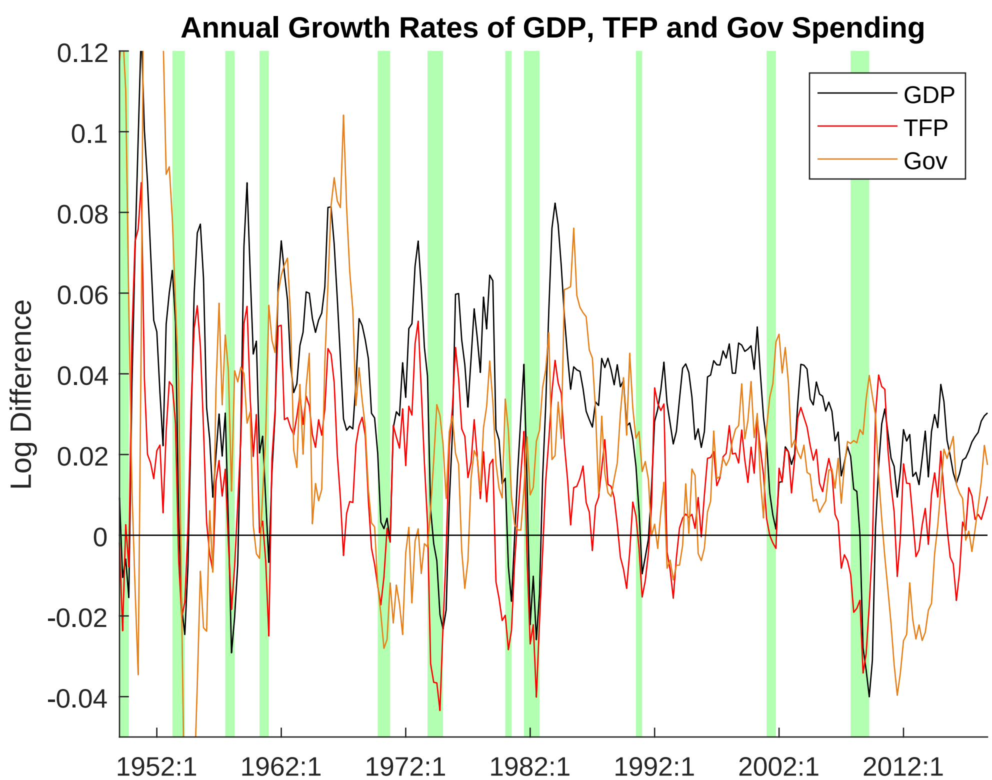
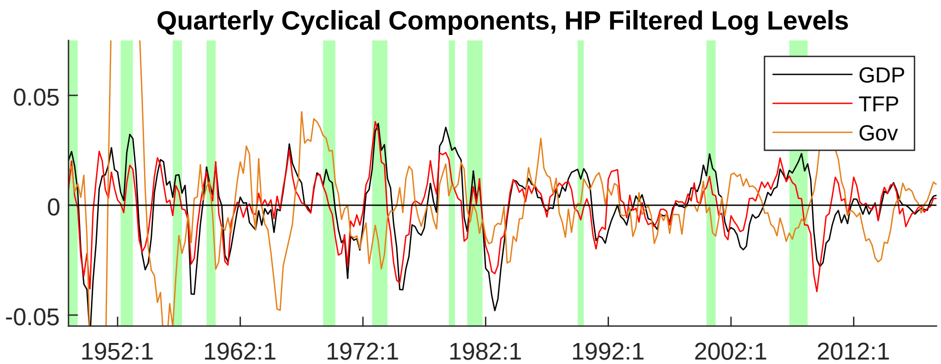
Lecture Slides 3

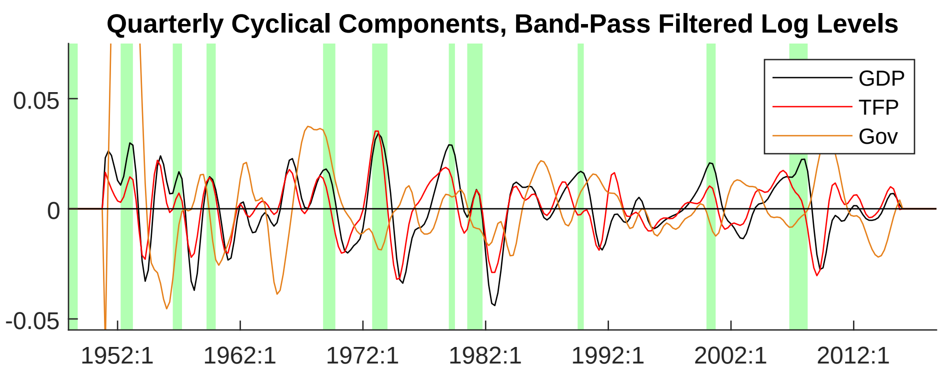
Economics 210C – Macroeconomics

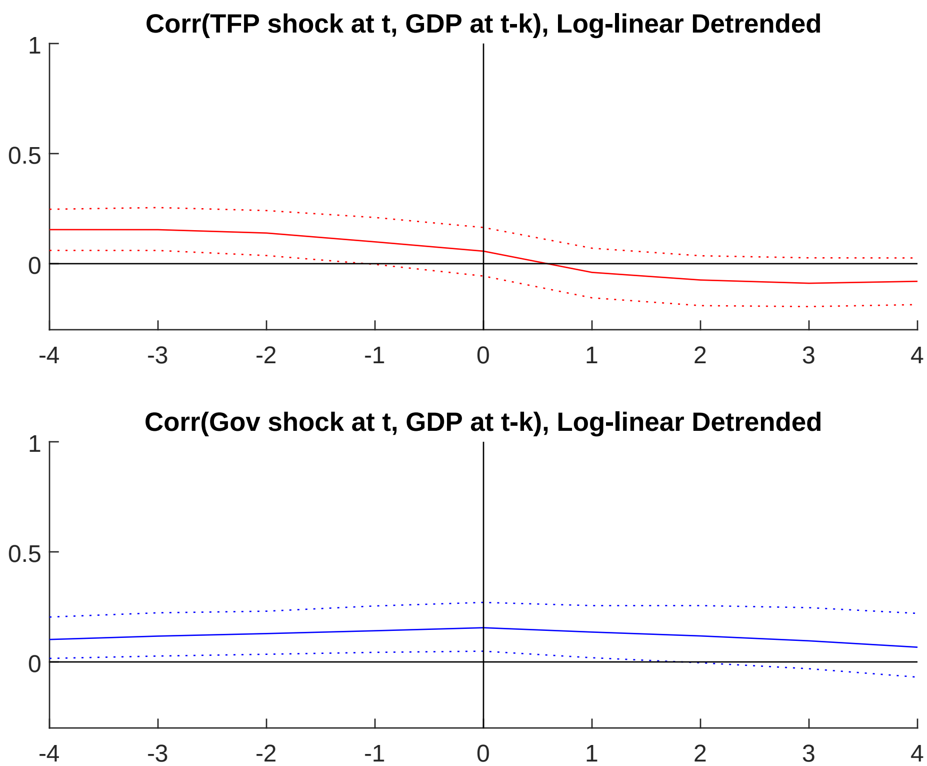
Spring 2019

Prof. Garey Ramey - UCSD


Annual Growth Rates of GDP, TFP and Gov Spending
Log Difference
0.12
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
1952:1
1962:1
1972:1
1982:1
1992:1
2002:1
2012:1
GDP
TFP
Gov


Quarterly Cyclical Components, HP Filtered Log Levels
0.05
0
-0.05
1952:1
1962:1
1972:1
1982:1
1992:1
2002:1
2012:1
GDP
TFP
Gov


Quarterly Cyclical Components, Band-Pass Filtered Log Levels
0.05
0
-0.05
1952:1
1962:1
1972:1
1982:1
1992:1
2002:1
2012:1
GDP
TFP
Gov


Corr(TFP shock at t, GDP at t-k), Log-linear Detrended
1
0.5
0
-4
-3
-2
-1
0
1
2
3
4
Corr(Gov shock at t, GDP at t-k), Log-linear Detrended
1
0.5
0
-4
-3
-2
-1
0
1
2
3
4

Standard Deviations of HP-Filtered Cyclical Components

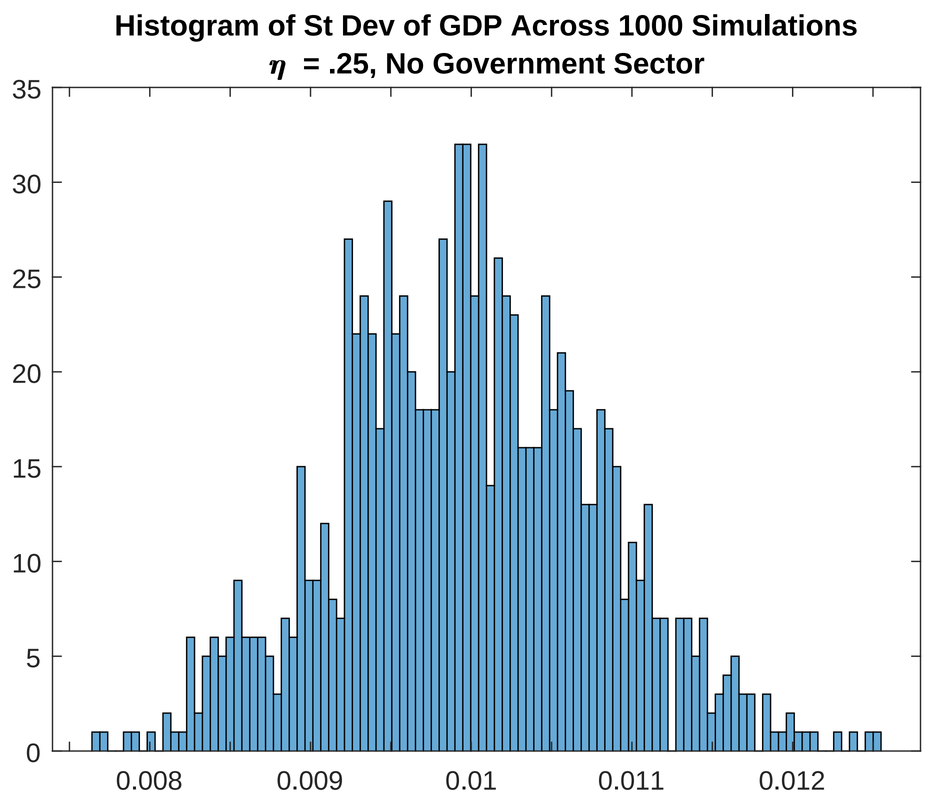
	Quarterly	No Gov			With Gov		
	Data	η = .25	η = 1	η = 10	η = .25	η = 1	η = 10
GDP	0.016	0.010	0.012	0.017	0.010	0.012	0.017
Cons	0.012	0.003	0.004	0.005	0.005	0.005	0.005
Inv	0.072	0.034	0.042	0.060	0.052	0.060	0.084
Hours	0.015	0.001	0.004	0.012	0.002	0.005	0.013
Prod	0.008	0.009	0.008	0.006	0.009	0.008	0.006
Gov	0.032	0.000	0.000	0.000	0.032	0.032	0.032

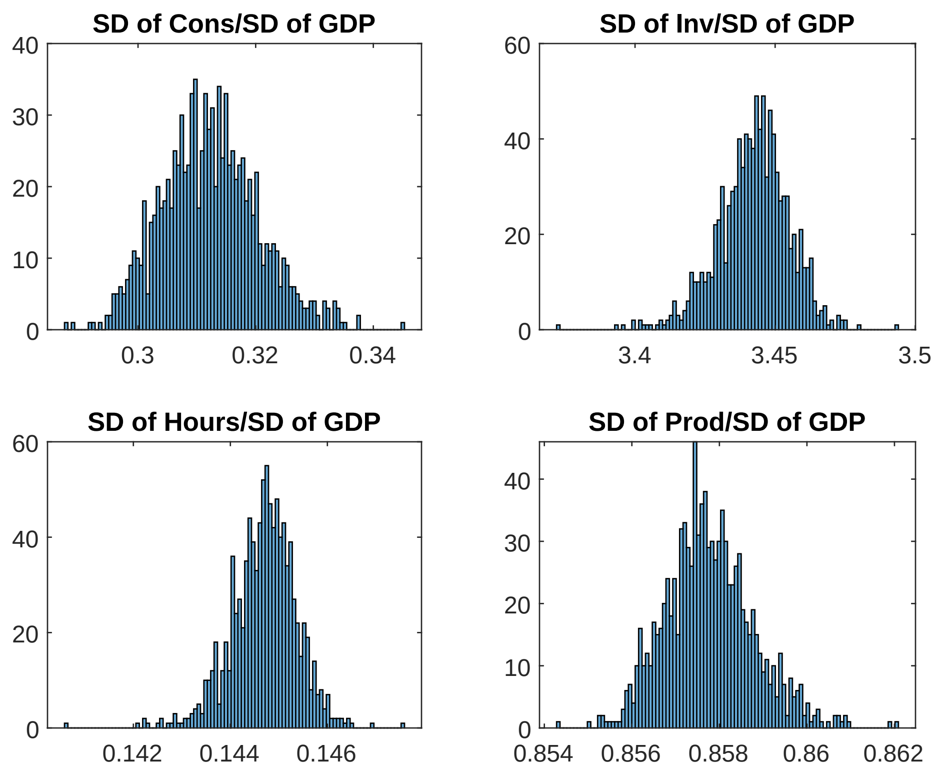
Standard Deviations Relative to GDP

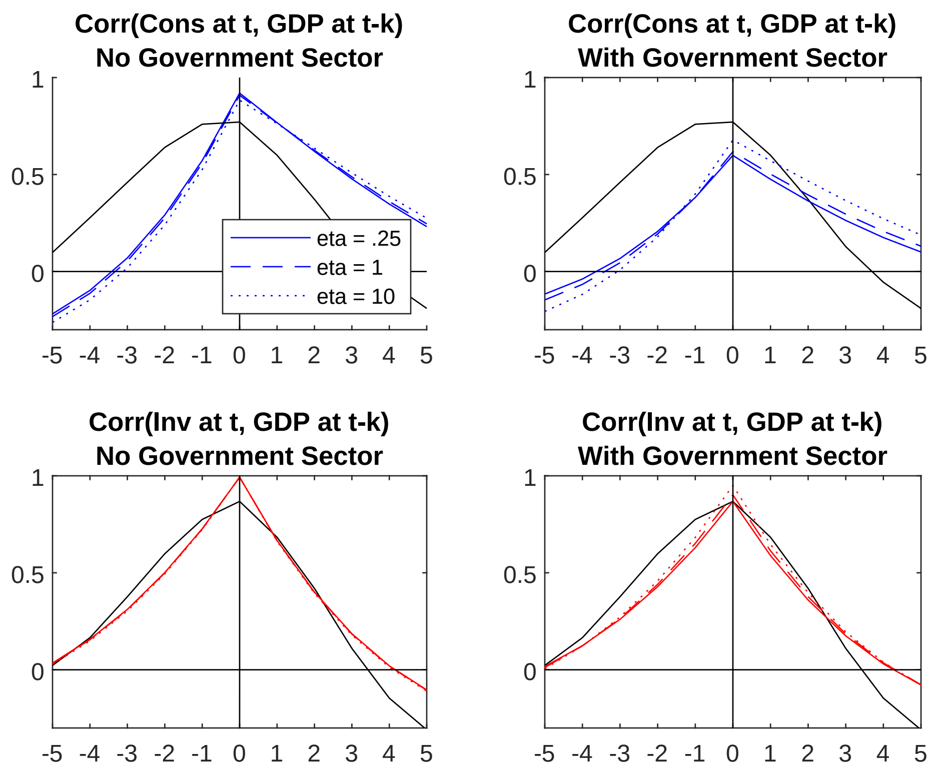
	Quarterly	No Gov			With Gov		
	Data	η = 0.25	η = 1	η = 10	η = 0.25	η = 1	η = 10
Cons	0.77	0.31	0.30	0.27	0.48	0.35	0.28
Inv	4.57	3.44	3.50	3.60	5.27	4.49	4.94
Hours	0.96	0.14	0.37	0.70	0.16	0.37	0.76
Prod	0.50	0.86	0.64	0.33	0.86	0.57	0.33
Gov	2.00	0.00	0.00	0.00	3.26	2.41	1.89

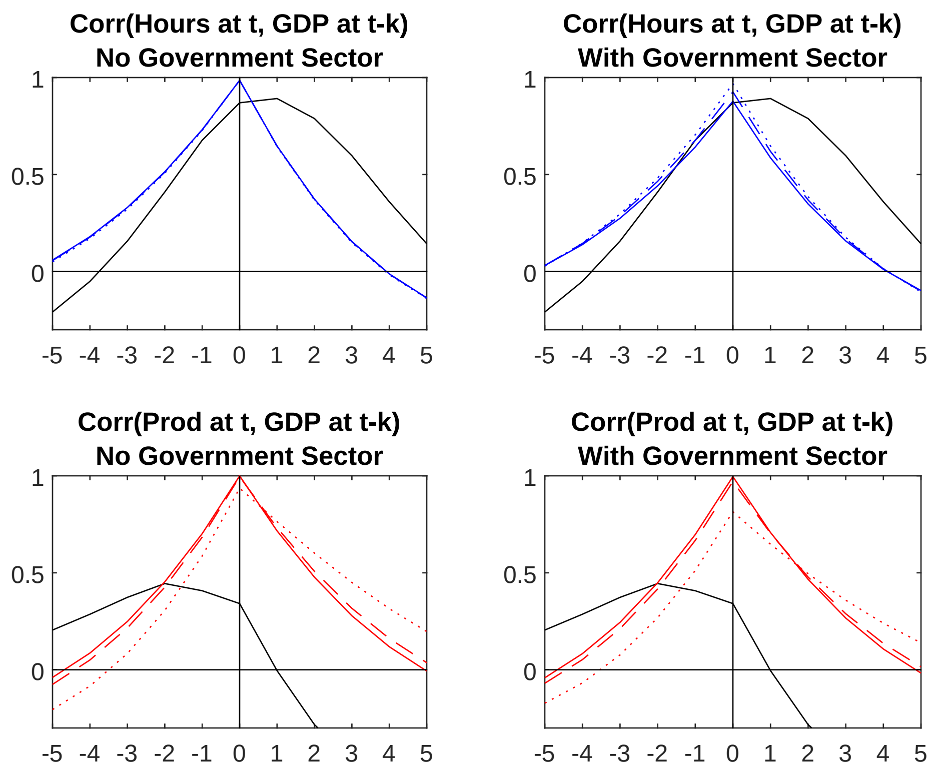
Second Moments of Hours and Productivity

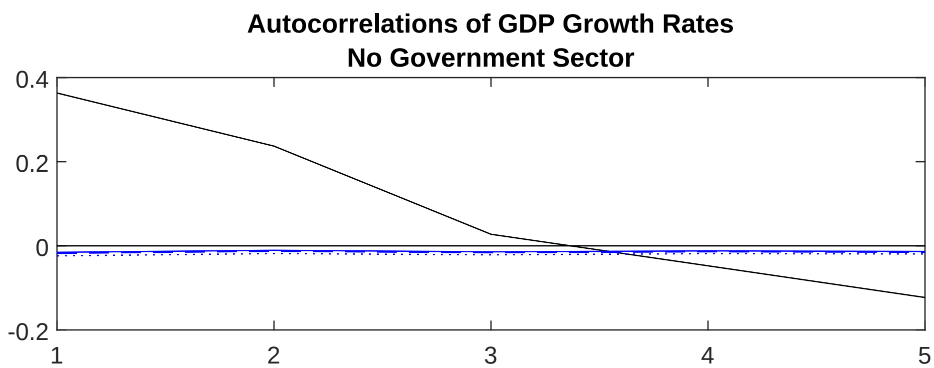
	Quarterly	No Gov			With Gov		
	Data	eta = .25	eta = 1	eta = 10	eta = .25	eta = 1	eta = 10
Corr(Hrs,Prd)	-0.166	0.980	0.964	0.865	0.832	0.809	0.645
SD(Hrs)/SD(Prd)	1.906	0.169	0.579	2.127	0.188	0.640	2.342

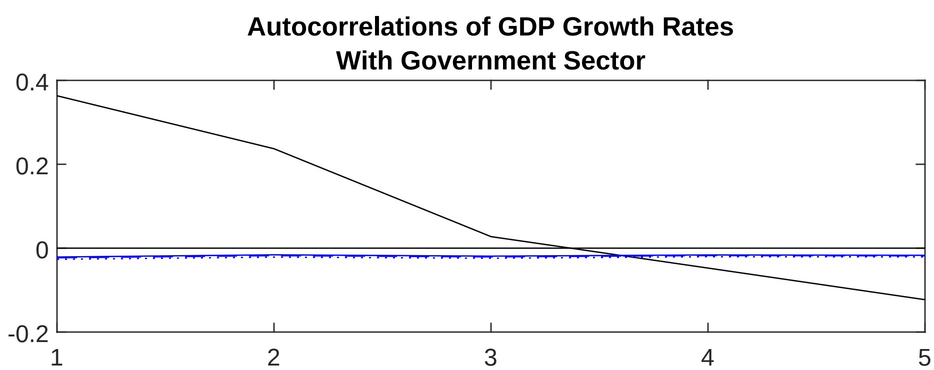

Histogram of St Dev of GDP Across 1000 Simulations
η = .25, No Government Sector
35
30
25
20
15
10
5
0
0.008
0.009
0.01
0.011
0.012

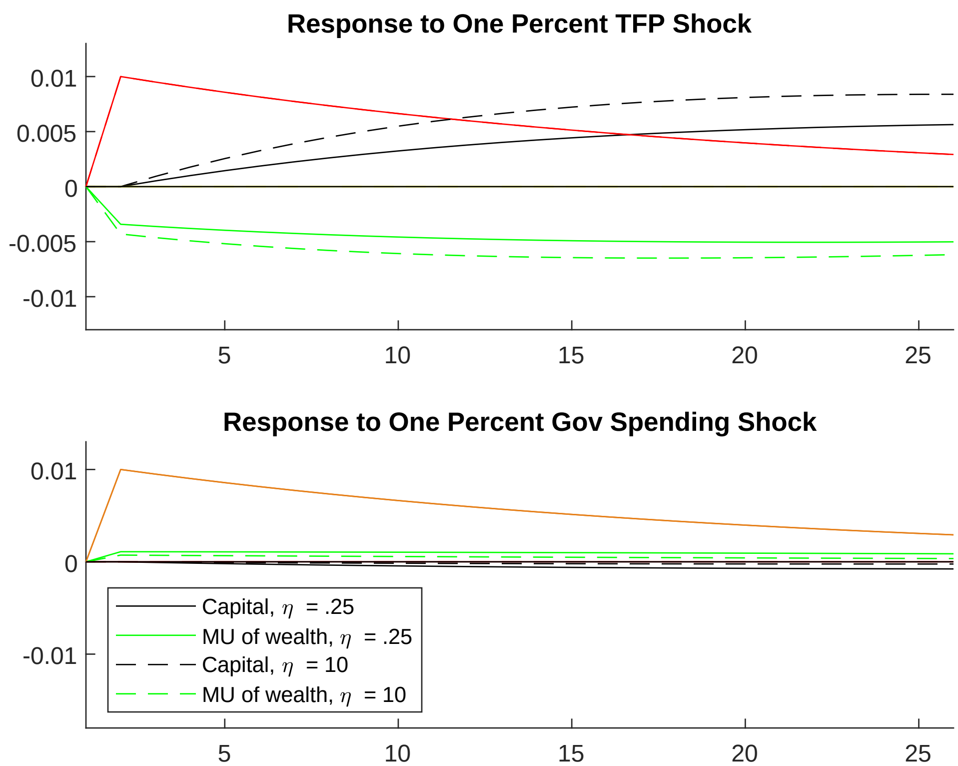

SD of Cons/SD of GDP
40
30
20
10
0
0.3
0.32
0.34
SD of Inv/SD of GDP
60
40
20
0
3.4
3.45
3.5
SD of Hours/SD of GDP
60
40
20
0
0.142
0.144
0.146
SD of Prod/SD of GDP
40
30
20
10
0
0.854
0.856
0.858
0.86
0.862


Corr(Cons at t, GDP at t-k)
No Government Sector
eta = .25
eta = 1
eta = 10
Corr(Cons at t, GDP at t-k)
With Government Sector
Corr(Inv at t, GDP at t-k)
No Government Sector
Corr(Inv at t, GDP at t-k)
With Government Sector
1
0.5
0
-5
-4
-3
-2
-1
0
1
2
3
4
5

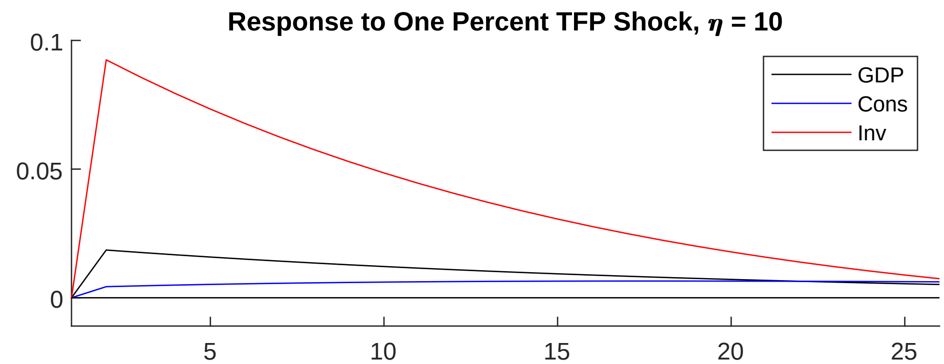

Corr(Hours at t, GDP at t-k)
No Government Sector
Corr(Hours at t, GDP at t-k)
With Government Sector
Corr(Prod at t, GDP at t-k)
No Government Sector
Corr(Prod at t, GDP at t-k)
With Government Sector
1
0.5
0
-5 -4 -3 -2 -1 0 1 2 3 4 5

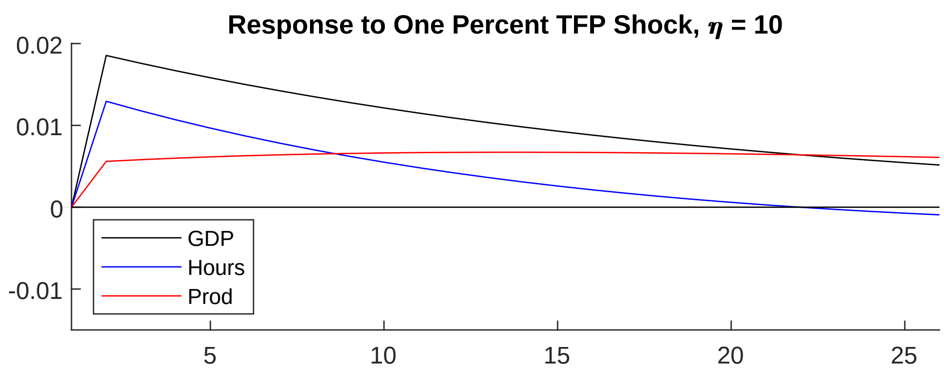

Autocorrelations of GDP Growth Rates
No Government Sector
0.4
0.2
0
-0.2
1
2
3
4
5


Autocorrelations of GDP Growth Rates
With Government Sector
0.4
0.2
0
-0.2
1
2
3
4
5



Response to One Percent TFP Shock
0.01
0.005
0
-0.005
-0.01
5
10
15
20
25
Response to One Percent Gov Spending Shock
0.01
0
-0.01
Capital, η = .25
MU of wealth, η = .25
Capital, η = 10
MU of wealth, η = 10
5
10
15
20
25


Response to One Percent TFP Shock, η = 10
0.1
0.05
0
5
10
15
20
25
GDP
Cons
Inv


Response to One Percent TFP Shock, η = 10
0.02
0.01
0
-0.01
5
10
15
20
25
GDP
Hours
Prod