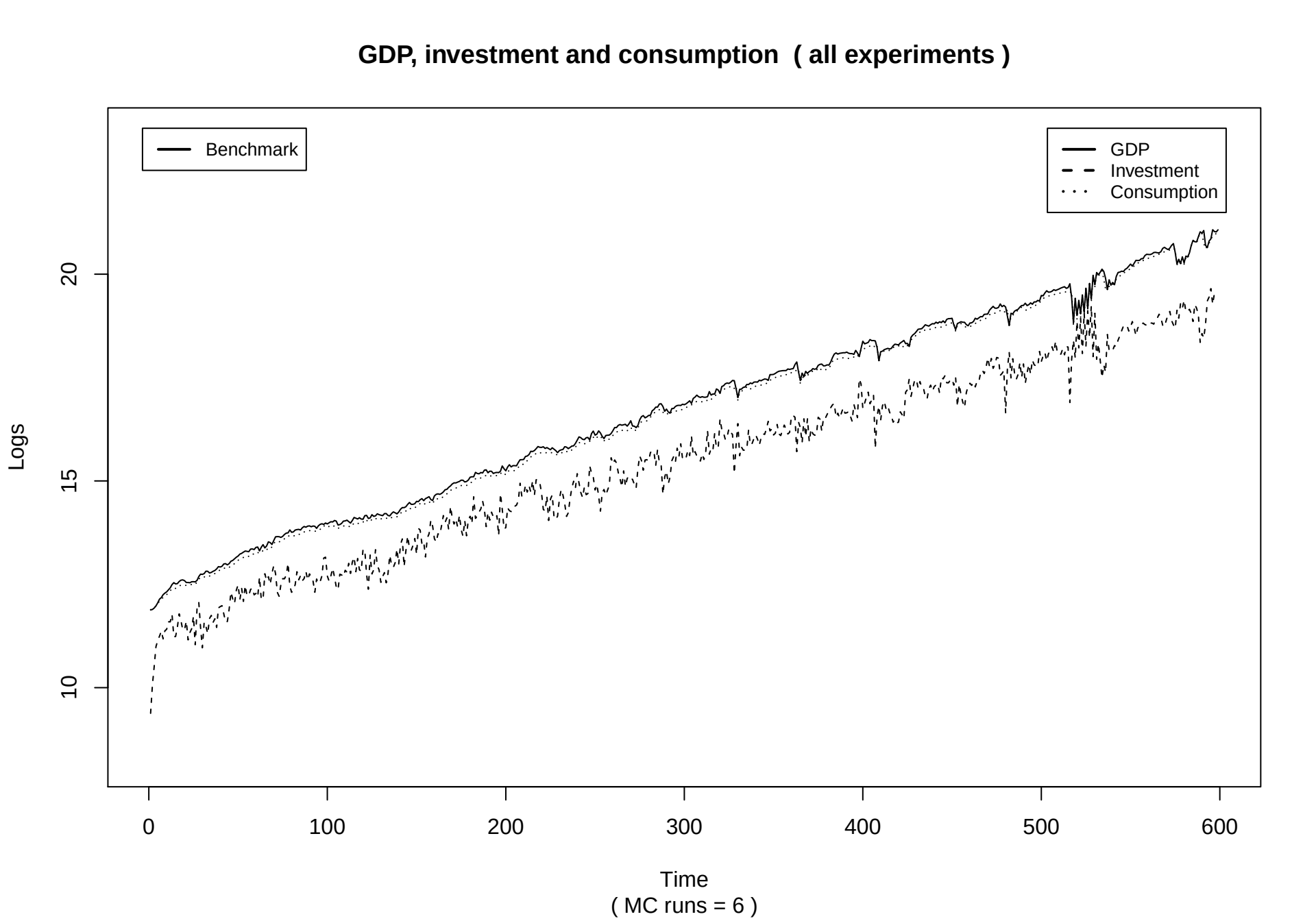
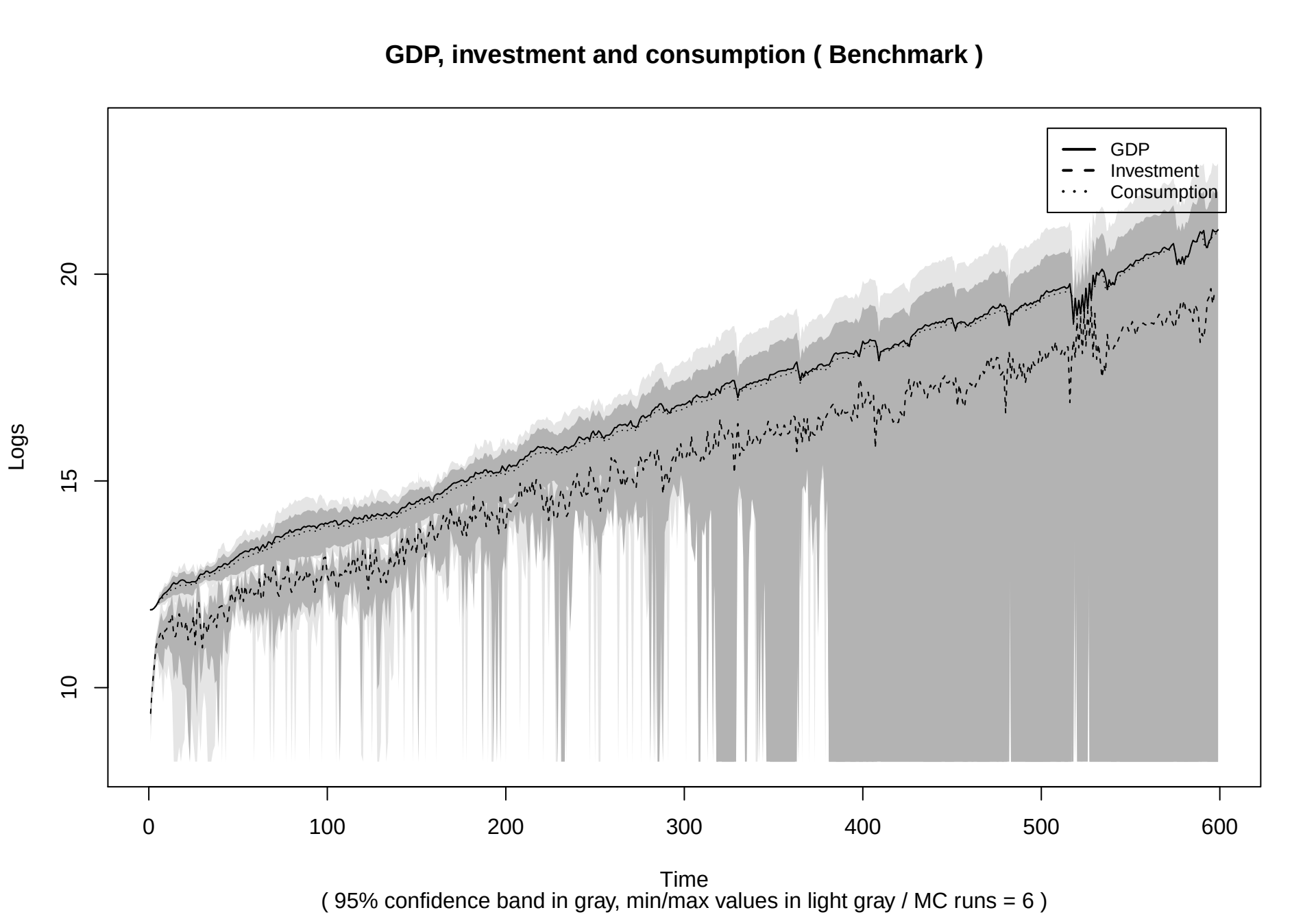
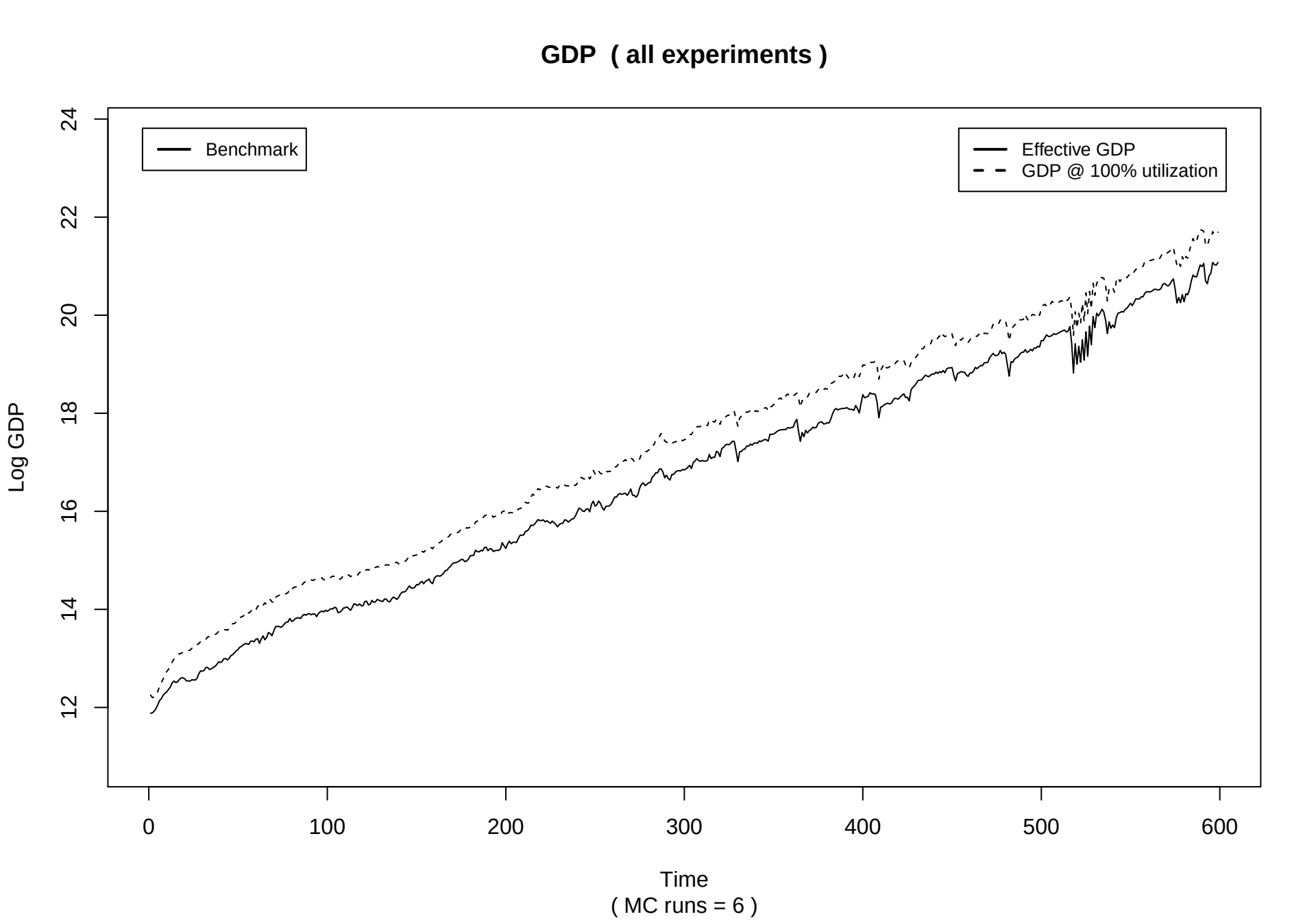
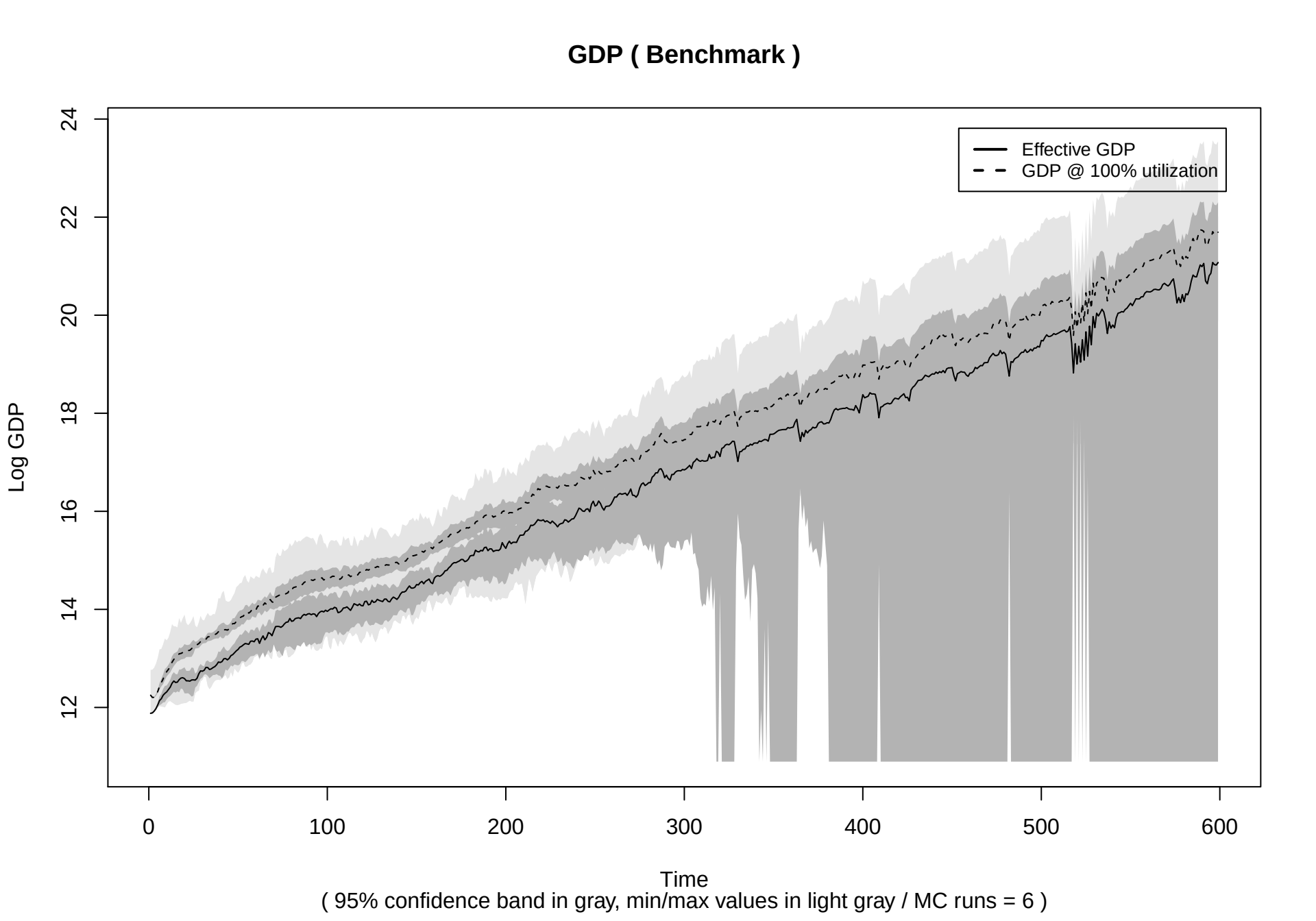
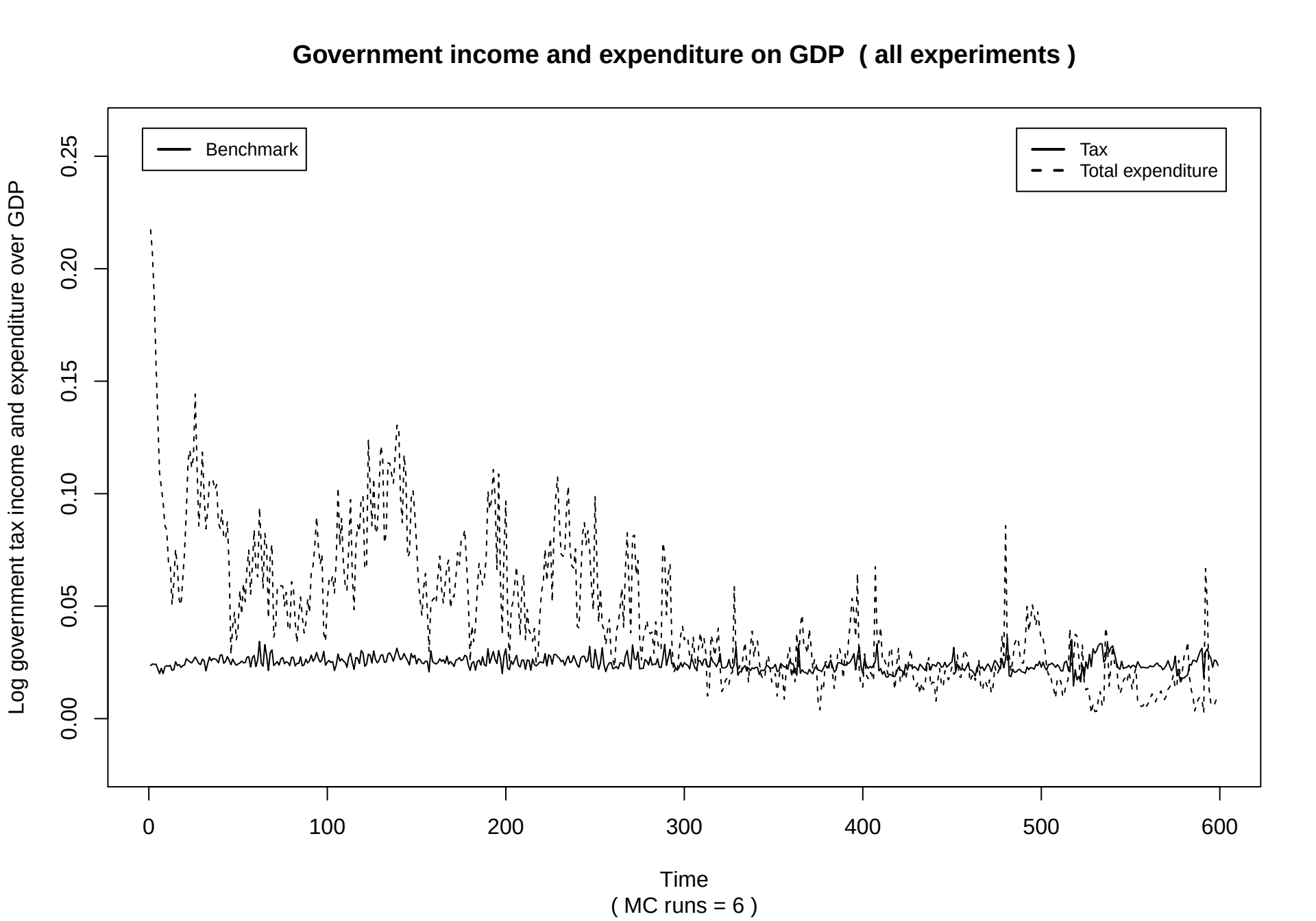
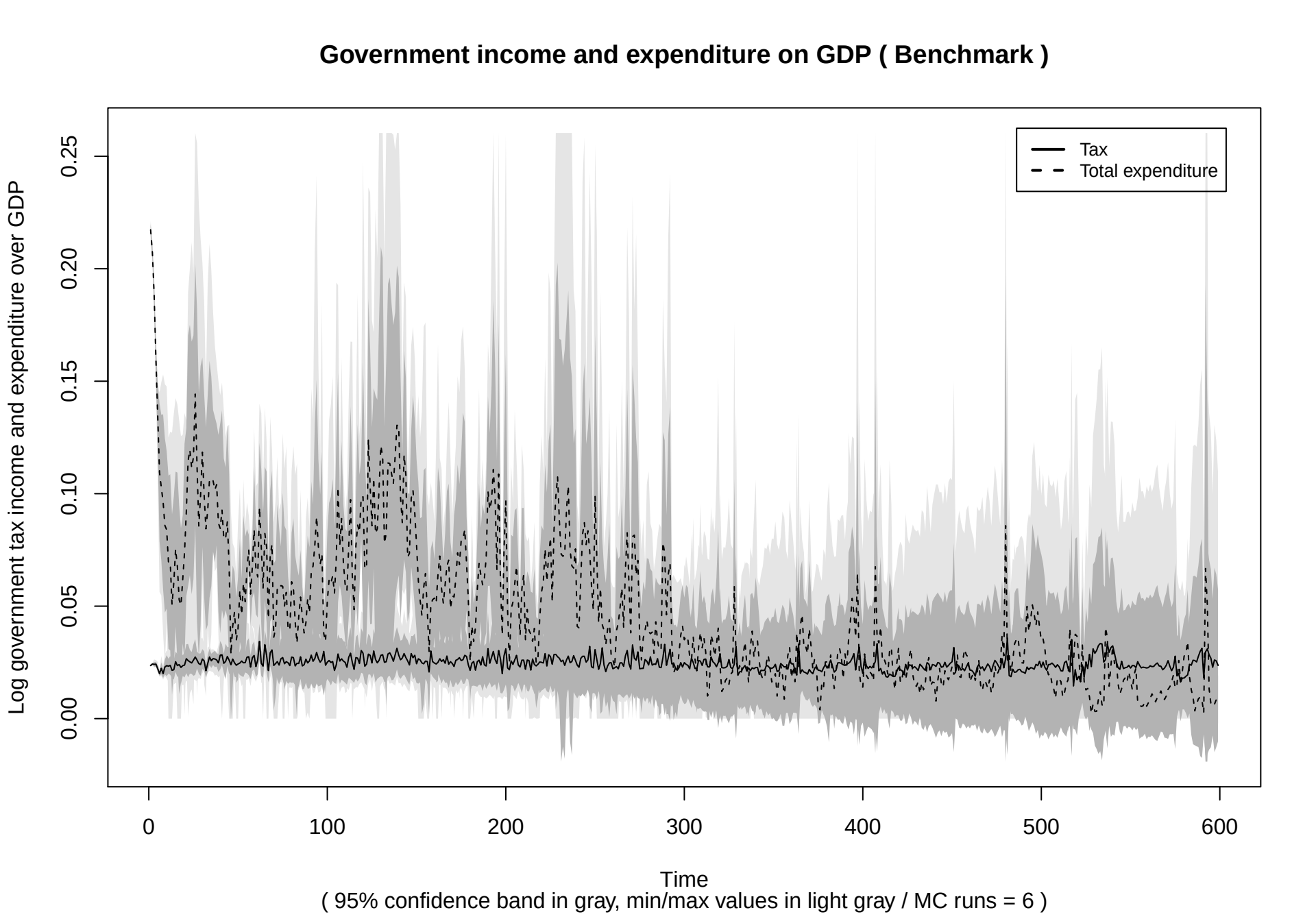

GDP, investment and consumption (all experiments)
Benchmark
GDP
Investment
Consumption
Logs
10
15
20
0
100
200
300
400
500
600
Time
(MC runs = 6)

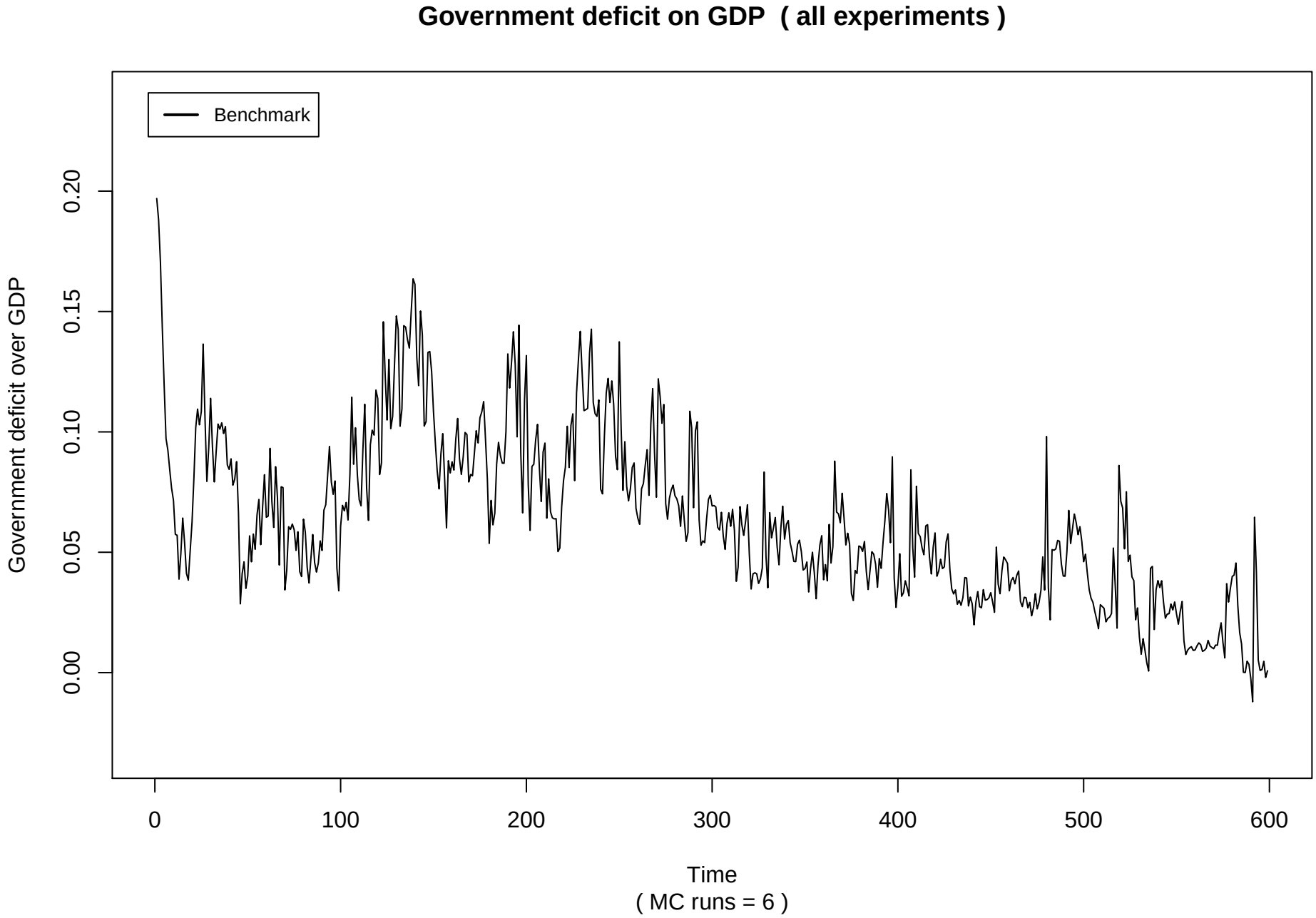

GDP, investment and consumption (Benchmark)
GDP
Investment
Consumption
Logs
10
15
20
0
100
200
300
400
500
600
Time
(95% confidence band in gray, min/max values in light gray / MC runs = 6)

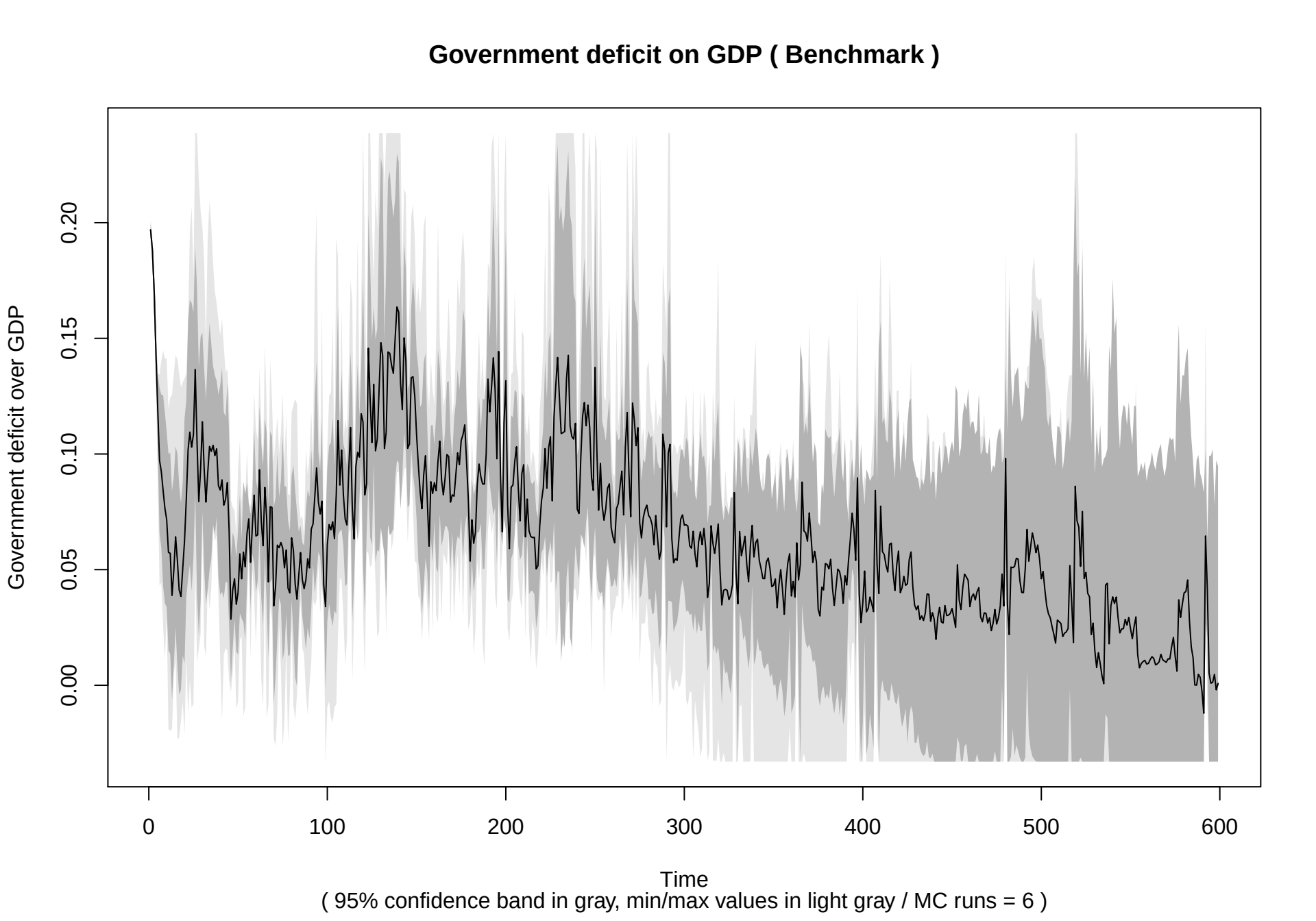

GDP (all experiments)
Benchmark
Effective GDP
GDP @ 100% utilization
Log GDP
12
14
16
18
20
22
24
0
100
200
300
400
500
600
Time
(MC runs = 6)

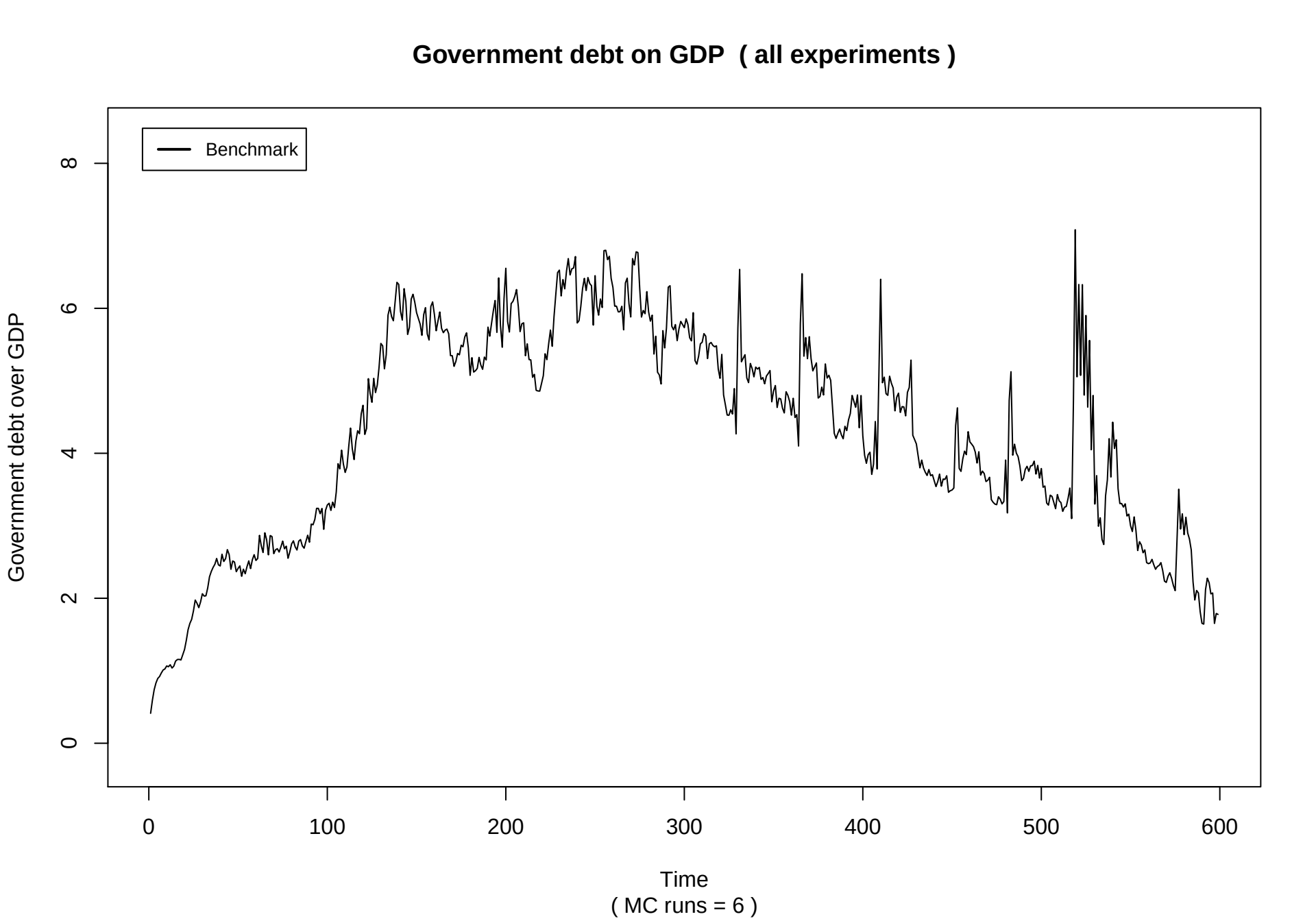

GDP (Benchmark)
Effective GDP
GDP @ 100% utilization
Log GDP
12
14
16
18
20
22
24
0
100
200
300
400
500
600
Time
(95% confidence band in gray, min/max values in light gray / MC runs = 6)

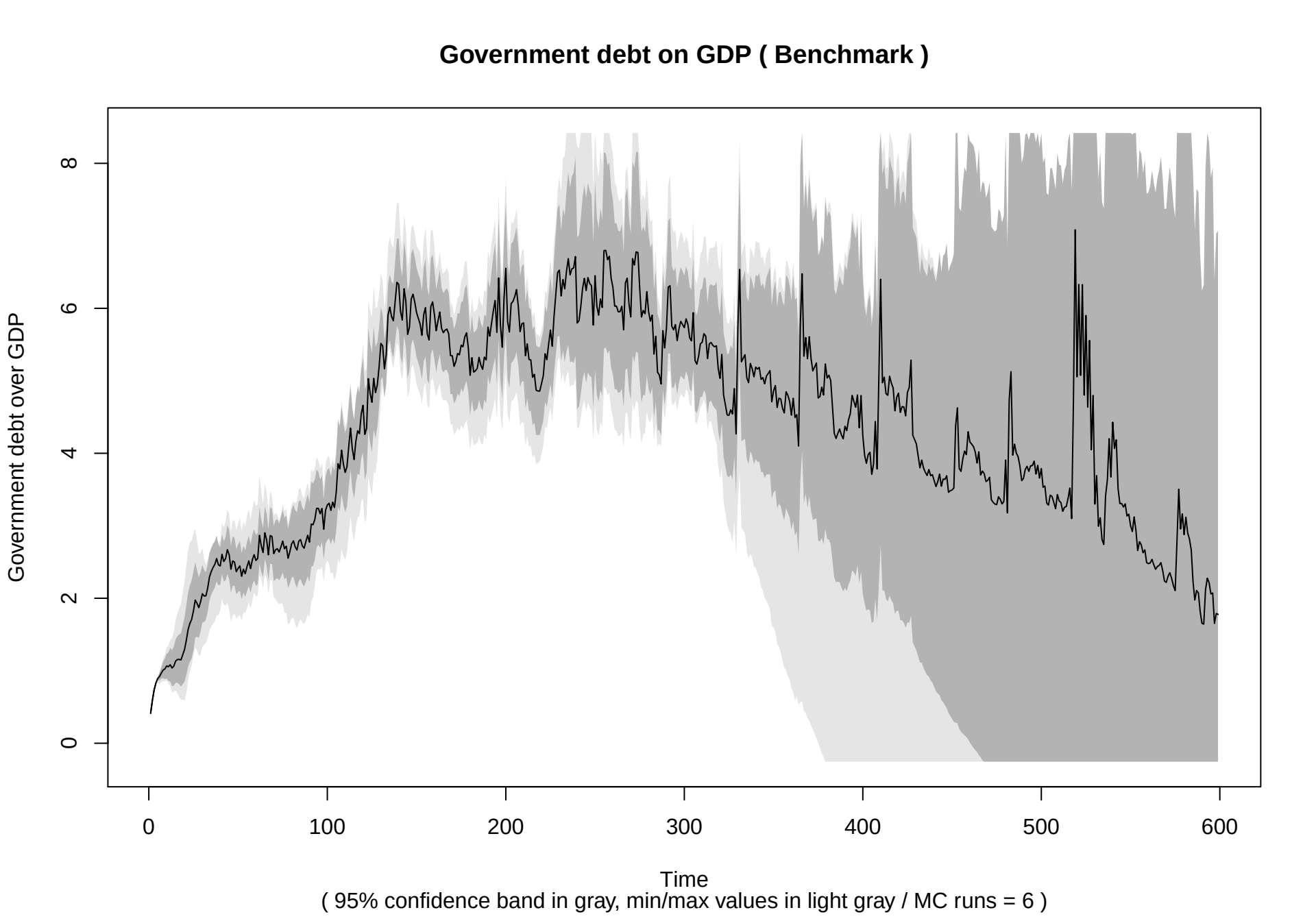

Government income and expenditure on GDP (all experiments)
Benchmark
Tax
Total expenditure
Log government tax income and expenditure over GDP
0.00
0.05
0.10
0.15
0.20
0.25
0
100
200
300
400
500
600
Time
(MC runs = 6)

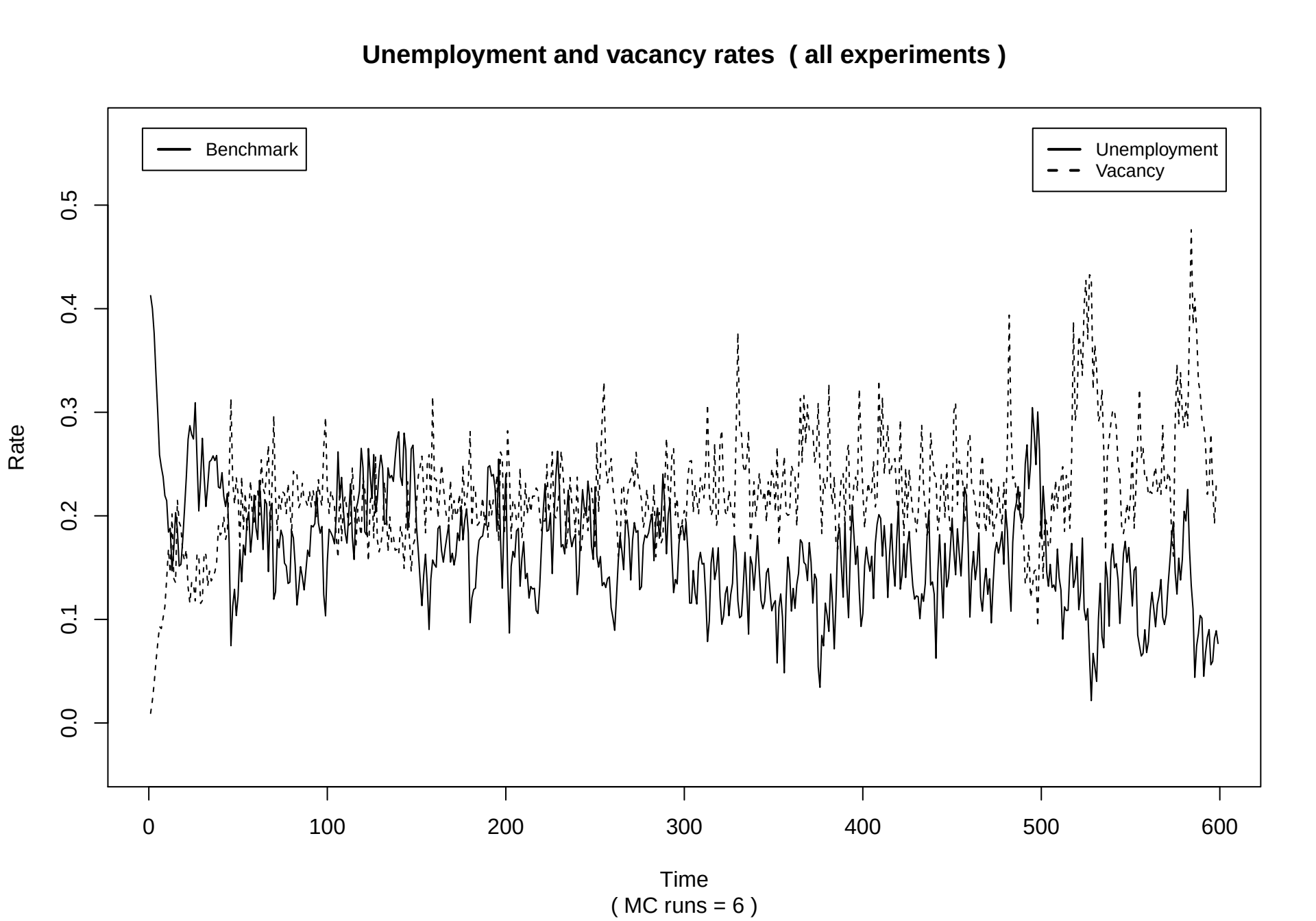

Government income and expenditure on GDP (Benchmark)
Tax
Total expenditure
Log government tax income and expenditure over GDP
0.00
0.05
0.10
0.15
0.20
0.25
0
100
200
300
400
500
600
Time
(95% confidence band in gray, min/max values in light gray / MC runs = 6)

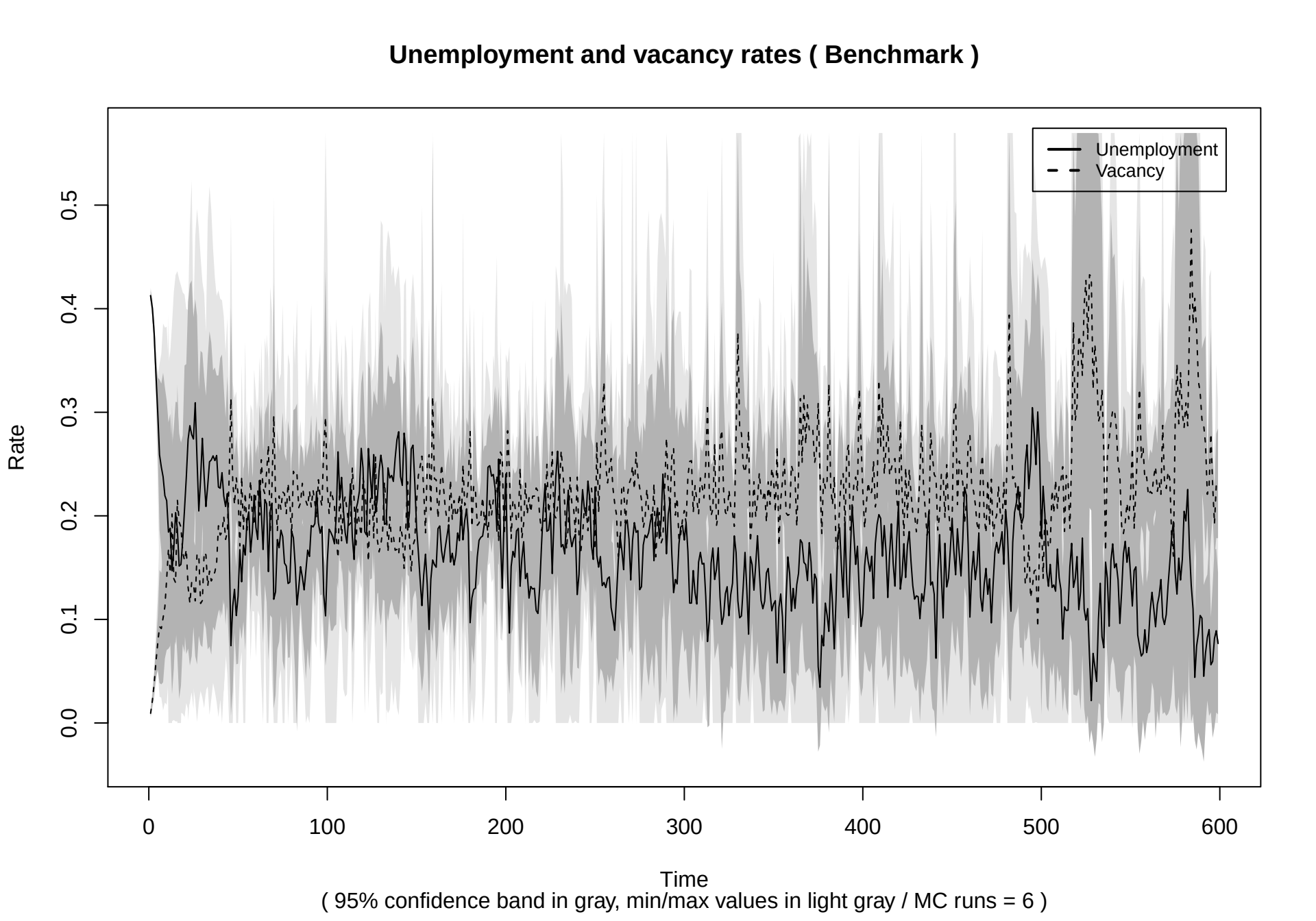

Government deficit on GDP (all experiments)
Benchmark
Government deficit over GDP
0.00
0.05
0.10
0.15
0.20
0
100
200
300
400
500
600
Time
(MC runs = 6)


Government deficit on GDP (Benchmark)
Government deficit over GDP
0.00
0.05
0.10
0.15
0.20
0
100
200
300
400
500
600
Time
(95% confidence band in gray, min/max values in light gray / MC runs = 6)

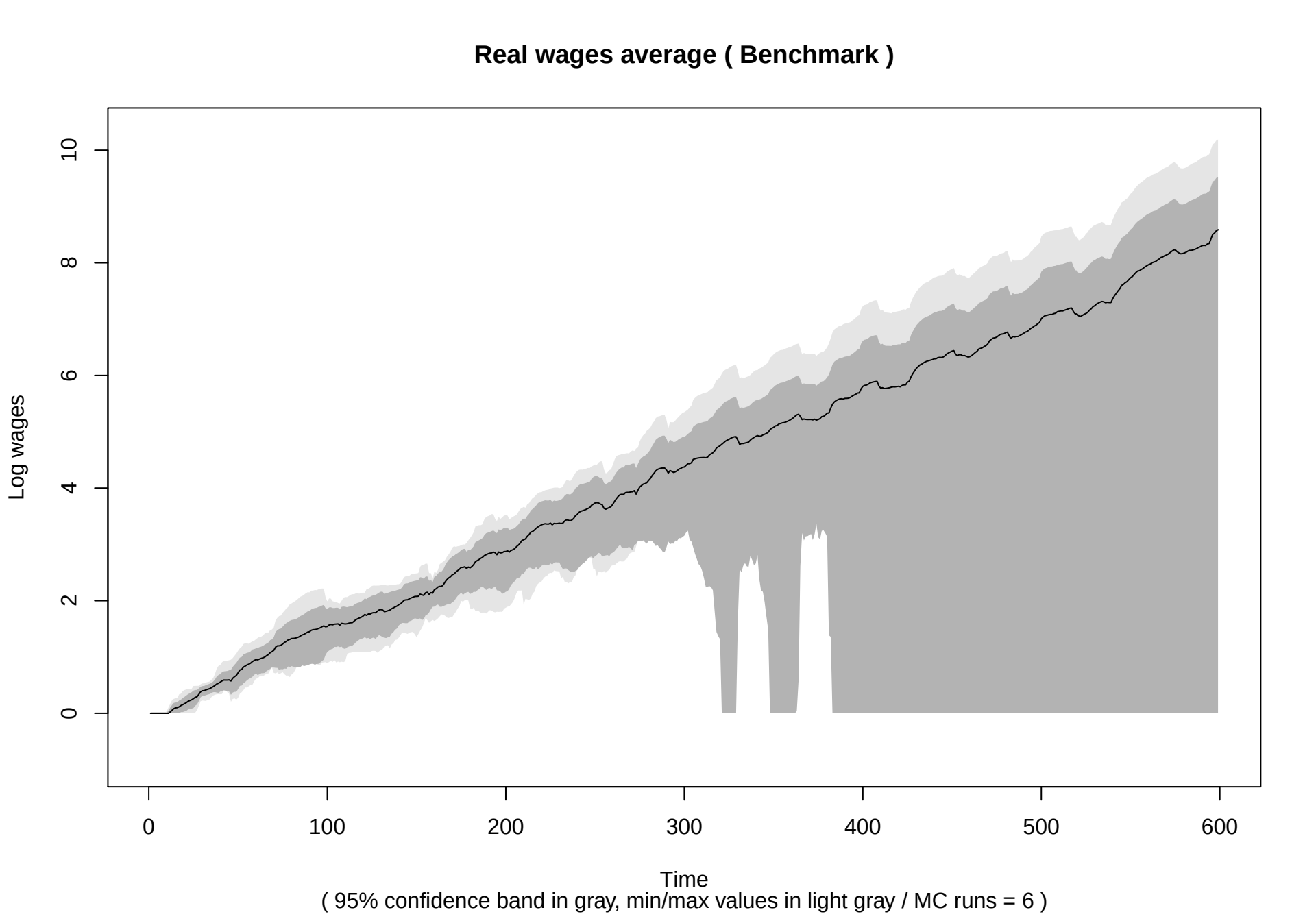

Government debt on GDP (all experiments)
Benchmark
Government debt over GDP
0
2
4
6
8
0
100
200
300
400
500
600
Time
(MC runs = 6)

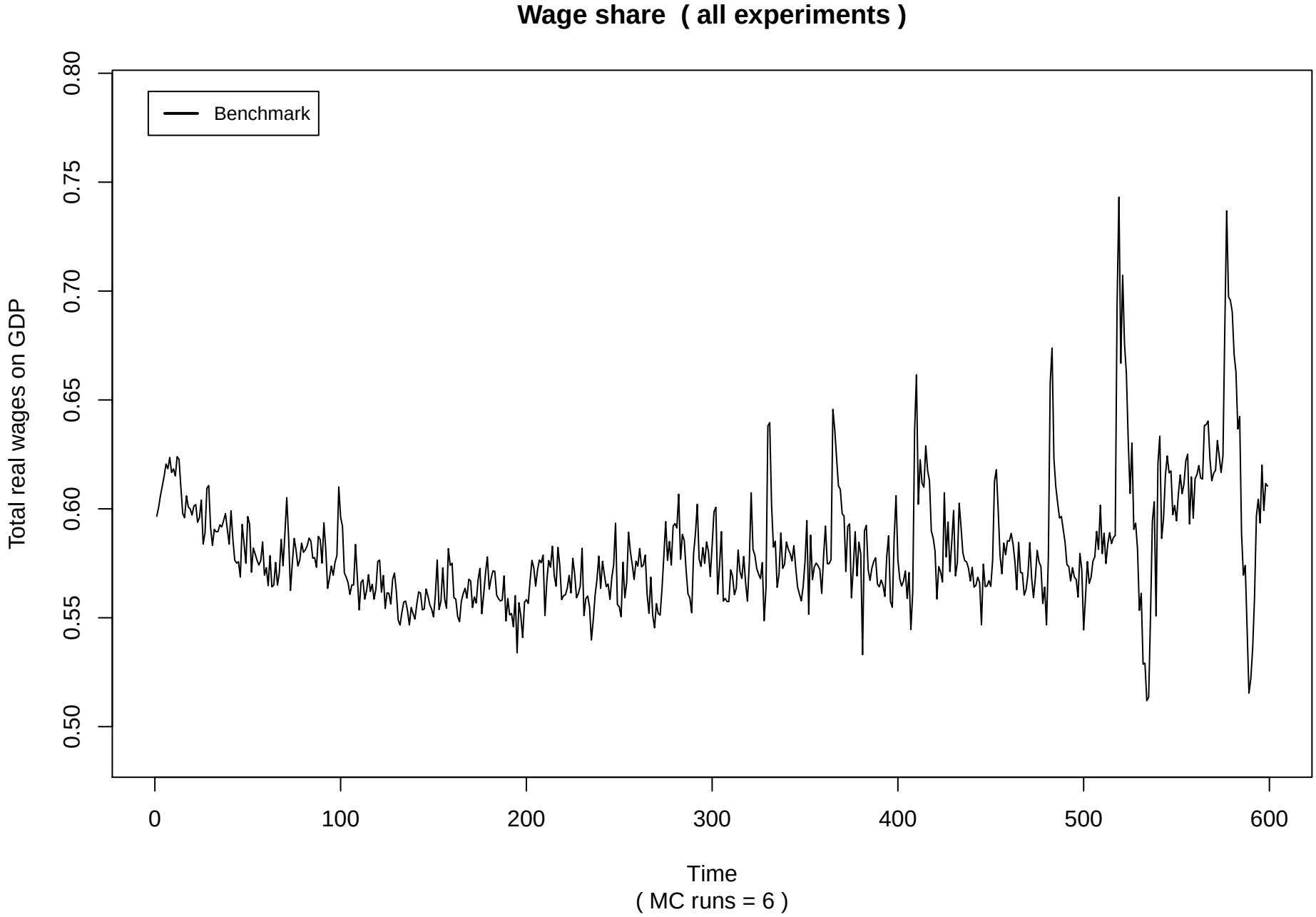

Government debt on GDP (Benchmark)
Government debt over GDP
0
2
4
6
8
0
100
200
300
400
500
600
Time
(95% confidence band in gray, min/max values in light gray / MC runs = 6)

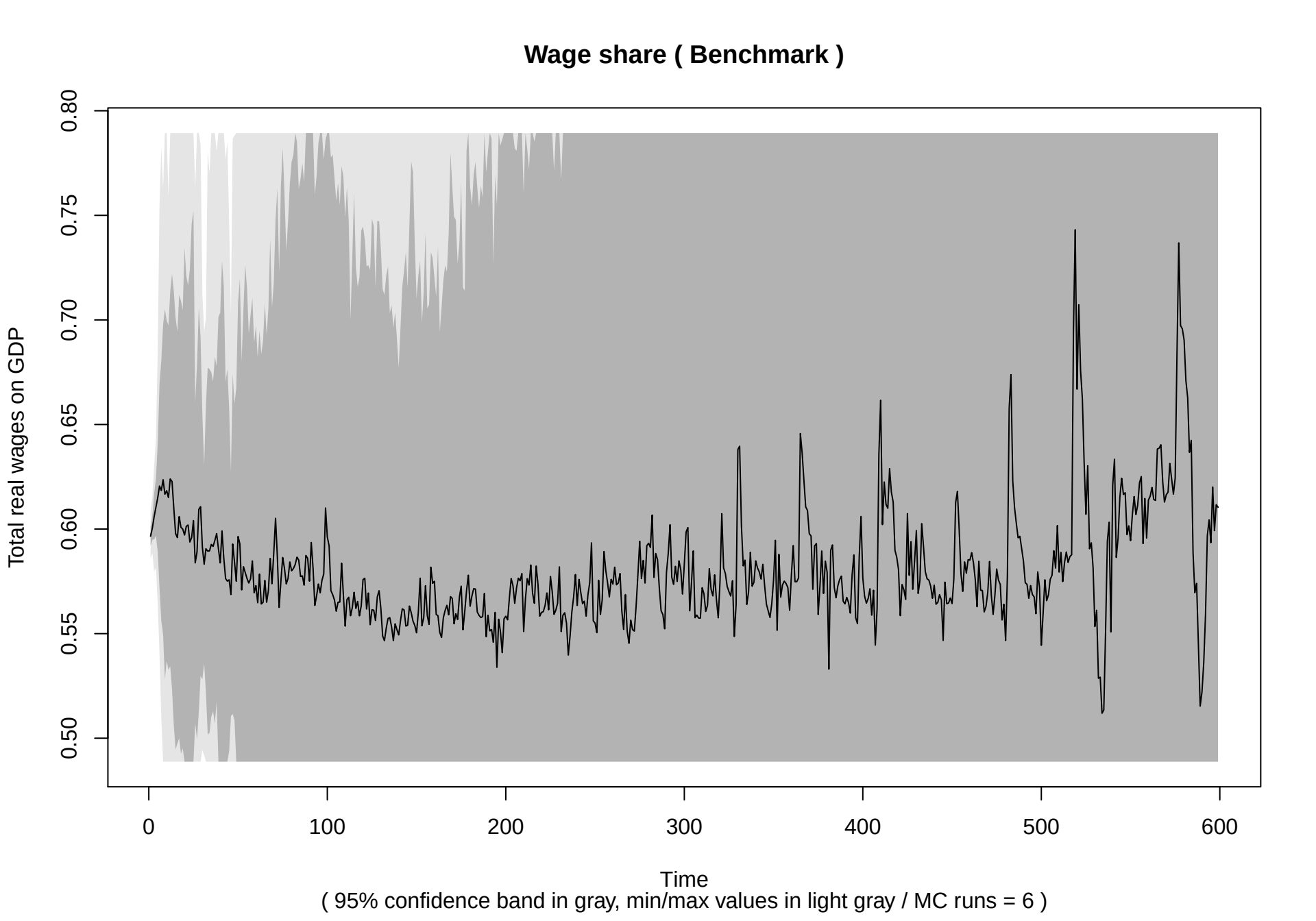

Unemployment and vacancy rates (all experiments)
Benchmark
Unemployment
Vacancy
Rate
0.0
0.1
0.2
0.3
0.4
0.5
0
100
200
300
400
500
600
Time
(MC runs = 6)

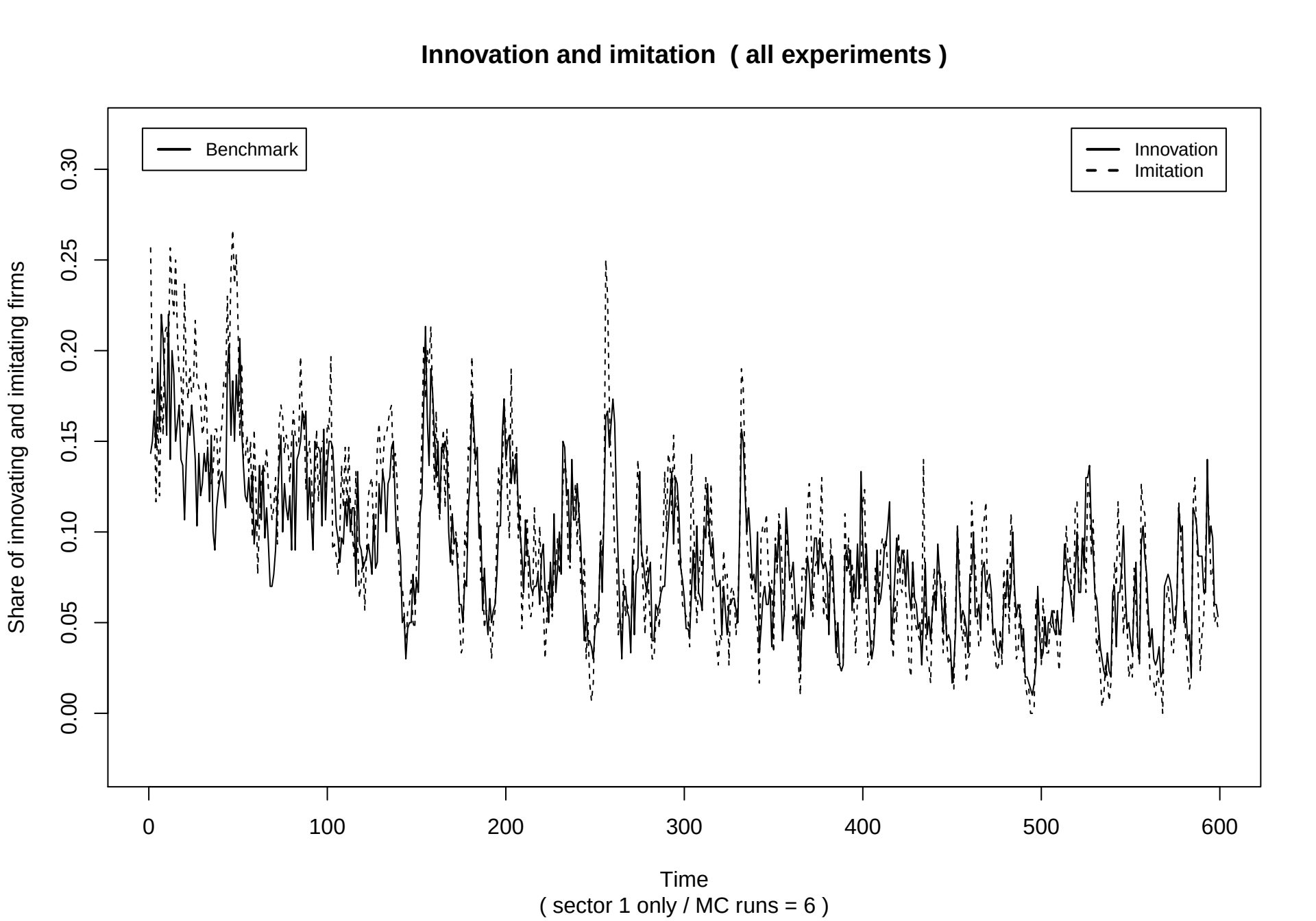

Unemployment and vacancy rates (Benchmark)
Unemployment
Vacancy
Rate
0.0
0.1
0.2
0.3
0.4
0.5
0
100
200
300
400
500
600
Time
(95% confidence band in gray, min/max values in light gray / MC runs = 6)

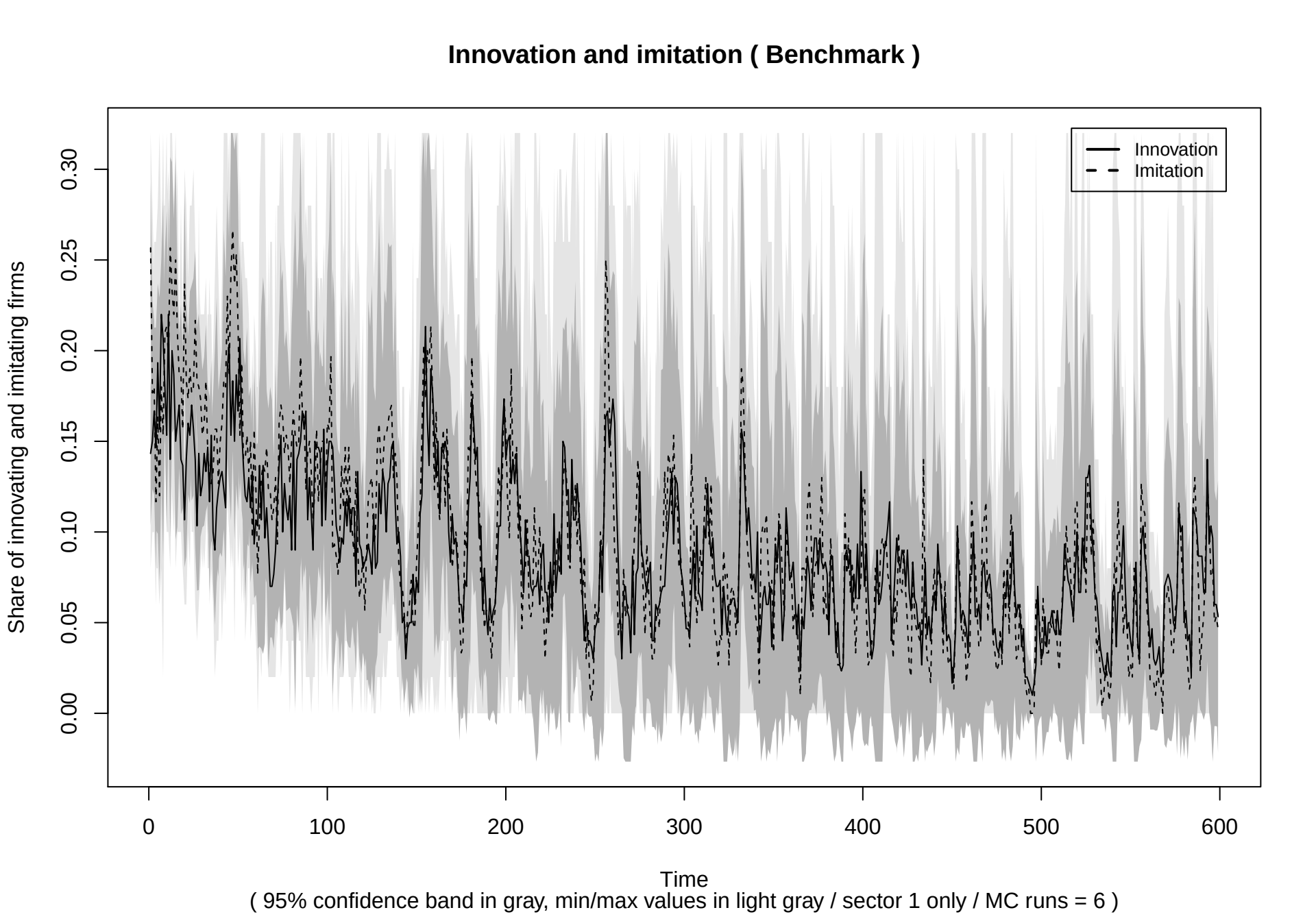

Real wages average (all experiments)
Benchmark
Log wages
0
2
4
6
8
10
0
100
200
300
400
500
600
Time
(MC runs = 6)

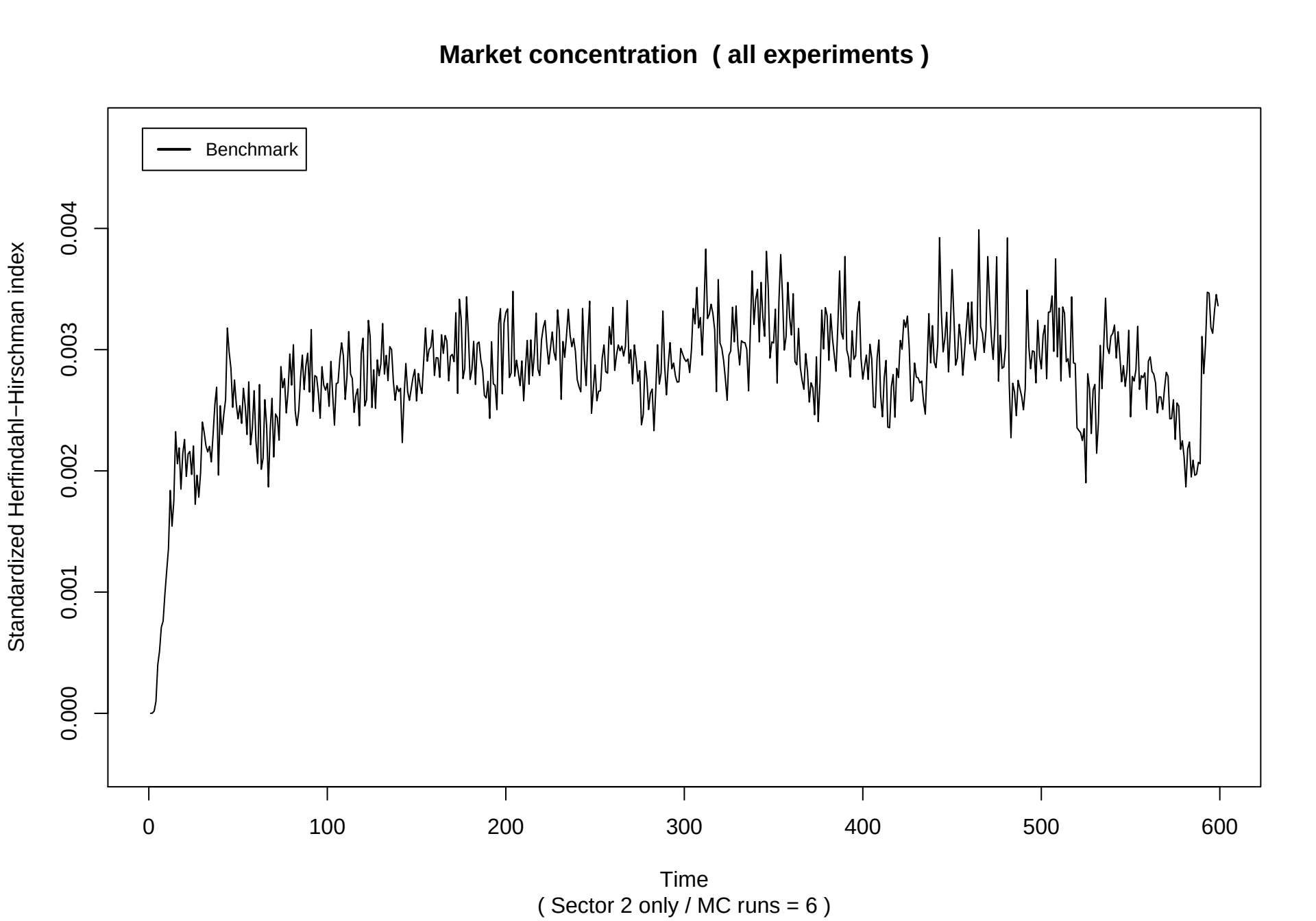

Real wages average (Benchmark)
Log wages
0
2
4
6
8
10
0
100
200
300
400
500
600
Time
(95% confidence band in gray, min/max values in light gray / MC runs = 6)

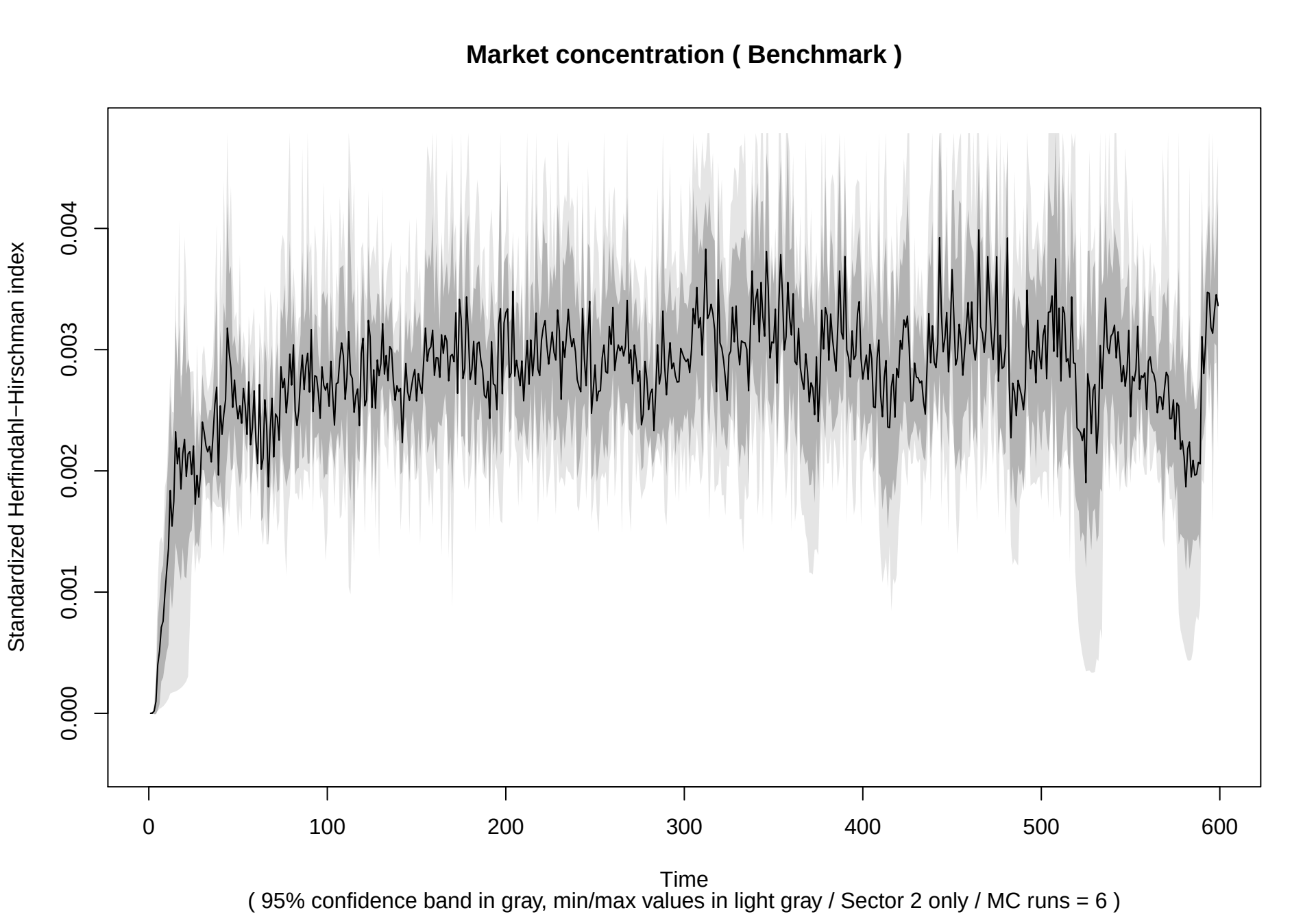

Wage share (all experiments)
Benchmark
Total real wages on GDP
0.50
0.55
0.60
0.65
0.70
0.75
0.80
0
100
200
300
400
500
600
Time
(MC runs = 6)

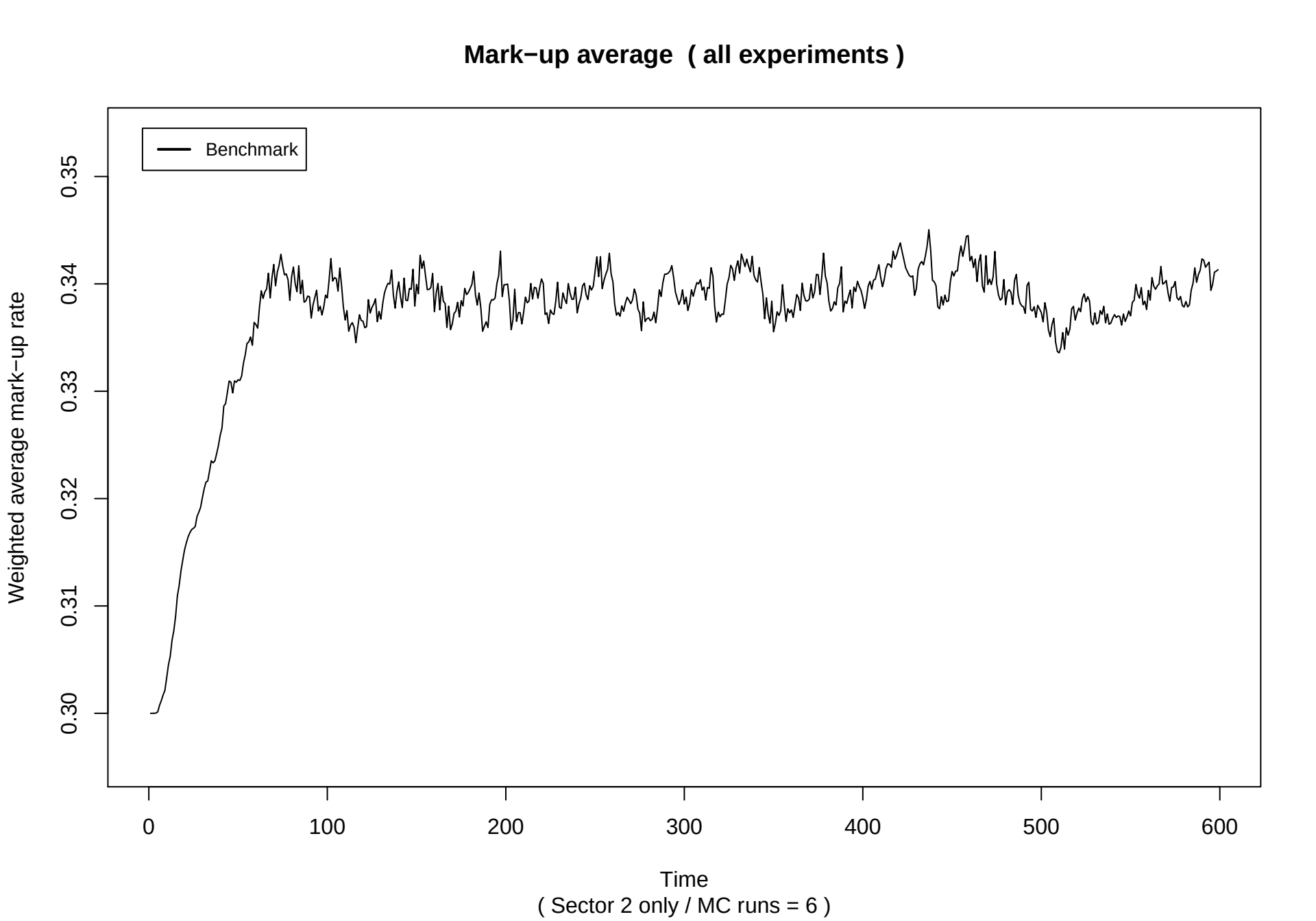

Wage share (Benchmark)
Total real wages on GDP
0.50
0.55
0.60
0.65
0.70
0.75
0.80
0
100
200
300
400
500
600
Time
(95% confidence band in gray, min/max values in light gray / MC runs = 6)

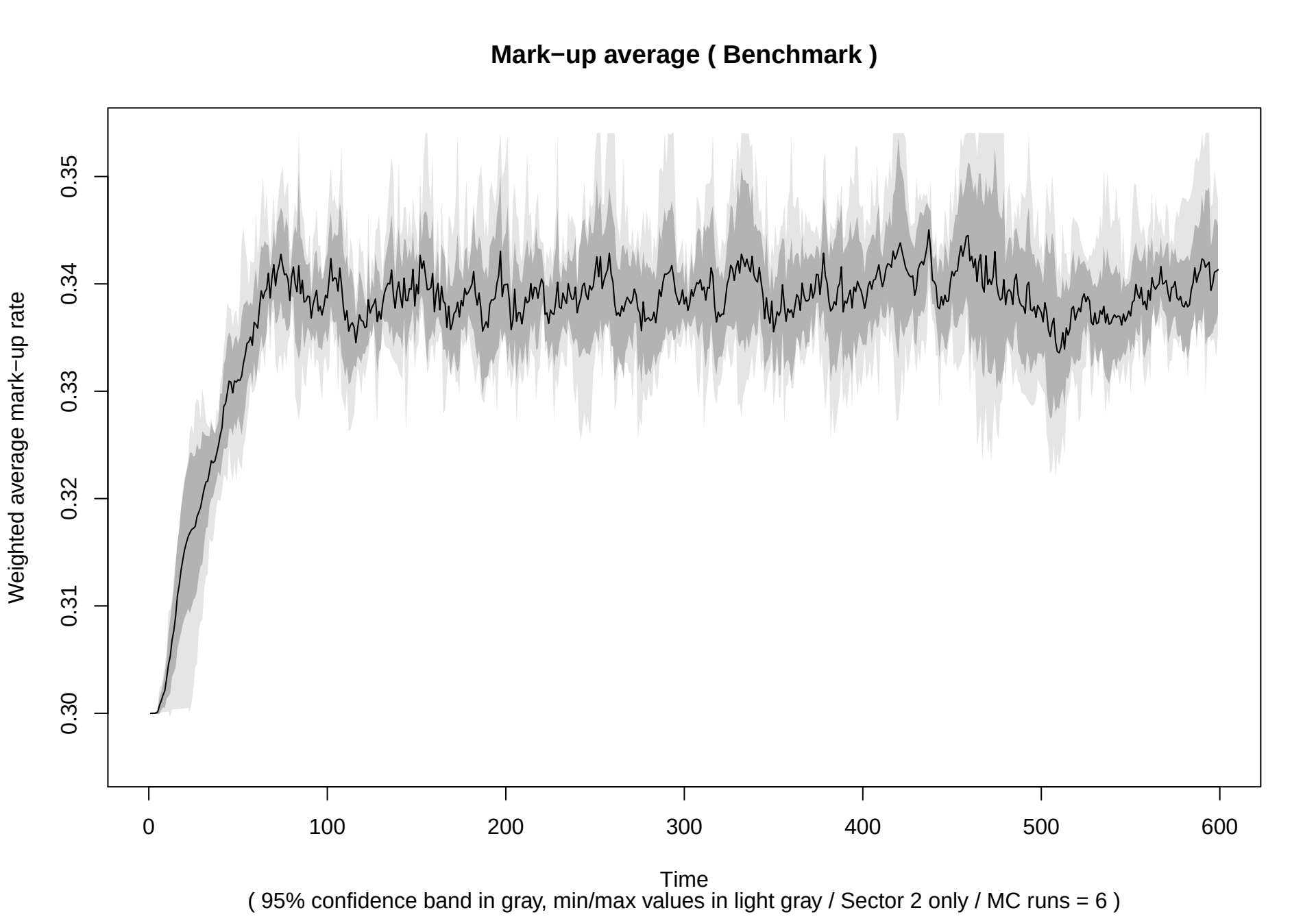

Innovation and imitation (all experiments)
Benchmark
Innovation
Imitation
Share of innovating and imitating firms
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0
100
200
300
400
500
600
Time
(sector 1 only / MC runs = 6)

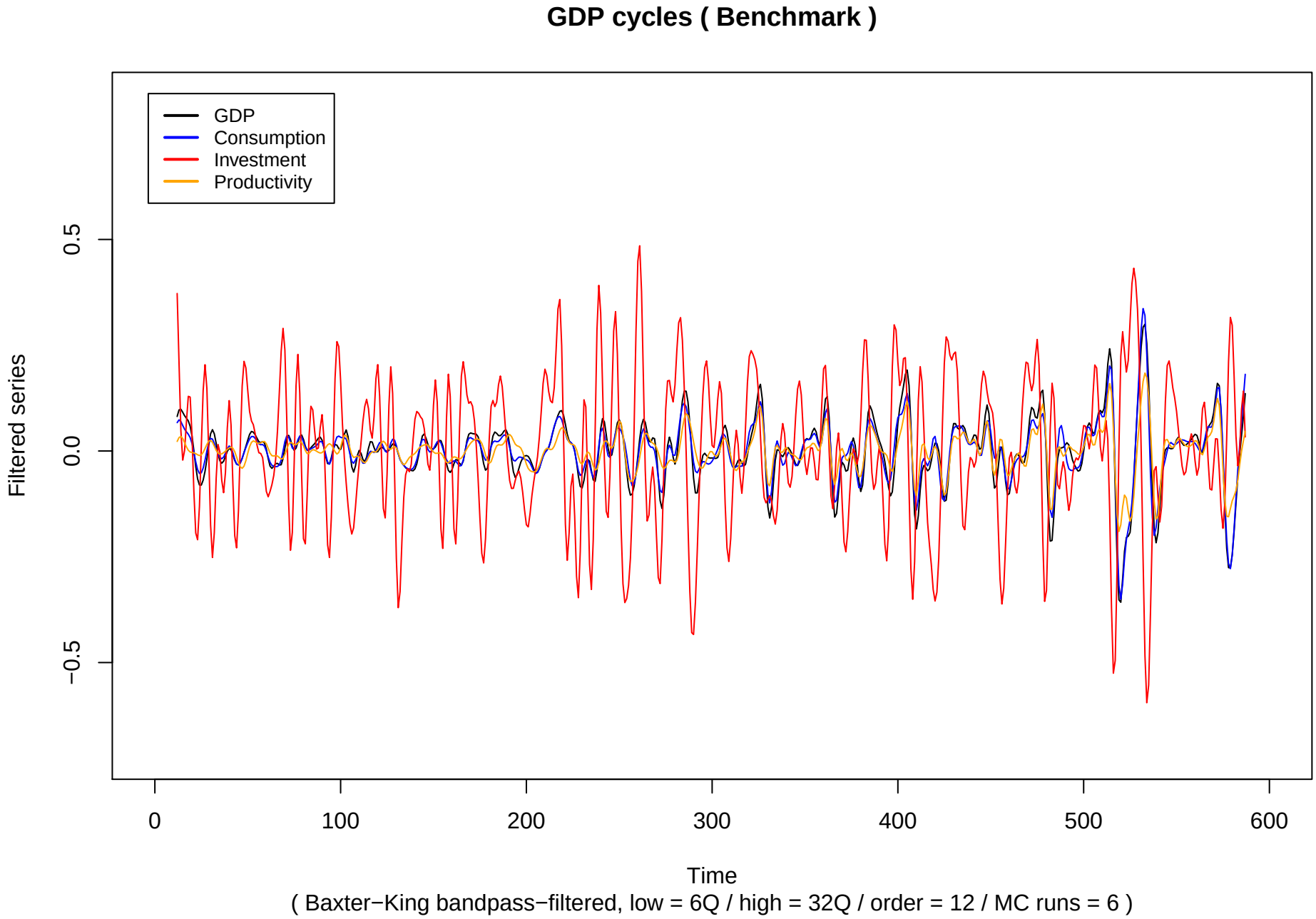

Innovation and imitation (Benchmark)
Innovation
Imitation
Share of innovating and imitating firms
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0
100
200
300
400
500
600
Time
(95% confidence band in gray, min/max values in light gray / sector 1 only / MC runs = 6)

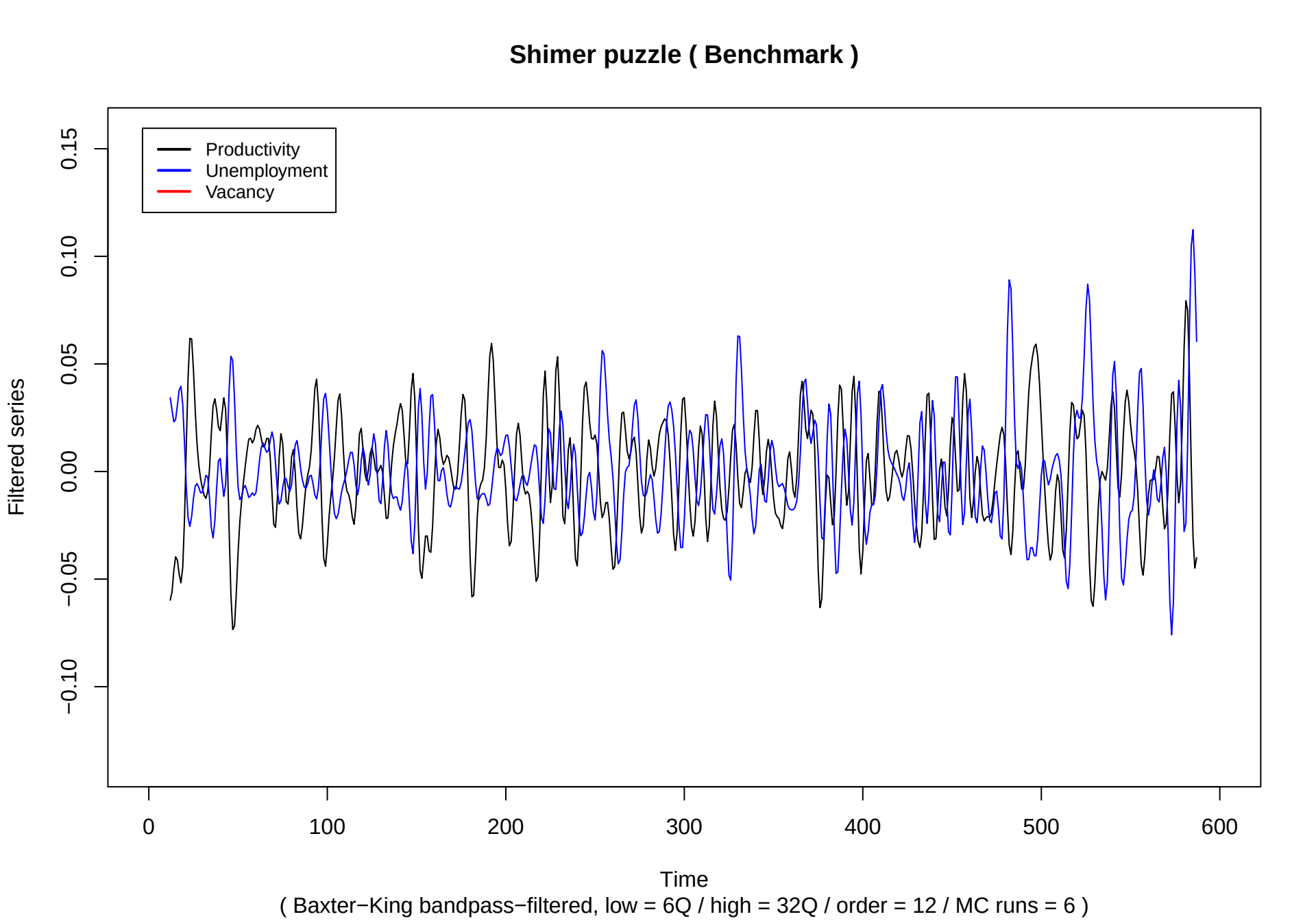

Market concentration (all experiments)
Benchmark
Standardized Herfindahl−Hirschman index
0.000
0.001
0.002
0.003
0.004
0
100
200
300
400
500
600
Time
(Sector 2 only / MC runs = 6)


Market concentration (Benchmark)
Standardized Herfindahl−Hirschman index
0.000
0.001
0.002
0.003
0.004
0
100
200
300
400
500
600
Time
(95% confidence band in gray, min/max values in light gray / Sector 2 only / MC runs = 6)


Mark−up average (all experiments)
Benchmark
Weighted average mark−up rate
0.30
0.31
0.32
0.33
0.34
0.35
0
100
200
300
400
500
600
Time
(Sector 2 only / MC runs = 6)


Mark−up average (Benchmark)
Weighted average mark−up rate
0.30
0.31
0.32
0.33
0.34
0.35
0
100
200
300
400
500
600
Time
(95% confidence band in gray, min/max values in light gray / Sector 2 only / MC runs = 6)


GDP cycles (Benchmark)
GDP
Consumption
Investment
Productivity
Filtered series
0.5
0.0
−0.5
0
100
200
300
400
500
600
Time
(Baxter−King bandpass−filtered, low = 6Q / high = 32Q / order = 12 / MC runs = 6)


Shimer puzzle (Benchmark)
Productivity
Unemployment
Vacancy
Filtered series
0.15
0.10
0.05
0.00
−0.05
−0.10
0
100
200
300
400
500
600
Time
(Baxter−King bandpass−filtered, low = 6Q / high = 32Q / order = 12 / MC runs = 6)

Key statistics and unit roots tests for cycles (Benchmark)

	GDP (output)	Consumption	Investment	Product.	Real wage
avg. growth rate	0.01349	0.01329	0.01576	0.01292	0.01247
(s.e.)	0.0009452	0.0009639	0.0008336	0.0008842	0.0009517
ADF test (logs)	−3.166	−2.838	−8.222	−2.876	−2.888
(s.e.)	0.3783	0.4123	0.3368	0.305	0.3409
(p−val.)	0.2134	0.302	0.01	0.2632	0.2699
(s.e.)	0.1082	0.1431	0	0.1035	0.1123
ADF test (bpf)	−10.61	−10.03	−11.39	−9.677	−9.181
(s.e.)	0.5176	0.474	0.3932	0.4708	0.5598
(p−val.)	0.01	0.01	0.01	0.01	0.01
(s.e.)	0	0	0	0	0
s.d. (bpf)	0.09902	0.08008	1.572	0.0653	0.074
(s.e.)	0.007184	0.006793	0.08253	0.003275	0.003125
relative s.d. (GDP)	1	0.8088	15.87	0.6595	0.7474

(bpf: Baxter−King bandpass−filtered series, low = 6Q / high = 32Q / order = 12 / MC runs = 6 / period = 2 − 600)
(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)	0.01206	0.2899	0.6197	0.8926	1	0.8926	0.6197	0.2899	0.01206
(s.e.)	0.03271	0.02854	0.01726	0.005225	4.054e−17	0.005225	0.01726	0.02854	0.03271
(p−val.)	0.8194	0.0003649	3.138e−07	1.042e−10	NA	1.042e−10	3.138e−07	0.0003649	0.8194
Consumption	0.1135	0.348	0.6187	0.8476	0.9493	0.8744	0.6489	0.3502	0.06856
(s.e.)	0.03677	0.03192	0.02209	0.01111	0.004007	0.007078	0.01567	0.0241	0.0283
(p−val.)	0.03583	0.0001963	1.081e−06	6.015e−09	1.974e−11	5.324e−10	1.493e−07	4.927e−05	0.5781
Investment	−0.3442	−0.38	−0.3238	−0.1602	0.07158	0.2916	0.4235	0.437	0.3595
(s.e.)	0.02795	0.03686	0.05141	0.06085	0.05517	0.03508	0.02413	0.04079	0.04987
(p−val.)	0.000112	0.0002273	0.00257	0.1223	0.07155	0.0009018	1.541e−05	0.0001615	0.00125
Net investment	−0.232	−0.2356	−0.1699	−0.03023	0.1472	0.2981	0.3689	0.3457	0.26
(s.e.)	0.0264	0.03962	0.06094	0.07333	0.06601	0.04329	0.0361	0.05554	0.06572
(p−val.)	0.001109	0.005545	0.1002	0.1911	0.004343	0.001988	0.0002462	0.002476	0.01305
Change in inventories	−0.1873	−0.1193	0.03361	0.2072	0.3145	0.3035	0.1918	0.04791	−0.05418
(s.e.)	0.03339	0.02949	0.01598	0.01289	0.0205	0.01601	0.01537	0.02679	0.03059
(p−val.)	0.01183	0.09026	0.9938	9.096e−05	4.474e−05	1.696e−05	0.0003831	0.7464	0.6805
Unemployment rate	0.2776	0.2456	0.1066	−0.1012	−0.2949	−0.3926	−0.3646	−0.2449	−0.1052
(s.e.)	0.04567	0.04091	0.04954	0.06187	0.06953	0.06849	0.06336	0.06105	0.05966
(p−val.)	0.003762	0.004919	0.1063	0.02083	0.00676	0.003017	0.003223	0.0189	0.04777
Productivity	0.2487	0.4294	0.6053	0.7276	0.7516	0.6579	0.4723	0.2456	0.03155
(s.e.)	0.05025	0.04489	0.03419	0.02645	0.03166	0.04268	0.04927	0.04749	0.03875
(p−val.)	0.01008	0.0002802	1.06e−05	1.06e−06	2.159e−06	1.968e−05	0.000252	0.008779	0.738
Mark−up (sector 2)	0.2393	0.1881	0.1042	0.00591	−0.08196	−0.1395	−0.1619	−0.1578	−0.1417
(s.e.)	0.04519	0.04093	0.03767	0.03053	0.02306	0.02935	0.04415	0.05554	0.05904
(p−val.)	0.00841	0.023	0.2659	0.8862	0.4575	0.04917	0.02449	0.006572	0.002642
Total firm debt	0.231	0.1468	0.05368	−0.03458	−0.1103	−0.1733	−0.2241	−0.2604	−0.2771
(s.e.)	0.01759	0.02822	0.04025	0.04783	0.04927	0.04592	0.04078	0.03558	0.03007
(p−val.)	0.0001767	0.03213	0.2314	0.2633	0.2269	0.04892	0.008347	0.001934	0.0006194
Liquidity−to−sales ratio	0.01281	−0.181	−0.4096	−0.6183	−0.7429	−0.7366	−0.6095	−0.409	−0.1985
(s.e.)	0.03122	0.03936	0.04019	0.03171	0.0187	0.01197	0.01863	0.026	0.03149
(p−val.)	0.8563	0.02516	0.0002195	6.487e−06	1.68e−07	1.908e−08	5.045e−07	2.738e−05	0.006567
Bankruptcy rate	0.269	0.274	0.2153	0.1195	0.03197	−0.01446	−0.0233	−0.02636	−0.05269
(s.e.)	0.0644	0.07002	0.08118	0.09045	0.08898	0.07486	0.05469	0.03674	0.02971
(p−val.)	0.01624	0.01968	0.07535	0.05437	0.07785	0.2328	0.3973	0.5608	0.5794

(non−rate/ratio series are Baxter−King bandpass−filtered, low = 6Q / high = 32Q / order = 12 / MC runs = 6 / period = 2 − 600)
(test H0: lag coefficient is not significant at 5% level)

Correlation structure for GDP (Benchmark)

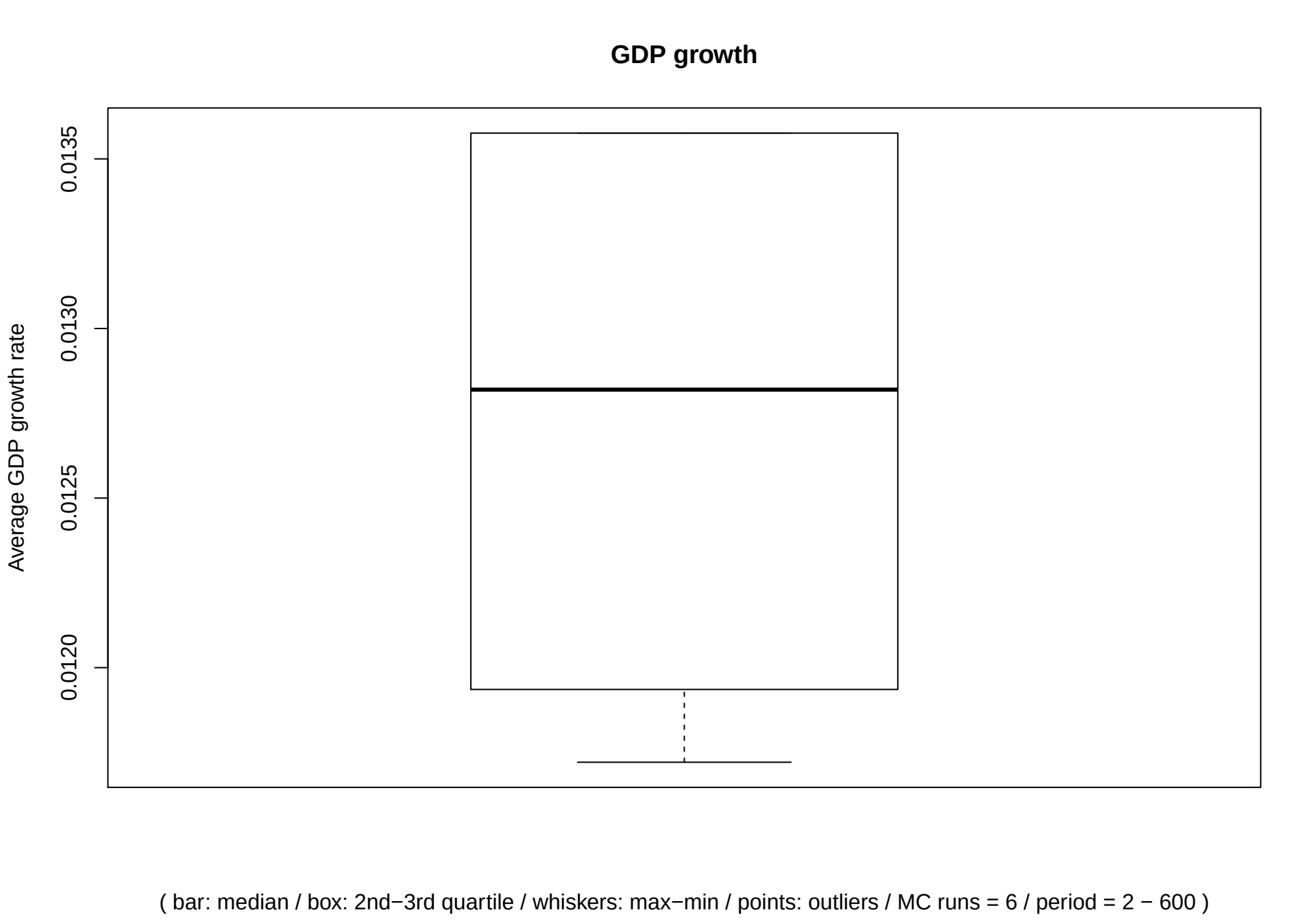
	−4	−3	−2	−1	0	1	2	3	4
GDP (output)	0.01206	0.2899	0.6197	0.8926	1	0.8926	0.6197	0.2899	0.01206
(s.e.)	0.03271	0.02854	0.01726	0.005225	4.054e−17	0.005225	0.01726	0.02854	0.03271
(p−val.)	0.8194	0.0003649	3.138e−07	1.042e−10	NA	1.042e−10	3.138e−07	0.0003649	0.8194
Consumption	0.1135	0.348	0.6187	0.8476	0.9493	0.8744	0.6489	0.3502	0.06856
(s.e.)	0.03677	0.03192	0.02209	0.01111	0.004007	0.007078	0.01567	0.0241	0.0283
(p−val.)	0.03583	0.0001963	1.081e−06	6.015e−09	1.974e−11	5.324e−10	1.493e−07	4.927e−05	0.5781
Investment	−0.3442	−0.38	−0.3238	−0.1602	0.07158	0.2916	0.4235	0.437	0.3595
(s.e.)	0.02795	0.03686	0.05141	0.06085	0.05517	0.03508	0.02413	0.04079	0.04987
(p−val.)	0.000112	0.0002273	0.00257	0.1223	0.07155	0.0009018	1.541e−05	0.0001615	0.00125
Productivity	0.2487	0.4294	0.6053	0.7276	0.7516	0.6579	0.4723	0.2456	0.03155
(s.e.)	0.05025	0.04489	0.03419	0.02645	0.03166	0.04268	0.04927	0.04749	0.03875
(p−val.)	0.01008	0.0002802	1.06e−05	1.06e−06	2.159e−06	1.968e−05	0.000252	0.008779	0.738
Entry	−0.04625	0.142	0.3311	0.4687	0.5181	0.4738	0.366	0.2371	0.122
(s.e.)	0.04483	0.04291	0.03516	0.02774	0.02832	0.03121	0.02958	0.0272	0.02897
(p−val.)	0.4522	0.02174	0.0004177	1.667e−05	1.025e−05	2.774e−05	0.0001005	0.001093	0.08895
Wage	0.3098	0.5018	0.6595	0.7364	0.7062	0.5756	0.3841	0.1805	0.002602
(s.e.)	0.04291	0.03209	0.02359	0.02734	0.03478	0.0356	0.02819	0.01629	0.008349
(p−val.)	0.001527	2.275e−05	1.042e−06	1.167e−06	4.858e−06	1.719e−05	5.933e−05	0.0008142	1
Unemployment rate	0.2776	0.2456	0.1066	−0.1012	−0.2949	−0.3926	−0.3646	−0.2449	−0.1052
(s.e.)	0.04567	0.04091	0.04954	0.06187	0.06953	0.06849	0.06336	0.06105	0.05966
(p−val.)	0.003762	0.004919	0.1063	0.02083	0.00676	0.003017	0.003223	0.0189	0.04777
Vacancy rate	0.1385	−0.042	−0.2193	−0.3169	−0.2985	−0.1913	−0.06433	0.01671	0.02789
(s.e.)	0.05603	0.04353	0.03691	0.04179	0.04898	0.04867	0.03727	0.02371	0.03057
(p−val.)	0.06502	0.396	0.006489	0.001189	0.003316	0.03545	0.4359	0.9767	0.8553

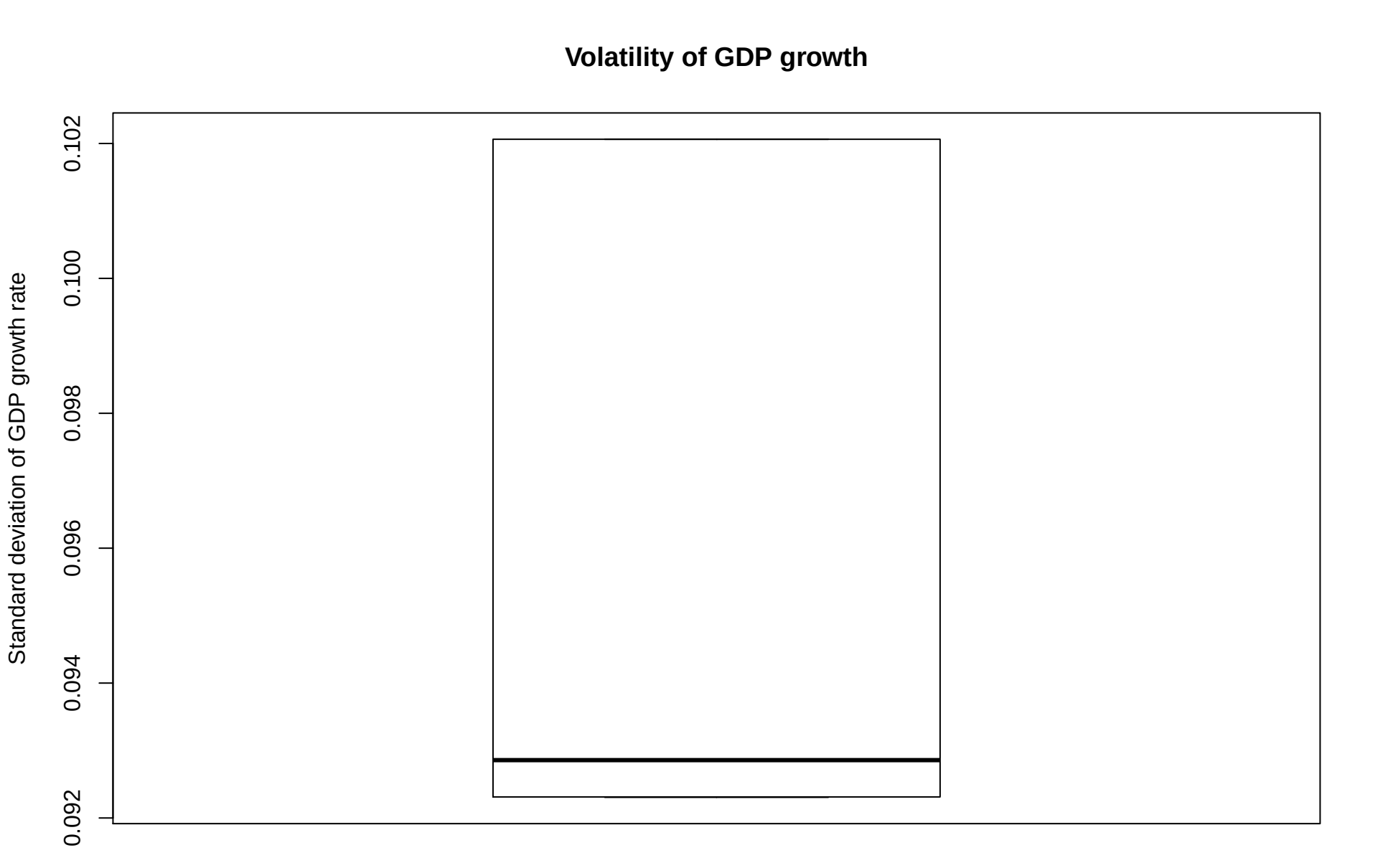
(non−rate/ratio series are Baxter−King bandpass−filtered, low = 6Q / high = 32Q / order = 12 / MC runs = 6 / period = 2 − 600)
(test H0: lag coefficient is not significant at 5% level)

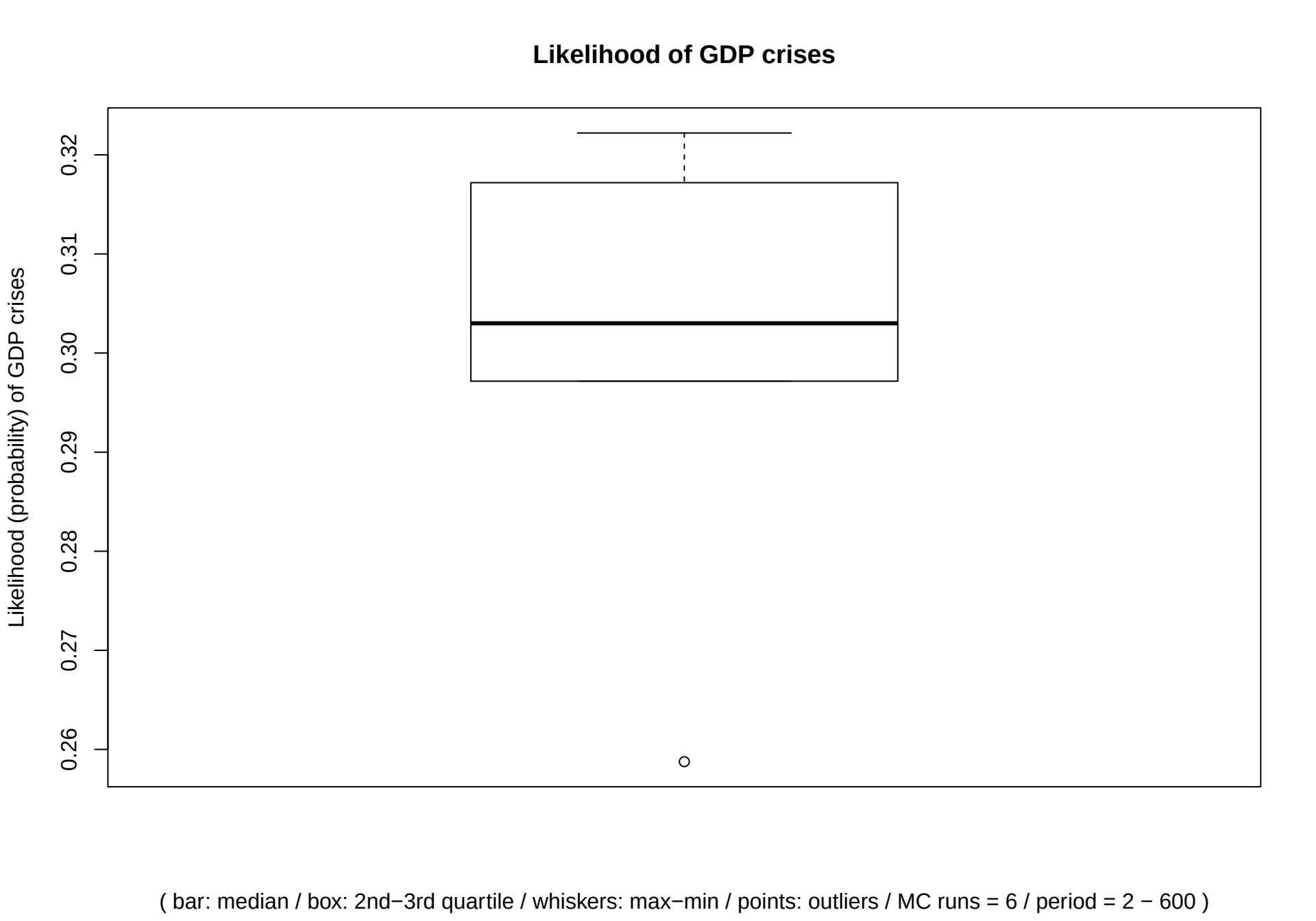
Stationarity, i.i.d. and ergodicity tests (Benchmark)

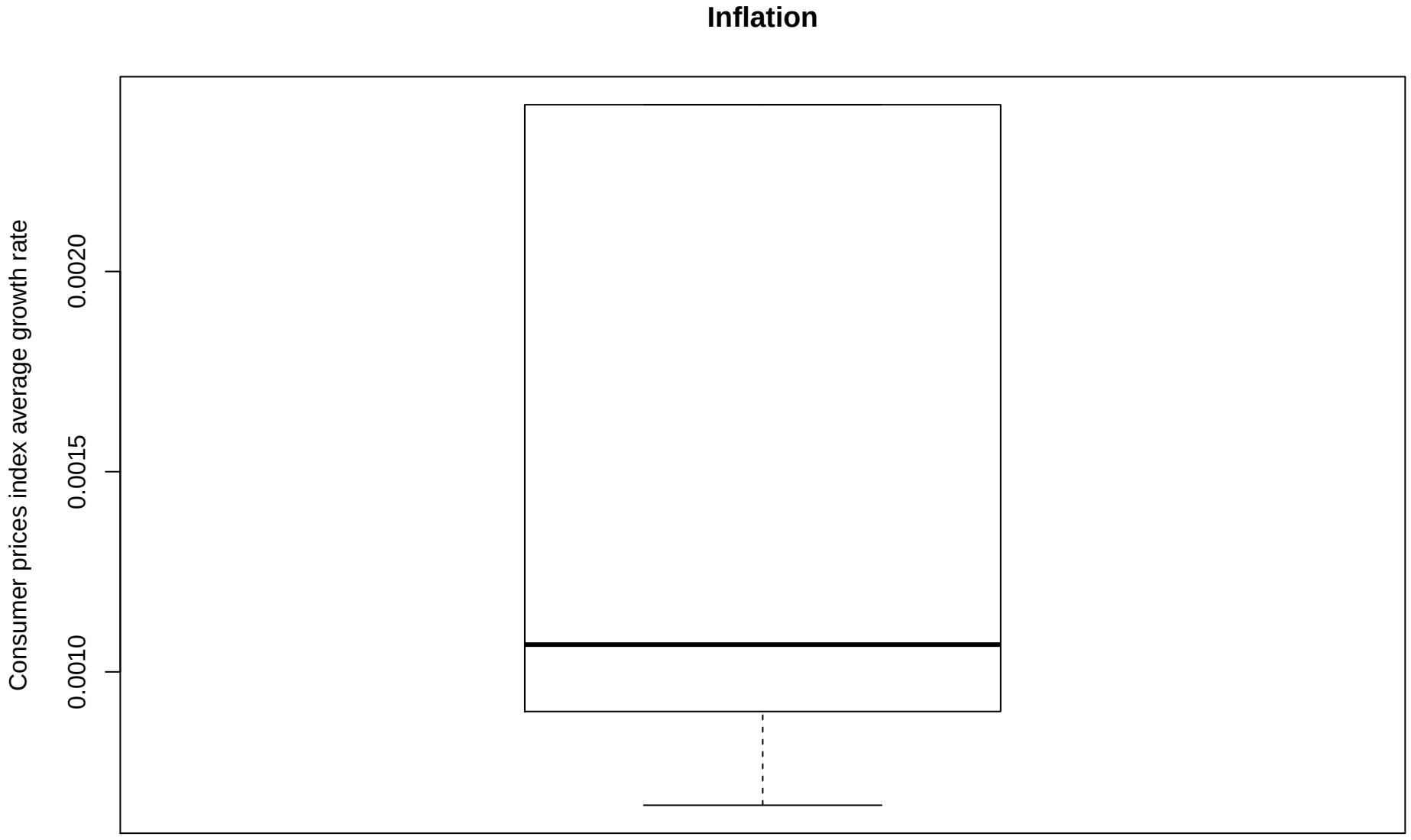
	avg.ADF	rej.ADF	avg.PP	rej.PP	avg.KPSS	rej.KPSS	avg.BDS	rej.BDS	avg.KS	rej.KS	AD	W
dGDP	0.01	1.00	0.01	1.00	0.10	0.00	0.03	0.67	0.58	0.07	0.21	1
dA	0.01	1.00	0.01	1.00	0.10	0.00	0.00	1.00	0.12	0.73	0.00	0
dw	0.01	1.00	0.01	1.00	0.10	0.00	0.00	1.00	0.12	0.73	0.00	0
V	0.01	1.00	0.01	1.00	0.05	0.50	0.00	1.00	0.23	0.60	0.00	0
U	0.01	1.00	0.01	1.00	0.03	0.83	0.00	1.00	0.07	0.87	0.00	0
mu2avg	0.01	1.00	0.01	1.00	0.01	1.00	0.00	1.00	0.07	0.87	0.00	0
HH1	0.01	1.00	0.01	1.00	0.10	0.00	0.00	1.00	0.12	0.60	0.00	0
HH2	0.01	1.00	0.01	1.00	0.04	0.67	0.00	1.00	0.13	0.60	0.00	0

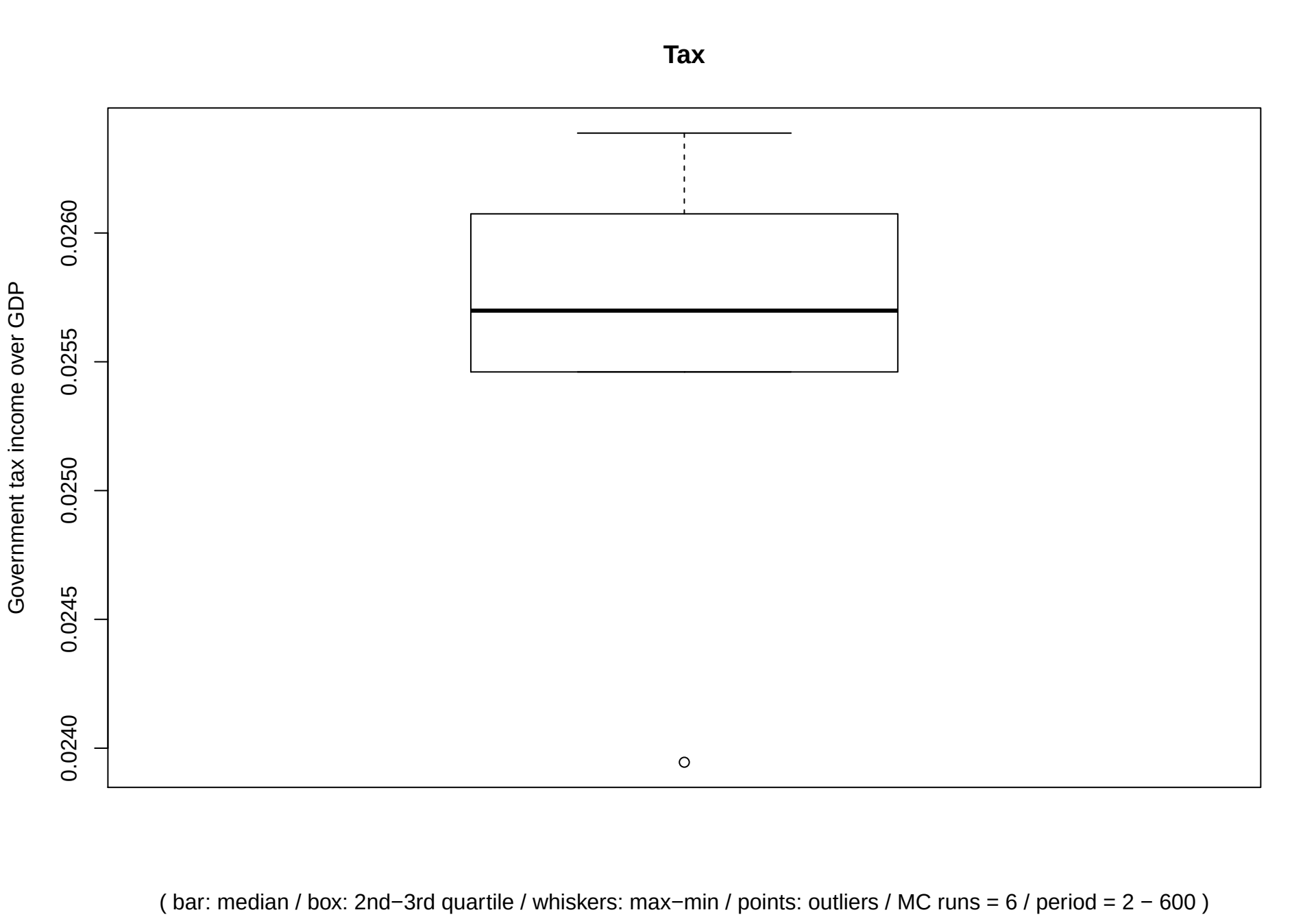
(average p−values for testing H0 and rate of rejection of H0 / MC runs = 6 / period = 2 − 600)
(ADF/PP H0: non−stationary, KPSS H0: stationary, BDS H0: i.i.d., KS/AD/WW H0: ergodic)
(significance = 0.05)

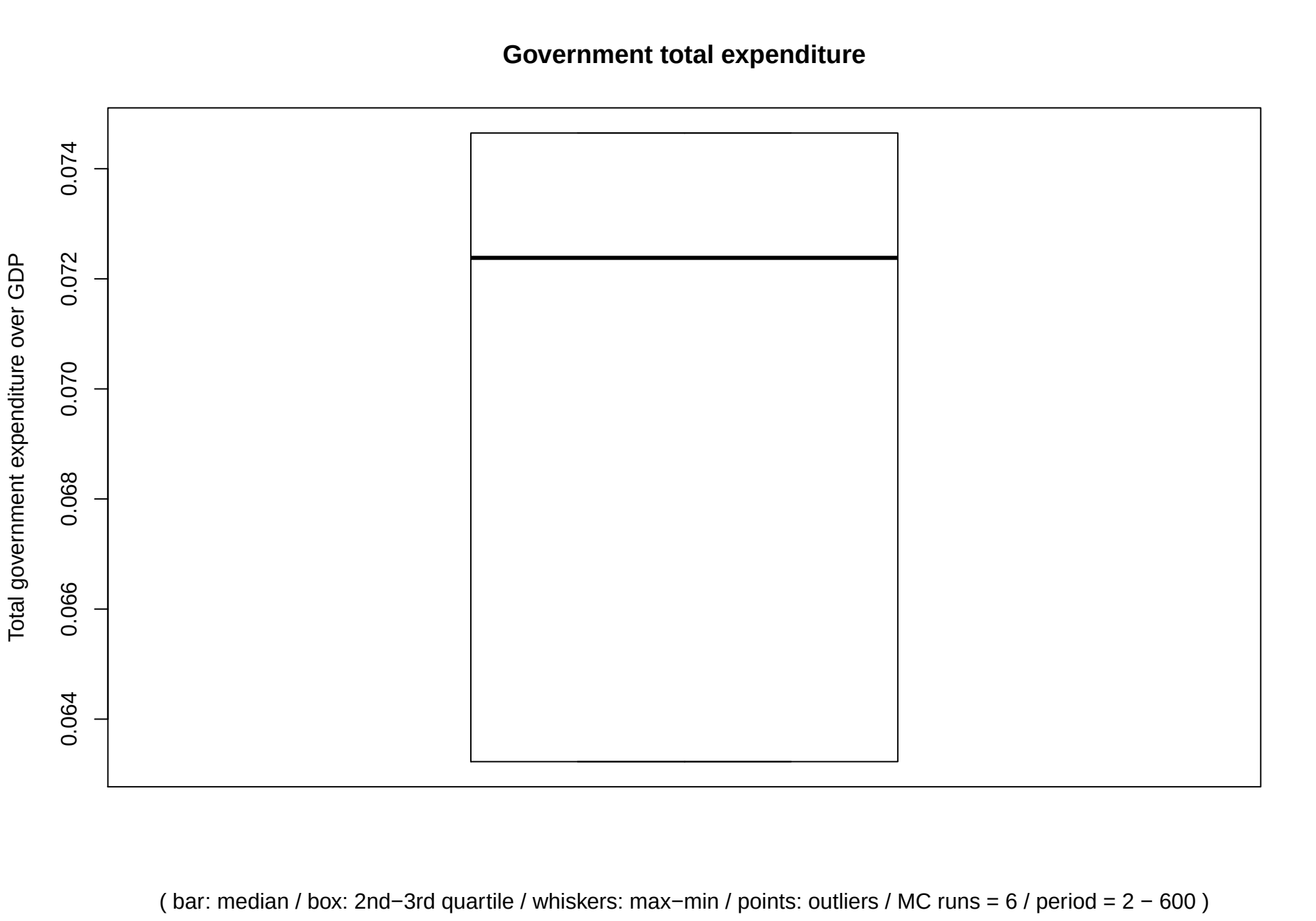

GDP growth
Average GDP growth rate
0.0135
0.0130
0.0125
0.0120
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 6 / period = 2 − 600)

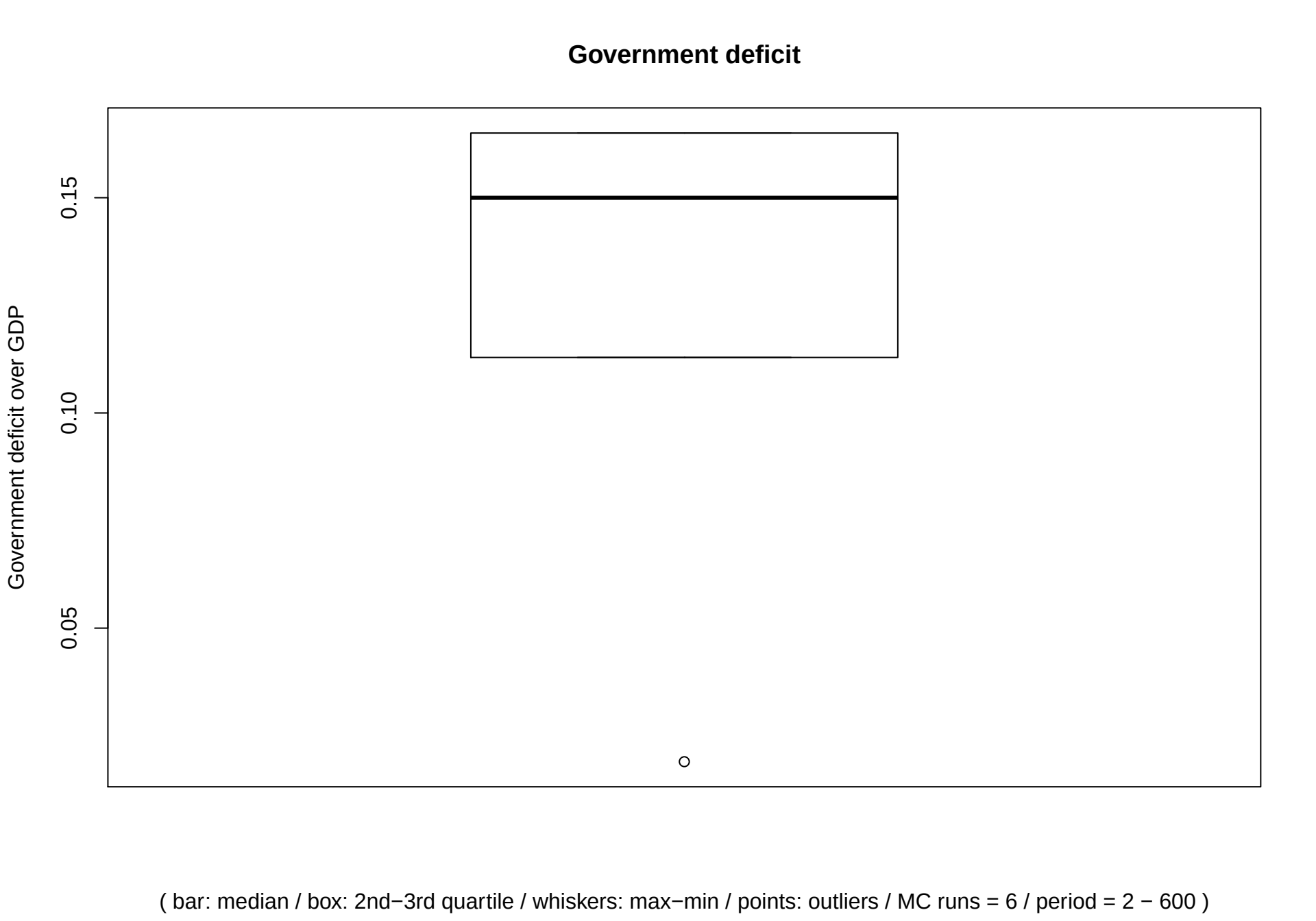

Volatility of GDP growth
Standard deviation of GDP growth rate
0.092
0.094
0.096
0.098
0.100
0.102
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 6 / period = 2 − 600)

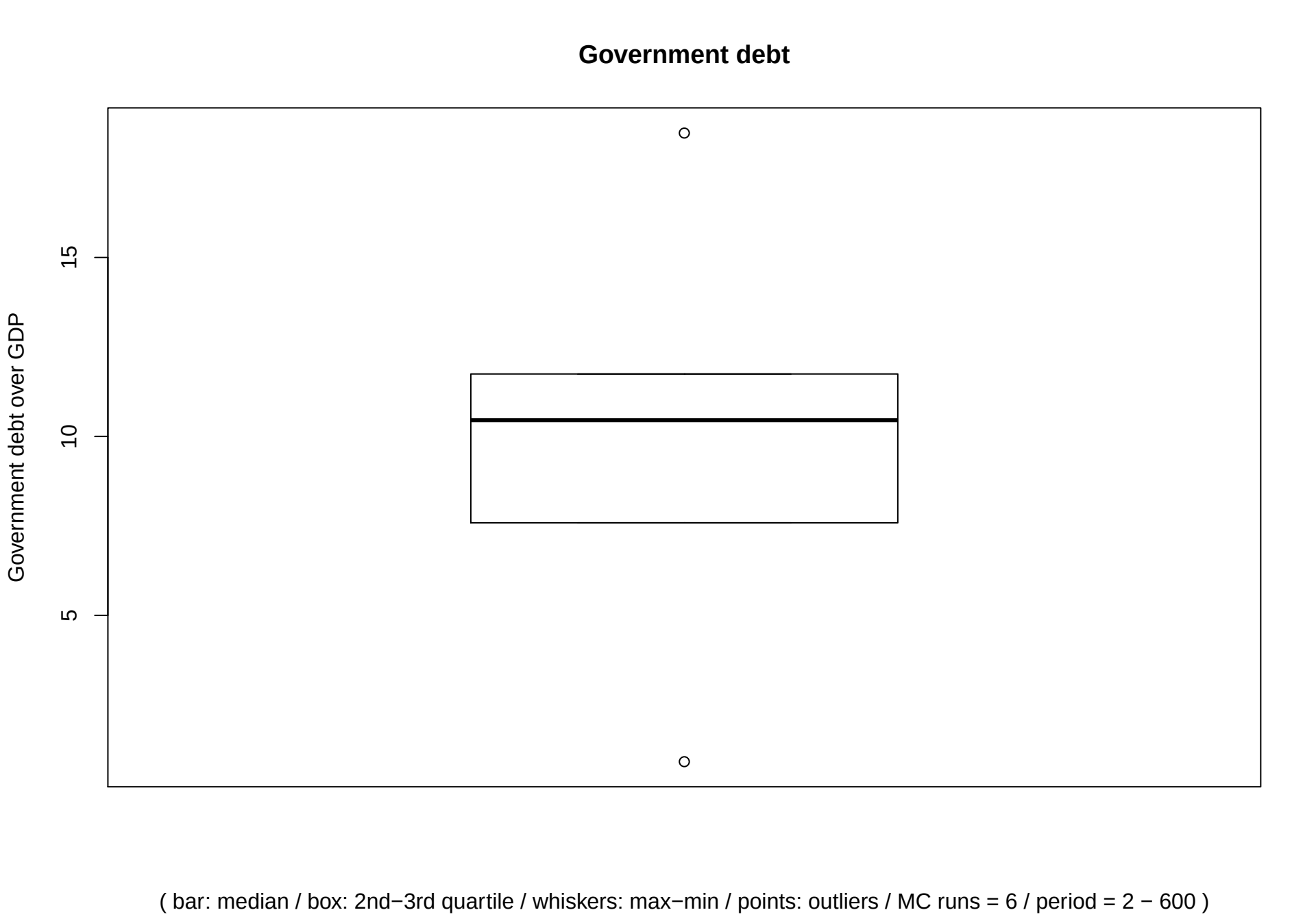

Likelihood of GDP crises
Likelihood (probability) of GDP crises
0.26
0.27
0.28
0.29
0.30
0.31
0.32
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 6 / period = 2 − 600)

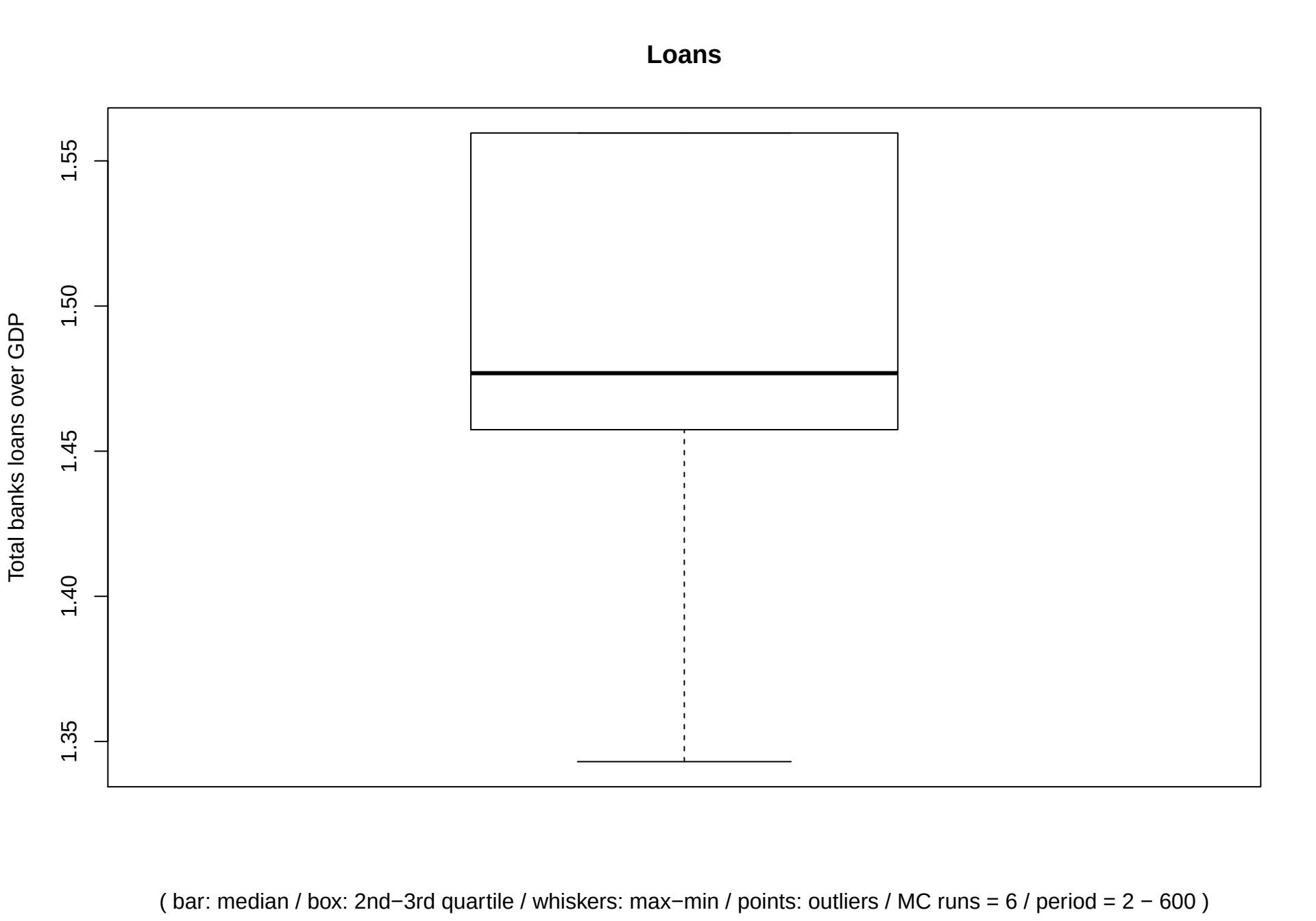

Inflation
Consumer prices index average growth rate
0.0010
0.0015
0.0020
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 6 / period = 2 − 600)

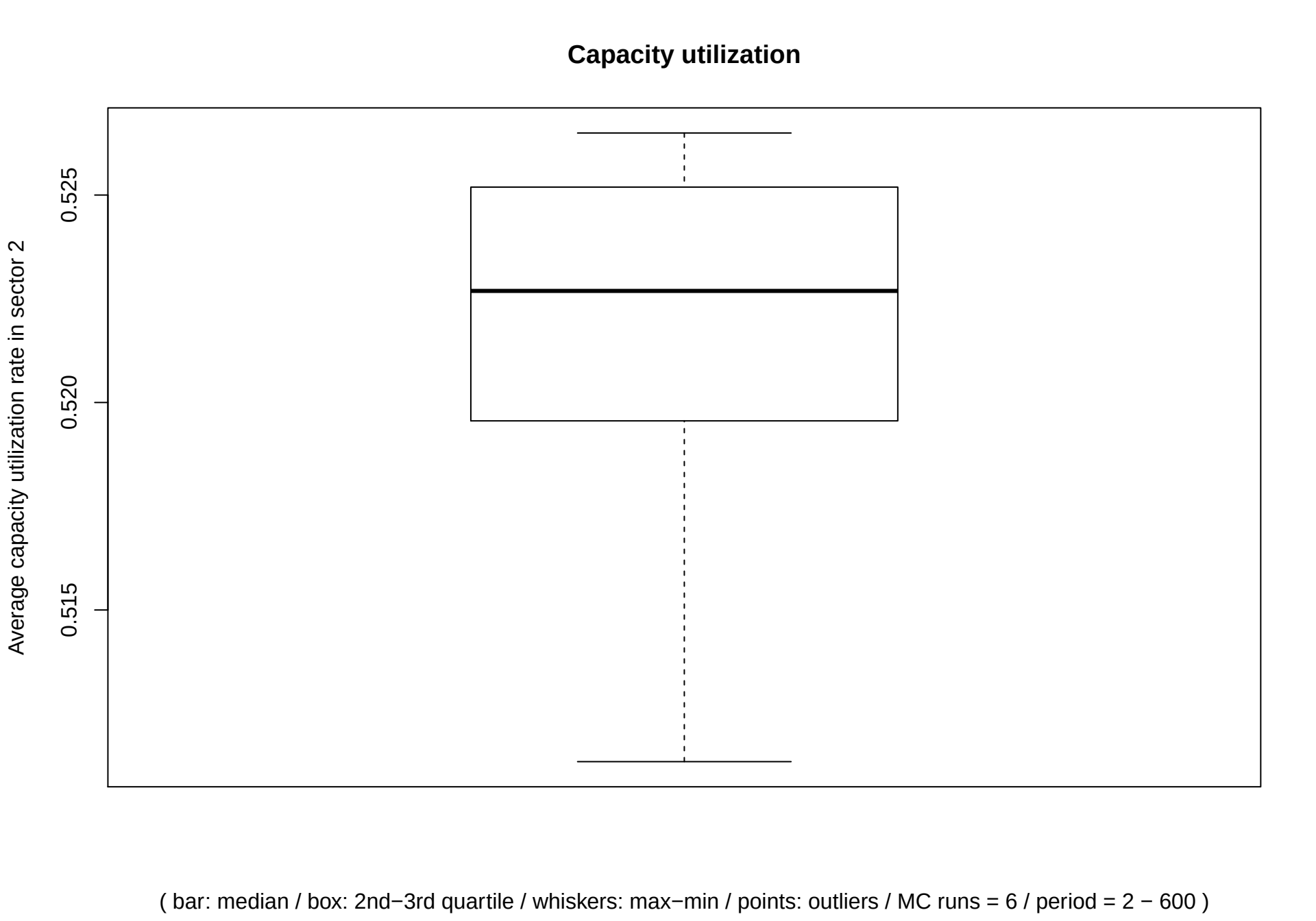

Tax
Government tax income over GDP
0.0240
0.0245
0.0250
0.0255
0.0260
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 6 / period = 2 − 600)

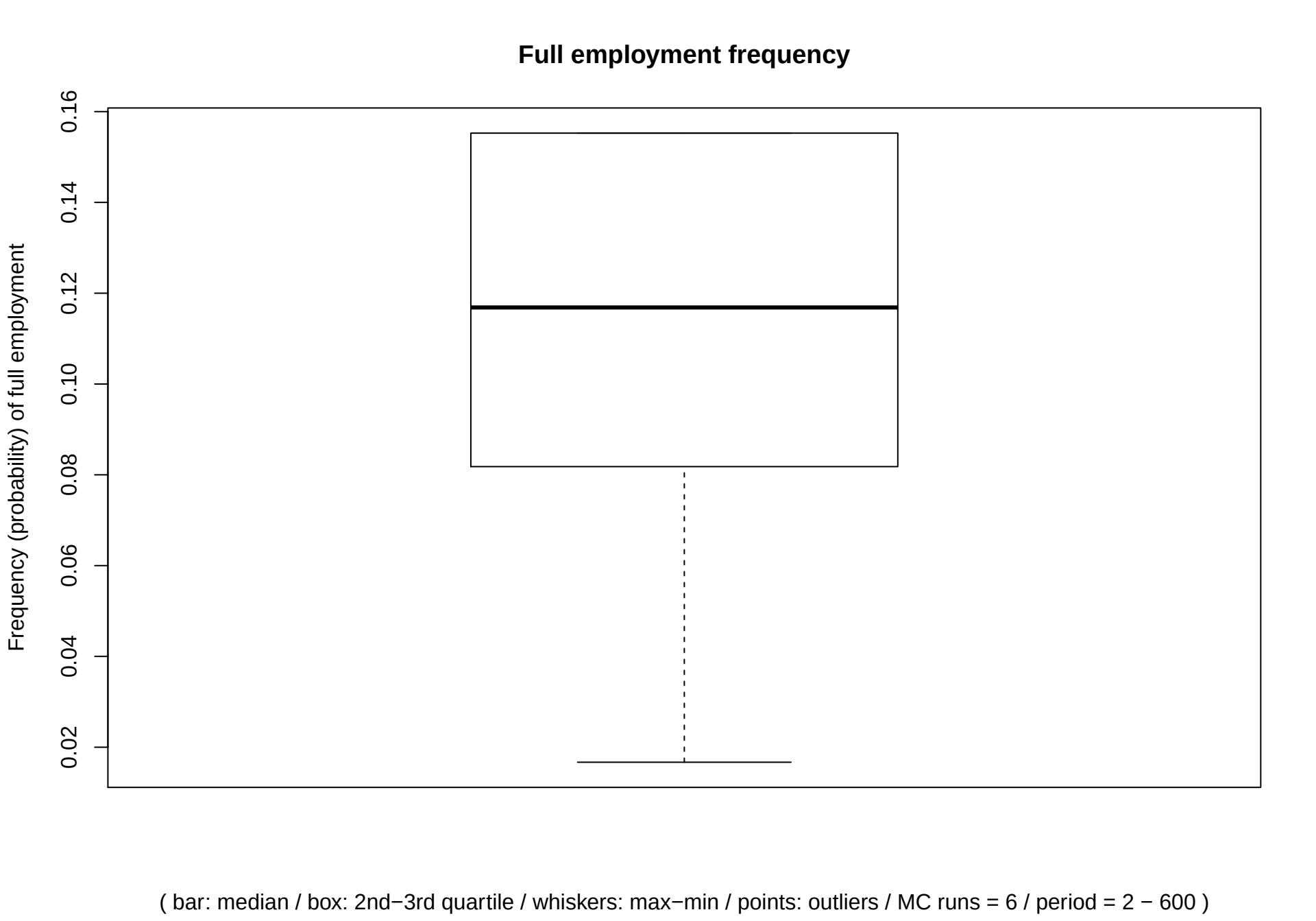

Government total expenditure
Total government expenditure over GDP
0.064
0.066
0.068
0.070
0.072
0.074
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 6 / period = 2 − 600)

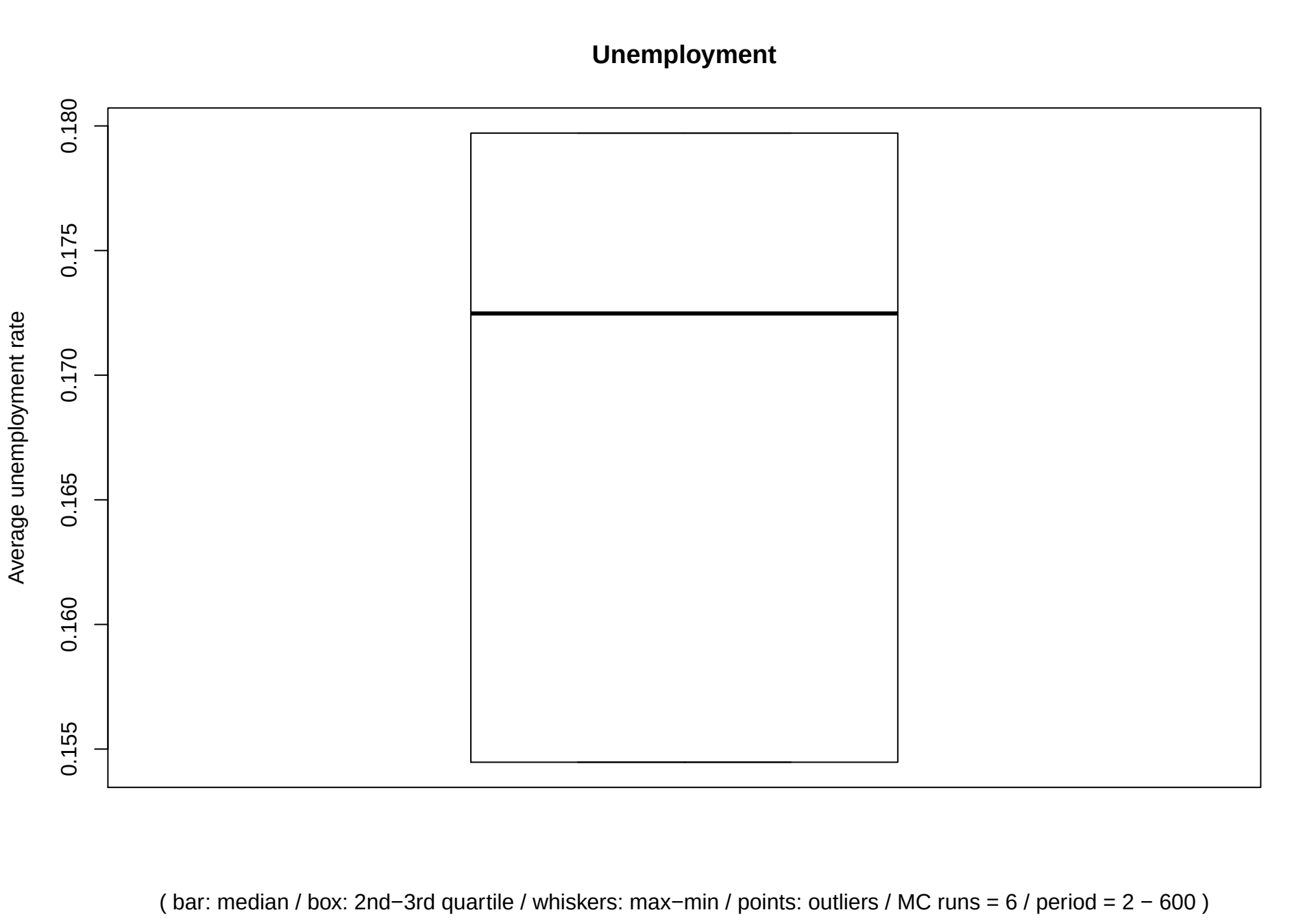

Government deficit
Government deficit over GDP
0.05
0.10
0.15
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 6 / period = 2 − 600)

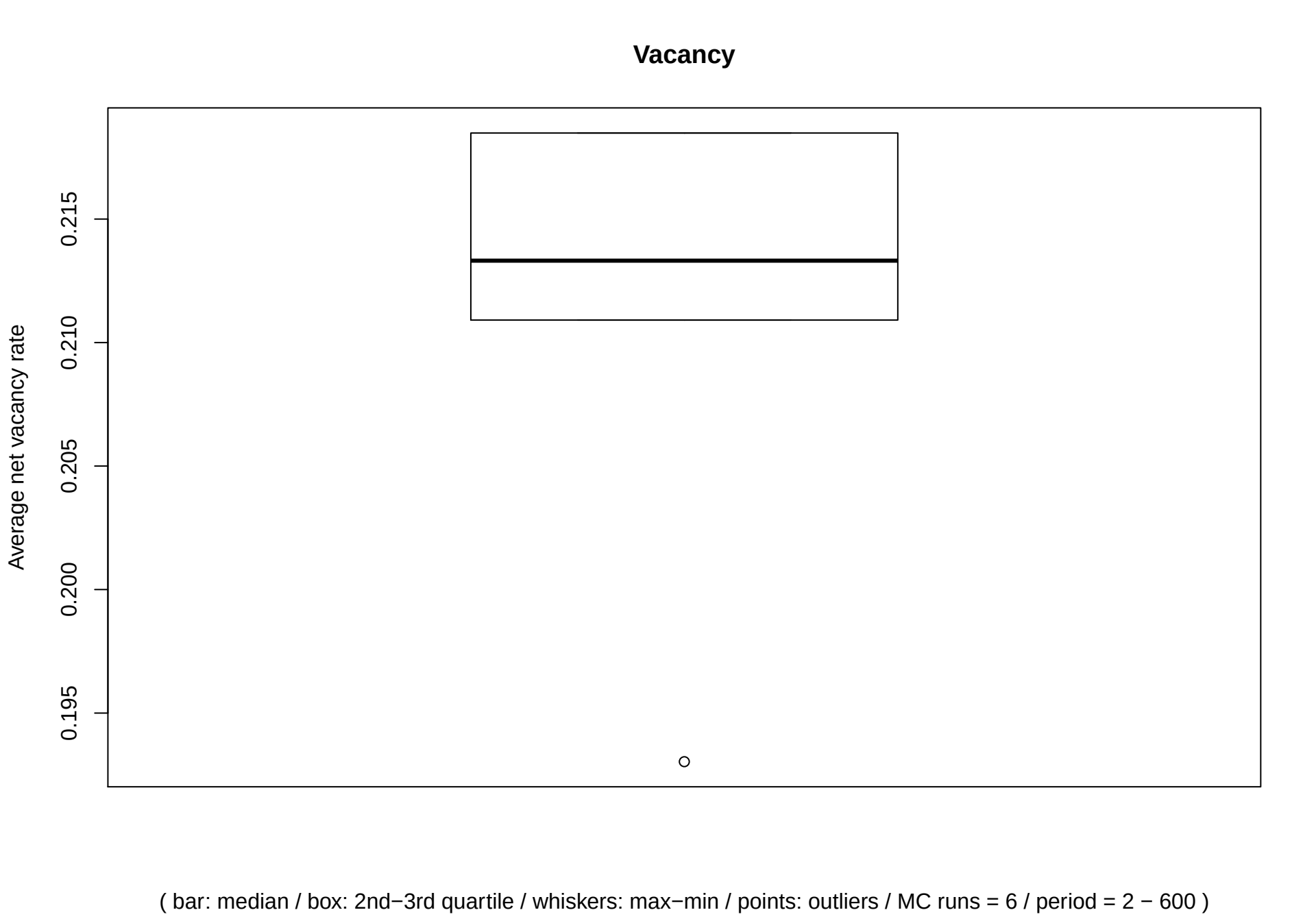

Government debt
Government debt over GDP
15
10
5
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 6 / period = 2 − 600)

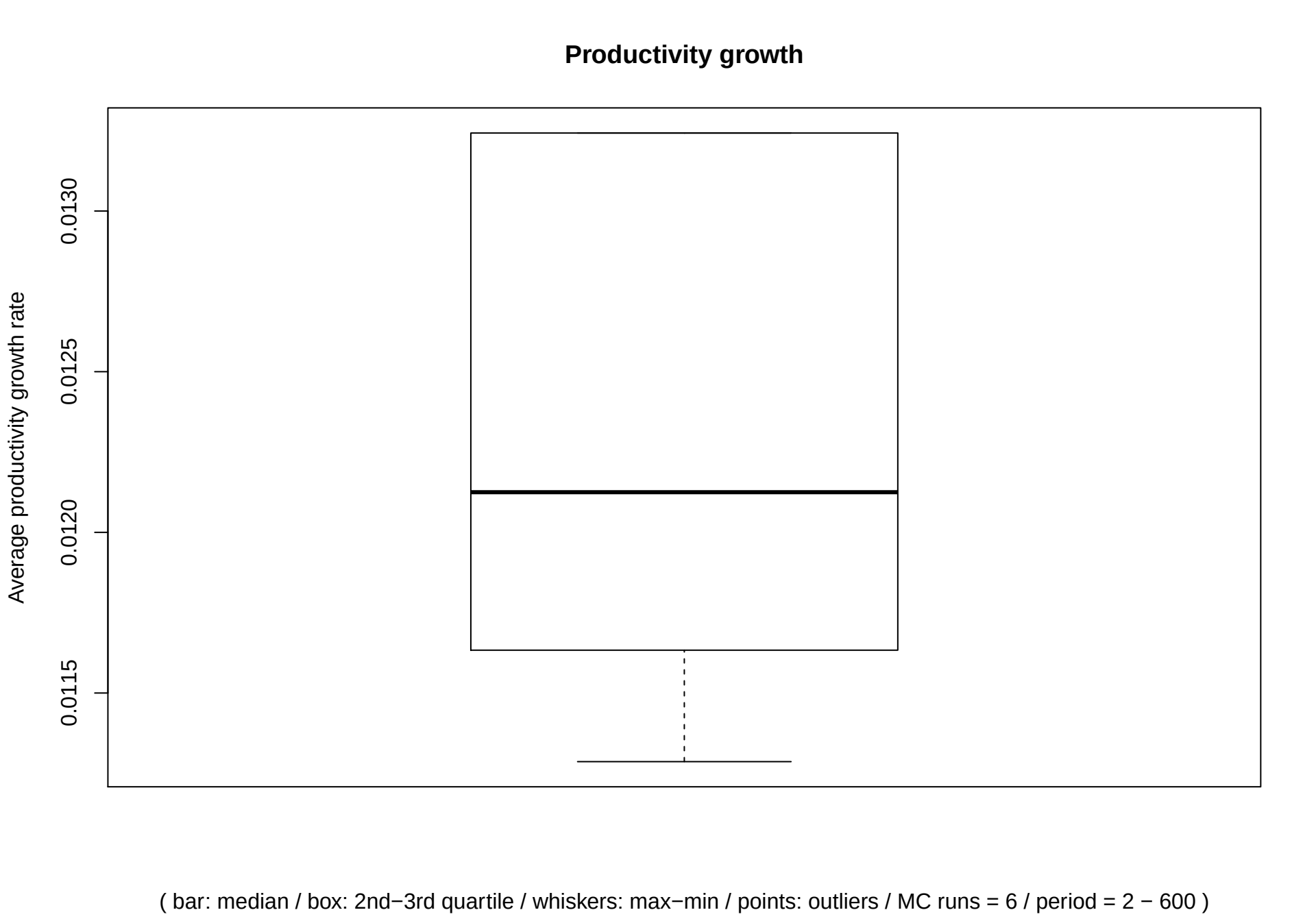

Loans
Total banks loans over GDP
1.55
1.50
1.45
1.40
1.35
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 6 / period = 2 − 600)

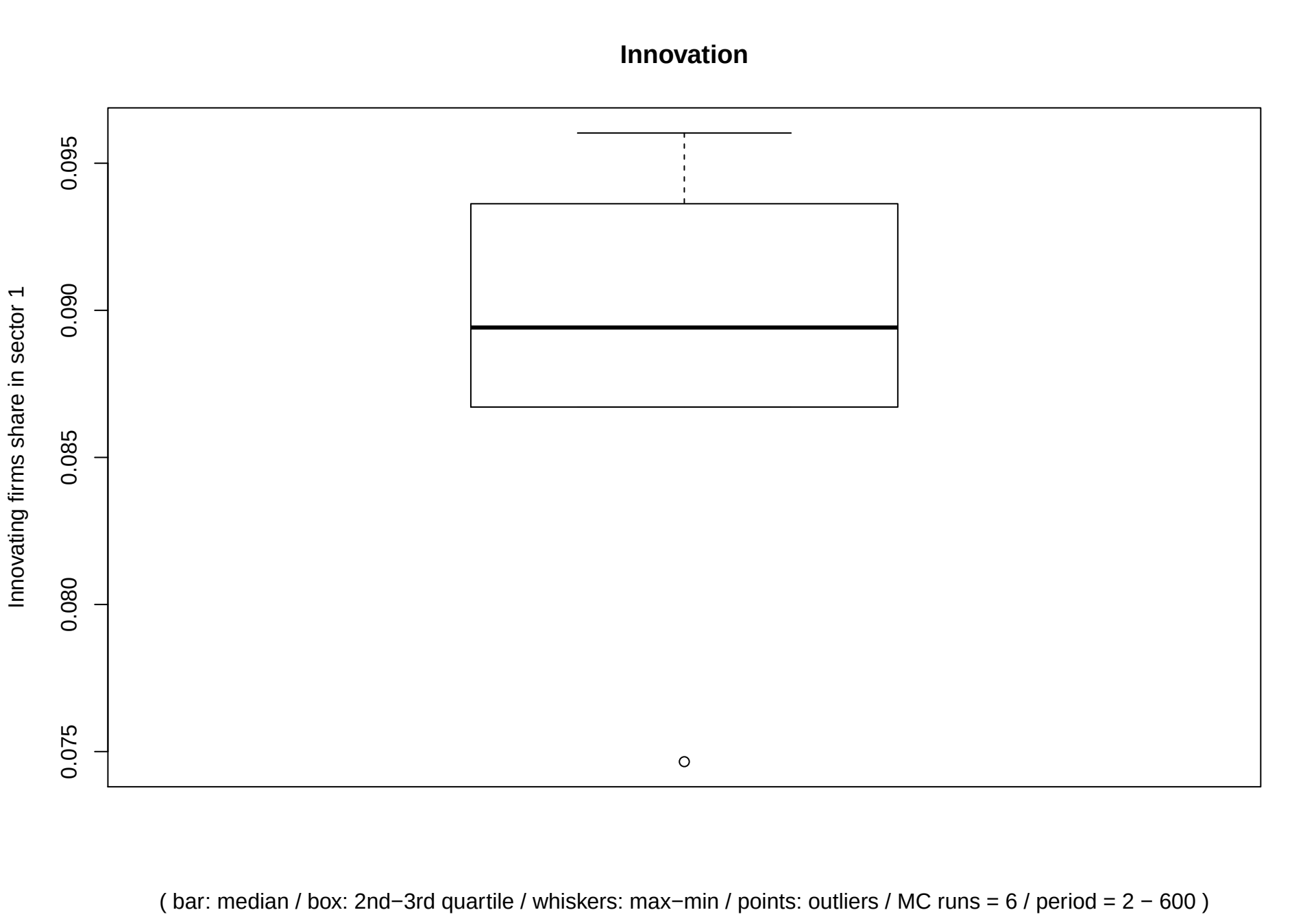

Capacity utilization
Average capacity utilization rate in sector 2
0.515
0.520
0.525
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 6 / period = 2 − 600)

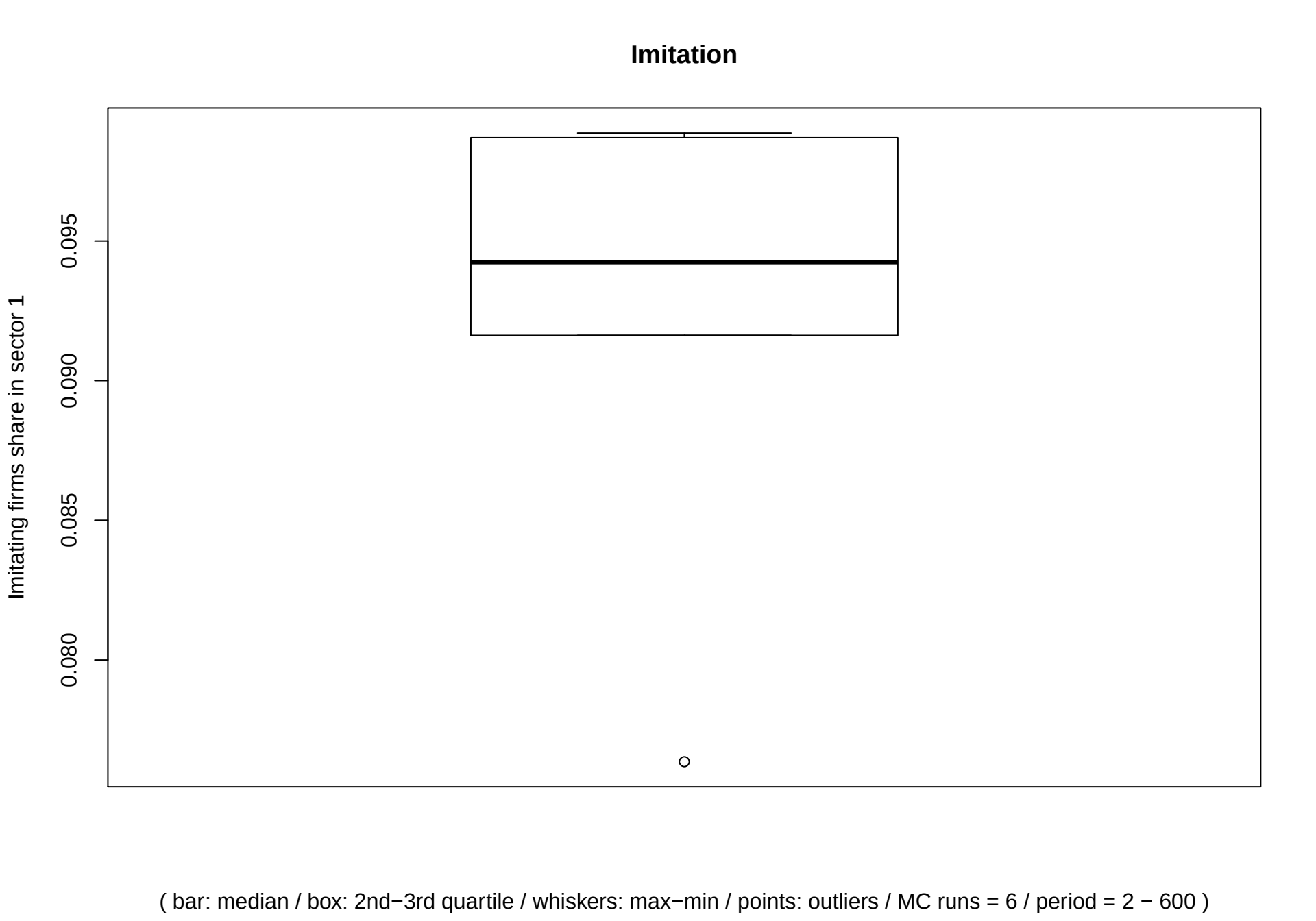

Full employment frequency
Frequency (probability) of full employment
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 6 / period = 2 − 600)

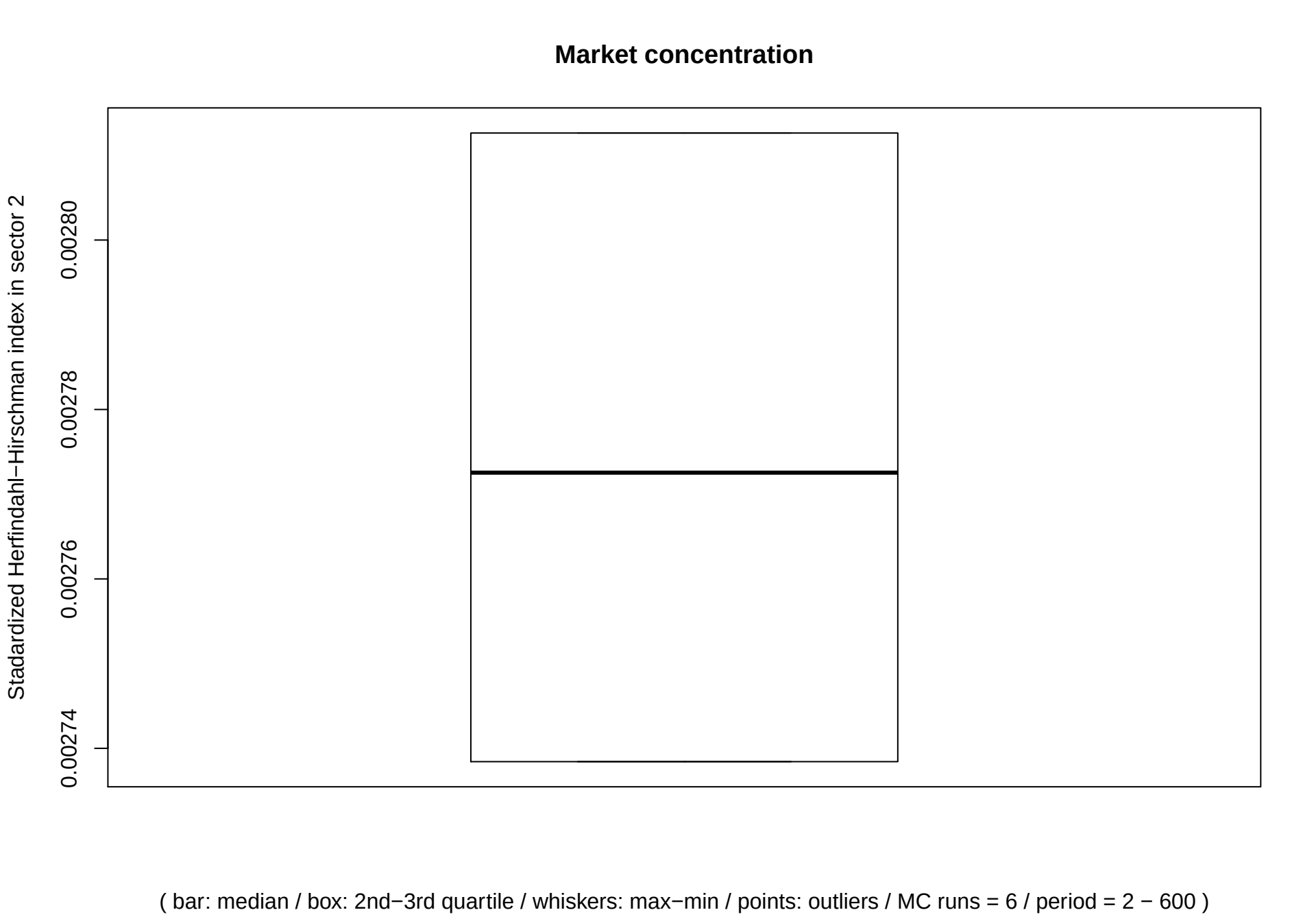

Unemployment
Average unemployment rate
0.155
0.160
0.165
0.170
0.175
0.180
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 6 / period = 2 − 600)

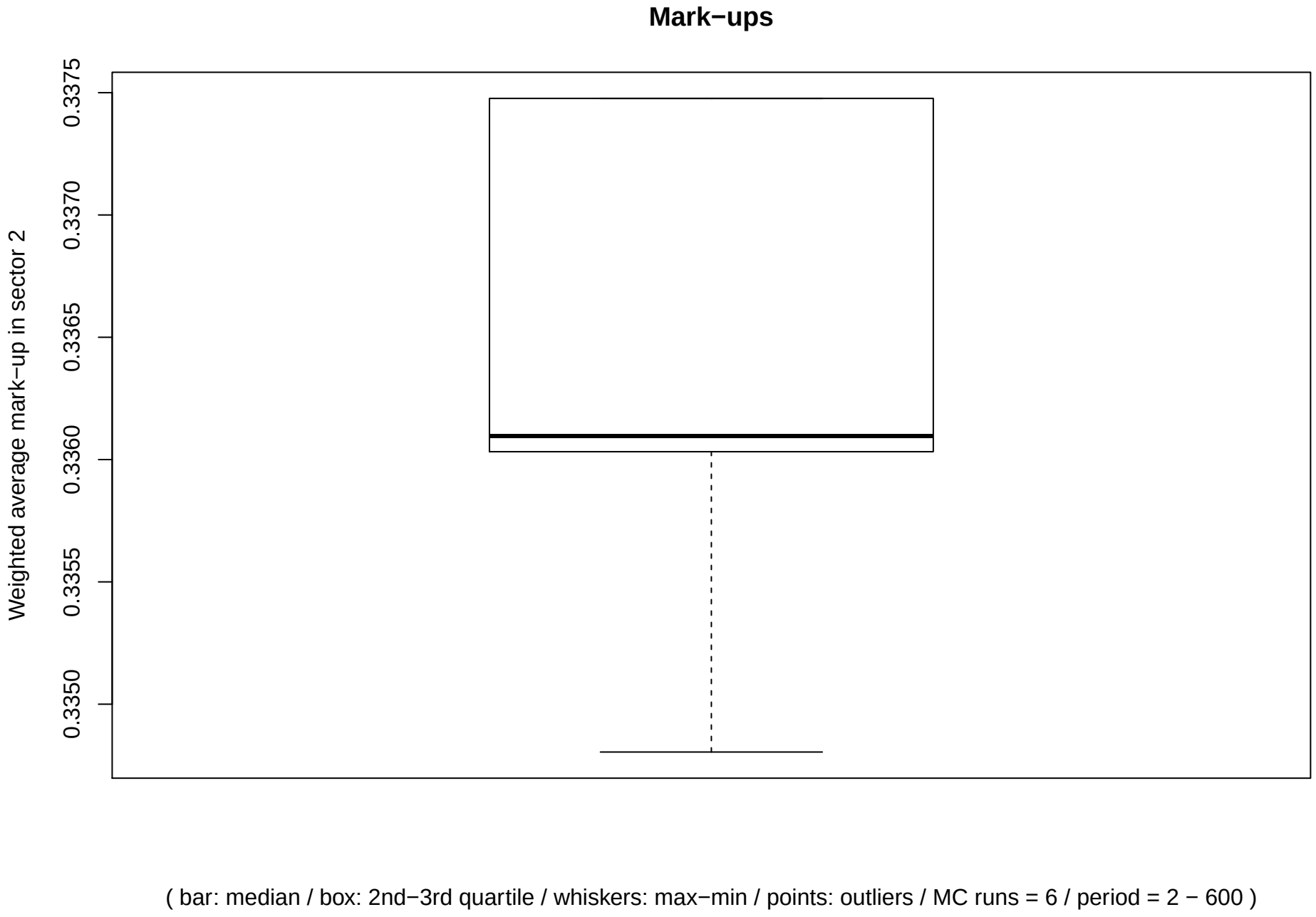

Vacancy
Average net vacancy rate
0.195
0.200
0.205
0.210
0.215
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 6 / period = 2 − 600)


Productivity growth
Average productivity growth rate
0.0130
0.0125
0.0120
0.0115
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 6 / period = 2 − 600)


Innovation
Innovating firms share in sector 1
0.095
0.090
0.085
0.080
0.075
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 6 / period = 2 − 600)


Imitation
Imitating firms share in sector 1
0.080
0.085
0.090
0.095
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 6 / period = 2 − 600)


Market concentration
Stadardized Herfindahl−Hirschman index in sector 2
0.00274
0.00276
0.00278
0.00280
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 6 / period = 2 − 600)


Mark−ups
Weighted average mark−up in sector 2
0.3375
0.3370
0.3365
0.3360
0.3355
0.3350
(bar: median / box: 2nd−3rd quartile / whiskers: max−min / points: outliers / MC runs = 6 / period = 2 − 600)

Monte Carlo descriptive statistics (all experiments)

	Avg[1]	SD[1]	Min[1]	Max[1]
GDP growth	0.01348	0.00232	0.01172	0.018
Volatility of GDP growth	0.1067	0.03007	0.09231	0.1676
Likelihood of GDP crises	0.3002	0.02273	0.2588	0.3222
Inflation	0.002064	0.002147	0.000667	0.006263
Tax	0.02554	0.0008533	0.02395	0.02639
Government total expenditure	0.06895	0.02066	0.0338	0.09723
Government deficit	0.1417	0.07679	0.01898	0.2535
Government debt	9.937	5.777	0.9121	18.48
Loans	1.585	0.308	1.343	2.197
Capacity utilization	0.5213	0.005501	0.5113	0.5265
Full employment frequency	0.1717	0.1887	0.01669	0.5426
Unemployment	0.1646	0.04943	0.07848	0.2299
Vacancy	0.2225	0.0324	0.193	0.2862
Productivity growth	0.01292	0.002167	0.01129	0.01713
Innovation	0.08831	0.007568	0.07466	0.09603
Imitation	0.09234	0.008471	0.07636	0.09886
Market concentration	0.002803	0.0002357	0.002496	0.003223
Mark−ups	0.3371	0.002592	0.3348	0.3421

Experiments: [1] Benchmark
(numbers in brackets indicate the experiment number / MC runs = 6 / period = 2 − 600)