Appendix

A Data sources

The model is estimated using quarterly data of the Japanese economy over the period from 1980:Q1 to 1998:Q4. All data except for interest rate (Bank of Japan), labor force (Ministry of Internal Affairs and Communications), and labor input (Ministry of Health, Labor and Welfare) are taken from the *National Accounts of Japan* (93SNA, Reference year: 1995)[26]. The effective tax rate series are constructed following Mendoza et al. (1994) on purely quarterly basis, and are seasonally adjusted by the author. The sources and the formula used are as follows.

Letting τ^h denote households' average tax rate on total income, effective average tax rates for τ^c, τ^d, τ^k are calculated as:

$$\tau^c = \left[\frac{TI}{C - TI}\right] \times 100$$

$$\tau^h = \left[\frac{TDI}{OSPUE + PEI + W}\right]$$

$$\tau^d = \left[\frac{\tau^h W + ESC}{W + TSC}\right] \times 100$$

$$\tau^k = \left[\frac{\tau^d(OSPUE + PEI) + (TD - TDI) + TP}{OS}\right] \times 100$$

where:

- TI : Taxes on products, General government, Allocation of primary income account, *Income and Outlay Accounts classified by Institutional Sectors.*
- C : Private final consumption expenditure, Gross domestic product (Expenditure approach at current prices), *Main Time Series.*

[26] The data are available on the web site of the Economic and Social Research Institute of the Cabinet Office, Japan (http://www.esri.cao.go.jp/en/sna/menu.html).

- TDI : Current taxes on income, wealth, etc., Households (including private unincorporated enterprises), Secondary distribution of income account, *Income and Outlay Accounts classified by Institutional Sectors.*

- $OSPUE$: Operating surplus, Households (including private unincorporated enterprises), Allocation of primary income account, *Income and Outlay Accounts classified by Institutional Sectors.*

- PEI : Property income, Households (including private unincorporated enterprises), Allocation of primary income account, *Income and Outlay Accounts classified by Institutional Sectors.*

- W : Wages and salaries, Households (including private unincorporated enterprises), Allocation of primary income account, *Income and Outlay Accounts classified by Institutional Sectors.*

- ESC : Employers' social contributions, Households (including private unincorporated enterprises), Allocation of primary income account, *Income and Outlay Accounts classified by Institutional Sectors.*

- TSC : Total social contributions, Households (including private unincorporated enterprises), Secondary distribution of income account, *Income and Outlay Accounts classified by Institutional Sectors.*

- TD : Current taxes on income, wealth, etc., General government, Secondary distribution of income account, *Income and Outlay Accounts classified by Institutional Sectors.*

- TP : Other taxes on production, General government, Allocation of primary income account, *Income and Outlay Accounts classified by Institutional Sectors.*

- OS : Operating surplus, Total economy, Allocation of primary income account, *Income and Outlay Accounts classified by Institutional Sectors.*

B Log-linearized Model

B.1 Ricardian Households

B.1.1 Consumption Euler Equation

From (3) and (4):

$$\hat{C}_t^R = \frac{h}{1+h}\hat{C}_{t-1}^R + \frac{1}{1+h}E_t\hat{C}_{t+1}^R - \frac{1-h}{(1+h)\sigma_c}\left(\hat{R}_t - E_t\hat{\pi}_{t+1}\right) + \frac{1-h}{(1+h)\sigma_c}\left(\hat{\varepsilon}_t^b - E_t\hat{\varepsilon}_{t+1}^b\right) - \frac{1-h}{(1+h)\sigma_c}\left(\hat{\tau}_t^{ctil} - E_t\hat{\tau}_{t+1}^{ctil}\right), \tag{23}$$

where

$$\hat{\tau}_t^{ctil} = \frac{\bar{\tau}^c}{1+\bar{\tau}^c}\hat{\tau}_t^c, \tag{24}$$

$$\hat{\varepsilon}_t^b = \rho_b\hat{\varepsilon}_{t-1}^b + \eta_t^b. \tag{25}$$

B.1.2 Investment Euler Equation

From (5) and (4):

$$\hat{I}_t = \frac{1}{1+\beta}\hat{I}_{t-1} + \frac{\beta}{1+\beta}E_t\hat{I}_{t+1} + \frac{\varsigma}{1+\beta}\hat{Q}_t - \frac{\beta E_t\hat{\varepsilon}_{t+1}^i - \hat{\varepsilon}_t^i}{1+\beta}, \tag{26}$$

where $\varsigma \equiv 1/S^{''}(1)$ and

$$\hat{\varepsilon}_t^i = \rho_i\hat{\varepsilon}_{t-1}^i + \eta_t^i. \tag{27}$$

B.1.3 Q Equation

From (6) and (4):

$$\hat{Q}_t = -\left(\hat{R}_t - \hat{\pi}_{t+1}\right) + \frac{1-\delta}{1-\delta+\left(1-\bar{\tau}^k\right)\bar{r}^k}\hat{Q}_{t+1} + \frac{\left(1-\bar{\tau}^k\right)\bar{r}^k}{1-\delta+\left(1-\bar{\tau}^k\right)\bar{r}^k}\hat{r}_{t+1}^k - \frac{\bar{\tau}^k\bar{r}^k}{1-\delta+\left(1-\bar{\tau}^k\right)\bar{r}^k}\hat{\tau}_{t+1}^k + \hat{\eta}_t^q. \tag{28}$$

B.1.4 Capital Utilization Decision Equation

From (7):

$$\hat{z}_t = \psi \left[\hat{r}_t^k - \frac{\bar{\tau}^k}{1-\bar{\tau}^k}(1+\hat{r}_t^k)\hat{\tau}_t^k \right], \tag{29}$$

where $\psi \equiv \Psi^{'}(1)/\ \Psi^{''}(1)$.

B.1.5 Capital Law of Motion

From (2):

$$\hat{K}_t = (1-\delta)\hat{K}_{t-1} + \delta \hat{I}_t. \tag{30}$$

B.1.6 Real Wage Law of Motion

From (9):

$$\begin{aligned} \hat{w}_t = & \frac{\beta}{1+\beta}E_t\hat{w}_{t+1} + \frac{1}{1+\beta}\hat{w}_{t-1} + \frac{\beta}{1+\beta}E\hat{\pi}_{t+1} \\ & - \frac{1+\beta\gamma_w}{1+\beta}\hat{\pi}_t + \frac{\gamma_w}{1+\beta}\hat{\pi}_{t-1} - \frac{1}{1+\beta}\frac{(1-\beta\xi_w)(1-\xi_w)}{\left(1+\frac{(1+\lambda_w)\sigma_l}{\lambda_w}\right)\xi_w} \\ & \times \left[\hat{w}_t - \sigma_l\hat{L}_t - \frac{\sigma_c}{1-h}\left(C_t^R - hC_{t-1}^R\right) - \hat{\varepsilon}_t^l - \eta_t^w - \frac{\bar{\tau}^d}{1-\bar{\tau}^d}\hat{\tau}_t^d - \frac{\bar{\tau}^c}{1+\bar{\tau}^c}\hat{\tau}_t^c \right], \end{aligned} \tag{31}$$

where

$$\hat{\varepsilon}_t^l = \rho_l\hat{\varepsilon}_{t-1}^l + \eta_t^l. \tag{32}$$

B.2 Non-Ricardian Households

From (8):

$$\frac{\bar{C}^{NR}}{\bar{Y}}\left[\hat{C}^{NR}(1+\bar{\tau}^c) + \bar{\tau}^c\hat{\tau}_t^c\right] = \bar{w}\frac{\bar{L}}{\bar{Y}}\left[\left(1-\bar{\tau}^d\right)\left(\hat{w}_t + \hat{L}_t\right) - \bar{\tau}^d\hat{\tau}_t^d\right]. \tag{33}$$

B.3 Firms

B.3.1 Marginal Cost

From (10):

$$\widehat{mc}_t = (1-\alpha)\,\hat{w}_t + \alpha \hat{r}_t^k - \hat{\varepsilon}_t^a. \tag{34}$$

B.3.2 Labor Demand

From (11):

$$\hat{L}_t = -\hat{w}_t + \hat{r}_t^k + \hat{z}_t + \hat{K}_{t-1}. \tag{35}$$

B.3.3 Profit Payment

From (12):

$$\frac{\bar{D}}{\bar{P}\bar{Y}}\hat{d}_t = (1-\overline{mc})\hat{Y}_t - \overline{mc}\varphi\widehat{mc}_t. \tag{36}$$

B.3.4 Inflation Law of Motion

From (13):

$$\begin{aligned}\hat{\pi}_t = &\frac{\beta}{1+\beta\gamma_p}E_t\hat{\pi}_{t+1} + \frac{\gamma_p}{1+\beta\gamma_p}\hat{\pi}_{t-1} \\ &+ \frac{1}{1+\beta\gamma_p}\frac{\left(1-\beta\xi_p\right)\left(1-\xi_p\right)}{\xi_p}\left[\alpha\hat{r}_t^k + (1-\alpha)\hat{w}_t - \hat{\varepsilon}_t^a + \eta_t^p\right],\end{aligned} \tag{37}$$

where

$$\hat{\varepsilon}_t^a = \rho_a\hat{\varepsilon}_{t-1}^a + \eta_t^a. \tag{38}$$

B.4 Fiscal and Monetary Authorities

B.4.1 Fiscal Policy Rules

From (14)-(18):

$$\frac{\bar{G}}{\bar{Y}}\hat{G}_t + \frac{\bar{B}}{\bar{P}\bar{Y}}\left(\hat{b}_{t-1} - \hat{\pi}_t\right) = \bar{\tau}^c\frac{\bar{C}}{\bar{Y}}\left(\hat{\tau}_t^c + \hat{C}_t\right) + \bar{\tau}^d\bar{w}\frac{\bar{L}}{\bar{Y}}\left(\hat{\tau}_t^d + \hat{w}_t + \hat{L}_t\right) + \bar{\tau}^k\bar{r}^k\frac{\bar{K}}{\bar{Y}}\left(\hat{\tau}_t^k + \hat{r}_t^k + \hat{z}_t + \hat{K}_{t-1}\right) \tag{39}$$

$$+ \bar{\tau}^k\frac{\bar{D}}{\bar{P}\bar{Y}}\left(\hat{\tau}_t^k + \hat{d}_t\right) + \beta\frac{\bar{B}}{\bar{P}\bar{Y}}\left(\hat{b}_t - \hat{R}_t\right),$$

$$\hat{\tau}_t^c = \rho_{tc}\hat{\tau}_{t-1}^c + (1-\rho_{tc})\,\phi_{tcb}(\hat{b}_{t-1} - \hat{Y}_{t-1}) + \eta_t^{tc}, \tag{40}$$

$$\hat{\tau}_t^d = \rho_{td}\hat{\tau}_{t-1}^d + (1-\rho_{td})\,\phi_{tdb}(\hat{b}_{t-1} - \hat{Y}_{t-1}) + \eta_t^{td}, \tag{41}$$

$$\hat{\tau}_t^k = \rho_{tk}\hat{\tau}_{t-1}^k + (1-\rho_{tk})\,\phi_{tkb}(\hat{b}_{t-1} - \hat{Y}_{t-1}) + \eta_t^{tk}, \tag{42}$$

$$\hat{G}_t = \rho_g\hat{G}_{t-1} + \left(1-\rho_g\right)\phi_{gy}\hat{Y}_{t-1} + \eta_t^g. \tag{43}$$

B.4.2 Monetary Policy Rule

From (19):

$$\hat{R}_t = \rho_r\hat{R}_{t-1} + (1-\rho_r)\,\phi_{r\pi}\hat{\pi}_{t-1} + (1-\rho_r)\,\phi_{ry}\hat{Y}_t + \eta_t^R. \tag{44}$$

B.5 Aggregation and Market Clearing

B.5.1 Goods Market Equilibrium Condition

From (20):

$$\frac{\bar{C}}{\bar{Y}}\hat{C}_t = (1-\omega)\,\frac{\bar{C}^R}{\bar{Y}}\hat{C}_t^R + \omega\frac{\bar{C}^{NR}}{\bar{Y}}\hat{C}_t^{NR}. \tag{45}$$

From (22):

$$\hat{Y}_t = \frac{\bar{C}}{\bar{Y}}\hat{C}_t + \delta\frac{\bar{K}}{\bar{Y}}\hat{I}_t + \frac{\bar{G}}{\bar{Y}}\hat{G}_t + \left(1-\bar{\tau}_t^k\right)\bar{r}_t^k\frac{\bar{K}}{\bar{Y}}\hat{z}_t. \tag{46}$$

B.5.2 Aggregate Production Equation

From (21):

$$\hat{Y}_t = \varphi \left(\hat{\varepsilon}_t^a + \alpha \hat{z}_t + \alpha \hat{K}_{t-1} + (1-\alpha)\, \hat{L}_t \right), \tag{47}$$

where $\varphi \equiv 1 + \Phi/\bar{Y}$.

Table 1: Prior and posterior distributions of the parameters (a)

Parameters		Prior			Posterior		
		Distribution	Mean	S. D.	Mean	90% interval	
h	consumption habit	beta	0.7	0.1	0.465	[0.313	0.622]
σ_c	consumption utility	gamma	1.5	0.2	1.620	[1.283	1.954]
σ_l	labor utility	gamma	2	0.375	2.113	[1.472	2.736]
φ	fixed cost	gamma	1.45	0.25	1.904	[1.529	2.312]
ψ	capital util. adj. cost	gamma	0.2	0.075	0.416	[0.290	0.536]
ξ_w	Calvo wages	beta	0.75	0.15	0.824	[0.762	0.887]
ξ_p	Calvo prices	beta	0.75	0.15	0.432	[0.323	0.543]
γ_w	indexation wages	beta	0.75	0.15	0.211	[0.096	0.325]
γ_p	indexation prices	beta	0.75	0.15	0.595	[0.308	0.887]
ω	non-ricardian share	beta	0.35	0.05	0.248	[0.183	0.310]
ρ_r	interest rate AR coeff.	beta	0.8	0.1	0.934	[0.904	0.959]
$\phi_{r\pi}$	interest rate inflation coeff.	normal	1.7	0.1	1.533	[1.363	1.705]
ϕ_{ry}	interest rate output gap coeff.	normal	0.125	0.05	0.254	[0.189	0.318]
ρ_g	gov. exp. AR coeff.	beta	0.8	0.1	0.736	[0.644	0.832]
ϕ_{gy}	gov. exp. output gap coeff.	normal	0.1	0.05	0.068	[-0.016	0.152]
ρ_{tc}	cons. tax AR coeff.	beta	0.8	0.1	0.507	[0.350	0.668]
ϕ_{tcb}	cons. tax debt coeff.	normal	0.1	0.05	0.013	[-0.016	0.041]
ρ_{td}	labor tax AR coeff.	beta	0.8	0.1	0.568	[0.417	0.718]
ϕ_{tdb}	labor tax debt coeff.	normal	0.1	0.05	0.005	[-0.029	0.044]
ρ_{tk}	capital tax AR coeff.	beta	0.8	0.1	0.655	[0.547	0.761]
ϕ_{tkb}	capital tax debt coeff.	normal	0.1	0.05	0.123	[0.055	0.190]
ρ_a	persistence of productivity shock	beta	0.8	0.1	0.518	[0.383	0.654]
ρ_b	persistence of preference shock	beta	0.8	0.1	0.431	[0.250	0.619]
ρ_l	persistence of labor supply shock	beta	0.8	0.1	0.257	[0.157	0.353]
ρ_i	persistence of inv. adj. cost shock	beta	0.8	0.1	0.800	[0.652	0.960]

Table 2: Prior and posterior distributions of the parameters (b)

S. D. of Shocks		Prior			Posterior	
		Distribution	Mean	S. D.	Mean	90% interval
η^a	productivity shock	inv. gamma	0.4	2	0.788	[0.679 0.892]
η^b	preference shock	inv. gamma	0.2	2	4.652	[3.128 6.116]
η^i	inv. adj. cost shock	inv. gamma	0.1	2	0.078	[0.023 0.139]
η^l	labor supply shock	inv. gamma	1	2	169.6	[54.19 282.4]
η^q	external finance premium shock	inv. gamma	0.4	2	1.968	[1.653 2.280]
η^w	wage markup shock	inv. gamma	0.25	2	0.231	[0.056 0.432]
η^p	price markup shock	inv. gamma	0.15	2	2.215	[1.436 2.979]
η^r	interest rate shock	inv. gamma	0.1	2	0.224	[0.180 0.267]
η^g	government spending shock	inv. gamma	0.3	2	1.220	[1.057 1.379]
η^{tc}	cons. tax shock	inv. gamma	0.1	2	0.643	[0.551 0.732]
η^{td}	labor tax shock	inv. gamma	0.1	2	0.676	[0.581 0.767]
η^{tk}	capital tax shock	inv. gamma	0.4	2	4.805	[3.625 5.969]

Table 3: Mean estimates of structural parameters compared with those of previous studies

Structural parameters		Euro Area			United States	Japan		
		SW	CS†	FMS	LOWW	INW	SU	This paper
h	consumption habit	0.592	0.412	0.73	0.29	0.795	0.102	0.465
σ_c	consumption utility	1.391	1.101	(1.00)††	2.19	1.912	1.249	1.620
σ_l	labor utility	2.503	2.343	2.00	1.49	2.077	2.149	2.113
$1/\varsigma$	investment adj. cost	6.962	7.386	5.30	1.79	24.39	6.319	(6.319)††
φ	fixed cost	1.417	1.602	n.a.	1.09	1.588	1.084	1.904
ψ	capital util. adj. cost	0.201	0.219	0.22	0.21	0.288	0.422	0.416
ξ_w	Calvo wages	0.742	0.747	n.a.	0.79	0.275	0.516	0.824
ξ_p	Calvo prices	0.905	0.914	n.a.	0.83	0.791	0.875	0.432
γ_w	indexation wages	0.728	0.724	n.a.	0.79	0.581	0.246	0.211
γ_p	indexation prices	0.477	0.456	n.a.	0.08	0.579	0.862	0.595
ω	non-Ricardian share	n.a.	0.370	0.34	n.a.	n.a.	n.a.	0.248

† Estimates for the specification in which distortionary taxation is considered.

†† Values in parentheses are calibrated.

Table 4: Mean estimates of policy parameters compared with those of previous studies

Policy parameters		Euro Area			United States	Japan		
		SW	CS†	FMS	LOWW	INW	SU	This paper
	Monetary policy parameters							
ρ_r	interest rate AR coeff.	0.956	0.964	0.92	0.8392	0.687	0.842	0.934
$\phi_{r\pi}$	interest rate inflation coeff.	1.688	1.692	1.72	2.6951	1.628	0.606	1.533
ϕ_{ry}	interest rate output gap coeff.	0.098	0.103	0.13	0.0968	0.097	0.110	0.254
	(inflation change coeff.)	0.151	0.160	0.23	0.2637	n.a.	0.250	n.a.
	(output gap change coeff.)	0.158	0.153	0.07	0.5091	n.a.	0.647	n.a.
	Fiscal policy parameters							
ρ_g	gov. exp. AR coeff.	0.943	0.944	n.a.	0.9443	0.793	0.960	0.736
ϕ_{gy}	gov. exp. output gap coeff.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.068
ρ_{tc}	cons. tax AR coeff.	n.a.	n.a.	0.96	n.a.	n.a.	n.a.	0.507
ϕ_{tcb}	cons. tax debt coeff.	n.a.	n.a.	0.50	n.a.	n.a.	n.a.	0.013
ρ_{td}	labor tax AR coeff.	n.a.	n.a.	0.91	n.a.	n.a.	n.a.	0.568
ϕ_{tdb}	labor tax debt coeff.	n.a.	n.a.	0.28	n.a.	n.a.	n.a.	0.005
ρ_{tk}	capital tax AR coeff.	n.a.	n.a.	0.97	n.a.	n.a.	n.a.	0.655
ϕ_{tkb}	capital tax debt coeff.	n.a.	n.a.	0.57	n.a.	n.a.	n.a.	0.123

† Estimates for the specification in which distortionary taxation is considered.

Table 5: Fiscal multipliers* compared with those of previous studies

	Japan			Euro Area		
Quarters	This paper†		ESRI††	FMS‡	NAWM‡‡	QUEST III
			$\widehat{Y}$			
1	1.23			1.21	1.07	0.73
4 (1st yr)	0.28	(0.72)	(1.00)	0.85	1.04	0.45
8 (2nd yr)	-0.16	(-0.04)	(0.06)	0.54	0.99	n.a.
12 (3rd yr)	-0.31	(-0.26)	(-0.17)	0.35	n.a.	n.a.
			$\widehat{C}$			
1	0.19			0.05	n.a.	n.a.
4 (1st yr)	-0.06	(0.05)	(0.09)	-0.03	n.a.	n.a.
8 (2nd yr)	-0.15	(-0.12)	(0.23)	-0.09	n.a.	n.a.
12 (3rd yr)	-0.22	(-0.19)	(-0.05)	-0.11	n.a.	n.a.
			$\widehat{I}$			
1	0.70			-0.04	n.a.	n.a.
4 (1st yr)	-0.62	(0.07)	(-0.73)	-0.07	n.a.	n.a.
8 (2nd yr)	-1.19	(-1.06)	(-0.24)	-0.10	n.a.	n.a.
12 (3rd yr)	-1.27	(-1.26)	(-0.48)	-0.11	n.a.	n.a.
			$\widehat{\pi}$			
1	0.14			0.21	n.a.	n.a.
4 (1st yr)	0.08	(0.11)	(0.19)	0.20	n.a.	n.a.
8 (2nd yr)	0.11	(0.10)	(0.48)	0.20	n.a.	n.a.
12 (3rd yr)	0.11	(0.11)	(0.57)	0.19	n.a.	n.a.

* Effects of a temporary shock in government spending equal to a 1% of steady state output unless otherwise noted.

† Values in parentheses are yearly average effects of a temporary shock in government spending.

†† Yearly effects of one year-long increase in government investment.

‡ Effects of a government consumption shock. Effects on inflation is expressed in annualized terms.

‡‡ Effects of a government investment shock. The value in the 1st line is that in the 2nd quarter.

Table 6: Tax rule specifications

	Euro Area	Japan				
	FMS est.	Baseline	Alternative specifications			
			FMS spec.	SP1	SP2	SP3	SP4
$\hat{\tau}^c$ rule							
$1-\rho_{tc}$	0.04	0.4931	0.4931	0.4931	0.4931	0.4931	0.4931
ϕ_{tcb}	0.50	0.0125	0.0406	0.2000	0.2000	0.0100	0.0100
coeff.	0.0200	0.0062	0.0200	0.0986	0.0986	0.0049	0.0049
$\hat{\tau}^d$ rule							
$1-\rho_{td}$	0.09	0.4323	0.4323	0.4323	0.4323	0.4323	0.4323
ϕ_{tdb}	0.28	0.0052	0.0584	0.2000	0.0100	0.2000	0.0100
coeff.	0.0252	0.0022	0.0252	0.0865	0.0043	0.0865	0.0043
$\hat{\tau}^k$ rule							
$1-\rho_{tk}$	0.03	0.3453	0.3453	0.3453	0.3453	0.3453	0.3453
ϕ_{tkb}	0.57	0.1230	0.0496	0.2000	0.0100	0.0100	0.2000
coeff.	0.0171	0.0425	0.0171	0.0691	0.0035	0.0035	0.0691

Table 7: Fiscal multipliers* under different tax rules and non-Ricardian shares

	SP4				SP3	SP2	SP1
Quarters	$\omega = 0.0$	$\omega = 0.1$	$\omega = 0.2$	$\omega = 0.3$	$\omega = 0.3$	$\omega = 0.3$	$\omega = 0.3$
				$\widehat{Y}$			
1	1.17	1.21	1.25	1.29	1.08	1.08	1.18
4	0.30	0.30	0.30	0.30	0.14	0.17	0.14
8	-0.23	-0.23	-0.24	-0.24	-0.13	-0.08	-0.39
12	-0.43	-0.43	-0.44	-0.44	-0.16	-0.08	-0.42
				$\widehat{C}$			
1	0.02	0.09	0.17	0.25	0.13	0.14	0.19
4	-0.08	-0.07	-0.05	-0.04	-0.20	-0.14	-0.17
8	-0.16	-0.17	-0.18	-0.18	-0.29	-0.19	-0.36
12	-0.25	-0.26	-0.27	-0.28	-0.27	-0.19	-0.37
				$\widehat{I}$			
1	0.99	0.96	0.92	0.87	-0.18	-0.22	0.29
4	-0.37	-0.42	-0.47	-0.53	-1.21	-1.25	-1.19
8	-1.40	-1.40	-1.40	-1.41	-0.74	-0.77	-1.83
12	-1.73	-1.72	-1.71	-1.70	-0.39	-0.40	-1.53

* Effects of a temporary shock in government spending equal to a 1% of steady state output.

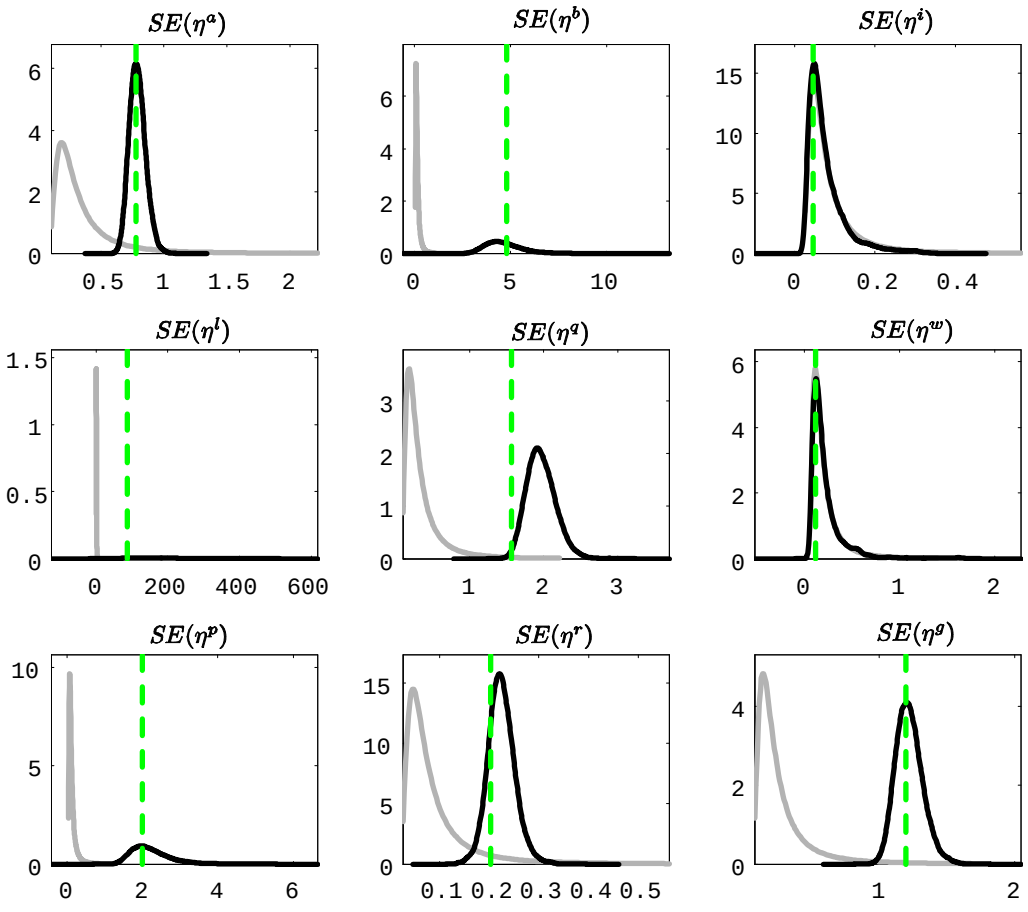

Figure 1: Prior and posterior distributions (a)

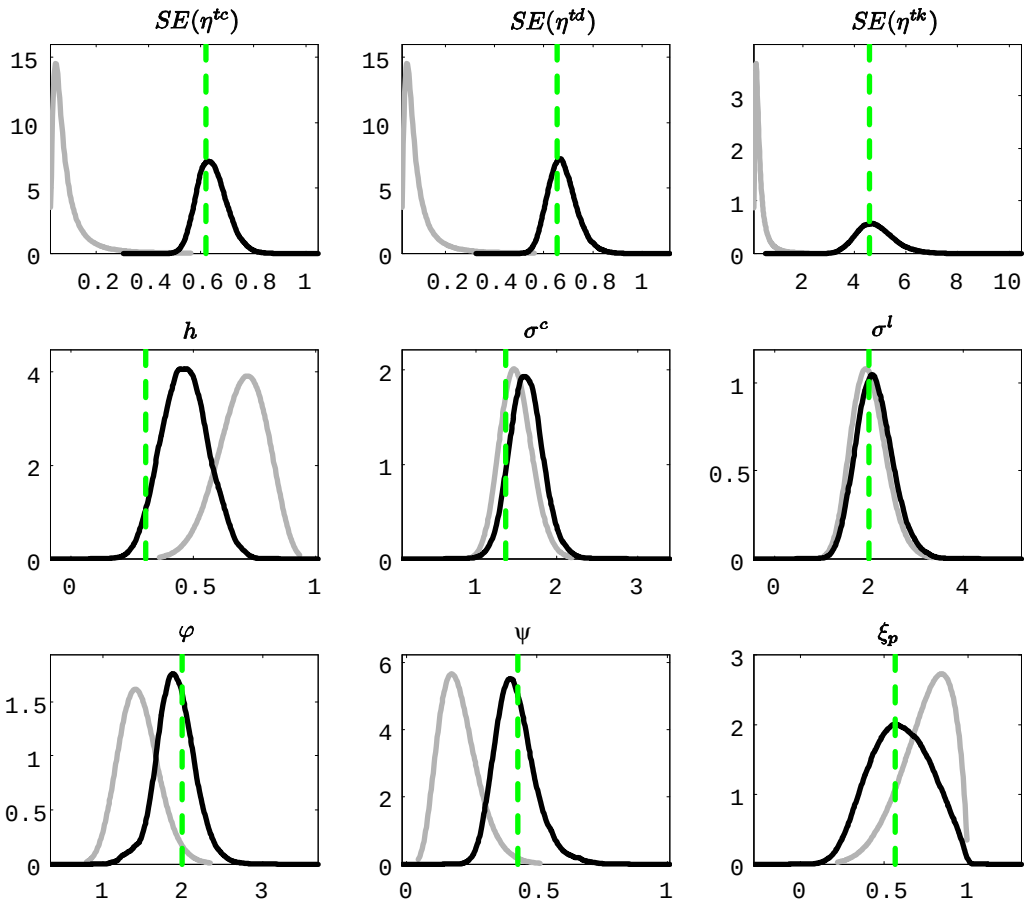

Figure 2: Prior and posterior distributions (b)

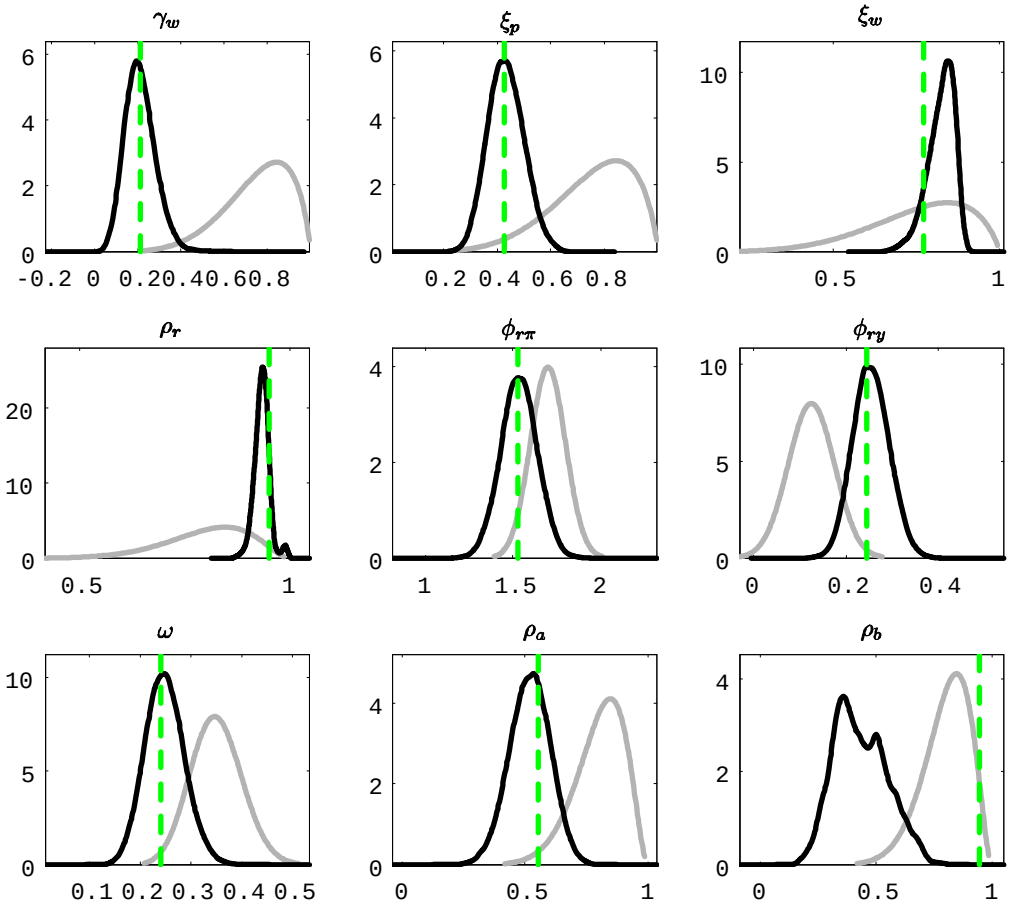

Figure 3: Prior and posterior distributions (c)

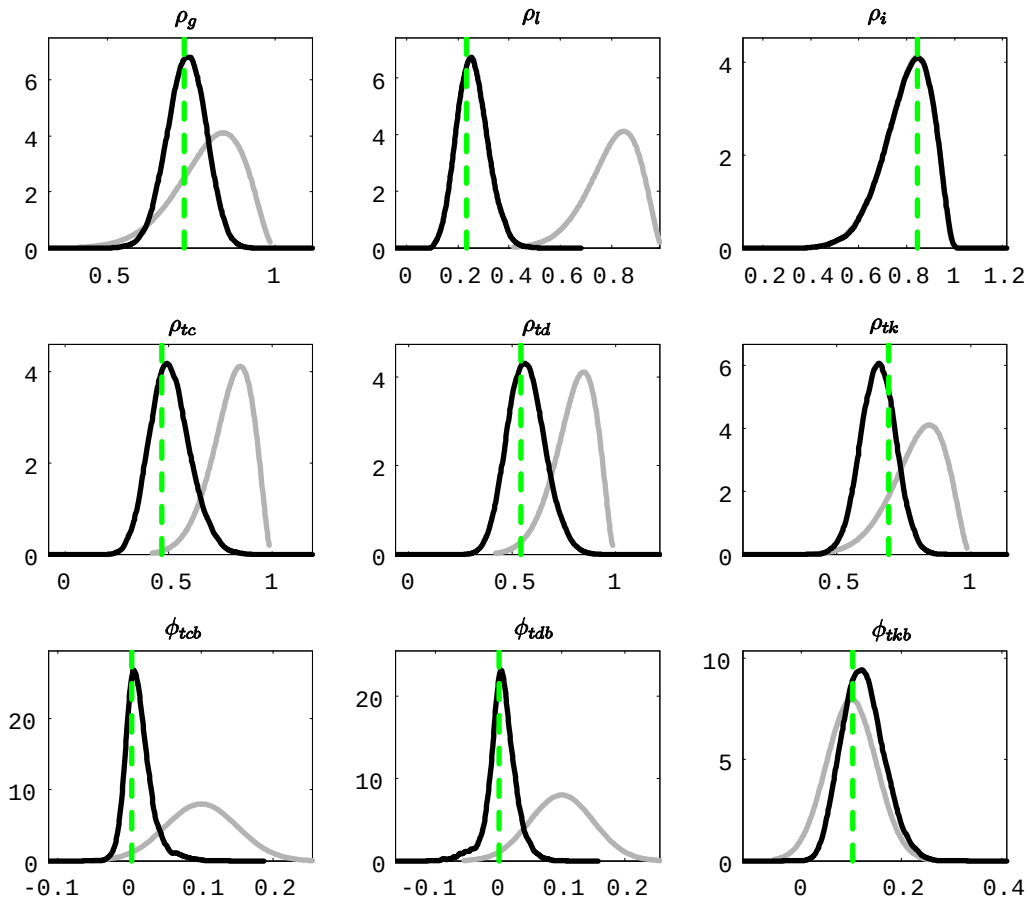

Figure 4: Prior and posterior distributions (d)

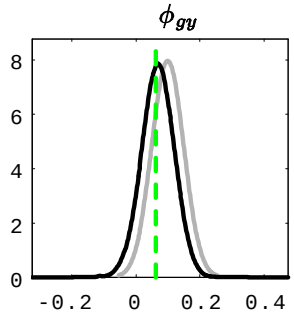

Figure 5: Prior and posterior distributions (e)

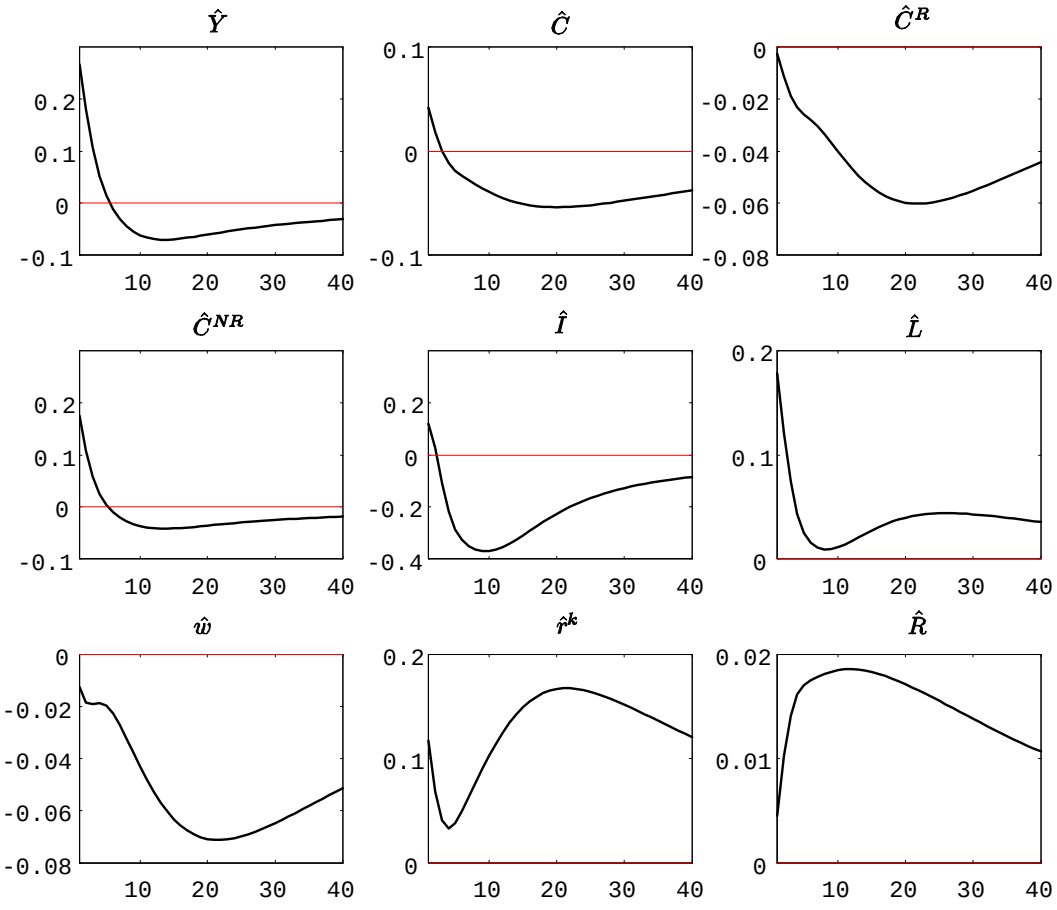

Figure 6: Responses to a government spending shock (a)

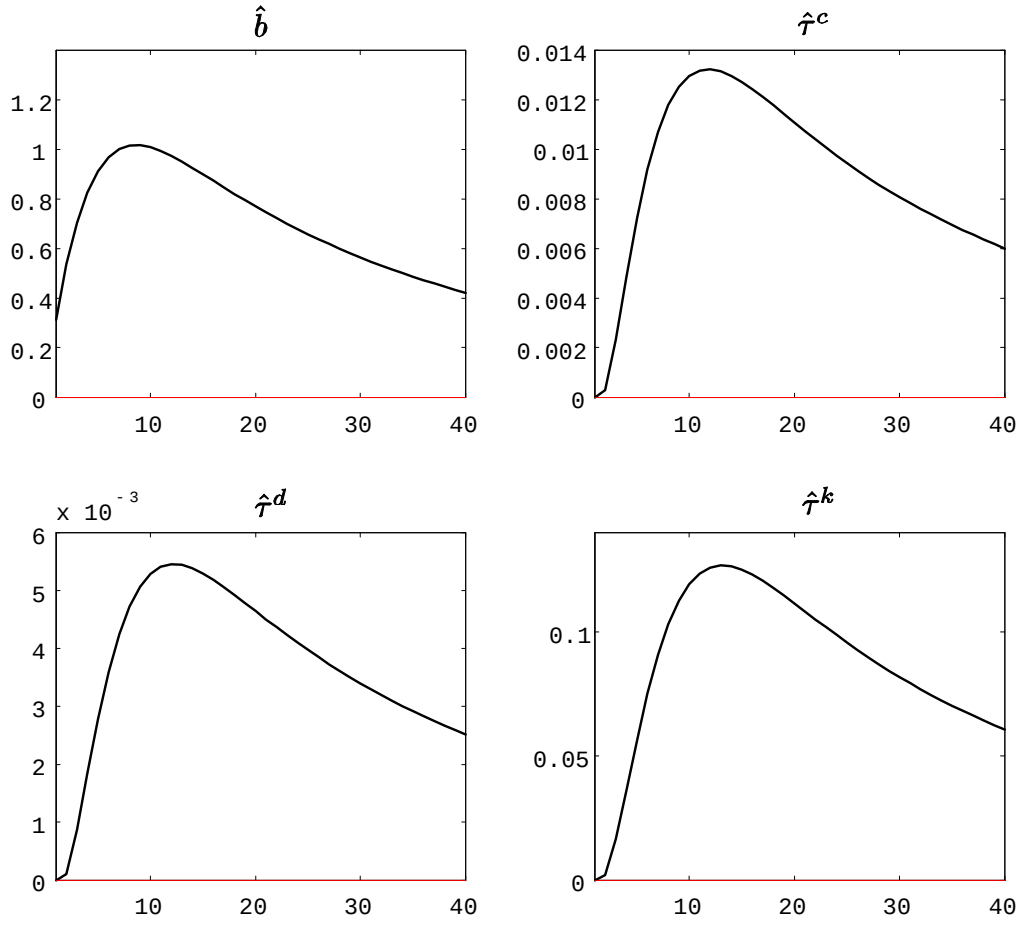

Figure 7: Responses to a government spending shock (b)

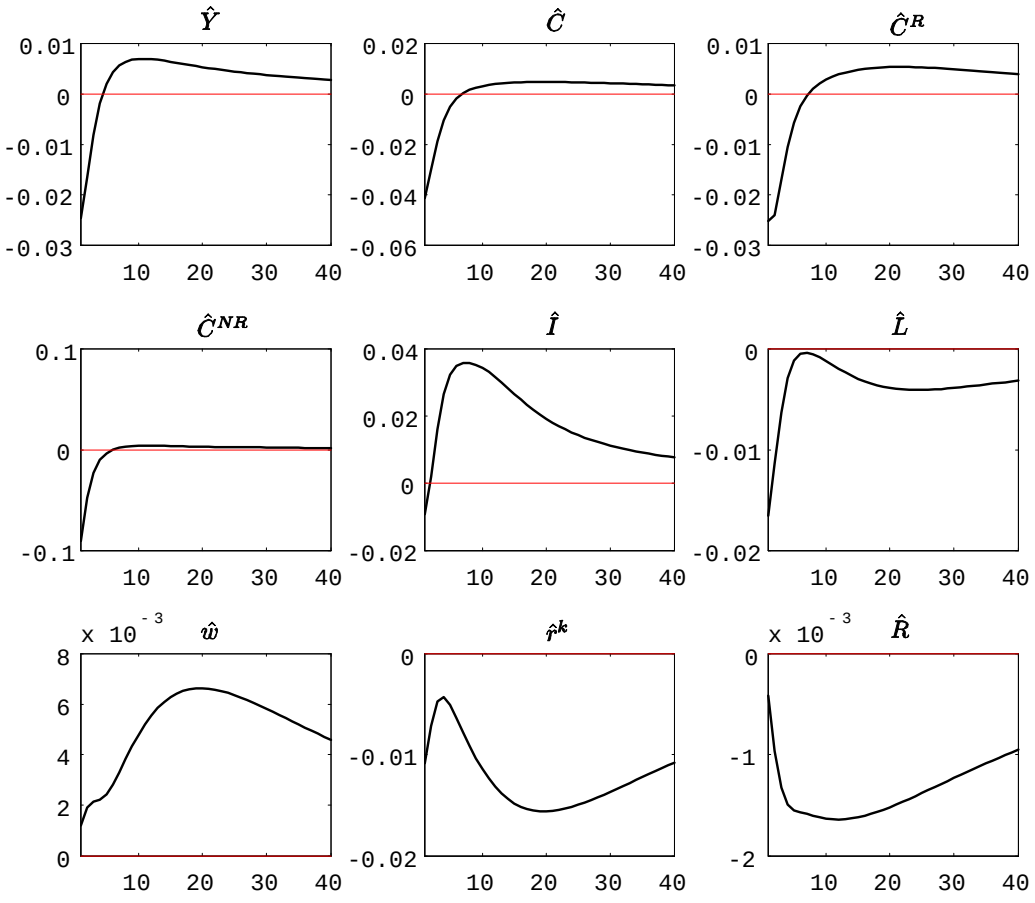

Figure 8: Responses to a consumption tax shock

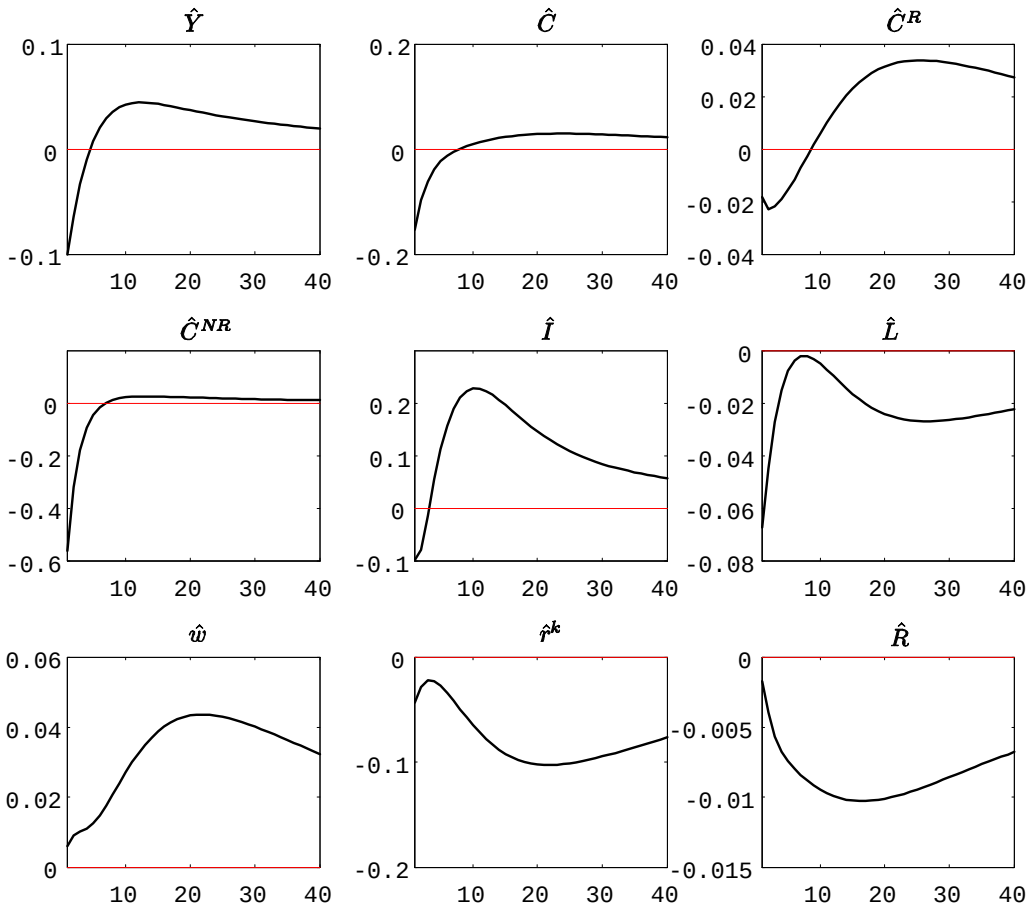

Figure 9: Responses to a labor income tax shock

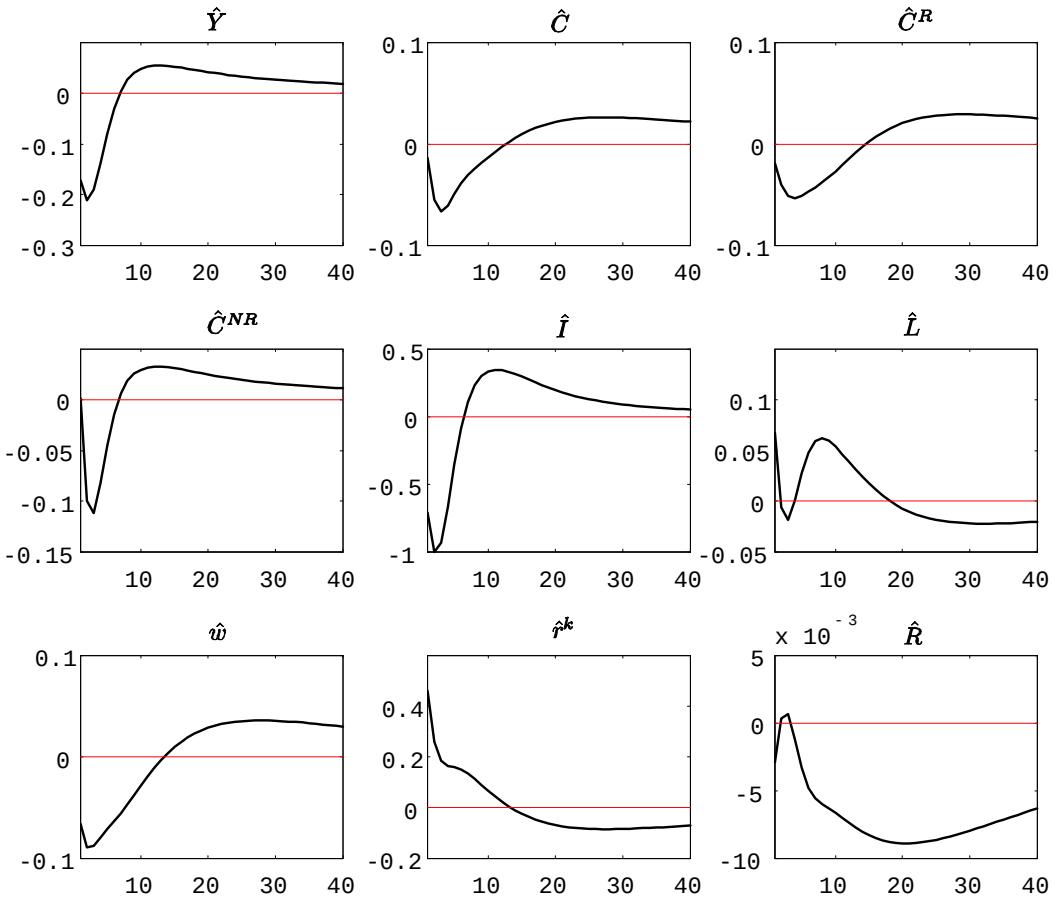

Figure 10: Responses to a capital income tax shock

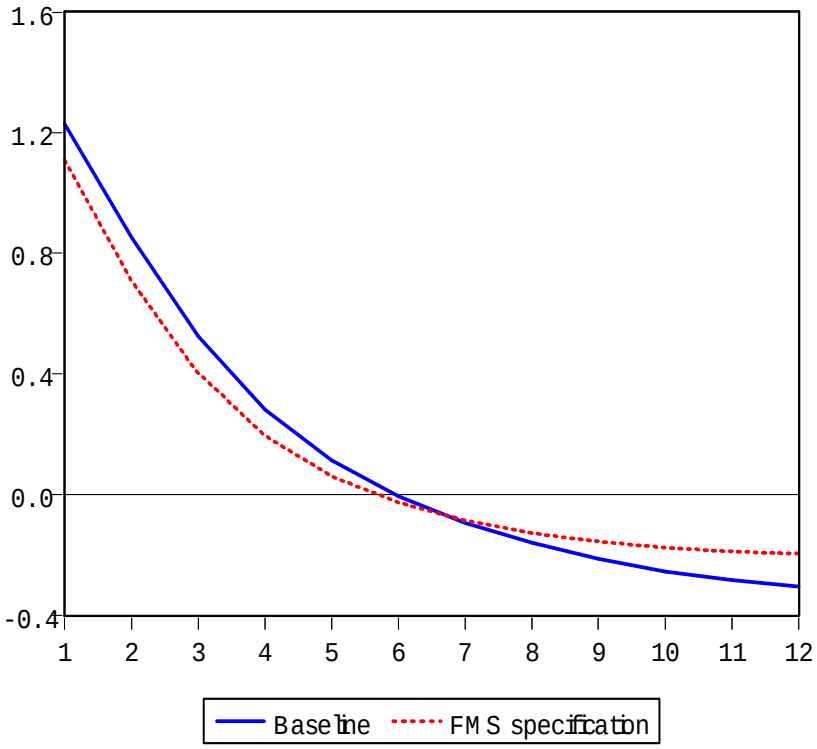

Figure 11: Fiscal multipliers under different tax rules

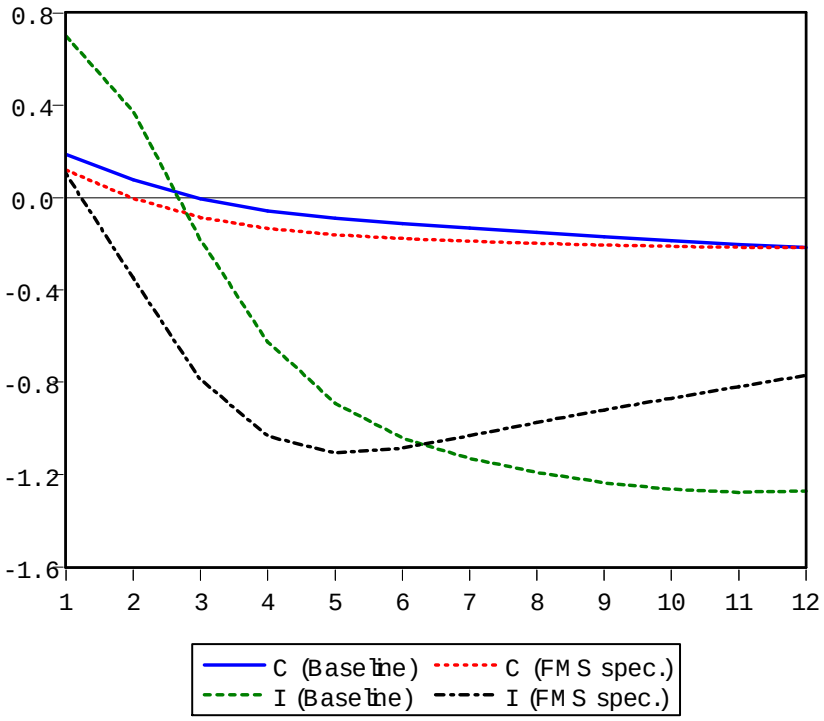

Figure 12: Consumption and investment responses to a government spending shock

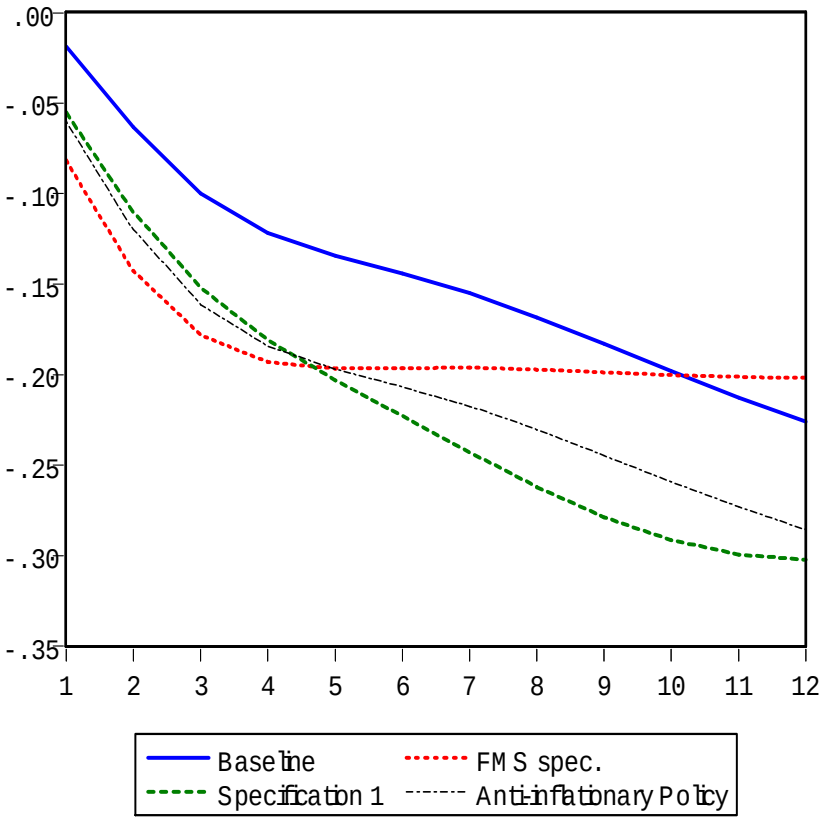

Figure 13: Ricardian consumption responses to a government spending shock (a)

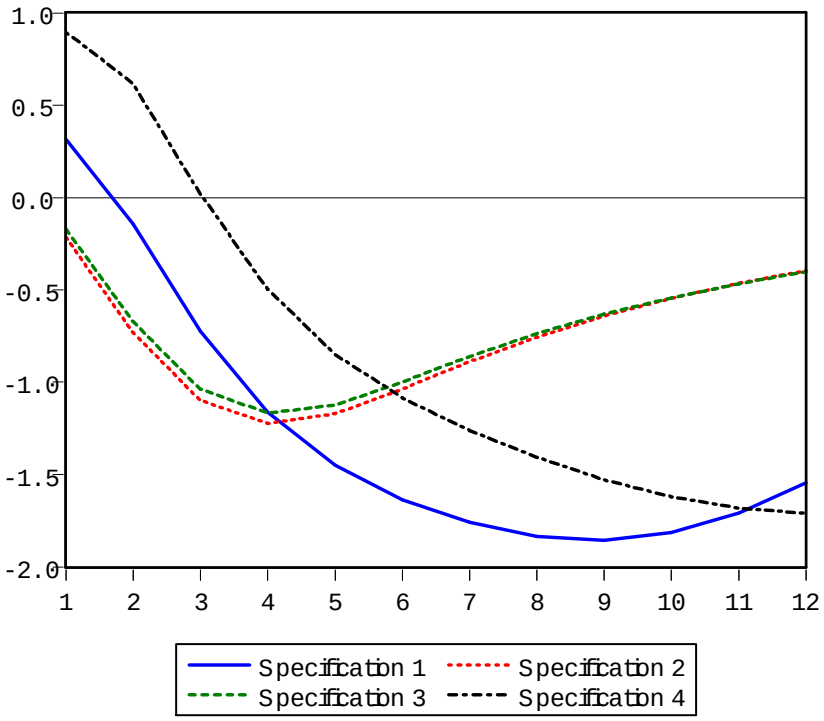

Figure 14: Investment responses to a government spending shock

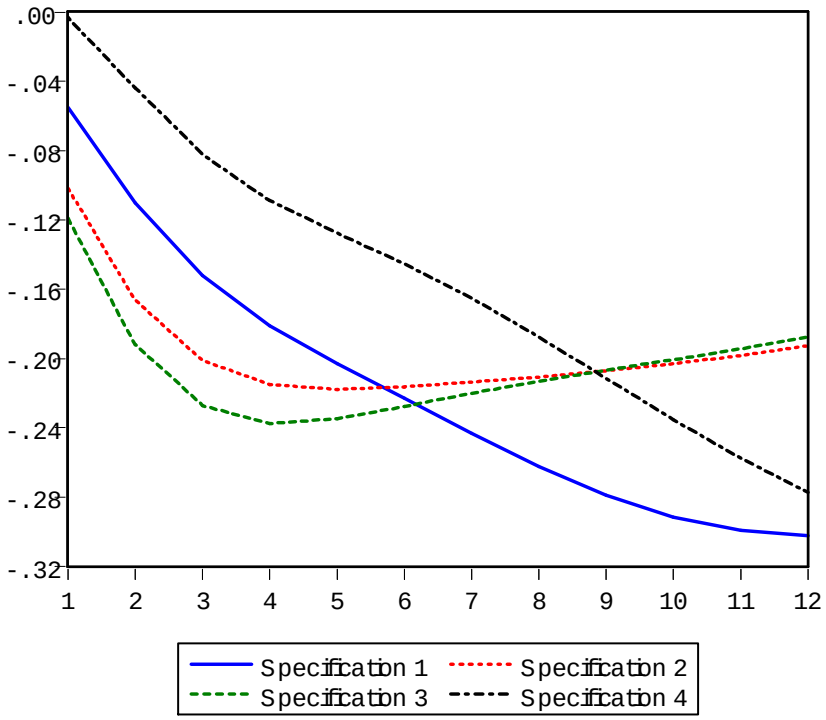

Figure 15: Ricardian consumption responses to a government spending shock (b)

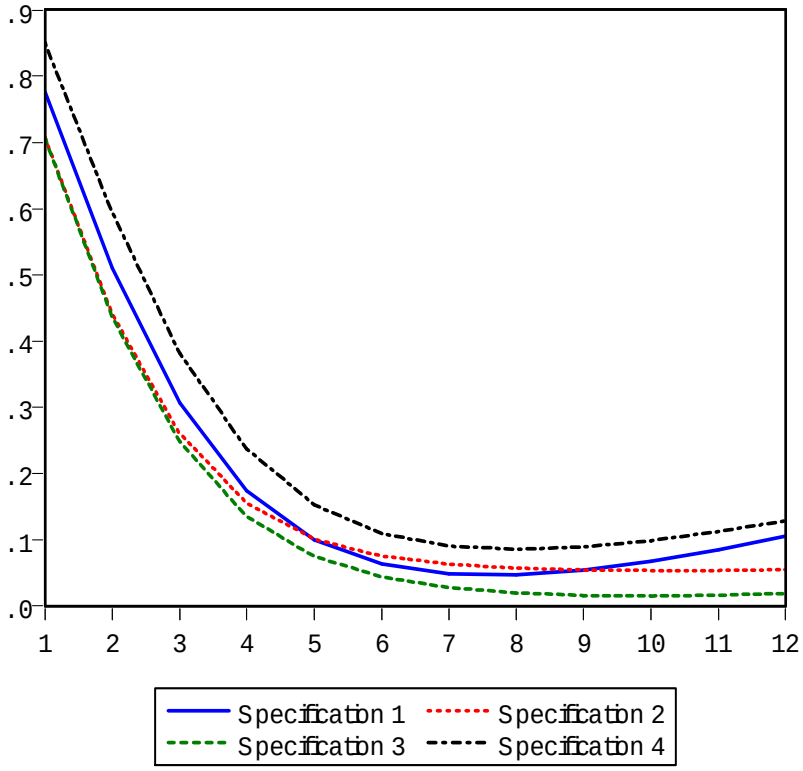

Figure 16: Labor hour responses to a government spending shock

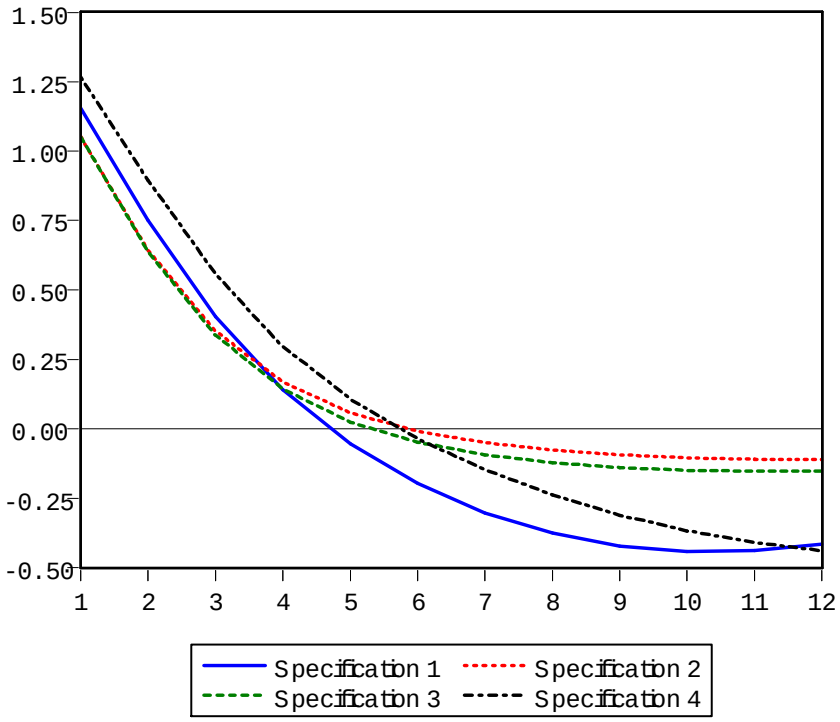

Figure 17: Output responses to a government spending shock

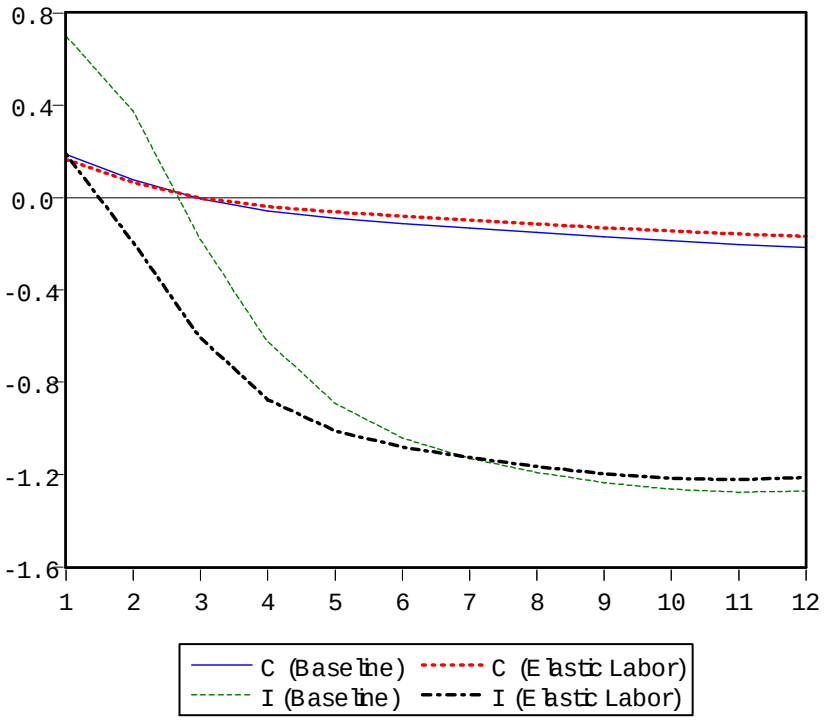

Figure 18: Consumption and investment responses under elastic labor supply