1 Additional Experiments with Varying Variances

Algorithms	Cumulative Regret	$\sigma_t^i = 0.1$	$\sigma_t^i = 0.5$	$\sigma_t^i = 1.0$	$\sigma_t^i = 2.0$	$\sigma_t^i = 10.0$
MOR-UCB	1st Obj.	743.92	730.06	770.15	1196.65	2909.12
	3rd Obj.	10597.78	12989.70	12712.33	10457.33	11822.36
VA-LGLB	1st Obj.	559.90	617.05	854.05	1139.25	2310.69
	3rd Obj.	469.98	1587.49	1884.99	2357.49	4349.99
PF-LEX	1st Obj.	399.41	399.41	399.41	399.41	399.41
	3rd Obj.	3999.77	3999.77	3999.77	3999.77	3999.77
Online-LGLB	1st Obj.	138.12	204.72	234.32	226.92	320.64
	3rd Obj.	229.99	547.49	562.49	594.99	554.99

Table 1: Comparison of our algorithms versus MOR-UCB and PF-LEX with varying variances and $d = K = 10$

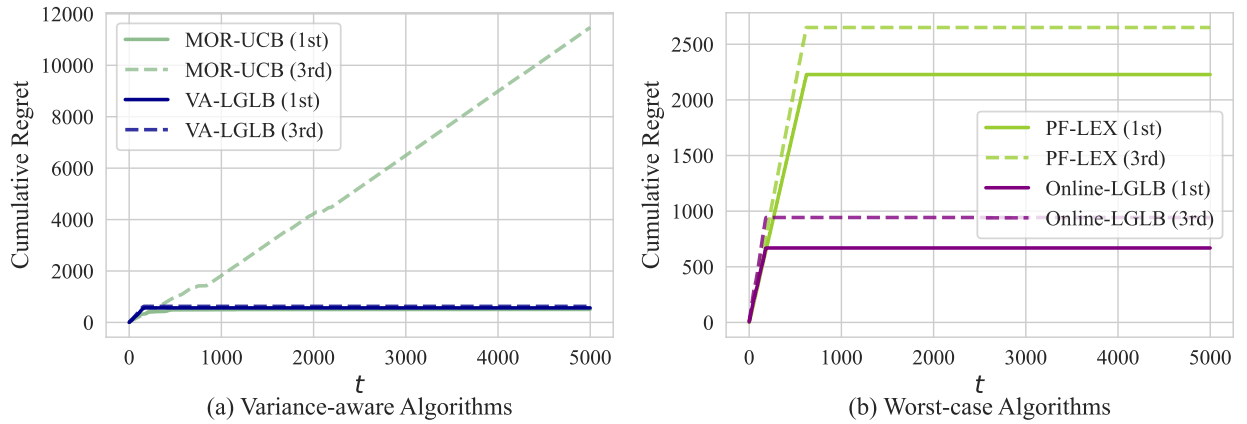# 2 Additional Experiments with Varying Contextual Dimensions and Arm Numbers

(a) Variance-aware Algorithms

(b) Worst-case Algorithms

Figure 1: Comparison of our algorithms versus MOR-UCB and PF-LEX with $d = K = 20, \sigma_t^i = 0.1$.

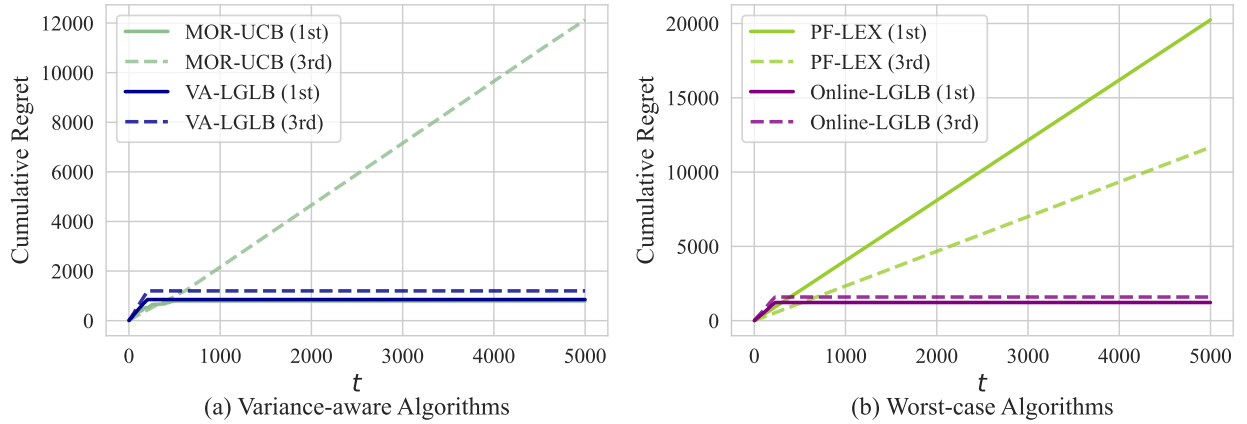(a) Variance-aware Algorithms

(b) Worst-case Algorithms

Figure 2: Comparison of our algorithms versus MOR-UCB and PF-LEX with $d = K = 30, \sigma_t^i = 0.1$.