Additional Output of Experiments for "Optimal consumption under liquidity constraints and bounded rationality"*

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Work in progress

First Draft May 5, 2008

This Draft August 18, 2008

Abstract

This additional appendix presents the results of the experiments which were discussed but not presented in our paper "Optimal consumption under liquidity constraints and bounded rationality".

Key Words: Learning, consumption function, liquidity constraint, dynamic programming, Markov process

JEL classification: C6, E21,

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These pages present the output of the simulations of the algorithm

$$\begin{pmatrix} \alpha_{t+1}^0 \\ \alpha_{t+1}^1 \end{pmatrix} = \begin{pmatrix} \alpha_t^0 \\ \alpha_t^1 \end{pmatrix} + (1-\delta)M(t)^{-1}\left[\big(\beta R u'(c_{t+1}) - u'(\alpha_t^0 + \alpha_t^1 w_t)\big)u''(\alpha_t^0 + \alpha_t^1 w_t)\right]\begin{pmatrix} 1 \\ w_t \end{pmatrix} \tag{CG'}$$

$$M(t+1) = (1-\epsilon)M(t) + \left[\big(u'(\alpha_t^0 + \alpha_t^1 w_t) - \beta R u'(c_{t+1})\big)u'''(\alpha_t^0 + \alpha_t^1 w_t)\xi + \Big(u''(\alpha_t^0 + \alpha_t^1 w_t)\Big)^2\right] \cdot \begin{pmatrix} 1 & w_t \\ w_t & w_t^2 \end{pmatrix}$$

and

$$\begin{pmatrix} \alpha_{t+1}^0 \\ \alpha_{t+1}^1 \end{pmatrix} = \begin{pmatrix} \alpha_t^0 \\ \alpha_t^1 \end{pmatrix} + \kappa_t M_t^{-1}\left[\big(\beta R u'(c_{t+1}) - u'(\alpha_t^0 + \alpha_t^1 w_t)\big)u''(\alpha_t^0 + \alpha_t^1 w_t)\right]\begin{pmatrix} 1 \\ w_t \end{pmatrix} \tag{DG}$$

$$\begin{aligned} M_{t+1} = & M_t + \kappa_t \left\{ \left[\big(u'(\alpha_t^0 + \alpha_t^1 w_t) - \beta R u'(c_{t+1})\big)u'''(\alpha_t^0 + \alpha_t^1 w_t) + \Big(u''(\alpha_t^0 + \alpha_t^1 w_t)\Big)^2\right] \cdot \right. \\ & \left. \cdot \begin{pmatrix} 1 & w_t \\ w_t & w_t^2 \end{pmatrix} - M_t \right\} \end{aligned}$$

for different values of the parameters.

1 Tables and Figures

1.1 $B = 0$

1.1.1 $(\epsilon, \delta, \xi) = (0, 0, 1)$

Table 1: EV^*, EC^*, EV_b^* and EC_b^* for each configuration of β and θ

β	θ	EV^*	EC^*	EV_b^*	EC_b^*
0.9	1.5	-0.1607	0.9841	-0.1650	0.9837
	2	-0.1731	0.9830	-0.1786	0.9824
	3	-0.2001	0.9806	-0.2027	0.9803
	3.5	-0.2128	0.9795	-0.2220	0.9786
	4	-0.2257	0.9784	-0.2275	0.9782
0.95	1.5	-0.1962	0.9903	-0.1987	0.9901
	2	-0.2184	0.9892	-0.2213	0.9891
	3	-0.2555	0.9875	-0.2554	0.9875
	3.5	-0.2709	0.9868	-0.2819	0.9862
	4	-0.2856	0.9861	-0.2848	0.9862

Table 2: $EV^*_{\alpha_0^*,\alpha_1^*}$, $EC^*_{\alpha_0^*,\alpha_1^*}$, $EV^b_{\alpha_0^*,\alpha_1^*}$ and $EC^b_{\alpha_0^*,\alpha_1^*}$ for each configuration of β and θ

β	θ	$EV^*_{\alpha_0^*,\alpha_1^*}$	$EC^*_{\alpha_0^*,\alpha_1^*}$	$EV^b_{\alpha_0^*,\alpha_1^*}$	$EC^b_{\alpha_0^*,\alpha_1^*}$
0.9	1.5	-0.1961	0.9807	-0.2003	0.9803
	2	-0.2092	0.9795	-0.2148	0.9790
	3	-0.2382	0.9770	-0.2408	0.9768
	3.5	-0.2515	0.9759	-0.2607	0.9751
	4	-0.2662	0.9747	-0.2680	0.9746
0.95	1.5	-0.2705	0.9866	-0.2730	0.9865
	2	-0.2943	0.9855	-0.2972	0.9854
	3	-0.3349	0.9837	-0.3347	0.9837
	3.5	-0.3525	0.9829	-0.3635	0.9824
	4	-0.3319	0.9839	-0.3310	0.9840

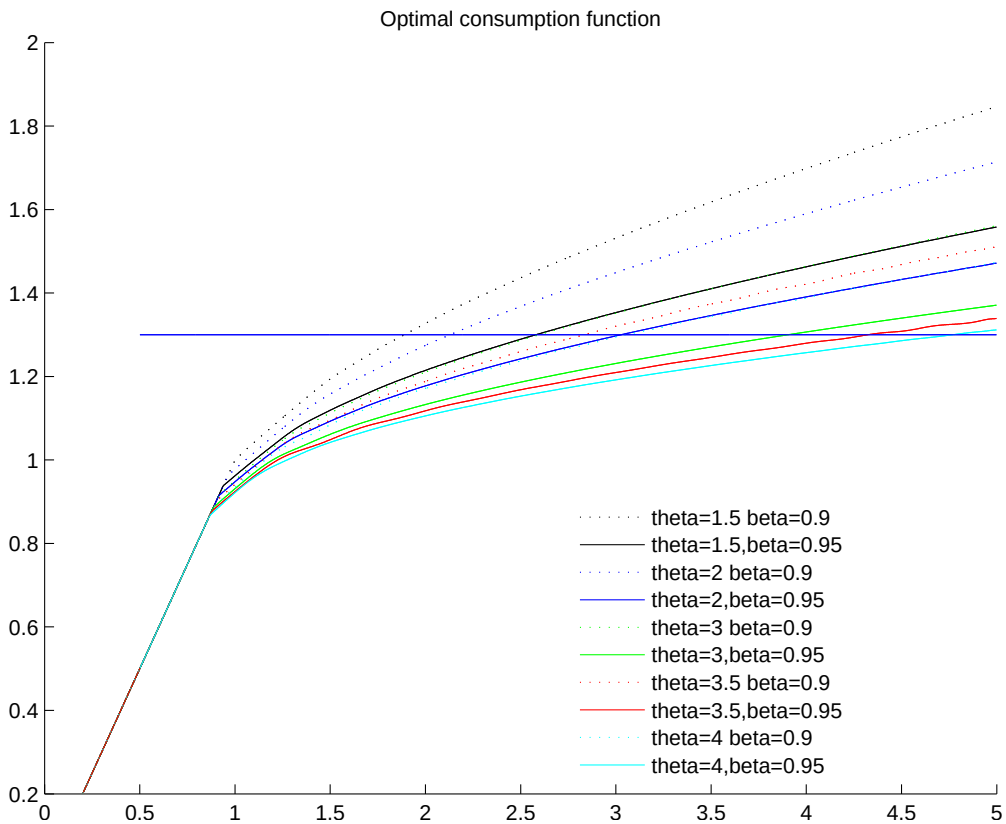

Figure 1: Optimal Consumption function for different parametrizations

Table 3: Percentage difference between between equivalent consumption measures, $D^* = \frac{EC^* - EC^*_{\alpha_0^*,\alpha_1^*}}{EC^*} * 100$ and $D^b = \frac{EC^*_b - EC^b_{\alpha_0^*,\alpha_1^*}}{EC^*_b} * 100$, and optimal linear rule.

β	θ	D^*	D^b	α_0^*	α_1^*
0.9	1.5	0.3493	0.3492	0.6100	0.3900
	2	0.3539	0.3540	0.6200	0.3600
	3	0.3640	0.3639	0.6100	0.3400
	3.5	0.3653	0.3650	0.6500	0.3000
	4	0.3763	0.3759	0.6500	0.2900
0.95	1.5	0.3684	0.3684	0.6300	0.3300
	2	0.3739	0.3739	0.6600	0.2900
	3	0.3849	0.3848	0.7100	0.2300
	3.5	0.3922	0.3914	0.7300	0.2100
	4	0.2210	0.2206	0.7200	0.2100

Table 4: Probability of D^* or D^t below 1/2 at different periods for (CG').

		$t = 0$		$t = 50$		$t = 100$		$t = 250$		$t = 500$	
β	θ	D^*	D^t	D^*	D^t	D^*	D^t	D^*	D^t	D^*	D^t
0.9	1.5	0.2863	0.2950	0.8980	0.8943	0.9650	0.9581	0.9954	0.9927	0.9997	0.9993
	2	0.1410	0.1444	0.7706	0.7748	0.9181	0.9149	0.9847	0.9791	0.9963	0.9945
	3	0.0127	0.0127	0.4573	0.4390	0.6538	0.6232	0.8781	0.8398	0.9644	0.9424
	3.5	0.0104	0.0107	0.4214	0.4204	0.6241	0.6188	0.8678	0.8577	0.9544	0.9490
	4	0.0082	0.0084	0.3706	0.3695	0.5725	0.5667	0.8300	0.8184	0.9405	0.9290
0.95	1.5	0.0659	0.0667	0.7436	0.7461	0.9017	0.9021	0.9772	0.9772	0.9877	0.9877
	2	0.0155	0.0155	0.5636	0.5614	0.7575	0.7516	0.9212	0.9159	0.9675	0.9649
	3	0.0080	0.0086	0.3535	0.3643	0.5453	0.5575	0.7741	0.7827	0.8909	0.8972
	3.5	0.0075	0.0079	0.2739	0.2841	0.4241	0.4376	0.6544	0.6706	0.8003	0.8138
	4	0.0159	0.0176	0.4773	0.5009	0.6622	0.6913	0.8552	0.8736	0.9248	0.9319

Table 5: Probability of D^* or D^t below 1/2 at different periods for (DG).

		$t = 0$		$t = 50$		$t = 100$		$t = 250$		$t = 500$	
β	θ	D^*	D^t	D^*	D^t	D^*	D^t	D^*	D^t	D^*	D^t
0.9	1.5	0.2863	0.2950	0.8980	0.8943	0.9650	0.9581	0.9954	0.9927	0.9997	0.9993
	2	0.1410	0.1444	0.7706	0.7748	0.9181	0.9149	0.9847	0.9791	0.9963	0.9945
	3	0.0127	0.0127	0.4573	0.4390	0.6538	0.6232	0.8781	0.8398	0.9644	0.9424
	3.5	0.0104	0.0107	0.4214	0.4204	0.6241	0.6188	0.8678	0.8577	0.9544	0.9490
	4	0.0082	0.0084	0.3706	0.3695	0.5725	0.5667	0.8300	0.8184	0.9405	0.9290
0.95	1.5	0.0659	0.0667	0.7436	0.7461	0.9017	0.9021	0.9772	0.9772	0.9877	0.9877
	2	0.0155	0.0155	0.5636	0.5614	0.7575	0.7516	0.9212	0.9159	0.9675	0.9649
	3	0.0080	0.0086	0.3535	0.3643	0.5453	0.5575	0.7741	0.7827	0.8909	0.8972
	3.5	0.0075	0.0079	0.2739	0.2841	0.4241	0.4376	0.6544	0.6706	0.8003	0.8138
	4	0.0159	0.0176	0.4773	0.5009	0.6622	0.6913	0.8552	0.8736	0.9248	0.9319

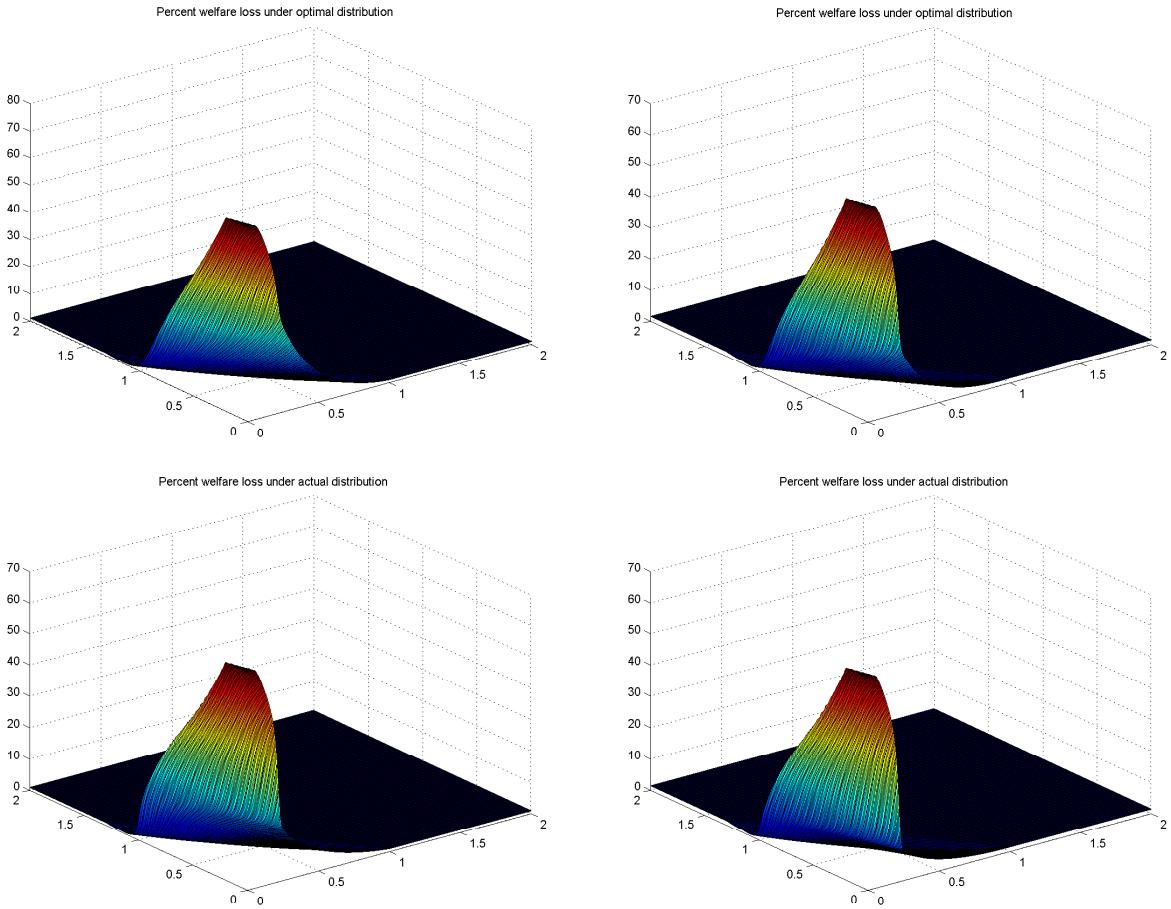

Figure 2: Percentage deviation of equivalent consumption of the linear rule from the optimal consumption function for different values of the intercept and slope, under π^* (above) and $\pi_{\alpha_0^*,\alpha_1^*}$ (below) for $\theta = 1.5$, $\beta = 0.9$ (left) and $\beta = 0.95$ (right).

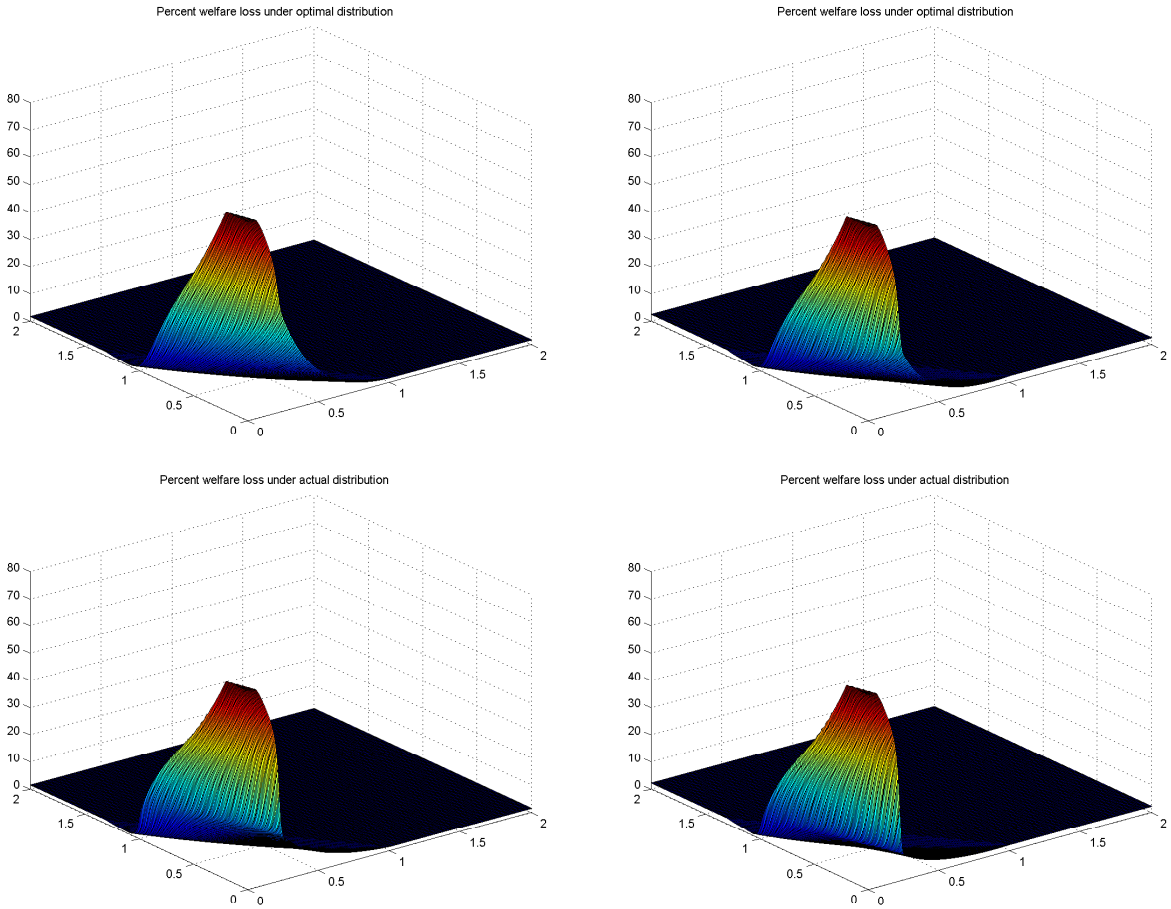

Figure 3: Percentage deviation of equivalent consumption of the linear rule from the optimal consumption function for different values of the intercept and slope, under π^* (above) and $\pi_{\alpha_0^*,\alpha_1^*}$ (below) for $\theta = 2$, $\beta = 0.9$ (left) and $\beta = 0.95$ (right).

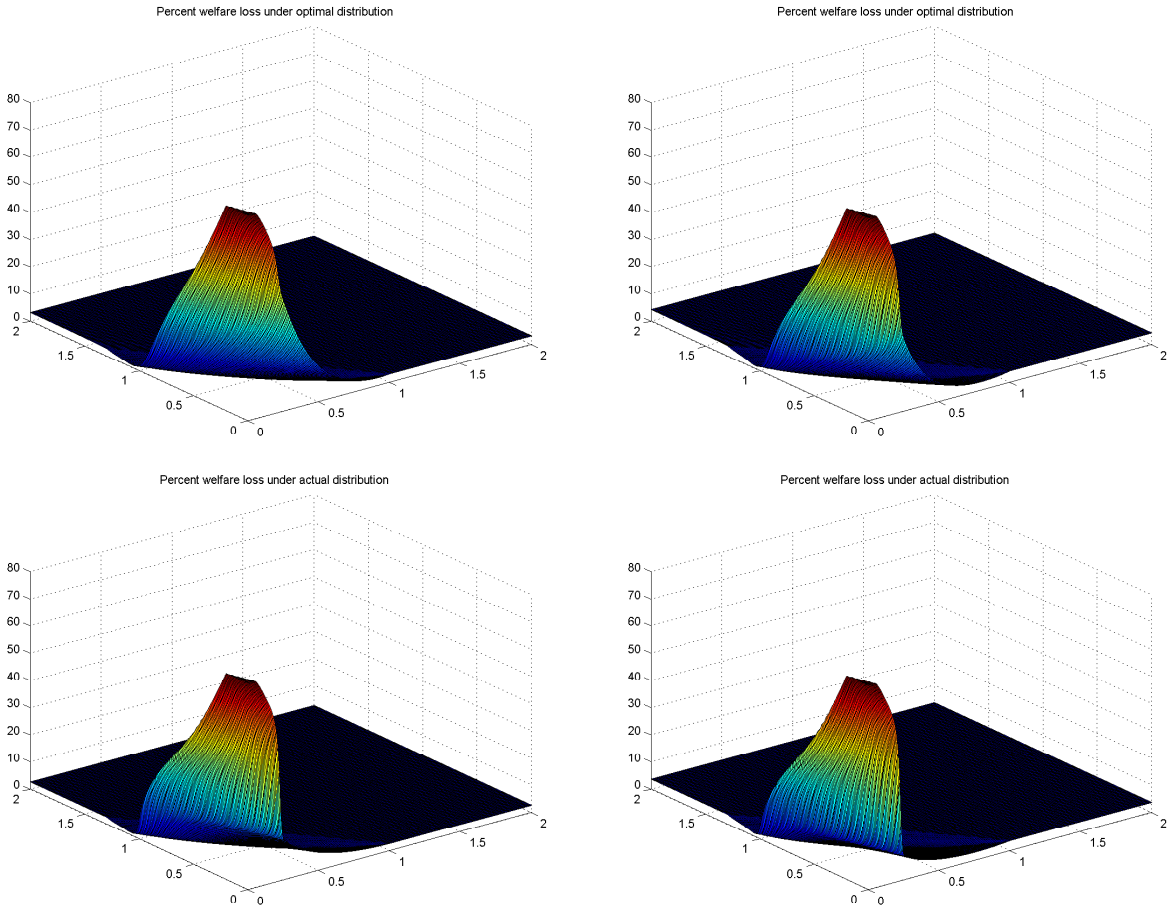

Figure 4: Percentage deviation of equivalent consumption of the linear rule from the optimal consumption function for different values of the intercept and slope, under π^* (above) and $\pi_{\alpha_0^*,\alpha_1^*}$ (below) for $\theta = 3$, $\beta = 0.9$ (left) and $\beta = 0.95$ (right).

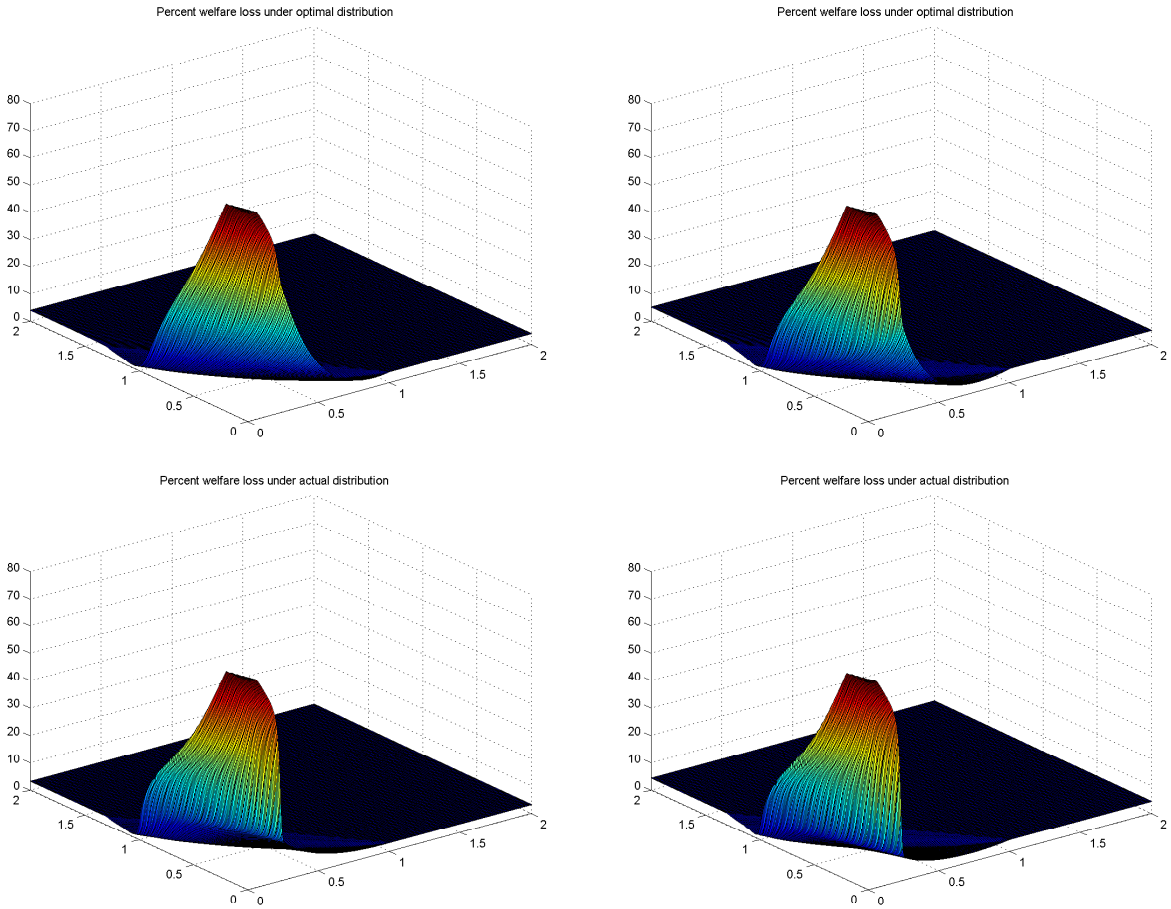

Figure 5: Percentage deviation of equivalent consumption of the linear rule from the optimal consumption function for different values of the intercept and slope, under π^* (above) and $\pi_{\alpha_0^*,\alpha_1^*}$ (below) for $\theta = 3.5$, $\beta = 0.9$ (left) and $\beta = 0.95$ (right).

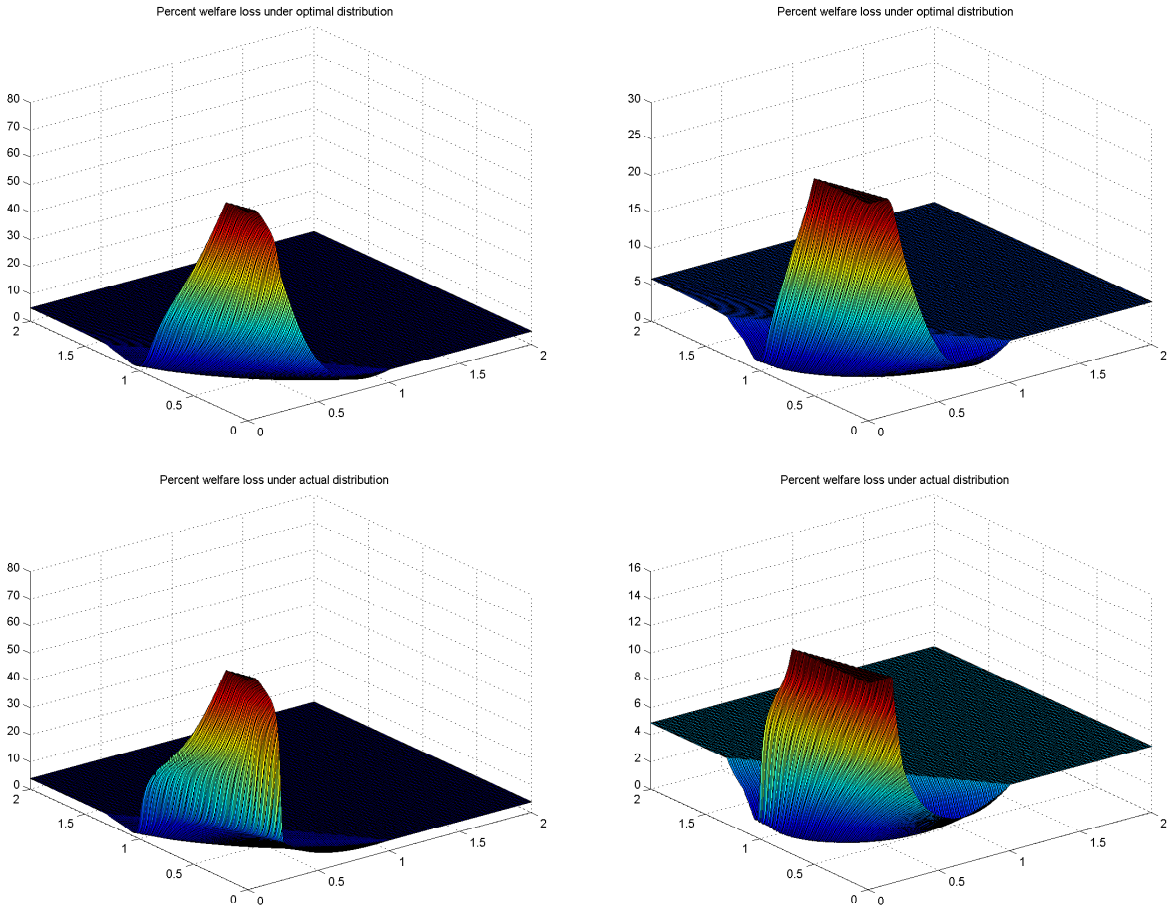

Figure 6: Percentage deviation of equivalent consumption of the linear rule from the optimal consumption function for different values of the intercept and slope, under π^* (above) and $\pi_{\alpha_0^*,\alpha_1^*}$ (below) for $\theta = 4$, $\beta = 0.9$ (left) and $\beta = 0.95$ (right).

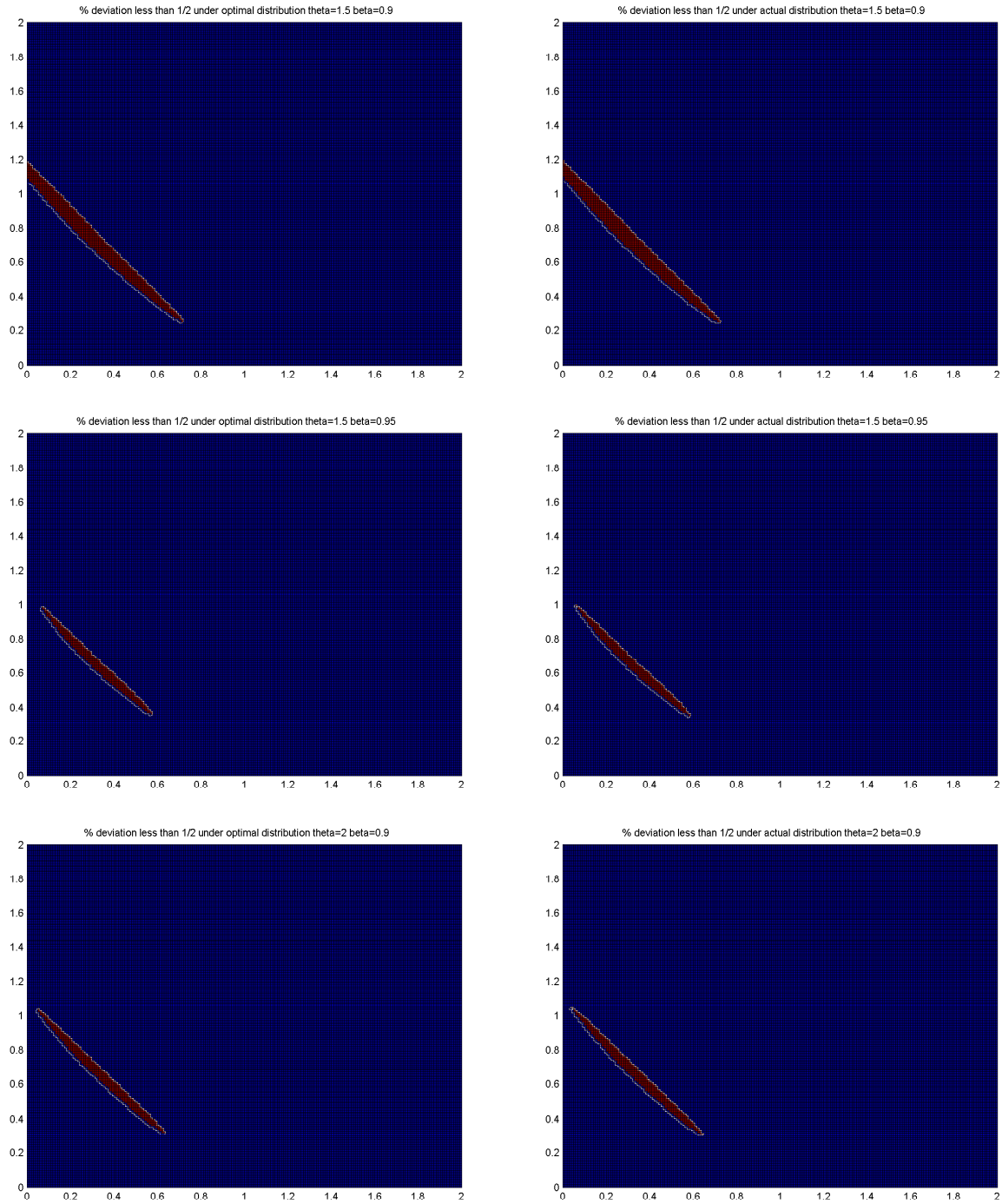

Figure 7: Set of consumption rules which have a percentage deviation less than or equal to 1/2.

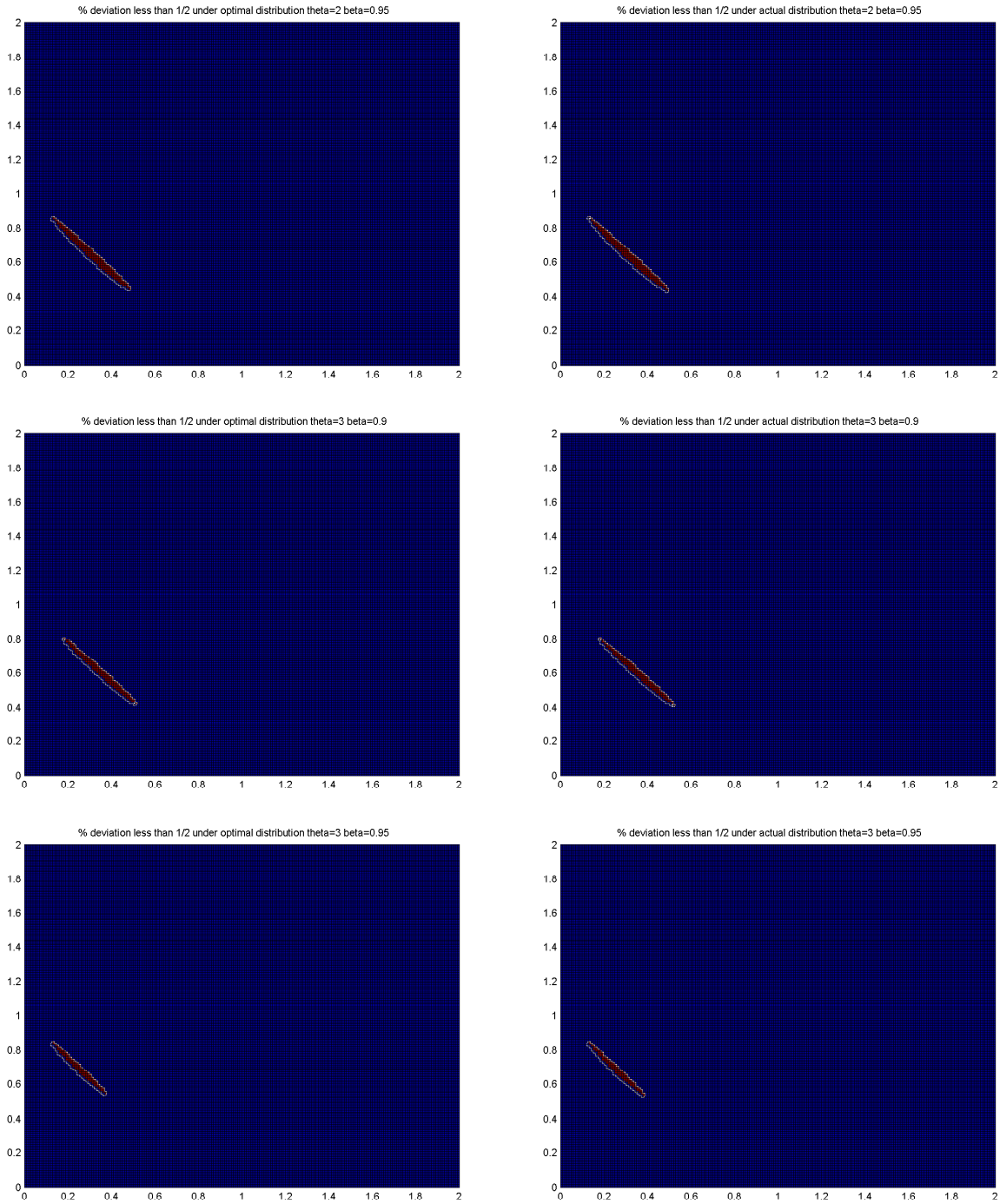

Figure 8: Set of consumption rules which have a percentage deviation less than or equal to 1/2.

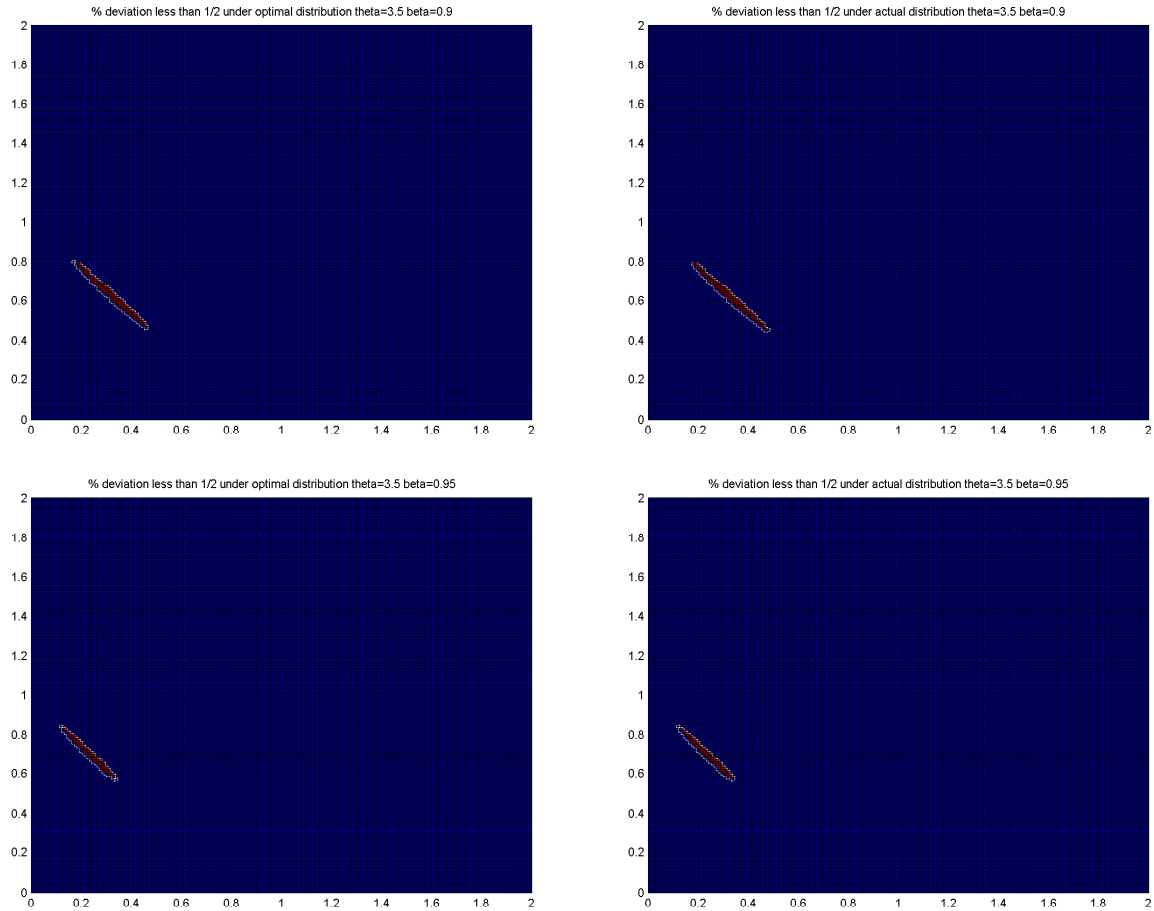

Figure 9: Set of consumption rules which have a percentage deviation less than or equal to 1/2.

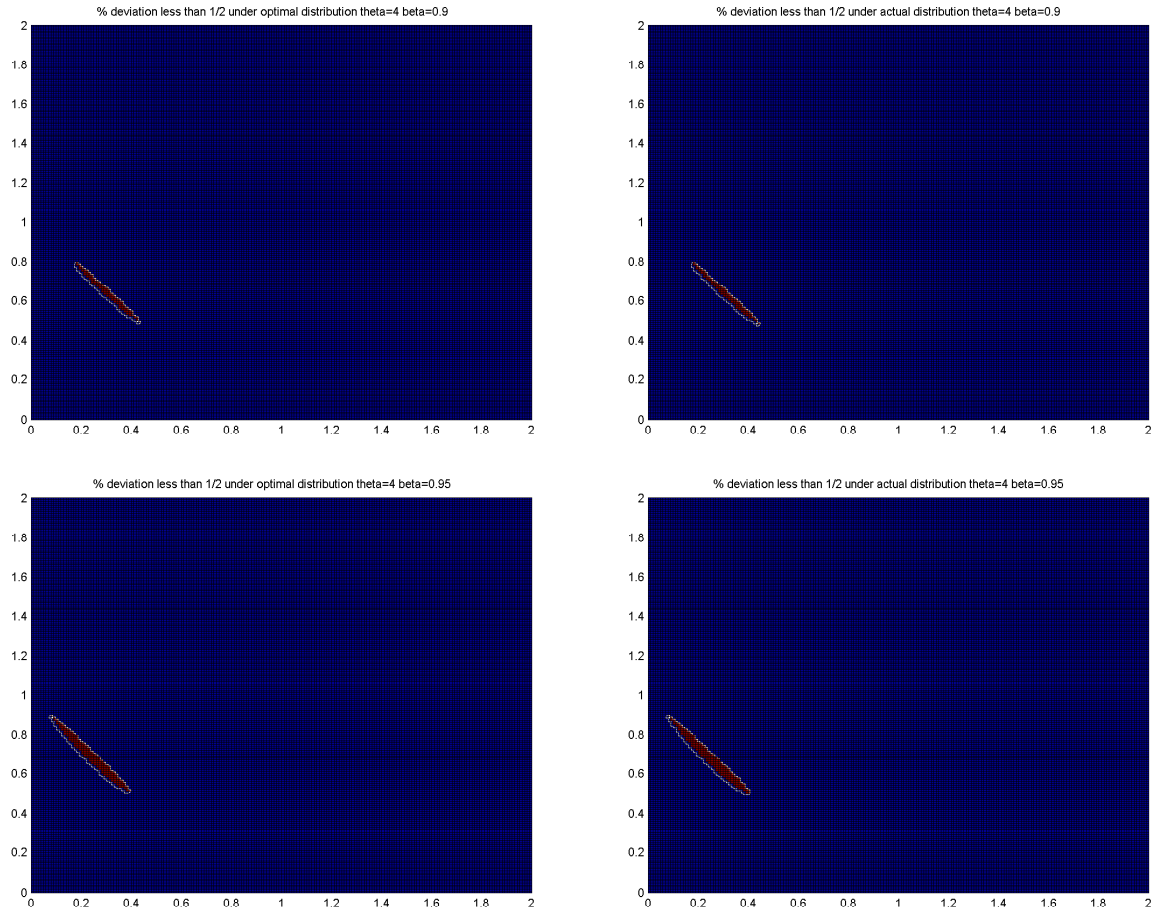

Figure 10: Set of consumption rules which have a percentage deviation less than or equal to 1/2.

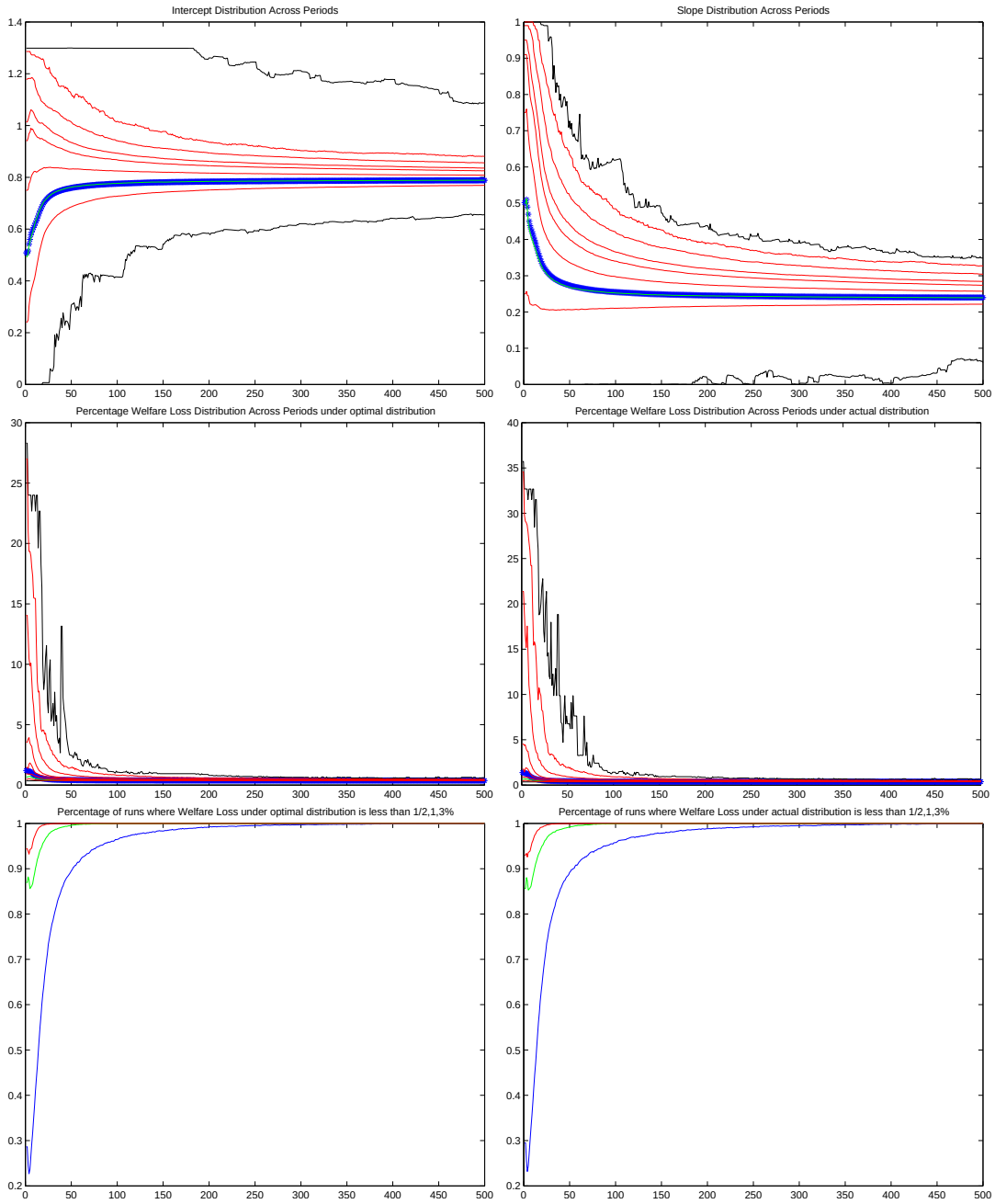

Figure 11: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 1.5$, $\beta = 0.9$ and the (CG') version of the algorithm.

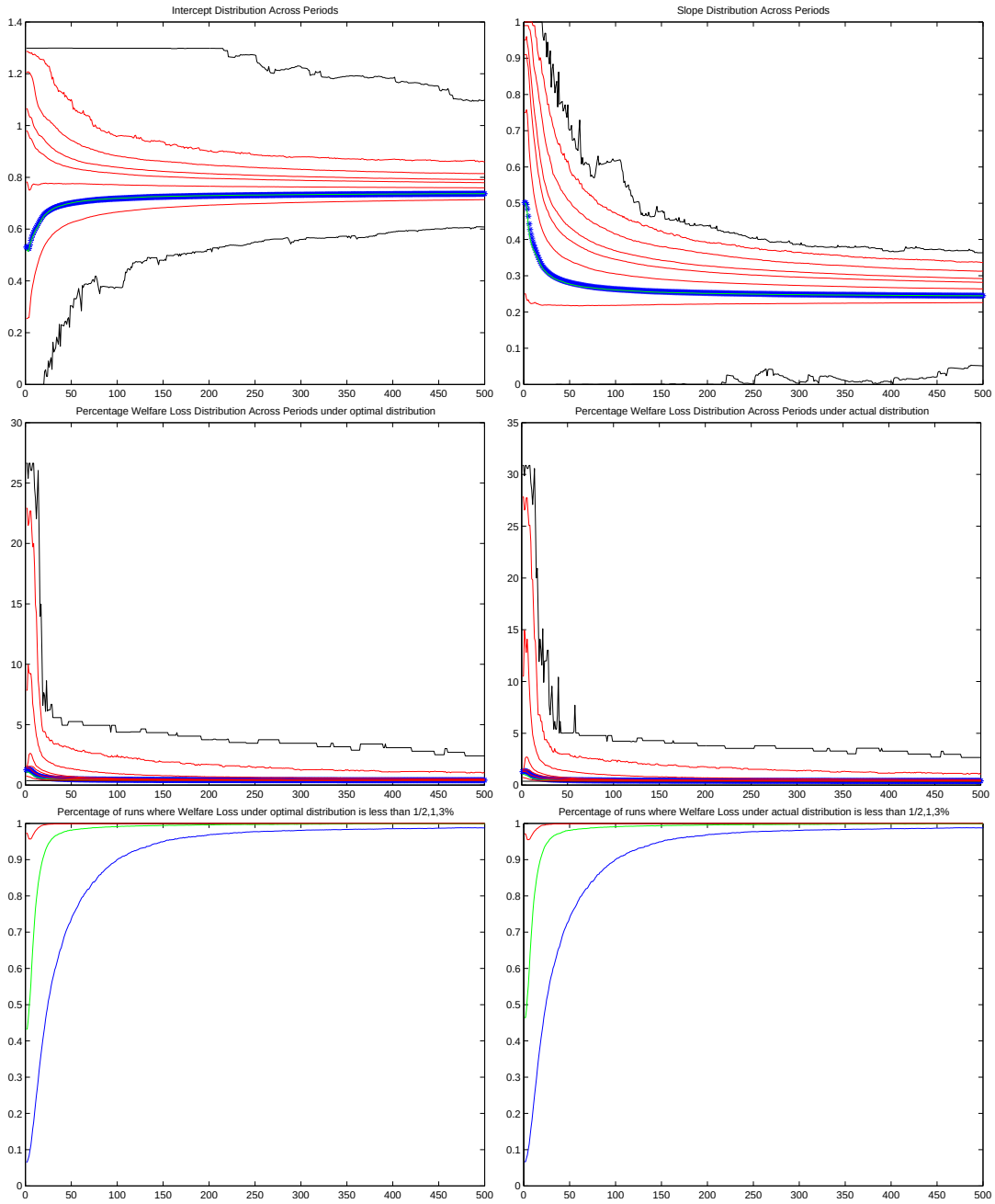

Figure 12: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 1.5$, $\beta = 0.95$ and the (CG') version of the algorithm.

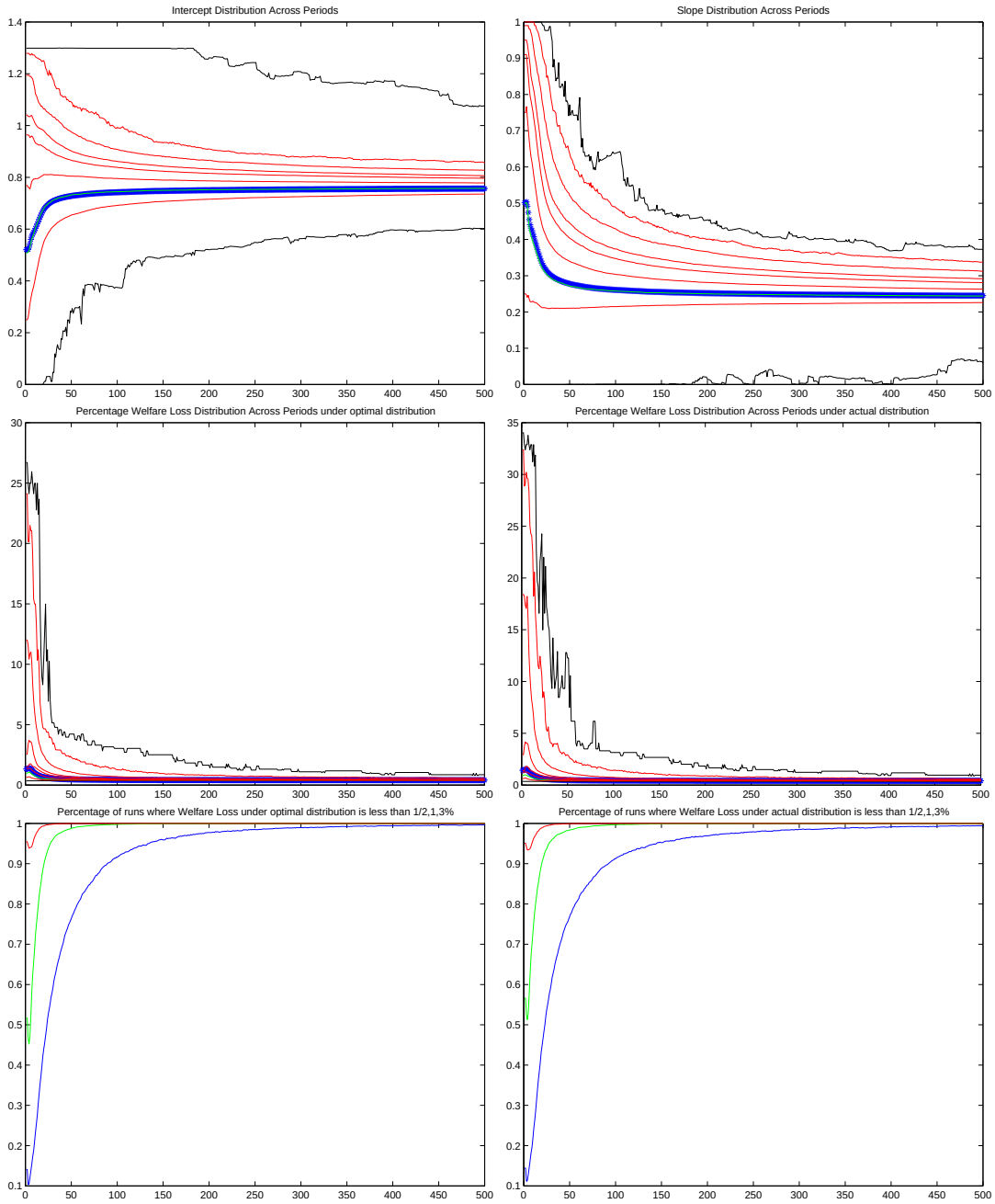

Figure 13: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 2$, $\beta = 0.9$ and the (CG') version of the algorithm.

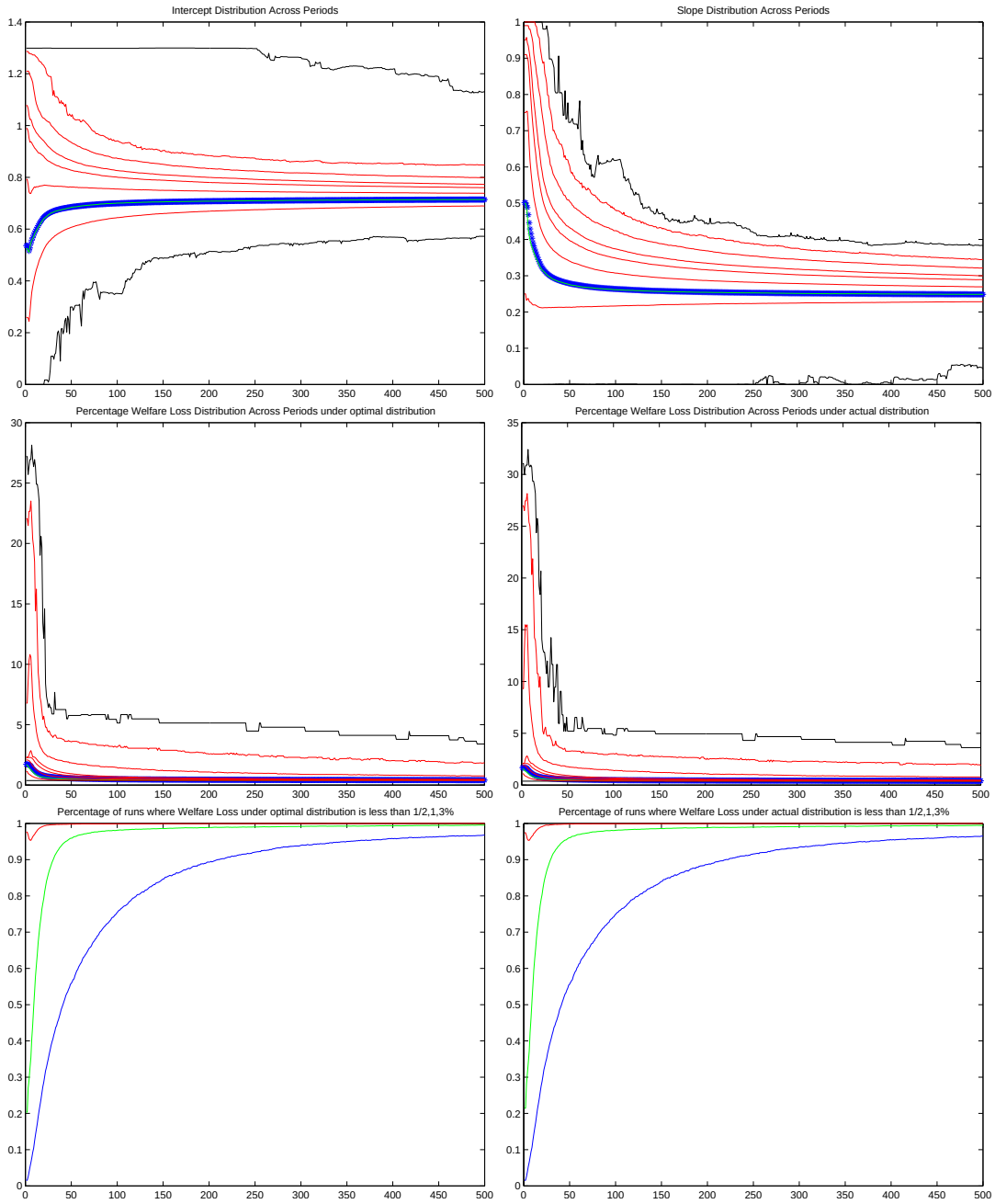

Figure 14: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 2$, $\beta = 0.95$ and the (CG') version of the algorithm.

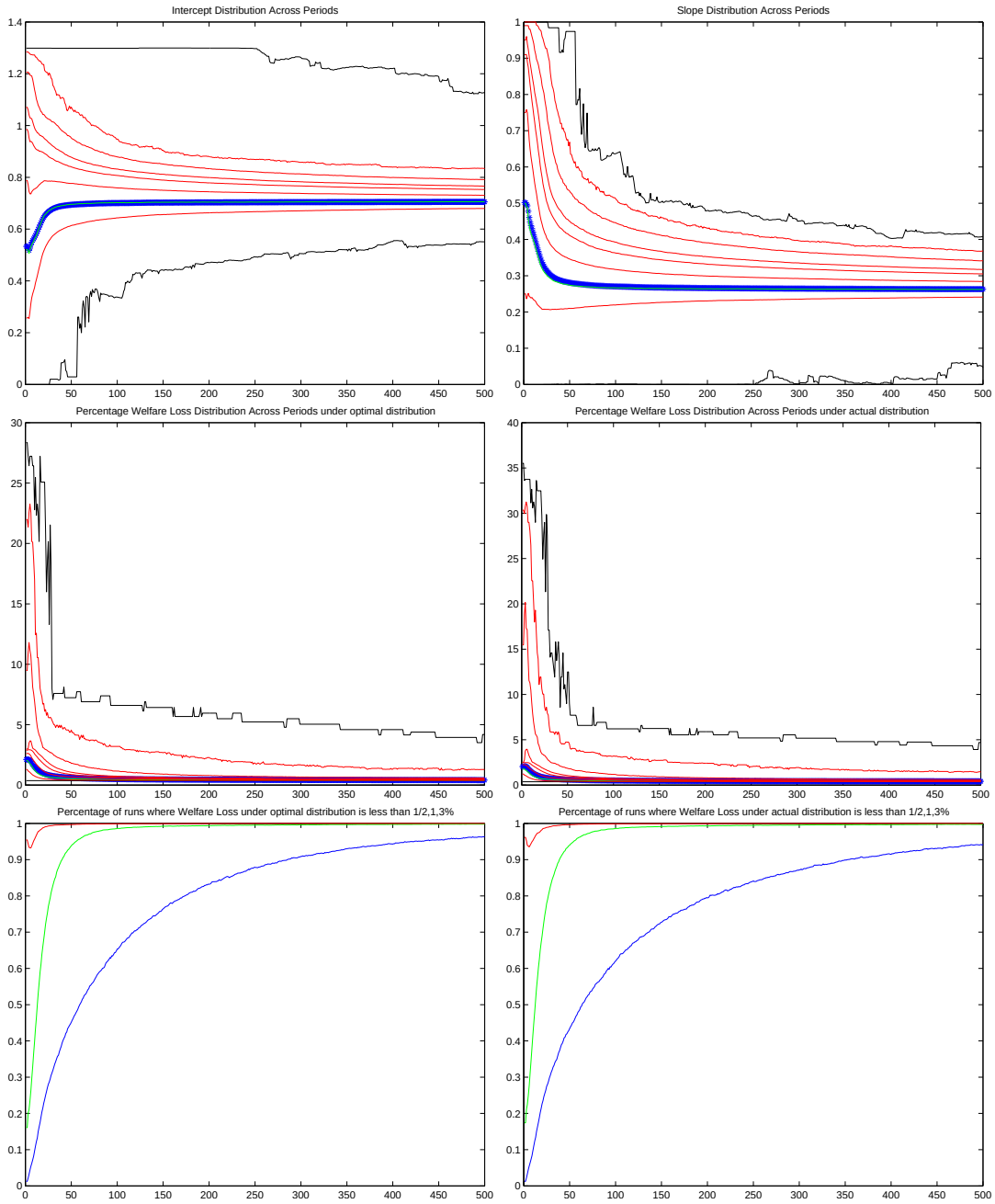

Figure 15: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3$, $\beta = 0.9$ and the (CG') version of the algorithm.

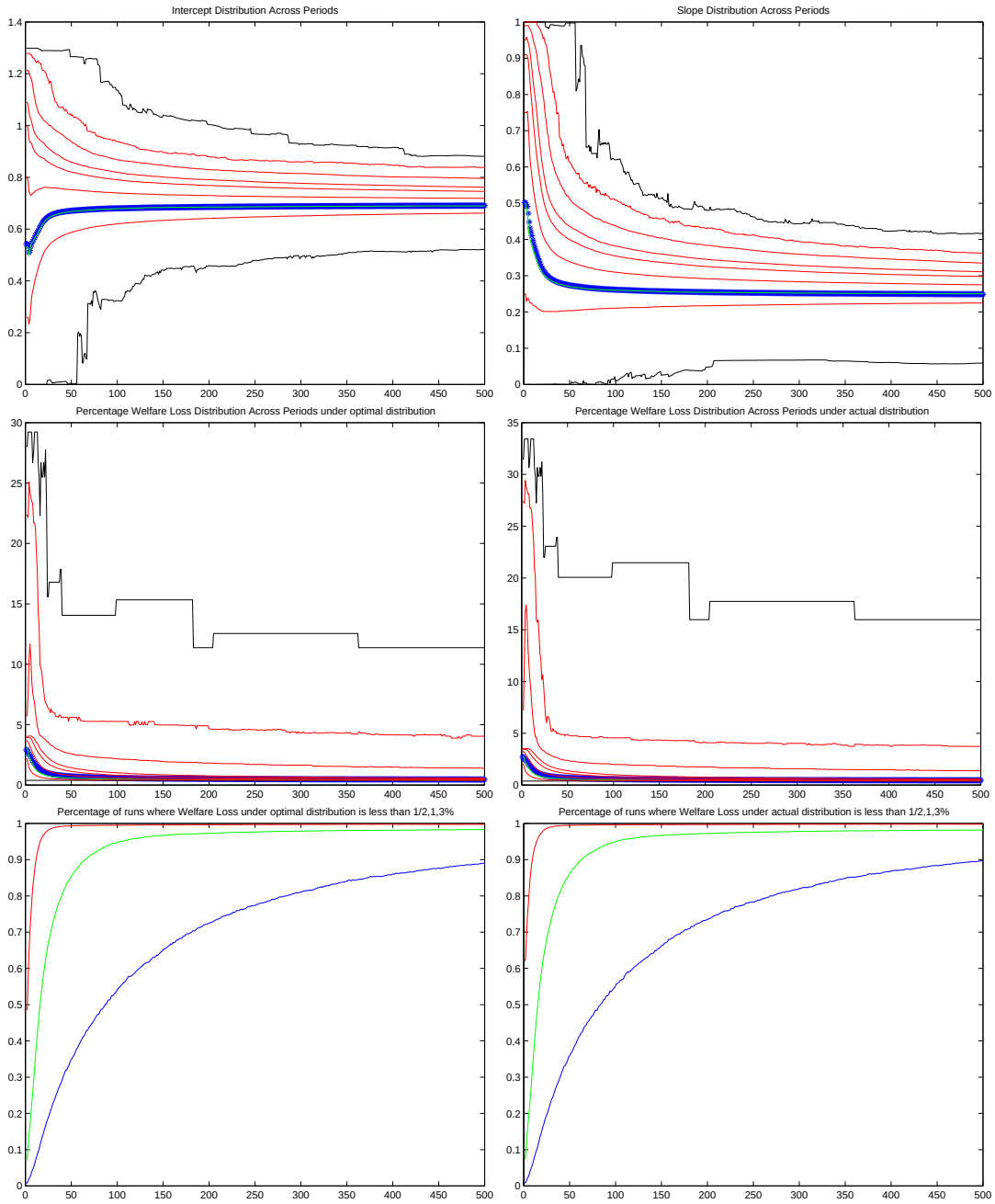

Figure 16: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3$, $\beta = 0.95$ and the (CG') version of the algorithm.

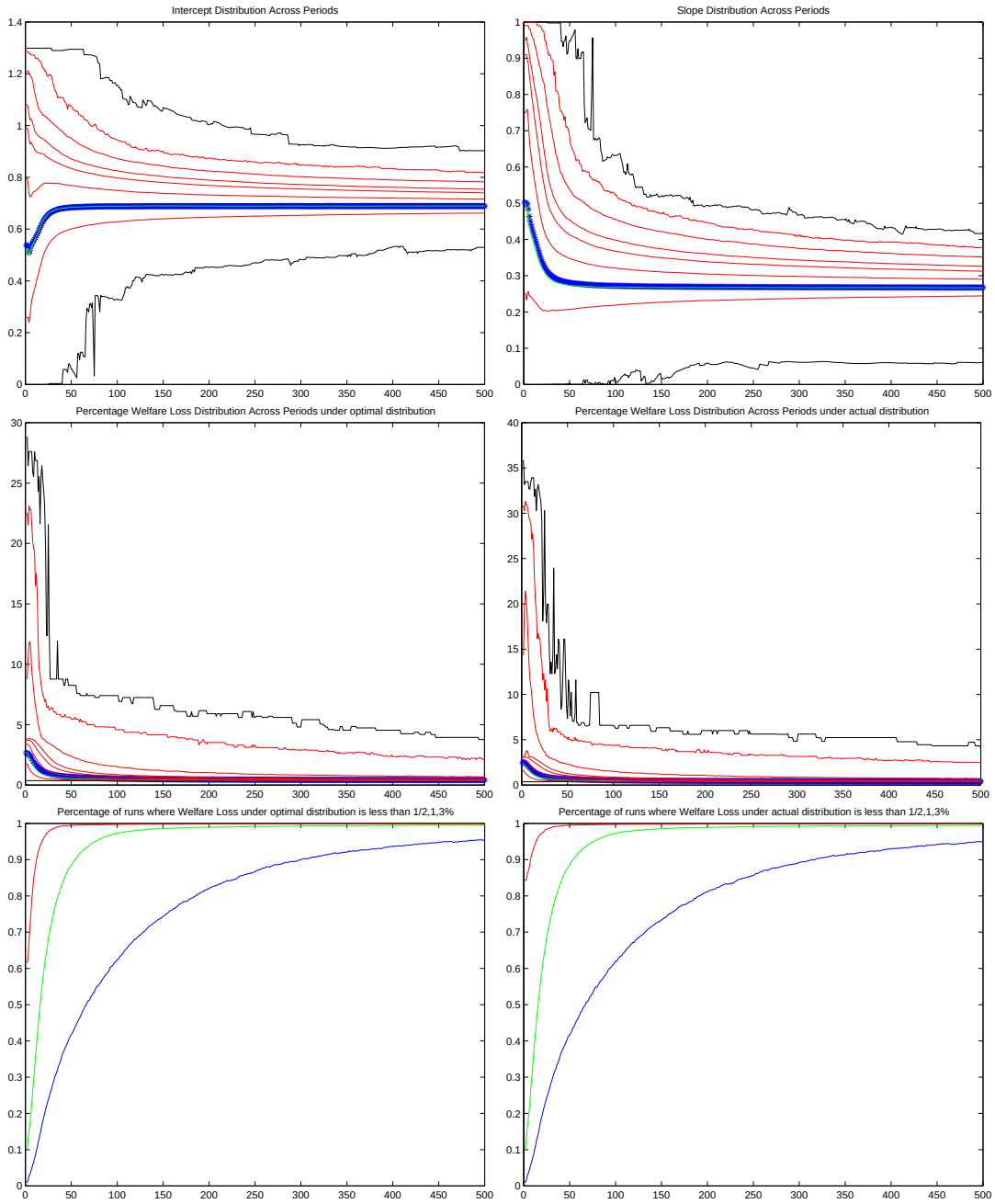

Figure 17: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3.5$, $\beta = 0.9$ and the (CG') version of the algorithm.

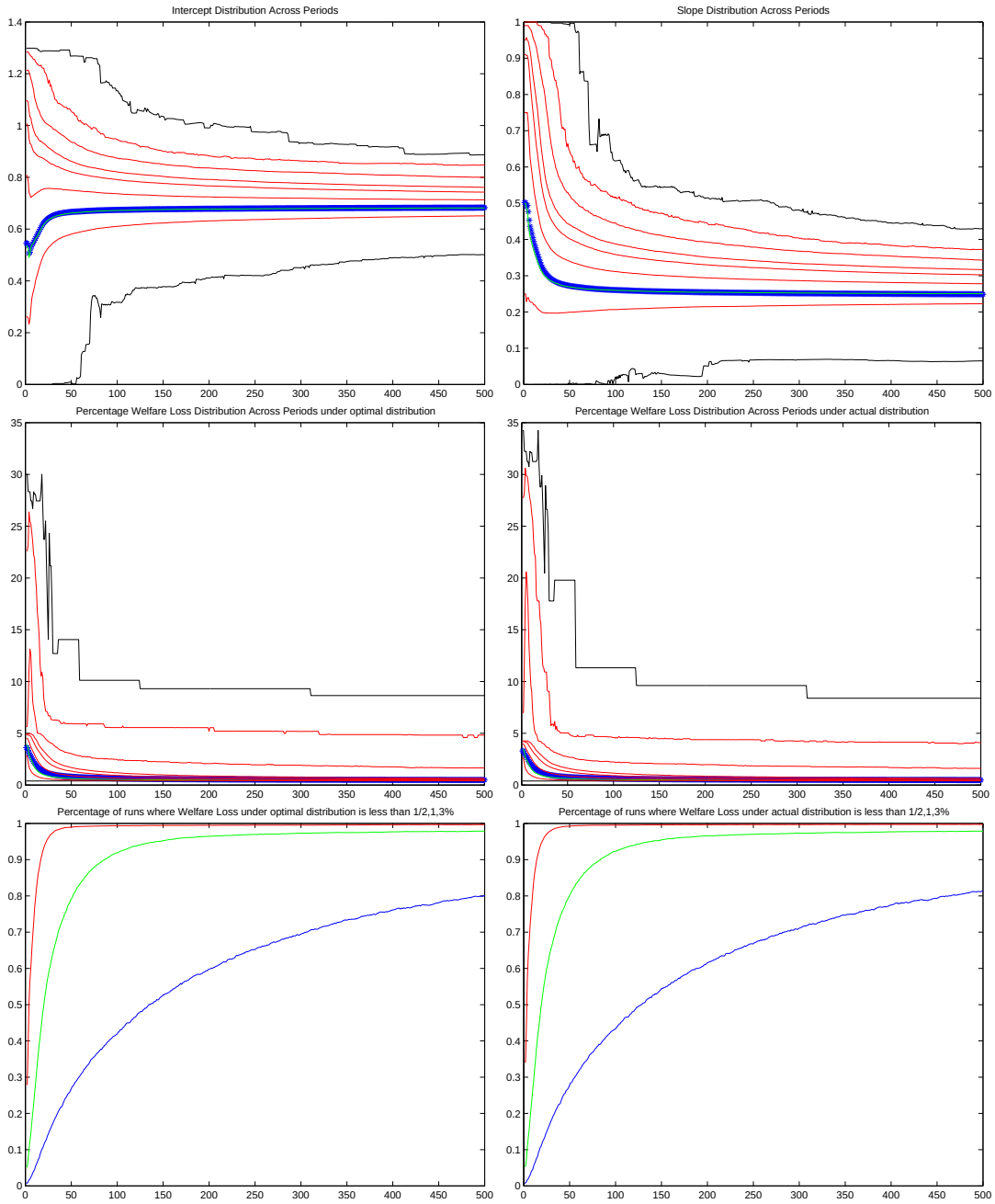

Figure 18: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3.5$, $\beta = 0.95$ and the (CG') version of the algorithm.

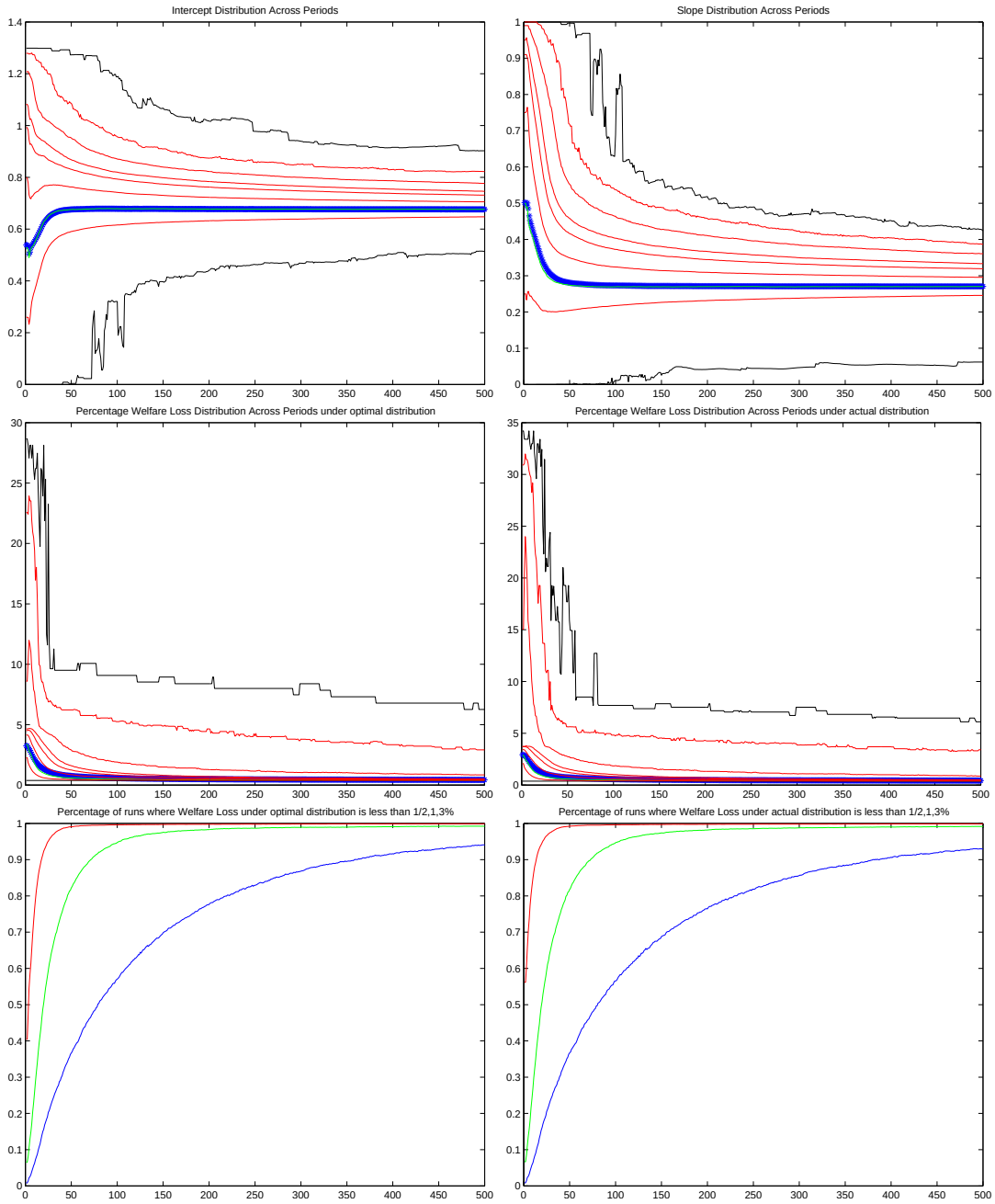

Figure 19: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 4$, $\beta = 0.9$ and the (CG') version of the algorithm.

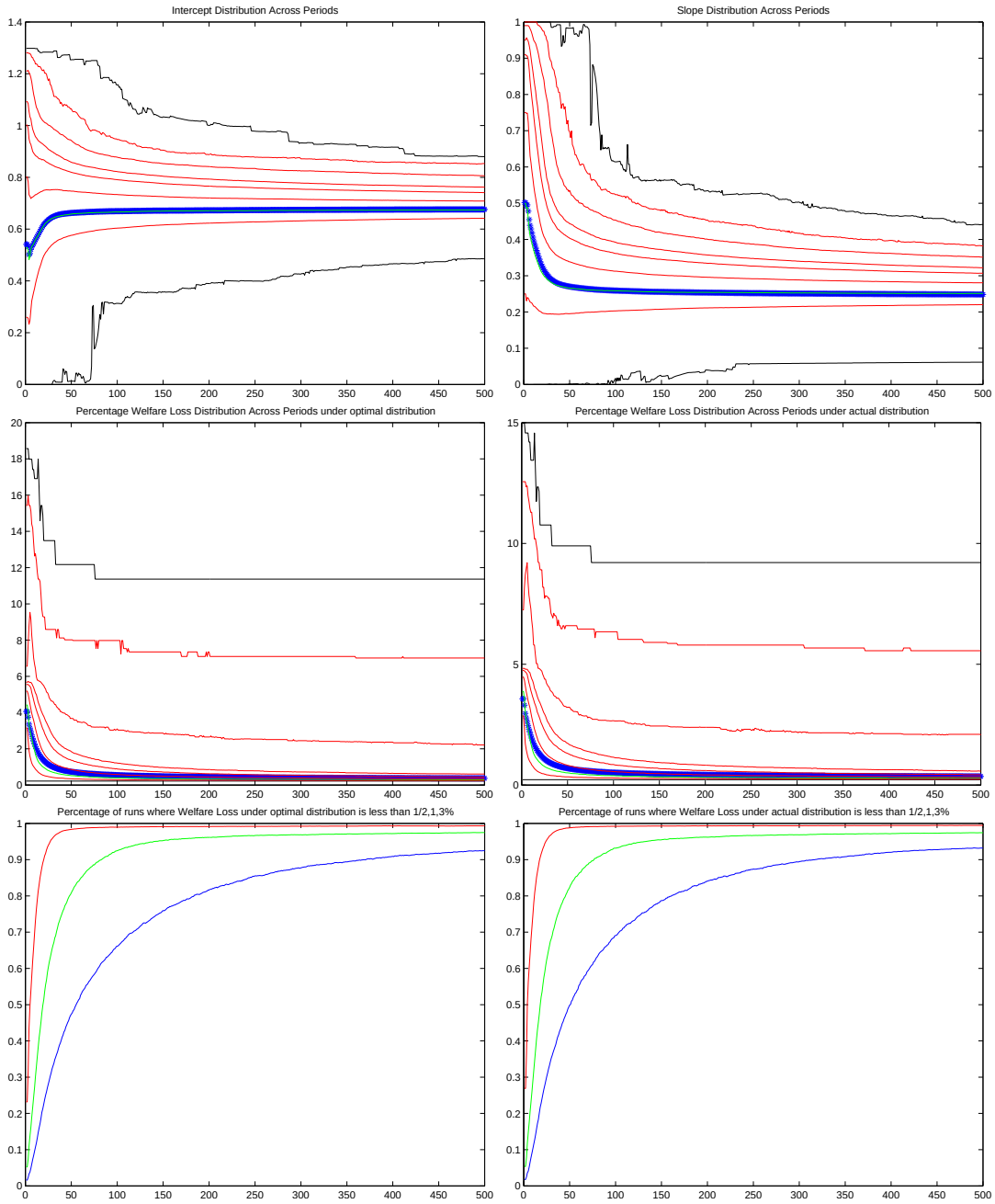

Figure 20: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 4$, $\beta = 0.95$ and the (CG') version of the algorithm.

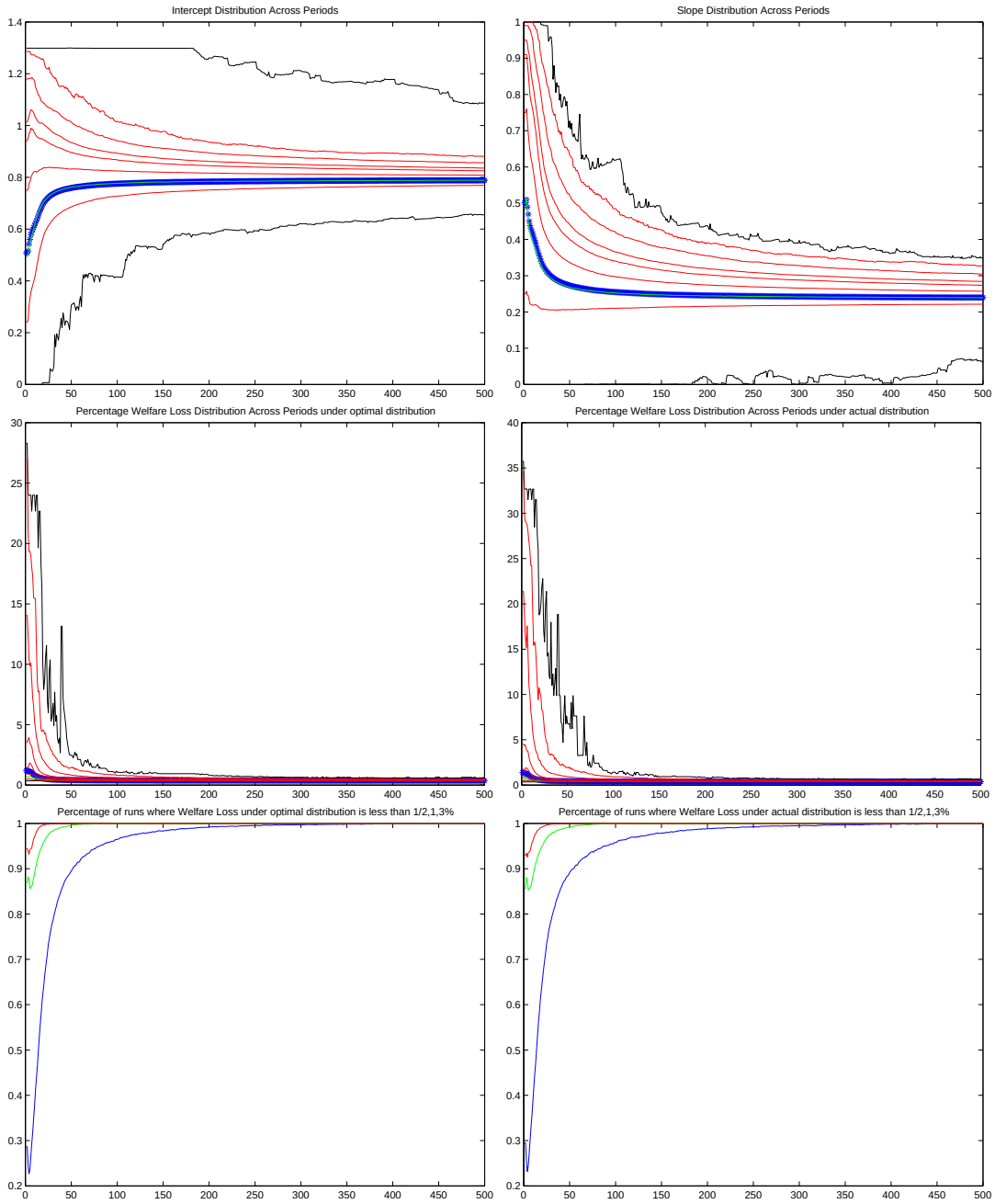

Figure 21: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 1.5$, $\beta = 0.9$ and the (DG) version of the algorithm.

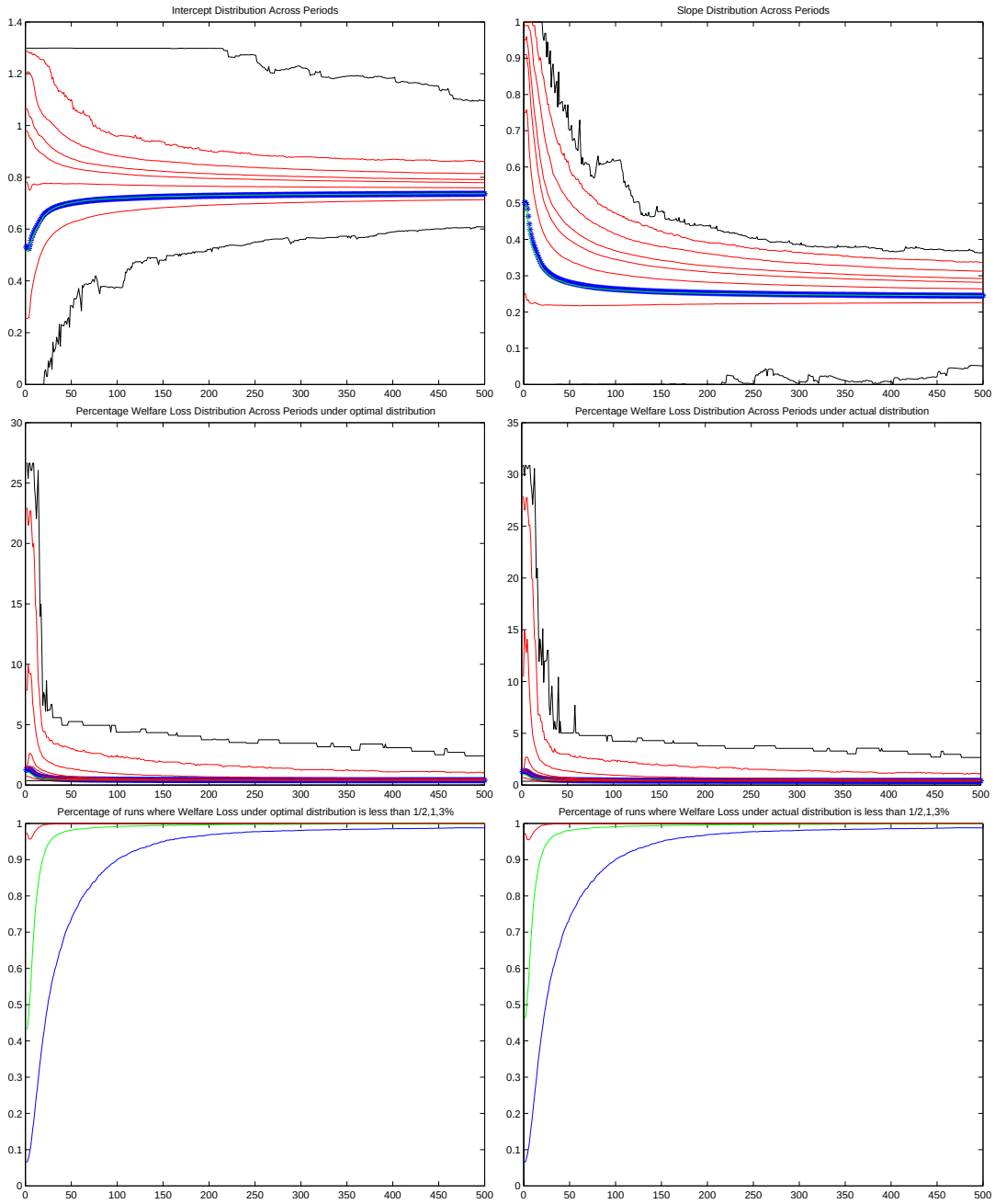

Figure 22: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 1.5$, $\beta = 0.95$ and the (DG) version of the algorithm.

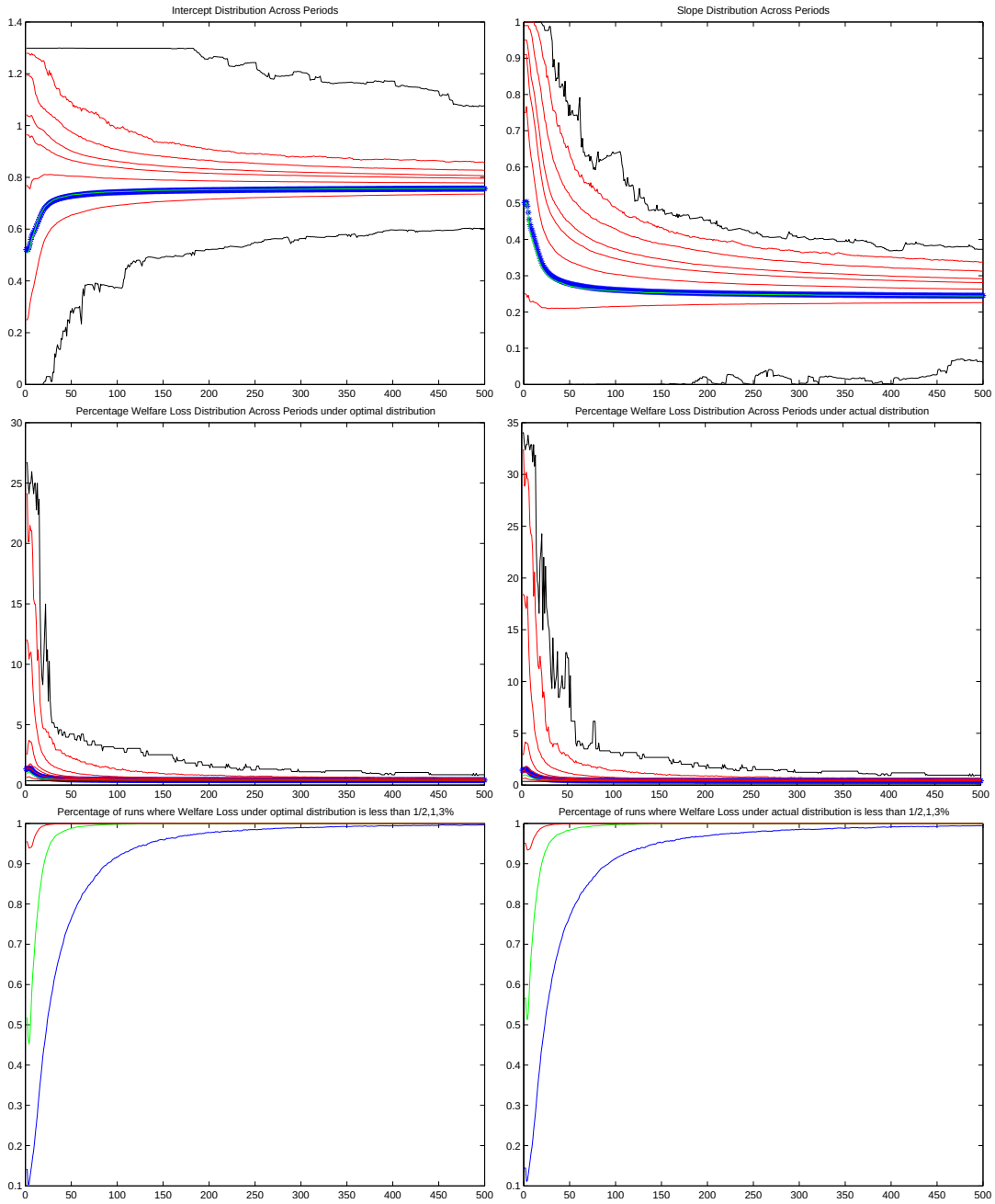

Figure 23: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 2$, $\beta = 0.9$ and the (DG) version of the algorithm.

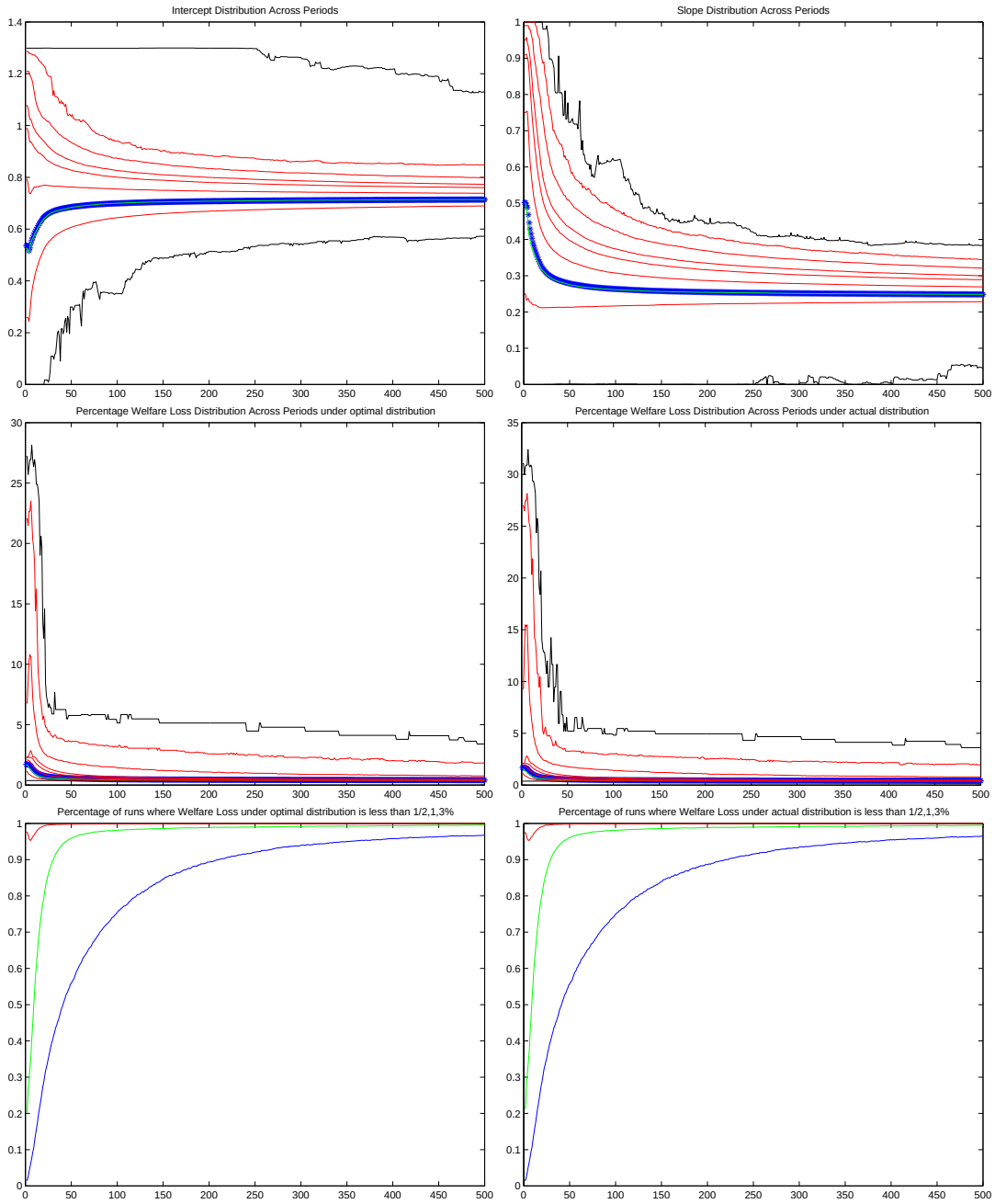

Figure 24: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 2$, $\beta = 0.95$ and the (DG) version of the algorithm.

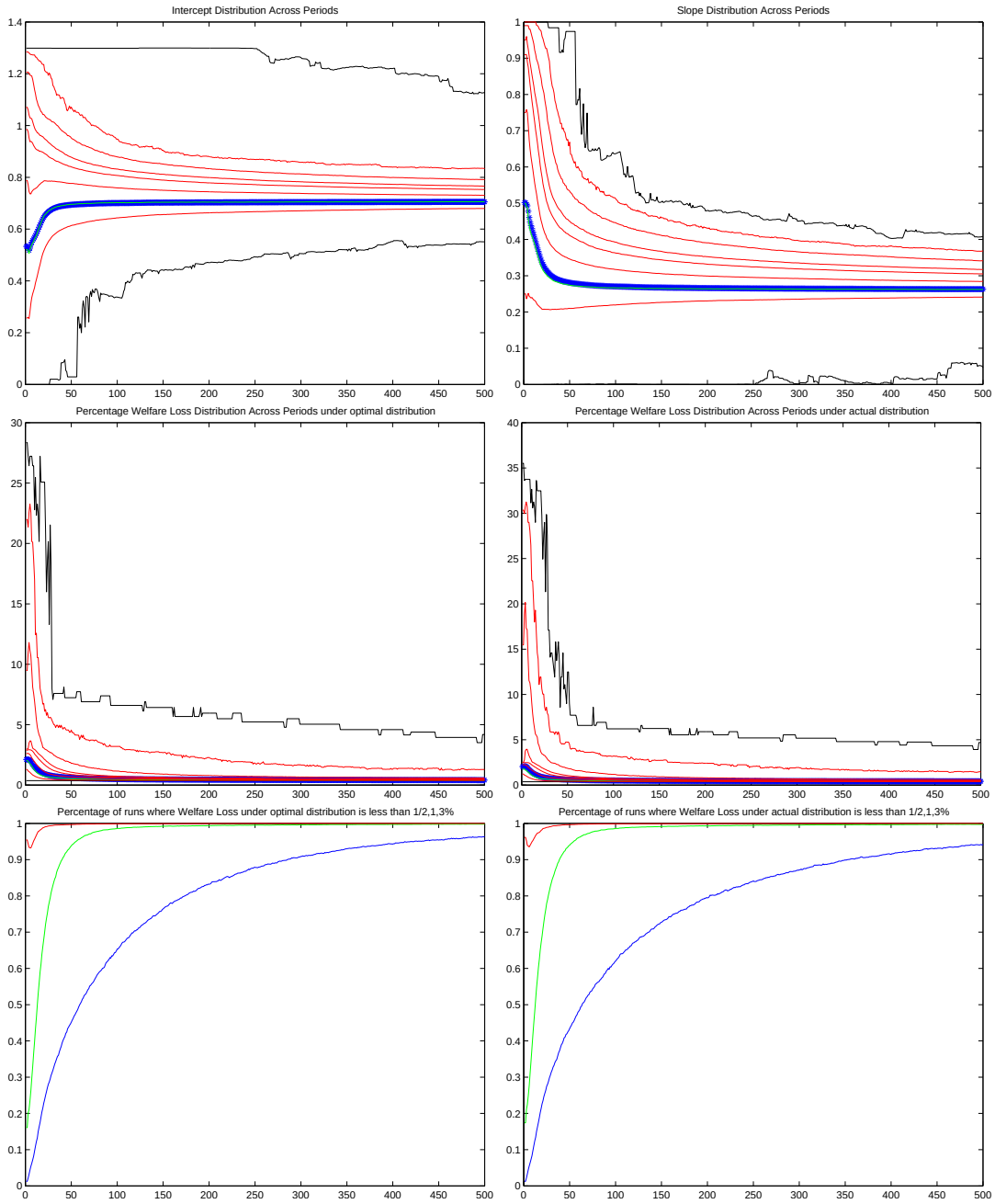

Figure 25: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3$, $\beta = 0.9$ and the (DG) version of the algorithm.

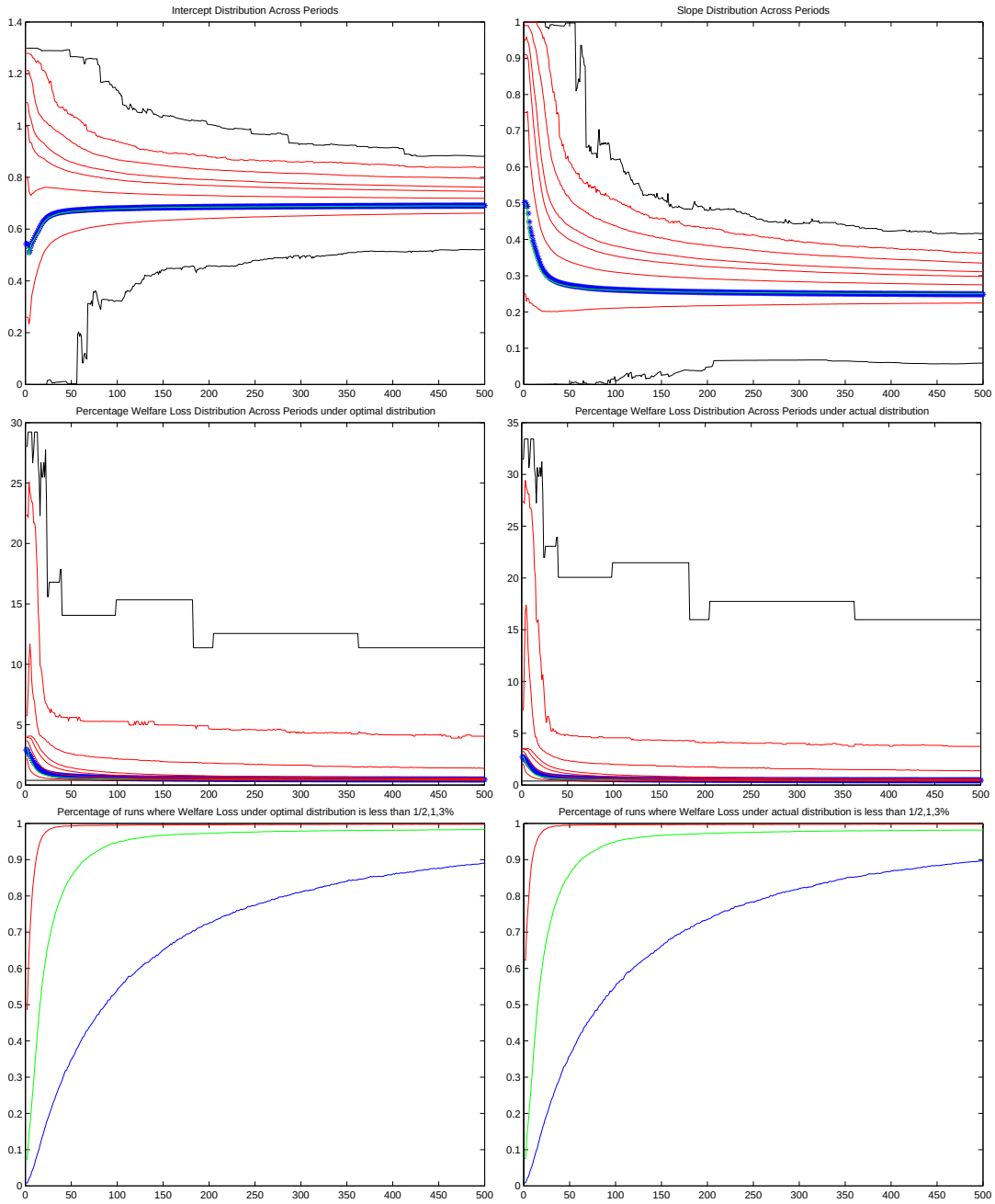

Figure 26: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3$, $\beta = 0.95$ and the (DG) version of the algorithm.

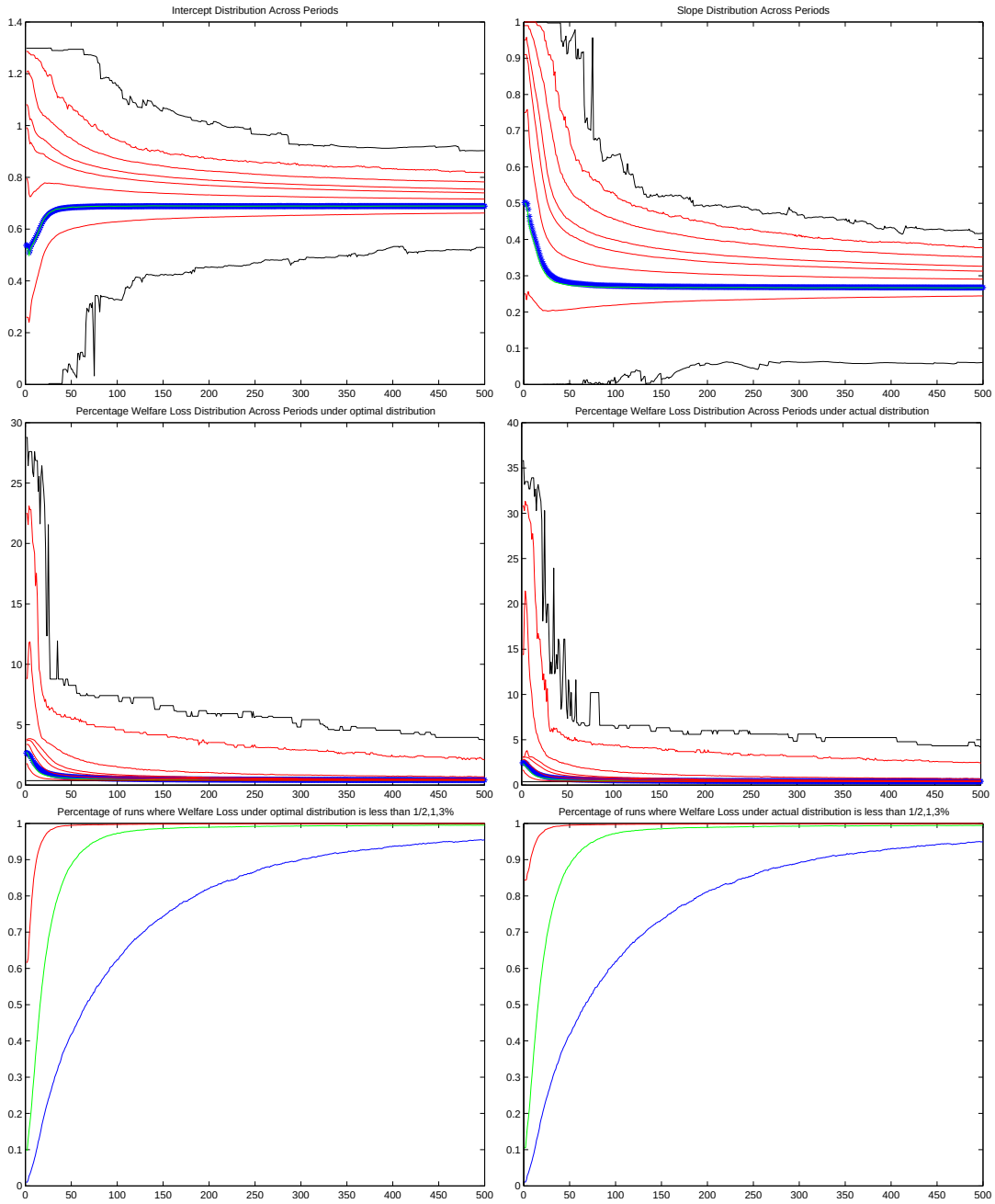

Figure 27: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3.5$, $\beta = 0.9$ and the (DG) version of the algorithm.

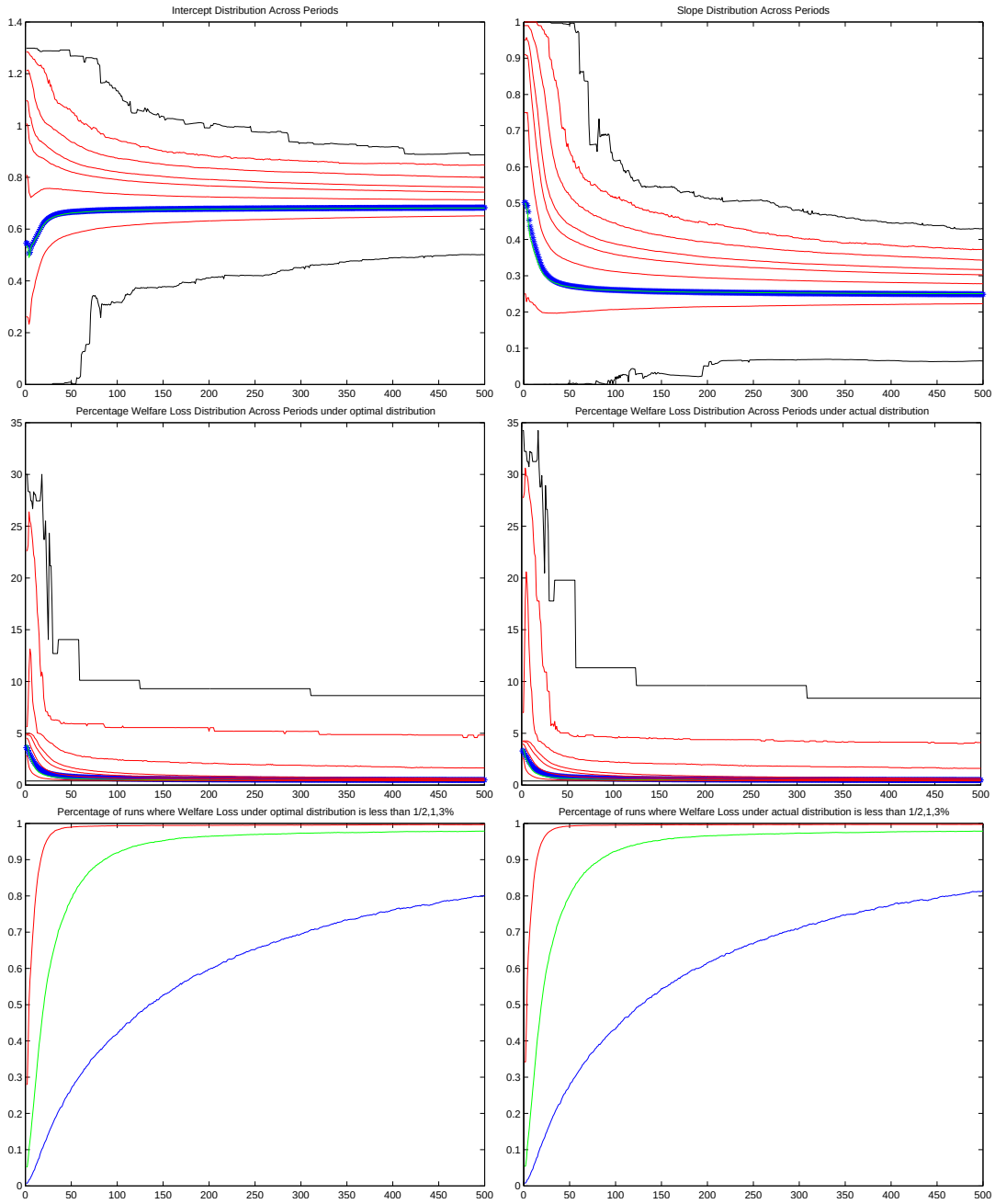

Figure 28: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3.5$, $\beta = 0.95$ and the (DG) version of the algorithm.

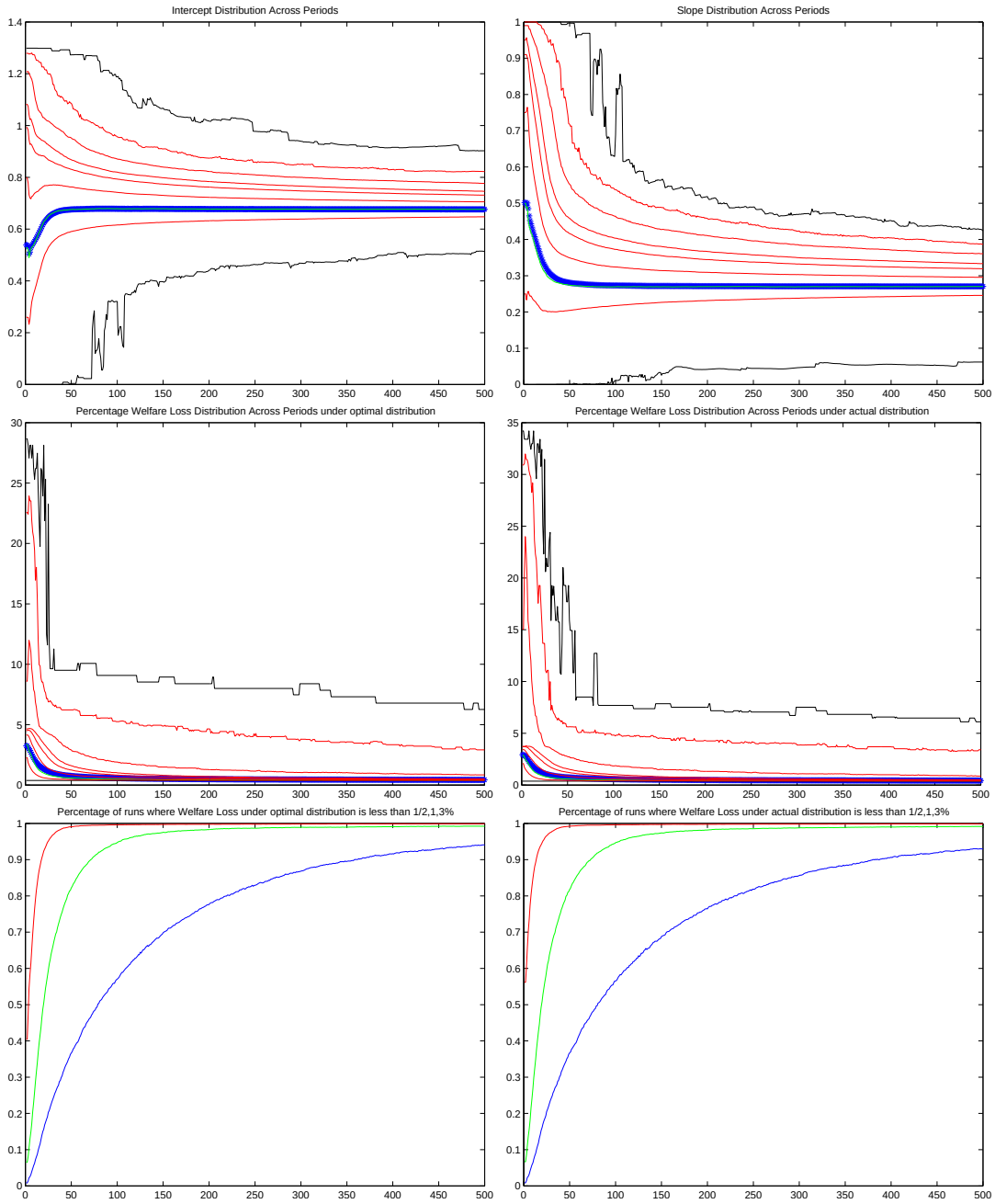

Figure 29: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 4$, $\beta = 0.9$ and the (DG) version of the algorithm.

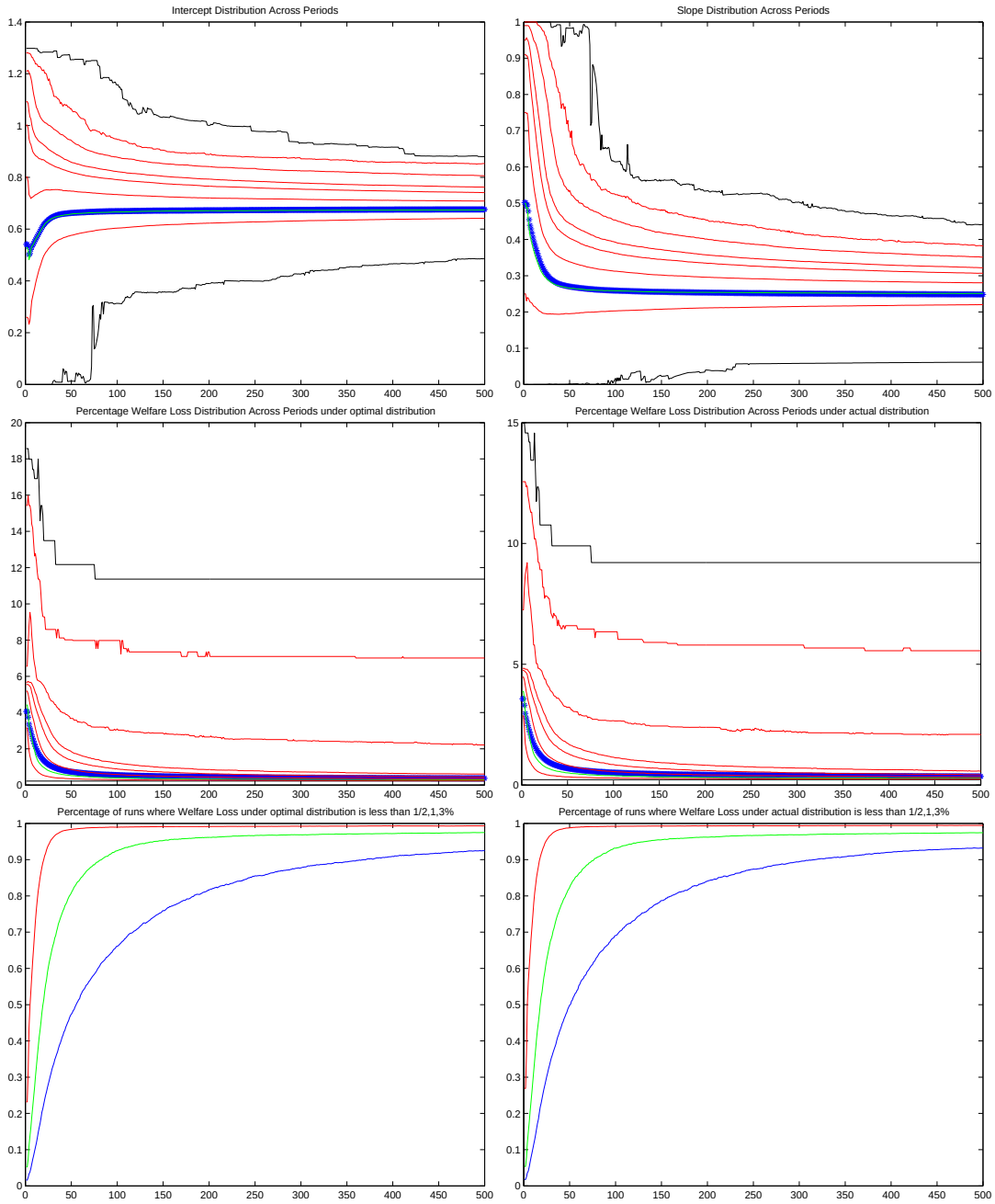

Figure 30: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 4$, $\beta = 0.95$ and the (DG) version of the algorithm.

1.2 $(\epsilon, \delta, \xi) = (0.2, 0, 1)$

Table 6: Probability of D^* or D^t below 1/2 at different periods for (CG').

		$t = 0$		$t = 50$		$t = 100$		$t = 250$		$t = 500$	
β	θ	D^*	D^t	D^*	D^t	D^*	D^t	D^*	D^t	D^*	D^t
0.9	1.5	0.2863	0.2950	0.4266	0.4344	0.4223	0.4296	0.4270	0.4372	0.4218	0.4316
	2.0	0.1410	0.1444	0.2771	0.2859	0.2673	0.2773	0.2702	0.2801	0.2681	0.2774
	3.0	0.0127	0.0127	0.1525	0.1513	0.1533	0.1537	0.1504	0.1499	0.1494	0.1472
	3.5	0.0104	0.0107	0.1378	0.1417	0.1401	0.1442	0.1349	0.1393	0.1333	0.1377
	4.0	0.0082	0.0084	0.1226	0.1239	0.1231	0.1243	0.1191	0.1210	0.1213	0.1232
0.95	1.5	0.0659	0.0667	0.3247	0.3302	0.3232	0.3293	0.3206	0.3262	0.3211	0.3267
	2.0	0.0155	0.0155	0.2329	0.2352	0.2329	0.2351	0.2345	0.2358	0.2335	0.2346
	3.0	0.0080	0.0086	0.1548	0.1572	0.1575	0.1608	0.1499	0.1529	0.1524	0.1565
	3.5	0.0075	0.0079	0.1273	0.1324	0.1262	0.1309	0.1265	0.1316	0.1279	0.1324
	4.0	0.0159	0.0176	0.2478	0.2601	0.2477	0.2610	0.2482	0.2621	0.2450	0.2576

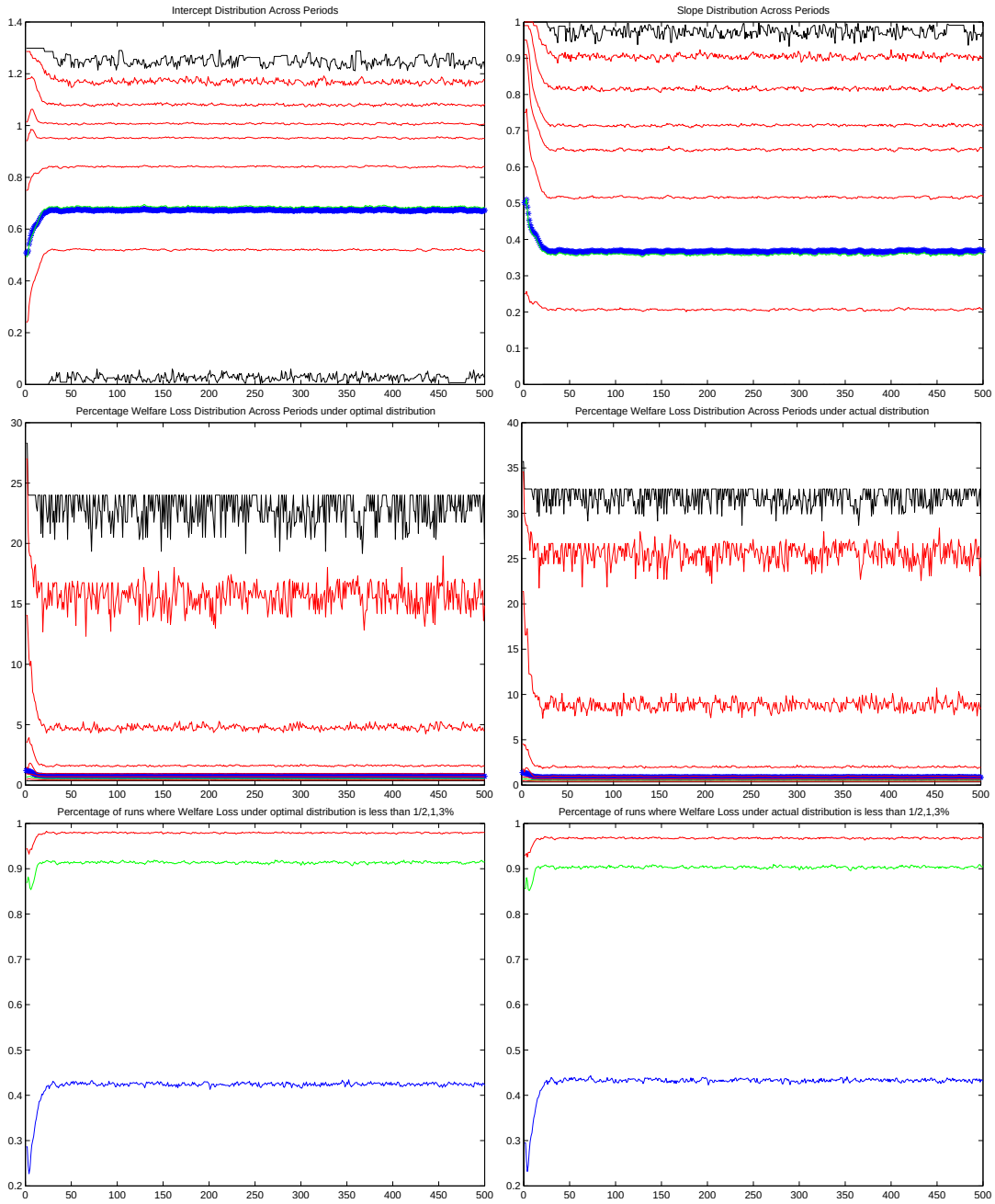

Figure 31: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 1.5$, $\beta = 0.9$ and the (CG') version of the algorithm.

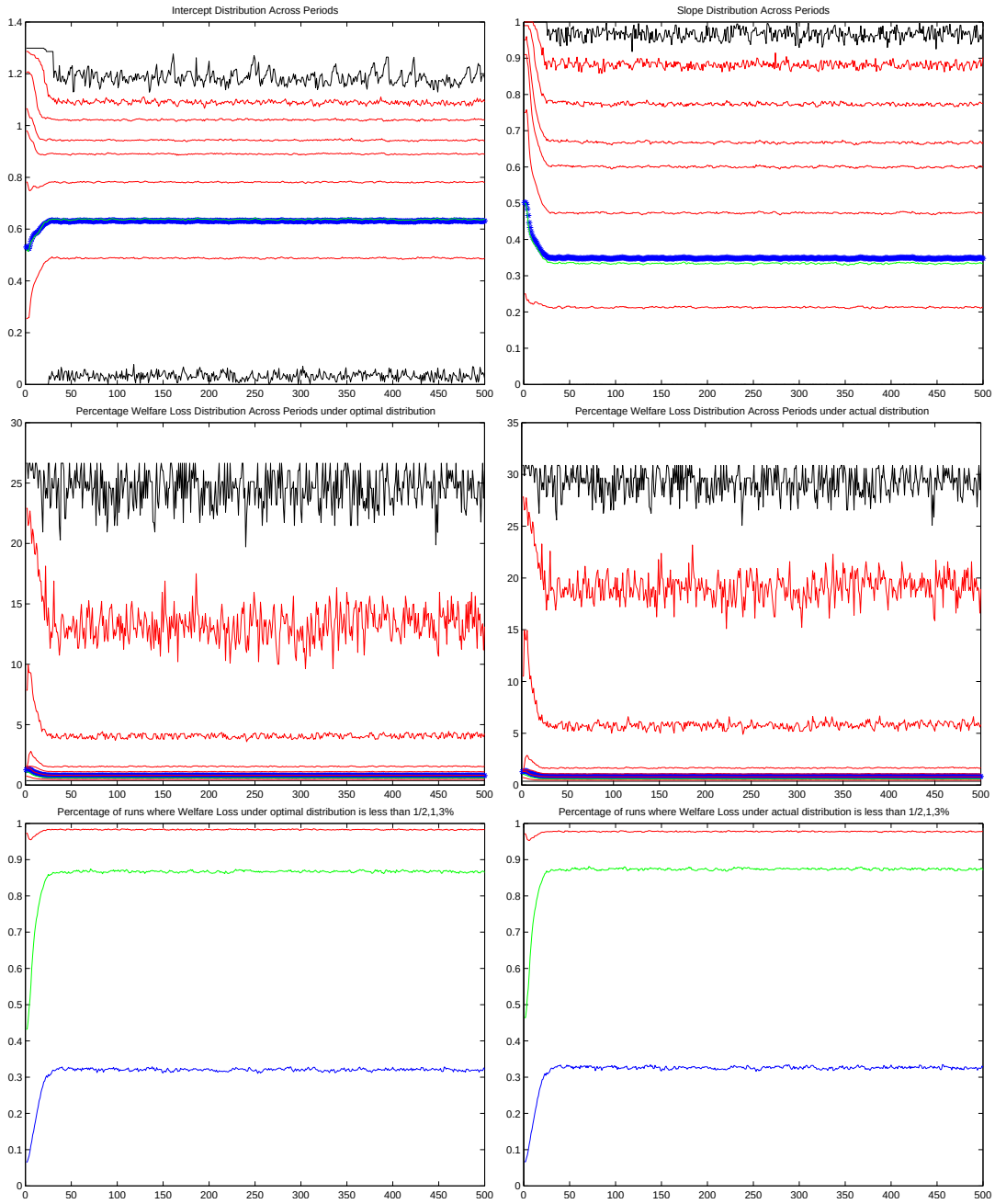

Figure 32: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 1.5$, $\beta = 0.95$ and the (CG') version of the algorithm.

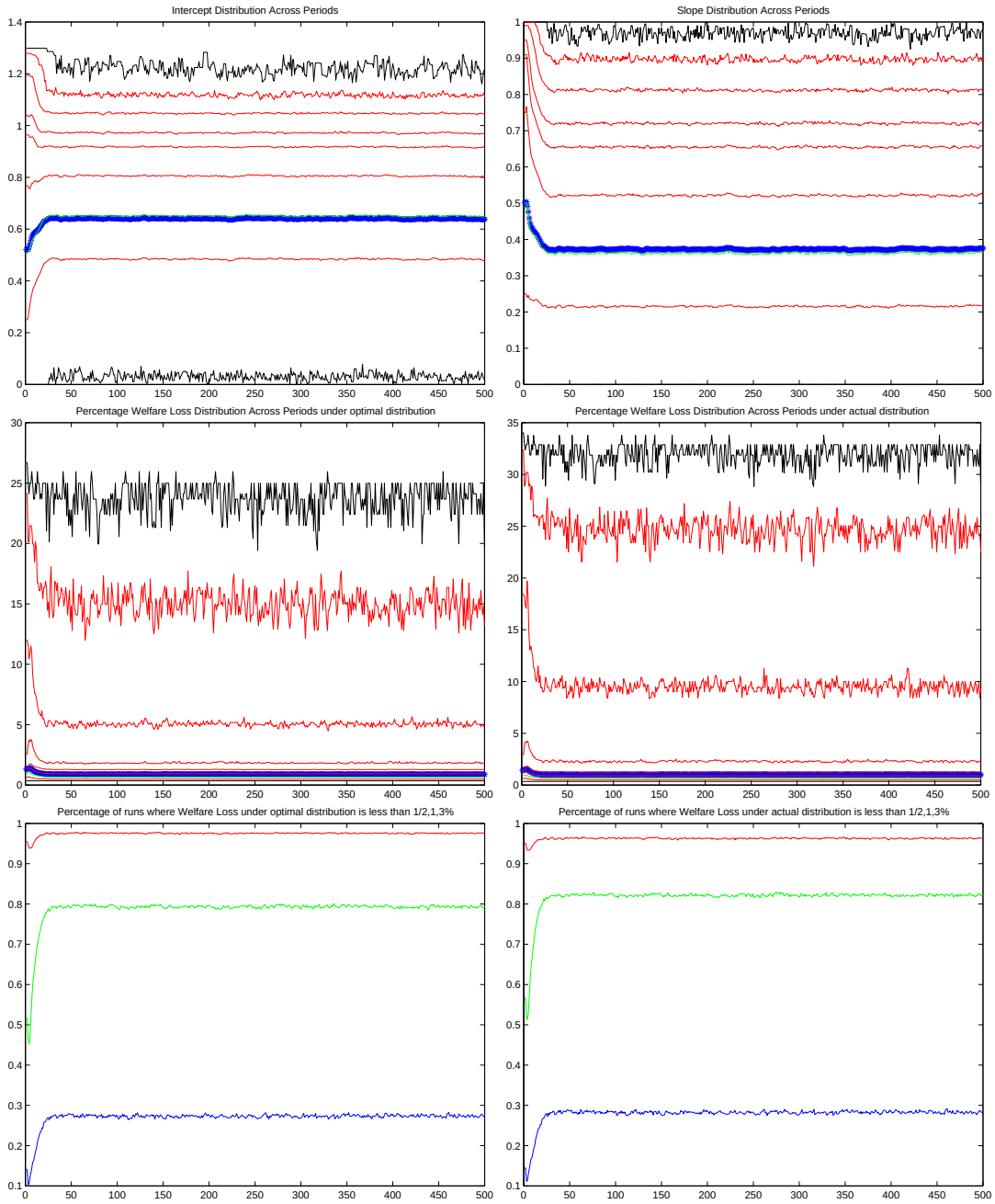

Figure 33: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 2$, $\beta = 0.9$ and the (CG') version of the algorithm.

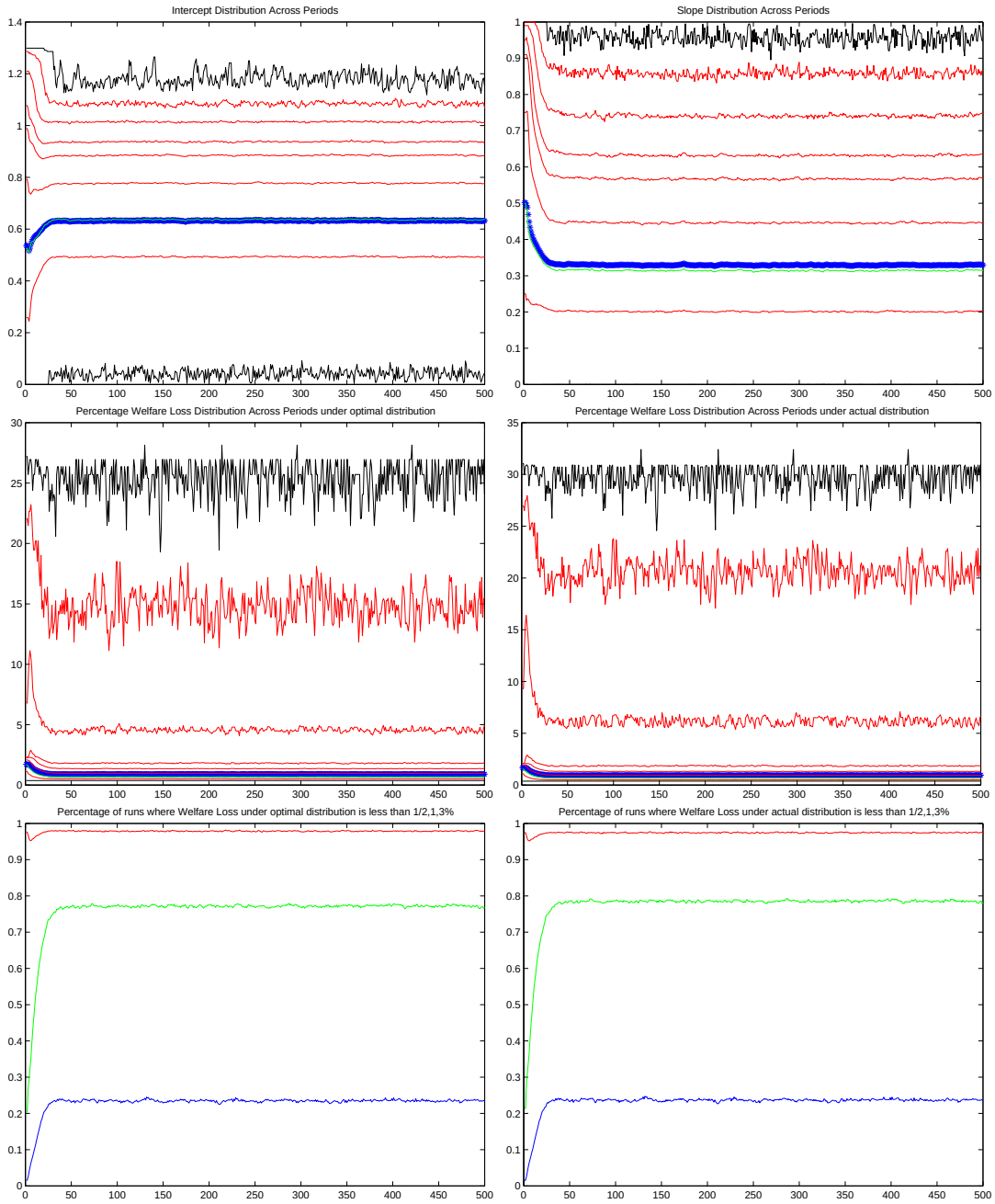

Figure 34: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 2$, $\beta = 0.95$ and the (CG') version of the algorithm.

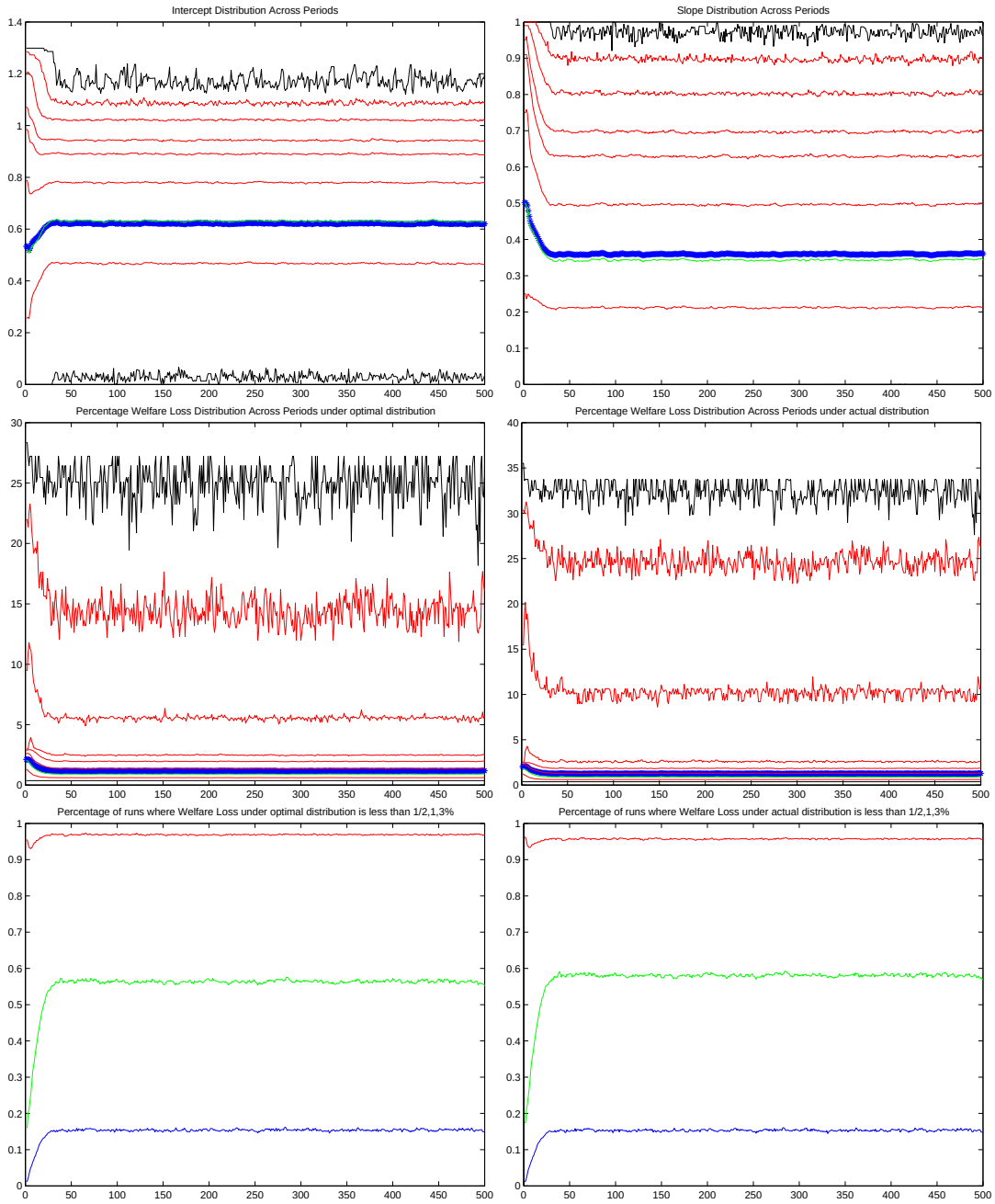

Figure 35: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3$, $\beta = 0.9$ and the (CG') version of the algorithm.

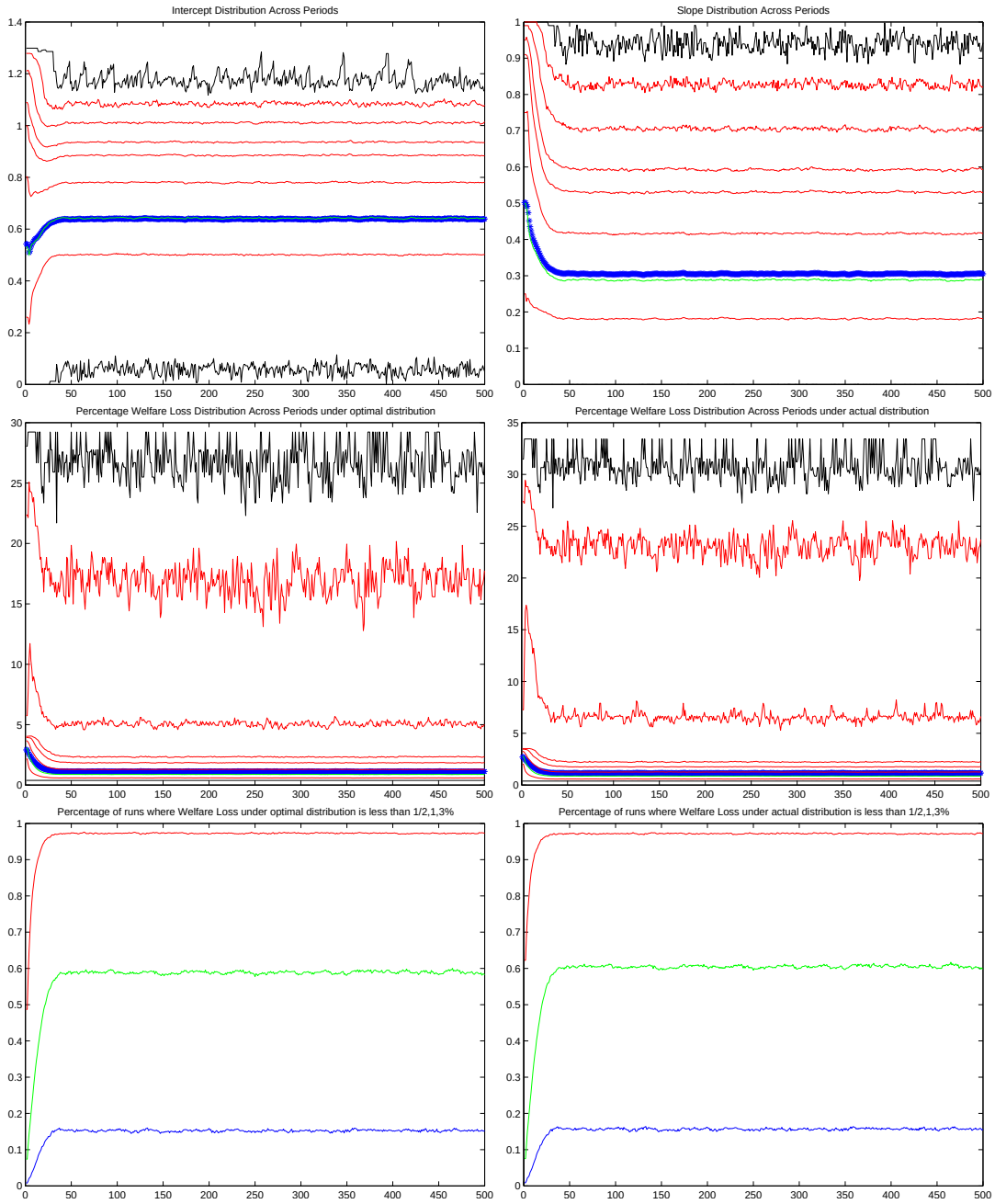

Figure 36: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3$, $\beta = 0.95$ and the (CG') version of the algorithm.

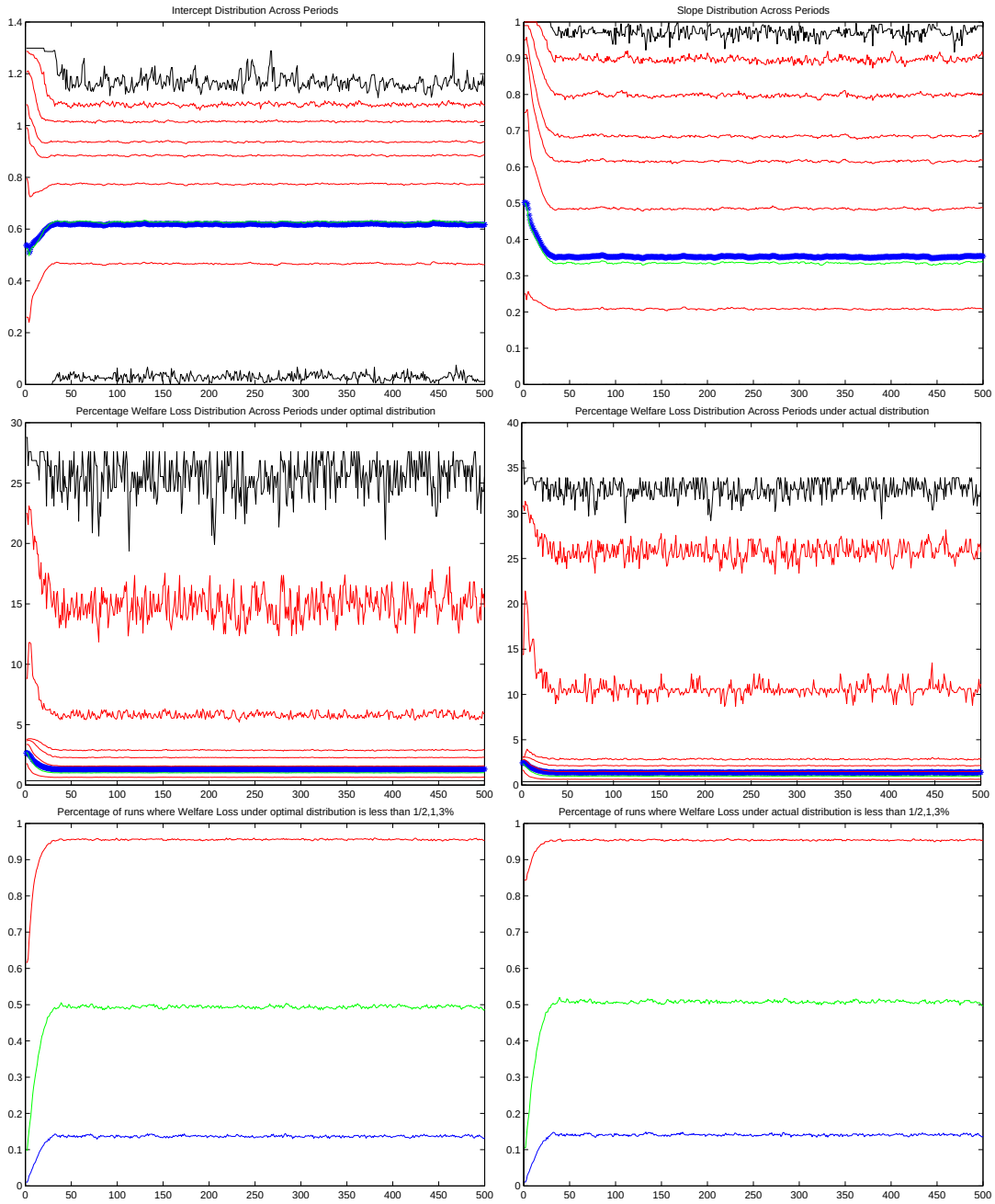

Figure 37: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3.5$, $\beta = 0.9$ and the (CG') version of the algorithm.

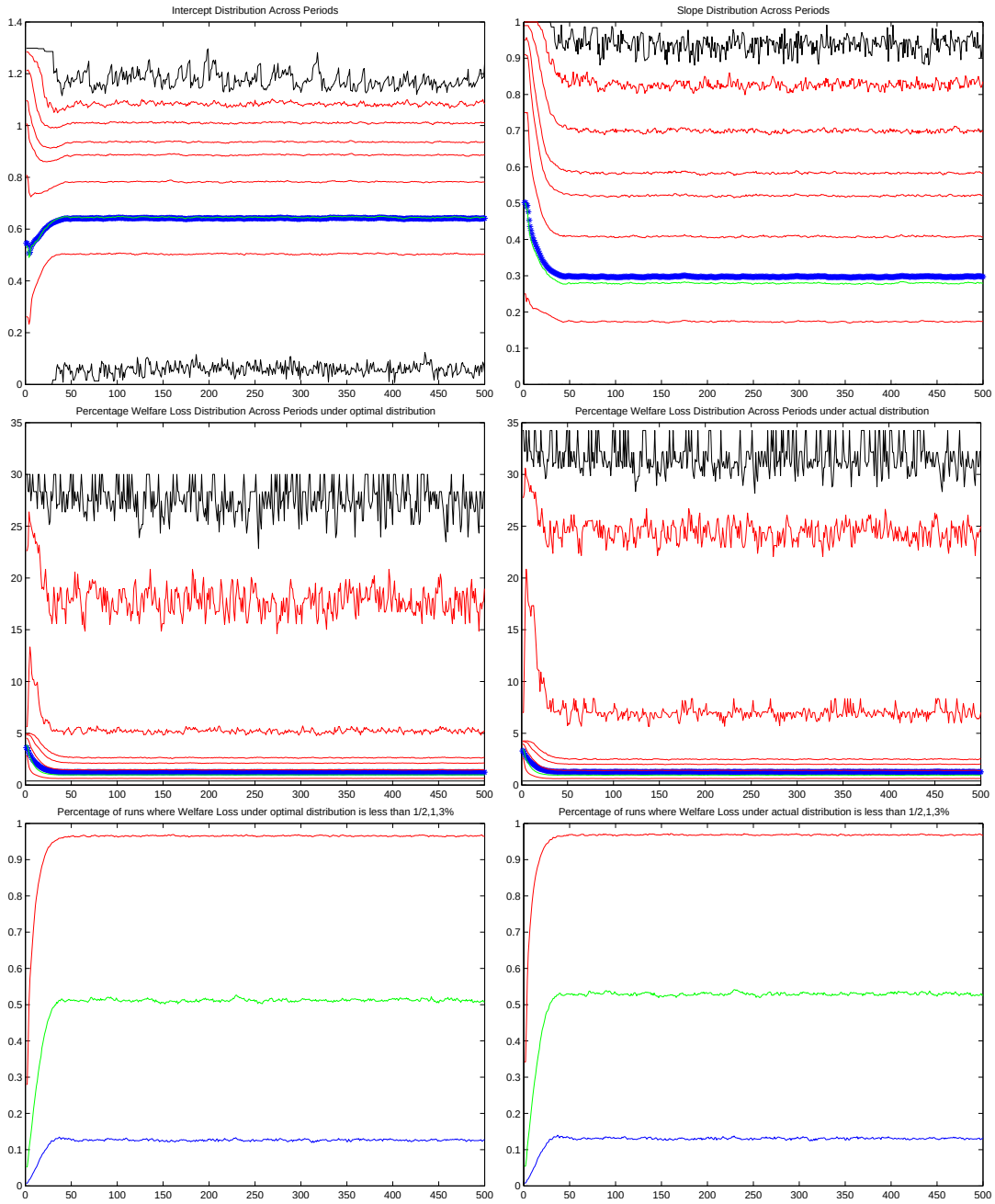

Figure 38: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3.5$, $\beta = 0.95$ and the (CG') version of the algorithm.

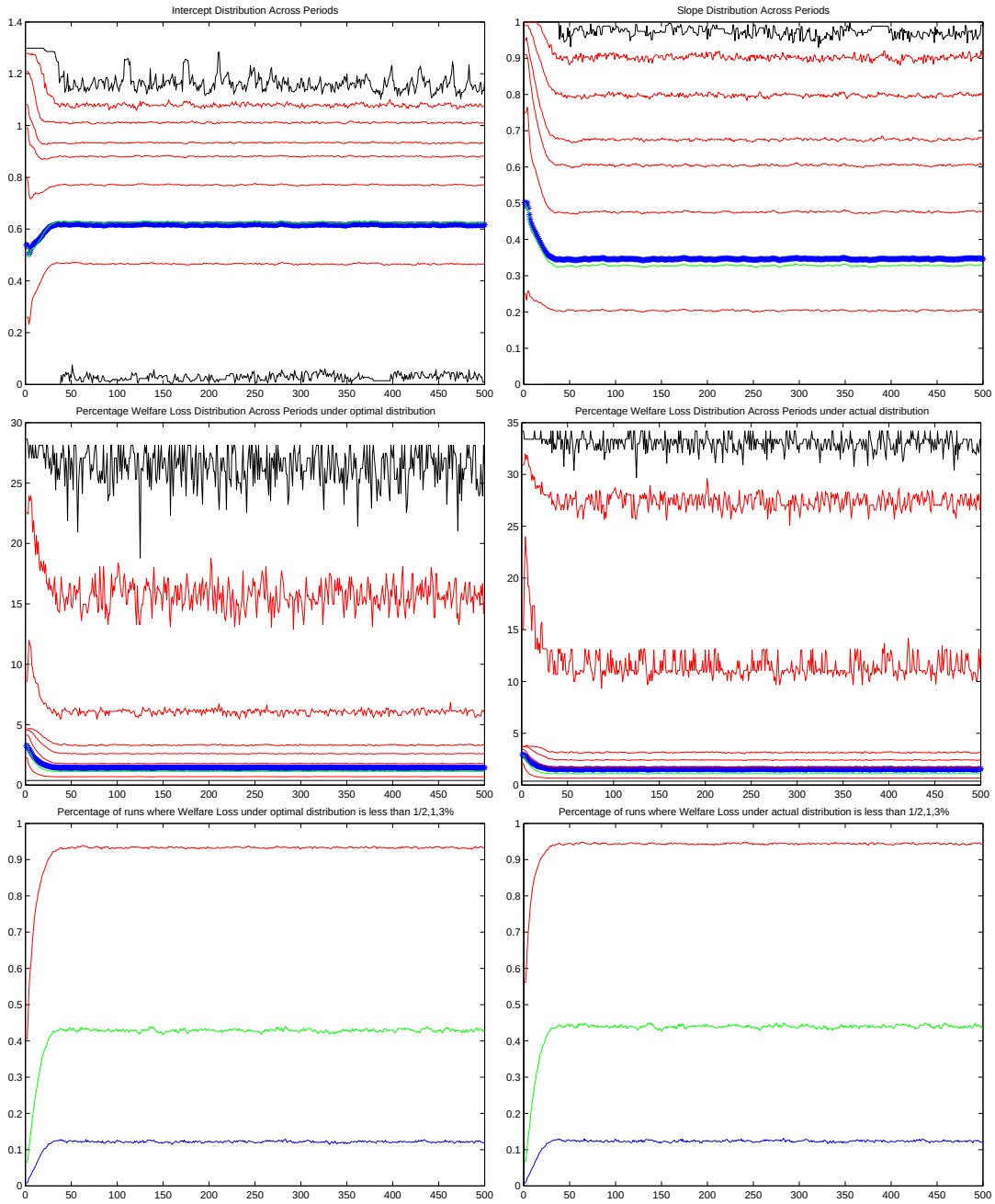

Figure 39: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 4$, $\beta = 0.9$ and the (CG') version of the algorithm.

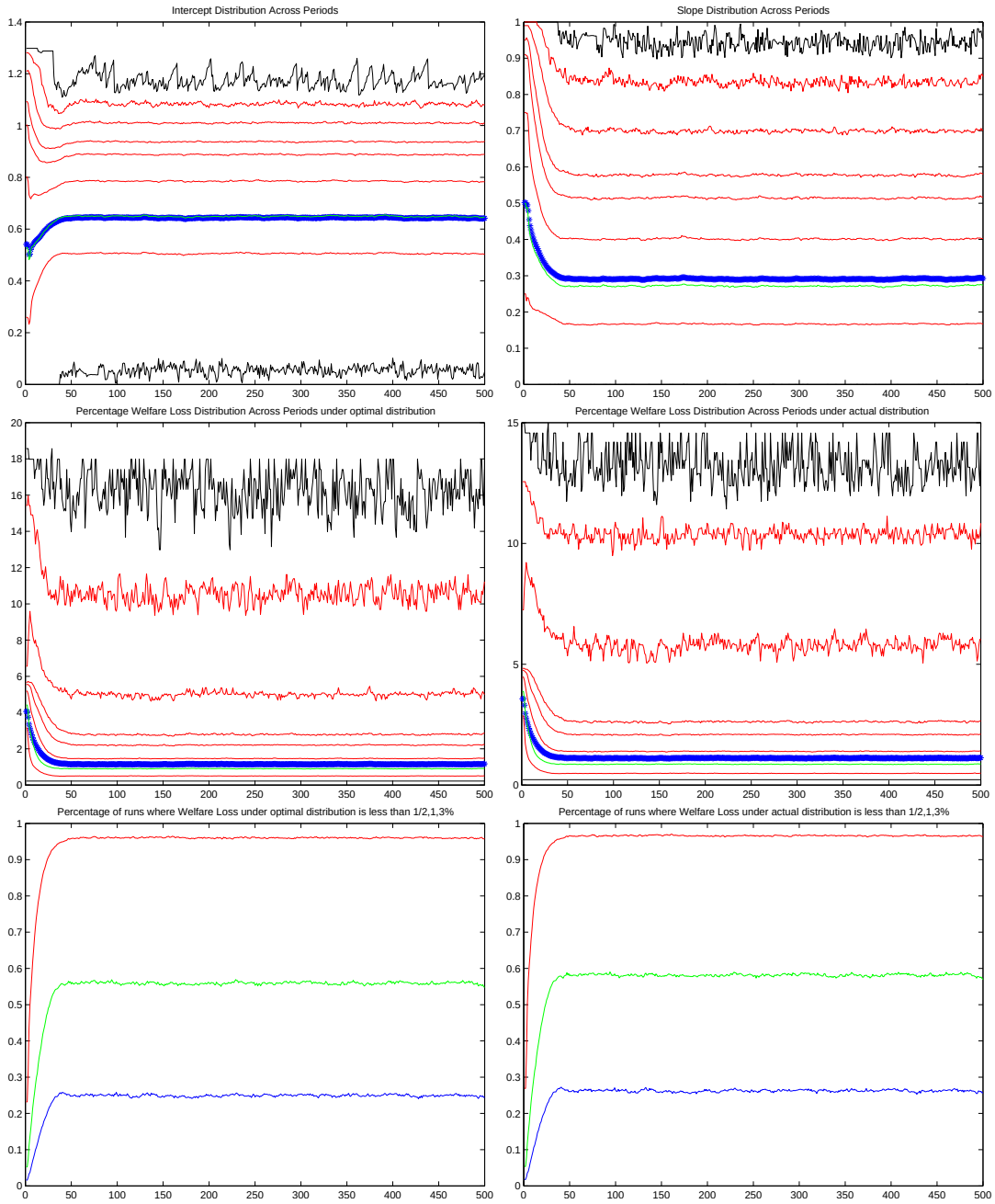

Figure 40: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 4$, $\beta = 0.95$ and the (CG') version of the algorithm.

1.3 $(\epsilon, \delta, \xi) = (0, 0.5, 1)$

Table 7: Probability of D^* or D^t below 1/2 at different periods for (CG').

		$t = 0$		$t = 50$		$t = 100$		$t = 250$		$t = 500$	
β	θ	D^*	D^t	D^*	D^t	D^*	D^t	D^*	D^t	D^*	D^t
0.9	1.5	0.2863	0.2950	0.8931	0.8931	0.9477	0.9437	0.9738	0.9718	0.9814	0.9803
	2.0	0.1410	0.1444	0.6921	0.7039	0.8471	0.8540	0.9523	0.9507	0.9726	0.9712
	3.0	0.0127	0.0127	0.3171	0.3031	0.4358	0.4113	0.6295	0.5841	0.7705	0.7180
	3.5	0.0104	0.0107	0.2717	0.2720	0.3851	0.3827	0.5795	0.5684	0.7333	0.7185
	4.0	0.0082	0.0084	0.2259	0.2243	0.3230	0.3165	0.5054	0.4928	0.6653	0.6445
0.95	1.5	0.0659	0.0667	0.5741	0.5774	0.7279	0.7291	0.8861	0.8861	0.9478	0.9480
	2.0	0.0155	0.0155	0.3781	0.3753	0.4919	0.4873	0.6744	0.6623	0.8038	0.7871
	3.0	0.0080	0.0086	0.2044	0.2103	0.2731	0.2817	0.3947	0.4088	0.5096	0.5304
	3.5	0.0075	0.0079	0.1468	0.1519	0.1954	0.2019	0.2799	0.2888	0.3660	0.3750
	4.0	0.0159	0.0176	0.2545	0.2723	0.3367	0.3624	0.4894	0.5269	0.6243	0.6684

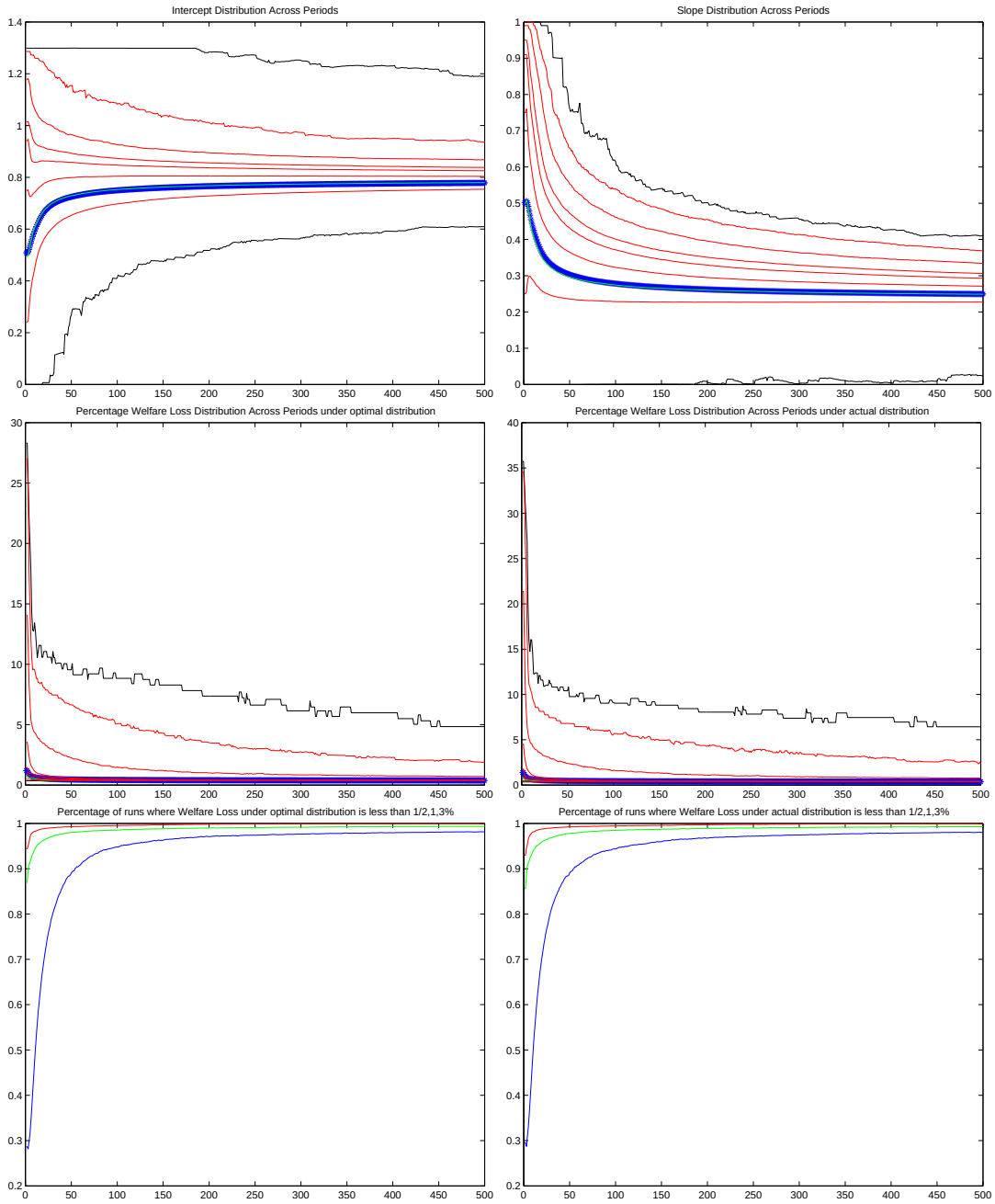

Figure 41: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 1.5$, $\beta = 0.9$ and the (CG') version of the algorithm.

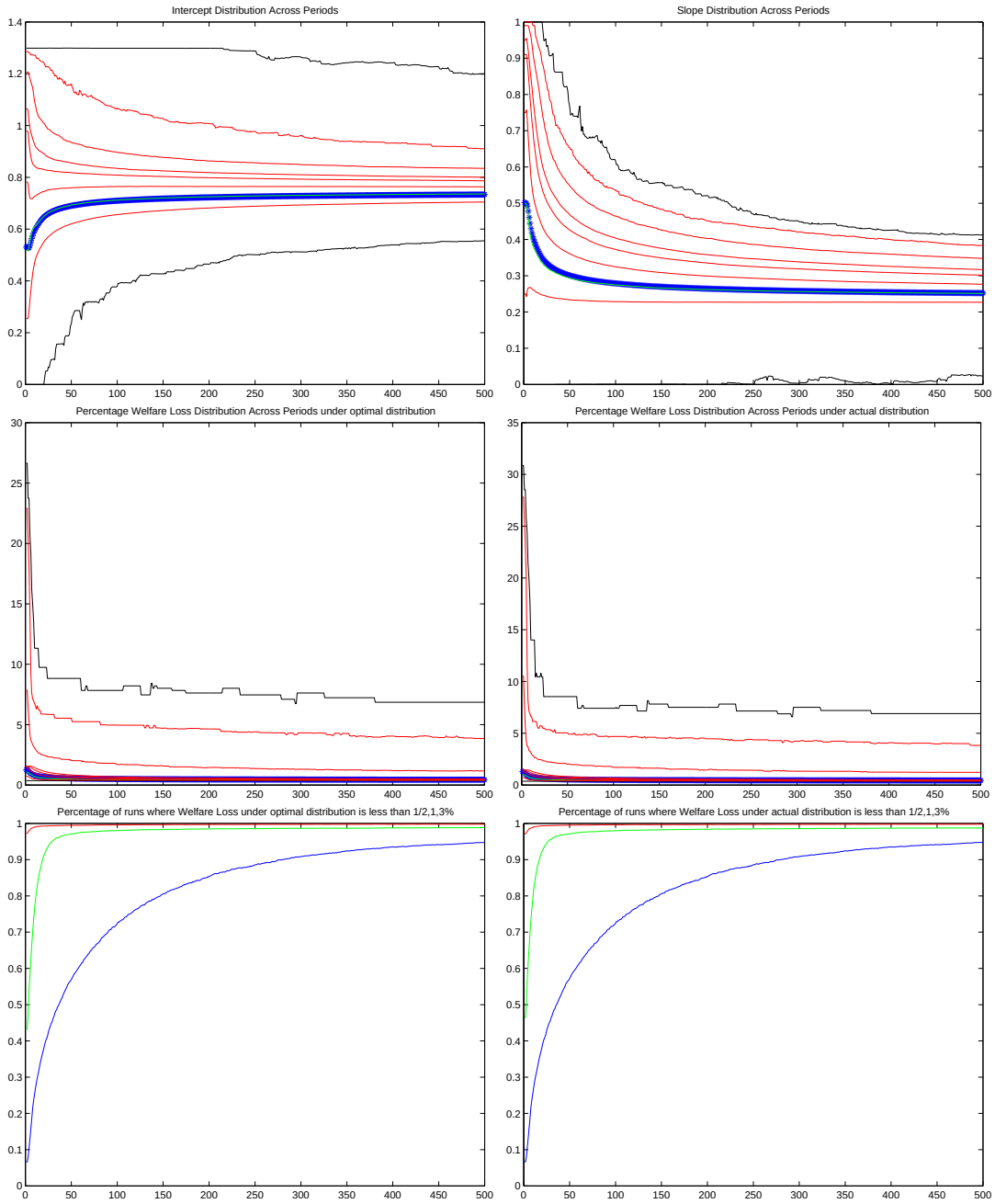

Figure 42: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 1.5$, $\beta = 0.95$ and the (CG') version of the algorithm.

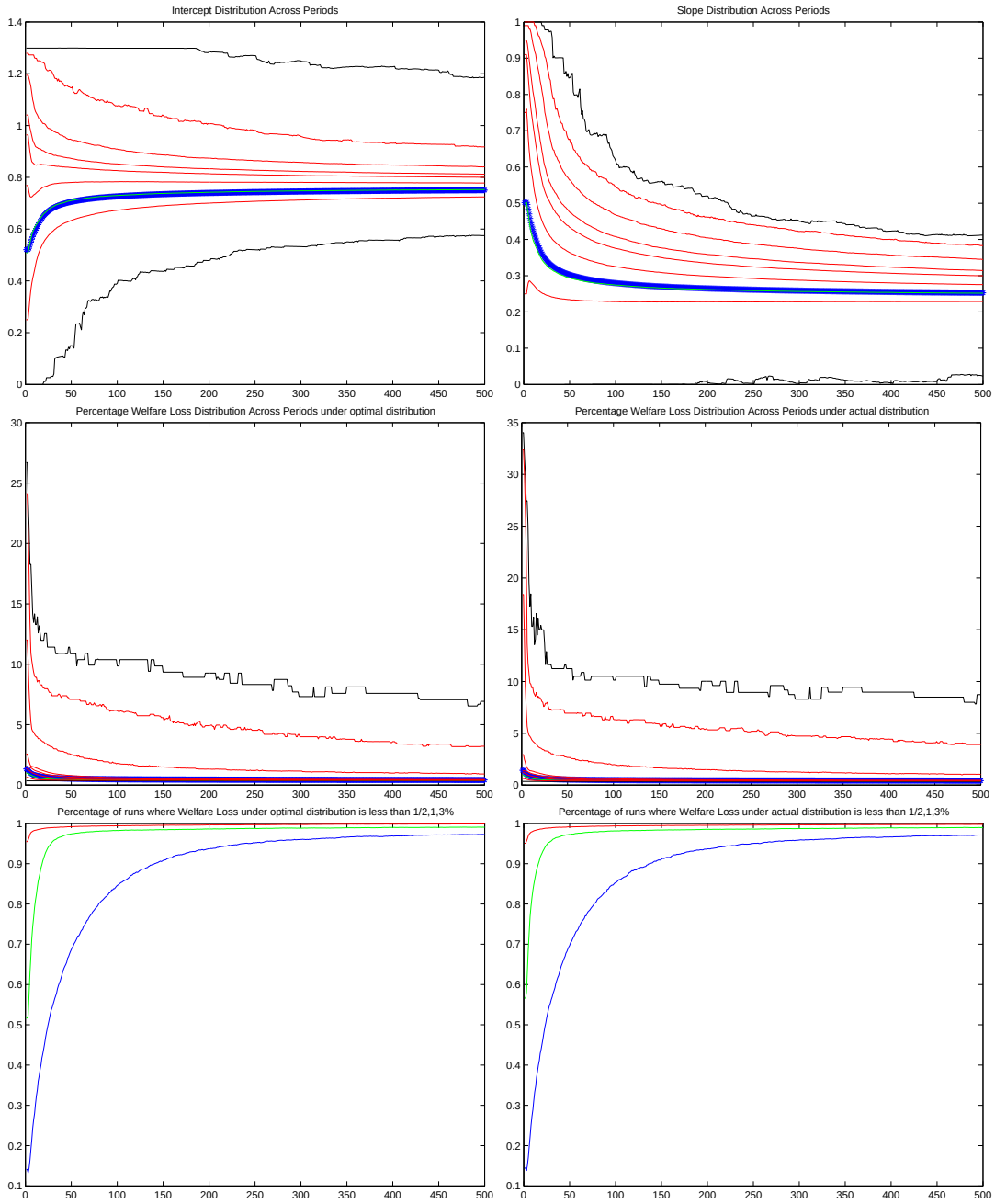

Figure 43: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 2$, $\beta = 0.9$ and the (CG') version of the algorithm.

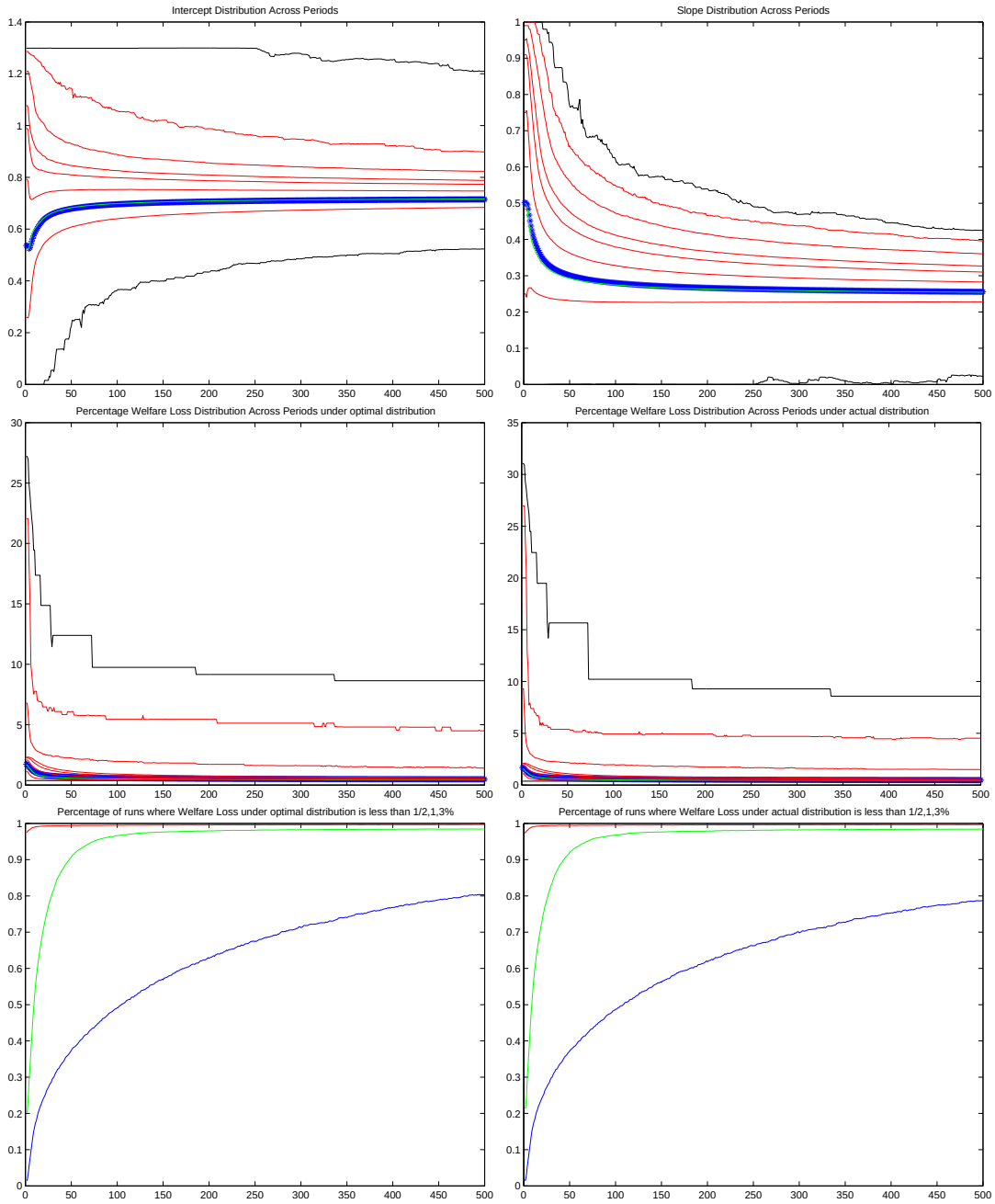

Figure 44: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 2$, $\beta = 0.95$ and the (CG') version of the algorithm.

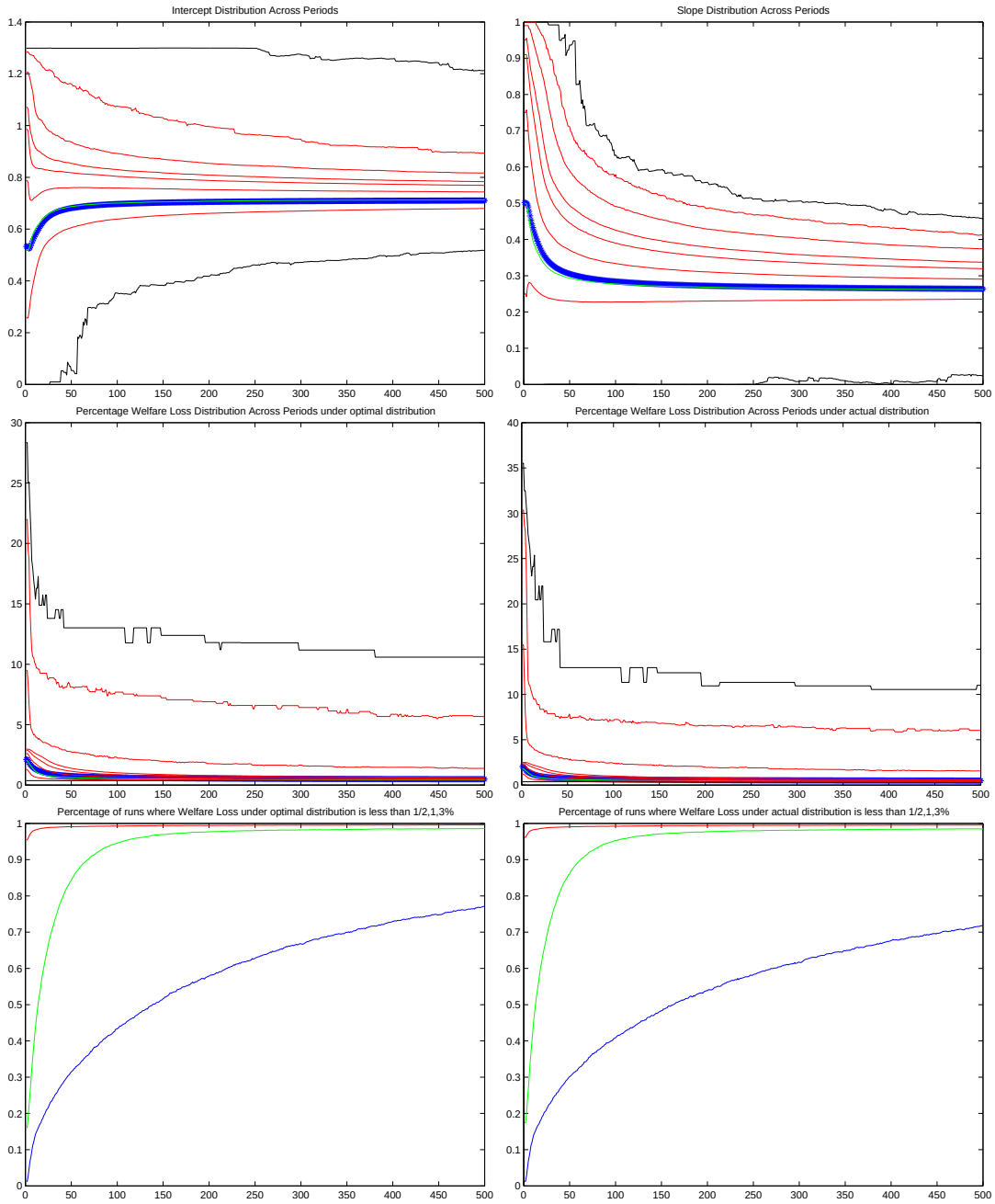

Figure 45: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3$, $\beta = 0.9$ and the (CG') version of the algorithm.

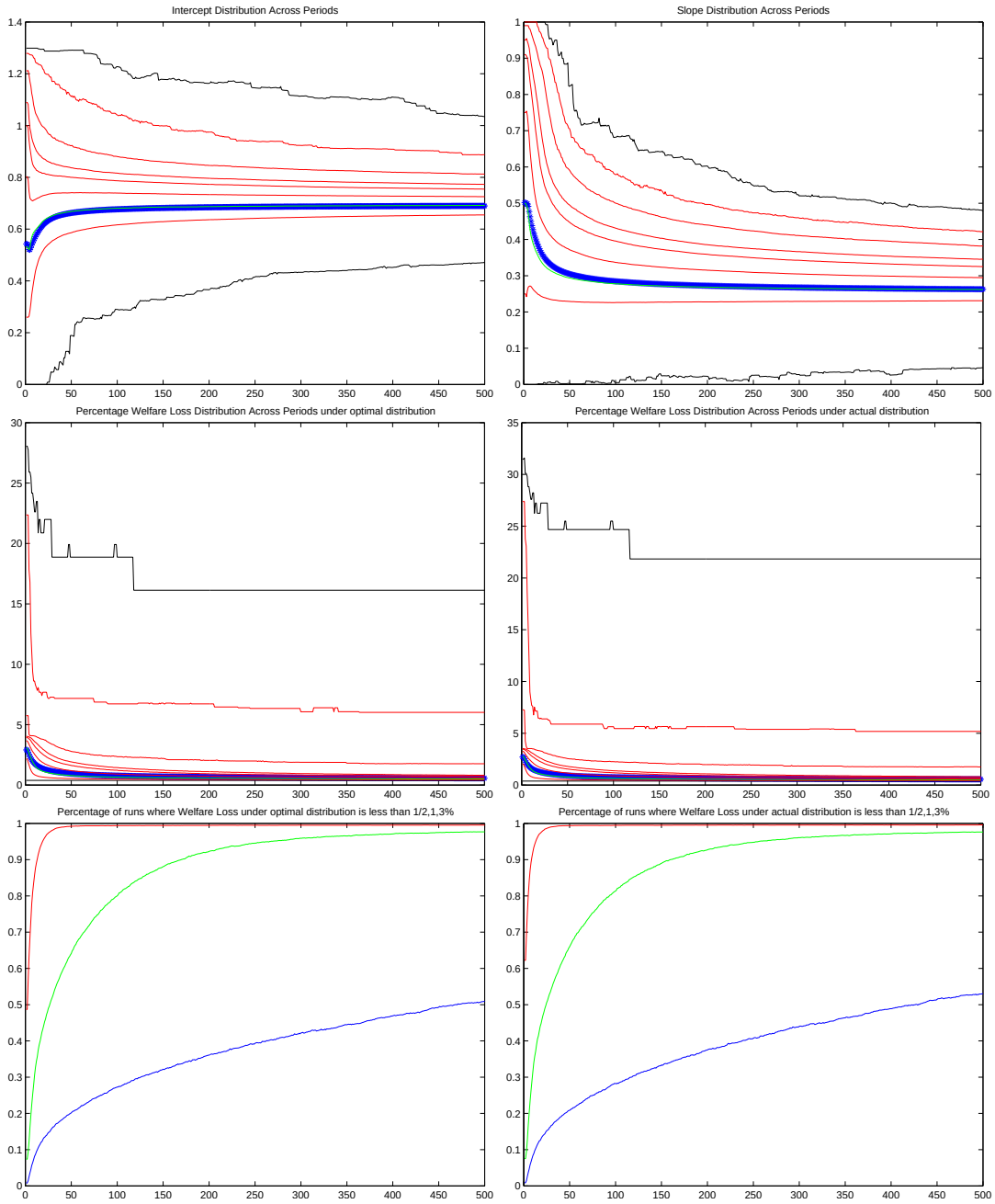

Figure 46: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3$, $\beta = 0.95$ and the (CG') version of the algorithm.

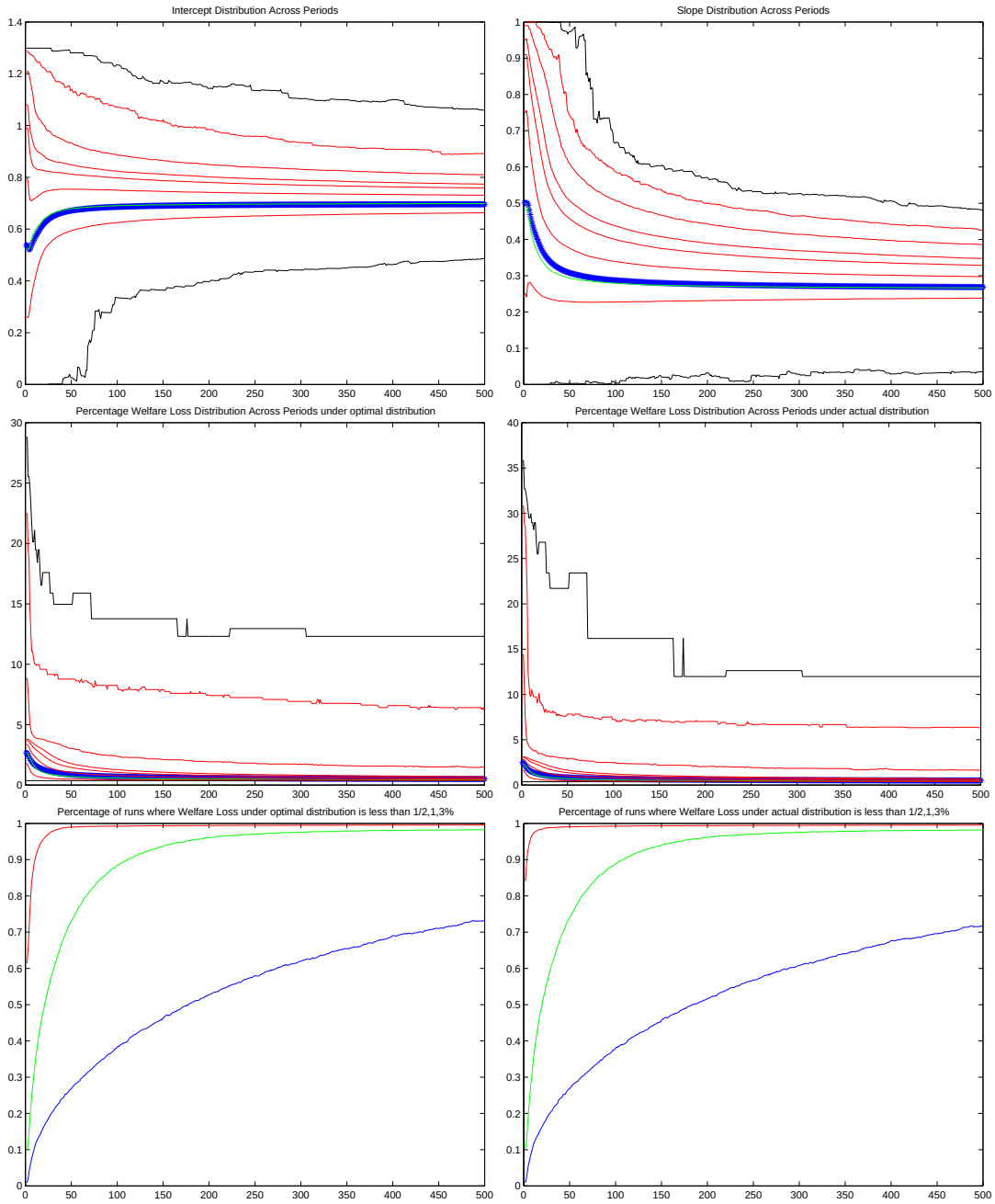

Figure 47: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3.5$, $\beta = 0.9$ and the (CG') version of the algorithm.

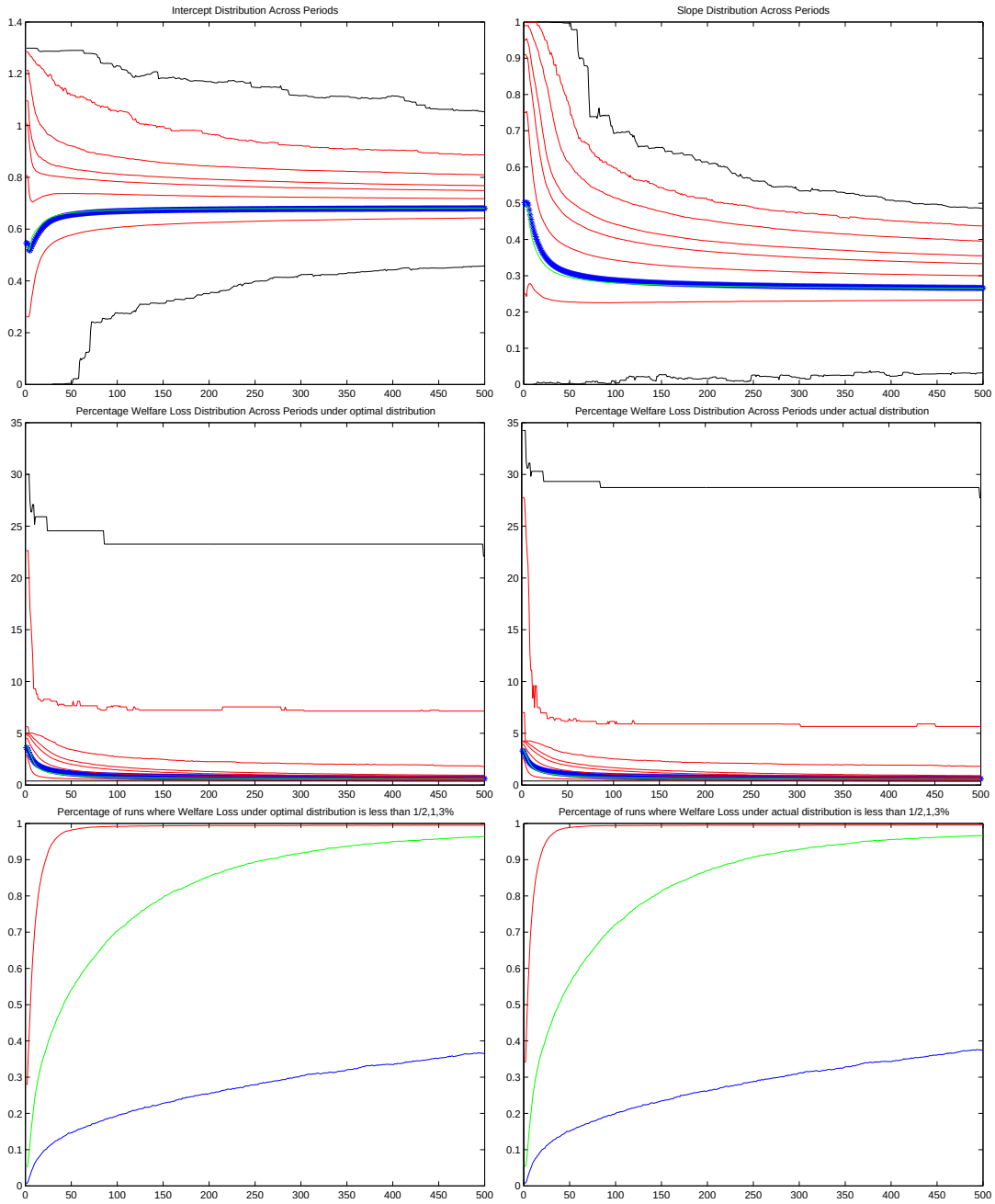

Figure 48: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3.5$, $\beta = 0.95$ and the (CG') version of the algorithm.

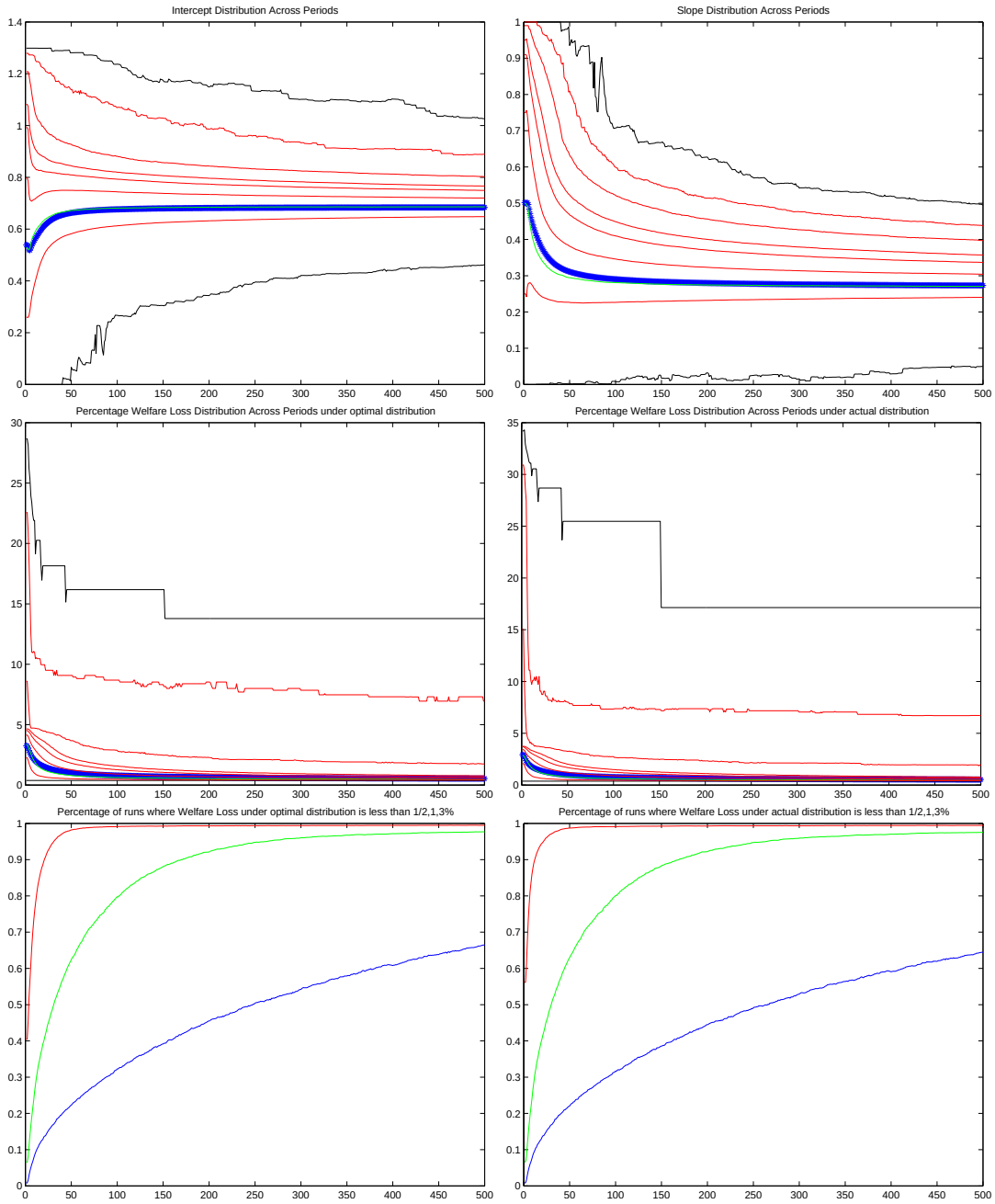

Figure 49: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 4$, $\beta = 0.9$ and the (CG') version of the algorithm.

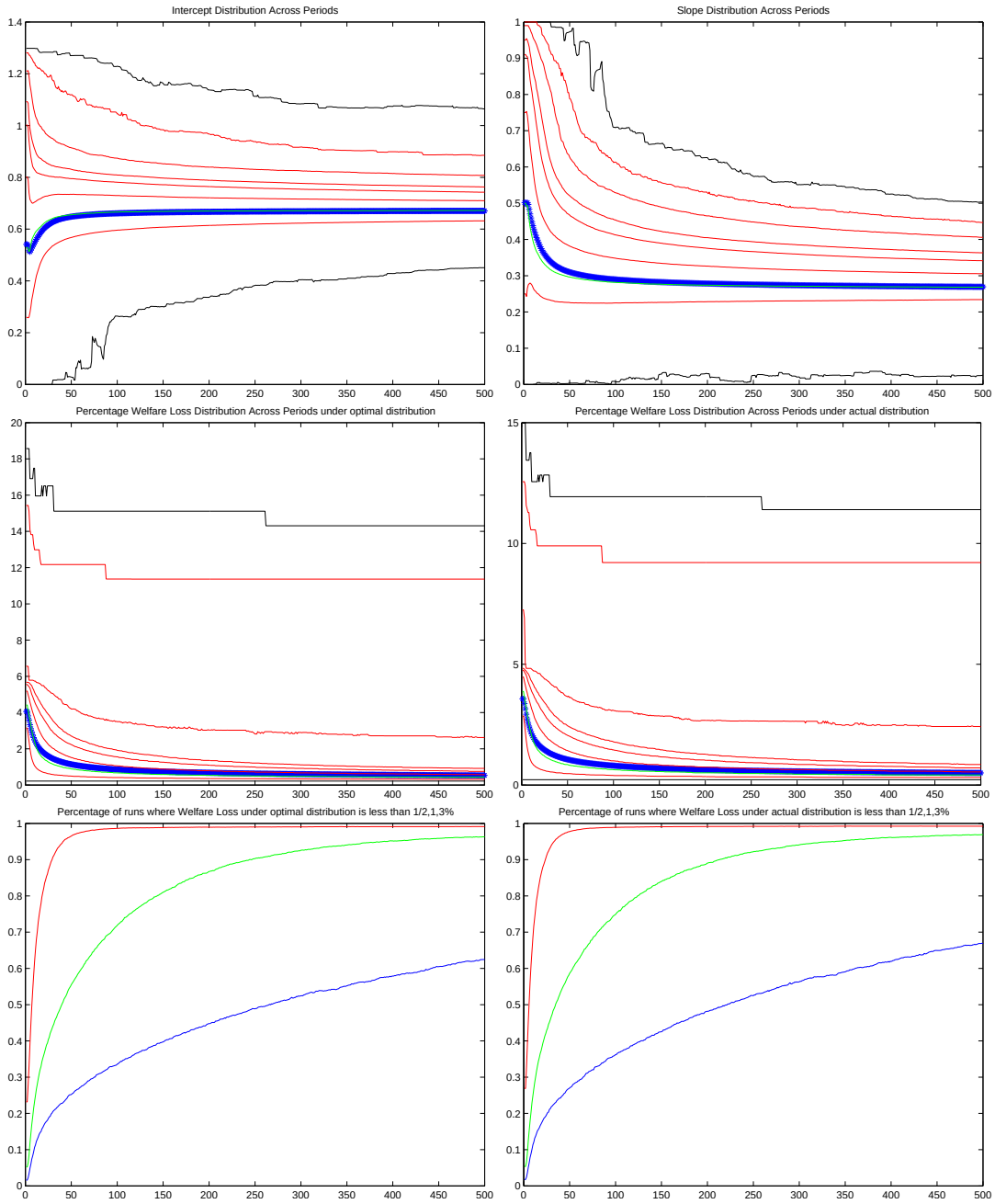

Figure 50: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 4$, $\beta = 0.95$ and the (CG') version of the algorithm.

1.4 $(\epsilon, \delta, \xi) = (0.2, 0.5, 1)$

Table 8: Probability of D^* or D^t below 1/2 at different periods for (CG').

		$t = 0$		$t = 50$		$t = 100$		$t = 250$		$t = 500$	
β	θ	D^*	D^t	D^*	D^t	D^*	D^t	D^*	D^t	D^*	D^t
0.9	1.5	0.2863	0.2950	0.6850	0.6984	0.6778	0.6912	0.6796	0.6918	0.6805	0.6941
	2.0	0.1410	0.1444	0.5235	0.5372	0.5303	0.5424	0.5273	0.5401	0.5251	0.5376
	3.0	0.0127	0.0127	0.3231	0.3166	0.3461	0.3398	0.3413	0.3346	0.3366	0.3316
	3.5	0.0104	0.0107	0.2315	0.2261	0.3690	0.3589	0.4062	0.3980	0.4046	0.3949
	4.0	0.0082	0.0084	0.2665	0.2665	0.2877	0.2875	0.2909	0.2893	0.2884	0.2888
0.95	1.5	0.0659	0.0667	0.5920	0.5964	0.6127	0.6172	0.6082	0.6132	0.6079	0.6118
	2.0	0.0155	0.0155	0.4565	0.4560	0.4854	0.4837	0.4801	0.4796	0.4823	0.4809
	3.0	0.0080	0.0086	0.3085	0.3163	0.3455	0.3539	0.3418	0.3481	0.3467	0.3539
	3.5	0.0075	0.0079	0.2549	0.2627	0.2893	0.2981	0.2922	0.3	0.2933	0.3011
	4.0	0.0159	0.0176	0.4568	0.4788	0.5188	0.5363	0.5283	0.5476	0.5243	0.5458

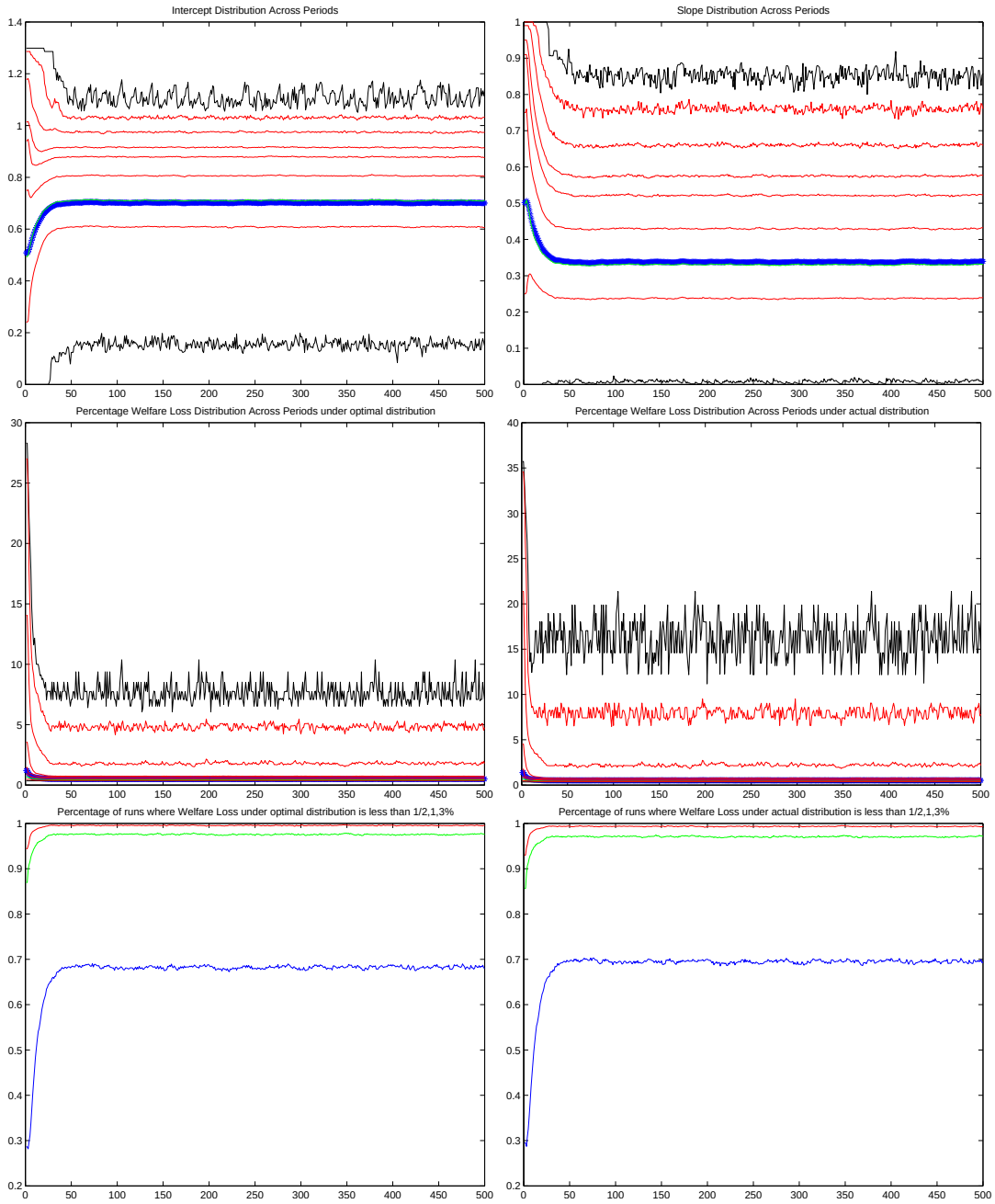

Figure 51: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 1.5$, $\beta = 0.9$ and the (CG') version of the algorithm.

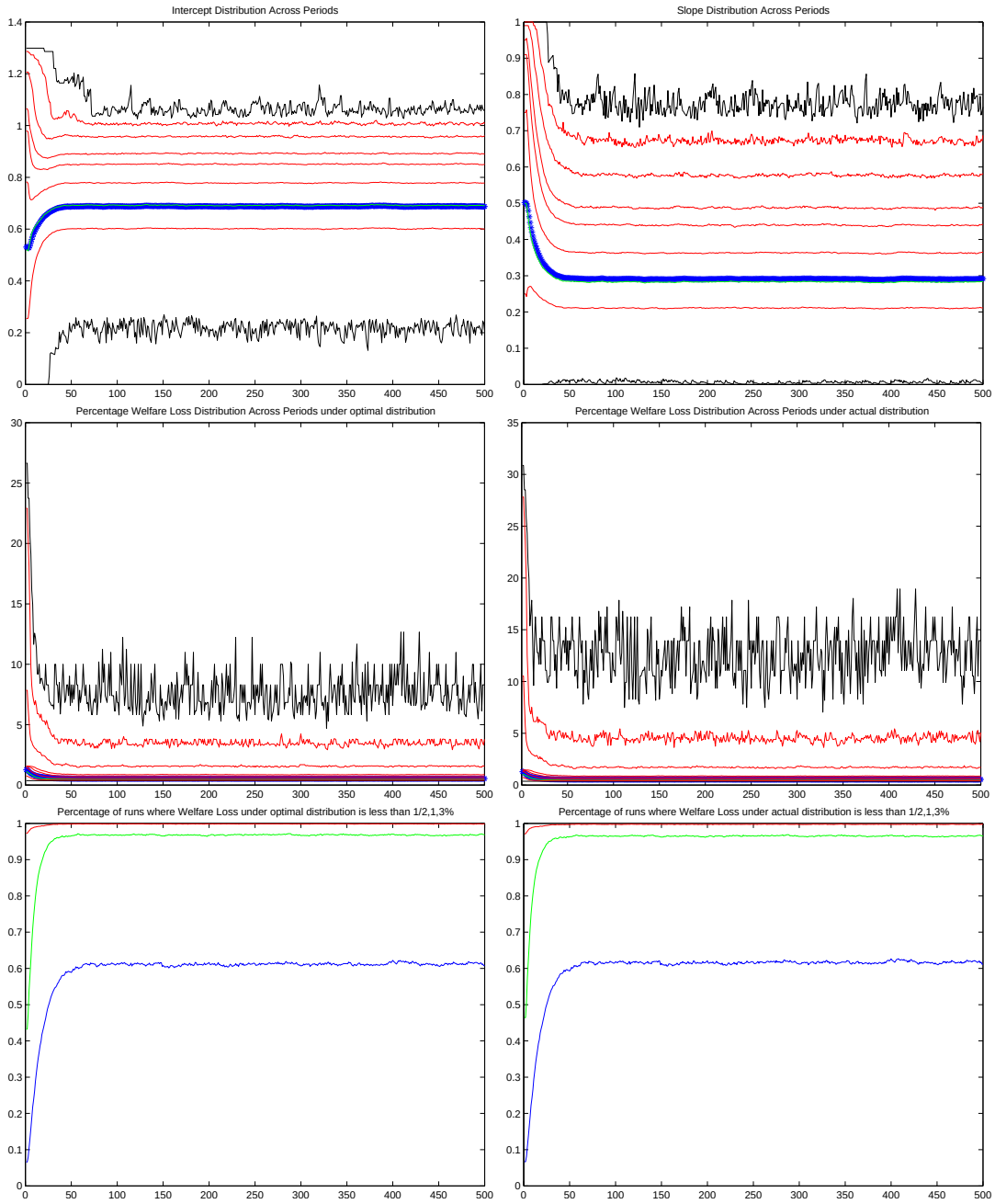

Figure 52: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 1.5$, $\beta = 0.95$ and the (CG') version of the algorithm.

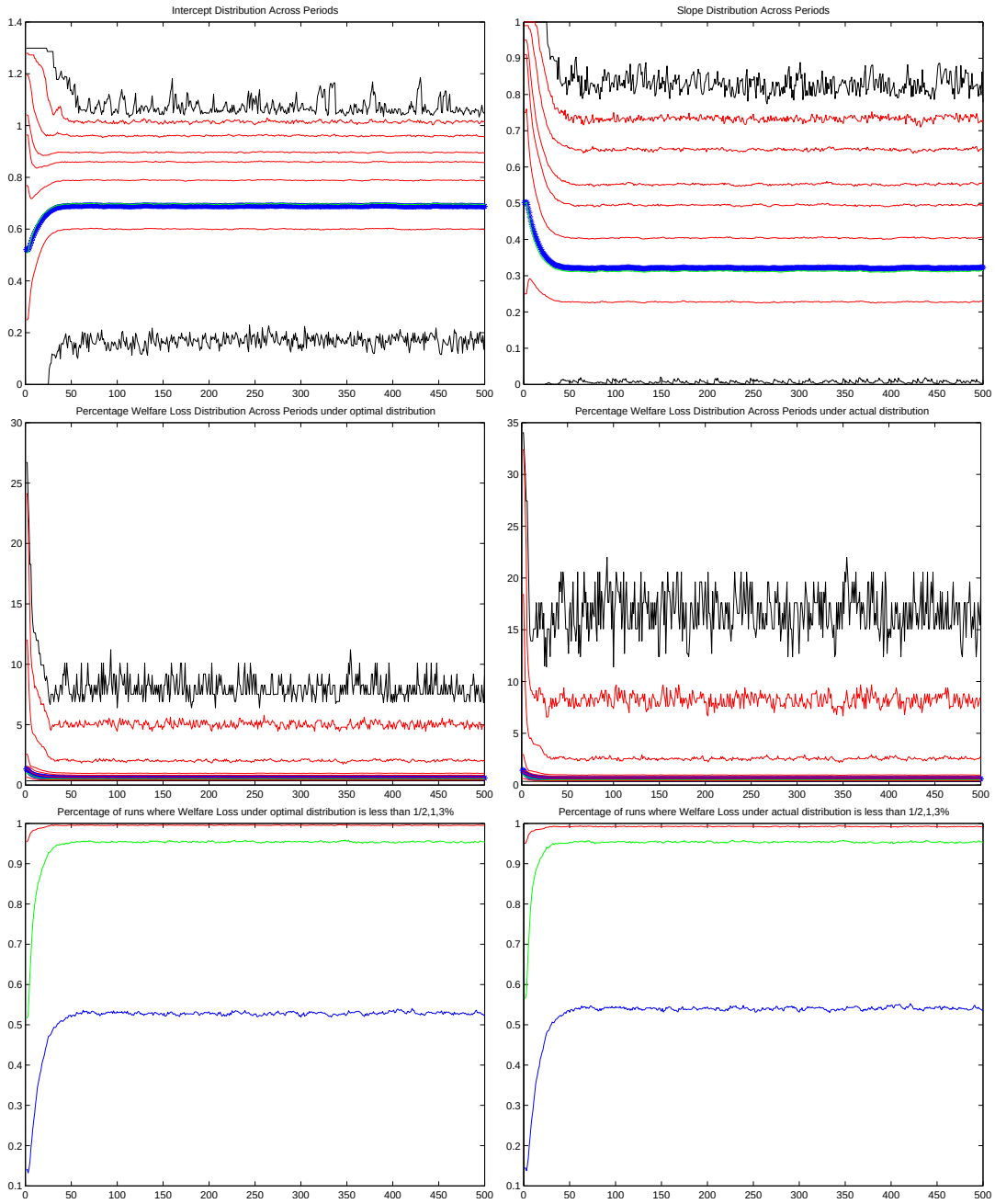

Figure 53: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 2$, $\beta = 0.9$ and the (CG') version of the algorithm.

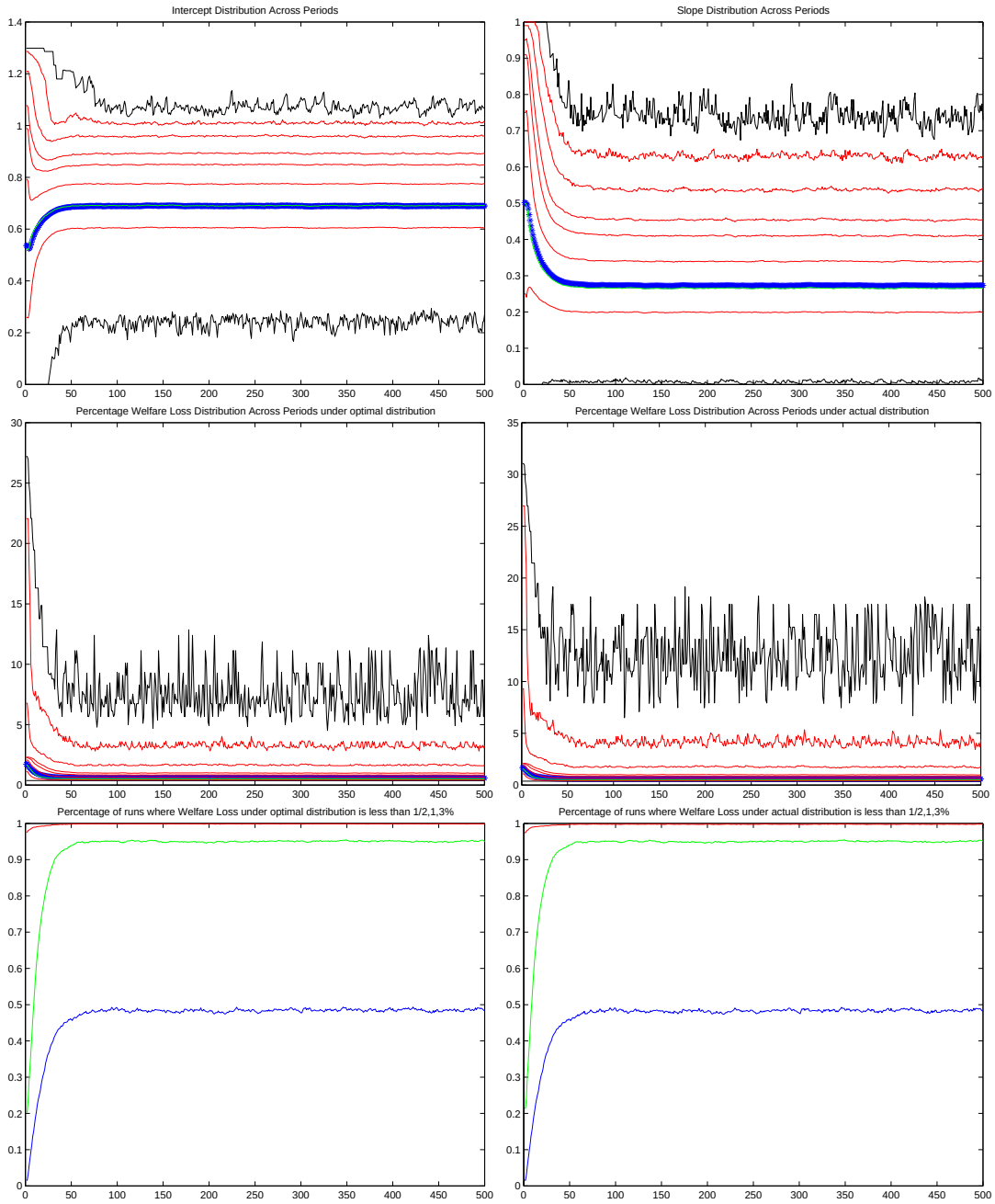

Figure 54: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 2$, $\beta = 0.95$ and the (CG') version of the algorithm.

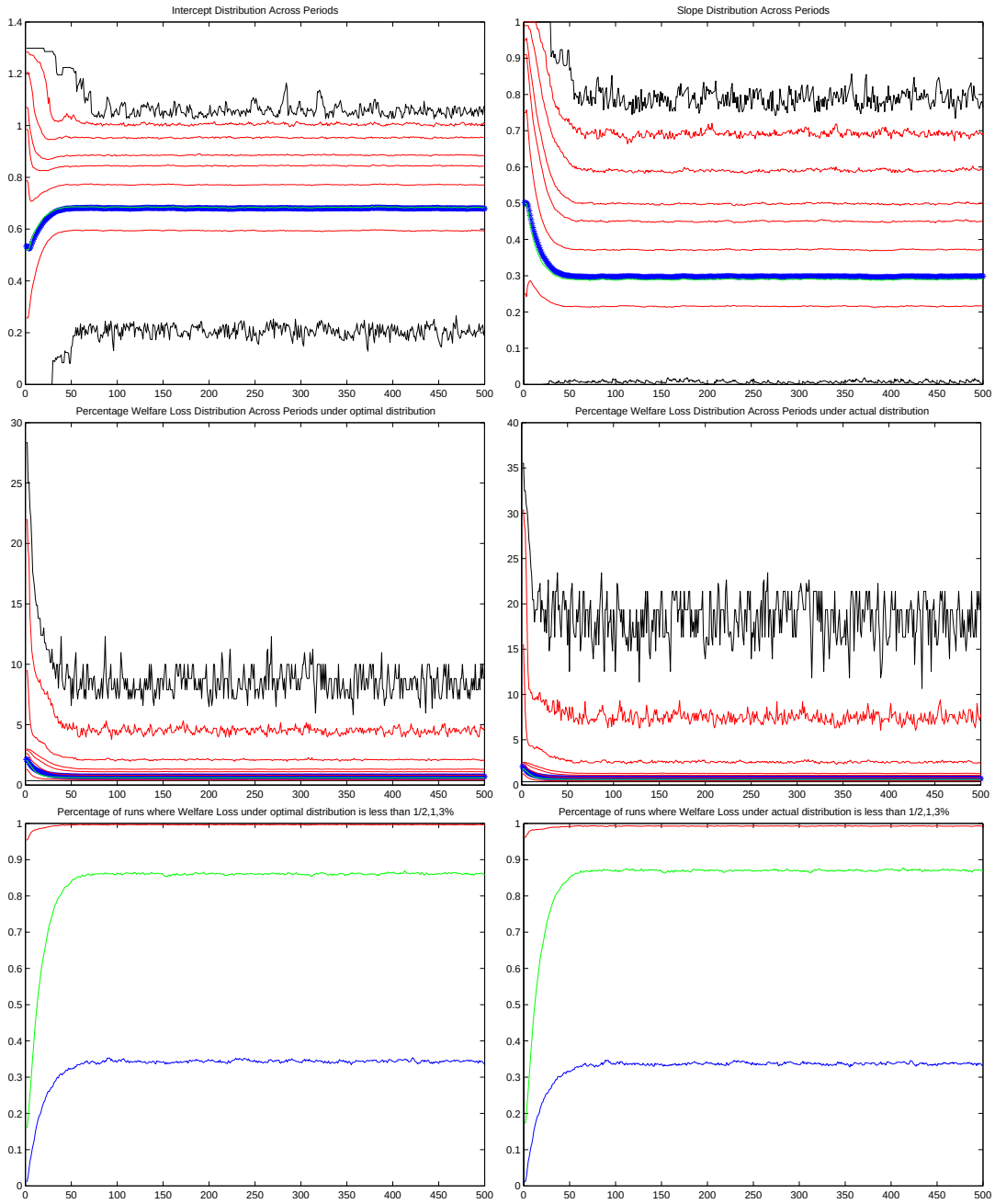

Figure 55: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3$, $\beta = 0.9$ and the (CG') version of the algorithm.

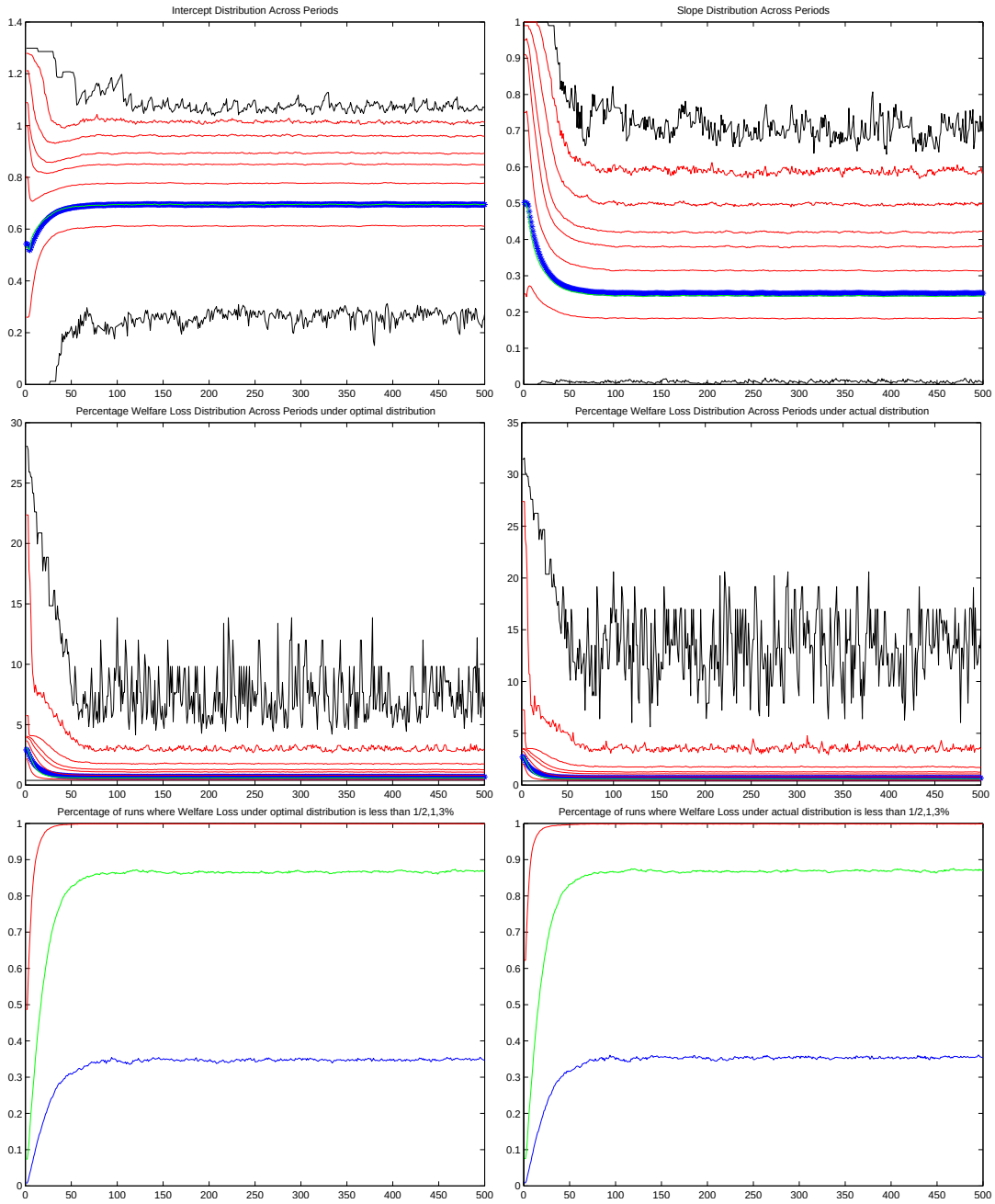

Figure 56: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3$, $\beta = 0.95$ and the (CG') version of the algorithm.

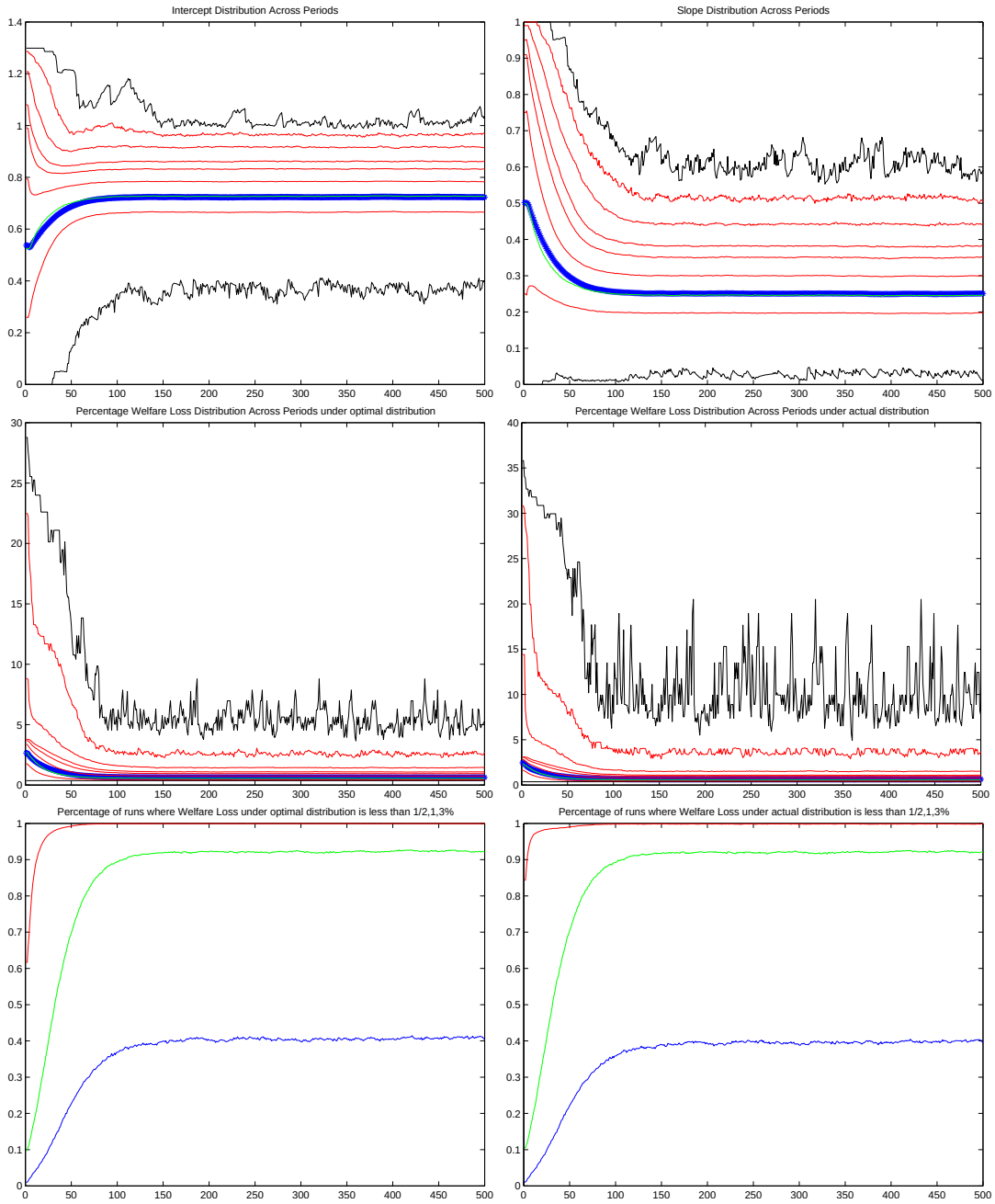

Figure 57: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3.5$, $\beta = 0.9$ and the (CG') version of the algorithm.

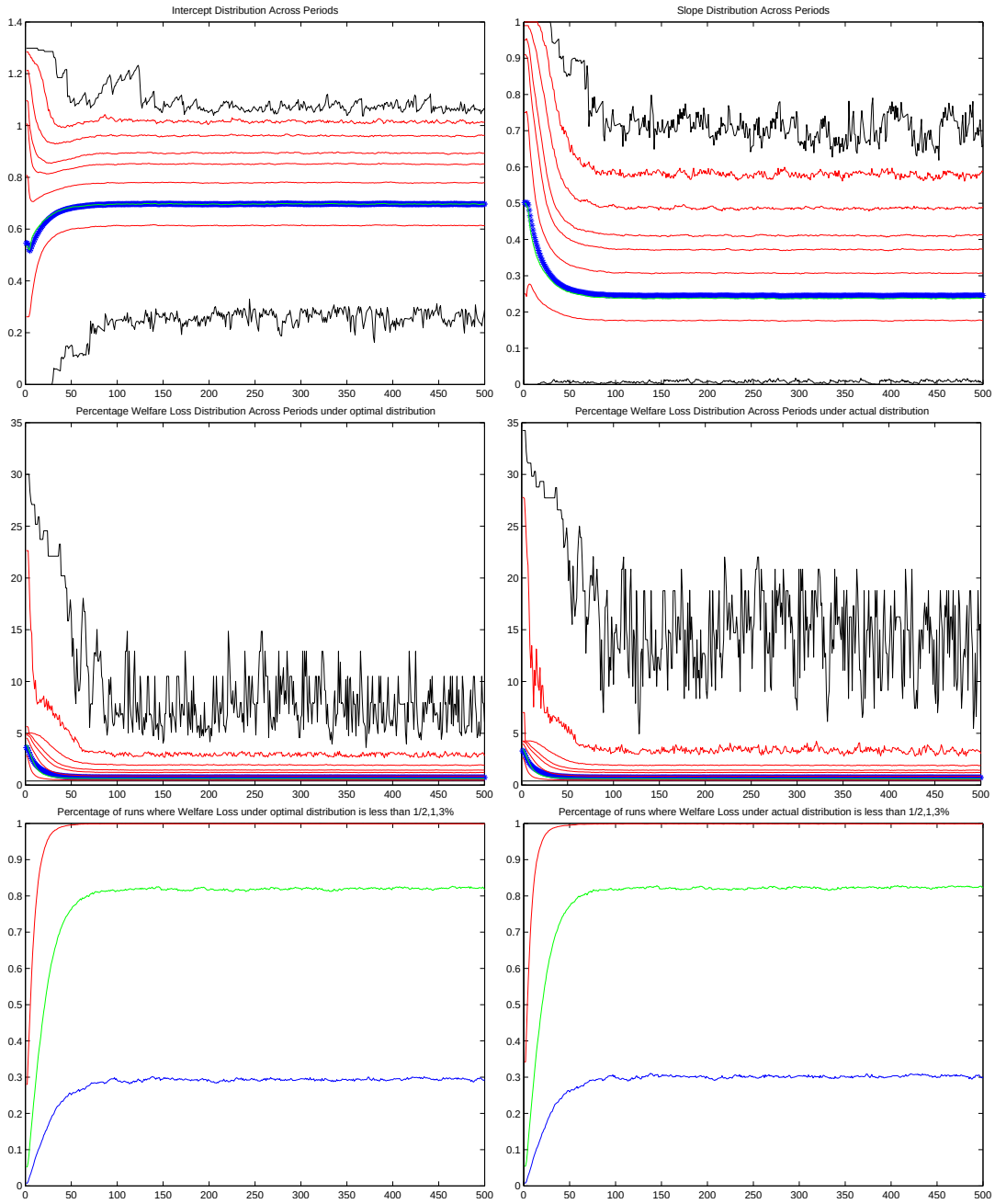

Figure 58: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3.5$, $\beta = 0.95$ and the (CG') version of the algorithm.

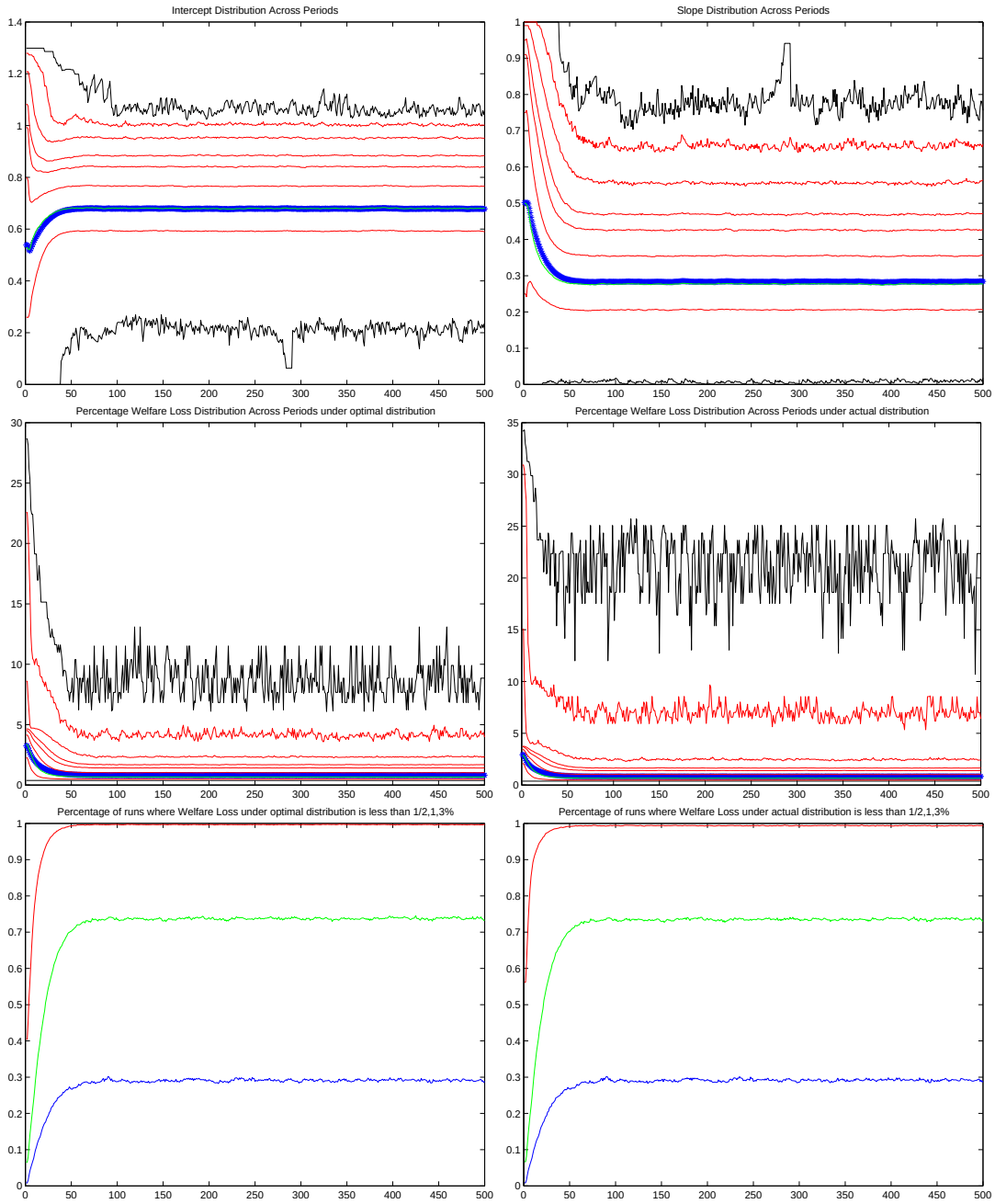

Figure 59: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 4$, $\beta = 0.9$ and the (CG') version of the algorithm.

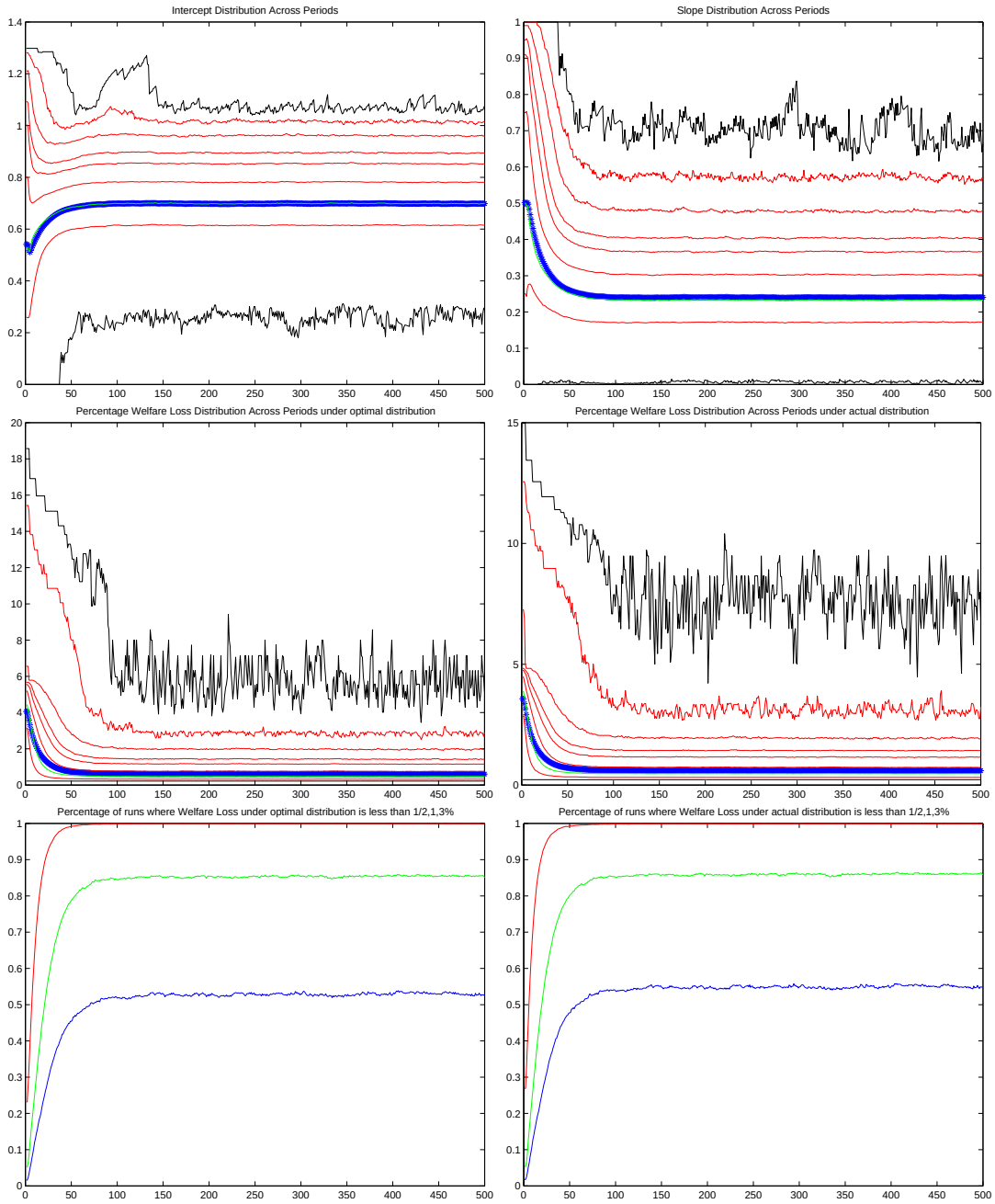

Figure 60: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 4$, $\beta = 0.95$ and the (CG') version of the algorithm.

1.5 $(\epsilon, \delta, \xi) = (0.2, 0.5, 0)$

Table 9: Probability of D^* or D^t below 1/2 at different periods for (CG').

		$t = 0$		$t = 50$		$t = 100$		$t = 250$		$t = 500$	
β	θ	D^*	D^t	D^*	D^t	D^*	D^t	D^*	D^t	D^*	D^t
0.9	1.5	0.2924	0.2963	0.6761	0.6748	0.6699	0.6690	0.6647	0.6639	0.6695	0.6687
	2.0	0.1503	0.1535	0.5160	0.5168	0.4989	0.4995	0.4951	0.4958	0.4976	0.4981
	3.0	0.0127	0.0127	0.2946	0.2844	0.2601	0.2483	0.2545	0.2422	0.2521	0.2407
	3.5	0.0104	0.0107	0.2649	0.2621	0.2349	0.2298	0.2180	0.2133	0.2201	0.2160
	4.0	0.0082	0.0084	0.2531	0.2465	0.2158	0.2062	0.2057	0.1966	0.1998	0.1897
0.95	1.5	0.0659	0.0667	0.5181	0.5204	0.4898	0.4920	0.4877	0.4897	0.4881	0.4899
	2.0	0.0155	0.0155	0.3947	0.3898	0.3599	0.3548	0.3460	0.3401	0.3507	0.3442
	3.0	0.0080	0.0086	0.2997	0.3003	0.2777	0.2732	0.2602	0.2547	0.2576	0.2532
	3.5	0.0075	0.0079	0.2730	0.2783	0.2497	0.2520	0.2284	0.2307	0.2223	0.2243
	4.0	0.0159	0.0176	0.4705	0.4804	0.4346	0.4354	0.4042	0.4042	0.4002	0.4002

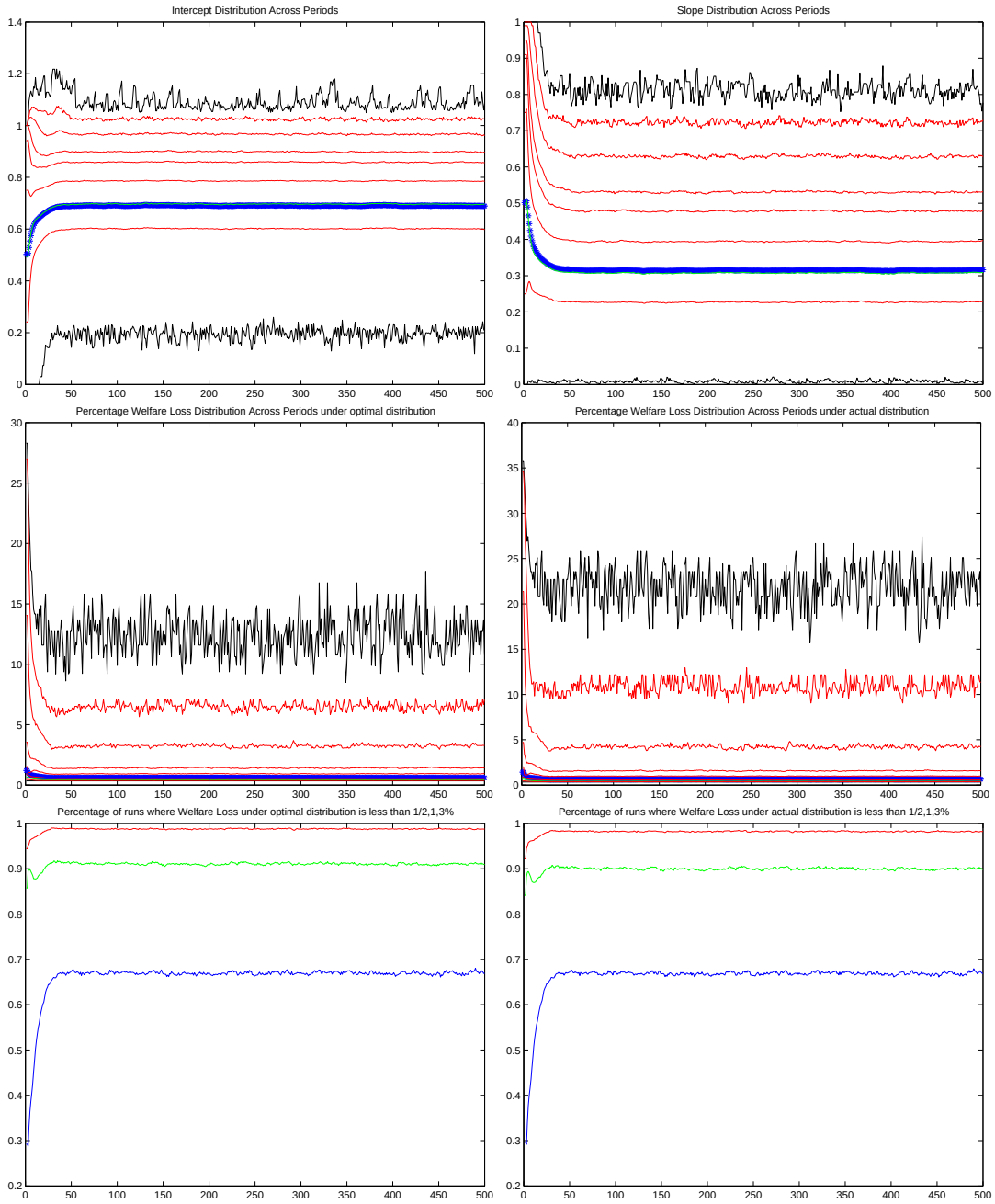

Figure 61: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 1.5$, $\beta = 0.9$ and the (CG') version of the algorithm.

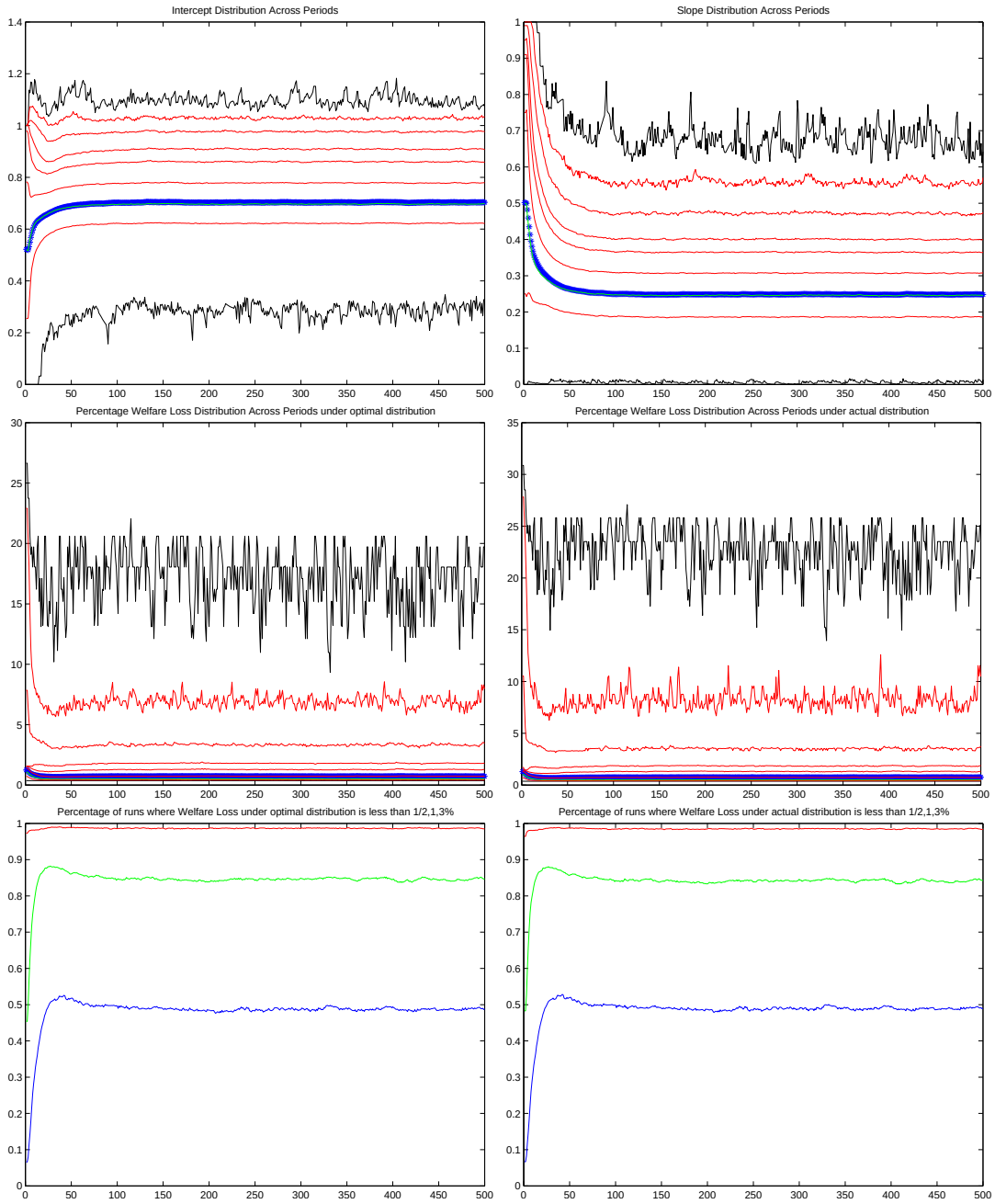

Figure 62: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 1.5$, $\beta = 0.95$ and the (CG') version of the algorithm.

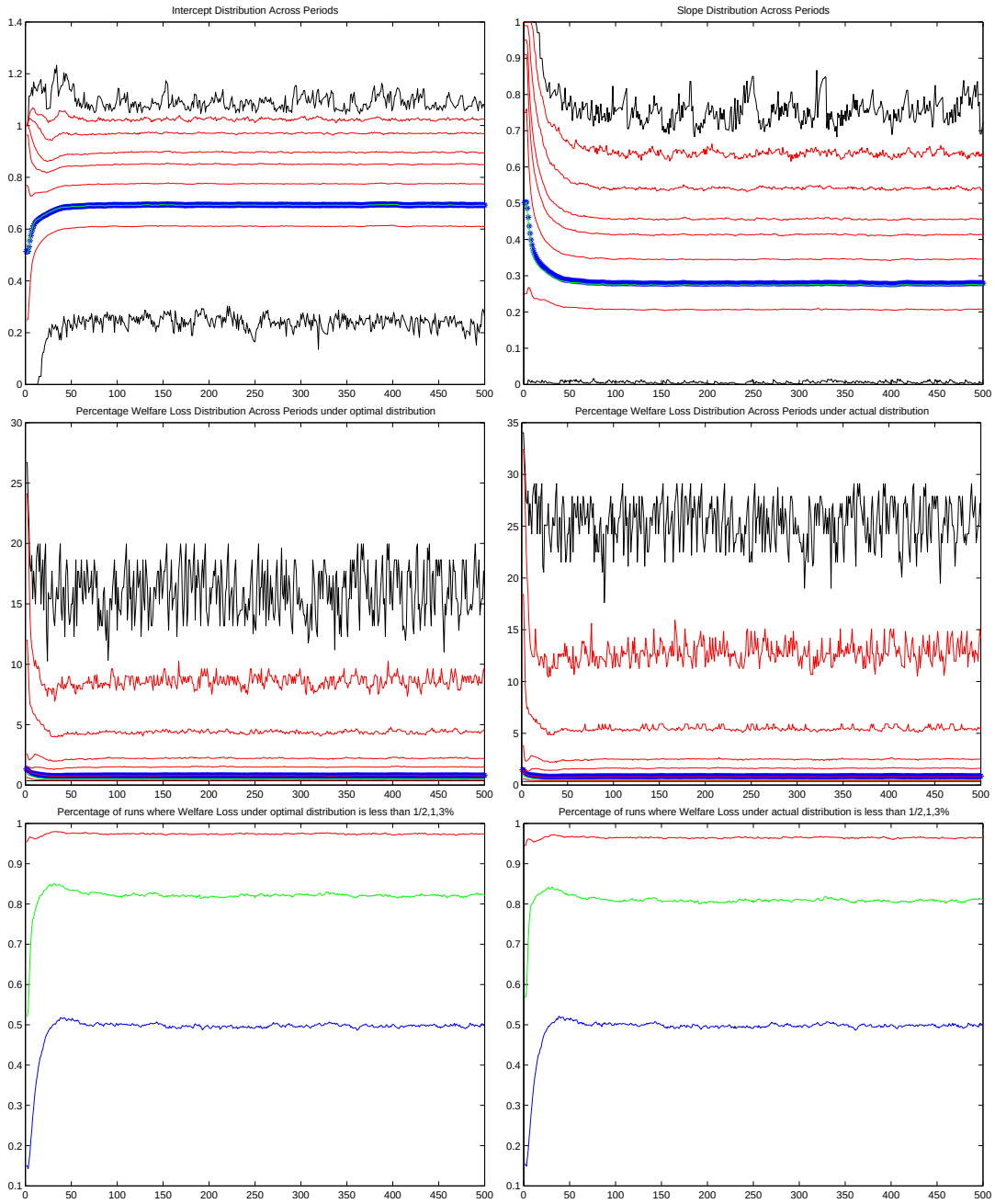

Figure 63: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 2$, $\beta = 0.9$ and the (CG') version of the algorithm.

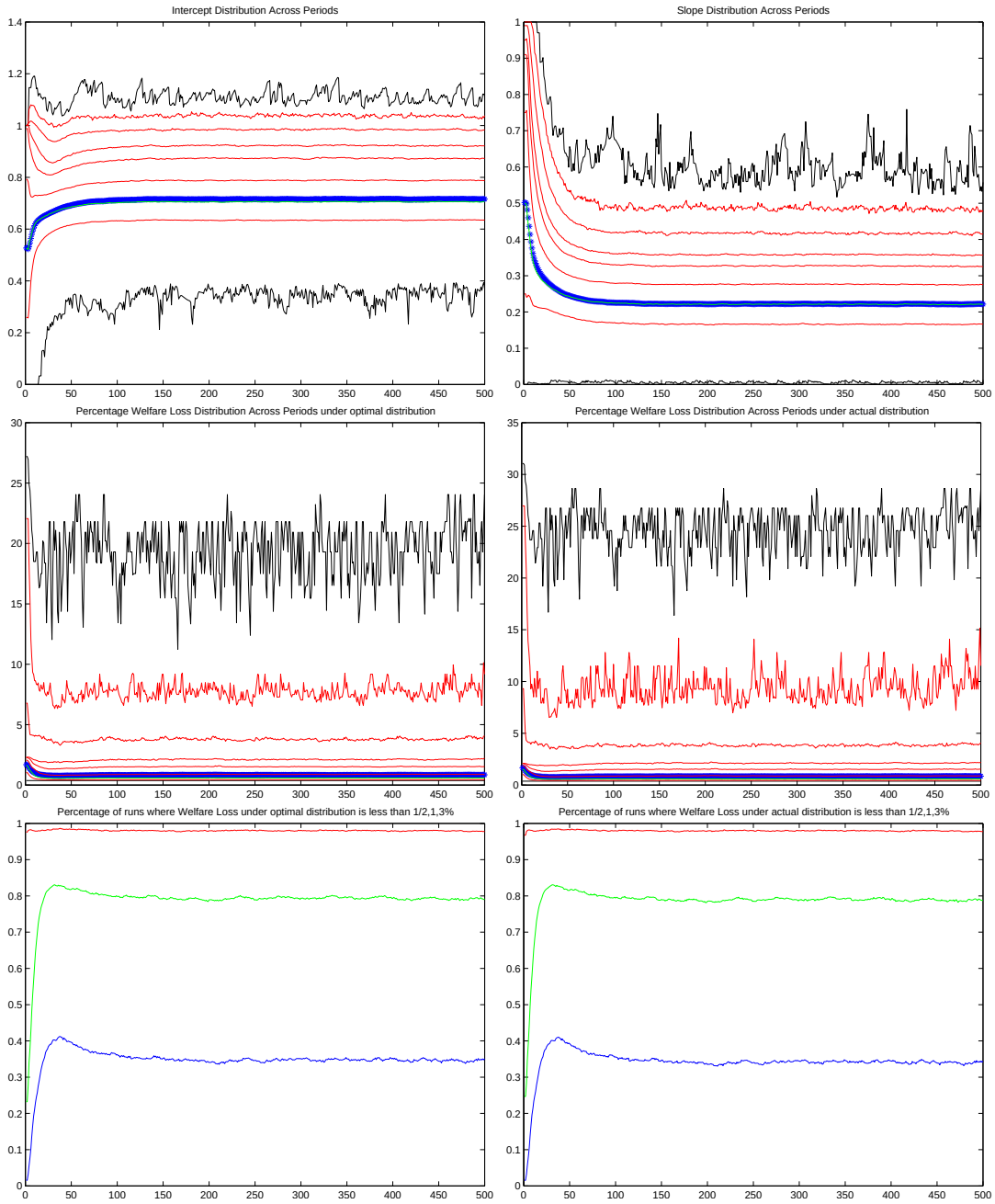

Figure 64: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 2$, $\beta = 0.95$ and the (CG') version of the algorithm.

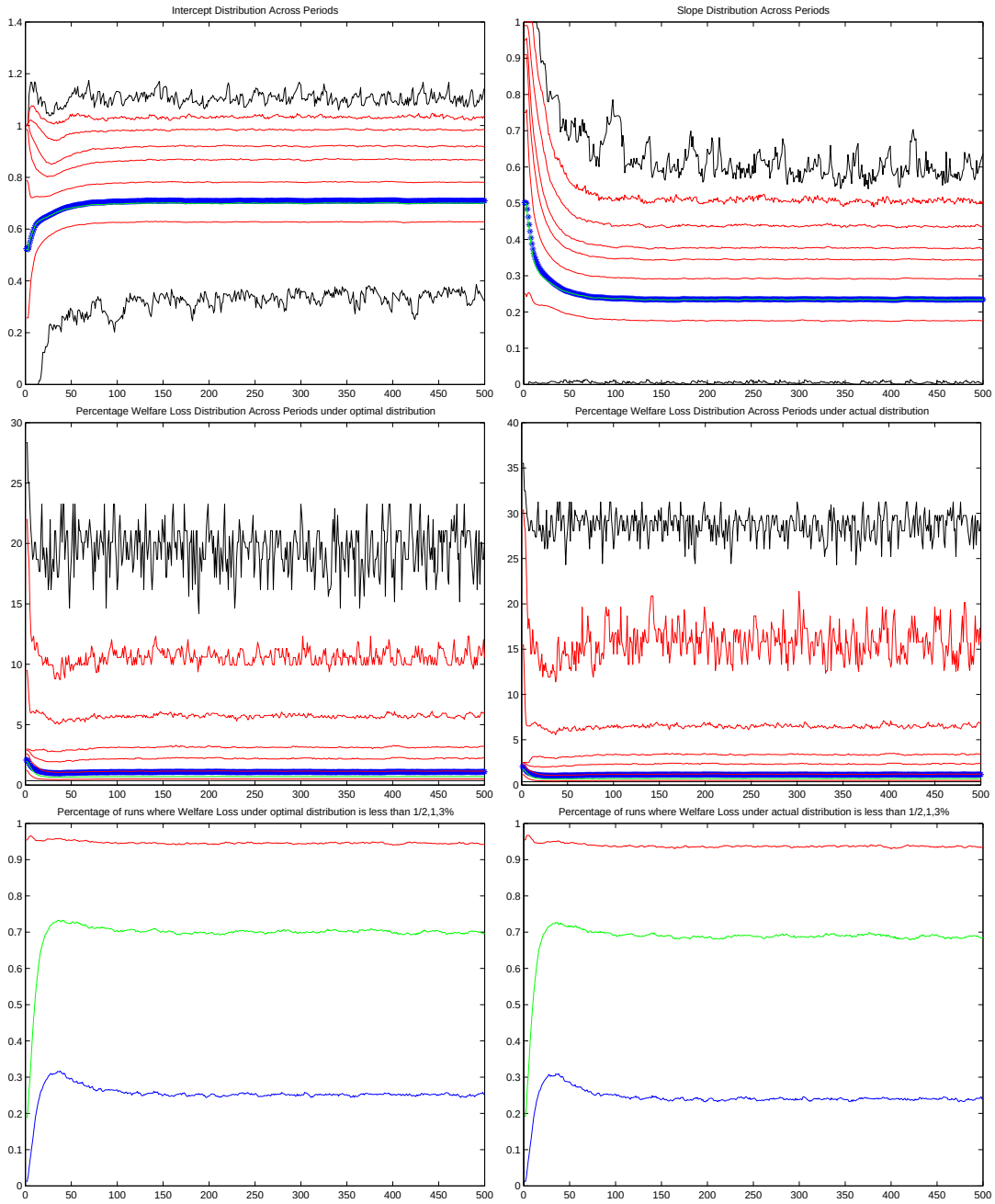

Figure 65: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3$, $\beta = 0.9$ and the (CG') version of the algorithm.

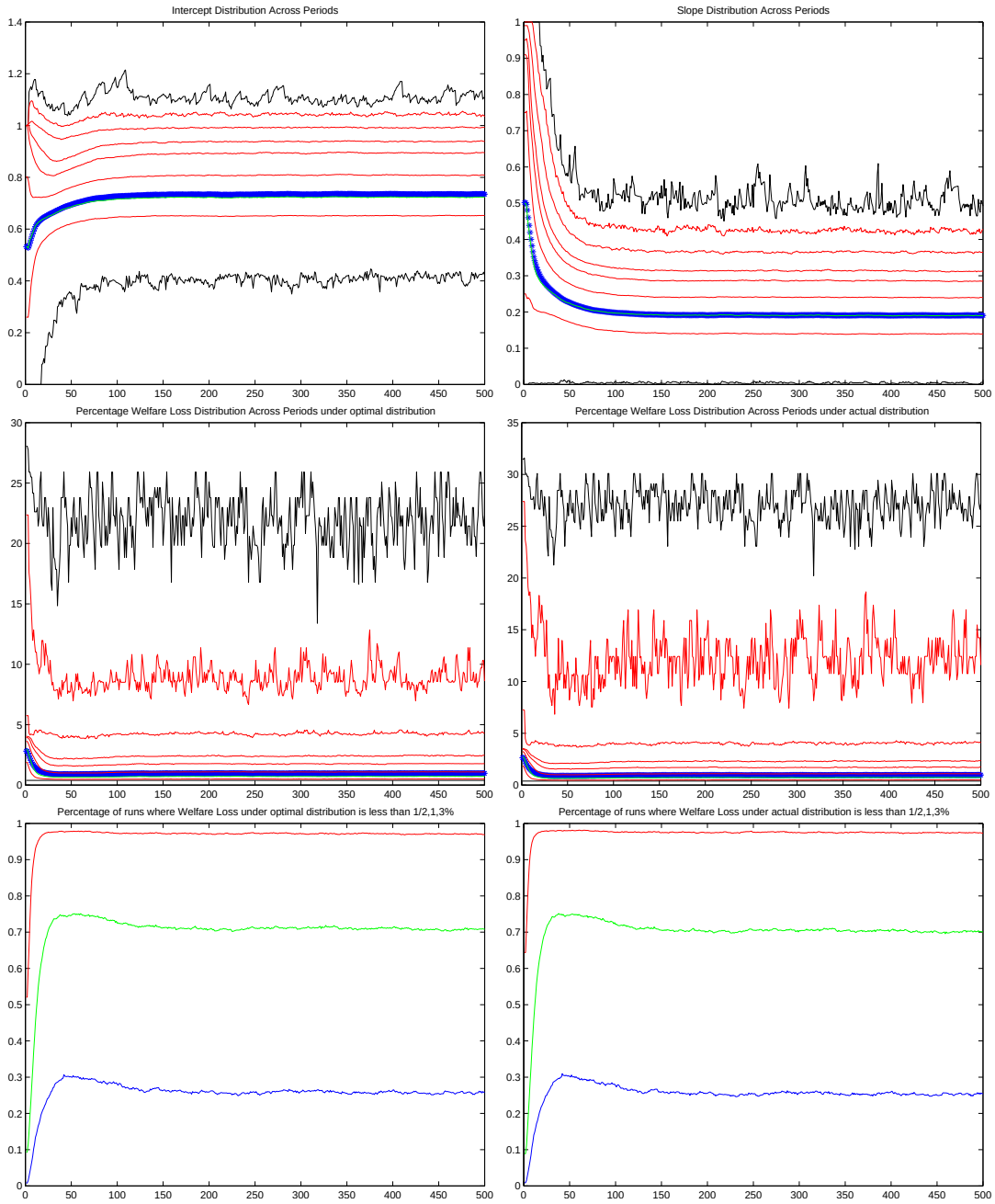

Figure 66: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3$, $\beta = 0.95$ and the (CG') version of the algorithm.

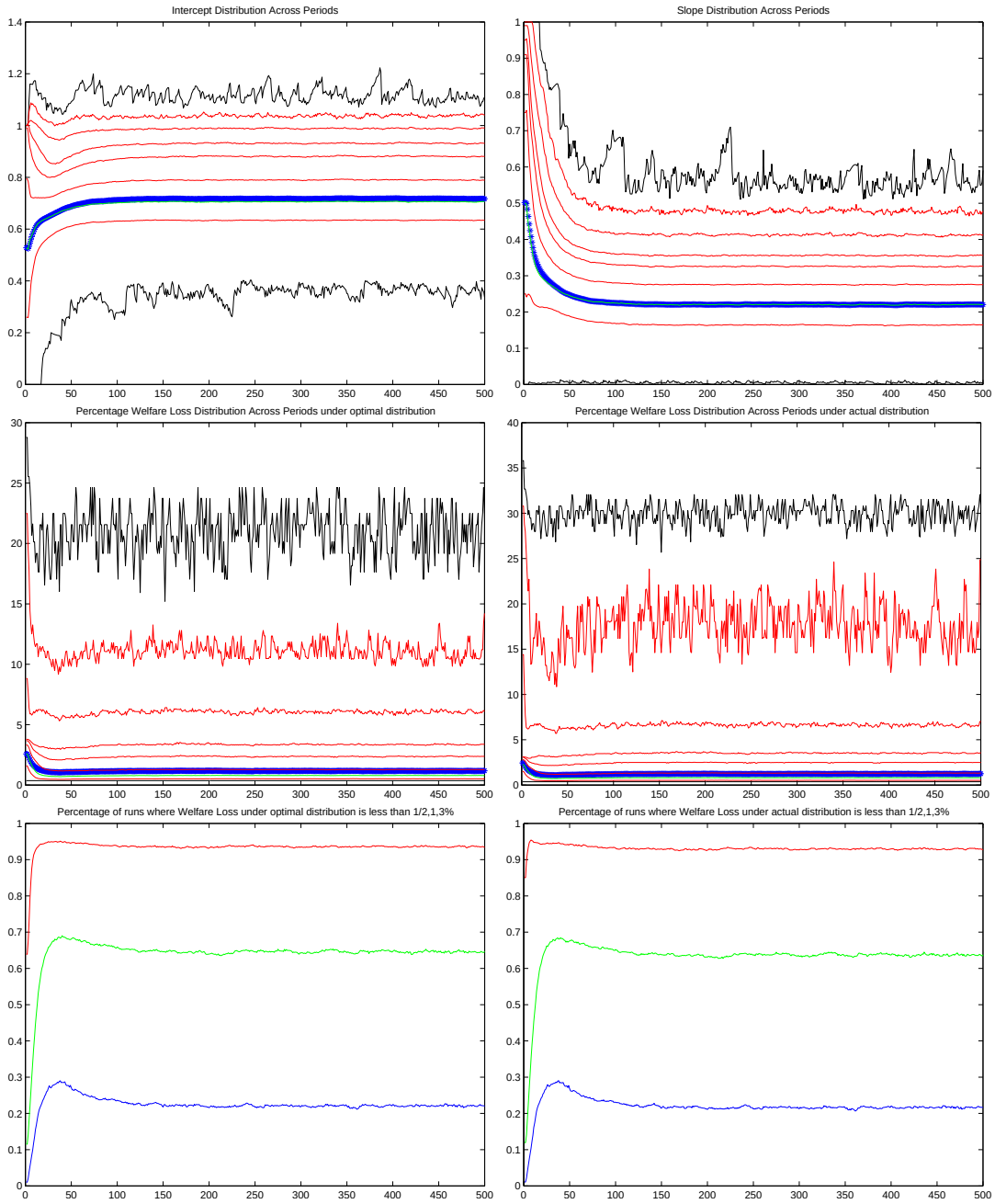

Figure 67: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3.5$, $\beta = 0.9$ and the (CG') version of the algorithm.

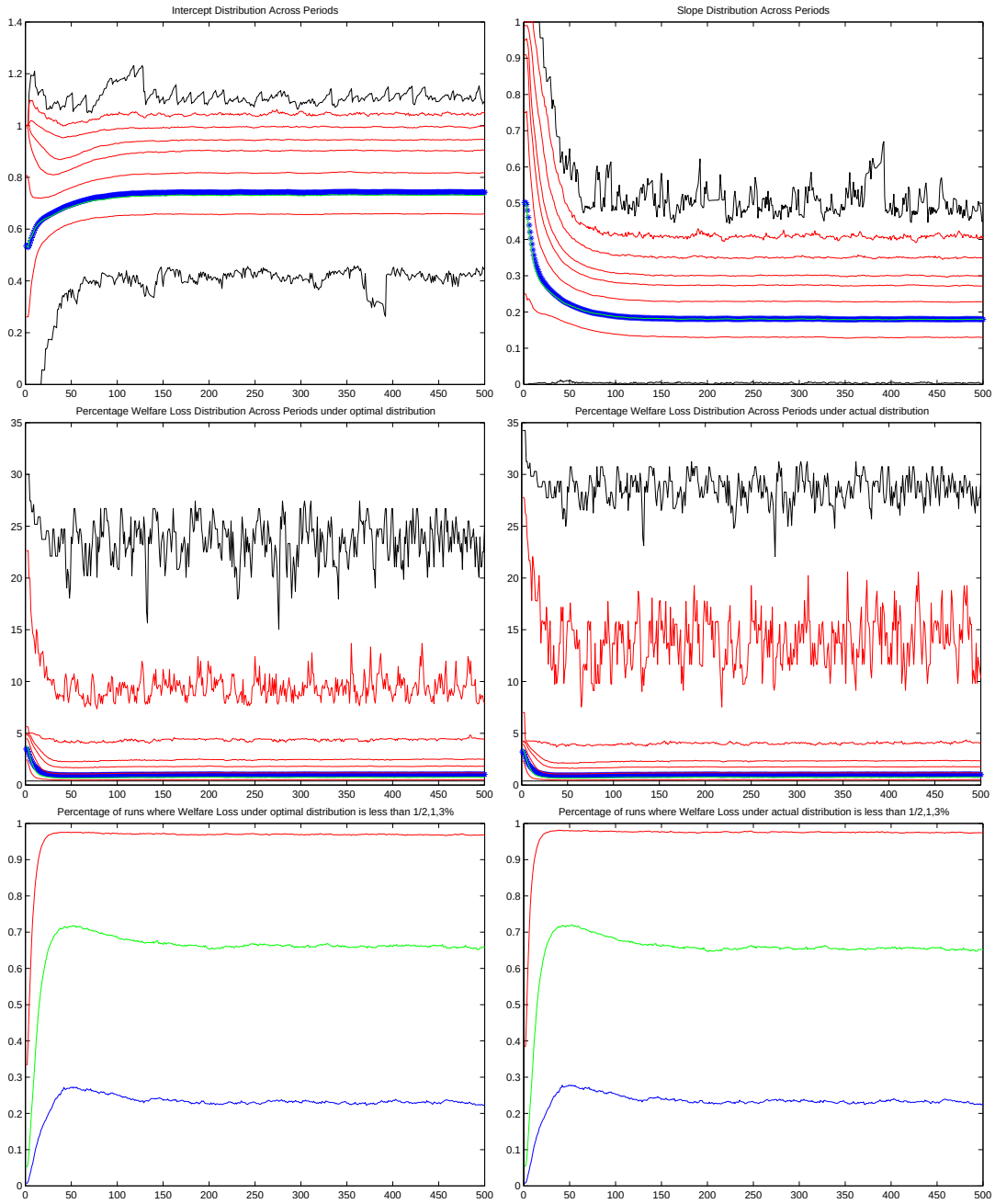

Figure 68: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3.5$, $\beta = 0.95$ and the (CG') version of the algorithm.

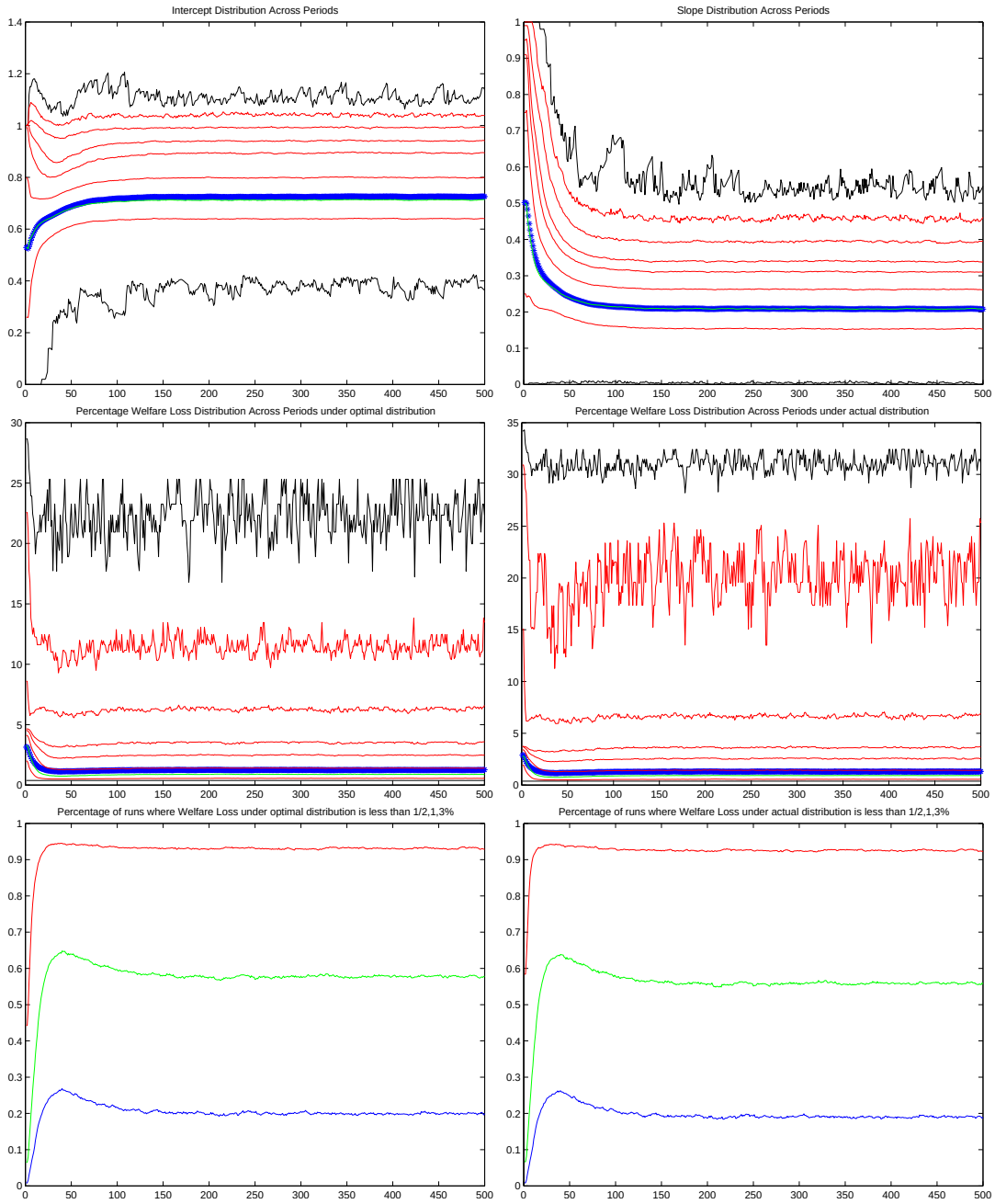

Figure 69: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 4$, $\beta = 0.9$ and the (CG') version of the algorithm.

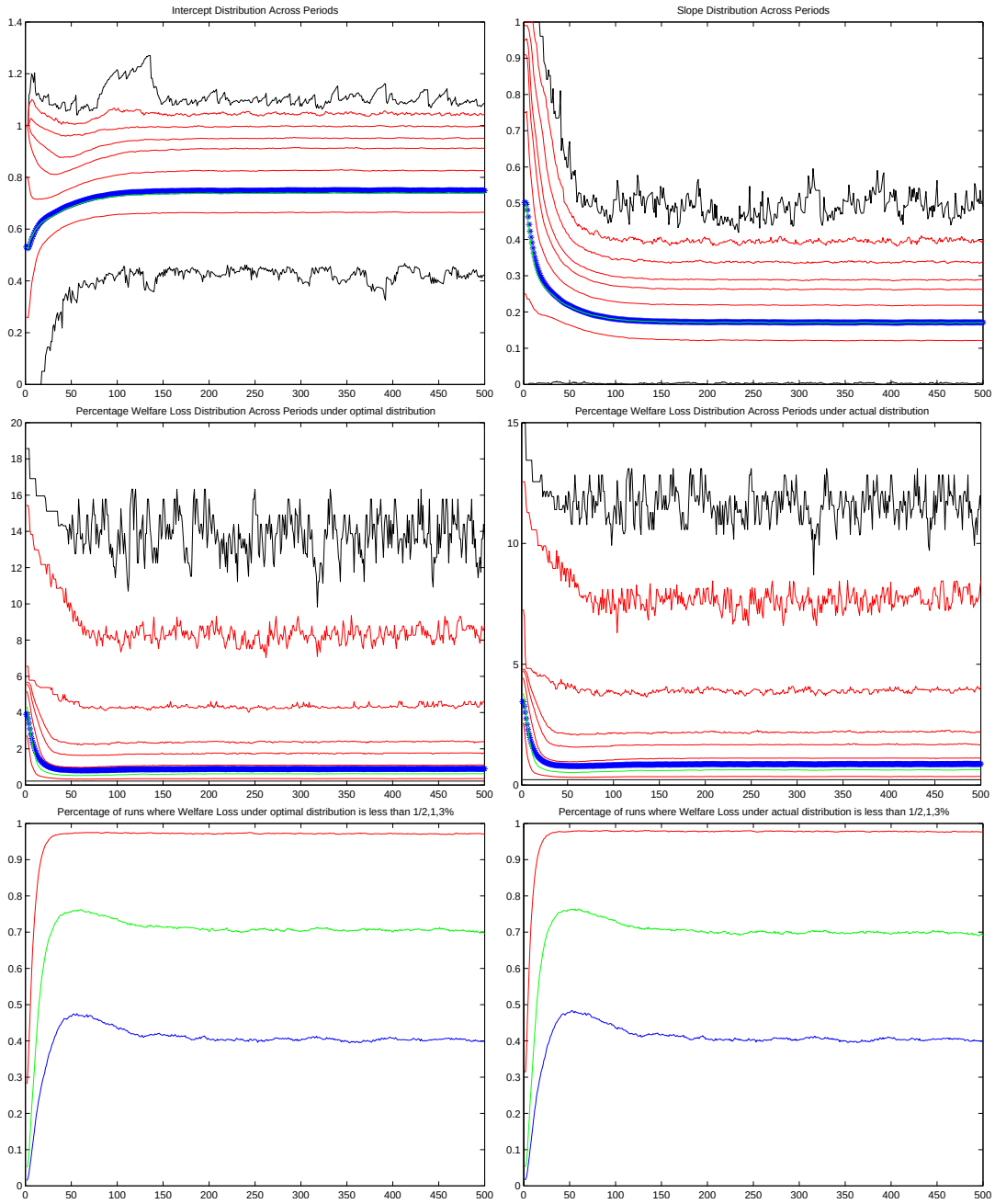

Figure 70: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 4$, $\beta = 0.95$ and the (CG') version of the algorithm.

1.6 $B = 0.1$

1.6.1 $(\epsilon, \delta, \xi) = (0, 0, 1)$

Table 10: EV^*, EC^*, EV_b^* and EC_b^* for each configuration of β and θ

β	θ	EV^*	EC^*	EV_b^*	EC_b^*
0.9	1.5	-0.1606	0.9841	-0.1656	0.9836
	2.0	-0.1727	0.9830	-0.1714	0.9832
	3.0	-0.1998	0.9806	-0.2102	0.9796
	3.5	-0.2126	0.9795	-0.2213	0.9787
	4.0	-0.2254	0.9784	-0.2298	0.9780
0.95	1.5	-0.1961	0.9903	-0.2055	0.9898
	2.0	-0.2180	0.9892	-0.2235	0.9889
	3.0	-0.2554	0.9875	-0.2531	0.9876
	3.5	-0.2710	0.9868	-0.2785	0.9864
	4.0	-0.2857	0.9861	-0.2878	0.9860

Table 11: $EV^*_{\alpha_0^*,\alpha_1^*}$, $EC^*_{\alpha_0^*,\alpha_1^*}$, $EV^b_{\alpha_0^*,\alpha_1^*}$ and $EC^b_{\alpha_0^*,\alpha_1^*}$ for each configuration of β and θ

β	θ	$EV^*_{\alpha_0^*,\alpha_1^*}$	$EC^*_{\alpha_0^*,\alpha_1^*}$	$EV^b_{\alpha_0^*,\alpha_1^*}$	$EC^b_{\alpha_0^*,\alpha_1^*}$
0.9	1.5	-0.1959	0.9807	-0.29	0.9802
	2.0	-0.2088	0.9795	-0.2075	0.9797
	3.0	-0.2379	0.9770	-0.2483	0.9761
	3.5	-0.2519	0.9759	-0.2607	0.9751
	4.0	-0.2658	0.9748	-0.2703	0.9743
0.95	1.5	-0.2705	0.9866	-0.2799	0.9862
	2.0	-0.2939	0.9855	-0.2994	0.9853
	3.0	-0.3354	0.9836	-0.3330	0.9838
	3.5	-0.3526	0.9829	-0.3601	0.9825
	4.0	-0.3696	0.9822	-0.3716	0.9821

Table 12: Percentage difference between between equivalent consumption measures, $D^* = \frac{EC^* - EC^*_{\alpha_0^*,\alpha_1^*}}{EC^*} * 100$ and $D^b = \frac{EC^*_b - EC^b_{\alpha_0^*,\alpha_1^*}}{EC^*_b} * 100$, and optimal linear rule.

β	θ	D^*	D^b	α_0^*	α_1^*
0.9	1.5	0.3496	0.3496	0.6500	0.3900
	2.0	0.3541	0.3541	0.6300	0.3800
	3.0	0.3644	0.3642	0.6700	0.3200
	3.5	0.3708	0.3707	0.6800	0.3
	4.0	0.3760	0.3757	0.6800	0.2900
0.95	1.5	0.3691	0.3692	0.7	0.3
	2.0	0.3739	0.3738	0.6900	0.2900
	3.0	0.3876	0.3874	0.7200	0.2400
	3.5	0.3919	0.3913	0.7500	0.2100
	4.0	0.3988	0.3982	0.7400	0.2100

Table 13: Probability of D^* or D^t below 1/2 at different periods for (CG').

		$t = 0$		$t = 50$		$t = 100$		$t = 250$		$t = 500$	
β	θ	D^*	D^t	D^*	D^t	D^*	D^t	D^*	D^t	D^*	D^t
0.9	1.5	0.1338	0.1429	0.9025	0.8945	0.9656	0.9571	0.9957	0.9930	0.9998	0.9994
	2.0	0.0940	0.1016	0.7991	0.8016	0.9266	0.9221	0.9871	0.9841	0.9979	0.9971
	3.0	0.0695	0.0698	0.5030	0.4960	0.7008	0.6905	0.9103	0.9004	0.9770	0.9740
	3.5	0.0445	0.0463	0.4322	0.4376	0.6465	0.6479	0.8843	0.8812	0.9680	0.9656
	4.0	0.0290	0.0305	0.3810	0.3843	0.5918	0.5926	0.8402	0.8398	0.9452	0.9461
0.95	1.5	0.1286	0.1305	0.7748	0.7774	0.9198	0.9194	0.9845	0.9839	0.9926	0.9920
	2.0	0.0673	0.0702	0.5903	0.5956	0.7859	0.7902	0.9359	0.9362	0.9747	0.9748
	3.0	0.0239	0.0247	0.3468	0.3489	0.5359	0.5377	0.7750	0.7765	0.8972	0.9011
	3.5	0.0210	0.0214	0.2793	0.2909	0.4320	0.4508	0.6583	0.6851	0.8031	0.8256
	4.0	0.0124	0.0129	0.2115	0.2237	0.3231	0.3433	0.5063	0.5423	0.6483	0.6923

Table 14: Probability of D^* or D^t below 1/2 at different periods for (DG).

		$t = 0$		$t = 50$		$t = 100$		$t = 250$		$t = 500$	
β	θ	D^*	D^t	D^*	D^t	D^*	D^t	D^*	D^t	D^*	D^t
0.9	1.5	0.1220	0.1315	0.9012	0.8930	0.9657	0.9569	0.9957	0.9931	1.0	0.9996
	2.0	0.0875	0.0914	0.8010	0.8022	0.9286	0.9246	0.9871	0.9843	0.9976	0.9967
	3.0	0.0695	0.0698	0.5002	0.4935	0.7005	0.6891	0.9094	0.8988	0.9762	0.9733
	3.5	0.0445	0.0463	0.4278	0.4324	0.6422	0.6431	0.8835	0.8792	0.9680	0.9654
	4.0	0.0290	0.0305	0.3790	0.3816	0.5934	0.5938	0.8470	0.8446	0.9479	0.9486
0.95	1.5	0.1286	0.1305	0.7718	0.7742	0.9179	0.9173	0.9834	0.9828	0.9920	0.9917
	2.0	0.0673	0.0702	0.5930	0.5979	0.7826	0.7865	0.9374	0.9376	0.9751	0.9749
	3.0	0.0239	0.0247	0.3510	0.3529	0.5393	0.5405	0.7782	0.7786	0.8994	0.9025
	3.5	0.0210	0.0214	0.2797	0.2917	0.4354	0.4553	0.6606	0.6866	0.8048	0.8279
	4.0	0.0124	0.0129	0.2099	0.2225	0.3274	0.3478	0.5101	0.5456	0.6526	0.6965

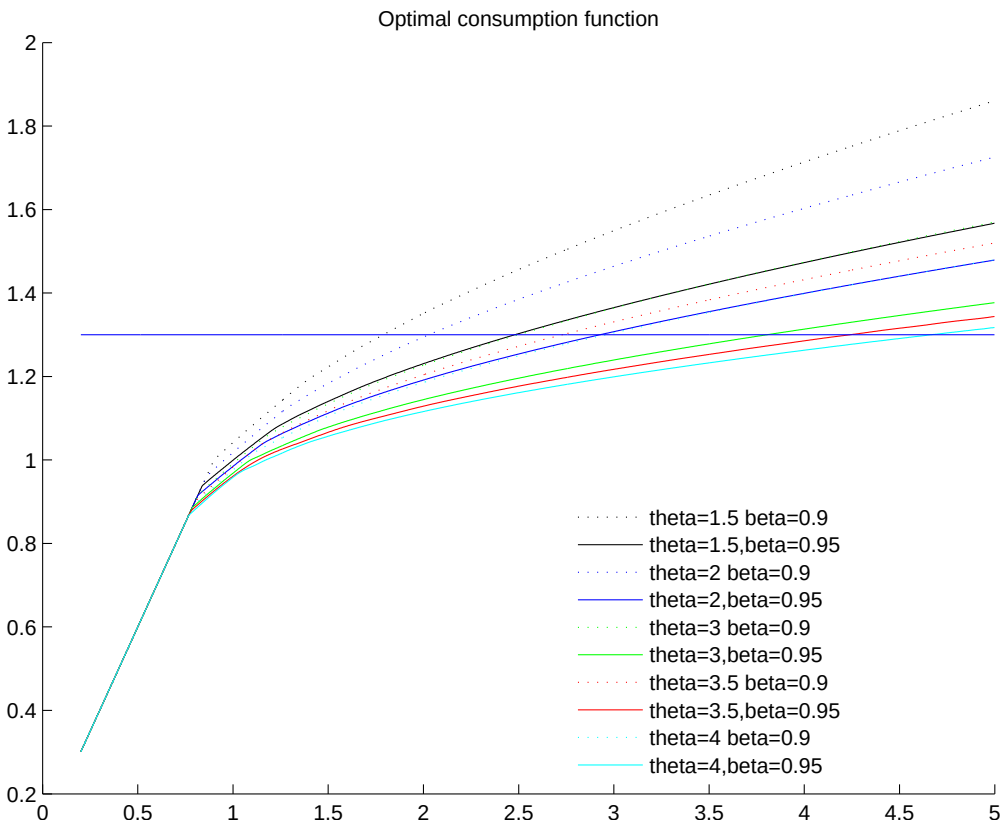

Figure 71: Optimal Consumption function for different parametrizations

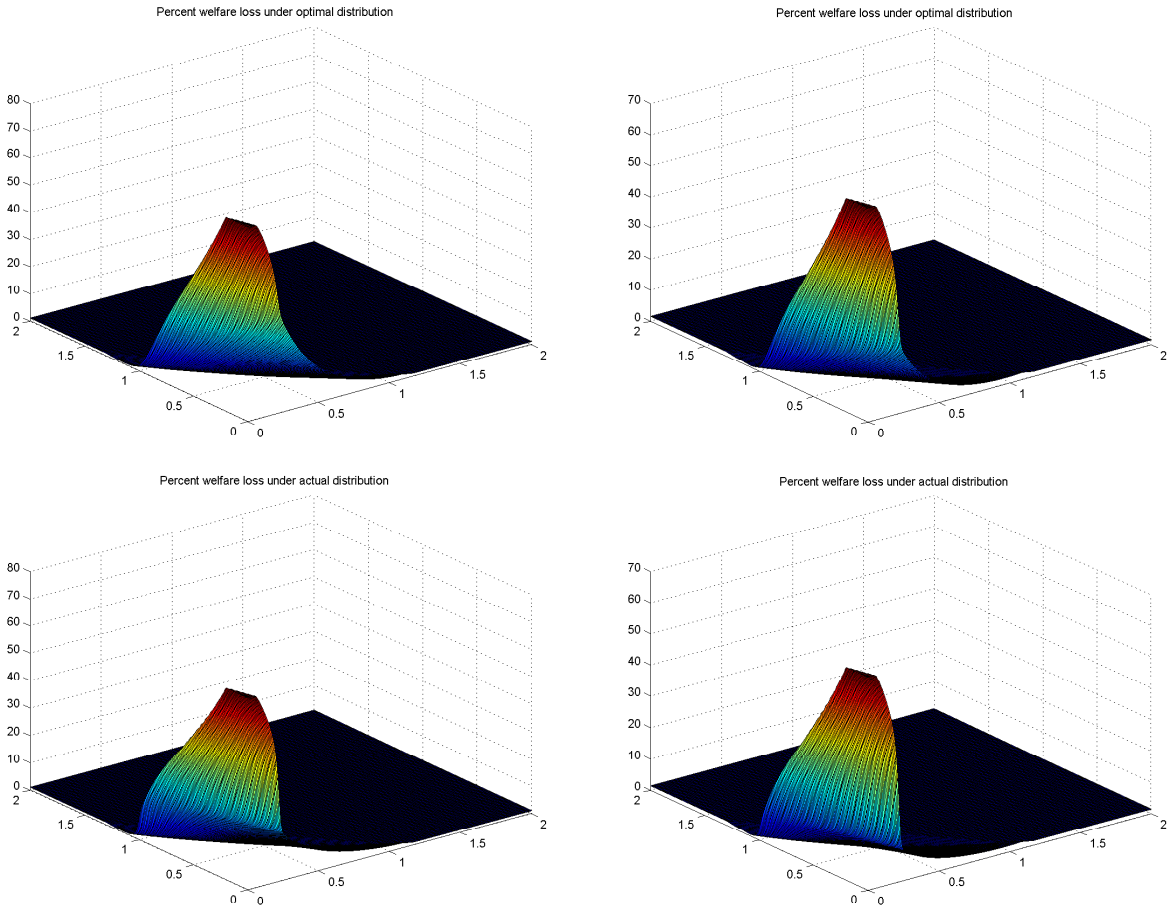

Figure 72: Percentage deviation of equivalent consumption of the linear rule from the optimal consumption function for different values of the intercept and slope, under π^* (above) and $\pi_{\alpha_0^*,\alpha_1^*}$ (below) for $\theta = 1.5$, $\beta = 0.9$ (left) and $\beta = 0.95$ (right).

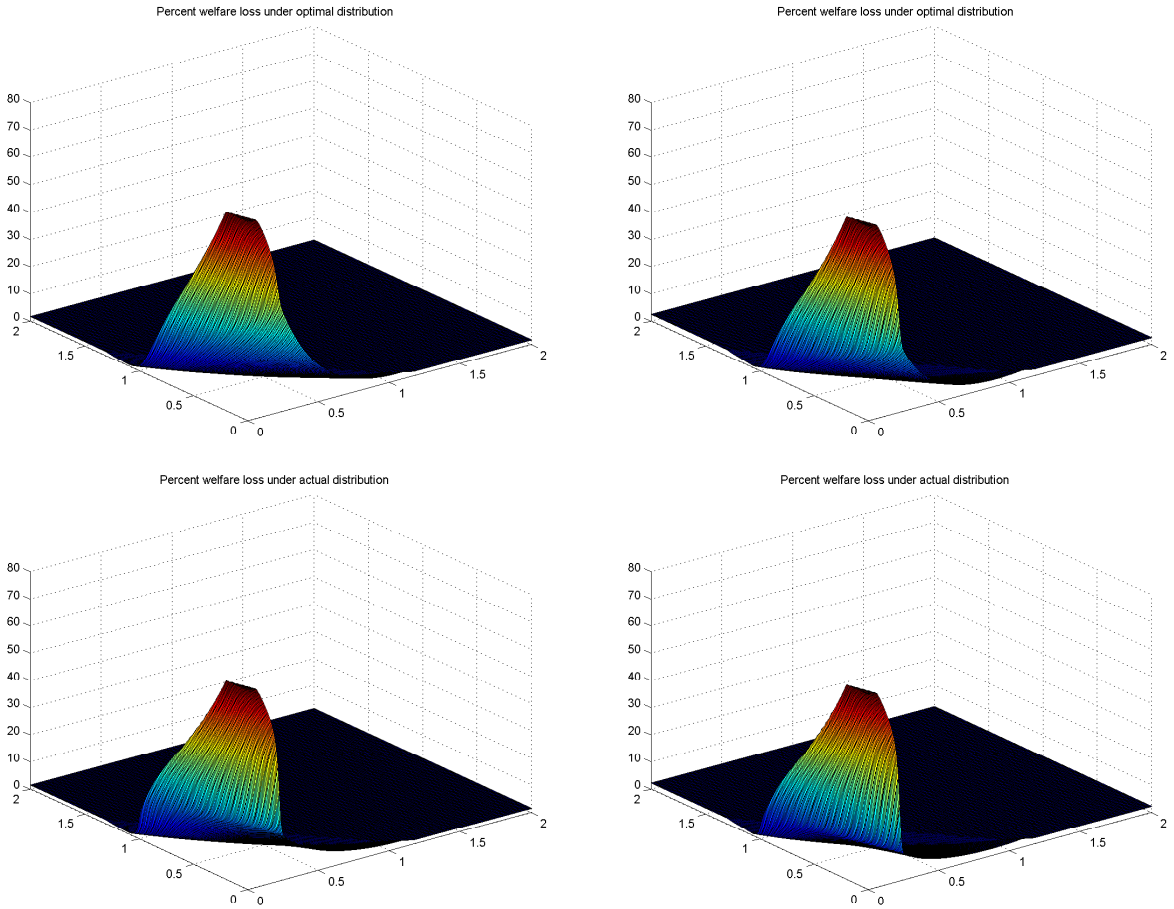

Figure 73: Percentage deviation of equivalent consumption of the linear rule from the optimal consumption function for different values of the intercept and slope, under π^* (above) and $\pi_{\alpha_0^*,\alpha_1^*}$ (below) for $\theta = 2$, $\beta = 0.9$ (left) and $\beta = 0.95$ (right).

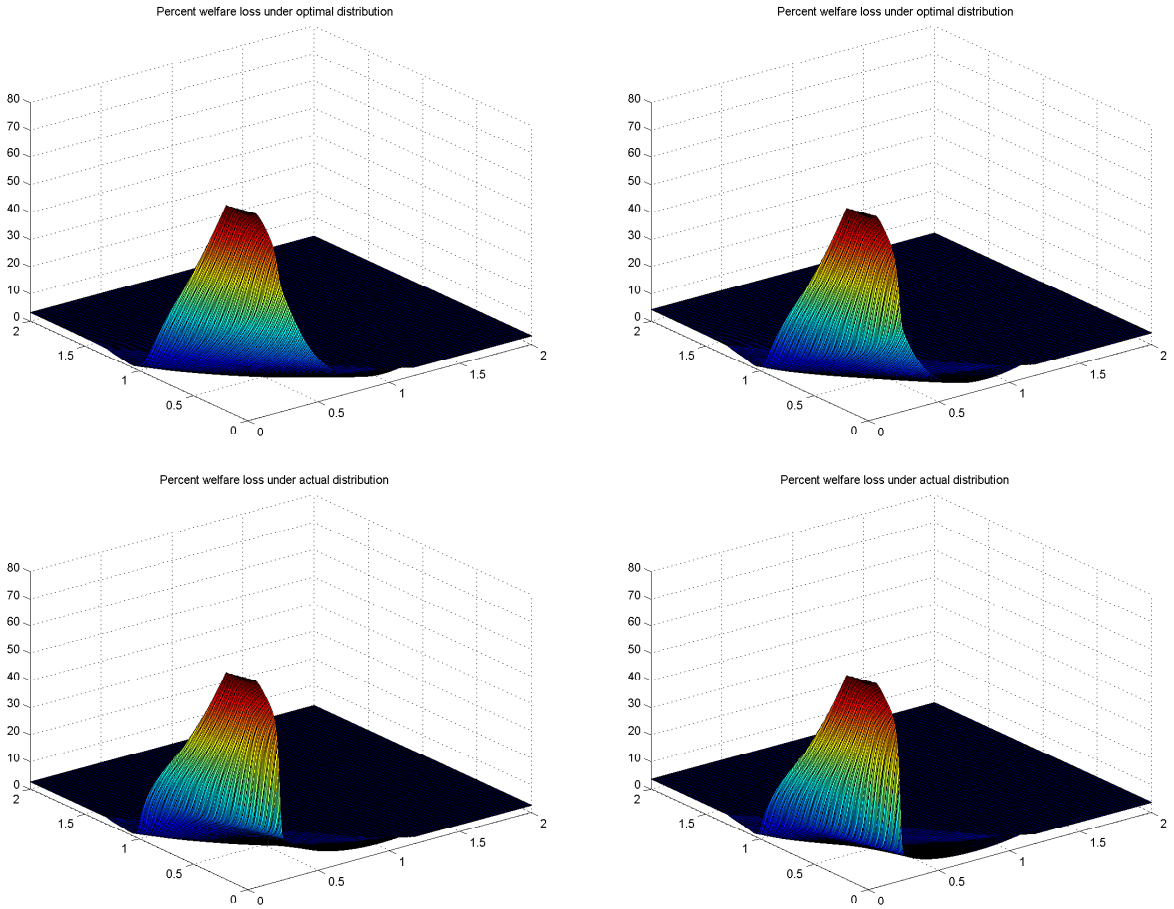

Figure 74: Percentage deviation of equivalent consumption of the linear rule from the optimal consumption function for different values of the intercept and slope, under π^* (above) and $\pi_{\alpha_0^*,\alpha_1^*}$ (below) for $\theta = 3$, $\beta = 0.9$ (left) and $\beta = 0.95$ (right).

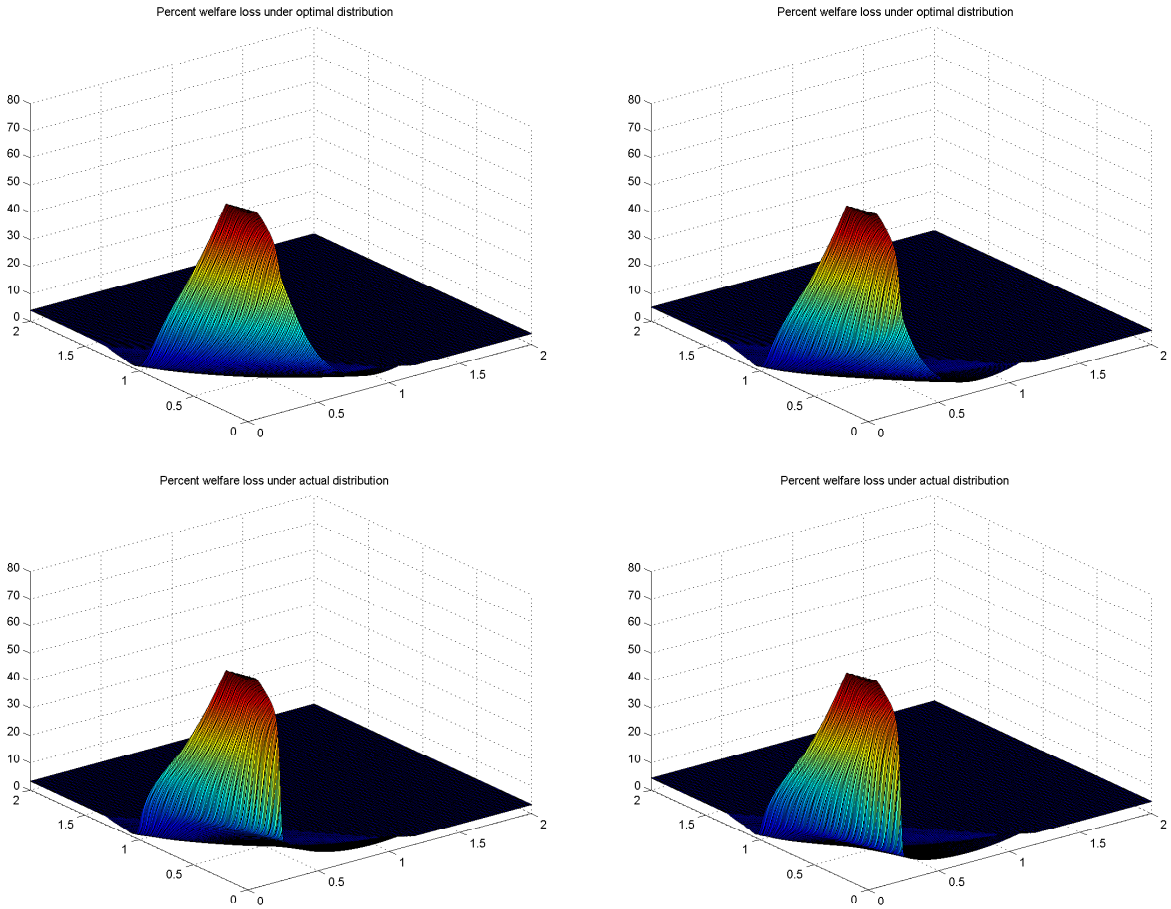

Figure 75: Percentage deviation of equivalent consumption of the linear rule from the optimal consumption function for different values of the intercept and slope, under π^* (above) and $\pi_{\alpha_0^*,\alpha_1^*}$ (below) for $\theta = 3.5$, $\beta = 0.9$ (left) and $\beta = 0.95$ (right).

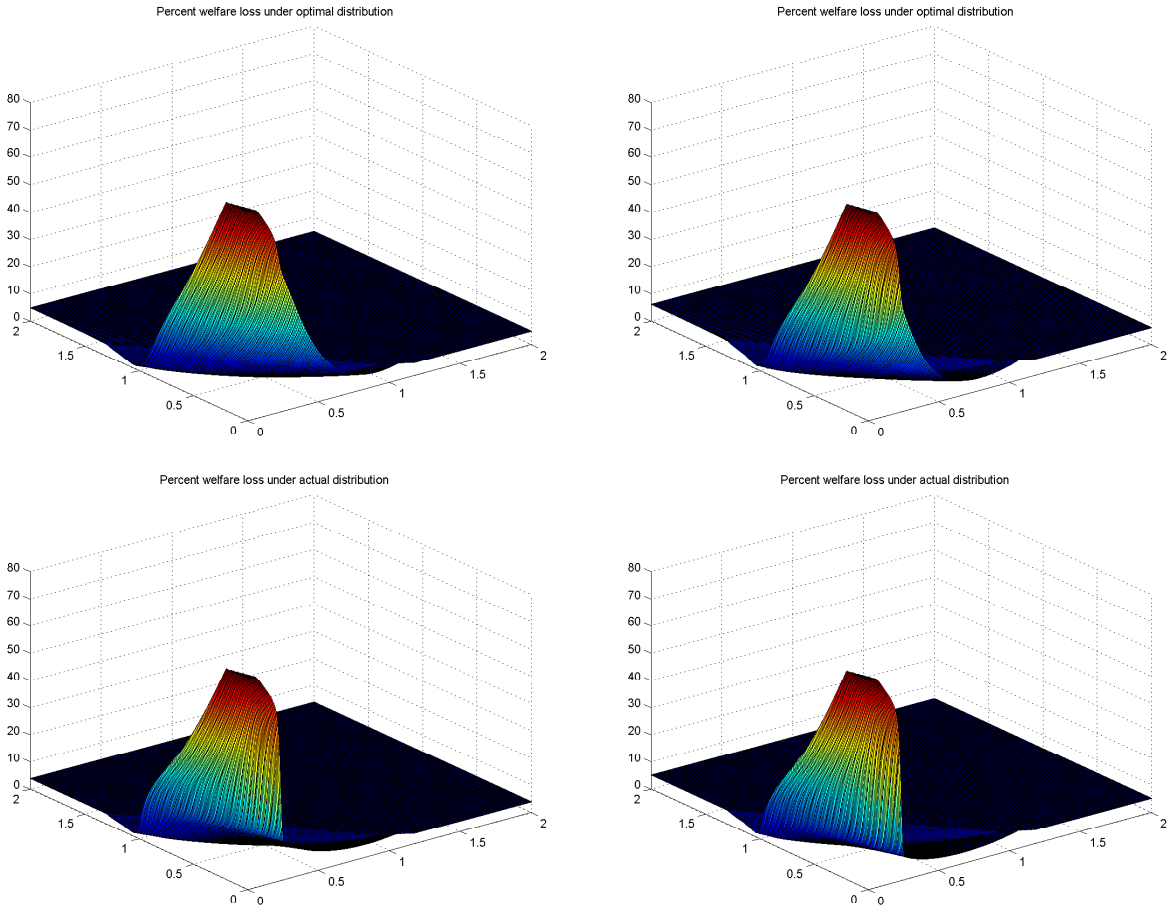

Figure 76: Percentage deviation of equivalent consumption of the linear rule from the optimal consumption function for different values of the intercept and slope, under π^* (above) and $\pi_{\alpha_0^*,\alpha_1^*}$ (below) for $\theta = 4$, $\beta = 0.9$ (left) and $\beta = 0.95$ (right).

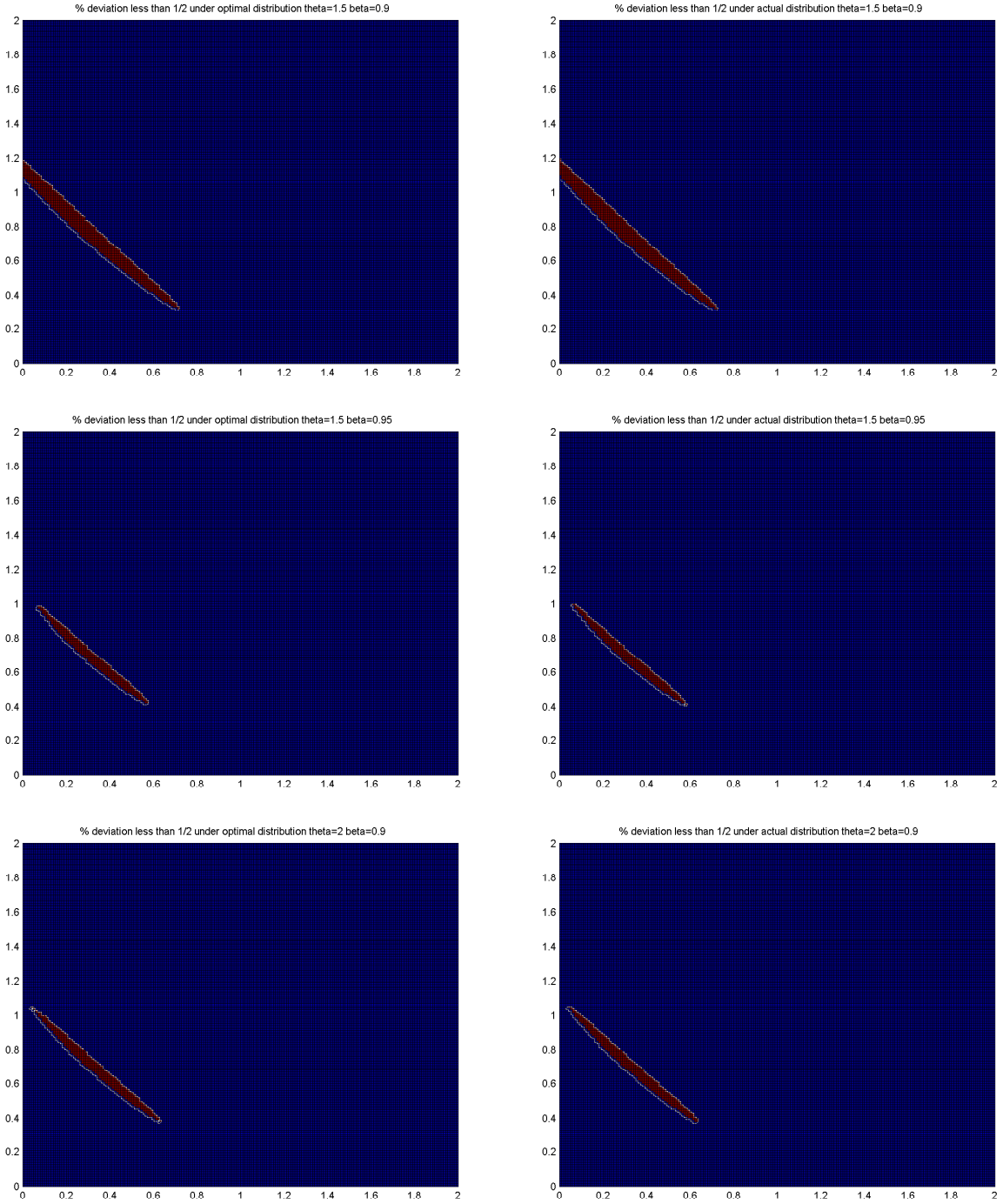

Figure 77: Set of consumption rules which have a percentage deviation less than or equal to 1/2.

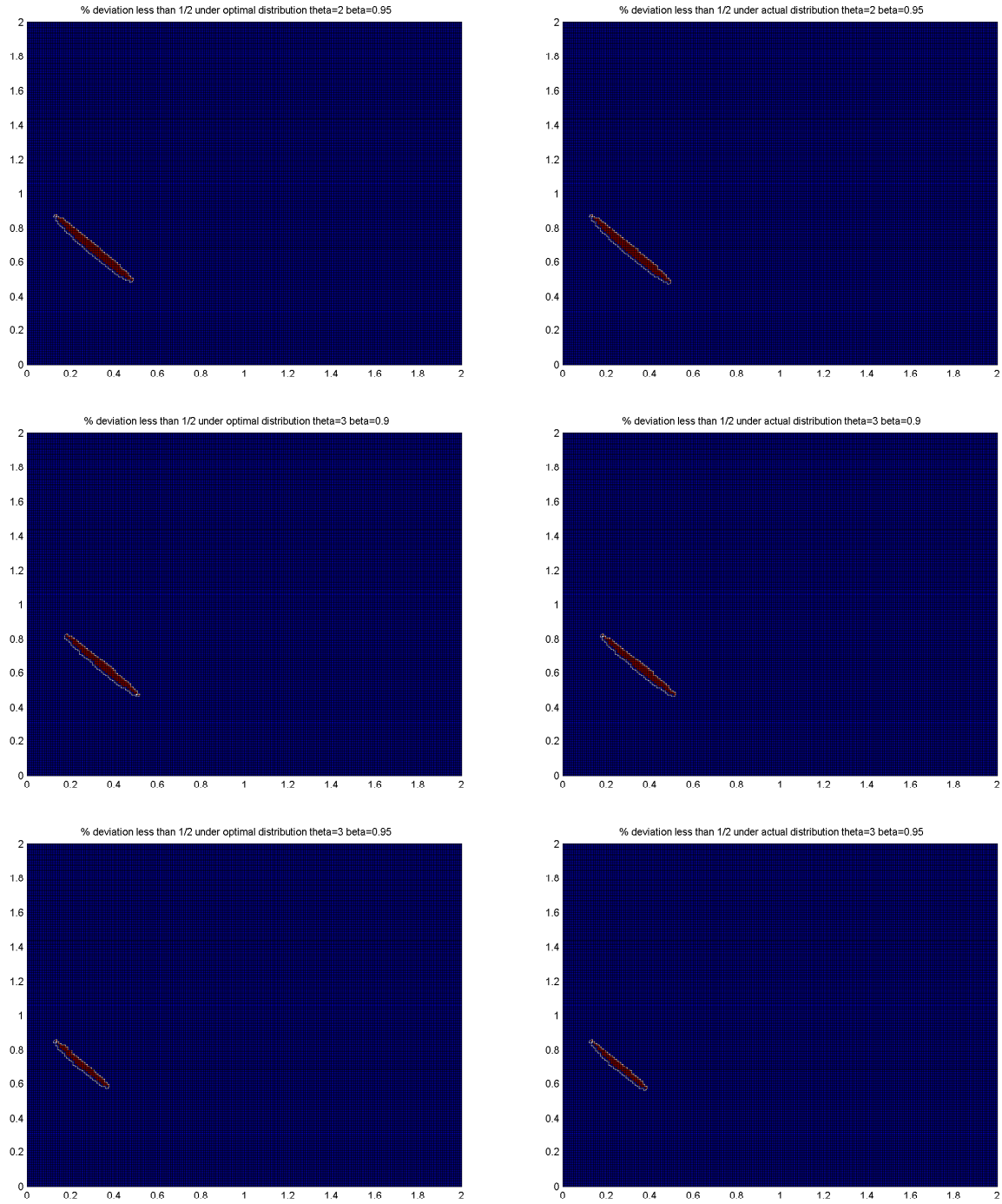

Figure 78: Set of consumption rules which have a percentage deviation less than or equal to 1/2.

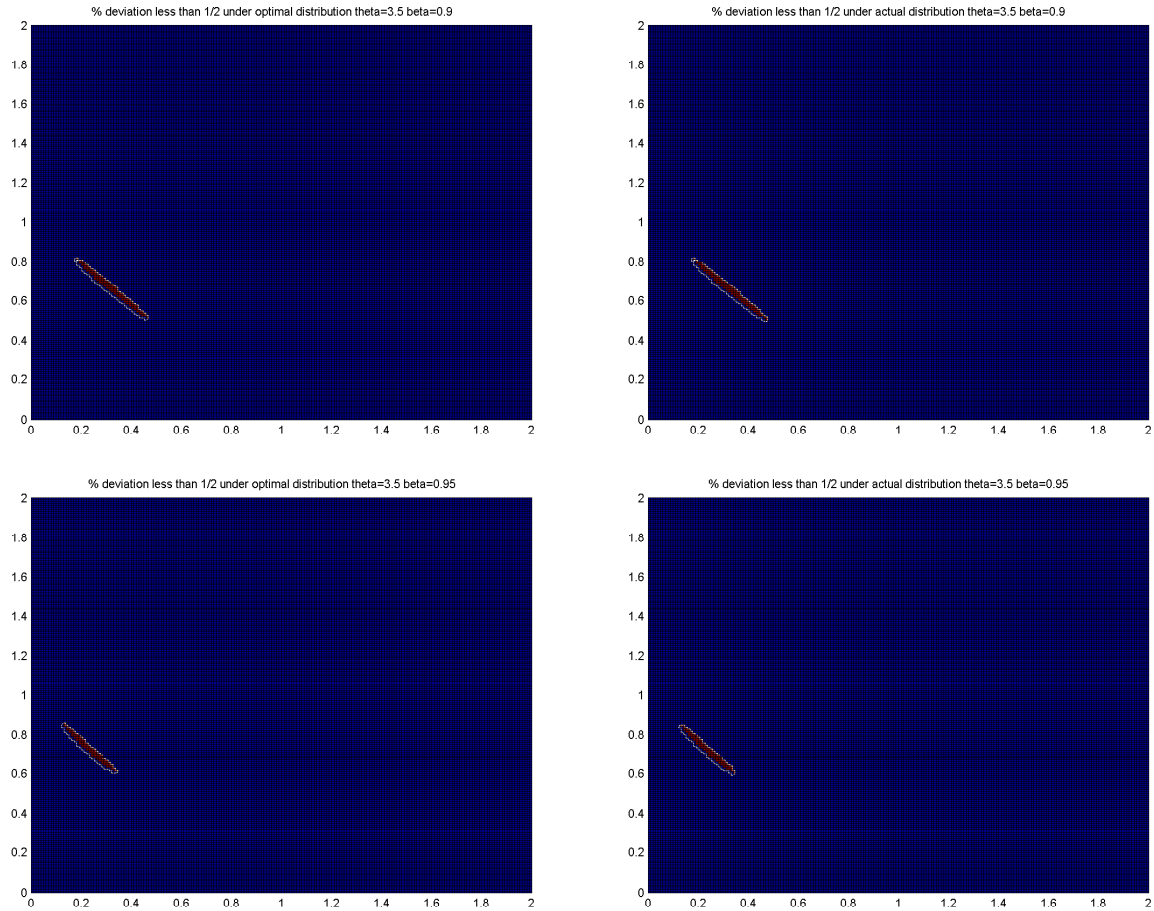

Figure 79: Set of consumption rules which have a percentage deviation less than or equal to 1/2.

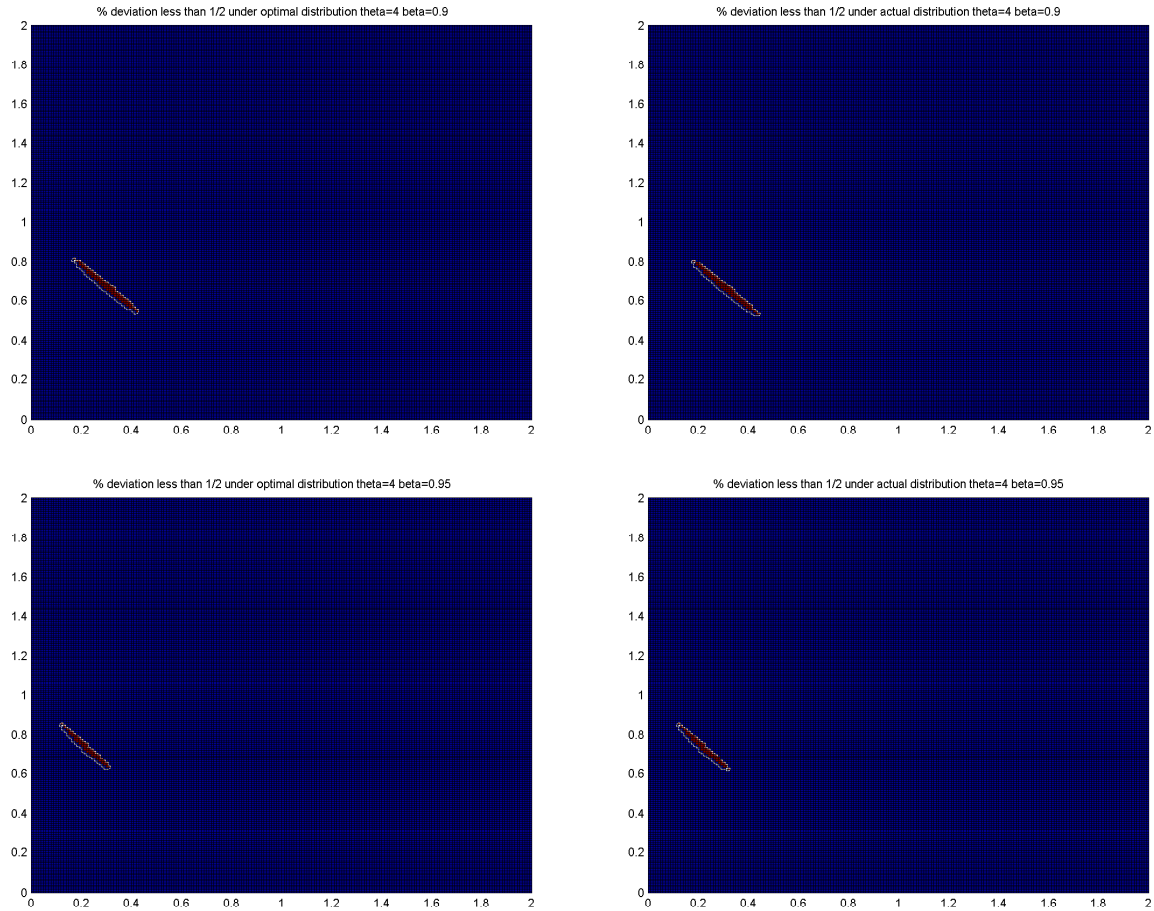

Figure 80: Set of consumption rules which have a percentage deviation less than or equal to 1/2.

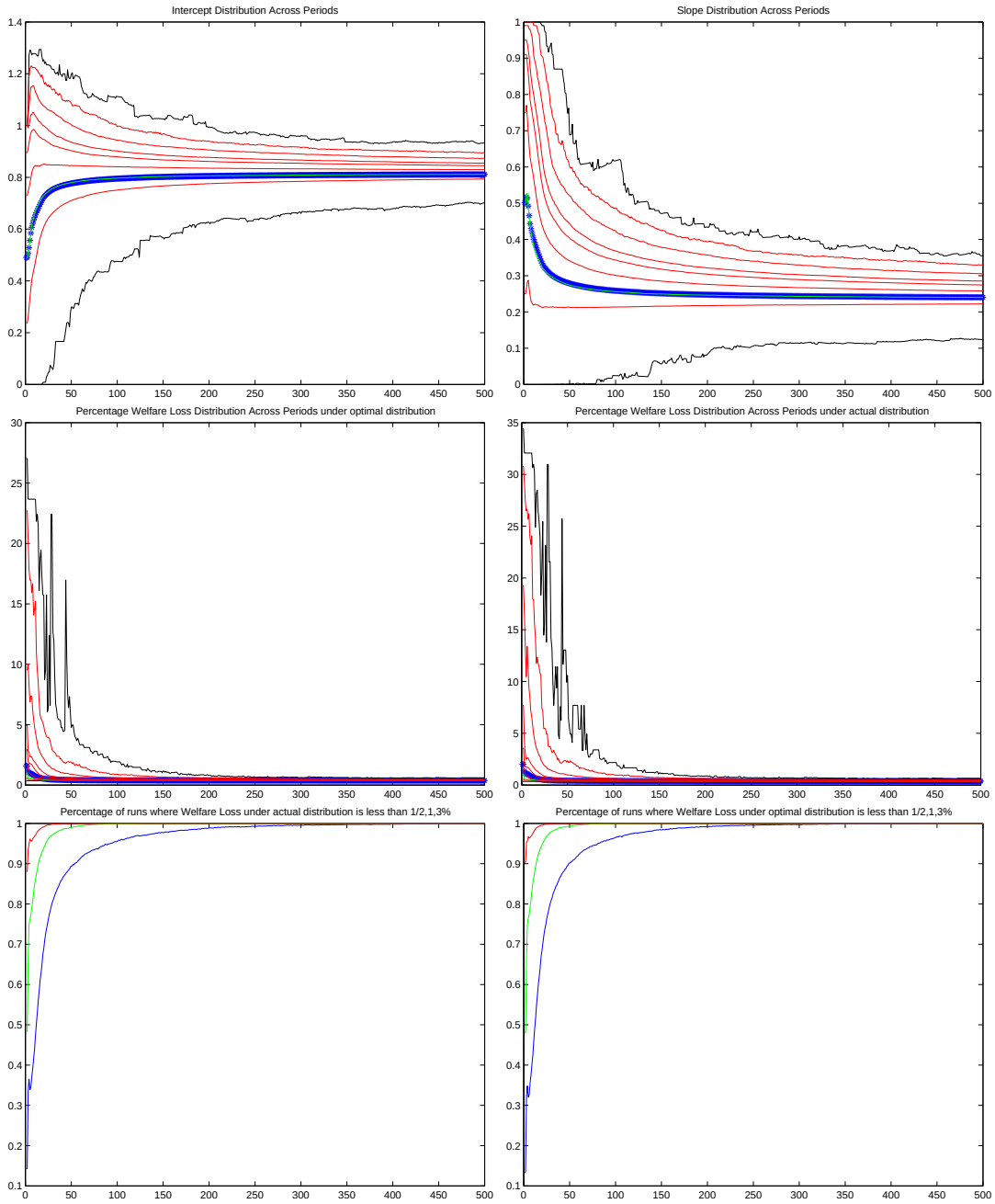

Figure 81: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 1.5$, $\beta = 0.9$ and the (CG') version of the algorithm.

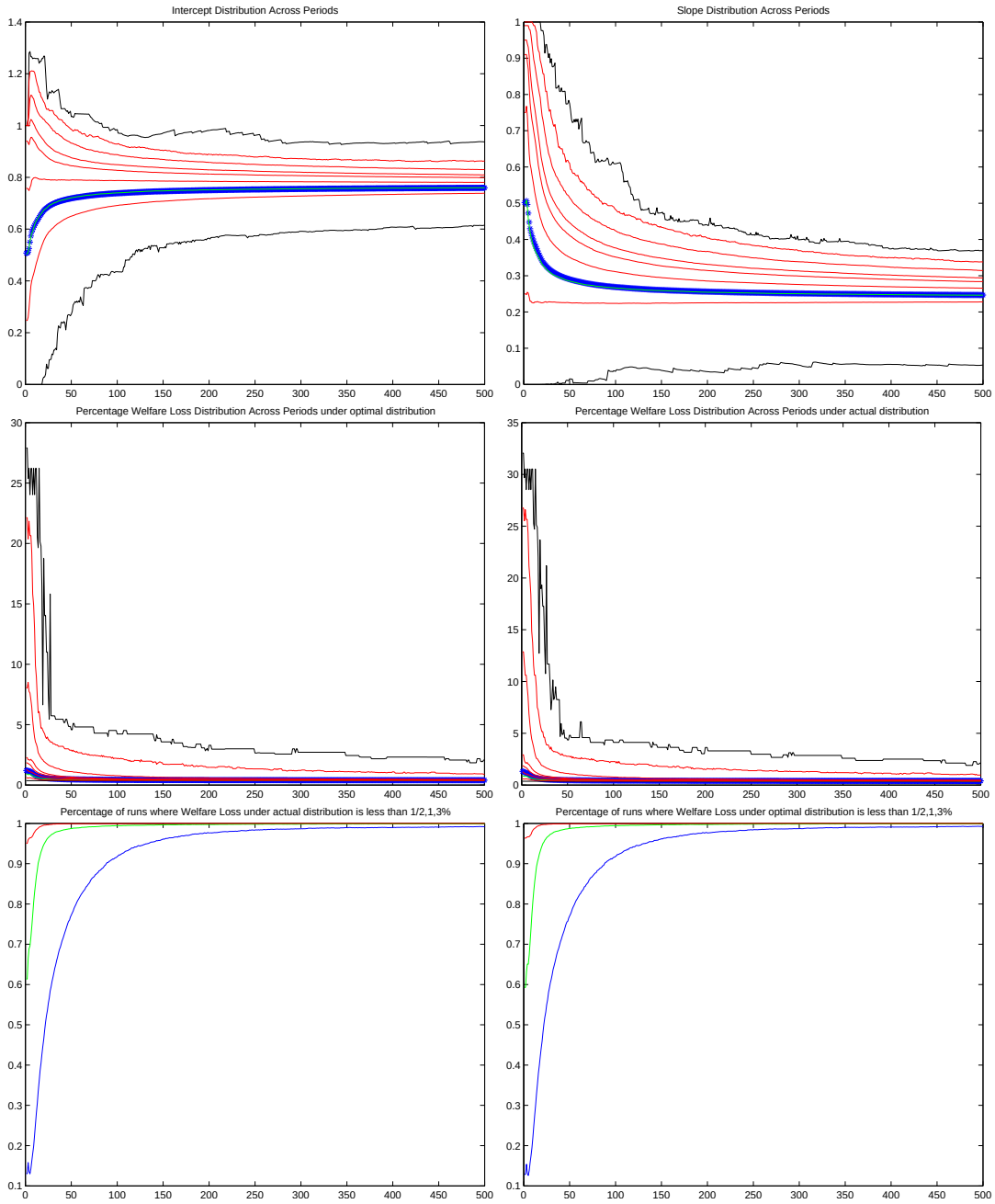

Figure 82: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 1.5$, $\beta = 0.95$ and the (CG') version of the algorithm.

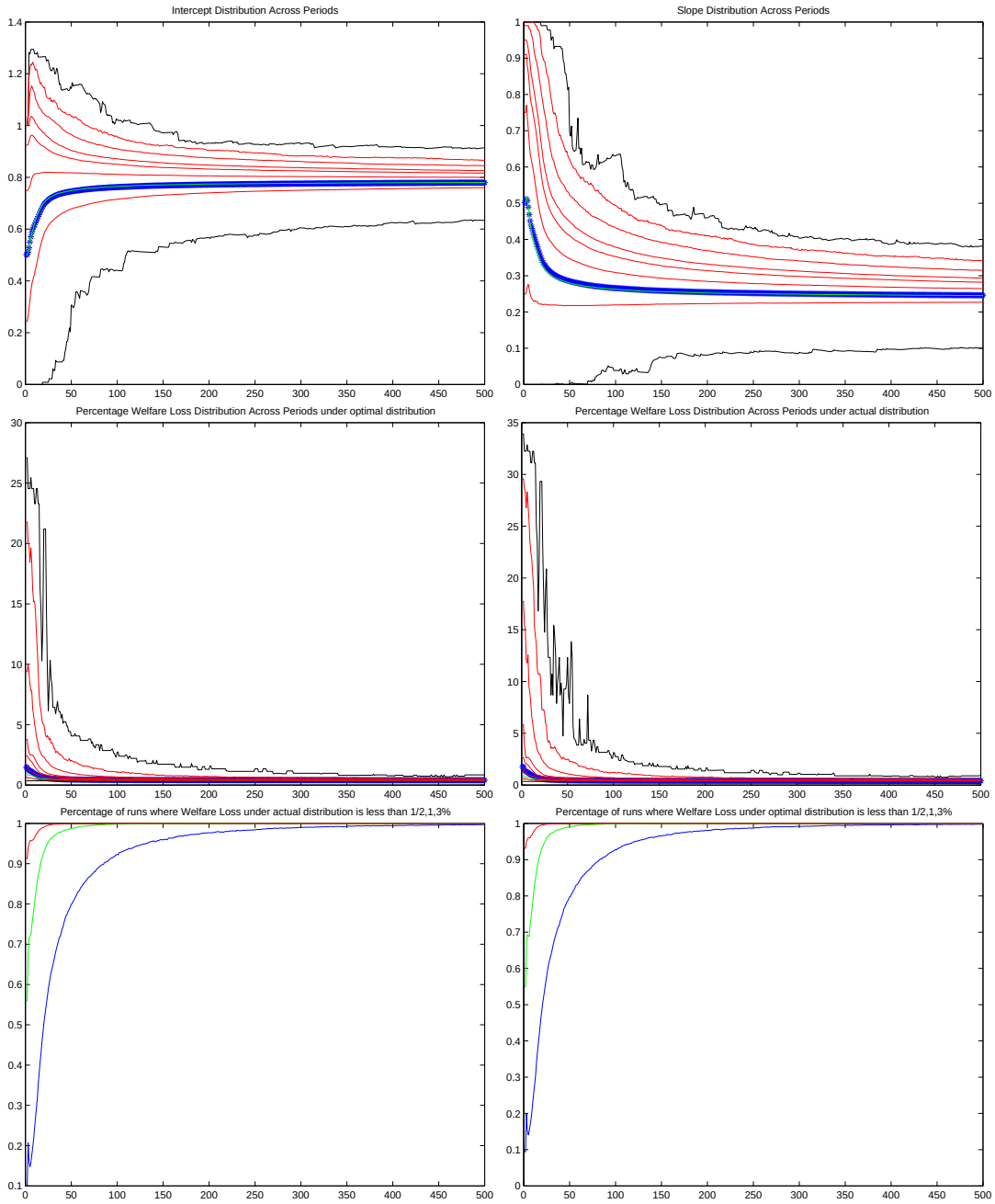

Figure 83: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 2$, $\beta = 0.9$ and the (CG') version of the algorithm.

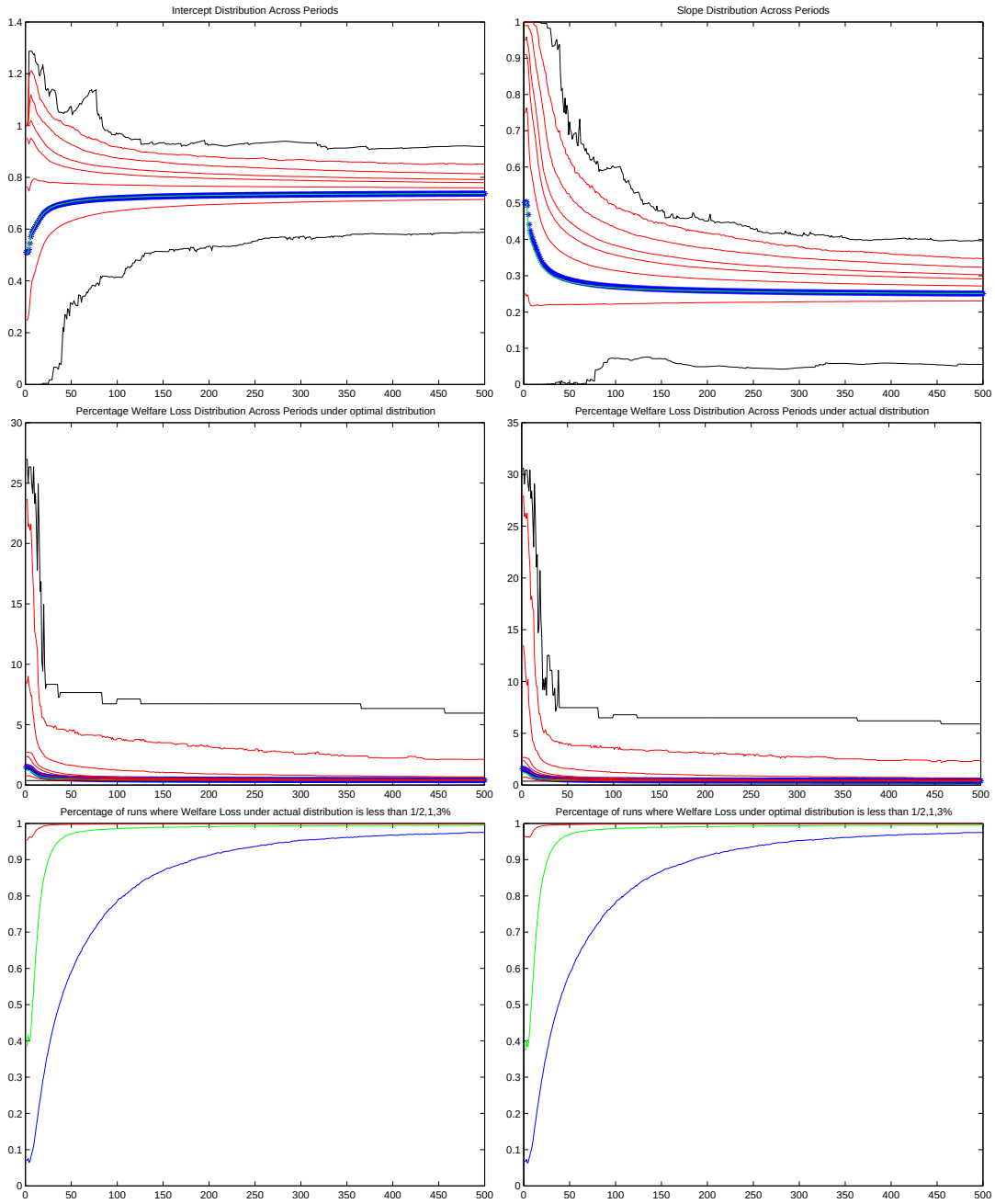

Figure 84: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 2$, $\beta = 0.95$ and the (CG') version of the algorithm.

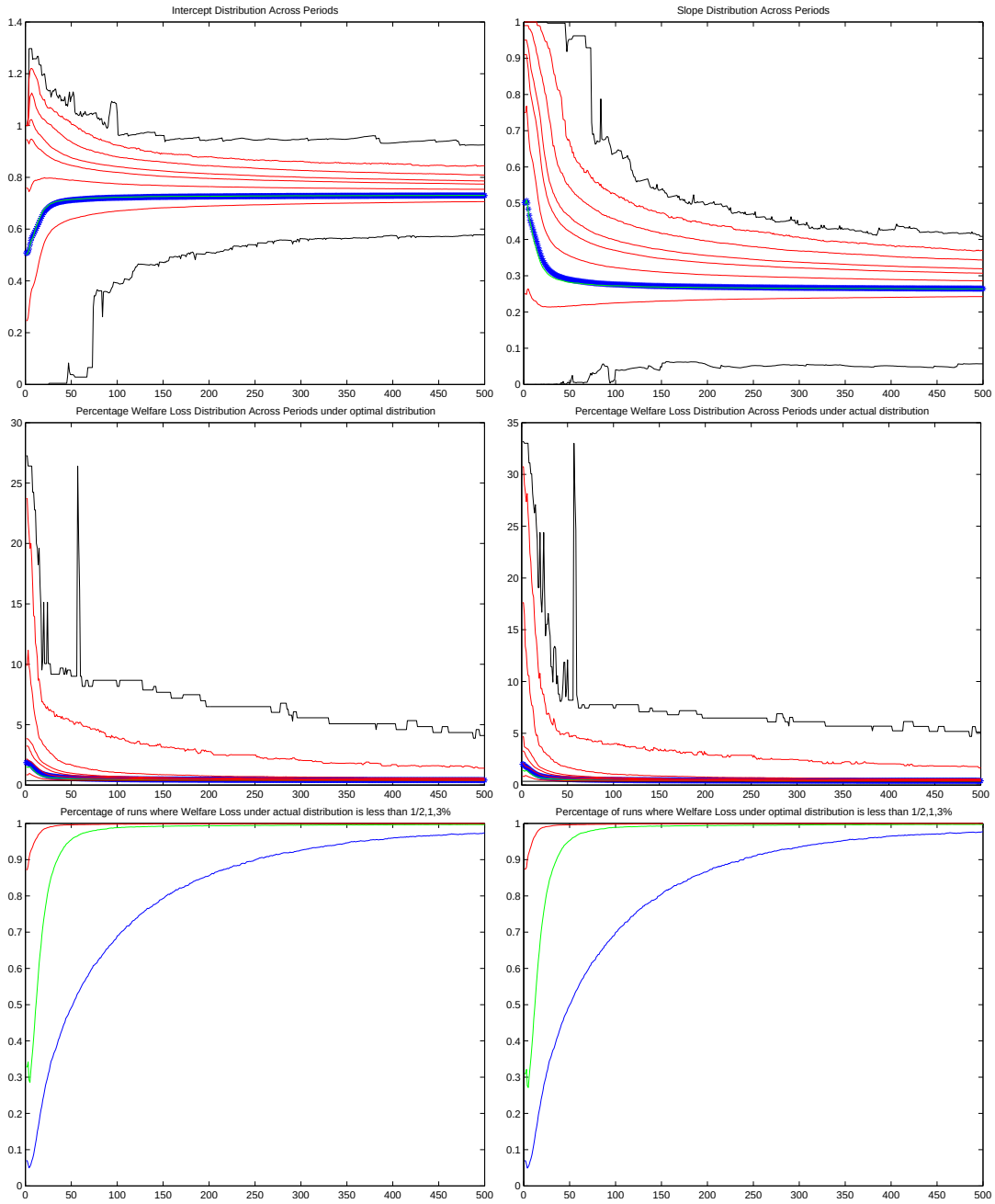

Figure 85: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3$, $\beta = 0.9$ and the (CG') version of the algorithm.

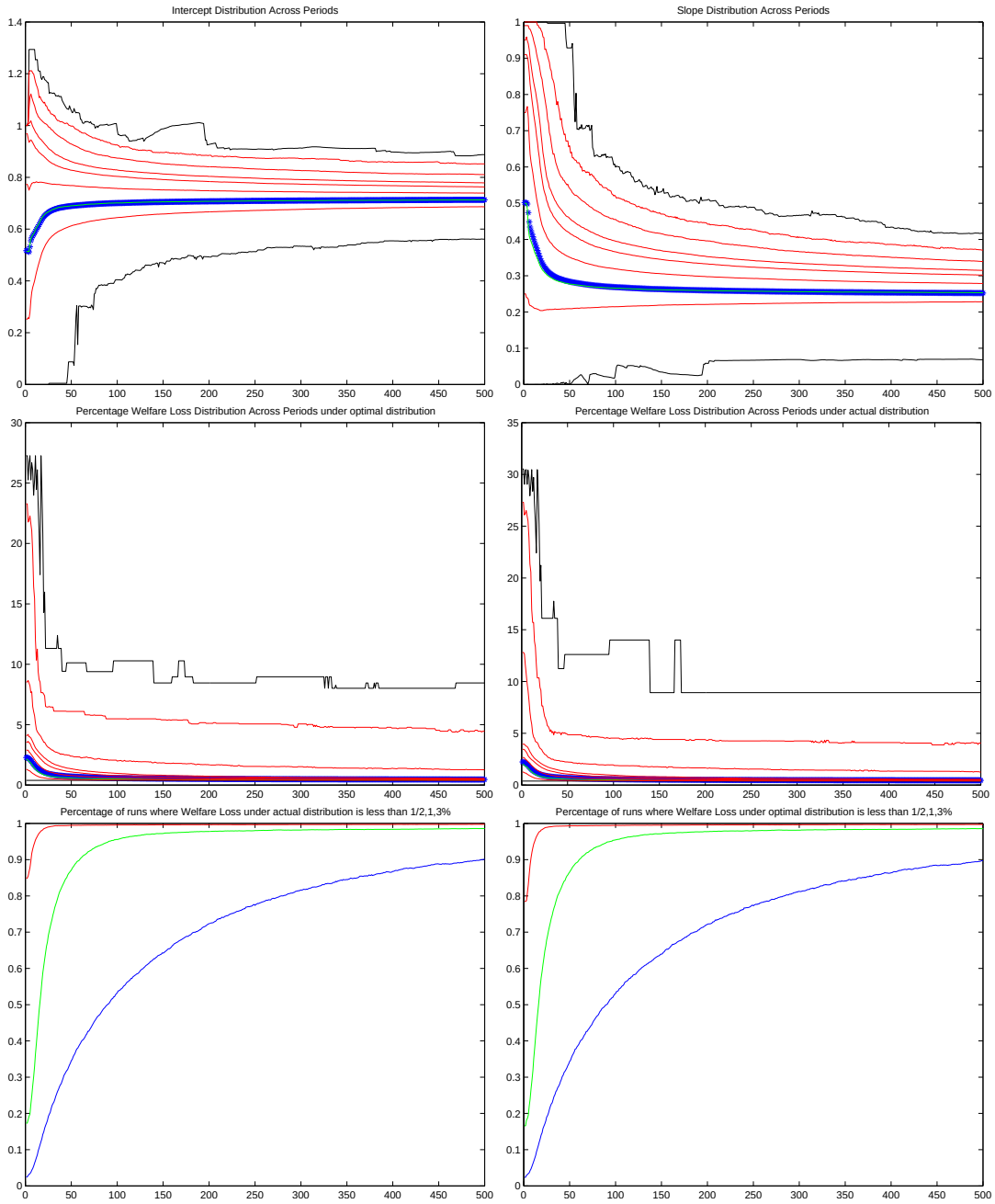

Figure 86: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3$, $\beta = 0.95$ and the (CG') version of the algorithm.

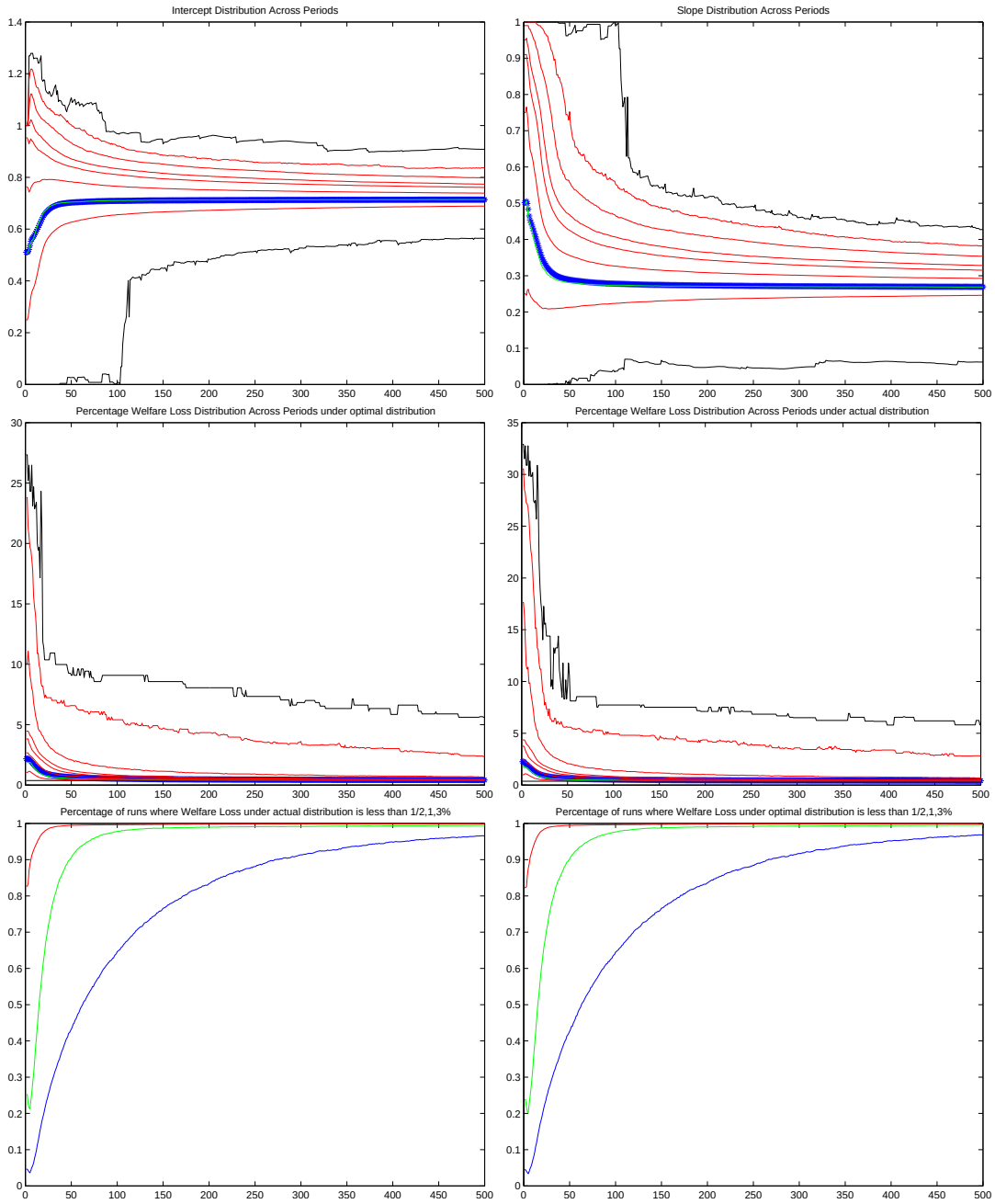

Figure 87: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3.5$, $\beta = 0.9$ and the (CG') version of the algorithm.

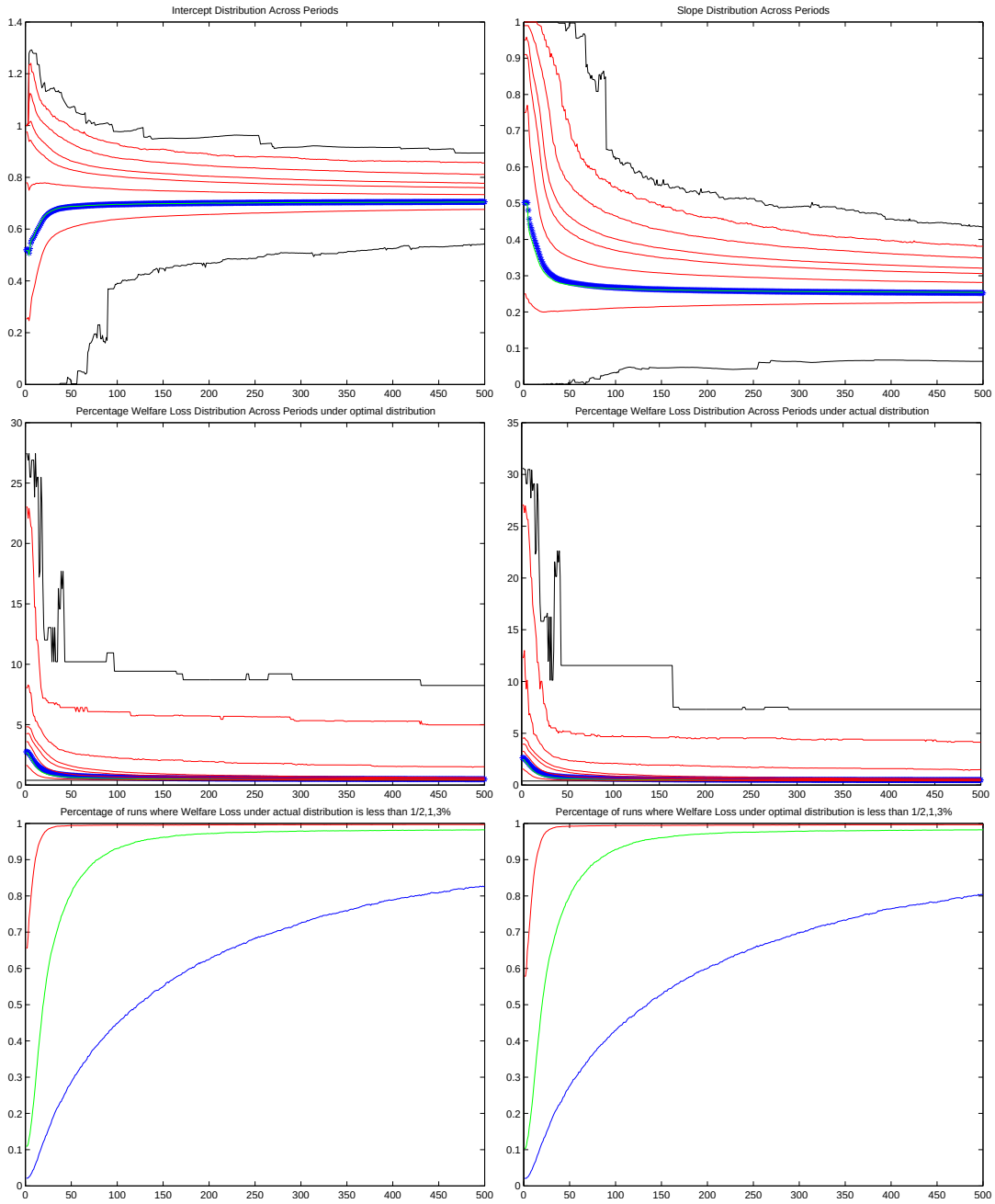

Figure 88: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3.5$, $\beta = 0.95$ and the (CG') version of the algorithm.

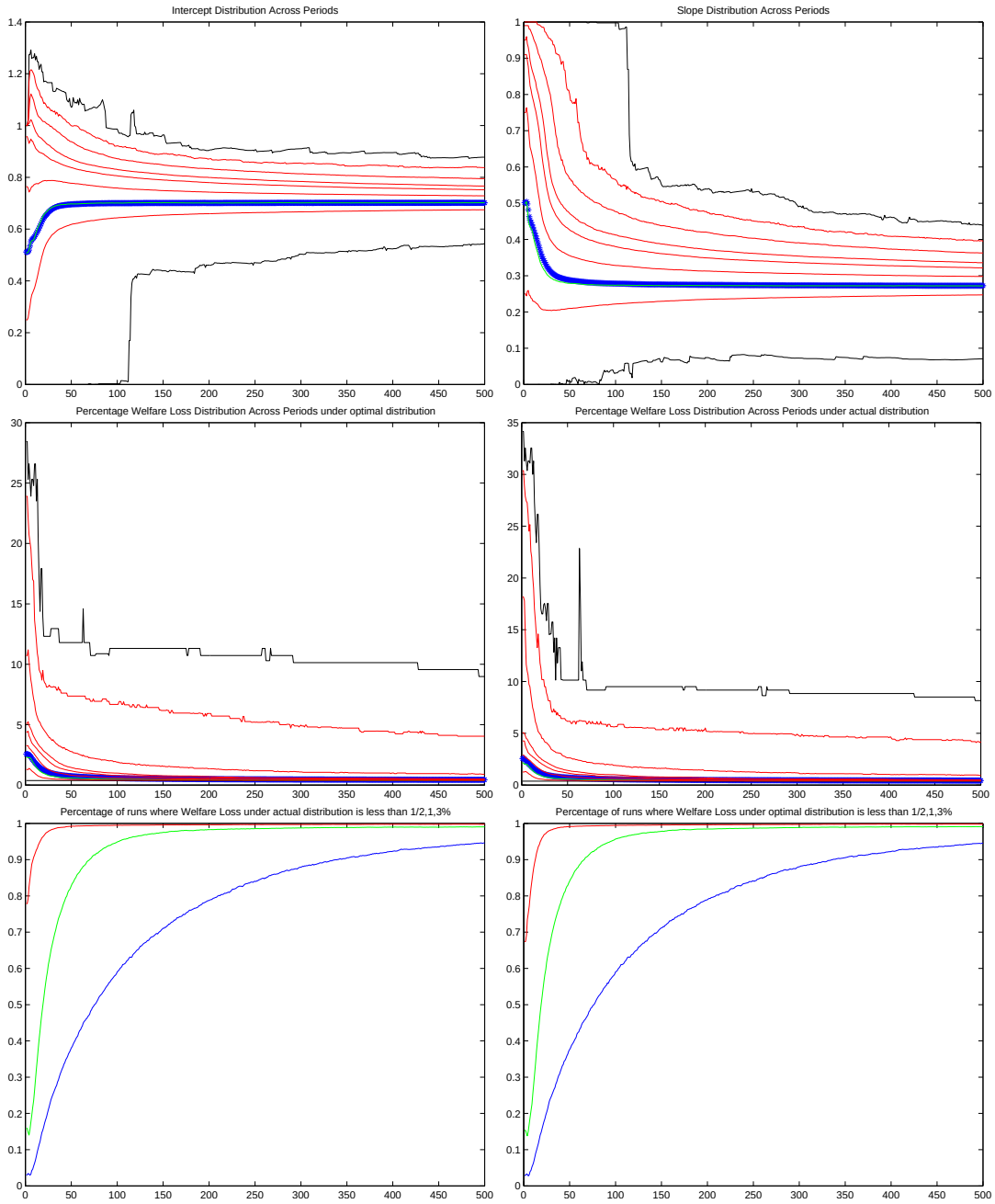

Figure 89: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 4$, $\beta = 0.9$ and the (CG') version of the algorithm.

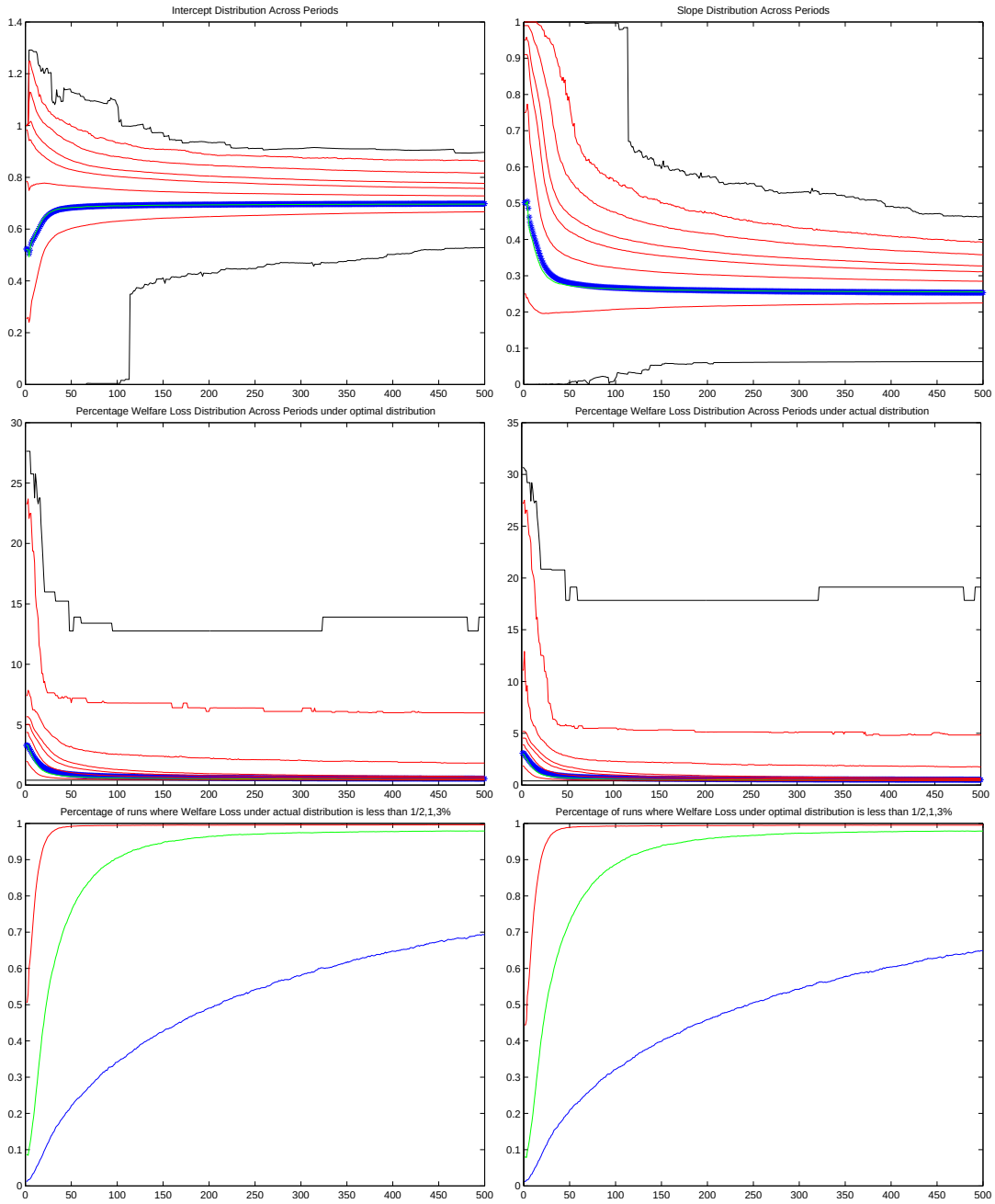

Figure 90: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 4$, $\beta = 0.95$ and the (CG') version of the algorithm.

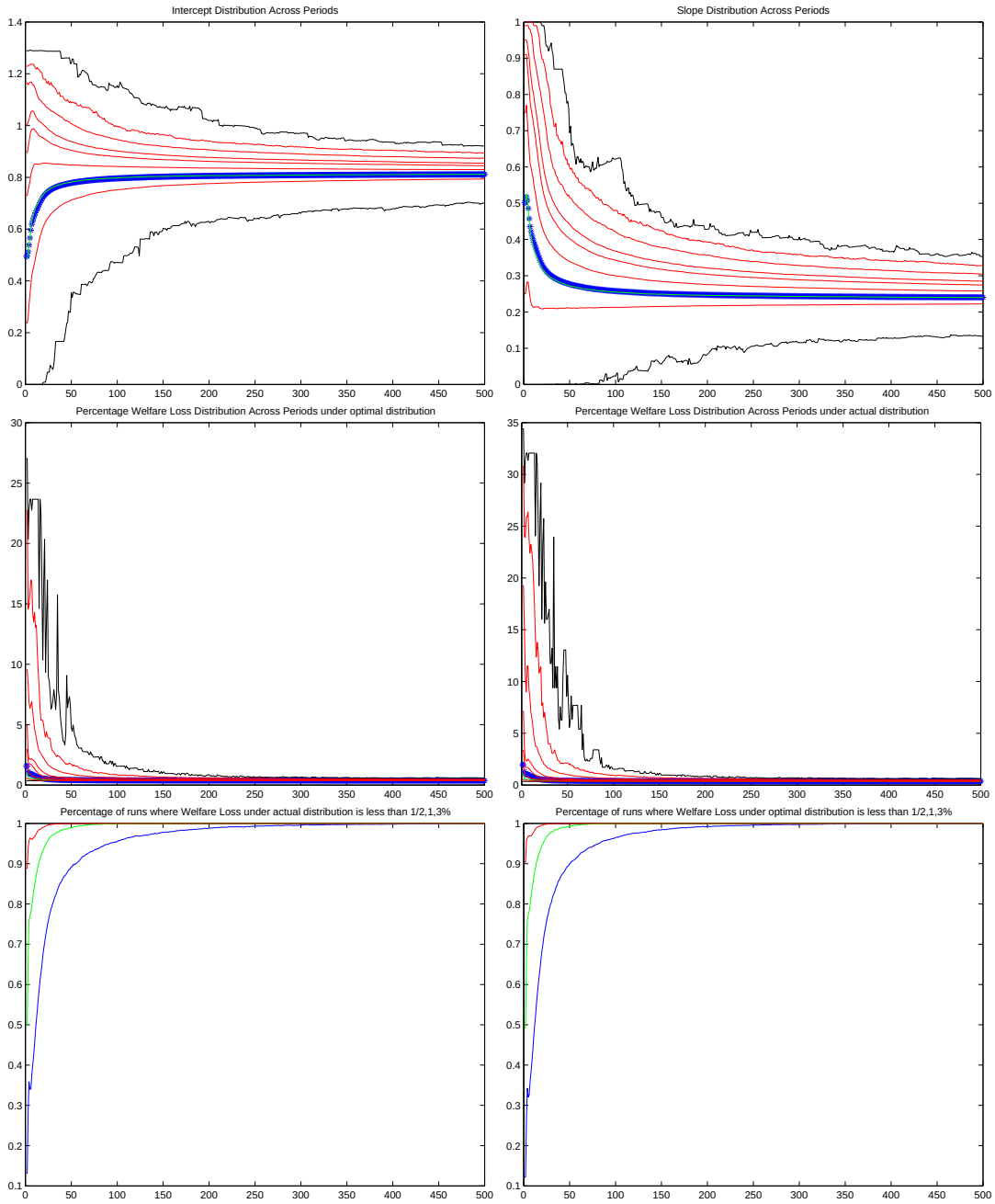

Figure 91: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 1.5$, $\beta = 0.9$ and the (DG) version of the algorithm.

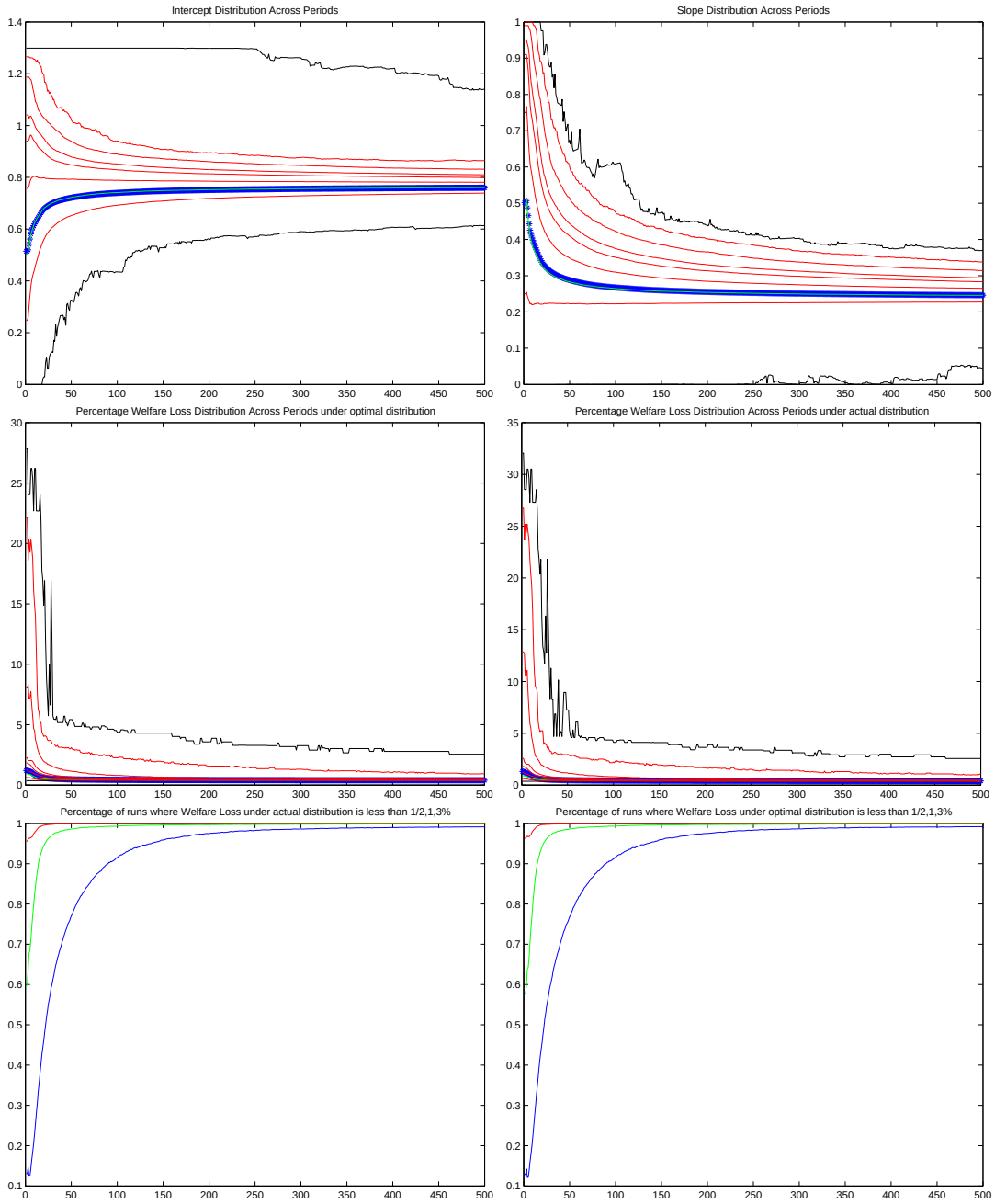

Figure 92: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 1.5$, $\beta = 0.95$ and the (DG) version of the algorithm.

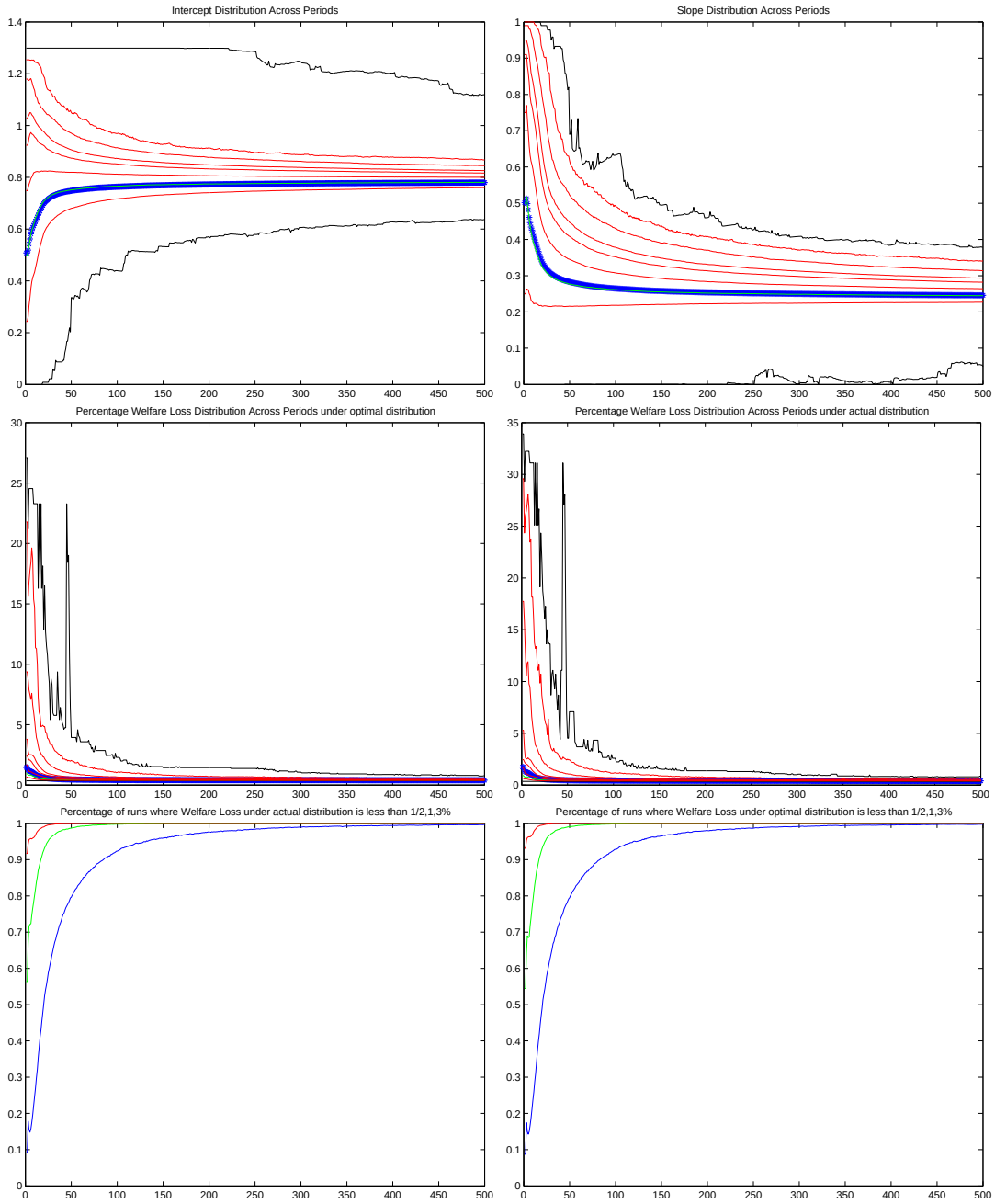

Figure 93: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 2$, $\beta = 0.9$ and the (DG) version of the algorithm.

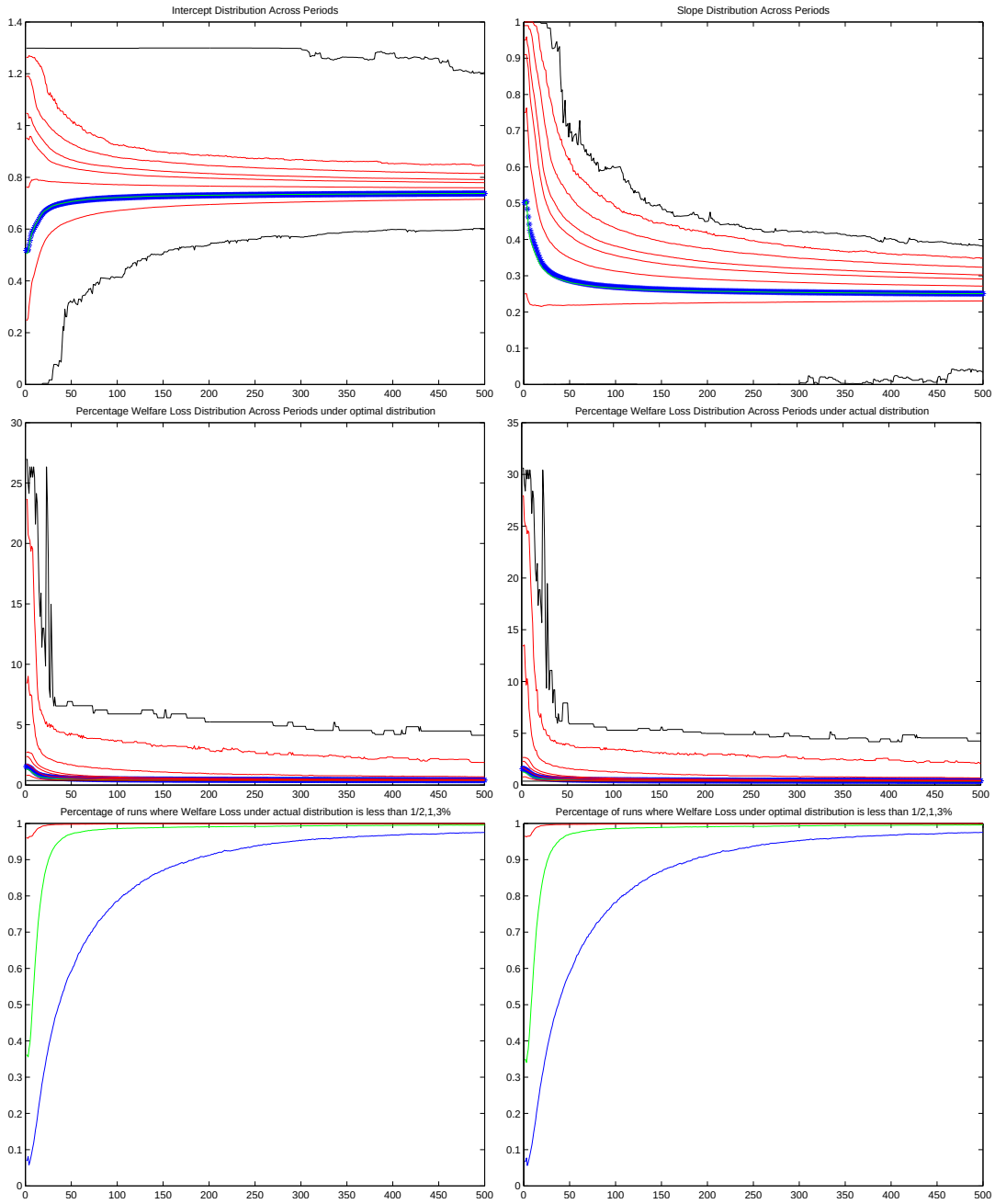

Figure 94: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 2$, $\beta = 0.95$ and the (DG) version of the algorithm.

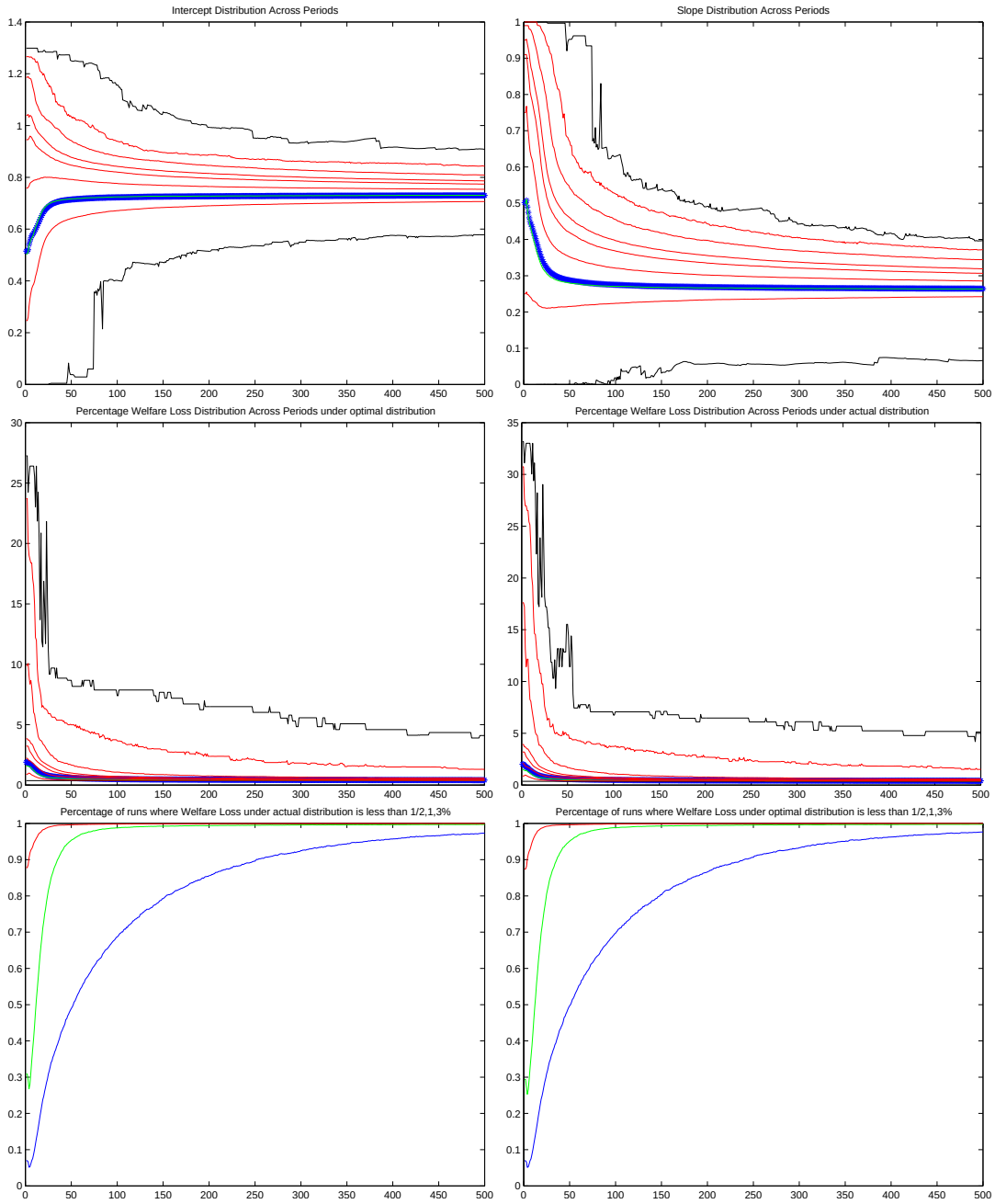

Figure 95: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3$, $\beta = 0.9$ and the (DG) version of the algorithm.

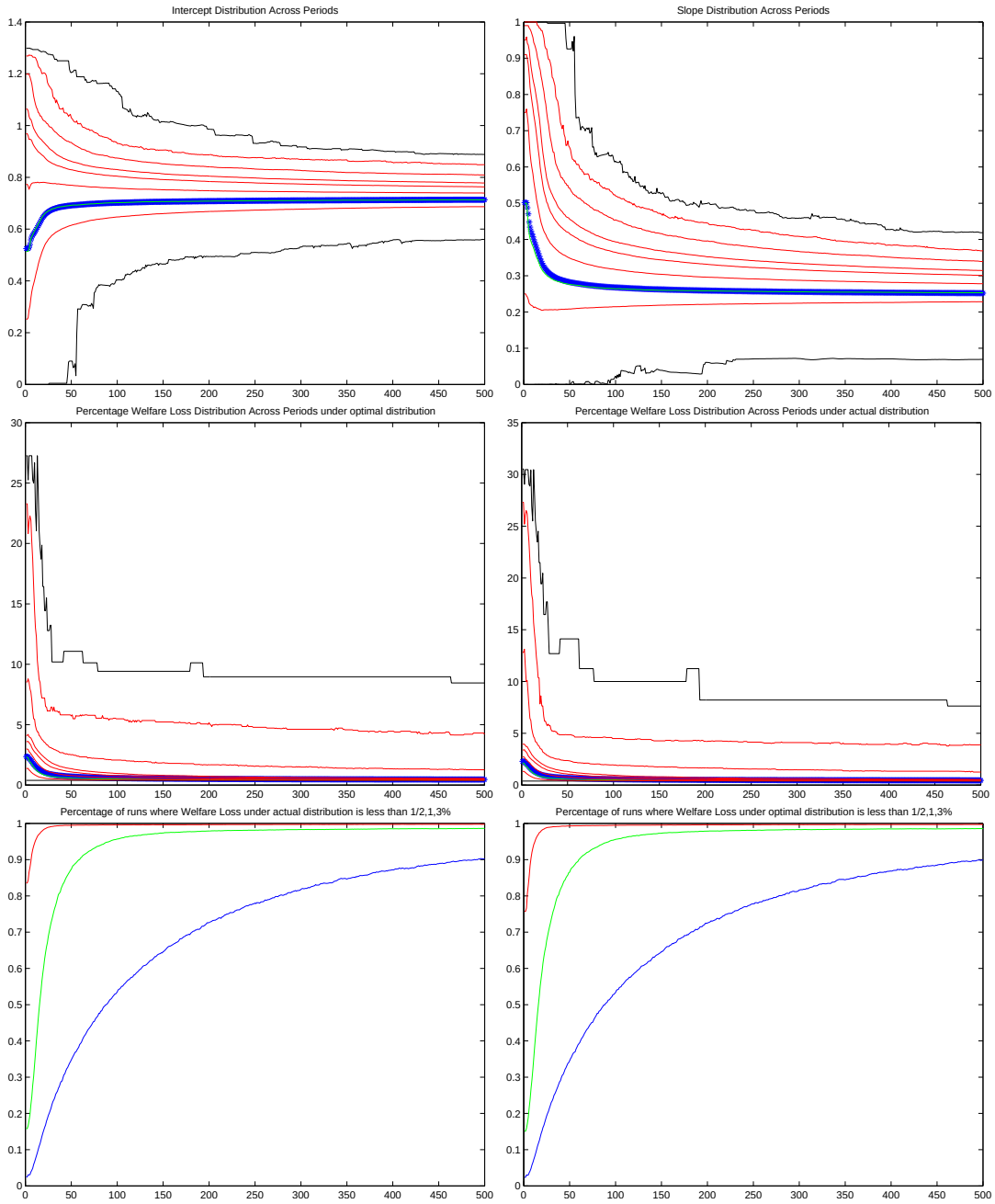

Figure 96: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3$, $\beta = 0.95$ and the (DG) version of the algorithm.

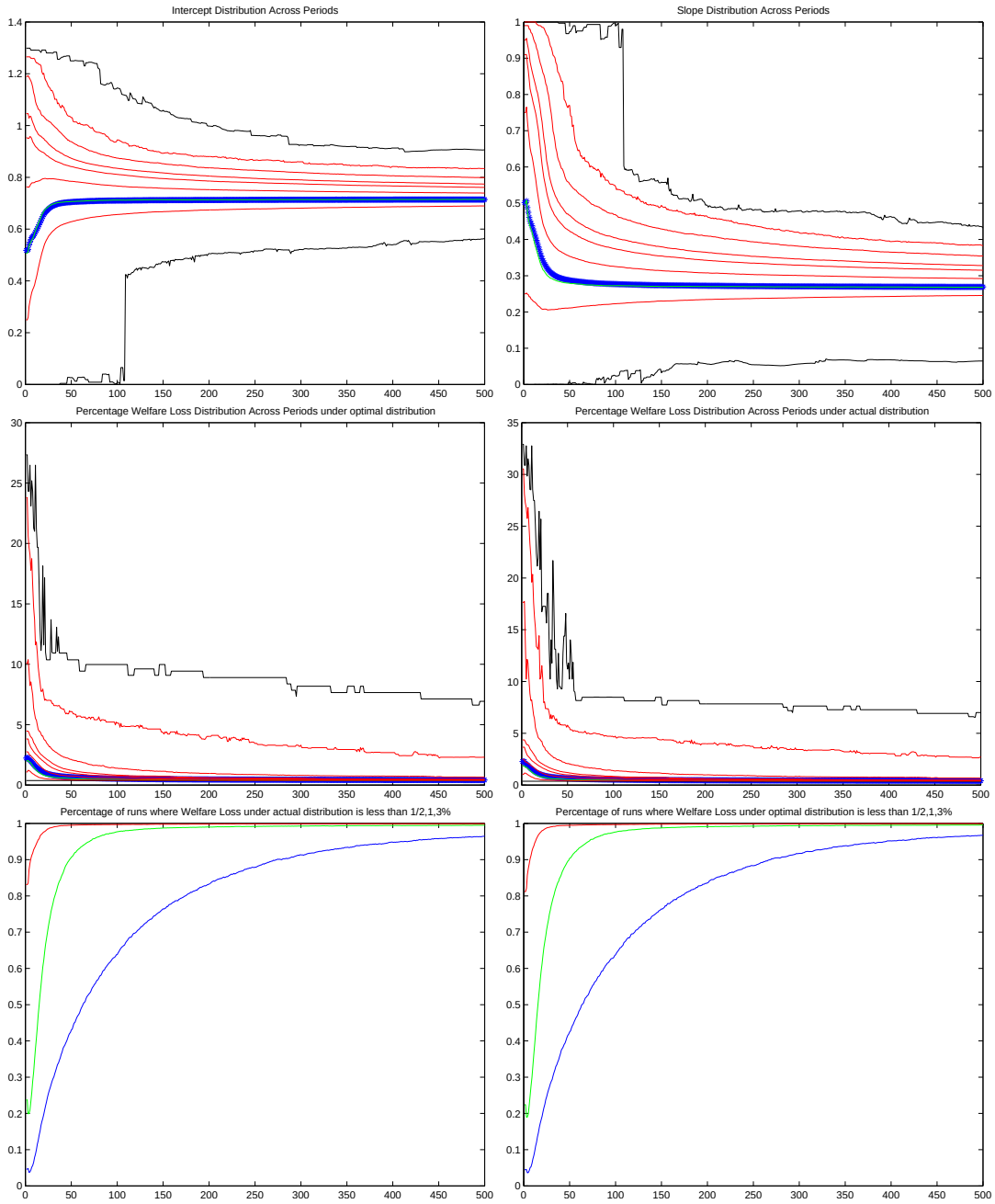

Figure 97: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3.5$, $\beta = 0.9$ and the (DG) version of the algorithm.

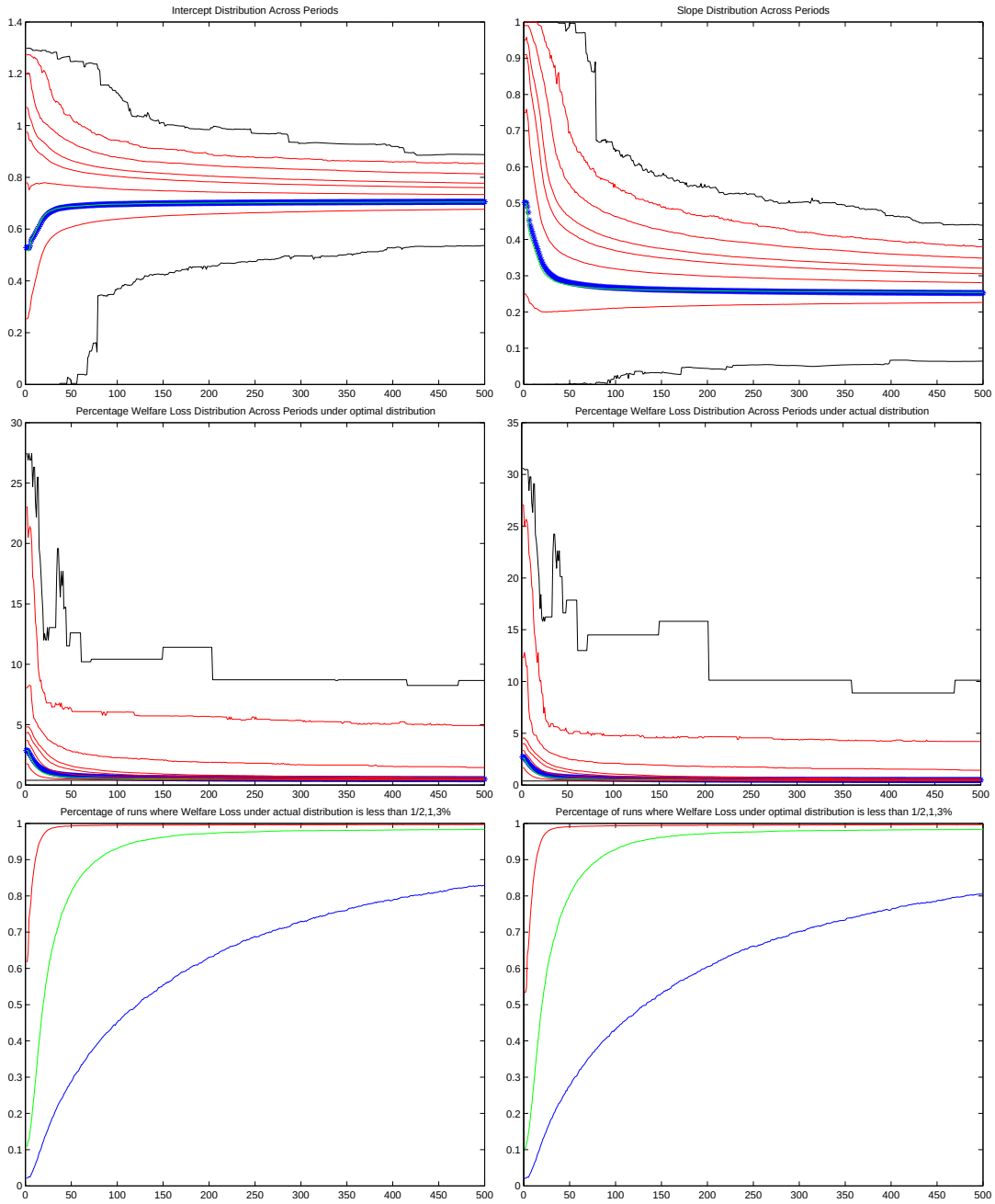

Figure 98: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3.5$, $\beta = 0.95$ and the (DG) version of the algorithm.

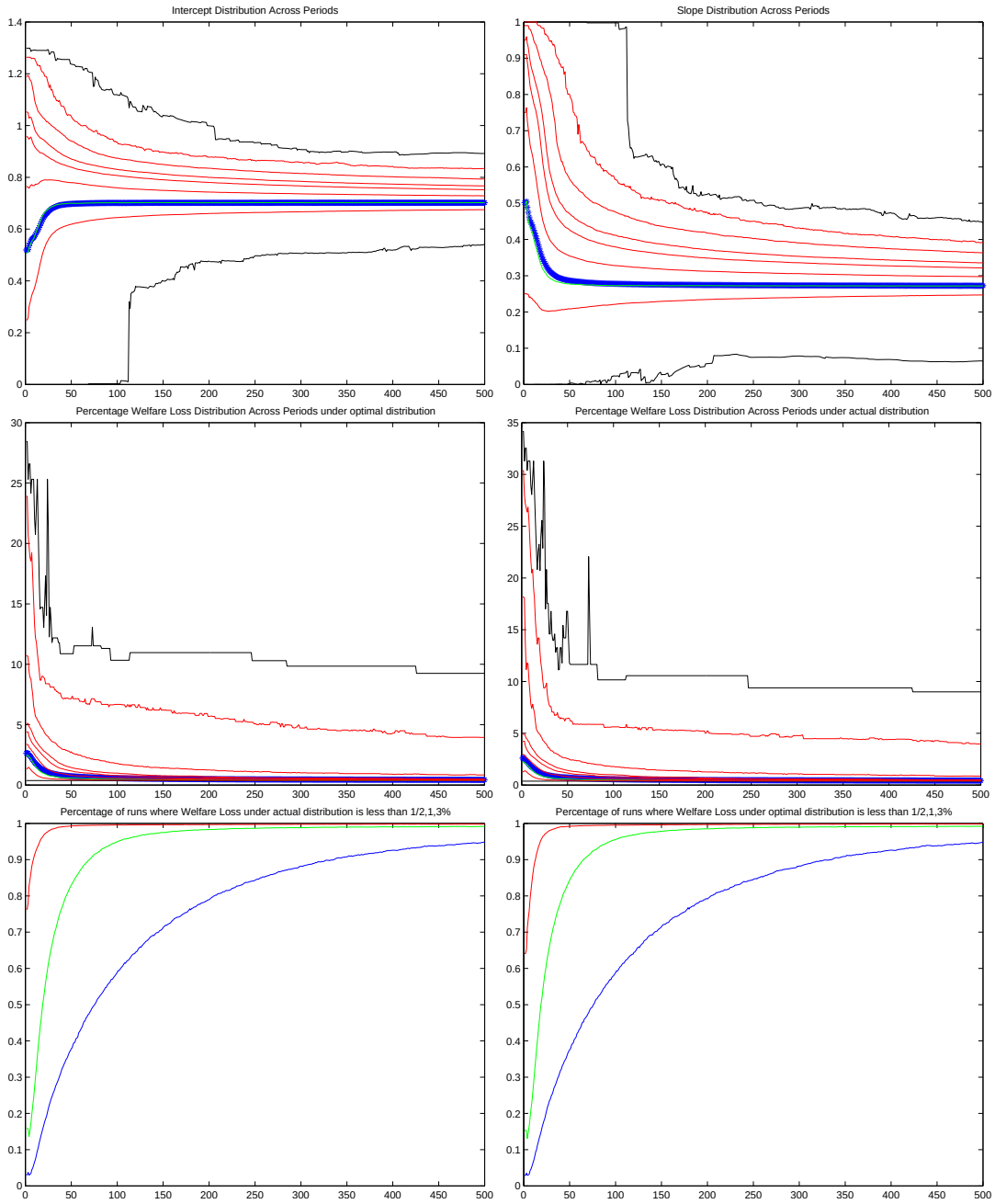

Figure 99: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 4$, $\beta = 0.9$ and the (DG) version of the algorithm.

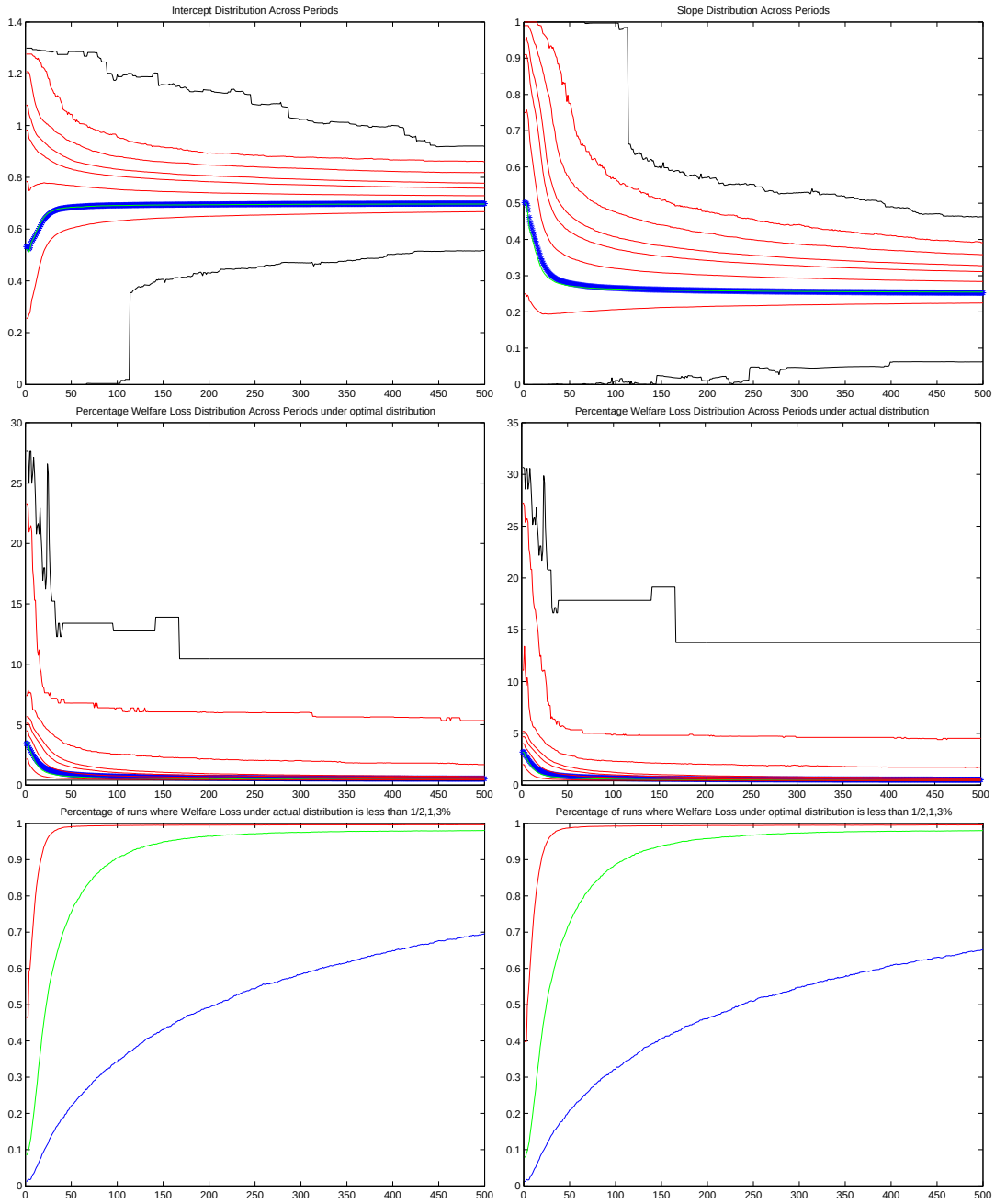

Figure 100: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 4$, $\beta = 0.95$ and the (DG) version of the algorithm.

1.7 $(\epsilon, \delta, \xi) = (0.2, 0, 1)$

Table 15: Probability of D^* or D^t below 1/2 at different periods for (CG').

		$t = 0$		$t = 50$		$t = 100$		$t = 250$		$t = 500$	
β	θ	D^*	D^t	D^*	D^t	D^*	D^t	D^*	D^t	D^*	D^t
0.9	1.5	0.1338	0.1429	0.4648	0.4801	0.4623	0.4770	0.4608	0.4750	0.4666	0.4827
	2.0	0.0940	0.1016	0.2827	0.2918	0.2791	0.2883	0.2802	0.2904	0.2782	0.2863
	3.0	0.0695	0.0698	0.1571	0.1579	0.1563	0.1565	0.1520	0.1513	0.1474	0.1483
	3.5	0.0445	0.0463	0.1302	0.1346	0.1320	0.1358	0.1279	0.1318	0.1237	0.1278
	4.0	0.0290	0.0305	0.1131	0.1175	0.1151	0.1195	0.1146	0.1171	0.1144	0.1180
0.95	1.5	0.1286	0.1305	0.3216	0.3262	0.3166	0.3205	0.3187	0.3224	0.3154	0.3189
	2.0	0.0673	0.0702	0.2260	0.2309	0.2231	0.2294	0.2267	0.2324	0.2207	0.2264
	3.0	0.0239	0.0247	0.1435	0.1441	0.1440	0.1445	0.1420	0.1444	0.1485	0.1488
	3.5	0.0210	0.0214	0.1250	0.1291	0.1239	0.1280	0.1234	0.1280	0.1286	0.1333
	4.0	0.0124	0.0129	0.1012	0.1066	0.1020	0.1060	0.0988	0.1031	0.1019	0.1072

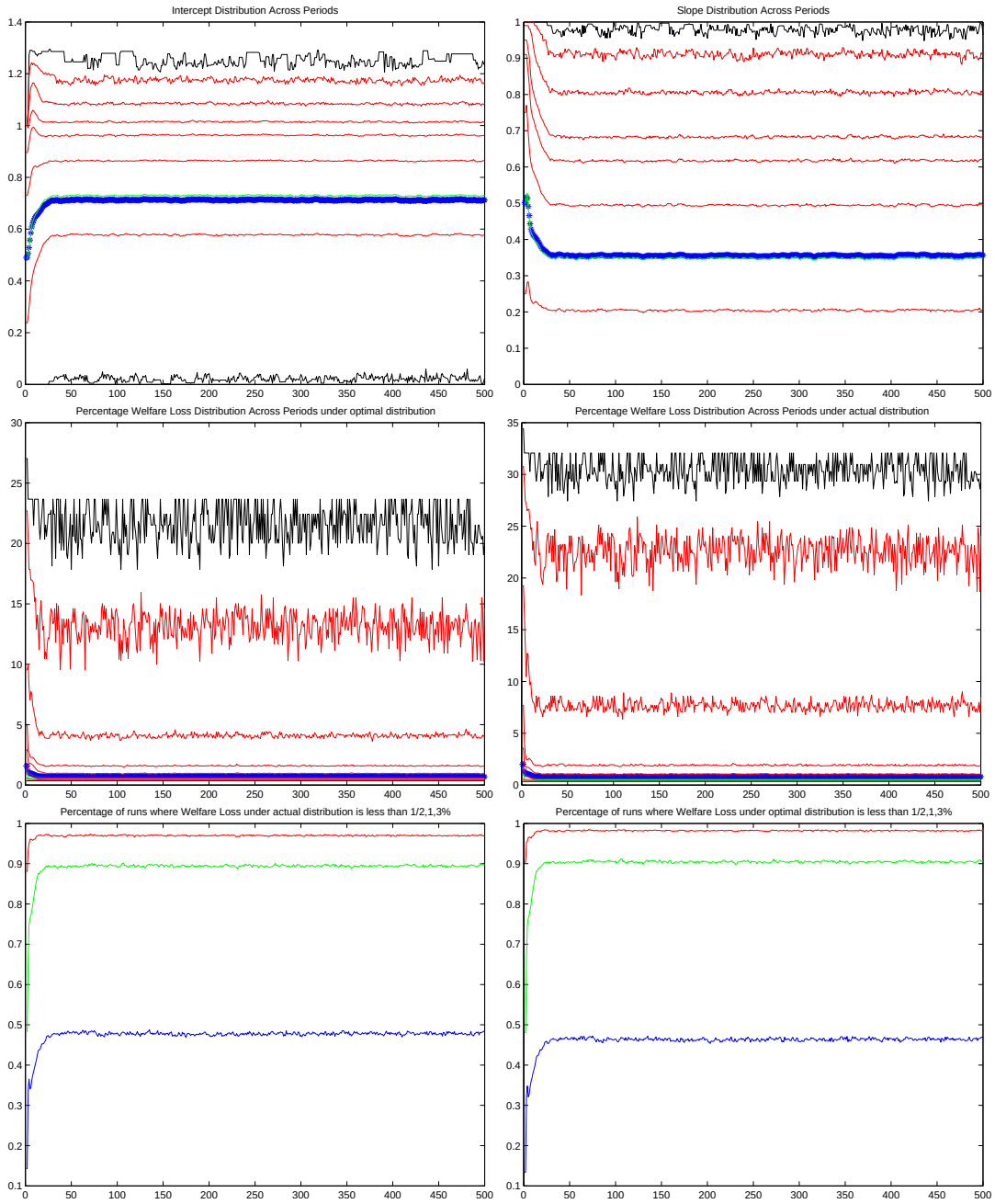

Figure 101: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 1.5$, $\beta = 0.9$ and the (CG') version of the algorithm.

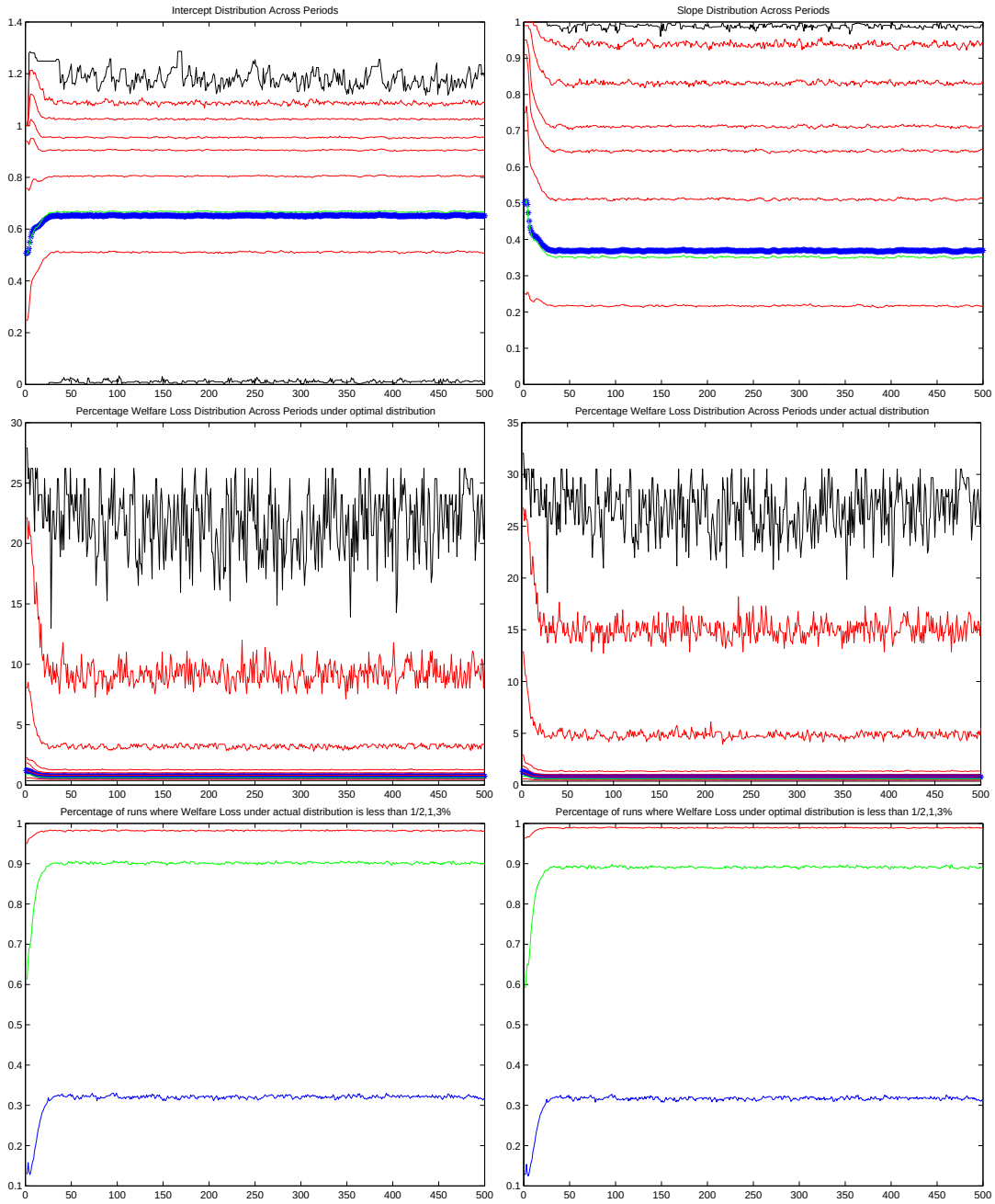

Figure 102: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 1.5$, $\beta = 0.95$ and the (CG') version of the algorithm.

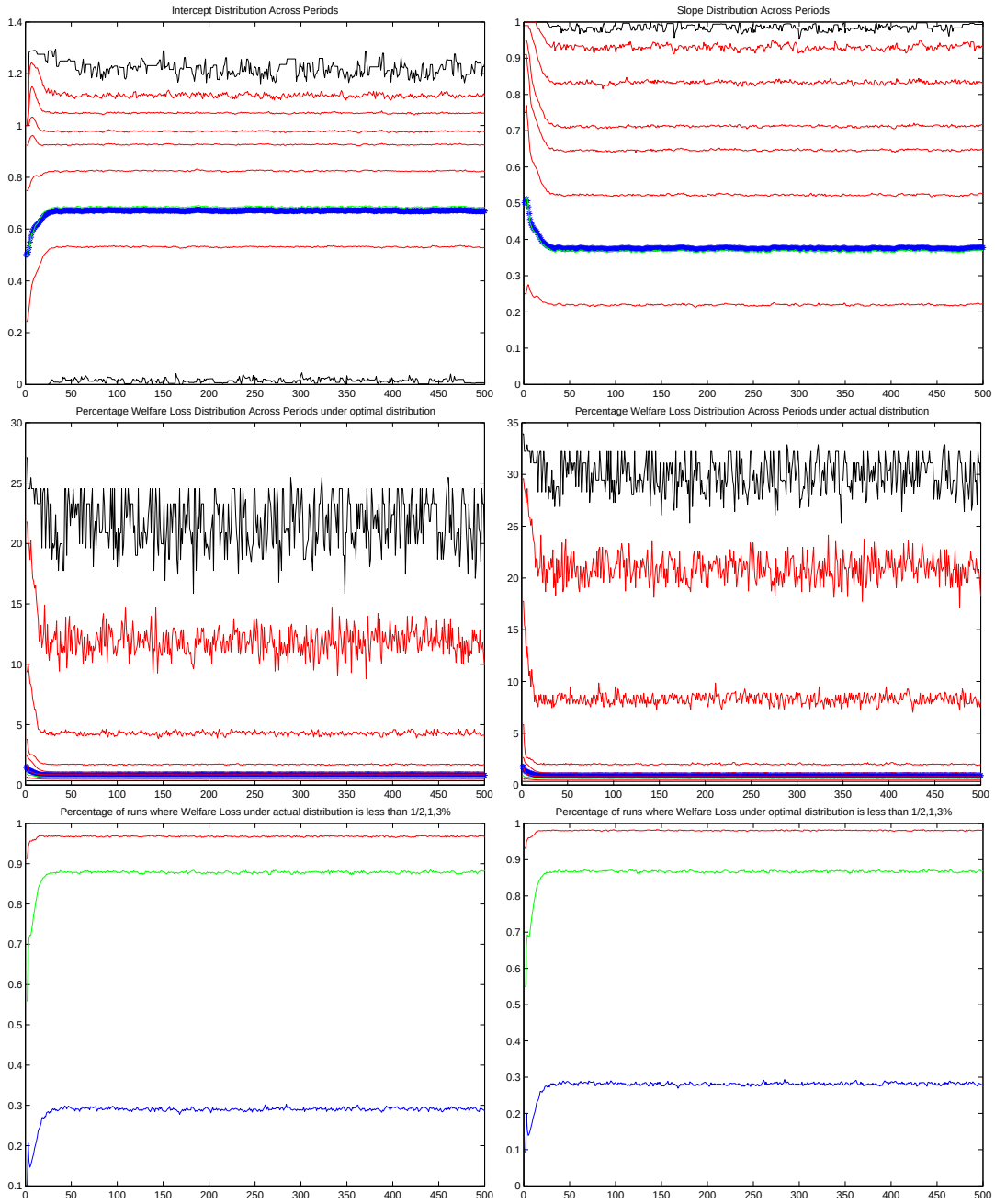

Figure 103: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 2$, $\beta = 0.9$ and the (CG') version of the algorithm.

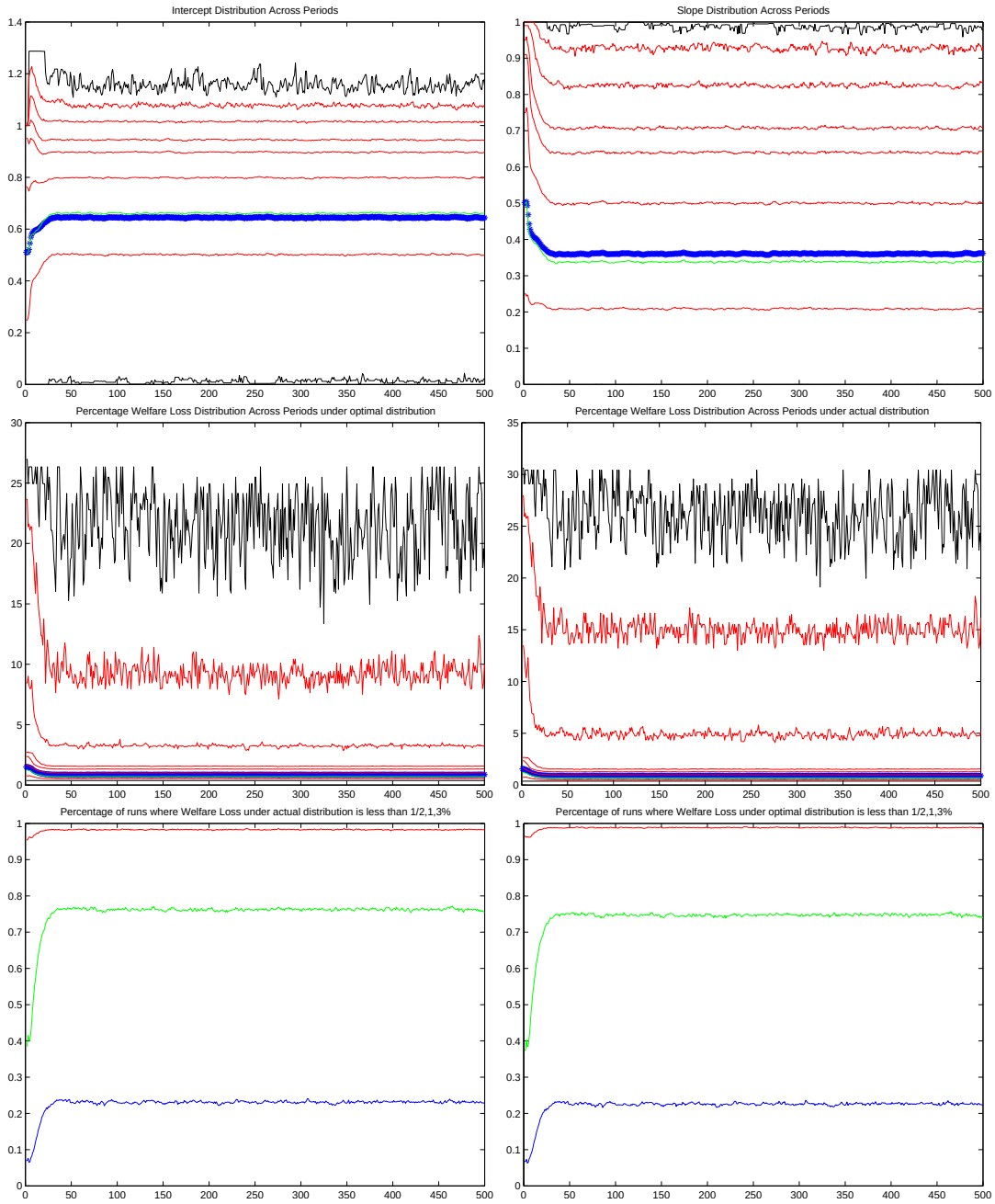

Figure 104: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 2$, $\beta = 0.95$ and the (CG') version of the algorithm.

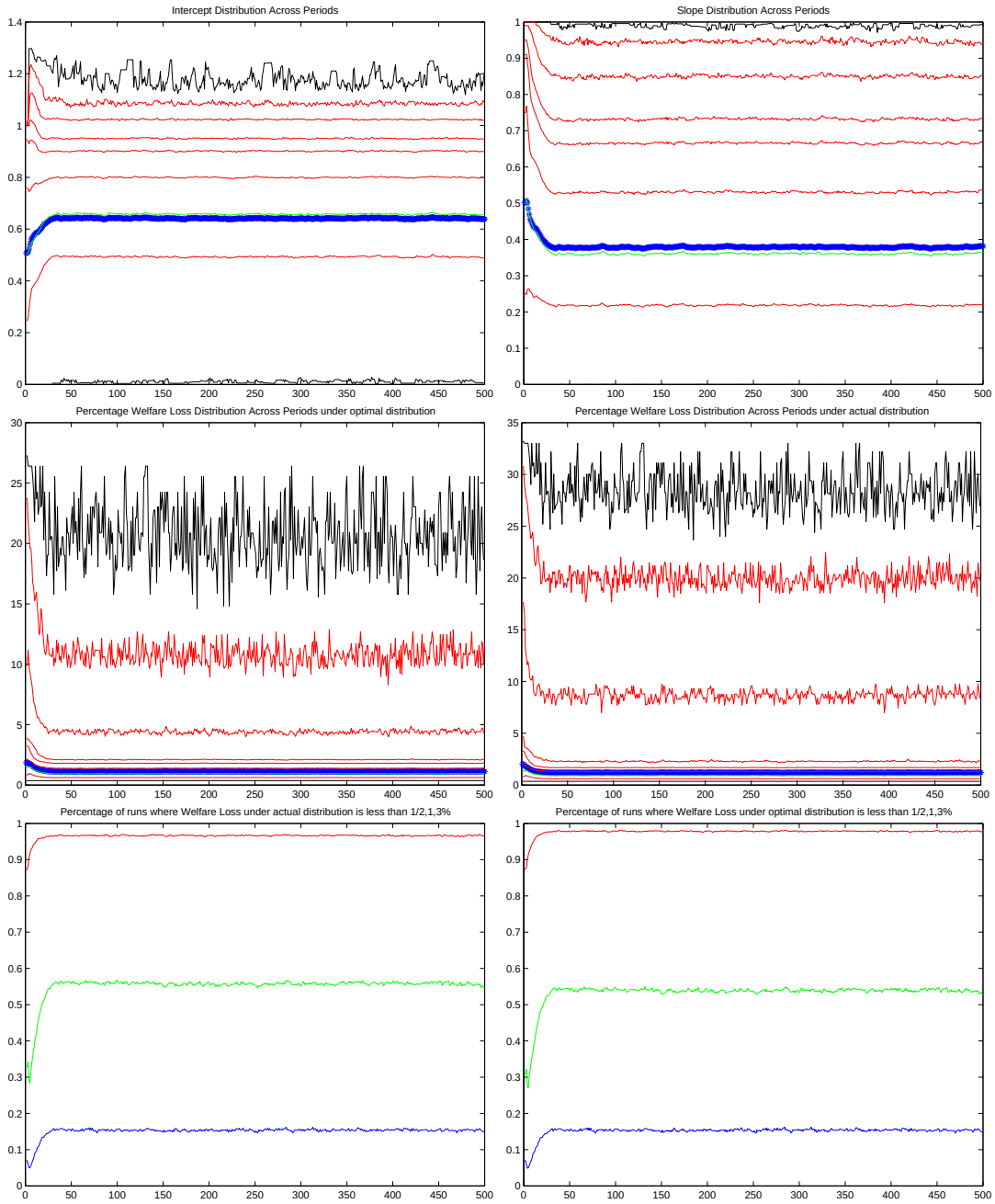

Figure 105: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3$, $\beta = 0.9$ and the (CG') version of the algorithm.

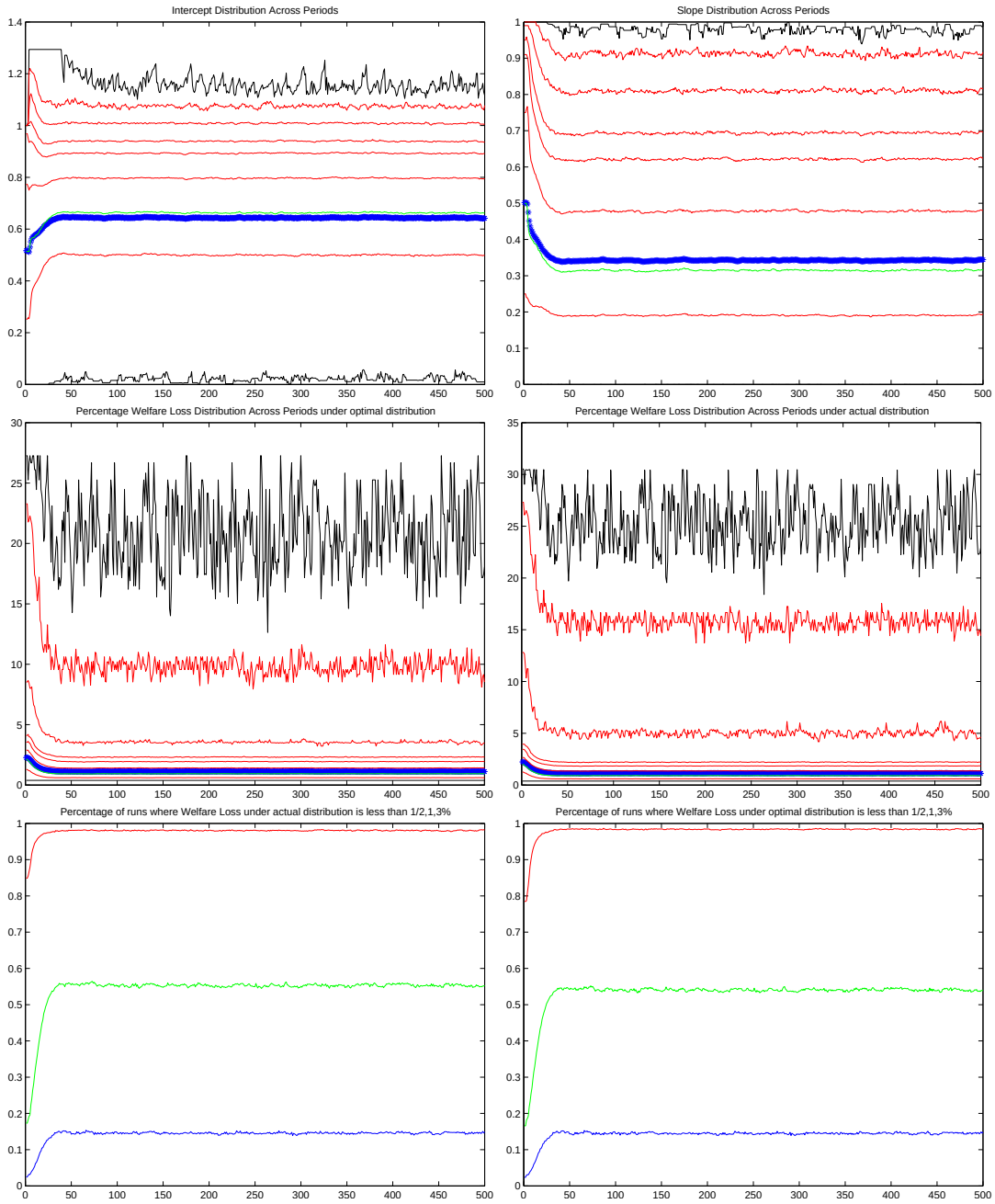

Figure 106: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3$, $\beta = 0.95$ and the (CG') version of the algorithm.

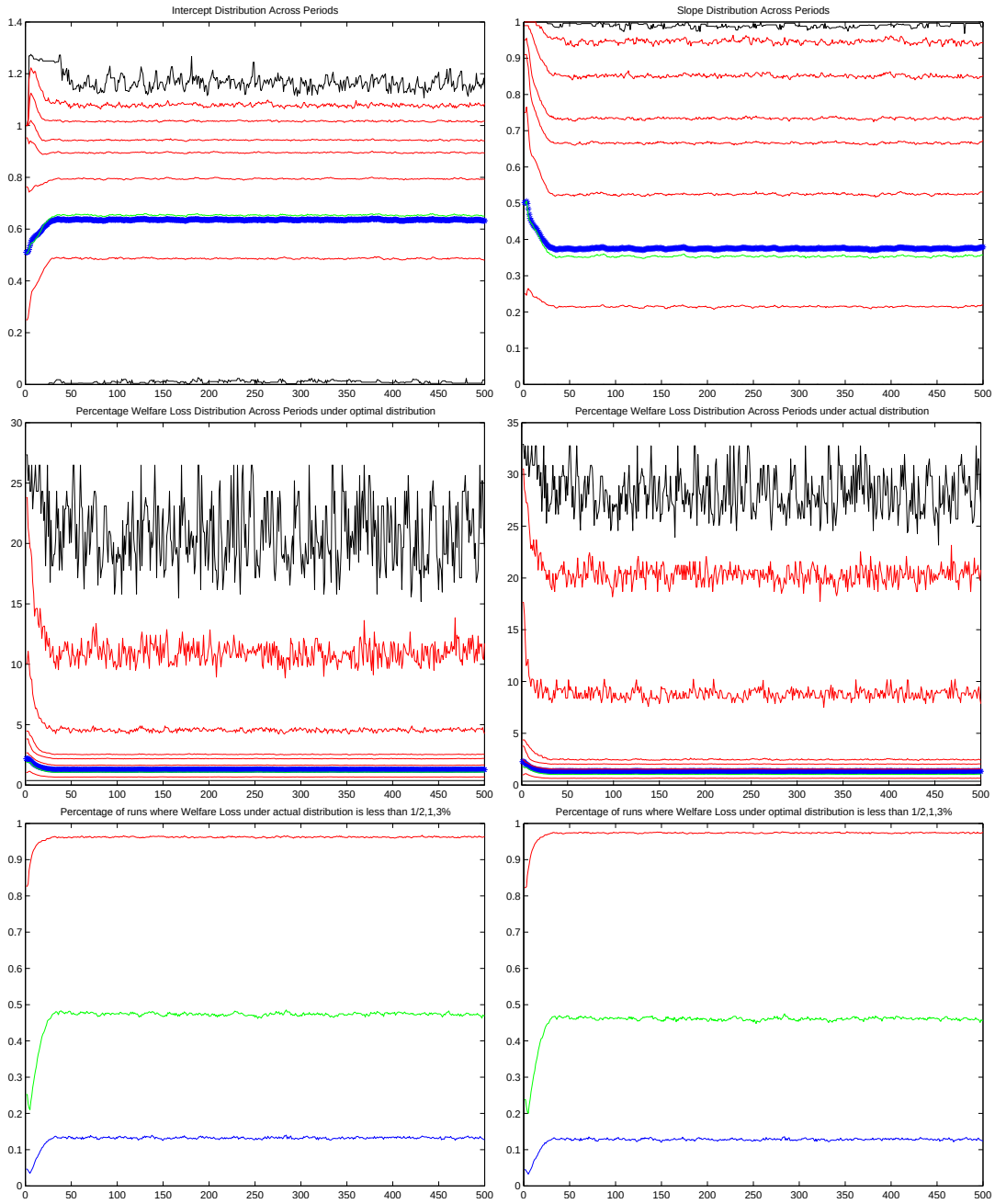

Figure 107: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3.5$, $\beta = 0.9$ and the (CG') version of the algorithm.

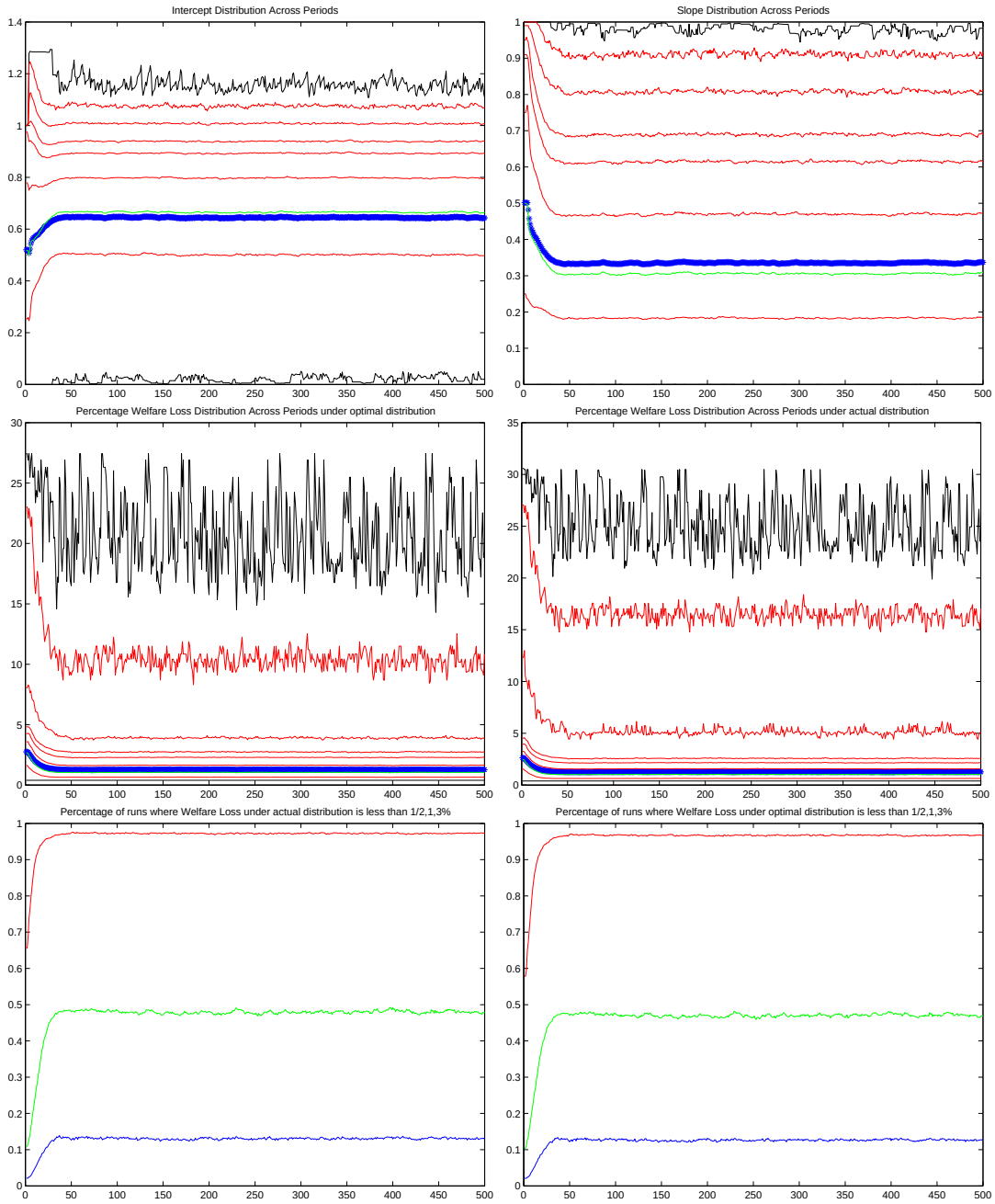

Figure 108: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3.5$, $\beta = 0.95$ and the (CG') version of the algorithm.

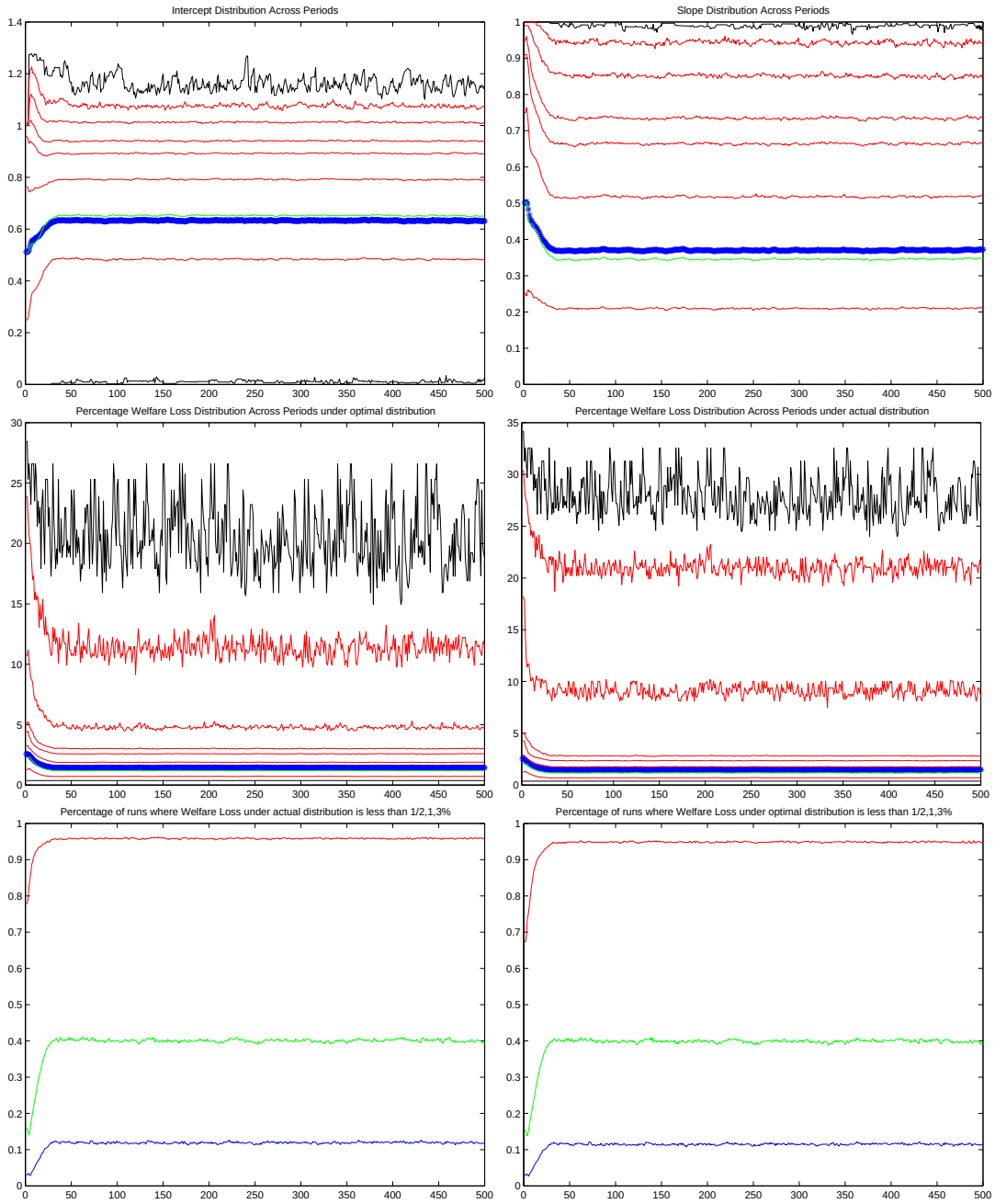

Figure 109: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 4$, $\beta = 0.9$ and the (CG') version of the algorithm.

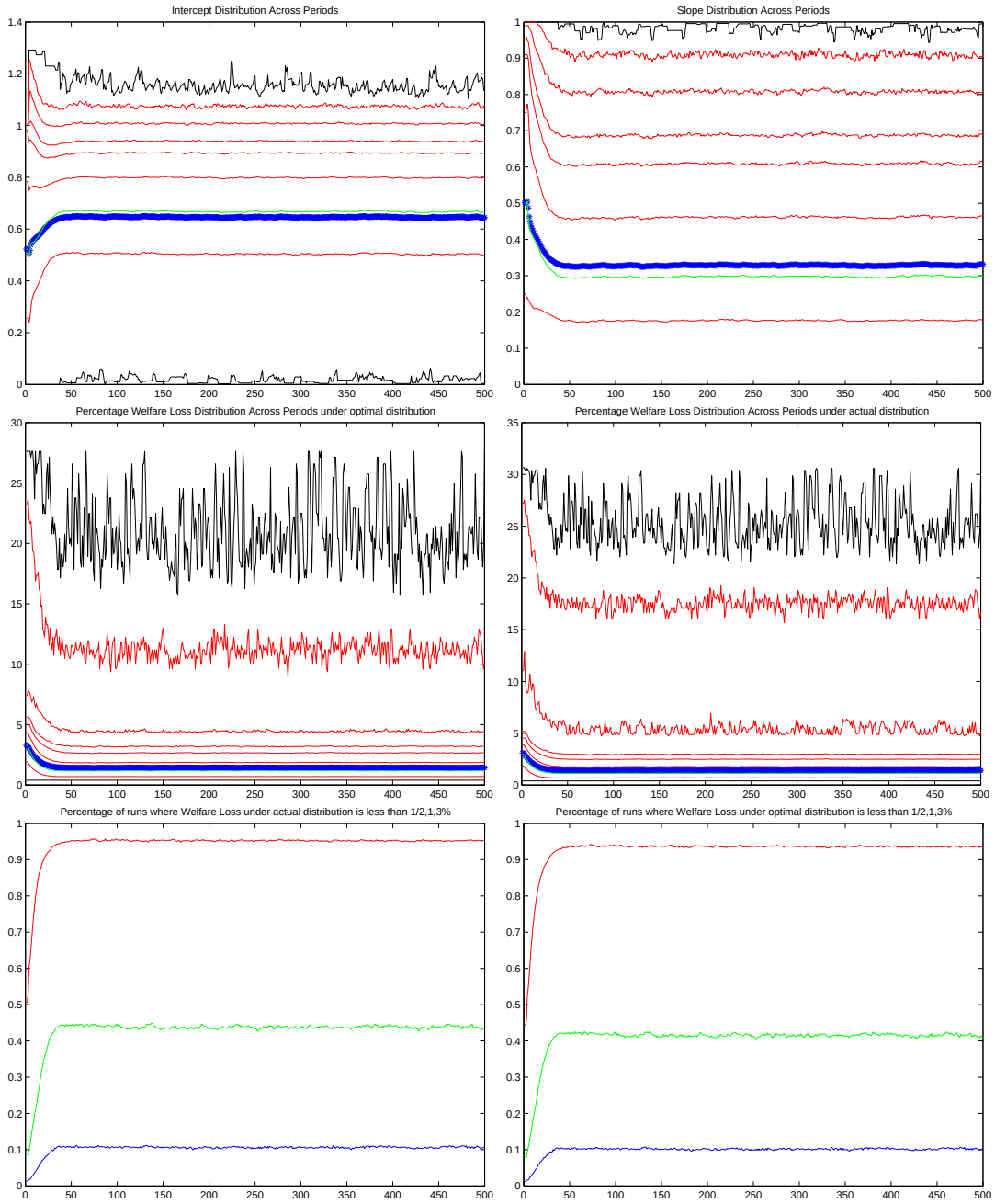

Figure 110: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 4$, $\beta = 0.95$ and the (CG') version of the algorithm.

1.8 $(\epsilon, \delta, \xi) = (0, 0.5, 1)$

Table 16: Probability of D^* or D^t below 1/2 at different periods for (CG').

		$t = 0$		$t = 50$		$t = 100$		$t = 250$		$t = 500$	
β	θ	D^*	D^t	D^*	D^t	D^*	D^t	D^*	D^t	D^*	D^t
0.9	1.5	0.1338	0.1429	0.9218	0.9164	0.9612	0.9550	0.9855	0.9832	0.9916	0.9905
	2.0	0.0940	0.1016	0.8058	0.8106	0.9092	0.9094	0.9687	0.9651	0.9832	0.9806
	3.0	0.0695	0.0698	0.4472	0.4454	0.5775	0.5740	0.7657	0.7587	0.8771	0.8716
	3.5	0.0445	0.0463	0.3530	0.3631	0.4889	0.4990	0.7006	0.7059	0.8418	0.8425
	4.0	0.0290	0.0305	0.2844	0.2924	0.4083	0.4180	0.6108	0.6194	0.7714	0.7784
0.95	1.5	0.1286	0.1305	0.7088	0.7123	0.8330	0.8330	0.9330	0.9319	0.9656	0.9642
	2.0	0.0673	0.0702	0.4746	0.4842	0.6059	0.6150	0.7816	0.7873	0.8857	0.8885
	3.0	0.0239	0.0247	0.2218	0.2251	0.3003	0.3033	0.4320	0.4424	0.5611	0.5765
	3.5	0.0210	0.0214	0.1644	0.1726	0.2183	0.2300	0.3114	0.3316	0.3991	0.4268
	4.0	0.0124	0.0129	0.1142	0.1223	0.1500	0.1606	0.2099	0.2263	0.2675	0.2915

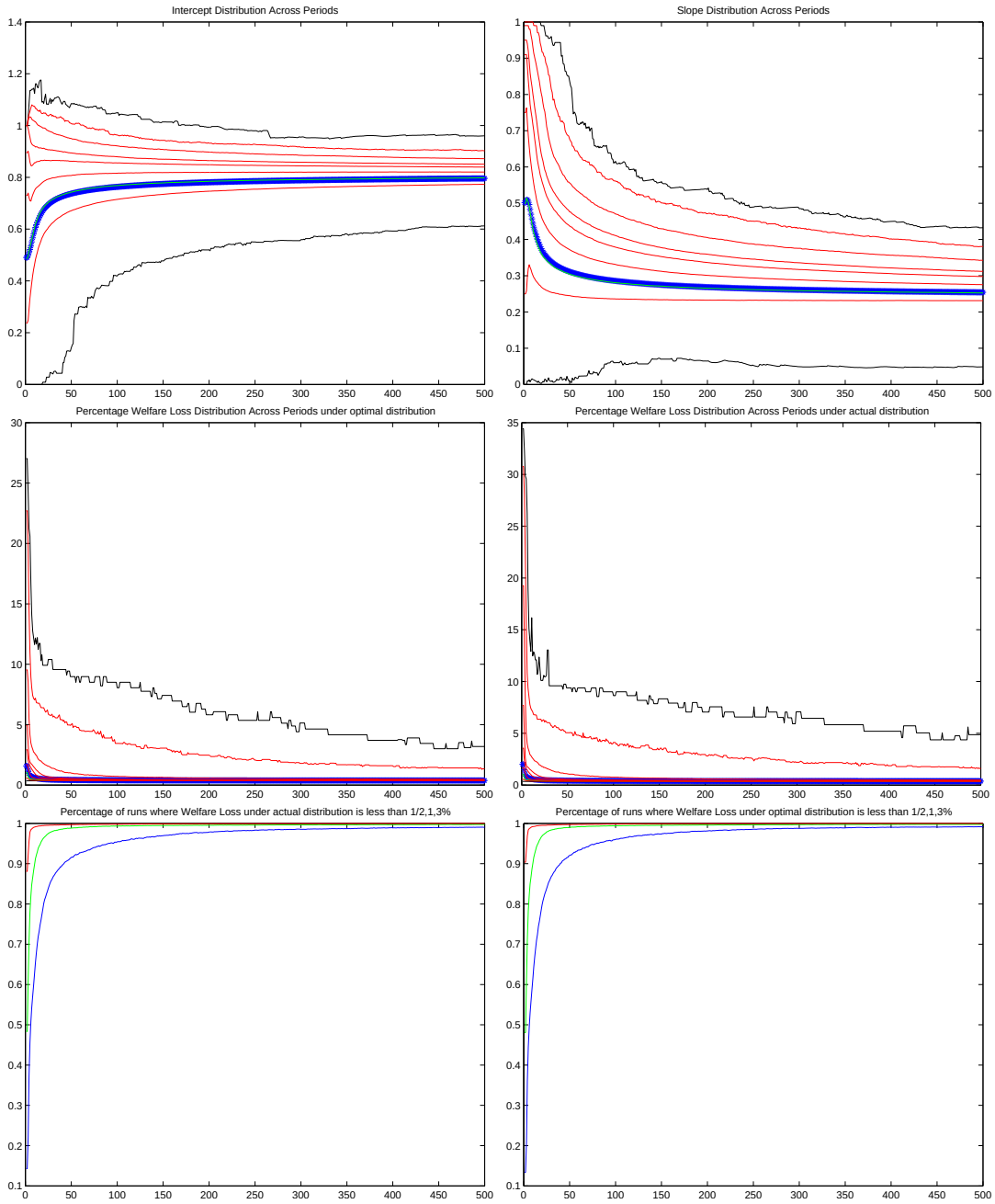

Figure 111: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 1.5$, $\beta = 0.9$ and the (CG') version of the algorithm.

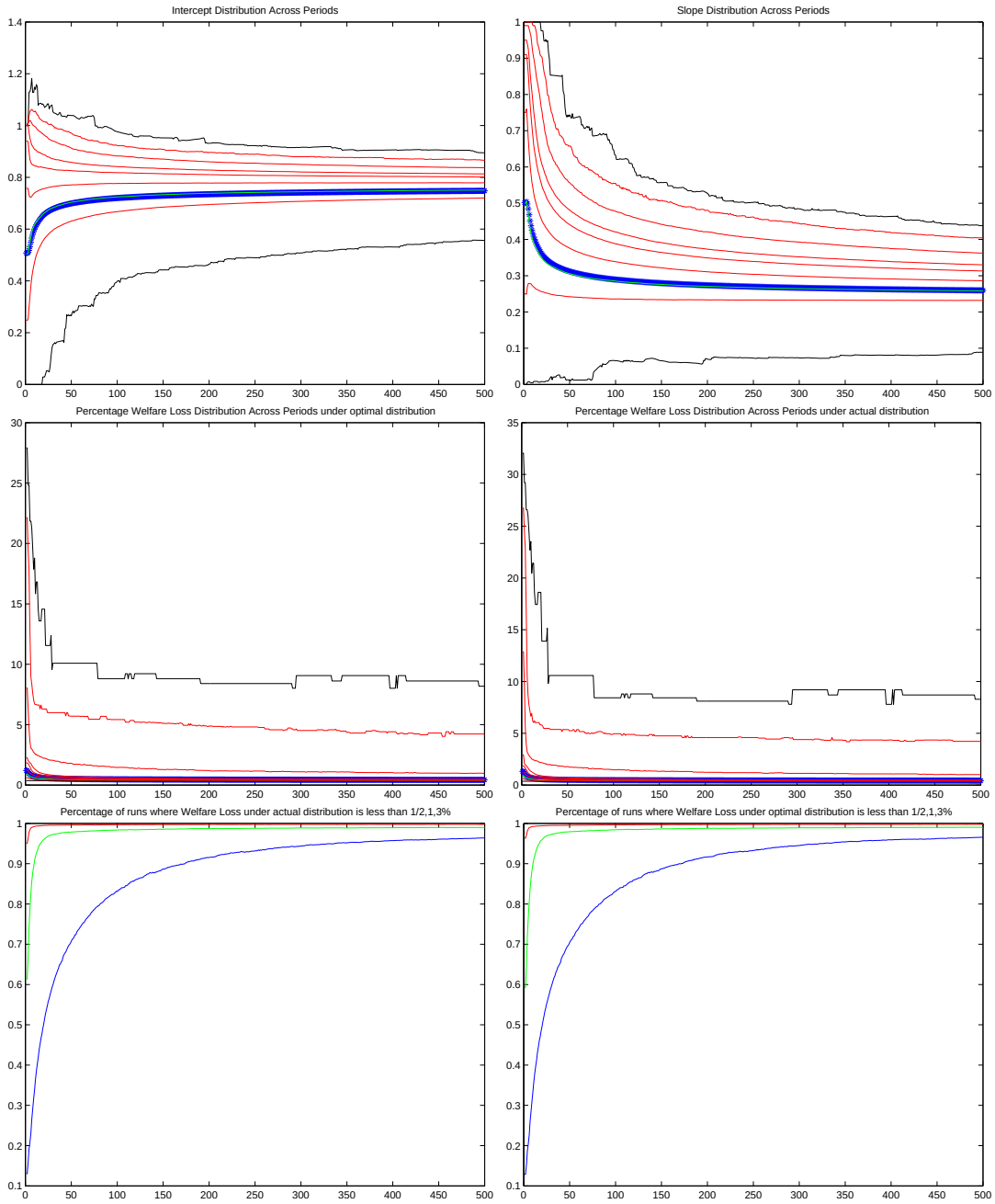

Figure 112: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 1.5$, $\beta = 0.95$ and the (CG') version of the algorithm.

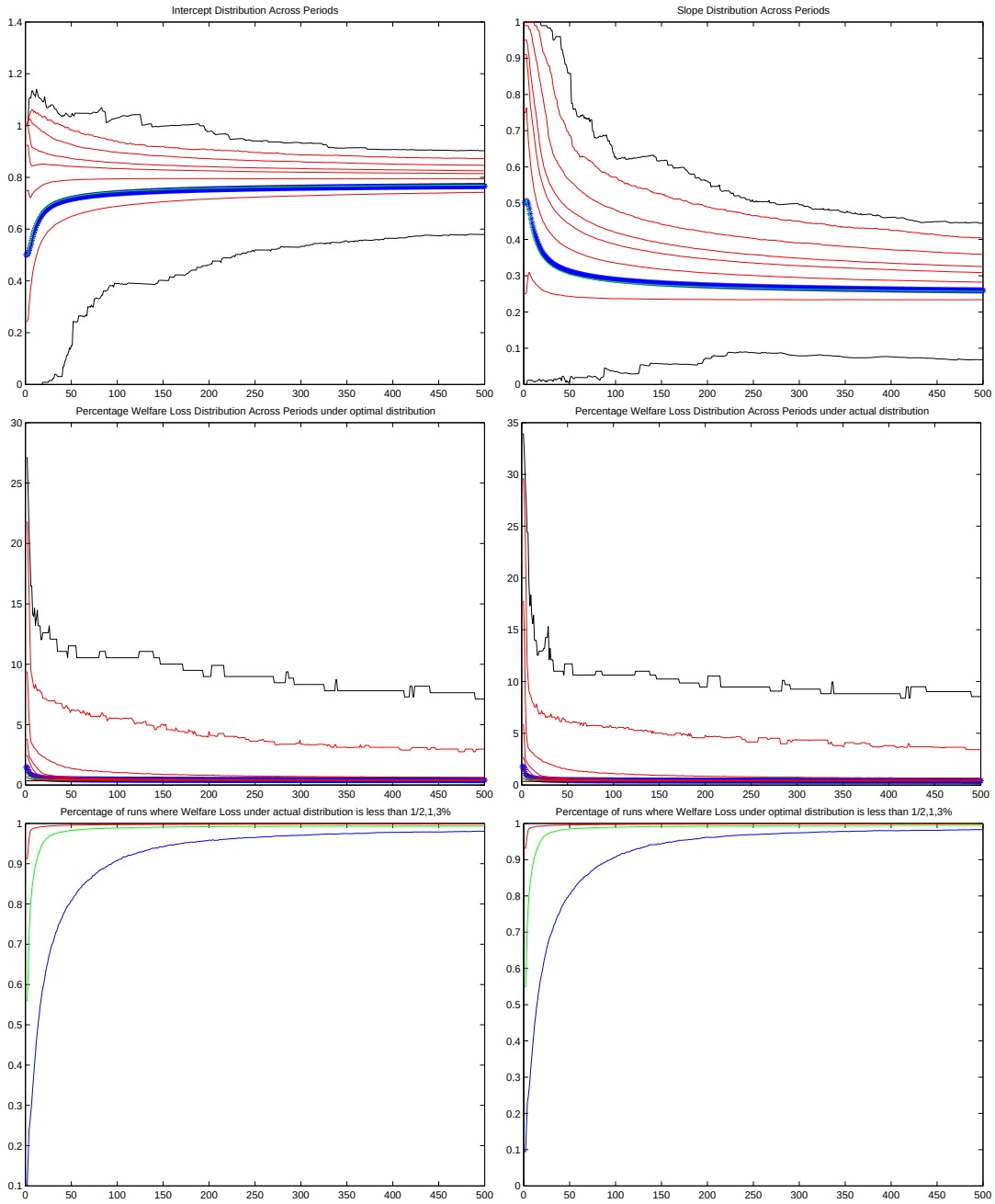

Figure 113: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 2$, $\beta = 0.9$ and the (CG') version of the algorithm.

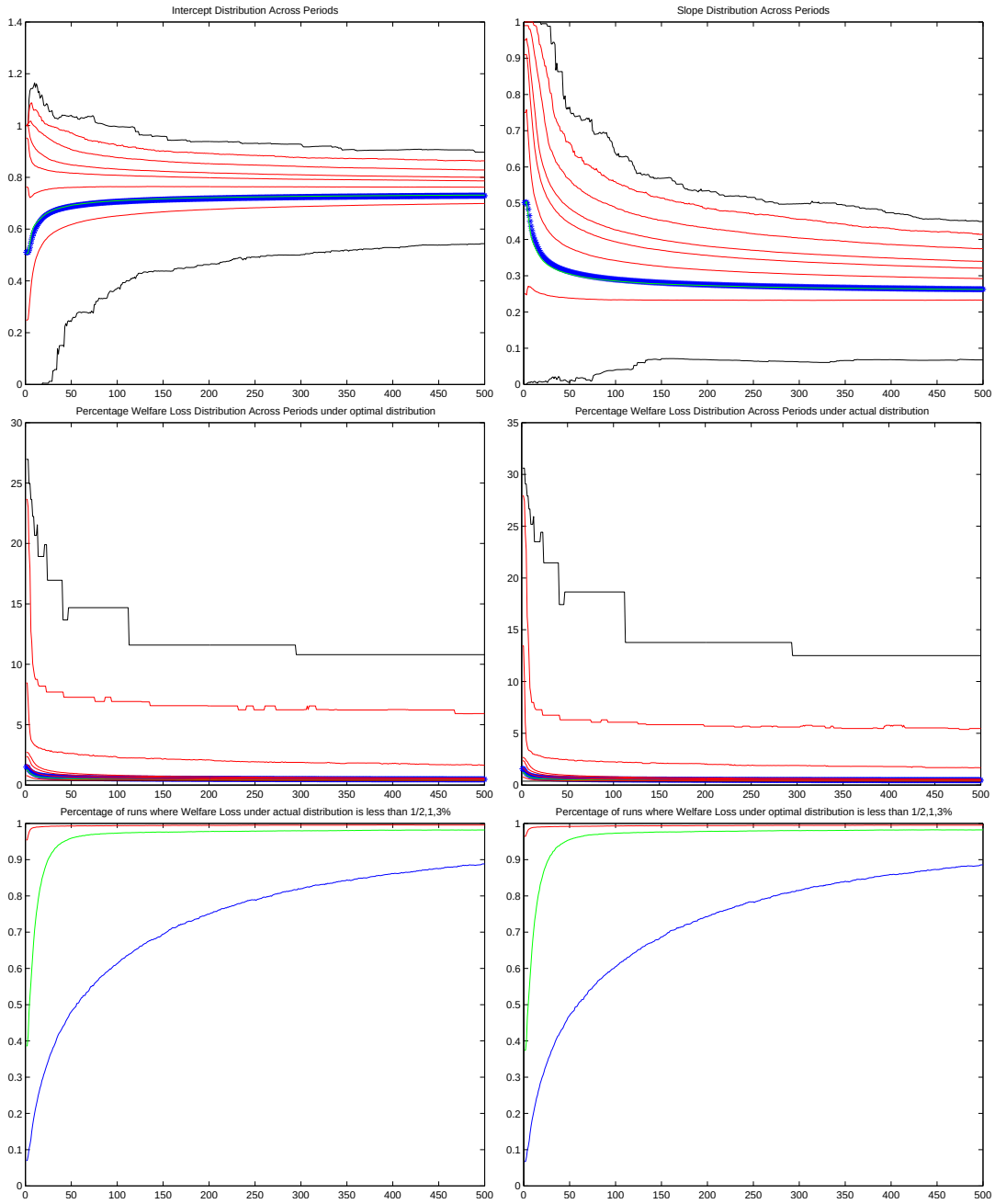

Figure 114: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 2$, $\beta = 0.95$ and the (CG') version of the algorithm.

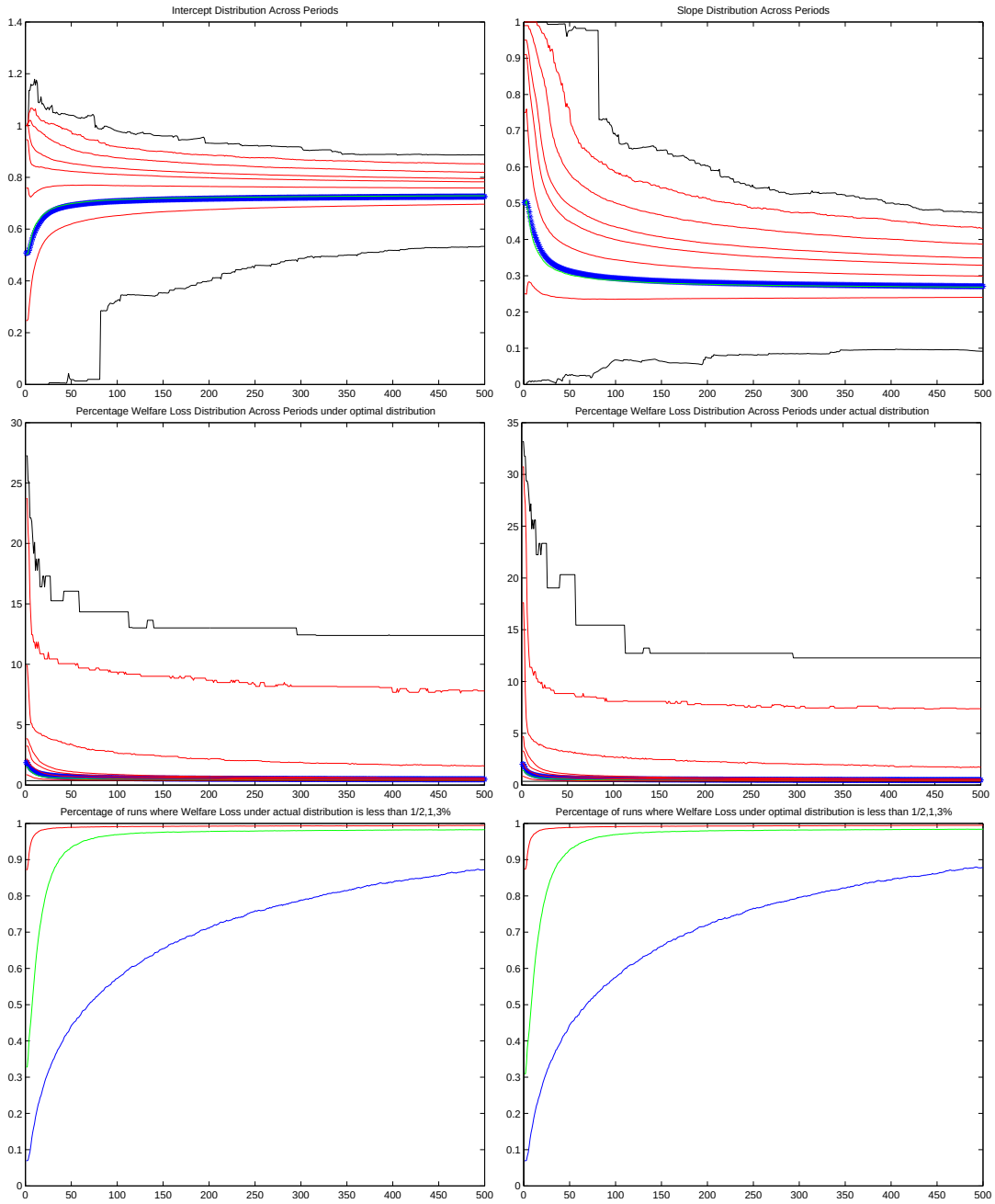

Figure 115: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3$, $\beta = 0.9$ and the (CG') version of the algorithm.

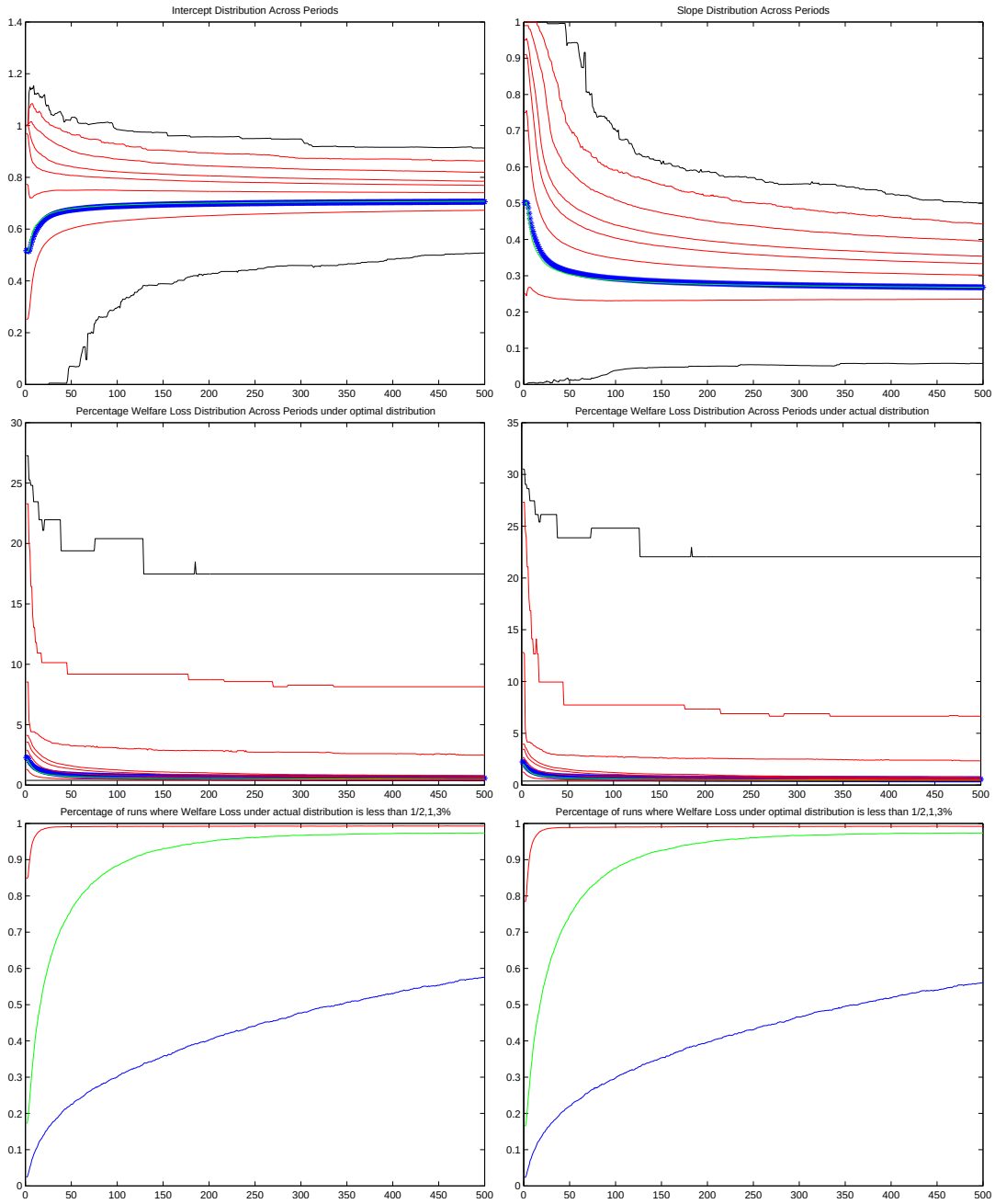

Figure 116: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3$, $\beta = 0.95$ and the (CG') version of the algorithm.

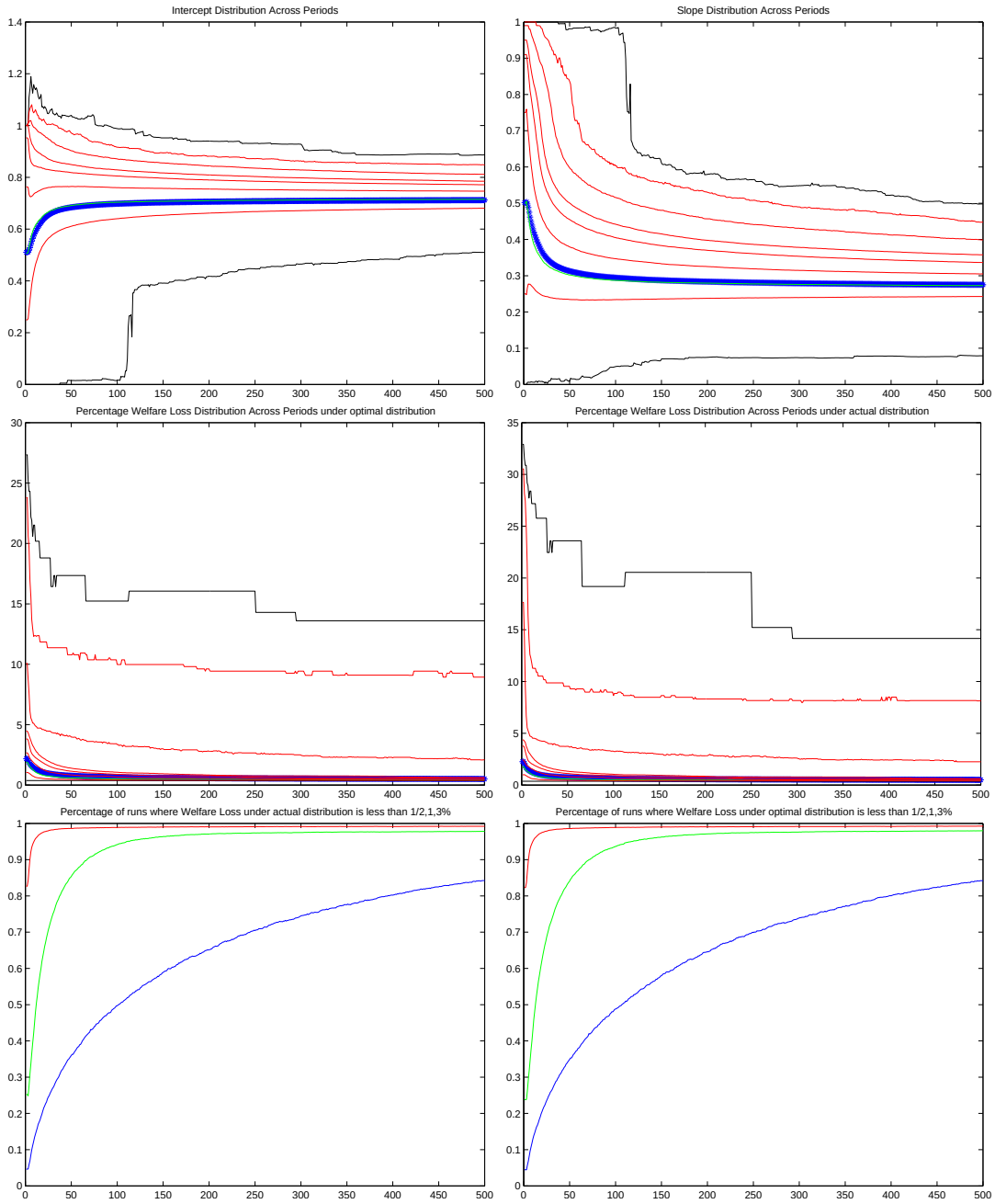

Figure 117: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3.5$, $\beta = 0.9$ and the (CG') version of the algorithm.

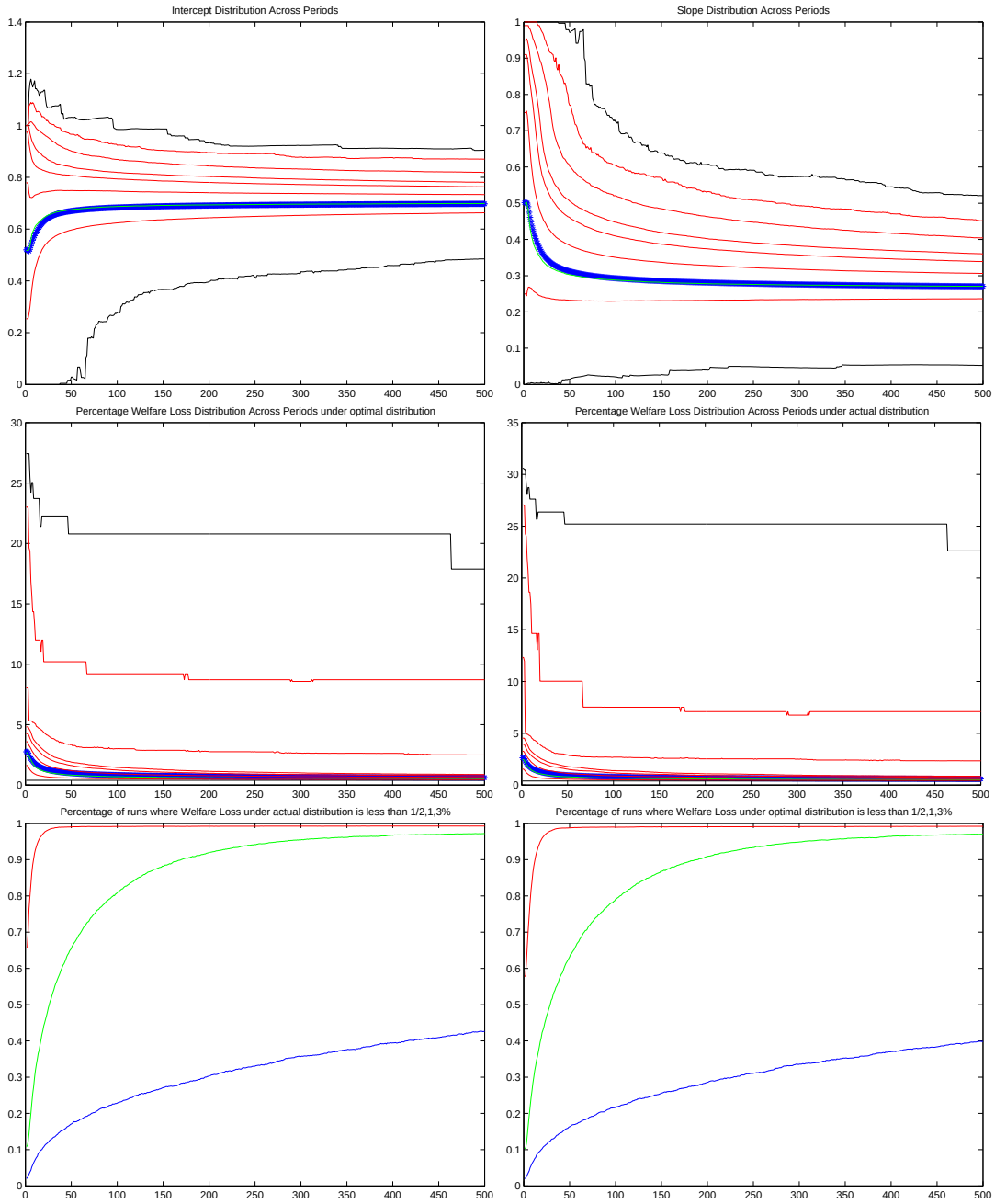

Figure 118: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3.5$, $\beta = 0.95$ and the (CG') version of the algorithm.

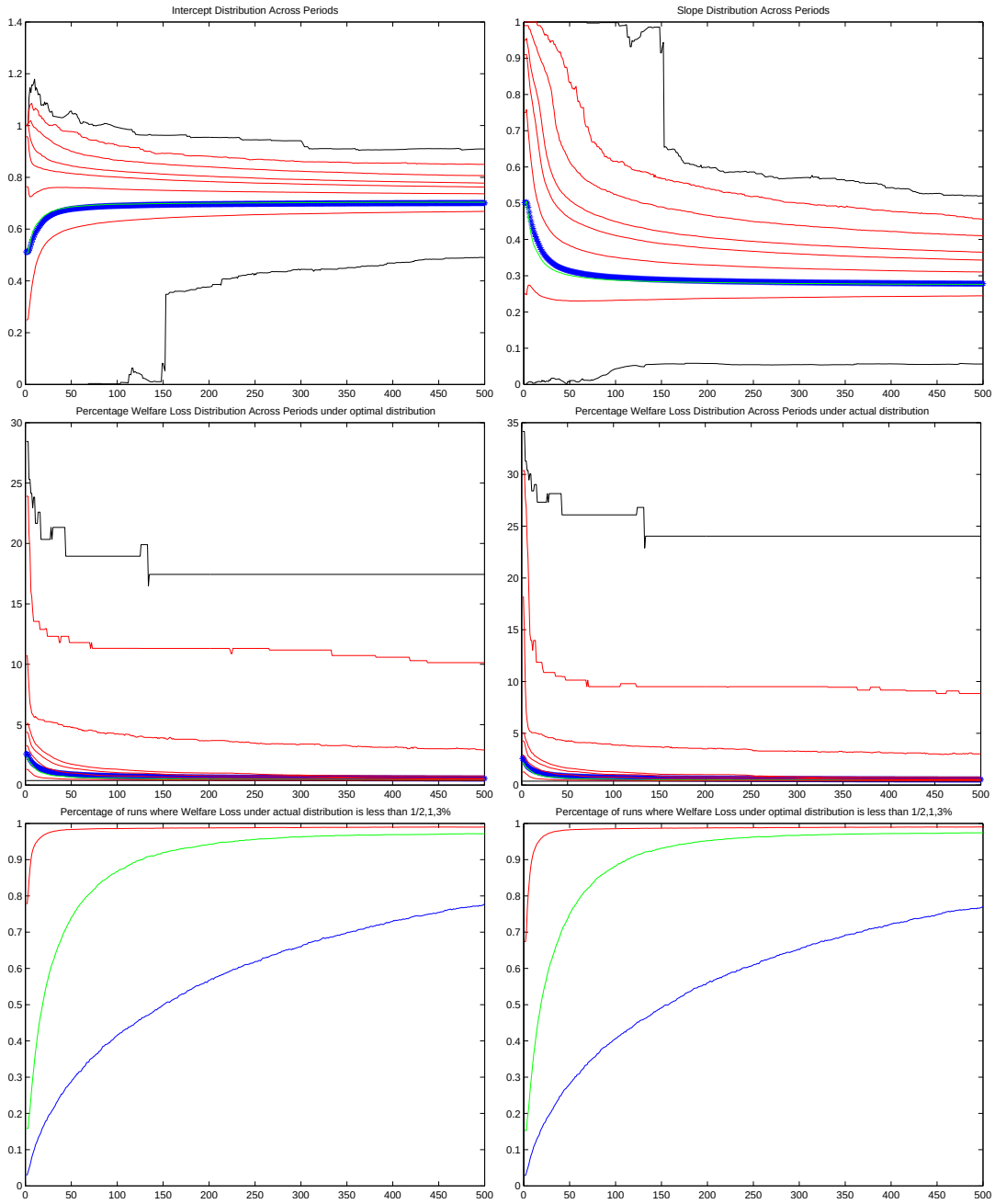

Figure 119: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 4$, $\beta = 0.9$ and the (CG') version of the algorithm.

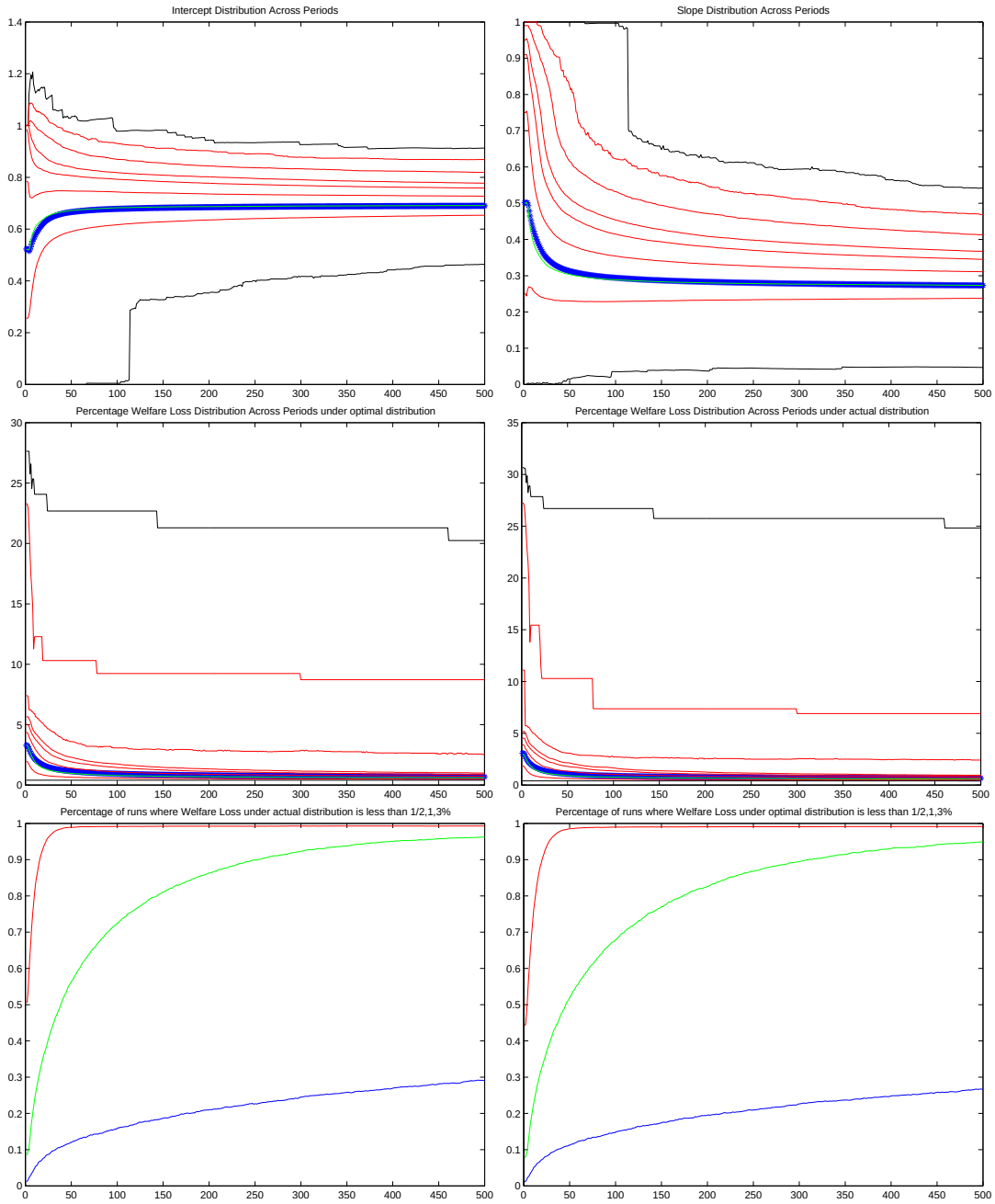

Figure 120: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 4$, $\beta = 0.95$ and the (CG') version of the algorithm.

1.9 $(\epsilon, \delta, \xi) = (0.2, 0.5, 1)$

Table 17: Probability of D^* or D^t below 1/2 at different periods for (CG').

		$t = 0$		$t = 50$		$t = 100$		$t = 250$		$t = 500$	
β	θ	D^*	D^t	D^*	D^t	D^*	D^t	D^*	D^t	D^*	D^t
0.9	1.5	0.1338	0.1429	0.7448	0.7537	0.7406	0.7533	0.7374	0.7519	0.7372	0.7502
	2.0	0.0940	0.1016	0.5373	0.5474	0.5288	0.5410	0.5361	0.5460	0.5306	0.5416
	3.0	0.0695	0.0698	0.3221	0.3201	0.3317	0.3313	0.3326	0.3302	0.3272	0.3265
	3.5	0.0445	0.0463	0.2808	0.2885	0.2902	0.2989	0.2920	0.2996	0.2886	0.2947
	4.0	0.0290	0.0305	0.2525	0.2563	0.2612	0.2666	0.2651	0.2700	0.2579	0.2638
0.95	1.5	0.1286	0.1305	0.5938	0.5960	0.6047	0.6087	0.6041	0.6074	0.5998	0.6024
	2.0	0.0673	0.0702	0.4547	0.4613	0.4728	0.4818	0.4688	0.4773	0.4695	0.4765
	3.0	0.0239	0.0247	0.2876	0.2867	0.3087	0.3106	0.3107	0.3130	0.3079	0.3097
	3.5	0.0210	0.0214	0.2400	0.2482	0.2627	0.2716	0.2615	0.2717	0.2633	0.2735
	4.0	0.0124	0.0129	0.1908	0.2002	0.2085	0.2187	0.2086	0.2193	0.2081	0.2178

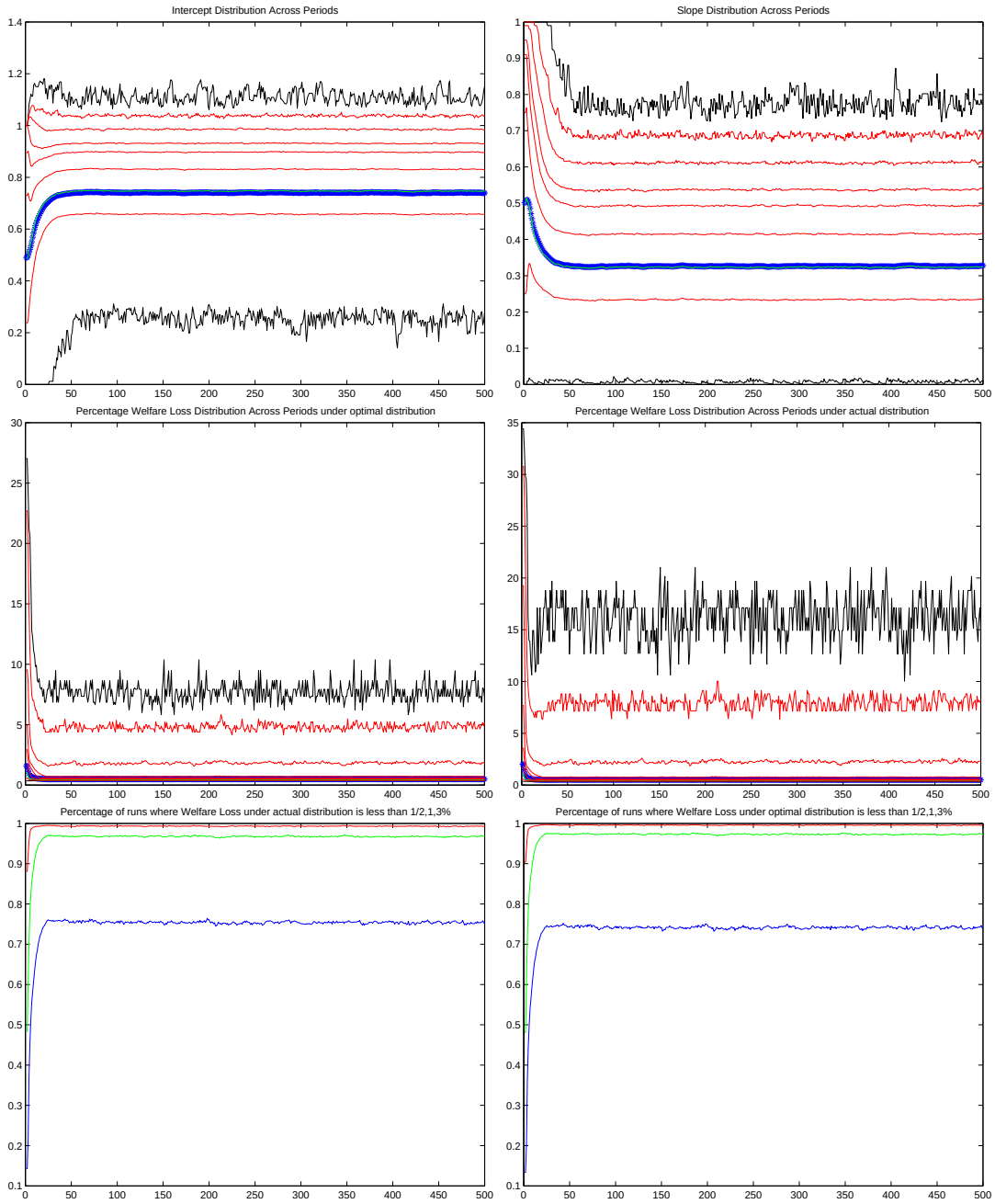

Figure 121: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 1.5$, $\beta = 0.9$ and the (CG') version of the algorithm.

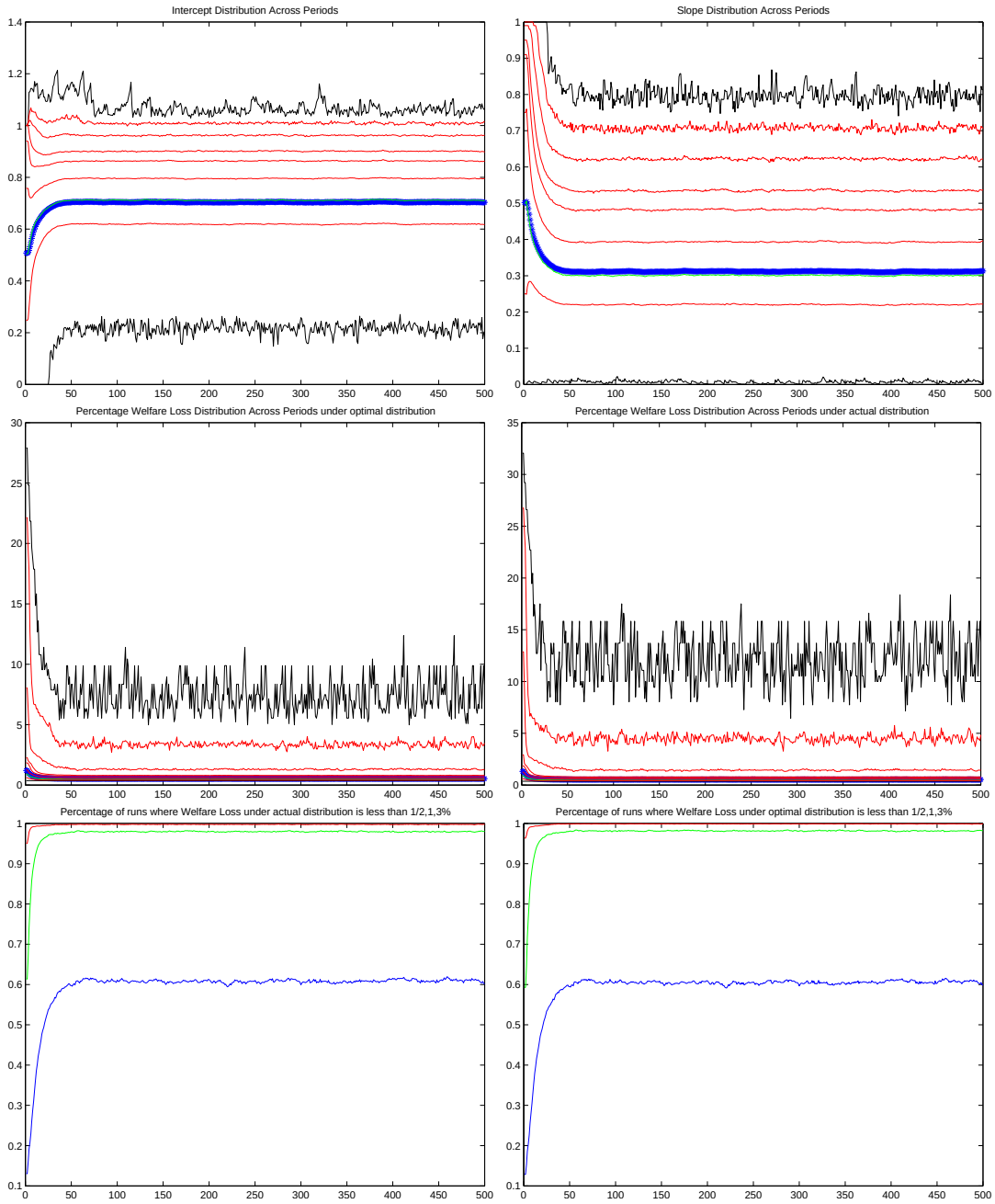

Figure 122: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 1.5$, $\beta = 0.95$ and the (CG') version of the algorithm.

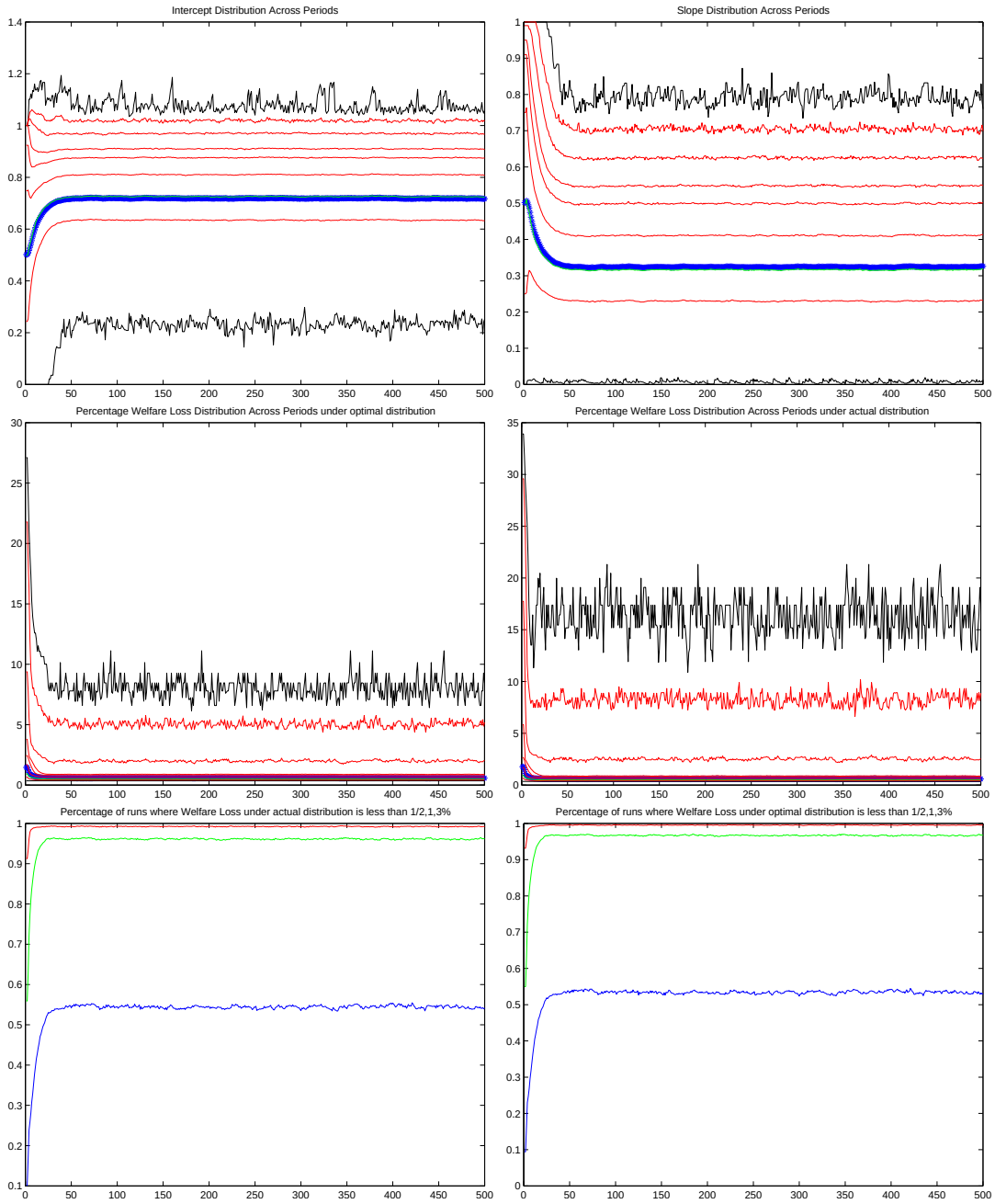

Figure 123: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 2$, $\beta = 0.9$ and the (CG') version of the algorithm.

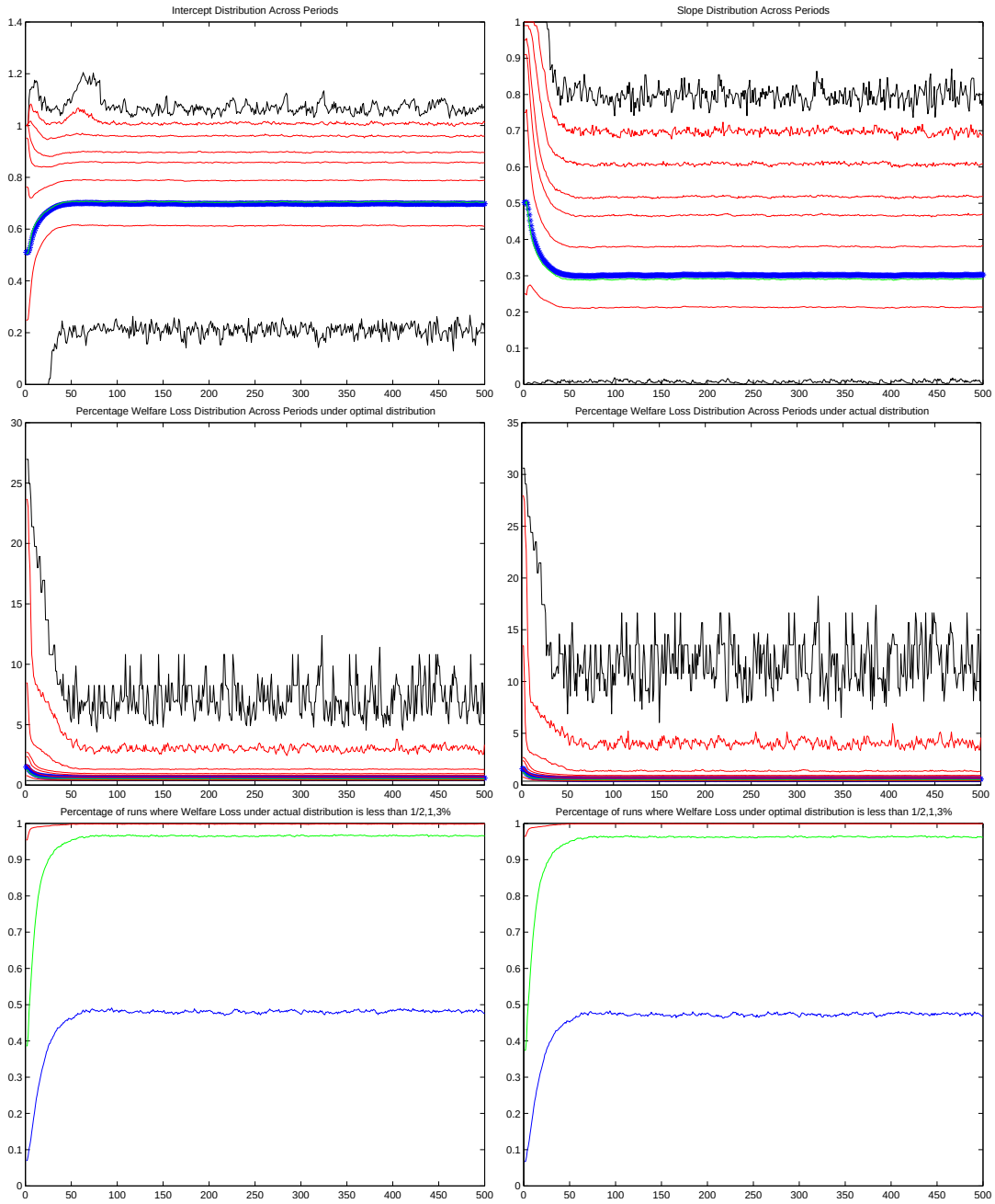

Figure 124: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 2$, $\beta = 0.95$ and the (CG') version of the algorithm.

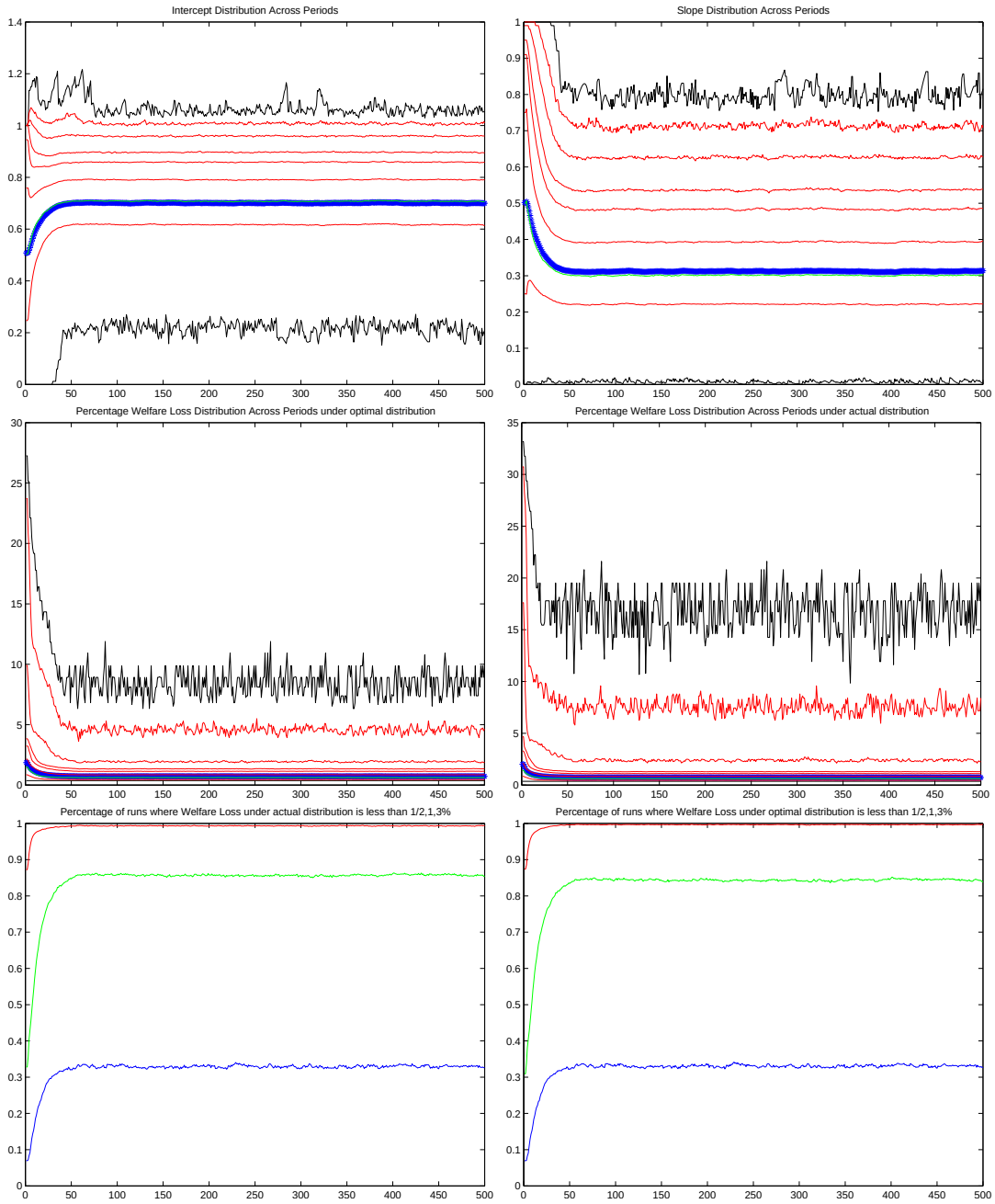

Figure 125: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3$, $\beta = 0.9$ and the (CG') version of the algorithm.

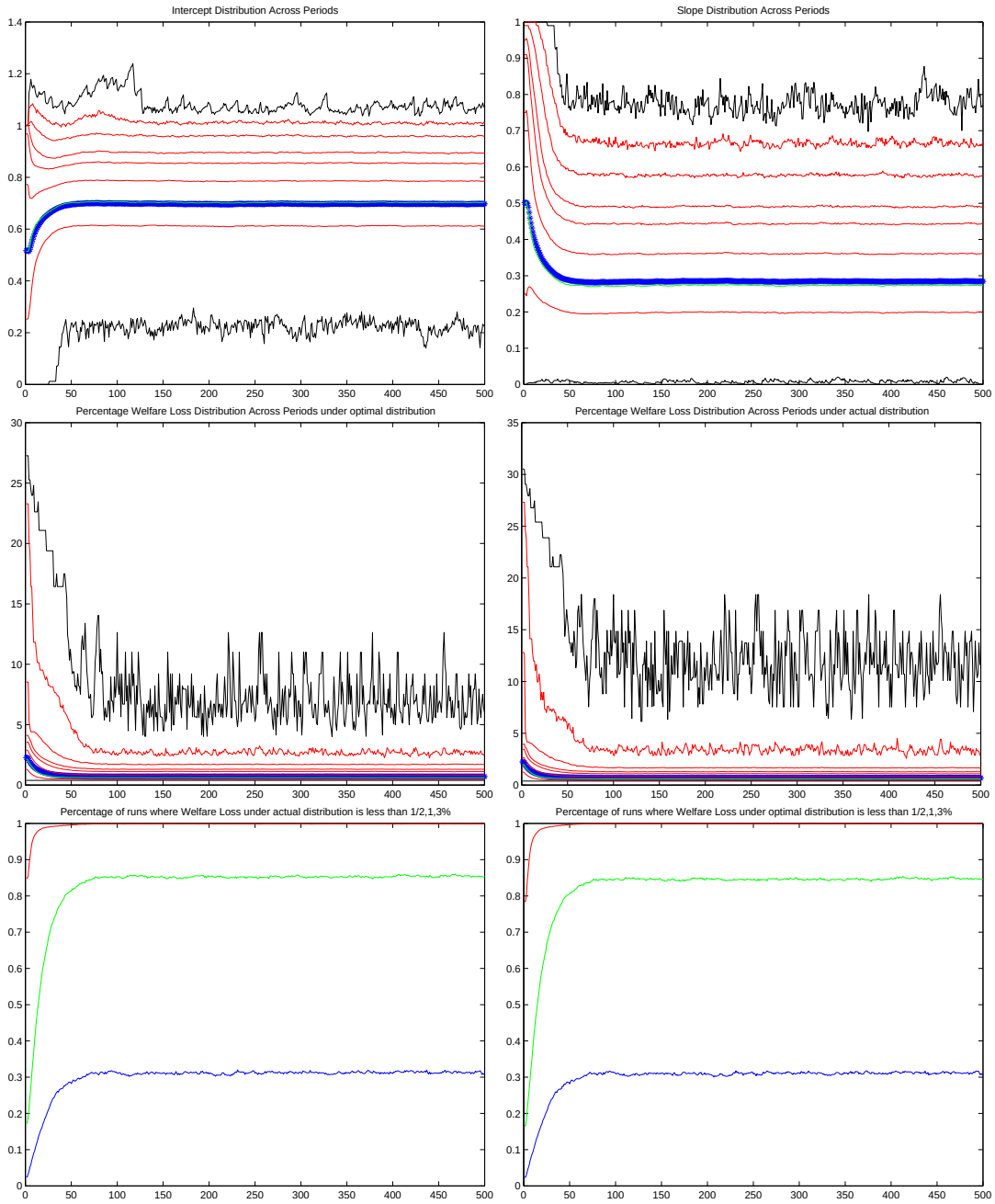

Figure 126: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3$, $\beta = 0.95$ and the (CG') version of the algorithm.

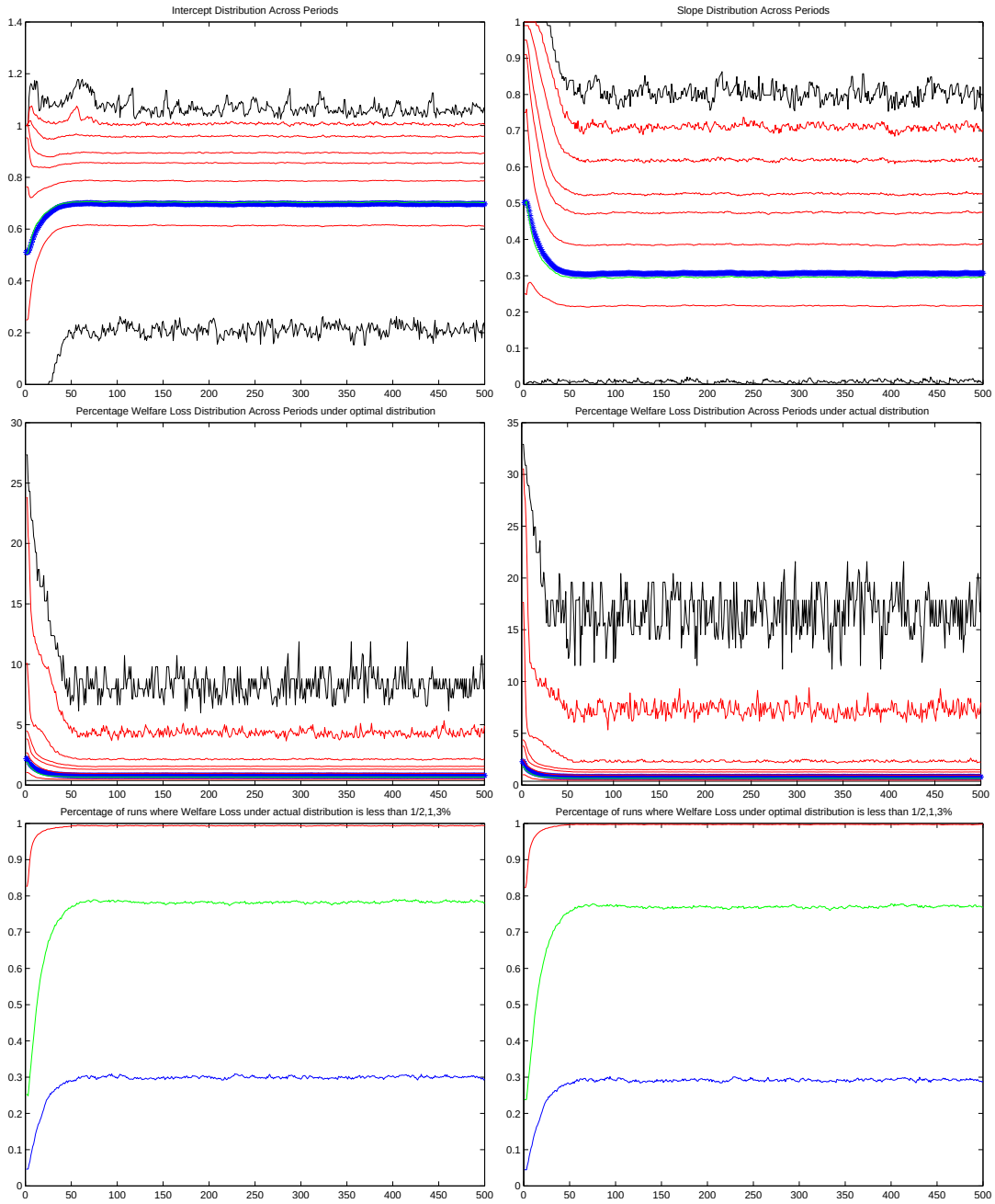

Figure 127: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3.5$, $\beta = 0.9$ and the (CG') version of the algorithm.

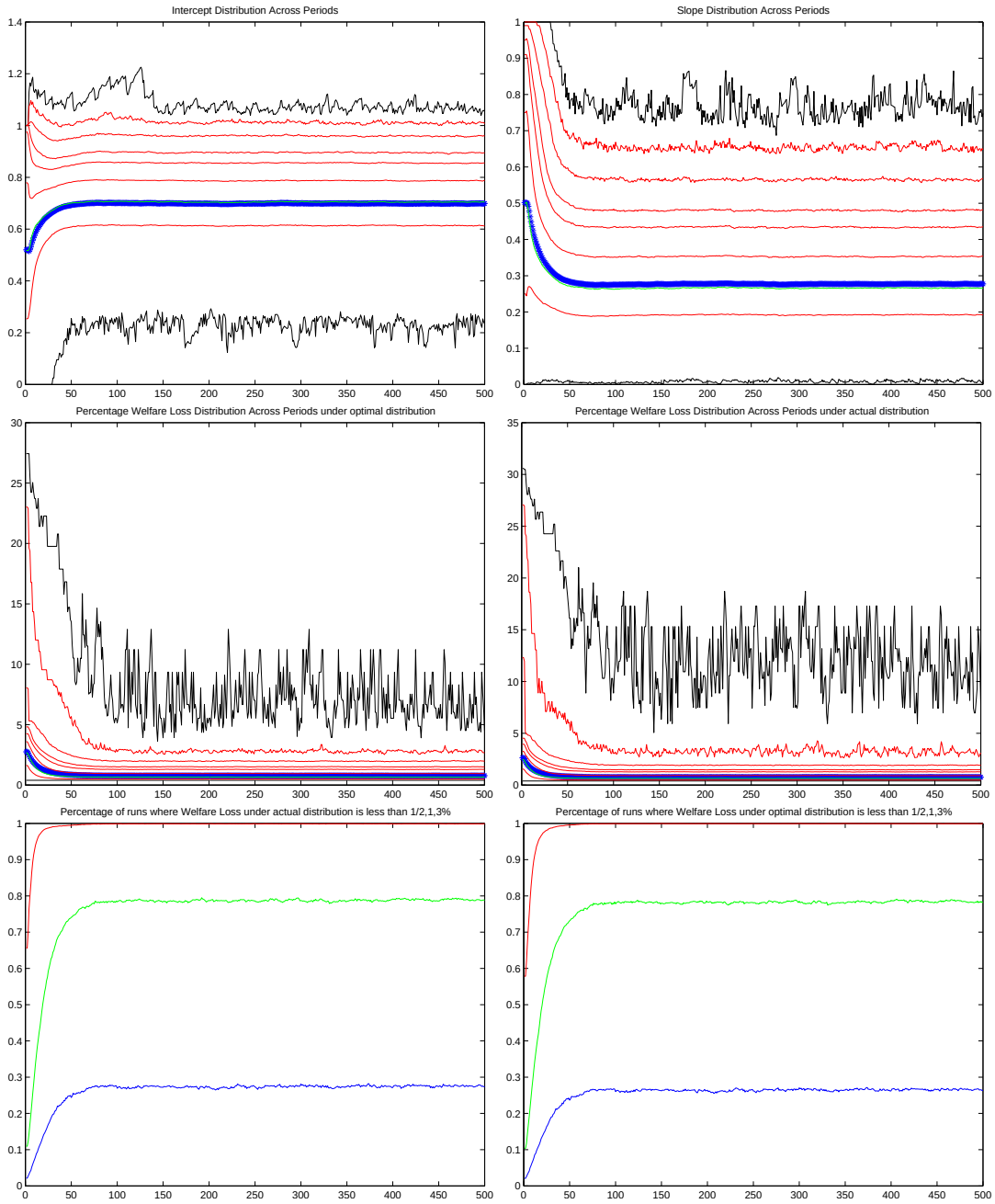

Figure 128: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3.5$, $\beta = 0.95$ and the (CG') version of the algorithm.

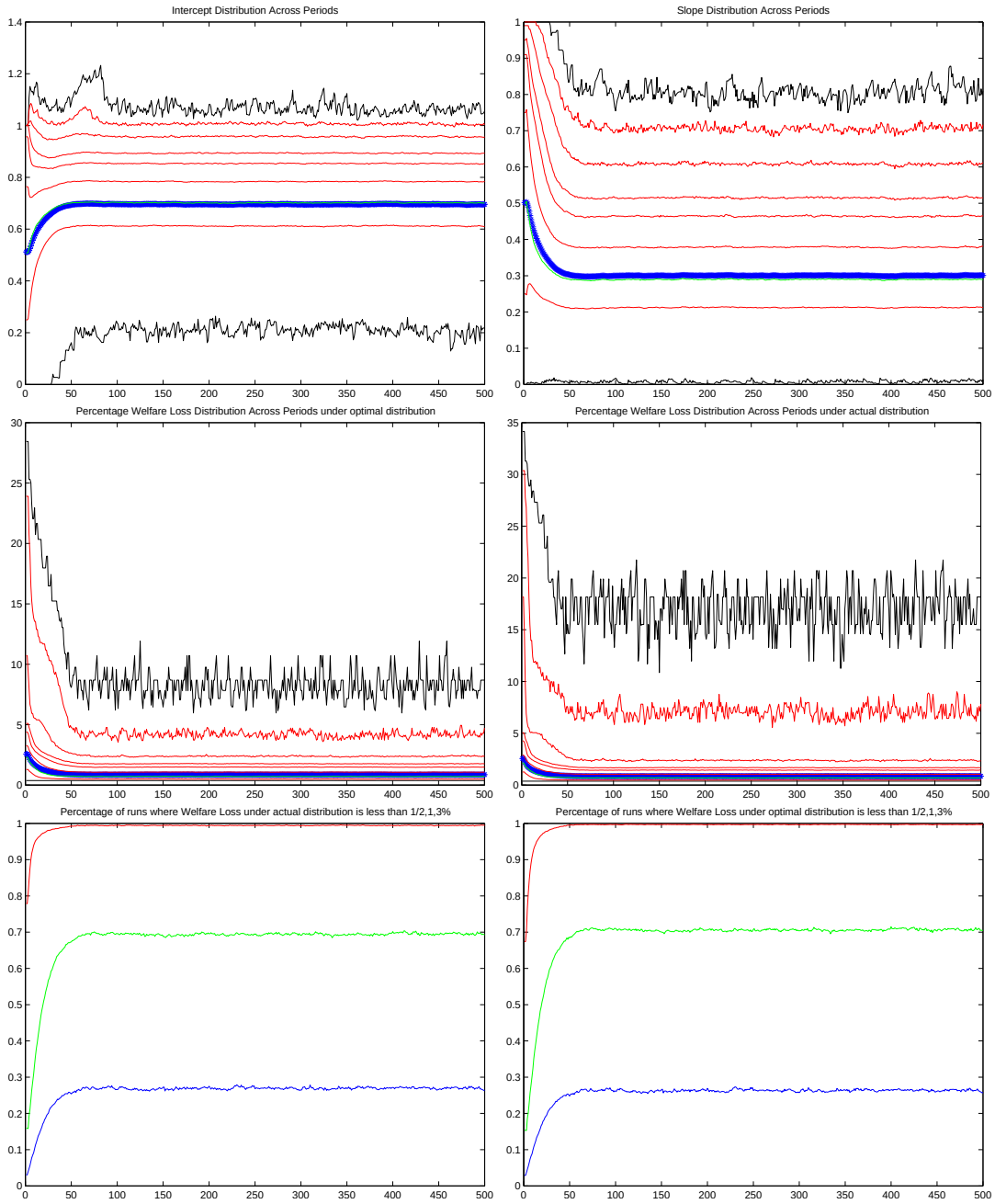

Figure 129: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 4$, $\beta = 0.9$ and the (CG') version of the algorithm.

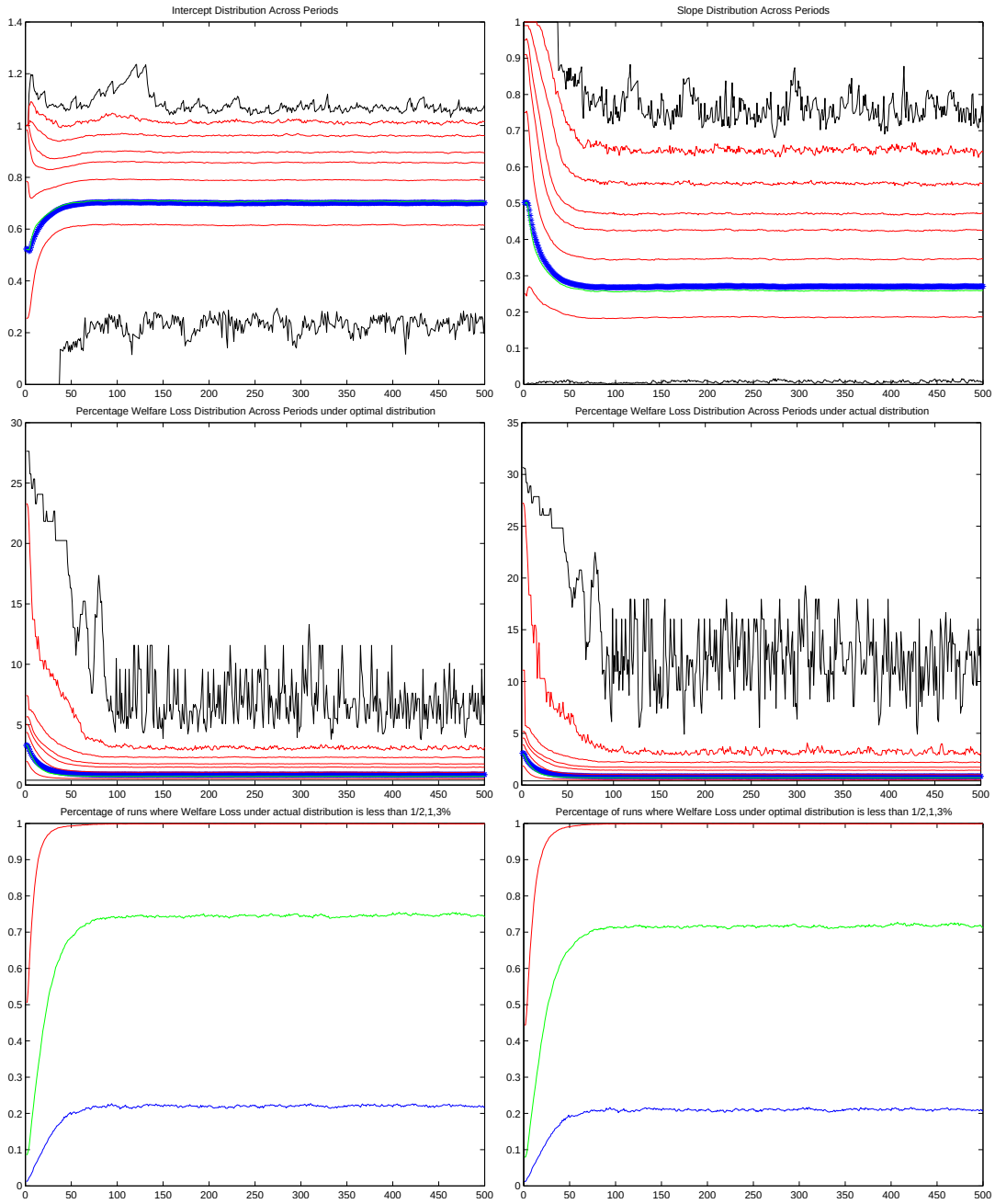

Figure 130: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 4$, $\beta = 0.95$ and the (CG') version of the algorithm.

1.10 $B = 0.3$

1.10.1 $(\epsilon, \delta, \xi) = (0, 0, 1)$

Table 18: EV^*, EC^*, EV_b^* and EC_b^* for each configuration of β and θ

β	θ	EV^*	EC^*	EV_b^*	EC_b^*
0.9	1.5	-0.1608	0.9841	-0.1665	0.9836
	2.0	-0.1728	0.9830	-0.1780	0.9825
	3.0	-0.1999	0.9806	-0.2017	0.9804
	3.5	-0.2128	0.9795	-0.2199	0.9788
	4.0	-0.2254	0.9784	-0.2352	0.9775
0.95	1.5	-0.1963	0.9903	-0.2026	0.9899
	2.0	-0.2181	0.9892	-0.2282	0.9887
	3.0	-0.2554	0.9875	-0.2591	0.9873
	3.5	-0.2713	0.9867	-0.2731	0.9867
	4.0	-0.2857	0.9861	-0.2768	0.9865

Table 19: $EV^*_{\alpha_0^*,\alpha_1^*}$, $EC^*_{\alpha_0^*,\alpha_1^*}$, $EV^b_{\alpha_0^*,\alpha_1^*}$ and $EC^b_{\alpha_0^*,\alpha_1^*}$ for each configuration of β and θ

β	θ	$EV^*_{\alpha_0^*,\alpha_1^*}$	$EC^*_{\alpha_0^*,\alpha_1^*}$	$EV^b_{\alpha_0^*,\alpha_1^*}$	$EC^b_{\alpha_0^*,\alpha_1^*}$
0.9	1.5	-0.1963	0.9807	-0.2020	0.9801
	2.0	-0.2088	0.9795	-0.2140	0.9791
	3.0	-0.2379	0.9770	-0.2397	0.9769
	3.5	-0.2520	0.9759	-0.2592	0.9752
	4.0	-0.2660	0.9747	-0.2758	0.9739
0.95	1.5	-0.2704	0.9866	-0.2767	0.9863
	2.0	-0.2941	0.9855	-0.3041	0.9850
	3.0	-0.3349	0.9837	-0.3386	0.9835
	3.5	-0.3529	0.9829	-0.3546	0.9828
	4.0	-0.3695	0.9822	-0.3604	0.9826

Table 20: Percentage difference between between equivalent consumption measures, $D^* = \frac{EC^* - EC^*_{\alpha_0^*,\alpha_1^*}}{EC^*} * 100$ and $D^b = \frac{EC^*_b - EC^b_{\alpha_0^*,\alpha_1^*}}{EC^*_b} * 100$, and optimal linear rule.

β	θ	D^*	D^b	α_0^*	α_1^*
0.9	1.5	0.3515	0.3514	0.7200	0.4
	2.0	0.3526	0.3525	0.7100	0.3800
	3.0	0.3638	0.3639	0.7300	0.3200
	3.5	0.3700	0.3697	0.7300	0.3100
	4.0	0.3768	0.3763	0.7400	0.2900
0.95	1.5	0.3678	0.3678	0.7400	0.3200
	2.0	0.3742	0.3740	0.7500	0.2900
	3.0	0.3856	0.3854	0.7700	0.2400
	3.5	0.3920	0.3916	0.7800	0.2200
	4.0	0.3988	0.3984	0.7900	0.2

Table 21: Probability of D^* or D^t below 1/2 at different periods for (CG').

		$t = 0$		$t = 50$		$t = 100$		$t = 250$		$t = 500$	
β	θ	D^*	D^t	D^*	D^t	D^*	D^t	D^*	D^t	D^*	D^t
0.9	1.5	0.0354	0.0358	0.7569	0.7539	0.8782	0.8763	0.9689	0.9686	0.9905	0.9905
	2.0	0.0394	0.0398	0.7081	0.7066	0.8453	0.8404	0.9495	0.9462	0.9818	0.9802
	3.0	0.0365	0.0360	0.4837	0.4704	0.6670	0.6465	0.8646	0.8470	0.9416	0.9315
	3.5	0.0275	0.0267	0.4134	0.3944	0.5955	0.5675	0.8040	0.7749	0.9016	0.8768
	4.0	0.0219	0.0233	0.3364	0.3502	0.5121	0.5254	0.7330	0.7396	0.8491	0.8518
0.95	1.5	0.0697	0.0709	0.7110	0.7110	0.8583	0.8567	0.9502	0.9487	0.9766	0.9756
	2.0	0.0445	0.0455	0.5541	0.5588	0.7210	0.7231	0.8757	0.8753	0.9319	0.9308
	3.0	0.0263	0.0278	0.3545	0.3678	0.5346	0.5497	0.7476	0.7577	0.8521	0.8575
	3.5	0.0222	0.0227	0.2666	0.2747	0.4075	0.4173	0.6204	0.6284	0.7630	0.7671
	4.0	0.0181	0.0185	0.2066	0.2105	0.3146	0.3205	0.4862	0.4963	0.6258	0.6380

Table 22: Probability of D^* or D^t below 1/2 at different periods for (DG).

		$t = 0$		$t = 50$		$t = 100$		$t = 250$		$t = 500$	
β	θ	D^*	D^t	D^*	D^t	D^*	D^t	D^*	D^t	D^*	D^t
0.9	1.5	0.0393	0.0398	0.7567	0.7545	0.8769	0.8754	0.9672	0.9669	0.9900	0.9900
	2.0	0.0355	0.0361	0.7039	0.7016	0.8426	0.8384	0.9540	0.9502	0.9846	0.9829
	3.0	0.0365	0.0360	0.4783	0.4643	0.6641	0.6426	0.8626	0.8436	0.9435	0.9327
	3.5	0.0275	0.0267	0.4070	0.3882	0.5904	0.5620	0.8026	0.7699	0.9043	0.8766
	4.0	0.0219	0.0233	0.3301	0.3438	0.5071	0.5192	0.7291	0.7353	0.8480	0.8498
0.95	1.5	0.0678	0.0692	0.7150	0.7151	0.8624	0.8603	0.9545	0.9530	0.9807	0.9799
	2.0	0.0445	0.0455	0.5537	0.5592	0.7229	0.7245	0.8751	0.8750	0.9326	0.9320
	3.0	0.0263	0.0278	0.3575	0.3699	0.5354	0.5481	0.7496	0.7587	0.8497	0.8545
	3.5	0.0222	0.0227	0.2660	0.2725	0.4079	0.4168	0.6206	0.6276	0.7654	0.7688
	4.0	0.0181	0.0185	0.2059	0.2102	0.3146	0.3198	0.4888	0.4990	0.6276	0.6378

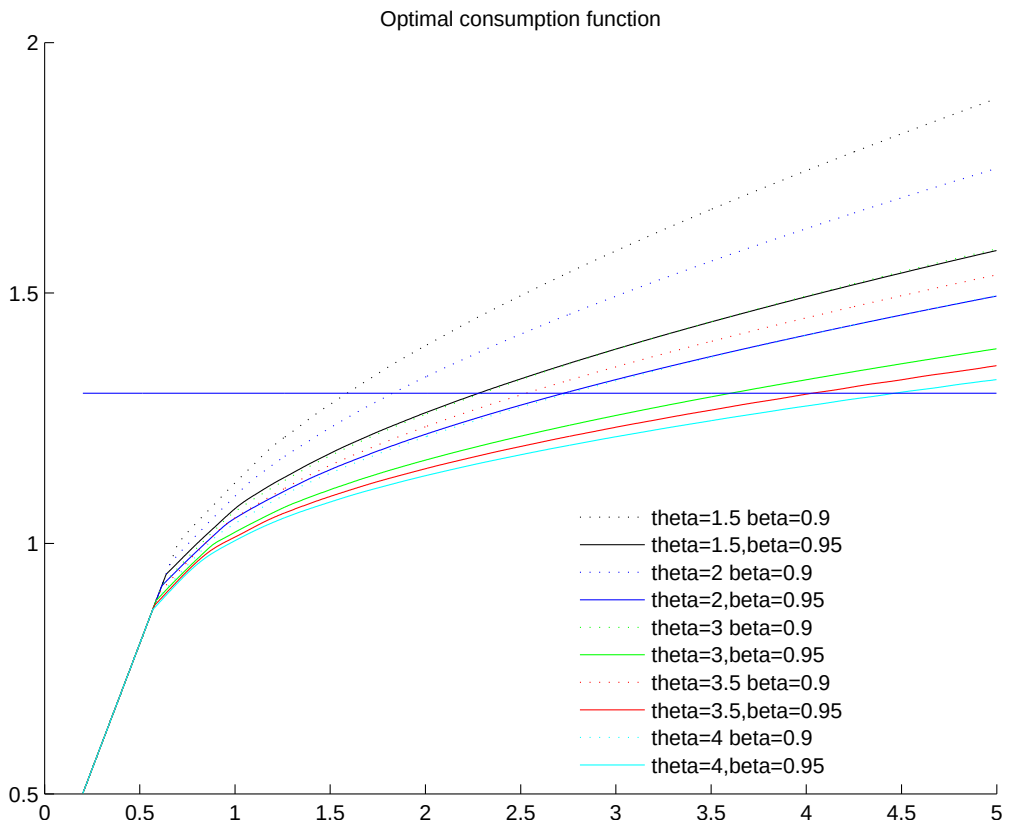

Figure 131: Optimal Consumption function for different parametrizations

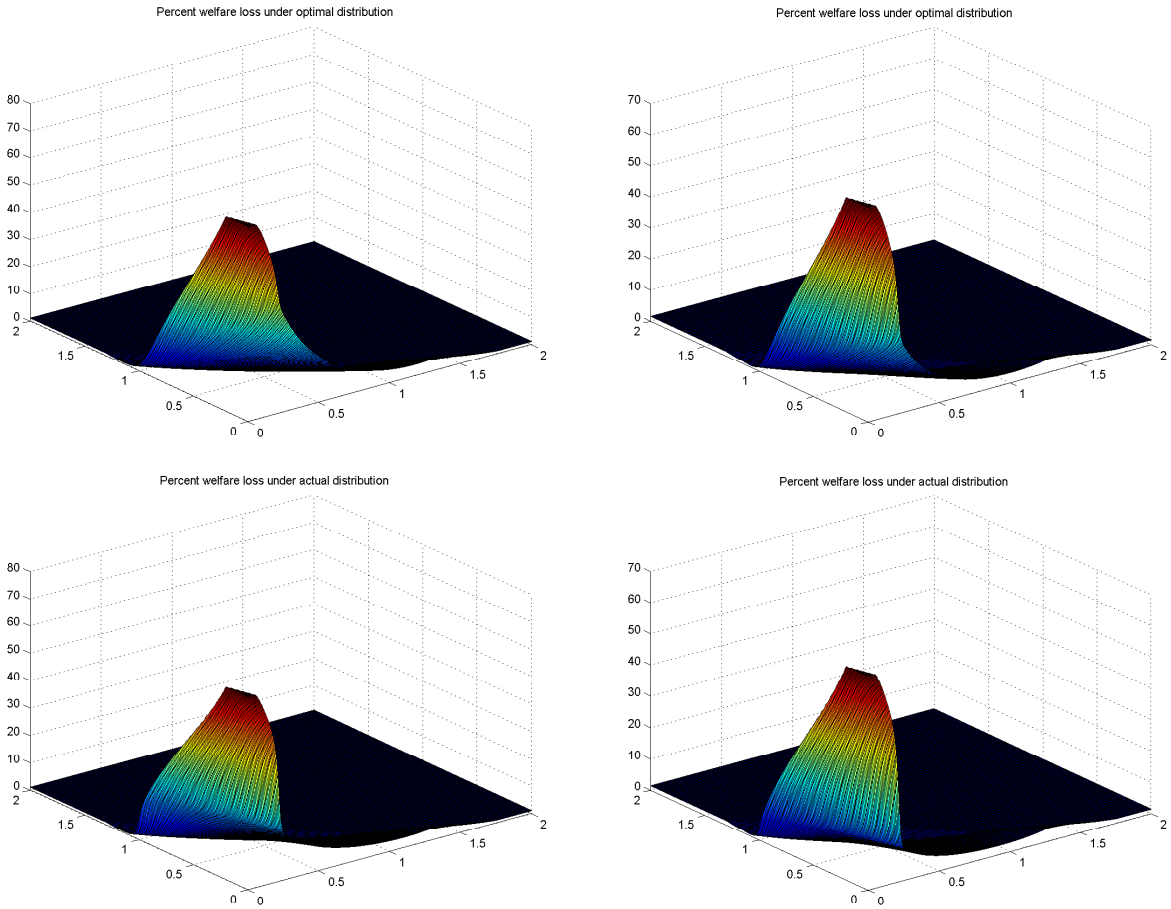

Figure 132: Percentage deviation of equivalent consumption of the linear rule from the optimal consumption function for different values of the intercept and slope, under π^* (above) and $\pi_{\alpha_0^*,\alpha_1^*}$ (below) for $\theta = 1.5$, $\beta = 0.9$ (left) and $\beta = 0.95$ (right).

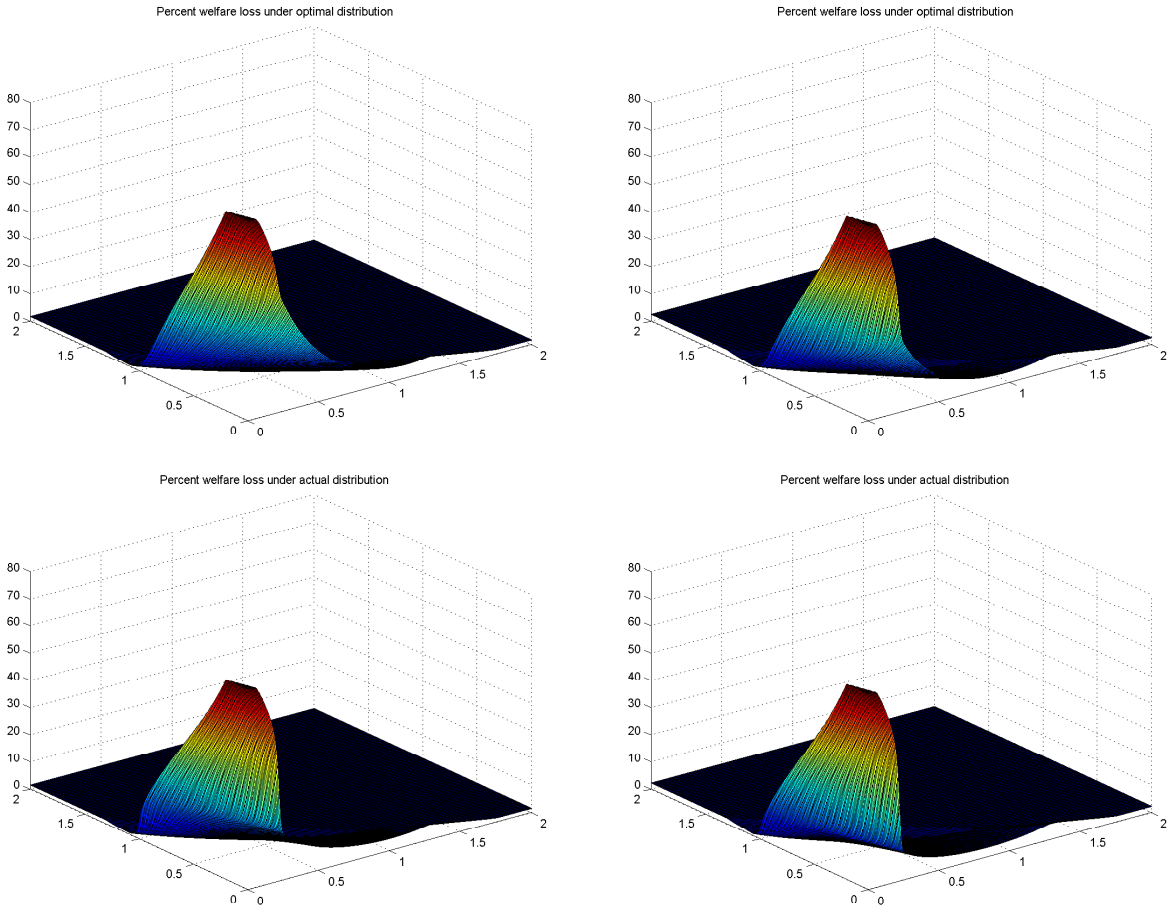

Figure 133: Percentage deviation of equivalent consumption of the linear rule from the optimal consumption function for different values of the intercept and slope, under π^* (above) and $\pi_{\alpha_0^*,\alpha_1^*}$ (below) for $\theta = 2$, $\beta = 0.9$ (left) and $\beta = 0.95$ (right).

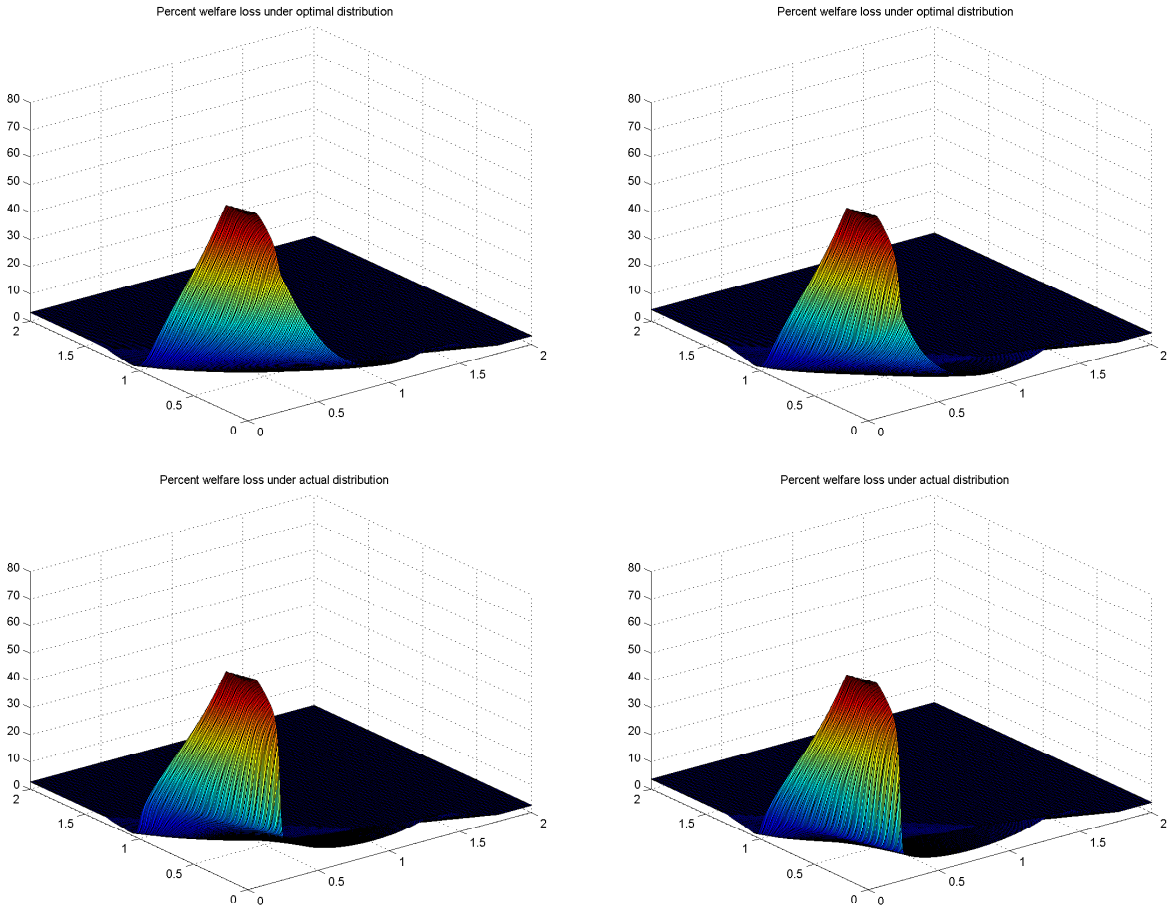

Figure 134: Percentage deviation of equivalent consumption of the linear rule from the optimal consumption function for different values of the intercept and slope, under π^* (above) and $\pi_{\alpha_0^*,\alpha_1^*}$ (below) for $\theta = 3$, $\beta = 0.9$ (left) and $\beta = 0.95$ (right).

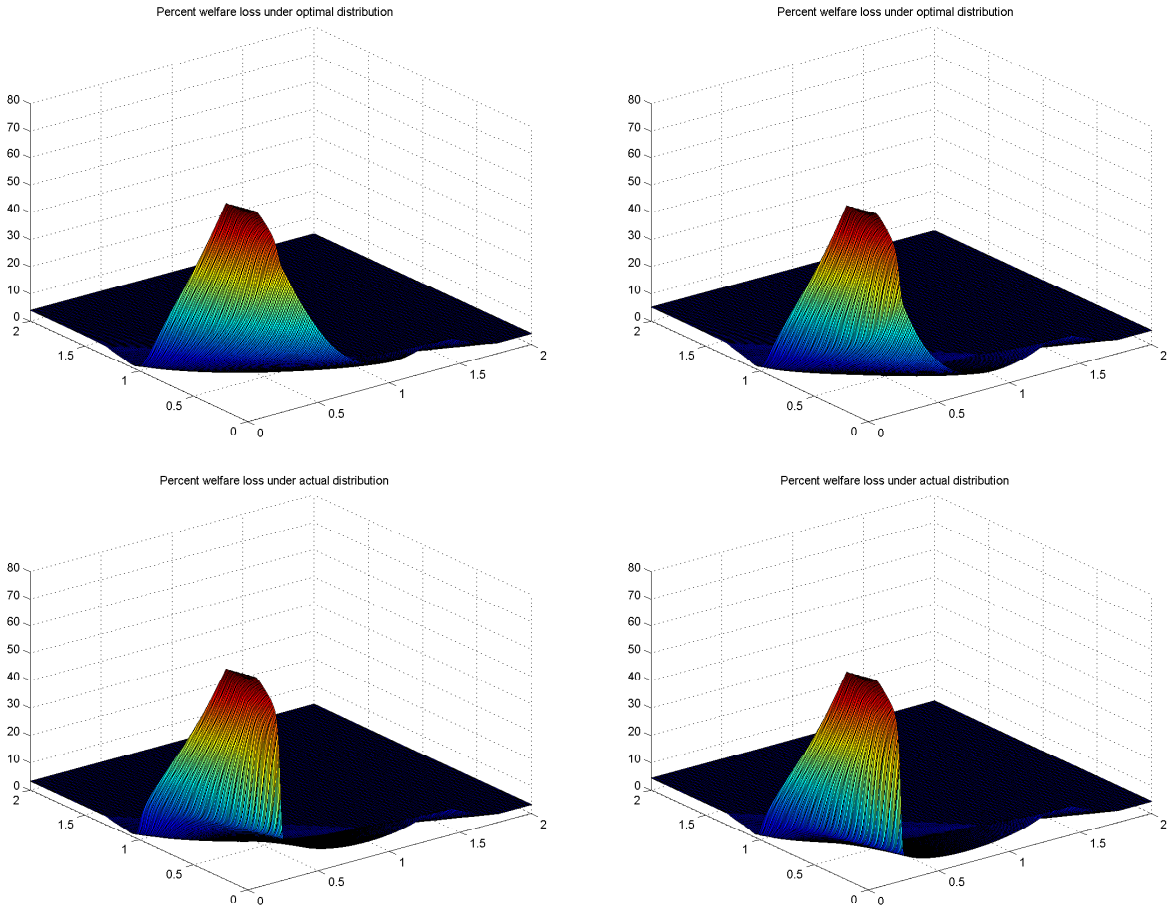

Figure 135: Percentage deviation of equivalent consumption of the linear rule from the optimal consumption function for different values of the intercept and slope, under π^* (above) and $\pi_{\alpha_0^*,\alpha_1^*}$ (below) for $\theta = 3.5$, $\beta = 0.9$ (left) and $\beta = 0.95$ (right).

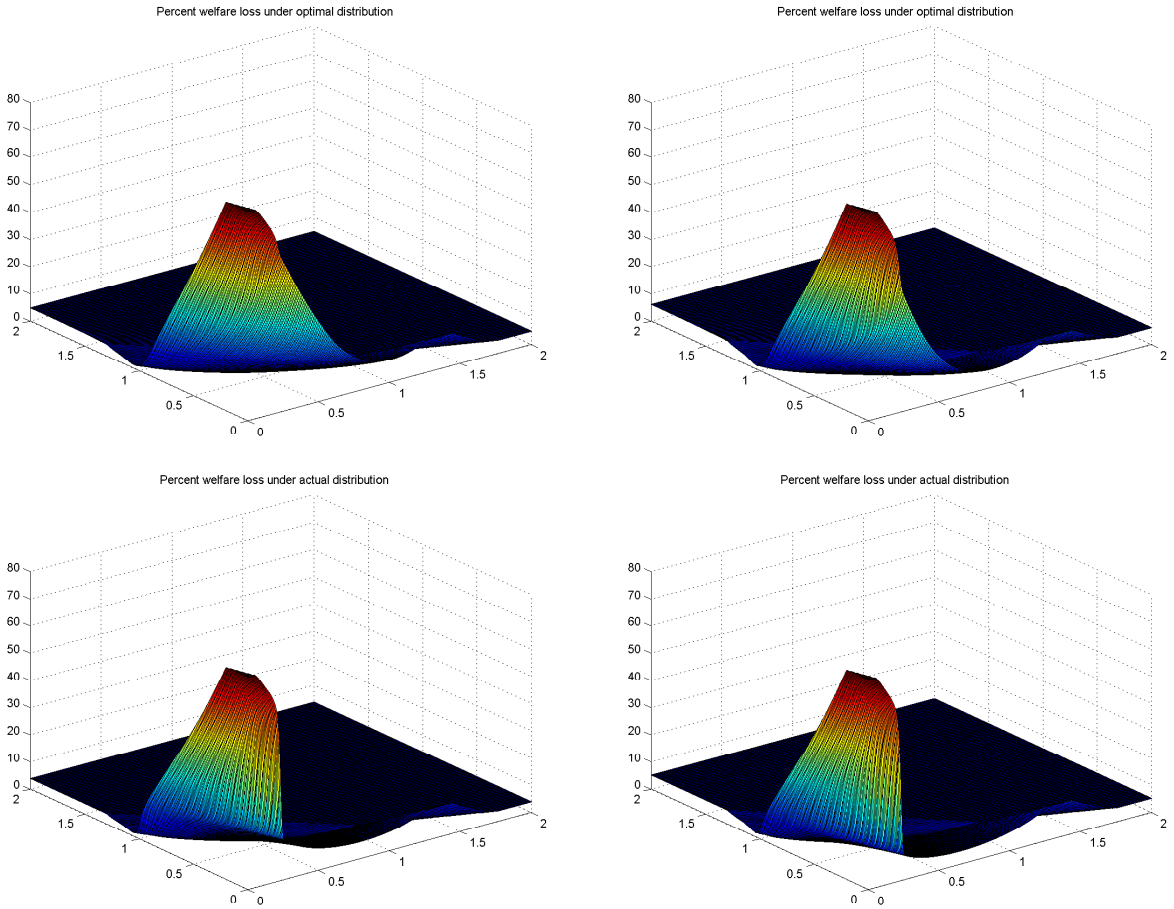

Figure 136: Percentage deviation of equivalent consumption of the linear rule from the optimal consumption function for different values of the intercept and slope, under π^* (above) and $\pi_{\alpha_0^*,\alpha_1^*}$ (below) for $\theta = 4$, $\beta = 0.9$ (left) and $\beta = 0.95$ (right).

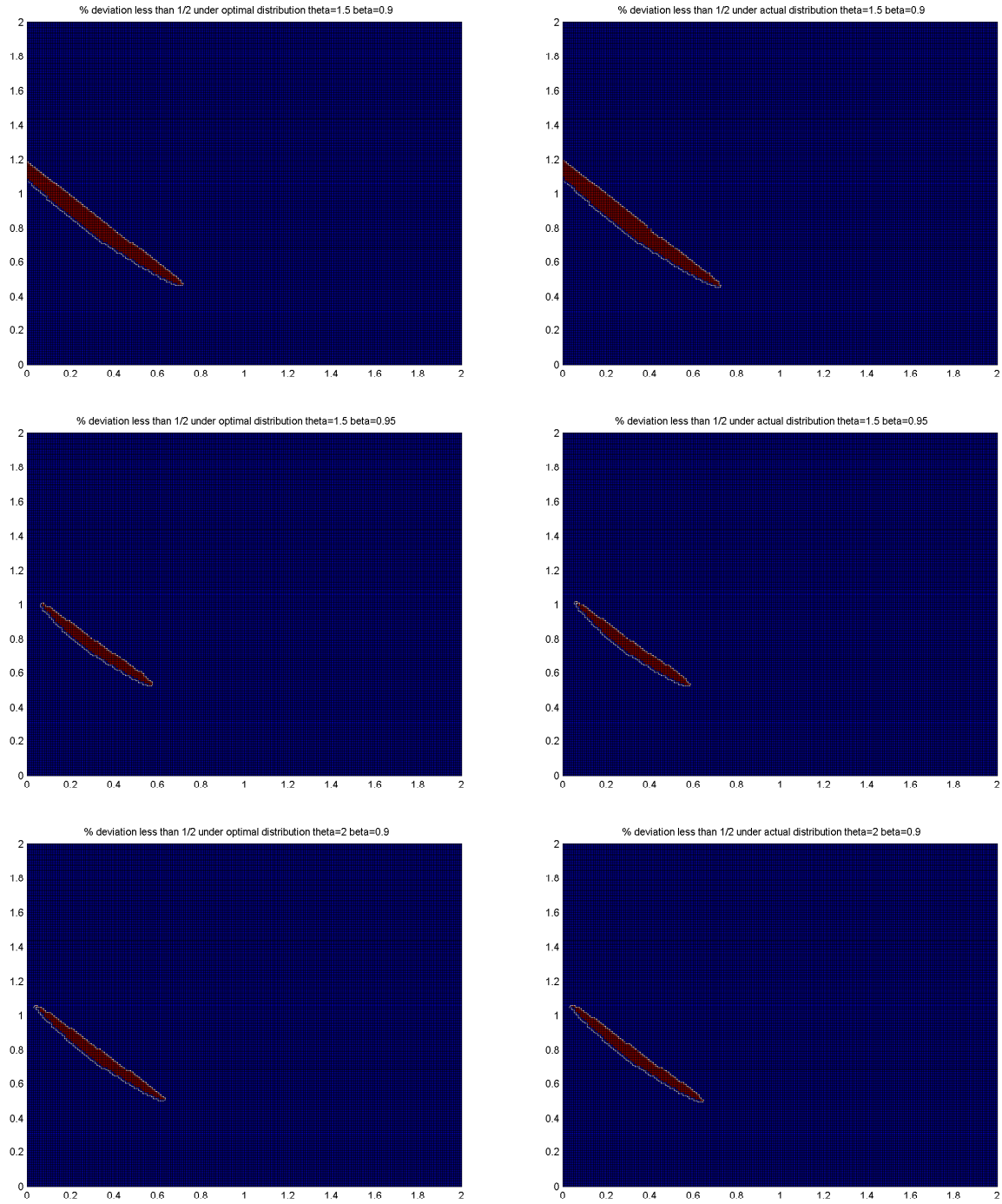

Figure 137: Set of consumption rules which have a percentage deviation less than or equal to 1/2.

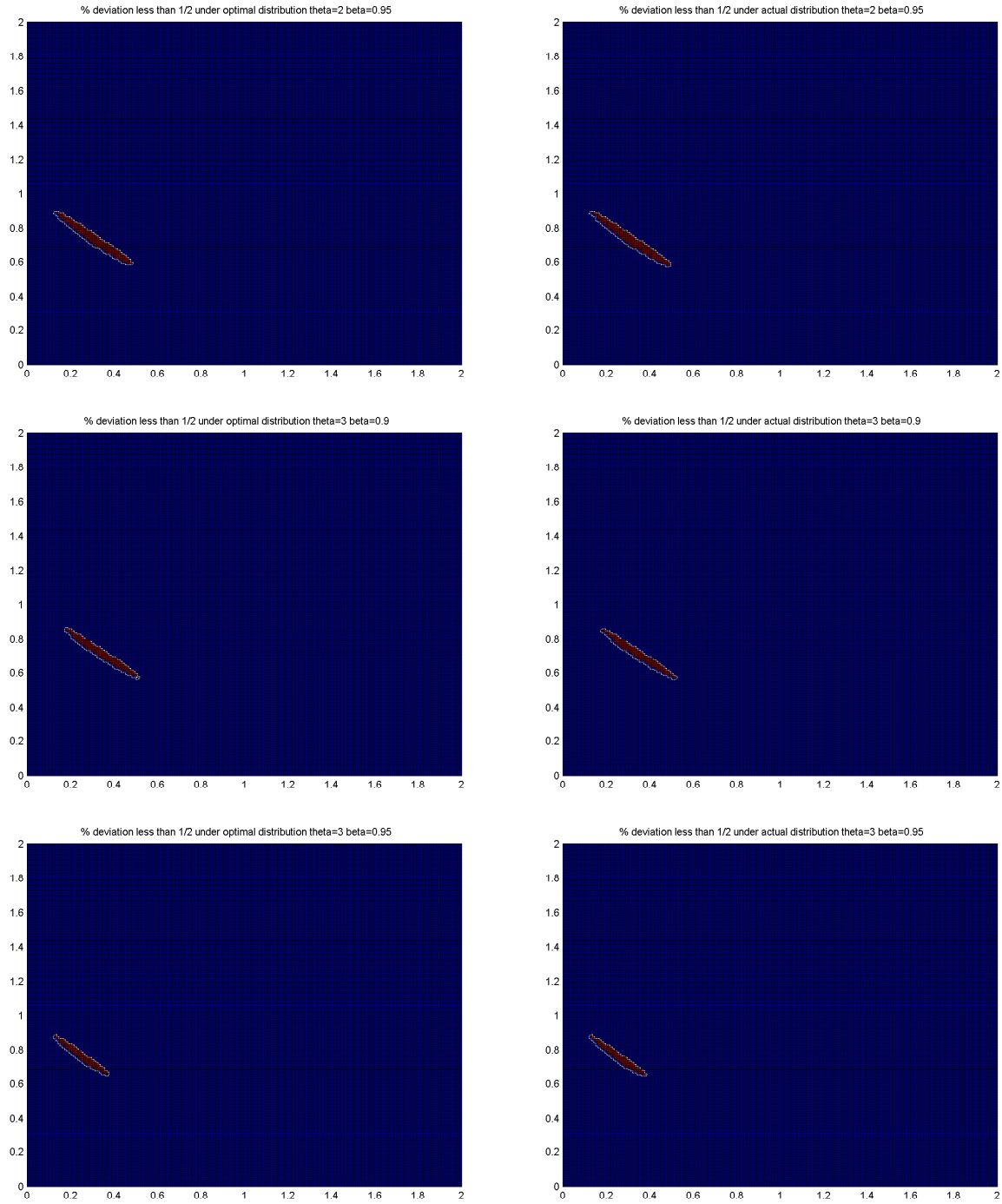

Figure 138: Set of consumption rules which have a percentage deviation less than or equal to 1/2.

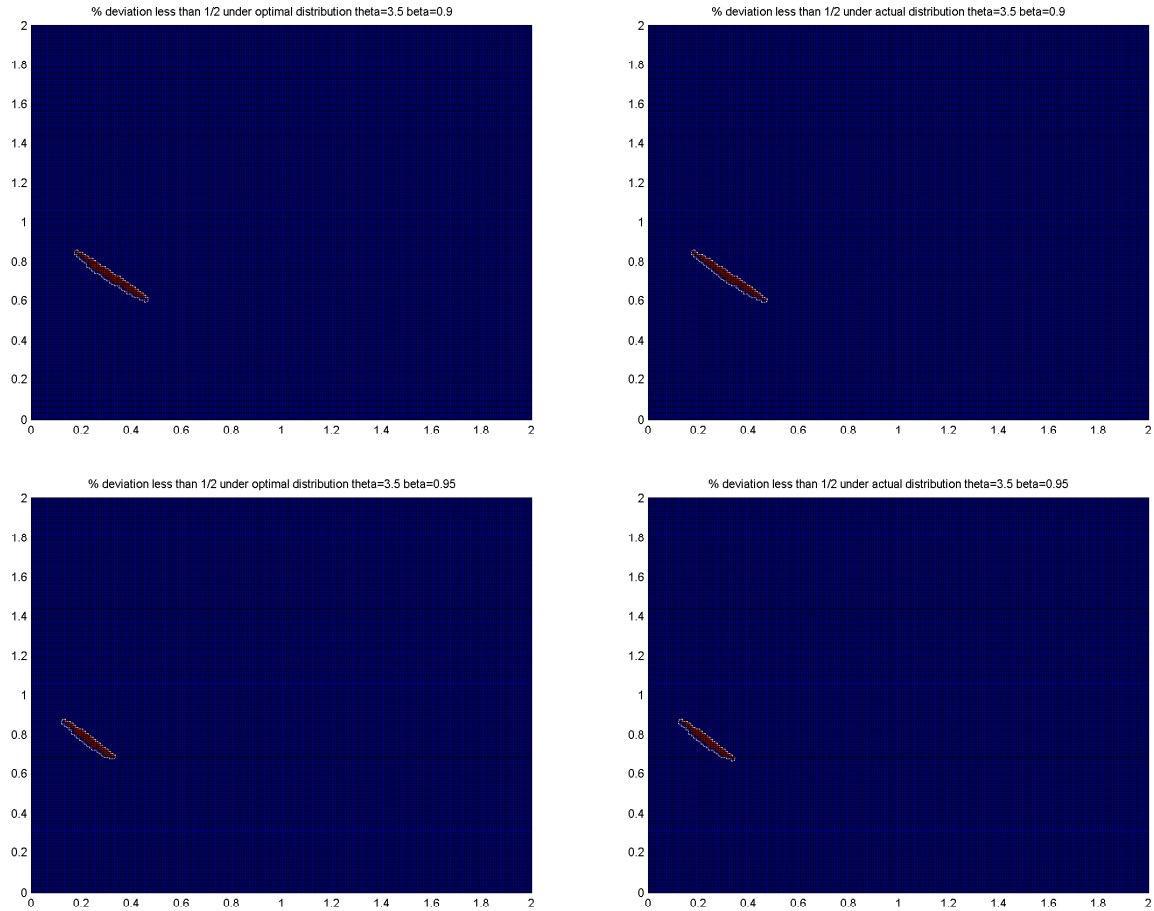

Figure 139: Set of consumption rules which have a percentage deviation less than or equal to 1/2.

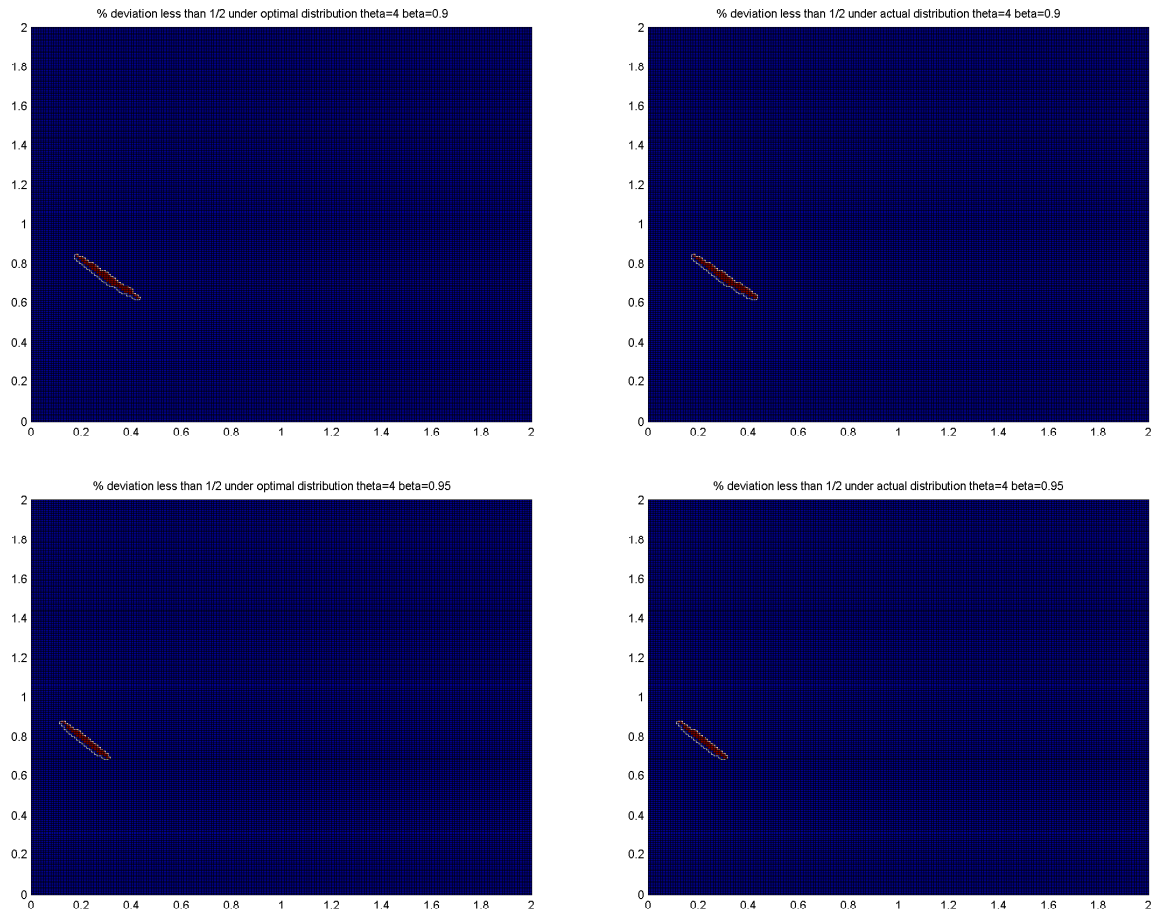

Figure 140: Set of consumption rules which have a percentage deviation less than or equal to 1/2.

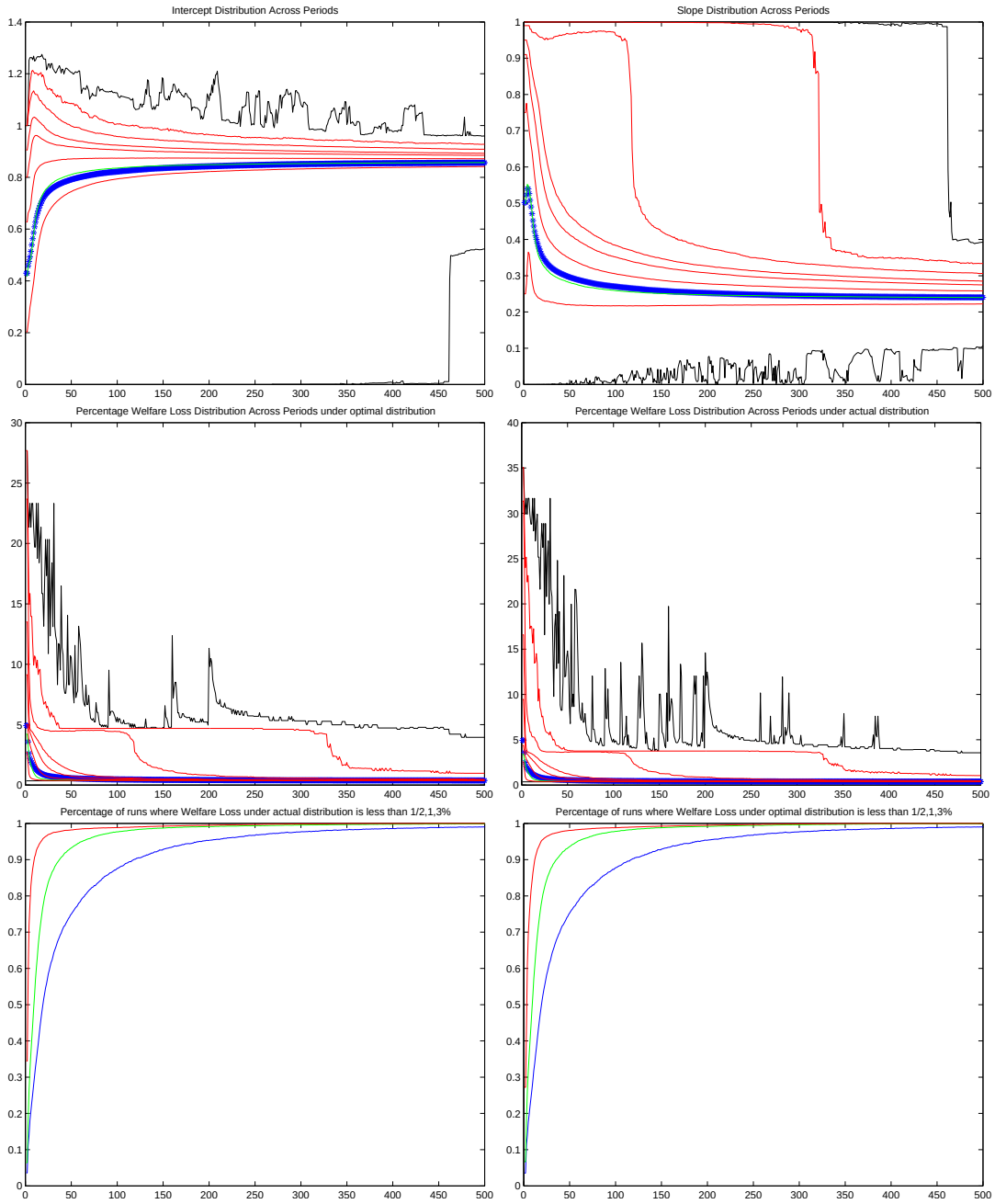

Figure 141: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 1.5$, $\beta = 0.9$ and the (CG') version of the algorithm.

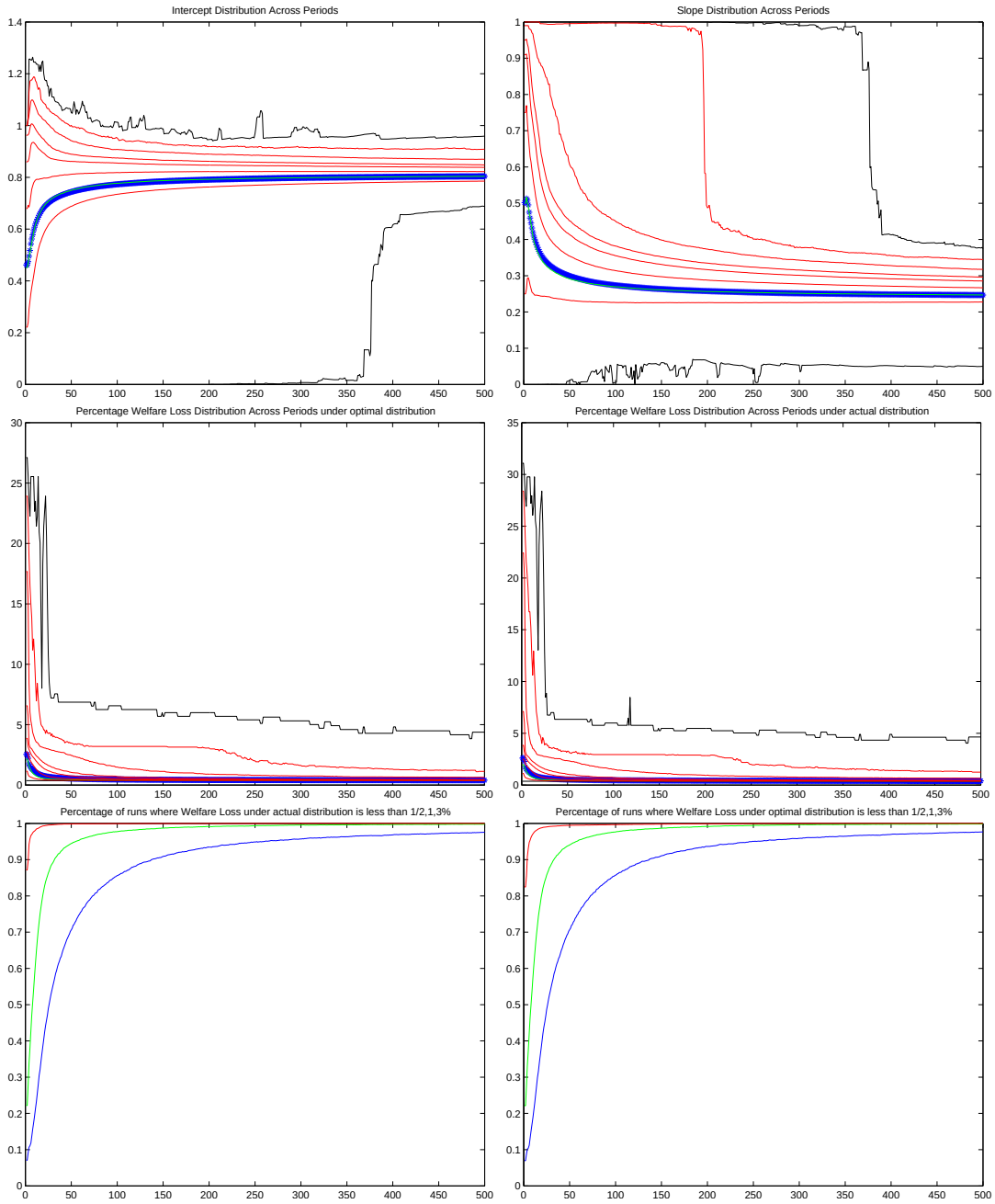

Figure 142: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 1.5$, $\beta = 0.95$ and the (CG') version of the algorithm.

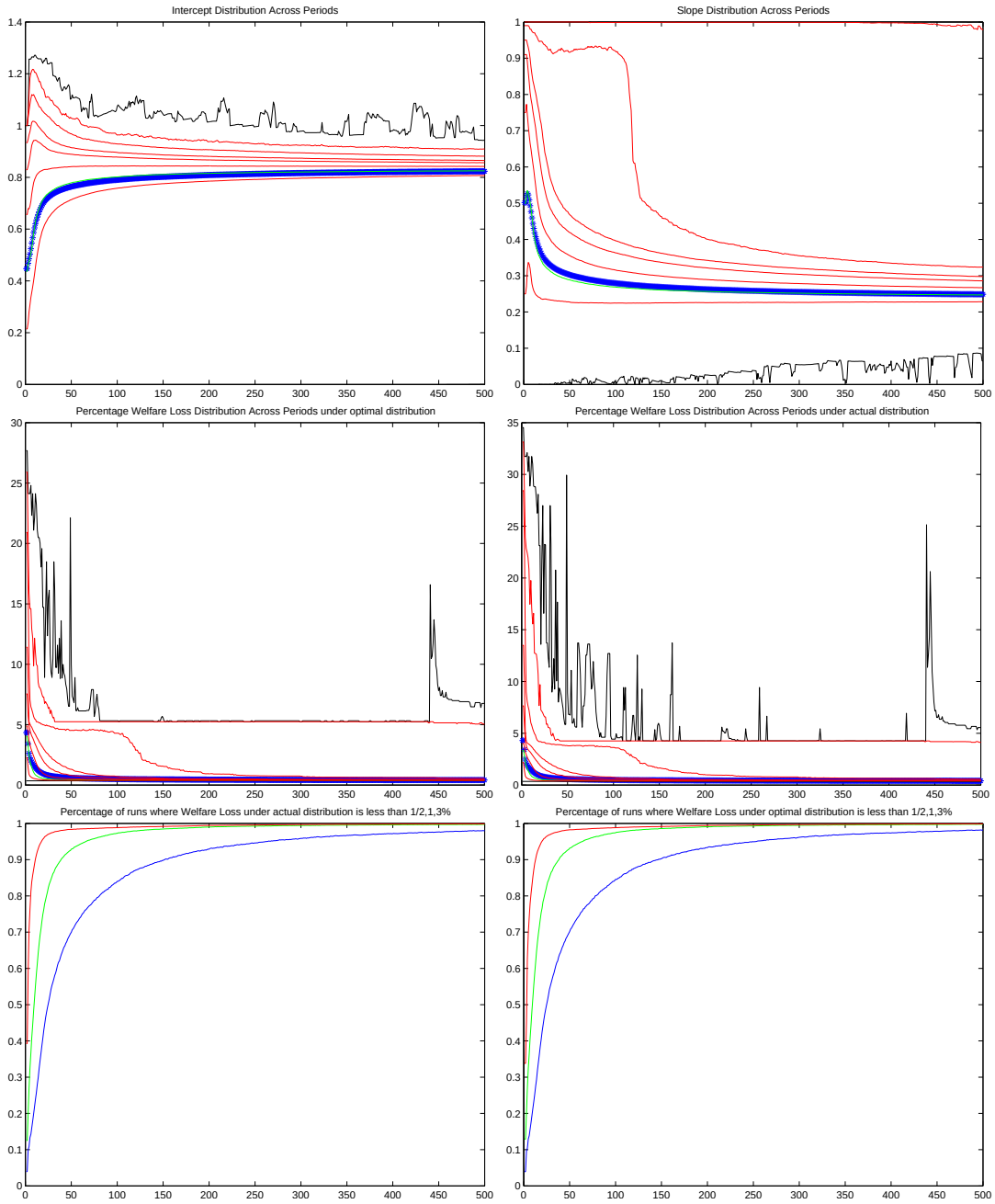

Figure 143: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 2$, $\beta = 0.9$ and the (CG') version of the algorithm.

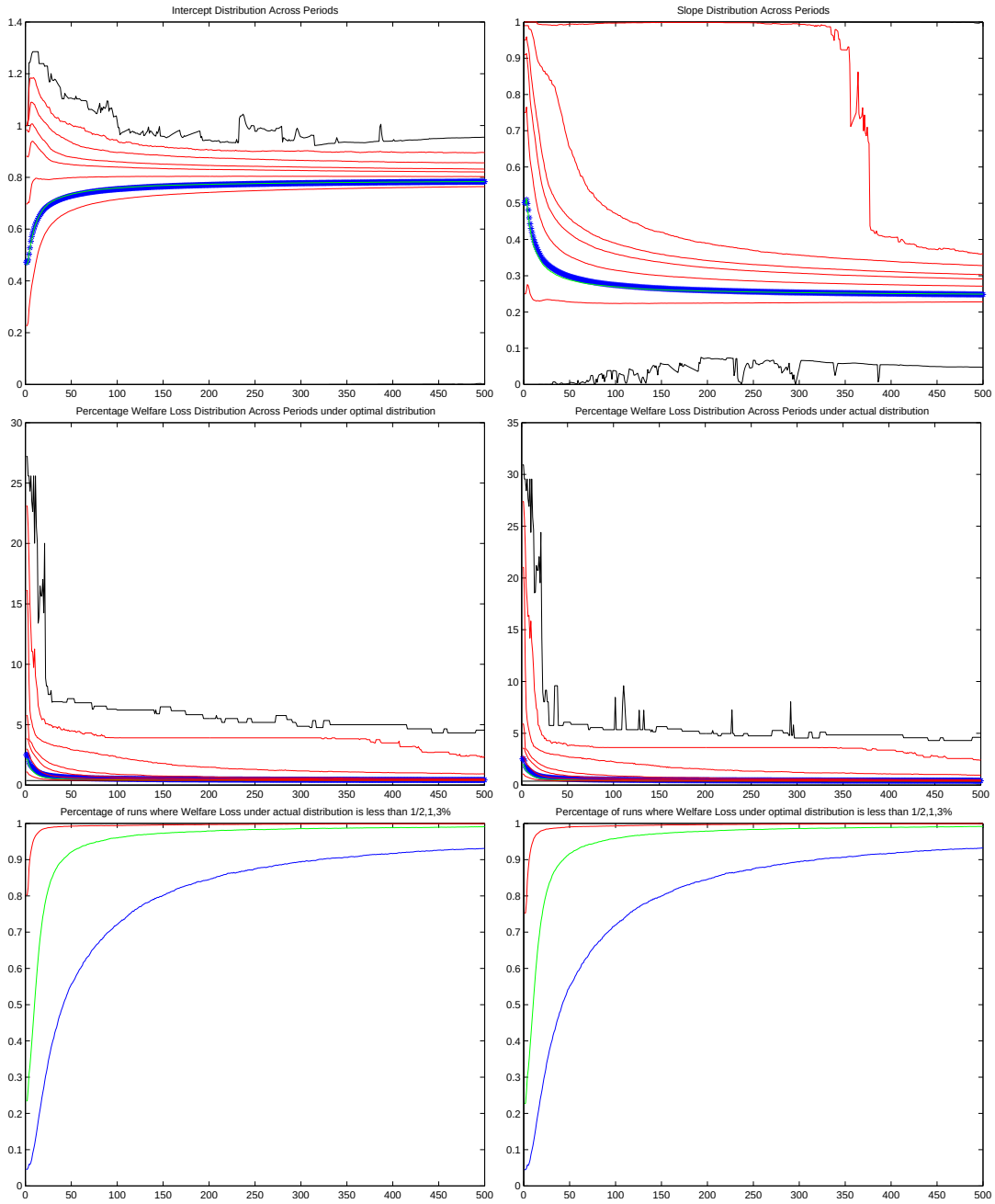

Figure 144: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 2$, $\beta = 0.95$ and the (CG') version of the algorithm.

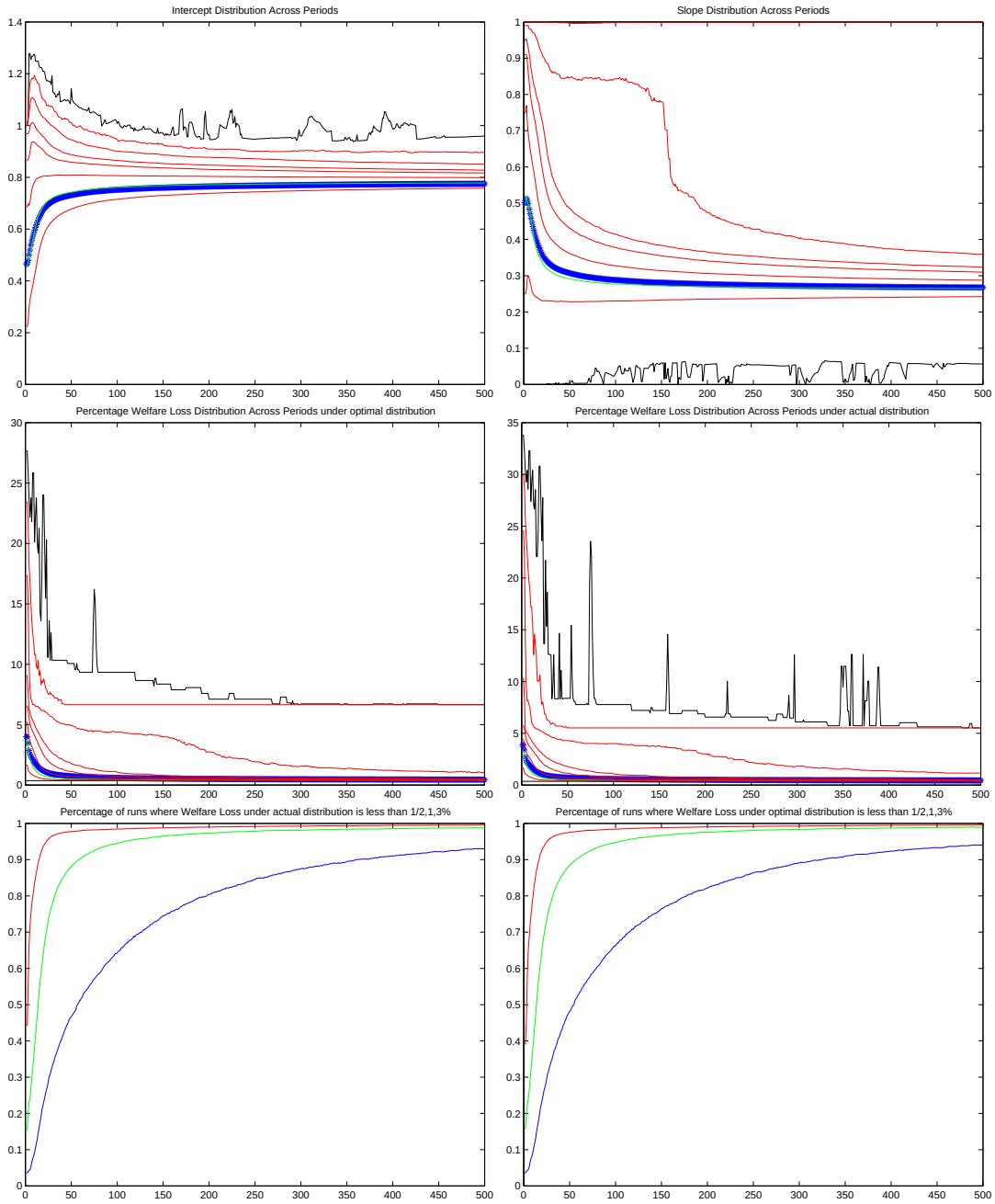

Figure 145: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3$, $\beta = 0.9$ and the (CG') version of the algorithm.

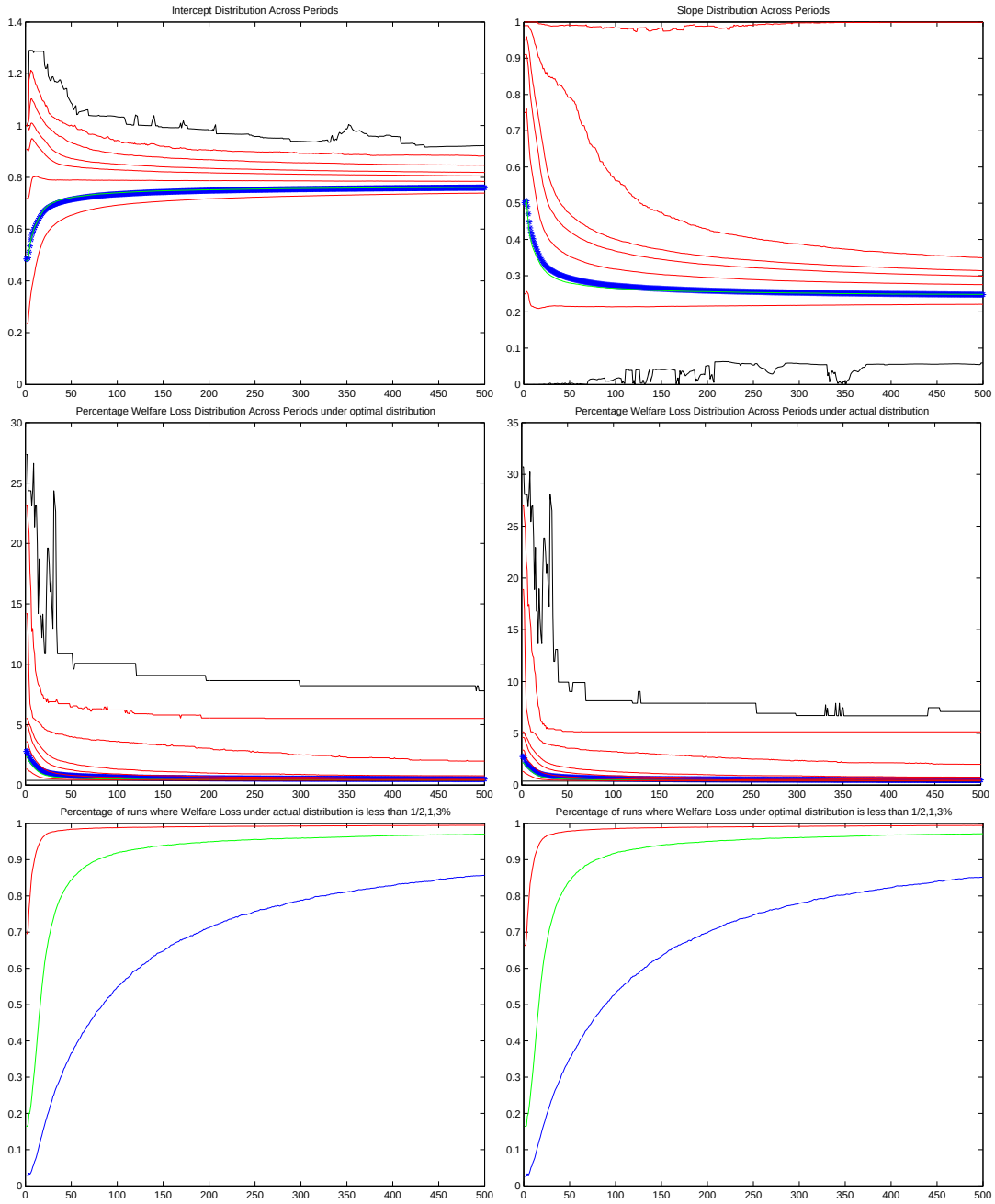

Figure 146: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3$, $\beta = 0.95$ and the (CG') version of the algorithm.

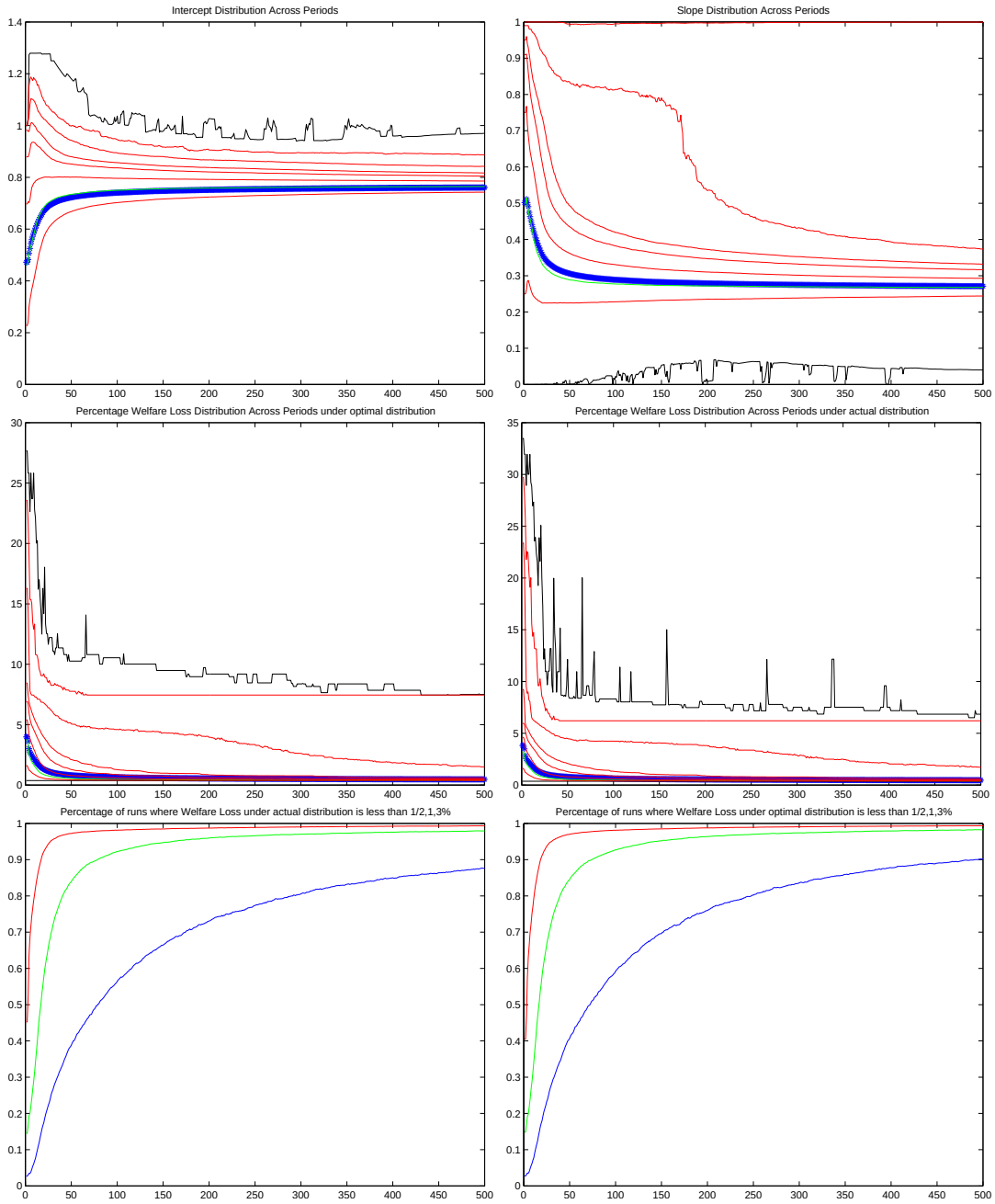

Figure 147: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3.5$, $\beta = 0.9$ and the (CG') version of the algorithm.

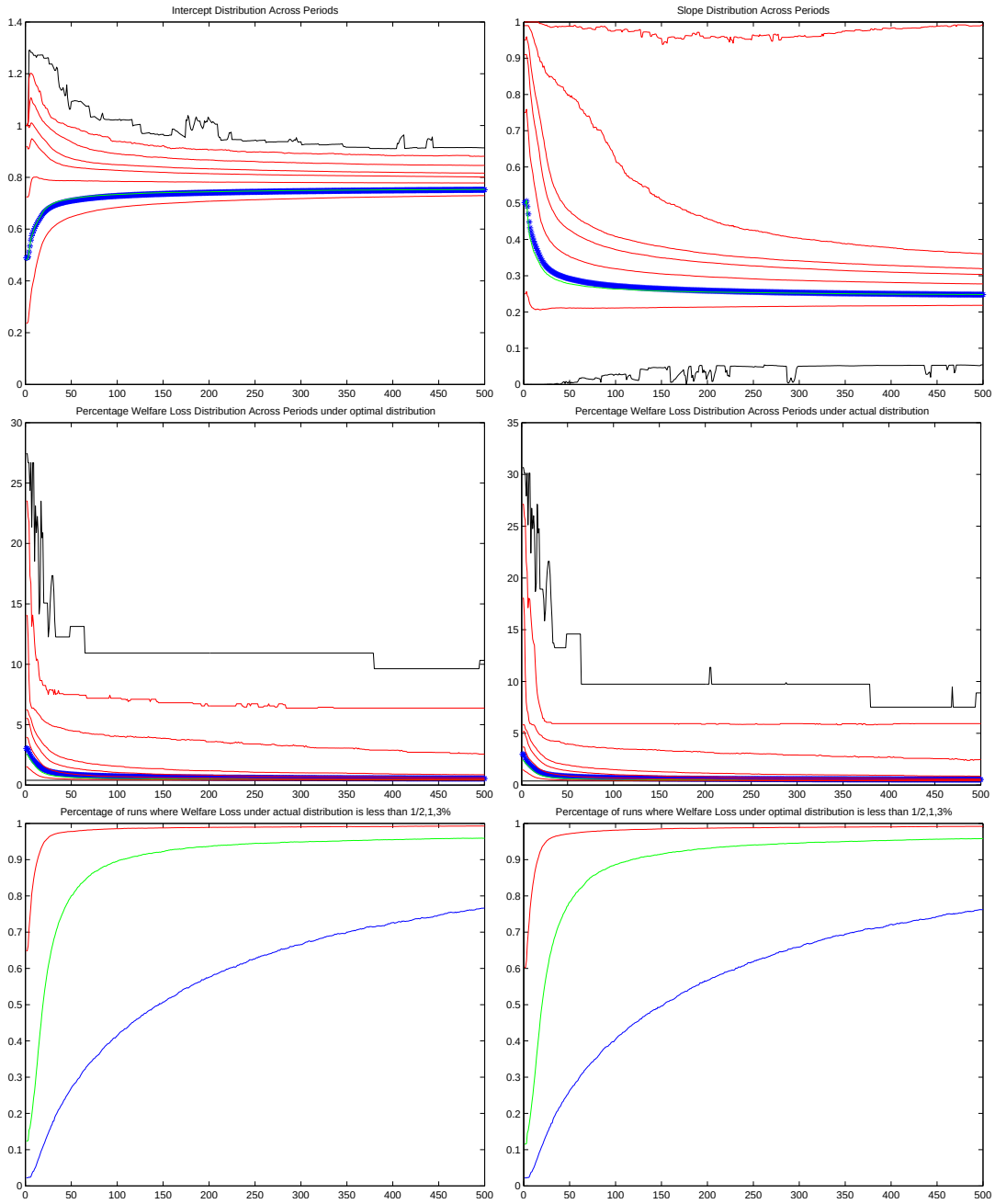

Figure 148: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3.5$, $\beta = 0.95$ and the (CG') version of the algorithm.

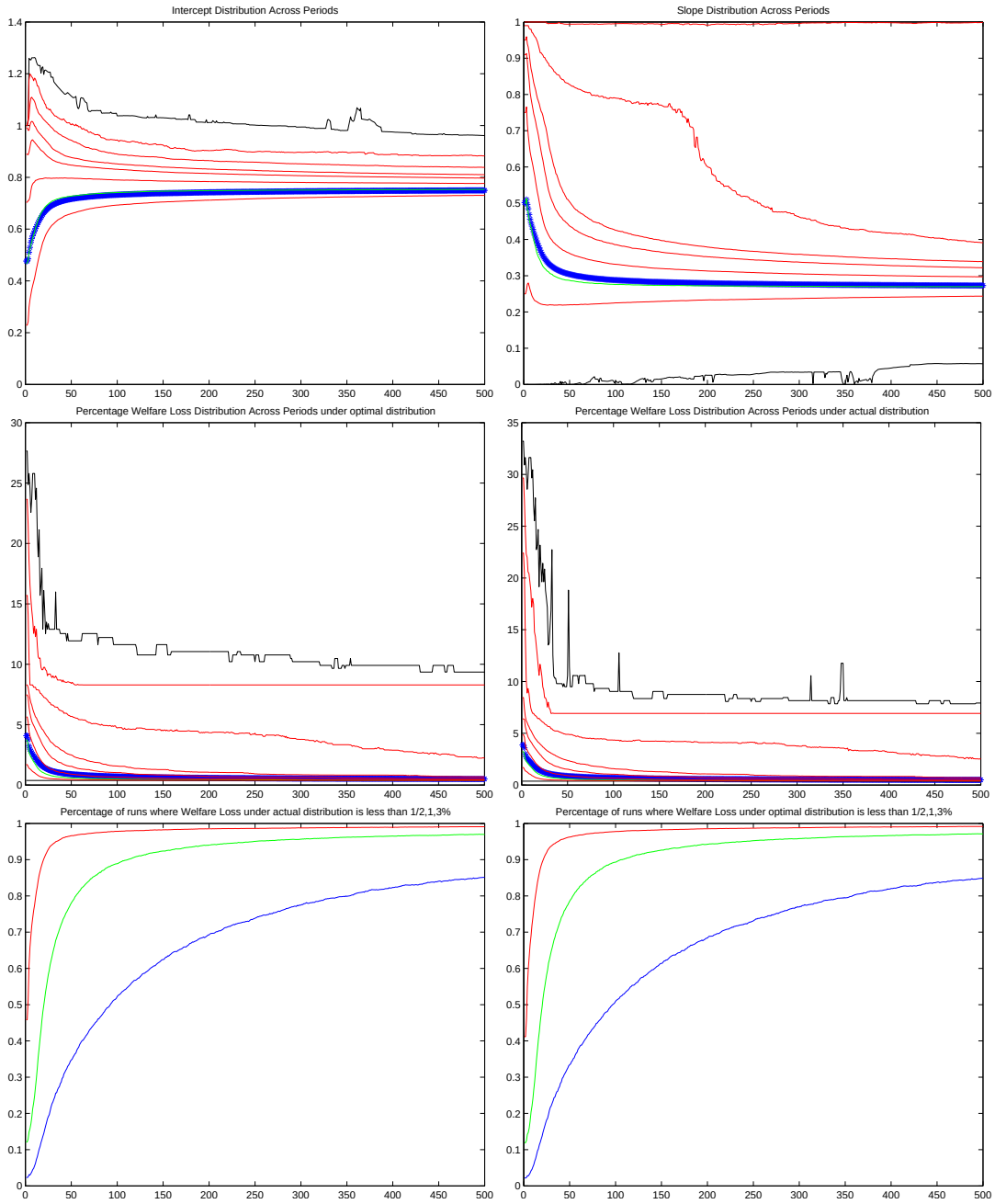

Figure 149: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 4$, $\beta = 0.9$ and the (CG') version of the algorithm.

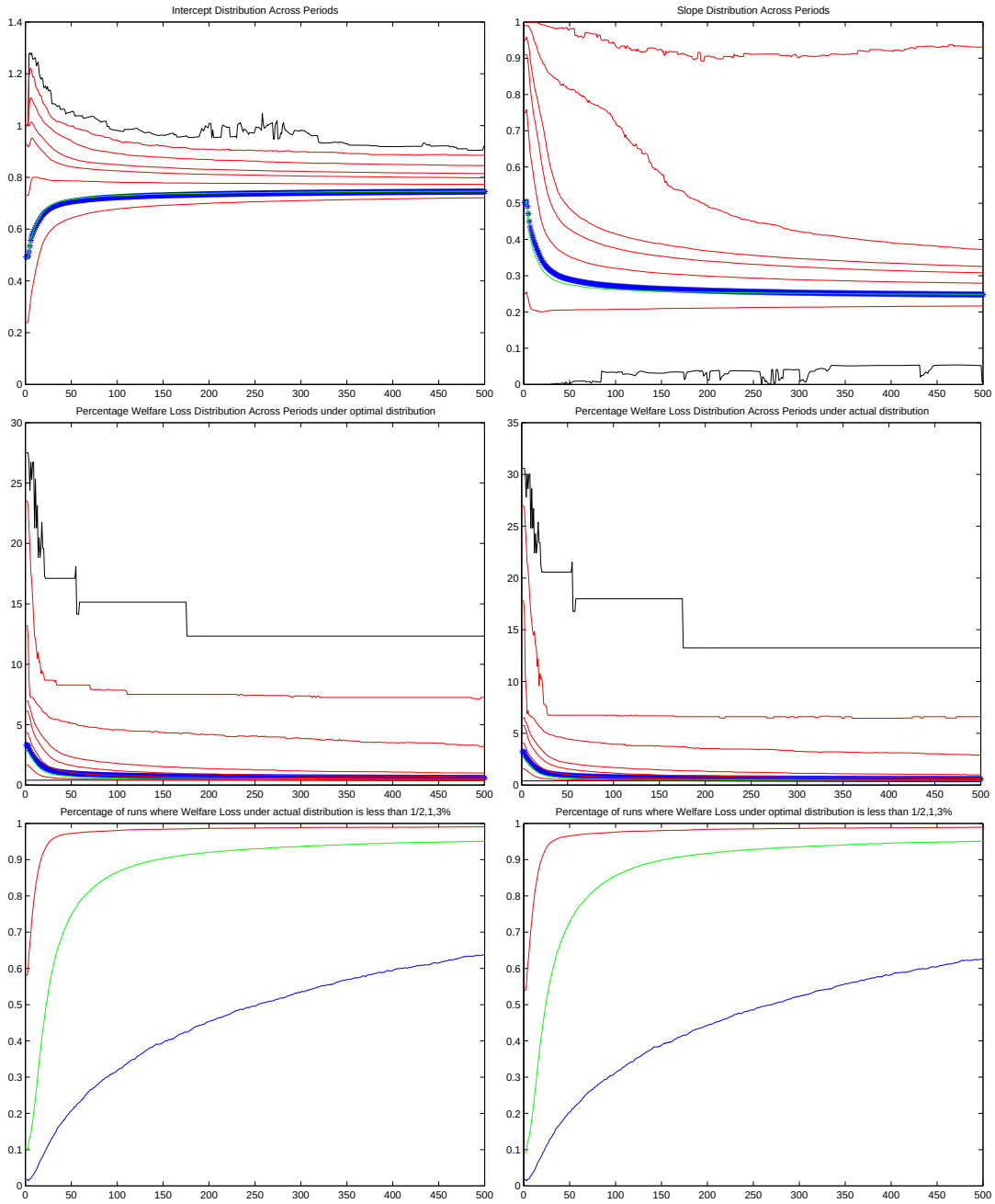

Figure 150: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 4$, $\beta = 0.95$ and the (CG') version of the algorithm.

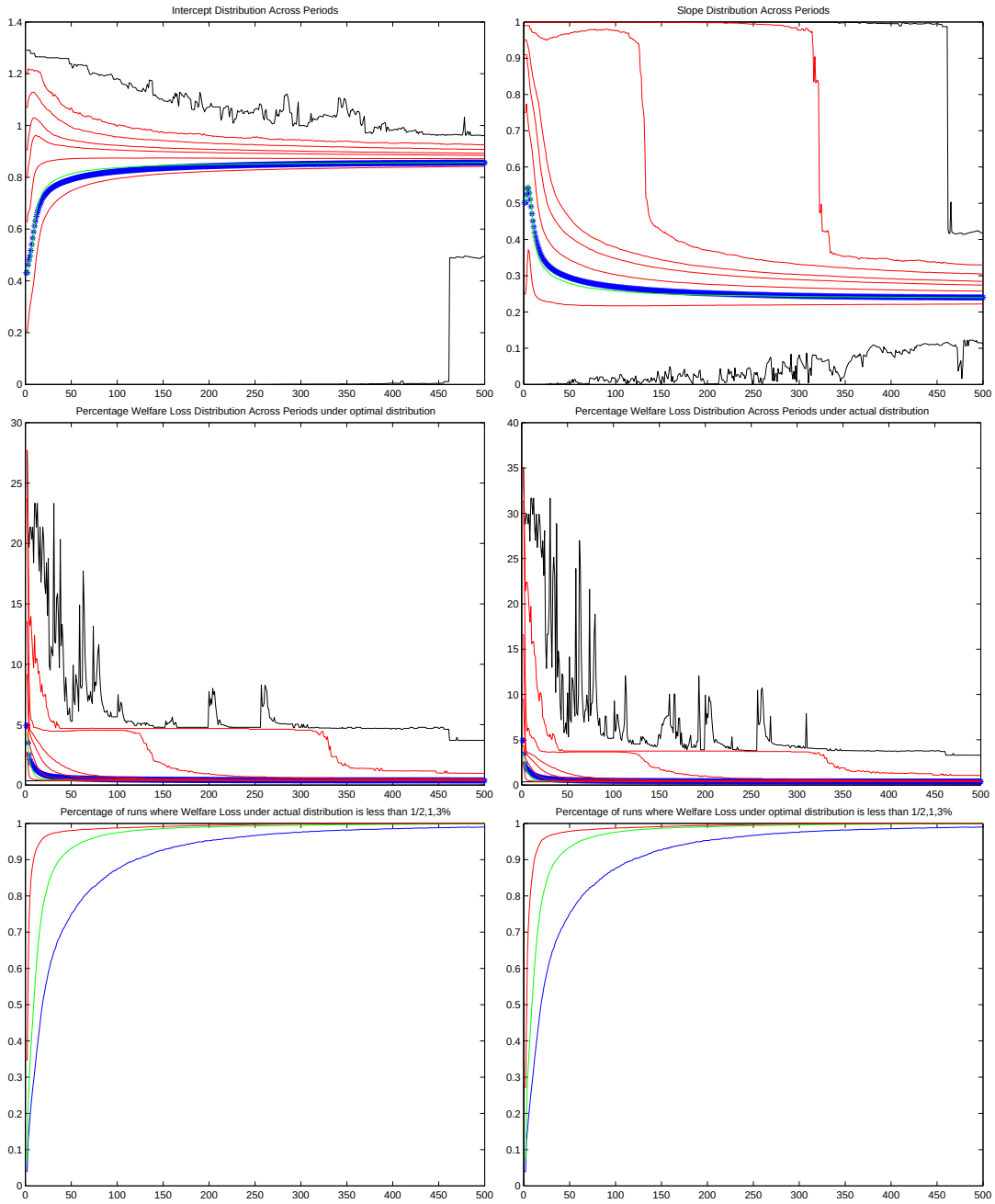

Figure 151: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 1.5$, $\beta = 0.9$ and the (DG) version of the algorithm.

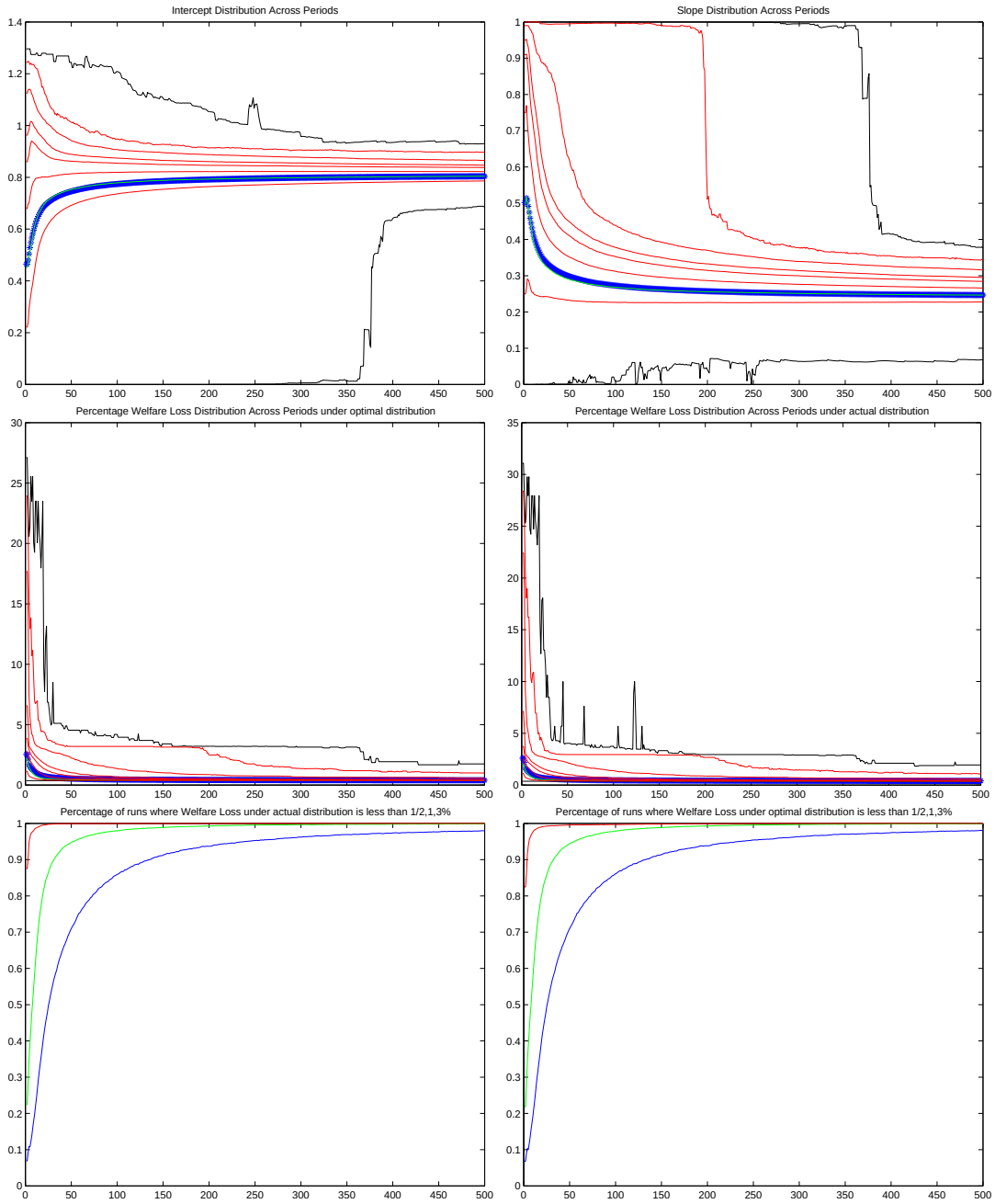

Figure 152: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 1.5$, $\beta = 0.95$ and the (DG) version of the algorithm.

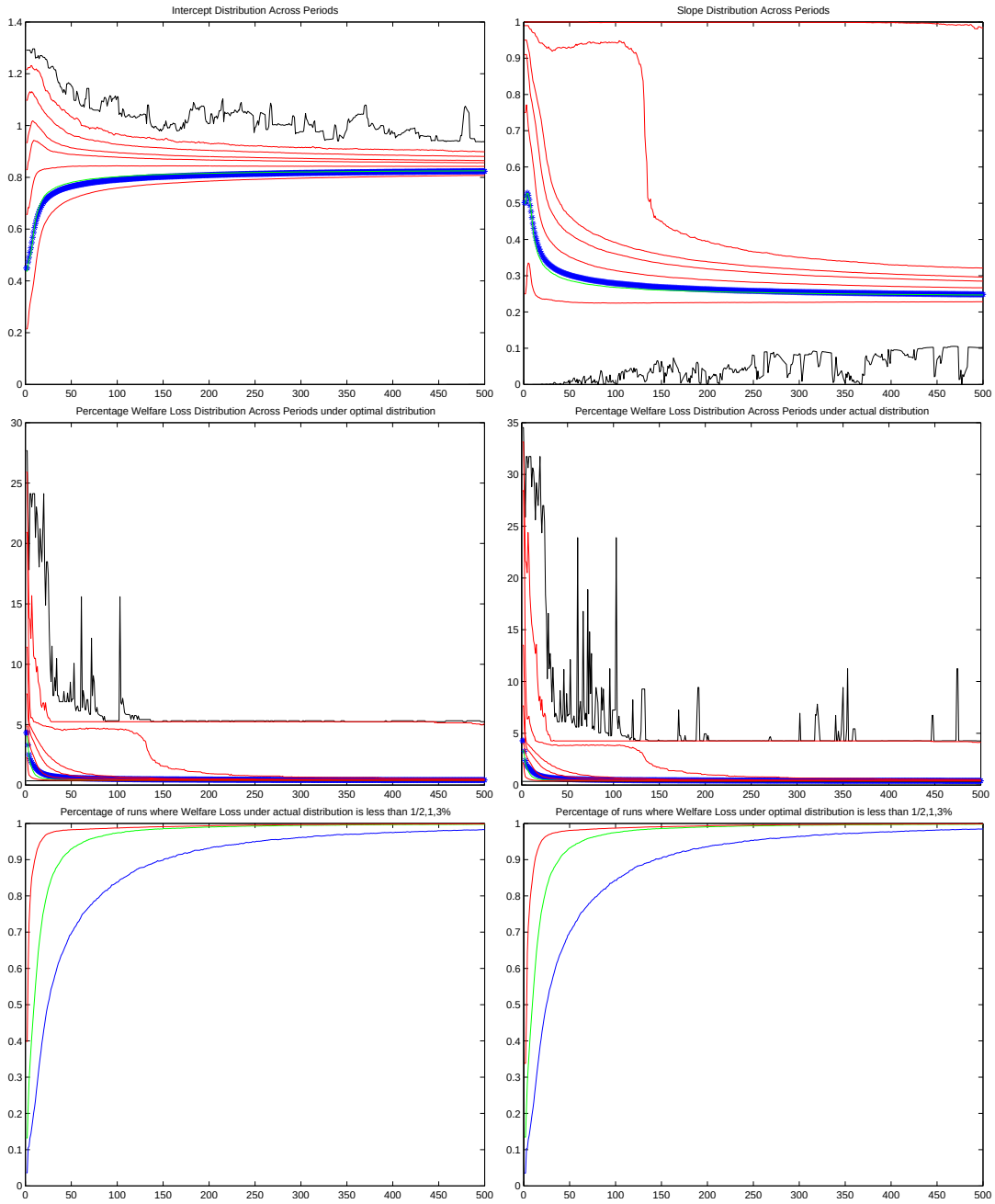

Figure 153: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 2$, $\beta = 0.9$ and the (DG) version of the algorithm.

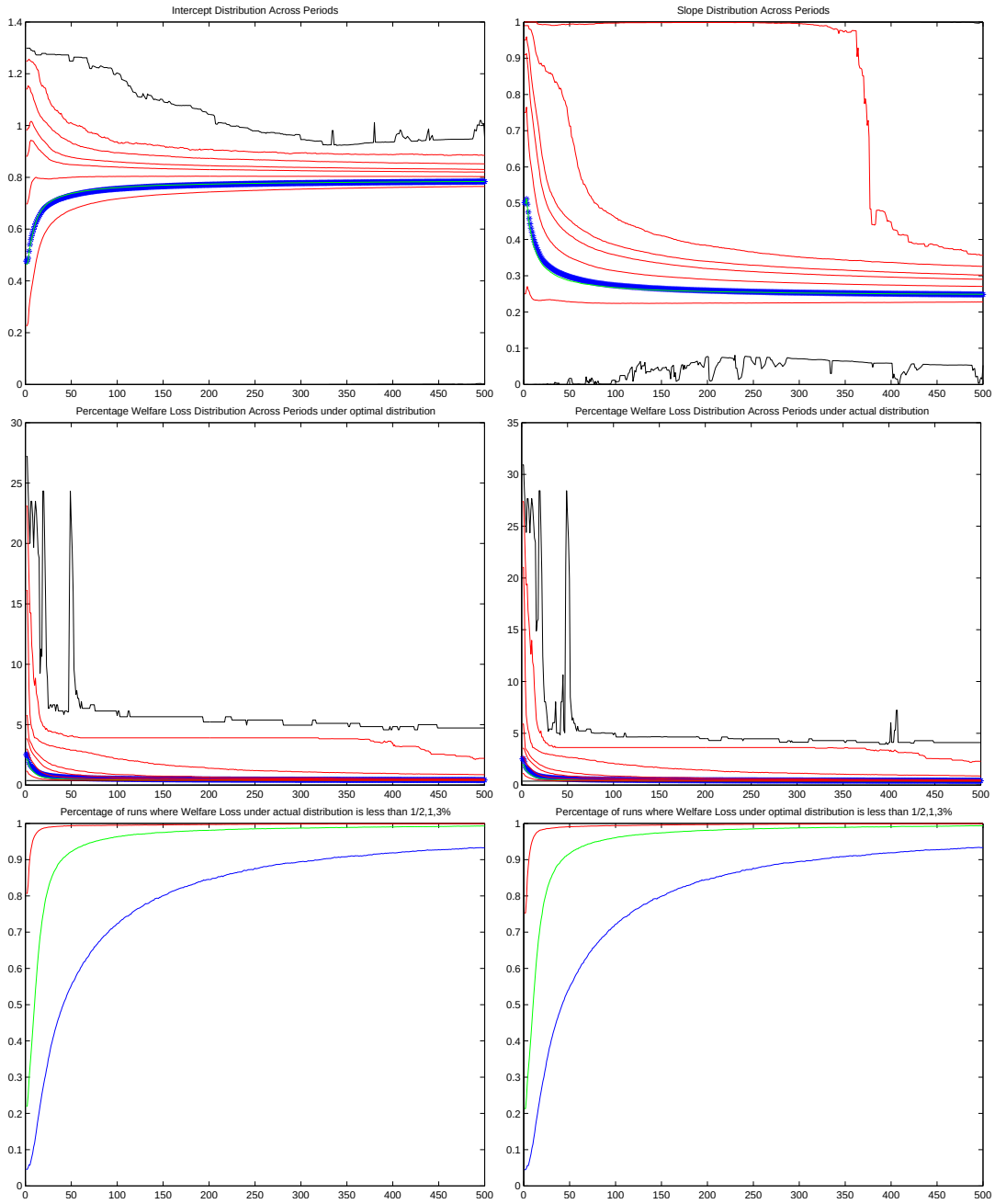

Figure 154: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 2$, $\beta = 0.95$ and the (DG) version of the algorithm.

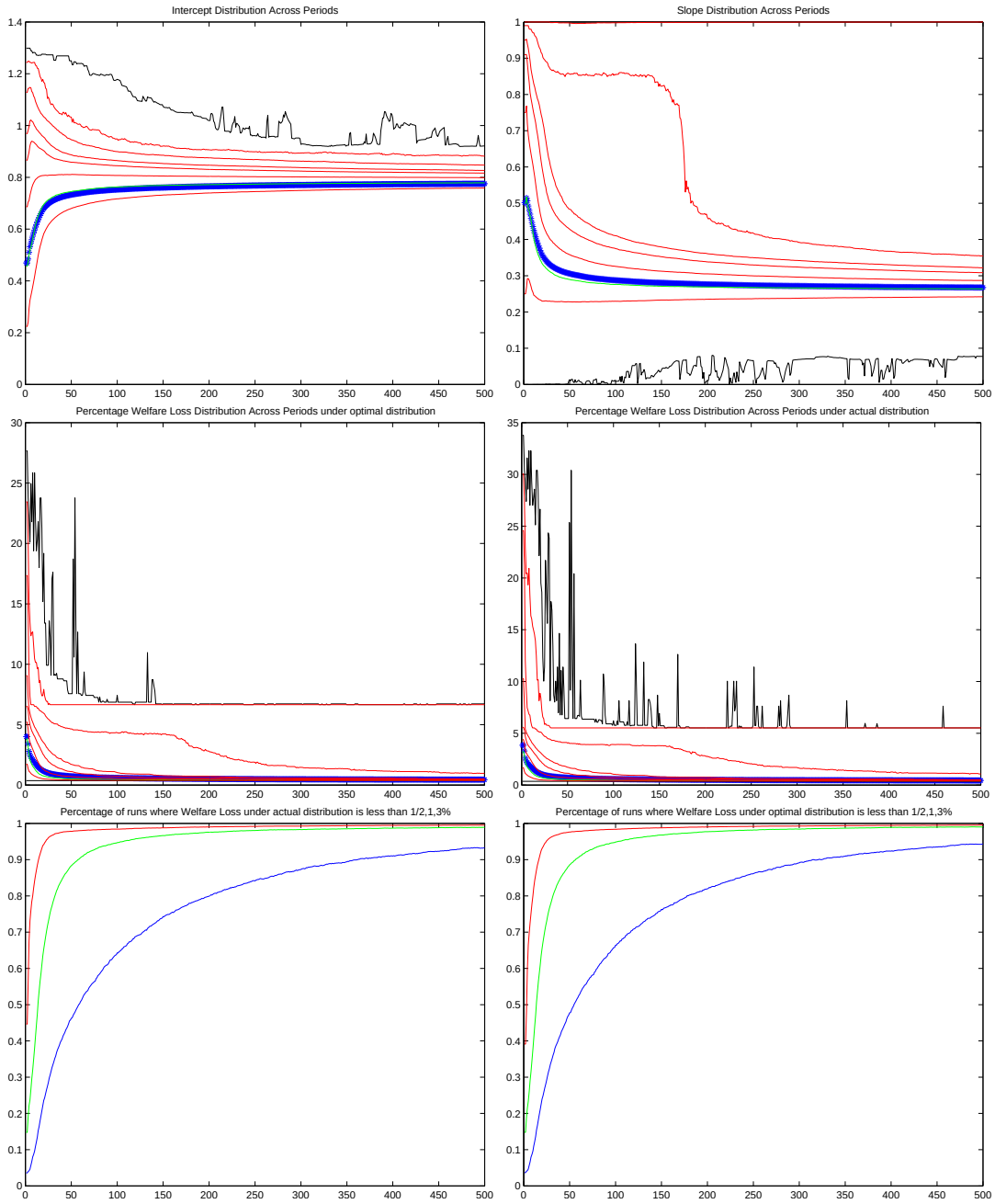

Figure 155: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3$, $\beta = 0.9$ and the (DG) version of the algorithm.

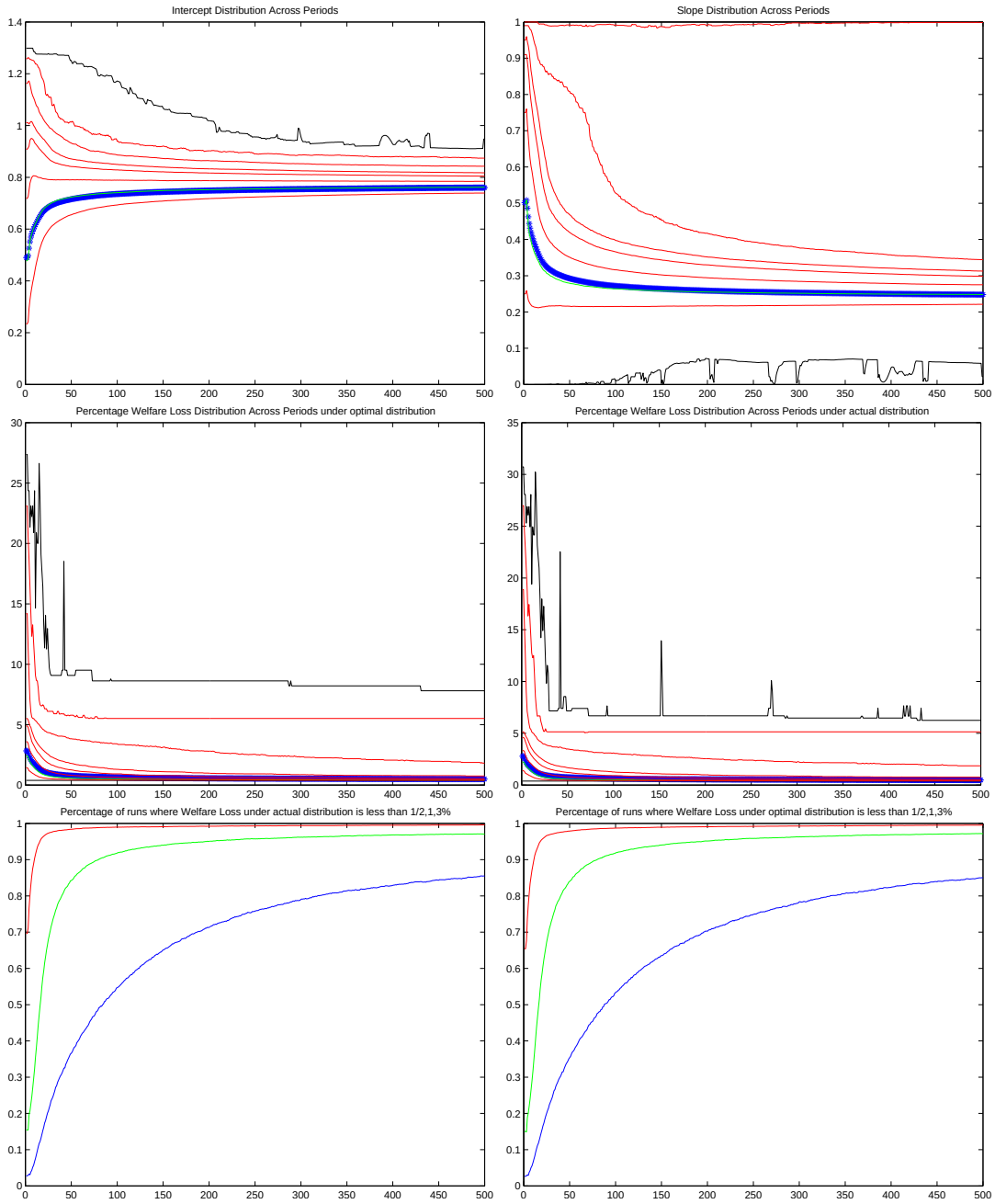

Figure 156: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3$, $\beta = 0.95$ and the (DG) version of the algorithm.

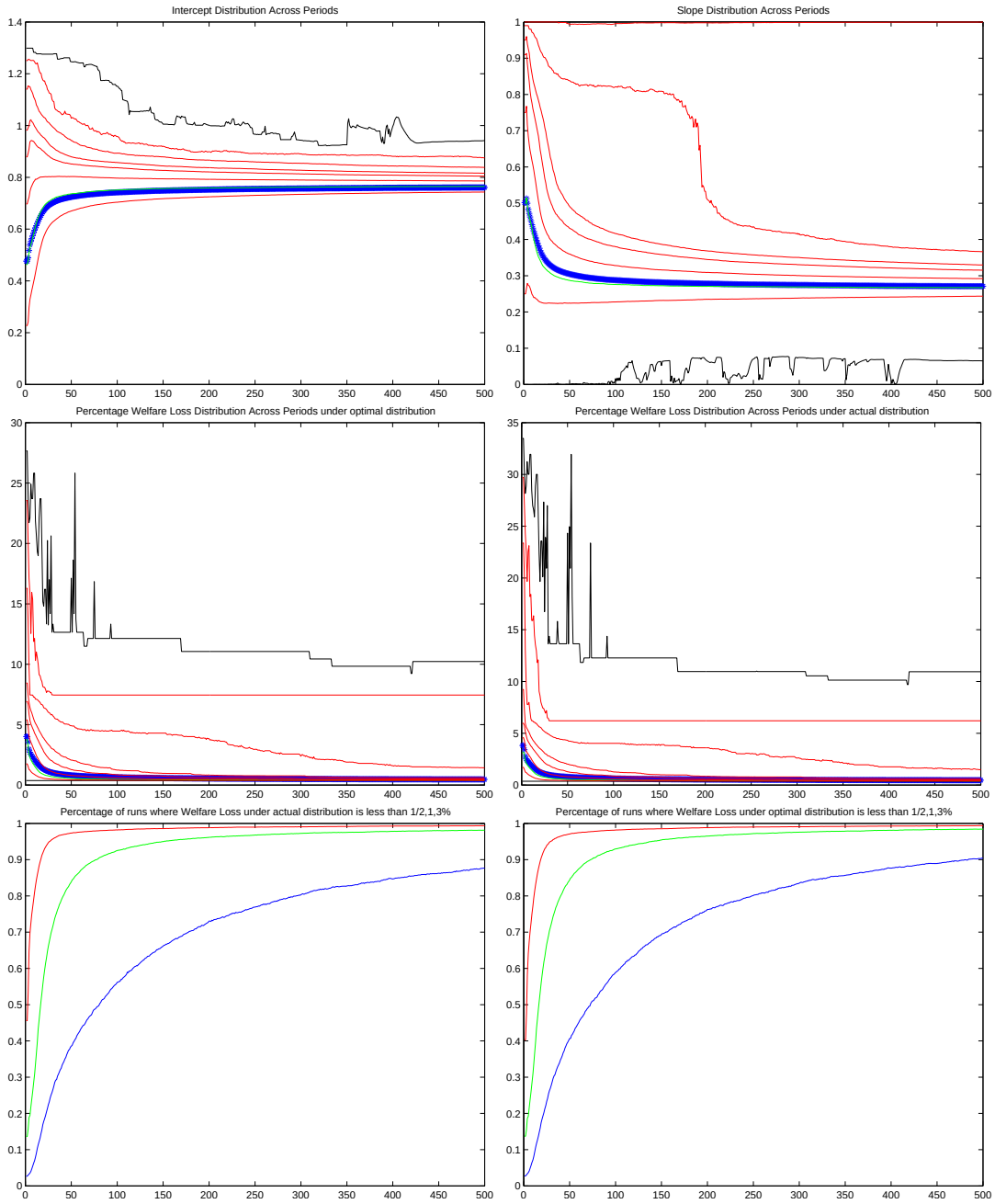

Figure 157: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3.5$, $\beta = 0.9$ and the (DG) version of the algorithm.

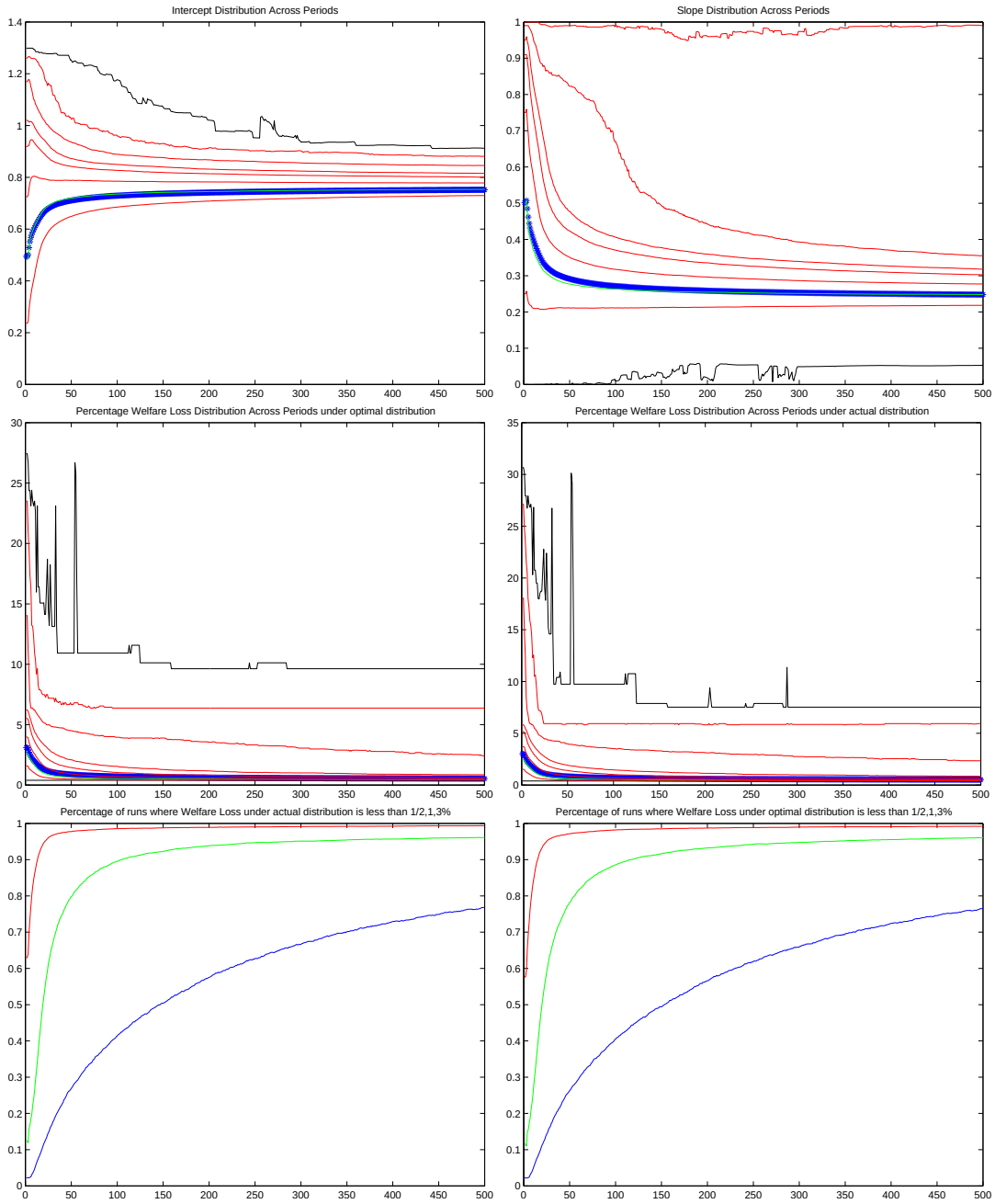

Figure 158: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3.5$, $\beta = 0.95$ and the (DG) version of the algorithm.

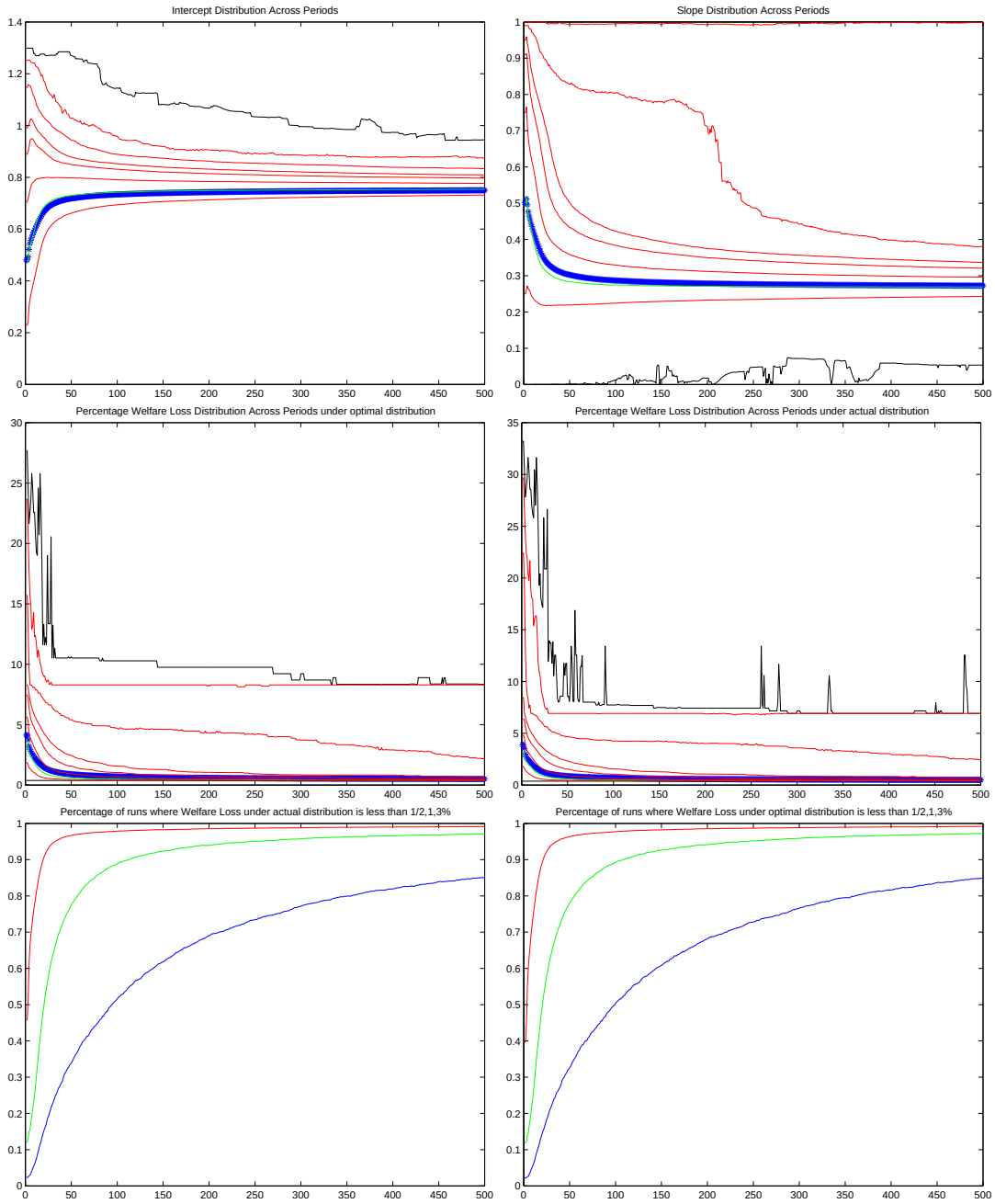

Figure 159: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 4$, $\beta = 0.9$ and the (DG) version of the algorithm.

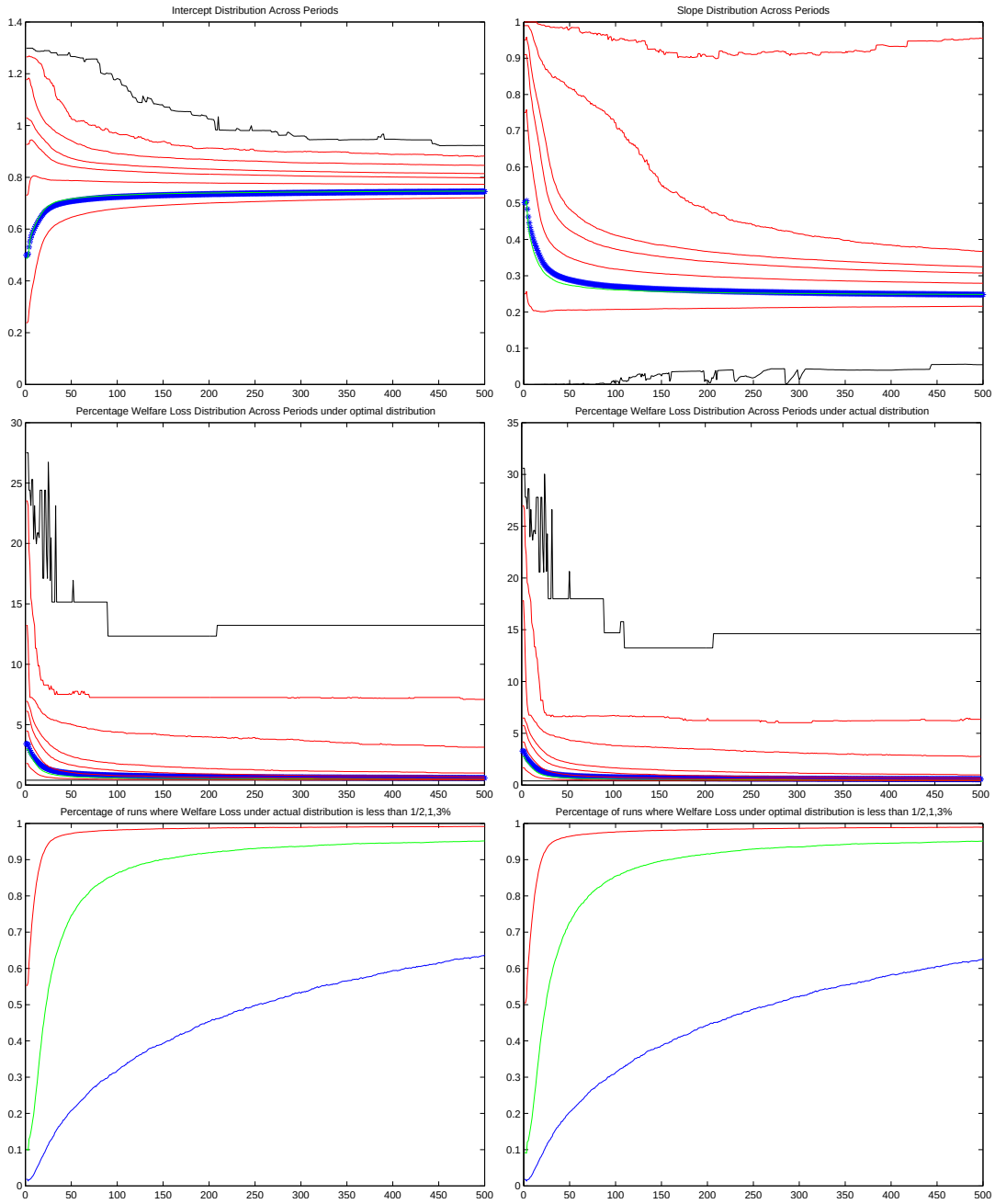

Figure 160: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 4$, $\beta = 0.95$ and the (DG) version of the algorithm.

1.11 $(\epsilon, \delta, \xi) = (0.2, 0, 1)$

Table 23: Probability of D^* or D^t below 1/2 at different periods for (CG').

		$t = 0$		$t = 50$		$t = 100$		$t = 250$		$t = 500$	
β	θ	D^*	D^t	D^*	D^t	D^*	D^t	D^*	D^t	D^*	D^t
0.9	1.5	0.0354	0.0358	0.5789	0.6097	0.5757	0.6041	0.5688	0.5996	0.5757	0.6059
	2.0	0.0394	0.0398	0.3920	0.4039	0.3844	0.3967	0.3872	0.3992	0.3913	0.4021
	3.0	0.0365	0.0360	0.1862	0.1863	0.1802	0.1789	0.1810	0.1796	0.1808	0.1789
	3.5	0.0275	0.0267	0.1485	0.1444	0.1490	0.1442	0.1451	0.1408	0.1441	0.1401
	4.0	0.0219	0.0233	0.1184	0.1273	0.1185	0.1270	0.1169	0.1237	0.1182	0.1262
0.95	1.5	0.0697	0.0709	0.3897	0.4040	0.3891	0.4027	0.3882	0.4017	0.3800	0.3961
	2.0	0.0445	0.0455	0.2485	0.2542	0.2447	0.2524	0.2432	0.2496	0.2445	0.2504
	3.0	0.0263	0.0278	0.1487	0.1556	0.1499	0.1550	0.1482	0.1537	0.1494	0.1550
	3.5	0.0222	0.0227	0.1179	0.1218	0.1168	0.1192	0.1125	0.1153	0.1145	0.1175
	4.0	0.0181	0.0185	0.0997	0.1011	0.0931	0.0944	0.0936	0.0949	0.0948	0.0965

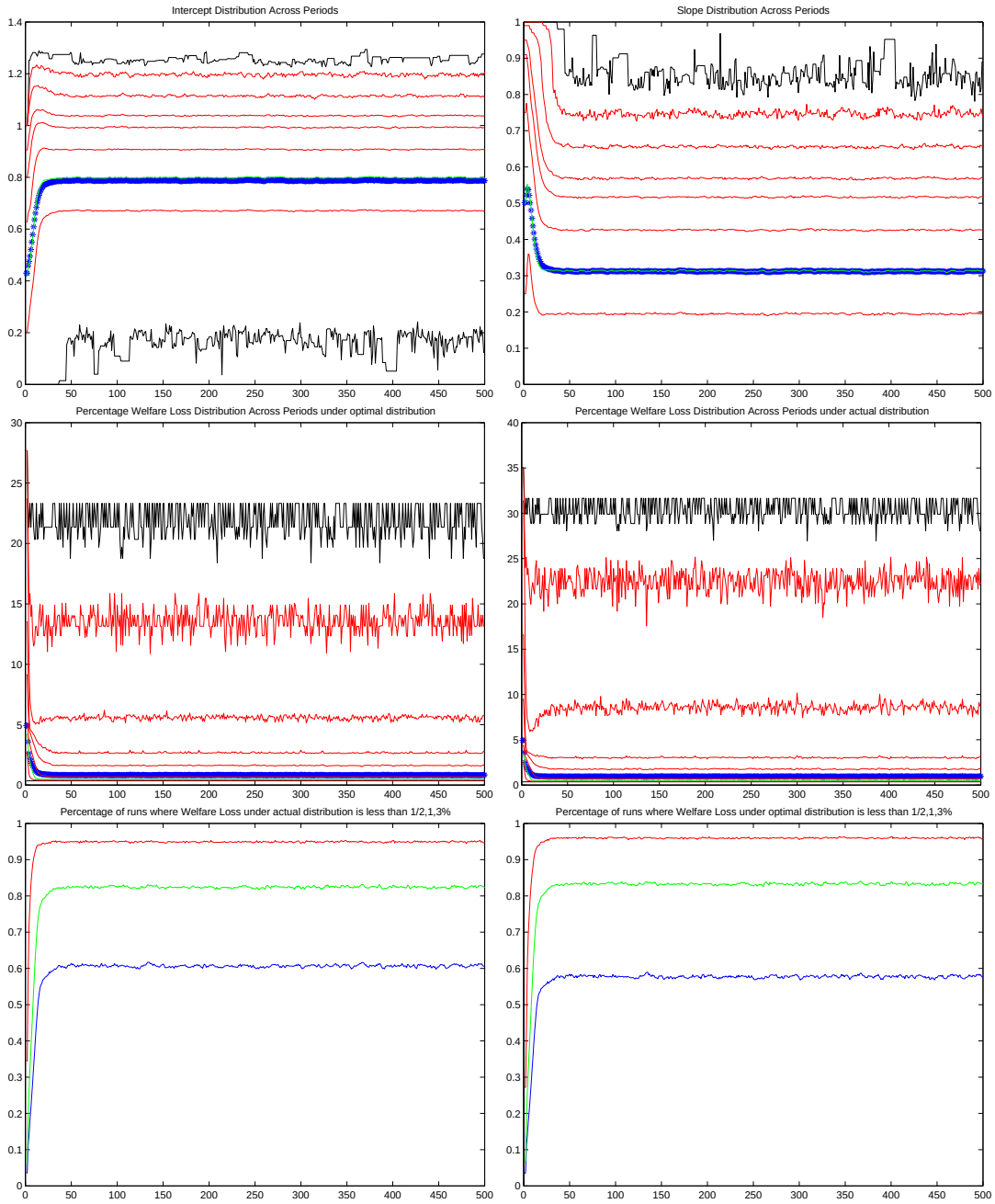

Figure 161: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 1.5$, $\beta = 0.9$ and the (CG') version of the algorithm.

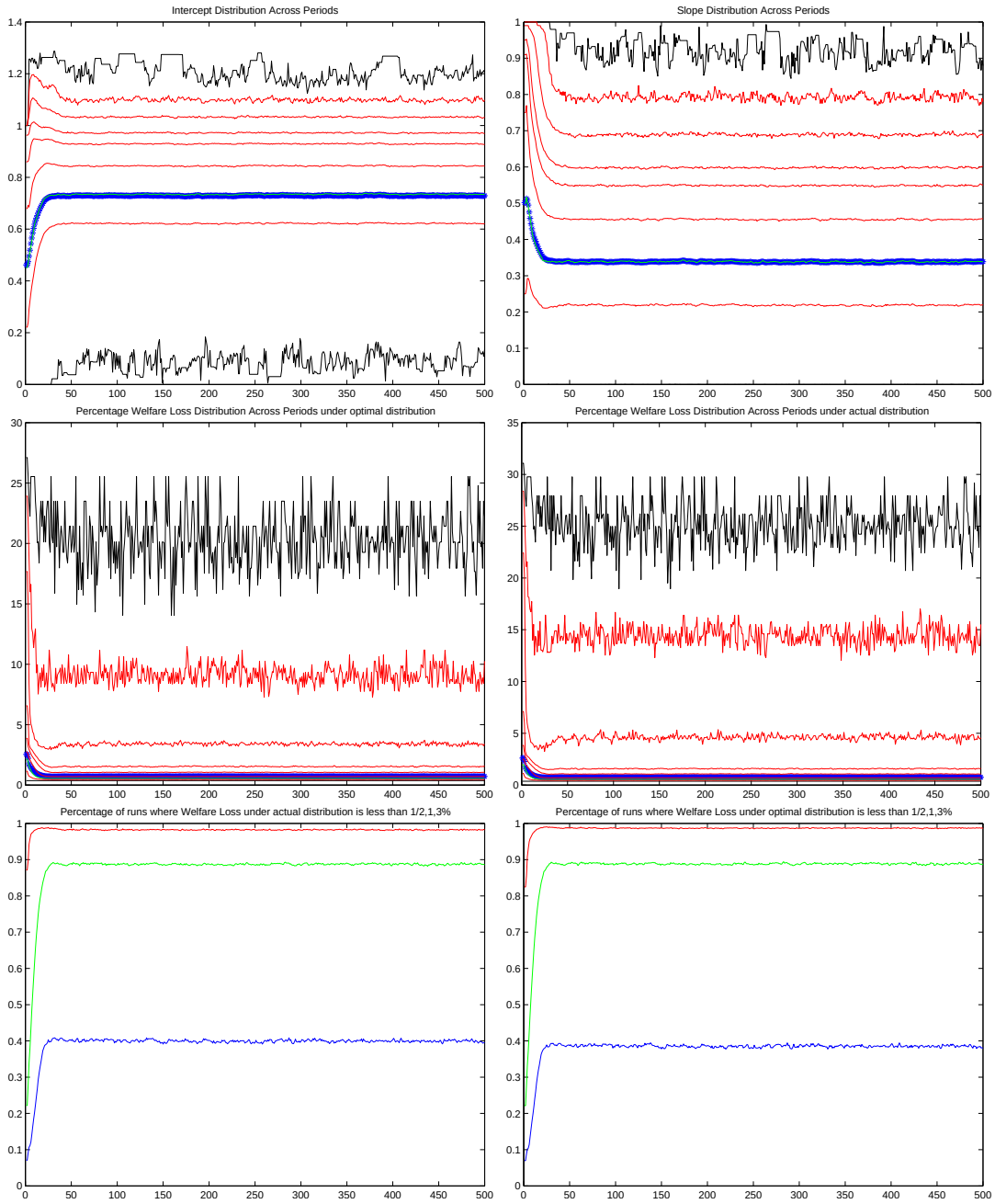

Figure 162: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 1.5$, $\beta = 0.95$ and the (CG') version of the algorithm.

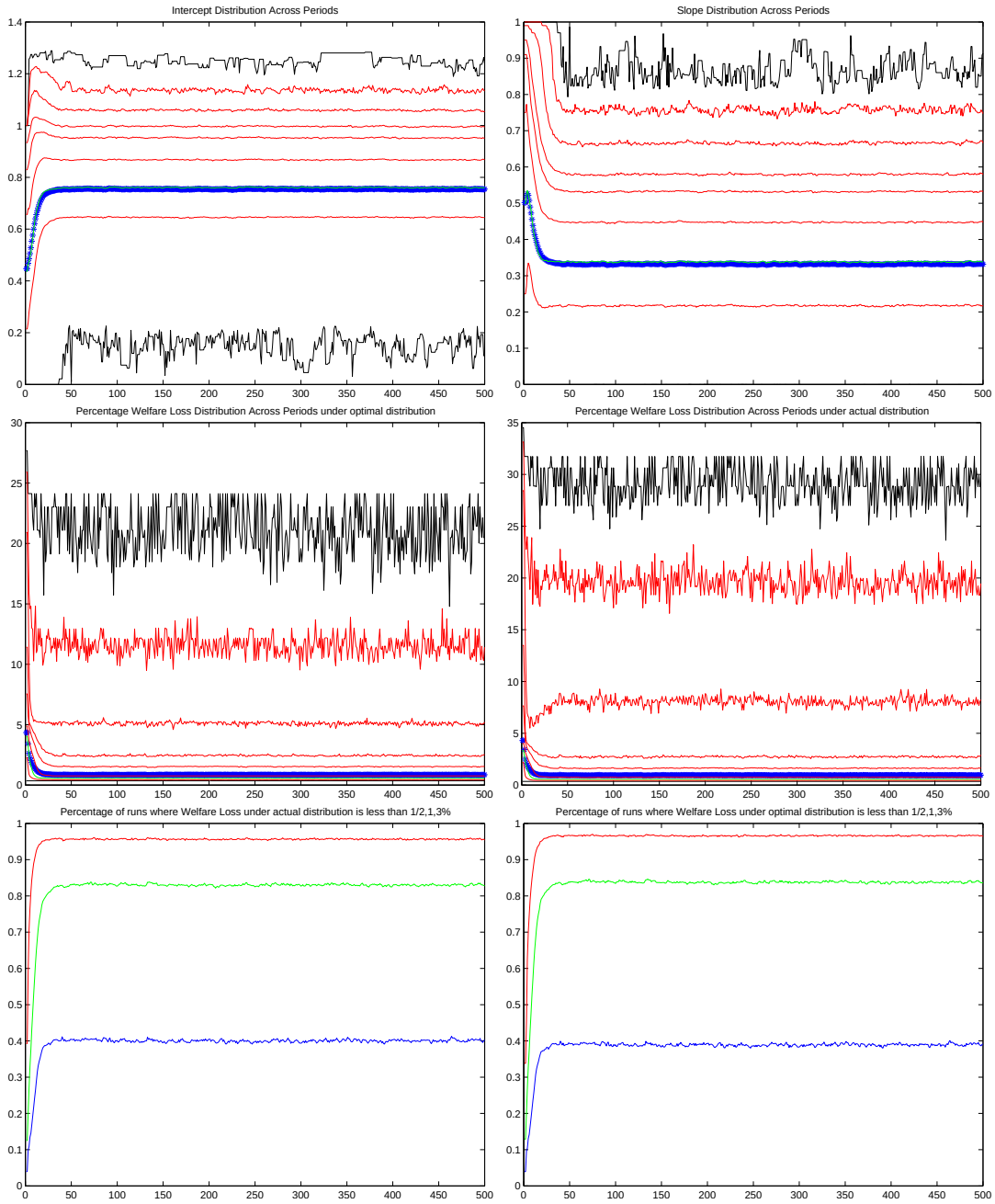

Figure 163: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 2$, $\beta = 0.9$ and the (CG') version of the algorithm.

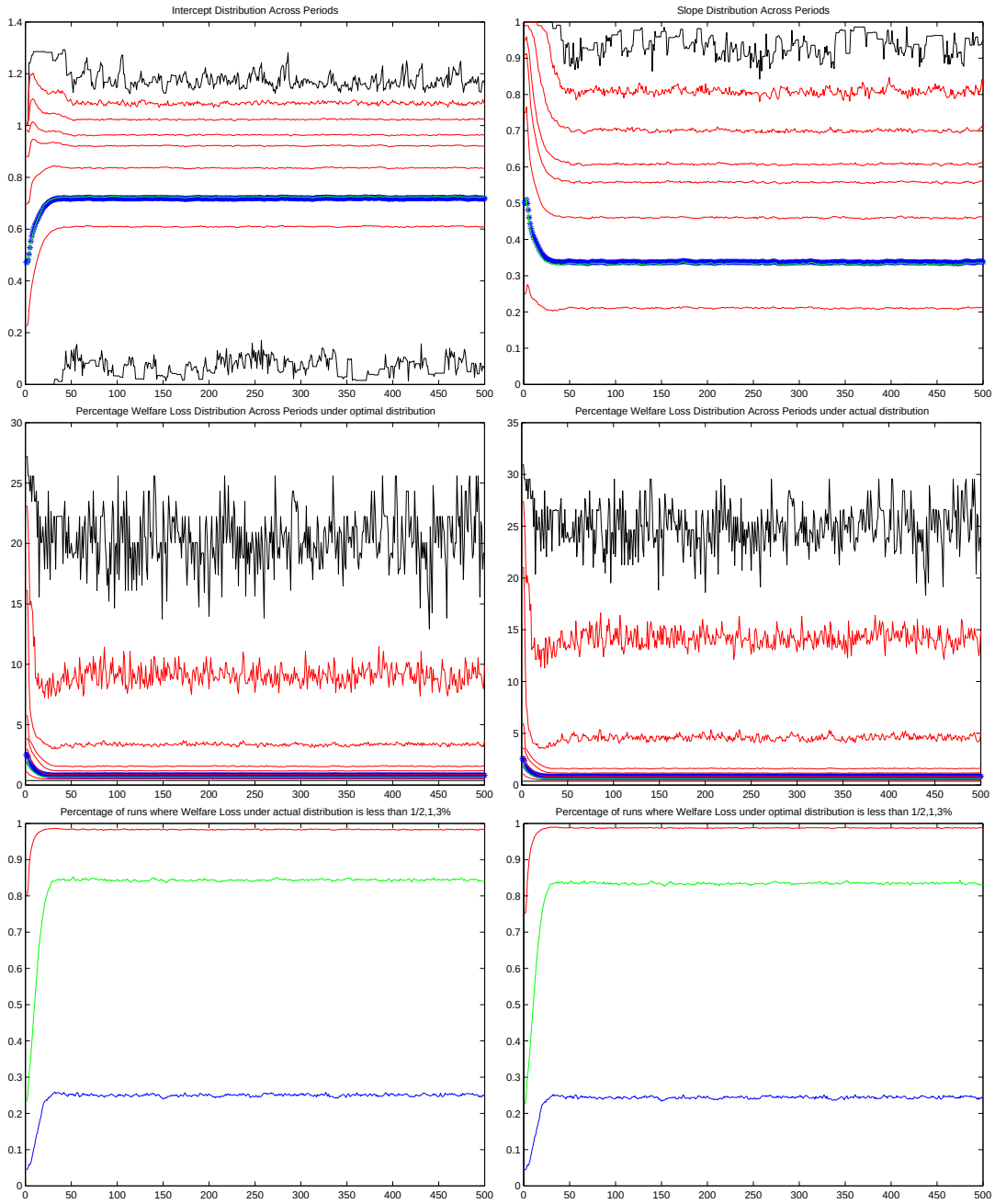

Figure 164: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 2$, $\beta = 0.95$ and the (CG') version of the algorithm.

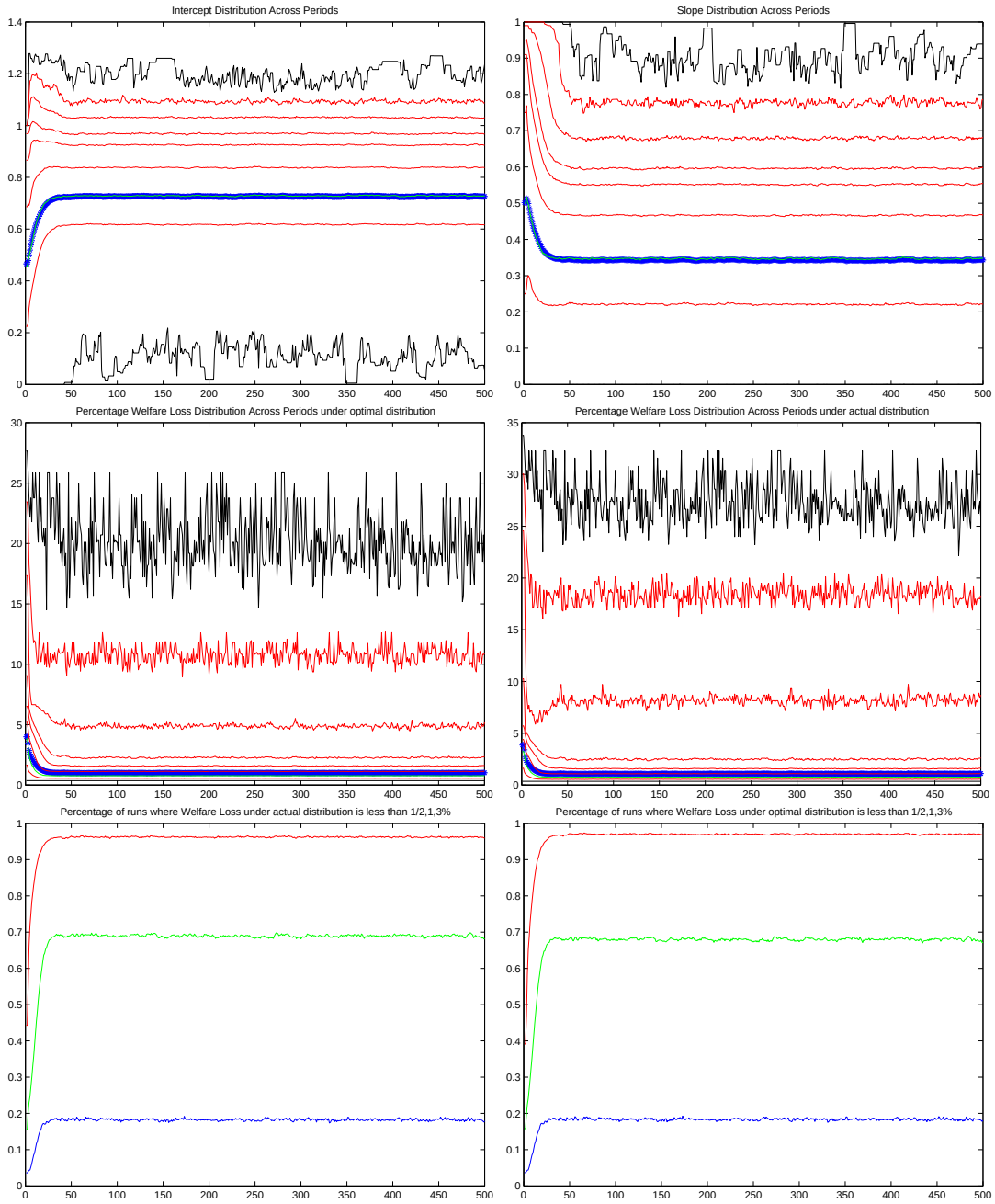

Figure 165: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3$, $\beta = 0.9$ and the (CG') version of the algorithm.

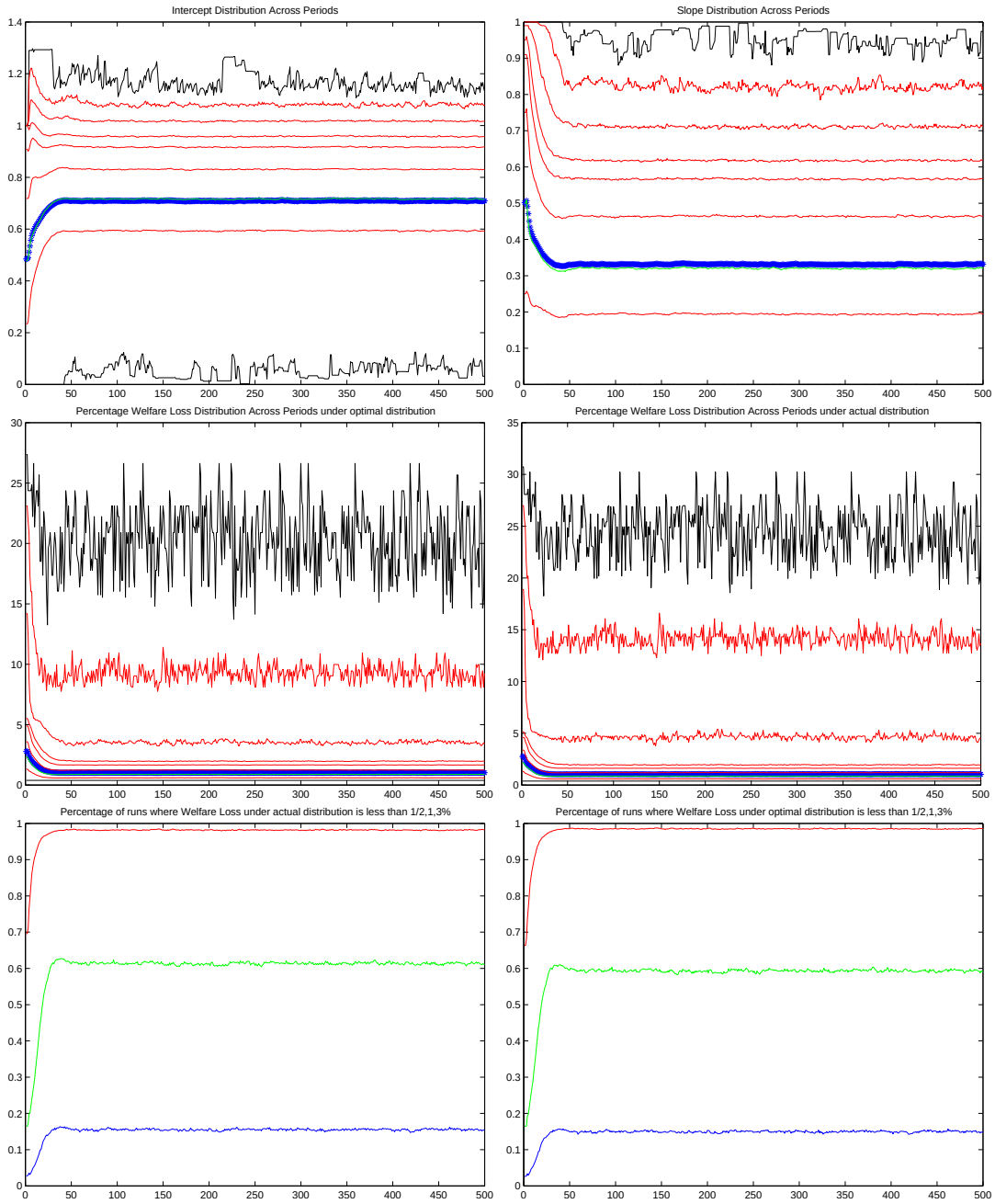

Figure 166: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3$, $\beta = 0.95$ and the (CG') version of the algorithm.

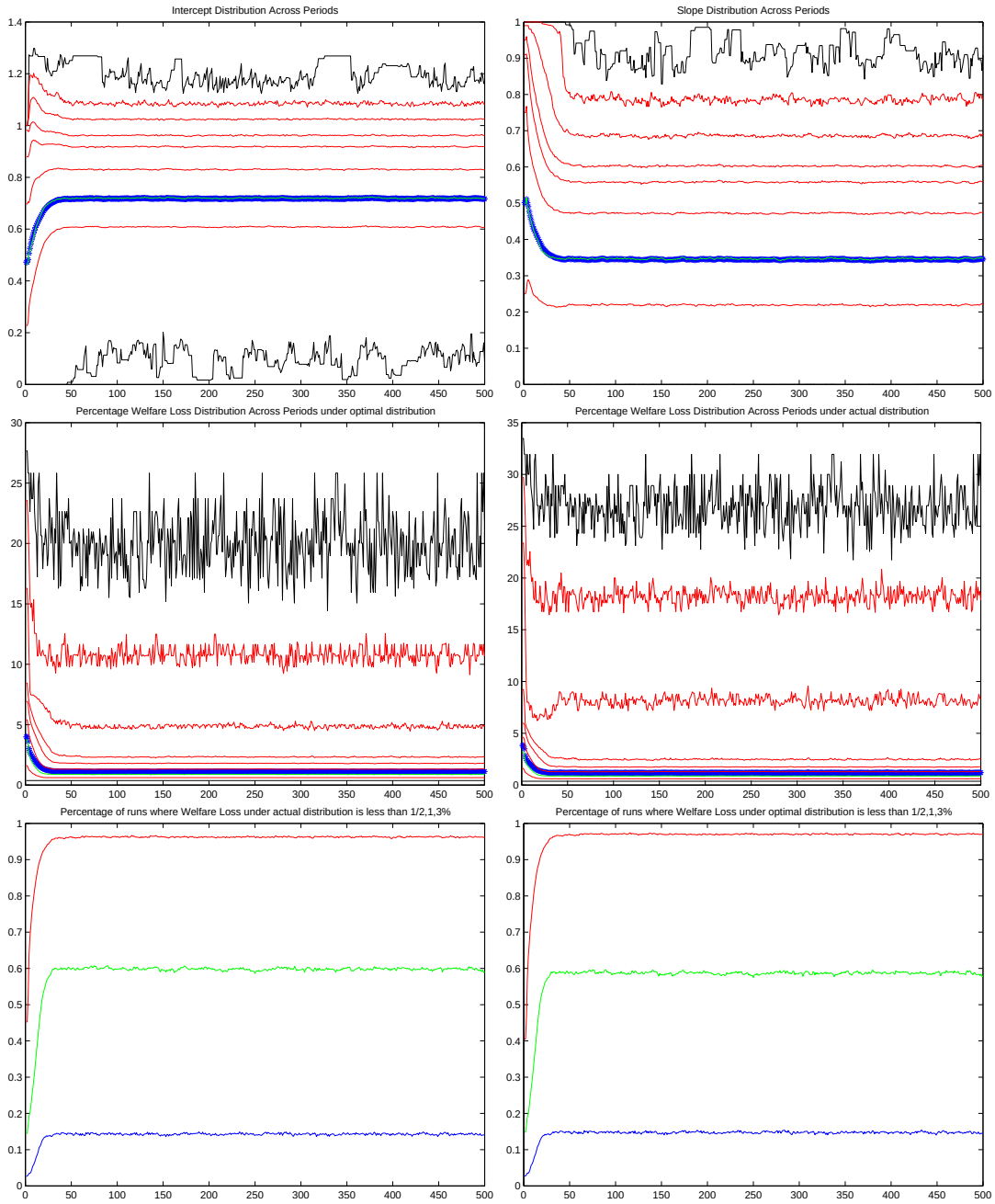

Figure 167: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3.5$, $\beta = 0.9$ and the (CG') version of the algorithm.

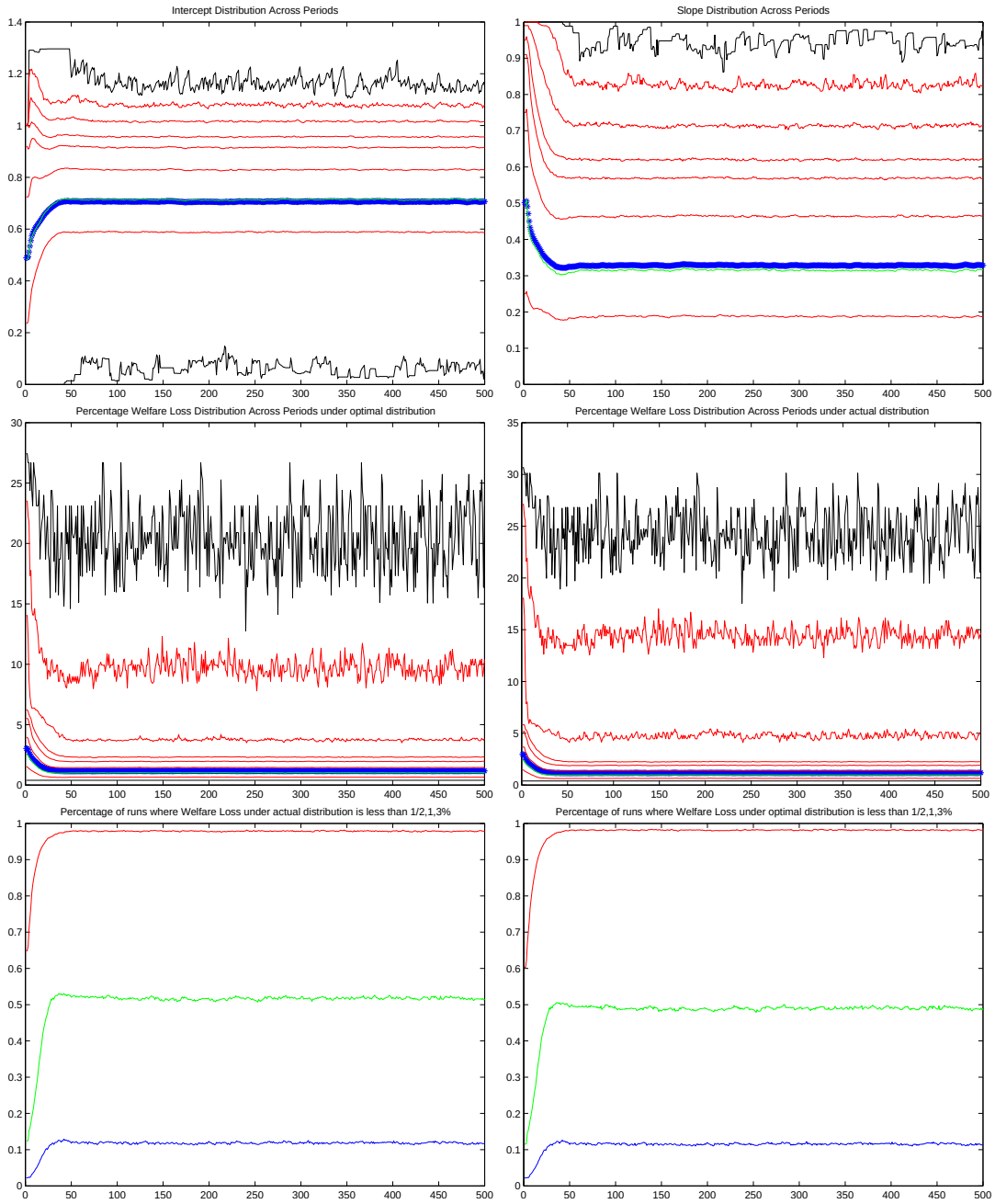

Figure 168: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3.5$, $\beta = 0.95$ and the (CG') version of the algorithm.

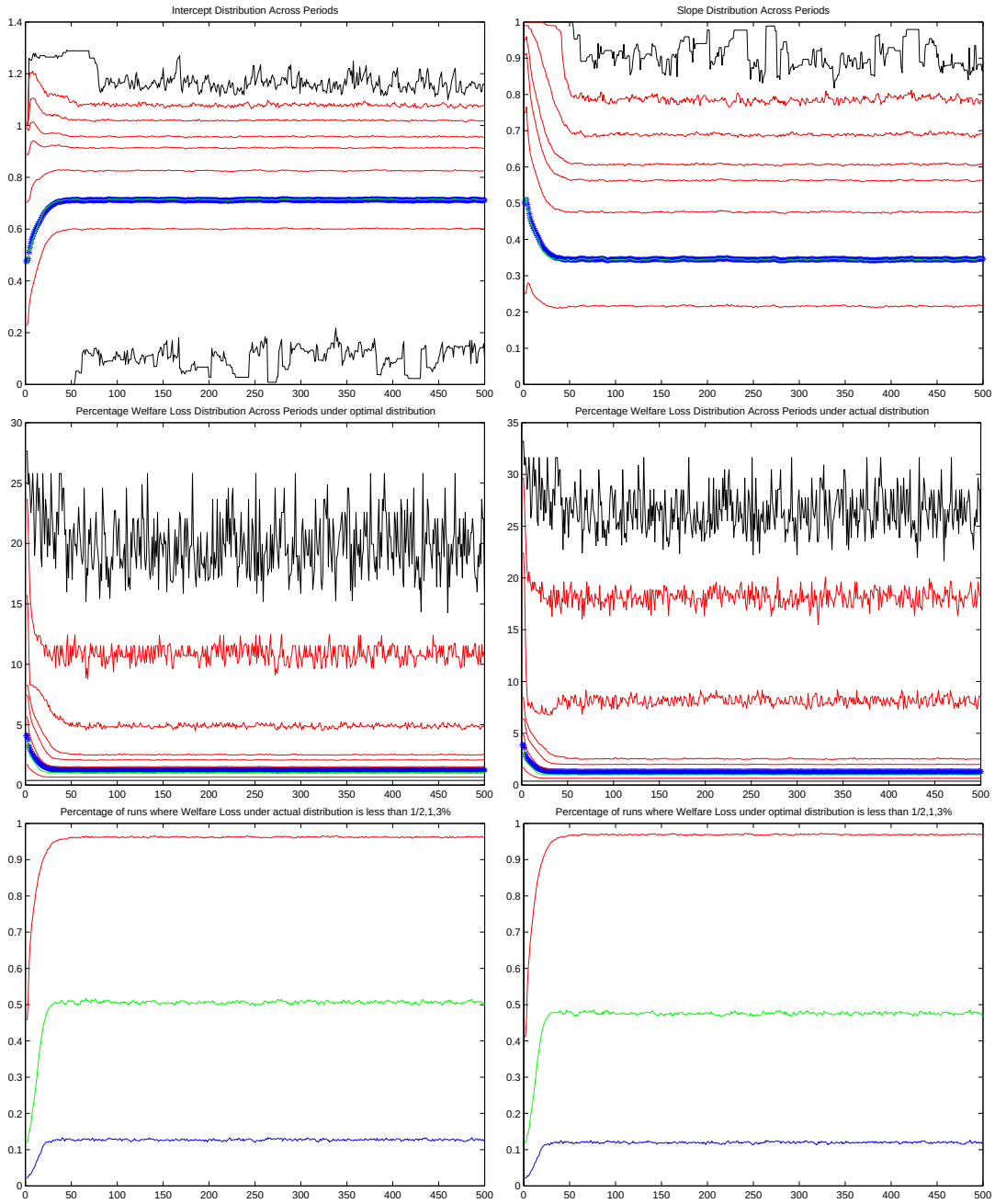

Figure 169: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 4$, $\beta = 0.9$ and the (CG') version of the algorithm.

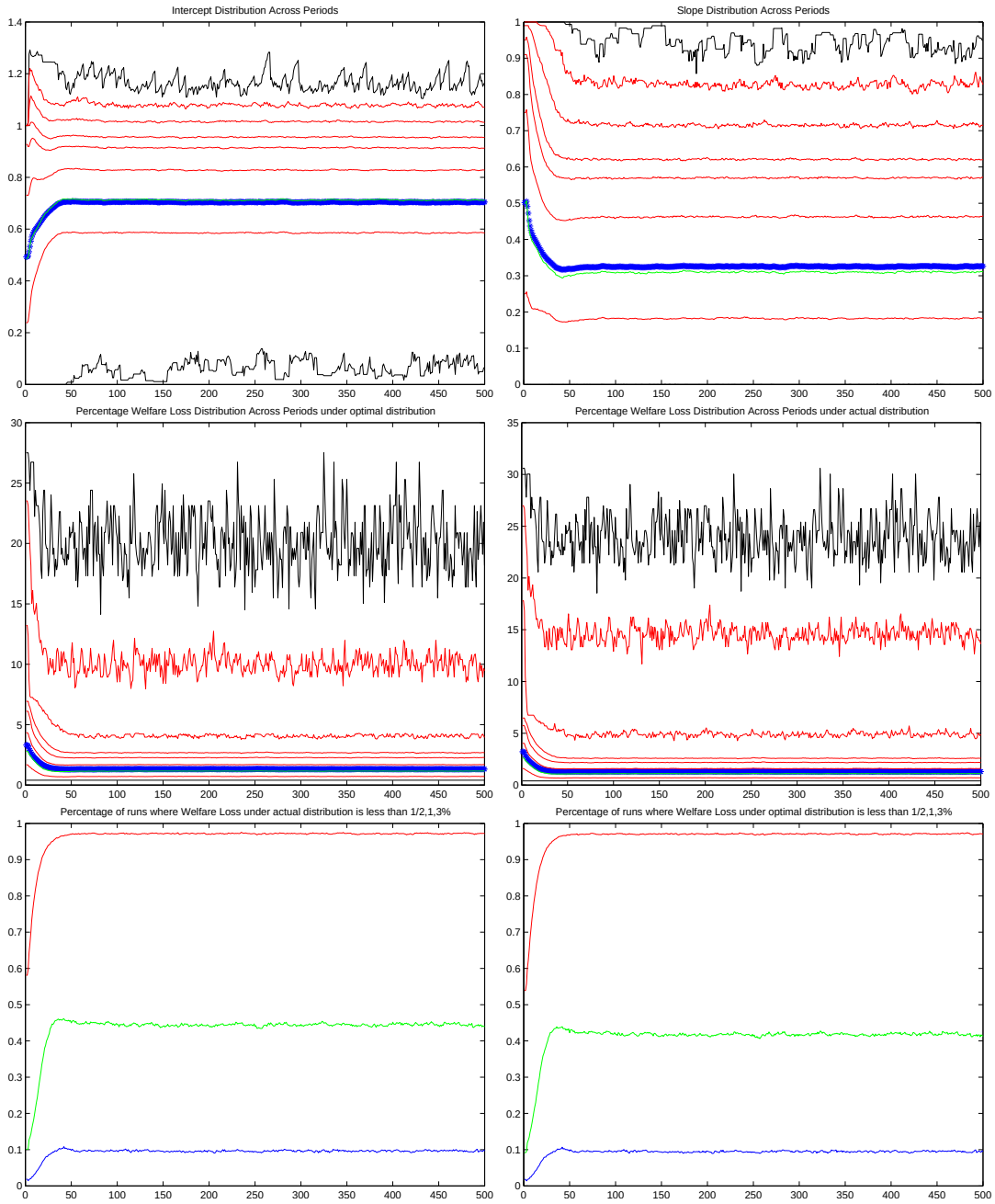

Figure 170: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 4$, $\beta = 0.95$ and the (CG') version of the algorithm.

1.12 $(\epsilon, \delta, \xi) = (0, 0.5, 1)$

Table 24: Probability of D^* or D^t below 1/2 at different periods for (CG').

		$t = 0$		$t = 50$		$t = 100$		$t = 250$		$t = 500$	
β	θ	D^*	D^t	D^*	D^t	D^*	D^t	D^*	D^t	D^*	D^t
0.9	1.5	0.0354	0.0358	0.3813	0.3805	0.5111	0.5107	0.6849	0.6849	0.7966	0.7966
	2.0	0.0394	0.0398	0.4022	0.3993	0.5088	0.5030	0.6469	0.6430	0.7431	0.7407
	3.0	0.0365	0.0360	0.3398	0.3316	0.4440	0.4328	0.5750	0.5623	0.6719	0.6601
	3.5	0.0275	0.0267	0.3170	0.3033	0.4172	0.3966	0.5438	0.5174	0.6327	0.5989
	4.0	0.0219	0.0233	0.2756	0.2859	0.3750	0.3846	0.5085	0.5130	0.6058	0.6080
0.95	1.5	0.0697	0.0709	0.4658	0.4673	0.5745	0.5738	0.6929	0.6919	0.7659	0.7657
	2.0	0.0445	0.0455	0.4095	0.4143	0.5153	0.5194	0.6349	0.6381	0.7075	0.7090
	3.0	0.0263	0.0278	0.2745	0.2879	0.3838	0.4026	0.5324	0.5513	0.6386	0.6563
	3.5	0.0222	0.0227	0.1961	0.2032	0.2798	0.2892	0.4093	0.4180	0.5143	0.5210
	4.0	0.0181	0.0185	0.1463	0.1507	0.2066	0.2124	0.3028	0.3105	0.3873	0.3977

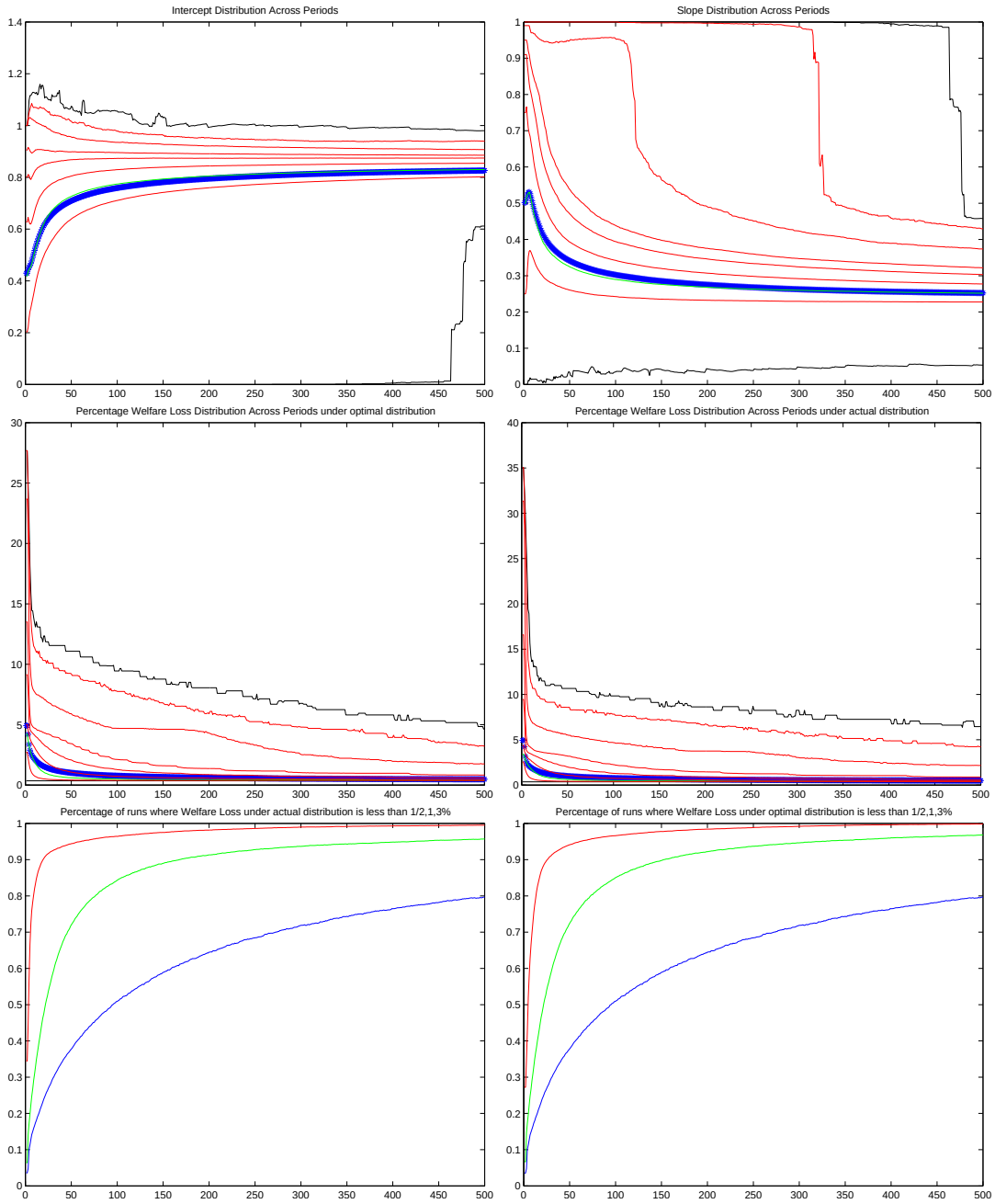

Figure 171: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 1.5$, $\beta = 0.9$ and the (CG') version of the algorithm.

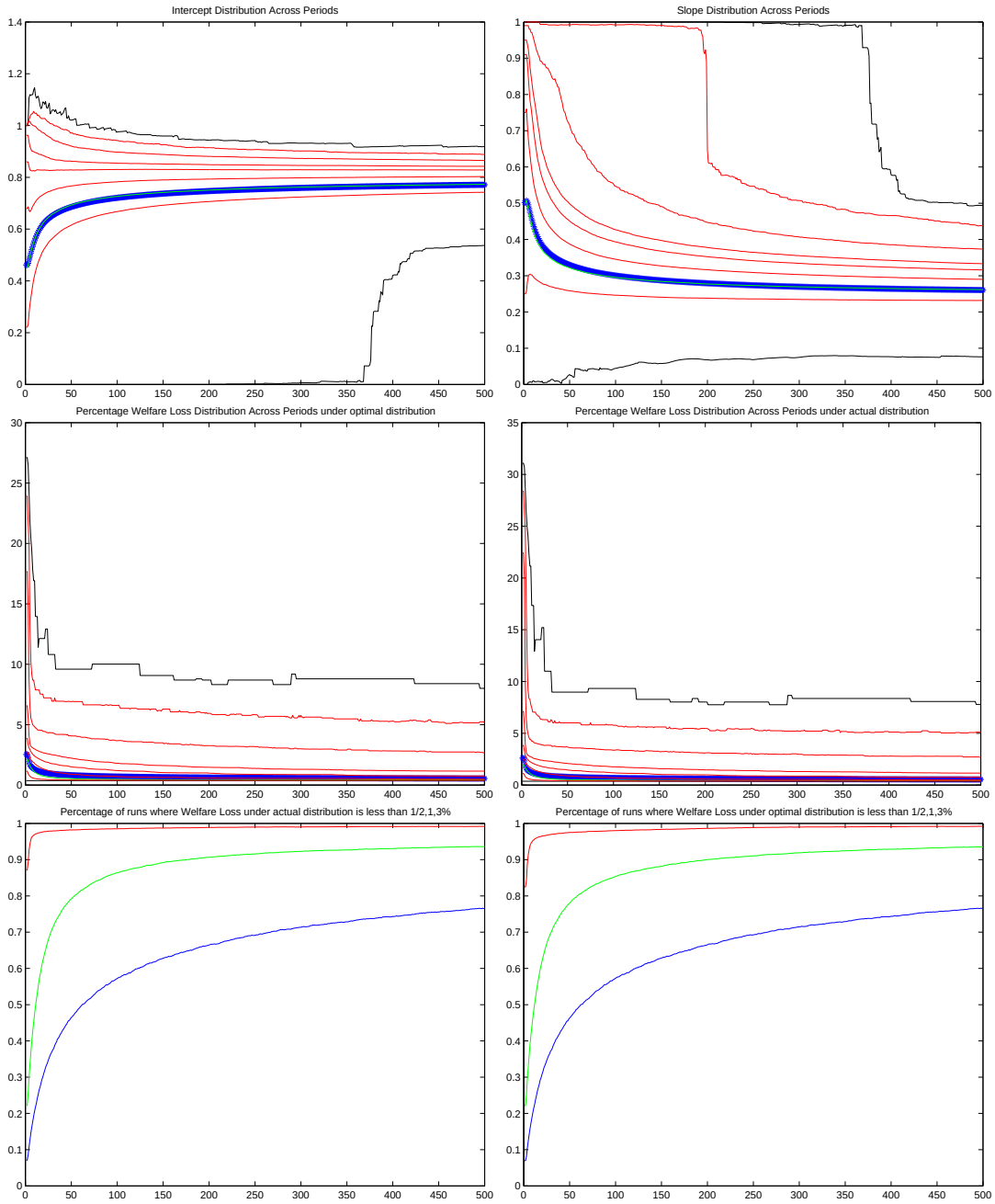

Figure 172: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 1.5$, $\beta = 0.95$ and the (CG') version of the algorithm.

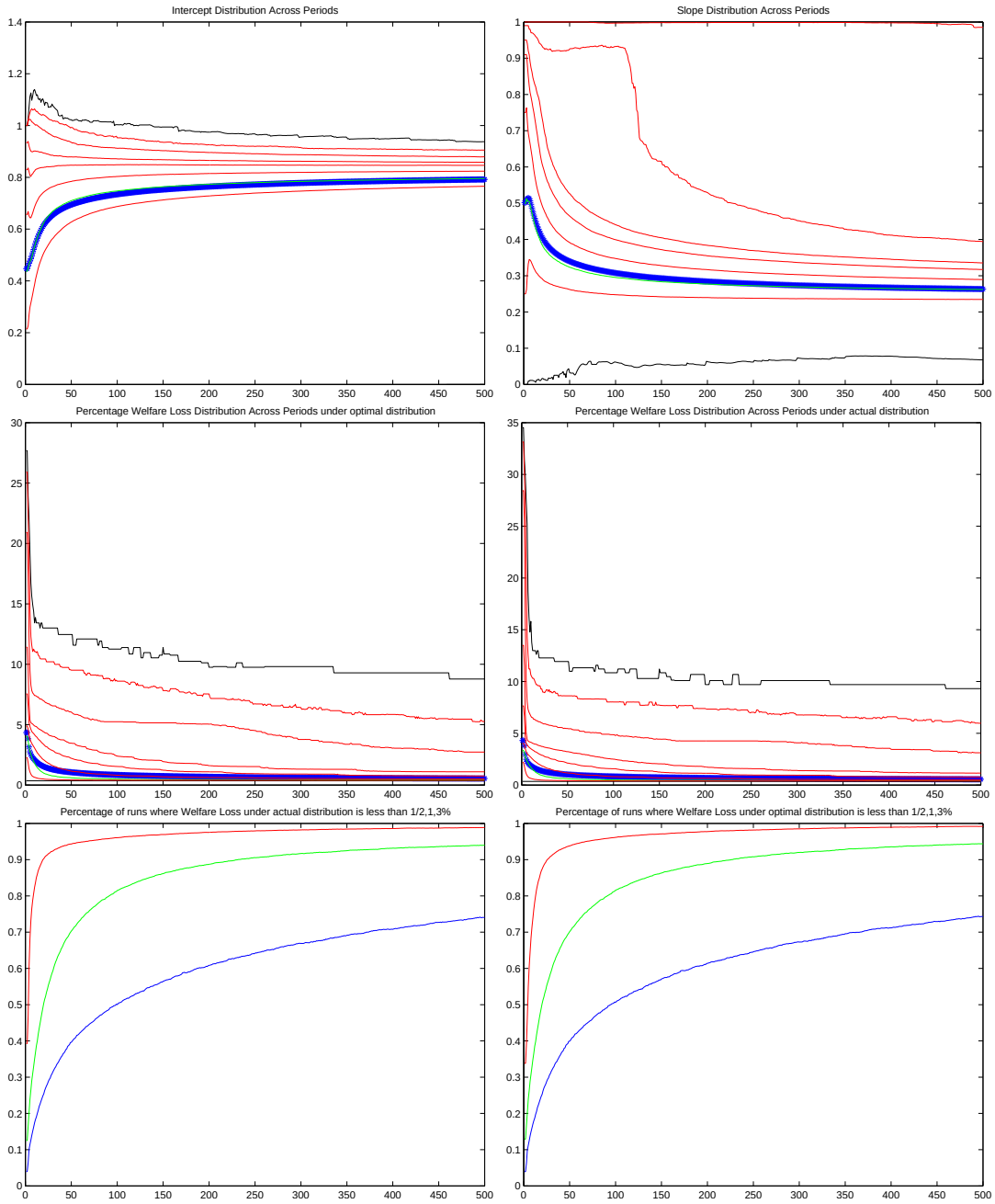

Figure 173: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 2$, $\beta = 0.9$ and the (CG') version of the algorithm.

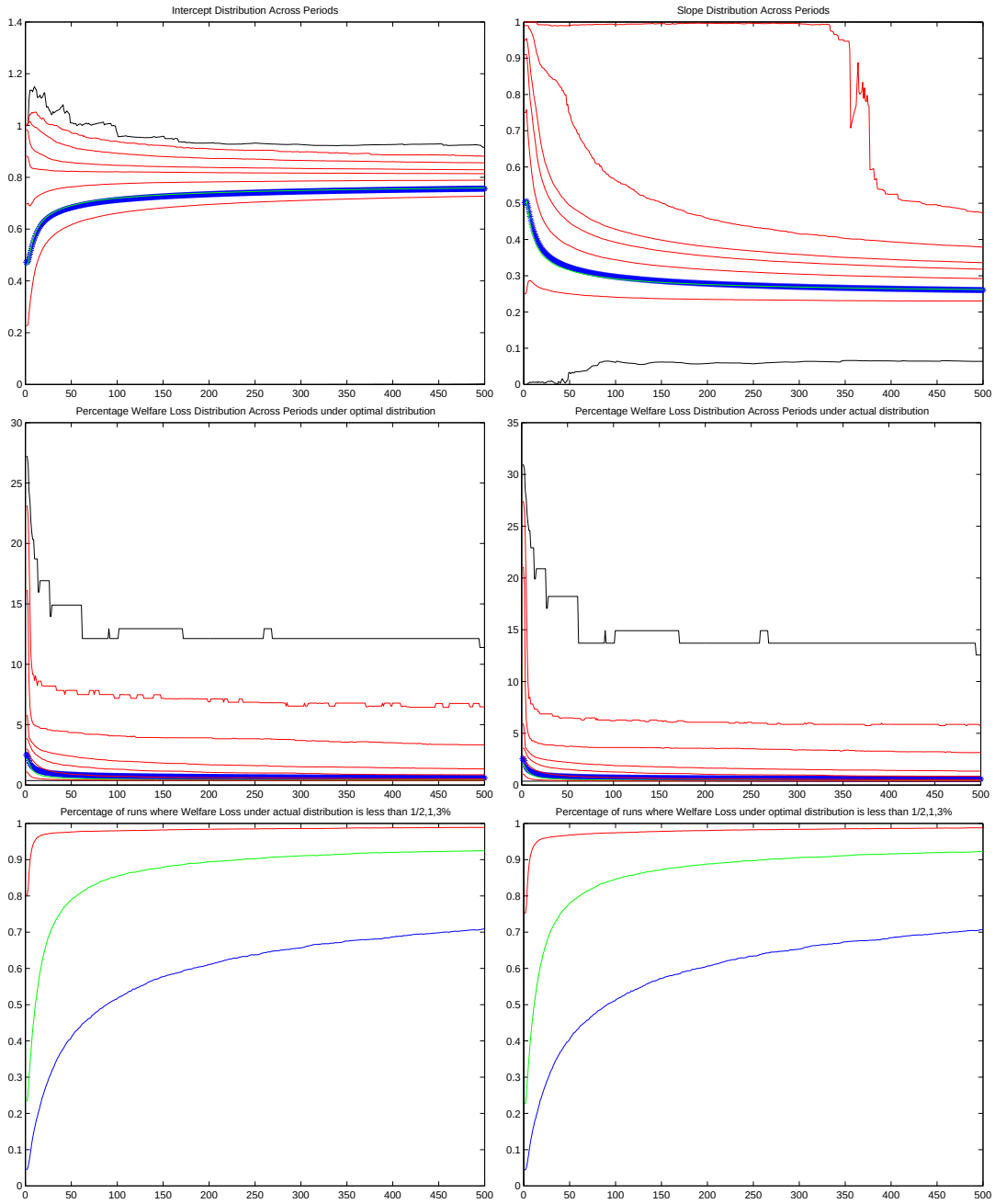

Figure 174: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 2$, $\beta = 0.95$ and the (CG') version of the algorithm.

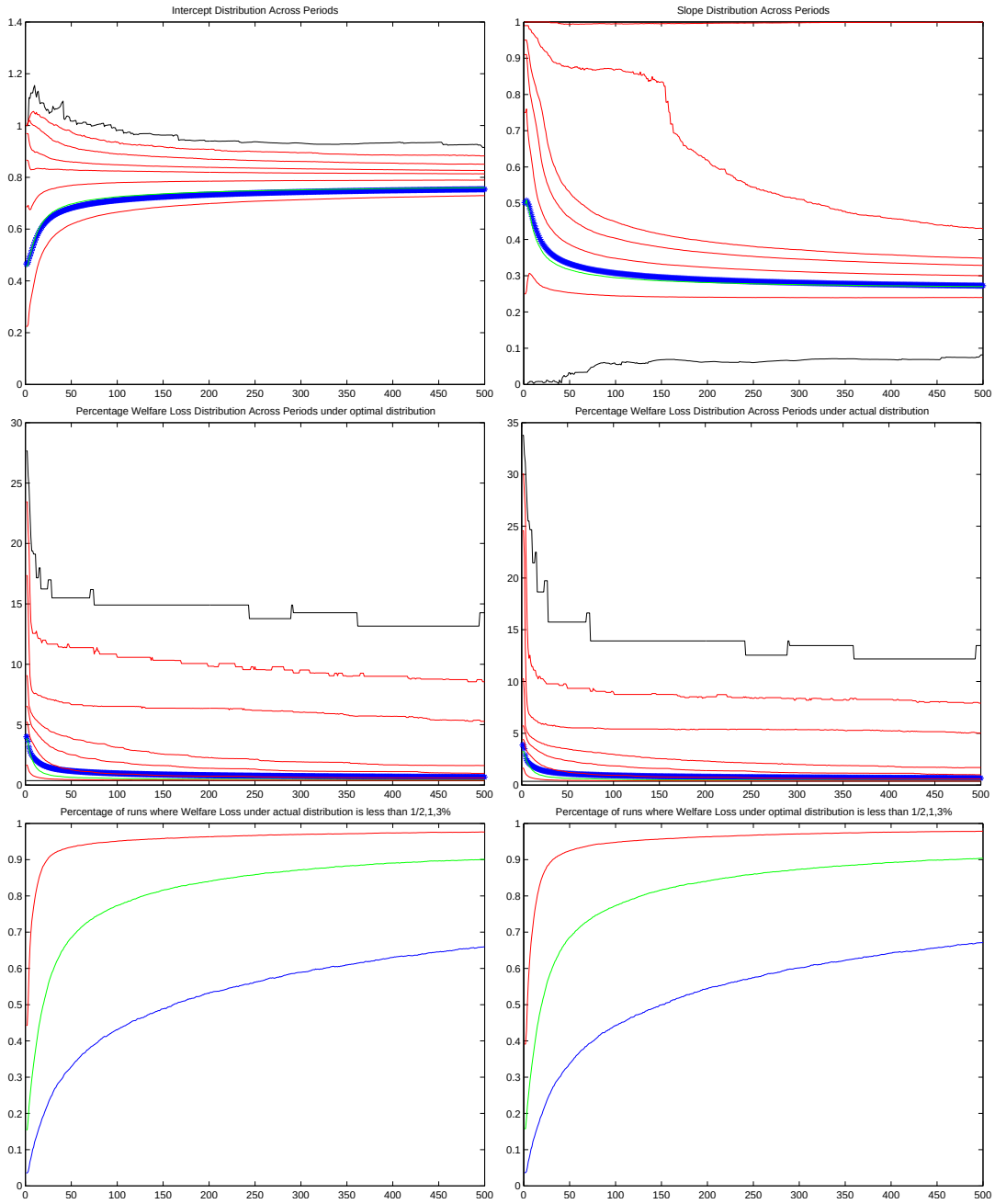

Figure 175: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3$, $\beta = 0.9$ and the (CG') version of the algorithm.

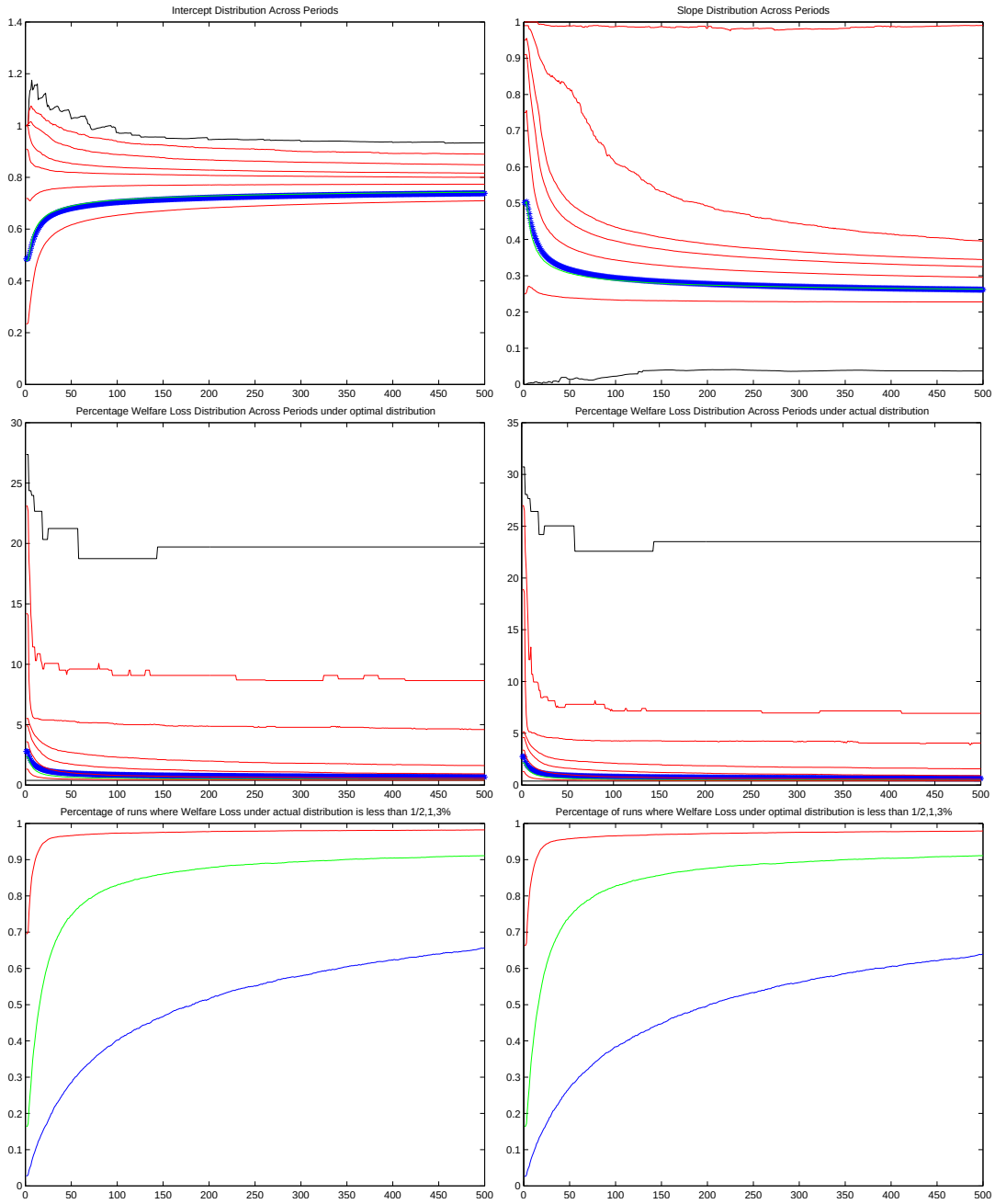

Figure 176: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3$, $\beta = 0.95$ and the (CG') version of the algorithm.

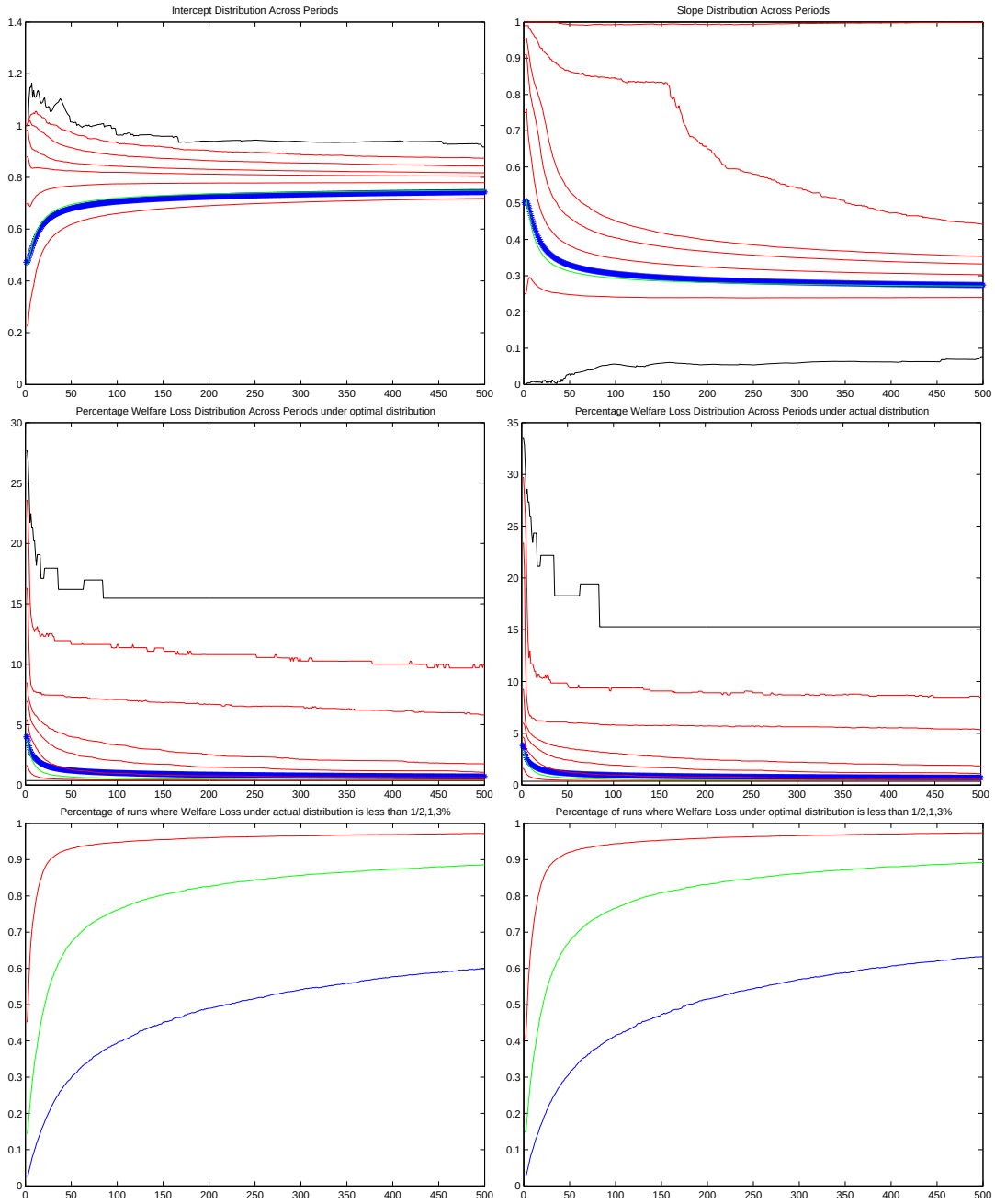

Figure 177: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3.5$, $\beta = 0.9$ and the (CG') version of the algorithm.

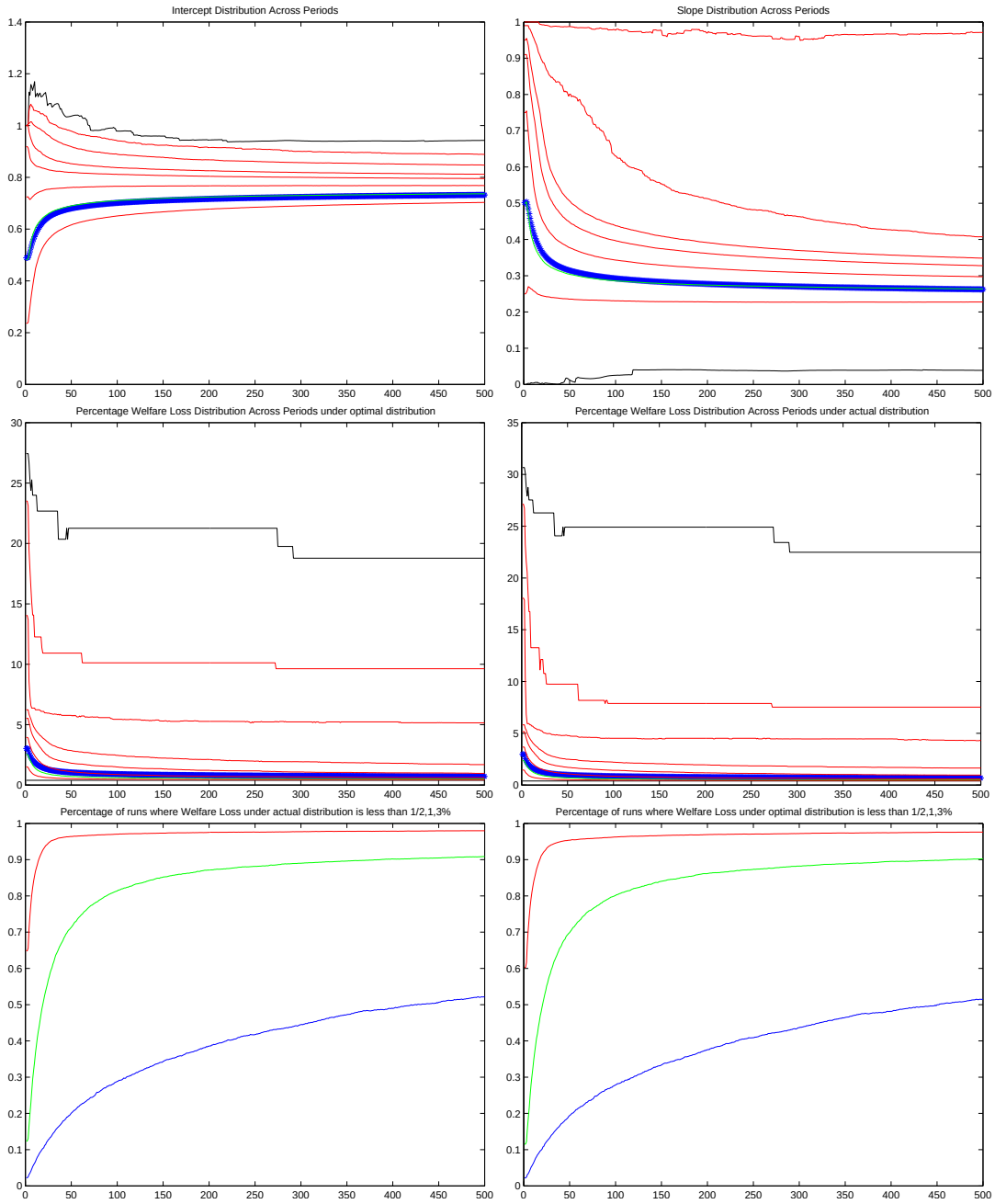

Figure 178: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3.5$, $\beta = 0.95$ and the (CG') version of the algorithm.

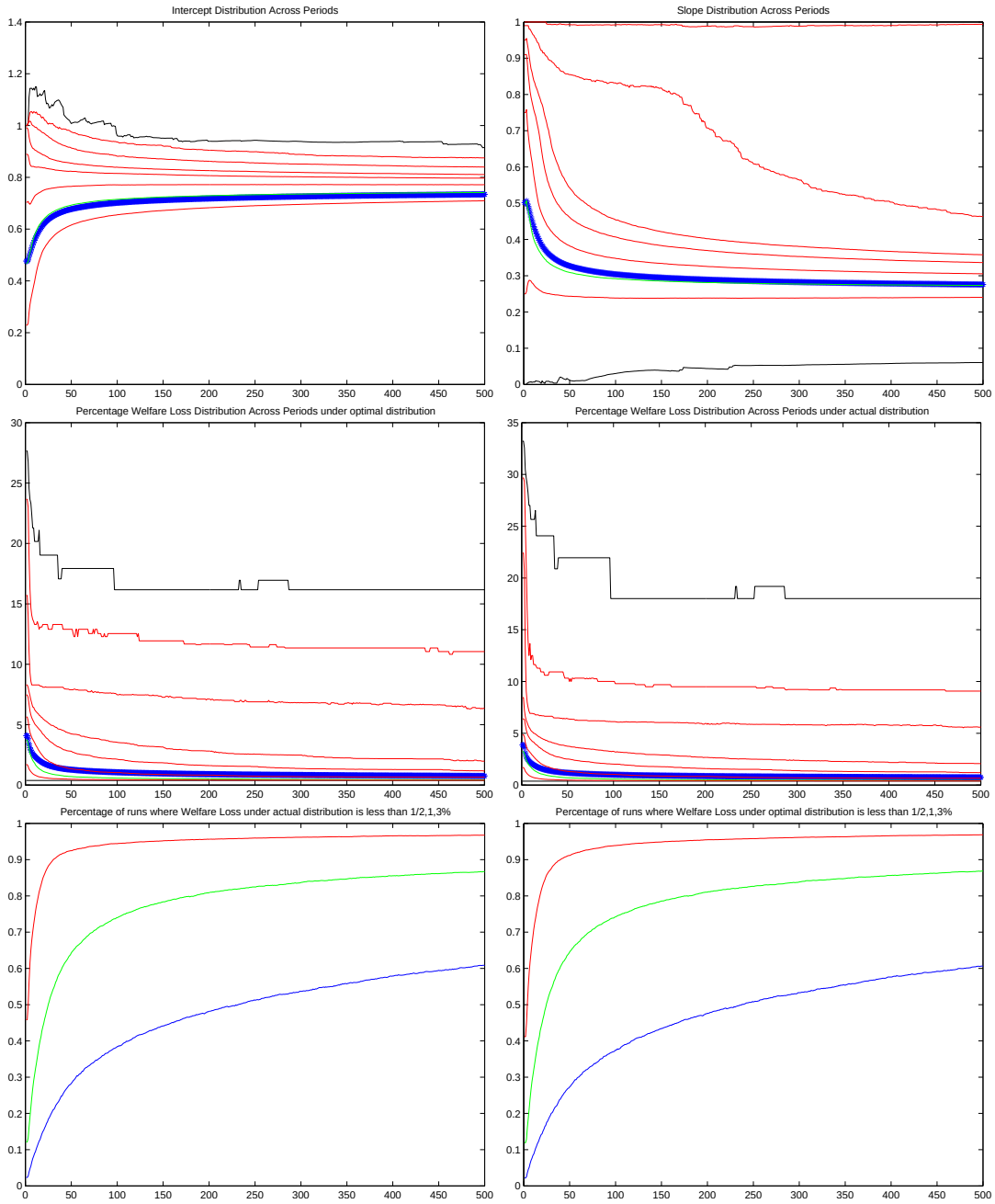

Figure 179: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 4$, $\beta = 0.9$ and the (CG') version of the algorithm.

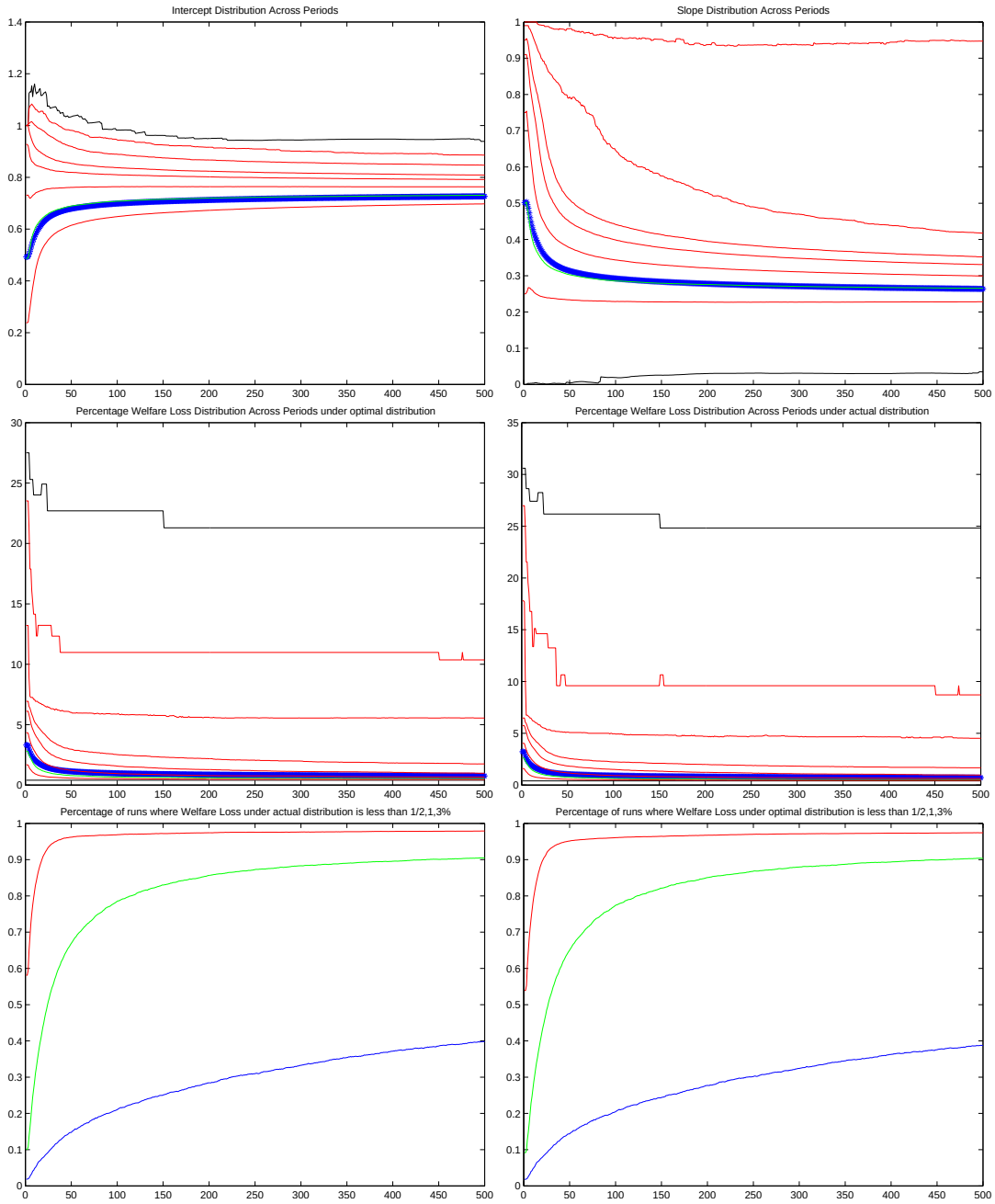

Figure 180: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 4$, $\beta = 0.95$ and the (CG') version of the algorithm.

1.13 $(\epsilon, \delta, \xi) = (0.2, 0.5, 1)$

Table 25: Probability of D^* or D^t below 1/2 at different periods for (CG').

		$t = 0$		$t = 50$		$t = 100$		$t = 250$		$t = 500$	
β	θ	D^*	D^t	D^*	D^t	D^*	D^t	D^*	D^t	D^*	D^t
0.9	1.5	0.0354	0.0358	0.7392	0.7430	0.7342	0.7382	0.7333	0.7383	0.7387	0.7436
	2.0	0.0394	0.0398	0.6145	0.6254	0.5996	0.6100	0.5977	0.6079	0.6007	0.6100
	3.0	0.0365	0.0360	0.3935	0.3849	0.3786	0.3711	0.3777	0.3710	0.3799	0.3735
	3.5	0.0275	0.0267	0.3307	0.3216	0.3263	0.3169	0.3216	0.3110	0.3206	0.3096
	4.0	0.0219	0.0233	0.2712	0.2863	0.2680	0.2846	0.2728	0.2878	0.2643	0.2799
0.95	1.5	0.0697	0.0709	0.6767	0.6804	0.6644	0.6682	0.6581	0.6616	0.6590	0.6626
	2.0	0.0445	0.0455	0.5045	0.5110	0.4991	0.5065	0.4959	0.5039	0.4956	0.5038
	3.0	0.0263	0.0278	0.3298	0.3418	0.3330	0.3447	0.3308	0.3403	0.3285	0.3388
	3.5	0.0222	0.0227	0.2548	0.2603	0.2556	0.2601	0.2540	0.2597	0.2550	0.2601
	4.0	0.0181	0.0185	0.2041	0.2069	0.2115	0.2148	0.2093	0.2120	0.2041	0.2075

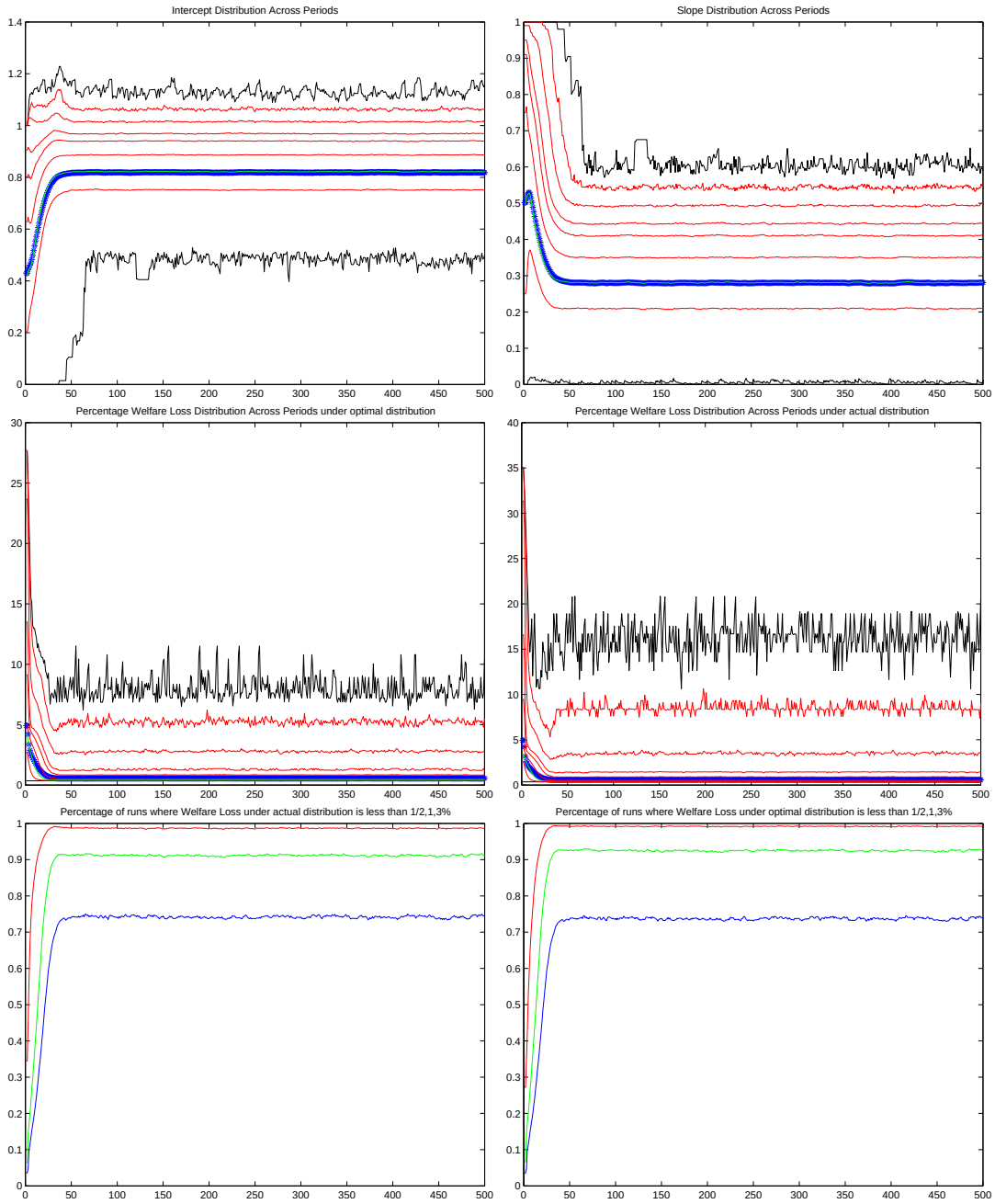

Figure 181: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 1.5$, $\beta = 0.9$ and the (CG') version of the algorithm.

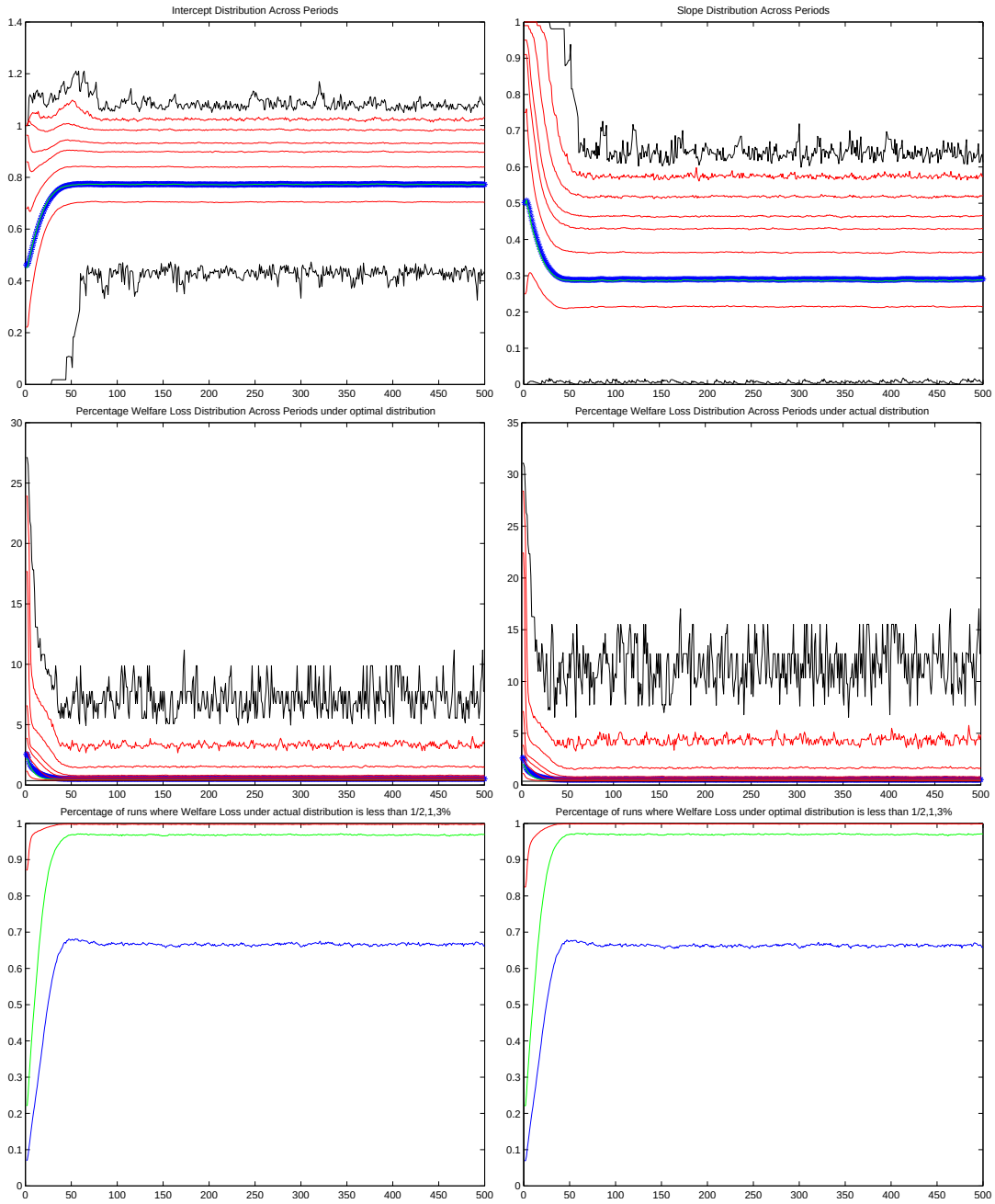

Figure 182: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 1.5$, $\beta = 0.95$ and the (CG') version of the algorithm.

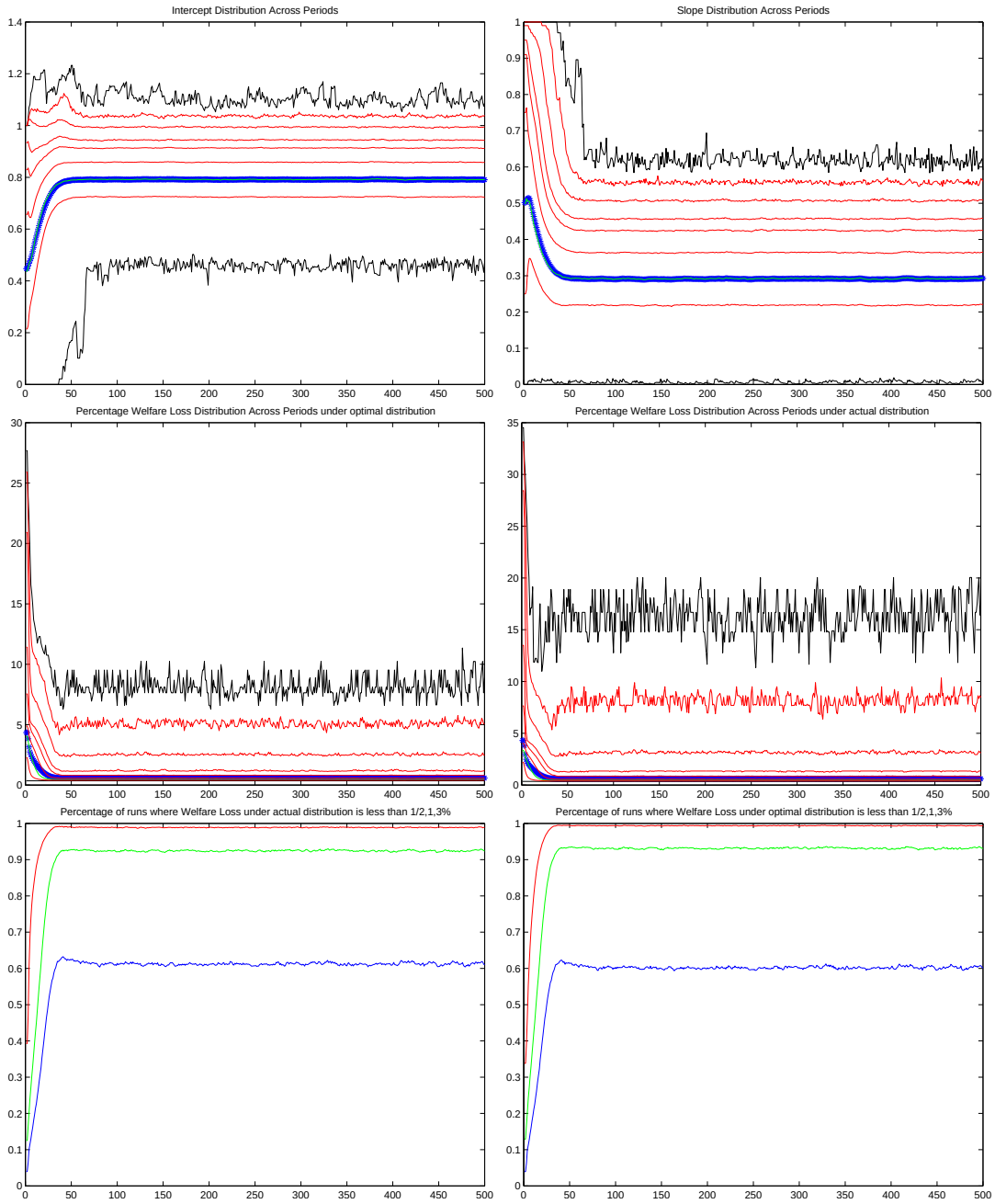

Figure 183: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 2$, $\beta = 0.9$ and the (CG') version of the algorithm.

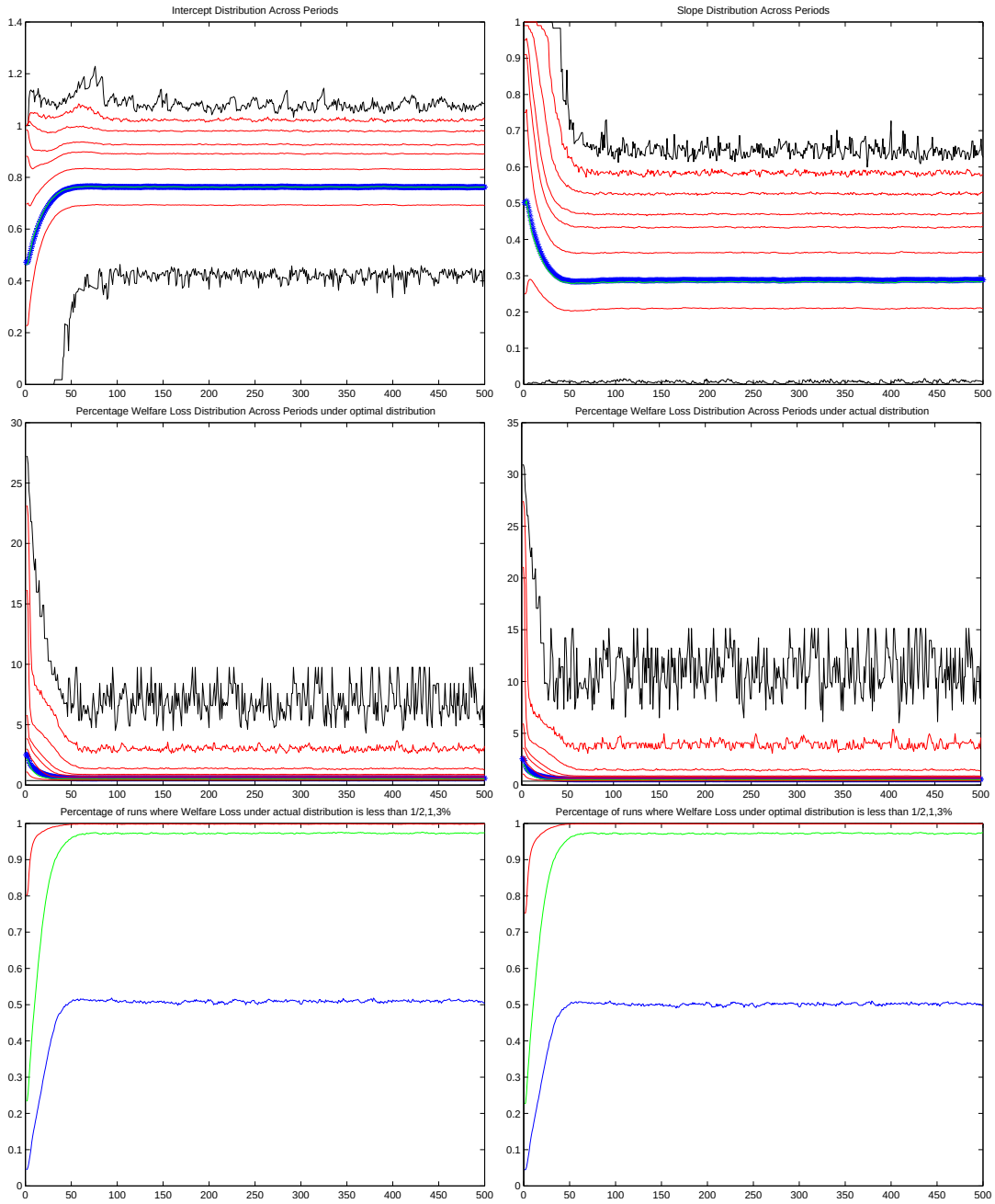

Figure 184: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 2$, $\beta = 0.95$ and the (CG') version of the algorithm.

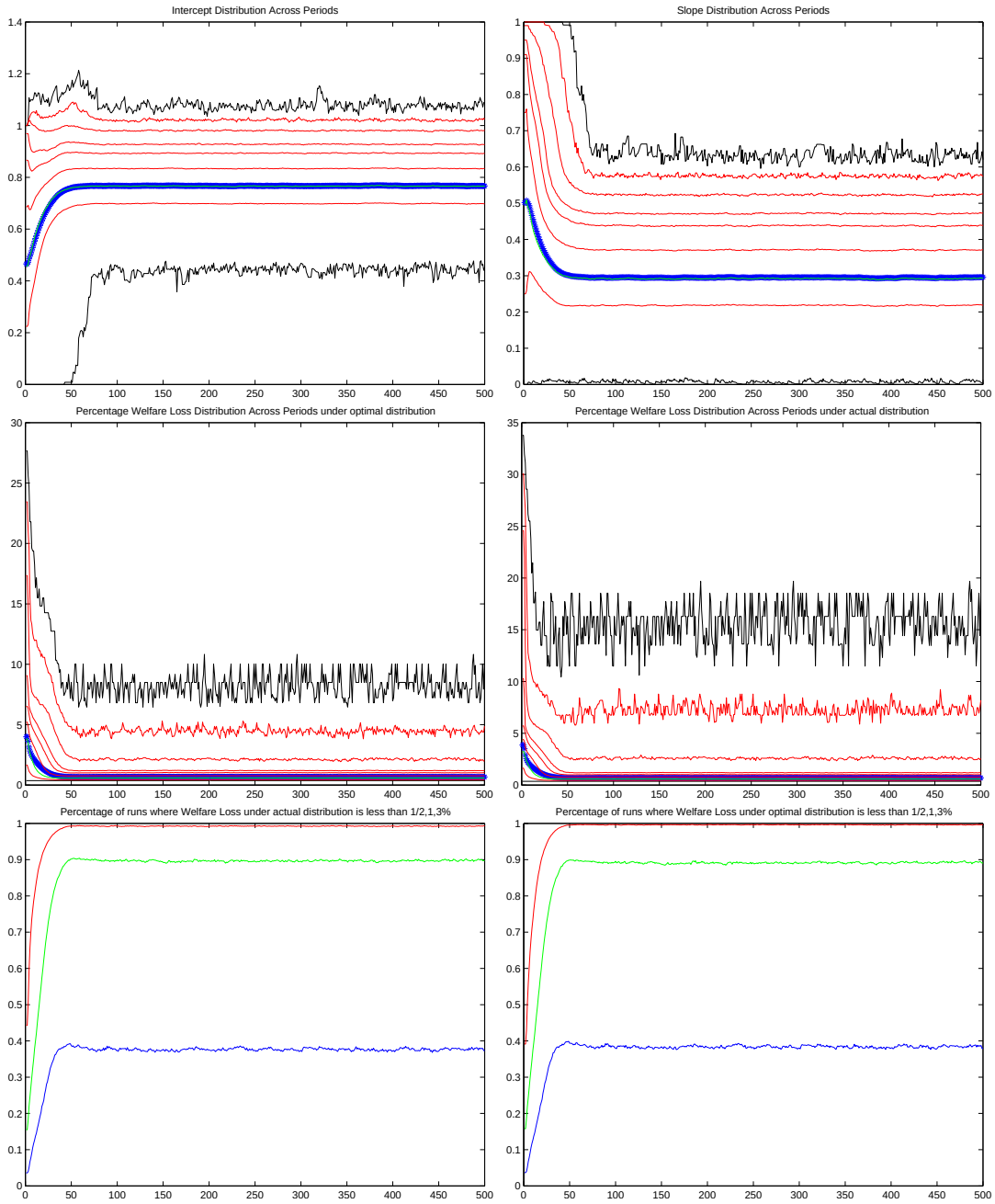

Figure 185: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3$, $\beta = 0.9$ and the (CG') version of the algorithm.

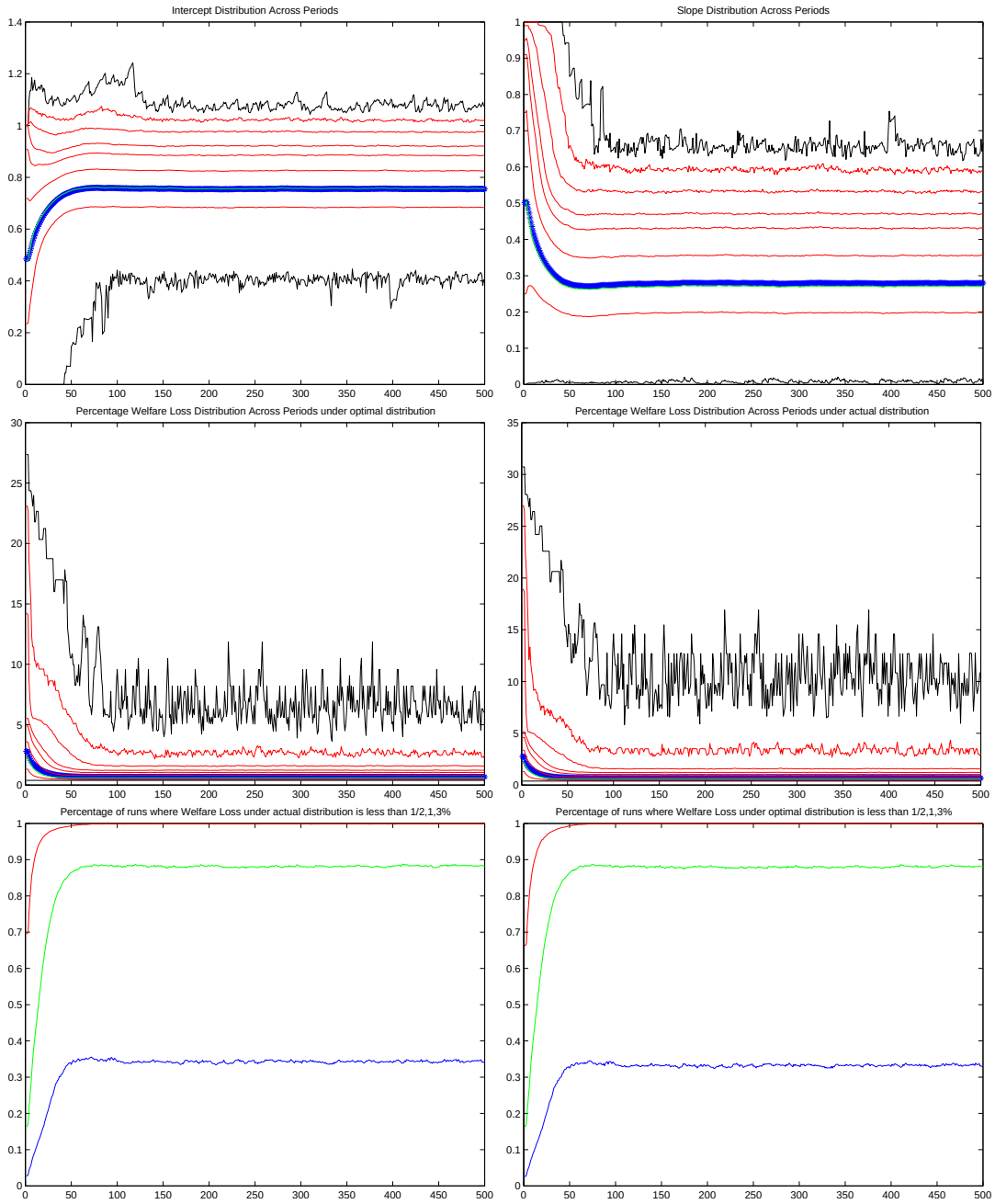

Figure 186: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3$, $\beta = 0.95$ and the (CG') version of the algorithm.

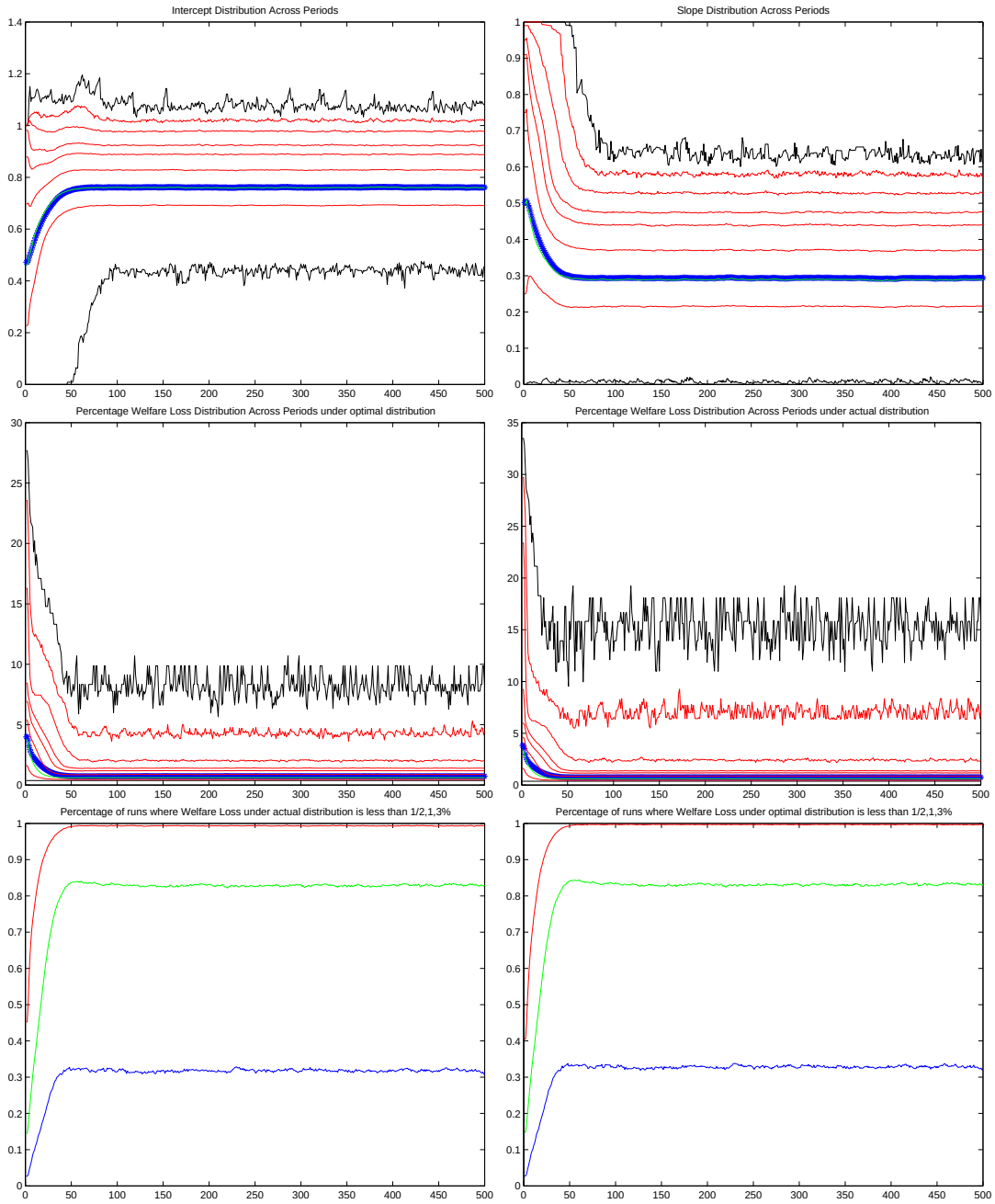

Figure 187: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3.5$, $\beta = 0.9$ and the (CG') version of the algorithm.

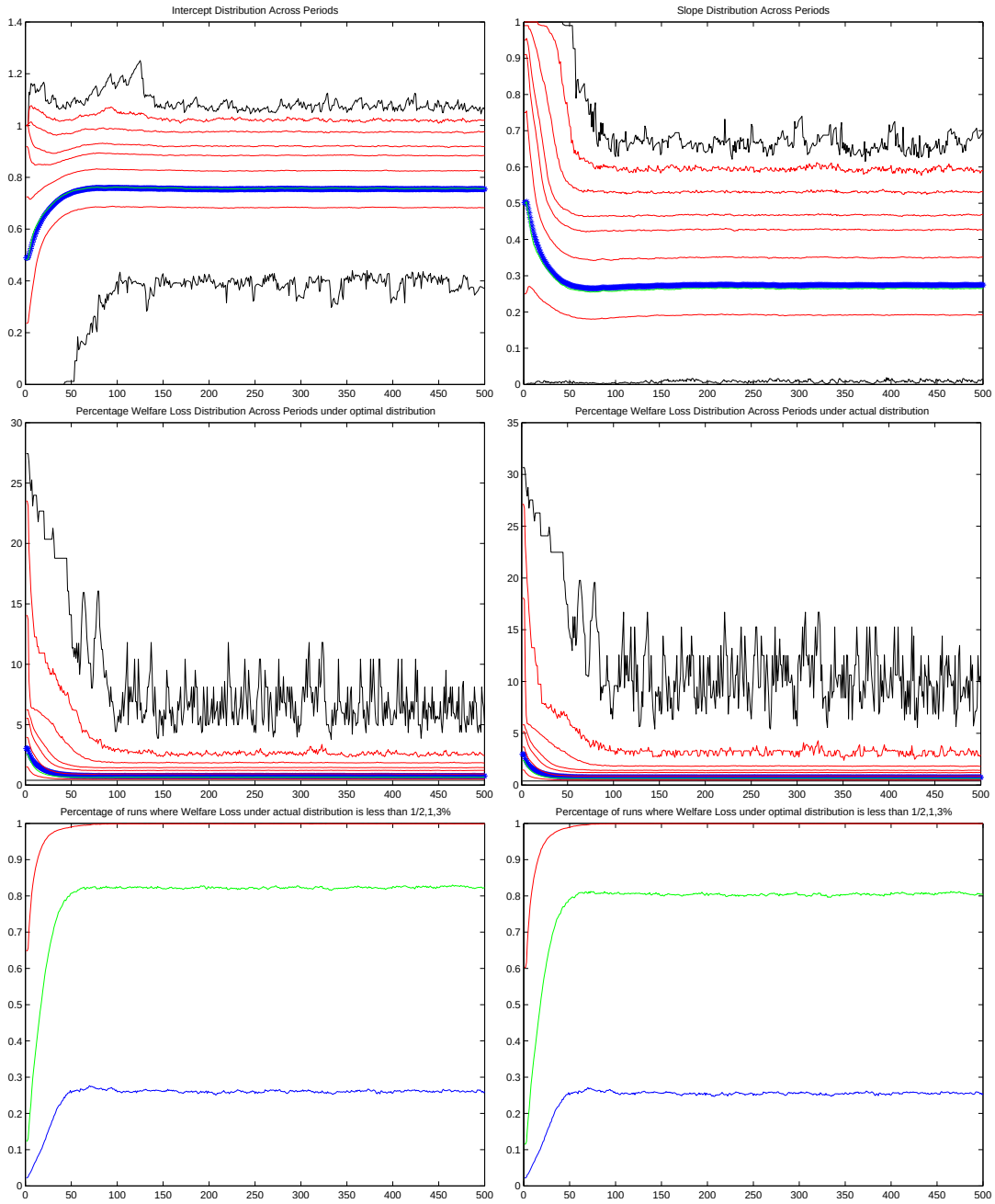

Figure 188: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 3.5$, $\beta = 0.95$ and the (CG') version of the algorithm.

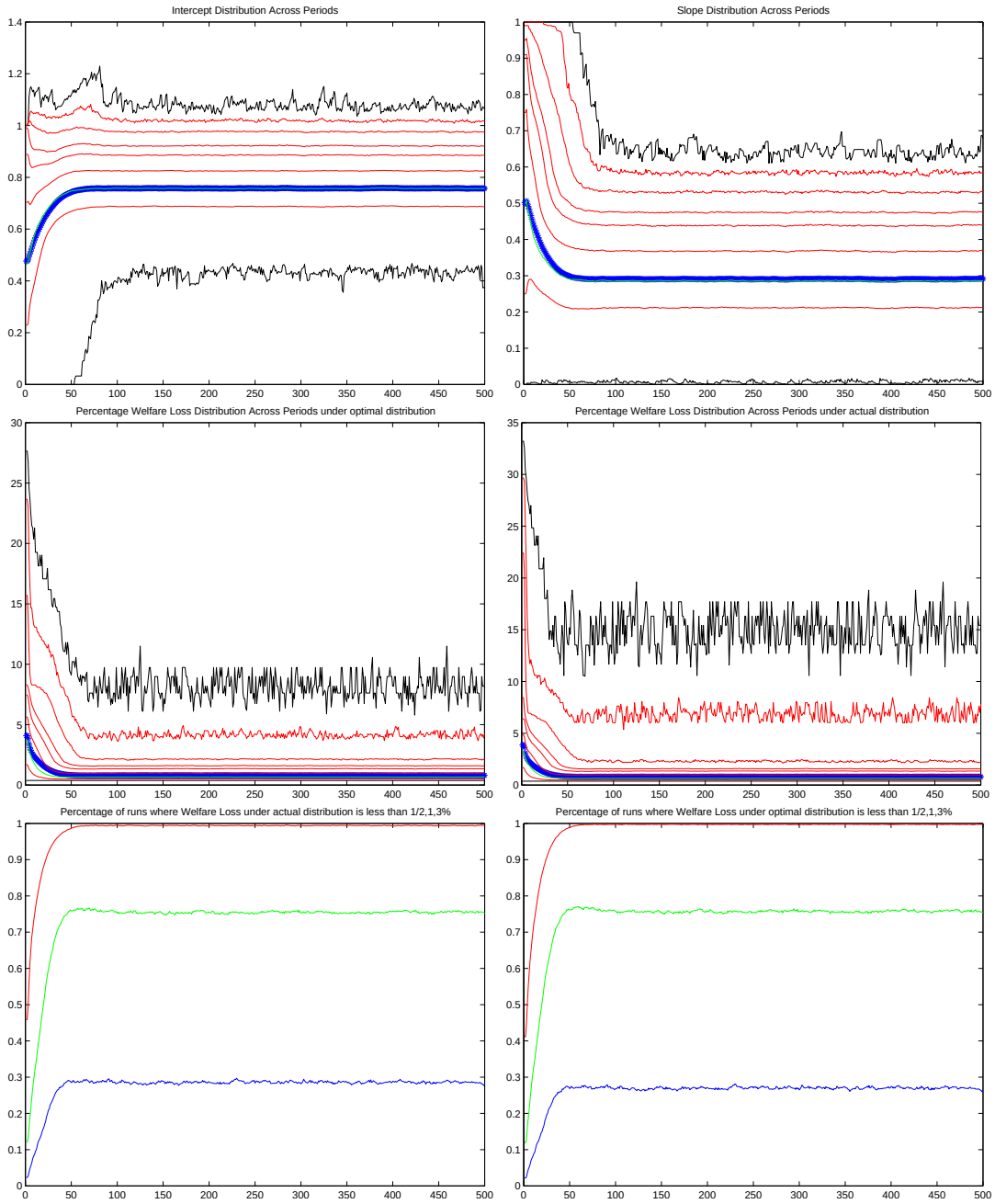

Figure 189: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 4$, $\beta = 0.9$ and the (CG') version of the algorithm.

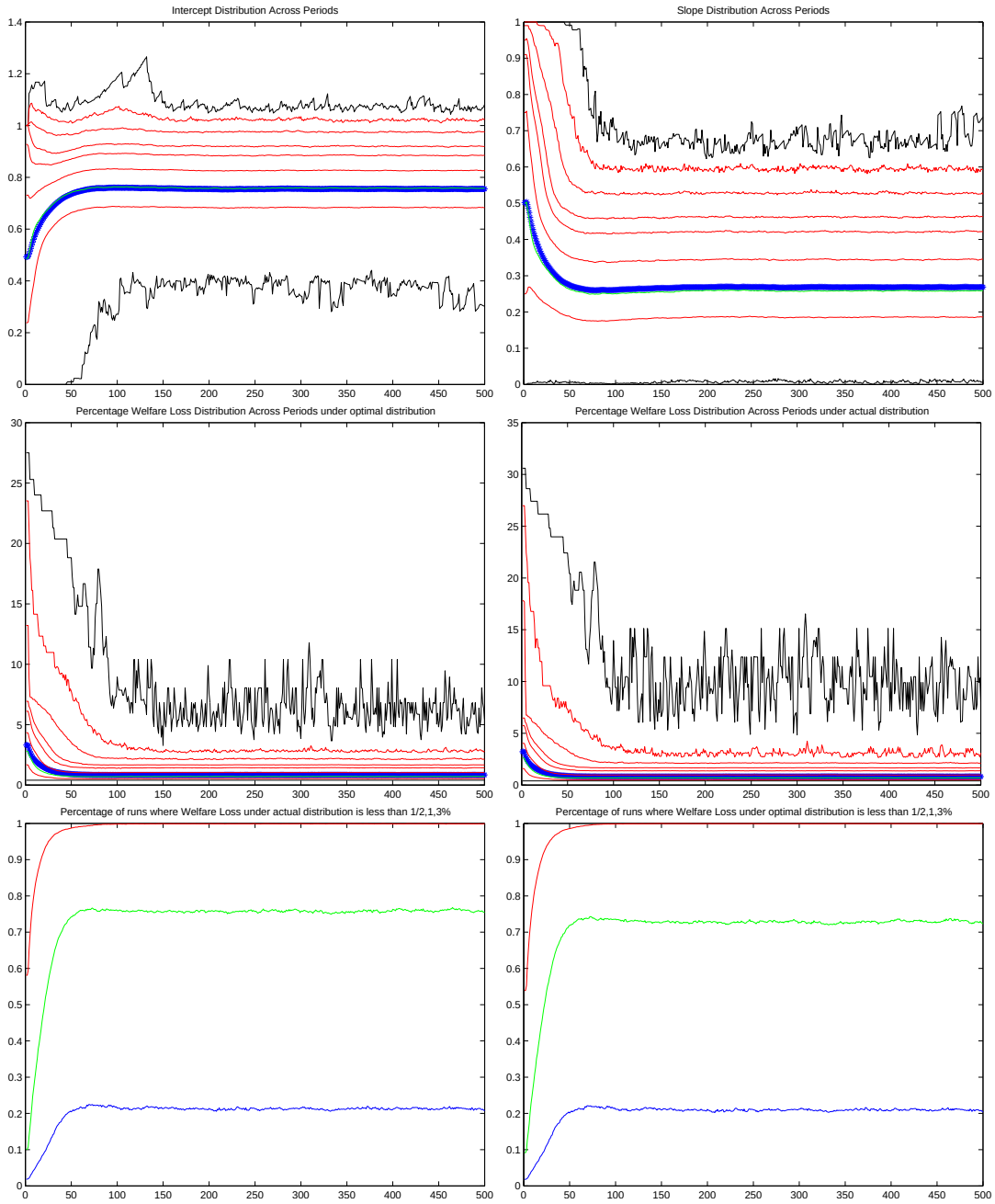

Figure 190: Distribution of α_t^0, α_t^1, D^*, D^b and percentage of simulations with D^* and D^b less than $1/2, 1, 3$ for $\theta = 4$, $\beta = 0.95$ and the (CG') version of the algorithm.