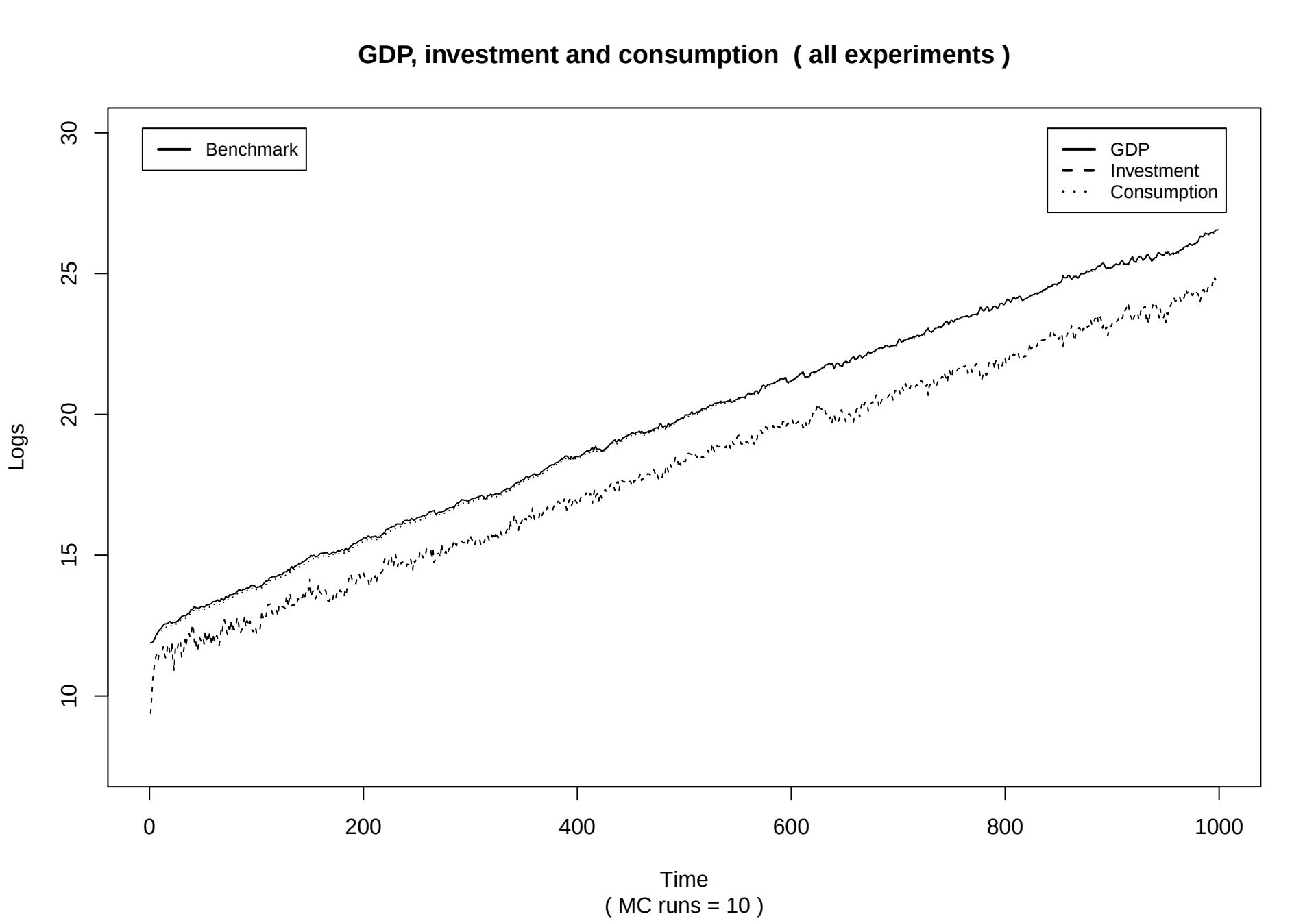
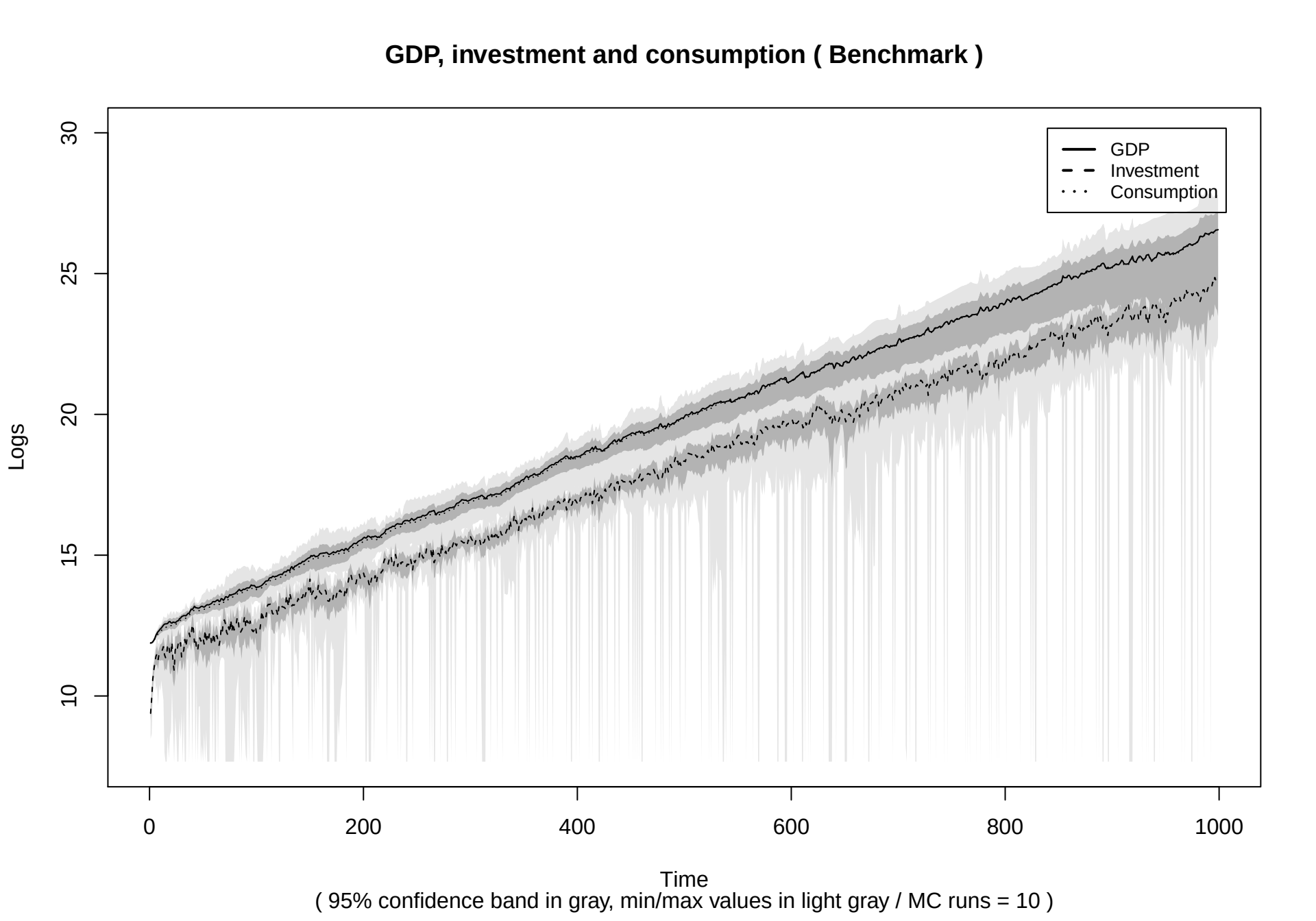
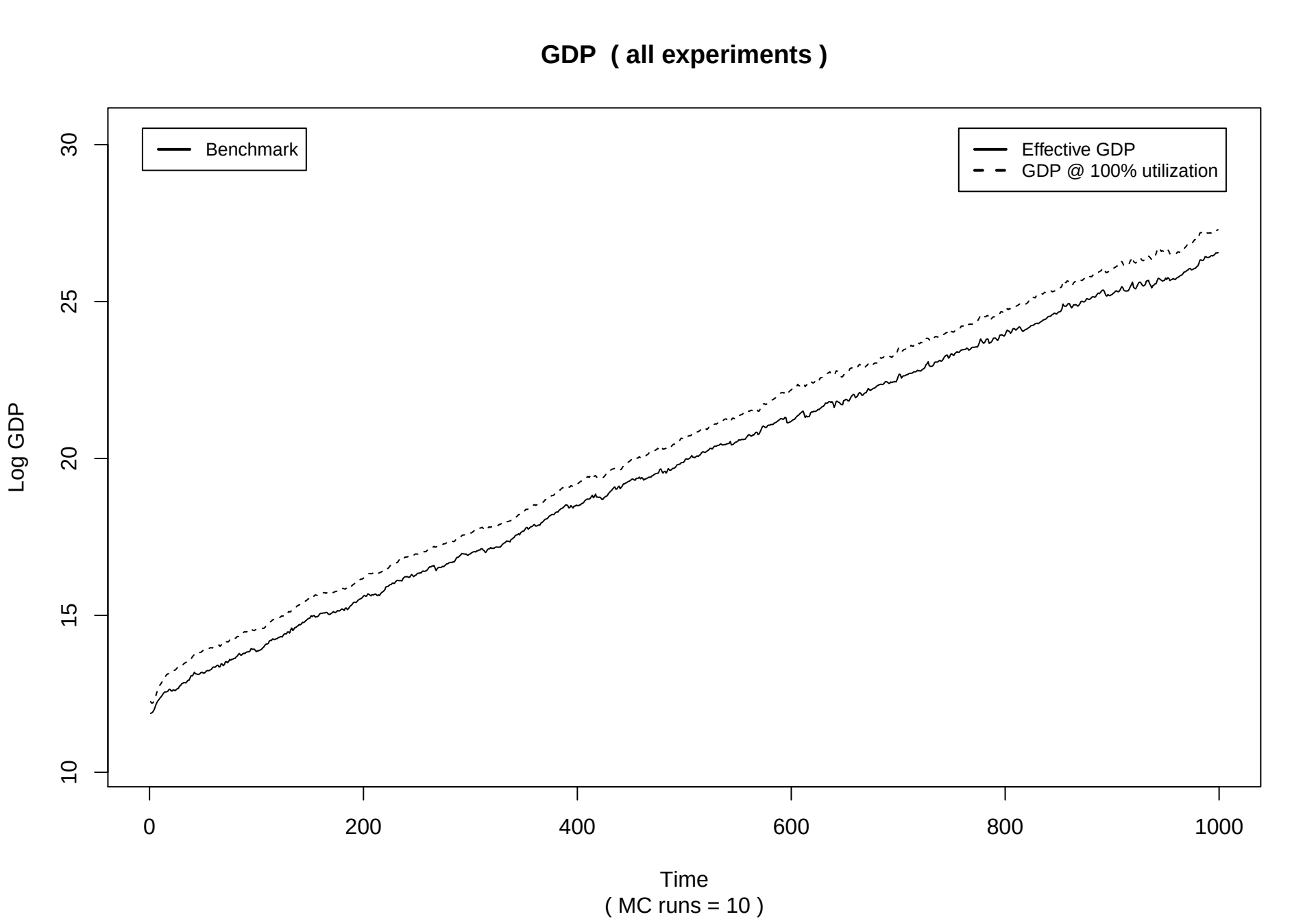
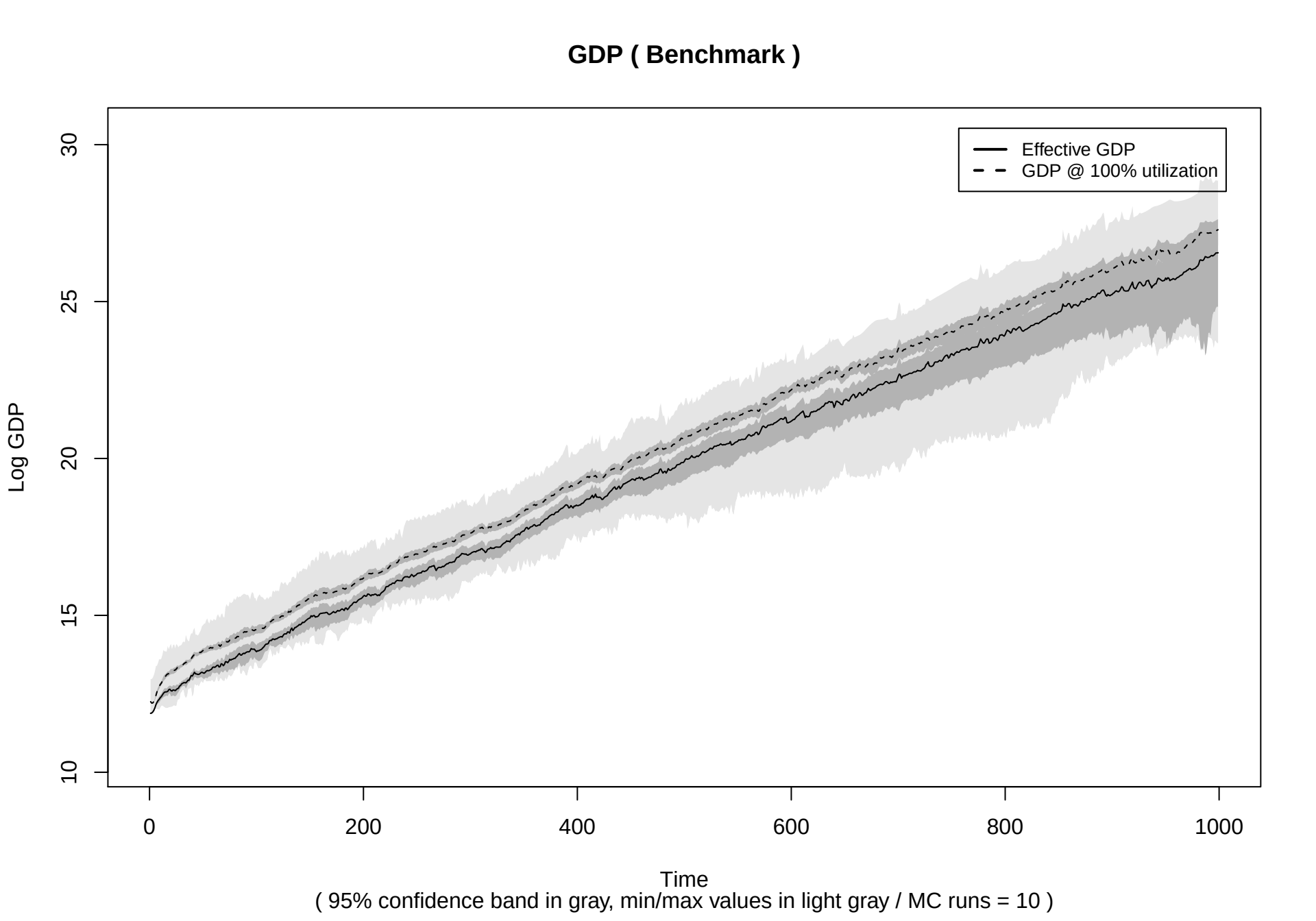
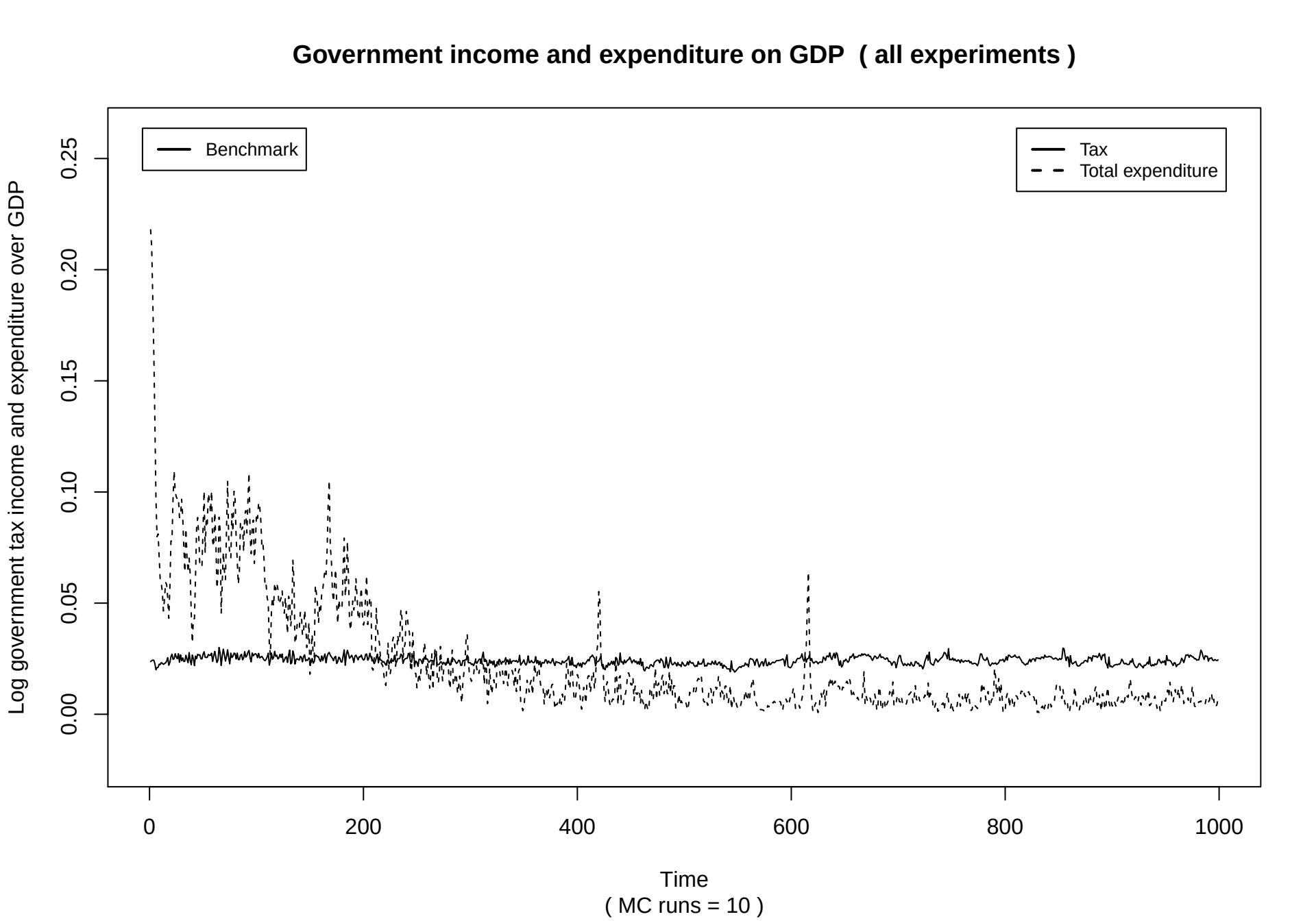
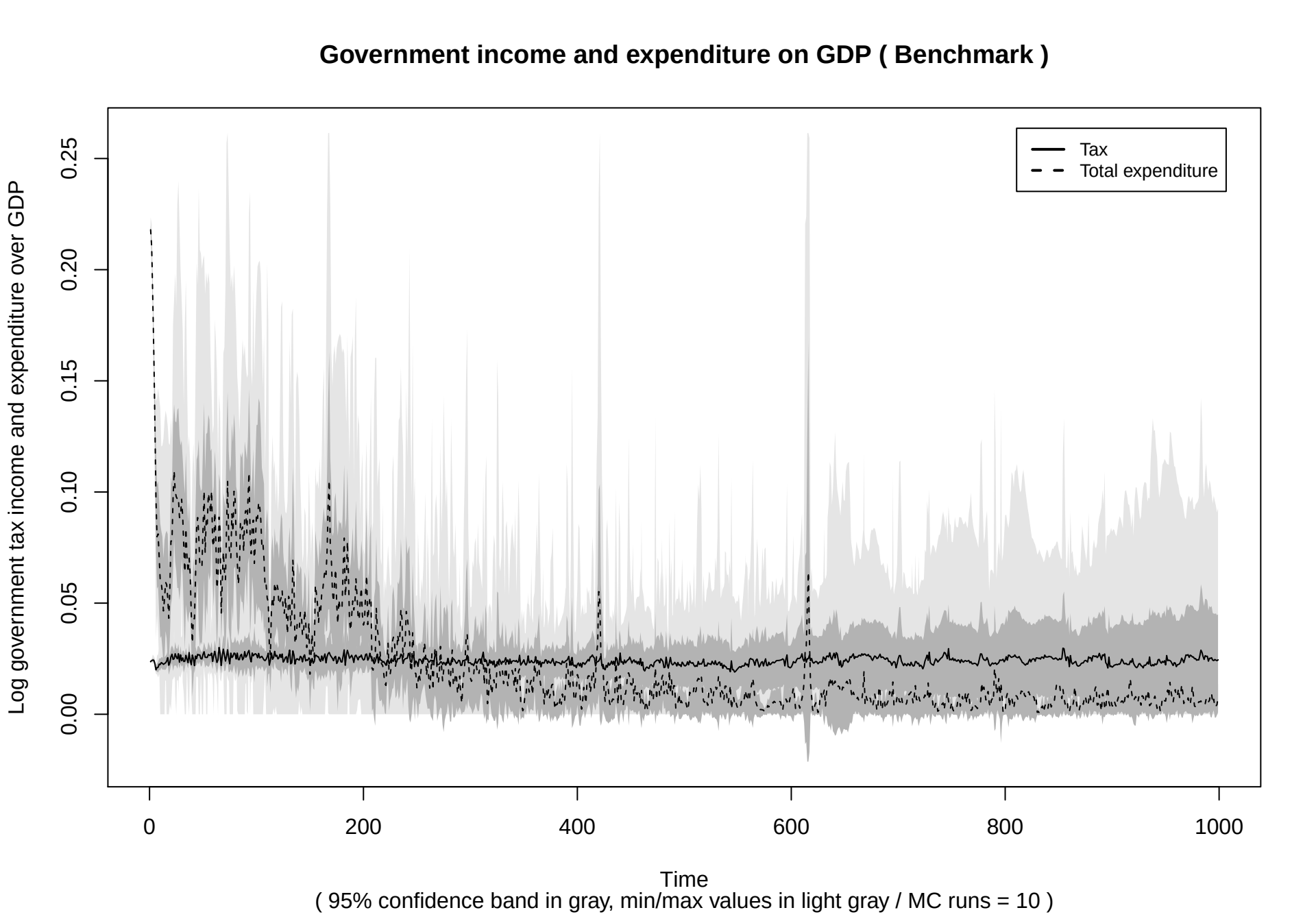

GDP, investment and consumption (all experiments)
Benchmark
GDP
Investment
Consumption
Logs
10
15
20
25
30
0
200
400
600
800
1000
Time
(MC runs = 10)

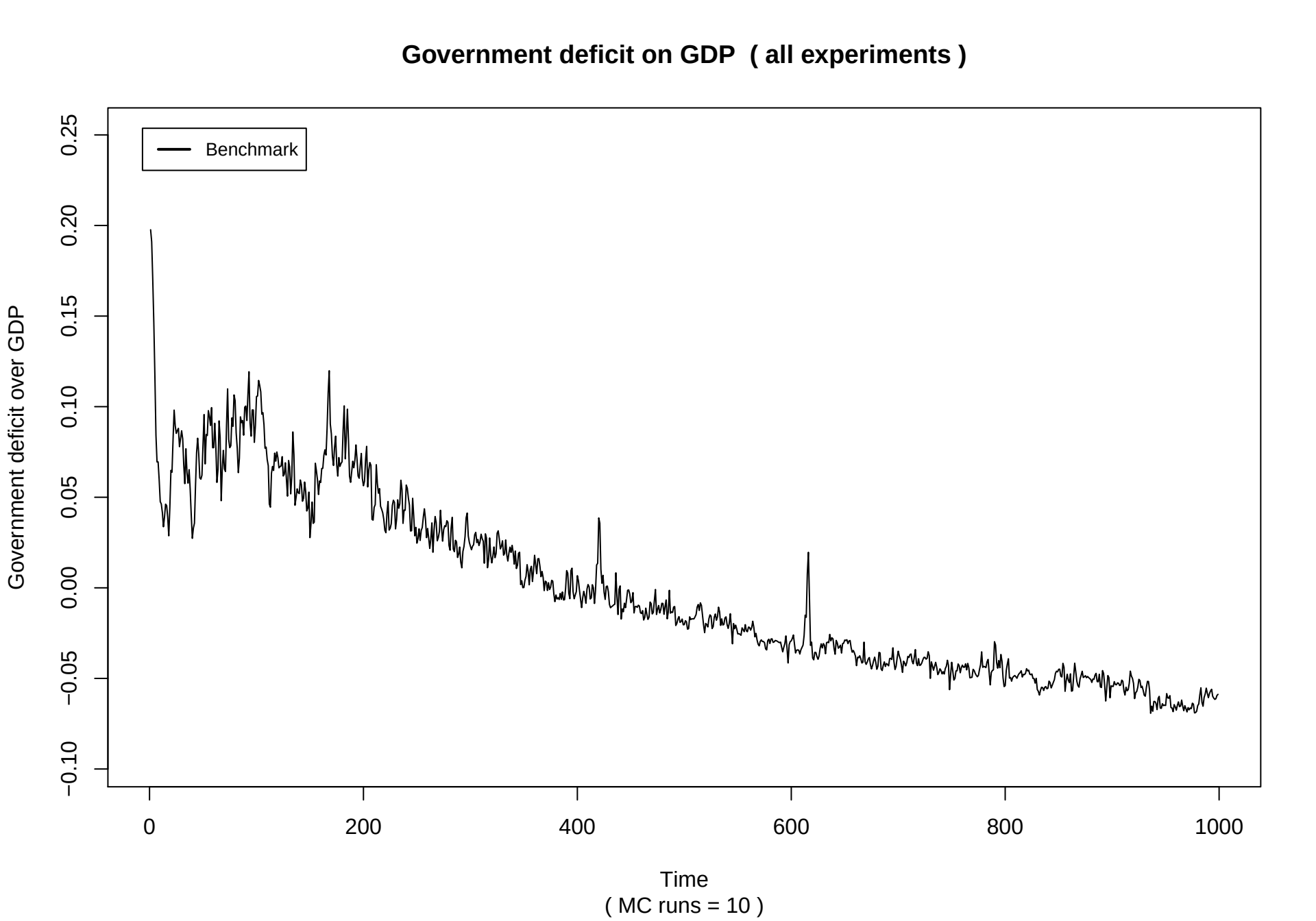

GDP, investment and consumption (Benchmark)
GDP
Investment
Consumption
Logs
30
25
20
15
10
0
200
400
600
800
1000
Time
(95% confidence band in gray, min/max values in light gray / MC runs = 10)

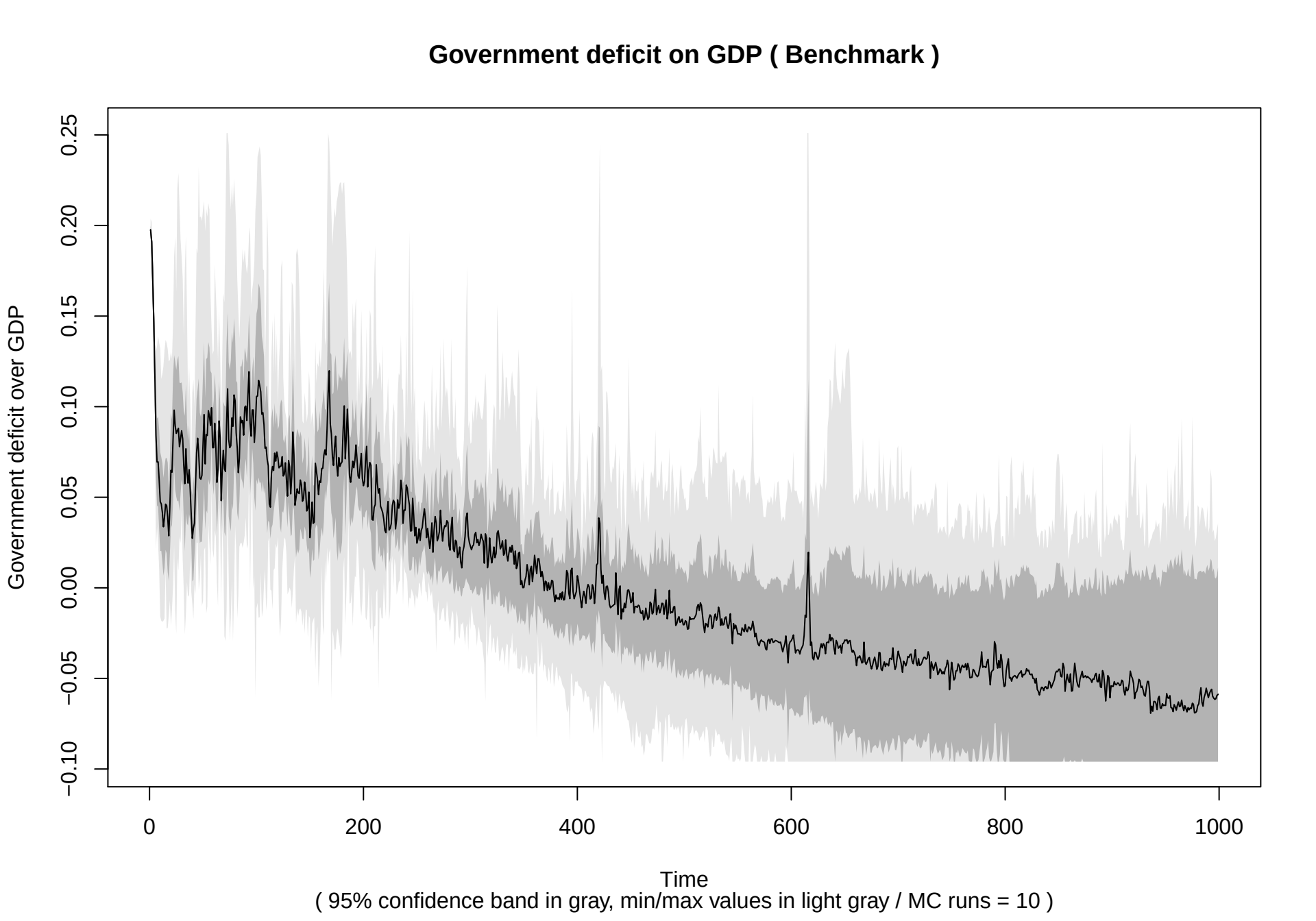

GDP (all experiments)
Benchmark
Effective GDP
GDP @ 100% utilization
Log GDP
10
15
20
25
30
0
200
400
600
800
1000
Time
(MC runs = 10)

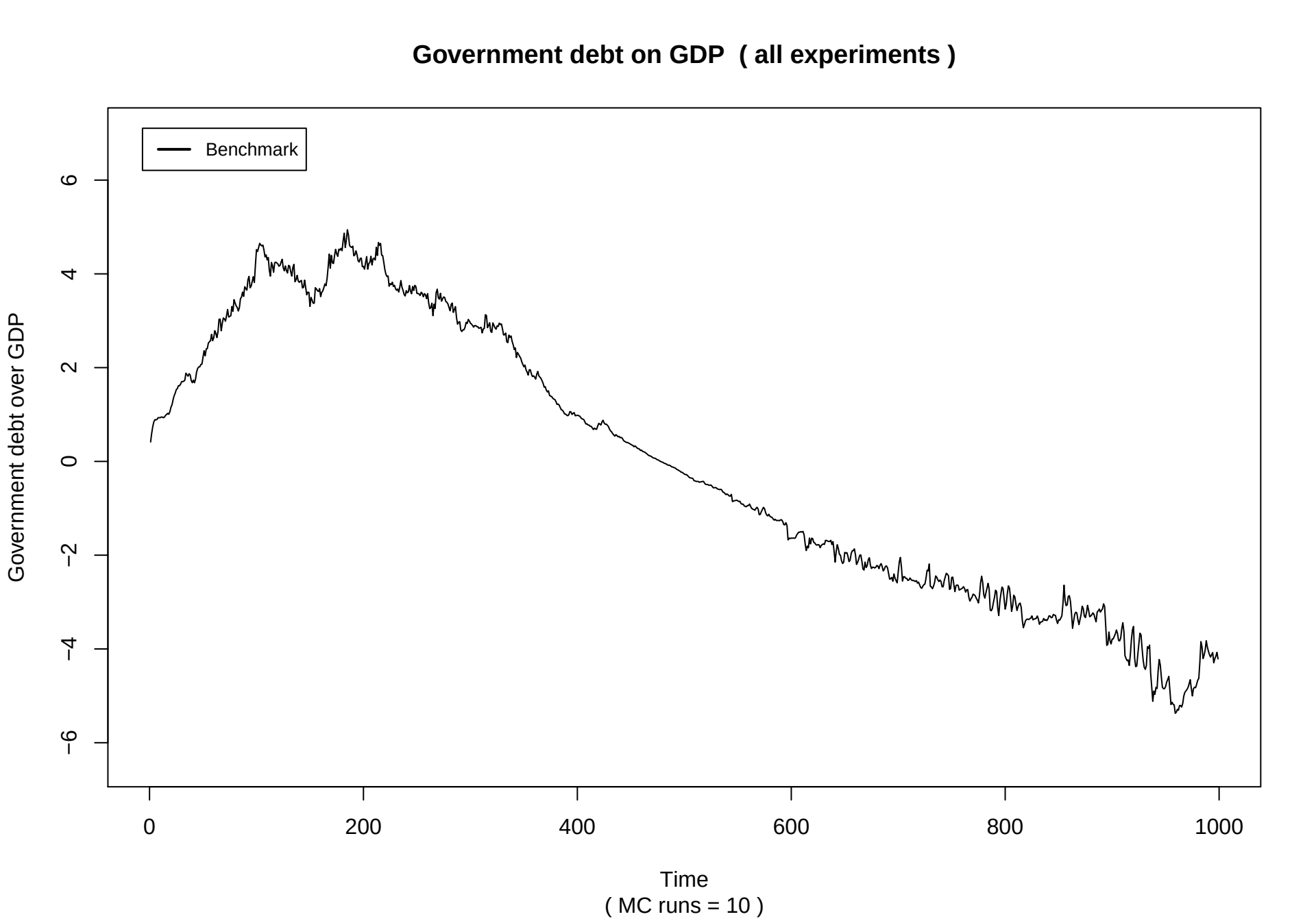

GDP (Benchmark)
Effective GDP
GDP @ 100% utilization
Log GDP
10
15
20
25
30
0
200
400
600
800
1000
Time
(95% confidence band in gray, min/max values in light gray / MC runs = 10)

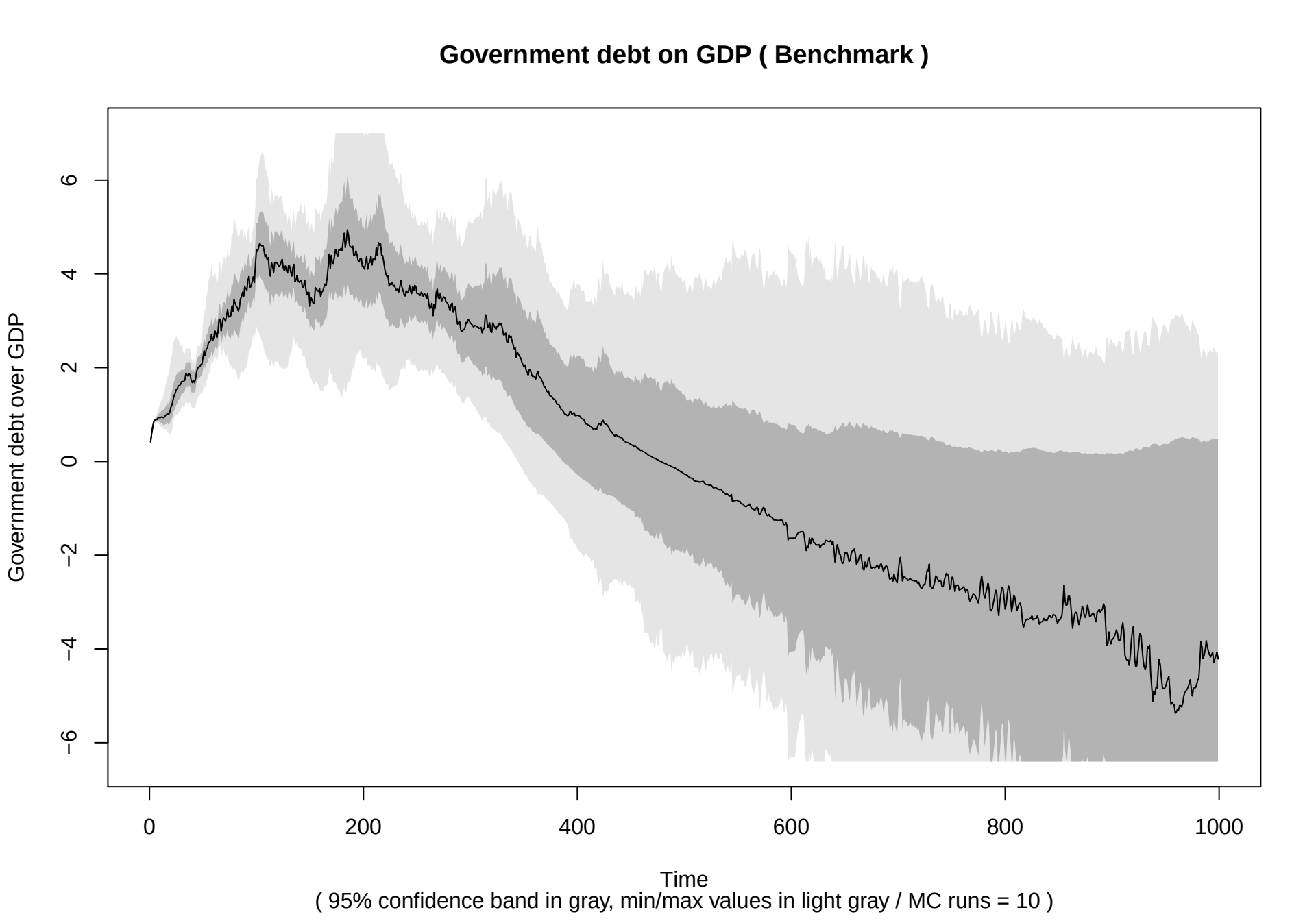

Government income and expenditure on GDP (all experiments)
Benchmark
Tax
Total expenditure
Log government tax income and expenditure over GDP
0.00
0.05
0.10
0.15
0.20
0.25
0
200
400
600
800
1000
Time
(MC runs = 10)

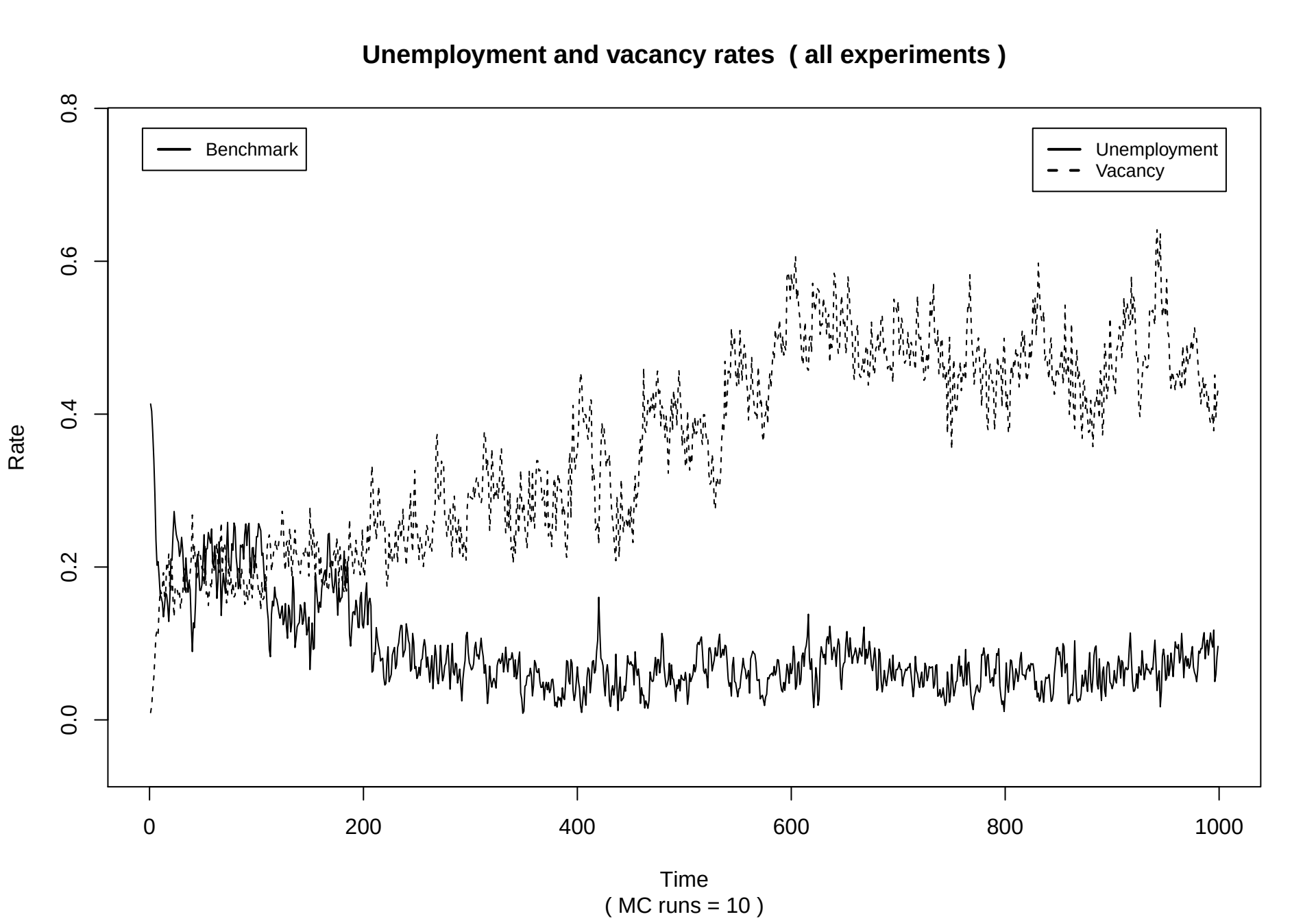

Government income and expenditure on GDP (Benchmark)
Tax
Total expenditure
Log government tax income and expenditure over GDP
0.00
0.05
0.10
0.15
0.20
0.25
0
200
400
600
800
1000
Time
(95% confidence band in gray, min/max values in light gray / MC runs = 10)

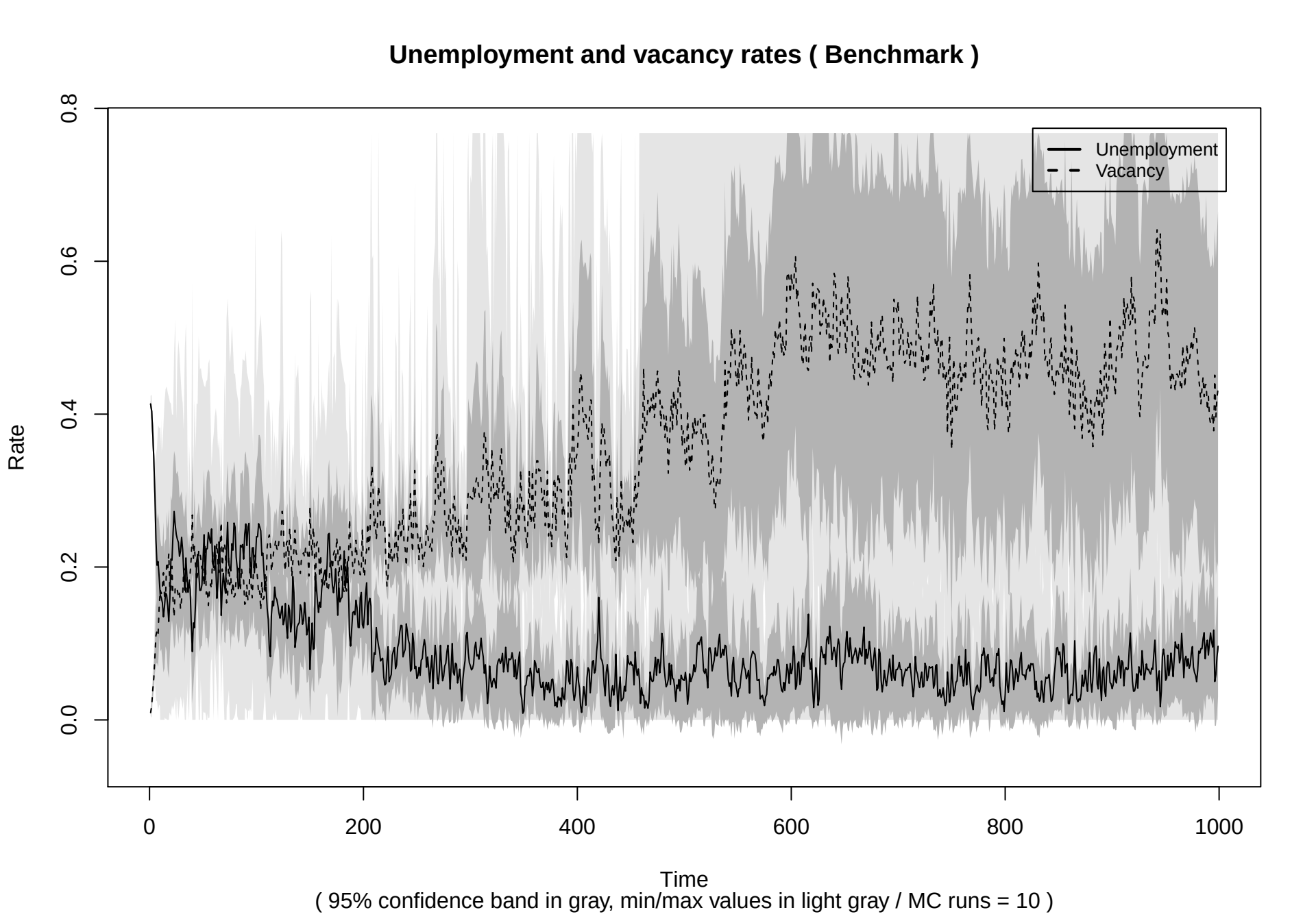

Government deficit on GDP (all experiments)
Benchmark
Government deficit over GDP
0.25
0.20
0.15
0.10
0.05
0.00
−0.05
−0.10
0
200
400
600
800
1000
Time
(MC runs = 10)

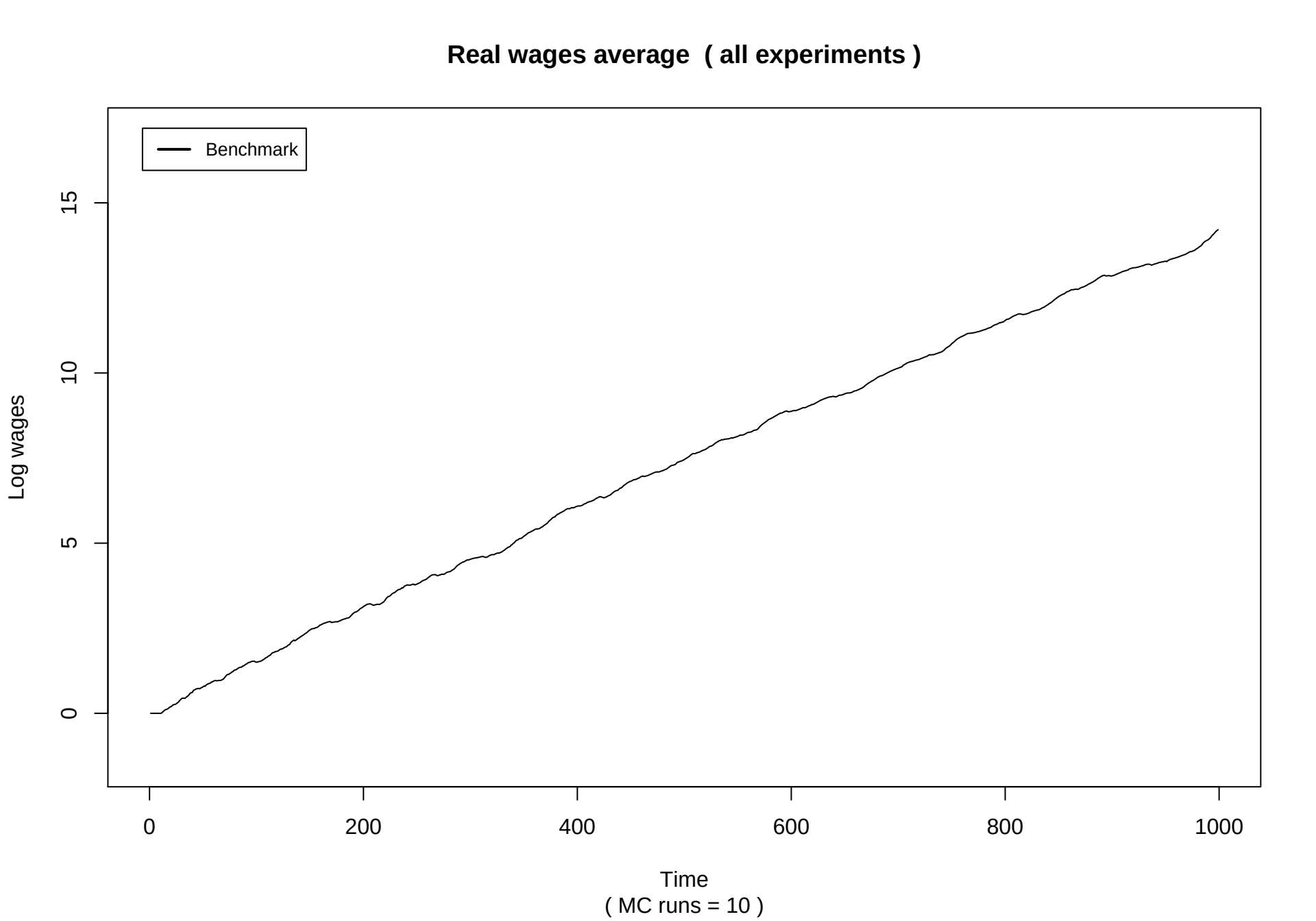

Government deficit on GDP (Benchmark)
Government deficit over GDP
0.25
0.20
0.15
0.10
0.05
0.00
−0.05
−0.10
0
200
400
600
800
1000
Time
(95% confidence band in gray, min/max values in light gray / MC runs = 10)

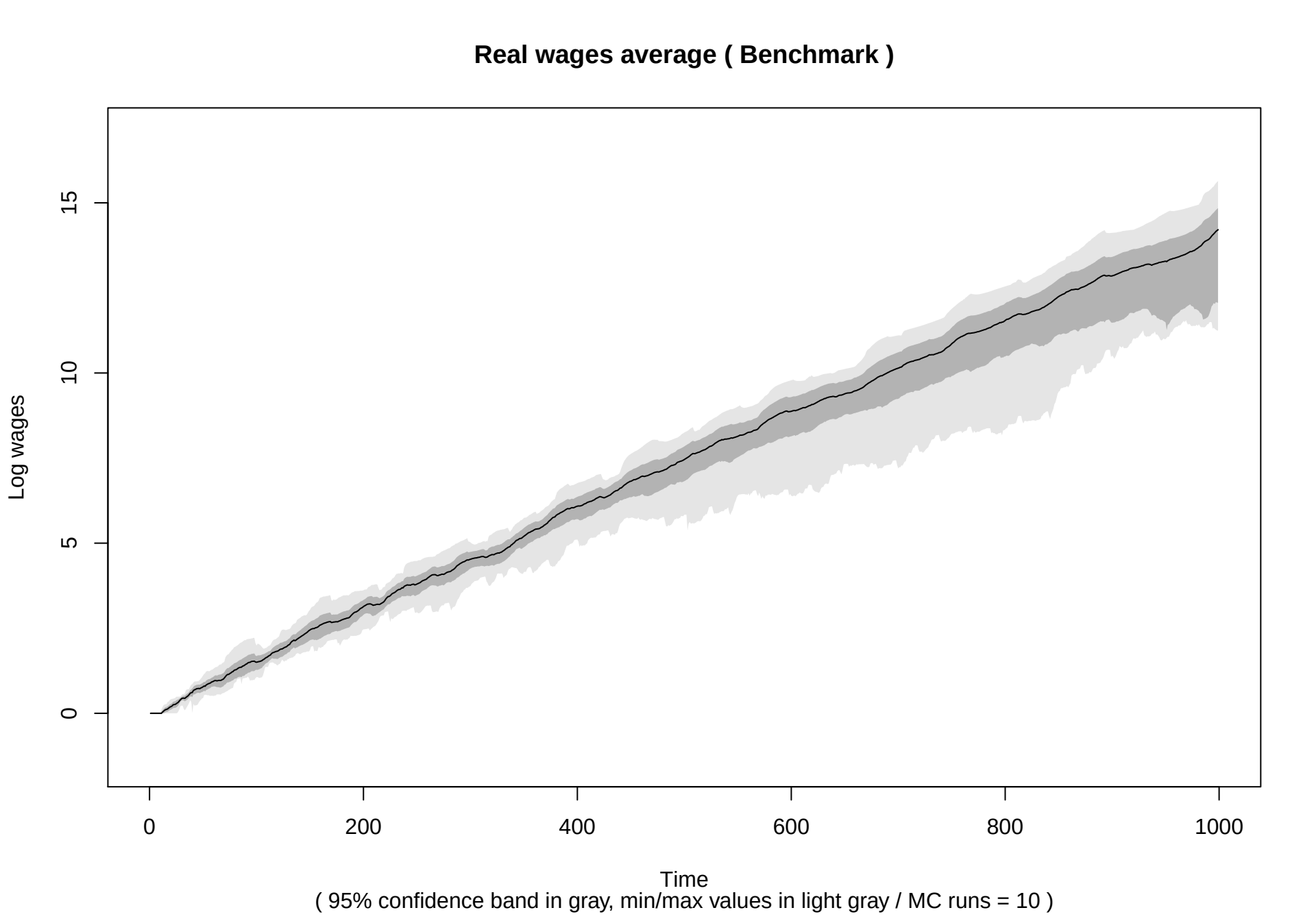

Government debt on GDP (all experiments)
Benchmark
Government debt over GDP
6
4
2
0
−2
−4
−6
0
200
400
600
800
1000
Time
(MC runs = 10)

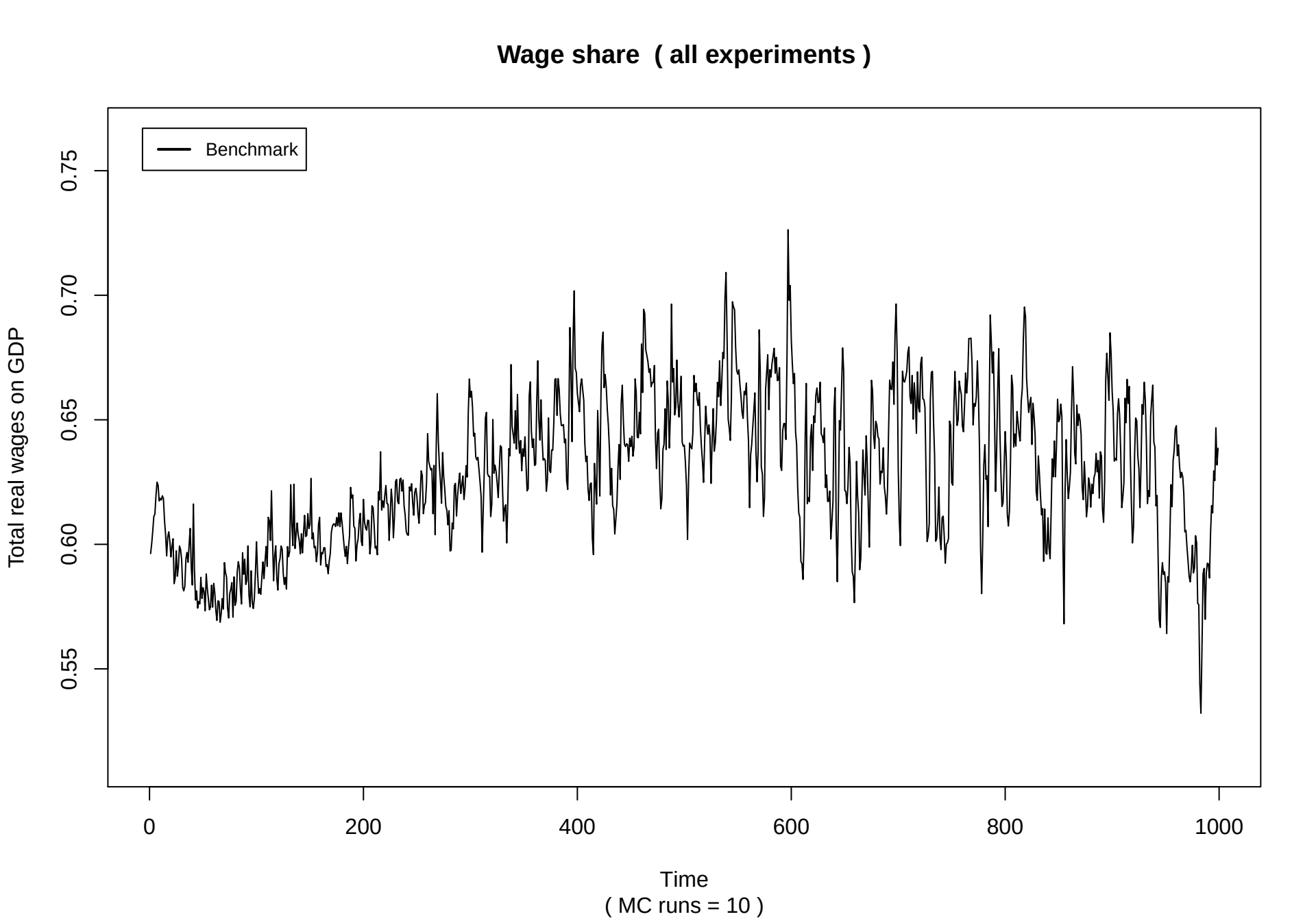

Government debt on GDP (Benchmark)
Government debt over GDP
6
4
2
0
−2
−4
−6
0
200
400
600
800
1000
Time
(95% confidence band in gray, min/max values in light gray / MC runs = 10)

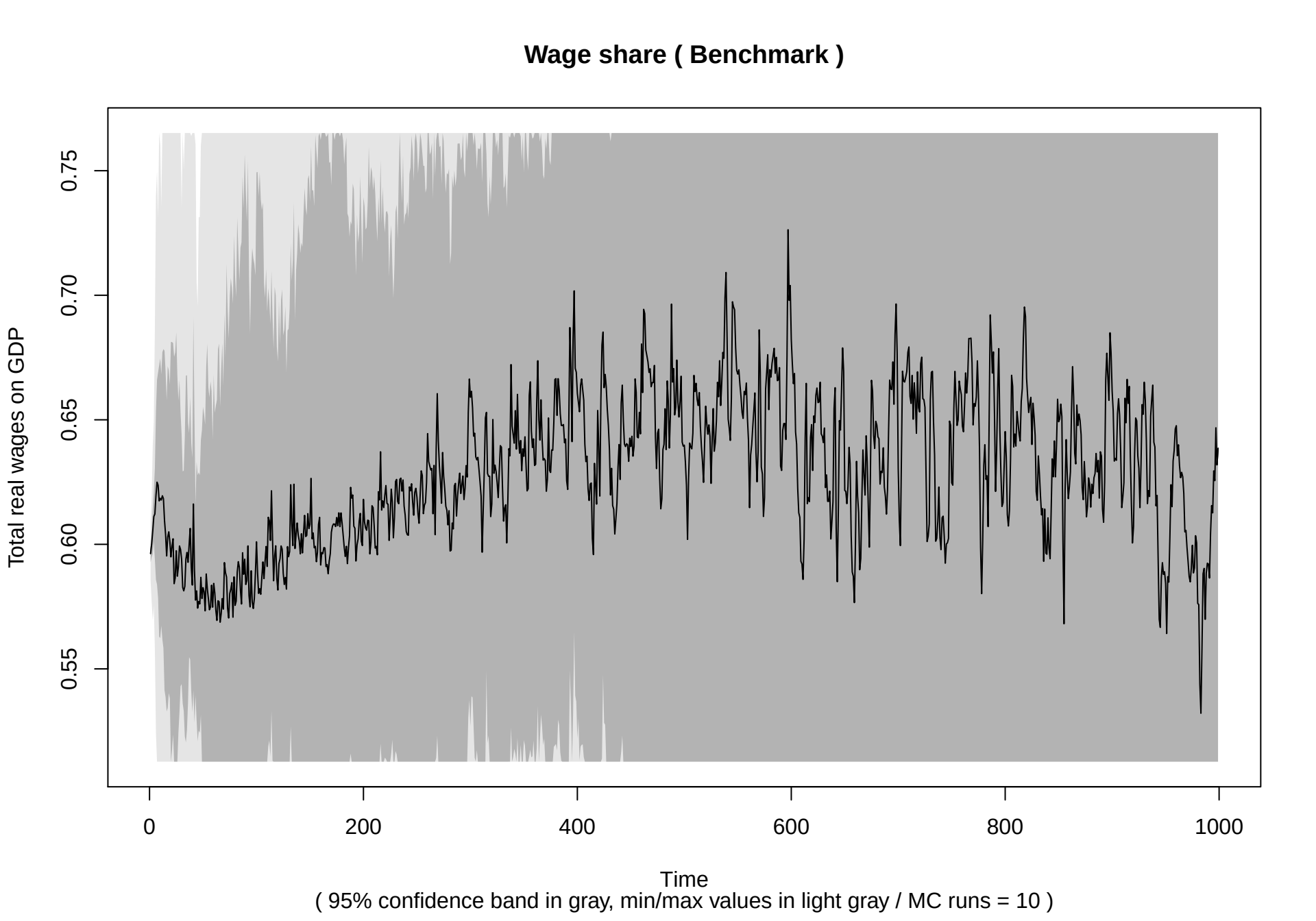

Unemployment and vacancy rates (all experiments)
Benchmark
Unemployment
Vacancy
Rate
0.0
0.2
0.4
0.6
0.8
0
200
400
600
800
1000
Time
(MC runs = 10)

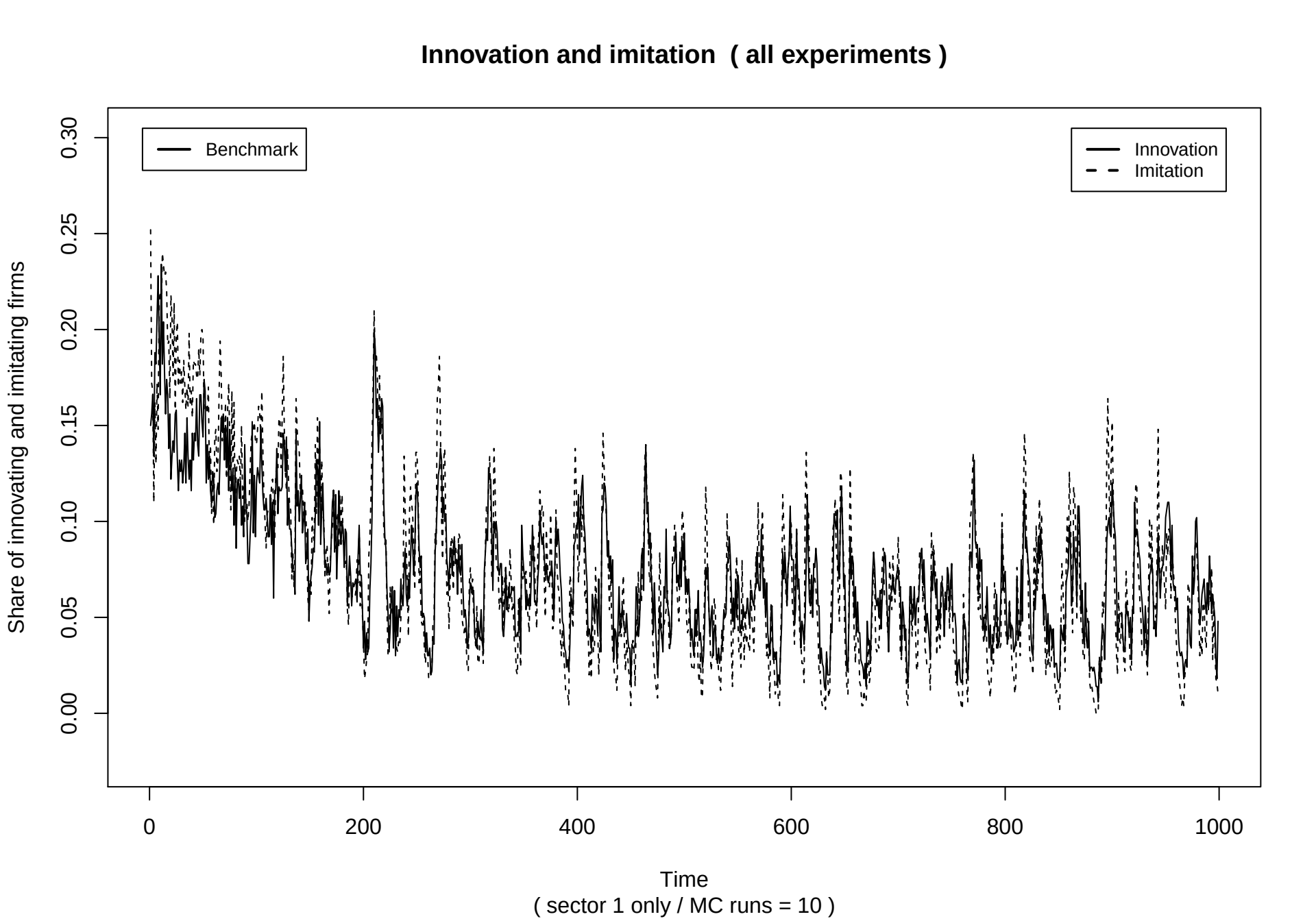

Unemployment and vacancy rates (Benchmark)
Unemployment
Vacancy
Rate
0.0
0.2
0.4
0.6
0.8
0
200
400
600
800
1000
Time
(95% confidence band in gray, min/max values in light gray / MC runs = 10)

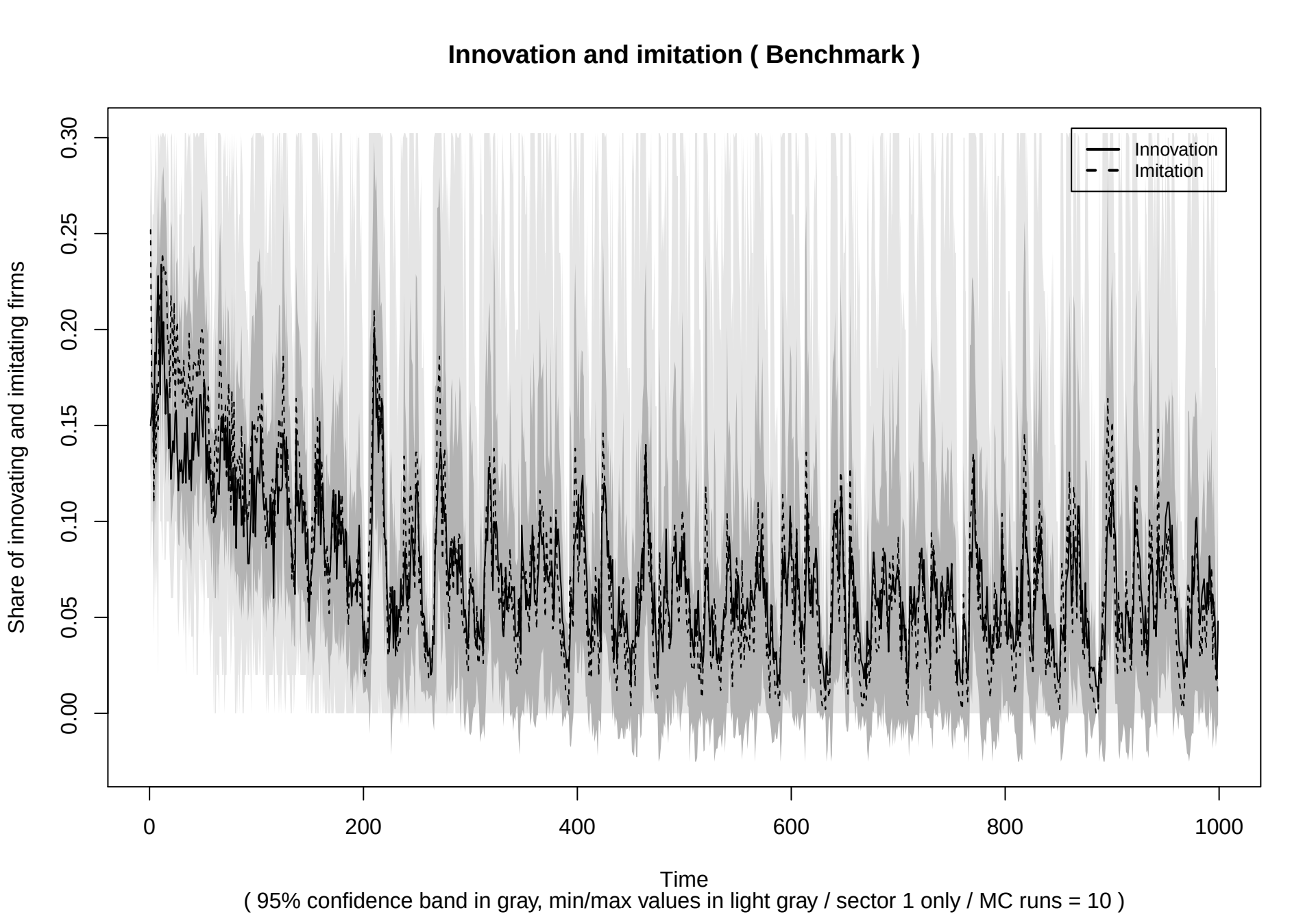

Real wages average (all experiments)
Benchmark
Log wages
0
5
10
15
0
200
400
600
800
1000
Time
(MC runs = 10)

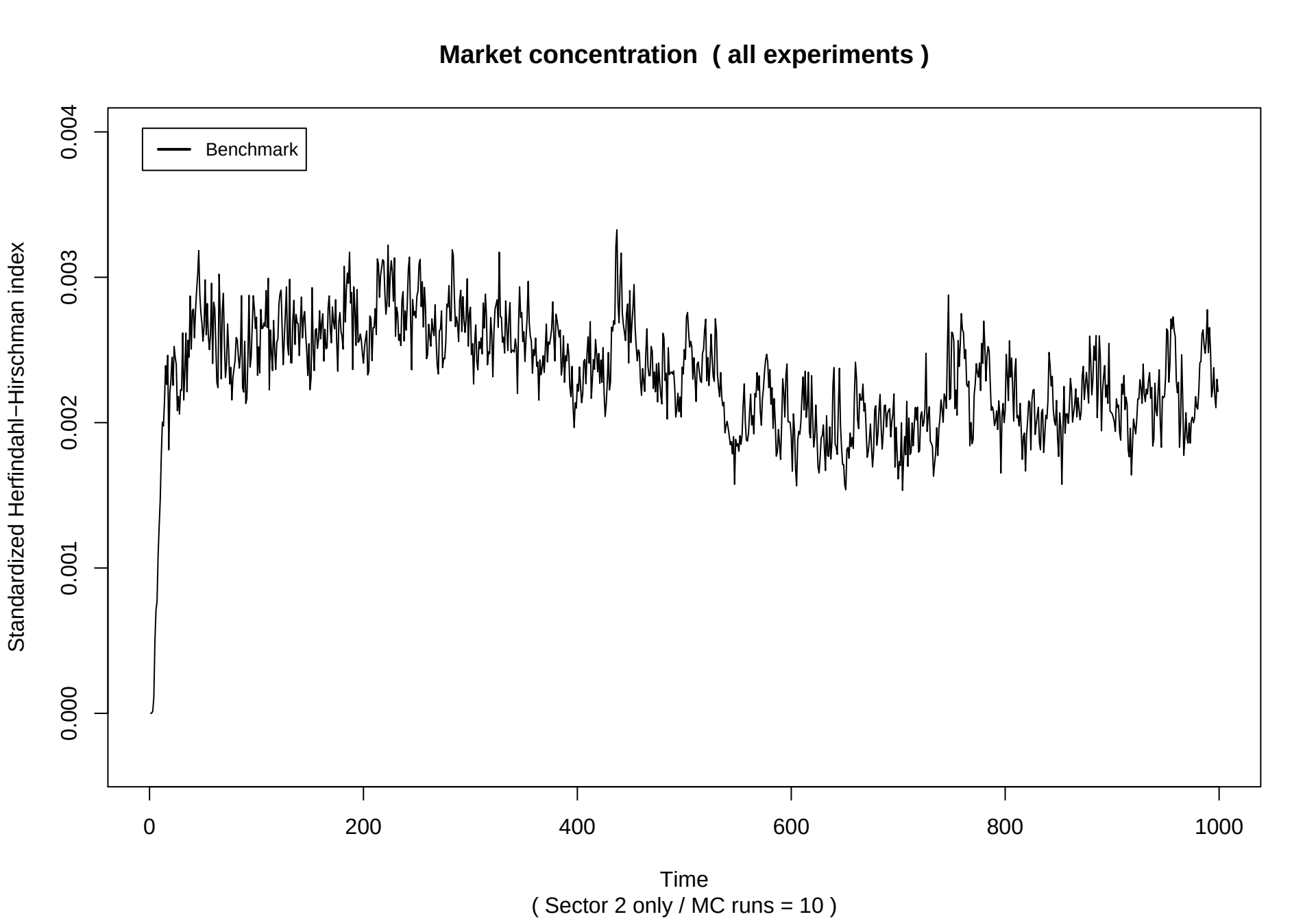

Real wages average (Benchmark)
Log wages
0
5
10
15
0
200
400
600
800
1000
Time
(95% confidence band in gray, min/max values in light gray / MC runs = 10)

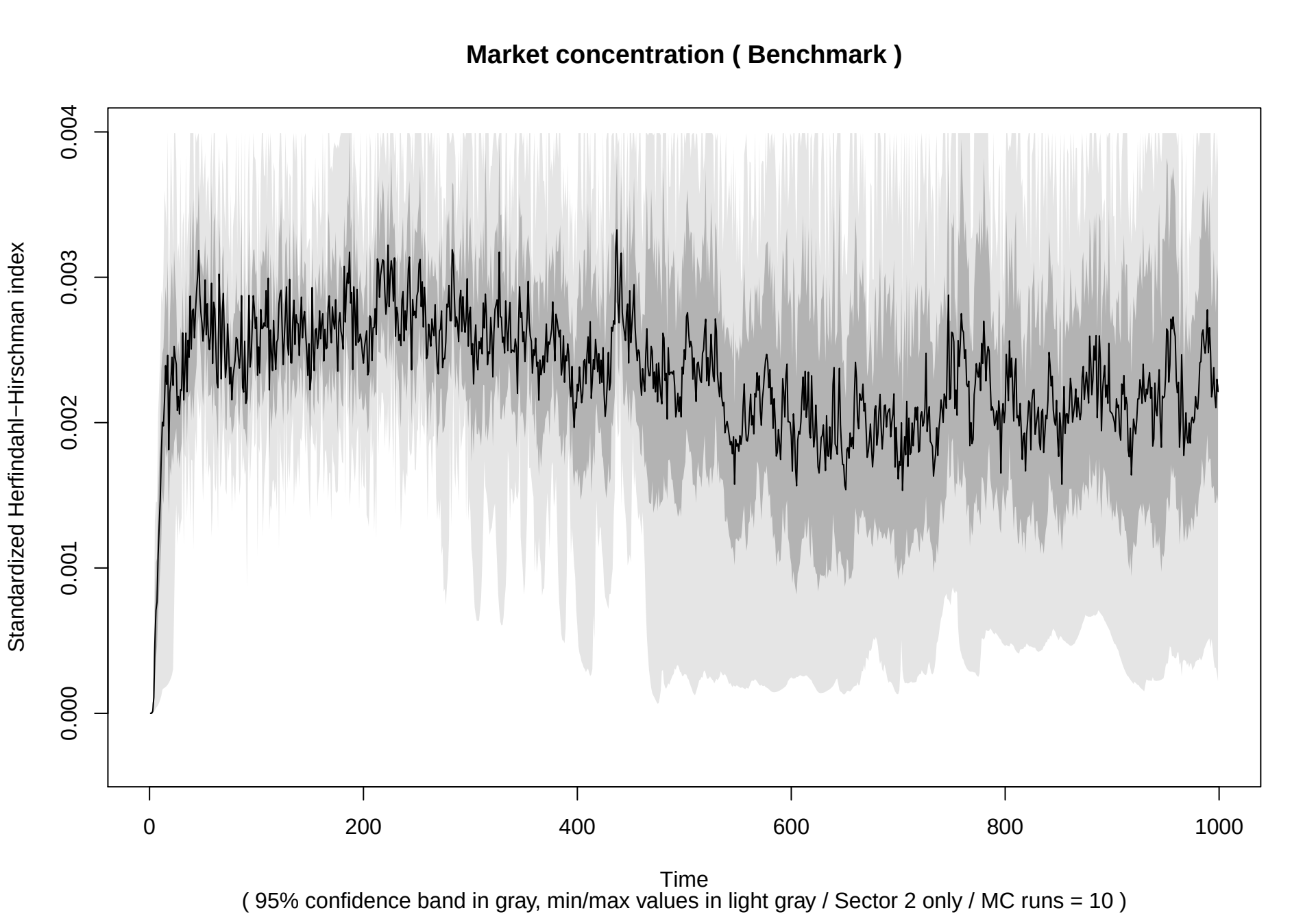

Wage share (all experiments)
Benchmark
Total real wages on GDP
0.55
0.60
0.65
0.70
0.75
0
200
400
600
800
1000
Time
(MC runs = 10)

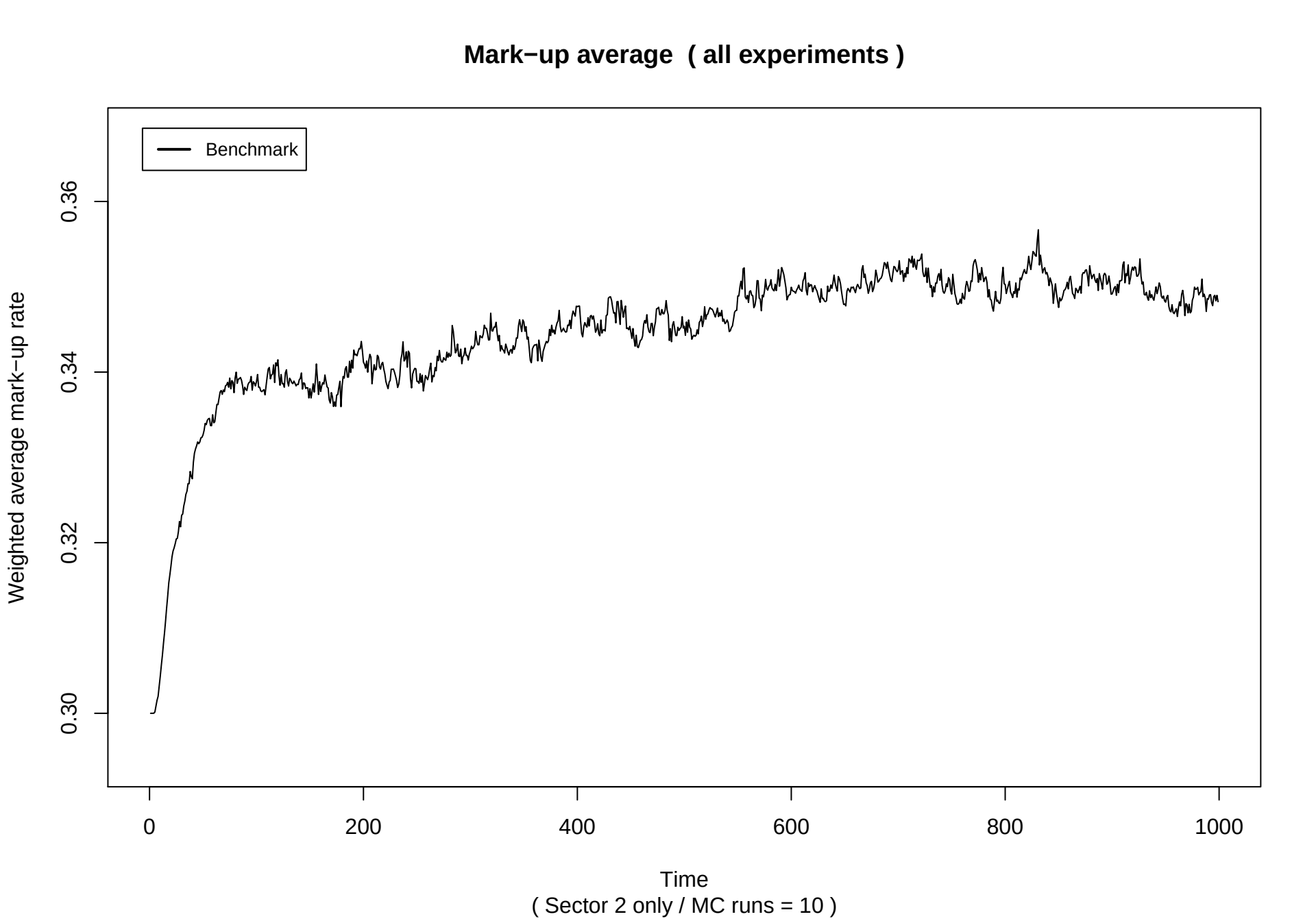

Wage share (Benchmark)
Total real wages on GDP
0.55
0.60
0.65
0.70
0.75
0
200
400
600
800
1000
Time
(95% confidence band in gray, min/max values in light gray / MC runs = 10)

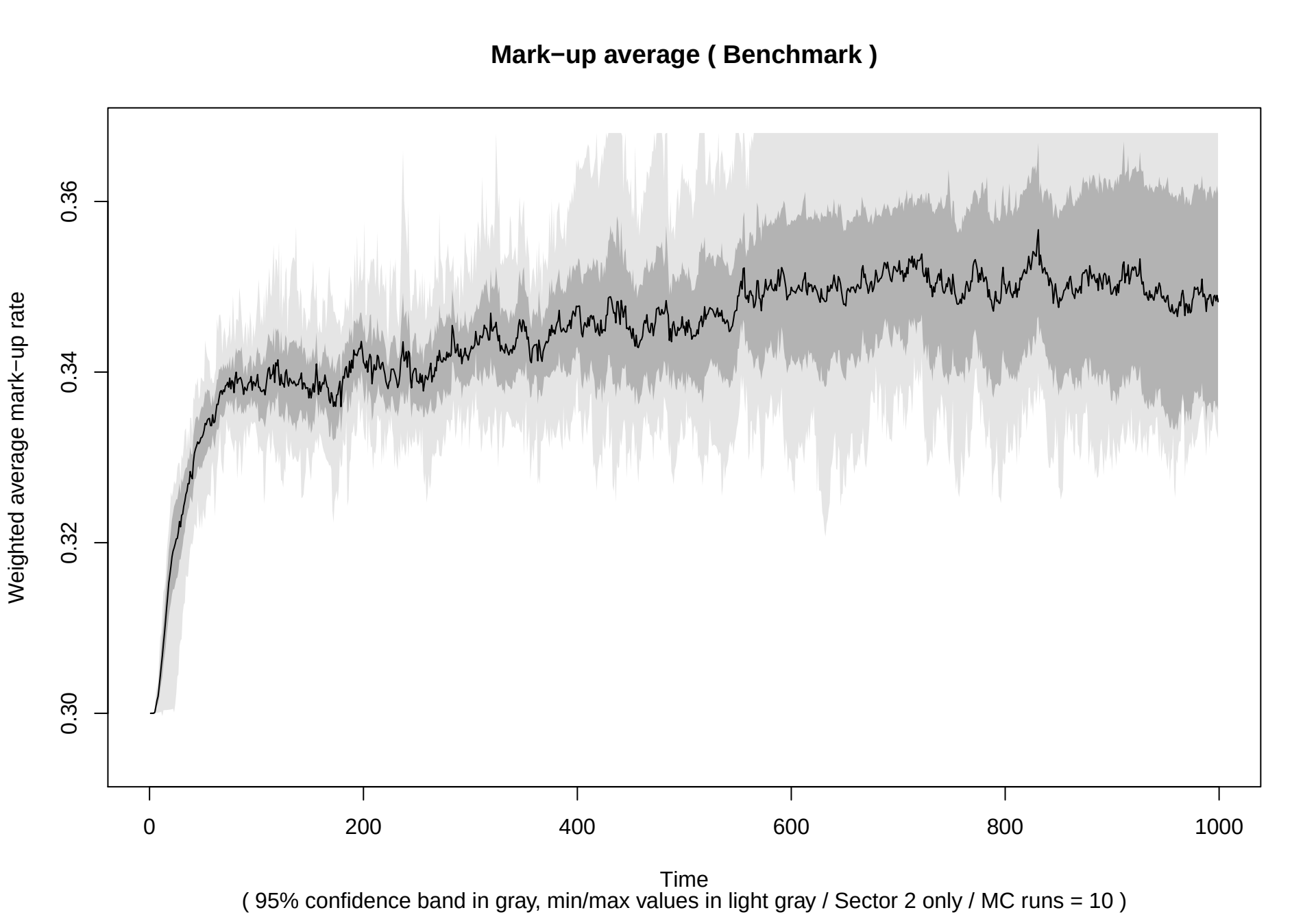

Innovation and imitation (all experiments)
Benchmark
Innovation
Imitation
Share of innovating and imitating firms
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0
200
400
600
800
1000
Time
(sector 1 only / MC runs = 10)

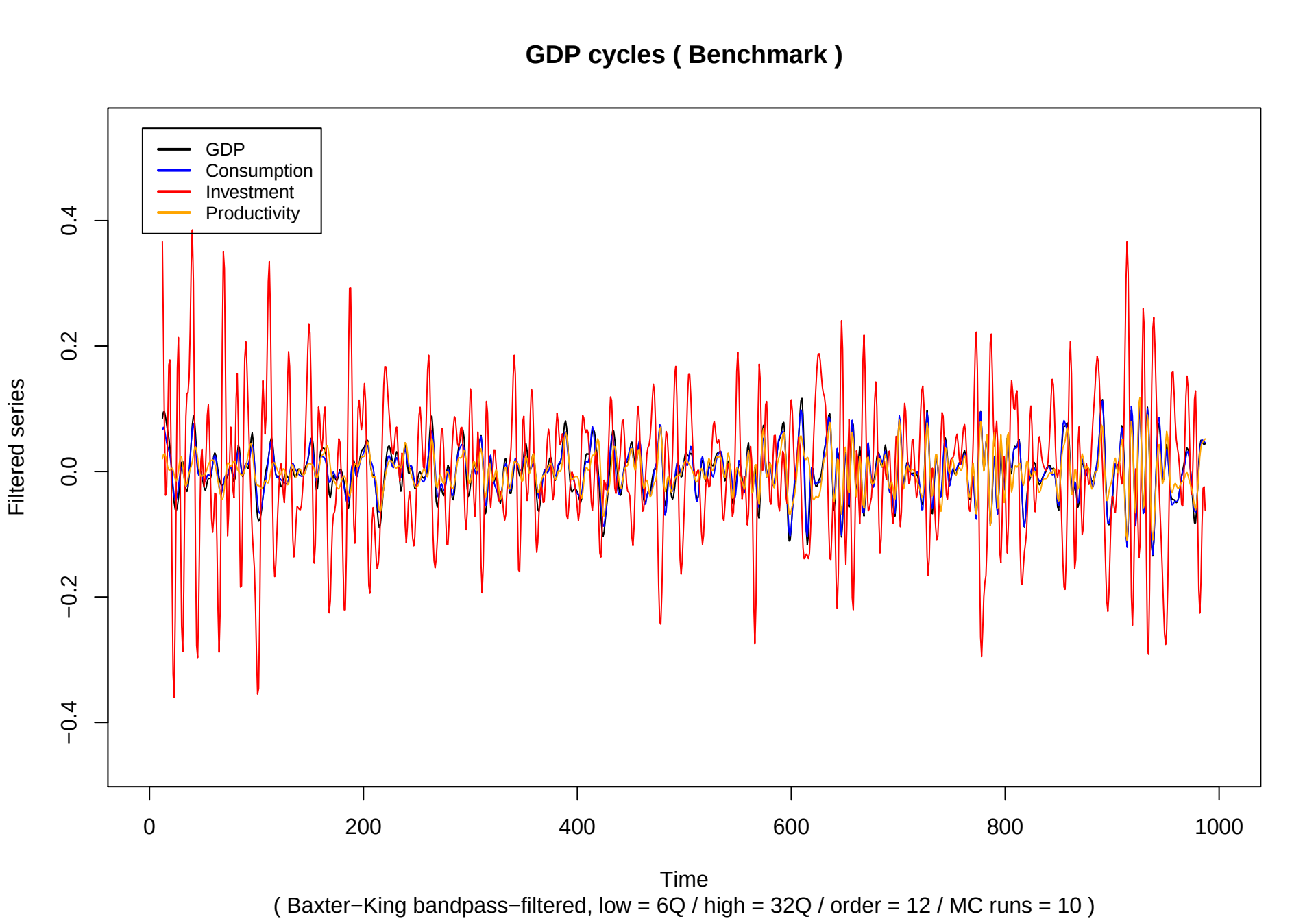

Innovation and imitation (Benchmark)
Innovation
Imitation
Share of innovating and imitating firms
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0
200
400
600
800
1000
Time
(95% confidence band in gray, min/max values in light gray / sector 1 only / MC runs = 10)

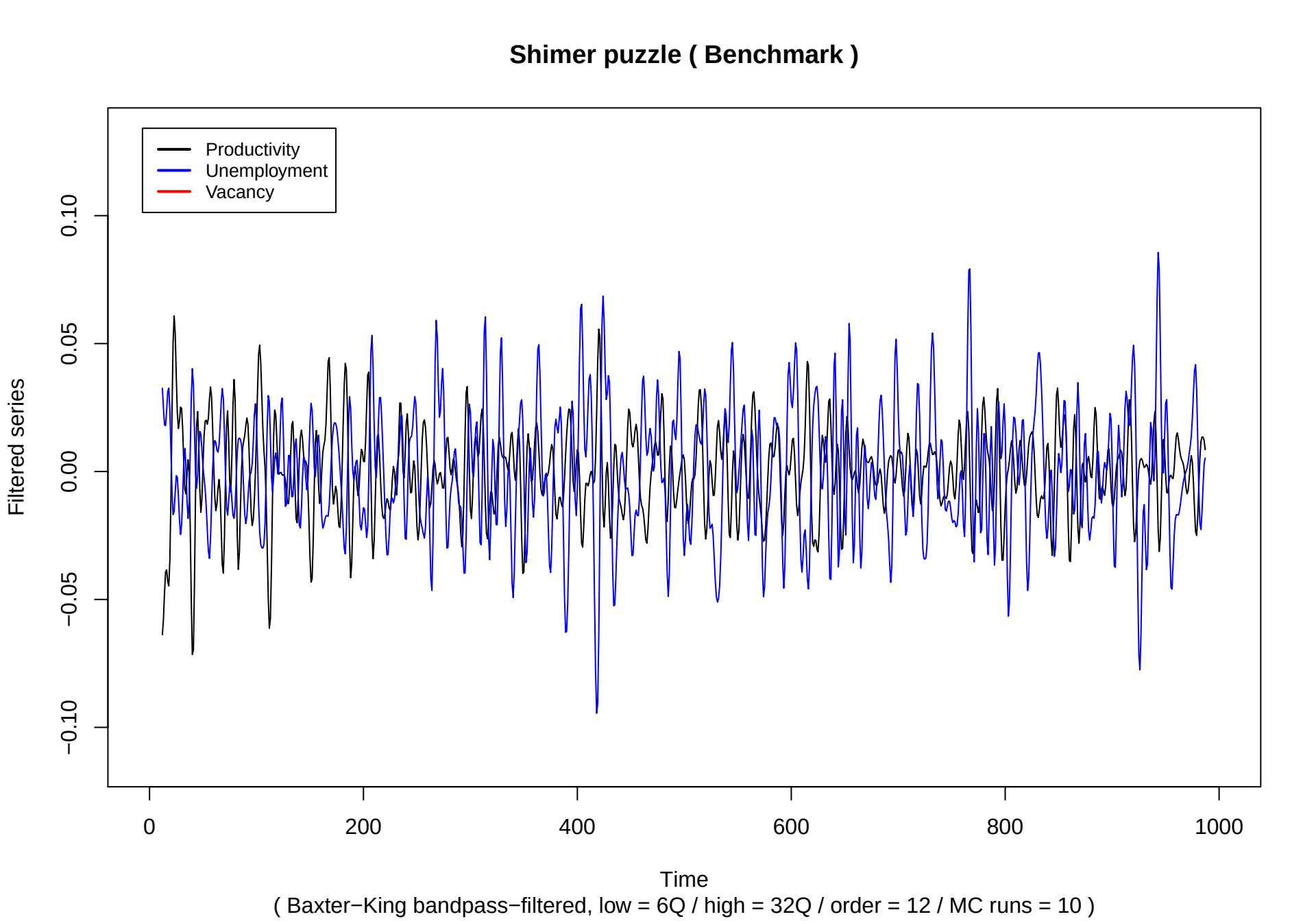

Market concentration (all experiments)
Benchmark
Standardized Herfindahl−Hirschman index
0.000
0.001
0.002
0.003
0.004
0
200
400
600
800
1000
Time
(Sector 2 only / MC runs = 10)


Market concentration (Benchmark)
Standardized Herfindahl−Hirschman index
0.000
0.001
0.002
0.003
0.004
0
200
400
600
800
1000
Time
(95% confidence band in gray, min/max values in light gray / Sector 2 only / MC runs = 10)


Mark−up average (all experiments)
Benchmark
Weighted average mark−up rate
0.30
0.32
0.34
0.36
0
200
400
600
800
1000
Time
(Sector 2 only / MC runs = 10)


Mark−up average (Benchmark)
Weighted average mark−up rate
0.30
0.32
0.34
0.36
0
200
400
600
800
1000
Time
(95% confidence band in gray, min/max values in light gray / Sector 2 only / MC runs = 10)


GDP cycles (Benchmark)
GDP
Consumption
Investment
Productivity
Filtered series
0.4
0.2
0.0
−0.2
−0.4
0
200
400
600
800
1000
Time
(Baxter−King bandpass−filtered, low = 6Q / high = 32Q / order = 12 / MC runs = 10)


Shimer puzzle (Benchmark)
Productivity
Unemployment
Vacancy
Filtered series
0.10
0.05
0.00
−0.05
−0.10
0
200
400
600
800
1000
Time
(Baxter−King bandpass−filtered, low = 6Q / high = 32Q / order = 12 / MC runs = 10)

Key statistics and unit roots tests for cycles (Benchmark)

	GDP (output)	Consumption	Investment	Product.	Real wage
avg. growth rate	0.01369	0.0136	0.01481	0.01331	0.01318
(s.e.)	0.0004863	0.0004985	0.0004081	0.0004371	0.0004953
ADF test (logs)	−2.925	−2.544	−9.587	−2.749	−2.59
(s.e.)	0.4431	0.4532	0.2919	0.4406	0.4535
(p−val.)	0.3558	0.4213	0.01	0.3795	0.4178
(s.e.)	0.1226	0.1298	0	0.1277	0.1269
ADF test (bpf)	−11.02	−10.83	−14.09	−10.72	−10.18
(s.e.)	0.386	0.3021	0.2627	0.228	0.3066
(p−val.)	0.01	0.01	0.01	0.01	0.01
(s.e.)	0	0	0	0	0
s.d. (bpf)	0.09936	0.08468	1.4	0.06577	0.06071
(s.e.)	0.005014	0.006097	0.1247	0.003863	0.004232
relative s.d. (GDP)	1	0.8523	14.09	0.662	0.611

(bpf: Baxter−King bandpass−filtered series, low = 6Q / high = 32Q / order = 12 / MC runs = 10 / period = 2 − 1000)
(ADF test H0: there are unit roots / non−stationary at 5% level)

Correlation structure for GDP (Benchmark)

	−4	−3	−2	−1	0	1	2	3	4
GDP (output)	−0.001413	0.2741	0.6091	0.8896	1	0.8896	0.6091	0.2741	−0.001413
(s.e.)	0.02317	0.02064	0.01243	0.003681	2.867e−17	0.003681	0.01243	0.02064	0.02317
(p−val.)	0.5816	1.421e−06	4.016e−12	1.732e−18	NA	1.732e−18	4.016e−12	1.421e−06	0.5816
Consumption	0.04891	0.291	0.5829	0.8348	0.9489	0.8726	0.6359	0.3284	0.05024
(s.e.)	0.0342	0.02681	0.01289	0.00454	0.006633	0.004441	0.01625	0.02807	0.03131
(p−val.)	0.03696	6.536e−06	8.683e−12	2.12e−17	1.858e−16	1.13e−17	2.893e−11	2.764e−06	0.02801
Investment	−0.2196	−0.3041	−0.3259	−0.2363	−0.04239	0.1868	0.3598	0.4148	0.3529
(s.e.)	0.0419	0.03777	0.02533	0.02599	0.04077	0.04598	0.03744	0.02441	0.02018
(p−val.)	1.603e−05	6.189e−05	1.269e−06	4.401e−05	0.1336	0.0001639	1.157e−05	7.787e−08	7.95e−08
Net investment	−0.1625	−0.2252	−0.2359	−0.1548	0.009931	0.1969	0.3296	0.3589	0.2913
(s.e.)	0.03598	0.03271	0.03269	0.04289	0.05253	0.05129	0.03986	0.02872	0.0261
(p−val.)	6.715e−05	0.0003753	0.0002399	0.02712	0.03066	0.0003238	4.356e−05	1.356e−06	5.179e−06
Change in inventories	−0.1487	−0.1009	0.008064	0.1305	0.2042	0.1902	0.1067	0.006484	−0.05705
(s.e.)	0.02075	0.01973	0.01471	0.0147	0.01915	0.01851	0.01368	0.01105	0.01185
(p−val.)	0.001186	0.03987	0.9952	0.0005909	1.991e−05	3.425e−05	0.004863	0.9997	0.6509
Unemployment rate	0.2388	0.1932	0.06895	−0.1097	−0.2813	−0.378	−0.3686	−0.2719	−0.1428
(s.e.)	0.01143	0.02078	0.02438	0.02229	0.02214	0.02595	0.02907	0.03017	0.02896
(p−val.)	4.297e−08	6.925e−05	0.1747	0.03051	1.935e−06	3.4e−07	1.146e−06	3.314e−05	0.0005366
Productivity	0.1452	0.3371	0.5641	0.7416	0.7857	0.6631	0.4192	0.1459	−0.07049
(s.e.)	0.04689	0.04298	0.02715	0.01329	0.01912	0.02242	0.02241	0.02565	0.02556
(p−val.)	0.002241	6.264e−05	9.036e−09	1.05e−12	1.559e−11	3.377e−10	3.32e−08	0.004829	0.1697
Mark−up (sector 2)	0.2234	0.2044	0.1436	0.0509	−0.04654	−0.1179	−0.1475	−0.1405	−0.1165
(s.e.)	0.02258	0.02122	0.02407	0.02369	0.02136	0.02247	0.02526	0.02574	0.02425
(p−val.)	2.689e−05	4.367e−05	0.003992	0.2773	0.5769	0.01729	0.004036	0.002899	0.002147
Total firm debt	0.1657	0.08452	−0.002767	−0.07695	−0.1256	−0.1451	−0.1479	−0.1458	−0.1445
(s.e.)	0.03741	0.03759	0.03746	0.03543	0.02978	0.02156	0.01734	0.02055	0.02447
(p−val.)	0.01085	0.03978	0.02915	0.1237	0.02031	0.001935	0.0003949	0.001385	0.004102
Liquidity−to−sales ratio	0.04295	−0.1513	−0.3689	−0.5506	−0.6395	−0.6091	−0.4811	−0.3072	−0.1418
(s.e.)	0.01958	0.01715	0.03089	0.04409	0.04944	0.0468	0.0399	0.03293	0.02883
(p−val.)	0.3935	0.0002793	1.89e−06	7.568e−07	4.835e−07	4.804e−07	1.185e−06	1.954e−05	0.004415
Bankruptcy rate	0.3375	0.3892	0.3522	0.2332	0.08077	−0.04518	−0.1094	−0.1193	−0.1088
(s.e.)	0.02951	0.03933	0.04657	0.04291	0.03025	0.02456	0.03073	0.03196	0.02613
(p−val.)	3.161e−06	8.082e−06	7.644e−05	0.0002052	0.01957	0.2157	0.02107	0.02197	0.05142

(non−rate/ratio series are Baxter−King bandpass−filtered, low = 6Q / high = 32Q / order = 12 / MC runs = 10 / period = 2 − 1000)
(test H0: lag coefficient is not significant at 5% level)

Correlation structure for GDP (Benchmark)

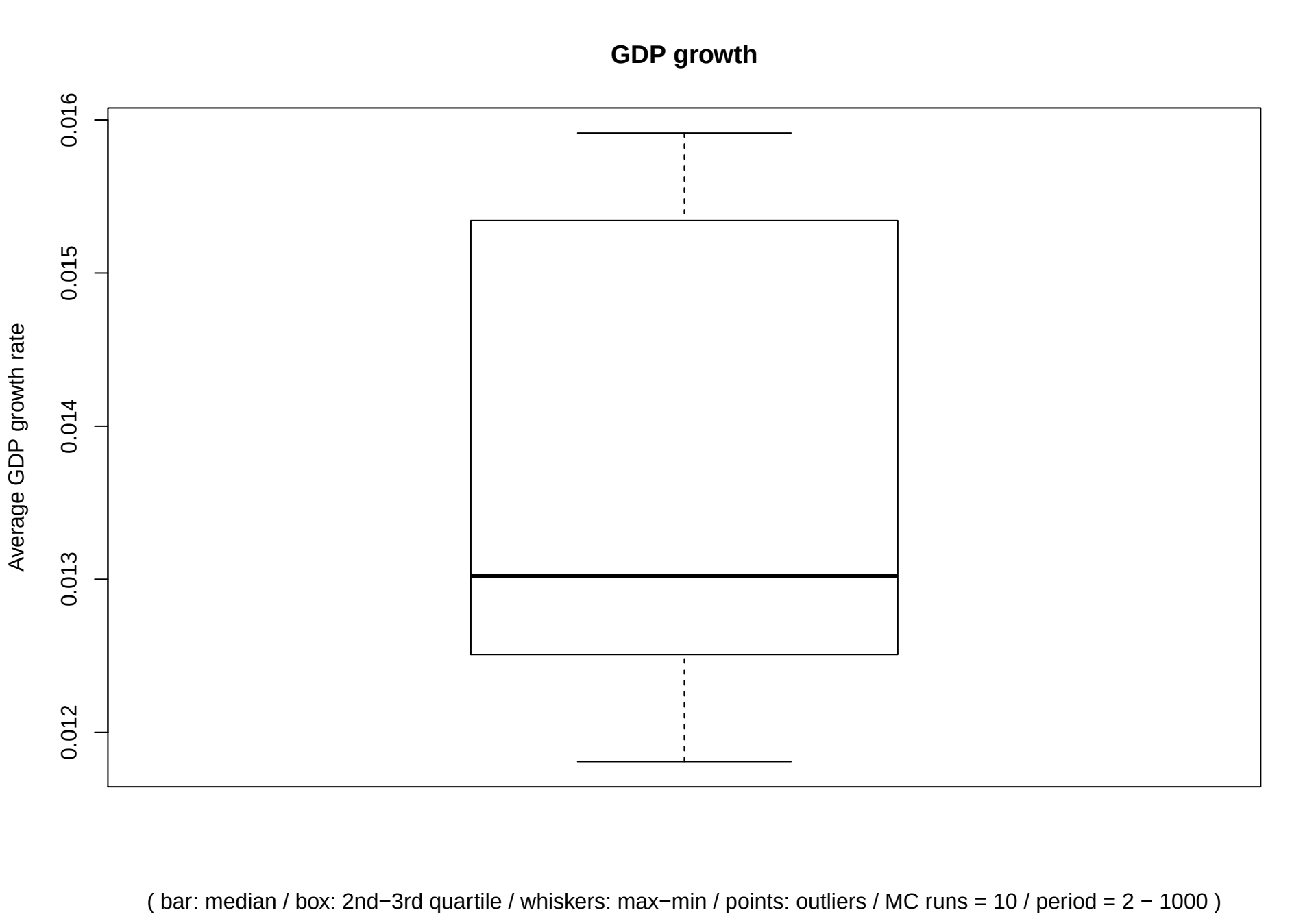
	−4	−3	−2	−1	0	1	2	3	4
GDP (output)	−0.001413	0.2741	0.6091	0.8896	1	0.8896	0.6091	0.2741	−0.001413
(s.e.)	0.02317	0.02064	0.01243	0.003681	2.867e−17	0.003681	0.01243	0.02064	0.02317
(p−val.)	0.5816	1.421e−06	4.016e−12	1.732e−18	NA	1.732e−18	4.016e−12	1.421e−06	0.5816
Consumption	0.04891	0.291	0.5829	0.8348	0.9489	0.8726	0.6359	0.3284	0.05024
(s.e.)	0.0342	0.02681	0.01289	0.00454	0.006633	0.004441	0.01625	0.02807	0.03131
(p−val.)	0.03696	6.536e−06	8.683e−12	2.12e−17	1.858e−16	1.13e−17	2.893e−11	2.764e−06	0.02801
Investment	−0.2196	−0.3041	−0.3259	−0.2363	−0.04239	0.1868	0.3598	0.4148	0.3529
(s.e.)	0.0419	0.03777	0.02533	0.02599	0.04077	0.04598	0.03744	0.02441	0.02018
(p−val.)	1.603e−05	6.189e−05	1.269e−06	4.401e−05	0.1336	0.0001639	1.157e−05	7.787e−08	7.95e−08
Productivity	0.1452	0.3371	0.5641	0.7416	0.7857	0.6631	0.4192	0.1459	−0.07049
(s.e.)	0.04689	0.04298	0.02715	0.01329	0.01912	0.02242	0.02241	0.02565	0.02556
(p−val.)	0.002241	6.264e−05	9.036e−09	1.05e−12	1.559e−11	3.377e−10	3.32e−08	0.004829	0.1697
Entry	−0.08564	0.06436	0.2394	0.388	0.4637	0.4489	0.3638	0.2492	0.1429
(s.e.)	0.02193	0.02493	0.0283	0.02804	0.02446	0.02121	0.02041	0.01971	0.0173
(p−val.)	0.1057	0.1292	7.311e−05	5.033e−07	2.559e−08	1.022e−08	6.38e−08	2.738e−06	0.0005781
Wage	0.3164	0.4663	0.5855	0.6354	0.5954	0.4739	0.3059	0.134	−0.01033
(s.e.)	0.02384	0.03073	0.03882	0.0429	0.04025	0.03151	0.02014	0.01157	0.01147
(p−val.)	1.039e−06	1.752e−07	1.416e−07	1.528e−07	1.645e−07	1.849e−07	3.55e−07	7.712e−05	0.9995
Unemployment rate	0.2388	0.1932	0.06895	−0.1097	−0.2813	−0.378	−0.3686	−0.2719	−0.1428
(s.e.)	0.01143	0.02078	0.02438	0.02229	0.02214	0.02595	0.02907	0.03017	0.02896
(p−val.)	4.297e−08	6.925e−05	0.1747	0.03051	1.935e−06	3.4e−07	1.146e−06	3.314e−05	0.0005366
Vacancy rate	0.04127	−0.09928	−0.2667	−0.3818	−0.3843	−0.2728	−0.1073	0.03221	0.09573
(s.e.)	0.04768	0.03614	0.03014	0.03325	0.03686	0.03415	0.02872	0.0306	0.03859
(p−val.)	0.007021	0.01958	3.996e−05	2.47e−06	5.391e−06	8.203e−05	0.05644	0.196	0.02576

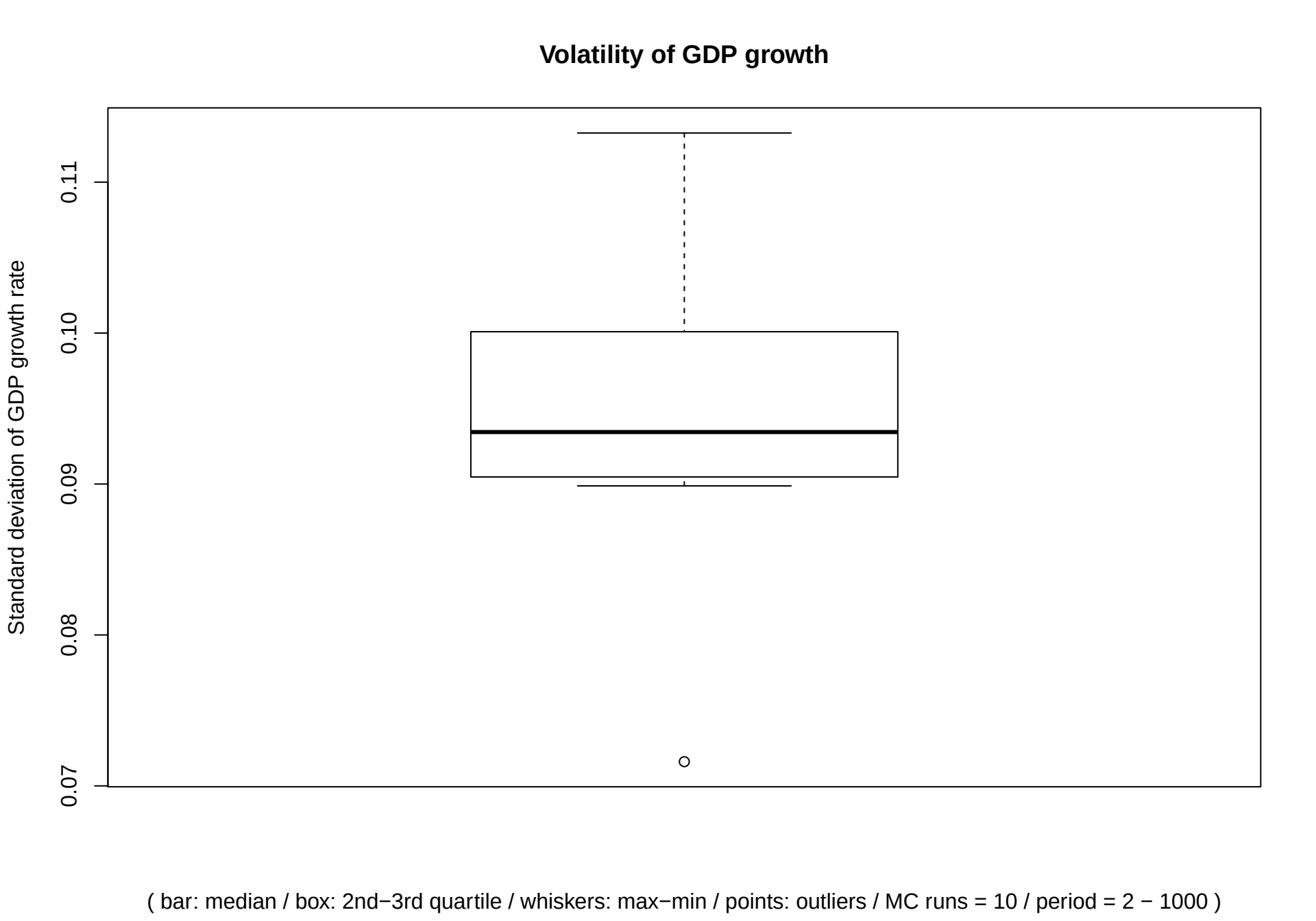
(non−rate/ratio series are Baxter−King bandpass−filtered, low = 6Q / high = 32Q / order = 12 / MC runs = 10 / period = 2 − 1000)
(test H0: lag coefficient is not significant at 5% level)

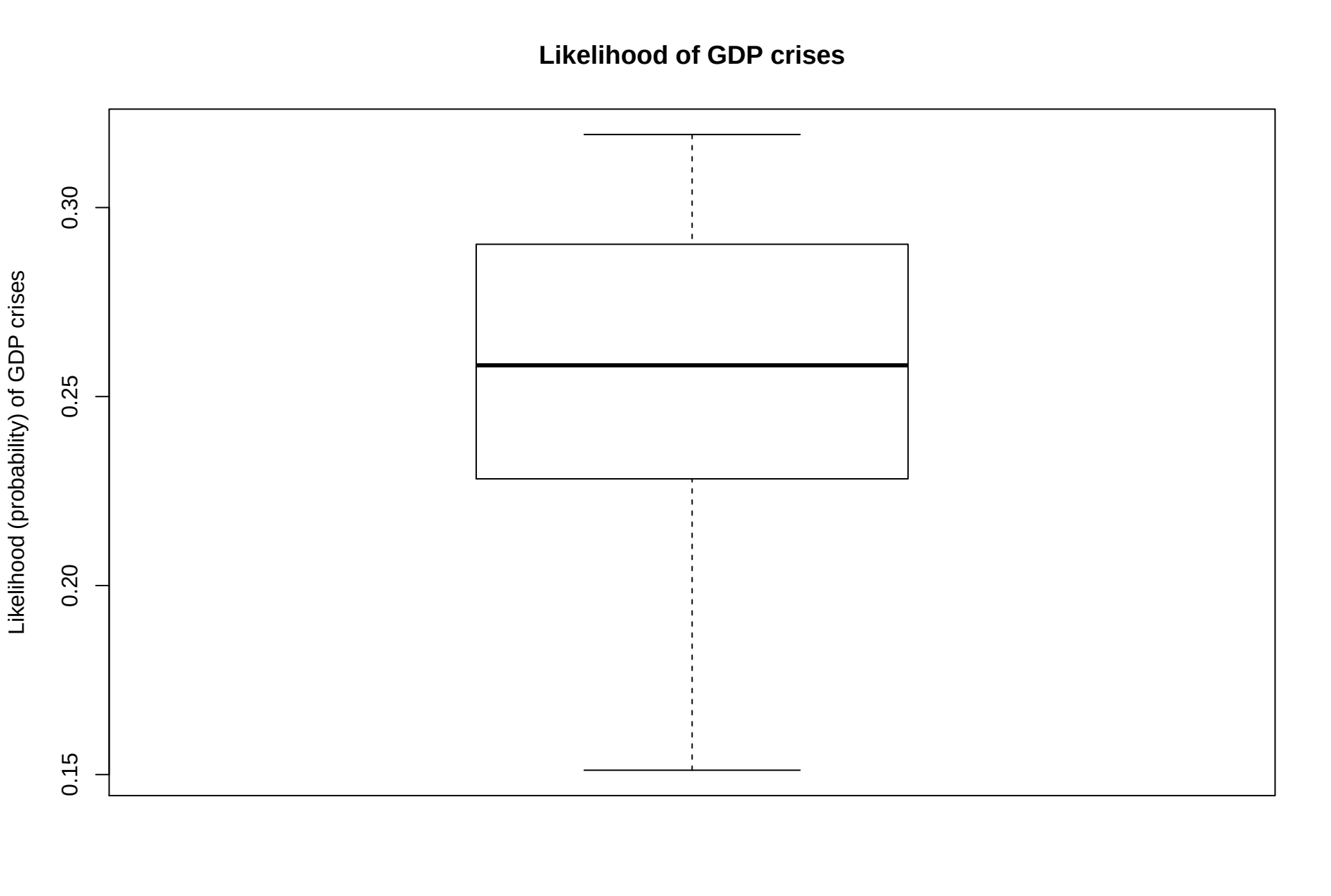
Stationarity, i.i.d. and ergodicity tests (Benchmark)

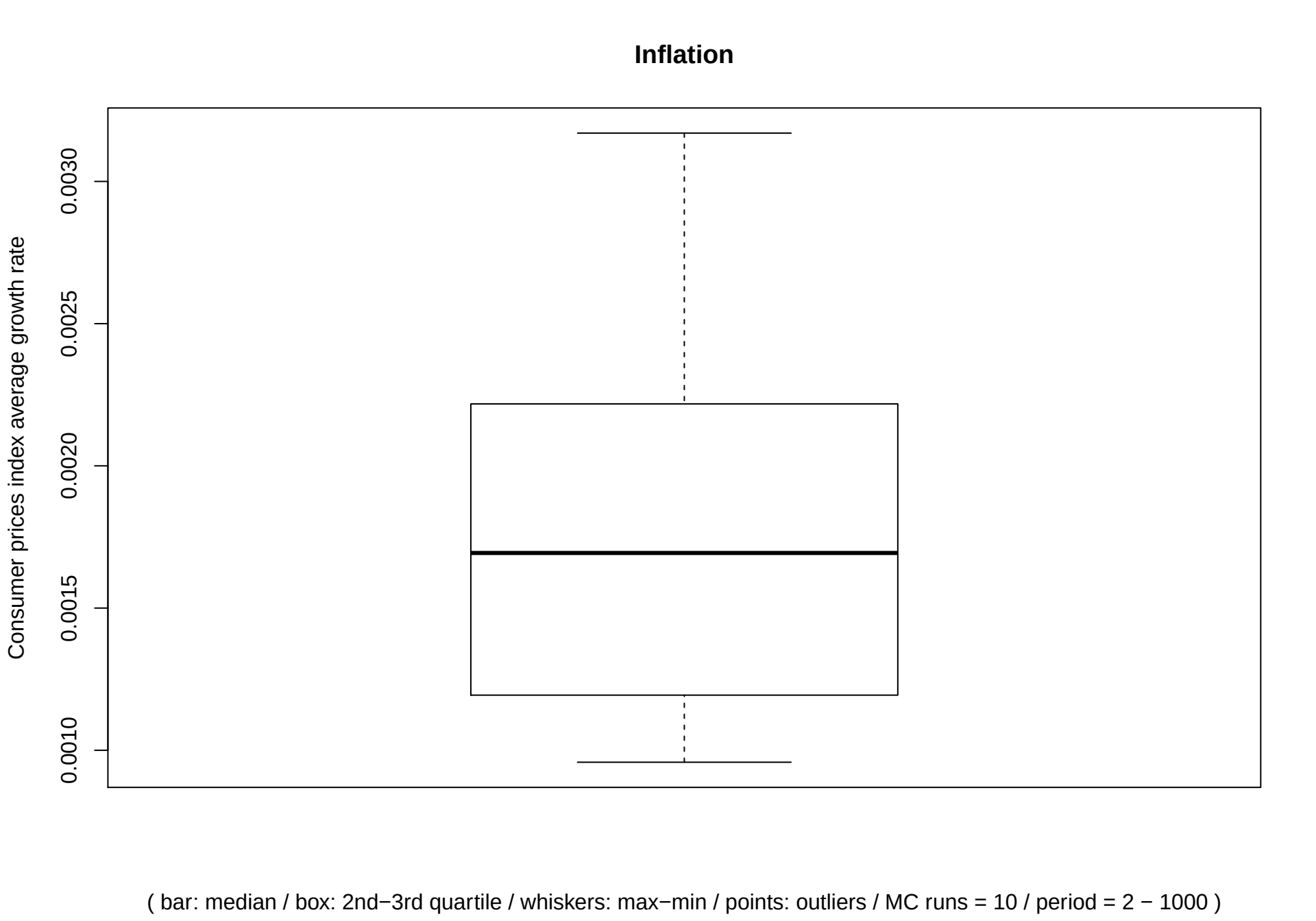
	avg.ADF	rej.ADF	avg.PP	rej.PP	avg.KPSS	rej.KPSS	avg.BDS	rej.BDS	avg.KS	rej.KS	AD	W
dGDP	0.01	1.00	0.01	1.00	0.10	0.00	0.06	0.80	0.10	0.73	0.00	0
dA	0.01	1.00	0.01	1.00	0.09	0.10	0.00	1.00	0.09	0.76	0.00	0
dw	0.01	1.00	0.01	1.00	0.09	0.10	0.00	1.00	0.09	0.76	0.00	0
V	0.01	1.00	0.01	1.00	0.03	0.80	0.00	1.00	0.01	0.93	0.00	0
U	0.01	1.00	0.01	1.00	0.02	0.80	0.00	1.00	0.03	0.89	0.00	0
mu2avg	0.01	1.00	0.01	1.00	0.01	1.00	0.00	1.00	0.00	1.00	0.00	0
HH1	0.01	1.00	0.01	1.00	0.10	0.00	0.00	1.00	0.16	0.67	0.00	0
HH2	0.01	1.00	0.01	1.00	0.01	1.00	0.00	1.00	0.02	0.96	0.00	0

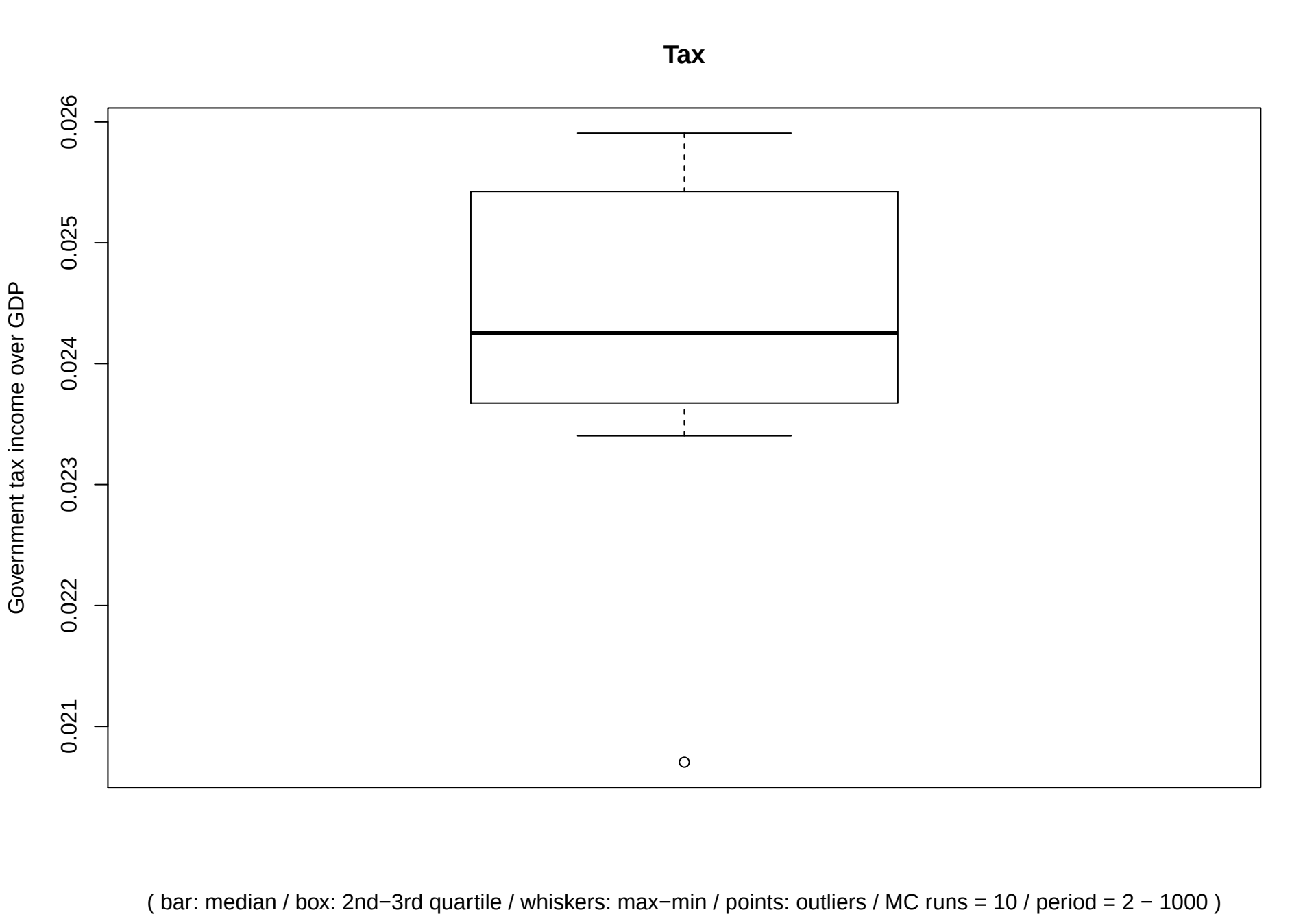
(average p−values for testing H0 and rate of rejection of H0 / MC runs = 10 / period = 2 − 1000)
(ADF/PP H0: non−stationary, KPSS H0: stationary, BDS H0: i.i.d., KS/AD/WW H0: ergodic)
(significance = 0.05)

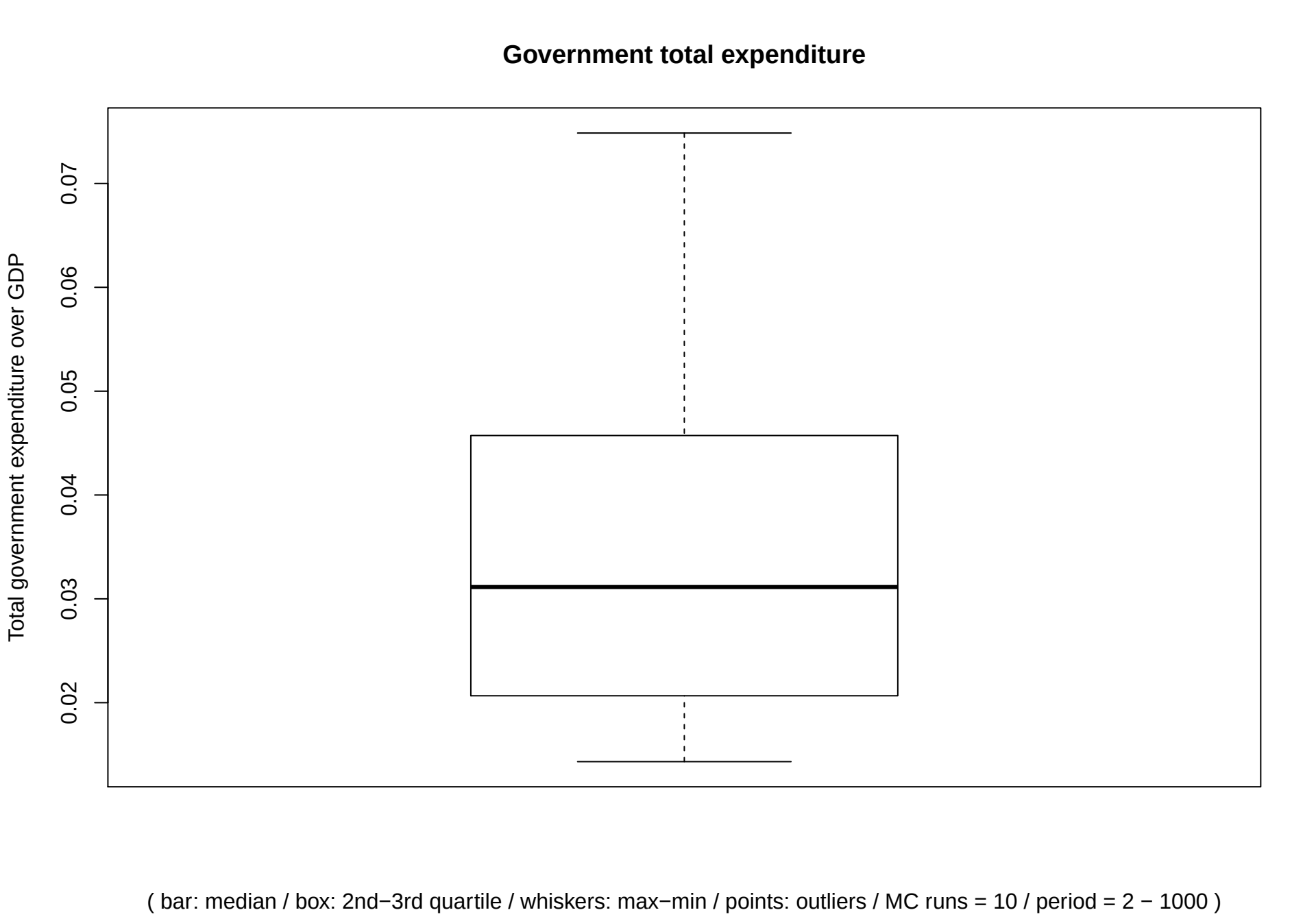

GDP growth
Average GDP growth rate
0.016
0.015
0.014
0.013
0.012
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 10 / period = 2 − 1000)

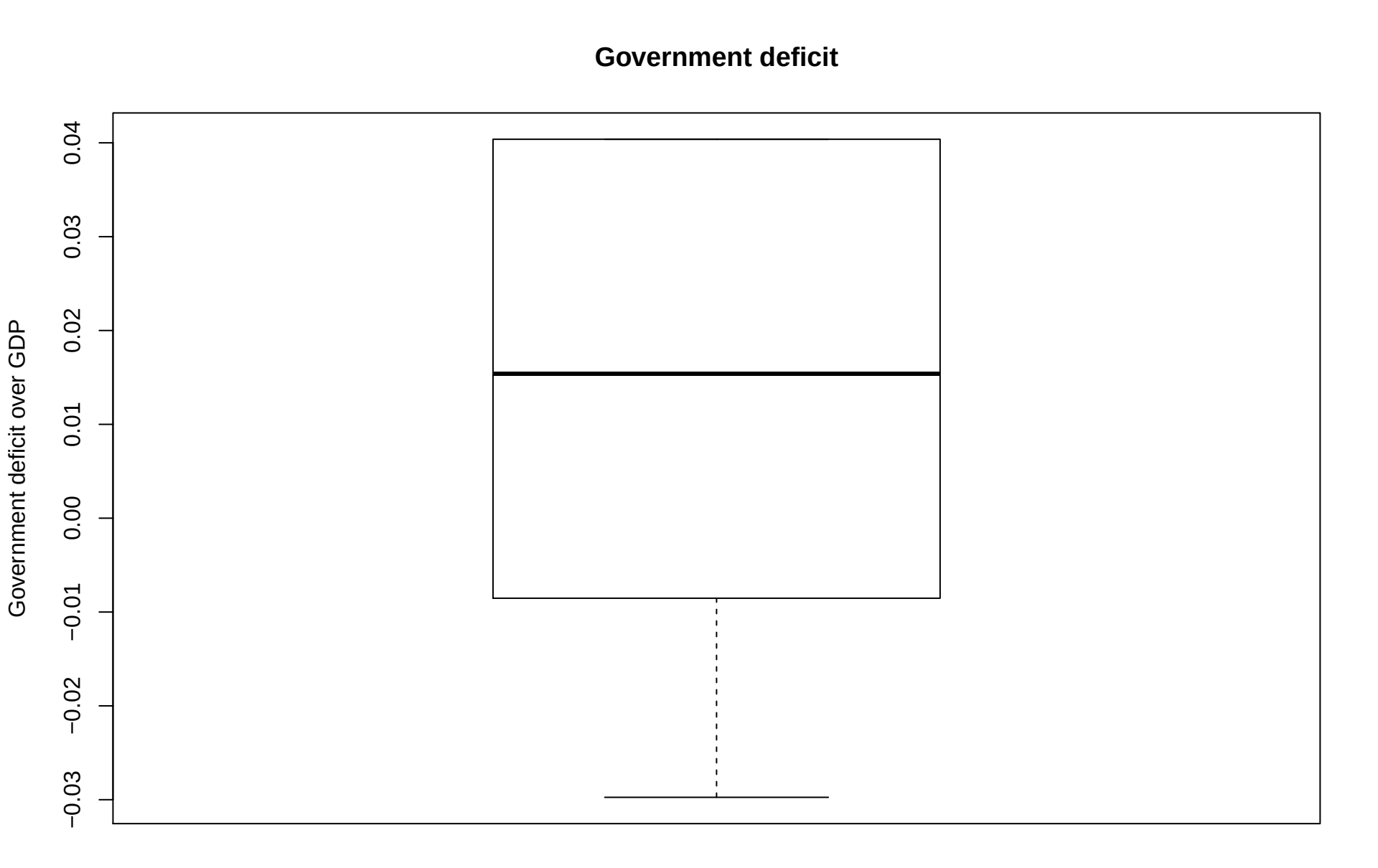

Volatility of GDP growth
Standard deviation of GDP growth rate
0.07
0.08
0.09
0.10
0.11
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 10 / period = 2 − 1000)


Likelihood of GDP crises
Likelihood (probability) of GDP crises
0.15
0.20
0.25
0.30
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 10 / period = 2 − 1000)

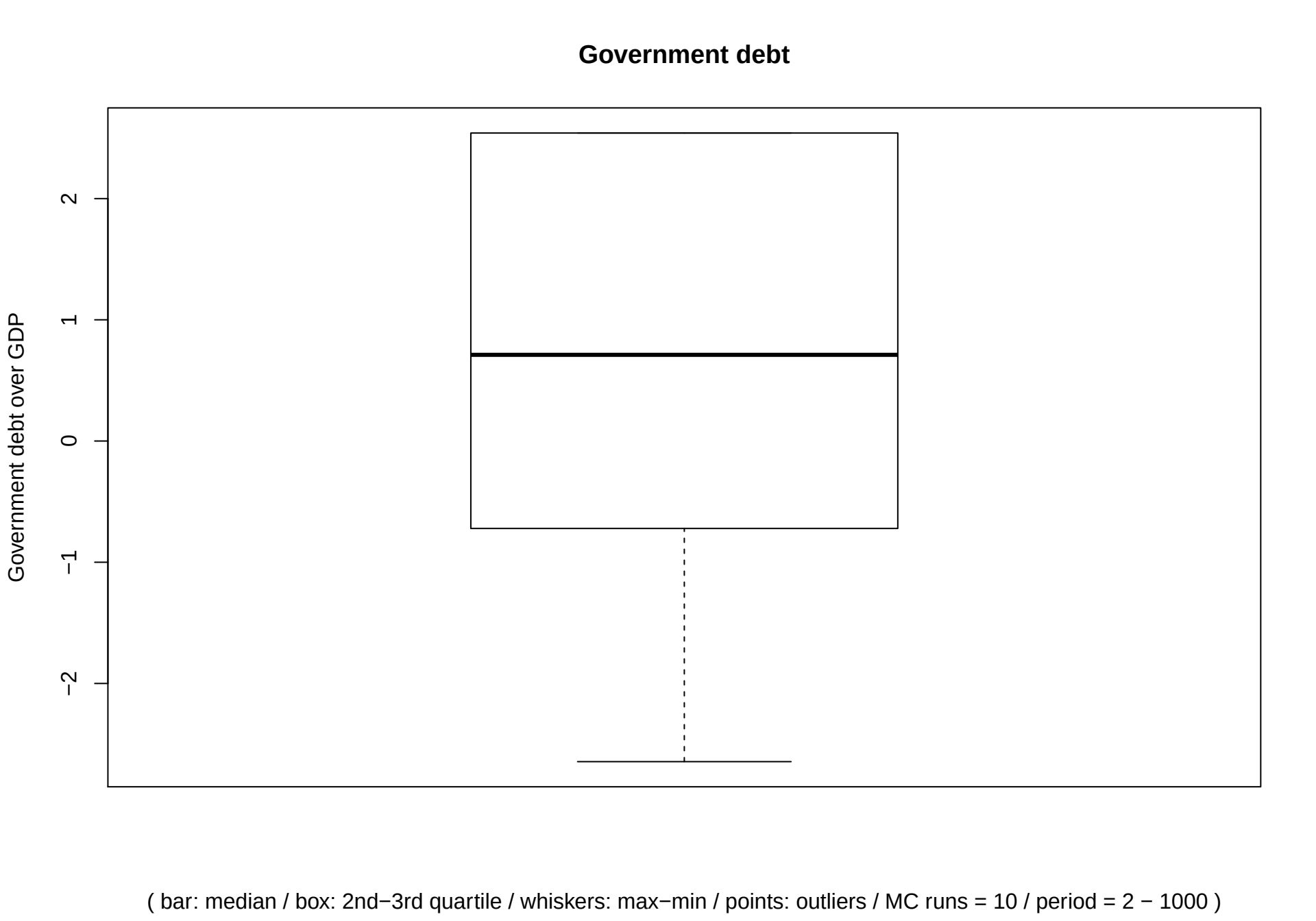

Inflation
Consumer prices index average growth rate
0.0010
0.0015
0.0020
0.0025
0.0030
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 10 / period = 2 − 1000)

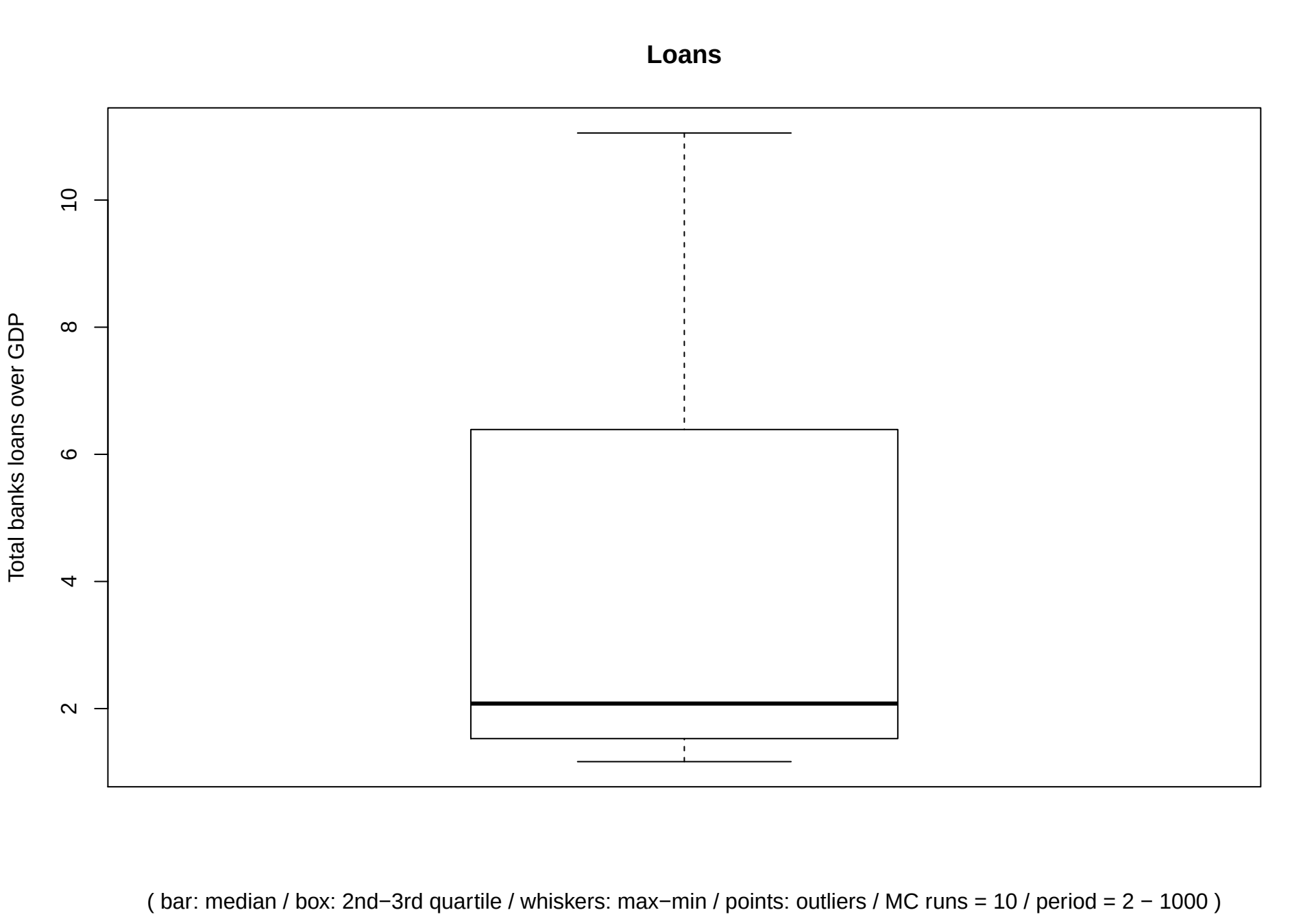

Tax
Government tax income over GDP
0.021
0.022
0.023
0.024
0.025
0.026
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 10 / period = 2 − 1000)

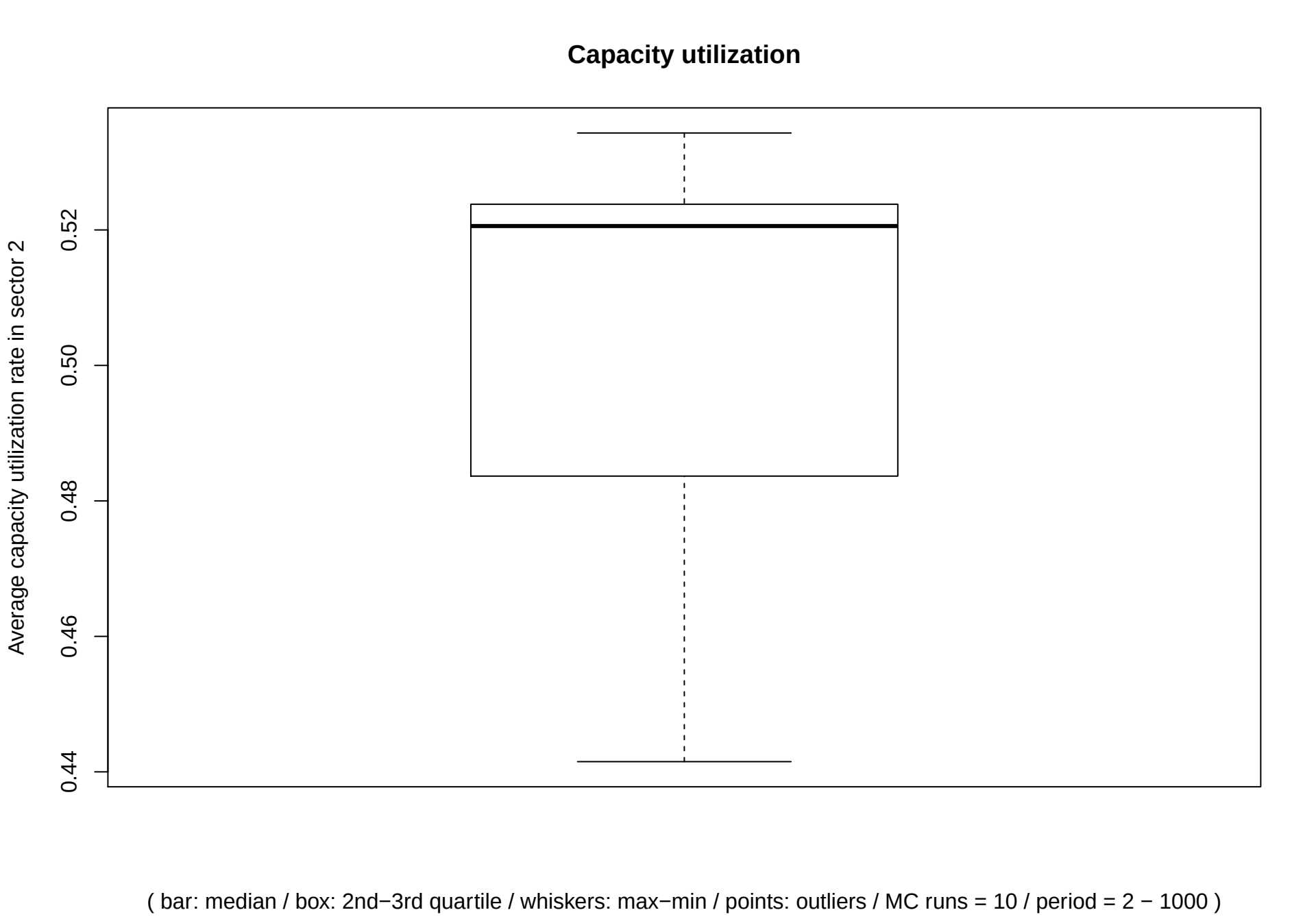

Government total expenditure
Total government expenditure over GDP
0.02
0.03
0.04
0.05
0.06
0.07
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 10 / period = 2 − 1000)

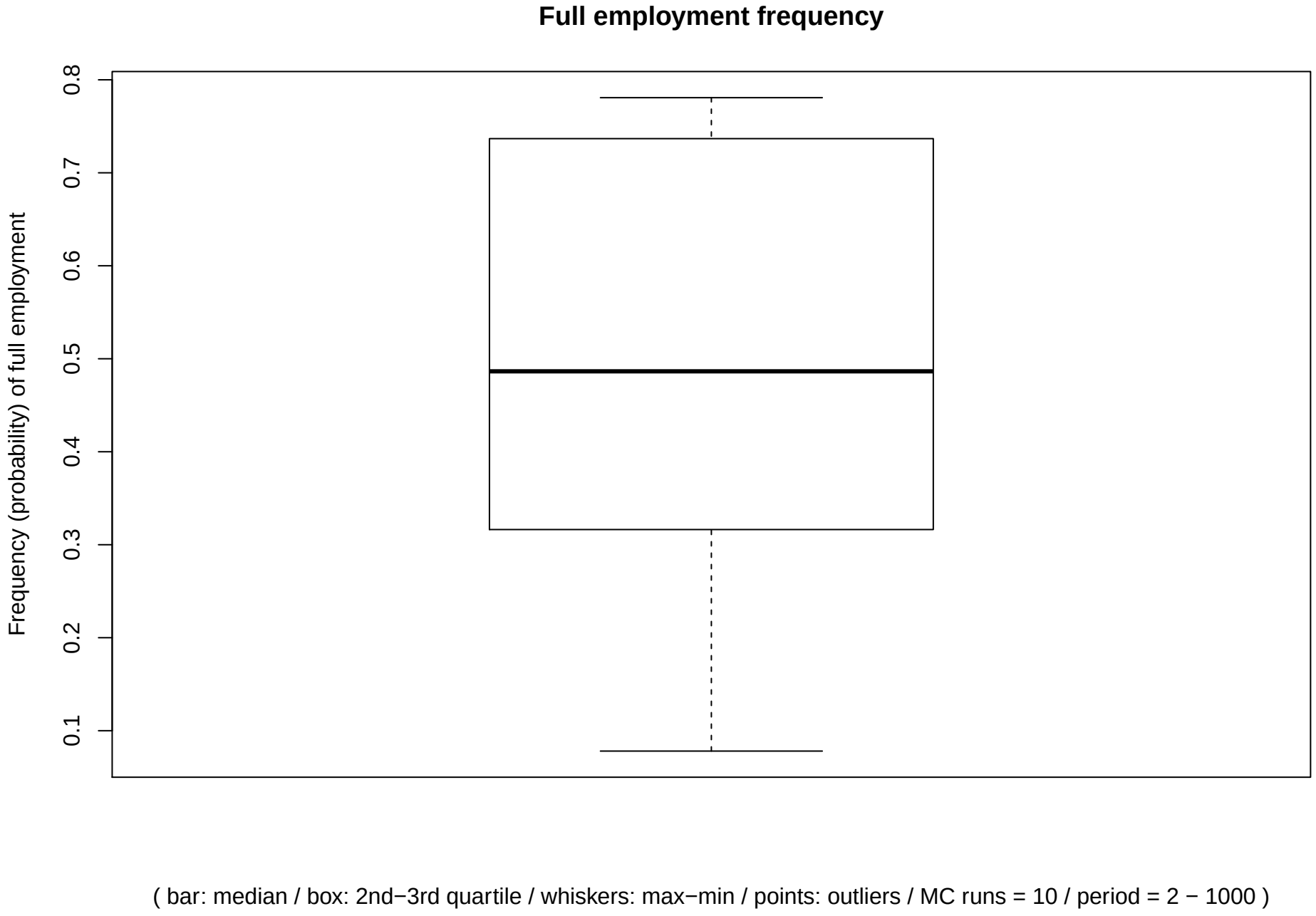


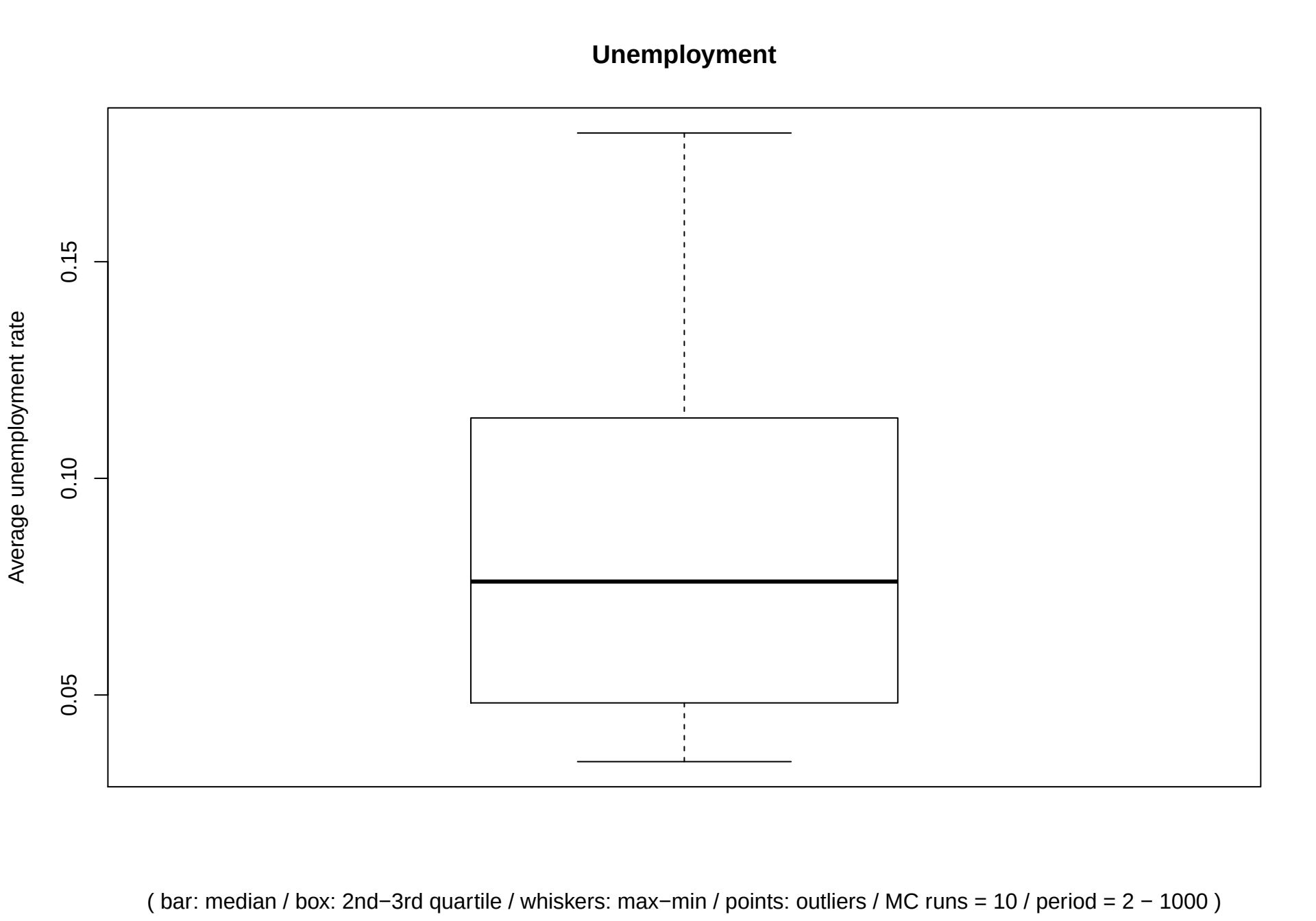
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 10 / period = 2 − 1000)

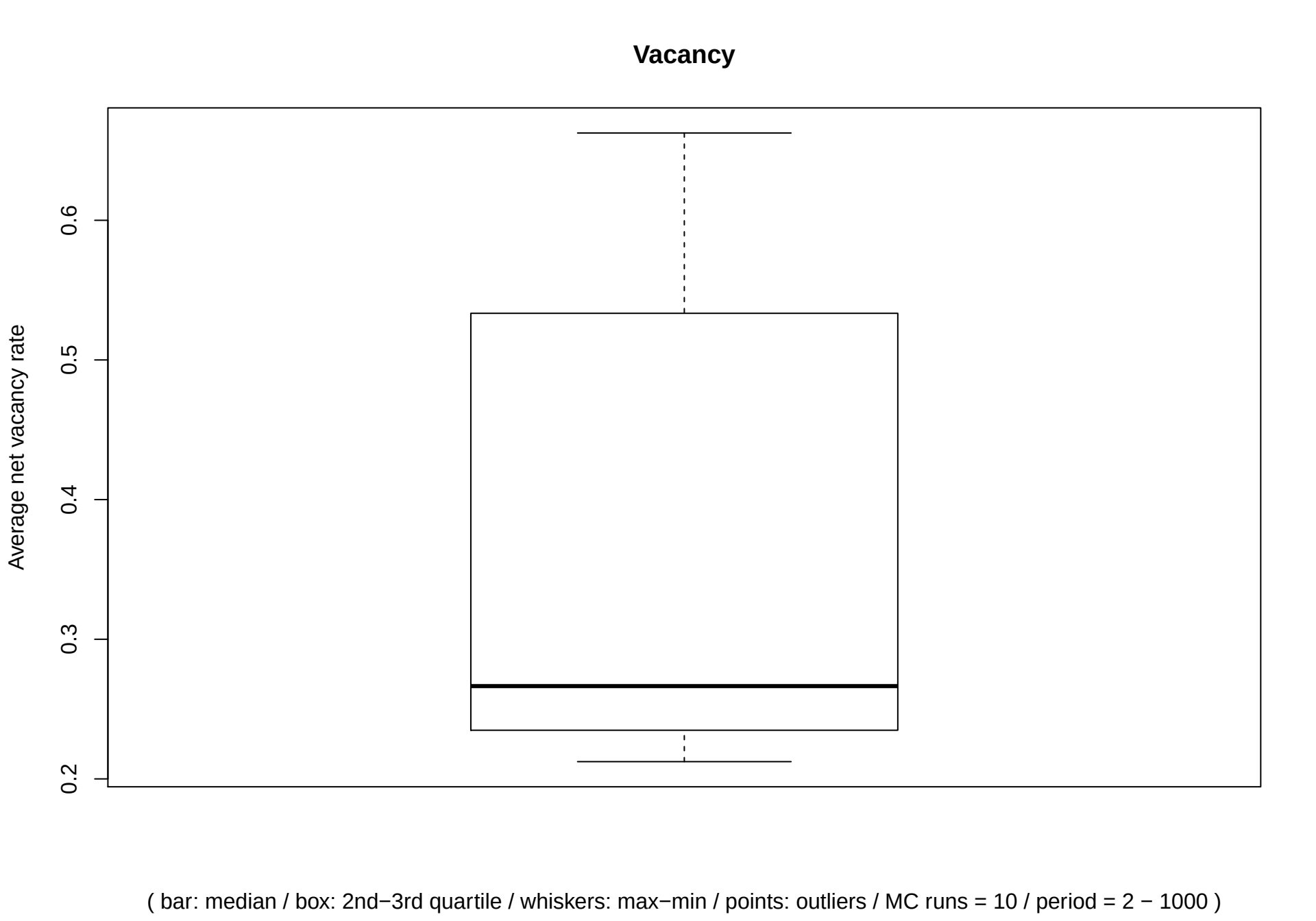

Government debt
Government debt over GDP
2
1
0
−1
−2
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 10 / period = 2 − 1000)

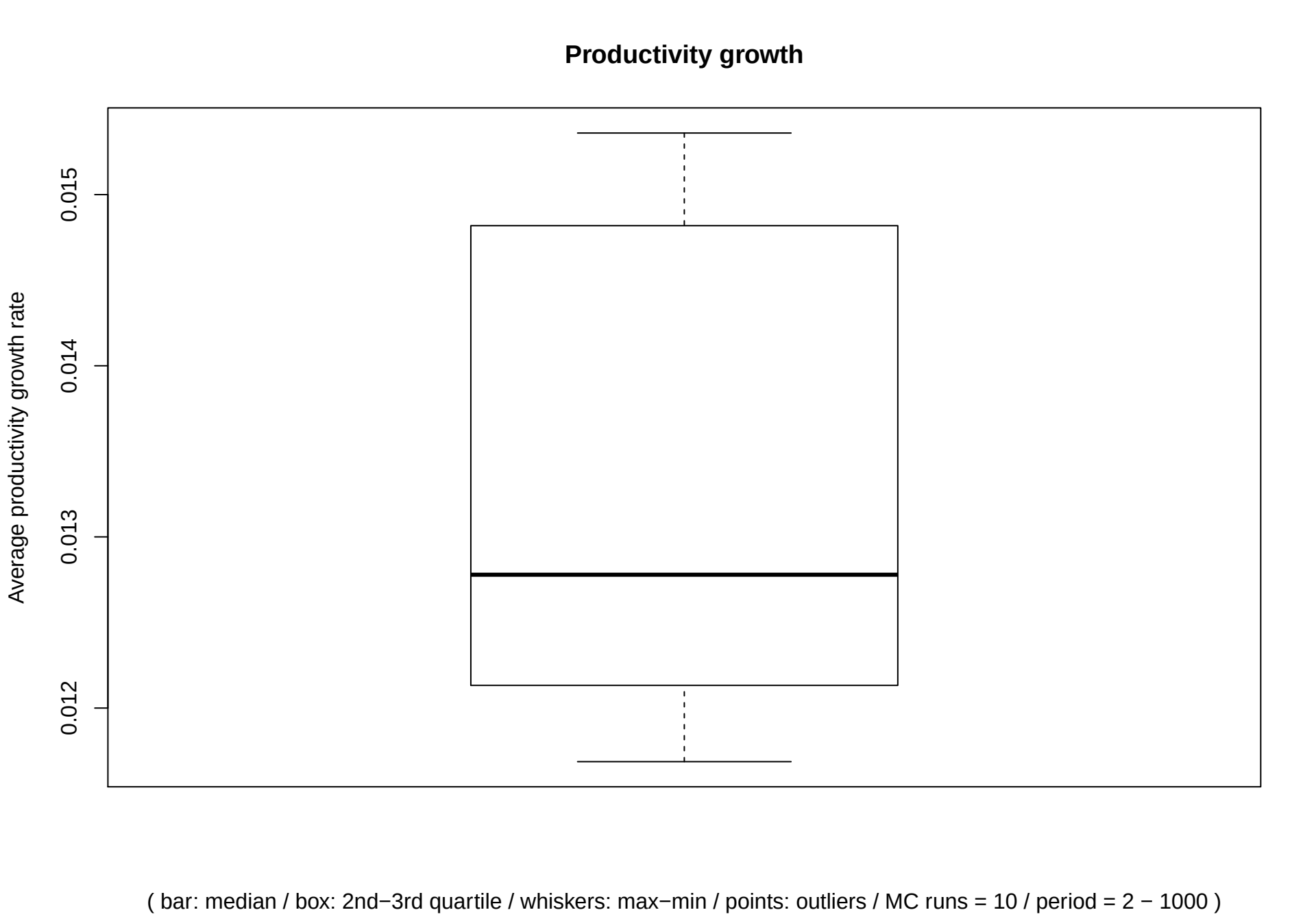

Loans
Total banks loans over GDP
2
4
6
8
10
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 10 / period = 2 − 1000)

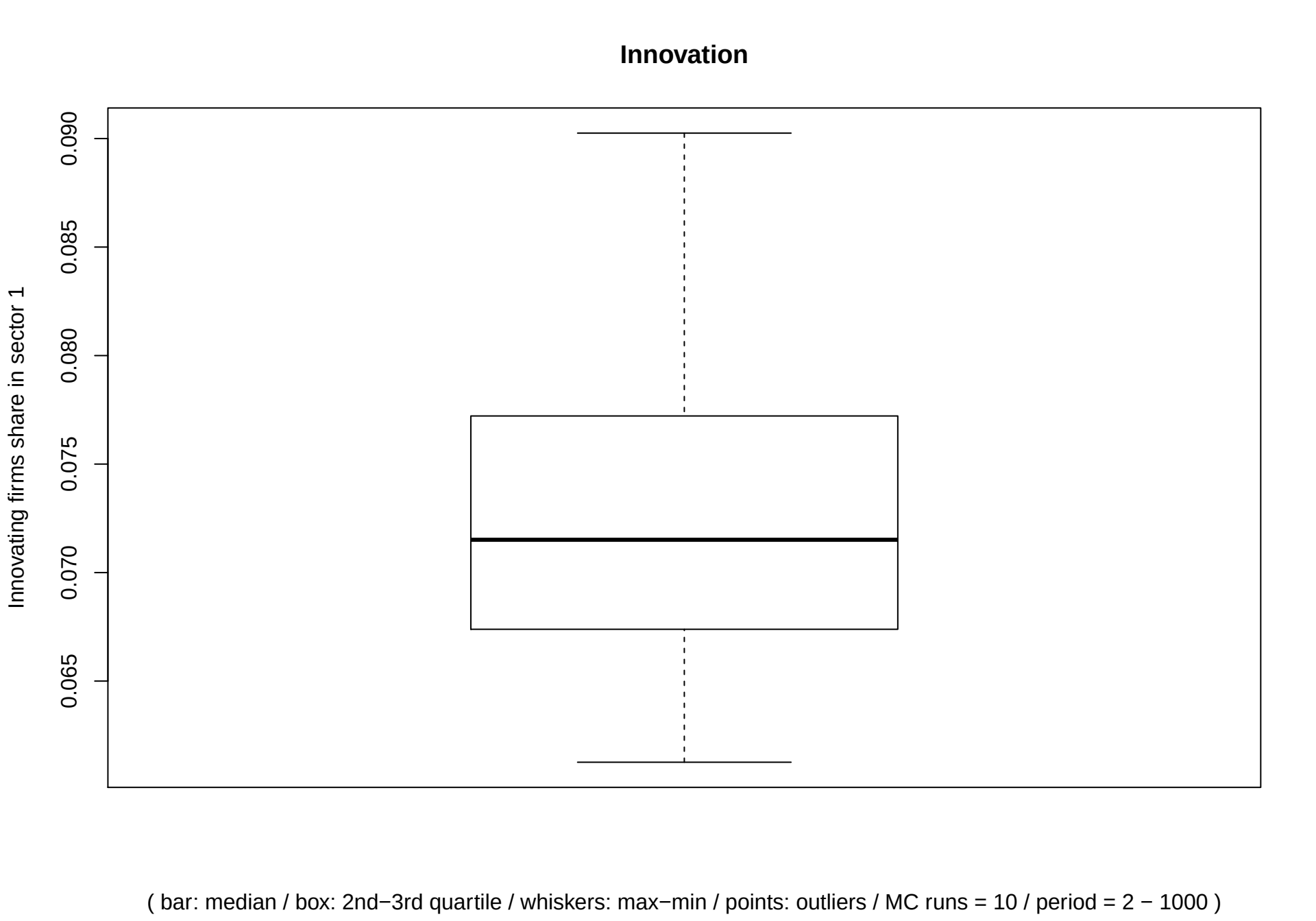

Capacity utilization
Average capacity utilization rate in sector 2
0.44
0.46
0.48
0.50
0.52
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 10 / period = 2 − 1000)


Full employment frequency
Frequency (probability) of full employment
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 10 / period = 2 − 1000)

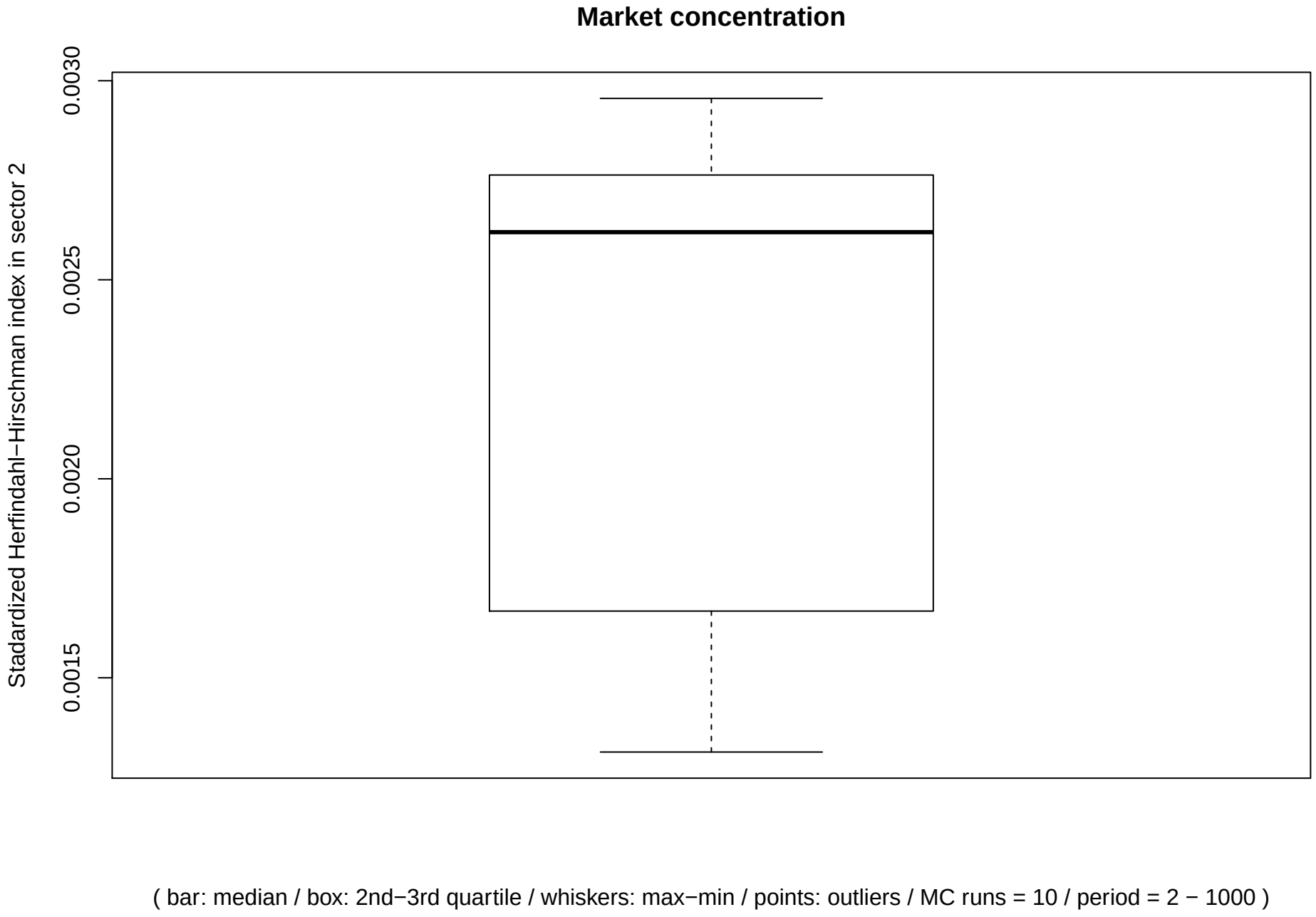

Unemployment
Average unemployment rate
0.05
0.10
0.15
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 10 / period = 2 − 1000)

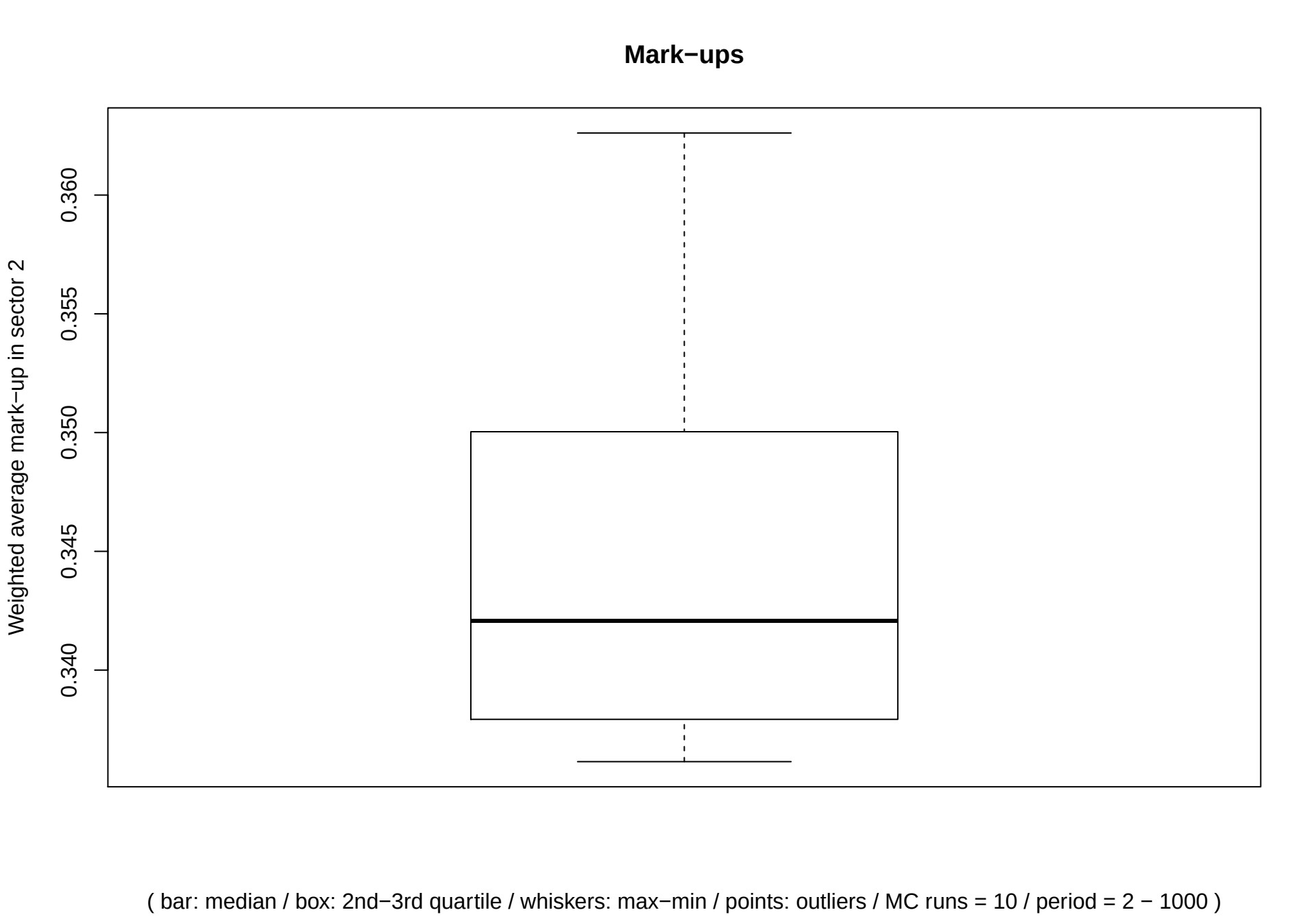

Vacancy
Average net vacancy rate
0.2
0.3
0.4
0.5
0.6
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 10 / period = 2 − 1000)


Productivity growth
Average productivity growth rate
0.012
0.013
0.014
0.015
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 10 / period = 2 − 1000)


Innovation
Innovating firms share in sector 1
0.065
0.070
0.075
0.080
0.085
0.090
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 10 / period = 2 − 1000)


Imitation
Imitating firms share in sector 1
0.065
0.070
0.075
0.080
0.085
0.090
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 10 / period = 2 − 1000)


Market concentration
Stadardized Herfindahl−Hirschman index in sector 2
0.0030
0.0025
0.0020
0.0015
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 10 / period = 2 − 1000)


Mark−ups
Weighted average mark−up in sector 2
0.340
0.345
0.350
0.355
0.360
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 10 / period = 2 − 1000)

Monte Carlo descriptive statistics (all experiments)

	Avg[1]	SD[1]	Min[1]	Max[1]
GDP growth	0.01368	0.00154	0.01181	0.01591
Volatility of GDP growth	0.09453	0.0109	0.07161	0.1133
Likelihood of GDP crises	0.2501	0.05628	0.1512	0.3193
Inflation	0.001942	0.0009328	0.0009581	0.003829
Tax	0.02417	0.001499	0.0207	0.02591
Government total expenditure	0.03659	0.02047	0.01432	0.07486
Government deficit	0.04126	0.08017	−0.02975	0.1881
Government debt	2.9	6.22	−2.645	14.86
Loans	4.625	5.034	1.166	15.92
Capacity utilization	0.4874	0.07451	0.2901	0.5343
Full employment frequency	0.4834	0.2571	0.07808	0.7808
Unemployment	0.08834	0.04924	0.03462	0.1797
Vacancy	0.3615	0.1732	0.2124	0.6625
Productivity growth	0.01331	0.001383	0.01169	0.01536
Innovation	0.07276	0.008702	0.06126	0.09025
Imitation	0.07319	0.009132	0.06364	0.08931
Market concentration	0.002329	0.0006162	0.001314	0.002956
Mark−ups	0.3446	0.008412	0.3361	0.3626

Experiments: [1] Benchmark
(numbers in brackets indicate the experiment number / MC runs = 10 / period = 2 − 1000)