	492.3	555.9	626.6	706.4	800.2
	$(Q^C, R^m(Q^C))$	232.3	258.8	289.9	326.2	369.0	419.4	478.8	548.9	631.6	729.4
	(Q^M, R^M)	126.9	139.3	155.7	177.1	204.7	240.1	285.2	342.1	413.6	502.7
[4, 7]	(Q^C, R^C)	258.0	311.3	369.6	433.1	502.1	576.9	657.8	745.6	841.2	945.0
	$(Q^C, R^m(Q^C))$	232.0	258.5	289.8	326.9	371.0	423.7	486.9	562.8	654.2	764.8
	(Q^M, R^M)	123.4	134.0	148.1	166.7	191.2	223.0	264.4	317.9	386.9	475.7
[7, 10]	(Q^C, R^C)	260.8	322.6	390.5	464.9	546.0	634.1	729.7	833.3	945.5	1067.9
	$(Q^C, R^m(Q^C))$	227.2	253.4	284.5	321.5	365.8	418.9	483.0	560.6	655.0	770.3
	(Q^M, R^M)	121.0	131.6	145.7	164.5	189.1	221.3	263.4	318.1	389.3	481.8
		% Change in Expected Costs per Unit Time									
[0.25, 1]	$(Q^C, R^m(Q^C))$	0.5	1.0	1.5	2.1	2.8	3.8	4.9	6.4	8.2	10.4
	(Q^M, R^M)	93.5	81.4	70.9	61.8	53.6	46.5	40.4	35.3	31.5	29.1
[1, 4]	$(Q^C, R^m(Q^C))$	0.4	0.7	1.0	1.2	1.4	1.6	1.8	2.0	2.4	3.0
	(Q^M, R^M)	96.1	83.0	71.9	62.4	54.3	47.3	41.1	35.7	31.0	26.9
[4, 7]	$(Q^C, R^m(Q^C))$	0.2	0.4	0.6	0.7	0.9	0.9	1.0	1.0	1.1	1.1
	(Q^M, R^M)	103.5	89.1	76.8	66.3	57.4	49.8	43.2	37.6	32.7	28.4
[7, 10]	$(Q^C, R^m(Q^C))$	0.2	0.3	0.4	0.6	0.7	0.7	0.8	0.8	0.8	0.8
	(Q^M, R^M)	109.0	93.9	81.1	70.1	60.8	52.8	45.9	40.1	35.0	30.6
		% Change in Maximum Cycle Costs									
[0.25, 1]	$(Q^C, R^m(Q^C))$	-1.3	-2.4	-3.3	-4.2	-5.3	-6.8	-8.7	-10.9	-13.4	-16.2
	(Q^M, R^M)	-45.0	-45.7	-45.7	-45.2	-44.5	-43.8	-43.1	-42.7	-42.6	-43.1
[1, 4]	$(Q^C, R^m(Q^C))$	-6.1	-9.9	-12.2	-13.4	-13.7	-13.3	-12.5	-11.2	-9.7	-8.3
	(Q^M, R^M)	-49.0	-52.1	-53.8	-54.4	-54.0	-52.7	-50.7	-48.0	-44.7	-41.1
[4, 7]	$(Q^C, R^m(Q^C))$	-10.0	-16.2	-20.1	-22.5	-23.6	-23.7	-23.0	-21.5	-19.4	-16.5
	(Q^M, R^M)	-52.4	-57.1	-60.1	-61.8	-62.4	-62.2	-61.1	-59.2	-56.5	-52.9
[7, 10]	$(Q^C, R^m(Q^C))$	-12.8	-20.5	-25.3	-28.2	-29.8	-30.4	-30.0	-28.8	-26.8	-24.1
	(Q^M, R^M)	-53.7	-59.3	-62.7	-64.7	-65.7	-65.8	-65.1	-63.6	-61.3	-58.1

J.2.5. Triangular Distribution (Right-Skewed)

Table 11. Comparisons of results with (Q^C, R^C) policy when coefficient of variation is varied (D∼Triangular (Right-Skewed), $h = 1$, $K \in [50, 150]$, $\lambda \in [2{,}000, 10{,}000]$, $\tau \in [0.02, 1]$).

		CV									
p	Policy	0.035	0.070	0.105	0.140	0.175	0.210	0.245	0.280	0.315	0.350
		Expected Costs per Unit Time									
$[0.25, 1]$	(Q^C, R^C)	1058.1	1071.9	1085.5	1099.1	1112.5	1125.8	1138.9	1152.0	1164.9	1177.7
	$(Q^C, R^m(Q^C))$	1062.3	1079.7	1097.2	1115.7	1136.2	1160.5	1190.2	1228.4	1279.3	1346.0
	(Q^M, R^M)	2044.5	1938.4	1850.8	1776.8	1713.5	1659.5	1614.8	1581.8	1566.3	1579.4
$[1, 4]$	(Q^C, R^C)	1041.3	1062.2	1083.2	1104.1	1125.0	1145.8	1166.6	1187.4	1208.2	1228.9
	$(Q^C, R^m(Q^C))$	1044.3	1067.6	1090.3	1112.5	1134.5	1156.9	1180.9	1209.5	1249.3	1314.9
	(Q^M, R^M)	2122.0	2010.6	1921.1	1848.3	1788.4	1738.5	1696.5	1661.1	1632.7	1615.8
$[4, 7]$	(Q^C, R^C)	1033.4	1057.4	1081.4	1105.3	1129.3	1153.3	1177.2	1201.1	1225.0	1248.9
	$(Q^C, R^m(Q^C))$	1036.1	1062.3	1088.1	1113.4	1138.0	1161.9	1185.2	1208.2	1232.2	1261.2
	(Q^M, R^M)	2054.4	1948.5	1864.4	1797.4	1743.8	1700.9	1666.3	1638.1	1614.8	1595.5
$[7, 10]$	(Q^C, R^C)	1052.2	1079.4	1106.6	1133.8	1161.0	1188.2	1215.4	1242.5	1269.7	1296.9
	$(Q^C, R^m(Q^C))$	1055.0	1084.7	1114.1	1143.1	1171.4	1199.1	1226.0	1252.0	1277.3	1303.0
	(Q^M, R^M)	1975.6	1881.1	1807.5	1750.2	1705.9	1671.8	1645.9	1626.3	1611.4	1599.8
		Maximum Cyle Costs									
$[0.25, 1]$	(Q^C, R^C)	233.5	254.1	276.8	302.7	333.7	372.4	422.6	489.1	580.4	712.3
	$(Q^C, R^m(Q^C))$	230.5	248.5	268.8	292.0	318.6	349.6	386.3	431.0	488.2	567.8
	(Q^M, R^M)	130.0	140.9	154.3	170.4	189.7	212.8	240.4	273.6	313.9	363.5
$[1, 4]$	(Q^C, R^C)	241.7	272.7	304.7	338.3	373.9	413.5	459.7	519.0	601.8	732.2
	$(Q^C, R^m(Q^C))$	229.8	250.6	274.8	303.0	336.6	376.8	426.1	487.6	566.6	671.8
	(Q^M, R^M)	125.3	135.2	147.9	163.9	184.1	209.8	242.8	285.6	342.5	420.3
$[4, 7]$	(Q^C, R^C)	253.2	299.6	346.6	394.3	442.8	492.9	545.3	601.5	667.4	767.2
	$(Q^C, R^m(Q^C))$	226.1	247.6	272.8	302.7	338.5	382.2	436.8	506.6	599.3	727.7
	(Q^M, R^M)	122.4	132.2	144.7	160.6	181.2	207.7	242.5	288.9	352.7	444.1
$[7, 10]$	(Q^C, R^C)	269.9	332.3	395.3	458.9	522.9	587.6	653.3	720.9	793.0	880.8
	$(Q^C, R^m(Q^C))$	227.5	250.0	276.3	307.6	345.3	391.5	449.4	524.2	624.3	765.0
	(Q^M, R^M)	124.6	135.3	149.1	166.8	189.6	219.1	258.1	310.4	383.0	488.1
		% Change in Expected Costs per Unit Time									
$[0.25, 1]$	$(Q^C, R^m(Q^C))$	0.4	0.7	1.1	1.5	2.2	3.2	4.6	6.8	9.9	14.2
	(Q^M, R^M)	94.7	82.5	72.4	63.7	56.1	49.6	44.0	39.6	36.7	36.3
$[1, 4]$	$(Q^C, R^m(Q^C))$	0.3	0.5	0.7	0.8	0.9	1.1	1.4	2.1	3.9	7.8
	(Q^M, R^M)	107.2	93.0	81.3	71.5	63.2	55.9	49.6	44.1	39.3	35.5
$[4, 7]$	$(Q^C, R^m(Q^C))$	0.3	0.5	0.6	0.7	0.7	0.7	0.7	0.6	0.7	1.2
	(Q^M, R^M)	100.2	86.2	74.7	65.2	57.2	50.3	44.5	39.3	34.8	30.7
$[7, 10]$	$(Q^C, R^m(Q^C))$	0.3	0.5	0.7	0.8	0.9	0.9	0.8	0.7	0.6	0.5
	(Q^M, R^M)	90.1	77.0	66.3	57.5	50.2	44.0	38.7	34.2	30.1	26.5
		% Change in Maximum Cycle Costs									
$[0.25, 1]$	$(Q^C, R^m(Q^C))$	-1.3	-2.2	-2.9	-3.6	-4.6	-6.2	-8.5	-11.7	-15.5	-19.7
	(Q^M, R^M)	-44.6	-45.0	-45.0	-44.6	-44.3	-44.3	-44.8	-46.0	-48.0	-51.2
$[1, 4]$	$(Q^C, R^m(Q^C))$	-4.9	-7.7	-9.0	-9.3	-8.7	-7.6	-6.3	-5.5	-5.8	-8.2
	(Q^M, R^M)	-48.3	-50.6	-51.8	-52.1	-51.6	-50.5	-48.8	-47.1	-45.7	-45.5
$[4, 7]$	$(Q^C, R^m(Q^C))$	-10.6	-16.6	-19.9	-21.4	-21.4	-20.2	-17.7	-13.9	-9.1	-5.0
	(Q^M, R^M)	-51.9	-56.2	-58.6	-59.7	-59.9	-59.1	-57.4	-54.5	-50.4	-46.0
$[7, 10]$	$(Q^C, R^m(Q^C))$	-15.4	-23.6	-28.1	-30.4	-31.0	-30.1	-27.8	-24.0	-18.3	-11.2
	(Q^M, R^M)	-54.0	-59.3	-62.3	-63.8	-64.1	-63.5	-61.8	-58.9	-54.6	-48.5

J.2.6. Triangular Distribution (Left-Skewed)

Table 12. Comparisons of results with (Q^C, R^C) policy when coefficient of variation is varied (D∼Triangular (Left-Skewed), $h = 1$, $K \in [50, 150]$, $\lambda \in [2{,}000, 10{,}000]$, $\tau \in [0.02, 1]$).

		CV									
p	Policy	0.035	0.070	0.105	0.140	0.175	0.210	0.245	0.280	0.315	0.350
		Expected Costs per Unit Time									
$[0.25, 1]$	(Q^C, R^C)	1058.8	1072.5	1086.2	1099.8	1113.4	1126.8	1140.2	1153.4	1166.6	1179.6
	$(Q^C, R^m(Q^C))$	1066.4	1092.2	1125.3	1170.2	1233.3	1320.3	1438.8	1590.7	1744.4	1821.7
	(Q^M, R^M)	1946.8	1873.7	1811.2	1760.9	1728.3	1725.2	1776.0	1932.3	2312.9	3049.2
$[1, 4]$	(Q^C, R^C)	1030.0	1050.1	1070.3	1090.4	1110.5	1130.6	1150.7	1170.7	1190.8	1210.8
	$(Q^C, R^m(Q^C))$	1032.3	1055.6	1081.5	1113.5	1159.3	1235.7	1383.9	1718.0	2565.6	5034.1
	(Q^M, R^M)	1735.2	1681.4	1636.3	1598.5	1568.1	1549.9	1561.9	1673.2	2194.7	5493.2
$[4, 7]$	(Q^C, R^C)	1024.5	1046.2	1067.9	1089.5	1111.2	1132.9	1154.5	1176.2	1197.9	1219.5
	$(Q^C, R^m(Q^C))$	1025.9	1048.7	1071.4	1094.7	1120.8	1156.1	1221.5	1399.9	2140.0	7691.1
	(Q^M, R^M)	1780.8	1724.2	1677.6	1638.8	1606.4	1579.4	1560.2	1570.3	1795.5	5711.8
$[7, 10]$	(Q^C, R^C)	1083.5	1106.6	1129.7	1152.8	1175.9	1198.9	1222.0	1245.1	1268.1	1291.2
	$(Q^C, R^m(Q^C))$	1084.9	1109.1	1132.9	1156.6	1181.1	1209.3	1251.6	1356.8	1859.8	8173.7
	(Q^M, R^M)	1990.0	1922.5	1866.6	1820.1	1781.2	1748.4	1721.2	1706.7	1794.3	5059.3
		Maximum Cyle Costs									
$[0.25, 1]$	(Q^C, R^C)	229.6	257.5	293.1	340.2	405.1	499.7	650.7	927.9	1601.4	5598.5
	$(Q^C, R^m(Q^C))$	227.1	250.4	277.9	311.1	352.4	406.9	487.5	632.1	997.2	3263.4
	(Q^M, R^M)	131.6	144.9	161.5	182.5	209.0	243.2	288.6	355.9	497.0	1383.1
$[1, 4]$	(Q^C, R^C)	235.3	266.7	303.6	350.8	417.1	516.5	675.5	967.2	1674.4	5866.7
	$(Q^C, R^m(Q^C))$	230.0	259.2	295.2	340.8	400.5	481.8	599.7	787.1	1156.1	2988.4
	(Q^M, R^M)	132.1	147.0	166.8	193.5	230.1	282.4	360.9	490.1	739.6	1630.8
$[4, 7]$	(Q^C, R^C)	245.7	284.6	325.1	370.0	428.0	519.7	677.7	969.2	1675.6	5862.1
	$(Q^C, R^m(Q^C))$	232.2	262.5	300.6	349.9	416.1	509.7	652.0	894.3	1402.1	3340.3
	(Q^M, R^M)	130.7	144.9	163.9	190.0	226.9	281.3	367.2	518.9	849.5	2104.2
$[7, 10]$	(Q^C, R^C)	260.3	307.5	355.7	406.3	464.0	542.5	693.2	989.6	1708.7	5970.0
	$(Q^C, R^m(Q^C))$	239.0	270.0	309.2	360.3	429.4	528.2	680.9	948.1	1536.0	3957.2
	(Q^M, R^M)	133.5	147.5	166.4	192.5	229.5	284.7	373.0	532.4	895.6	2477.5
		% Change in Expected Costs per Unit Time									
$[0.25, 1]$	$(Q^C, R^m(Q^C))$	0.7	1.8	3.5	6.3	10.6	16.8	25.6	36.7	47.7	52.2
	(Q^M, R^M)	79.5	71.1	63.8	57.7	53.4	51.9	55.1	67.2	97.0	153.1
$[1, 4]$	$(Q^C, R^m(Q^C))$	0.3	0.6	1.2	2.4	5.0	10.2	21.7	48.5	114.8	297.4
	(Q^M, R^M)	72.0	63.8	56.7	50.5	45.2	41.1	39.8	47.0	87.5	345.8
$[4, 7]$	$(Q^C, R^m(Q^C))$	0.1	0.3	0.4	0.6	1.1	2.5	6.8	21.4	83.2	514.9
	(Q^M, R^M)	78.2	69.4	61.8	55.2	49.4	44.3	40.1	38.6	55.4	364.3
$[7, 10]$	$(Q^C, R^m(Q^C))$	0.1	0.2	0.3	0.4	0.5	1.1	3.0	10.4	50.6	530.2
	(Q^M, R^M)	89.3	79.6	71.2	63.9	57.5	51.9	46.9	43.0	47.0	283.1
		% Change in Maximum Cycle Costs									
$[0.25, 1]$	$(Q^C, R^m(Q^C))$	-1.1	-2.7	-5.2	-8.4	-12.7	-18.0	-24.1	-30.5	-36.3	-40.1
	(Q^M, R^M)	-42.7	-43.9	-45.3	-47.1	-49.4	-52.5	-56.9	-63.0	-70.6	-77.8
$[1, 4]$	$(Q^C, R^m(Q^C))$	-2.3	-2.8	-2.8	-2.9	-3.9	-6.5	-10.8	-17.8	-29.4	-46.8
	(Q^M, R^M)	-44.3	-45.6	-46.1	-46.2	-46.6	-47.4	-49.1	-52.0	-58.3	-73.9
$[4, 7]$	$(Q^C, R^m(Q^C))$	-5.5	-7.5	-7.1	-5.1	-2.6	-1.9	-3.7	-7.5	-15.8	-41.4
	(Q^M, R^M)	-47.0	-49.6	-50.3	-49.7	-48.4	-47.6	-48.1	-49.2	-52.4	-66.2
$[7, 10]$	$(Q^C, R^m(Q^C))$	-7.8	-11.2	-11.7	-9.9	-6.4	-2.4	-1.8	-4.2	-10.0	-32.7
	(Q^M, R^M)	-49.1	-52.6	-54.1	-54.0	-52.6	-50.3	-49.6	-50.3	-52.3	-62.4

K. Comparison of Results with (Q^G, R^G) Policy

K.1. Comparison of Results with (Q^G, R^G) Policy when Penalty Cost per Unit Short is Varied

K.1.1. Normal Distribution

Table 13. Comparisons of results with (Q^G, R^G) policy when penalty cost per unit short is varied (D∼Normal, $h = 1$, $K \in [50, 150]$, $\lambda \in [2{,}000, 10{,}000]$, $\tau \in [0.02, 1]$).

CV	Policy	p 0.25	0.50	0.75	1	2	3	4	6	8	10
		Expected Costs per Unit Time									
$[0.05, 0.10]$	(Q^G, R^G)	1130.2	1154.1	1165.0	1171.9	1187.4	1198.6	1209.1	1228.8	1247.3	1264.5
	$(Q^G, R^m(Q^G))$	1138.1	1166.1	1176.3	1182.7	1198.0	1206.2	1211.4	1218.3	1223.3	1227.4
	(Q^M, R^M)	1557.3	1584.0	1596.2	1602.9	1614.1	1618.4	1621.0	1624.1	1626.4	1628.3
$[0.10, 0.20]$	(Q^G, R^G)	1162.2	1200.4	1217.8	1228.9	1253.8	1271.1	1287.3	1317.2	1345.2	1371.9
	$(Q^G, R^m(Q^G))$	1184.1	1256.2	1268.7	1265.9	1266.5	1276.8	1286.1	1300.1	1310.5	1319.0
	(Q^M, R^M)	1724.6	1754.8	1773.1	1785.2	1807.9	1817.2	1822.5	1829.0	1833.4	1836.9
$[0.20, 0.30]$	(Q^G, R^G)	1213.7	1272.0	1299.2	1316.6	1356.7	1385.0	1411.2	1459.7	1503.7	1546.0
	$(Q^G, R^m(Q^G))$	1280.6	1554.5	1647.8	1647.0	1522.6	1459.6	1440.0	1439.8	1451.8	1465.3
	(Q^M, R^M)	1760.9	1786.0	1765.6	1755.5	1763.0	1778.0	1789.0	1803.4	1813.0	1820.4
$[0.30, 0.35]$	(Q^G, R^G)	1187.2	1252.8	1283.5	1303.2	1348.7	1380.7	1410.0	1463.9	1512.1	1559.1
	$(Q^G, R^m(Q^G))$	1262.3	1658.2	1991.7	2239.4	2608.5	2465.8	2277.2	1987.4	1828.1	1742.2
	(Q^M, R^M)	1931.8	2204.1	2223.2	2169.3	1965.9	1879.7	1845.3	1826.8	1826.9	1831.3
		Maximum Cyle Costs									
$[0.05, 0.10]$	(Q^G, R^G)	240.3	257.5	270.8	282.9	312.8	317.6	309.5	316.9	352.2	362.5
	$(Q^G, R^m(Q^G))$	233.0	250.8	258.8	263.9	274.9	281.2	286.0	293.5	299.6	304.9
	(Q^M, R^M)	163.5	170.2	172.7	174.0	176.0	176.6	177.0	177.3	177.5	177.6
$[0.10, 0.20]$	(Q^G, R^G)	309.4	334.9	347.9	361.8	404.2	419.8	418.4	446.3	496.2	517.5
	$(Q^G, R^m(Q^G))$	280.9	313.5	332.3	345.8	375.5	392.1	404.3	422.8	437.6	450.4
	(Q^M, R^M)	184.1	199.4	205.8	209.2	214.7	216.7	217.6	218.6	219.2	219.5
$[0.20, 0.30]$	(Q^G, R^G)	529.9	595.9	623.1	645.6	714.4	767.9	813.6	900.9	1000.6	1063.6
	$(Q^G, R^m(Q^G))$	416.3	457.8	503.5	544.8	652.4	716.1	762.2	830.9	884.1	929.1
	(Q^M, R^M)	228.5	273.8	297.8	312.5	339.2	349.7	355.3	361.1	364.1	366.0
$[0.30, 0.35]$	(Q^G, R^G)	1051.8	1216.7	1283.1	1338.0	1507.1	1638.8	1751.8	1953.8	2151.2	2305.3
	$(Q^G, R^m(Q^G))$	781.9	831.6	863.6	905.9	1096.6	1271.2	1406.4	1611.6	1767.7	1897.0
	(Q^M, R^M)	325.9	371.4	421.5	464.0	559.3	604.3	630.6	660.3	676.5	686.8
		% Change in Expected Costs per Unit Time									
$[0.05, 0.10]$	$(Q^G, R^m(Q^G))$	0.7	1.1	1.1	1.0	0.9	0.6	0.2	-0.9	-1.9	-2.9
	(Q^M, R^M)	40.8	40.6	40.5	40.4	39.8	39.0	38.2	36.5	35.0	33.6
$[0.10, 0.20]$	$(Q^G, R^m(Q^G))$	2.0	4.9	4.4	3.1	1.0	0.4	-0.1	-1.3	-2.5	-3.7
	(Q^M, R^M)	49.5	47.9	47.6	47.5	46.8	45.8	44.7	42.4	40.2	38.3
$[0.20, 0.30]$	$(Q^G, R^m(Q^G))$	5.5	21.8	26.4	24.8	12.4	5.5	2.1	-1.3	-3.4	-5.1
	(Q^M, R^M)	45.9	41.6	37.5	35.2	32.4	31.0	29.6	26.8	24.1	21.6
$[0.30, 0.35]$	$(Q^G, R^m(Q^G))$	6.4	32.1	54.4	70.6	93.2	79.2	62.7	36.9	21.8	12.4
	(Q^M, R^M)	64.2	77.4	74.2	67.4	47.3	38.4	33.7	28.3	24.7	21.7
		% Change in Maximum Cycle Costs									
$[0.05, 0.10]$	$(Q^G, R^m(Q^G))$	-3.0	-2.7	-4.3	-6.3	-10.7	-9.4	-6.1	-7.4	-13.5	-14.4
	(Q^M, R^M)	-33.1	-35.6	-38.2	-40.5	-45.4	-45.6	-44.2	-46.0	-51.1	-52.4
$[0.10, 0.20]$	$(Q^G, R^m(Q^G))$	-9.1	-6.4	-4.6	-4.2	-6.0	-5.3	-2.9	-5.3	-10.6	-11.7
	(Q^M, R^M)	-41.8	-42.3	-43.1	-44.6	-49.3	-50.7	-50.3	-53.4	-57.8	-59.4
$[0.20, 0.30]$	$(Q^G, R^m(Q^G))$	-20.4	-21.3	-17.5	-14.1	-7.8	-6.0	-5.7	-7.5	-11.0	-12.0
	(Q^M, R^M)	-56.7	-54.5	-53.2	-52.9	-54.3	-56.4	-58.3	-61.8	-65.3	-67.2
$[0.30, 0.35]$	$(Q^G, R^m(Q^G))$	-24.7	-30.1	-30.7	-30.0	-24.9	-20.4	-17.9	-16.2	-16.5	-16.5
	(Q^M, R^M)	-69.7	-69.6	-67.3	-65.9	-64.5	-65.2	-66.4	-68.8	-71.1	-72.8

K.1.2. Truncated Normal Distribution

Table 14. Comparisons of results with (Q^G, R^G) policy when penalty cost per unit short is varied ($D\sim$Truncated Normal, $h = 1$, $K \in [50, 150]$, $\lambda \in$ [2,000, 10,000], $\tau \in [0.02, 1]$).

		p									
CV	Policy	0.25	0.50	0.75	1	2	3	4	6	8	10
		Expected Costs per Unit Time									
$[0.05, 0.10]$	(Q^G, R^G)	1181.1	1206.4	1216.8	1223.5	1247.7	1271.7	1292.1	1325.4	1353.0	1377.0
	$(Q^G, R^m(Q^G))$	1184.9	1215.5	1223.9	1228.0	1236.7	1241.8	1245.7	1251.7	1256.6	1261.0
	(Q^M, R^M)	1741.6	1759.5	1766.3	1769.9	1775.4	1777.3	1778.3	1779.3	1779.7	1780.0
$[0.10, 0.20]$	(Q^G, R^G)	1137.9	1178.0	1194.8	1205.8	1243.2	1279.7	1311.4	1363.3	1406.1	1443.2
	$(Q^G, R^m(Q^G))$	1148.7	1210.4	1223.1	1227.2	1234.1	1241.4	1248.0	1259.5	1269.4	1278.5
	(Q^M, R^M)	1699.7	1726.6	1737.6	1743.7	1753.8	1757.4	1759.2	1761.1	1762.1	1762.7
$[0.20, 0.30]$	(Q^G, R^G)	1166.3	1227.7	1253.3	1270.0	1324.4	1378.4	1425.1	1501.7	1564.5	1618.8
	$(Q^G, R^m(Q^G))$	1192.9	1342.3	1390.3	1394.4	1373.8	1368.1	1370.3	1381.5	1394.7	1408.0
	(Q^M, R^M)	1749.2	1782.3	1793.3	1799.8	1812.0	1817.1	1819.9	1822.8	1824.4	1825.3
$[0.30, 0.35]$	(Q^G, R^G)	1180.9	1264.3	1299.5	1322.1	1391.6	1461.7	1523.8	1625.1	1707.9	1779.3
	$(Q^G, R^m(Q^G))$	1222.7	1506.5	1637.6	1679.6	1635.3	1590.7	1570.8	1561.9	1568.4	1580.1
	(Q^M, R^M)	1708.6	1766.7	1763.3	1756.5	1745.4	1743.9	1744.0	1744.9	1745.6	1746.2
		Maximum Cyle Costs									
$[0.05, 0.10]$	(Q^G, R^G)	239.9	255.6	262.2	266.4	297.9	328.1	341.1	359.7	375.5	389.6
	$(Q^G, R^m(Q^G))$	236.0	251.1	257.9	262.5	273.6	280.8	286.4	295.7	303.4	310.2
	(Q^M, R^M)	156.1	160.1	161.6	162.3	163.4	163.8	164.0	164.2	164.3	164.3
$[0.10, 0.20]$	(Q^G, R^G)	264.8	293.9	305.7	315.2	354.4	395.2	421.0	456.6	486.7	513.6
	$(Q^G, R^m(Q^G))$	252.5	279.5	294.2	304.5	329.5	345.2	357.6	377.6	394.2	408.9
	(Q^M, R^M)	160.3	168.7	172.0	173.7	176.4	177.3	177.8	178.2	178.5	178.6
$[0.20, 0.30]$	(Q^G, R^G)	353.7	420.4	445.0	465.2	534.2	605.8	655.9	733.5	799.6	859.2
	$(Q^G, R^m(Q^G))$	316.6	360.9	391.3	416.6	481.2	521.7	553.1	603.1	644.2	680.1
	(Q^M, R^M)	182.2	202.6	211.6	216.7	225.2	228.2	229.8	231.4	232.2	232.7
$[0.30, 0.35]$	(Q^G, R^G)	508.6	635.2	684.1	724.5	855.2	979.6	1078.8	1232.8	1366.3	1487.0
	$(Q^G, R^m(Q^G))$	423.9	478.1	529.2	578.0	716.8	807.5	877.6	988.3	1078.4	1157.0
	(Q^M, R^M)	224.6	270.9	294.7	309.1	334.8	344.7	350.0	355.4	358.2	360.0
		% Change in Expected Costs per Unit Time									
$[0.05, 0.10]$	$(Q^G, R^m(Q^G))$	0.3	0.8	0.6	0.4	-0.9	-2.3	-3.5	-5.4	-6.9	-8.2
	(Q^M, R^M)	48.6	47.4	46.9	46.5	44.6	42.5	40.7	37.9	35.6	33.7
$[0.10, 0.20]$	$(Q^G, R^m(Q^G))$	0.9	2.8	2.5	1.9	-0.7	-2.9	-4.6	-7.3	-9.3	-10.9
	(Q^M, R^M)	51.2	49.1	48.2	47.6	44.7	41.5	38.8	34.6	31.4	28.7
$[0.20, 0.30]$	$(Q^G, R^m(Q^G))$	2.3	9.4	10.9	9.7	3.7	-0.7	-3.7	-7.7	-10.5	-12.6
	(Q^M, R^M)	48.9	45.0	43.3	42.2	37.9	33.6	30.0	24.5	20.3	16.9
$[0.30, 0.35]$	$(Q^G, R^m(Q^G))$	3.6	19.0	26.0	27.2	17.9	9.2	3.5	-3.5	-7.7	-10.7
	(Q^M, R^M)	44.5	40.3	36.6	34.0	27.2	21.6	17.3	10.9	6.2	2.5
		% Change in Maximum Cycle Costs									
$[0.05, 0.10]$	$(Q^G, R^m(Q^G))$	-1.7	-1.8	-1.6	-1.4	-7.4	-12.9	-14.4	-15.9	-17.2	-18.2
	(Q^M, R^M)	-35.8	-38.5	-39.6	-40.3	-46.3	-51.1	-52.8	-55.1	-56.8	-58.2
$[0.10, 0.20]$	$(Q^G, R^m(Q^G))$	-4.6	-4.9	-3.8	-3.4	-6.8	-11.6	-13.7	-15.8	-17.3	-18.5
	(Q^M, R^M)	-40.2	-43.7	-45.0	-46.2	-51.6	-56.3	-58.8	-61.7	-63.9	-65.6
$[0.20, 0.30]$	$(Q^G, R^m(Q^G))$	-10.5	-13.7	-11.6	-10.1	-9.6	-12.9	-14.6	-16.6	-18.2	-19.5
	(Q^M, R^M)	-48.9	-52.7	-53.6	-54.7	-59.3	-63.5	-66.1	-69.4	-71.7	-73.5
$[0.30, 0.35]$	$(Q^G, R^m(Q^G))$	-16.3	-23.9	-22.1	-19.9	-16.0	-17.1	-17.9	-19.0	-20.2	-21.3
	(Q^M, R^M)	-56.3	-58.4	-58.3	-58.9	-62.7	-66.5	-69.2	-72.6	-75.0	-76.9

K.1.3. Triangular Distribution (Symmetric)

Table 15. Comparisons of results with (Q^G, R^G) policy when penalty cost per unit short is varied (D∼Triangular (Symmetric), $h = 1$, $K \in [50, 150]$, $\lambda \in [2{,}000, 10{,}000]$, $\tau \in [0.02, 1]$).

CV	Policy	*p* 0.25	0.50	0.75	1	2	3	4	6	8	10
		Expected Costs per Unit Time									
[0.05, 0.10]	(Q^G, R^G)	1157.7	1182.6	1193.8	1200.4	1213.1	1222.2	1232.8	1255.5	1275.3	1292.6
	$(Q^G, R^m(Q^G))$	1164.1	1194.4	1204.3	1209.9	1221.7	1228.1	1232.4	1238.2	1242.3	1245.6
	(Q^M, R^M)	1651.2	1676.0	1686.6	1692.5	1702.0	1705.3	1707.0	1708.8	1709.7	1710.2
[0.10, 0.20]	(Q^G, R^G)	1172.1	1213.3	1232.0	1243.3	1265.3	1280.6	1298.0	1335.3	1368.3	1397.1
	$(Q^G, R^m(Q^G))$	1194.8	1263.7	1271.7	1272.2	1277.4	1285.2	1292.5	1304.2	1313.4	1321.1
	(Q^M, R^M)	1681.6	1713.4	1730.0	1740.4	1759.8	1767.4	1771.4	1775.7	1777.9	1779.2
[0.20, 0.30]	(Q^G, R^G)	1185.7	1245.9	1273.4	1290.3	1323.5	1345.3	1368.9	1420.3	1467.2	1508.0
	$(Q^G, R^m(Q^G))$	1234.5	1455.9	1522.1	1524.1	1446.5	1407.1	1393.1	1391.0	1398.3	1407.8
	(Q^M, R^M)	1725.9	1753.7	1747.4	1745.4	1755.2	1765.3	1772.4	1781.2	1786.3	1789.6
[0.30, 0.35]	(Q^G, R^G)	1164.4	1228.1	1257.3	1275.3	1311.1	1335.2	1361.2	1417.2	1468.0	1512.1
	$(Q^G, R^m(Q^G))$	1225.3	1572.3	1848.5	2002.7	2068.9	1906.3	1772.8	1622.5	1551.8	1516.9
	(Q^M, R^M)	1889.2	2006.9	1969.9	1919.9	1815.2	1787.2	1779.0	1777.1	1779.4	1782.1
		Maximum Cyle Costs									
[0.05, 0.10]	(Q^G, R^G)	245.0	262.1	274.9	286.1	311.8	312.7	303.0	334.5	357.9	368.2
	$(Q^G, R^m(Q^G))$	238.4	255.5	263.1	268.0	278.6	284.8	289.4	296.8	302.7	307.9
	(Q^M, R^M)	166.4	172.5	174.8	175.9	177.7	178.3	178.6	178.9	179.0	179.1
[0.10, 0.20]	(Q^G, R^G)	301.7	327.4	341.1	354.7	394.1	405.3	408.7	451.5	495.7	518.0
	$(Q^G, R^m(Q^G))$	274.7	308.1	326.9	339.7	368.4	384.8	397.0	415.9	431.1	444.2
	(Q^M, R^M)	183.6	198.5	204.5	207.8	213.0	214.8	215.7	216.6	217.1	217.4
[0.20, 0.30]	(Q^G, R^G)	479.4	542.6	566.5	586.2	646.8	693.2	733.6	814.4	904.0	959.5
	$(Q^G, R^m(Q^G))$	390.3	435.5	476.8	511.4	601.5	654.8	693.5	751.5	796.7	835.1
	(Q^M, R^M)	222.6	262.5	282.6	294.7	316.0	324.2	328.5	333.0	335.3	336.7
[0.30, 0.35]	(Q^G, R^G)	789.7	908.1	954.7	993.1	1111.1	1202.7	1281.9	1428.5	1567.1	1674.0
	$(Q^G, R^m(Q^G))$	612.0	648.7	677.7	721.6	886.9	1007.6	1097.7	1230.9	1332.3	1416.5
	(Q^M, R^M)	252.3	303.6	343.3	369.7	422.2	444.7	457.1	470.5	477.6	482.0
		% Change in Expected Costs per Unit Time									
[0.05, 0.10]	$(Q^G, R^m(Q^G))$	0.5	1.0	0.9	0.8	0.7	0.5	-0.0	-1.4	-2.5	-3.6
	(Q^M, R^M)	41.5	41.0	40.7	40.6	40.1	39.4	38.6	36.6	34.9	33.4
[0.10, 0.20]	$(Q^G, R^m(Q^G))$	1.9	4.1	3.1	2.3	1.0	0.4	-0.4	-2.3	-3.9	-5.3
	(Q^M, R^M)	43.3	41.7	41.2	41.0	40.4	39.5	38.2	35.3	32.6	30.4
[0.20, 0.30]	$(Q^G, R^m(Q^G))$	4.0	16.8	20.1	19.0	10.4	5.3	2.3	-1.7	-4.3	-6.3
	(Q^M, R^M)	49.5	45.2	42.1	40.4	38.1	37.0	35.4	31.9	28.6	25.9
[0.30, 0.35]	$(Q^G, R^m(Q^G))$	5.3	27.9	46.8	57.1	58.7	44.0	31.6	15.7	6.7	1.2
	(Q^M, R^M)	63.0	64.3	57.7	51.7	40.2	35.9	33.0	28.2	24.5	21.5
		% Change in Maximum Cycle Costs									
[0.05, 0.10]	$(Q^G, R^m(Q^G))$	-2.7	-2.6	-4.1	-5.8	-9.4	-7.5	-3.9	-10.3	-14.0	-14.9
	(Q^M, R^M)	-32.9	-35.6	-38.0	-40.1	-44.5	-44.2	-42.5	-47.8	-51.2	-52.5
[0.10, 0.20]	$(Q^G, R^m(Q^G))$	-8.6	-5.7	-4.2	-4.2	-6.1	-4.5	-2.9	-7.6	-12.3	-13.4
	(Q^M, R^M)	-39.0	-39.9	-41.0	-42.7	-47.5	-48.3	-48.5	-53.1	-57.3	-59.0
[0.20, 0.30]	$(Q^G, R^m(Q^G))$	-17.4	-18.6	-15.1	-12.2	-6.8	-5.4	-5.3	-7.6	-11.0	-12.0
	(Q^M, R^M)	-54.6	-53.4	-52.4	-52.3	-54.2	-56.3	-58.3	-62.0	-65.5	-67.3
[0.30, 0.35]	$(Q^G, R^m(Q^G))$	-22.1	-27.7	-28.0	-26.4	-19.5	-15.7	-14.0	-13.6	-14.5	-14.9
	(Q^M, R^M)	-68.5	-67.0	-64.9	-64.0	-63.9	-65.2	-66.6	-69.4	-71.7	-73.4

K.1.4. Gamma Distribution

Table 16. Comparisons of results with (Q^G, R^G) policy when penalty cost per unit short is varied (D∼Gamma, $h = 1$, $K \in [50, 150]$, $\lambda \in [2{,}000, 10{,}000]$, $\tau \in [0.02, 1]$).

CV	Policy	p 0.25	0.50	0.75	1	2	3	4	6	8	10
		Expected Costs per Unit Time									
[0.05, 0.10]	(Q^G, R^G)	1129.4	1150.8	1160.8	1167.2	1181.5	1191.2	1200.1	1216.4	1231.5	1246.4
	$(Q^G, R^m(Q^G))$	1135.0	1163.1	1175.0	1181.0	1193.3	1200.5	1205.1	1211.3	1215.6	1219.2
	(Q^M, R^M)	1723.1	1747.6	1757.9	1763.5	1772.6	1776.2	1778.3	1781.2	1783.4	1785.2
[0.10, 0.20]	(Q^G, R^G)	1175.4	1215.2	1234.3	1246.7	1274.9	1292.7	1308.2	1336.4	1360.9	1385.0
	$(Q^G, R^m(Q^G))$	1190.6	1251.8	1263.2	1268.1	1289.1	1305.2	1316.6	1332.2	1343.2	1352.1
	(Q^M, R^M)	1754.7	1797.2	1819.9	1833.5	1857.1	1866.5	1872.1	1879.1	1884.0	1888.1
[0.20, 0.30]	(Q^G, R^G)	1169.6	1232.3	1263.5	1284.3	1332.3	1362.2	1386.8	1430.2	1468.1	1501.7
	$(Q^G, R^m(Q^G))$	1204.9	1320.6	1325.0	1321.4	1343.4	1372.4	1394.5	1425.7	1448.0	1466.0
	(Q^M, R^M)	1481.2	1526.8	1559.9	1584.5	1634.9	1656.6	1669.3	1684.6	1694.7	1702.6
[0.30, 0.35]	(Q^G, R^G)	1152.4	1221.1	1255.9	1279.5	1334.7	1368.7	1396.0	1443.0	1484.2	1520.4
	$(Q^G, R^m(Q^G))$	1196.7	1380.3	1406.7	1390.2	1359.3	1376.5	1398.4	1434.5	1461.9	1484.1
	(Q^M, R^M)	1534.0	1570.0	1592.0	1614.1	1671.6	1700.0	1717.1	1738.1	1751.9	1762.5
		Maximum Cyle Costs									
[0.05, 0.10]	(Q^G, R^G)	239.7	255.8	268.7	280.3	310.7	319.0	311.6	300.7	331.7	341.9
	$(Q^G, R^m(Q^G))$	234.0	249.0	255.8	260.3	270.0	275.5	279.6	285.9	291.0	295.4
	(Q^M, R^M)	154.9	159.8	161.6	162.5	163.8	164.3	164.5	164.8	164.9	165.0
[0.10, 0.20]	(Q^G, R^G)	302.3	328.6	345.9	365.0	426.5	456.1	458.6	432.2	461.6	496.6
	$(Q^G, R^m(Q^G))$	280.1	312.1	330.9	343.7	371.9	387.7	399.2	416.9	431.0	443.1
	(Q^M, R^M)	182.2	195.9	201.4	204.5	209.3	211.0	211.8	212.7	213.1	213.4
[0.20, 0.30]	(Q^G, R^G)	384.4	434.0	454.3	477.3	571.2	634.8	662.1	660.6	693.8	757.4
	$(Q^G, R^m(Q^G))$	329.5	383.6	424.2	454.1	523.3	563.0	592.2	636.6	671.7	701.9
	(Q^M, R^M)	220.1	255.5	272.2	282.0	298.6	304.8	308.0	311.3	313.0	314.0
[0.30, 0.35]	(Q^G, R^G)	462.5	531.3	558.3	580.5	661.2	731.7	778.9	832.8	894.7	963.9
	$(Q^G, R^m(Q^G))$	385.2	435.5	485.7	528.4	635.5	698.4	744.2	813.1	867.0	912.8
	(Q^M, R^M)	229.3	278.4	304.4	320.4	349.5	360.9	367.0	373.3	376.6	378.6
		% Change in Expected Costs per Unit Time									
[0.05, 0.10]	$(Q^G, R^m(Q^G))$	0.5	1.1	1.2	1.2	1.0	0.7	0.4	-0.4	-1.3	-2.1
	(Q^M, R^M)	53.9	53.7	53.4	53.2	52.4	51.7	51.0	49.6	48.2	47.0
[0.10, 0.20]	$(Q^G, R^m(Q^G))$	1.2	3.0	2.6	1.9	1.1	0.9	0.6	-0.3	-1.3	-2.3
	(Q^M, R^M)	53.9	53.1	53.0	52.8	51.8	50.8	49.8	47.8	46.0	44.2
[0.20, 0.30]	$(Q^G, R^m(Q^G))$	3.0	7.2	5.3	3.3	0.9	0.7	0.5	-0.4	-1.4	-2.4
	(Q^M, R^M)	28.5	26.2	25.9	25.9	25.4	24.5	23.3	21.0	18.8	16.9
[0.30, 0.35]	$(Q^G, R^m(Q^G))$	3.7	13.0	12.6	9.5	2.2	0.7	0.2	-0.6	-1.5	-2.4
	(Q^M, R^M)	35.6	31.6	30.1	29.7	29.0	28.2	27.1	24.8	22.6	20.8
		% Change in Maximum Cycle Costs									
[0.05, 0.10]	$(Q^G, R^m(Q^G))$	-2.5	-2.6	-4.5	-6.6	-11.7	-11.8	-8.4	-4.9	-11.1	-12.4
	(Q^M, R^M)	-35.9	-38.6	-41.1	-43.4	-48.4	-49.4	-48.0	-46.6	-51.4	-52.8
[0.10, 0.20]	$(Q^G, R^m(Q^G))$	-6.8	-4.9	-4.4	-5.6	-11.0	-12.5	-10.4	-3.1	-6.3	-9.9
	(Q^M, R^M)	-40.1	-41.4	-43.3	-45.8	-52.4	-54.9	-54.8	-52.1	-55.2	-58.2
[0.20, 0.30]	$(Q^G, R^m(Q^G))$	-13.9	-11.2	-6.5	-4.9	-7.5	-9.6	-8.7	-3.0	-3.6	-7.4
	(Q^M, R^M)	-43.6	-42.5	-41.8	-43.2	-50.3	-54.2	-55.5	-55.0	-57.1	-60.6
[0.30, 0.35]	$(Q^G, R^m(Q^G))$	-16.2	-17.5	-13.0	-9.2	-4.0	-3.9	-3.6	-2.5	-3.5	-5.7
	(Q^M, R^M)	-52.0	-49.9	-48.4	-48.1	-51.0	-54.5	-56.5	-58.8	-61.4	-64.0

K.1.5. Triangular Distribution (Right-Skewed)

Table 17. Comparisons of results with (Q^G, R^G) policy when penalty cost per unit short is varied (D∼Triangular (Right-Skewed), $h = 1$, $K \in [50, 150]$, $\lambda \in [2{,}000, 10{,}000]$, $\tau \in [0.02, 1]$).

		p									
CV	Policy	0.25	0.50	0.75	1	2	3	4	6	8	10
		Expected Costs per Unit Time									
$[0.05, 0.10]$	(Q^G, R^G)	1121.1	1149.1	1162.2	1170.2	1185.1	1192.9	1201.0	1220.5	1240.0	1257.3
	$(Q^G, R^m(Q^G))$	1127.0	1161.5	1175.3	1183.8	1198.9	1205.9	1210.3	1216.1	1220.2	1223.6
	(Q^M, R^M)	1614.5	1642.6	1653.7	1659.7	1669.1	1672.3	1674.0	1675.7	1676.5	1677.0
$[0.10, 0.20]$	(Q^G, R^G)	1183.5	1233.4	1256.8	1271.5	1299.2	1313.3	1326.9	1359.1	1392.6	1422.7
	$(Q^G, R^m(Q^G))$	1191.1	1252.7	1272.9	1284.1	1311.2	1326.5	1336.8	1351.1	1361.4	1369.8
	(Q^M, R^M)	1635.6	1684.1	1706.3	1719.0	1740.9	1749.0	1753.2	1757.6	1759.8	1761.1
$[0.20, 0.30]$	(Q^G, R^G)	1224.7	1294.2	1327.2	1347.9	1387.9	1408.5	1427.9	1472.3	1518.7	1560.9
	$(Q^G, R^m(Q^G))$	1253.0	1372.8	1392.0	1390.8	1399.3	1414.9	1429.0	1451.2	1468.5	1483.0
	(Q^M, R^M)	1640.3	1692.2	1718.4	1735.7	1770.2	1784.9	1793.1	1801.9	1806.5	1809.4
$[0.30, 0.35]$	(Q^G, R^G)	1152.3	1229.6	1266.5	1289.8	1335.4	1359.3	1381.4	1431.2	1483.3	1530.7
	$(Q^G, R^m(Q^G))$	1195.1	1391.0	1444.5	1448.0	1397.1	1386.3	1390.1	1406.6	1424.1	1440.3
	(Q^M, R^M)	1577.9	1618.4	1630.4	1640.2	1669.1	1686.1	1696.7	1709.1	1716.1	1720.5
		Maximum Cyle Costs									
$[0.05, 0.10]$	(Q^G, R^G)	232.6	254.4	271.2	285.9	324.4	336.2	328.3	305.6	330.4	348.2
	$(Q^G, R^m(Q^G))$	228.6	244.1	251.0	255.4	265.2	271.0	275.4	282.4	288.2	293.1
	(Q^M, R^M)	162.6	168.6	170.8	171.9	173.6	174.1	174.4	174.7	174.9	174.9
$[0.10, 0.20]$	(Q^G, R^G)	287.8	320.3	345.1	369.2	437.4	464.6	460.8	429.9	466.2	502.4
	$(Q^G, R^m(Q^G))$	273.9	307.6	325.5	337.7	364.7	380.3	392.1	410.5	425.4	438.4
	(Q^M, R^M)	189.8	204.5	210.4	213.6	218.6	220.4	221.3	222.2	222.7	223.0
$[0.20, 0.30]$	(Q^G, R^G)	379.9	429.3	449.8	470.2	546.0	588.8	604.5	632.9	694.9	758.9
	$(Q^G, R^m(Q^G))$	332.9	383.4	420.0	447.4	510.7	547.3	574.3	615.8	648.9	677.3
	(Q^M, R^M)	215.0	244.9	258.8	266.7	280.2	285.1	287.7	290.3	291.7	292.5
$[0.30, 0.35]$	(Q^G, R^G)	471.2	545.9	575.0	598.9	672.8	730.4	779.0	865.9	954.4	1042.2
	$(Q^G, R^m(Q^G))$	389.3	441.1	489.6	531.0	639.8	704.6	752.2	824.3	881.1	929.6
	(Q^M, R^M)	228.1	276.3	301.3	316.6	344.1	354.8	360.5	366.4	369.5	371.3
		% Change in Expected Costs per Unit Time									
$[0.05, 0.10]$	$(Q^G, R^m(Q^G))$	0.5	1.1	1.2	1.2	1.2	1.1	0.8	-0.3	-1.6	-2.6
	(Q^M, R^M)	45.8	45.3	44.9	44.6	43.8	43.3	42.7	40.9	39.2	37.6
$[0.10, 0.20]$	$(Q^G, R^m(Q^G))$	0.6	1.7	1.4	1.1	0.9	0.9	0.7	-0.6	-2.2	-3.6
	(Q^M, R^M)	43.2	42.1	41.6	41.2	40.2	39.6	38.7	36.3	33.7	31.5
$[0.20, 0.30]$	$(Q^G, R^m(Q^G))$	2.2	6.2	5.2	3.6	1.0	0.5	0.1	-1.4	-3.2	-4.9
	(Q^M, R^M)	37.0	34.4	33.4	32.8	31.8	31.1	30.1	27.2	24.0	21.3
$[0.30, 0.35]$	$(Q^G, R^m(Q^G))$	3.7	13.0	14.2	12.6	4.9	2.1	0.7	-1.7	-3.9	-5.8
	(Q^M, R^M)	37.5	32.9	30.4	29.0	27.3	26.5	25.4	22.4	19.0	16.0
		% Change in Maximum Cycle Costs									
$[0.05, 0.10]$	$(Q^G, R^m(Q^G))$	-1.7	-4.0	-7.0	-9.9	-16.4	-17.0	-13.3	-7.1	-11.4	-14.4
	(Q^M, R^M)	-30.7	-35.0	-38.5	-41.4	-47.7	-49.1	-47.4	-44.3	-48.0	-50.9
$[0.10, 0.20]$	$(Q^G, R^m(Q^G))$	-4.7	-4.1	-5.5	-7.8	-14.3	-15.1	-11.7	-4.2	-8.5	-11.6
	(Q^M, R^M)	-35.5	-38.4	-41.6	-44.7	-51.9	-54.0	-53.2	-50.4	-54.2	-57.2
$[0.20, 0.30]$	$(Q^G, R^m(Q^G))$	-11.8	-10.3	-6.6	-4.9	-5.7	-5.8	-4.1	-3.0	-6.8	-10.1
	(Q^M, R^M)	-44.7	-44.9	-44.9	-46.1	-51.7	-54.3	-55.1	-56.8	-60.5	-63.6
$[0.30, 0.35]$	$(Q^G, R^m(Q^G))$	-17.1	-18.5	-14.5	-11.2	-5.0	-3.7	-3.6	-5.0	-7.7	-10.4
	(Q^M, R^M)	-52.1	-50.5	-49.2	-49.0	-51.3	-54.0	-56.3	-60.2	-63.6	-66.5

K.1.6. Triangular Distribution (Left-Skewed)

Table 18. Comparisons of results with (Q^G, R^G) policy when penalty cost per unit short is varied ($D\sim$Triangular (Left-Skewed), $h = 1$, $K \in [50, 150]$, $\lambda \in [2{,}000, 10{,}000]$, $\tau \in [0.02, 1]$).

		p									
CV	Policy	0.25	0.50	0.75	1	2	3	4	6	8	10
		Expected Costs per Unit Time									
[0.05, 0.10]	(Q^G, R^G)	1144.0	1167.0	1175.0	1179.1	1189.5	1202.7	1216.8	1240.7	1260.5	1277.8
	$(Q^G, R^m(Q^G))$	1151.5	1186.5	1192.8	1193.3	1194.4	1197.1	1199.9	1204.6	1208.4	1211.7
	(Q^M, R^M)	1720.4	1736.2	1743.6	1748.2	1756.4	1759.5	1761.1	1762.8	1763.7	1764.2
[0.10, 0.20]	(Q^G, R^G)	1178.3	1216.3	1230.0	1237.0	1256.1	1279.4	1303.9	1345.5	1379.8	1409.7
	$(Q^G, R^m(Q^G))$	1216.8	1323.5	1331.8	1322.1	1285.7	1276.7	1276.6	1282.7	1290.0	1297.0
	(Q^M, R^M)	1677.6	1694.6	1696.6	1698.9	1708.6	1714.3	1717.8	1721.7	1723.8	1725.1
[0.20, 0.30]	(Q^G, R^G)	1175.1	1227.4	1246.4	1256.5	1283.1	1314.6	1347.9	1404.8	1451.8	1492.6
	$(Q^G, R^m(Q^G))$	1247.3	1554.5	1703.8	1761.8	1714.1	1618.2	1549.5	1468.4	1431.6	1415.0
	(Q^M, R^M)	1924.7	1988.0	1964.9	1934.5	1866.4	1846.7	1841.0	1839.6	1840.9	1842.5
[0.30, 0.35]	(Q^G, R^G)	1242.9	1310.4	1335.3	1348.5	1382.6	1422.1	1464.5	1537.4	1597.4	1649.3
	$(Q^G, R^m(Q^G))$	1331.8	1801.0	2260.1	2679.5	3872.8	4534.1	4834.1	4943.6	4797.5	4613.9
	(Q^M, R^M)	2267.8	2943.1	3310.0	3464.4	3392.1	3108.1	2859.0	2518.2	2320.8	2201.6
		Maximum Cyle Costs									
[0.05, 0.10]	(Q^G, R^G)	254.0	267.2	274.2	280.3	289.8	299.2	333.3	359.8	371.9	382.6
	$(Q^G, R^m(Q^G))$	243.9	260.8	268.5	273.7	285.0	291.5	296.4	304.1	310.3	315.8
	(Q^M, R^M)	165.8	172.0	174.3	175.5	177.3	177.9	178.2	178.5	178.7	178.8
[0.10, 0.20]	(Q^G, R^G)	322.7	350.1	361.0	370.0	397.2	424.1	463.9	509.8	538.4	563.9
	$(Q^G, R^m(Q^G))$	280.7	314.0	335.9	350.7	384.3	403.4	417.6	439.4	456.9	472.0
	(Q^M, R^M)	179.1	195.1	201.8	205.6	211.6	213.7	214.8	215.9	216.5	216.8
[0.20, 0.30]	(Q^G, R^G)	557.3	627.5	656.0	679.6	752.1	812.8	875.2	979.5	1053.7	1120.2
	$(Q^G, R^m(Q^G))$	431.7	468.0	506.2	542.4	646.4	710.9	758.4	829.9	885.2	932.0
	(Q^M, R^M)	215.0	254.1	276.0	289.6	314.6	324.5	329.9	335.4	338.3	340.1
[0.30, 0.35]	(Q^G, R^G)	1902.8	2213.2	2341.2	2447.3	2775.7	3033.2	3271.0	3672.5	4003.4	4301.5
	$(Q^G, R^m(Q^G))$	1344.2	1434.9	1471.3	1514.5	1717.4	1920.3	2115.7	2464.2	2760.7	3012.8
	(Q^M, R^M)	451.9	475.3	521.1	572.1	724.1	811.4	866.3	931.8	969.8	994.6
		% Change in Expected Costs per Unit Time									
[0.05, 0.10]	$(Q^G, R^m(Q^G))$	0.7	1.8	1.6	1.3	0.4	-0.5	-1.4	-2.8	-4.0	-5.0
	(Q^M, R^M)	51.6	50.5	50.3	50.3	49.9	48.8	47.6	45.4	43.7	42.2
[0.10, 0.20]	$(Q^G, R^m(Q^G))$	3.3	8.7	8.2	6.9	2.5	-0.1	-2.0	-4.5	-6.3	-7.8
	(Q^M, R^M)	44.6	42.0	40.8	40.3	39.2	37.4	35.5	32.2	29.5	27.3
[0.20, 0.30]	$(Q^G, R^m(Q^G))$	6.0	26.1	36.3	40.2	34.2	24.1	16.0	5.5	-0.5	-4.3
	(Q^M, R^M)	66.3	64.6	60.4	56.9	49.2	44.9	41.7	36.9	33.5	30.6
[0.30, 0.35]	$(Q^G, R^m(Q^G))$	7.2	37.0	68.2	97.2	178.4	217.1	228.1	220.0	199.5	179.3
	(Q^M, R^M)	85.3	126.8	149.5	158.1	146.5	120.4	97.8	67.7	50.2	39.2
		% Change in Maximum Cycle Costs									
[0.05, 0.10]	$(Q^G, R^m(Q^G))$	-4.0	-2.5	-2.1	-2.2	-1.5	-2.7	-9.9	-13.8	-14.7	-15.5
	(Q^M, R^M)	-35.7	-36.9	-37.9	-39.0	-40.4	-42.4	-48.0	-51.7	-53.2	-54.4
[0.10, 0.20]	$(Q^G, R^m(Q^G))$	-12.3	-9.5	-6.4	-4.8	-3.1	-5.0	-9.6	-12.8	-14.0	-15.0
	(Q^M, R^M)	-45.1	-45.3	-45.4	-45.9	-48.4	-51.5	-55.4	-59.1	-61.1	-62.7
[0.20, 0.30]	$(Q^G, R^m(Q^G))$	-21.2	-23.5	-20.8	-18.4	-12.7	-11.4	-12.4	-14.0	-14.7	-15.4
	(Q^M, R^M)	-61.5	-60.0	-58.9	-58.7	-60.1	-62.2	-64.5	-67.7	-69.7	-71.3
[0.30, 0.35]	$(Q^G, R^m(Q^G))$	-27.8	-33.3	-35.0	-35.7	-34.7	-32.8	-31.1	-28.7	-27.1	-26.2
	(Q^M, R^M)	-76.3	-78.0	-76.8	-75.7	-73.7	-73.6	-74.3	-75.8	-77.1	-78.3

K.2. Comparison of Results with (Q^G, R^G) Policy when Coefficient of Variation is Varied

K.2.1. Normal Distribution

Table 19. Comparisons of results with (Q^G, R^G) policy when coefficient of variation is varied ($D\sim$Normal, $h = 1$, $K \in [50, 150]$, $\lambda \in [2{,}000, 10{,}000]$, $\tau \in [0.02, 1]$).

p	Policy	*CV* 0.035	0.070	0.105	0.140	0.175	0.210	0.245	0.280	0.315	0.350
		Expected Costs per Unit Time									
$[0.25, 1]$	(Q^G, R^G)	1089.3	1104.7	1120.0	1135.2	1150.4	1165.6	1180.6	1195.6	1210.5	1225.4
	$(Q^G, R^m(Q^G))$	1095.2	1117.9	1144.7	1179.3	1227.5	1298.8	1400.8	1539.7	1705.8	1825.1
	(Q^M, R^M)	1898.3	1813.3	1741.5	1680.2	1630.0	1597.6	1599.8	1673.8	1897.7	2399.1
$[1, 4]$	(Q^G, R^G)	1025.5	1047.7	1070.1	1092.6	1115.2	1137.8	1160.6	1183.5	1206.4	1229.3
	$(Q^G, R^m(Q^G))$	1028.3	1052.7	1077.4	1103.8	1135.8	1182.7	1267.7	1452.5	1913.3	3111.8
	(Q^M, R^M)	1998.1	1905.2	1830.1	1768.4	1716.7	1673.1	1638.4	1625.5	1705.5	2356.6
$[4, 7]$	(Q^G, R^G)	1018.6	1047.6	1076.6	1105.8	1134.9	1164.1	1193.4	1222.6	1251.9	1281.2
	$(Q^G, R^m(Q^G))$	1016.7	1043.8	1070.9	1097.9	1125.3	1155.3	1196.5	1284.3	1590.8	3202.3
	(Q^M, R^M)	2000.0	1906.6	1831.9	1771.9	1723.5	1683.9	1651.4	1625.6	1621.2	1856.3
$[7, 10]$	(Q^G, R^G)	1099.2	1140.3	1181.2	1222.0	1262.7	1303.3	1343.7	1384.0	1424.1	1464.1
	$(Q^G, R^m(Q^G))$	1090.7	1124.3	1158.5	1192.8	1227.0	1261.5	1298.7	1353.0	1519.5	2823.4
	(Q^M, R^M)	1932.3	1853.2	1791.8	1744.6	1708.5	1681.2	1660.9	1646.4	1642.9	1762.2
		Maximum Cyle Costs									
$[0.25, 1]$	(Q^G, R^G)	231.7	259.3	292.4	335.0	393.2	475.8	599.3	803.6	1204.3	2341.0
	$(Q^G, R^m(Q^G))$	228.3	252.8	281.7	316.3	358.8	412.4	484.4	595.9	814.5	1474.1
	(Q^M, R^M)	129.7	143.4	160.9	183.1	211.2	247.3	294.4	357.8	453.9	708.3
$[1, 4]$	(Q^G, R^G)	245.6	283.7	326.0	375.1	438.6	536.8	688.7	940.4	1435.1	2840.5
	$(Q^G, R^m(Q^G))$	237.3	270.0	310.5	361.5	427.3	514.7	635.7	814.7	1114.5	1805.1
	(Q^M, R^M)	128.5	141.5	158.8	182.1	213.9	258.2	322.5	421.8	591.6	947.1
$[4, 7]$	(Q^G, R^G)	239.5	279.2	327.0	387.1	468.1	583.9	760.7	1055.9	1636.0	3287.1
	$(Q^G, R^m(Q^G))$	231.1	267.5	313.6	373.2	452.3	561.1	718.2	962.8	1391.9	2342.3
	(Q^M, R^M)	123.0	135.6	152.5	175.6	207.6	253.3	322.1	433.7	639.6	1132.6
$[7, 10]$	(Q^G, R^G)	263.6	312.0	372.7	452.7	559.1	707.9	932.8	1307.5	2044.4	4143.7
	$(Q^G, R^m(Q^G))$	245.5	288.9	344.5	417.3	515.0	651.4	851.9	1171.5	1753.2	3124.1
	(Q^M, R^M)	130.1	144.2	163.2	189.1	225.3	277.6	357.0	488.0	737.0	1371.3
		% Change in Expected Costs per Unit Time									
$[0.25, 1]$	$(Q^G, R^m(Q^G))$	0.5	1.2	2.2	3.9	6.7	11.4	18.4	28.1	39.4	46.6
	(Q^M, R^M)	73.6	63.9	55.5	48.2	42.1	37.6	36.2	40.7	56.9	94.3
$[1, 4]$	$(Q^G, R^m(Q^G))$	0.3	0.5	0.7	1.1	2.1	4.4	10.0	23.9	59.4	148.7
	(Q^M, R^M)	95.1	82.8	72.5	63.8	56.2	49.6	43.9	40.3	44.5	93.3
$[4, 7]$	$(Q^G, R^m(Q^G))$	-0.2	-0.3	-0.5	-0.6	-0.7	-0.5	0.7	6.1	29.9	154.7
	(Q^M, R^M)	99.0	85.4	74.0	64.5	56.3	49.2	43.1	37.7	34.3	49.4
$[7, 10]$	$(Q^G, R^m(Q^G))$	-0.7	-1.3	-1.8	-2.3	-2.7	-3.0	-3.1	-1.8	8.0	98.7
	(Q^M, R^M)	76.6	64.1	53.9	45.4	38.2	32.1	26.9	22.3	18.8	24.2
		% Change in Maximum Cycle Costs									
$[0.25, 1]$	$(Q^G, R^m(Q^G))$	-1.5	-2.5	-3.6	-5.5	-8.6	-13.0	-18.6	-24.8	-31.0	-35.4
	(Q^M, R^M)	-44.3	-45.2	-45.7	-46.4	-47.6	-49.7	-52.7	-57.4	-64.0	-71.7
$[1, 4]$	$(Q^G, R^m(Q^G))$	-3.2	-4.4	-4.2	-3.2	-2.6	-4.3	-7.8	-13.4	-22.1	-35.1
	(Q^M, R^M)	-47.8	-50.4	-51.8	-52.3	-52.5	-53.6	-55.3	-57.7	-61.6	-69.1
$[4, 7]$	$(Q^G, R^m(Q^G))$	-3.5	-4.0	-4.0	-3.6	-3.5	-4.2	-5.8	-8.9	-14.8	-27.9
	(Q^M, R^M)	-49.1	-52.2	-54.5	-56.2	-57.8	-59.3	-61.0	-62.9	-65.3	-69.8
$[7, 10]$	$(Q^G, R^m(Q^G))$	-6.9	-7.4	-7.4	-7.7	-7.7	-7.8	-8.6	-10.3	-14.1	-24.2
	(Q^M, R^M)	-50.8	-54.1	-56.7	-59.0	-60.7	-62.1	-63.5	-64.8	-66.5	-69.5

K.2.2. Truncated Normal Distribution

Table 20. Comparisons of results with (Q^G, R^G) policy when coefficient of variation is varied ($D \sim$Truncated Normal, $h = 1$, $K \in [50, 150]$, $\lambda \in [2{,}000, 10{,}000]$, $\tau \in [0.02, 1]$).

p	Policy	CV 0.035	0.070	0.105	0.140	0.175	0.210	0.245	0.280	0.315	0.350
		Expected Costs per Unit Time									
[0.25, 1]	(Q^G, R^G)	1047.7	1059.3	1071.0	1082.6	1094.3	1106.0	1117.6	1129.3	1140.9	1152.5
	$(Q^G, R^m(Q^G))$	1050.1	1064.4	1079.4	1095.4	1112.9	1132.5	1154.8	1180.5	1210.5	1245.0
	(Q^M, R^M)	1795.2	1752.3	1714.2	1680.3	1650.0	1623.2	1600.1	1580.8	1566.1	1557.1
[1, 4]	(Q^G, R^G)	1051.2	1072.8	1094.4	1115.9	1137.4	1158.9	1180.4	1201.7	1223.1	1244.4
	$(Q^G, R^m(Q^G))$	1046.4	1063.9	1082.2	1101.3	1121.8	1143.8	1168.2	1195.7	1227.8	1266.7
	(Q^M, R^M)	1939.9	1890.1	1846.4	1808.0	1774.3	1744.8	1719.0	1696.7	1677.7	1662.4
[4, 7]	(Q^G, R^G)	1049.7	1079.8	1109.7	1139.5	1169.2	1198.7	1228.0	1257.2	1286.2	1315.0
	$(Q^G, R^m(Q^G))$	1036.0	1053.3	1071.6	1090.8	1111.1	1132.4	1155.3	1180.0	1207.5	1239.1
	(Q^M, R^M)	1962.2	1909.1	1862.5	1821.5	1785.5	1753.9	1726.2	1702.0	1681.1	1663.3
[7, 10]	(Q^G, R^G)	1114.6	1158.1	1201.4	1244.4	1287.1	1329.6	1371.7	1413.4	1454.8	1495.8
	$(Q^G, R^m(Q^G))$	1090.4	1111.7	1134.7	1159.1	1184.9	1212.1	1240.7	1271.1	1303.9	1340.2
	(Q^M, R^M)	1997.8	1948.0	1904.6	1867.0	1834.4	1806.3	1782.1	1761.5	1744.1	1729.8
		Maximum Cyle Costs									
[0.25, 1]	(Q^G, R^G)	214.5	229.6	246.1	264.7	286.3	311.1	339.8	373.1	412.4	459.3
	$(Q^G, R^m(Q^G))$	213.2	227.2	242.4	258.9	276.9	296.6	318.2	342.1	368.6	398.4
	(Q^M, R^M)	125.9	133.4	142.0	151.6	162.6	174.8	188.6	204.2	221.7	241.4
[1, 4]	(Q^G, R^G)	234.6	256.3	280.9	308.1	340.0	375.9	416.7	465.8	524.0	593.7
	$(Q^G, R^m(Q^G))$	223.3	242.2	263.4	287.5	314.7	345.6	381.0	421.6	468.5	523.1
	(Q^M, R^M)	124.6	131.2	138.9	147.9	158.4	170.6	184.9	201.7	221.6	245.3
[4, 7]	(Q^G, R^G)	249.2	277.7	309.8	346.1	387.2	434.6	488.5	552.3	627.7	717.8
	$(Q^G, R^m(Q^G))$	228.8	250.9	276.1	304.9	338.0	376.2	420.4	471.9	532.3	603.9
	(Q^M, R^M)	124.2	130.2	137.4	145.8	155.6	167.1	180.8	197.0	216.4	239.8
[7, 10]	(Q^G, R^G)	273.1	311.0	353.9	402.7	458.5	522.8	597.4	684.6	787.9	911.6
	$(Q^G, R^m(Q^G))$	246.1	273.6	305.4	342.2	385.0	434.7	492.8	561.1	641.9	738.4
	(Q^M, R^M)	134.7	142.1	150.8	161.0	173.0	187.1	203.9	223.8	247.7	276.7
		% Change in Expected Costs per Unit Time									
[0.25, 1]	$(Q^G, R^m(Q^G))$	0.2	0.5	0.8	1.1	1.7	2.4	3.3	4.5	6.0	7.9
	(Q^M, R^M)	72.9	67.2	62.0	57.3	53.0	49.1	45.6	42.5	39.9	37.8
[1, 4]	$(Q^G, R^m(Q^G))$	-0.4	-0.7	-1.0	-1.1	-1.1	-0.9	-0.5	0.2	1.2	2.8
	(Q^M, R^M)	90.3	82.3	75.2	68.8	62.9	57.7	52.9	48.5	44.6	41.0
[4, 7]	$(Q^G, R^m(Q^G))$	-1.3	-2.3	-3.3	-4.0	-4.7	-5.2	-5.5	-5.6	-5.5	-5.1
	(Q^M, R^M)	86.8	77.5	69.2	61.8	55.2	49.2	43.8	38.9	34.4	30.4
[7, 10]	$(Q^G, R^m(Q^G))$	-2.1	-3.8	-5.3	-6.5	-7.5	-8.3	-9.0	-9.4	-9.6	-9.6
	(Q^M, R^M)	80.4	70.5	61.8	54.1	47.2	41.0	35.4	30.4	25.9	21.8
		% Change in Maximum Cycle Costs									
[0.25, 1]	$(Q^G, R^m(Q^G))$	-0.6	-1.1	-1.5	-2.2	-3.3	-4.7	-6.3	-8.3	-10.5	-13.0
	(Q^M, R^M)	-41.2	-42.0	-42.6	-43.1	-43.8	-44.6	-45.5	-46.5	-47.7	-49.0
[1, 4]	$(Q^G, R^m(Q^G))$	-5.0	-5.6	-6.2	-6.7	-7.3	-7.9	-8.5	-9.4	-10.4	-11.7
	(Q^M, R^M)	-47.3	-49.3	-51.2	-52.8	-54.3	-55.7	-56.9	-58.1	-59.4	-60.5
[4, 7]	$(Q^G, R^m(Q^G))$	-7.9	-9.2	-10.4	-11.3	-12.0	-12.7	-13.2	-13.8	-14.4	-15.1
	(Q^M, R^M)	-50.3	-53.3	-55.9	-58.2	-60.3	-62.1	-63.7	-65.2	-66.5	-67.8
[7, 10]	$(Q^G, R^m(Q^G))$	-9.6	-11.5	-12.9	-14.1	-15.0	-15.7	-16.3	-16.8	-17.3	-17.8
	(Q^M, R^M)	-50.8	-54.5	-57.6	-60.2	-62.6	-64.6	-66.3	-67.9	-69.3	-70.6

K.2.3. Triangular Distribution (Symmetric)

Table 21. Comparisons of results with (Q^G, R^G) policy when coefficient of variation is varied (D∼Triangular (Symmetric), $h = 1$, $K \in [50, 150]$, $\lambda \in [2{,}000, 10{,}000]$, $\tau \in [0.02, 1]$).

p	Policy	*CV* 0.035	0.070	0.105	0.140	0.175	0.210	0.245	0.280	0.315	0.350
		Expected Costs per Unit Time									
[0.25, 1]	(Q^G, R^G)	1063.5	1078.2	1092.7	1107.2	1121.6	1136.0	1150.2	1164.3	1178.3	1192.2
	$(Q^G, R^m(Q^G))$	1069.3	1090.7	1115.0	1144.8	1183.5	1235.7	1307.3	1402.4	1518.3	1646.6
	(Q^M, R^M)	1974.4	1885.6	1810.2	1746.1	1694.2	1658.7	1648.8	1684.6	1805.1	2089.0
[1, 4]	(Q^G, R^G)	1035.5	1057.8	1080.2	1102.8	1125.5	1148.4	1171.4	1194.6	1217.9	1241.2
	$(Q^G, R^m(Q^G))$	1037.0	1060.3	1084.0	1109.6	1140.2	1182.8	1253.7	1393.2	1703.3	2478.2
	(Q^M, R^M)	1847.9	1769.8	1706.6	1654.8	1611.8	1575.9	1547.8	1534.3	1567.5	1815.0
[4, 7]	(Q^G, R^G)	1057.5	1086.0	1114.5	1142.9	1171.4	1199.8	1228.3	1256.7	1285.1	1313.5
	$(Q^G, R^m(Q^G))$	1054.1	1079.4	1104.8	1130.4	1156.9	1186.8	1227.1	1300.8	1493.3	2198.9
	(Q^M, R^M)	2135.6	2034.5	1952.1	1884.5	1828.5	1781.6	1741.9	1708.7	1689.2	1749.5
[7, 10]	(Q^G, R^G)	1005.0	1039.8	1074.6	1109.2	1143.6	1177.8	1211.8	1245.7	1279.3	1312.7
	$(Q^G, R^m(Q^G))$	995.7	1022.3	1049.2	1076.4	1103.9	1132.3	1164.9	1213.6	1330.7	1822.9
	(Q^M, R^M)	1918.5	1832.7	1763.6	1707.9	1662.7	1625.9	1595.5	1570.0	1551.2	1570.4
		Maximum Cyle Costs									
[0.25, 1]	(Q^G, R^G)	240.0	267.0	299.4	339.7	393.0	467.1	573.4	738.5	1028.2	1667.2
	$(Q^G, R^m(Q^G))$	236.7	260.3	287.7	320.1	359.1	407.3	470.7	563.4	727.3	1091.3
	(Q^M, R^M)	136.6	150.6	168.0	189.5	216.0	249.1	290.7	344.2	424.4	585.7
[1, 4]	(Q^G, R^G)	238.8	273.5	312.4	358.6	418.6	506.3	635.1	835.7	1188.8	1969.2
	$(Q^G, R^m(Q^G))$	232.7	263.8	301.9	349.2	409.3	487.4	592.6	741.4	969.6	1383.2
	(Q^M, R^M)	126.2	138.4	154.3	175.4	203.6	242.0	296.2	376.3	504.2	739.1
[4, 7]	(Q^G, R^G)	246.9	283.9	328.6	385.3	459.8	564.8	715.7	951.7	1366.1	2287.6
	$(Q^G, R^m(Q^G))$	237.5	272.2	315.6	370.7	442.5	538.8	673.3	872.5	1195.0	1805.8
	(Q^M, R^M)	125.3	136.5	151.4	171.2	198.3	236.0	290.7	374.8	517.2	802.5
[7, 10]	(Q^G, R^G)	251.5	294.3	347.9	415.7	504.0	624.5	799.7	1069.9	1546.5	2608.7
	$(Q^G, R^m(Q^G))$	235.3	273.0	320.7	381.9	462.4	571.6	726.4	959.7	1347.1	2108.2
	(Q^M, R^M)	123.7	135.3	150.6	171.2	199.4	238.9	296.7	386.7	542.0	864.6
		% Change in Expected Costs per Unit Time									
[0.25, 1]	$(Q^G, R^m(Q^G))$	0.5	1.2	2.1	3.4	5.6	8.8	13.5	19.9	27.6	35.5
	(Q^M, R^M)	87.6	77.1	68.1	60.3	53.7	48.7	46.1	47.4	55.7	76.7
[1, 4]	$(Q^G, R^m(Q^G))$	0.1	0.2	0.4	0.7	1.4	3.3	7.7	18.0	42.2	101.2
	(Q^M, R^M)	80.4	69.5	60.4	52.6	45.8	39.9	34.8	31.2	31.5	48.8
[4, 7]	$(Q^G, R^m(Q^G))$	-0.3	-0.5	-0.7	-0.9	-1.0	-0.6	0.7	5.0	19.2	72.0
	(Q^M, R^M)	109.9	95.5	83.5	73.3	64.5	56.8	50.0	44.0	39.4	40.7
[7, 10]	$(Q^G, R^m(Q^G))$	-0.8	-1.6	-2.2	-2.7	-3.1	-3.5	-3.3	-1.7	5.8	43.6
	(Q^M, R^M)	95.9	81.9	70.2	60.3	51.9	44.7	38.3	32.7	27.8	26.1
		% Change in Maximum Cycle Costs									
[0.25, 1]	$(Q^G, R^m(Q^G))$	-1.4	-2.5	-3.8	-5.6	-8.4	-12.3	-17.2	-22.6	-27.8	-32.5
	(Q^M, R^M)	-43.4	-44.2	-44.8	-45.4	-46.5	-48.5	-51.3	-55.5	-61.0	-67.5
[1, 4]	$(Q^G, R^m(Q^G))$	-2.3	-3.1	-2.8	-2.3	-2.3	-3.9	-6.9	-11.4	-18.5	-29.5
	(Q^M, R^M)	-47.5	-49.9	-51.3	-52.2	-52.9	-54.2	-55.8	-57.7	-60.6	-65.4
[4, 7]	$(Q^G, R^m(Q^G))$	-3.7	-4.0	-3.8	-3.7	-3.9	-4.7	-6.1	-8.4	-12.6	-20.7
	(Q^M, R^M)	-49.6	-52.5	-54.8	-56.8	-58.6	-60.5	-62.2	-64.0	-66.0	-69.0
[7, 10]	$(Q^G, R^m(Q^G))$	-6.2	-6.9	-7.4	-7.6	-7.8	-8.2	-8.9	-10.1	-12.7	-18.9
	(Q^M, R^M)	-51.0	-54.4	-57.3	-59.7	-61.7	-63.4	-65.0	-66.5	-68.1	-70.3

K.2.4. Gamma Distribution

Table 22. Comparisons of results with (Q^G, R^G) policy when coefficient of variation is varied ($D\sim$Gamma, $h = 1$, $K \in [50, 150]$, $\lambda \in [2{,}000, 10{,}000]$, $\tau \in [0.02, 1]$).

		CV									
p	Policy	0.035	0.070	0.105	0.140	0.175	0.210	0.245	0.280	0.315	0.350
		Expected Costs per Unit Time									
$[0.25, 1]$	(Q^G, R^G)	1068.2	1082.8	1097.6	1112.3	1127.1	1141.9	1156.7	1171.4	1186.0	1200.6
	$(Q^G, R^m(Q^G))$	1073.2	1092.9	1113.4	1135.1	1158.9	1185.5	1215.8	1251.1	1292.2	1339.4
	(Q^M, R^M)	1996.3	1895.3	1808.7	1733.4	1667.8	1611.1	1563.8	1527.3	1504.1	1497.6
$[1, 4]$	(Q^G, R^G)	1046.3	1070.0	1094.3	1119.2	1144.9	1171.1	1197.8	1225.1	1252.8	1281.0
	$(Q^G, R^m(Q^G))$	1049.3	1075.6	1102.4	1129.4	1156.7	1184.5	1213.4	1244.1	1278.0	1317.6
	(Q^M, R^M)	1975.9	1880.0	1801.5	1737.5	1685.6	1643.8	1610.3	1583.7	1562.9	1547.8
$[4, 7]$	(Q^G, R^G)	1013.1	1040.8	1069.1	1098.0	1127.7	1157.8	1188.7	1220.5	1252.8	1285.9
	$(Q^G, R^m(Q^G))$	1011.9	1039.2	1067.7	1097.3	1127.7	1158.7	1190.2	1222.3	1255.1	1289.4
	(Q^M, R^M)	2014.0	1910.1	1824.6	1755.2	1699.5	1655.6	1621.9	1596.8	1578.9	1567.0
$[7, 10]$	(Q^G, R^G)	1025.6	1059.3	1093.4	1127.8	1162.4	1197.7	1233.9	1270.7	1308.1	1346.3
	$(Q^G, R^m(Q^G))$	1019.4	1049.1	1080.7	1113.9	1148.4	1184.0	1220.4	1257.5	1295.2	1333.5
	(Q^M, R^M)	2115.5	2004.5	1913.1	1838.7	1779.0	1732.2	1696.6	1670.6	1653.0	1642.4
		Maximum Cyle Costs									
$[0.25, 1]$	(Q^G, R^G)	229.8	255.2	283.5	315.8	353.8	399.4	454.2	520.2	600.4	697.8
	$(Q^G, R^m(Q^G))$	226.6	249.0	274.3	302.9	335.2	371.8	413.1	459.8	512.6	573.6
	(Q^M, R^M)	126.0	138.0	153.3	172.4	195.9	224.3	258.3	298.3	344.9	398.5
$[1, 4]$	(Q^G, R^G)	245.5	286.3	332.3	383.8	441.0	504.8	576.5	658.4	755.7	878.0
	$(Q^G, R^m(Q^G))$	236.0	267.2	304.1	347.8	399.5	460.5	532.7	618.0	718.5	836.7
	(Q^M, R^M)	126.9	139.3	155.7	177.1	204.7	240.1	285.2	342.1	413.6	502.7
$[4, 7]$	(Q^G, R^G)	244.9	282.7	328.6	383.8	448.7	525.6	614.5	717.6	839.5	986.6
	$(Q^G, R^m(Q^G))$	237.5	271.2	311.9	360.9	420.0	491.3	577.5	681.7	807.7	960.2
	(Q^M, R^M)	123.4	134.0	148.1	166.7	191.2	223.0	264.4	317.9	386.9	475.7
$[7, 10]$	(Q^G, R^G)	247.3	287.0	332.1	386.6	453.9	534.4	631.4	751.1	897.6	1079.7
	$(Q^G, R^m(Q^G))$	234.3	270.1	313.7	366.9	431.7	510.9	607.8	726.2	871.5	1049.6
	(Q^M, R^M)	121.0	131.6	145.7	164.5	189.1	221.3	263.4	318.1	389.3	481.8
		% Change in Expected Costs per Unit Time									
$[0.25, 1]$	$(Q^G, R^m(Q^G))$	0.5	1.0	1.5	2.2	3.0	4.0	5.3	7.0	9.0	11.5
	(Q^M, R^M)	93.5	81.4	70.9	61.7	53.6	46.5	40.3	35.2	31.4	29.0
$[1, 4]$	$(Q^G, R^m(Q^G))$	0.3	0.6	0.8	1.1	1.2	1.4	1.6	2.0	2.6	3.6
	(Q^M, R^M)	96.0	82.8	71.6	62.0	53.8	46.7	40.5	35.1	30.3	26.1
$[4, 7]$	$(Q^G, R^m(Q^G))$	-0.1	-0.1	-0.1	0.0	0.1	0.2	0.2	0.3	0.4	0.5
	(Q^M, R^M)	103.0	88.1	75.6	64.9	55.8	48.1	41.4	35.7	30.7	26.4
$[7, 10]$	$(Q^G, R^m(Q^G))$	-0.6	-0.9	-1.1	-1.1	-1.1	-1.0	-1.0	-0.9	-0.9	-0.8
	(Q^M, R^M)	107.8	91.8	78.3	67.0	57.3	49.2	42.2	36.2	31.0	26.6
		% Change in Maximum Cycle Costs									
$[0.25, 1]$	$(Q^G, R^m(Q^G))$	-1.4	-2.5	-3.3	-4.3	-5.5	-7.2	-9.3	-11.7	-14.6	-17.5
	(Q^M, R^M)	-45.3	-46.2	-46.5	-46.2	-45.8	-45.3	-44.9	-44.8	-45.0	-45.6
$[1, 4]$	$(Q^G, R^m(Q^G))$	-3.7	-6.2	-7.7	-8.4	-8.3	-7.7	-6.7	-5.6	-4.8	-5.0
	(Q^M, R^M)	-48.5	-51.6	-53.6	-54.6	-54.7	-53.9	-52.6	-50.6	-48.4	-46.4
$[4, 7]$	$(Q^G, R^m(Q^G))$	-3.0	-3.8	-4.5	-5.1	-5.4	-5.4	-5.0	-4.2	-3.4	-2.8
	(Q^M, R^M)	-49.7	-52.8	-55.2	-57.0	-58.1	-58.7	-58.6	-57.8	-56.6	-55.0
$[7, 10]$	$(Q^G, R^m(Q^G))$	-5.4	-6.0	-5.5	-5.0	-4.7	-4.2	-3.6	-3.3	-3.0	-3.1
	(Q^M, R^M)	-51.2	-54.4	-56.6	-58.1	-59.3	-59.9	-60.0	-59.8	-59.4	-58.6

K.2.5. Triangular Distribution (Right-Skewed)

Table 23. Comparisons of results with (Q^G, R^G) policy when coefficient of variation is varied ($D\sim$Triangular (Right-Skewed), $h = 1$, $K \in [50, 150]$, $\lambda \in [2{,}000, 10{,}000]$, $\tau \in [0.02, 1]$).

p	Policy	*CV* 0.035	0.070	0.105	0.140	0.175	0.210	0.245	0.280	0.315	0.350
		Expected Costs per Unit Time									
[0.25, 1]	(Q^G, R^G)	1058.2	1072.1	1085.9	1099.6	1113.2	1126.7	1140.1	1153.3	1166.5	1179.5
	$(Q^G, R^m(Q^G))$	1062.3	1079.8	1097.4	1116.2	1137.4	1162.7	1194.0	1234.8	1289.5	1360.6
	(Q^M, R^M)	2044.5	1938.4	1850.8	1776.8	1713.5	1659.5	1614.8	1581.8	1566.3	1579.4
[1, 4]	(Q^G, R^G)	1041.7	1063.3	1085.1	1107.0	1129.0	1151.2	1173.5	1195.9	1218.3	1240.9
	$(Q^G, R^m(Q^G))$	1044.4	1067.9	1091.0	1113.8	1136.8	1160.8	1188.0	1222.8	1274.7	1364.3
	(Q^M, R^M)	2122.0	2010.6	1921.1	1848.3	1788.4	1738.5	1696.5	1661.1	1632.7	1615.8
[4, 7]	(Q^G, R^G)	1037.2	1065.2	1093.2	1121.4	1149.6	1178.0	1206.4	1235.0	1263.6	1292.3
	$(Q^G, R^m(Q^G))$	1036.4	1063.6	1090.9	1118.0	1144.8	1171.3	1197.8	1225.4	1257.4	1303.4
	(Q^M, R^M)	2054.4	1948.5	1864.4	1797.4	1743.8	1700.9	1666.3	1638.1	1614.8	1595.5
[7, 10]	(Q^G, R^G)	1062.8	1100.5	1138.1	1175.5	1212.8	1249.9	1286.8	1323.6	1360.1	1396.6
	$(Q^G, R^m(Q^G))$	1055.7	1087.4	1119.8	1152.6	1185.3	1217.9	1250.1	1282.1	1315.4	1354.6
	(Q^M, R^M)	1975.6	1881.1	1807.5	1750.2	1705.9	1671.8	1645.9	1626.3	1611.4	1599.8
		Maximum Cyle Costs									
[0.25, 1]	(Q^G, R^G)	234.4	255.9	279.5	306.6	338.8	379.0	430.9	499.9	594.6	731.4
	$(Q^G, R^m(Q^G))$	231.1	249.7	270.8	294.7	322.2	354.0	391.8	437.4	494.7	573.2
	(Q^M, R^M)	130.0	140.9	154.3	170.4	189.7	212.8	240.4	273.6	313.9	363.5
[1, 4]	(Q^G, R^G)	244.2	278.5	314.8	353.6	395.9	443.4	499.3	572.8	685.9	859.0
	$(Q^G, R^m(Q^G))$	233.0	258.0	287.2	321.8	363.2	413.1	474.5	551.2	649.6	780.0
	(Q^M, R^M)	125.3	135.2	147.9	163.9	184.1	209.8	242.8	285.6	342.5	420.3
[4, 7]	(Q^G, R^G)	241.8	278.4	319.9	366.4	419.3	481.4	557.7	655.6	803.2	1022.6
	$(Q^G, R^m(Q^G))$	232.0	261.2	296.1	338.3	389.9	453.7	534.1	637.9	775.7	966.6
	(Q^M, R^M)	122.4	132.2	144.7	160.6	181.2	207.7	242.5	288.9	352.7	444.1
[7, 10]	(Q^G, R^G)	249.3	286.6	329.8	383.7	446.6	525.5	628.8	762.8	947.9	1220.1
	$(Q^G, R^m(Q^G))$	235.7	269.1	309.5	358.9	419.8	495.9	593.0	719.7	890.4	1130.7
	(Q^M, R^M)	124.6	135.3	149.1	166.8	189.6	219.1	258.1	310.4	383.0	488.1
		% Change in Expected Costs per Unit Time									
[0.25, 1]	$(Q^G, R^m(Q^G))$	0.4	0.7	1.1	1.5	2.2	3.3	4.8	7.2	10.6	15.2
	(Q^M, R^M)	94.6	82.5	72.3	63.6	56.1	49.5	43.9	39.4	36.6	36.1
[1, 4]	$(Q^G, R^m(Q^G))$	0.3	0.5	0.6	0.7	0.8	1.0	1.4	2.6	5.2	10.9
	(Q^M, R^M)	107.2	92.9	81.1	71.2	62.8	55.4	49.0	43.3	38.4	34.6
[4, 7]	$(Q^G, R^m(Q^G))$	-0.1	-0.1	-0.2	-0.2	-0.3	-0.5	-0.6	-0.6	-0.2	1.4
	(Q^M, R^M)	99.6	85.1	73.2	63.3	55.0	47.8	41.7	36.3	31.4	27.1
[7, 10]	$(Q^G, R^m(Q^G))$	-0.6	-1.1	-1.5	-1.8	-2.1	-2.3	-2.6	-2.8	-2.9	-2.5
	(Q^M, R^M)	88.6	74.3	62.7	53.1	45.1	38.3	32.5	27.4	23.0	19.0
		% Change in Maximum Cycle Costs									
[0.25, 1]	$(Q^G, R^m(Q^G))$	-1.5	-2.4	-3.1	-3.9	-5.0	-6.6	-9.1	-12.3	-16.4	-20.9
	(Q^M, R^M)	-44.8	-45.4	-45.5	-45.4	-45.3	-45.4	-46.0	-47.3	-49.5	-52.7
[1, 4]	$(Q^G, R^m(Q^G))$	-4.5	-6.9	-7.9	-7.8	-7.0	-5.8	-4.4	-3.8	-5.5	-9.4
	(Q^M, R^M)	-48.8	-51.6	-53.3	-54.2	-54.3	-53.9	-53.0	-52.3	-52.6	-54.0
[4, 7]	$(Q^G, R^m(Q^G))$	-3.9	-5.6	-6.4	-6.5	-5.8	-4.9	-3.9	-3.0	-3.8	-5.8
	(Q^M, R^M)	-49.5	-52.7	-55.1	-56.7	-57.7	-58.2	-58.4	-58.3	-58.9	-59.8
[7, 10]	$(Q^G, R^m(Q^G))$	-5.4	-5.9	-5.9	-6.2	-5.8	-5.6	-5.6	-5.7	-6.2	-7.5
	(Q^M, R^M)	-50.2	-53.0	-55.2	-57.2	-58.5	-59.6	-60.6	-61.3	-62.0	-62.9

K.2.6. Triangular Distribution (Left-Skewed)

Table 24. Comparisons of results with (Q^G, R^G) policy when coefficient of variation is varied (D∼Triangular (Left-Skewed), $h = 1$, $K \in [50, 150]$, $\lambda \in [2{,}000, 10{,}000]$, $\tau \in [0.02, 1]$).

		CV									
p	Policy	0.035	0.070	0.105	0.140	0.175	0.210	0.245	0.280	0.315	0.350
		Expected Costs per Unit Time									
[0.25, 1]	(Q^G, R^G)	1059.1	1073.2	1087.4	1101.5	1115.6	1129.6	1143.6	1157.6	1171.5	1185.3
	$(Q^G, R^m(Q^G))$	1066.6	1093.2	1128.1	1176.1	1243.3	1334.1	1452.0	1586.8	1685.5	1742.3
	(Q^M, R^M)	1946.8	1873.7	1811.2	1760.9	1728.3	1725.2	1776.0	1932.3	2312.9	3049.2
[1, 4]	(Q^G, R^G)	1032.6	1055.6	1078.7	1101.9	1125.2	1148.6	1172.1	1195.7	1219.3	1243.0
	$(Q^G, R^m(Q^G))$	1032.6	1057.0	1085.3	1122.7	1180.2	1280.9	1480.0	1910.3	2885.9	4396.1
	(Q^M, R^M)	1735.2	1681.4	1636.3	1598.5	1568.1	1549.9	1561.9	1673.2	2194.7	5493.2
[4, 7]	(Q^G, R^G)	1035.4	1067.8	1100.2	1132.5	1164.6	1196.5	1228.3	1259.9	1291.4	1322.7
	$(Q^G, R^m(Q^G))$	1026.5	1050.8	1076.1	1103.8	1138.0	1191.7	1307.0	1638.3	2863.2	7963.4
	(Q^M, R^M)	1780.8	1724.2	1677.6	1638.8	1606.4	1579.4	1560.2	1570.3	1795.5	5711.8
[7, 10]	(Q^G, R^G)	1103.3	1146.0	1188.6	1230.9	1272.9	1314.6	1356.1	1397.1	1437.9	1478.3
	$(Q^G, R^m(Q^G))$	1085.8	1112.5	1140.3	1169.5	1202.2	1245.2	1324.8	1561.2	2658.3	10746.6
	(Q^M, R^M)	1990.0	1922.5	1866.6	1820.1	1781.2	1748.4	1721.2	1706.7	1794.3	5059.3
		Maximum Cyle Costs									
[0.25, 1]	(Q^G, R^G)	231.0	260.2	297.9	347.8	416.7	517.4	677.9	972.7	1688.4	5934.1
	$(Q^G, R^m(Q^G))$	228.7	253.8	283.5	319.4	363.7	422.1	508.3	668.6	1079.3	3568.7
	(Q^M, R^M)	131.6	144.9	161.5	182.5	209.0	243.2	288.6	355.9	497.0	1383.1
[1, 4]	(Q^G, R^G)	240.2	277.0	325.1	390.0	479.1	611.1	822.2	1210.3	2156.4	7781.8
	$(Q^G, R^m(Q^G))$	235.0	270.8	315.9	373.6	449.6	553.6	703.9	940.3	1413.4	4187.9
	(Q^M, R^M)	132.1	147.0	166.8	193.5	230.1	282.4	360.9	490.1	739.6	1630.8
[4, 7]	(Q^G, R^G)	258.3	305.0	365.6	444.1	554.6	716.0	973.1	1445.1	2596.4	9432.4
	$(Q^G, R^m(Q^G))$	240.0	281.3	334.5	404.9	500.8	637.6	845.8	1197.0	1910.6	4903.0
	(Q^M, R^M)	130.7	144.9	163.9	190.0	226.9	281.3	367.2	518.9	849.5	2104.2
[7, 10]	(Q^G, R^G)	274.2	329.6	400.6	494.4	623.8	813.0	1114.7	1669.3	3016.2	11006.0
	$(Q^G, R^m(Q^G))$	249.2	294.6	354.0	433.4	543.1	702.0	949.1	1378.8	2298.7	5840.4
	(Q^M, R^M)	133.5	147.5	166.4	192.5	229.5	284.7	373.0	532.4	895.6	2477.5
		% Change in Expected Costs per Unit Time									
[0.25, 1]	$(Q^G, R^m(Q^G))$	0.7	1.8	3.7	6.7	11.2	17.7	26.3	35.8	42.2	45.0
	(Q^M, R^M)	79.5	71.0	63.6	57.5	53.2	51.6	54.7	66.6	96.2	151.9
[1, 4]	$(Q^G, R^m(Q^G))$	0.0	0.2	0.8	2.3	5.6	12.6	27.8	61.1	133.3	236.6
	(Q^M, R^M)	71.6	63.1	55.8	49.3	43.7	39.4	37.8	44.6	83.9	334.0
[4, 7]	$(Q^G, R^m(Q^G))$	-0.8	-1.5	-2.0	-2.2	-1.7	0.6	8.2	33.3	125.3	475.9
	(Q^M, R^M)	76.7	66.7	58.0	50.5	43.9	38.1	33.2	31.1	46.1	330.0
[7, 10]	$(Q^G, R^m(Q^G))$	-1.5	-2.8	-3.8	-4.7	-5.1	-4.6	-1.1	14.2	89.0	605.5
	(Q^M, R^M)	86.7	74.7	64.5	55.7	48.0	41.2	35.1	30.3	32.5	235.7
		% Change in Maximum Cycle Costs									
[0.25, 1]	$(Q^G, R^m(Q^G))$	-1.0	-2.5	-4.8	-8.1	-12.5	-17.8	-24.0	-29.9	-34.4	-37.9
	(Q^M, R^M)	-43.1	-44.6	-46.3	-48.3	-50.9	-54.3	-58.9	-64.9	-72.2	-79.0
[1, 4]	$(Q^G, R^m(Q^G))$	-2.3	-2.4	-3.0	-4.4	-6.3	-9.4	-14.3	-21.9	-33.2	-43.7
	(Q^M, R^M)	-45.5	-47.7	-49.7	-51.8	-53.7	-55.9	-58.6	-62.2	-68.2	-80.8
[4, 7]	$(Q^G, R^m(Q^G))$	-6.9	-7.5	-8.2	-8.5	-9.3	-10.6	-12.7	-16.8	-25.7	-45.8
	(Q^M, R^M)	-49.6	-52.9	-55.8	-58.1	-60.3	-62.3	-64.3	-66.5	-69.9	-79.5
[7, 10]	$(Q^G, R^m(Q^G))$	-8.6	-9.9	-10.8	-11.4	-12.0	-12.8	-14.1	-16.7	-23.0	-44.4
	(Q^M, R^M)	-51.6	-55.7	-59.2	-62.1	-64.6	-66.8	-68.9	-71.0	-73.5	-80.0

L. Comparison of Results with (Q^E, R^E) Policy

L.1. Comparison of Results with (Q^E, R^E) Policy when Penalty Cost per Unit Short is Varied

L.1.1. Truncated Normal Distribution

Table 25. Comparisons of results with (Q^E, R^E) policy when penalty cost per unit short is varied (D∼Truncated Normal, $h = 1$, $K \in [50, 150]$, $\lambda \in [2{,}000, 10{,}000]$, $\tau \in [0.02, 1]$).

		p									
CV	Policy	0.25	0.50	0.75	1	2	3	4	6	8	10
		Expected Costs per Unit Time									
[0.05, 0.10]	(Q^E, R^E)	1182.4	1210.1	1221.6	1227.0	1234.7	1237.3	1238.5	1239.8	1240.4	1240.8
	$(Q^E, R^m(Q^E))$	1185.0	1214.7	1222.6	1226.1	1232.5	1235.4	1236.9	1238.6	1239.5	1240.0
	(Q^M, R^M)	1741.6	1759.5	1766.3	1769.9	1775.4	1777.3	1778.3	1779.3	1779.7	1780.0
[0.10, 0.20]	(Q^E, R^E)	1143.0	1187.6	1205.4	1213.1	1223.8	1227.2	1228.9	1230.6	1231.4	1231.9
	$(Q^E, R^m(Q^E))$	1148.6	1205.3	1215.1	1217.9	1221.2	1224.0	1225.9	1228.2	1229.5	1230.3
	(Q^M, R^M)	1699.7	1726.6	1737.6	1743.7	1753.8	1757.4	1759.2	1761.1	1762.1	1762.7
[0.20, 0.30]	(Q^E, R^E)	1171.0	1243.8	1269.9	1280.7	1295.5	1300.2	1302.5	1304.8	1306.0	1306.7
	$(Q^E, R^m(Q^E))$	1185.2	1329.6	1354.1	1349.2	1322.1	1313.1	1310.0	1308.2	1307.9	1307.9
	(Q^M, R^M)	1749.2	1782.3	1793.3	1799.8	1812.0	1817.1	1819.9	1822.8	1824.4	1825.3
[0.30, 0.35]	(Q^E, R^E)	1186.8	1280.2	1316.8	1332.4	1354.0	1360.8	1364.2	1367.5	1369.2	1370.2
	$(Q^E, R^m(Q^E))$	1205.0	1491.0	1560.0	1561.7	1473.5	1430.9	1411.2	1394.3	1387.3	1383.7
	(Q^M, R^M)	1708.6	1766.7	1763.3	1756.5	1745.4	1743.9	1744.0	1744.9	1745.6	1746.2
		Maximum Cyle Costs									
[0.05, 0.10]	(Q^E, R^E)	245.8	249.0	250.2	250.8	251.7	251.9	252.1	252.2	252.3	252.3
	$(Q^E, R^m(Q^E))$	242.3	243.5	245.5	247.0	249.5	250.4	250.9	251.4	251.6	251.7
	(Q^M, R^M)	156.1	160.1	161.6	162.3	163.4	163.8	164.0	164.2	164.3	164.3
[0.10, 0.20]	(Q^E, R^E)	275.1	285.3	287.1	287.9	289.2	289.7	289.9	290.2	290.3	290.4
	$(Q^E, R^m(Q^E))$	268.3	265.4	270.9	274.9	282.1	284.7	286.0	287.3	288.0	288.4
	(Q^M, R^M)	160.3	168.7	172.0	173.7	176.4	177.3	177.8	178.2	178.5	178.6
[0.20, 0.30]	(Q^E, R^E)	373.1	401.0	403.4	404.6	406.3	406.9	407.2	407.5	407.6	407.7
	$(Q^E, R^m(Q^E))$	357.3	332.1	345.8	357.5	380.1	388.8	393.4	398.1	400.5	402.0
	(Q^M, R^M)	182.2	202.6	211.6	216.7	225.2	228.2	229.8	231.4	232.2	232.7
[0.30, 0.35]	(Q^E, R^E)	545.0	593.8	597.4	599.3	602.1	603.0	603.5	603.9	604.1	604.3
	$(Q^E, R^m(Q^E))$	510.2	429.7	453.6	477.2	530.4	552.6	564.6	577.3	583.9	587.9
	(Q^M, R^M)	224.6	270.9	294.7	309.1	334.8	344.7	350.0	355.4	358.2	360.0
		% Change in Expected Costs per Unit Time									
[0.05, 0.10]	$(Q^E, R^m(Q^E))$	0.2	0.4	0.1	-0.0	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1
	(Q^M, R^M)	48.5	47.1	46.5	46.2	45.9	45.7	45.7	45.6	45.6	45.6
[0.10, 0.20]	$(Q^E, R^m(Q^E))$	0.5	1.5	0.9	0.5	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1
	(Q^M, R^M)	50.7	48.1	47.1	46.8	46.5	46.4	46.4	46.4	46.4	46.4
[0.20, 0.30]	$(Q^E, R^m(Q^E))$	1.3	7.0	6.8	5.4	2.1	1.0	0.6	0.3	0.1	0.1
	(Q^M, R^M)	48.3	43.4	41.7	41.1	40.6	40.5	40.5	40.5	40.5	40.5
[0.30, 0.35]	$(Q^E, R^m(Q^E))$	1.5	16.4	18.7	17.6	9.2	5.4	3.6	2.1	1.4	1.1
	(Q^M, R^M)	43.8	38.7	34.9	33.0	30.3	29.6	29.3	29.1	29.0	28.9
		% Change in Maximum Cycle Costs									
[0.05, 0.10]	$(Q^E, R^m(Q^E))$	-1.5	-2.2	-1.8	-1.5	-0.8	-0.6	-0.5	-0.3	-0.3	-0.2
	(Q^M, R^M)	-37.3	-36.6	-36.4	-36.3	-36.1	-36.0	-36.0	-36.0	-36.0	-36.0
[0.10, 0.20]	$(Q^E, R^m(Q^E))$	-2.5	-7.0	-5.6	-4.5	-2.4	-1.7	-1.3	-1.0	-0.8	-0.6
	(Q^M, R^M)	-42.6	-41.7	-41.0	-40.6	-40.0	-39.9	-39.8	-39.7	-39.6	-39.6
[0.20, 0.30]	$(Q^E, R^m(Q^E))$	-4.7	-16.5	-13.7	-11.1	-6.2	-4.2	-3.2	-2.2	-1.7	-1.3
	(Q^M, R^M)	-51.6	-50.3	-48.6	-47.6	-46.0	-45.5	-45.2	-44.9	-44.7	-44.6
[0.30, 0.35]	$(Q^E, R^m(Q^E))$	-6.5	-27.0	-23.7	-20.1	-11.7	-8.2	-6.3	-4.3	-3.3	-2.7
	(Q^M, R^M)	-59.2	-55.2	-51.7	-49.6	-45.8	-44.4	-43.6	-42.8	-42.4	-42.2

L.1.2. Triangular Distribution (Symmetric)

Table 26. Comparisons of results with (Q^E, R^E) policy when penalty cost per unit short is varied (D∼Triangular (Symmetric), $h = 1$, $K \in [50, 150]$, $\lambda \in [2{,}000, 10{,}000]$, $\tau \in [0.02, 1]$).

CV	Policy	*p* 0.25	0.50	0.75	1	2	3	4	6	8	10
		Expected Costs per Unit Time									
[0.05, 0.10]	(Q^E, R^E)	1157.3	1182.3	1192.9	1199.2	1211.1	1216.4	1219.5	1223.3	1225.6	1227.3
	$(Q^E, R^m(Q^E))$	1163.7	1194.3	1204.2	1209.7	1220.7	1225.9	1228.9	1232.2	1234.0	1235.1
	(Q^M, R^M)	1651.2	1676.0	1686.6	1692.5	1702.0	1705.3	1707.0	1708.8	1709.7	1710.2
[0.10, 0.20]	(Q^E, R^E)	1171.2	1212.7	1230.2	1240.6	1260.3	1268.9	1274.1	1280.3	1284.1	1286.8
	$(Q^E, R^m(Q^E))$	1193.1	1260.2	1266.8	1267.4	1272.7	1278.8	1283.6	1289.9	1293.6	1296.0
	(Q^M, R^M)	1681.6	1713.4	1730.0	1740.4	1759.8	1767.4	1771.4	1775.7	1777.9	1779.2
[0.20, 0.30]	(Q^E, R^E)	1183.9	1245.0	1270.5	1285.6	1314.1	1326.7	1334.1	1343.1	1348.6	1352.6
	$(Q^E, R^m(Q^E))$	1224.0	1449.7	1495.8	1482.8	1398.6	1365.5	1355.1	1352.4	1354.9	1357.8
	(Q^M, R^M)	1725.9	1753.7	1747.4	1745.4	1755.2	1765.3	1772.4	1781.2	1786.3	1789.6
[0.30, 0.35]	(Q^E, R^E)	1162.6	1226.9	1253.9	1269.9	1300.0	1313.3	1321.1	1330.7	1336.5	1340.7
	$(Q^E, R^m(Q^E))$	1213.2	1592.4	1841.4	1948.2	1868.5	1679.6	1562.3	1447.7	1400.9	1379.2
	(Q^M, R^M)	1889.2	2006.9	1969.9	1919.9	1815.2	1787.2	1779.0	1777.1	1779.4	1782.1
		Maximum Cyle Costs									
[0.05, 0.10]	(Q^E, R^E)	248.7	258.4	267.3	275.6	301.5	320.2	334.5	355.5	370.5	381.8
	$(Q^E, R^m(Q^E))$	242.5	252.0	257.0	259.7	263.6	264.7	265.2	265.5	265.6	265.6
	(Q^M, R^M)	166.4	172.5	174.8	175.9	177.7	178.3	178.6	178.9	179.0	179.1
[0.10, 0.20]	(Q^E, R^E)	309.0	320.2	328.0	336.1	369.2	396.0	417.4	449.6	473.2	490.9
	$(Q^E, R^m(Q^E))$	283.5	301.4	314.4	322.1	334.7	338.8	340.6	342.2	342.7	343.0
	(Q^M, R^M)	183.6	198.5	204.5	207.8	213.0	214.8	215.7	216.6	217.1	217.4
[0.20, 0.30]	(Q^E, R^E)	500.0	524.3	534.8	541.1	556.1	570.4	585.0	609.7	632.0	650.9
	$(Q^E, R^m(Q^E))$	420.8	421.4	451.4	475.1	524.5	544.1	554.1	563.8	568.3	570.7
	(Q^M, R^M)	222.6	262.5	282.6	294.7	316.0	324.2	328.5	333.0	335.3	336.7
[0.30, 0.35]	(Q^E, R^E)	826.4	871.6	891.2	903.0	926.1	936.5	942.6	949.5	953.4	955.9
	$(Q^E, R^m(Q^E))$	667.6	613.8	629.8	661.4	765.6	825.0	859.2	896.3	915.5	926.9
	(Q^M, R^M)	252.3	303.6	343.3	369.7	422.2	444.7	457.1	470.5	477.6	482.0
		% Change in Expected Costs per Unit Time									
[0.05, 0.10]	$(Q^E, R^m(Q^E))$	0.5	1.0	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.6
	(Q^M, R^M)	41.5	41.0	40.8	40.7	40.2	40.0	39.8	39.6	39.4	39.3
[0.10, 0.20]	$(Q^E, R^m(Q^E))$	1.8	3.8	2.9	2.1	1.0	0.8	0.8	0.8	0.7	0.7
	(Q^M, R^M)	43.4	41.8	41.4	41.2	40.8	40.6	40.4	40.1	40.0	39.8
[0.20, 0.30]	$(Q^E, R^m(Q^E))$	3.3	16.4	18.4	16.4	7.4	3.5	1.9	0.8	0.5	0.4
	(Q^M, R^M)	49.7	45.3	42.4	40.8	38.9	38.5	38.3	38.1	38.0	37.9
[0.30, 0.35]	$(Q^E, R^m(Q^E))$	4.4	29.6	46.8	53.7	44.7	29.0	19.3	9.5	5.3	3.2
	(Q^M, R^M)	63.2	64.5	58.1	52.3	41.2	37.9	36.5	35.5	35.2	35.0
		% Change in Maximum Cycle Costs									
[0.05, 0.10]	$(Q^E, R^m(Q^E))$	-2.5	-2.5	-3.7	-5.4	-11.5	-15.8	-18.9	-23.2	-25.9	-27.9
	(Q^M, R^M)	-33.9	-34.5	-36.2	-37.8	-42.7	-45.9	-48.0	-50.9	-52.8	-54.1
[0.10, 0.20]	$(Q^E, R^m(Q^E))$	-8.0	-5.7	-4.1	-4.2	-8.8	-13.2	-16.7	-21.6	-25.0	-27.4
	(Q^M, R^M)	-40.5	-38.4	-38.4	-39.3	-44.0	-47.5	-50.0	-53.3	-55.5	-57.0
[0.20, 0.30]	$(Q^E, R^m(Q^E))$	-15.0	-18.6	-14.9	-11.7	-5.6	-4.5	-4.8	-6.2	-8.0	-9.8
	(Q^M, R^M)	-56.3	-51.7	-49.4	-48.1	-46.6	-47.0	-47.9	-49.5	-50.9	-52.2
[0.30, 0.35]	$(Q^E, R^m(Q^E))$	-19.2	-28.8	-28.4	-25.9	-16.7	-11.4	-8.5	-5.4	-3.8	-2.9
	(Q^M, R^M)	-69.8	-65.5	-62.2	-60.0	-56.0	-54.3	-53.5	-52.6	-52.1	-51.9

L.1.3. Triangular Distribution (Right-Skewed)

Table 27. Comparisons of results with (Q^E, R^E) policy when penalty cost per unit short is varied (D∼Triangular (Right-Skewed), $h = 1$, $K \in [50, 150]$, $\lambda \in [2{,}000, 10{,}000]$, $\tau \in [0.02, 1]$).

		p									
CV	Policy	0.25	0.50	0.75	1	2	3	4	6	8	10
		Expected Costs per Unit Time									
$[0.05, 0.10]$	(Q^E, R^E)	1120.4	1149.0	1161.5	1169.0	1183.4	1189.6	1193.3	1197.6	1200.1	1201.8
	$(Q^E, R^m(Q^E))$	1126.1	1161.8	1175.7	1184.0	1197.9	1203.5	1206.6	1209.9	1211.5	1212.6
	(Q^M, R^M)	1614.5	1642.6	1653.7	1659.7	1669.1	1672.3	1674.0	1675.7	1676.5	1677.0
$[0.10, 0.20]$	(Q^E, R^E)	1182.1	1233.2	1255.5	1268.9	1294.4	1305.5	1312.0	1319.5	1323.9	1327.0
	$(Q^E, R^m(Q^E))$	1189.9	1252.4	1272.4	1283.7	1309.0	1321.2	1328.3	1336.0	1340.1	1342.7
	(Q^M, R^M)	1635.6	1684.1	1706.3	1719.0	1740.9	1749.0	1753.2	1757.6	1759.8	1761.1
$[0.20, 0.30]$	(Q^E, R^E)	1222.4	1294.0	1325.1	1343.8	1379.2	1394.7	1403.7	1414.1	1420.2	1424.4
	$(Q^E, R^m(Q^E))$	1247.1	1367.0	1380.8	1379.3	1389.5	1403.1	1413.3	1426.1	1433.7	1438.6
	(Q^M, R^M)	1640.3	1692.2	1718.4	1735.7	1770.2	1784.9	1793.1	1801.9	1806.5	1809.4
$[0.30, 0.35]$	(Q^E, R^E)	1149.5	1229.2	1263.7	1284.4	1323.7	1340.8	1350.7	1362.2	1369.0	1373.6
	$(Q^E, R^m(Q^E))$	1184.4	1380.6	1420.0	1413.1	1361.2	1354.5	1358.0	1367.9	1375.9	1381.7
	(Q^M, R^M)	1577.9	1618.4	1630.4	1640.2	1669.1	1686.1	1696.7	1709.1	1716.1	1720.5
		Maximum Cyle Costs									
$[0.05, 0.10]$	(Q^E, R^E)	236.8	251.4	264.2	275.6	312.3	339.6	361.4	395.0	420.3	440.3
	$(Q^E, R^m(Q^E))$	233.1	241.3	245.6	247.9	251.3	252.3	252.6	252.9	252.9	252.8
	(Q^M, R^M)	162.6	168.6	170.8	171.9	173.6	174.1	174.4	174.7	174.9	174.9
$[0.10, 0.20]$	(Q^E, R^E)	296.0	314.4	332.7	350.5	410.9	457.7	496.1	555.3	599.9	635.2
	$(Q^E, R^m(Q^E))$	284.0	301.9	314.2	321.2	332.3	335.8	337.3	338.4	338.8	338.8
	(Q^M, R^M)	189.8	204.5	210.4	213.6	218.6	220.4	221.3	222.2	222.7	223.0
$[0.20, 0.30]$	(Q^E, R^E)	395.0	417.1	428.3	439.7	498.0	554.9	603.9	682.9	743.4	791.3
	$(Q^E, R^m(Q^E))$	357.4	373.8	400.4	418.0	448.7	459.4	464.5	469.0	470.8	471.6
	(Q^M, R^M)	215.0	244.9	258.8	266.7	280.2	285.1	287.7	290.3	291.7	292.5
$[0.30, 0.35]$	(Q^E, R^E)	493.3	525.9	539.8	548.3	572.1	611.1	653.4	726.6	785.4	834.1
	$(Q^E, R^m(Q^E))$	428.2	427.0	461.9	489.9	548.1	570.7	582.1	592.9	597.7	600.2
	(Q^M, R^M)	228.1	276.3	301.3	316.6	344.1	354.8	360.5	366.4	369.5	371.3
		% Change in Expected Costs per Unit Time									
$[0.05, 0.10]$	$(Q^E, R^m(Q^E))$	0.5	1.1	1.2	1.3	1.2	1.2	1.1	1.0	0.9	0.9
	(Q^M, R^M)	45.9	45.3	45.0	44.7	44.0	43.6	43.4	43.1	43.0	42.8
$[0.10, 0.20]$	$(Q^E, R^m(Q^E))$	0.7	1.7	1.5	1.3	1.1	1.1	1.1	1.2	1.1	1.1
	(Q^M, R^M)	43.3	42.1	41.7	41.4	40.6	40.2	39.9	39.6	39.3	39.1
$[0.20, 0.30]$	$(Q^E, R^m(Q^E))$	2.0	5.8	4.5	3.0	0.9	0.6	0.7	0.8	0.9	0.9
	(Q^M, R^M)	37.2	34.4	33.5	33.1	32.5	32.2	32.0	31.7	31.5	31.3
$[0.30, 0.35]$	$(Q^E, R^m(Q^E))$	3.0	12.2	12.6	10.4	3.0	1.1	0.6	0.4	0.5	0.6
	(Q^M, R^M)	37.7	32.9	30.6	29.5	28.2	27.9	27.8	27.7	27.7	27.6
		% Change in Maximum Cycle Costs									
$[0.05, 0.10]$	$(Q^E, R^m(Q^E))$	-1.6	-3.9	-6.7	-9.4	-18.0	-23.6	-27.6	-33.0	-36.5	-39.1
	(Q^M, R^M)	-32.0	-34.2	-36.8	-39.1	-45.8	-49.9	-52.7	-56.5	-58.9	-60.7
$[0.10, 0.20]$	$(Q^E, R^m(Q^E))$	-3.9	-4.1	-5.5	-7.7	-16.7	-23.3	-28.3	-34.9	-39.1	-42.1
	(Q^M, R^M)	-37.2	-37.2	-39.4	-41.7	-49.0	-53.7	-56.9	-61.1	-63.8	-65.6
$[0.20, 0.30]$	$(Q^E, R^m(Q^E))$	-9.3	-10.1	-6.5	-5.0	-8.7	-14.8	-19.9	-27.5	-32.7	-36.4
	(Q^M, R^M)	-46.7	-43.2	-42.0	-42.2	-47.1	-51.7	-55.2	-59.9	-62.9	-65.0
$[0.30, 0.35]$	$(Q^E, R^m(Q^E))$	-13.3	-18.1	-14.1	-10.4	-4.3	-6.4	-9.9	-16.1	-20.8	-24.6
	(Q^M, R^M)	-54.1	-48.4	-45.5	-43.9	-42.3	-45.0	-48.1	-52.7	-55.9	-58.3

L.1.4. Triangular Distribution (Left-Skewed)

Table 28. Comparisons of results with (Q^E, R^E) policy when penalty cost per unit short is varied (D~Triangular (Left-Skewed), $h = 1$, $K \in [50, 150]$, $\lambda \in [2{,}000, 10{,}000]$, $\tau \in [0.02, 1]$).

		p									
CV	Policy	0.25	0.50	0.75	1	2	3	4	6	8	10
		Expected Costs per Unit Time									
[0.05, 0.10]	(Q^E, R^E)	1143.6	1165.8	1173.1	1177.4	1186.2	1190.3	1192.9	1196.0	1197.8	1199.0
	$(Q^E, R^m(Q^E))$	1151.0	1185.5	1191.3	1191.7	1192.3	1194.1	1195.8	1198.1	1199.6	1200.5
	(Q^M, R^M)	1720.4	1736.2	1743.6	1748.2	1756.4	1759.5	1761.1	1762.8	1763.7	1764.2
[0.10, 0.20]	(Q^E, R^E)	1177.4	1213.9	1226.0	1233.2	1247.9	1254.9	1259.2	1264.3	1267.3	1269.3
	$(Q^E, R^m(Q^E))$	1212.8	1317.3	1318.1	1304.9	1269.4	1262.1	1261.5	1263.9	1266.3	1268.2
	(Q^M, R^M)	1677.6	1694.6	1696.6	1698.9	1708.6	1714.3	1717.8	1721.7	1723.8	1725.1
[0.20, 0.30]	(Q^E, R^E)	1173.6	1223.5	1240.0	1249.8	1269.9	1279.4	1285.2	1292.2	1296.2	1298.9
	$(Q^E, R^m(Q^E))$	1237.4	1555.1	1674.0	1698.6	1583.9	1481.7	1417.8	1355.2	1329.5	1317.4
	(Q^M, R^M)	1924.7	1988.0	1964.9	1934.5	1866.4	1846.7	1841.0	1839.6	1840.9	1842.5
[0.30, 0.35]	(Q^E, R^E)	1240.9	1305.2	1326.2	1338.8	1364.5	1376.7	1384.2	1393.1	1398.2	1401.6
	$(Q^E, R^m(Q^E))$	1314.9	1854.4	2368.1	2808.8	3824.3	4079.7	4010.7	3624.2	3226.4	2883.5
	(Q^M, R^M)	2267.8	2943.1	3310.0	3464.4	3392.1	3108.1	2859.0	2518.2	2320.8	2201.6
		Maximum Cyle Costs									
[0.05, 0.10]	(Q^E, R^E)	258.1	263.3	266.4	268.9	276.5	280.9	283.8	287.4	289.4	290.8
	$(Q^E, R^m(Q^E))$	248.6	256.7	261.4	264.1	268.0	269.2	269.7	270.2	270.4	270.5
	(Q^M, R^M)	165.8	172.0	174.3	175.5	177.3	177.9	178.2	178.5	178.7	178.8
[0.10, 0.20]	(Q^E, R^E)	330.8	341.0	345.0	347.3	351.7	354.1	355.6	357.6	358.9	359.8
	$(Q^E, R^m(Q^E))$	290.9	305.3	320.1	328.8	343.1	347.9	350.1	352.3	353.3	353.9
	(Q^M, R^M)	179.1	195.1	201.8	205.6	211.6	213.7	214.8	215.9	216.5	216.8
[0.20, 0.30]	(Q^E, R^E)	578.4	601.9	611.1	616.2	624.9	628.1	629.8	631.6	632.4	633.0
	$(Q^E, R^m(Q^E))$	461.6	446.7	472.8	496.9	552.7	577.0	590.7	605.1	612.5	617.0
	(Q^M, R^M)	215.0	254.1	276.0	289.6	314.6	324.5	329.9	335.4	338.3	340.1
[0.30, 0.35]	(Q^E, R^E)	1997.4	2094.4	2132.6	2153.8	2189.0	2201.8	2208.4	2215.2	2218.5	2220.5
	$(Q^E, R^m(Q^E))$	1476.6	1314.5	1284.9	1284.6	1374.1	1489.3	1587.5	1727.4	1819.7	1885.7
	(Q^M, R^M)	451.9	475.3	521.1	572.1	724.1	811.4	866.3	931.8	969.8	994.6
		% Change in Expected Costs per Unit Time									
[0.05, 0.10]	$(Q^E, R^m(Q^E))$	0.7	1.8	1.6	1.3	0.5	0.3	0.2	0.2	0.1	0.1
	(Q^M, R^M)	51.7	50.6	50.5	50.4	50.2	50.0	49.9	49.7	49.6	49.5
[0.10, 0.20]	$(Q^E, R^m(Q^E))$	3.0	8.4	7.5	5.9	1.8	0.7	0.2	-0.0	-0.1	-0.1
	(Q^M, R^M)	44.7	42.2	41.2	40.7	40.0	39.8	39.6	39.4	39.3	39.2
[0.20, 0.30]	$(Q^E, R^m(Q^E))$	5.4	26.6	34.8	36.1	25.6	16.9	11.3	5.5	3.0	1.7
	(Q^M, R^M)	66.5	65.1	61.1	57.6	50.4	48.0	47.1	46.4	46.1	46.0
[0.30, 0.35]	$(Q^E, R^m(Q^E))$	6.1	41.7	77.6	108.6	179.5	195.3	189.4	160.3	130.7	105.9
	(Q^M, R^M)	85.6	127.6	151.1	160.0	149.9	127.7	109.1	84.0	69.6	61.0
		% Change in Maximum Cycle Costs									
[0.05, 0.10]	$(Q^E, R^m(Q^E))$	-3.8	-2.6	-1.9	-1.8	-2.8	-3.7	-4.4	-5.3	-5.8	-6.2
	(Q^M, R^M)	-36.7	-35.8	-35.9	-36.2	-37.5	-38.3	-38.9	-39.6	-40.0	-40.2
[0.10, 0.20]	$(Q^E, R^m(Q^E))$	-11.5	-9.7	-6.7	-5.0	-2.3	-1.7	-1.5	-1.5	-1.5	-1.6
	(Q^M, R^M)	-46.3	-43.7	-42.7	-42.1	-41.5	-41.4	-41.5	-41.6	-41.7	-41.8
[0.20, 0.30]	$(Q^E, R^m(Q^E))$	-19.3	-23.9	-20.8	-17.8	-10.6	-7.4	-5.6	-3.8	-2.8	-2.3
	(Q^M, R^M)	-62.7	-58.2	-55.8	-54.3	-51.6	-50.6	-50.1	-49.5	-49.2	-49.0
[0.30, 0.35]	$(Q^E, R^m(Q^E))$	-24.9	-35.4	-37.6	-37.9	-33.5	-28.4	-24.2	-18.4	-14.8	-12.3
	(Q^M, R^M)	-77.4	-76.6	-74.4	-72.2	-66.1	-62.9	-60.9	-58.6	-57.3	-56.4

L.2. Comparison of Results with (Q^E, R^E) Policy when Coefficient of Variation is Varied

L.2.1. Truncated Normal Distribution

Table 29. Comparisons of results with (Q^E, R^E) policy when coefficient of variation is varied ($D\sim$Truncated Normal, $h = 1$, $K \in [50, 150]$, $\lambda \in [2{,}000, 10{,}000]$, $\tau \in [0.02, 1]$).

p	Policy	*CV* 0.035	0.070	0.105	0.140	0.175	0.210	0.245	0.280	0.315	0.350
		Expected Costs per Unit Time									
[0.25, 1]	(Q^E, R^E)	1047.9	1059.8	1071.9	1088.6	1101.6	1114.6	1127.4	1140.2	1153.0	1165.6
	$(Q^E, R^m(Q^E))$	1050.0	1064.1	1078.5	1093.7	1110.1	1127.9	1147.9	1170.4	1196.3	1225.8
	(Q^M, R^M)	1795.2	1752.3	1714.2	1680.3	1650.0	1623.2	1600.1	1580.8	1566.1	1557.1
[1, 4]	(Q^E, R^E)	1045.5	1061.5	1077.7	1097.4	1114.3	1131.2	1148.1	1165.0	1182.0	1198.9
	$(Q^E, R^m(Q^E))$	1046.1	1062.6	1079.3	1096.2	1113.5	1131.5	1150.5	1171.1	1194.0	1220.2
	(Q^M, R^M)	1939.9	1890.1	1846.4	1808.0	1774.3	1744.8	1719.0	1696.7	1677.7	1662.4
[4, 7]	(Q^E, R^E)	1035.4	1051.3	1067.3	1084.7	1101.0	1117.3	1133.6	1149.8	1166.1	1182.4
	$(Q^E, R^m(Q^E))$	1035.4	1051.2	1067.0	1082.8	1098.8	1115.0	1131.5	1148.5	1166.5	1185.7
	(Q^M, R^M)	1962.2	1909.1	1862.5	1821.5	1785.5	1753.9	1726.2	1702.0	1681.1	1663.3
[7, 10]	(Q^E, R^E)	1089.4	1107.8	1126.4	1146.0	1164.7	1183.5	1202.2	1221.0	1239.7	1258.5
	$(Q^E, R^m(Q^E))$	1089.3	1107.7	1126.1	1144.4	1162.9	1181.4	1200.1	1219.2	1238.7	1259.2
	(Q^M, R^M)	1997.8	1948.0	1904.6	1867.0	1834.4	1806.3	1782.1	1761.5	1744.1	1729.8
		Maximum Cyle Costs									
[0.25, 1]	(Q^E, R^E)	212.7	225.9	241.2	260.4	280.1	302.6	328.5	358.8	394.6	437.3
	$(Q^E, R^m(Q^E))$	211.5	223.5	236.9	251.2	266.9	284.2	303.2	324.4	348.1	376.0
	(Q^M, R^M)	125.9	133.4	142.0	151.6	162.6	174.8	188.6	204.2	221.7	241.4
[1, 4]	(Q^E, R^E)	219.0	232.7	248.1	266.0	285.6	308.0	333.6	363.2	398.0	439.3
	$(Q^E, R^m(Q^E))$	218.5	231.6	246.0	261.2	278.7	298.3	320.5	345.6	374.4	407.8
	(Q^M, R^M)	124.6	131.2	138.9	147.9	158.4	170.6	184.9	201.7	221.6	245.3
[4, 7]	(Q^E, R^E)	222.0	235.8	251.2	268.7	288.2	310.4	335.8	365.2	399.7	440.6
	$(Q^E, R^m(Q^E))$	221.8	235.3	250.3	266.6	285.2	306.2	330.1	357.5	389.3	426.6
	(Q^M, R^M)	124.2	130.2	137.4	145.8	155.6	167.1	180.8	197.0	216.4	239.8
[7, 10]	(Q^E, R^E)	236.1	251.3	268.3	287.5	309.0	333.4	361.4	393.8	431.7	476.8
	$(Q^E, R^m(Q^E))$	235.9	251.0	267.7	286.1	306.9	330.5	357.4	388.4	424.5	467.0
	(Q^M, R^M)	134.7	142.1	150.8	161.0	173.0	187.1	203.9	223.8	247.7	276.7
		% Change in Expected Costs per Unit Time									
[0.25, 1]	$(Q^E, R^m(Q^E))$	0.2	0.4	0.6	0.5	0.8	1.2	1.8	2.7	3.8	5.2
	(Q^M, R^M)	72.8	67.1	61.9	56.6	52.2	48.2	44.6	41.4	38.7	36.5
[1, 4]	$(Q^E, R^m(Q^E))$	0.1	0.1	0.2	-0.0	0.1	0.2	0.5	0.8	1.4	2.3
	(Q^M, R^M)	91.1	83.7	77.1	70.8	65.3	60.4	55.9	51.8	48.1	44.7
[4, 7]	$(Q^E, R^m(Q^E))$	0.0	-0.0	-0.0	-0.2	-0.2	-0.2	-0.2	-0.1	0.1	0.4
	(Q^M, R^M)	88.9	81.4	74.7	68.5	63.0	58.1	53.6	49.6	45.9	42.5
[7, 10]	$(Q^E, R^m(Q^E))$	-0.0	-0.0	-0.0	-0.1	-0.2	-0.2	-0.2	-0.1	-0.0	0.1
	(Q^M, R^M)	83.7	76.6	70.2	64.4	59.3	54.7	50.5	46.7	43.3	40.1
		% Change in Maximum Cycle Costs									
[0.25, 1]	$(Q^E, R^m(Q^E))$	-0.5	-1.1	-1.8	-3.5	-4.7	-6.0	-7.6	-9.4	-11.6	-13.7
	(Q^M, R^M)	-40.7	-41.0	-41.3	-42.1	-42.5	-43.0	-43.5	-44.3	-45.2	-46.4
[1, 4]	$(Q^E, R^m(Q^E))$	-0.2	-0.5	-0.8	-1.7	-2.3	-3.0	-3.7	-4.6	-5.6	-6.8
	(Q^M, R^M)	-43.2	-43.8	-44.4	-44.9	-45.2	-45.5	-45.7	-45.8	-46.0	-46.1
[4, 7]	$(Q^E, R^m(Q^E))$	-0.1	-0.2	-0.4	-0.8	-1.0	-1.3	-1.7	-2.1	-2.5	-3.1
	(Q^M, R^M)	-44.1	-44.9	-45.5	-46.1	-46.5	-46.9	-47.1	-47.2	-47.3	-47.3
[7, 10]	$(Q^E, R^m(Q^E))$	-0.1	-0.1	-0.2	-0.5	-0.7	-0.9	-1.1	-1.3	-1.7	-2.0
	(Q^M, R^M)	-42.9	-43.5	-44.0	-44.3	-44.5	-44.6	-44.5	-44.4	-44.1	-43.8

L.2.2. Triangular Distribution (Symmetric)

Table 30. Comparisons of results with (Q^E, R^E) policy when coefficient of variation is varied (D∼Triangular (Symmetric), $h = 1$, $K \in [50, 150]$, $\lambda \in [2{,}000, 10{,}000]$, $\tau \in [0.02, 1]$).

p	Policy	*CV* 0.035	0.070	0.105	0.140	0.175	0.210	0.245	0.280	0.315	0.350
		Expected Costs per Unit Time									
[0.25, 1]	(Q^E, R^E)	1063.4	1077.9	1092.3	1106.5	1120.7	1134.7	1148.6	1162.3	1175.9	1189.4
	$(Q^E, R^m(Q^E))$	1069.2	1090.5	1114.2	1142.9	1179.3	1228.1	1294.6	1386.2	1505.3	1657.5
	(Q^M, R^M)	1974.4	1885.6	1810.2	1746.1	1694.2	1658.7	1648.8	1684.6	1805.1	2089.0
[1, 4]	(Q^E, R^E)	1034.6	1055.8	1076.9	1098.0	1119.0	1140.1	1161.1	1182.1	1203.1	1224.1
	$(Q^E, R^m(Q^E))$	1036.8	1059.7	1082.5	1106.3	1133.3	1168.3	1222.9	1326.6	1555.6	2172.4
	(Q^M, R^M)	1847.9	1769.8	1706.6	1654.8	1611.8	1575.9	1547.8	1534.3	1567.5	1815.0
[4, 7]	(Q^E, R^E)	1051.7	1074.3	1096.8	1119.4	1142.0	1164.5	1187.1	1209.6	1232.1	1254.7
	$(Q^E, R^m(Q^E))$	1053.8	1077.9	1101.7	1125.0	1148.3	1172.8	1202.4	1249.1	1359.3	1754.2
	(Q^M, R^M)	2135.6	2034.5	1952.1	1884.5	1828.5	1781.6	1741.9	1708.7	1689.2	1749.5
[7, 10]	(Q^E, R^E)	993.2	1016.3	1039.5	1062.7	1085.8	1109.0	1132.1	1155.3	1178.4	1201.6
	$(Q^E, R^m(Q^E))$	995.1	1019.8	1044.1	1067.8	1091.0	1113.9	1137.6	1167.1	1224.3	1446.0
	(Q^M, R^M)	1918.5	1832.7	1763.6	1707.9	1662.7	1625.9	1595.5	1570.0	1551.2	1570.4
		Maximum Cyle Costs									
[0.25, 1]	(Q^E, R^E)	238.7	264.4	295.3	334.0	385.2	455.8	557.3	715.0	991.9	1603.4
	$(Q^E, R^m(Q^E))$	235.7	258.1	284.1	314.8	351.9	398.2	459.7	549.4	706.9	1054.5
	(Q^M, R^M)	136.6	150.6	168.0	189.5	216.0	249.1	290.7	344.2	424.4	585.7
[1, 4]	(Q^E, R^E)	239.2	272.7	308.1	347.3	393.9	455.3	549.1	704.4	978.8	1583.6
	$(Q^E, R^m(Q^E))$	228.7	254.6	285.8	324.3	372.7	435.3	519.6	639.2	824.0	1160.9
	(Q^M, R^M)	126.2	138.4	154.3	175.4	203.6	242.0	296.2	376.3	504.2	739.1
[4, 7]	(Q^E, R^E)	251.0	293.3	336.7	381.9	430.5	487.2	564.7	705.5	978.0	1579.0
	$(Q^E, R^m(Q^E))$	231.3	257.5	289.6	329.7	381.1	449.3	544.1	684.7	914.4	1360.4
	(Q^M, R^M)	125.3	136.5	151.4	171.2	198.3	236.0	290.7	374.8	517.2	802.5
[7, 10]	(Q^E, R^E)	254.3	304.1	354.7	406.4	460.0	518.9	590.3	710.5	980.6	1586.6
	$(Q^E, R^m(Q^E))$	227.2	253.7	286.2	327.0	379.5	449.8	548.4	696.6	944.5	1443.0
	(Q^M, R^M)	123.7	135.3	150.6	171.2	199.4	238.9	296.7	386.7	542.0	864.6
		% Change in Expected Costs per Unit Time									
[0.25, 1]	$(Q^E, R^m(Q^E))$	0.6	1.2	2.0	3.3	5.3	8.2	12.6	18.8	27.0	36.9
	(Q^M, R^M)	87.6	77.1	68.1	60.3	53.8	48.9	46.3	47.6	55.9	77.1
[1, 4]	$(Q^E, R^m(Q^E))$	0.2	0.4	0.5	0.8	1.3	2.7	5.8	13.3	31.6	81.1
	(Q^M, R^M)	80.5	69.8	60.8	53.1	46.4	40.6	35.7	32.2	32.8	50.5
[4, 7]	$(Q^E, R^m(Q^E))$	0.2	0.3	0.4	0.5	0.6	0.9	1.7	4.2	12.5	44.3
	(Q^M, R^M)	110.7	97.1	85.7	76.0	67.6	60.4	53.9	48.3	43.9	45.8
[7, 10]	$(Q^E, R^m(Q^E))$	0.2	0.3	0.4	0.5	0.5	0.4	0.6	1.3	4.7	23.2
	(Q^M, R^M)	97.6	85.1	74.6	65.7	58.2	51.6	45.9	40.8	36.4	35.3
		% Change in Maximum Cycle Costs									
[0.25, 1]	$(Q^E, R^m(Q^E))$	-1.3	-2.4	-3.7	-5.6	-8.3	-12.1	-16.7	-22.0	-27.5	-32.7
	(Q^M, R^M)	-43.1	-43.6	-43.9	-44.3	-45.2	-46.9	-49.6	-53.7	-59.2	-66.0
[1, 4]	$(Q^E, R^m(Q^E))$	-4.1	-6.0	-6.3	-5.7	-4.6	-4.1	-5.3	-9.2	-15.6	-26.3
	(Q^M, R^M)	-47.6	-49.7	-50.6	-50.5	-49.8	-48.9	-48.6	-49.5	-51.7	-56.5
[4, 7]	$(Q^E, R^m(Q^E))$	-7.5	-11.1	-12.4	-11.8	-9.7	-6.5	-3.3	-3.1	-6.5	-13.6
	(Q^M, R^M)	-50.4	-53.9	-55.7	-56.3	-55.7	-54.1	-51.8	-50.8	-51.7	-54.2
[7, 10]	$(Q^E, R^m(Q^E))$	-10.2	-15.4	-17.5	-17.3	-15.1	-11.2	-6.0	-2.0	-3.7	-9.0
	(Q^M, R^M)	-51.6	-55.8	-57.9	-58.6	-57.9	-55.9	-52.6	-49.0	-48.8	-50.1

L.2.3. Triangular Distribution (Right-Skewed)

Table 31. Comparisons of results with (Q^E, R^E) policy when coefficient of variation is varied (D∼Triangular (Right-Skewed), $h = 1$, $K \in [50, 150]$, $\lambda \in [2{,}000, 10{,}000]$, $\tau \in [0.02, 1]$).

		CV									
p	Policy	0.035	0.070	0.105	0.140	0.175	0.210	0.245	0.280	0.315	0.350
		Expected Costs per Unit Time									
$[0.25, 1]$	(Q^E, R^E)	1058.1	1071.9	1085.6	1099.1	1112.6	1125.9	1139.1	1152.1	1165.0	1177.8
	$(Q^E, R^m(Q^E))$	1062.3	1079.7	1097.2	1115.5	1136.0	1160.1	1189.6	1227.5	1278.1	1345.0
	(Q^M, R^M)	2044.5	1938.4	1850.8	1776.8	1713.5	1659.5	1614.8	1581.8	1566.3	1579.4
$[1, 4]$	(Q^E, R^E)	1041.4	1062.4	1083.4	1104.4	1125.3	1146.3	1167.2	1188.0	1208.9	1229.7
	$(Q^E, R^m(Q^E))$	1044.3	1067.6	1090.3	1112.5	1134.5	1156.9	1180.8	1209.5	1249.3	1315.2
	(Q^M, R^M)	2122.0	2010.6	1921.1	1848.3	1788.4	1738.5	1696.5	1661.1	1632.7	1615.8
$[4, 7]$	(Q^E, R^E)	1033.5	1057.6	1081.6	1105.6	1129.7	1153.7	1177.7	1201.7	1225.7	1249.7
	$(Q^E, R^m(Q^E))$	1036.1	1062.3	1088.1	1113.4	1138.0	1161.9	1185.2	1208.2	1232.2	1261.5
	(Q^M, R^M)	2054.4	1948.5	1864.4	1797.4	1743.8	1700.9	1666.3	1638.1	1614.8	1595.5
$[7, 10]$	(Q^E, R^E)	1052.2	1079.5	1106.7	1134.0	1161.2	1188.4	1215.6	1242.9	1270.1	1297.3
	$(Q^E, R^m(Q^E))$	1055.0	1084.7	1114.1	1143.0	1171.4	1199.1	1226.0	1252.0	1277.2	1302.9
	(Q^M, R^M)	1975.6	1881.1	1807.5	1750.2	1705.9	1671.8	1645.9	1626.3	1611.4	1599.8
		Maximum Cyle Costs									
$[0.25, 1]$	(Q^E, R^E)	233.4	253.8	276.4	302.3	333.2	371.7	421.4	487.3	577.6	708.4
	$(Q^E, R^m(Q^E))$	230.4	248.1	268.2	291.1	317.4	348.0	384.3	428.5	484.9	563.4
	(Q^M, R^M)	130.0	140.9	154.3	170.4	189.7	212.8	240.4	273.6	313.9	363.5
$[1, 4]$	(Q^E, R^E)	243.7	276.6	310.5	345.8	382.9	423.3	469.7	527.5	607.1	730.4
	$(Q^E, R^m(Q^E))$	229.8	250.7	275.0	303.4	337.1	377.5	427.0	488.9	568.3	674.0
	(Q^M, R^M)	125.3	135.2	147.9	163.9	184.1	209.8	242.8	285.6	342.5	420.3
$[4, 7]$	(Q^E, R^E)	257.2	307.7	358.9	410.8	463.3	516.8	572.6	632.0	698.7	788.4
	$(Q^E, R^m(Q^E))$	226.2	248.0	273.4	303.6	339.8	384.0	439.2	509.9	603.6	733.7
	(Q^M, R^M)	122.4	132.2	144.7	160.6	181.2	207.7	242.5	288.9	352.7	444.1
$[7, 10]$	(Q^E, R^E)	273.8	340.3	407.5	475.2	543.4	612.4	682.2	753.8	828.8	915.7
	$(Q^E, R^m(Q^E))$	227.6	250.3	276.9	308.5	346.6	393.3	452.0	527.7	629.0	771.5
	(Q^M, R^M)	124.6	135.3	149.1	166.8	189.6	219.1	258.1	310.4	383.0	488.1
		% Change in Expected Costs per Unit Time									
$[0.25, 1]$	$(Q^E, R^m(Q^E))$	0.4	0.7	1.1	1.5	2.2	3.1	4.6	6.7	9.8	14.1
	(Q^M, R^M)	94.7	82.5	72.4	63.7	56.1	49.6	44.0	39.5	36.7	36.3
$[1, 4]$	$(Q^E, R^m(Q^E))$	0.3	0.5	0.7	0.8	0.9	1.0	1.3	2.1	3.8	7.8
	(Q^M, R^M)	107.2	93.0	81.3	71.5	63.1	55.9	49.6	44.0	39.2	35.5
$[4, 7]$	$(Q^E, R^m(Q^E))$	0.2	0.4	0.6	0.7	0.7	0.7	0.6	0.5	0.6	1.2
	(Q^M, R^M)	100.2	86.2	74.7	65.1	57.1	50.3	44.4	39.3	34.7	30.6
$[7, 10]$	$(Q^E, R^m(Q^E))$	0.3	0.5	0.6	0.8	0.8	0.9	0.8	0.7	0.5	0.5
	(Q^M, R^M)	90.1	77.0	66.3	57.5	50.2	44.0	38.7	34.1	30.1	26.5
		% Change in Maximum Cycle Costs									
$[0.25, 1]$	$(Q^E, R^m(Q^E))$	-1.4	-2.3	-3.0	-3.8	-4.8	-6.4	-8.7	-11.8	-15.6	-19.9
	(Q^M, R^M)	-44.5	-44.9	-44.9	-44.6	-44.3	-44.2	-44.6	-45.7	-47.7	-50.8
$[1, 4]$	$(Q^E, R^m(Q^E))$	-5.6	-8.8	-10.4	-10.9	-10.4	-9.2	-7.7	-6.4	-6.1	-7.7
	(Q^M, R^M)	-48.7	-51.3	-52.6	-53.0	-52.6	-51.5	-49.9	-47.9	-46.2	-45.4
$[4, 7]$	$(Q^E, R^m(Q^E))$	-11.9	-18.5	-22.3	-24.0	-24.2	-23.0	-20.7	-17.0	-12.0	-6.4
	(Q^M, R^M)	-52.6	-57.3	-59.9	-61.3	-61.5	-60.9	-59.3	-56.7	-52.7	-47.6
$[7, 10]$	$(Q^E, R^m(Q^E))$	-16.5	-25.1	-30.0	-32.5	-33.2	-32.5	-30.3	-26.5	-20.9	-13.3
	(Q^M, R^M)	-54.6	-60.2	-63.4	-65.0	-65.4	-64.9	-63.4	-60.7	-56.5	-50.5

L.2.4. Triangular Distribution (Left-Skewed)

Table 32. Comparisons of results with (Q^E, R^E) policy when coefficient of variation is varied (D∼Triangular (Left-Skewed), $h = 1$, $K \in [50, 150]$, $\lambda \in [2{,}000, 10{,}000]$, $\tau \in [0.02, 1]$).

p	Policy	*CV* 0.035	0.070	0.105	0.140	0.175	0.210	0.245	0.280	0.315	0.350
		Expected Costs per Unit Time									
[0.25, 1]	(Q^E, R^E)	1058.8	1072.6	1086.3	1100.0	1113.5	1127.0	1140.4	1153.7	1166.9	1179.9
	$(Q^E, R^m(Q^E))$	1066.4	1092.3	1125.6	1171.0	1234.5	1321.6	1439.7	1587.9	1734.1	1807.8
	(Q^M, R^M)	1946.8	1873.7	1811.2	1760.9	1728.3	1725.2	1776.0	1932.3	2312.9	3049.2
[1, 4]	(Q^E, R^E)	1030.2	1050.6	1071.0	1091.4	1111.8	1132.1	1152.4	1172.8	1193.1	1213.3
	$(Q^E, R^m(Q^E))$	1032.3	1055.7	1081.5	1113.7	1159.8	1236.8	1386.0	1721.5	2567.2	5019.0
	(Q^M, R^M)	1735.2	1681.4	1636.3	1598.5	1568.1	1549.9	1561.9	1673.2	2194.7	5493.2
[4, 7]	(Q^E, R^E)	1025.1	1047.4	1069.7	1092.0	1114.3	1136.5	1158.8	1181.0	1203.3	1225.5
	$(Q^E, R^m(Q^E))$	1025.9	1048.7	1071.4	1094.7	1120.9	1156.1	1221.5	1399.6	2137.7	7679.7
	(Q^M, R^M)	1780.8	1724.2	1677.6	1638.8	1606.4	1579.4	1560.2	1570.3	1795.5	5711.8
[7, 10]	(Q^E, R^E)	1084.3	1108.2	1132.1	1156.0	1179.9	1203.7	1227.6	1251.5	1275.3	1299.2
	$(Q^E, R^m(Q^E))$	1084.9	1109.1	1132.9	1156.6	1181.1	1209.3	1251.5	1356.1	1855.7	8147.0
	(Q^M, R^M)	1990.0	1922.5	1866.6	1820.1	1781.2	1748.4	1721.2	1706.7	1794.3	5059.3
		Maximum Cyle Costs									
[0.25, 1]	(Q^E, R^E)	229.8	257.8	293.7	341.2	406.6	502.1	654.4	934.4	1614.3	5649.2
	$(Q^E, R^m(Q^E))$	227.4	251.0	278.9	312.6	354.4	409.8	491.7	640.1	1013.8	3323.3
	(Q^M, R^M)	131.6	144.9	161.5	182.5	209.0	243.2	288.6	355.9	497.0	1383.1
[1, 4]	(Q^E, R^E)	232.6	262.7	299.9	350.3	420.2	522.2	684.3	981.7	1703.0	5979.2
	$(Q^E, R^m(Q^E))$	230.2	259.5	295.7	341.6	401.6	483.5	602.1	790.4	1162.3	3021.3
	(Q^M, R^M)	132.1	147.0	166.8	193.5	230.1	282.4	360.9	490.1	739.6	1630.8
[4, 7]	(Q^E, R^E)	236.3	267.4	304.0	352.4	422.3	524.1	685.9	982.4	1701.0	5959.7
	$(Q^E, R^m(Q^E))$	232.1	262.4	300.5	349.7	415.8	509.3	651.4	893.3	1400.5	3337.6
	(Q^M, R^M)	130.7	144.9	163.9	190.0	226.9	281.3	367.2	518.9	849.5	2104.2
[7, 10]	(Q^E, R^E)	244.3	276.9	313.9	361.5	432.3	535.8	700.1	1001.3	1731.0	6054.8
	$(Q^E, R^m(Q^E))$	238.9	269.8	308.9	359.8	428.6	527.0	679.1	945.2	1530.7	3944.3
	(Q^M, R^M)	133.5	147.5	166.4	192.5	229.5	284.7	373.0	532.4	895.6	2477.5
		% Change in Expected Costs per Unit Time									
[0.25, 1]	$(Q^E, R^m(Q^E))$	0.7	1.8	3.6	6.4	10.7	16.9	25.6	36.4	46.8	51.0
	(Q^M, R^M)	79.5	71.1	63.8	57.7	53.4	51.9	55.1	67.2	97.0	153.1
[1, 4]	$(Q^E, R^m(Q^E))$	0.2	0.6	1.2	2.4	4.9	10.2	21.7	48.6	114.6	295.1
	(Q^M, R^M)	71.9	63.7	56.6	50.4	45.0	41.0	39.7	46.8	87.2	344.8
[4, 7]	$(Q^E, R^m(Q^E))$	0.1	0.1	0.2	0.4	0.8	2.2	6.5	20.9	82.3	511.0
	(Q^M, R^M)	78.1	69.2	61.6	54.9	49.1	43.9	39.6	38.1	54.8	362.0
[7, 10]	$(Q^E, R^m(Q^E))$	0.1	0.1	0.1	0.1	0.2	0.7	2.5	9.8	49.5	524.6
	(Q^M, R^M)	89.2	79.4	70.9	63.6	57.1	51.4	46.3	42.4	46.3	280.7
		% Change in Maximum Cycle Costs									
[0.25, 1]	$(Q^E, R^m(Q^E))$	-1.0	-2.6	-5.0	-8.3	-12.5	-17.8	-23.9	-30.2	-35.8	-39.5
	(Q^M, R^M)	-42.7	-44.0	-45.5	-47.3	-49.6	-52.8	-57.2	-63.3	-70.9	-78.0
[1, 4]	$(Q^E, R^m(Q^E))$	-1.0	-1.2	-1.4	-2.4	-4.3	-7.2	-11.6	-18.7	-30.2	-47.2
	(Q^M, R^M)	-43.6	-44.7	-45.3	-46.0	-46.9	-48.0	-49.7	-52.8	-59.0	-74.4
[4, 7]	$(Q^E, R^m(Q^E))$	-1.7	-1.8	-1.1	-0.8	-1.5	-2.8	-4.9	-8.8	-17.1	-42.3
	(Q^M, R^M)	-44.8	-46.2	-46.7	-46.9	-47.5	-48.0	-48.7	-50.0	-53.1	-66.7
[7, 10]	$(Q^E, R^m(Q^E))$	-2.1	-2.3	-1.4	-0.5	-0.9	-1.7	-3.0	-5.5	-11.4	-33.8
	(Q^M, R^M)	-45.7	-47.4	-48.0	-48.2	-48.8	-49.5	-50.1	-50.9	-53.0	-62.9

M. Sketch of the Results when p is per Unit per Unit Time

When p is defined per unit short per unit time, $C_1(I,D|Q,R)$ defined in Equation (2) stays the same, but $C_2(I,D|Q,R)$ defined in Equation (3) will change to $\widehat{C}_2(I,D|Q,R)$, such that

$$\widehat{C}_2(I,D|Q,R) = \frac{h\tau}{2D}\left(I^2 - R^2\right) + \frac{h\tau}{2D}R^2 + \frac{p\tau(D-R)^2}{2D} + K.$$

One can notice that $\frac{\partial \widehat{C}_2(I,D|Q,R)}{\partial I} = \frac{\partial C_2(I,D|Q,R)}{\partial I}$ and $\frac{\partial \widehat{C}_2^2(D|Q,R,I=i_u)}{\partial D^2} = \frac{\partial C_2^2(D|Q,R,I=i_u)}{\partial D^2} + \frac{p\tau R^2}{D^3} > 0$ since $\frac{\partial C_2^2(D|Q,R,I=i_u)}{\partial D^2} > 0$ (see proof of Proposition 2.1); therefore, $\widehat{C}_2(D|Q,R,I=i_u)$ is also convex with respect to D. Noting that $C_1(i_u,R|Q,R) = \widehat{C}_2(i_u,R|Q,R)$ as is $C_1(i_u,R|Q,R) = C_2(i_u,R|Q,R)$; it then follows that Proposition 2.1 holds such that $MC(Q,R) = \max\{C_1(i_u,d_\ell|Q,R), \widehat{C}_2(i_u,d_u|Q,R)\}$.

This suggests that $MC(Q,R) = \max\{G_1(Q,R), \widehat{G}_2(Q,R)\}$, where $G_1(Q,R)$ and

$$\widehat{G}_2(Q,R) = (R - d_\ell + Q)^2\,\frac{h\tau}{2d_u} + (d_u - R)^2\,\frac{p\tau}{2d_u} + K.$$

$\widehat{G}_2(Q,R)$ replaces $G_2(Q,R)$ defined in Equation (7). Note that calculus of $\widehat{G}_2(Q,R)$ with respect Q is the same as the calculus of $G_2(Q,R)$ with respect Q; therefore, Proposition 3.3 and Theorem 3.4 hold. In what follows, our focus is on Proposition 3.1 and Theorem 3.2.

Given $Q \geq d_u$, one can notice that $\frac{d\widehat{G}_2^2(R)}{dR^2} > 0$ meaning that $\widehat{G}_2(R)$ is convex in R as was $G_2(R)$. Nevertheless, the minimizer of $\widehat{G}_2(R)$ will be different than the minimizer of $G_2(R)$, which was defined as r^0 in Equation (8). For now, let $\widehat{r}_0$ be the minimizer of $\widehat{G}_2(R)$ and suppose that $\widehat{r}_\ell$ and $\widehat{r}_u$ are defined similarly to r_ℓ and r_u given in Equations (9) and (10). That is, $\widehat{G}_2(R) = G_1(R)$ when $R = \widehat{r}_\ell$ and $R = \widehat{r}_u$.

Noting that $\widehat{G}_2(d_u) = G_2(d_u)$ and convexity of $\widehat{G}_2(R)$, it follows that Proposition 3.1(i) and (ii) hold. Also, similar to proof of Proposition 3.1, one can discuss that if $hQ^2 \geq pd_\ell(d_u - d_\ell)$, then $\widehat{r}_\ell \leq d_\ell$ (because $d_\ell < \widehat{r}_\ell$ implies that that $G_1(d_\ell) < \widehat{G}_2(d_\ell)$, which means $hQ^2 \geq pd_\ell(d_u - d_\ell)$). This means that Proposition 3.1(iii) holds. Following the same logic, it can be discussed that Proposition 3.1(iv) holds as well for $hQ^2 < pd_\ell(d_u - d_\ell)$.

Finally, Theorem 3.2 follows from Proposition 3.1 and characteristics of $\widehat{G}_2(R)$ and unchanged characteristics of $G_1(Q,R)$. The only difference for this case will be in the definitions of $\widehat{r}_0$, $\widehat{r}_\ell$ and $\widehat{r}_u$ and the two cases: $hQ^2 \geq pd_\ell(d_u - d_\ell)$ and $hQ^2 < pd_\ell(d_u - d_\ell)$.

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