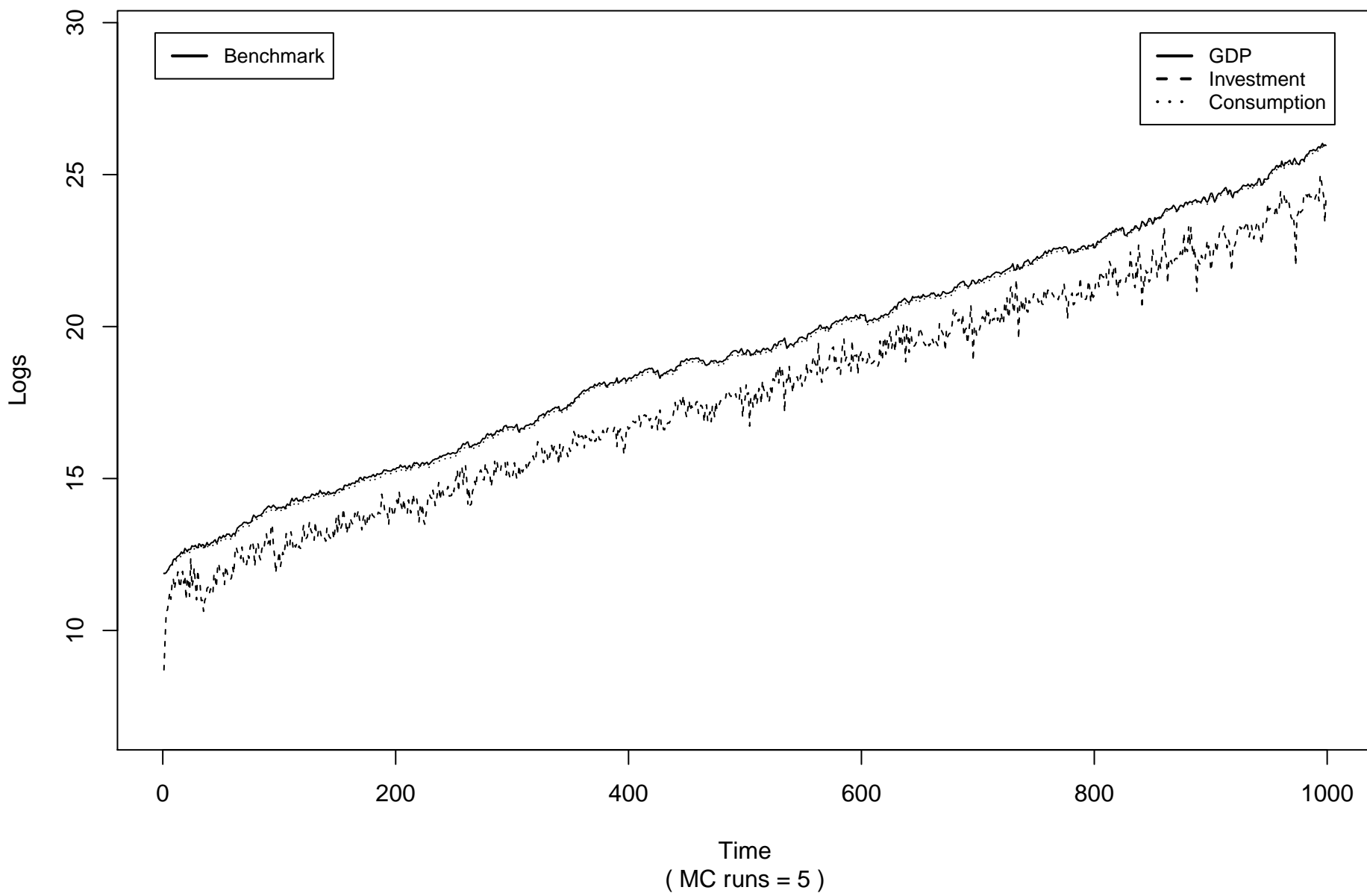
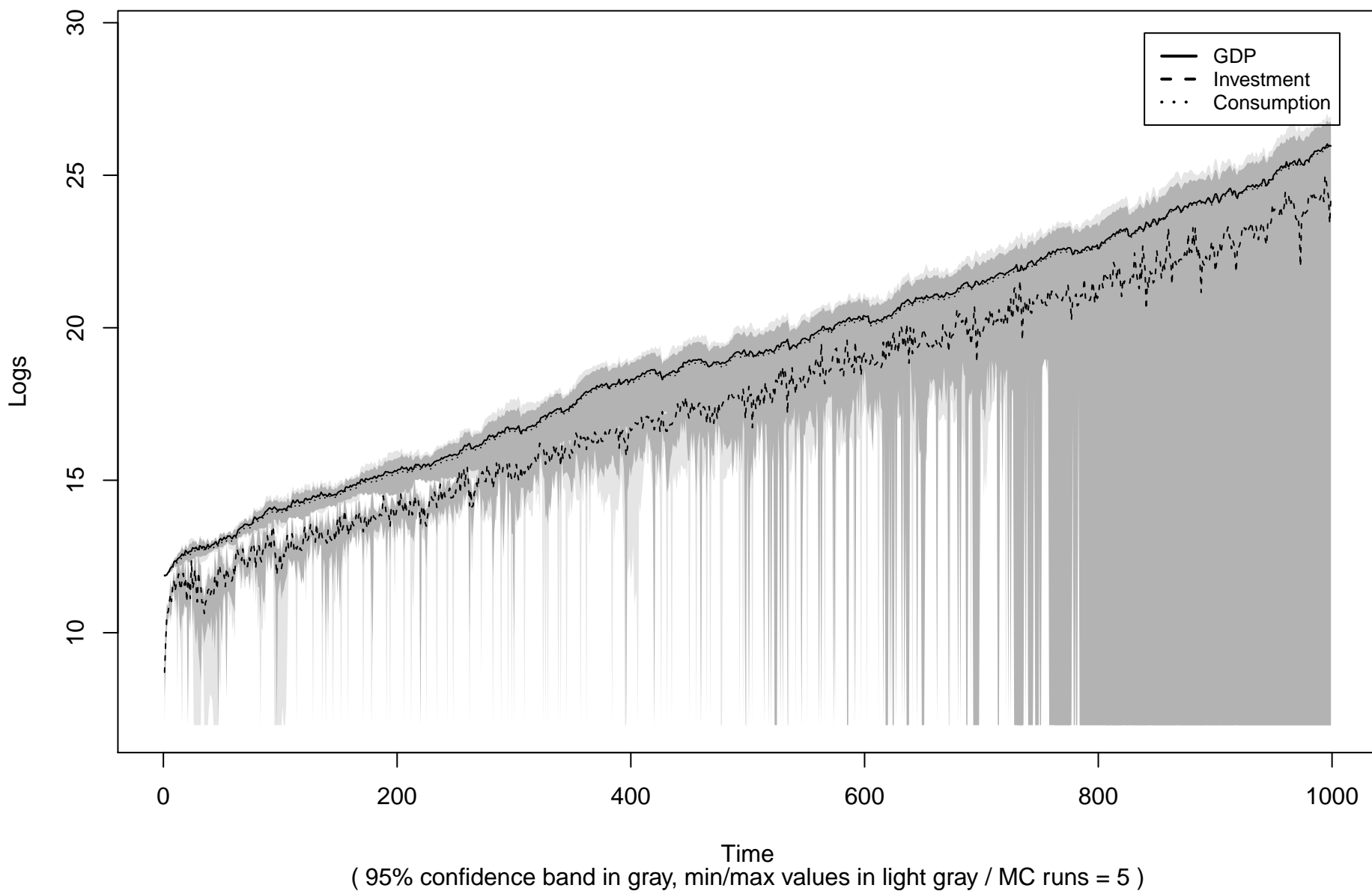


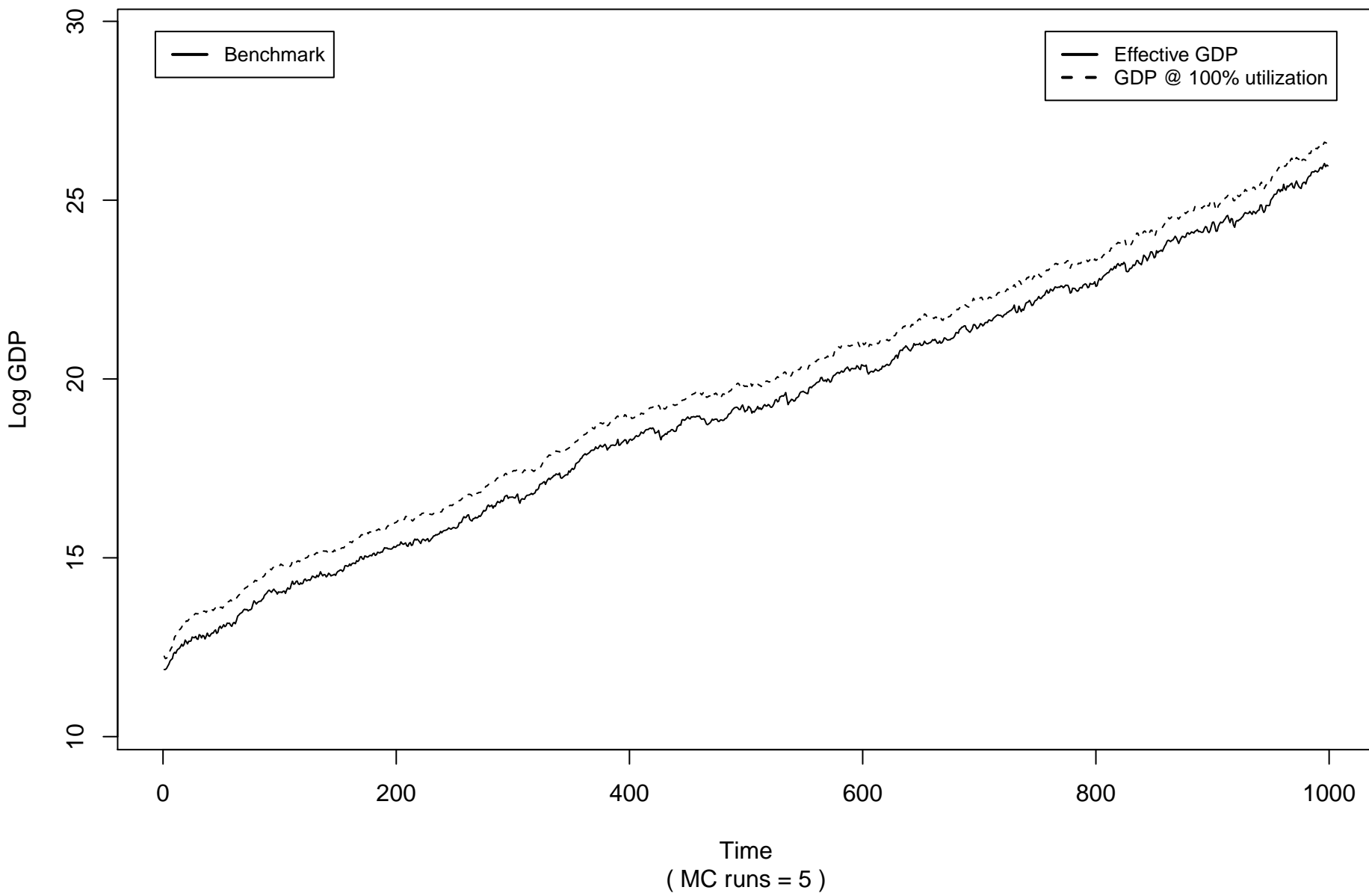
## GDP, investment and consumption ( all experiments )



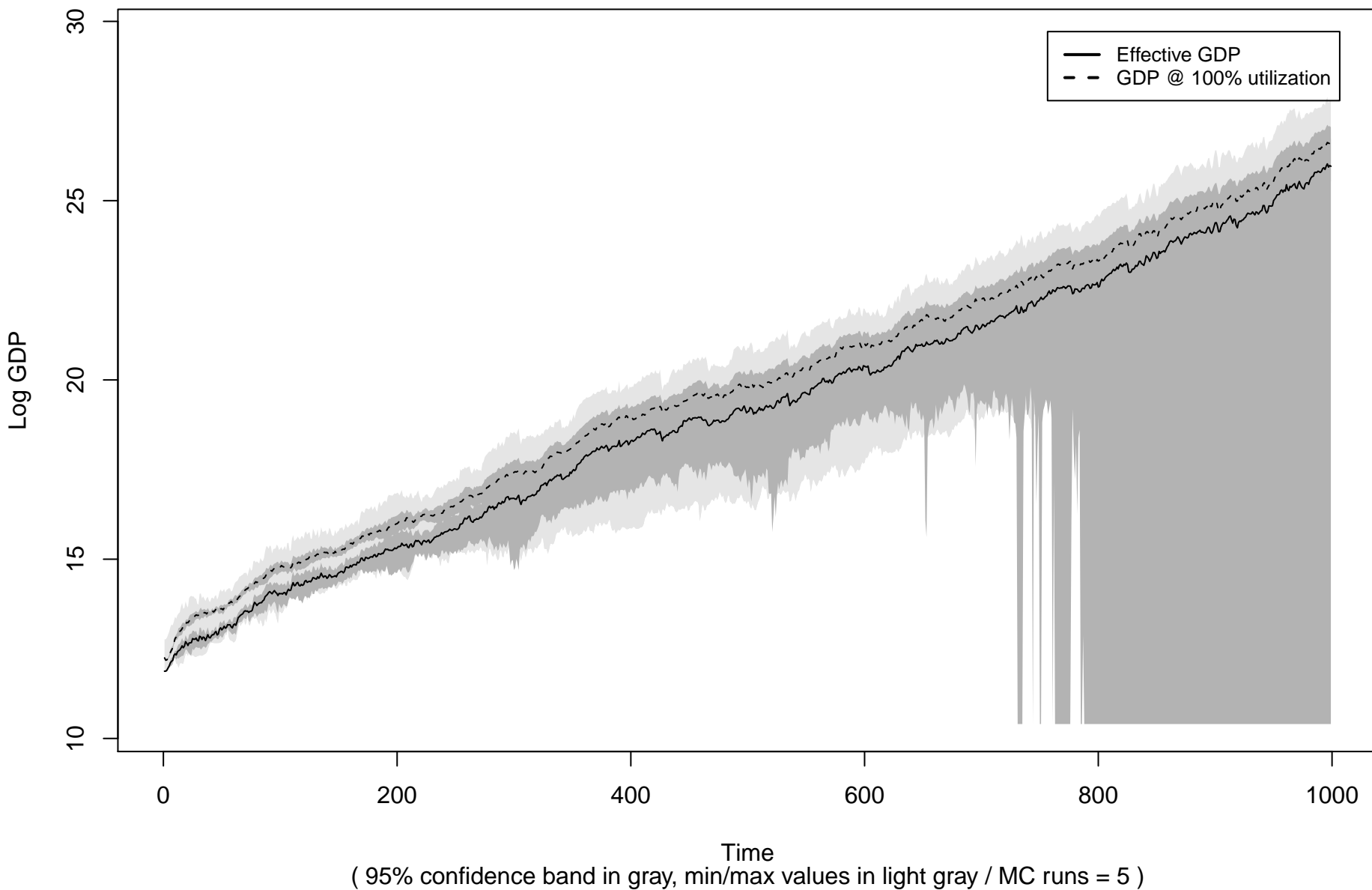
# GDP, investment and consumption ( Benchmark )



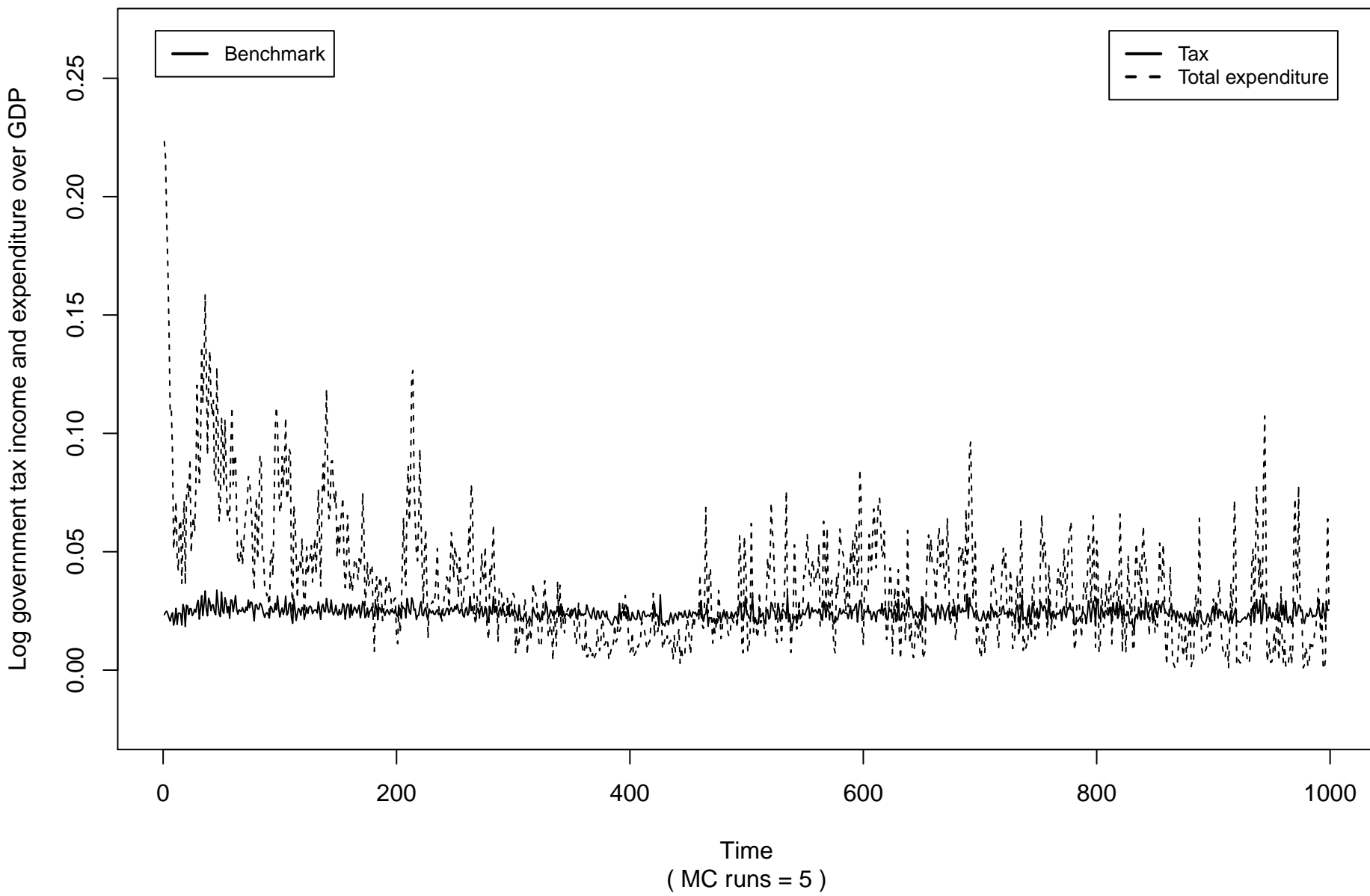
## GDP ( all experiments )



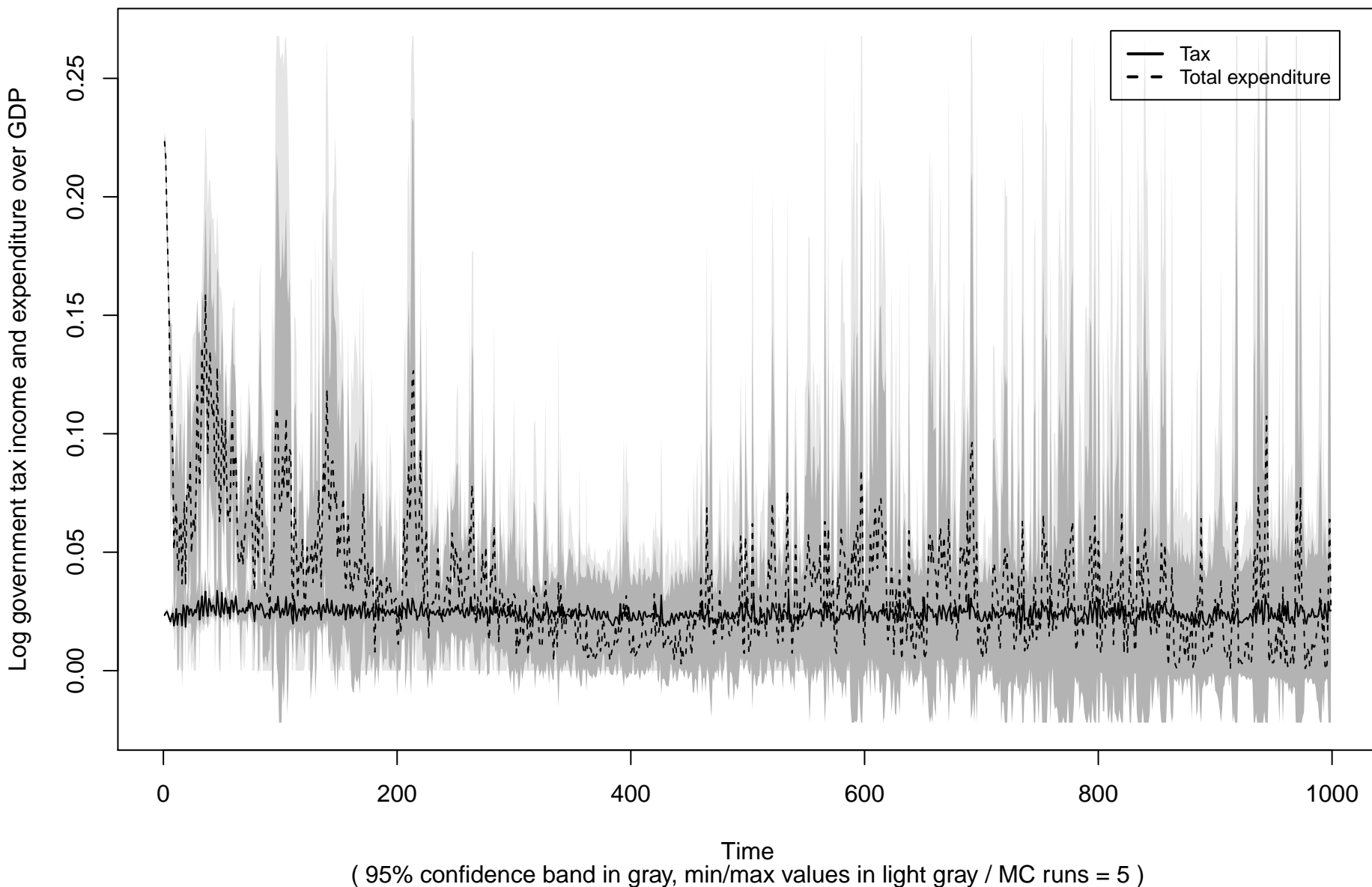
## GDP ( Benchmark )



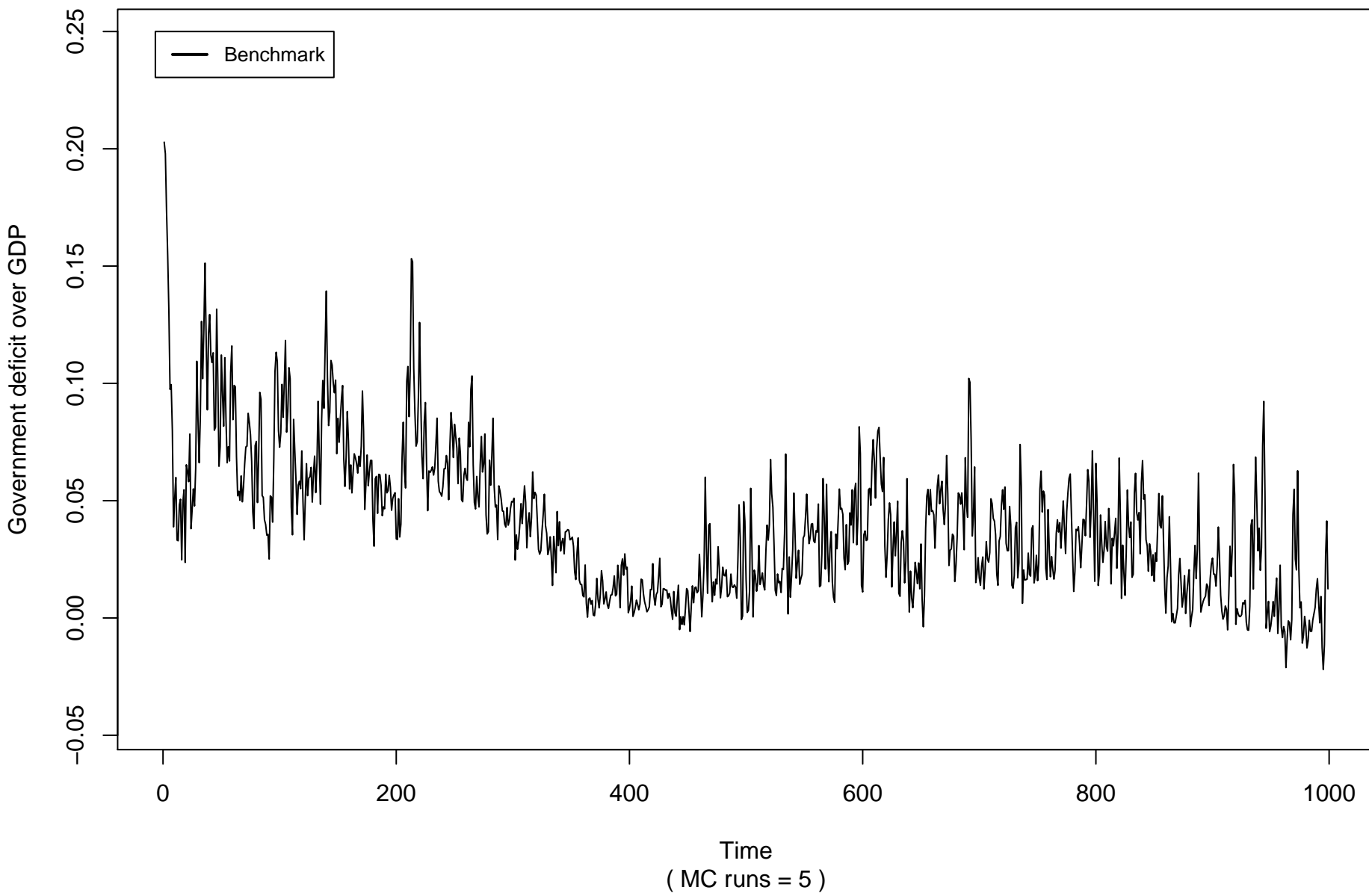
# Government income and expenditure on GDP ( all experiments )



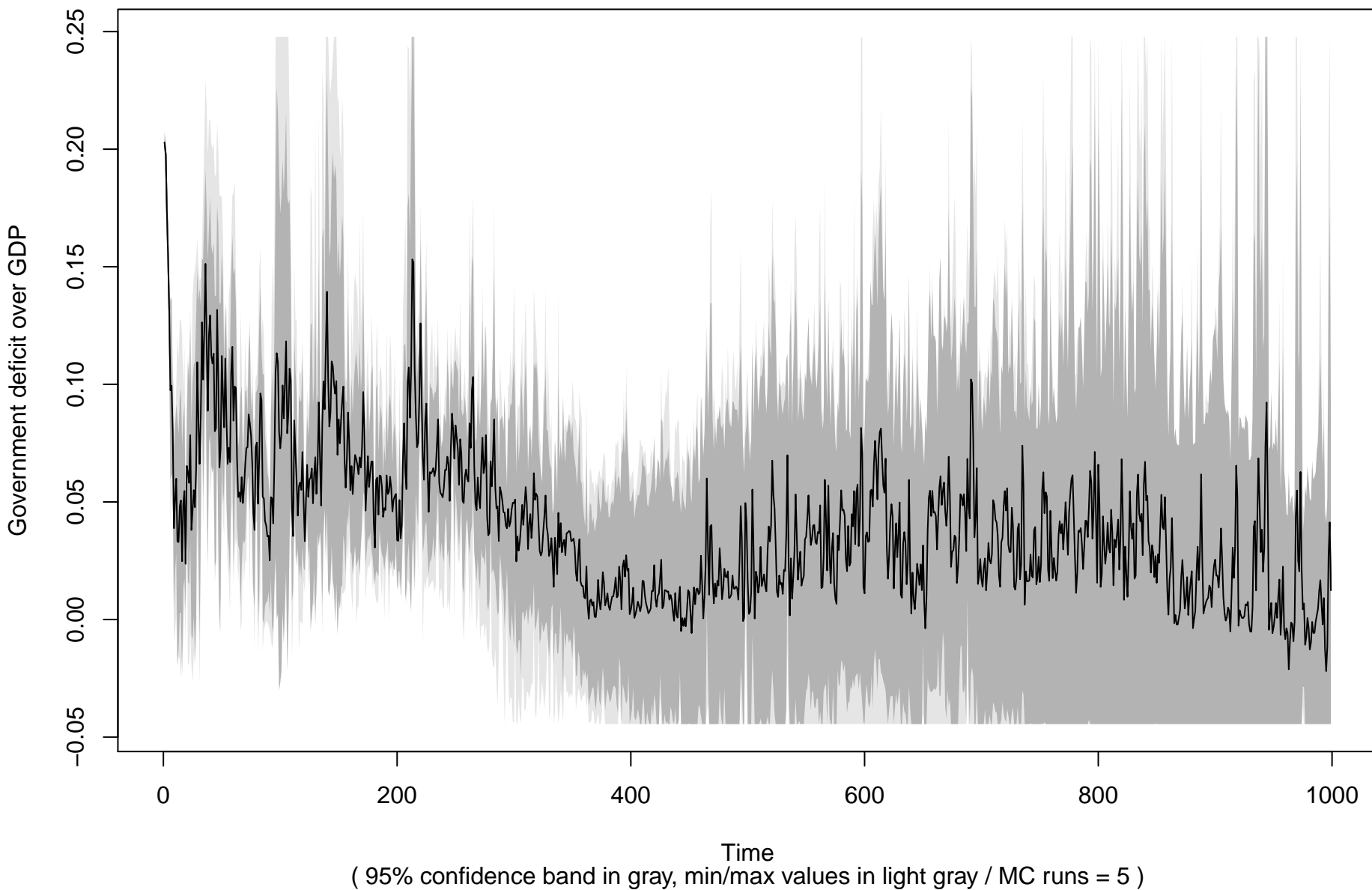
# Government income and expenditure on GDP ( Benchmark )



## Government deficit on GDP ( all experiments )

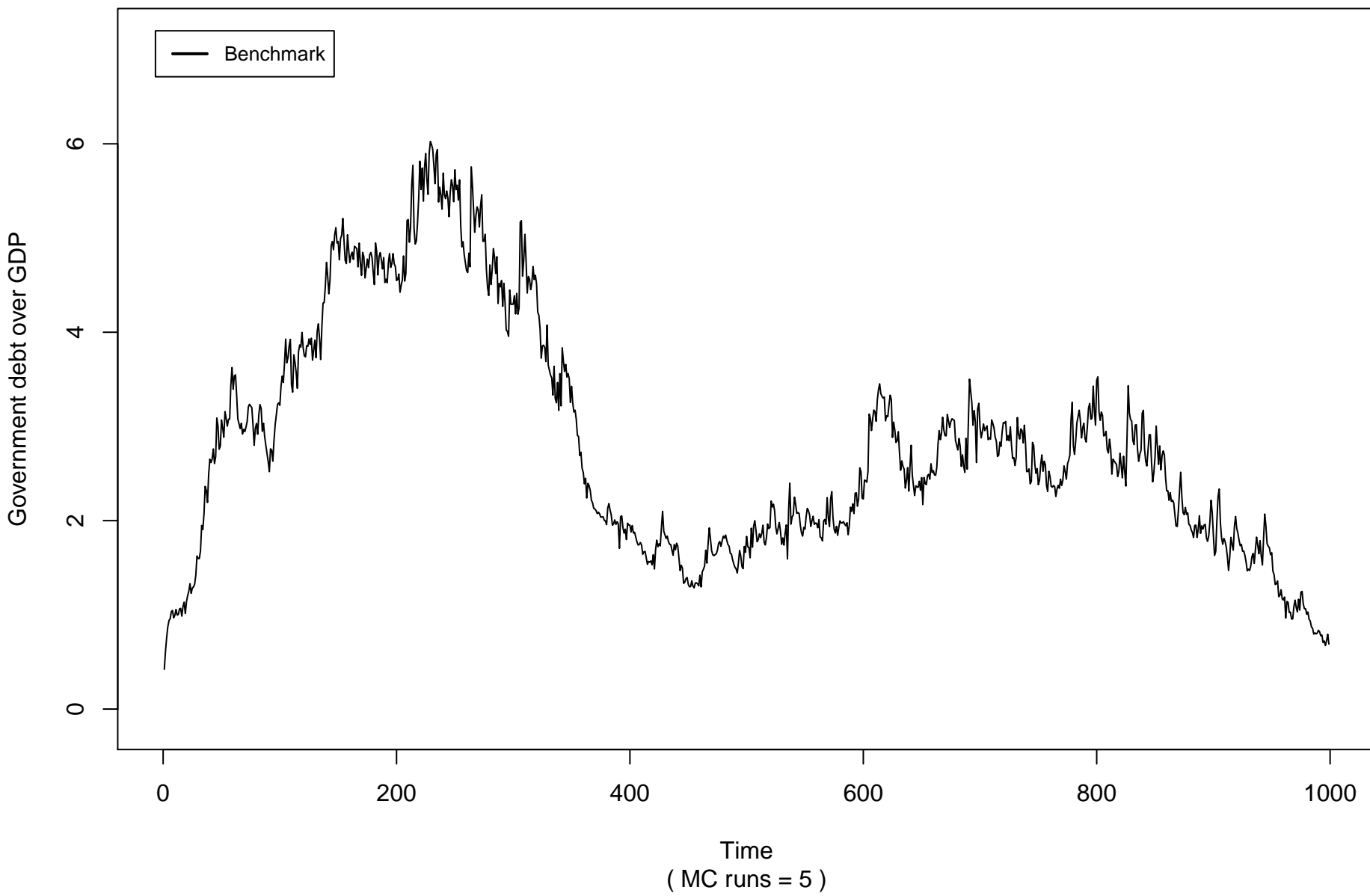


## Government deficit on GDP ( Benchmark )

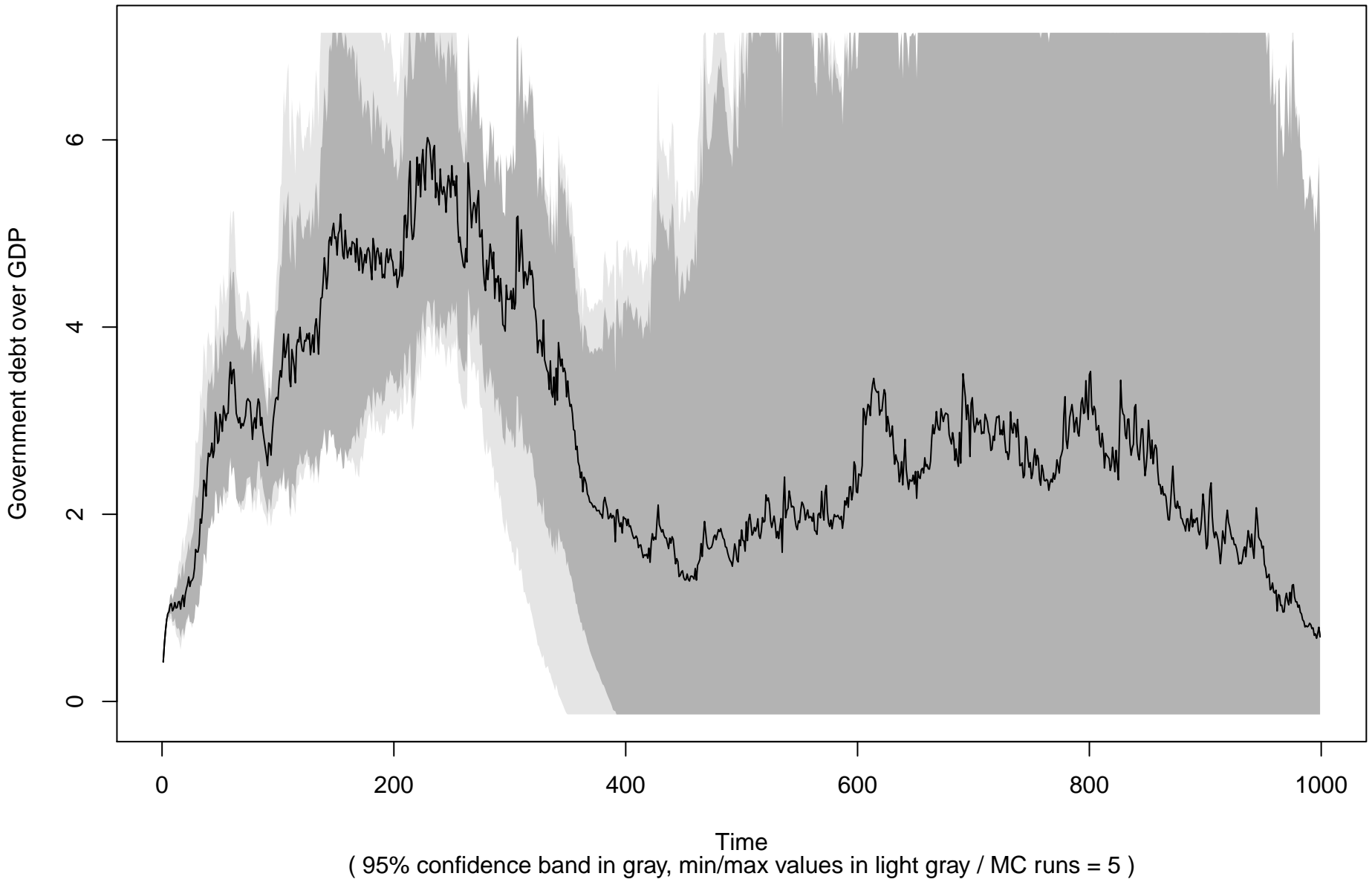




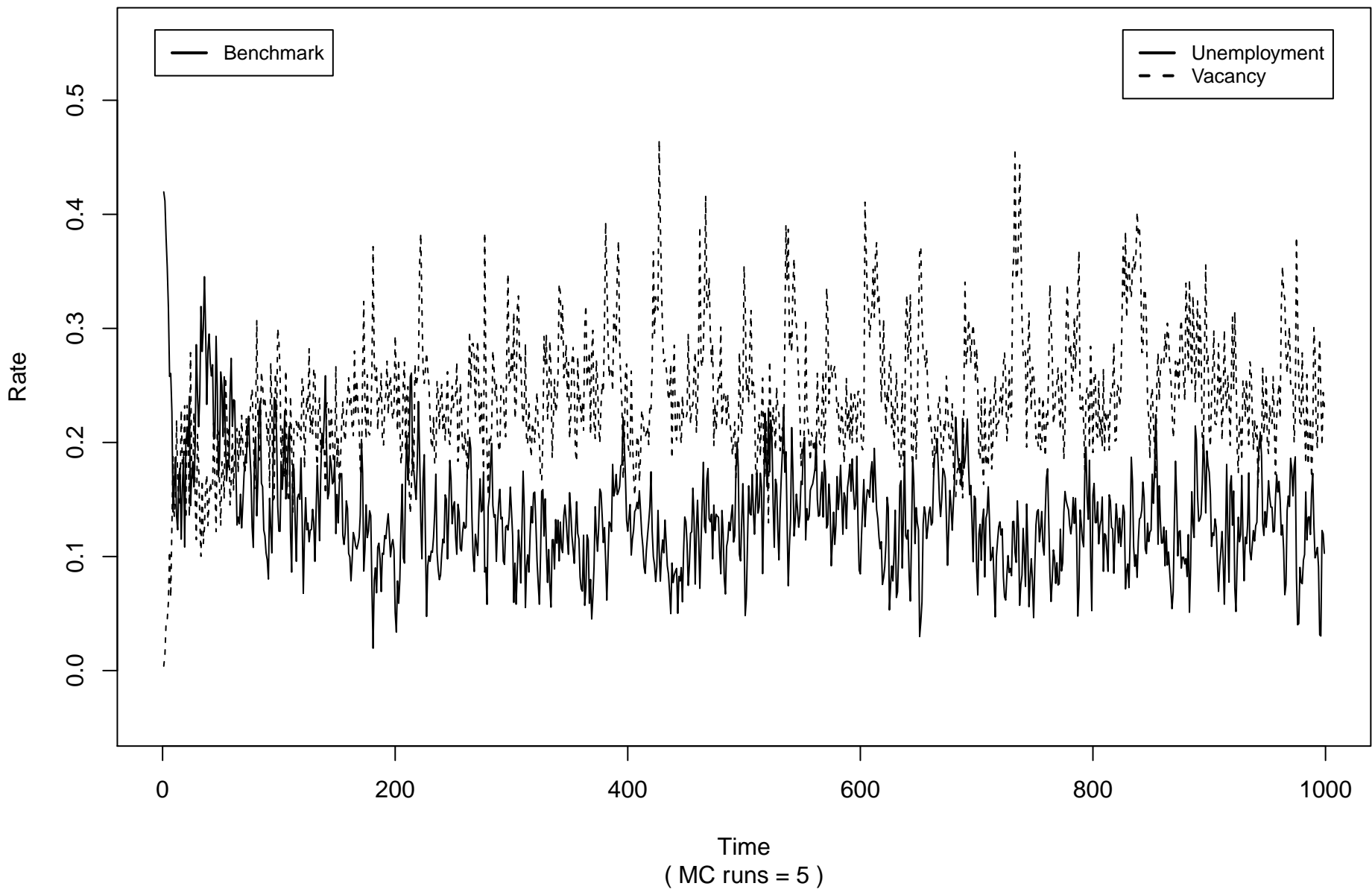
## Government debt on GDP ( all experiments )



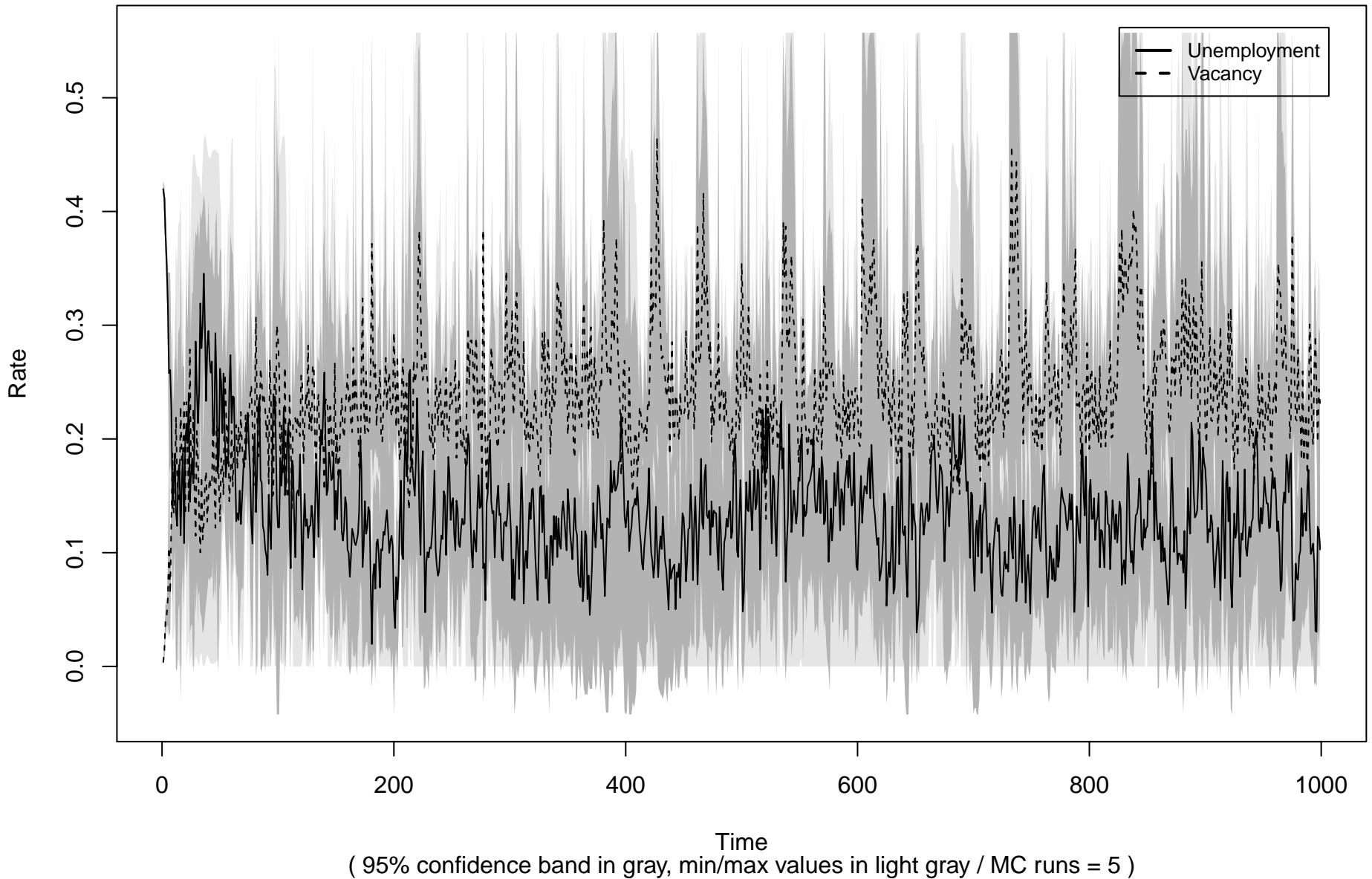
# Government debt on GDP ( Benchmark )



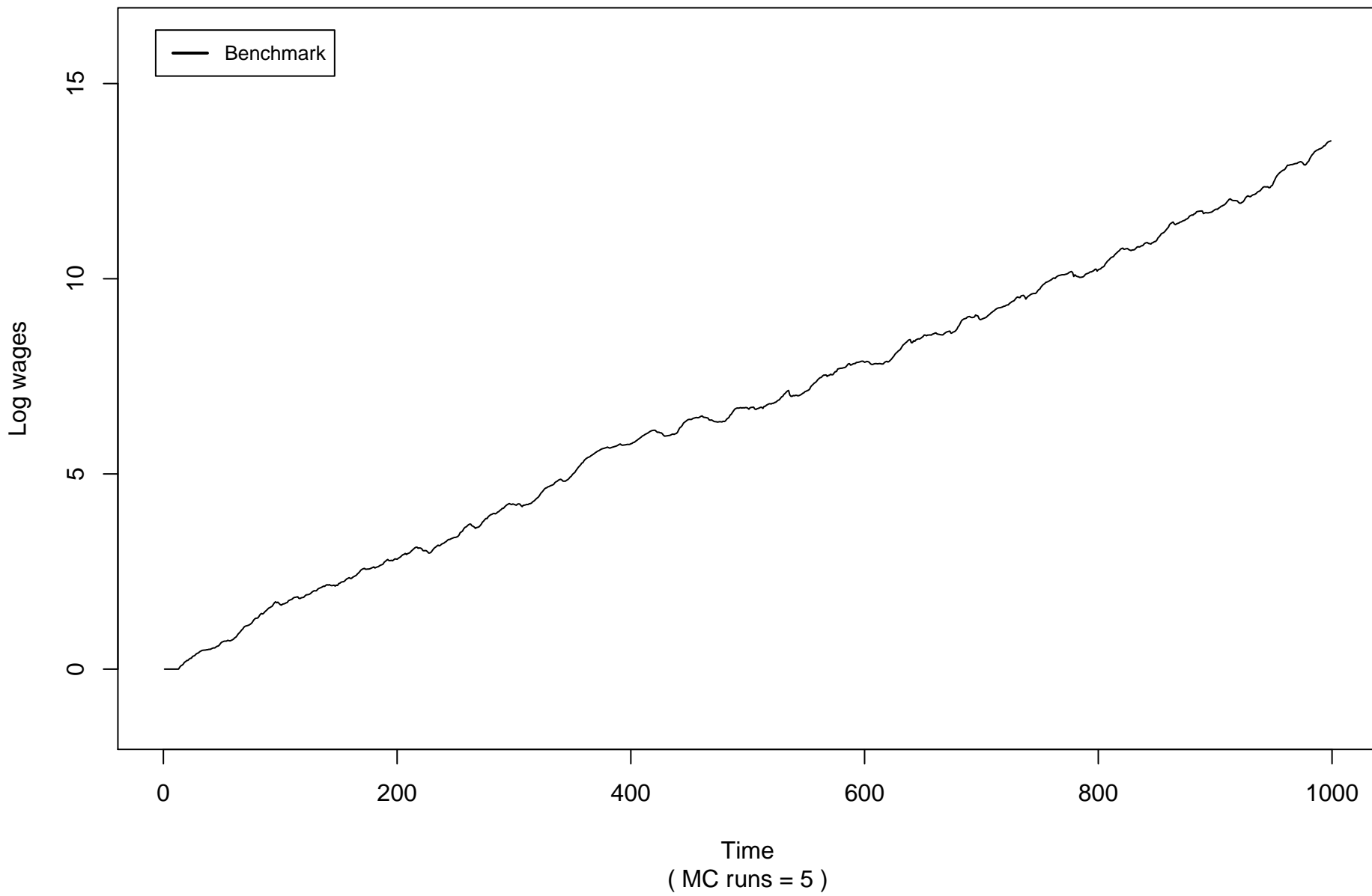
## Unemployment and vacancy rates ( all experiments )



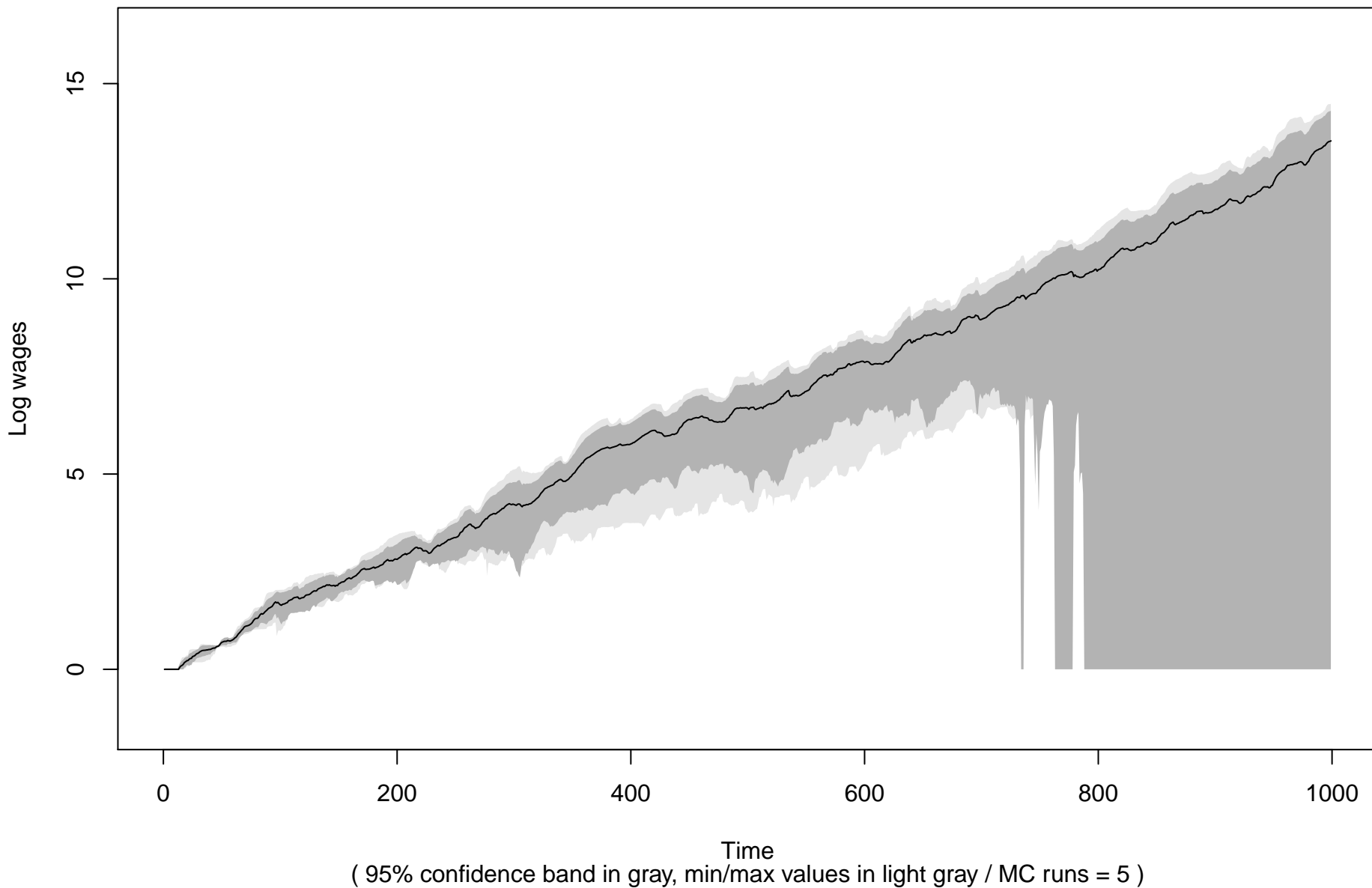
## Unemployment and vacancy rates ( Benchmark )



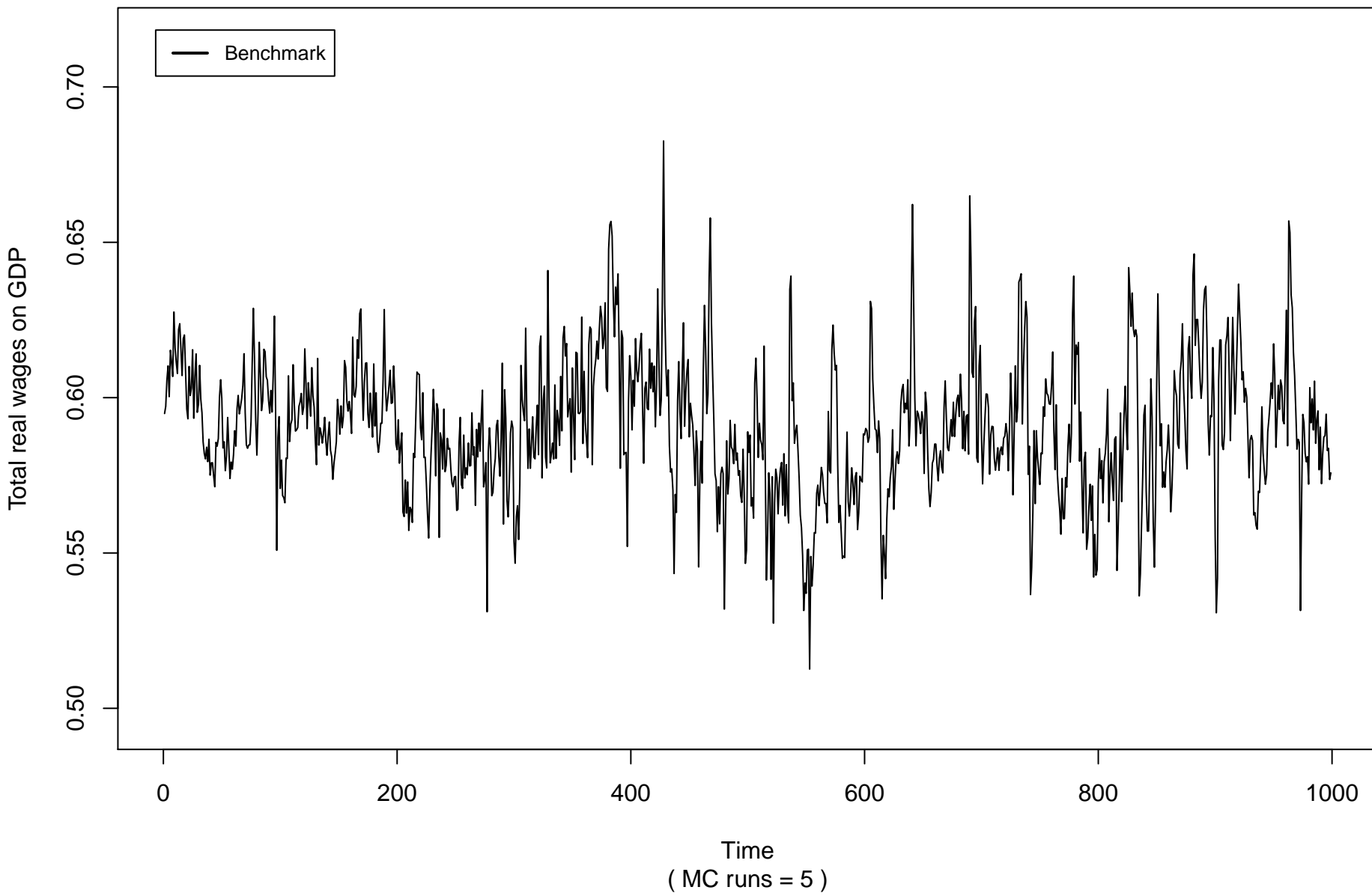
Real wages average ( all experiments )



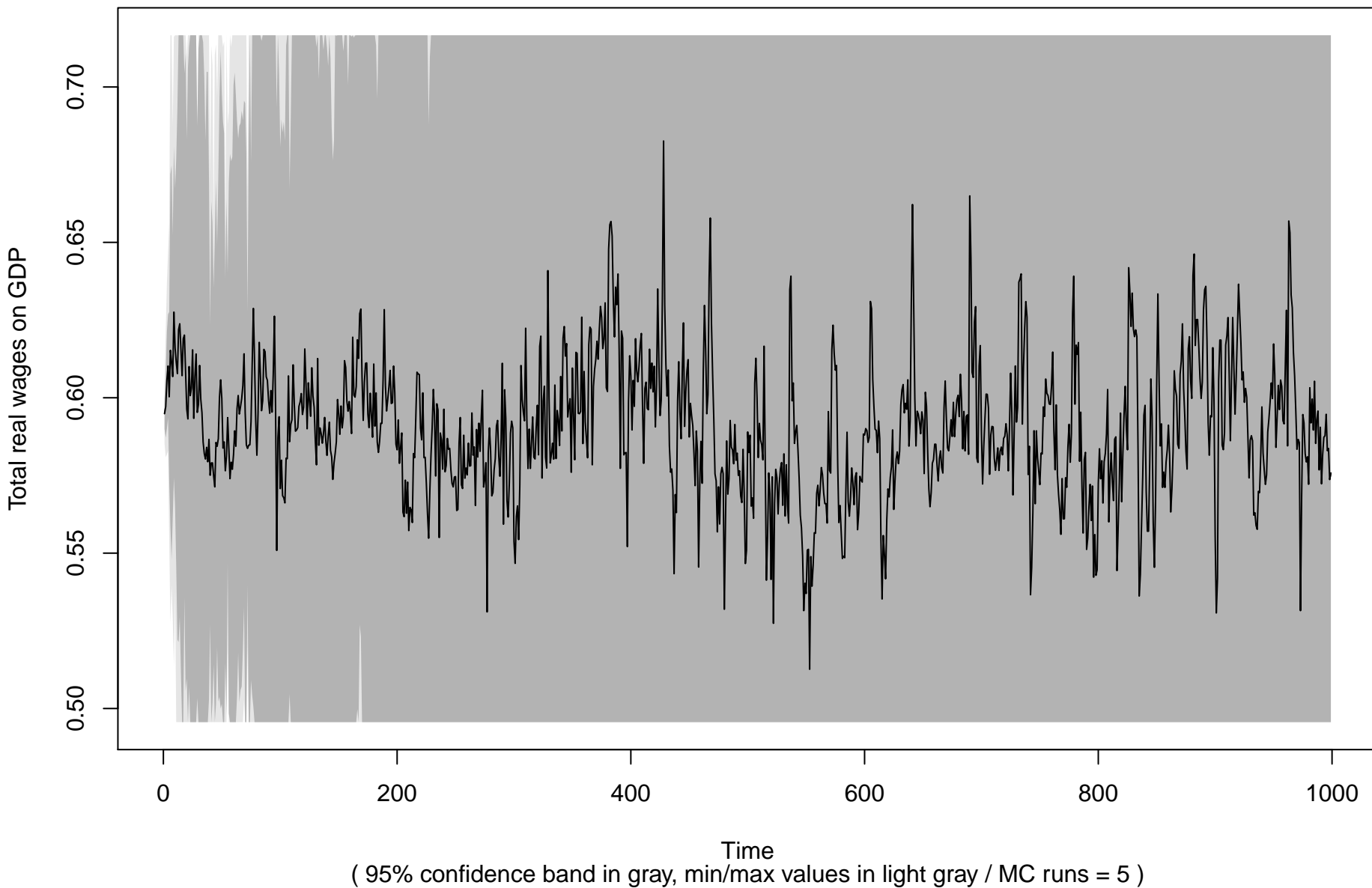
# Real wages average ( Benchmark )



## Wage share ( all experiments )

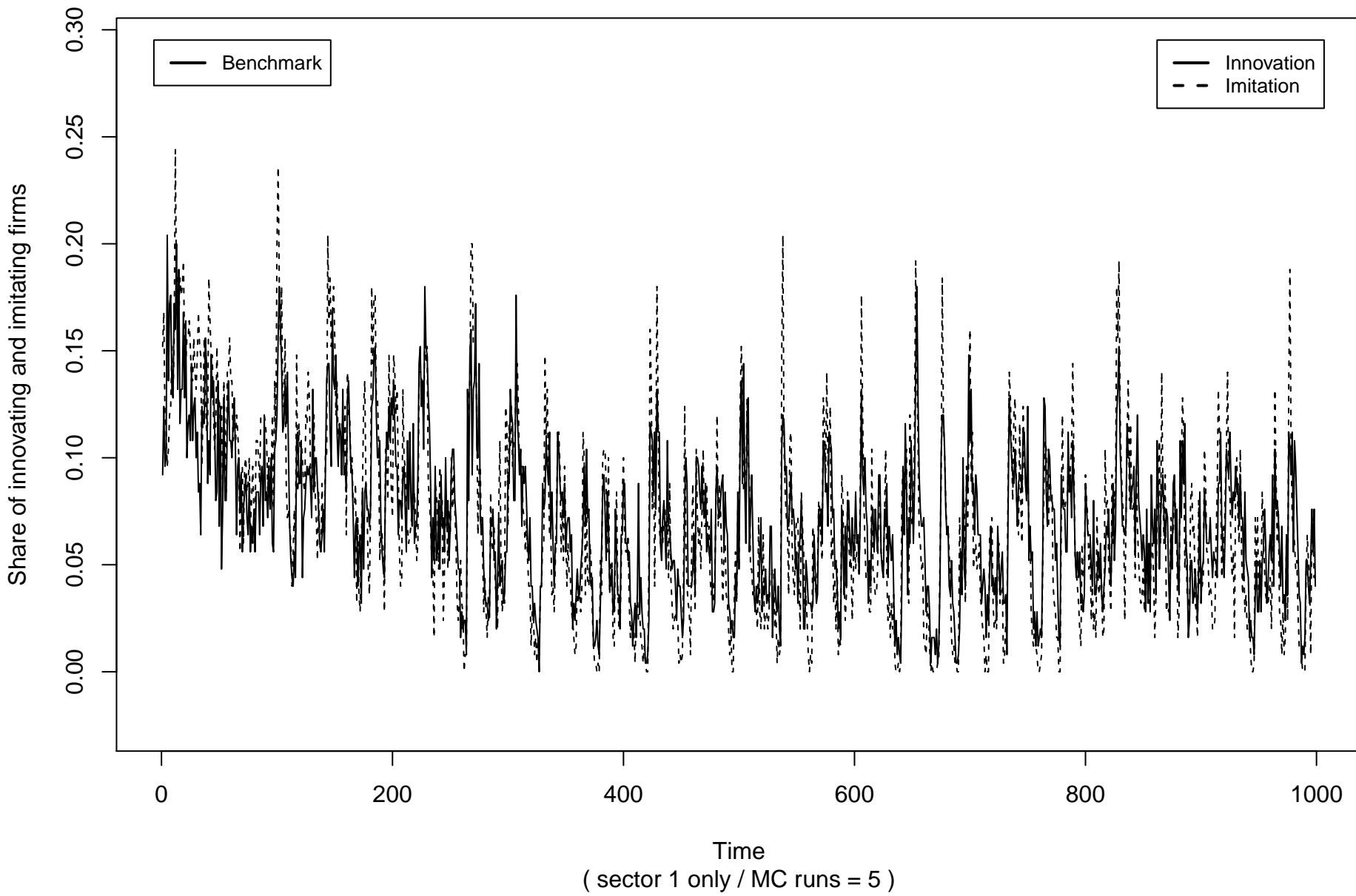


# Wage share ( Benchmark )

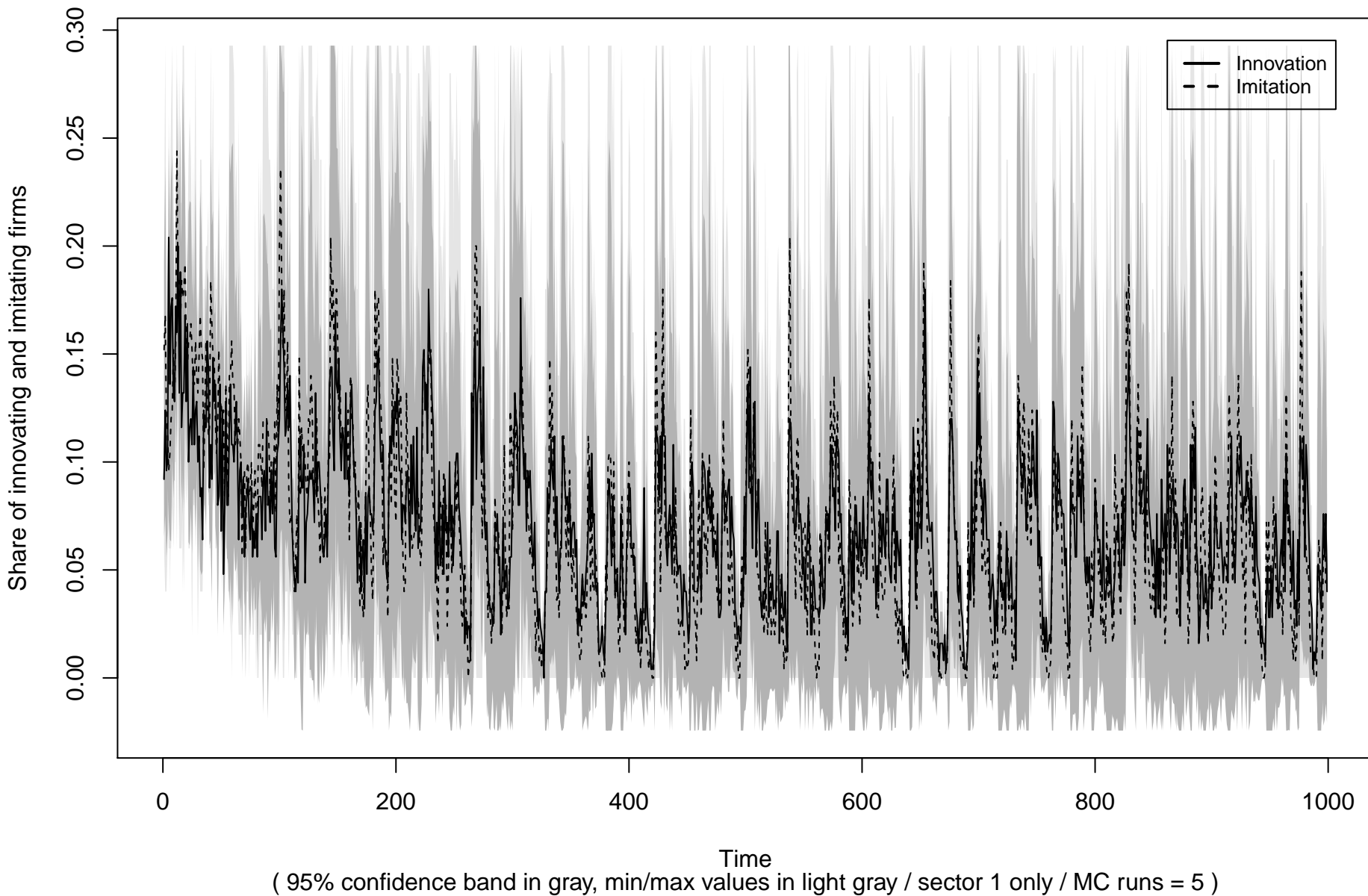




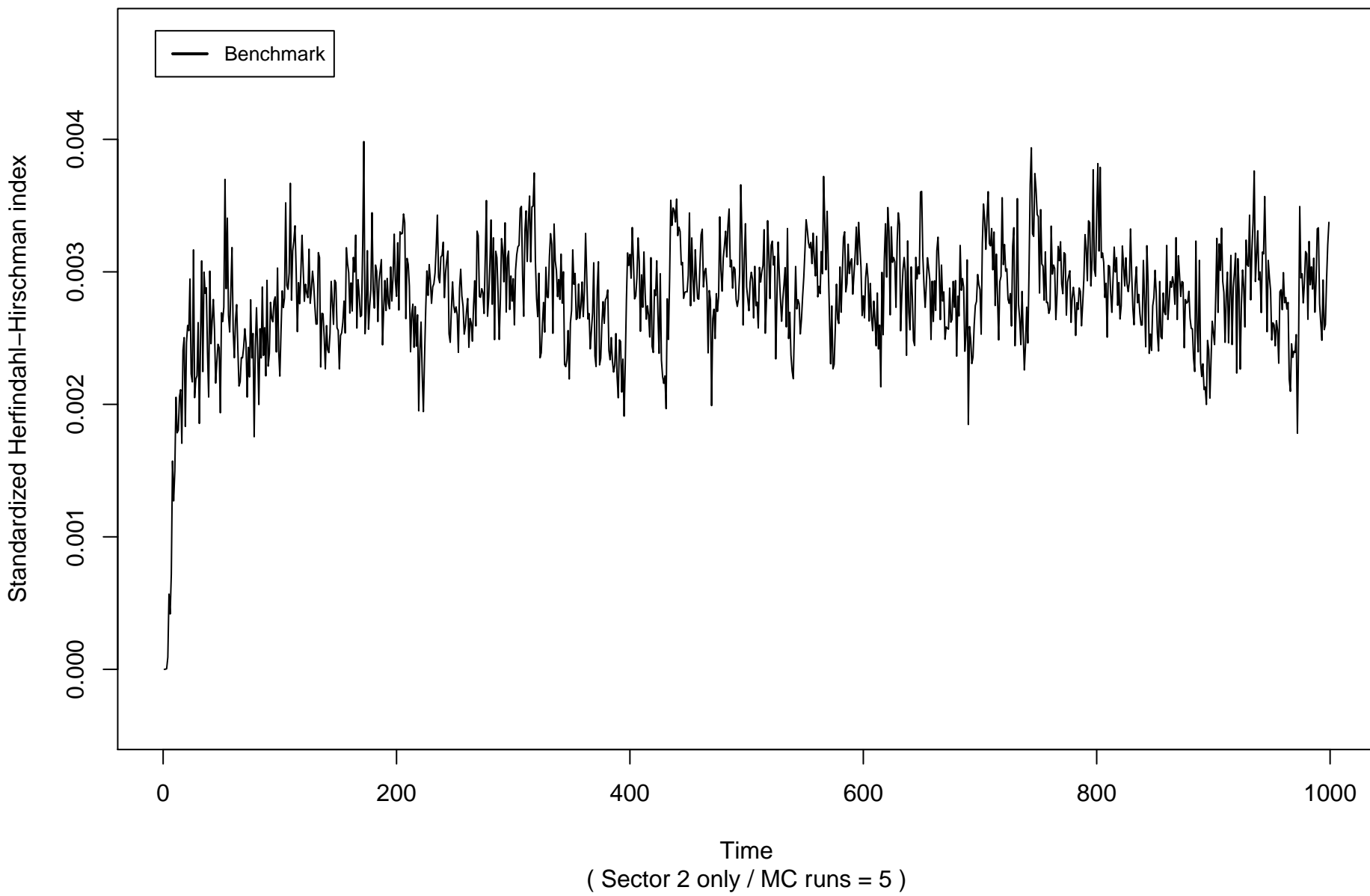
# Innovation and imitation ( all experiments )



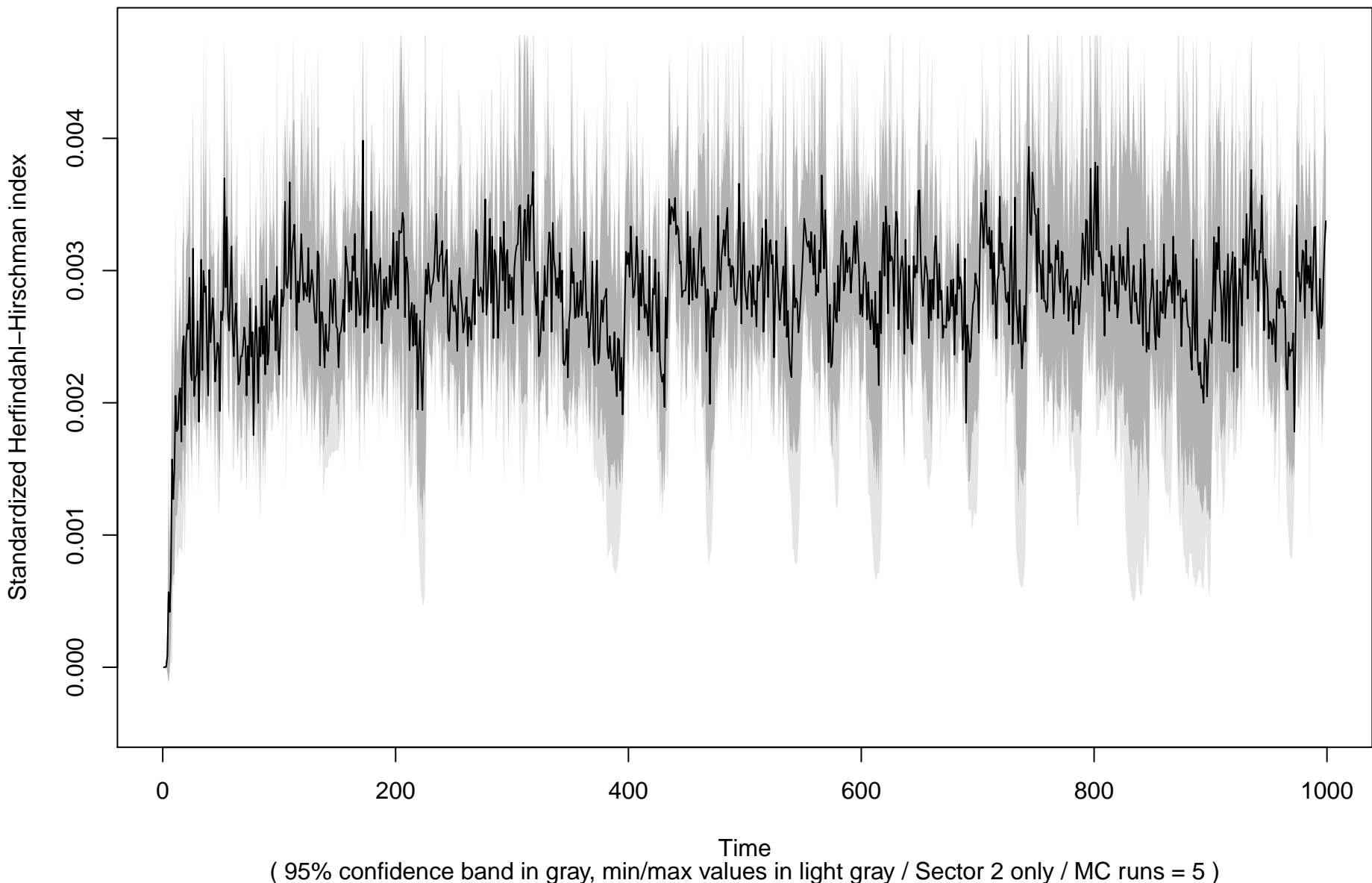
# Innovation and imitation ( Benchmark )



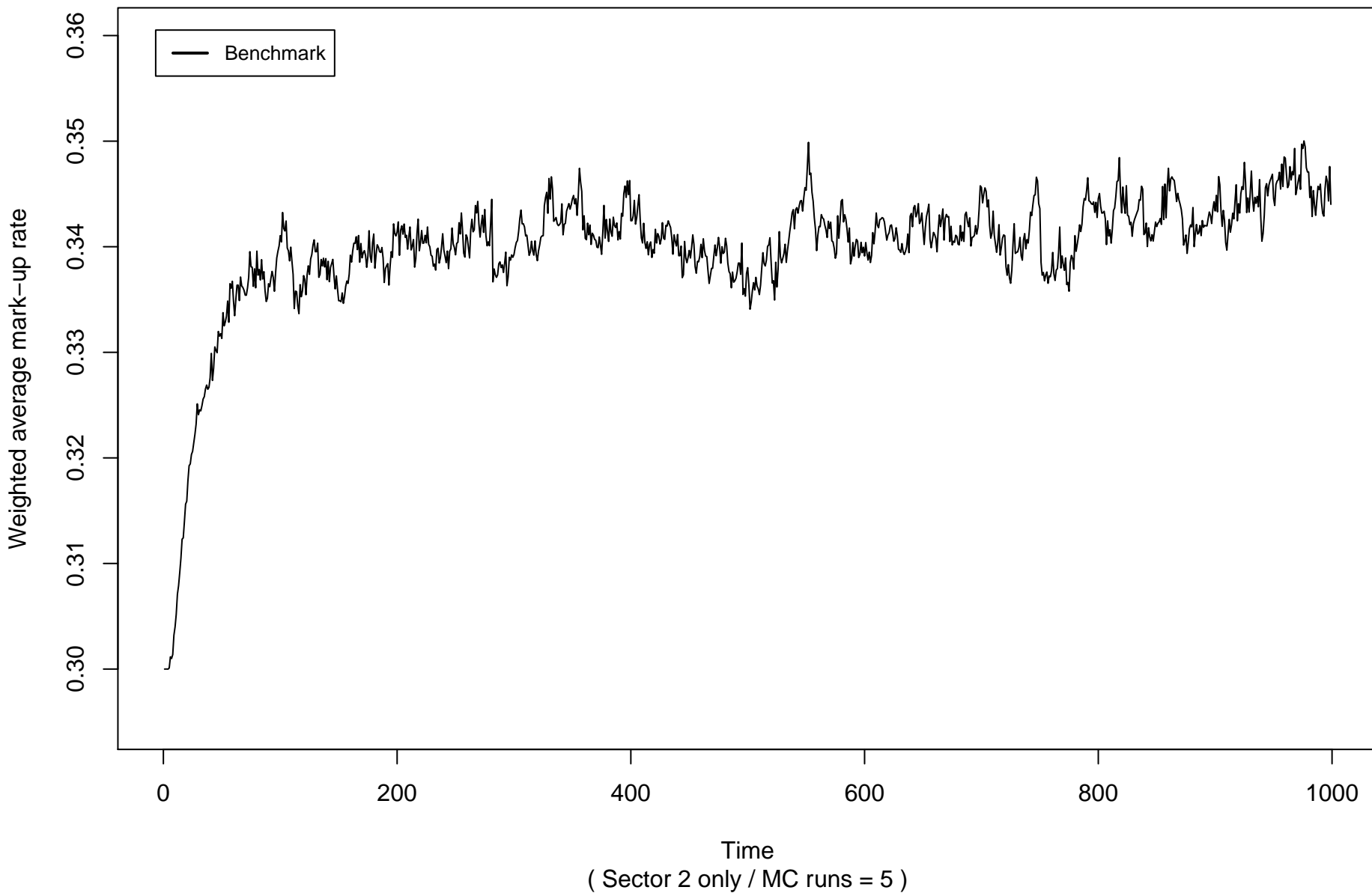
## Market concentration ( all experiments )



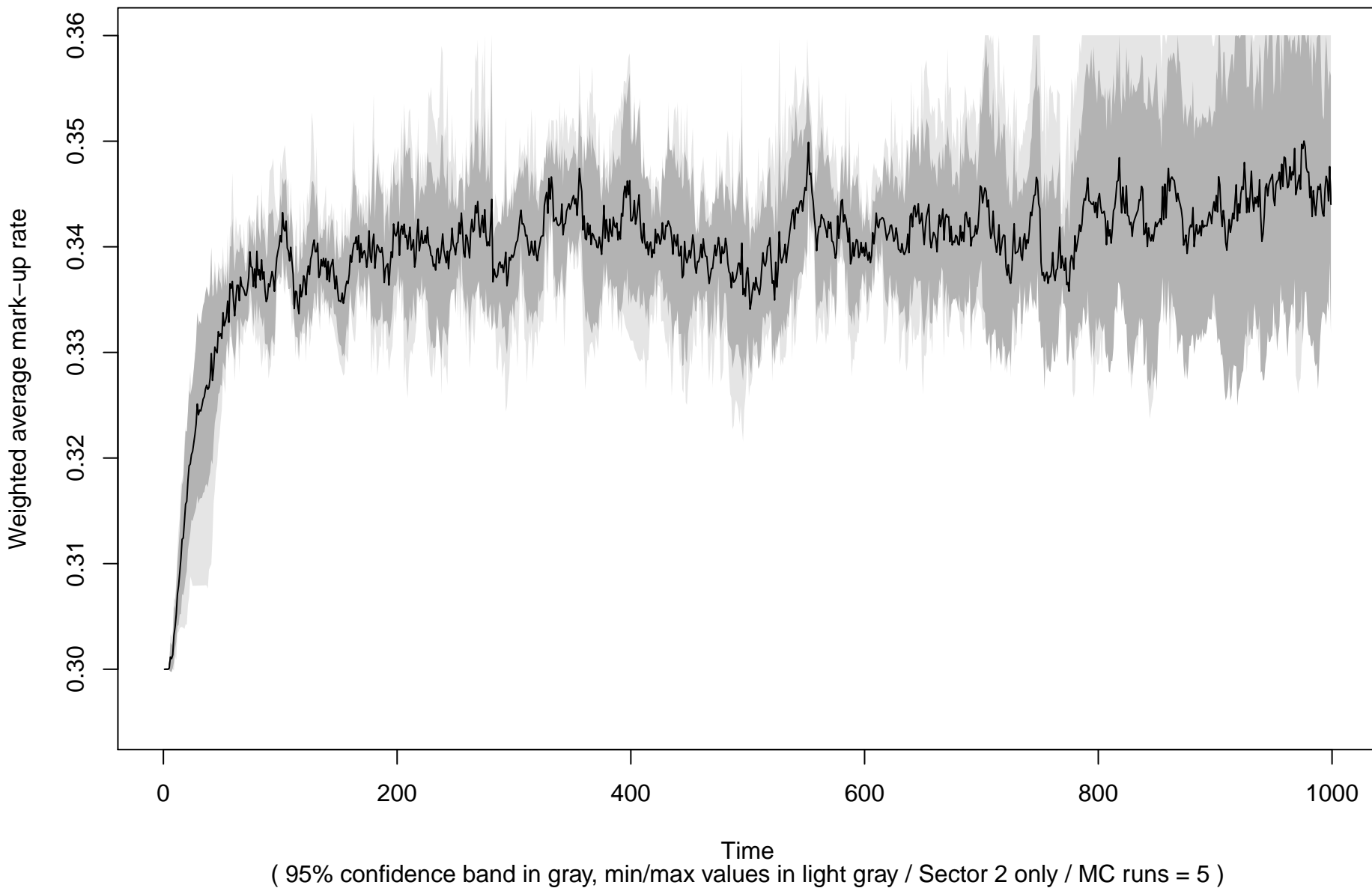
Market concentration ( Benchmark )



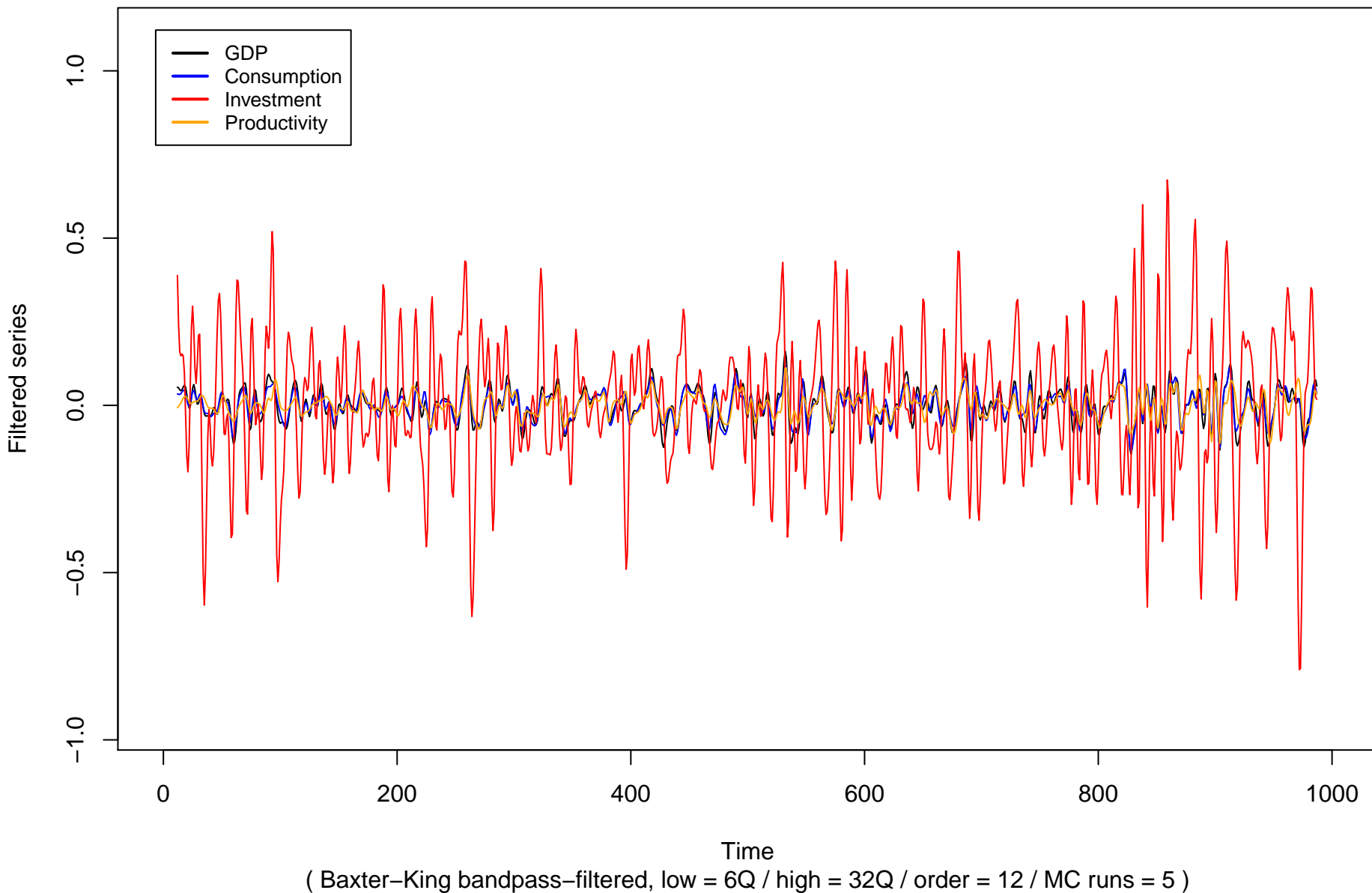
## Mark-up average ( all experiments )



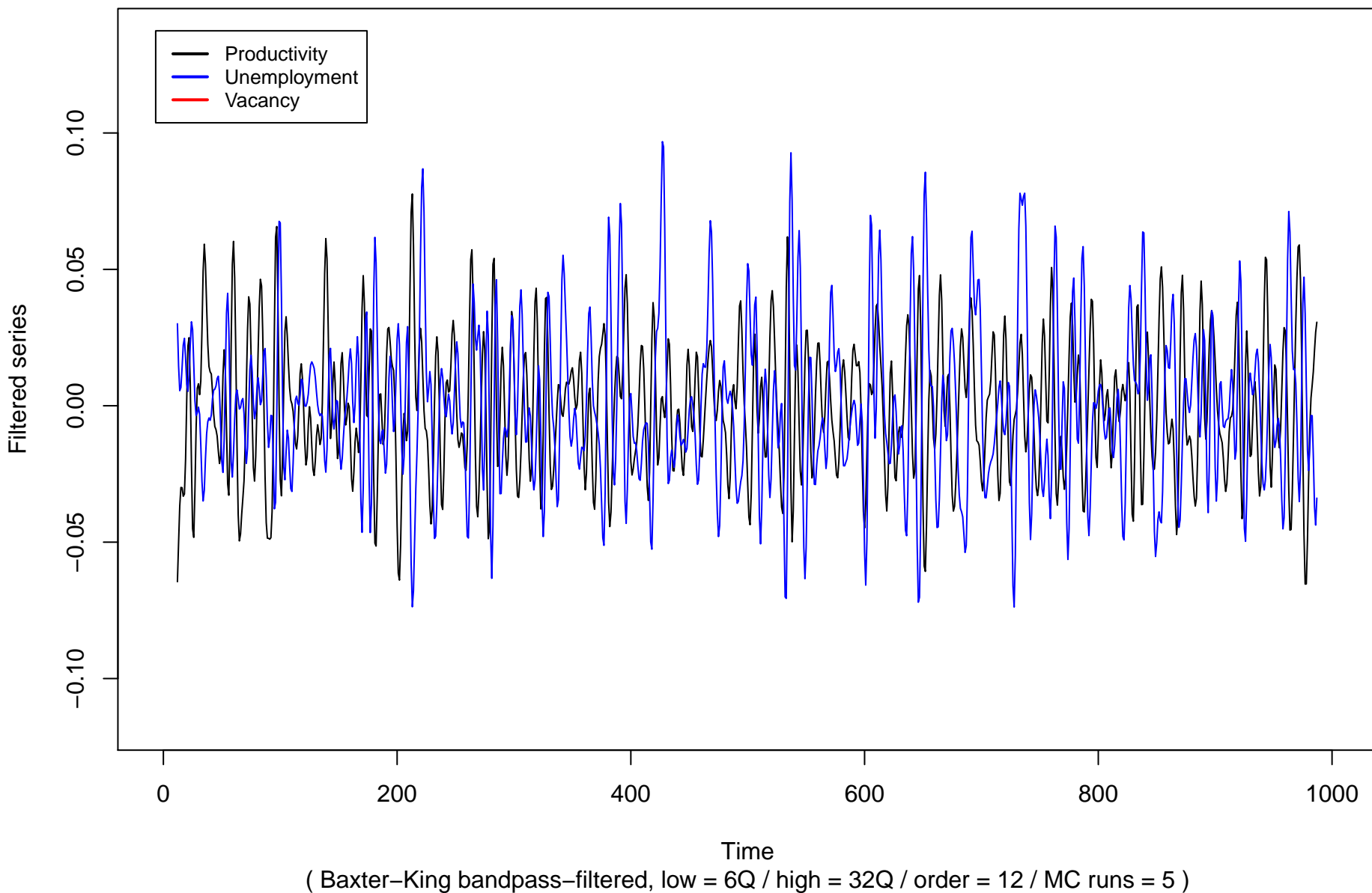
# Mark-up average ( Benchmark )



## GDP cycles ( Benchmark )



## Shimer puzzle ( Benchmark )





## Key statistics and unit roots tests for cycles ( Benchmark )

	<b>GDP (output)</b>	<b>Consumption</b>	<b>Investment</b>	<b>Product.</b>	<b>Real wage</b>
<b>avg. growth rate</b>	0.01242	0.0123	0.01574	0.01205	0.01181
<b>(s.e.)</b>	0.00107	0.0011	0.002438	0.00104	0.001091
<b>ADF test (logs)</b>	-3.209	-2.924	-10.69	-3.059	-3.068
<b>(s.e.)</b>	0.4102	0.423	0.5583	0.4458	0.4268
<b>(p-val.)</b>	0.1918	0.2929	0.01	0.2522	0.2465
<b>(s.e.)</b>	0.0559	0.07696	0	0.077	0.06295
<b>ADF test (bpf)</b>	-10.99	-10.6	-14.77	-10.71	-10.7
<b>(s.e.)</b>	0.4437	0.2685	0.2576	0.2293	0.2588
<b>(p-val.)</b>	0.01	0.01	0.01	0.01	0.01
<b>(s.e.)</b>	0	0	0	0	0
<b>s.d. (bpf)</b>	0.09038	0.0745	1.593	0.06334	0.0738
<b>(s.e.)</b>	0.00151	0.001801	0.09642	0.001512	0.004413
<b>relative s.d. (GDP)</b>	1	0.8242	17.63	0.7008	0.8166

( bpf: Baxter–King bandpass–filtered series, low = 6Q / high = 32Q / order = 12 / MC runs = 5 / 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
<b>GDP (output)</b>	-0.01031	0.2627	0.601	0.887	1	0.887	0.601	0.2627	-0.01031
(s.e.)	0.008055	0.00982	0.006869	0.002166	4.965e-17	0.002166	0.006869	0.00982	0.008055
(p-val.)	0.9991	1.693e-05	7.906e-08	1.424e-10	NA	1.424e-10	7.906e-08	1.693e-05	0.9991
<b>Consumption</b>	0.09187	0.3205	0.5952	0.8333	0.9403	0.8639	0.6299	0.3247	0.04603
(s.e.)	0.02782	0.02425	0.01646	0.008257	0.003662	0.003623	0.008031	0.01152	0.01111
(p-val.)	0.1638	0.0002194	2.703e-06	3.937e-08	9.067e-10	1.25e-09	1.198e-07	1.094e-05	0.8878
<b>Investment</b>	-0.2994	-0.3895	-0.391	-0.2615	-0.02661	0.2262	0.3954	0.427	0.3429
(s.e.)	0.02372	0.03481	0.03884	0.03405	0.02402	0.01453	0.009363	0.01323	0.02378
(p-val.)	0.0002803	0.0003554	0.0005324	0.002117	0.8238	0.0001745	1.856e-06	5.132e-06	0.000147
<b>Net investment</b>	-0.2334	-0.3053	-0.3032	-0.1906	0.01003	0.2215	0.3562	0.3693	0.2827
(s.e.)	0.02149	0.03788	0.04958	0.04955	0.03829	0.02123	0.007036	0.01519	0.02704
(p-val.)	0.0006694	0.001511	0.004123	0.03014	0.611	0.0008403	9.771e-07	1.76e-05	0.0006136
<b>Change in inventories</b>	-0.1819	-0.1127	0.02748	0.1771	0.2607	0.2373	0.1303	0.006957	-0.06944
(s.e.)	0.0323	0.02721	0.01575	0.01689	0.02642	0.03026	0.03003	0.02874	0.02408
(p-val.)	0.0103	0.06781	0.9604	0.001213	0.0008369	0.002209	0.04258	0.7698	0.3861
<b>Unemployment rate</b>	0.2951	0.3055	0.1988	0.005823	-0.1903	-0.3001	-0.2853	-0.175	-0.04283
(s.e.)	0.02117	0.03427	0.05033	0.05945	0.05957	0.05217	0.04206	0.03655	0.03921
(p-val.)	0.0001932	0.001035	0.02651	0.1543	0.04881	0.005152	0.003025	0.01825	0.1801
<b>Productivity</b>	0.2266	0.4184	0.6133	0.7534	0.7824	0.6791	0.4743	0.2333	0.02067
(s.e.)	0.049	0.04441	0.02818	0.02498	0.03522	0.03758	0.0377	0.04133	0.04015
(p-val.)	0.01415	0.0006541	2.013e-05	5.07e-06	1.687e-05	4.026e-05	0.0001984	0.007154	0.3058
<b>Mark-up (sector 2)</b>	0.2322	0.1815	0.09771	-0.0009846	-0.08872	-0.145	-0.1638	-0.1549	-0.1344
(s.e.)	0.01612	0.02071	0.0288	0.03445	0.03849	0.04029	0.03682	0.03002	0.03049
(p-val.)	0.0002275	0.002237	0.09107	0.6174	0.1727	0.05428	0.02531	0.01817	0.03824
<b>Total firm debt</b>	0.2005	0.1001	-0.007384	-0.1044	-0.1789	-0.2283	-0.256	-0.2659	-0.259
(s.e.)	0.05002	0.05668	0.06038	0.05642	0.04537	0.03575	0.03788	0.04526	0.04863
(p-val.)	0.0252	0.02492	0.2238	0.034	0.03078	0.004819	0.003439	0.005389	0.007726
<b>Liquidity-to-sales ratio</b>	0.06807	-0.1241	-0.3546	-0.5669	-0.6952	-0.6958	-0.5772	-0.3876	-0.1897
(s.e.)	0.03103	0.02048	0.02492	0.02943	0.02476	0.01795	0.0177	0.01775	0.01665
(p-val.)	0.2795	0.01931	0.0001504	3.387e-05	6.947e-06	1.918e-06	4.144e-06	2.598e-05	0.0007764
<b>Bankruptcy rate</b>	0.3677	0.3751	0.2918	0.1433	-0.01158	-0.1178	-0.1544	-0.1448	-0.1285
(s.e.)	0.03466	0.05358	0.06966	0.07149	0.06424	0.06076	0.05802	0.04558	0.02431
(p-val.)	0.0004558	0.002138	0.01498	0.05051	0.05192	0.03358	0.03423	0.05926	0.02606

( non-rate/ratio series are Baxter-King bandpass-filtered, low = 6Q / high = 32Q / order = 12 / MC runs = 5 / period = 2 – 1000 )

( test H0: lag coefficient is not significant at 5% level )

## Correlation structure for GDP ( Benchmark )

	<b>-4</b>	<b>-3</b>	<b>-2</b>	<b>-1</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>GDP (output)</b>	-0.01031	0.2627	0.601	0.887	1	0.887	0.601	0.2627	-0.01031
<b>(s.e.)</b>	0.008055	0.00982	0.006869	0.002166	4.965e-17	0.002166	0.006869	0.00982	0.008055
<b>(p-val.)</b>	0.9991	1.693e-05	7.906e-08	1.424e-10	NA	1.424e-10	7.906e-08	1.693e-05	0.9991
<b>Consumption</b>	0.09187	0.3205	0.5952	0.8333	0.9403	0.8639	0.6299	0.3247	0.04603
<b>(s.e.)</b>	0.02782	0.02425	0.01646	0.008257	0.003662	0.003623	0.008031	0.01152	0.01111
<b>(p-val.)</b>	0.1638	0.0002194	2.703e-06	3.937e-08	9.067e-10	1.25e-09	1.198e-07	1.094e-05	0.8878
<b>Investment</b>	-0.2994	-0.3895	-0.391	-0.2615	-0.02661	0.2262	0.3954	0.427	0.3429
<b>(s.e.)</b>	0.02372	0.03481	0.03884	0.03405	0.02402	0.01453	0.009363	0.01323	0.02378
<b>(p-val.)</b>	0.0002803	0.0003554	0.0005324	0.002117	0.8238	0.0001745	1.856e-06	5.132e-06	0.000147
<b>Productivity</b>	0.2266	0.4184	0.6133	0.7534	0.7824	0.6791	0.4743	0.2333	0.02067
<b>(s.e.)</b>	0.049	0.04441	0.02818	0.02498	0.03522	0.03758	0.0377	0.04133	0.04015
<b>(p-val.)</b>	0.01415	0.0006541	2.013e-05	5.07e-06	1.687e-05	4.026e-05	0.0001984	0.007154	0.3058
<b>Entry</b>	-0.108	0.06225	0.2536	0.4112	0.4877	0.4686	0.3782	0.2616	0.1586
<b>(s.e.)</b>	0.03064	0.03155	0.02996	0.02729	0.02469	0.02286	0.02177	0.01982	0.01678
<b>(p-val.)</b>	0.1037	0.4913	0.001534	0.0001074	3.319e-05	2.934e-05	6.533e-05	0.0002732	0.00226
<b>Wage</b>	0.3141	0.5056	0.6639	0.7416	0.7108	0.5788	0.3863	0.1859	0.01772
<b>(s.e.)</b>	0.02643	0.01568	0.01979	0.0303	0.0356	0.03437	0.02996	0.02698	0.02583
<b>(p-val.)</b>	0.0003371	4.65e-06	3.483e-06	1.169e-05	2.665e-05	5.697e-05	0.0002065	0.005036	0.8588
<b>Unemployment rate</b>	0.2951	0.3055	0.1988	0.005823	-0.1903	-0.3001	-0.2853	-0.175	-0.04283
<b>(s.e.)</b>	0.02117	0.03427	0.05033	0.05945	0.05957	0.05217	0.04206	0.03655	0.03921
<b>(p-val.)</b>	0.0001932	0.001035	0.02651	0.1543	0.04881	0.005152	0.003025	0.01825	0.1801
<b>Vacancy rate</b>	0.1503	-0.03877	-0.2445	-0.3811	-0.3929	-0.2914	-0.1441	-0.03041	0.008528
<b>(s.e.)</b>	0.04756	0.03994	0.05153	0.07448	0.08785	0.08093	0.05602	0.02567	0.01902
<b>(p-val.)</b>	0.04496	0.5823	0.01198	0.006403	0.009826	0.02357	0.06922	0.706	0.9955

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

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

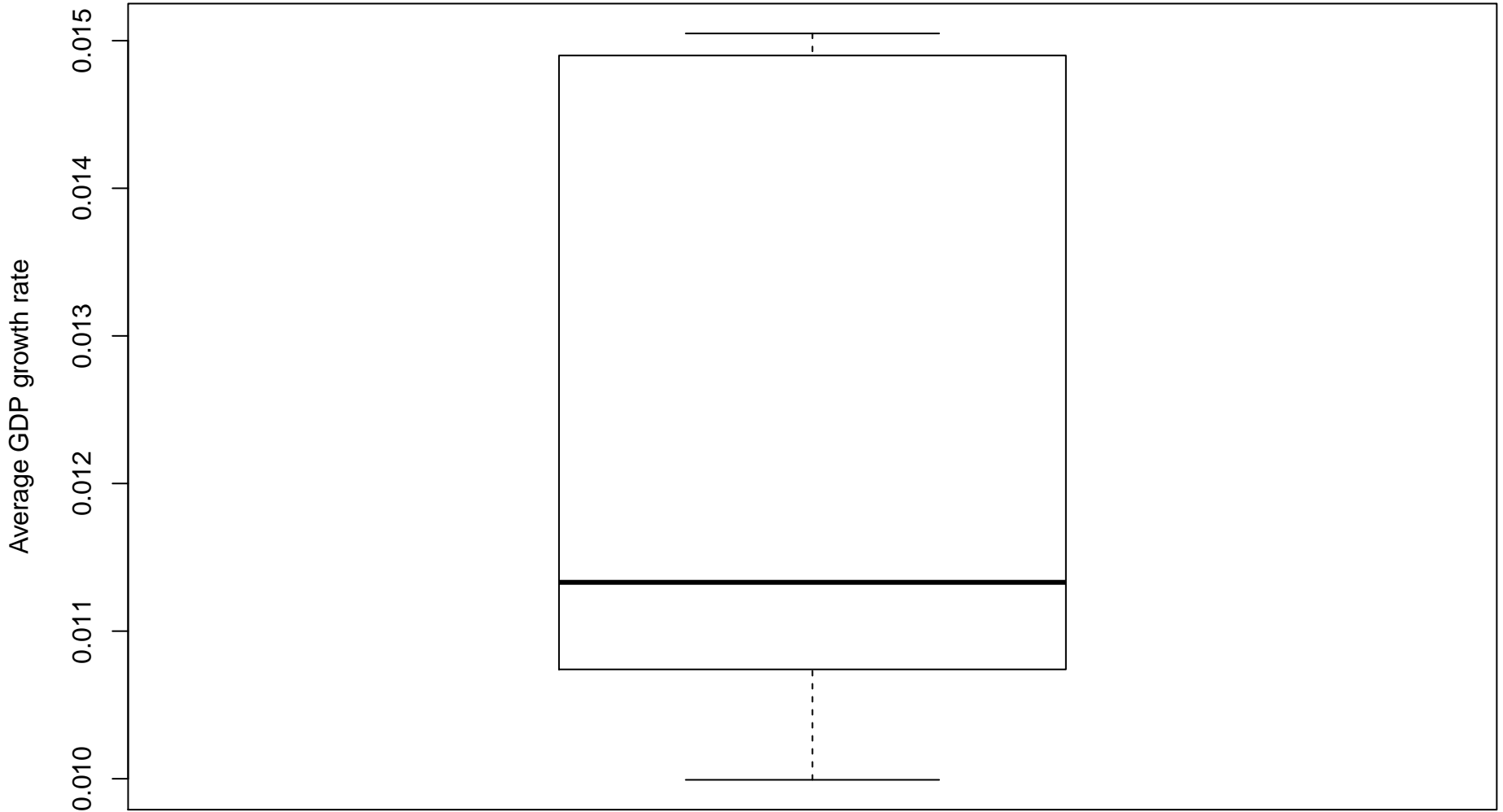
	avg.ADF	rej.ADF	avg.PP	rej.PP	avg.KPSS	rej.KPSS	avg.BDS	rej.BDS	avg.KS	rej.KS	AD	V
dGDP	0.01	1.00	0.01	1.00	0.10	0.00	0.07	0.60	0.34	0.40	0.00	C
dA	0.01	1.00	0.01	1.00	0.08	0.20	0.00	1.00	0.08	0.80	0.00	C
dw	0.01	1.00	0.01	1.00	0.09	0.00	0.00	1.00	0.08	0.80	0.00	C
V	0.01	1.00	0.01	1.00	0.06	0.40	0.00	1.00	0.08	0.70	0.00	C
U	0.01	1.00	0.01	1.00	0.01	1.00	0.00	1.00	0.01	0.90	0.00	C
mu2avg	0.01	1.00	0.01	1.00	0.02	1.00	0.00	1.00	0.00	1.00	0.00	C
HH1	0.01	1.00	0.01	1.00	0.06	0.40	0.00	1.00	0.02	0.80	0.00	C
HH2	0.01	1.00	0.01	1.00	0.03	0.80	0.00	1.00	0.00	1.00	0.00	C

( average p-values for testing H0 and rate of rejection of H0 / MC runs = 5 / period = 2 – 1000 )

( ADF/PP H0: non-stationary, KPSS H0: stationary, BDS H0: i.i.d., KS/AD/WW H0: ergodic )

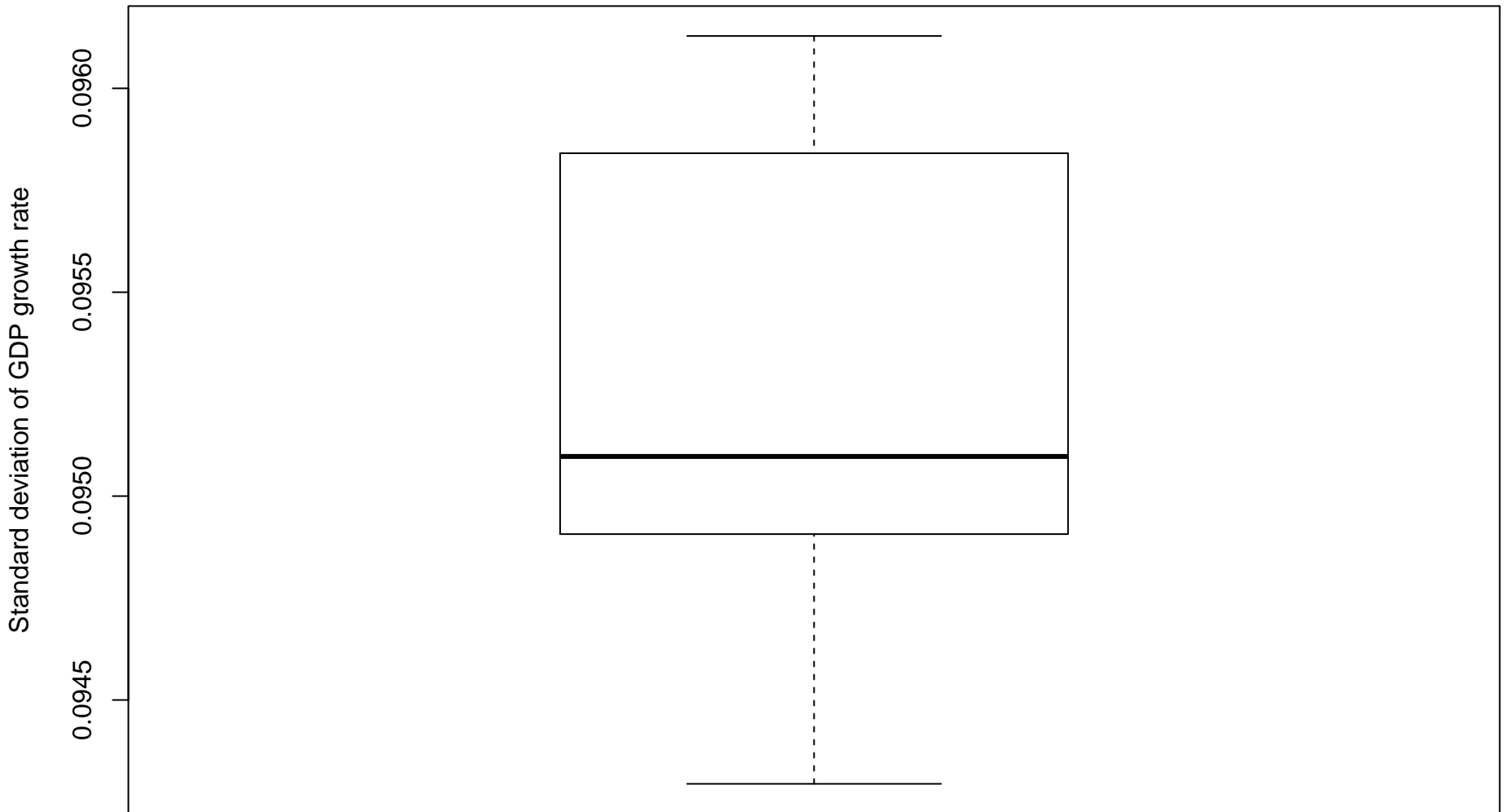
( significance = 0.05 )

## GDP growth



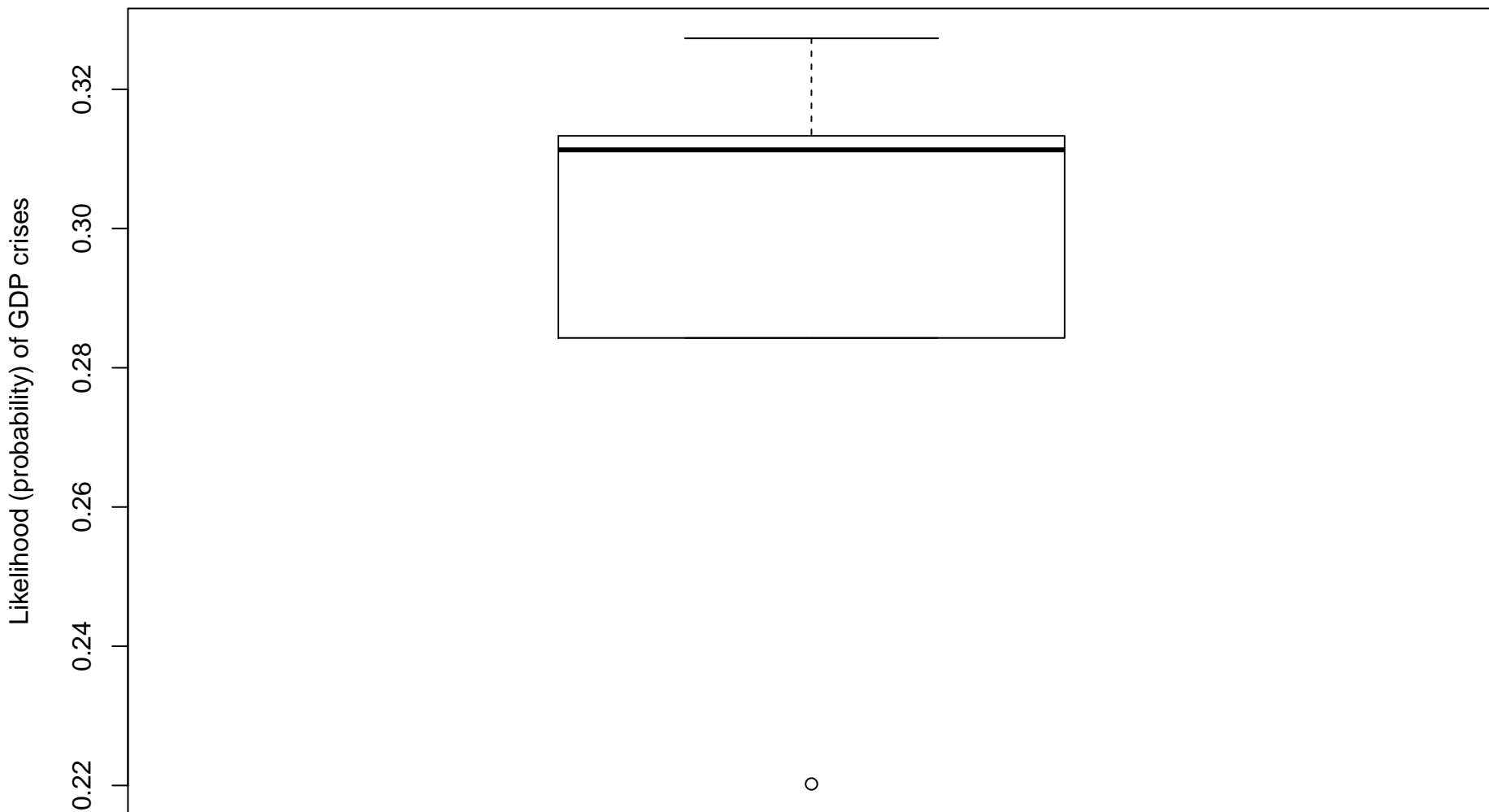
( bar: median / box: 2nd–3rd quartile / whiskers: max–min / points: outliers / MC runs = 5 / period = 2 – 1000 )

## Volatility of GDP growth



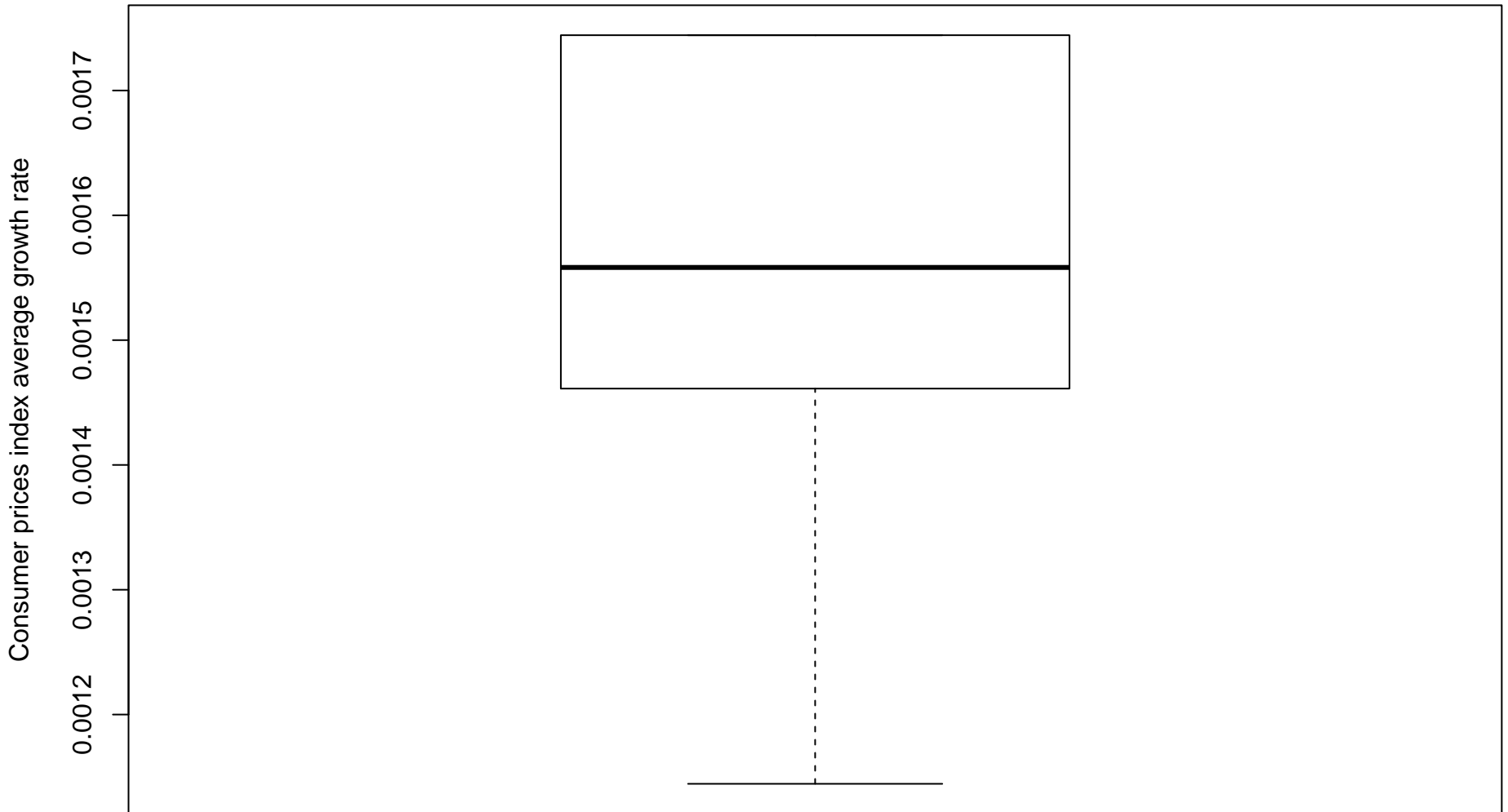
( bar: median / box: 2nd–3rd quartile / whiskers: max–min / points: outliers / MC runs = 5 / period = 2 – 1000 )

## Likelihood of GDP crises



( bar: median / box: 2nd–3rd quartile / whiskers: max–min / points: outliers / MC runs = 5 / period = 2 – 1000 )

# Inflation



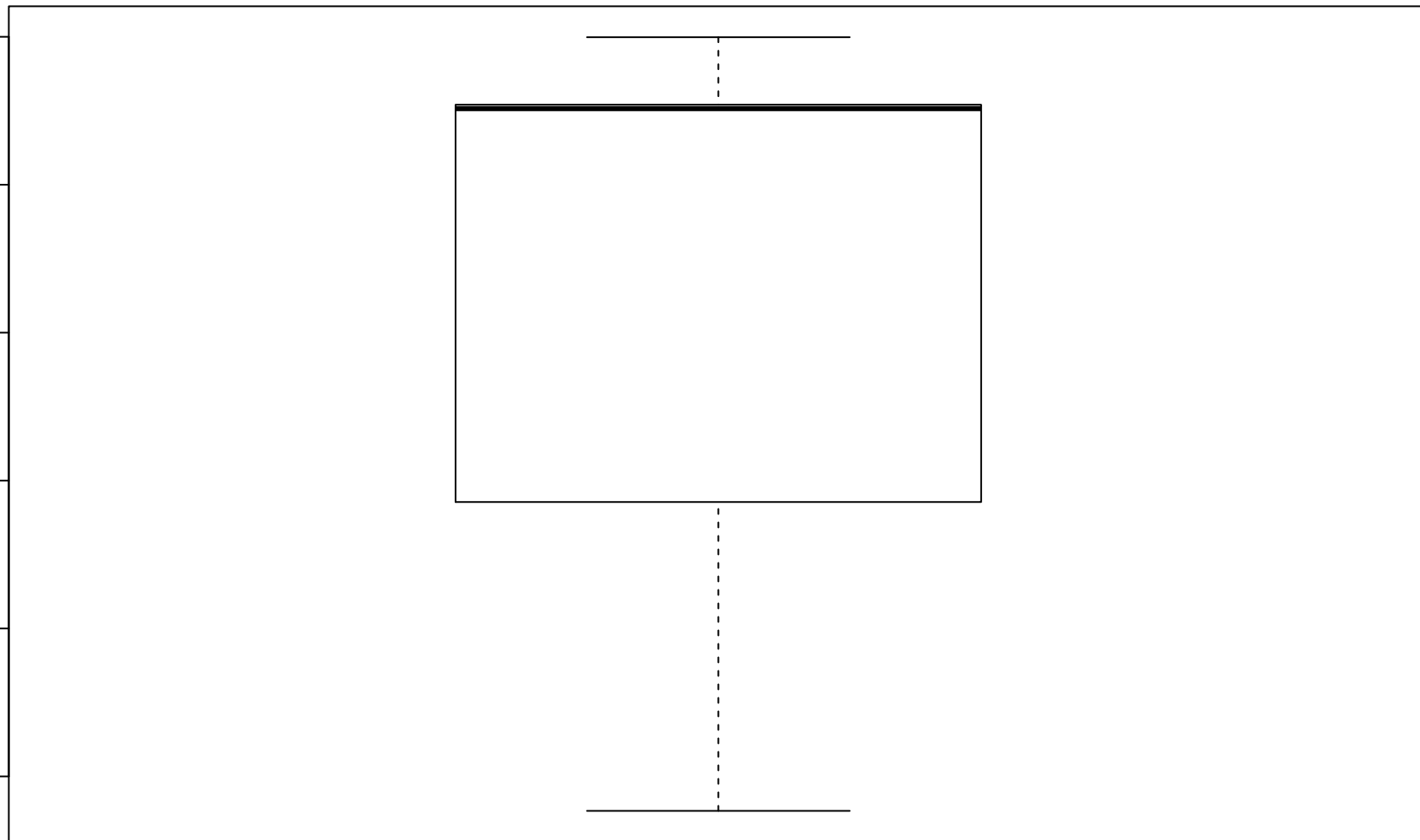
( bar: median / box: 2nd–3rd quartile / whiskers: max–min / points: outliers / MC runs = 5 / period = 2 – 1000 )



Government tax income over GDP

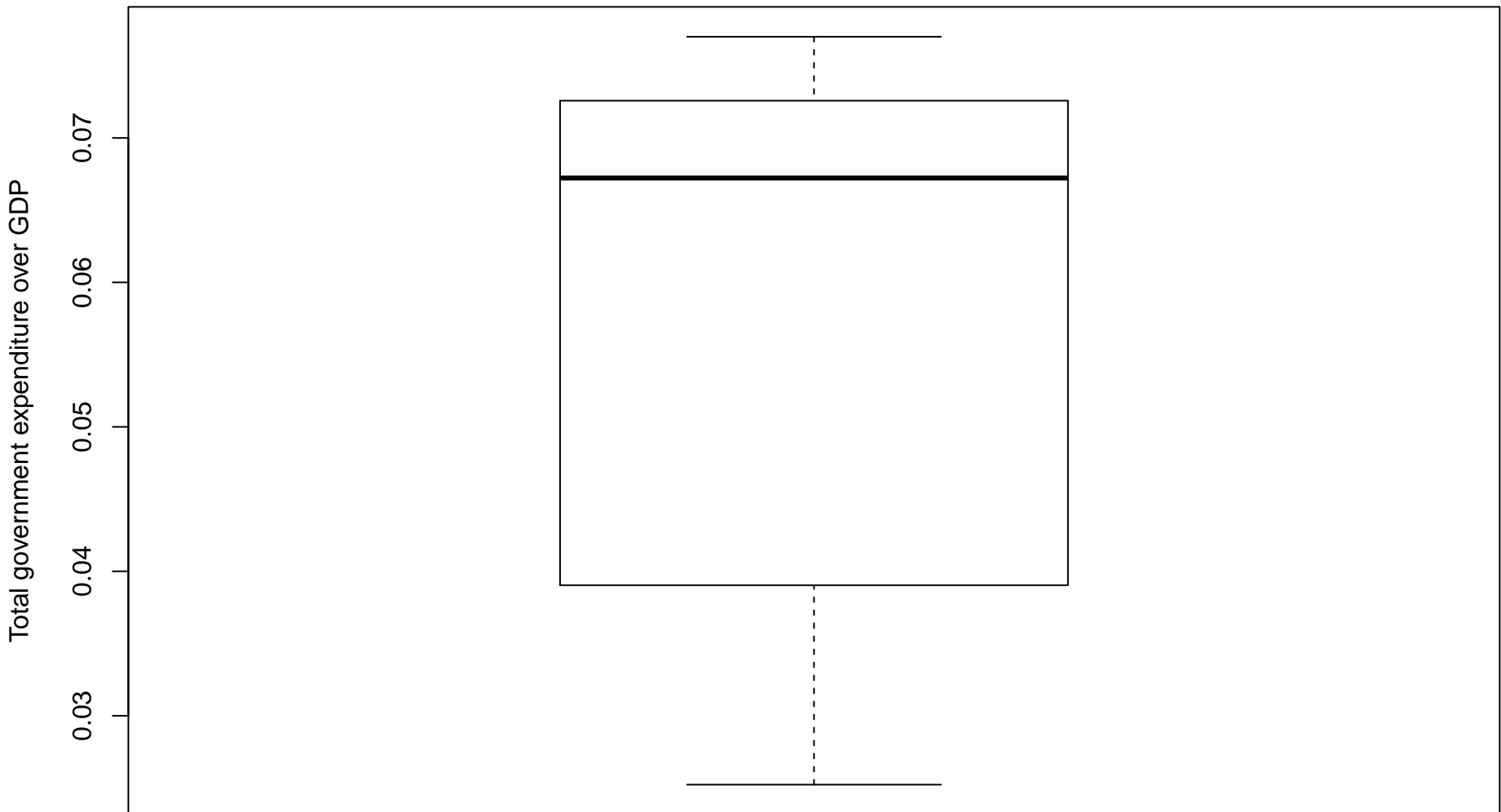
0.0235 0.0240 0.0245 0.0250 0.0255 0.0260

Tax



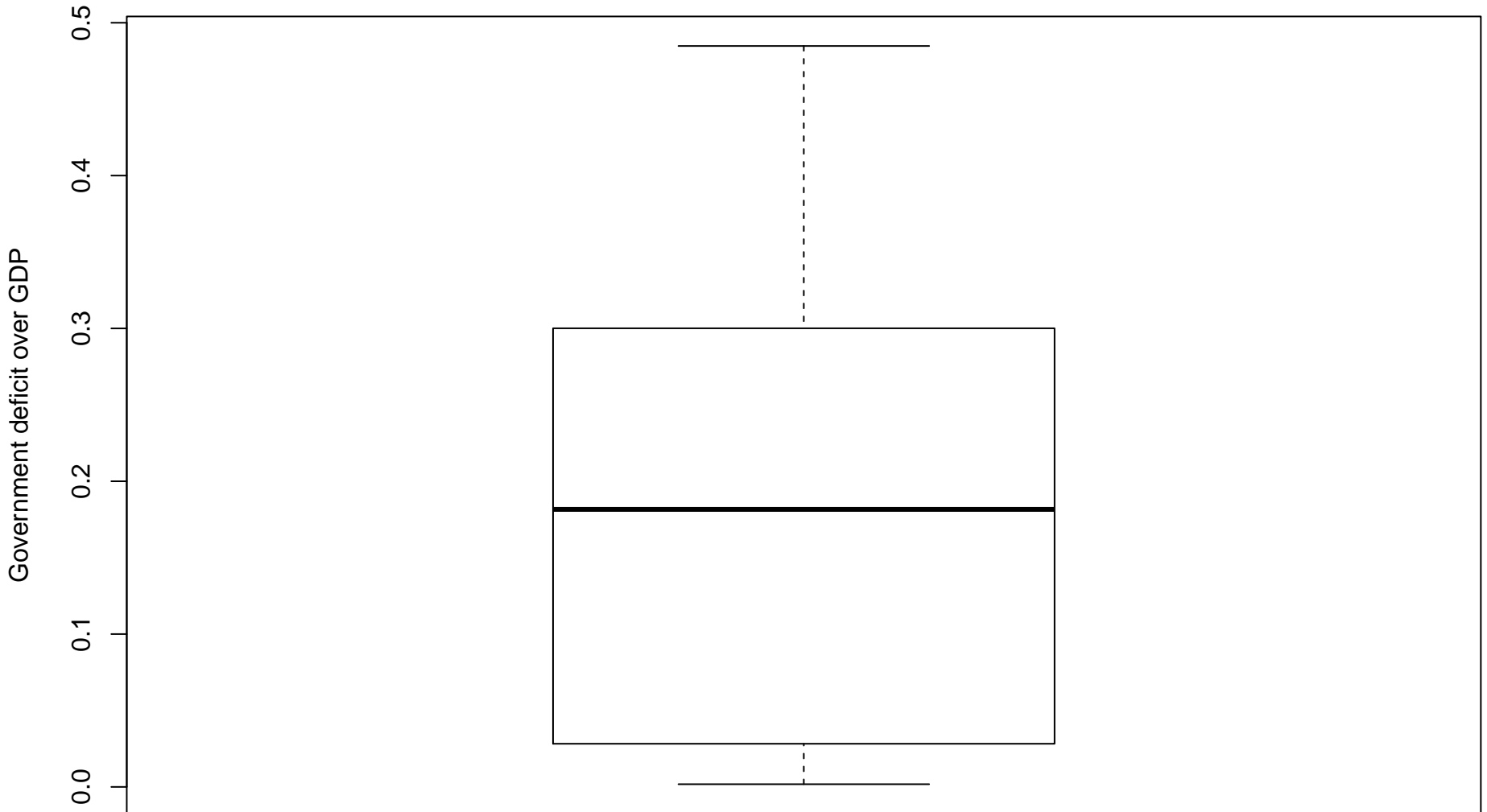
( bar: median / box: 2nd–3rd quartile / whiskers: max–min / points: outliers / MC runs = 5 / period = 2 – 1000 )

## Government total expenditure



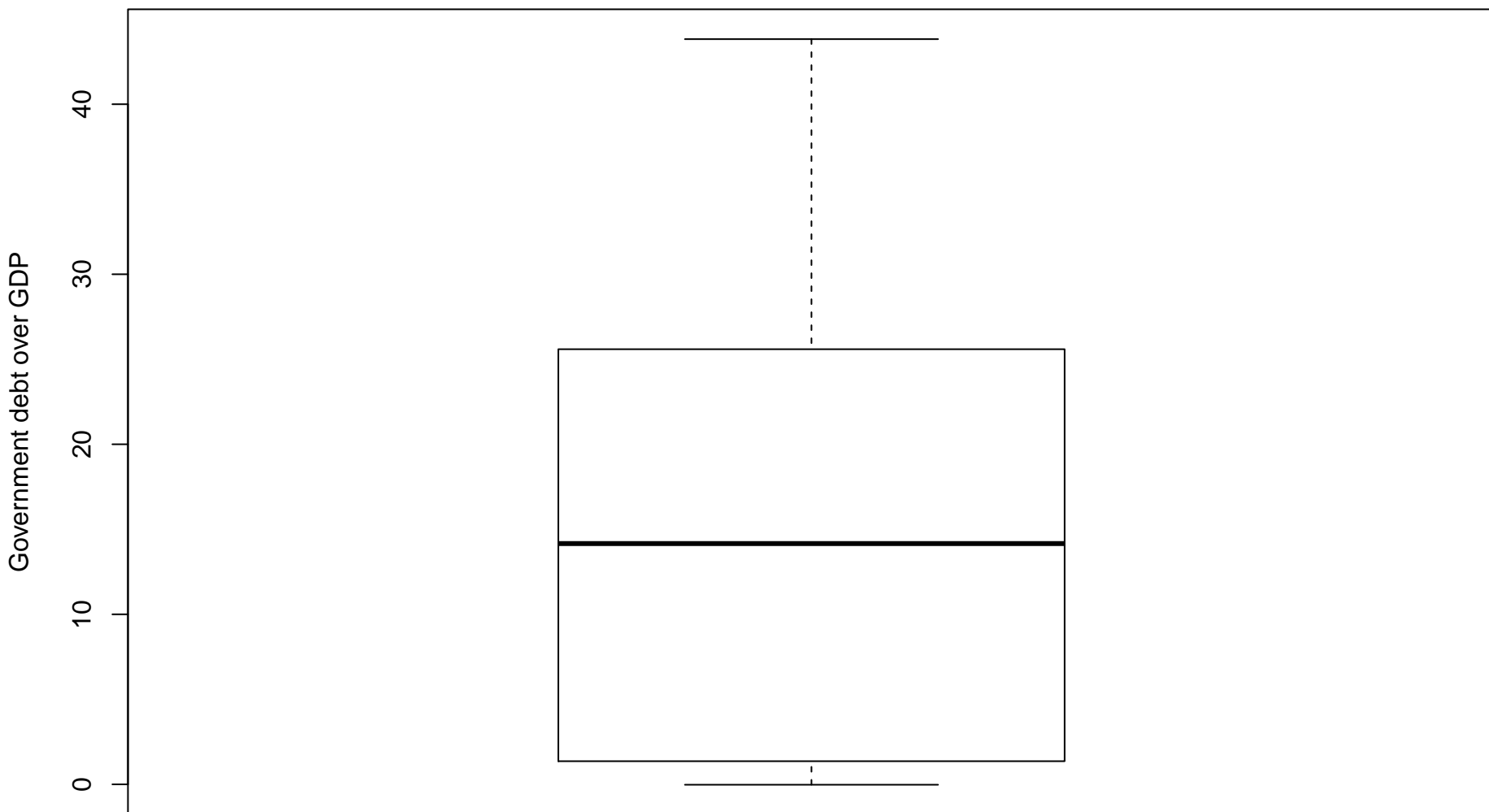
( bar: median / box: 2nd–3rd quartile / whiskers: max–min / points: outliers / MC runs = 5 / period = 2 – 1000 )

## Government deficit



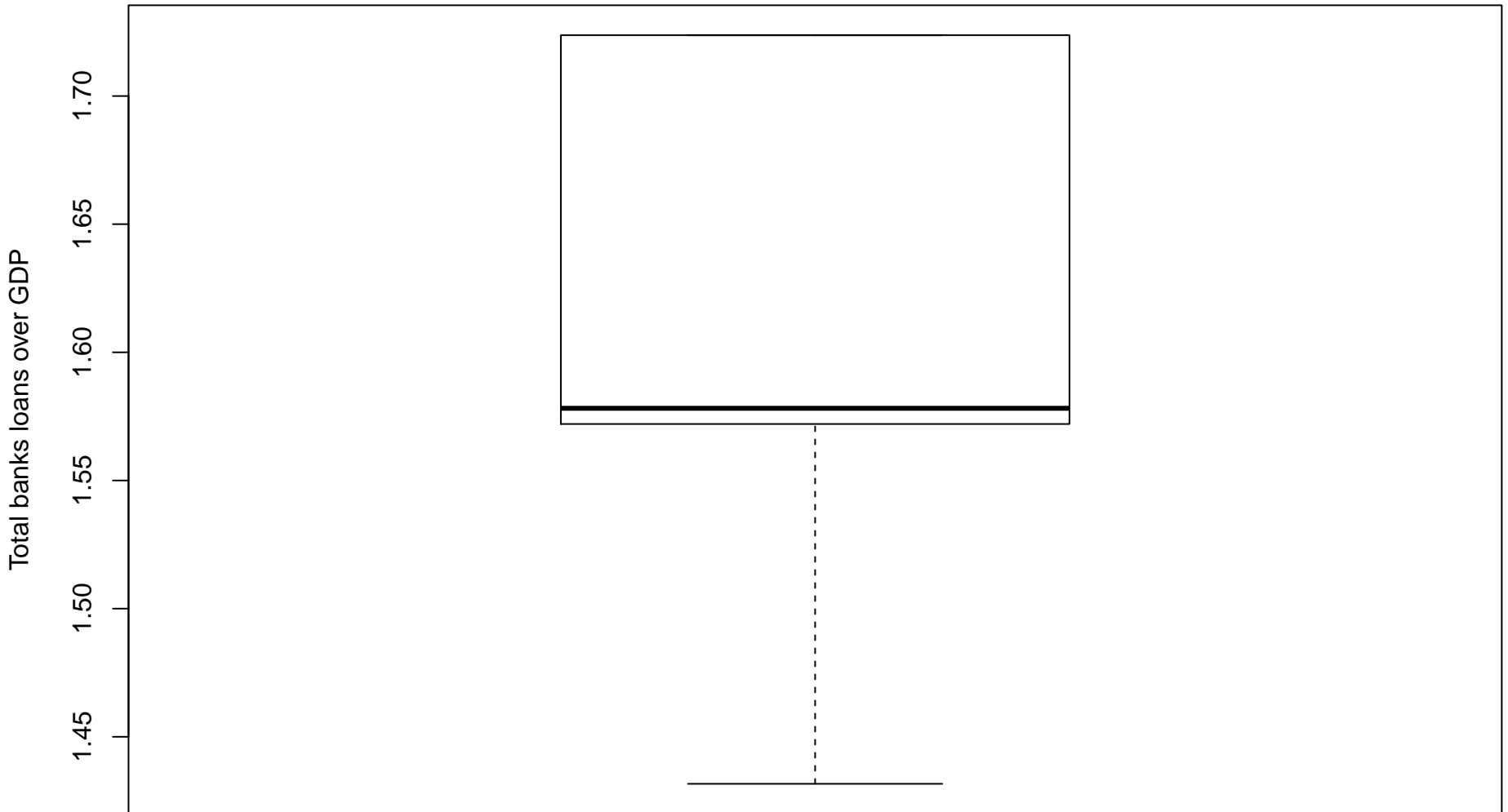
( bar: median / box: 2nd–3rd quartile / whiskers: max–min / points: outliers / MC runs = 5 / period = 2 – 1000 )

## Government debt



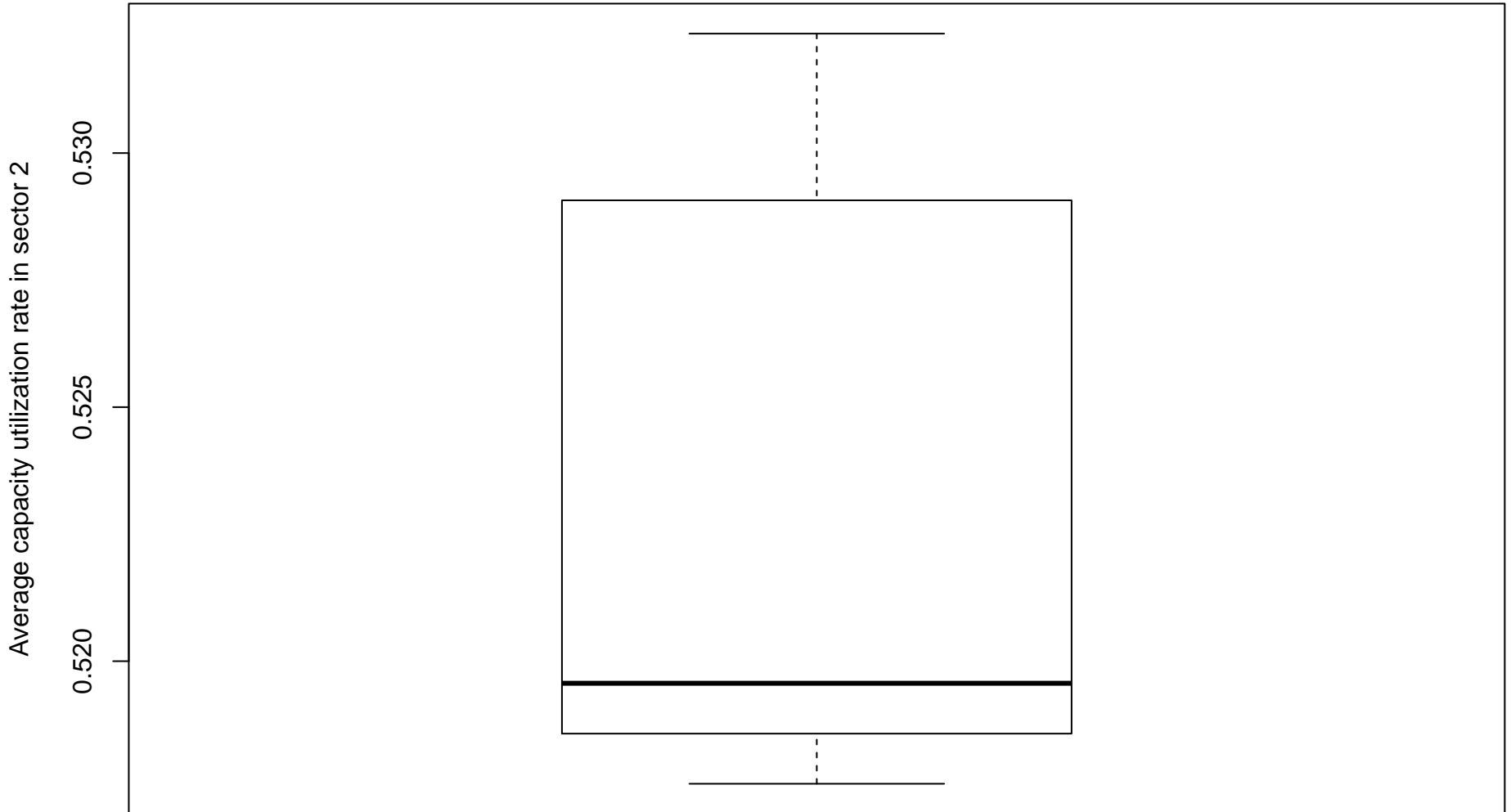
( bar: median / box: 2nd–3rd quartile / whiskers: max–min / points: outliers / MC runs = 5 / period = 2 – 1000 )

## Loans



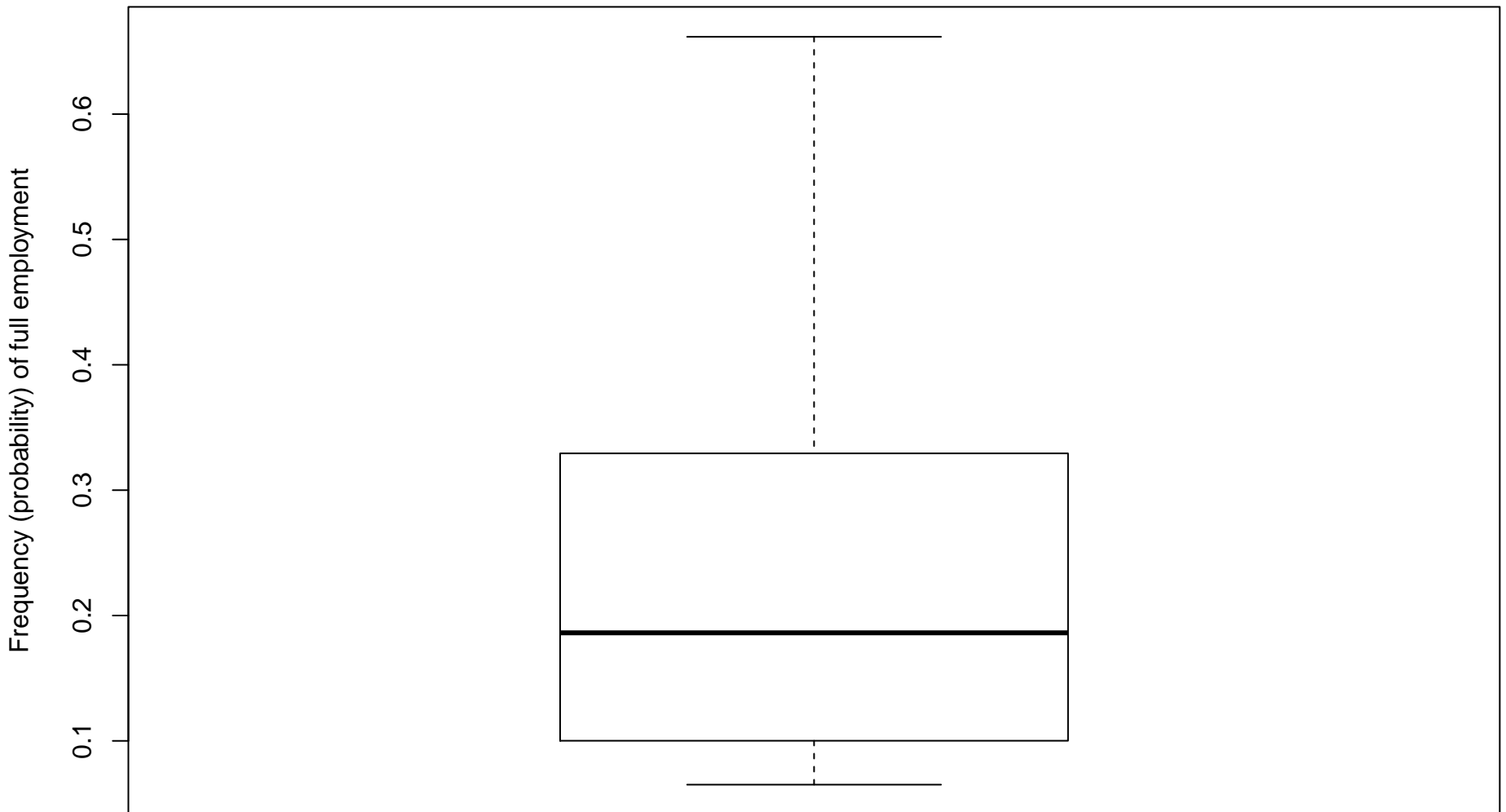
( bar: median / box: 2nd–3rd quartile / whiskers: max–min / points: outliers / MC runs = 5 / period = 2 – 1000 )

## Capacity utilization



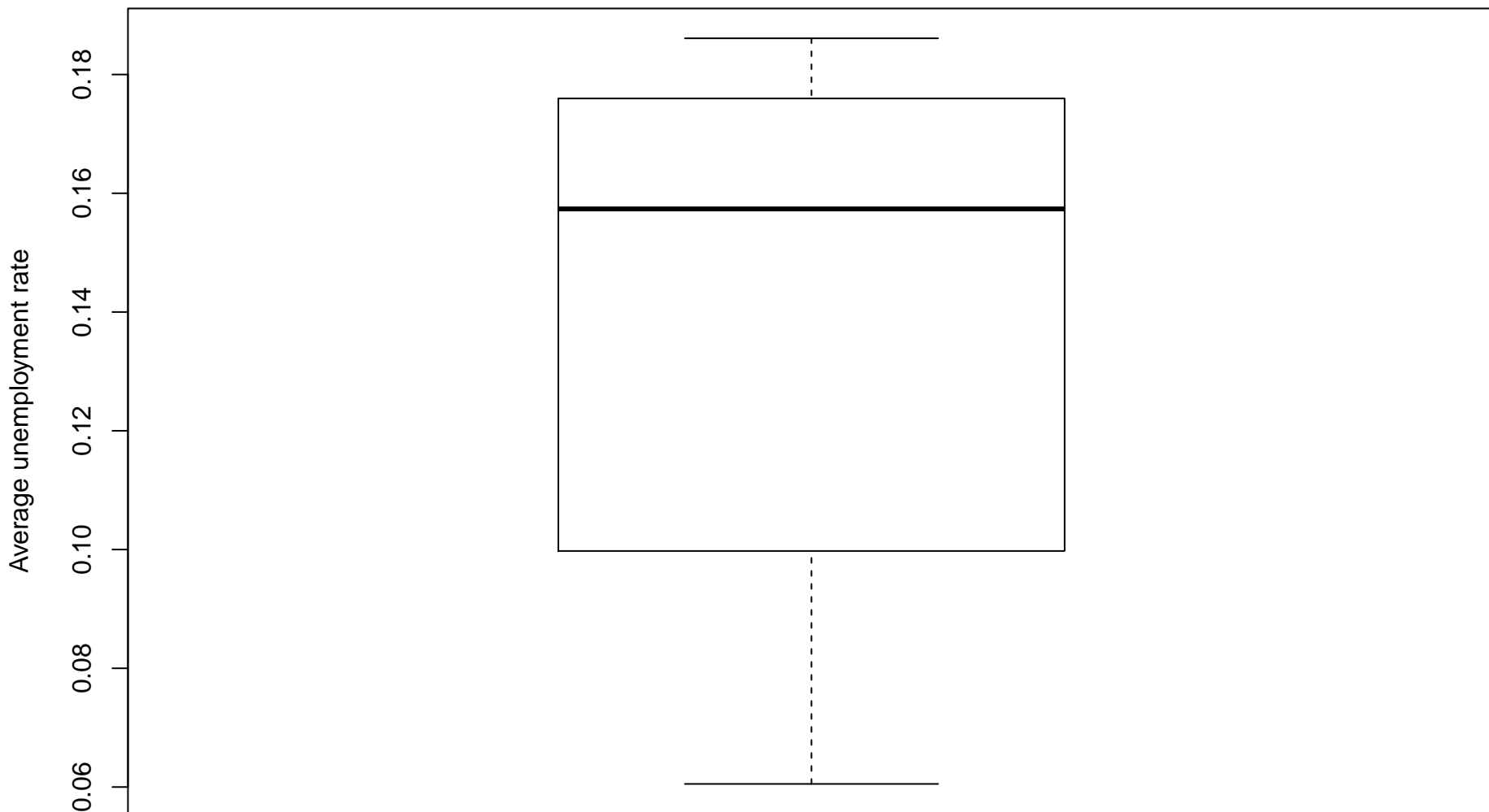
( bar: median / box: 2nd–3rd quartile / whiskers: max–min / points: outliers / MC runs = 5 / period = 2 – 1000 )

## Full employment frequency



( bar: median / box: 2nd–3rd quartile / whiskers: max–min / points: outliers / MC runs = 5 / period = 2 – 1000 )

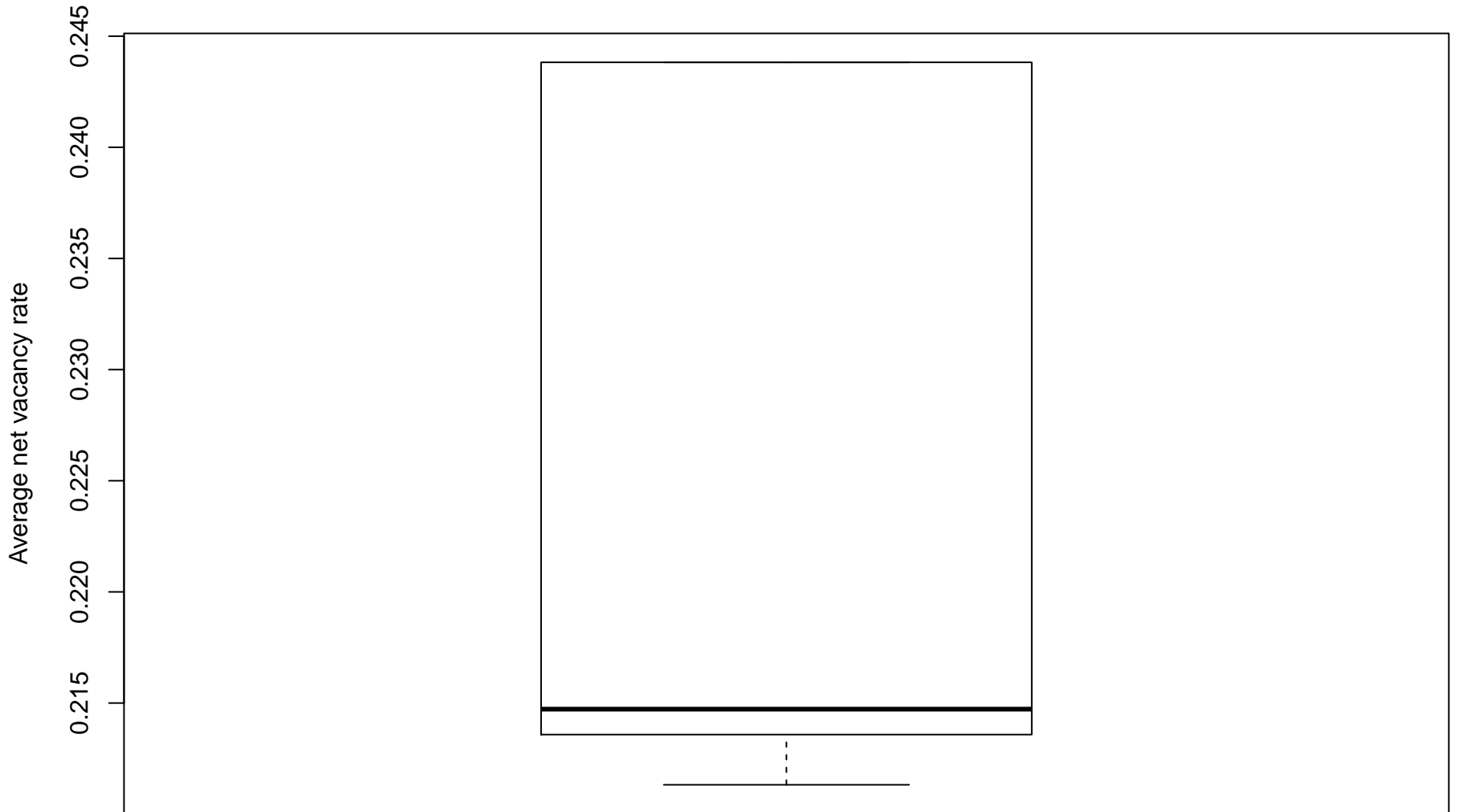
## Unemployment



( bar: median / box: 2nd–3rd quartile / whiskers: max–min / points: outliers / MC runs = 5 / period = 2 – 1000 )

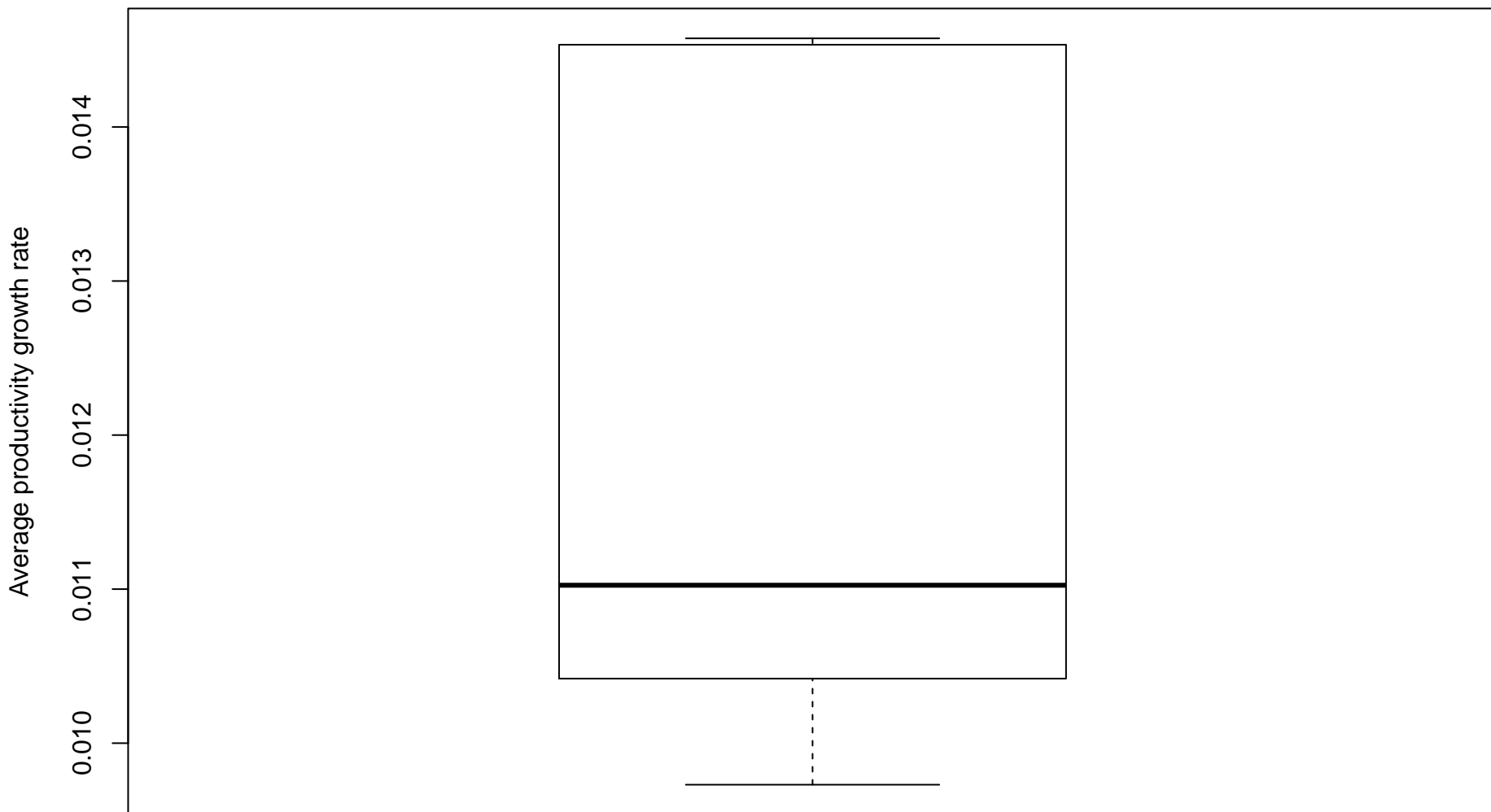


# Vacancy



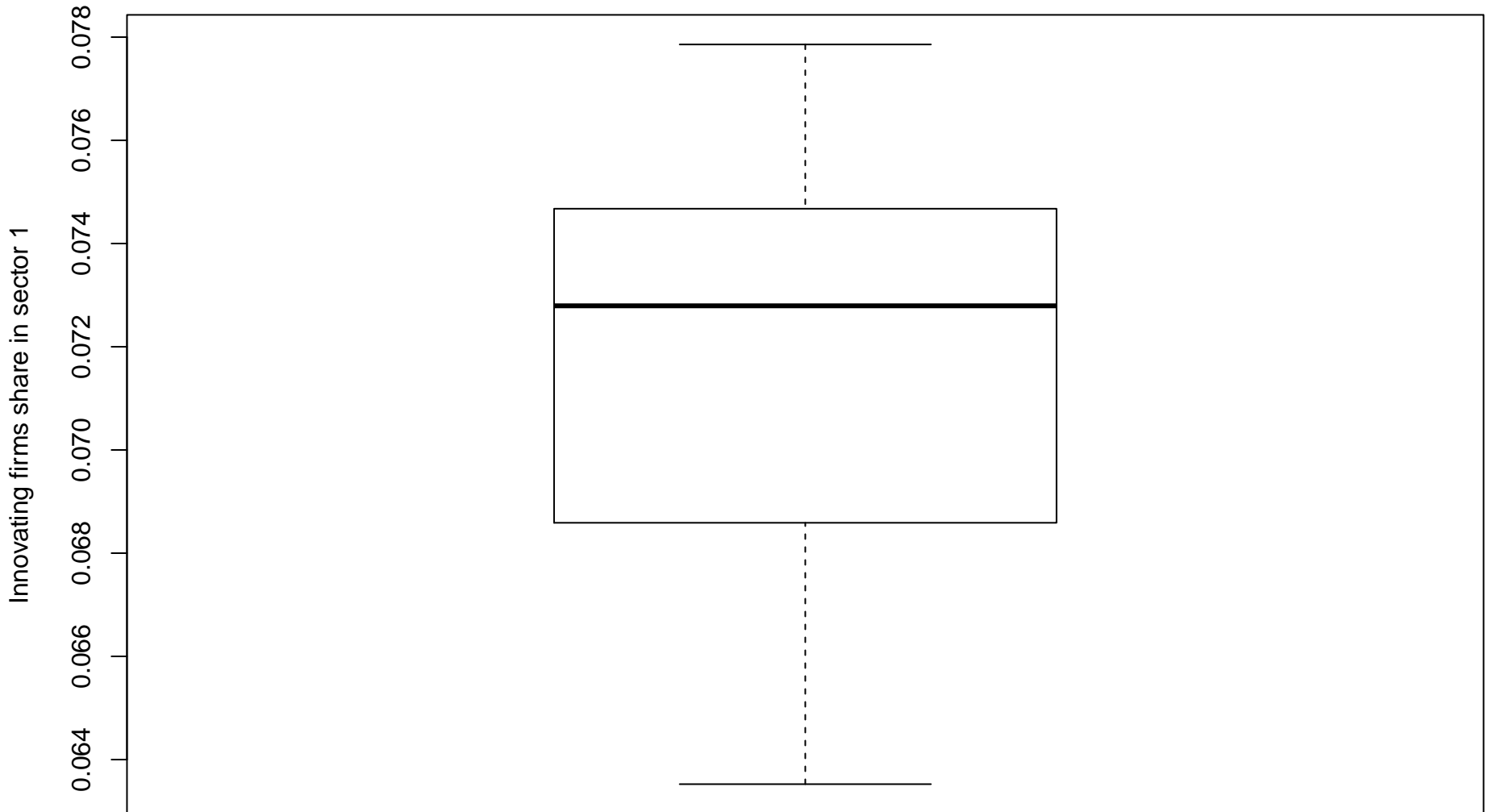
( bar: median / box: 2nd–3rd quartile / whiskers: max–min / points: outliers / MC runs = 5 / period = 2 – 1000 )

## Productivity growth



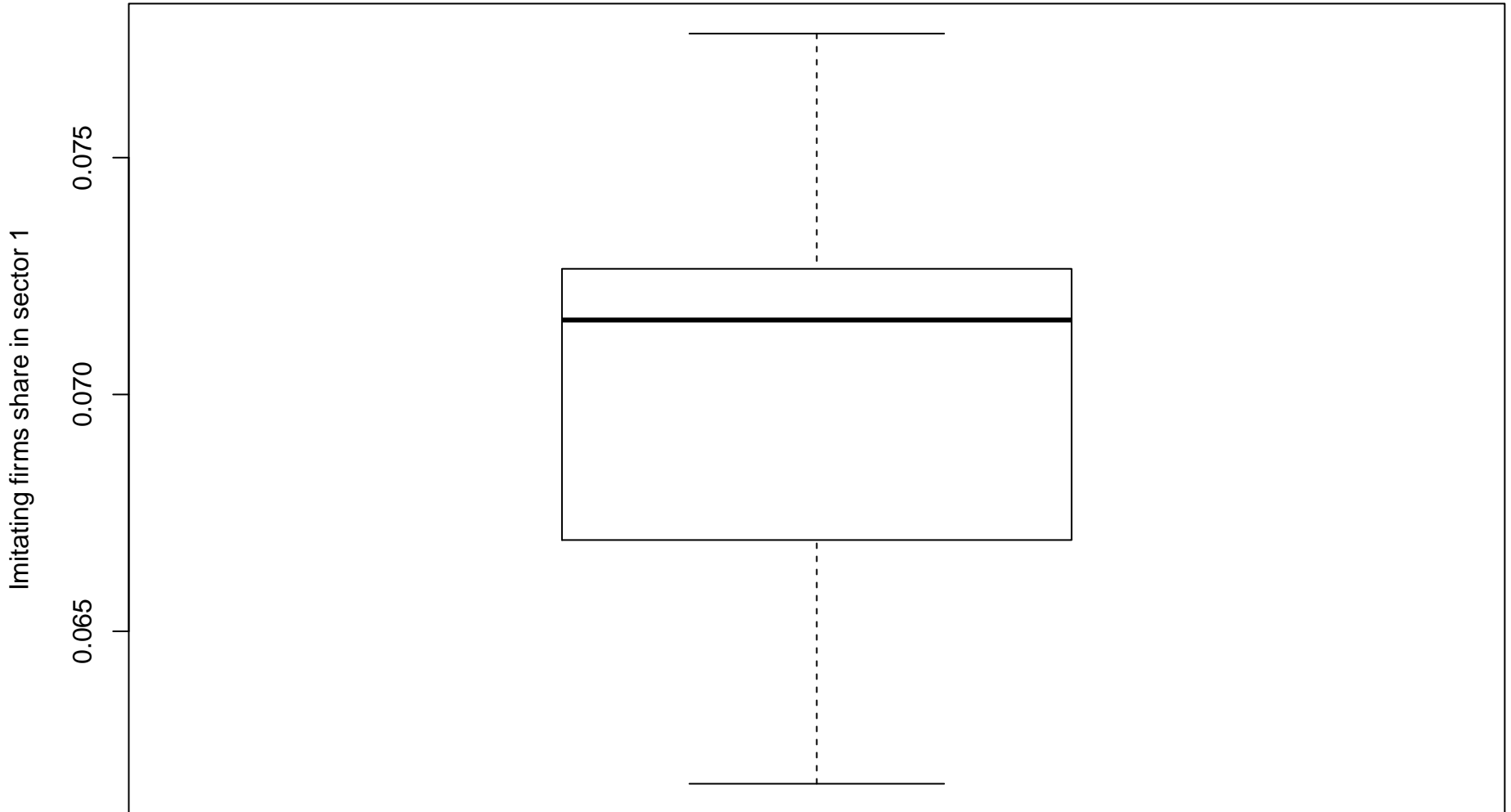
( bar: median / box: 2nd–3rd quartile / whiskers: max–min / points: outliers / MC runs = 5 / period = 2 – 1000 )

# Innovation



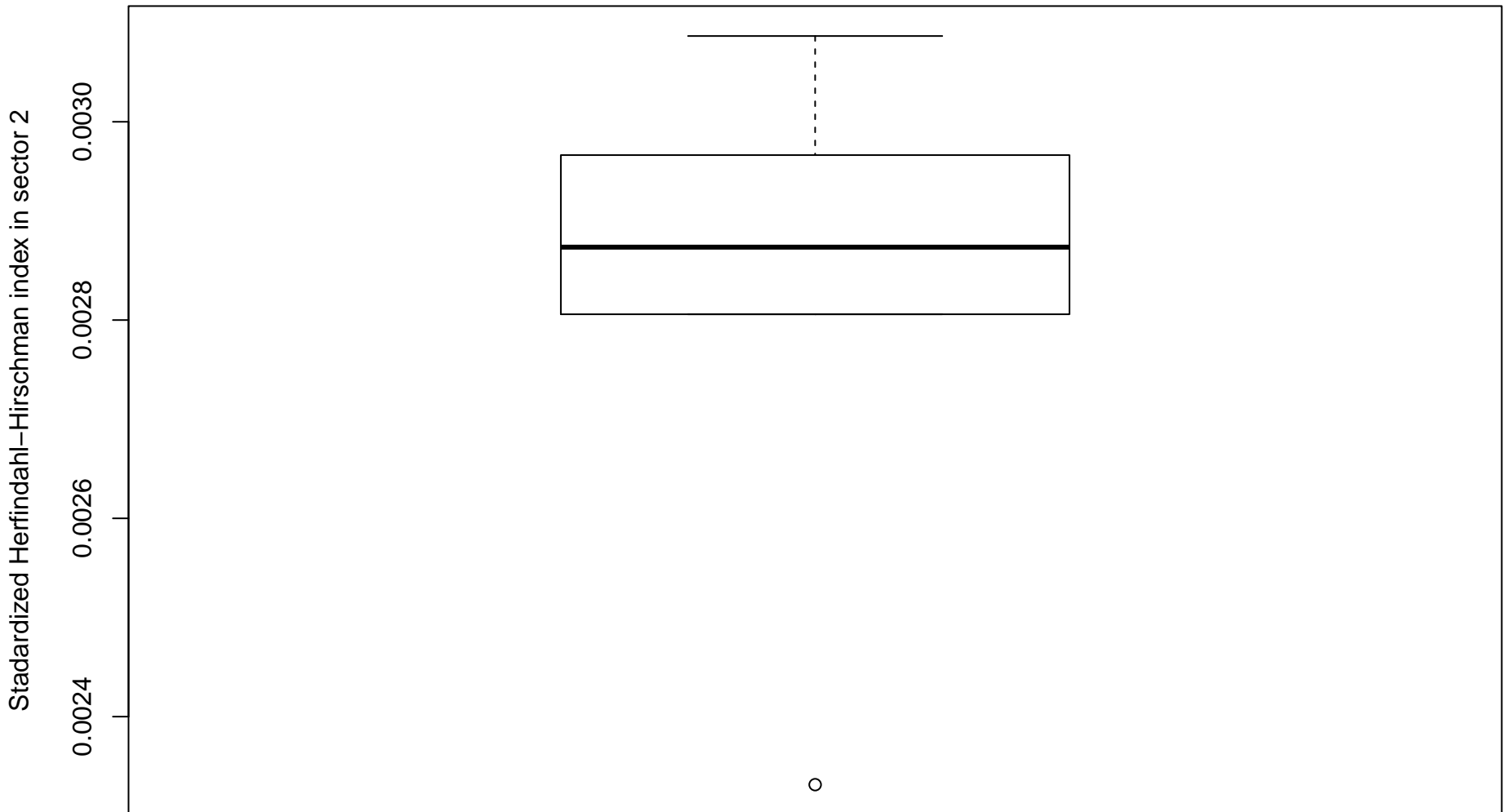
( bar: median / box: 2nd–3rd quartile / whiskers: max–min / points: outliers / MC runs = 5 / period = 2 – 1000 )

## Imitation



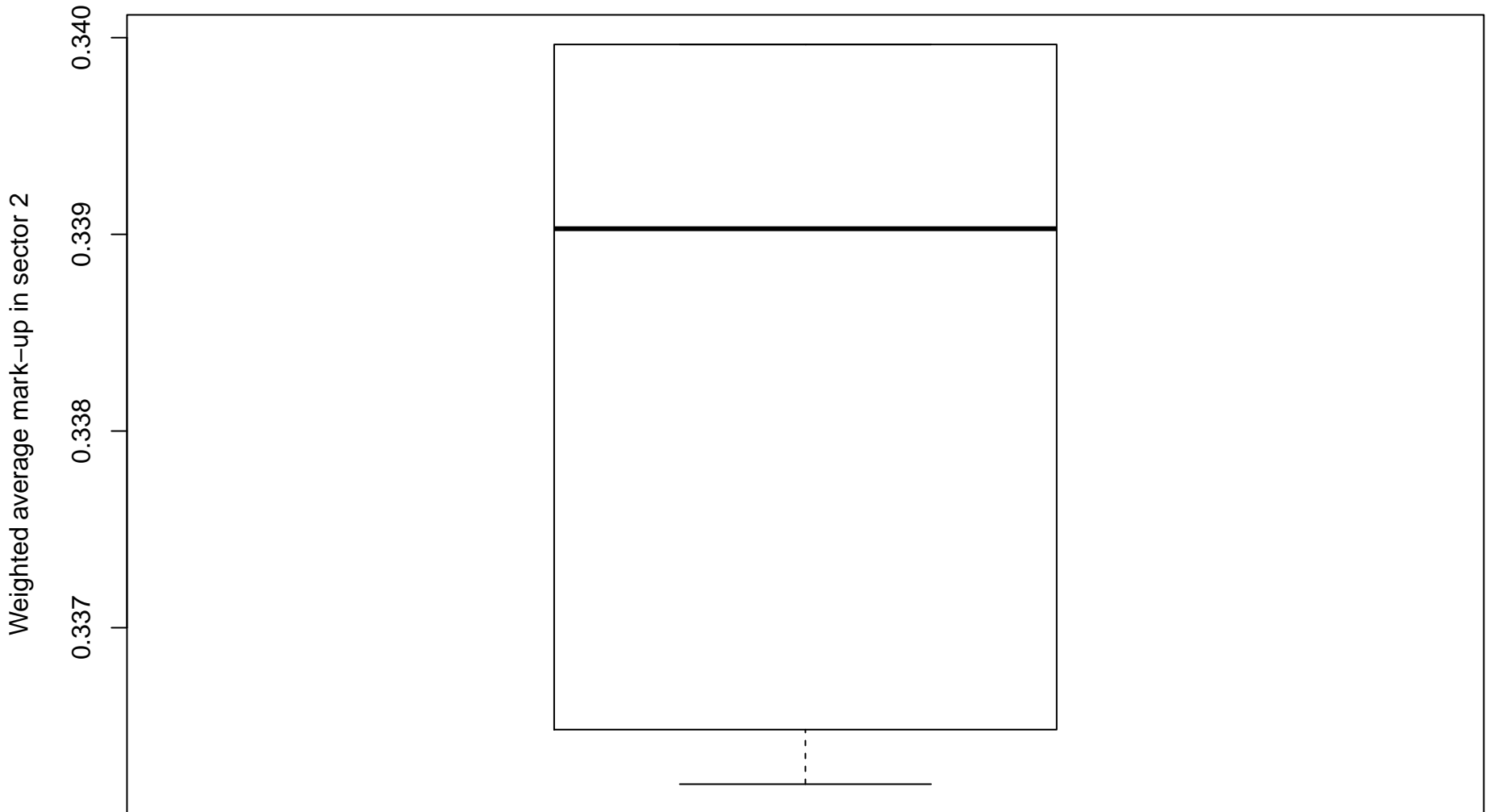
( bar: median / box: 2nd–3rd quartile / whiskers: max–min / points: outliers / MC runs = 5 / period = 2 – 1000 )

## Market concentration



( bar: median / box: 2nd-3rd quartile / whiskers: max-min / points: outliers / MC runs = 5 / period = 2 - 1000 )

## Mark-ups



( bar: median / box: 2nd–3rd quartile / whiskers: max–min / points: outliers / MC runs = 5 / period = 2 – 1000 )

# Monte Carlo descriptive statistics ( all experiments )

	<b>Avg[1]</b>	<b>SD[1]</b>	<b>Min[1]</b>	<b>Max[1]</b>
<b>GDP growth</b>	0.0124	0.002395	0.009993	0.01505
<b>Volatility of GDP growth</b>	0.09525	0.0007374	0.09429	0.09613
<b>Likelihood of GDP crises</b>	0.2913	0.04267	0.2202	0.3273
<b>Inflation</b>	0.001681	0.0005052	0.001145	0.002497
<b>Tax</b>	0.02507	0.001127	0.02338	0.026
<b>Government total expenditure</b>	0.05621	0.02278	0.02523	0.077
<b>Government deficit</b>	0.1993	0.2002	0.001771	0.4848
<b>Government debt</b>	16.98	18.28	-0.02374	43.83
<b>Loans</b>	1.754	0.4096	1.432	2.463
<b>Capacity utilization</b>	0.5234	0.006783	0.5176	0.5324
<b>Full employment frequency</b>	0.2685	0.2423	0.06507	0.6617
<b>Unemployment</b>	0.1359	0.05379	0.06052	0.1861
<b>Vacancy</b>	0.2392	0.04306	0.2113	0.3124
<b>Productivity growth</b>	0.01206	0.002326	0.00973	0.01458
<b>Innovation</b>	0.07149	0.005574	0.06352	0.07786
<b>Imitation</b>	0.07011	0.00601	0.06178	0.07762
<b>Market concentration</b>	0.002813	0.000289	0.002331	0.003087
<b>Mark-ups</b>	0.3399	0.00468	0.3362	0.3477

Experiments: [1] Benchmark

( numbers in brackets indicate the experiment number / MC runs = 5 / period = 2 – 1000 )