«Note»

Relationship between Efficiency and Equity in the Public and Private Sectors: Its Structure and Measurement (XIth World Productivity Congress, Edinburgh, UK, on 4th of October 1999)

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Abstract

The public sector and public corporations do not get profit and accordingly cannot pay dividends while the corporate sector and companies earn profit and pay dividends after taxes. What is a common base for both sectors (and accordingly public corporations and companies)? The author admits that capital consumption is a common base. Then, how can this capital consumption (economic depreciation) be measured in each sector and in public and private organizations? What is the difference between the public and corporate sectors? The author advocates that the public sector must earn the amount equal to undistributed profit as capital consumption while the corporate sector must earn both undistributed profit and dividends as profit after depreciation. This machanism is justified using the Cobb-Douglas production function, the Solow Model, the Solow-Kamiryo Model, and the author's discrete model, the Kamiryo Model.

Let the author assume that "efficiency" is measured by average and marginal productivity (closely related to the capital-output ratio) and also that "equity/income distribution" is measured by the relative share of labor/capital. What is the relationship between efficiency and income distribution? This problem has

long been discussed by both the neo-classicals and the neo-Keynesians. The author ["Economic Accounting," 1998; JEL: 37(1), 1999] has developed a set of common structures for both national and corporate accounts. This paper intends to explore these structures further in terms of the differences and similarities between the public and corporate sectors. As a result, both efficiency and equity are characterized in the public sector.

Particularly important is that the public sector is involved in optimal consumption/utility and also the level of technology and the rate of technological progress as in the private sector. The rate of change in the capital-output ratio is closely related to the rate of technological progress as in the private sector. Asset investment in the public sector is financed by taxes that correspond with undistributed profit (in the private sector). When external funds are available, these funds are used for asset investment, but this implies that efficiency is lowered under negative rate of technological progress in the public sector. How can utility of asset investment be measured in the public sector? People as in the market must evaluate utility brought out by asset investment. Utility corresponds with dividends (in the private sector), where supposed taxes paid by prople are offset by supposed dividend payout. The relative share of profit, which is closely related to the capital-output ratio, expresses the level of equity in the public sector. Thus efficiency and equity are closely related each other in the public sector.

The basic relationship between efficiency and equity in both sectors

Efficiency expressed by the capital-output ratio differs from labour productivity, $y = Y/L$.

Equity is expressed by the relative share of profit, $\alpha = P/Y$.

The capital-output ratio, $\Omega = K/Y$, connects productivity, y, and equity, α:

$y = k/\Omega$ and $\alpha = \Omega \cdot r$. Thus $\Omega = \frac{k}{y} = \frac{\alpha}{r}$,

where the capital-labour ratio $k = K/L$ and the rate of profit $r = P/K$.

Private Sector: Dividends are paid out from profit.

$Y = W + P$, where $P = S_P + D$ and $D = S_D + C_D$, and $S_D = S_W = S_{WD}$

under the modified golden rule: $S \neq P$.

$\Delta K = K(2) - K(1) = S = S_P + S_{WD}$ (as net asset investment),

where Capital is K. Workers, L, is used for productivity, Y/L.

$C_D = \gamma \cdot S_P$, where γ is the coefficient of time preference.

If $\gamma = 0$, $D = S_{WD}$, where consumed dividends are zero.

Thus, $P = S_P + D = S_P + S_{WD}$.

If $\gamma = 1$, $P = S_P + D = S_P + S = 2S_P + S_{WD} = S_P + S$.

Public Sector: dividends are not paid out.

(1) A part of taxes is used for asset investment, ΔK (as gross investment). Dividends, D, are replaced by utility, U, people's response (corresponding with optimal consumption), where saved wages are zero and supposed taxes-in is offset by supposed taxes-out (utility).

(2) Taxes, T, are composed of $T_{\Delta K}$ (corresponding with S_P), T_W (for all wages), and T_{DEP} (for depreciation), where no borrowing is allowed. Maintenance of asset investment is composed of a part of wages and depreciation as revenue expenditure (not as capital expenditure).

(3) Borrowings, if any, must be treated separately. Then, the capital-output ratio Ω is 1.0 or $K = Y$. Efficiency Ω differs from productivity $y \equiv Y/L = k/\Omega$, but $y = k$ under $\Omega = 1.0$.

(4) Asset investment is composed of environmental and others. The level of equity is considered by the magnitude of environmental investment and its

utility.

$Y = W + T_{\Delta K} + U$, where $T_{\Delta K} = S_P$ and $D = C_D = U$, and $S_D = S_{WD} = 0$.

Gross investment, $\Delta K = S = S_P$ (since taxes are cash basis).

$C_D = D = \gamma \cdot S_P$, where $\gamma = D/S_P = (1-s_{SP/Y})/s_{SP/Y}$

If $\gamma = 1$, $D = S_P$. If $s_{SP/P} = 1$, $D = S$ under $\gamma = 1$.

In principle, the capital-output ratio should be 1.0 with no external funds.

(1) A Basic Proposition on Growth and Leverage: with Proof of "an increase in output equals undistributed profit: $\Delta Y = S_P$"[1)]

Why does $\Delta Y = S_P$ hold in the balanced growth-state?

In the unbalanced growth-state, $\Delta Y = \Delta S_P + \Delta D + \Delta W$.

The balanced growth-state is defined a state where the growth rate of output equals the growth rate of capital. $\Delta Y = S_P$ is expressed as saving equals the product of undistributed profit and the capital-output ratio. This proof is processed using gross saving (that includes depreciation) and depreciation and thus corresponds with Solow's [1956] model. I can show the following proof using net saving instead of gross saving.

The wage and dividend propensities to save are defined as follows:

$$s_W \equiv \frac{S_W}{W} \text{ and } s_D \equiv \frac{S_D}{D} \text{ under } S_D = S_W \text{ and } D = S_D + C_D.$$

Since $s_{WD} = s_W$, $S \equiv S_W + S_P$,

where the retention ratio is defined as $s_P \equiv \dfrac{S_P}{P}$.

Then $S_D = s_D\{(1-s_P)P\}$.

or,

$$S_D = S_W = s_w \cdot W$$

1) Kamiryo [1999] "Furthering the Role of Corporate Finance in Economic Growth," 3.3.1 and 3.3.2.

and

$$S = S_{WD} + S_P = s_W \cdot W + s_P \cdot P.$$

The saving rate is defined as $s \equiv \frac{S}{Y.}$

Define $\alpha \equiv \frac{P}{Y}$ and $1-\alpha \equiv \frac{W}{Y}$.

Now, I show the following three steps: saving, net investment, and growth. First, dividing both sides of Equation 3-1 by output Y, the saving rate is obtained as follows:

1. *Saving:*

$$s = s_W(1-\alpha) + s_P \cdot \alpha. \tag{3-1}$$

2. *Net investment:*

Define net investment and the depreciation rate as

$$I_{NET} = \Delta K \equiv s_{GROSS} \cdot Y - \delta \cdot K \text{ and } \delta \equiv \frac{D_{EP}}{K}.$$

Then $\Delta K = \Delta K_{GROSS} - \delta \cdot K = [s_W(1-\alpha) + s_P \cdot \alpha]\, Y.$

3. *Growth:*

Define the growth rate of capital and the growth rate of output as follows:

$$g_K \equiv \frac{\Delta K}{K} \text{ and } g_Y \equiv \frac{\Delta Y}{Y}. \tag{3-2}$$

Define the capita-output ratio $\Omega \equiv \frac{K}{Y}$.

The growth rate of capital is shown as

$$g_K = \frac{\Delta K_{GROSS}}{K} - \frac{D_{EP}}{K} = \frac{s}{\Omega} - \delta. \tag{3-3}$$

When both growth rates are equal in the balanced growth-state,

Equation 3-3 is shown using the growth rate of output as follows:

$$\frac{\Delta Y}{Y} = \frac{s - \delta \cdot \Omega}{\Omega}$$

Since depreciation is shown as $D_{EP} = \frac{D_{EP}}{K} \cdot \frac{K}{Y} \cdot Y = \delta \cdot \Omega \cdot Y,$

$$\Delta Y=\frac{Y(s_{GROSS}-\delta\cdot\Omega)}{\Omega}=\frac{S_{GROSS}-D_{EP}}{\Omega}=\frac{S_{NET}}{\Omega}=\frac{S}{\Omega}.$$

In this paper, I use net saving instead of gross saving for simplification. This is justified by my approach that depreciation is separately shown in my model. Thus, an increase in output is expressed hereunder as $\Delta Y=\frac{S}{\Omega}$, which is similar to the Harrod-Domar model. (3-4-1)

Now if $g_Y = g_K$, a necessary condition for this is considered as follows:

First, define theta $\theta\equiv\frac{S}{S_P}$. (3-4-2)

Assume that Ω equals θ in the balanced growth-state. Then, "an increase in output equals undistributed profit" is derived using Equations 3-4-1 and 3-4-2. This is justified by the consistency between flows and stock in the balanced growth-state, as Tobin [1980] vaguely suggested this consistency and as I relate this consistency to homogenous capital. If $\Omega=\theta$ (as the necessary condition), then $\Delta Y = S_P$. Accordingly, if $\Omega=\theta$, $S=S_P\cdot\Omega$.

Proposition 3-1 If the growth rate of output equals the growth rate of capital, the necessary condition for this is the capital-output ratio equals the ratio of saving to undistributed profit. The following two conditions derive from this necessary condition: (1) An increase in output equals undistributed profit and (2) saving equals the product of undistributed profit and the capital-output ratio.

(2) Introduction of Optimal Consumption/Utility into the Retention Ratio: with Structure of consumption based on the coefficient of time preference

Now let me explain the structure of consumption using equations step by step.

Define the ratio of consumed dividends to dividends: $c_{D/D}\equiv\frac{C_D}{D}$.

Define the ratio of consumed dividends to output: $c_{D/Y}\equiv\frac{C_D}{Y}$.

The relationship between the above two ratios is: $c_{D/D} = (\alpha - s_{SP/Y})$. The following equations use the ratio of consumed dividends to output to explore the concept of gamma.

Define the ratio of undistributed profit to output: $s_{SP/Y} \equiv \dfrac{S_P}{Y}$.
Then the ratio of undistributed profit is expressed as the product of the relative share of profit, α, and the retention ratio, s_P:

$$s_{SP/Y} = \alpha \cdot s_P.$$

The ratio of consumed dividends to dividends is shown using gamma as a fraction of the ratio of undistributed profit to output: $c_{D/Y} = \gamma \cdot s_{SP/Y}$.

Define the ratio of saved wages and dividends to output , where $s_{WD/Y} \equiv \dfrac{S_{WD}}{Y}$, where $S_W = S_D = S_{WD}$.
For comparison, the above ratio of saved wages and dividends to wages and dividends, $s_{WD/WD}$, is expressed using the ratio of undistributed profit to output as follows:

$$s_{WD/WD} = \frac{s_{WD/Y}}{1 - s_{SP/Y}}.$$

Now let me explain the process where the coefficient of time preference is involved in the theoretical retention ratio in the balanced growth-state. By definition, profit equals the sum of undistributed profit, saved dividends (which equal saved wages), and consumed dividends: $P = S_P + D = S_P + S_D + C_D = S_P + S_{WD} + C_D$, where I use notation S_{WD} instead of S_W.2) By dividing each value by output $\alpha = s_{SP/Y} + s_{WD/Y} + c_{D/Y}$, is obtained. Thus, the ratio of saved wages to output, $s_{W/Y}$ or $s_{WD/Y}$, is shown as,

$$s_{WD/Y} = \alpha - s_{SP/Y} - c_{D/Y}. \tag{3-5}$$

Remember that the necessary condition for the vital equality, 'an increase in output equals undistributed profit' is also expressed as: $S = \Omega \cdot S_P$.

2) Straightforwardly, if $S = P$, $S_W = S_D = D$ in Keynesian models, where consumed dividends are zero; $C_D = 0$. In the case of $C_D \neq 0$, $S_W = S_D \neq D$.

Dividing this equality by Y, $s = \Omega \cdot s_{SP/Y}$. (3-6)

Equation 3-6 is replaced by $s_{WD/Y} = (\Omega - 1)\, s_{SP/Y}$ if $S_{WD} = (\Omega - 1) \cdot S_P$.

$S_{WD} = (\Omega - 1) \cdot S_P$ is proved as follows:

$S - S_P = S_P + S_{WD} - S_P = S_{WD}$. Thus, $S_{WD} = \Omega \cdot S_P - S_P = (\Omega - 1)\, S_P$

Or, $S_{WD} = (\Omega - 1)\, S_{SP/Y}$ (3-7)

As a result, Equation 3-5 equals Equation 3-7.

Thus using $c_{D/Y} = \gamma \cdot s_{SP/Y}$,

$$s_{WD/Y} = (\Omega - 1) s_{SP/Y} = \alpha - s_{SP/Y} - \gamma \cdot s_{SP/Y}.$$

Then $s_{SP/Y} = \dfrac{\alpha}{\Omega + \gamma}$ (3-8)

or $s_P = s_{SP/P} = \dfrac{1}{\Omega + \gamma}$. (3-9)

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Private vs Public structurWPC99

Appendix 1-1 Case study of the Kamiryo Model by gamma, $Y=S_P+S_D+S_W+C_D+C_W$: both $s_{S/Y}$ and $s_{SP/Y}$ are variables **(1)** $g_Y(t)=s_{SP/Y}(t)/(1-s_{SP/Y}(t))$ $I/Y^0(t)=s_{S/Y}(t)(1+g_Y(t))$ $g_K(t)=(I/Y^0)(t)/\Omega(t-1)$

PRIVATE A/ 1 Balanced growth-state: $g^*_Y=g^*_{KP}=g_Y=g_{KP}$ Ω is constant and $s^*_{SP/Y}$ is not equal to n unde $s^*_{SP/P}$

Starting with a given capital-output ratio Ω^0: $s_P=s_{SP/P}$ is derived using Ω^0

gamma		$L^0=$	n	Ω^0	α	k^0	$s^*_{SP/P}$	$s^*_{SP/Y}$	$s^*_{SWD/WD}$	$s^*_{SWD/Y}$	$s^*_{S/Y}=s^*_{SP/Y}\Omega^0$		variables	y^0	r^0
1		25	0.01	1.5	0.08	11	0.40000	0.03200	0.01653	0.01600	0.048			7.333333	0.053333
$\theta=S/S_P=\Omega=K/Y$		time	$g^*_Y(t)$	$g^*_K(t)$	$g^*_k(t)$	$g^*_y(t)$	$g^*_\Omega(t)$	$\Omega^*(t)$	$c^*_{D/Y}=\alpha-s^*_{S/}$	$r^*(t)$	$k^*(t)$	$y^*(t)$	$I/Y^{0*}(t)$	$A^*(t)$	$\lambda^*(t)$
1.5		1	0.033058	0.033058	0.022830	0.022830	0.000000	1.500000	0.032000	0.053333	11.251125	7.500750	0.049587	0.460396	-----
		2	0.033058	0.033058	0.022830	0.022830	0.000000	1.500000	0.032000	0.053333	11.507983	7.671989	0.049587	0.460396	0.000000
		3	0.033058	0.033058	0.022830	0.022830	0.000000	1.500000	0.032000	0.053333	11.770705	7.847137	0.049587	0.460396	0.000000

from DRC to IRC

2 Unbalanced growth-state **Ω, $s_{SP/Y}$, and $s_{S/Y}$ are variables, where saving differs from profit**

										$a=s^*_{S/Y}/s^0_{S/Y}$	$g_{s,S/Y}=a^{\wedge}(1/10)-1$	$\theta^*=s^*_{S/Y}/s^*_{SP/Y}$	$\Psi^*=\Omega^0/\theta^*$	$A(t)=g_y(t)/(I/Y^0)$	
										1.2	0.018399	1.500000	1.000000	$\lambda=(A(t)-A(t-1))/A(t-1)$	
$b=s^*_{SP/Y}/s^0_{SP/Y}$	$g_{s,SP/Y}=b^{\wedge}(1/10)-1$	$L^0=$	n	Ω^0	α	k^0	$s^0_{SP/P}$	$s^0_{SP/Y}$	$s^0_{SWD/WD}$	$s^0_{SWD/Y}$	$s^0_{S/Y}$	$\theta^0=s^0_{S/Y}/s^0_{SP/}$	$\Psi^0=\Omega^0/\theta^0$	y^0	r^0
1.333333	0.029186	25	0.01	1.5	0.08	11	**0.3**	0.024000	0.016393	0.016000	**0.04**	1.666667	0.900000	7.333333	0.053333
$\theta(t)=s_{S/Y}(t)/s_{SP/Y}(t)$	$\Psi(t)=\Omega^0/\theta(t)$	time	$g_Y(t)=s_{SP/Y}(t)/(1-s_{SP/}$	$g_K(t)$	$g_k(t)$	$g_y(t)$	$g_\Omega(t)$	$\Omega(t)$	$s_{S/Y}(t)$	r(t)	k(t)	y(t)	$I/Y^0(t)$	A(t)	$\lambda(t)$
1.649199	0.909533	1	0.025326	0.027845	0.017668	0.015174	0.002457	1.503685	0.040736	0.053203	11.1944	7.4446	0.041768	0.363302	-----
1.631914	0.919166	2	0.026084	0.028309	0.018128	0.015925	0.002168	1.506945	0.041485	0.053088	11.3973	7.5632	0.042568	0.374116	0.029765
1.614810	0.928902	3	0.026866	0.028789	0.018603	0.016699	0.001873	1.509767	0.042249	0.052988	11.6093	7.6895	0.043384	0.384918	0.028874
1.597886	0.938740	4	0.027672	0.029287	0.019096	0.017497	0.001572	1.512140	0.043026	0.052905	11.8310	7.8240	0.044217	0.395711	0.028040
1.581139	0.948683	5	0.028503	0.029803	0.019607	0.018320	0.001265	1.514052	0.043818	0.052838	12.0630	7.9673	0.045067	0.406497	0.027257
1.564567	0.958732	6	0.029359	0.030339	0.020137	0.019167	0.000952	1.515493	0.044624	0.052788	12.3059	8.1201	0.045934	0.417279	0.026522
1.548169	0.968886	7	0.030242	0.030894	0.020687	0.020041	0.000633	1.516452	0.045445	0.052755	12.5605	8.2828	0.046819	0.428057	0.025830
1.531944	0.979148	8	0.031152	0.031470	0.021258	0.020942	0.000309	1.516920	0.046281	0.052738	12.8275	8.4563	0.047723	0.438835	0.025178
1.515888	0.989519	9	0.032090	0.032068	0.021850	0.021872	-0.000021	1.516888	0.047133	0.052740	13.1077	8.6412	0.048645	0.449614	0.024563
1.500000	**1.000000**	**10**	**0.033058**	**0.032690**	**0.022465**	**0.022830**	**-0.000356**	**1.516348**	**0.048000**	**0.052758**	**13.4022**	**8.8385**	**0.049587**	**0.460396**	**0.023982**
1.484279	1.010592	11	0.034056	0.033335	0.023104	0.023817	-0.000697	1.515291	0.048883	0.052795	13.7119	9.0490	0.050548	0.471184	0.023432
1.468723	1.021296	12	0.035084	0.034006	0.023768	0.024836	-0.001042	1.513713	0.049783	0.052850	14.0378	9.2737	0.051529	0.481979	0.022911
1.453329	1.032113	13	0.036145	0.034703	0.024459	0.025886	-0.001392	1.511606	0.050699	0.052924	14.3811	9.5138	0.052531	0.492784	0.022418
1.438097	1.043045	14	0.037240	0.035429	0.025177	0.026970	-0.001746	1.508967	0.051631	0.053016	14.7432	9.7704	0.053554	0.503600	0.021949
1.423025	1.054093	15	0.038368	0.036183	0.025924	0.028087	-0.002104	1.505792	0.052581	0.053128	15.1254	10.0448	0.054599	0.514430	0.021505
1.408111	1.065257	16	0.039532	0.036968	0.026701	0.029240	-0.002467	1.502077	0.053549	0.053260	15.5292	10.3385	0.055666	0.525275	0.021082
1.393353	1.076540	17	0.040733	0.037785	0.027510	0.030429	-0.002833	1.497822	0.054534	0.053411	15.9564	10.6531	0.056755	0.536137	0.020680
1.378749	1.087943	18	0.041972	0.038635	0.028352	0.031655	-0.003202	1.493025	0.055537	0.053582	16.4088	10.9903	0.057868	0.547019	0.020297
1.364299	1.099466	19	0.043250	0.039521	0.029228	0.032920	-0.003574	1.487689	0.056559	0.053775	16.8884	11.3521	0.059006	0.557922	0.019932
1.350000	1.111111	20	0.044568	0.040443	0.030142	0.034226	-0.003949	1.481814	0.057600	0.053988	17.3975	11.7407	0.060167	0.568849	0.019584
1.335851	1.122880	21	0.045929	0.041405	0.031094	0.035573	-0.004325	1.475404	0.058660	0.054222	17.9384	12.1583	0.061354	0.579800	0.019252
1.321850	1.134773	22	0.047333	0.042406	0.032086	0.036963	-0.004704	1.468465	0.059739	0.054479	18.5140	12.6077	0.062567	0.590778	0.018935
1.307996	1.146792	23	0.048782	0.043451	0.033120	0.038398	-0.005083	1.461001	0.060838	0.054757	19.1272	13.0918	0.063806	0.601785	0.018632
1.294288	1.158939	24	0.050277	0.044540	0.034198	0.039878	-0.005462	1.453020	0.061958	0.055058	19.7813	13.6139	0.065073	0.612823	0.018342
1.280722	1.171214	25	0.051820	0.045675	0.035322	0.041406	-0.005842	1.444532	0.063098	0.055381	20.4800	14.1776	0.066367	0.623894	0.018065
1.267300	1.183619	26	0.053413	0.046860	0.036495	0.042984	-0.006221	1.435545	0.064259	0.055728	21.2274	14.7870	0.067691	0.634999	0.017800
1.254017	1.196156	27	0.055058	0.048096	0.037719	0.044612	-0.006599	1.426072	0.065441	0.056098	22.0281	15.4467	0.069044	0.646141	0.017546

A1-1 (2) Relationships among saving, profit, undistributed profit, dividends, saved dividends, consumed dividends, saved wages, and consumed wages: using ratios

Starting with a given retention ratio: $s_P = s_{SP/P}$

									$\gamma(t)=(1/s_P)(t)-\Omega(t)$		$c_{D/Y}(t)=\gamma(t)*s_{SP/Y}(t)$		$s_{WD/WD}(t)=s_{WD/Y}(t)/(1-s_{SP/Y}(t))$		
gamma given			s^0	c^0	Ω^0	θ^0				γ^0	$c_{D/Y}^0$	$c_{W/Y}^0$			
1			0.05	0.95200	1.50000	1.50000				1	0.03200	0.92000			
$s_{SP/Y}^*(t)$	$s^*_P(t)=s^*_{SP/P}($	$1-s^*_P(t)$	$s^*(t)=s^*_{S/Y}(t)$	$c^*(t)=1-s^*(t$	$\Omega^*(t)$	$\theta^*(t)$	$\Psi^*(t)$	$\mu^*(t)=(S/P)^*(t)$	$(1/s_P)^*(t)=\Omega+\gamma$	$\gamma^*(t)=(1/s_P)(t)-\Omega(t)$	$c^*_{D/Y}(t)=\gamma(t)*s$	$c^*_{W/Y}(t)$	$s^*_{WD/Y}(t)$	$s^*_{WD/WD}(t)$	$(\Omega+\gamma)/\Omega$
0.03200	0.40000	0.60000	0.04800	0.95200	1.50000	1.50000	1.00000	0.60000	2.50000	1.00000	0.03200	0.92000	0.01600	0.01653	1.66667
0.03200	0.40000	0.60000	0.04800	0.95200	1.50000	1.50000	1.00000	0.60000	2.50000	1.00000	0.03200	0.92000	0.01600	0.01653	1.66667
0.03200	0.40000	0.60000	0.04800	0.95200	1.50000	1.50000	1.00000	0.60000	2.50000	1.00000	0.03200	0.92000	0.01600	0.01653	1.66667

$c^*_{D/D}=c^*_{D/Y}/-(\alpha-s^*_{SP/Y})$

0.02133 : Dividends are all saved.

										$\gamma(t)=(1/s_P)(t)-\Omega(t)$	$c_{D/Y}(t)=\gamma(t)*s_{SP/Y}(t)$				
0.02133	s_P^0		s^0	c^0	Ω^0	θ^0			$1/s_P^0$	γ^0	$c_{D/Y}^0$	$c_{W/Y}^0$		**from DRC to IRC**	
0.02133	0.30000		0.04	0.96000	1.50000	1.66667			3.33333	1.83333	0.044	0.91600			
$s_{SP/Y}(t)$	$s_P(t)=s_{SP/P}(t)$	$1-s_P(t)$	$s(t)=s_{S/Y}(t)$	$c(t)=1-s(t)$	$\Omega(t)$	$\theta(t)$	$\Psi(t)$	$\mu(t)=(S/P)(t)$	$(1/s_P)(t)=\Omega(t)+\gamma(t)$	**gamma (t)**	$c_{D/Y}(t)$	$c_{W/Y}(t)$	$s_{WD/Y}(t)$	$s_{WD/WD}(t)$	$(\Omega+\gamma)/\Omega$
0.02470	0.30876	0.69124	0.04074	0.95926	1.50369	1.64920	0.91177	0.50920	3.23881	1.73512	0.04286	0.91641	0.01604	0.01644	2.15391
0.02542	0.31777	0.68223	0.04149	0.95851	1.50695	1.63191	0.92342	0.51857	3.14696	1.64001	0.04169	0.91682	0.01606	0.01648	2.08830
0.02616	0.32704	0.67296	0.04225	0.95775	1.50977	1.61481	0.93495	0.52811	3.05772	1.54795	0.04050	0.91725	0.01609	0.01652	2.02529
0.02693	0.33659	0.66341	0.04303	0.95697	1.51214	1.59789	0.94634	0.53783	2.97100	1.45886	0.03928	0.91769	0.01610	0.01654	1.96477
0.02771	0.34641	0.65359	0.04382	0.95618	1.51405	1.58114	0.95757	0.54772	2.88675	1.37270	0.03804	0.91814	0.01610	0.01656	1.90664
0.02852	0.35652	0.64348	0.04462	0.95538	1.51549	1.56457	0.96863	0.55780	2.80489	1.28940	0.03678	0.91860	0.01610	0.01658	1.85081
0.02935	0.36693	0.63307	0.04545	0.95455	1.51645	1.54817	0.97951	0.56806	2.72535	1.20889	0.03549	0.91907	0.01609	0.01658	1.79719
0.03021	0.37764	0.62236	0.04628	0.95372	1.51692	1.53194	0.99019	0.57852	2.64806	1.13114	0.03417	0.91955	0.01607	0.01657	1.74568
0.03109	0.38866	0.61134	0.04713	0.95287	1.51689	1.51589	1.00066	0.58916	2.57297	1.05608	0.03284	0.92003	0.01604	0.01655	1.69621
0.03200	**0.40000**	**0.60000**	**0.04800**	**0.95200**	**1.51635**	**1.50000**	**1.01090**	**0.60000**	**2.50000**	**0.98365**	**0.03148**	**0.92052**	**0.01600**	**0.01653**	**1.64870**
0.03293	0.41167	0.58833	0.04888	0.95112	1.51529	1.48428	1.02089	0.61104	2.42910	0.91381	0.03010	0.92102	0.01595	0.01649	1.60306
0.03390	0.42369	0.57631	0.04978	0.95022	1.51371	1.46872	1.03063	0.62228	2.36022	0.84651	0.02869	0.92152	0.01589	0.01644	1.55922
0.03488	0.43606	0.56394	0.05070	0.94930	1.51161	1.45333	1.04010	0.63373	2.29329	0.78168	0.02727	0.92203	0.01581	0.01639	1.51712
0.03590	0.44878	0.55122	0.05163	0.94837	1.50897	1.43810	1.04928	0.64539	2.22825	0.71929	0.02582	0.92254	0.01573	0.01631	1.47667
0.03695	0.46188	0.53812	0.05258	0.94742	1.50579	1.42302	1.05816	0.65727	2.16506	0.65927	0.02436	0.92306	0.01563	0.01623	1.43782
0.03803	0.47536	0.52464	0.05355	0.94645	1.50208	1.40811	1.06673	0.66936	2.10367	0.60159	0.02288	0.92357	0.01552	0.01613	1.40050
0.03914	0.48923	0.51077	0.05453	0.94547	1.49782	1.39335	1.07498	0.68168	2.04401	0.54619	0.02138	0.92409	0.01540	0.01602	1.36465
0.04028	0.50351	0.49649	0.05554	0.94446	1.49303	1.37875	1.08288	0.69422	1.98604	0.49302	0.01986	0.92460	0.01526	0.01590	1.33022
0.04146	0.51821	0.48179	0.05656	0.94344	1.48769	1.36430	1.09044	0.70699	1.92972	0.44204	0.01833	0.92512	0.01510	0.01576	1.29713
0.04267	0.53333	0.46667	0.05760	0.94240	1.48181	1.35000	1.09764	0.72000	1.87500	0.39319	0.01678	0.92562	0.01493	0.01560	1.26534
0.04391	0.54890	0.45110	0.05866	0.94134	1.47540	1.33585	1.10447	0.73325	1.82183	0.34642	0.01521	0.92613	0.01475	0.01543	1.23480
0.04519	0.56492	0.43508	0.05974	0.94026	1.46846	1.32185	1.11092	0.74674	1.77016	0.30170	0.01363	0.92663	0.01455	0.01523	1.20545
0.04651	0.58141	0.41859	0.06084	0.93916	1.46100	1.30800	1.11698	0.76048	1.71997	0.25896	0.01205	0.92712	0.01433	0.01502	1.17725
0.04787	0.59838	0.40162	0.06196	0.93804	1.45302	1.29429	1.12264	0.77447	1.67119	0.21817	0.01044	0.92760	0.01409	0.01480	1.15015
0.04927	0.61584	0.38416	0.06310	0.93690	1.44453	1.28072	1.12790	0.78872	1.62380	0.17927	0.00883	0.92807	0.01383	0.01455	1.12410
0.05071	0.63381	0.36619	0.06426	0.93574	1.43555	1.26730	1.13276	0.80323	1.57775	0.14220	0.00721	0.92853	0.01355	0.01428	1.09906
0.05219	0.65231	0.34769	0.06544	0.93456	1.42607	1.25402	1.13720	0.81801	1.53301	0.10693	0.00558	0.92898	0.01326	0.01399	1.07499

A1-1(3) Structure of the elasticity of substitution

					$S_D^{*0}=D^{*0}-C_D^{*0}$	$S_W^{*0}=S_{WD}^{*0}-S$	$S_W^{*0}=W^{*0}-C_W^{*0}$	$A^{*0}=C_D^{*0}+S_W$	$S_W^{*0}=A^{*0}-D^{*0}$						
					2.93333	0.0000	0.00000	8.80000	0.00000						
L^0	Y^0	W^0	S^0	S_{WD}^0	P^0	S_P^0	D^0	C_D^0	$C_D^0+S_{WD}^0$	$C_W^0=C^0-C_D^0$	C^0	$c_{C/L}^0=C^0/L^0$	$\Delta c_{C/L}^0$	$\sigma c_{C/L}^0=\Delta c_{C/L}^0/c_{C/L}^0$	$c_{C/Y}^0=C^0/Y^0$
25	183.3333	168.6667	8.8000	2.9333	14.6667	5.8667	8.8000	5.8667	8.8000	168.6667	174.5333	6.9813	-----	-----	0.9520
$L^*(t)$	$Y^*(t)$	$W^*(t)$	$S^*(t)$	$S^*_{WD}{}^{(t)}$	$P^*(t)$	$S_P^*(t)$	$D^*(t)$	$C_D^*(t)$	$C_{D(t)}+S_{WD(t)}$	$C_w(t)=C(t)-C$	$C^*(t)=c^*(t)*Y^*(t)$	$c_{C/L}^*(t)=C^*(t)/L^*(t)$	$\Delta c_{C/L}^*(t)$	$\sigma c_{C/L}^*(t)=\Delta c^*(t)/$	$c_{C/Y}^*(t)=C^*(t)/Y^*(t)$
25.2500	189.3939	174.2424	9.0909	3.0303	15.1515	6.0606	9.0909	6.0606	9.0909	174.2424	180.3030	7.1407	23.0788	3.2320	0.9520
25.5025	195.6549	180.0025	9.3914	3.1305	15.6524	6.2610	9.3914	6.2610	9.3914	180.0025	186.2635	7.3037	23.6057	3.2320	0.9520
25.7575	202.1228	185.9530	9.7019	3.2340	16.1698	6.4679	9.7019	6.4679	9.7019	185.9530	192.4209	7.4705	24.1446	3.2320	0.9520
					$S_D^0=D^0-C_D^0$	$S_W^0=S_{WD}^0-S_D^0$	$S_W^0=W^0-C_W^0$	$A=C_D^0+S_{WD}^0$	$S_W^0=A^0-D^0$	Marginal rate of per capita consumption: $\Delta c_{C/L}(2)=((c_{C/L}(2)(1+n)-c_{C/L}(1))/n$					
					2.2000	0.7333	0.73333	11.00000	0.73333			$c_{C/L}(t)=C(t)/L(t)=c_{C/Y}(t)*y(t)$		$\sigma c_{C/L}^0=\Delta c_{C/L}^0/c_{C/L}^0$	
L^0	Y^0	W^0	S^0	S_{WD}^0	P^0	S_P^0	D^0	C_D^0	$C_D^0+S_{WD}^0$	$C_W^0=C^0-C_D^0$	$C^0=c_{C/D}^0*Y$	$c_{C/L}^0=C^0/L^0$	$\Delta c_{C/L}^0$		$c_{C/Y}^0=C^0/Y^0$
25	183.3333	168.6667	7.3333	2.9333	14.6667	4.4000	10.2667	8.0667	11.0000	167.9333	176.0000	7.0400	----	-----	0.9600
L(t)	Y(t)	W(t)	$S(t)=s_{S/Y}(t)*Y$	$S_{WD}(t)=S(t)-S_P$	P(t)	$S_P(t)$	D(t)	$C_D(t)=S_P(t)*Y$	$C_{D(t)}+S_{WD(t)}$	$C_w(t)=C(t)-C$	$C(t)=c(t)*Y(t)$	$c_{C/L}(t)=C(t)/L(t)$	$\Delta c_{C/L}(t)$	$\sigma c_{C/L}(t)=\Delta c(t)/c(t$	$c_{C/Y}(t)=C(t)/Y(t)$
25.2500	187.98	172.94	7.66	3.01	15.04	4.64	10.40	8.06	11.07	172.26	180.32	7.1413	17.28	2.4192	0.9593
25.5025	192.88	177.45	8.00	3.10	15.43	4.90	10.53	8.04	11.14	176.84	184.88	7.2494	18.06	2.4906	0.9585
25.7575	198.06	182.22	8.37	3.19	15.84	5.18	10.66	8.02	11.21	181.67	189.69	7.3646	18.88	2.5641	0.9578
26.0151	203.54	187.26	8.76	3.28	16.28	5.48	10.80	8.00	11.27	186.79	194.78	7.4874	19.77	2.6398	0.9570
26.2753	209.34	192.60	9.17	3.37	16.75	5.80	10.95	7.96	11.34	192.21	200.17	7.6182	20.70	2.7177	0.9562
26.5380	215.49	198.25	9.62	3.47	17.24	6.15	11.09	7.92	11.39	197.95	205.87	7.7577	21.71	2.7979	0.9554
26.8034	222.01	204.25	10.09	3.57	17.76	6.52	11.24	7.88	11.45	204.04	211.92	7.9064	22.77	2.8804	0.9546
27.0714	228.92	210.61	10.59	3.68	18.31	6.92	11.40	7.82	11.50	210.51	218.33	8.0649	23.92	2.9654	0.9537
27.3421	236.27	217.37	11.14	3.79	18.90	7.35	11.56	7.76	11.55	217.37	225.13	8.2339	25.14	3.0529	0.9529
27.6156	**244.08**	**224.55**	**11.72**	**3.91**	**19.53**	**7.81**	**11.72**	**7.68**	**11.59**	**224.68**	**232.36**	**8.4142**	**26.45**	**3.1429**	**0.9520**
27.8917	252.39	232.20	12.34	4.03	20.19	8.31	11.88	7.60	11.62	232.46	240.05	8.6066	27.85	3.2356	0.9511
28.1706	261.25	240.35	13.01	4.15	20.90	8.86	12.04	7.50	11.65	240.75	248.24	8.8121	29.35	3.3311	0.9502
28.4523	270.69	249.03	13.72	4.28	21.66	9.44	12.21	7.38	11.66	249.58	256.97	9.0315	30.97	3.4293	0.9493
28.7369	280.77	258.31	14.50	4.42	22.46	10.08	12.38	7.25	11.67	259.02	266.27	9.2659	32.71	3.5304	0.9484
29.0242	291.54	268.22	15.33	4.56	23.32	10.77	12.55	7.10	11.66	269.11	276.21	9.5166	34.59	3.6345	0.9474
29.3145	303.07	278.82	16.23	4.70	24.25	11.53	12.72	6.93	11.64	279.91	286.84	9.7849	36.61	3.7416	0.9465
29.6076	315.41	290.18	17.20	4.86	25.23	12.34	12.89	6.74	11.60	291.47	298.21	10.0721	38.80	3.8519	0.9455
29.9037	328.65	302.36	18.25	5.01	26.29	13.24	13.05	6.53	11.54	303.87	310.40	10.3800	41.16	3.9654	0.9445
30.2027	342.87	315.44	19.39	5.18	27.43	14.21	13.22	6.28	11.46	317.19	323.47	10.7101	43.72	4.0823	0.9434
30.5048	358.15	329.49	20.63	5.35	28.65	15.28	13.37	6.01	11.36	331.51	337.52	11.0644	46.50	4.2026	0.9424
30.8098	374.60	344.63	21.97	5.52	29.97	16.45	13.52	5.70	11.22	346.92	352.62	11.4451	49.52	4.3264	0.9413
31.1179	392.33	360.94	23.44	5.71	31.39	17.73	13.66	5.35	11.06	363.54	368.89	11.8546	52.80	4.4539	0.9403
31.4291	411.46	378.55	25.03	5.89	32.92	19.14	13.78	4.96	10.85	381.48	386.43	12.2954	56.37	4.5851	0.9392
31.7434	432.15	397.58	26.78	6.09	34.57	20.69	13.88	4.51	10.60	400.86	405.38	12.7704	60.28	4.7201	0.9380
32.0608	454.55	418.18	28.68	6.29	36.36	22.39	13.97	4.01	10.30	421.85	425.86	13.2830	64.54	4.8592	0.9369
32.3814	478.82	440.52	30.77	6.49	38.31	24.28	14.03	3.45	9.94	444.60	448.06	13.8368	69.22	5.0023	0.9357
32.7052	505.19	464.77	33.06	6.70	40.42	26.36	14.05	2.82	9.52	469.31	472.13	14.4359	74.34	5.1496	0.9346

Private vs Public structurWPC99

A1-1(4) Marginal rate is measured using the growth rate of the denominator

$\Delta\Omega(2)=((\Omega(2)(1+g_Y(2)-\Omega(1))/g_Y(2)$

$\Delta y(2)=((y(2)(1+n)-y(1)$

Marginal rate of profit to capital: $\Delta r(2)=((r(2)(1+g_K(2)-r(1))/g_K(2)$

$\Delta k(2)=((k(2)(1+n)-k(1))$

$\Delta c_{C/Y}{}^0$	$\sigma c_{C/Y}{}^0=\Delta c_{C/Y}{}^0/c_{C/Y}{}^0$	K^0	ΔK^0	Δr^0	ΔW^0	w^0	Δw^0	$\Delta r^0/\Delta w^0$	$(W^*K)^0$		1/MPK		MPK	MPL	
-----	-----	275.000	-----	$=\Delta P/\Delta K$	-----	6.7467	$=\Delta W/\Delta L$	-----	46383		**$=\Delta K/\Delta Y$**		**$=\Delta Y/\Delta K$**	**$=\Delta Y/\Delta L$**	
$\Delta c_{C/Y}(t)$	$\sigma c_{C/Y}(t)=\Delta c(t)/c(t$	K(t)	ΔK(t)	Δr(t)	ΔW(t)	w(t)	Δw(t)	$(\Delta r^0/\Delta w^0)(t)$	(W*K)(t)	$g_{WK}(t)$	ΔΩ(t)	$\sigma_\Omega=\Delta\Omega/\Omega$	=1/ΔΩ(t)	Δy	$\sigma_y=\Delta y/y$
0.9520	1.0000	284.091	9.0909	0.053333	5.5758	6.9007	22.3030	0.00239	49501	0.067209	1.500000	1.000000	0.666667	24.24242	3.2320
0.9520	1.0000	293.482	9.3914	0.053333	5.7601	7.0582	22.8122	0.00234	52828	0.067209	1.500000	1.000000	0.666667	24.79587	3.2320
0.9520	1.0000	303.184	9.7019	0.053333	5.9505	7.2194	23.3330	0.00229	56378	0.067209	1.500000	1.000000	0.666667	25.36195	3.2320

$\sigma c_{C/L}(t)=\sigma c_{C/Y}(t)^*\sigma_y(t)$

$\sigma c_{C/Y}{}^0=\Delta c_{C/Y}{}^0/c_{C/Y}{}^0$

$\Delta c_{C/Y}{}^0$		K^0	ΔK^0	Δr^0	ΔW^0	w^0	Δw^0	$\Delta r^0/\Delta w^0$	$(W^*K)^0$		1/MPK		MPK	MPL	
-----	-----	275.000	-----	$=\Delta P/\Delta K$	-----	6.7467	$=\Delta W/\Delta L$	-----	46383		**$=\Delta K/\Delta Y$**		**$=\Delta Y/\Delta K$**	**$=\Delta Y/\Delta L$**	
$\Delta c_{C/Y}(t)$	$\sigma c_{C/Y}(t)=\Delta c(t)/c(t$	K(t)	ΔK(t)	Δr(t)	ΔW(t)	w(t)	Δw(t)	$(\Delta r^0/\Delta w^0)(t)$	(W*K)(t)	$g_{WK}(t)$	ΔΩ(t)	$\sigma_\Omega=\Delta\Omega/\Omega$	=1/ΔΩ(t)	Δy	$\sigma_y=\Delta y/y$
0.9302	0.9697	282.66	7.66	0.048508	4.27	6.849	17.087	0.00284	48882	0.053876	1.649199	1.096771	0.606355	18.57	2.4947
0.9298	0.9700	290.66	8.00	0.049022	4.51	6.958	17.865	0.00274	51577	0.055132	1.631914	1.082929	0.612777	19.42	2.5676
0.9293	0.9703	299.03	8.37	0.049541	4.77	7.074	18.694	0.00265	54488	0.056429	1.614810	1.069576	0.619268	20.32	2.6425
0.9289	0.9706	307.78	8.76	0.050066	5.04	7.198	19.576	0.00256	57635	0.057770	1.597886	1.056705	0.625827	21.28	2.7196
0.9284	0.9710	316.96	9.17	0.050596	5.34	7.330	20.517	0.00247	61045	0.059155	1.581139	1.044309	0.632456	22.30	2.7990
0.9279	0.9713	326.57	9.62	0.051132	5.65	7.470	21.520	0.00238	64744	0.060588	1.564567	1.032382	0.639154	23.39	2.8807
0.9274	0.9716	336.66	10.09	0.051674	6.00	7.620	22.592	0.00229	68762	0.062070	1.548169	1.020916	0.645924	24.56	2.9648
0.9269	0.9719	347.26	10.59	0.052221	6.36	7.780	23.738	0.00220	73136	0.063602	1.531944	1.009904	0.652766	25.80	3.0513
0.9263	0.9722	358.39	11.14	0.052774	6.76	7.950	24.965	0.00211	77903	0.065188	1.515888	0.999341	0.659680	27.14	3.1403
0.9258	**0.9724**	**370.11**	**11.72**	**0.053333**	**7.19**	**8.131**	**26.281**	**0.00203**	**83109**	**0.066828**	**1.500000**	**0.989219**	**0.666667**	**28.57**	**3.2320**
0.9252	0.9727	382.45	12.34	0.053898	7.65	8.325	27.692	0.00195	88804	0.068526	1.484279	0.979534	0.673728	30.10	3.3263
0.9246	0.9730	395.45	13.01	0.054469	8.15	8.532	29.208	0.00186	95046	0.070284	1.468723	0.970278	0.680864	31.75	3.4234
0.9240	0.9733	409.18	13.72	0.055046	8.69	8.753	30.839	0.00178	101899	0.072103	1.453329	0.961447	0.688075	33.52	3.5233
0.9233	0.9736	423.67	14.50	0.055629	9.27	8.989	32.595	0.00171	109438	0.073988	1.438097	0.953034	0.695363	35.43	3.6262
0.9227	0.9739	439.00	15.33	0.056218	9.91	9.241	34.488	0.00163	117749	0.075939	1.423025	0.945034	0.702728	37.49	3.7320
0.9220	0.9741	455.23	16.23	0.056814	10.60	9.511	36.533	0.00156	126929	0.077961	1.408111	0.937442	0.710171	39.71	3.8409
0.9213	0.9744	472.43	17.20	0.057415	11.36	9.801	38.743	0.00148	137090	0.080057	1.393353	0.930253	0.717693	42.11	3.9530
0.9206	0.9747	490.68	18.25	0.058024	12.18	10.111	41.136	0.00141	148363	0.082228	1.378749	0.923460	0.725295	44.71	4.0684
0.9198	0.9750	510.08	19.39	0.058638	13.08	10.444	43.730	0.00134	160897	0.084480	1.364299	0.917059	0.732977	47.53	4.1871
0.9191	0.9752	530.71	20.63	0.059259	14.06	10.801	46.547	0.00127	174865	0.086814	1.350000	0.911046	0.740741	50.59	4.3093
0.9183	0.9755	552.68	21.97	0.059887	15.13	11.186	49.610	0.00121	190469	0.089235	1.335851	0.905413	0.748586	53.92	4.4351
0.9175	0.9757	576.12	23.44	0.060521	16.31	11.599	52.945	0.00114	207944	0.091746	1.321850	0.900158	0.756515	57.55	4.5645
0.9166	0.9760	601.15	25.03	0.061162	17.61	12.044	56.582	0.00108	227564	0.094352	1.307996	0.895274	0.764528	61.50	4.6978
0.9158	0.9763	627.92	26.78	0.061810	19.03	12.525	60.556	0.00102	249650	0.097056	1.294288	0.890757	0.772626	65.82	4.8349
0.9149	0.9765	656.61	28.68	0.062465	20.60	13.043	64.904	0.00096	274581	0.099863	1.280722	0.886600	0.780809	70.55	4.9760
0.9140	0.9768	687.37	30.77	0.063126	22.34	13.604	69.669	0.00091	302801	0.102777	1.267300	0.882800	0.789079	75.73	5.1212
0.9131	0.9770	720.43	33.06	0.063795	24.25	14.211	74.902	0.00085	334838	0.105802	1.254017	0.879351	0.797437	81.41	5.2707

A1-1(5) $\Delta(r/w)(2)=((r/w)(2)(1+g_{WK}(2)-(r/w)(1))/g_{WK}(2)$ Elasticity of substitution, $\sigma(t)$

n where, $g_{WK}(2)=((W*K)(2)-(W*K)(1))/(W*K)(1)$ $\sigma(t)=(\Delta k/k)/(\Delta(r/w)(t)/(r/w)(t))$

$\sigma_{C/Y}^*(t)=\sigma_{C/L}^*(t)/\sigma_y^*(t)$	$\sigma_\Omega^*(t)=\sigma_k^*(t)/\sigma_y^*(t)$	$\sigma r^*(t)=\Delta r^*(t)/r^*(t)$	$\sigma_\alpha^*(t)=\sigma_\Omega^*(t)*\sigma_r^*(t)$
1.000000	1.000000	1.000000	1.000000

(A): $\sigma_k=\sigma_\Omega*\sigma_y$ Marginal rate $=\Delta K/\Delta L$ $(r/w)^0$ 0.007905 **(B):** $\sigma(r/w)(t)=\Delta(r/w)(t)/(r/w)(t)$ Y=wL+rK is confirmed

$=\Delta k/k$	Δk	$\Delta(r/w)(t)$	$r/w(t)$	$\Delta(r/w)(t)/(r/w)(t)$	$\sigma(t)=(A)/(B)$	Y=wL+rK	$p_w^*(t)=1/\sigma_Y^*(t)$ $p_w=(w/MPL)/(1-\alpha)$	$p_r^*(t)=\sigma_\Omega^*(t)$ $p_r=(r/MPK)/\alpha$	$\Delta\gamma^*(t)$	$\sigma^*\gamma(t)=\Delta\gamma^*(t)/\gamma^*(t)$	$\Delta\theta^*(t)$	$\sigma\theta^*(t)=\Delta\theta^*(t)/\theta^*(t)$	$\zeta^*=C_D^*/S^*=\gamma^*/\theta^*$	$\Delta\zeta^*(t)$	$\sigma\zeta^*(t)=\Delta\zeta^*(t)/\zeta^*(t)$
3.2320	36.3636	0.005103	0.007729	0.660318	4.894615	189.394	0.30941	1.00000	1	1	1.5	1	0.666667	0.666667	1
3.2320	37.1938	0.004989	0.007556	0.660318	4.894615	195.655	0.30941	1.00000	1	1	1.5	1	0.666667	0.666667	1
3.2320	38.0429	0.004878	0.007388	0.660318	4.894615	202.123	0.30941	1.00000	1	1	1.5	1	0.666667	0.666667	1

(A): $\sigma_k=\sigma_\Omega*\sigma_y$ Marginal rate $=\Delta K/\Delta L$ $(r/w)^0$ 0.007905 **(B):** $\sigma(r/w)(t)=\Delta(r/w)(t)/(r/w)(t)$ Y=wL+rK is confirmed

$=\Delta k/k$	Δk	$\Delta(r/w)(t)$	$r/w(t)$	$\Delta(r/w)(t)/(r/w)(t)$	$\sigma(t)=(A)/(B)$	Y=wL+rK	$p_w(t)=1/\sigma_Y(t)$ $p_w=(w/MPL)/(1-\alpha)$	$p_r(t)=\sigma_\Omega(t)$ $p_r=(r/MPK)/\alpha$	$\Delta\gamma(t)$	$\sigma\gamma(t)=\Delta\gamma(t)/\gamma(t)$	$\Delta\theta(t)$	$\sigma\theta(t)=\Delta\theta(t)/\theta(t)$	$\zeta=C_D/S=\gamma/\theta$	$\Delta\zeta(t)$	$\sigma\zeta(t)=\Delta\zeta(t)/\zeta(t)$
2.7362	30.63	0.005220	0.007768	0.672056	4.071337	187.976	0.40084	1.09677	-1.629954	-0.939390	1.050696	0.637095	1.052099	-0.031847	-0.030270
2.7805	31.69	0.005121	0.007630	0.671195	4.142584	192.880	0.38948	1.08293	-1.618634	-0.986964	1.039684	0.637095	1.004963	-0.043342	-0.043128
2.8263	32.81	0.005021	0.007490	0.670325	4.216389	198.062	0.37843	1.06958	-1.606461	-1.037800	1.028787	0.637095	0.958595	-0.054701	-0.057064
2.8738	34.00	0.004920	0.007350	0.669442	4.292879	203.542	0.36770	1.05671	-1.593438	-1.092246	1.018005	0.637095	0.912996	-0.065916	-0.072197
2.9230	35.26	0.004819	0.007209	0.668548	4.372187	209.344	0.35727	1.04431	-1.579568	-1.150702	1.007336	0.637095	0.868171	-0.076980	-0.088669
2.9740	36.60	0.004718	0.007066	0.667639	4.454455	215.490	0.34714	1.03238	-1.564858	-1.213638	0.996778	0.637095	0.824122	-0.087889	-0.106645
3.0268	38.02	0.004616	0.006923	0.666715	4.539828	222.007	0.33730	1.02092	-1.549317	-1.281599	0.986331	0.637095	0.780854	-0.098635	-0.126317
3.0815	39.53	0.004513	0.006779	0.665774	4.628463	228.923	0.32773	1.00990	-1.532955	-1.355231	0.975993	0.637095	0.738369	-0.109215	-0.147914
3.1383	41.14	0.004410	0.006634	0.664815	4.720521	236.269	0.31844	0.99934	-1.515788	-1.435301	0.965764	0.637095	0.696672	-0.119625	-0.171709
3.1972	**42.85**	**0.004307**	**0.006488**	**0.663838**	**4.816171**	**244.080**	**0.30941**	**0.98922**	**-1.497831**	**-1.522724**	**0.955642**	**0.637095**	**0.655768**	**-0.129860**	**-0.198027**
3.2583	44.68	0.004204	0.006342	0.662840	4.915593	252.392	0.30063	0.97953	-1.479105	-1.618608	0.945627	0.637095	0.615661	-0.139917	-0.227263
3.3217	46.63	0.004100	0.006194	0.661821	5.018974	261.247	0.29211	0.97028	-1.459630	-1.724300	0.935716	0.637095	0.576355	-0.149794	-0.259898
3.3875	48.72	0.003995	0.006047	0.660780	5.126508	270.690	0.28382	0.96145	-1.439433	-1.841460	0.925909	0.637095	0.537855	-0.159489	-0.296527
3.4559	50.95	0.003891	0.005898	0.659715	5.238403	280.770	0.27577	0.95303	-1.418541	-1.972153	0.916204	0.637095	0.500165	-0.169000	-0.337888
3.5269	53.35	0.003786	0.005749	0.658627	5.354872	291.543	0.26795	0.94503	-1.396986	-2.118983	0.906602	0.637095	0.463289	-0.178327	-0.384915
3.6006	55.92	0.003682	0.005600	0.657513	5.476142	303.068	0.26035	0.93744	-1.374800	-2.285282	0.897100	0.637095	0.427231	-0.187470	-0.438801
3.6773	58.68	0.003577	0.005450	0.656374	5.602447	315.413	0.25297	0.93025	-1.352021	-2.475378	0.887698	0.637095	0.391995	-0.196429	-0.501099
3.7570	61.65	0.003472	0.005299	0.655209	5.734035	328.651	0.24580	0.92346	-1.328687	-2.695000	0.878394	0.637095	0.357585	-0.205205	-0.573863
3.8398	64.85	0.003367	0.005149	0.654018	5.871163	342.865	0.23883	0.91706	-1.304842	-2.951896	0.869188	0.637095	0.324002	-0.213800	-0.659873
3.9260	68.30	0.003263	0.004998	0.652799	6.014101	358.146	0.23205	0.91105	-1.280529	-3.256801	0.860078	0.637095	0.291249	-0.222216	-0.762977
4.0156	72.03	0.003158	0.004847	0.651553	6.163129	374.595	0.22547	0.90541	-1.255795	-3.625028	0.851064	0.637095	0.259328	-0.230457	-0.888669
4.1088	76.07	0.003054	0.004697	0.650279	6.318541	392.326	0.21908	0.90016	-1.230691	-4.079199	0.842144	0.637095	0.228240	-0.238525	-1.045061
4.2058	80.44	0.002950	0.004546	0.648978	6.480642	411.464	0.21287	0.89527	-1.205269	-4.654192	0.833318	0.637095	0.197985	-0.246425	-1.244660
4.3067	85.19	0.002847	0.004396	0.647648	6.649750	432.151	0.20683	0.89076	-1.179582	-5.406724	0.824584	0.637095	0.168563	-0.254160	-1.507802
4.4117	90.35	0.002744	0.004246	0.646292	6.826196	454.546	0.20097	0.88660	-1.153685	-6.435612	0.815942	0.637095	0.139972	-0.261736	-1.869913
4.5210	95.97	0.002642	0.004096	0.644908	7.010323	478.825	0.19527	0.88280	-1.127638	-7.929707	0.807390	0.637095	0.112210	-0.269159	-2.398697
4.6348	102.10	0.002540	0.003948	0.643497	7.202487	505.188	0.18973	0.87935	-1.101498	#########	0.798928	0.637095	0.085274	-0.276433	-3.241711

Appendix 1-2 Case study of the Kamiryo Model by gamma, $Y=S_P+S_D+C_D+W$: both $s_{S/Y}$ and $s_{SP/Y}$ are variables **(1)** $g_Y(t)=s_{SP/Y}(t)/(1-s_{SP/Y}(t))$ $I/Y^0(t)=s_{S/Y}(t)(1+g_Y(t))$ $g_K(t)=(I/Y^0)(t)/\Omega(t-1)$

PUBLIC A/C (1) **1 Balanced growth-state: $g^*_Y=g^*_{KP}=g_Y=g_{KP}$** **$\Omega$ is constant and $s^*_{SP/Y}$ is not equal to n under $\lambda=0$** **Undistributed profit, S_P, corresponds with taxes used for investment.**

gamma		L^0=	n	Ω^0	α	k^0	$s^*_{SP/P}$	$s^*_{SP/Y}$	$s^*_{SWD/WD}$	$s^*_{SWD/Y}$	$s^*_{S/Y}=s^*_{SP/Y}\Omega^0$		variables	y^0	r^0
1		25	0.01	1.5	0.08	11	0.40000	0.03200	0.01653	0.01600	0.048			7.333333	0.053333
$\theta=S/S_P=\Omega=K/Y$		time	$g^*_Y(t)$	$g^*_K(t)$	$g^*_k(t)$	$g^*_y(t)$	$g^*_\Omega(t)$	$\Omega^*(t)$	$c^*_{D/Y}=\alpha-s^*_{S/}$	$r^*(t)$	$k^*(t)$	$y^*(t)$	**$I/Y^{0*}(t)$**	$A^*(t)$	$\lambda^*(t)$
1.5		1	0.033058	0.033058	0.022830	0.022830	0.000000	1.500000	0.032000	0.053333	11.251125	7.500750	0.049587	0.460396	-----
		2	0.033058	0.033058	0.022830	0.022830	0.000000	1.500000	0.032000	0.053333	11.507983	7.671989	0.049587	0.460396	0.000000
		3	0.033058	0.033058	0.022830	0.022830	0.000000	1.500000	0.032000	0.053333	11.770705	7.847137	0.049587	0.460396	0.000000
from IRC to DRC										$a=s^*_{S/Y}/s^0_{S/Y}$	$g_{sS/Y}=a^\wedge(1/10)-1$	$\theta^*=s^*_{S/Y}/s^*_{SP/Y}$	$\Psi^*=\Omega^0/\theta^*$	$A(t)=g_y(t)/(I/Y^0)$	
2 Unbalanced growth-state				**Ω, $s_{SP/Y}$, and $s_{S/Y}$ are variables, where saving differs from profit**						1.2	0.018399	1.500000	1.000000	$\lambda=(A(t)-A(t-1))/A(t-1)$	
$b=s^*_{SP/Y}/s^0_{SP/Y}$	$g_{sSP/Y}=b^\wedge(1/10)-1$	L^0=	n	Ω^0	α	k^0	$s^0_{SP/P}$	$s^0_{SP/Y}$	$s^0_{SWD/WD}$	$s^0_{SWD/Y}$	$s^0_{S/Y}$	$\theta^0=s^0_{S/Y}/s^0_{SP/}$	$\Psi^0=\Omega^0/\theta^0$	y^0	r^0
0.800000	-0.022067	25	0.01	1.5	0.08	11	**0.5**	0.040000	**0.0**	0.0	0.04000	1.000000	1.500000	7.333333	0.053333
$\theta(t)=s_{S/Y}(t)/s_{SP/Y}(t)$	$\Psi(t)=\Omega^0/\theta(t)$	time	$g_Y(t)=s_{SP/Y}(t)/(1-s_{SP}$	$g_K(t)$	$g_k(t)$	$g_y(t)$	$g_\Omega(t)$	$\Omega(t)$	$s_{S/Y}(t)$	r(t)	k(t)	y(t)	$I/Y^0(t)$	A(t)	$\lambda(t)$
1.041380	1.440397	1	0.040710	0.028263	0.018082	0.030406	-0.011960	1.482060	0.040736	0.053979	11.1989	7.5563	0.042394	0.717212	-----
1.084472	1.383162	2	0.039776	0.029105	0.018916	0.029481	-0.010262	1.466851	0.041485	0.054539	11.4107	7.7791	0.043136	0.683446	-0.047079
1.129347	1.328201	3	0.038864	0.029922	0.019725	0.028578	-0.008608	1.454225	0.042249	0.055012	11.6358	8.0014	0.043891	0.651118	-0.047302
1.176079	1.275425	4	0.037974	0.030711	0.020505	0.027697	-0.006997	1.444049	0.043026	0.055400	11.8744	8.2230	0.044660	0.620167	-0.047534
1.224745	1.224745	5	0.037105	0.031470	0.021257	0.026836	-0.005433	1.436203	0.043818	0.055702	12.1268	8.4437	0.045444	0.590538	-0.047776
1.275425	1.176079	6	0.036256	0.032197	0.021978	0.025996	-0.003917	1.430578	0.044624	0.055921	12.3933	8.6632	0.046242	0.562177	-0.048027
1.328201	1.129347	7	0.035428	0.032892	0.022666	0.025176	-0.002449	1.427075	0.045445	0.056059	12.6742	8.8813	0.047055	0.535031	-0.048287
1.383162	1.084472	8	0.034619	0.033554	0.023320	0.024375	-0.001030	1.425605	0.046281	0.056117	12.9698	9.0978	0.047883	0.509050	-0.048559
1.440397	1.041380	9	0.033829	0.034180	0.023941	0.023593	0.000340	1.426089	0.047133	0.056097	13.2803	9.3124	0.048727	0.484187	-0.048842
1.500000	**1.000000**	**10**	**0.033058**	**0.034771**	**0.024526**	**0.022830**	**0.001658**	**1.428454**	**0.048000**	**0.056005**	**13.6060**	**9.5250**	**0.049587**	**0.460396**	**-0.049136**
1.562070	0.960265	11	0.032305	0.035327	0.025076	0.022084	0.002927	1.432636	0.048883	0.055841	13.9472	9.7354	0.050462	0.437632	-0.049444
1.626708	0.922108	12	0.031569	0.035846	0.025590	0.021356	0.004146	1.438575	0.049783	0.055611	14.3041	9.9433	0.051354	0.415854	-0.049764
1.694020	0.885467	13	0.030851	0.036329	0.026069	0.020645	0.005314	1.446220	0.050699	0.055317	14.6770	10.1485	0.052263	0.395020	-0.050099
1.764119	0.850283	14	0.030150	0.036777	0.026512	0.019950	0.006433	1.455524	0.051631	0.054963	15.0661	10.3510	0.053188	0.375092	-0.050448
1.837117	0.816497	15	0.029465	0.037190	0.026921	0.019272	0.007504	1.466446	0.052581	0.054554	15.4717	10.5505	0.054131	0.356033	-0.050813
1.913137	0.784053	16	0.028796	0.037568	0.027295	0.018610	0.008526	1.478949	0.053549	0.054092	15.8940	10.7468	0.055091	0.337805	-0.051196
1.992302	0.752898	17	0.028143	0.037911	0.027635	0.017963	0.009501	1.493001	0.054534	0.053583	16.3332	10.9399	0.056069	0.320376	-0.051596
2.074743	0.722981	18	0.027505	0.038222	0.027942	0.017331	0.010430	1.508573	0.055537	0.053030	16.7896	11.1295	0.057065	0.303712	-0.052015
2.160595	0.694253	19	0.026881	0.038500	0.028218	0.016714	0.011314	1.525641	0.056559	0.052437	17.2634	11.3155	0.058080	0.287781	-0.052455
2.250000	0.666667	20	0.026273	0.038747	0.028462	0.016111	0.012155	1.544185	0.057600	0.051807	17.7548	11.4978	0.059113	0.272552	-0.052916
2.343104	0.640176	21	0.025678	0.038963	0.028676	0.015523	0.012952	1.564186	0.058660	0.051145	18.2639	11.6763	0.060166	0.257998	-0.053401
2.440061	0.614739	22	0.025097	0.039150	0.028862	0.014948	0.013709	1.585630	0.059739	0.050453	18.7910	11.8508	0.061238	0.244089	-0.053911
2.541031	0.590312	23	0.024530	0.039310	0.029019	0.014386	0.014426	1.608504	0.060838	0.049736	19.3363	12.0213	0.062331	0.230798	-0.054449
2.646178	0.566855	24	0.023975	0.039442	0.029151	0.013837	0.015105	1.632800	0.061958	0.048996	19.9000	12.1876	0.063443	0.218101	-0.055015
2.755676	0.544331	25	0.023434	0.039549	0.029257	0.013301	0.015746	1.658511	0.063098	0.048236	20.4822	12.3498	0.064576	0.205972	-0.055612
2.869705	0.522702	26	0.022905	0.039632	0.029339	0.012777	0.016353	1.685632	0.064259	0.047460	21.0831	12.5075	0.065730	0.194387	-0.056243
2.988453	0.501932	27	0.022388	0.039692	0.029398	0.012266	0.016925	1.714161	0.065441	0.046670	21.7029	12.6610	0.066906	0.183325	-0.056911

Private vs Public structurWPC99

A1-2 (2) Relationships among saving, profit, undistributed profit, dividends, saved dividends, consumed dividends, saved wages, and consumed wages: using ratios

									$\gamma(t)=(1/s_P)(t)-\Omega(t)$		$c_{D/Y}(t)=\gamma(t)*s_{SP/Y}(t)$	$s_{WD/WD}(t)=s_{WD/Y}(t)/(1-s_{SP/Y}(t))$			
gamma given			s^0	c^0	Ω^0	θ^0				γ^0	$c_{D/Y}^0$	$c_{W/Y}^0$			
1			0.05	0.95200	1.50000	1.50000				1	0.03200	0.92000			
$s^*_{SP/Y}(t)$	$s^*_P(t)=s^*_{SP/P}($	$1-s^*_P(t)$	$s^*(t)=s^*_{S/Y}(t)$	$c^*(t)=1-s^*(t$	$\Omega^*(t)$	$\theta^*(t)$	$\Psi^*(t)$	$\mu^*(t)=(S/P)^*(t)$	$(1/s_P)^*(t)=\Omega+\gamma$	$\gamma^*(t)=(1/s_P)(t)-\Omega(t)$	$c^*_{D/Y}(t)=\gamma(t)*s$	$c^*_{W/Y}(t)$	$s^*_{WD/Y}(t)$	$s^*_{WD/WD}(t)$	$(\Omega+\gamma)/\Omega$
0.03200	0.40000	0.60000	0.04800	0.95200	1.50000	1.50000	1.00000	0.60000	2.50000	1.00000	0.03200	0.92000	0.01600	0.01653	1.66667
0.03200	0.40000	0.60000	0.04800	0.95200	1.50000	1.50000	1.00000	0.60000	2.50000	1.00000	0.03200	0.92000	0.01600	0.01653	1.66667
0.03200	0.40000	0.60000	0.04800	0.95200	1.50000	1.50000	1.00000	0.60000	2.50000	1.00000	0.03200	0.92000	0.01600	0.01653	1.66667
$c^*_{D/D}=c^*_{D/Y}/-(\alpha-s^*_{SP/Y})$															
0.02133	: Dividends are all saved.									$\gamma(t)=(1/s_P)(t)-\Omega(t)$	$c_{D/Y}(t)=\gamma(t)*s_{SP/Y}(t)$				
0.02133	s_P^0		s^0	c^0	Ω^0	θ^0			$1/s_P^0$	γ^0	$c_{D/Y}^0$	$c_{W/Y}^0$			**from IRC to DRC**
0.02133	0.50000		0.04	0.96000	1.50000	1.00000			2.00000	0.50000	0.02	0.94000			
$s_{SP/Y}(t)$	$s_P(t)=s_{SP/P}(t)$	$1-s_P(t)$	$s(t)=s_{S/Y}(t)$	$c(t)=1-s(t)$	$\Omega(t)$	$\theta(t)$	$\Psi(t)$	$\mu(t)=(S/P)(t)$	$(1/s_P)(t)=\Omega(t)+\gamma(t)$	**gamma (t)**	$c_{D/Y}(t)$	$c_{W/Y}(t)$	$s_{WD/Y}(t)$	$s_{WD/WD}(t)$	$(\Omega+\gamma)/\Omega$
0.03912	0.48897	0.51103	0.04074	0.95926	1.48206	1.04138	1.42317	0.50920	2.04513	0.56307	0.02203	0.93724	0.00162	0.00168	1.37992
0.03825	0.47818	0.52182	0.04149	0.95851	1.46685	1.08447	1.35259	0.51857	2.09128	0.62443	0.02389	0.93463	0.00323	0.00336	1.42569
0.03741	0.46762	0.53238	0.04225	0.95775	1.45422	1.12935	1.28767	0.52811	2.13847	0.68424	0.02560	0.93215	0.00484	0.00503	1.47052
0.03658	0.45731	0.54269	0.04303	0.95697	1.44405	1.17608	1.22785	0.53783	2.18672	0.74268	0.02717	0.92980	0.00644	0.00669	1.51430
0.03578	0.44721	0.55279	0.04382	0.95618	1.43620	1.22474	1.17265	0.54772	2.23607	0.79987	0.02862	0.92757	0.00804	0.00834	1.55693
0.03499	0.43734	0.56266	0.04462	0.95538	1.43058	1.27542	1.12165	0.55780	2.28653	0.85595	0.02995	0.92543	0.00964	0.00999	1.59832
0.03422	0.42769	0.57231	0.04545	0.95455	1.42707	1.32820	1.07444	0.56806	2.33812	0.91105	0.03117	0.92338	0.01123	0.01163	1.63840
0.03346	0.41826	0.58174	0.04628	0.95372	1.42561	1.38316	1.03069	0.57852	2.39088	0.96528	0.03230	0.92142	0.01282	0.01326	1.67710
0.03272	0.40903	0.59097	0.04713	0.95287	1.42609	1.44040	0.99007	0.58916	2.44483	1.01874	0.03334	0.91953	0.01441	0.01490	1.71436
0.03200	**0.40000**	**0.60000**	**0.04800**	**0.95200**	**1.42845**	**1.50000**	**0.95230**	**0.60000**	**2.50000**	**1.07155**	**0.03429**	**0.91771**	**0.01600**	**0.01653**	**1.75014**
0.03129	0.39117	0.60883	0.04888	0.95112	1.43264	1.56207	0.91714	0.61104	2.55641	1.12378	0.03517	0.91595	0.01759	0.01816	1.78441
0.03060	0.38254	0.61746	0.04978	0.95022	1.43858	1.62671	0.88435	0.62228	2.61410	1.17552	0.03597	0.91424	0.01918	0.01978	1.81714
0.02993	0.37410	0.62590	0.05070	0.94930	1.44622	1.69402	0.85372	0.63373	2.67309	1.22687	0.03672	0.91258	0.02077	0.02141	1.84833
0.02927	0.36584	0.63416	0.05163	0.94837	1.45552	1.76412	0.82507	0.64539	2.73341	1.27788	0.03740	0.91097	0.02236	0.02304	1.87795
0.02862	0.35777	0.64223	0.05258	0.94742	1.46645	1.83712	0.79823	0.65727	2.79508	1.32864	0.03803	0.90939	0.02396	0.02467	1.90603
0.02799	0.34988	0.65012	0.05355	0.94645	1.47895	1.91314	0.77305	0.66936	2.85816	1.37921	0.03860	0.90785	0.02556	0.02629	1.93256
0.02737	0.34216	0.65784	0.05453	0.94547	1.49300	1.99230	0.74938	0.68168	2.92265	1.42965	0.03913	0.90633	0.02716	0.02793	1.95757
0.02677	0.33460	0.66540	0.05554	0.94446	1.50857	2.07474	0.72711	0.69422	2.98860	1.48003	0.03962	0.90484	0.02877	0.02956	1.98108
0.02618	0.32722	0.67278	0.05656	0.94344	1.52564	2.16060	0.70612	0.70699	3.05604	1.53040	0.04006	0.90338	0.03038	0.03120	2.00312
0.02560	0.32000	0.68000	0.05760	0.94240	1.54418	2.25000	0.68630	0.72000	3.12500	1.58082	0.04047	0.90193	0.03200	0.03284	2.02372
0.02504	0.31294	0.68706	0.05866	0.94134	1.56419	2.34310	0.66757	0.73325	3.19552	1.63133	0.04084	0.90050	0.03362	0.03449	2.04293
0.02448	0.30603	0.69397	0.05974	0.94026	1.58563	2.44006	0.64983	0.74674	3.26762	1.68199	0.04118	0.89908	0.03526	0.03614	2.06077
0.02394	0.29928	0.70072	0.06084	0.93916	1.60850	2.54103	0.63301	0.76048	3.34136	1.73285	0.04149	0.89767	0.03690	0.03780	2.07731
0.02341	0.29268	0.70732	0.06196	0.93804	1.63280	2.64618	0.61704	0.77447	3.41676	1.78396	0.04177	0.89627	0.03854	0.03947	2.09257
0.02290	0.28622	0.71378	0.06310	0.93690	1.65851	2.75568	0.60185	0.78872	3.49386	1.83535	0.04202	0.89488	0.04020	0.04114	2.10662
0.02239	0.27990	0.72010	0.06426	0.93574	1.68563	2.86971	0.58739	0.80323	3.57270	1.88706	0.04226	0.89349	0.04187	0.04283	2.11950
0.02190	0.27372	0.72628	0.06544	0.93456	1.71416	2.98845	0.57359	0.81801	3.65331	1.93915	0.04246	0.89210	0.04354	0.04452	2.13125

Private vs Public structurWPC99

A1-2 (3) Structure of the elasticity of substitution

					$S_D^{*0}=D^{*0}-C_D^{*0}$	$S_W^{*0}=S_{WD}^{*0}-S$	$S_W^{*0}=W^{*0}-C_W^{*0}$	$A^{*0}=C_D^{*0}+S_W$	$S_W^{*0}=A^{*0}-D^{*0}$						
					2.93333	0.0000	0.00000	8.80000	0.00000						
L^0	Y^0	W^0	S^0	S_{WD}^0	P^0	S_P^0	D^0	C_D^0	$C_D^0+S_{WD}^0$	$C_W^0=C^0-C_D^0$	C^0	$c_{C/L}^0=C^0/L^0$	$\Delta c_{C/L}^0$	$\sigma c_{C/L}^0=\Delta c_{C/L}^0/c_{C/L}^0$	$c_{C/Y}^0=C^0/Y^0$
25	183.3333	168.6667	8.8000	2.9333	14.6667	5.8667	8.8000	5.8667	8.8000	168.6667	174.5333	6.9813	-----	-----	0.9520
$L^*(t)$	$Y^*(t)$	$W^*(t)$	$S^*(t)$	$S^*_{WD}(t)$	$P^*(t)$	$S_P^*(t)$	$D^*(t)$	$C_D^*(t)$	$C_{D(t)}+S_{WD(t)}$	$C_w(t)=C(t)-C$	$C^*(t)=c^*(t)*Y^*(t)$	$c_{C/L}^*(t)=C^*(t)/L^*(t)$	$\Delta c_{C/L}^*(t)$	$\sigma c_{C/L}^*(t)=\Delta c^*(t)/$	$c_{C/Y}^*(t)=C^*(t)/Y^*(t)$
25.2500	189.3939	174.2424	9.0909	3.0303	15.1515	6.0606	9.0909	6.0606	9.0909	174.2424	180.3030	7.1407	23.0788	3.2320	0.9520
25.5025	195.6549	180.0025	9.3914	3.1305	15.6524	6.2610	9.3914	6.2610	9.3914	180.0025	186.2635	7.3037	23.6057	3.2320	0.9520
25.7575	202.1228	185.9530	9.7019	3.2340	16.1698	6.4679	9.7019	6.4679	9.7019	185.9530	192.4209	7.4705	24.1446	3.2320	0.9520
					$S_D^0=D^0-C_D^0$	$S_W^0=S_{WD}^0-S_D^0$	$S_W^0=W^0-C_W^0$	$A=C_D^0+S_{WD}^0$	$S_W^0=A^0-D^0$	Marginal rate of per capita consumption: $\Delta c_{C/L}(2)=((c_{C/L}(2)(1+n)-c_{C/L}(1))/n$					
					3.6667	-3.6667	-3.66667	3.66667	-3.66667			$c_{C/L}(t)=C(t)/L(t)=c_{C/Y}(t)*y(t)$		$\sigma c_{C/L}^0=\Delta c_{C/L}^0/c_{C/L}^0$	
L^0	Y^0	W^0	S^0	S_{WD}^0	P^0	S_P^0	D^0	C_D^0	$C_D^0+S_{WD}^0$	$C_W^0=C^0-C_D^0$	$C^0=c_{C/D}^0*Y$	$c_{C/L}^0=C^0/L^0$	$\Delta c_{C/L}^0$		$c_{C/Y}^0=C^0/Y^0$
25	183.3333	168.6667	7.3333	0.0000	14.6667	7.3333	7.3333	3.6667	3.6667	172.3333	176.0000	7.0400	-----	-----	0.9600
L(t)	Y(t)	W(t)	$S(t)=s_{S/Y}(t)*Y$	$S_{WD}(t)=S(t)-S_P$	P(t)	$S_P(t)$	D(t)	$C_D(t)=S_P(t)*\gamma$	$C_{D(t)}+S_{WD(t)}$	$C_w(t)=C(t)-C$	$C(t)=c(t)*Y(t)$	$c_{C/L}(t)=C(t)/L(t)$	$\Delta c_{C/L}(t)$	$\sigma c_{C/L}(t)=\Delta c(t)/c(t$	$c_{C/Y}(t)=C(t)/Y(t)$
25.2500	190.80	175.53	7.77	0.31	15.26	7.46	7.80	4.20	4.51	178.82	183.02	7.2485	28.10	3.8764	0.9593
25.5025	198.39	182.51	8.23	0.64	15.87	7.59	8.28	4.74	5.38	185.42	190.16	7.4564	28.24	3.7877	0.9585
25.7575	206.10	189.61	8.71	1.00	16.49	7.71	8.78	5.28	6.27	192.11	197.39	7.6633	28.36	3.7009	0.9578
26.0151	213.92	196.81	9.20	1.38	17.11	7.83	9.29	5.81	7.19	198.91	204.72	7.8692	28.45	3.6160	0.9570
26.2753	221.86	204.11	9.72	1.78	17.75	7.94	9.81	6.35	8.13	205.79	212.14	8.0737	28.52	3.5329	0.9562
26.5380	229.90	211.51	10.26	2.22	18.39	8.04	10.35	6.89	9.10	212.76	219.64	8.2766	28.57	3.4515	0.9554
26.8034	238.05	219.00	10.82	2.67	19.04	8.14	10.90	7.42	10.09	219.81	227.23	8.4777	28.59	3.3719	0.9546
27.0714	246.29	226.59	11.40	3.16	19.70	8.24	11.46	7.95	11.11	226.94	234.89	8.6767	28.58	3.2939	0.9537
27.3421	254.62	234.25	12.00	3.67	20.37	8.33	12.04	8.49	12.16	234.13	242.62	8.8735	28.55	3.2176	0.9529
27.6156	**263.04**	**242.00**	**12.63**	**4.21**	**21.04**	**8.42**	**12.63**	**9.02**	**13.23**	**241.39**	**250.41**	**9.0678**	**28.50**	**3.1429**	**0.9520**
27.8917	271.54	249.81	13.27	4.78	21.72	8.50	13.23	9.55	14.33	248.71	258.26	9.2595	28.42	3.0698	0.9511
28.1706	280.11	257.70	13.94	5.37	22.41	8.57	13.84	10.08	15.45	256.09	266.16	9.4483	28.33	2.9983	0.9502
28.4523	288.75	265.65	14.64	6.00	23.10	8.64	14.46	10.60	16.60	263.51	274.11	9.6340	28.21	2.9282	0.9493
28.7369	297.46	273.66	15.36	6.65	23.80	8.71	15.09	11.12	17.78	270.97	282.10	9.8166	28.07	2.8596	0.9484
29.0242	306.22	281.72	16.10	7.34	24.50	8.76	15.73	11.64	18.98	278.47	290.12	9.9957	27.91	2.7924	0.9474
29.3145	315.04	289.83	16.87	8.05	25.20	8.82	16.39	12.16	20.21	286.01	298.17	10.1714	27.73	2.7266	0.9465
29.6076	323.90	297.99	17.66	8.80	25.91	8.87	17.05	12.68	21.47	293.56	306.24	10.3433	27.54	2.6622	0.9455
29.9037	332.81	306.19	18.48	9.57	26.63	8.91	17.72	13.19	22.76	301.14	314.33	10.5114	27.32	2.5992	0.9445
30.2027	341.76	314.42	19.33	10.38	27.34	8.95	18.39	13.69	24.07	308.74	322.43	10.6755	27.09	2.5374	0.9434
30.5048	350.74	322.68	20.20	11.22	28.06	8.98	19.08	14.19	25.42	316.34	330.54	10.8355	26.84	2.4769	0.9424
30.8098	359.74	330.96	21.10	12.10	28.78	9.01	19.77	14.69	26.79	323.95	338.64	10.9914	26.57	2.4177	0.9413
31.1179	368.77	339.27	22.03	13.00	29.50	9.03	20.47	15.19	28.19	331.56	346.74	11.1429	26.29	2.3596	0.9403
31.4291	377.82	347.59	22.99	13.94	30.23	9.05	21.18	15.68	29.62	339.16	354.83	11.2900	26.00	2.3028	0.9392
31.7434	386.88	355.93	23.97	14.91	30.95	9.06	21.89	16.16	31.07	346.75	362.91	11.4325	25.69	2.2471	0.9380
32.0608	395.94	364.27	24.98	15.92	31.68	9.07	22.61	16.64	32.56	354.32	370.96	11.5705	25.37	2.1926	0.9369
32.3814	405.01	372.61	26.03	16.96	32.40	9.07	23.33	17.11	34.07	361.87	378.99	11.7038	25.04	2.1391	0.9357
32.7052	414.08	380.95	27.10	18.03	33.13	9.07	24.06	17.58	35.61	369.40	386.98	11.8324	24.69	2.0867	0.9346

Private vs Public structurWPC99

A1-2 (4) Marginal rate is measured using the growth rate of the denominator

Marginal rate of profit to capital: $\Delta r(2)=((r(2)(1+g_K(2)-r(1))/g_K(2)$

$\Delta\Omega(2)=((\Omega(2)(1+g_Y(2)-\Omega(1))/g_Y(2)$

$\Delta y(2)=((y(2)(1+n)-y(1)$

$\Delta k(2)=((k(2)(1+n)-k(1))$

$\Delta c_{C/Y}{}^0$	$\sigma c_{C/Y}{}^0=\Delta c_{C/Y}{}^0/c_{C/Y}{}^0$	K^0	ΔK^0	Δr^0	ΔW^0	w^0	Δw^0	$\Delta r^0/\Delta w^0$	$(W*K)^0$		1/MPK		MPK	MPL	
-----	-----	275.000	-----	$=\Delta P/\Delta K$	-----	6.7467	$=\Delta W/\Delta L$	-----	46383		**$=\Delta K/\Delta Y$**		**$=\Delta Y/\Delta K$**	**$=\Delta Y/\Delta L$**	
$\Delta c_{C/Y}(t)$	$\sigma c_{C/Y}(t)=\Delta c(t)/c(t$	$K(t)$	$\Delta K(t)$	$\Delta r(t)$	$\Delta W(t)$	$w(t)$	$\Delta w(t)$	$(\Delta r^0/\Delta w^0)(t)$	$(W*K)(t)$	$g_{WK}(t)$	$\Delta\Omega(t)$	$\sigma_\Omega=\Delta\Omega/\Omega$	$=1/\Delta\Omega(t)$	Δy	$\sigma_y=\Delta y/y$
0.9520	1.0000	284.091	9.0909	0.053333	5.5758	6.9007	22.3030	0.00239	49501	0.067209	1.500000	1.000000	0.666667	24.24242	3.2320
0.9520	1.0000	293.482	9.3914	0.053333	5.7601	7.0582	22.8122	0.00234	52828	0.067209	1.500000	1.000000	0.666667	24.79587	3.2320
0.9520	1.0000	303.184	9.7019	0.053333	5.9505	7.2194	23.3330	0.00229	56378	0.067209	1.500000	1.000000	0.666667	25.36195	3.2320

$\sigma c_{C/L}(t)=\sigma c_{C/Y}(t)*\sigma_y(t)$

$\sigma c_{C/Y}{}^0=\Delta c_{C/Y}{}^0/c_{C/Y}{}^0$

$\Delta c_{C/Y}{}^0$		K^0	ΔK^0	Δr^0	ΔW^0	w^0	Δw^0	$\Delta r^0/\Delta w^0$	$(W*K)^0$		1/MPK		MPK	MPL	
-----	-----	275.000	-----	$=\Delta P/\Delta K$	-----	6.7467	$=\Delta W/\Delta L$	-----	46383		**$=\Delta K/\Delta Y$**		**$=\Delta Y/\Delta K$**	**$=\Delta Y/\Delta L$**	
$\Delta c_{C/Y}(t)$	$\sigma c_{C/Y}(t)=\Delta c(t)/c(t$	$K(t)$	$\Delta K(t)$	$\Delta r(t)$	$\Delta W(t)$	$w(t)$	$\Delta w(t)$	$(\Delta r^0/\Delta w^0)(t)$	$(W*K)(t)$	$g_{WK}(t)$	$\Delta\Omega(t)$	$\sigma_\Omega=\Delta\Omega/\Omega$	$=1/\Delta\Omega(t)$	Δy	$\sigma_y=\Delta y/y$
0.9412	0.9812	282.77	7.77	0.076821	6.87	6.952	27.466	0.00280	49636	0.070123	1.041380	0.702657	0.960265	29.85	3.9508
0.9397	0.9803	291.00	8.23	0.073769	6.98	7.157	27.651	0.00267	53112	0.070039	1.084472	0.739320	0.922108	30.06	3.8637
0.9381	0.9795	299.71	8.71	0.070837	7.09	7.361	27.814	0.00255	56827	0.069948	1.129347	0.776597	0.885467	30.23	3.7784
0.9365	0.9786	308.91	9.20	0.068023	7.20	7.565	27.953	0.00243	60797	0.069850	1.176079	0.814432	0.850283	30.38	3.6950
0.9348	0.9777	318.64	9.72	0.065320	7.30	7.768	28.070	0.00233	65037	0.069742	1.224745	0.852766	0.816497	30.51	3.6135
0.9331	0.9767	328.89	10.26	0.062724	7.40	7.970	28.164	0.00223	69565	0.069621	1.275425	0.891545	0.784053	30.61	3.5337
0.9314	0.9757	339.71	10.82	0.060232	7.49	8.171	28.236	0.00213	74399	0.069485	1.328201	0.930716	0.752898	30.69	3.4558
0.9296	0.9747	351.11	11.40	0.057838	7.58	8.370	28.286	0.00204	79557	0.069334	1.383162	0.970228	0.722981	30.75	3.3795
0.9277	0.9736	363.11	12.00	0.055540	7.67	8.567	28.315	0.00196	85060	0.069165	1.440397	1.010033	0.694253	30.78	3.3049
0.9258	**0.9724**	**375.74**	**12.63**	**0.053333**	**7.74**	**8.763**	**28.322**	**0.00188**	**90927**	**0.068978**	**1.500000**	**1.050086**	**0.666667**	**30.78**	**3.2320**
0.9238	0.9713	389.01	13.27	0.051214	7.82	8.957	28.309	0.00181	97180	0.068773	1.562070	1.090347	0.640176	30.77	3.1607
0.9217	0.9700	402.96	13.94	0.049179	7.89	9.148	28.275	0.00174	103841	0.068547	1.626708	1.130777	0.614739	30.73	3.0909
0.9196	0.9687	417.60	14.64	0.047225	7.95	9.337	28.222	0.00167	110934	0.068302	1.694020	1.171343	0.590312	30.68	3.0227
0.9174	0.9674	432.95	15.36	0.045348	8.01	9.523	28.150	0.00161	118482	0.068036	1.764119	1.212016	0.566855	30.60	2.9560
0.9152	0.9660	449.05	16.10	0.043546	8.06	9.706	28.059	0.00155	126509	0.067751	1.837117	1.252769	0.544331	30.50	2.8908
0.9129	0.9645	465.92	16.87	0.041816	8.11	9.887	27.951	0.00150	135041	0.067445	1.913137	1.293579	0.522702	30.38	2.8270
0.9105	0.9630	483.59	17.66	0.040155	8.16	10.065	27.825	0.00144	144105	0.067121	1.992302	1.334428	0.501932	30.24	2.7646
0.9080	0.9614	502.07	18.48	0.038559	8.20	10.239	27.683	0.00139	153728	0.066778	2.074743	1.375302	0.481987	30.09	2.7036
0.9054	0.9597	521.40	19.33	0.037027	8.23	10.410	27.524	0.00135	163938	0.066416	2.160595	1.416188	0.462835	29.92	2.6439
0.9028	0.9580	541.60	20.20	0.035556	8.26	10.578	27.350	0.00130	174764	0.066037	2.250000	1.457079	0.444444	29.73	2.5856
0.9001	0.9562	562.71	21.10	0.034143	8.29	10.742	27.162	0.00126	186236	0.065641	2.343104	1.497971	0.426784	29.52	2.5285
0.8973	0.9543	584.74	22.03	0.032786	8.31	10.903	26.960	0.00122	198384	0.065230	2.440061	1.538860	0.409826	29.30	2.4727
0.8944	0.9523	607.72	22.99	0.031483	8.32	11.060	26.744	0.00118	211240	0.064804	2.541031	1.579748	0.393541	29.07	2.4182
0.8914	0.9502	631.69	23.97	0.030232	8.33	11.213	26.516	0.00114	224836	0.064363	2.646178	1.620638	0.377904	28.82	2.3648
0.8883	0.9481	656.68	24.98	0.029031	8.34	11.362	26.276	0.00110	239206	0.063910	2.755676	1.661536	0.362887	28.56	2.3126
0.8851	0.9458	682.70	26.03	0.027877	8.34	11.507	26.024	0.00107	254382	0.063445	2.869705	1.702450	0.348468	28.29	2.2616
0.8817	0.9435	709.80	27.10	0.026770	8.34	11.648	25.762	0.00104	270400	0.062969	2.988453	1.743391	0.334621	28.00	2.2117

Private vs Public structurWPC99

A1-2 (5) Δ(r/w)(2)=((r/w)(2)(1+g_WK(2)-(r/w)(1))/g_WK(2) Elasticity of substitution, σ(t) | $\sigma_{C/Y}^*(t)=\sigma_{C/L}^*(t)/\sigma_y^*(t)$ 1.000000 | $\sigma_\Omega^*(t)=\sigma_k^*(t)/\sigma_y^*(t)$ 1.000000 | $\sigma r^*(t)=\Delta r^*(t)/r^*(t)$ 1.000000 | $\sigma_\alpha^*(t)=\sigma_\Omega^*(t)*\sigma_r^*(t)$ 1.000000

n where, g_WK(2)=((W*K)(2)-(W*K)(1))/(W*K)(1) σ(t)=(Δk/k)/(Δ(r/w)(t)/(r/w)(t))

(A): $\sigma_k=\sigma_\Omega*\sigma_y$	Marginal rate =ΔK/ΔL		(r/w)^0 0.007905	**(B):** σ(r/w)(t)=Δ(r/w)(t)/(r/w)(t)	Y=wL+rK is confirmed		$p_w^*(t)=1/\sigma_y^*(t)$	$p_r^*(t)=\sigma_\Omega^*(t)$		$\sigma^*\gamma(t)=\Delta\gamma^*(t)/\gamma^*(t)$		$\sigma\theta^*(t)=\Delta\theta^*(t)/\theta^*(t)$			$\sigma\zeta^*(t)=\Delta\zeta^*(t)/\zeta^*(t)$
=Δk/k	Δk	Δ(r/w)(t)	r/w(t)	Δ(r/w)(t)/(r/w)(t)	σ(t)=(A)/(B)	Y=wL+rK	p_w=(w/MPL)/(1-α)	p_r=(r/MPK)/α	$\Delta\gamma^*(t)$		$\Delta\theta^*(t)$		$\zeta^*=C_D^*/S^*=\gamma^*/\theta^*$	$\Delta\zeta^*(t)$	
3.2320	36.3636	0.005103	0.007729	0.660318	4.894615	189.394	0.30941	1.00000	1	1	1.5	1	0.666667	0.666667	1
3.2320	37.1938	0.004989	0.007556	0.660318	4.894615	195.655	0.30941	1.00000	1	1	1.5	1	0.666667	0.666667	1
3.2320	38.0429	0.004878	0.007388	0.660318	4.894615	202.123	0.30941	1.00000	1	1	1.5	1	0.666667	0.666667	1

(A): $\sigma_k=\sigma_\Omega*\sigma_y$	Marginal rate =ΔK/ΔL		(r/w)^0 0.007905	**(B):** σ(r/w)(t)=Δ(r/w)(t)/(r/w)(t)	Y=wL+rK is confirmed		$p_w(t)=1/\sigma y(t)$ p_w=(w/MPL)/(1-α)	$p_r(t)=\sigma_\Omega(t)$		σγ(t)=Δγ(t)/γ(t)		σθ(t)=Δθ(t)/θ(t)			σζ(t)=Δζ(t)/ζ(t)
=Δk/k	Δk	Δ(r/w)(t)	r/w(t)	Δ(r/w)(t)/(r/w)(t)	σ(t)=(A)/(B)	Y=wL+rK		p_r=(r/MPK)/α	Δγ(t)		Δθ(t)		ζ=C_D/S=γ/θ	Δζ(t)	
2.7761	31.09	0.005763	0.007765	0.742139	3.740663	190.797	0.25311	0.70266	-2.295030	-4.075920	-0.833787	-0.800656	0.540696	1.220578	2.257418
2.8565	32.59	0.005562	0.007621	0.729920	3.913420	198.386	0.25882	0.73932	-2.156080	-3.452885	-0.868289	-0.800656	0.575790	1.171543	2.034670
2.9343	34.14	0.005366	0.007473	0.718014	4.086689	206.096	0.26466	0.77660	-2.026385	-2.961492	-0.904219	-0.800656	0.605876	1.124793	1.856473
3.0093	35.73	0.005173	0.007323	0.706437	4.259891	213.922	0.27063	0.81443	-1.905176	-2.565287	-0.941635	-0.800656	0.631484	1.080180	1.710542
3.0815	37.37	0.004985	0.007171	0.695204	4.432451	221.860	0.27674	0.85277	-1.791755	-2.240071	-0.980600	-0.800656	0.653087	1.037574	1.588721
3.1505	39.05	0.004801	0.007016	0.684325	4.603801	229.903	0.28299	0.89155	-1.685491	-1.969152	-1.021177	-0.800656	0.671108	0.996851	1.485380
3.2163	40.76	0.004623	0.006861	0.673806	4.773388	238.048	0.28937	0.93072	-1.585810	-1.740647	-1.063433	-0.800656	0.685925	0.957900	1.396508
3.2789	42.53	0.004449	0.006705	0.663652	4.940681	246.289	0.29590	0.97023	-1.492190	-1.545869	-1.107437	-0.800656	0.697876	0.920619	1.319173
3.3381	44.33	0.004281	0.006548	0.653864	5.105173	254.621	0.30258	1.01003	-1.404156	-1.378323	-1.153263	-0.800656	0.707265	0.884915	1.251178
3.3939	**46.18**	**0.004119**	**0.006391**	**0.644441**	**5.266388**	**263.038**	**0.30941**	**1.05009**	**-1.321276**	**-1.233056**	**-1.200984**	**-0.800656**	**0.714364**	**0.850700**	**1.190850**
3.4462	48.07	0.003961	0.006235	0.635381	5.423887	271.536	0.31639	1.09035	-1.243154	-1.106229	-1.250681	-0.800656	0.719416	0.817895	1.136888
3.4952	50.00	0.003810	0.006079	0.626679	5.577266	280.108	0.32353	1.13078	-1.169432	-0.994818	-1.302434	-0.800656	0.722640	0.786426	1.088268
3.5406	51.97	0.003663	0.005925	0.618328	5.726162	288.750	0.33083	1.17134	-1.099781	-0.896414	-1.356328	-0.800656	0.724234	0.756224	1.044172
3.5827	53.98	0.003523	0.005772	0.610322	5.870253	297.455	0.33829	1.21202	-1.033899	-0.809073	-1.412453	-0.800656	0.724374	0.727227	1.003939
3.6215	56.03	0.003387	0.005620	0.602651	6.009260	306.220	0.34593	1.25277	-0.971511	-0.731208	-1.470900	-0.800656	0.723219	0.699375	0.967030
3.6569	58.12	0.003257	0.005471	0.595308	6.142943	315.038	0.35373	1.29358	-0.912366	-0.661515	-1.531765	-0.800656	0.720914	0.672614	0.933002
3.6892	60.26	0.003132	0.005324	0.588282	6.271107	323.904	0.36171	1.33443	-0.856233	-0.598910	-1.595149	-0.800656	0.717587	0.646893	0.901483
3.7183	62.43	0.003012	0.005179	0.581562	6.393597	332.813	0.36988	1.37530	-0.802898	-0.542488	-1.661156	-0.800656	0.713355	0.622164	0.872166
3.7443	64.64	0.002897	0.005037	0.575139	6.510294	341.759	0.37822	1.41619	-0.752168	-0.491485	-1.729894	-0.800656	0.708323	0.598383	0.844788
3.7674	66.89	0.002787	0.004898	0.569001	6.621120	350.738	0.38676	1.45708	-0.703863	-0.445253	-1.801477	-0.800656	0.702585	0.575507	0.819129
3.7877	69.18	0.002681	0.004761	0.563138	6.726029	359.744	0.39548	1.49797	-0.657819	-0.403241	-1.876021	-0.800656	0.696226	0.553499	0.794999
3.8052	71.50	0.002580	0.004628	0.557539	6.825007	368.773	0.40441	1.53886	-0.613884	-0.364974	-1.953651	-0.800656	0.689324	0.532321	0.772235
3.8201	73.87	0.002483	0.004497	0.552193	6.918071	377.819	0.41353	1.57975	-0.571919	-0.330045	-2.034492	-0.800656	0.681949	0.511938	0.750698
3.8325	76.27	0.002391	0.004370	0.547090	7.005265	386.877	0.42287	1.62064	-0.531796	-0.298099	-2.118679	-0.800656	0.674163	0.492318	0.730265
3.8425	78.70	0.002302	0.004245	0.542219	7.086655	395.943	0.43241	1.66154	-0.493396	-0.268830	-2.206349	-0.800656	0.666024	0.473430	0.710831
3.8503	81.18	0.002217	0.004124	0.537570	7.162332	405.012	0.44217	1.70245	-0.456610	-0.241968	-2.297647	-0.800656	0.657581	0.455246	0.692304
3.8558	83.68	0.002136	0.004007	0.533134	7.232402	414.079	0.45214	1.74339	-0.421336	-0.217279	-2.392724	-0.800656	0.648882	0.437737	0.674602

Appendix 1-3 Case study of the Kamiryo Model by gamma, $Y=S_P+S_D+S_W+C_D+C_W$: both $s_{S/Y}$ and $s_{SP/Y}$ are variables **(1)** $g_Y(t)=s_{SP/Y}(t)/(1-s_{SP/Y}(t))$ $I/Y^0(t)=s_{S/Y}(t)(1+g_Y(t))$ $g_K(t)=(I/Y^0)(t)/\Omega(t-1)$

PUBLIC A/C (2) **1 Balanced growth-state: $g^*_Y=g^*_{KP}=g_Y=g_{KP}$** **$\Omega$ is constant and $s^*_{SP/Y}$ is not equal to n under $\lambda=0$** **Undistributed profit, S_P, corresponds with taxes used for investment.**

gamma		$L^0=$	n	Ω^0	α	k^0	$s^*_{SP/P}$	$s^*_{SP/Y}$	$s^*_{SWD/WD}$	$s^*_{SWD/Y}$	$s^*_{S/Y}=s^*_{SP/Y}\,\Omega^0$		variables	y^0	r^0
1		25	0.01	1	0.08	11	0.50000	0.04000	0.00000	0.00000	0.04			11.000000	0.080000
$\theta=S/S_P=\Omega=K/Y$		time	$g^*_Y(t)$	$g^*_K(t)$	$g^*_k(t)$	$g^*_y(t)$	$g^*_\Omega(t)$	$\Omega^*(t)$	$c^*_{D/Y}=\alpha-s^*_{S/}$	$r^*(t)$	$k^*(t)$	$y^*(t)$	**$I/Y^{0*}(t)$**	$A^*(t)$	$\lambda^*(t)$
1		1	0.041667	0.041667	0.031353	0.031353	0.000000	1.000000	0.040000	0.080000	11.344884	11.344884	0.041667	0.752475	-----
		2	0.041667	0.041667	0.031353	0.031353	0.000000	1.000000	0.040000	0.080000	11.700582	11.700582	0.041667	0.752475	0.000000
		3	0.041667	0.041667	0.031353	0.031353	0.000000	1.000000	0.040000	0.080000	12.067432	12.067432	0.041667	0.752475	0.000000
from CRC to CRC										$a=s^*_{S/Y}/s^0_{S/Y}$	$g_{aS/Y}=a\char`^(1/10)-1$	$\theta^*=s^*_{S/Y}/s^*_{SP/Y}$	$\Psi^*=\Omega^0/\theta^*$	$A(t)=g_y(t)/(I/Y^0)$	
	2 Unbalanced growth-state			**Ω, $s_{SP/Y}$, and $s_{S/Y}$ are variables, where saving differs from profit**						0.8333333	-0.018067	1.000000	1.000000	$\lambda=(A(t)-A(t-1))/A(t-1)$	
$b=s^*_{SP/Y}/s^0_{SP/Y}$	$g_{bSP/Y}=b\char`^(1/10)-1$	$L^0=$	n	Ω^0	α	k^0	$s^0_{SP/P}$	$s^0_{SP/Y}$	$s^0_{SWD/WD}$	$s^0_{SWD/Y}$	$s^0_{S/Y}$	$\theta^0=s^0_{S/Y}/s^0_{SP/}$	$\Psi^0=\Omega^0/\theta^0$	y^0	r^0
0.833333	-0.018067	25	0.01	1	0.08	11	**0.60**	0.048000	**0.0**	0.0	0.04800	1.000000	1.000000	11.000000	0.080000
$\theta(t)=s_{S/Y}(t)/s_{SP/Y}(t)$	$\Psi(t)=\Omega^0/\theta(t)$	time	$g_Y(t)=s_{SP/Y}(t)/(1-s_{SP/}$	$g_K(t)$	$g_k(t)$	$g_y(t)$	$g_\Omega(t)$	$\Omega(t)$	$s_{S/Y}(t)$	r(t)	k(t)	y(t)	$I/Y^0(t)$	A(t)	$\lambda(t)$
1.000000	1.000000	1	0.049464	0.049464	0.039073	0.039073	0.000000	1.000000	0.047133	0.080000	11.4298	11.4298	0.049464	0.789934	-----
1.000000	1.000000	2	0.048527	0.048527	0.038146	0.038146	0.000000	1.000000	0.046281	0.080000	11.8658	11.8658	0.048527	0.786069	-0.004893
1.000000	1.000000	3	0.047609	0.047609	0.037236	0.037236	0.000000	1.000000	0.045445	0.080000	12.3076	12.3076	0.047609	0.782133	-0.005007
1.000000	1.000000	4	0.046708	0.046708	0.036345	0.036345	0.000000	1.000000	0.044624	0.080000	12.7550	12.7550	0.046708	0.778124	-0.005125
1.000000	1.000000	5	0.045826	0.045826	0.035471	0.035471	0.000000	1.000000	0.043818	0.080000	13.2074	13.2074	0.045826	0.774042	-0.005246
1.000000	1.000000	6	0.044961	0.044961	0.034614	0.034614	0.000000	1.000000	0.043026	0.080000	13.6646	13.6646	0.044961	0.769884	-0.005371
1.000000	1.000000	7	0.044112	0.044112	0.033775	0.033775	0.000000	1.000000	0.042249	0.080000	14.1261	14.1261	0.044112	0.765650	-0.005500
1.000000	1.000000	8	0.043281	0.043281	0.032952	0.032952	0.000000	1.000000	0.041485	0.080000	14.5916	14.5916	0.043281	0.761338	-0.005632
1.000000	1.000000	9	0.042466	0.042466	0.032144	0.032144	0.000000	1.000000	0.040736	0.080000	15.0606	15.0606	0.042466	0.756947	-0.005768
1.000000	**1.000000**	**10**	**0.041667**	**0.041667**	**0.031353**	**0.031353**	**0.000000**	**1.000000**	**0.040000**	**0.080000**	**15.5328**	**15.5328**	**0.041667**	**0.752475**	**-0.005908**
1.000000	1.000000	11	0.040883	0.040883	0.030577	0.030577	0.000000	1.000000	0.039277	0.080000	16.0077	16.0077	0.040883	0.747921	-0.006052
1.000000	1.000000	12	0.040115	0.040115	0.029817	0.029817	0.000000	1.000000	0.038568	0.080000	16.4850	16.4850	0.040115	0.743283	-0.006201
1.000000	1.000000	13	0.039362	0.039362	0.029071	0.029071	0.000000	1.000000	0.037871	0.080000	16.9643	16.9643	0.039362	0.738559	-0.006355
1.000000	1.000000	14	0.038623	0.038623	0.028340	0.028340	0.000000	1.000000	0.037187	0.080000	17.4450	17.4450	0.038623	0.733749	-0.006513
1.000000	1.000000	15	0.037899	0.037899	0.027622	0.027622	0.000000	1.000000	0.036515	0.080000	17.9269	17.9269	0.037899	0.728850	-0.006676
1.000000	1.000000	16	0.037189	0.037189	0.026919	0.026919	0.000000	1.000000	0.035855	0.080000	18.4095	18.4095	0.037189	0.723861	-0.006845
1.000000	1.000000	17	0.036492	0.036492	0.026230	0.026230	0.000000	1.000000	0.035207	0.080000	18.8924	18.8924	0.036492	0.718780	-0.007019
1.000000	1.000000	18	0.035809	0.035809	0.025554	0.025554	0.000000	1.000000	0.034571	0.080000	19.3751	19.3751	0.035809	0.713606	-0.007199
1.000000	1.000000	19	0.035140	0.035140	0.024891	0.024891	0.000000	1.000000	0.033947	0.080000	19.8574	19.8574	0.035140	0.708337	-0.007384
1.000000	1.000000	20	0.034483	0.034483	0.024240	0.024240	0.000000	1.000000	0.033333	0.080000	20.3387	20.3387	0.034483	0.702970	-0.007576
1.000000	1.000000	21	0.033839	0.033839	0.023603	0.023603	0.000000	1.000000	0.032731	0.080000	20.8188	20.8188	0.033839	0.697505	-0.007774
1.000000	1.000000	22	0.033207	0.033207	0.022977	0.022977	0.000000	1.000000	0.032140	0.080000	21.2972	21.2972	0.033207	0.691939	-0.007979
1.000000	1.000000	23	0.032588	0.032588	0.022364	0.022364	0.000000	1.000000	0.031559	0.080000	21.7734	21.7734	0.032588	0.686271	-0.008192
1.000000	1.000000	24	0.031980	0.031980	0.021762	0.021762	0.000000	1.000000	0.030989	0.080000	22.2473	22.2473	0.031980	0.680499	-0.008411
1.000000	1.000000	25	0.031384	0.031384	0.021172	0.021172	0.000000	1.000000	0.030429	0.080000	22.7183	22.7183	0.031384	0.674620	-0.008639
1.000000	1.000000	26	0.030800	0.030800	0.020594	0.020594	0.000000	1.000000	0.029879	0.080000	23.1862	23.1862	0.030800	0.668633	-0.008874
1.000000	1.000000	27	0.030226	0.030226	0.020026	0.020026	0.000000	1.000000	0.029339	0.080000	23.6505	23.6505	0.030226	0.662537	-0.009119

Hideyuki Kamiryo: Relationship between Efficiency and Equity in the Public and Private Sectors: Its Structure and Measurement (XIth World Productivity Congress, Edinburgh, UK, on 4th of October 1999)

A1-3 (2) Relationships among saving, profit, undistributed profit, dividends, saved dividends, consumed dividends, saved wages, and consumed wages: using ratios

									$\gamma(t)=(1/s_P)(t)-\Omega(t)$		$c_{D/Y}(t)=\gamma(t)*s_{SP/Y}(t)$	$s_{WD/WD}(t)=s_{WD/Y}(t)/(1-s_{SP/Y}(t))$			
gamma given			s^0	c^0	Ω^0	θ^0				γ^0	$c_{D/Y}^0$	$c_{W/Y}^0$			
1			0.04	0.96000	1.00000	1.00000				1	0.04000	0.92000			
$s_{SP/Y}^*(t)$	$s^*_P(t)=s^*_{SP/P}($	$1-s^*_P(t)$	$s^*(t)=s^*_{S/Y}(t)$	$c^*(t)=1-s^*(t$	$\Omega^*(t)$	$\theta^*(t)$	$\Psi^*(t)$	$\mu^*(t)=(S/P)^*(t)$	$(1/s_P)^*(t)=\Omega+\gamma$	$\gamma^*(t)=(1/s_P)(t)-\Omega(t)$	$c^*_{D/Y}(t)=\gamma(t)*s$	$c^*_{W/Y}(t)$	$s^*_{WD/Y}(t)$	$s^*_{WD/WD}(t)$	$(\Omega+\gamma)/\Omega$
0.04000	0.50000	0.50000	0.04000	0.96000	1.00000	1.00000	1.00000	0.50000	2.00000	1.00000	0.04000	0.92000	0.00000	0.00000	2.00000
0.04000	0.50000	0.50000	0.04000	0.96000	1.00000	1.00000	1.00000	0.50000	2.00000	1.00000	0.04000	0.92000	0.00000	0.00000	2.00000
0.04000	0.50000	0.50000	0.04000	0.96000	1.00000	1.00000	1.00000	0.50000	2.00000	1.00000	0.04000	0.92000	0.00000	0.00000	2.00000
$c^*_{D/D}=c^*_{D/Y}/-(\alpha-s^*_{SP/Y})$															
0.04000 : Dividends are all saved.									$\gamma(t)=(1/s_P)(t)-\Omega(t)$		$c_{D/Y}(t)=\gamma(t)*s_{SP/Y}(t)$				
0.04000	s_P^0		s^0	c^0	Ω^0	θ^0			$1/s_P^0$	γ^0	$c_{D/Y}^0$	$c_{W/Y}^0$		**from CRC to CRC**	
0.04000	0.60000		0.05	0.95200	1.00000	1.00000			1.66667	0.66667	0.032	0.92000			
$s_{SP/Y}(t)$	$s_P(t)=s_{SP/P}(t)$	$1-s_P(t)$	$s(t)=s_{S/Y}(t)$	$c(t)=1-s(t)$	$\Omega(t)$	$\theta(t)$	$\Psi(t)$	$\mu(t)=(S/P)(t)$	$(1/s_P)(t)=\Omega(t)+\gamma(t)$	**gamma (t)**	$c_{D/Y}(t)$	$c_{W/Y}(t)$	$s_{WD/Y}(t)$	$s_{WD/WD}(t)$	$(\Omega+\gamma)/\Omega$
0.04713	0.58916	0.41084	0.04713	0.95287	1.00000	1.00000	1.00000	0.58916	1.69733	0.69733	0.03287	0.92000	0.00000	0.00000	1.69733
0.04628	0.57852	0.42148	0.04628	0.95372	1.00000	1.00000	1.00000	0.57852	1.72856	0.72856	0.03372	0.92000	0.00000	0.00000	1.72856
0.04545	0.56806	0.43194	0.04545	0.95455	1.00000	1.00000	1.00000	0.56806	1.76037	0.76037	0.03455	0.92000	0.00000	0.00000	1.76037
0.04462	0.55780	0.44220	0.04462	0.95538	1.00000	1.00000	1.00000	0.55780	1.79276	0.79276	0.03538	0.92000	0.00000	0.00000	1.79276
0.04382	0.54772	0.45228	0.04382	0.95618	1.00000	1.00000	1.00000	0.54772	1.82574	0.82574	0.03618	0.92000	0.00000	0.00000	1.82574
0.04303	0.53783	0.46217	0.04303	0.95697	1.00000	1.00000	1.00000	0.53783	1.85933	0.85933	0.03697	0.92000	0.00000	0.00000	1.85933
0.04225	0.52811	0.47189	0.04225	0.95775	1.00000	1.00000	1.00000	0.52811	1.89354	0.89354	0.03775	0.92000	0.00000	0.00000	1.89354
0.04149	0.51857	0.48143	0.04149	0.95851	1.00000	1.00000	1.00000	0.51857	1.92839	0.92839	0.03851	0.92000	0.00000	0.00000	1.92839
0.04074	0.50920	0.49080	0.04074	0.95926	1.00000	1.00000	1.00000	0.50920	1.96387	0.96387	0.03926	0.92000	0.00000	0.00000	1.96387
0.04000	**0.50000**	**0.50000**	**0.04000**	**0.96000**	**1.00000**	**1.00000**	**1.00000**	**0.50000**	**2.00000**	**1.00000**	**0.04000**	**0.92000**	**0.00000**	**0.00000**	**2.00000**
0.03928	0.49097	0.50903	0.03928	0.96072	1.00000	1.00000	1.00000	0.49097	2.03680	1.03680	0.04072	0.92000	0.00000	0.00000	2.03680
0.03857	0.48210	0.51790	0.03857	0.96143	1.00000	1.00000	1.00000	0.48210	2.07427	1.07427	0.04143	0.92000	0.00000	0.00000	2.07427
0.03787	0.47339	0.52661	0.03787	0.96213	1.00000	1.00000	1.00000	0.47339	2.11244	1.11244	0.04213	0.92000	0.00000	0.00000	2.11244
0.03719	0.46483	0.53517	0.03719	0.96281	1.00000	1.00000	1.00000	0.46483	2.15131	1.15131	0.04281	0.92000	0.00000	0.00000	2.15131
0.03651	0.45644	0.54356	0.03651	0.96349	1.00000	1.00000	1.00000	0.45644	2.19089	1.19089	0.04349	0.92000	0.00000	0.00000	2.19089
0.03586	0.44819	0.55181	0.03586	0.96414	1.00000	1.00000	1.00000	0.44819	2.23120	1.23120	0.04414	0.92000	0.00000	0.00000	2.23120
0.03521	0.44009	0.55991	0.03521	0.96479	1.00000	1.00000	1.00000	0.44009	2.27225	1.27225	0.04479	0.92000	0.00000	0.00000	2.27225
0.03457	0.43214	0.56786	0.03457	0.96543	1.00000	1.00000	1.00000	0.43214	2.31406	1.31406	0.04543	0.92000	0.00000	0.00000	2.31406
0.03395	0.42433	0.57567	0.03395	0.96605	1.00000	1.00000	1.00000	0.42433	2.35664	1.35664	0.04605	0.92000	0.00000	0.00000	2.35664
0.03333	0.41667	0.58333	0.03333	0.96667	1.00000	1.00000	1.00000	0.41667	2.40000	1.40000	0.04667	0.92000	0.00000	0.00000	2.40000
0.03273	0.40914	0.59086	0.03273	0.96727	1.00000	1.00000	1.00000	0.40914	2.44416	1.44416	0.04727	0.92000	0.00000	0.00000	2.44416
0.03214	0.40175	0.59825	0.03214	0.96786	1.00000	1.00000	1.00000	0.40175	2.48913	1.48913	0.04786	0.92000	0.00000	0.00000	2.48913
0.03156	0.39449	0.60551	0.03156	0.96844	1.00000	1.00000	1.00000	0.39449	2.53493	1.53493	0.04844	0.92000	0.00000	0.00000	2.53493
0.03099	0.38736	0.61264	0.03099	0.96901	1.00000	1.00000	1.00000	0.38736	2.58157	1.58157	0.04901	0.92000	0.00000	0.00000	2.58157
0.03043	0.38036	0.61964	0.03043	0.96957	1.00000	1.00000	1.00000	0.38036	2.62907	1.62907	0.04957	0.92000	0.00000	0.00000	2.62907
0.02988	0.37349	0.62651	0.02988	0.97012	1.00000	1.00000	1.00000	0.37349	2.67744	1.67744	0.05012	0.92000	0.00000	0.00000	2.67744
0.02934	0.36674	0.63326	0.02934	0.97066	1.00000	1.00000	1.00000	0.36674	2.72670	1.72670	0.05066	0.92000	0.00000	0.00000	2.72670

Private vs Public structurWPC99

A1-3 (3) Structure of the elasticity of substitution

					$S_D^{*0}=D^{*0}-C_D^{*0}$	$S_W^{*0}=S_{WD}^{*0}-S$	$S_W^{*0}=W^{*0}-C_W^{*0}$	$A^{*0}=C_D^{*0}+S_W$	$S_W^{*0}=A^{*0}-D^{*0}$						
					0.00000	0.0000	0.00000	11.00000	0.00000						
L^0	Y^0	W^0	S^0	S_{WD}^0	P^0	S_P^0	D^0	C_D^0	$C_D^0+S_{WD}^0$	$C_W^0=C^0-C_D^0$	C^0	$c_{C/L}^0=C^0/L^0$	$\Delta c_{C/L}^0$	$\sigma c_{C/L}^0=\Delta c_{C/L}^0/c_{C/L}^0$	$c_{C/Y}^0=C^0/Y^0$
25	275.0000	253.0000	11.0000	0.0000	22.0000	11.0000	11.0000	11.0000	11.0000	253.0000	264.0000	10.5600	-----	-----	0.9600
$L^*(t)$	$Y^*(t)$	$W^*(t)$	$S^*(t)$	$S^*_{WD}(t)$	$P^*(t)$	$S_P^*(t)$	$D^*(t)$	$C_D^*(t)$	$C_{D(t)}+S_{WD(t)}$	$C_w(t)=C(t)-C$	$C^*(t)=c^*(t)*Y^*(t)$	$c_{C/L}^*(t)=C^*(t)/L^*(t)$	$\Delta c_{C/L}^*(t)$	$\sigma c_{C/L}^*(t)=\Delta c^*(t)/$	$c_{C/Y}^*(t)=C^*(t)/Y^*(t)$
25.2500	286.4583	263.5417	11.4583	0.0000	22.9167	11.4583	11.4583	11.4583	11.4583	263.5417	275.0000	10.8911	44.0000	4.0400	0.9600
25.5025	298.3941	274.5226	11.9358	0.0000	23.8715	11.9358	11.9358	11.9358	11.9358	274.5226	286.4583	11.2326	45.3795	4.0400	0.9600
25.7575	310.8272	285.9610	12.4331	0.0000	24.8662	12.4331	12.4331	12.4331	12.4331	285.9610	298.3941	11.5847	46.8023	4.0400	0.9600
					$S_D^0=D^0-C_D^0$	$S_W^0=S_{WD}^0-S_D^0$	$S_W^0=W^0-C_W^0$	$A=C_D^0+S_{WD}^0$	$S_W^0=A^0-D^0$	Marginal rate of per capita consumption: $\Delta c_{C/L}(2)=((c_{C/L}(2)(1+n)-c_{C/L}(1))/n$					
					0.0000	0.0000	-0.00000	8.80000	0.00000			$c_{C/L}(t)=C(t)/L(t)=c_{C/Y}(t)*y(t)$	$\sigma c_{C/L}^0=\Delta c_{C/L}^0/c_{C/L}^0$		
L^0	Y^0	W^0	S^0	S_{WD}^0	P^0	S_P^0	D^0	C_D^0	$C_D^0+S_{WD}^0$	$C_W^0=C^0-C_D^0$	$C^0=c_{C/D}^0*Y$	$c_{C/L}^0=C^0/L^0$	$\Delta c_{C/L}^0$		$c_{C/Y}^0=C^0/Y^0$
25	275.0000	253.0000	13.2000	0.0000	22.0000	13.2000	8.8000	8.8000	8.8000	253.0000	261.8000	10.4720	-----	-----	0.9520
$L(t)$	$Y(t)$	$W(t)$	$S(t)=s_{S/Y}(t)*Y$	$S_{WD}(t)=S(t)-S_P$	$P(t)$	$S_P(t)$	$D(t)$	$C_D(t)=S_P(t)*\gamma$	$C_{D(t)}+S_{WD(t)}$	$C_w(t)=C(t)-C$	$C(t)=c(t)*Y(t)$	$c_{C/L}(t)=C(t)/L(t)$	$\Delta c_{C/L}(t)$	$\sigma c_{C/L}(t)=\Delta c(t)/c(t$	$c_{C/Y}(t)=C(t)/Y(t)$
25.2500	288.60	265.51	13.60	0.00	23.09	13.60	9.49	9.49	9.49	265.51	275.00	10.8911	52.80	4.8480	0.9529
25.5025	302.61	278.40	14.01	0.00	24.21	14.01	10.20	10.20	10.20	278.40	288.60	11.3166	53.87	4.7604	0.9537
25.7575	317.01	291.65	14.41	0.00	25.36	14.41	10.95	10.95	10.95	291.65	302.61	11.7483	54.92	4.6744	0.9546
26.0151	331.82	305.28	14.81	0.00	26.55	14.81	11.74	11.74	11.74	305.28	317.01	12.1858	55.93	4.5900	0.9554
26.2753	347.03	319.27	15.21	0.00	27.76	15.21	12.56	12.56	12.56	319.27	331.82	12.6287	56.92	4.5070	0.9562
26.5380	362.63	333.62	15.60	0.00	29.01	15.60	13.41	13.41	13.41	333.62	347.03	13.0766	57.87	4.4256	0.9570
26.8034	378.63	348.34	16.00	0.00	30.29	16.00	14.29	14.29	14.29	348.34	362.63	13.5293	58.79	4.3456	0.9578
27.0714	395.01	363.41	16.39	0.00	31.60	16.39	15.21	15.21	15.21	363.41	378.63	13.9862	59.68	4.2671	0.9585
27.3421	411.79	378.85	16.77	0.00	32.94	16.77	16.17	16.17	16.17	378.85	395.01	14.4471	60.53	4.1900	0.9593
27.6156	**428.95**	**394.63**	**17.16**	**0.00**	**34.32**	**17.16**	**17.16**	**17.16**	**17.16**	**394.63**	**411.79**	**14.9115**	**61.35**	**4.1143**	**0.9600**
27.8917	446.48	410.76	17.54	0.00	35.72	17.54	18.18	18.18	18.18	410.76	428.95	15.3790	62.13	4.0400	0.9607
28.1706	464.39	427.24	17.91	0.00	37.15	17.91	19.24	19.24	19.24	427.24	446.48	15.8492	62.87	3.9670	0.9614
28.4523	482.67	444.06	18.28	0.00	38.61	18.28	20.33	20.33	20.33	444.06	464.39	16.3218	63.58	3.8953	0.9621
28.7369	501.32	461.21	18.64	0.00	40.11	18.64	21.46	21.46	21.46	461.21	482.67	16.7963	64.25	3.8250	0.9628
29.0242	520.31	478.69	19.00	0.00	41.63	19.00	22.63	22.63	22.63	478.69	501.32	17.2723	64.87	3.7559	0.9635
29.3145	539.66	496.49	19.35	0.00	43.17	19.35	23.82	23.82	23.82	496.49	520.31	17.7494	65.46	3.6880	0.9641
29.6076	559.36	514.61	19.69	0.00	44.75	19.69	25.06	25.06	25.06	514.61	539.66	18.2272	66.01	3.6214	0.9648
29.9037	579.39	533.04	20.03	0.00	46.35	20.03	26.32	26.32	26.32	533.04	559.36	18.7053	66.51	3.5559	0.9654
30.2027	599.75	551.77	20.36	0.00	47.98	20.36	27.62	27.62	27.62	551.77	579.39	19.1833	66.98	3.4917	0.9661
30.5048	620.43	570.79	20.68	0.00	49.63	20.68	28.95	28.95	28.95	570.79	599.75	19.6608	67.41	3.4286	0.9667
30.8098	641.42	590.11	20.99	0.00	51.31	20.99	30.32	30.32	30.32	590.11	620.43	20.1374	67.80	3.3667	0.9673
31.1179	662.72	609.70	21.30	0.00	53.02	21.30	31.72	31.72	31.72	609.70	641.42	20.6127	68.14	3.3058	0.9679
31.4291	684.32	629.57	21.60	0.00	54.75	21.60	33.15	33.15	33.15	629.57	662.72	21.0863	68.45	3.2461	0.9684
31.7434	706.20	649.71	21.88	0.00	56.50	21.88	34.61	34.61	34.61	649.71	684.32	21.5579	68.71	3.1875	0.9690
32.0608	728.37	670.10	22.16	0.00	58.27	22.16	36.11	36.11	36.11	670.10	706.20	22.0270	68.94	3.1299	0.9696
32.3814	750.80	690.74	22.43	0.00	60.06	22.43	37.63	37.63	37.63	690.74	728.37	22.4934	69.13	3.0733	0.9701
32.7052	773.49	711.61	22.69	0.00	61.88	22.69	39.19	39.19	39.19	711.61	750.80	22.9566	69.28	3.0178	0.9707

A1-3 (4) Marginal rate is measured using the growth rate of the denominator

Marginal rate of profit to capital: $\Delta r(2)=((r(2)(1+g_K(2)-r(1))/g_K(2)$

$\Delta\Omega(2)=((\Omega(2)(1+g_Y(2)-\Omega(1))/g_Y(2)$

$\Delta y(2)=((y(2)(1+n)-y(1)$

$\Delta k(2)=((k(2)(1+n)-k(1))$

$\Delta c_{C/Y}^0$	$\sigma c_{C/Y}^0=\Delta c_{C/Y}^0/c_{C/Y}^0$	K^0	ΔK^0	Δr^0	ΔW^0	w^0	Δw^0	$\Delta r^0/\Delta w^0$	$(W^*K)^0$		1/MPK		MPK	MPL	
-----	-----	275.000	-----	$=\Delta P/\Delta K$	-----	10.1200	$=\Delta W/\Delta L$	-----	69575		$=\Delta K/\Delta Y$		$=\Delta Y/\Delta K$	$=\Delta Y/\Delta L$	
$\Delta c_{C/Y}(t)$	$\sigma c_{C/Y}(t)=\Delta c(t)/c(t)$	K(t)	ΔK(t)	Δr(t)	ΔW(t)	w(t)	Δw(t)	$(\Delta r^0/\Delta w^0)(t)$	(W*K)(t)	$g_{WK}(t)$	ΔΩ(t)	$\sigma_\Omega=\Delta\Omega/\Omega$	=1/ΔΩ(t)	Δy	$\sigma_y=\Delta y/y$
0.9600	1.0000	286.458	11.4583	0.080000	10.5417	10.4373	42.1667	0.00190	75494	0.085069	1.000000	1.000000	1.000000	45.83333	4.0400
0.9600	1.0000	298.394	11.9358	0.080000	10.9809	10.7645	43.4887	0.00184	81916	0.085069	1.000000	1.000000	1.000000	47.27035	4.0400
0.9600	1.0000	310.827	12.4331	0.080000	11.4384	11.1020	44.8522	0.00178	88884	0.085069	1.000000	1.000000	1.000000	48.75243	4.0400

$\sigma c_{C/L}(t)=\sigma c_{C/Y}(t)^*\sigma_y(t)$

$\sigma c_{C/Y}^0=\Delta c_{C/Y}^0/c_{C/Y}^0$

$\Delta c_{C/Y}^0$		K^0	ΔK^0	Δr^0	ΔW^0	w^0	Δw^0	$\Delta r^0/\Delta w^0$	$(W^*K)^0$		1/MPK		MPK	MPL	
-----	-----	275.000	-----	$=\Delta P/\Delta K$	-----	10.1200	$=\Delta W/\Delta L$	-----	69575		$=\Delta K/\Delta Y$		$=\Delta Y/\Delta K$	$=\Delta Y/\Delta L$	
$\Delta c_{C/Y}(t)$	$\sigma c_{C/Y}(t)=\Delta c(t)/c(t)$	K(t)	ΔK(t)	Δr(t)	ΔW(t)	w(t)	Δw(t)	$(\Delta r^0/\Delta w^0)(t)$	(W*K)(t)	$g_{WK}(t)$	ΔΩ(t)	$\sigma_\Omega=\Delta\Omega/\Omega$	=1/ΔΩ(t)	Δy	$\sigma_y=\Delta y/y$
0.9704	1.0184	288.60	13.60	0.080000	12.51	10.515	50.058	0.00160	76628	0.101375	1.000000	1.000000	1.000000	54.41	4.7604
0.9713	1.0184	302.61	14.01	0.080000	12.88	10.917	51.028	0.00157	84246	0.099409	1.000000	1.000000	1.000000	55.47	4.6744
0.9721	1.0184	317.01	14.41	0.080000	13.25	11.323	51.972	0.00154	92458	0.097484	1.000000	1.000000	1.000000	56.49	4.5900
0.9730	1.0184	331.82	14.81	0.080000	13.62	11.735	52.888	0.00151	101297	0.095598	1.000000	1.000000	1.000000	57.49	4.5070
0.9738	1.0184	347.03	15.21	0.080000	13.99	12.151	53.775	0.00149	110794	0.093752	1.000000	1.000000	1.000000	58.45	4.4256
0.9746	1.0184	362.63	15.60	0.080000	14.35	12.571	54.631	0.00146	120981	0.091943	1.000000	1.000000	1.000000	59.38	4.3456
0.9754	1.0184	378.63	16.00	0.080000	14.72	12.996	55.456	0.00144	131890	0.090171	1.000000	1.000000	1.000000	60.28	4.2671
0.9762	1.0184	395.01	16.39	0.080000	15.08	13.424	56.248	0.00142	143553	0.088435	1.000000	1.000000	1.000000	61.14	4.1900
0.9769	1.0184	411.79	16.77	0.080000	15.43	13.856	57.007	0.00140	156004	0.086735	1.000000	1.000000	1.000000	61.96	4.1143
0.9777	**1.0184**	**428.95**	**17.16**	**0.080000**	**15.79**	**14.290**	**57.732**	**0.00139**	**169276**	**0.085069**	**1.000000**	**1.000000**	**1.000000**	**62.75**	**4.0400**
0.9784	1.0184	446.48	17.54	0.080000	16.13	14.727	58.423	0.00137	183400	0.083438	1.000000	1.000000	1.000000	63.50	3.9670
0.9791	1.0184	464.39	17.91	0.080000	16.48	15.166	59.078	0.00135	198409	0.081839	1.000000	1.000000	1.000000	64.21	3.8953
0.9798	1.0184	482.67	18.28	0.080000	16.82	15.607	59.697	0.00134	214335	0.080272	1.000000	1.000000	1.000000	64.89	3.8250
0.9805	1.0184	501.32	18.64	0.080000	17.15	16.049	60.279	0.00133	231212	0.078738	1.000000	1.000000	1.000000	65.52	3.7559
0.9812	1.0184	520.31	19.00	0.080000	17.48	16.493	60.825	0.00132	249069	0.077234	1.000000	1.000000	1.000000	66.11	3.6880
0.9819	1.0184	539.66	19.35	0.080000	17.80	16.937	61.334	0.00130	267939	0.075760	1.000000	1.000000	1.000000	66.67	3.6214
0.9825	1.0184	559.36	19.69	0.080000	18.12	17.381	61.806	0.00129	287851	0.074316	1.000000	1.000000	1.000000	67.18	3.5559
0.9832	1.0184	579.39	20.03	0.080000	18.43	17.825	62.240	0.00129	308835	0.072901	1.000000	1.000000	1.000000	67.65	3.4917
0.9838	1.0184	599.75	20.36	0.080000	18.73	18.269	62.637	0.00128	330921	0.071514	1.000000	1.000000	1.000000	68.08	3.4286
0.9845	1.0184	620.43	20.68	0.080000	19.03	18.712	62.996	0.00127	354137	0.070155	1.000000	1.000000	1.000000	68.47	3.3667
0.9851	1.0184	641.42	20.99	0.080000	19.31	19.153	63.318	0.00126	378509	0.068822	1.000000	1.000000	1.000000	68.82	3.3058
0.9857	1.0184	662.72	21.30	0.080000	19.60	19.593	63.602	0.00126	404065	0.067517	1.000000	1.000000	1.000000	69.13	3.2461
0.9863	1.0184	684.32	21.60	0.080000	19.87	20.032	63.850	0.00125	430829	0.066237	1.000000	1.000000	1.000000	69.40	3.1875
0.9868	1.0184	706.20	21.88	0.080000	20.13	20.467	64.061	0.00125	458826	0.064983	1.000000	1.000000	1.000000	69.63	3.1299
0.9874	1.0184	728.37	22.16	0.080000	20.39	20.901	64.235	0.00125	488077	0.063753	1.000000	1.000000	1.000000	69.82	3.0733
0.9880	1.0184	750.80	22.43	0.080000	20.64	21.331	64.374	0.00124	518605	0.062548	1.000000	1.000000	1.000000	69.97	3.0178
0.9885	1.0184	773.49	22.69	0.080000	20.88	21.758	64.476	0.00124	550430	0.061366	1.000000	1.000000	1.000000	70.08	2.9633

Private vs Public structurWPC99

A1-3 (5)	$\Delta(r/w)(2)=((r/w)(2)(1+g_{WK}(2)-(r/w)(1))/g_{WK}(2)$	Elasticity of substitution, $\sigma(t)$	$\sigma_{CY}{}^*(t)=\sigma_{C/L}{}^*(t)/\sigma_y{}^*(t)$	$\sigma_\Omega{}^*(t)=\sigma_k{}^*(t)/\sigma_y{}^*(t)$	$\sigma r^*(t)=\Delta r^*(t)/r^*(t)$	$\sigma_\alpha{}^*(t)=\sigma_\Omega{}^*(t)*\sigma_r{}^*(t)$
n	where, $g_{WK}(2)=((W*K)(2)-(W*K)(1))/(W*K)(1)$	$\sigma(t)=(\Delta k/k)/(\Delta(r/w)(t)/(r/w)(t))$	1.000000	1.000000	1.000000	1.000000

(A): $\sigma_k=\sigma_\Omega*\sigma_y$ $=\Delta k/k$	Marginal rate $=\Delta K/\Delta L$ Δk	$\Delta(r/w)(t)$	$(r/w)^0$ 0.007905 $r/w(t)$	(B): $\sigma(r/w)(t)=\Delta(r/w)(t)/(r/w)(t)$ $\Delta(r/w)(t)/(r/w)(t)$	$\sigma(t)=(A)/(B)$	Y=wL+rK is confirmed Y=wL+rK	$p_w{}^*(t)=1/\sigma y^*(t)$ $p_w=(w/MPL)/(1-\alpha)$	$p_r{}^*(t)=\sigma_\Omega{}^*(t)$ $p_r=(r/MPK)/\alpha$	$\Delta\gamma^*(t)$	$\sigma^*\gamma(t)=\Delta\gamma^*(t)/\gamma^*(t)$	$\Delta\theta^*(t)$	$\sigma\theta^*(t)=\Delta\theta^*(t)/\theta^*(t)$	$\zeta^*=C_D{}^*/S^*=\gamma^*/\theta^*$	$\Delta\zeta^*(t)$	$\sigma\zeta^*(t)=\Delta\zeta^*(t)/\zeta^*(t)$
4.0400	45.8333	0.004840	0.007665	0.631441	6.398067	286.458	0.24752	1.00000	1	1	1	1	1.000000	1.000000	1
4.0400	47.2704	0.004693	0.007432	0.631441	6.398067	298.394	0.24752	1.00000	1	1	1	1	1.000000	1.000000	1
4.0400	48.7524	0.004550	0.007206	0.631441	6.398067	310.827	0.24752	1.00000	1	1	1	1	1.000000	1.000000	1

(A): $\sigma_k=\sigma_\Omega*\sigma_y$ $=\Delta k/k$	Marginal rate $=\Delta K/\Delta L$ Δk	$\Delta(r/w)(t)$	$(r/w)^0$ 0.007905 $r/w(t)$	(B): $\sigma(r/w)(t)=\Delta(r/w)(t)/(r/w)(t)$ $\Delta(r/w)(t)/(r/w)(t)$	$\sigma(t)=(A)/(B)$	Y=wL+rK is confirmed Y=wL+rK	$p_w(t)=1/\sigma y(t)$ $p_w=(w/MPL)/(1-\alpha)$	$p_r(t)=\sigma_\Omega(t)$ $p_r=(r/MPK)/\alpha$	$\Delta\gamma(t)$	$\sigma\gamma(t)=\Delta\gamma(t)/\gamma(t)$	$\Delta\theta(t)$	$\sigma\theta(t)=\Delta\theta(t)/\theta(t)$	$\zeta=C_D/S=\gamma/\theta$	$\Delta\zeta(t)$	$\sigma\zeta(t)=\Delta\zeta(t)/\zeta(t)$
4.7604	54.41	0.004676	0.007608	0.614566	7.745978	288.603	0.21007	1.00000	-1.000000	-1.434037	1.000000	1.000000	0.697332	1.702646	2.441656
4.6744	55.47	0.004516	0.007328	0.616276	7.584922	302.608	0.21393	1.00000	-1.000000	-1.372567	1.000000	1.000000	0.728562	1.784215	2.448954
4.5900	56.49	0.004367	0.007065	0.618026	7.426793	317.014	0.21787	1.00000	-1.000000	-1.315155	1.000000	1.000000	0.760367	1.869249	2.458352
4.5070	57.49	0.004226	0.006817	0.619817	7.271547	331.822	0.22188	1.00000	-1.000000	-1.261422	1.000000	1.000000	0.792756	1.957956	2.469808
4.4256	58.45	0.004093	0.006584	0.621648	7.119136	347.028	0.22596	1.00000	-1.000000	-1.211032	1.000000	1.000000	0.825742	2.050565	2.483301
4.3456	59.38	0.003968	0.006364	0.623521	6.969517	362.630	0.23012	1.00000	-1.000000	-1.163691	1.000000	1.000000	0.859334	2.147323	2.498821
4.2671	60.28	0.003850	0.006156	0.625436	6.822643	378.627	0.23435	1.00000	-1.000000	-1.119138	1.000000	1.000000	0.893545	2.248497	2.516378
4.1900	61.14	0.003739	0.005959	0.627394	6.678473	395.014	0.23866	1.00000	-1.000000	-1.077139	1.000000	1.000000	0.928385	2.354379	2.535994
4.1143	61.96	0.003634	0.005774	0.629395	6.536962	411.789	0.24305	1.00000	-1.000000	-1.037489	1.000000	1.000000	0.963866	2.465286	2.557706
4.0400	**62.75**	**0.003535**	**0.005598**	**0.631441**	**6.398067**	**428.947**	**0.24752**	**1.00000**	**-1.000000**	**-1.000000**	**1.000000**	**1.000000**	**1.000000**	**2.581566**	**2.581566**
3.9670	63.50	0.003441	0.005432	0.633531	6.261748	446.483	0.25208	1.00000	-1.000000	-0.964507	1.000000	1.000000	1.036799	2.703597	2.607639
3.8953	64.21	0.003353	0.005275	0.635666	6.127961	464.394	0.25672	1.00000	-1.000000	-0.930861	1.000000	1.000000	1.074275	2.831795	2.636006
3.8250	64.89	0.003270	0.005126	0.637848	5.996668	482.673	0.26144	1.00000	-1.000000	-0.898925	1.000000	1.000000	1.112440	2.966616	2.666765
3.7559	65.52	0.003191	0.004985	0.640076	5.867826	501.315	0.26625	1.00000	-1.000000	-0.868578	1.000000	1.000000	1.151308	3.108564	2.700029
3.6880	66.11	0.003116	0.004851	0.642352	5.741397	520.315	0.27115	1.00000	-1.000000	-0.839708	1.000000	1.000000	1.190890	3.258193	2.735931
3.6214	66.67	0.003045	0.004723	0.644676	5.617342	539.664	0.27614	1.00000	-1.000000	-0.812215	1.000000	1.000000	1.231201	3.416117	2.774621
3.5559	67.18	0.002978	0.004603	0.647050	5.495622	559.358	0.28122	1.00000	-1.000000	-0.786007	1.000000	1.000000	1.272254	3.583017	2.816275
3.4917	67.65	0.002915	0.004488	0.649473	5.376199	579.388	0.28639	1.00000	-1.000000	-0.760999	1.000000	1.000000	1.314062	3.759651	2.861091
3.4286	68.08	0.002855	0.004379	0.651947	5.259035	599.747	0.29166	1.00000	-1.000000	-0.737116	1.000000	1.000000	1.356639	3.946862	2.909294
3.3667	68.47	0.002798	0.004275	0.654472	5.144094	620.428	0.29703	1.00000	-1.000000	-0.714286	1.000000	1.000000	1.400000	4.145598	2.961141
3.3058	68.82	0.002744	0.004177	0.657050	5.031340	641.423	0.30249	1.00000	-1.000000	-0.692445	1.000000	1.000000	1.444159	4.356919	3.016926
3.2461	69.13	0.002693	0.004083	0.659681	4.920736	662.723	0.30806	1.00000	-1.000000	-0.671533	1.000000	1.000000	1.489129	4.582022	3.076980
3.1875	69.40	0.002645	0.003994	0.662366	4.812247	684.319	0.31373	1.00000	-1.000000	-0.651496	1.000000	1.000000	1.534928	4.822258	3.141684
3.1299	69.63	0.002600	0.003909	0.665106	4.705839	706.204	0.31950	1.00000	-1.000000	-0.632284	1.000000	1.000000	1.581569	5.079163	3.211471
3.0733	69.82	0.002556	0.003828	0.667901	4.601477	728.367	0.32538	1.00000	-1.000000	-0.613848	1.000000	1.000000	1.629068	5.354487	3.286840
3.0178	69.97	0.002516	0.003750	0.670754	4.499128	750.800	0.33137	1.00000	-1.000000	-0.596146	1.000000	1.000000	1.677441	5.650232	3.368363
2.9633	70.08	0.002477	0.003677	0.673664	4.398758	773.494	0.33746	1.00000	-1.000000	-0.579138	1.000000	1.000000	1.726705	5.968705	3.456703

Appendix 1-4 Case study of the Kamiryo Model by gamma, $Y=S_P+S_D+S_W+C_D+C_W$: both $s_{S/Y}$ and $s_{SP/Y}$ are variables **(1)** $g_Y(t)=s_{SP/Y}(t)/(1-s_{SP/Y}(t))$ $I/Y^0(t)=s_{S/Y}(t)(1+g_Y(t))$ $g_K(t)=(I/Y^0)(t)/\Omega(t-1)$

PUBLIC A/C (3) **1 Balanced growth-state: $g^*_Y=g^*_{KP}=g_Y=g_{KP}$ Ω is constant and $s^*_{SP/Y}$ is not equal to n under $\lambda=0$ Undistributed profit, S_P, corresponds with taxes used for investment.**

gamma		$L^0=$	n	Ω^0	α	k^0	$s^*_{SP/P}$	$s^*_{SP/Y}$	$s^*_{SWD/WD}$	$s^*_{SWD/Y}$	$s^*_{S/Y}=s^*_{SP/Y}\Omega^0$		variables	y^0	r^0
0		25	0.01	1	0:08	11	1.00000	0.08000	0.00000	0.00000	0.08			11.000000	0.080000
$\theta=S/S_P=\Omega=K/Y$		time	$g^*_Y(t)$	$g^*_K(t)$	$g^*_k(t)$	$g^*_y(t)$	$g^*_\Omega(t)$	$\Omega^*(t)$	$c^*_{D/Y}=\alpha-s^*_{S/}$	$r^*(t)$	$k^*(t)$	$y^*(t)$	$I/Y^{0*}(t)$	$A^*(t)$	$\lambda^*(t)$
1		1	0.086957	0.086957	0.076195	0.076195	0.000000	1.000000	0.000000	0.080000	11.838140	11.838140	0.086957	0.876238	-----
		2	0.086957	0.086957	0.076195	0.076195	0.000000	1.000000	0.000000	0.080000	12.740142	12.740142	0.086957	0.876238	0.000000
		3	0.086957	0.086957	0.076195	0.076195	0.000000	1.000000	0.000000	0.080000	13.710872	13.710872	0.086957	0.876238	0.000000

from CRC to CRC

2 Unbalanced growth-state **Ω, $s_{SP/Y}$, and $s_{S/Y}$ are variables, where saving differs from profit**

$a=s^*_{S/Y}/s^0_{S/Y}$	$g_{sS/Y}=a^{\wedge}(1/10)-1$	$\theta^*=s^*_{S/Y}/s^*_{SP/Y}$	$\Psi^*=\Omega^0/\theta^*$	$A(t)=g_y(t)/(I/Y^0)$
1.6666667	0.052410	1.000000	1.000000	$\lambda=(A(t)-A(t-1))/A(t-1)$

$b=s^*_{SP/Y}/s^0_{SP/Y}$	$g_{sSP/Y}=b^{\wedge}(1/10)-1$	$L^0=$	n	Ω^0	α	k^0	$s^0_{SP/P}$	$s^0_{SP/Y}$	$s^0_{SWD/WD}$	$s^0_{SWD/Y}$	$s^0_{S/Y}$	$\theta^0=s^0_{S/Y}/s^0_{SP/}$	$\Psi^0=\Omega^0/\theta^0$	y^0	r^0
1.666667	0.052410	25	0.01	1	0.08	11	**0.60**	0.048000	**0.0**	0.0	0.04800	1.000000	1.000000	11.000000	0.080000
$\theta(t)=s_{S/Y}(t)/s_{SP/Y}(t)$	$\Psi(t)=\Omega^0/\theta(t)$	time	$g_Y(t)=s_{SP/Y}(t)/(1-s_{SP/}$	$g_K(t)$	$g_k(t)$	$g_y(t)$	$g_\Omega(t)$	$\Omega(t)$	$s_{S/Y}(t)$	r(t)	k(t)	y(t)	$I/Y^0(t)$	A(t)	$\lambda(t)$
1.000000	1.000000	1	0.053203	0.053203	0.042776	0.042776	0.000000	1.000000	0.050516	0.080000	11.4705	11.4705	0.053203	0.804002	-----
1.000000	1.000000	2	0.056148	0.056148	0.045691	0.045691	0.000000	1.000000	0.053163	0.080000	11.9946	11.9946	0.056148	0.813762	0.012140
1.000000	1.000000	3	0.059265	0.059265	0.048778	0.048778	0.000000	1.000000	0.055949	0.080000	12.5797	12.5797	0.059265	0.823037	0.011397
1.000000	1.000000	4	0.062566	0.062566	0.052045	0.052045	0.000000	1.000000	0.058882	0.080000	13.2344	13.2344	0.062566	0.831850	0.010708
1.000000	1.000000	5	0.066061	0.066061	0.055506	0.055506	0.000000	1.000000	0.061968	0.080000	13.9690	13.9690	0.066061	0.840223	0.010067
1.000000	1.000000	6	0.069765	0.069765	0.059173	0.059173	0.000000	1.000000	0.065215	0.080000	14.7956	14.7956	0.069765	0.848180	0.009470
1.000000	1.000000	7	0.073691	0.073691	0.063060	0.063060	0.000000	1.000000	0.068633	0.080000	15.7286	15.7286	0.073691	0.855741	0.008914
1.000000	1.000000	8	0.077854	0.077854	0.067182	0.067182	0.000000	1.000000	0.072230	0.080000	16.7853	16.7853	0.077854	0.862925	0.008395
1.000000	1.000000	9	0.082270	0.082270	0.071554	0.071554	0.000000	1.000000	0.076016	0.080000	17.9864	17.9864	0.082270	0.869751	0.007911
1.000000	**1.000000**	**10**	**0.086957**	**0.086957**	**0.076195**	**0.076195**	**0.000000**	**1.000000**	**0.080000**	**0.080000**	**19.3568**	**19.3568**	**0.086957**	**0.876238**	**0.007458**
1.000000	1.000000	11	0.091933	0.091933	0.081122	0.081122	0.000000	1.000000	0.084193	0.080000	20.9271	20.9271	0.091933	0.882401	0.007034
1.000000	1.000000	12	0.097219	0.097219	0.086356	0.086356	0.000000	1.000000	0.088605	0.080000	22.7343	22.7343	0.097219	0.888257	0.006637
1.000000	1.000000	13	0.102839	0.102839	0.091920	0.091920	0.000000	1.000000	0.093249	0.080000	24.8240	24.8240	0.102839	0.893822	0.006265
1.000000	1.000000	14	0.108815	0.108815	0.097837	0.097837	0.000000	1.000000	0.098136	0.080000	27.2527	27.2527	0.108815	0.899110	0.005916
1.000000	1.000000	15	0.115175	0.115175	0.104133	0.104133	0.000000	1.000000	0.103280	0.080000	30.0906	30.0906	0.115175	0.904134	0.005588
1.000000	1.000000	16	0.121947	0.121947	0.110839	0.110839	0.000000	1.000000	0.108692	0.080000	33.4258	33.4258	0.121947	0.908908	0.005280
1.000000	1.000000	17	0.129164	0.129164	0.117984	0.117984	0.000000	1.000000	0.114389	0.080000	37.3695	37.3695	0.129164	0.913445	0.004991
1.000000	1.000000	18	0.136860	0.136860	0.125604	0.125604	0.000000	1.000000	0.120384	0.080000	42.0633	42.0633	0.136860	0.917755	0.004719
1.000000	1.000000	19	0.145073	0.145073	0.133736	0.133736	0.000000	1.000000	0.126693	0.080000	47.6886	47.6886	0.145073	0.921851	0.004463
1.000000	1.000000	20	0.153846	0.153846	0.142422	0.142422	0.000000	1.000000	0.133333	0.080000	54.4805	54.4805	0.153846	0.925743	0.004222
1.000000	1.000000	21	0.163225	0.163225	0.151708	0.151708	0.000000	1.000000	0.140321	0.080000	62.7457	62.7457	0.163225	0.929441	0.003995
1.000000	1.000000	22	0.173262	0.173262	0.161646	0.161646	0.000000	1.000000	0.147676	0.080000	72.8882	72.8882	0.173262	0.932954	0.003781
1.000000	1.000000	23	0.184014	0.184014	0.172291	0.172291	0.000000	1.000000	0.155415	0.080000	85.4462	85.4462	0.184014	0.936293	0.003579
1.000000	1.000000	24	0.195544	0.195544	0.183707	0.183707	0.000000	1.000000	0.163560	0.080000	101.1432	101.1432	0.195544	0.939466	0.003388
1.000000	1.000000	25	0.207923	0.207923	0.195963	0.195963	0.000000	1.000000	0.172133	0.080000	120.96	120.96	0.207923	0.942480	0.003209
1.000000	1.000000	26	0.221231	0.221231	0.209139	0.209139	0.000000	1.000000	0.181154	0.080000	146.26	146.26	0.221231	0.945345	0.003039
1.000000	1.000000	27	0.235557	0.235557	0.223324	0.223324	0.000000	1.000000	0.190648	0.080000	178.93	178.93	0.235557	0.948067	0.002879

Private vs Public structurWPC99

A1-4 (2) Relationships among saving, profit, undistributed profit, dividends, saved dividends, consumed dividends, saved wages, and consumed wages: using ratios

									$\gamma(t)=(1/s_P)(t)-\Omega(t)$		$c_{D/Y}(t)=\gamma(t)*s_{SP/Y}(t)$		$s_{WD/WD}(t)=s_{WD/Y}(t)/(1-s_{SP/Y}(t))$		
gamma given			s^0	c^0	Ω^0	θ^0				γ^0	$c_{D/Y}{}^0$	$c_{W/Y}{}^0$			
0			0.08	0.92000	1.00000	1.00000				0	0.00000	0.92000			
$s_{SP/Y}{}^*(t)$	$s^*_P(t)=s^*_{SP/P}($	$1-s^*_P(t)$	$s^*(t)=s^*_{S/Y}(t)$	$c^*(t)=1-s^*(t$	$\Omega^*(t)$	$\theta^*(t)$	$\Psi^*(t)$	$\mu^*(t)=(S/P)^*(t)$	$(1/s_P)^*(t)=\Omega+\gamma$	$\gamma^*(t)=(1/s_P)(t)-\Omega(t)$	$c^*_{D/Y}(t)=\gamma(t)*s$	$c^*_{W/Y}(t)$	$s^*_{WD/Y}(t)$	$s^*_{WD/WD}(t)$	$(\Omega+\gamma)/\Omega$
0.08000	1.00000	0.00000	0.08000	0.92000	1.00000	1.00000	1.00000	1.00000	1.00000	0.00000	0.00000	0.92000	0.00000	0.00000	1.00000
0.08000	1.00000	0.00000	0.08000	0.92000	1.00000	1.00000	1.00000	1.00000	1.00000	0.00000	0.00000	0.92000	0.00000	0.00000	1.00000
0.08000	1.00000	0.00000	0.08000	0.92000	1.00000	1.00000	1.00000	1.00000	1.00000	0.00000	0.00000	0.92000	0.00000	0.00000	1.00000
$c^*_{D/D}=c^*_{D/Y}/-(\alpha-s^*_{SP/Y})$															
0.00000 : Dividends are all saved.															
										$\gamma(t)=(1/s_P)(t)-\Omega(t)$	$c_{D/Y}(t)=\gamma(t)*s_{SP/Y}(t)$				
0.00000	$s_P{}^0$		s^0	c^0	Ω^0	θ^0			$1/s_P{}^0$	γ^0	$c_{D/Y}{}^0$	$c_{W/Y}{}^0$			**from CRC to CRC**
0.00000	0.60000		0.05	0.95200	1.00000	1.00000			1.66667	0.66667	0.032	0.92000			
$s_{SP/Y}(t)$	$s_P(t)=s_{SP/P}(t)$	$1-s_P(t)$	$s(t)=s_{S/Y}(t)$	$c(t)=1-s(t)$	$\Omega(t)$	$\theta(t)$	$\Psi(t)$	$\mu(t)=(S/P)(t)$	$(1/s_P)(t)=\Omega(t)+\gamma(t)$	**gamma (t)**	$c_{D/Y}(t)$	$c_{W/Y}(t)$	$s_{WD/Y}(t)$	$s_{WD/WD}(t)$	$(\Omega+\gamma)/\Omega$
0.05052	0.63145	0.36855	0.05052	0.94948	1.00000	1.00000	1.00000	0.63145	1.58367	0.58367	0.02948	0.92000	0.00000	0.00000	1.58367
0.05316	0.66454	0.33546	0.05316	0.94684	1.00000	1.00000	1.00000	0.66454	1.50480	0.50480	0.02684	0.92000	0.00000	0.00000	1.50480
0.05595	0.69937	0.30063	0.05595	0.94405	1.00000	1.00000	1.00000	0.69937	1.42986	0.42986	0.02405	0.92000	0.00000	0.00000	1.42986
0.05888	0.73602	0.26398	0.05888	0.94112	1.00000	1.00000	1.00000	0.73602	1.35866	0.35866	0.02112	0.92000	0.00000	0.00000	1.35866
0.06197	0.77460	0.22540	0.06197	0.93803	1.00000	1.00000	1.00000	0.77460	1.29099	0.29099	0.01803	0.92000	0.00000	0.00000	1.29099
0.06522	0.81519	0.18481	0.06522	0.93478	1.00000	1.00000	1.00000	0.81519	1.22670	0.22670	0.01478	0.92000	0.00000	0.00000	1.22670
0.06863	0.85792	0.14208	0.06863	0.93137	1.00000	1.00000	1.00000	0.85792	1.16561	0.16561	0.01137	0.92000	0.00000	0.00000	1.16561
0.07223	0.90288	0.09712	0.07223	0.92777	1.00000	1.00000	1.00000	0.90288	1.10757	0.10757	0.00777	0.92000	0.00000	0.00000	1.10757
0.07602	0.95020	0.04980	0.07602	0.92398	1.00000	1.00000	1.00000	0.95020	1.05241	0.05241	0.00398	0.92000	0.00000	0.00000	1.05241
0.08000	**1.00000**	**0.00000**	**0.08000**	**0.92000**	**1.00000**	**1.00000**	**1.00000**	**1.00000**	**1.00000**	**0.00000**	**0.00000**	**0.92000**	**0.00000**	**0.00000**	**1.00000**
0.08419	1.05241	-0.05241	0.08419	0.91581	1.00000	1.00000	1.00000	1.05241	0.95020	-0.04980	-0.00419	0.92000	0.00000	0.00000	0.95020
0.08861	1.10757	-0.10757	0.08861	0.91139	1.00000	1.00000	1.00000	1.10757	0.90288	-0.09712	-0.00861	0.92000	0.00000	0.00000	0.90288
0.09325	1.16561	-0.16561	0.09325	0.90675	1.00000	1.00000	1.00000	1.16561	0.85792	-0.14208	-0.01325	0.92000	0.00000	0.00000	0.85792
0.09814	1.22670	-0.22670	0.09814	0.90186	1.00000	1.00000	1.00000	1.22670	0.81519	-0.18481	-0.01814	0.92000	0.00000	0.00000	0.81519
0.10328	1.29099	-0.29099	0.10328	0.89672	1.00000	1.00000	1.00000	1.29099	0.77460	-0.22540	-0.02328	0.92000	0.00000	0.00000	0.77460
0.10869	1.35866	-0.35866	0.10869	0.89131	1.00000	1.00000	1.00000	1.35866	0.73602	-0.26398	-0.02869	0.92000	0.00000	0.00000	0.73602
0.11439	1.42986	-0.42986	0.11439	0.88561	1.00000	1.00000	1.00000	1.42986	0.69937	-0.30063	-0.03439	0.92000	0.00000	0.00000	0.69937
0.12038	1.50480	-0.50480	0.12038	0.87962	1.00000	1.00000	1.00000	1.50480	0.66454	-0.33546	-0.04038	0.92000	0.00000	0.00000	0.66454
0.12669	1.58367	-0.58367	0.12669	0.87331	1.00000	1.00000	1.00000	1.58367	0.63145	-0.36855	-0.04669	0.92000	0.00000	0.00000	0.63145
0.13333	1.66667	-0.66667	0.13333	0.86667	1.00000	1.00000	1.00000	1.66667	0.60000	-0.40000	-0.05333	0.92000	0.00000	0.00000	0.60000
0.14032	1.75402	-0.75402	0.14032	0.85968	1.00000	1.00000	1.00000	1.75402	0.57012	-0.42988	-0.06032	0.92000	0.00000	0.00000	0.57012
0.14768	1.84594	-0.84594	0.14768	0.85232	1.00000	1.00000	1.00000	1.84594	0.54173	-0.45827	-0.06768	0.92000	0.00000	0.00000	0.54173
0.15542	1.94269	-0.94269	0.15542	0.84458	1.00000	1.00000	1.00000	1.94269	0.51475	-0.48525	-0.07542	0.92000	0.00000	0.00000	0.51475
0.16356	2.04451	-1.04451	0.16356	0.83644	1.00000	1.00000	1.00000	2.04451	0.48912	-0.51088	-0.08356	0.92000	0.00000	0.00000	0.48912
0.17213	2.15166	-1.15166	0.17213	0.82787	1.00000	1.00000	1.00000	2.15166	0.46476	-0.53524	-0.09213	0.92000	0.00000	0.00000	0.46476
0.18115	2.26443	-1.26443	0.18115	0.81885	1.00000	1.00000	1.00000	2.26443	0.44161	-0.55839	-0.10115	0.92000	0.00000	0.00000	0.44161
0.19065	2.38310	-1.38310	0.19065	0.80935	1.00000	1.00000	1.00000	2.38310	0.41962	-0.58038	-0.11065	0.92000	0.00000	0.00000	0.41962

Private vs Public structurWPC99

A1-4 (3)	Structure of the elasticity of substitution				$S_D^{*0}=D^{*0}-C_D^{*0}$	$S_W^{*0}=S_{WD}^{*0}-S$	$S_W^{*0}=W^{*0}-C_W^{*0}$	$A^{*0}=C_D^{*0}+S_W$	$S_W^{*0}=A^{*0}-D^{*0}$						
					0.00000	0.0000	0.00000	0.00000	0.00000						
L^0	Y^0	W^0	S^0	S_{WD}^0	P^0	S_P^0	D^0	C_D^0	$C_D^0+S_{WD}^0$	$C_W^0=C^0-C_D^0$	C^0	$c_{C/L}^0=C^0/L^0$	$\Delta c_{C/L}^0$	$\sigma c_{C/L}^0=\Delta c_{C/L}^0/c_{C/L}^0$	$c_{C/Y}^0=C^0/Y^0$
25	275.0000	253.0000	22.0000	0.0000	22.0000	22.0000	0.0000	0.0000	0.0000	253.0000	253.0000	10.1200	-----	-----	0.9200
$L^*(t)$	$Y^*(t)$	$W^*(t)$	$S^*(t)$	$S^*_{WD}(t)$	$P^*(t)$	$S_P^*(t)$	$D^*(t)$	$C_D^*(t)$	$C_{D(t)}+S_{WD(t)}$	$C_w(t)=C(t)-C$	$C^*(t)=c^*(t)*Y^*(t)$	$c_{C/L}^*(t)=C^*(t)/L^*(t)$	$\Delta c_{C/L}^*(t)$	$\sigma c_{C/L}^*(t)=\Delta c^*(t)/$	$c_{C/Y}^*(t)=C^*(t)/Y^*(t)$
25.2500	298.9130	275.0000	23.9130	0.0000	23.9130	23.9130	0.0000	0.0000	0.0000	275.0000	275.0000	10.8911	88.0000	8.0800	0.9200
25.5025	324.9055	298.9130	25.9924	0.0000	25.9924	25.9924	0.0000	0.0000	0.0000	298.9130	298.9130	11.7209	94.7051	8.0800	0.9200
25.7575	353.1581	324.9055	28.2527	0.0000	28.2527	28.2527	0.0000	0.0000	0.0000	324.9055	324.9055	12.6140	101.9211	8.0800	0.9200
					$S_D^0=D^0-C_D^0$	$S_W^0=S_{WD}^0-S_D^0$	$S_W^0=W^0-C_W^0$	$A=C_D^0+S_{WD}^0$	$S_W^0=A^0-D^0$	Marginal rate of per capita consumption: $\Delta c_{C/L}(2)=((c_{C/L}(2)(1+n)-c_{C/L}(1))/n$					
					0.0000	0.0000	0.00000	8.80000	0.00000			$c_{C/L}(t)=C(t)/L(t)=c_{C/Y}(t)*y(t)$		$\sigma c_{C/L}^0=\Delta c_{C/L}^0/c_{C/L}^0$	
L^0	Y^0	W^0	S^0	S_{WD}^0	P^0	S_P^0	D^0	C_D^0	$C_D^0+S_{WD}^0$	$C_W^0=C^0-C_D^0$	$C^0=c_{C/D}^0*Y$	$c_{C/L}^0=C^0/L^0$	$\Delta c_{C/L}^0$		$c_{C/Y}^0=C^0/Y^0$
25	275.0000	253.0000	13.2000	0.0000	22.0000	13.2000	8.8000	8.8000	8.8000	253.0000	261.8000	10.4720	-----	-----	0.9520
L(t)	Y(t)	W(t)	$S(t)=s_{S/Y}(t)*Y$	$S_{WD}(t)=S(t)-S_P$	P(t)	$S_P(t)$	D(t)	$C_D(t)=S_P(t)*y$	$C_{D(t)}+S_{WD(t)}$	$C_w(t)=C(t)-C$	$C(t)=c(t)*Y(t)$	$c_{C/L}(t)=C(t)/L(t)$	$\Delta c_{C/L}(t)$	$\sigma c_{C/L}(t)=\Delta c(t)/c(t$	$c_{C/Y}(t)=C(t)/Y(t)$
25.2500	289.63	266.46	14.63	0.00	23.17	14.63	8.54	8.54	8.54	266.46	275.00	10.8911	52.80	4.8480	0.9495
25.5025	305.89	281.42	16.26	0.00	24.47	16.26	8.21	8.21	8.21	281.42	289.63	11.3570	57.94	5.1021	0.9468
25.7575	324.02	298.10	18.13	0.00	25.92	18.13	7.79	7.79	7.79	298.10	305.89	11.8759	63.77	5.3695	0.9441
26.0151	344.29	316.75	20.27	0.00	27.54	20.27	7.27	7.27	7.27	316.75	324.02	12.4552	70.38	5.6509	0.9411
26.2753	367.04	337.68	22.74	0.00	29.36	22.74	6.62	6.62	6.62	337.68	344.29	13.1034	77.93	5.9471	0.9380
26.5380	392.65	361.23	25.61	0.00	31.41	25.61	5.81	5.81	5.81	361.23	367.04	13.8307	86.56	6.2587	0.9348
26.8034	421.58	387.85	28.93	0.00	33.73	28.93	4.79	4.79	4.79	387.85	392.65	14.6491	96.49	6.5868	0.9314
27.0714	454.40	418.05	32.82	0.00	36.35	32.82	3.53	3.53	3.53	418.05	421.58	15.5729	107.95	6.9320	0.9278
27.3421	491.79	452.44	37.38	0.00	39.34	37.38	1.96	1.96	1.96	452.44	454.40	16.6191	121.24	7.2953	0.9240
27.6156	**534.55**	**491.79**	**42.76**	**0.00**	**42.76**	**42.76**	**0.00**	**0.00**	**0.00**	**491.79**	**491.79**	**17.8083**	**136.73**	**7.6776**	**0.9200**
27.8917	583.69	537.00	49.14	0.00	46.70	49.14	-2.45	-2.45	-2.45	537.00	534.55	19.1652	154.85	8.0800	0.9158
28.1706	640.44	589.20	56.75	0.00	51.24	56.75	-5.51	-5.51	-5.51	589.20	583.69	20.7199	176.19	8.5035	0.9114
28.4523	706.30	649.80	65.86	0.00	56.50	65.86	-9.36	-9.36	-9.36	649.80	640.44	22.5092	201.44	8.9491	0.9068
28.7369	783.16	720.50	76.86	0.00	62.65	76.86	-14.20	-14.20	-14.20	720.50	706.30	24.5782	231.48	9.4182	0.9019
29.0242	873.36	803.49	90.20	0.00	69.87	90.20	-20.33	-20.33	-20.33	803.49	783.16	26.9829	267.45	9.9118	0.8967
29.3145	979.86	901.47	106.50	0.00	78.39	106.50	-28.11	-28.11	-28.11	901.47	873.36	29.7927	310.77	10.4312	0.8913
29.6076	1106.42	1017.91	126.56	0.00	88.51	126.56	-38.05	-38.05	-38.05	1017.91	979.86	33.0949	363.31	10.9779	0.8856
29.9037	1257.85	1157.22	151.42	0.00	100.63	151.42	-50.80	-50.80	-50.80	1157.22	1106.42	36.9995	427.47	11.5533	0.8796
30.2027	1440.33	1325.10	182.48	0.00	115.23	182.48	-67.25	-67.25	-67.25	1325.10	1257.85	41.6468	506.37	12.1588	0.8733
30.5048	1661.92	1528.96	221.59	0.00	132.95	221.59	-88.64	-88.64	-88.64	1528.96	1440.33	47.2165	604.18	12.7960	0.8667
30.8098	1933.18	1778.53	271.27	0.00	154.65	271.27	-116.61	-116.61	-116.61	1778.53	1661.92	53.9411	726.41	13.4667	0.8597
31.1179	2268.13	2086.68	334.95	0.00	181.45	334.95	-153.50	-153.50	-153.50	2086.68	1933.18	62.1244	880.46	14.1725	0.8523
31.4291	2685.50	2470.66	417.37	0.00	214.84	417.37	-202.53	-202.53	-202.53	2470.66	2268.13	72.1666	1076.38	14.9152	0.8446
31.7434	3210.63	2953.78	525.13	0.00	256.85	525.13	-268.28	-268.28	-268.28	2953.78	2685.50	84.6002	1327.96	15.6969	0.8364
32.0608	3878.19	3567.93	667.56	0.00	310.26	667.56	-357.31	-357.31	-357.31	3567.93	3210.63	100.1418	1654.30	16.5196	0.8279
32.3814	4736.17	4357.27	857.98	0.00	378.89	857.98	-479.08	-479.08	-479.08	4357.27	3878.19	119.7659	2082.18	17.3854	0.8188
32.7052	5851.80	5383.66	1115.64	0.00	468.14	1115.64	-647.49	-647.49	-647.49	5383.66	4736.17	144.8137	2649.59	18.2966	0.8094

Private vs Public structurWPC99

A1-4 (4) Marginal rate is measured using the growth rate of the denominator

$\Delta\Omega(2)=((\Omega(2)(1+g_Y(2)-\Omega(1))/g_Y(2)$

$\Delta y(2)=((y(2)(1+n)-y(1)$

$\Delta k(2)=((k(2)(1+n)-k(1))$

Marginal rate of profit to capital: $\Delta r(2)=((r(2)(1+g_K(2)-r(1))/g_K(2)$

$\Delta c_{C/Y}{}^0$	$\sigma c_{C/Y}{}^0=\Delta c_{C/Y}{}^0/c_{C/Y}{}^0$	K^0	ΔK^0	Δr^0	ΔW^0	w^0	Δw^0	$\Delta r^0/\Delta w^0$	$(W^*K)^0$		1/MPK		MPK	MPL	
-----	-----	275.000	-----	$=\Delta P/\Delta K$	-----	10.1200	$=\Delta W/\Delta L$	-----	69575		$=\Delta K/\Delta Y$		$=\Delta Y/\Delta K$	$=\Delta Y/\Delta L$	
$\Delta c_{C/Y}(t)$	$\sigma c_{C/Y}(t)=\Delta c(t)/c(t)$	K(t)	ΔK(t)	Δr(t)	ΔW(t)	w(t)	Δw(t)	$(\Delta r^0/\Delta w^0)(t)$	(W*K)(t)	$g_{WK}(t)$	ΔΩ(t)	$\sigma_\Omega=\Delta\Omega/\Omega$	=1/ΔΩ(t)	Δy	$\sigma_y=\Delta y/y$
0.9200	1.0000	298.913	23.9130	0.080000	22.0000	10.8911	88.0000	0.00091	82201	0.181474	1.000000	1.000000	1.000000	95.65217	8.0800
0.9200	1.0000	324.905	25.9924	0.080000	23.9130	11.7209	94.7051	0.00084	97118	0.181474	1.000000	1.000000	1.000000	102.94035	8.0800
0.9200	1.0000	353.158	28.2527	0.080000	25.9924	12.6140	101.9211	0.00078	114743	0.181474	1.000000	1.000000	1.000000	110.78385	8.0800

$\sigma c_{C/L}(t)=\sigma c_{C/Y}(t)*\sigma_y(t)$

$\sigma c_{C/Y}{}^0=\Delta c_{C/Y}{}^0/c_{C/Y}{}^0$

$\Delta c_{C/Y}{}^0$		K^0	ΔK^0	Δr^0	ΔW^0	w^0	Δw^0	$\Delta r^0/\Delta w^0$	$(W^*K)^0$		1/MPK		MPK	MPL	
-----	-----	275.000	-----	$=\Delta P/\Delta K$	-----	10.1200	$=\Delta W/\Delta L$	-----	69575		$=\Delta K/\Delta Y$		$=\Delta Y/\Delta K$	$=\Delta Y/\Delta L$	
$\Delta c_{C/Y}(t)$	$\sigma c_{C/Y}(t)=\Delta c(t)/c(t)$	K(t)	ΔK(t)	Δr(t)	ΔW(t)	w(t)	Δw(t)	$(\Delta r^0/\Delta w^0)(t)$	(W*K)(t)	$g_{WK}(t)$	ΔΩ(t)	$\sigma_\Omega=\Delta\Omega/\Omega$	=1/ΔΩ(t)	Δy	$\sigma_y=\Delta y/y$
0.9022	0.9502	289.63	14.63	0.080000	13.46	10.553	53.842	0.00149	77175	0.109237	1.000000	1.000000	1.000000	58.52	5.1021
0.8997	0.9502	305.89	16.26	0.080000	14.96	11.035	59.253	0.00135	86085	0.115449	1.000000	1.000000	1.000000	64.40	5.3695
0.8970	0.9502	324.02	18.13	0.080000	16.68	11.573	65.400	0.00122	96591	0.122043	1.000000	1.000000	1.000000	71.09	5.6509
0.8943	0.9502	344.29	20.27	0.080000	18.65	12.176	72.409	0.00110	109056	0.129046	1.000000	1.000000	1.000000	78.71	5.9471
0.8913	0.9502	367.04	22.74	0.080000	20.93	12.851	80.434	0.00099	123940	0.136487	1.000000	1.000000	1.000000	87.43	6.2587
0.8882	0.9502	392.65	25.61	0.080000	23.56	13.612	89.659	0.00089	141837	0.144398	1.000000	1.000000	1.000000	97.46	6.5868
0.8850	0.9502	421.58	28.93	0.080000	26.62	14.470	100.308	0.00080	163512	0.152812	1.000000	1.000000	1.000000	109.03	6.9320
0.8816	0.9502	454.40	32.82	0.080000	30.20	15.442	112.657	0.00071	189963	0.161769	1.000000	1.000000	1.000000	122.45	7.2953
0.8780	0.9502	491.79	37.38	0.080000	34.39	16.547	127.045	0.00063	222505	0.171308	1.000000	1.000000	1.000000	138.09	7.6776
0.8742	**0.9502**	**534.55**	**42.76**	**0.080000**	**39.34**	**17.808**	**143.891**	**0.00056**	**262884**	**0.181474**	**1.000000**	**1.000000**	**1.000000**	**156.40**	**8.0800**
0.8702	0.9502	583.69	49.14	0.080000	45.21	19.253	163.717	0.00049	313441	0.192317	1.000000	1.000000	1.000000	177.95	8.5035
0.8660	0.9502	640.44	56.75	0.080000	52.21	20.916	187.176	0.00043	377348	0.203891	1.000000	1.000000	1.000000	203.45	8.9491
0.8616	0.9502	706.30	65.86	0.080000	60.59	22.838	215.093	0.00037	458951	0.216253	1.000000	1.000000	1.000000	233.80	9.4182
0.8570	0.9502	783.16	76.86	0.080000	70.71	25.072	248.512	0.00032	564267	0.229471	1.000000	1.000000	1.000000	270.12	9.9118
0.8521	0.9502	873.36	90.20	0.080000	82.98	27.683	288.772	0.00028	701731	0.243615	1.000000	1.000000	1.000000	313.88	10.4312
0.8469	0.9502	979.86	106.50	0.080000	97.98	30.752	337.591	0.00024	883315	0.258765	1.000000	1.000000	1.000000	366.95	10.9779
0.8415	0.9502	1106.42	126.56	0.080000	116.44	34.380	397.201	0.00020	1126236	0.275011	1.000000	1.000000	1.000000	431.74	11.5533
0.8358	0.9502	1257.85	151.42	0.080000	139.31	38.698	470.523	0.00017	1455604	0.292450	1.000000	1.000000	1.000000	511.44	12.1588
0.8298	0.9502	1440.33	182.48	0.080000	167.88	43.874	561.407	0.00014	1908577	0.311193	1.000000	1.000000	1.000000	610.23	12.7960
0.8235	0.9502	1661.92	221.59	0.080000	203.86	50.122	674.977	0.00012	2541005	0.331361	1.000000	1.000000	1.000000	733.67	13.4667
0.8169	0.9502	1933.18	271.27	0.080000	249.57	57.726	818.119	0.00010	3438216	0.353093	1.000000	1.000000	1.000000	889.26	14.1725
0.8099	0.9502	2268.13	334.95	0.080000	308.15	67.057	1000.173	0.00008	4732855	0.376544	1.000000	1.000000	1.000000	1087.14	14.9152
0.8025	0.9502	2685.50	417.37	0.080000	383.98	78.611	1233.944	0.00006	6634935	0.401888	1.000000	1.000000	1.000000	1341.24	15.6969
0.7948	0.9502	3210.63	525.13	0.080000	483.12	93.052	1537.178	0.00005	9483475	0.429325	1.000000	1.000000	1.000000	1670.85	16.5196
0.7866	0.9502	3878.19	667.56	0.080000	614.16	111.287	1934.760	0.00004	13837127	0.459078	1.000000	1.000000	1.000000	2103.00	17.3854
0.7781	0.9502	4736.17	857.98	0.080000	789.34	134.561	2462.001	0.00003	20636759	0.491405	1.000000	1.000000	1.000000	2676.09	18.2966
0.7690	0.9502	5851.80	1115.64	0.080000	1026.38	164.612	3169.673	0.00003	31504087	0.526600	1.000000	1.000000	1.000000	3445.30	19.2555

Private vs Public structurWPC99

A1-4 (5) $\Delta(r/w)(2)=((r/w)(2)(1+g_{WK}(2)-(r/w)(1))/g_{WK}(2)$ Elasticity of substitution, $\sigma(t)$

n where, $g_{WK}(2)=((W*K)(2)-(W*K)(1))/(W*K)(1)$ $\sigma(t)=(\Delta k/k)/(\Delta(r/w)(t)/(r/w)(t))$

$\sigma_{C/Y}^*(t)=\sigma_{C/L}^*(t)/\sigma_y^*(t)$	$\sigma_\Omega^*(t)=\sigma_k^*(t)/\sigma_y^*(t)$	$\sigma r^*(t)=\Delta r^*(t)/r^*(t)$	$\sigma_\alpha^*(t)=\sigma_\Omega^*(t)*\sigma_r^*(t)$
1.000000	1.000000	1.000000	1.000000

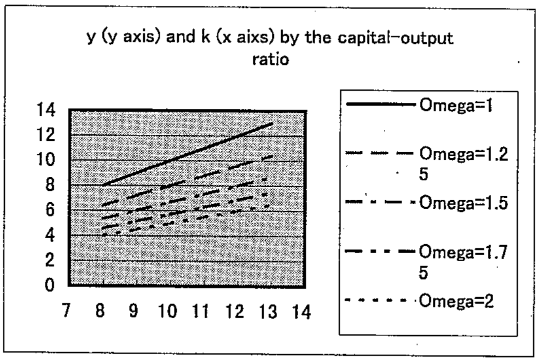
(A): $\sigma_k=\sigma_\Omega*\sigma_y$ =Δk/k	Marginal rate =ΔK/ΔL Δk	Δ(r/w)(t)	$(r/w)^0$ 0.007905 r/w(t)	(B): $\sigma(r/w)(t)=\Delta(r/w)(t)/(r/w)(t)$ Δ(r/w)(t)/(r/w)(t)	σ(t)=(A)/(B)	Y=wL+rK is confirmed Y=wL+rK	$p_w^*(t)=1/\sigma_y^*(t)$ $p_w=(w/MPL)/(1-\alpha)$	$p_r^*(t)=\sigma_\Omega^*(t)$ $p_r=(r/MPK)/\alpha$	$\Delta\gamma^*(t)$	$\sigma^*\gamma(t)=\Delta\gamma^*(t)/\gamma^*(t)$	$\Delta\theta^*(t)$	$\sigma\theta^*(t)=\Delta\theta^*(t)/\theta^*(t)$	$\zeta^*=C_D^*/S^*=\gamma^*/\theta^*$	$\Delta\zeta^*(t)$	$\sigma\zeta^*(t)=\Delta\zeta^*(t)/\zeta^*(t)$
8.0800	95.6522	0.004261	0.007345	0.580136	13.927765	298.913	0.12376	1.00000	0	#DIV/0!	1	1	0.000000	0.000000	#DIV/0!
8.0800	102.9404	0.003960	0.006825	0.580136	13.927765	324.905	0.12376	1.00000	0	#DIV/0!	1	1	0.000000	0.000000	#DIV/0!
8.0800	110.7838	0.003679	0.006342	0.580136	13.927765	353.158	0.12376	1.00000	0	#DIV/0!	1	1	0.000000	0.000000	#DIV/0!

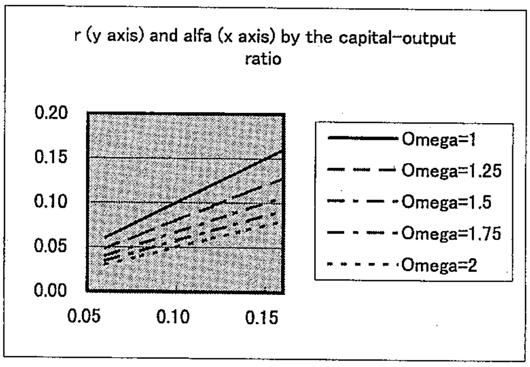
(A): $\sigma_k=\sigma_\Omega*\sigma_y$ =Δk/k	Marginal rate =ΔK/ΔL Δk	Δ(r/w)(t)	$(r/w)^0$ 0.007905 r/w(t)	(B): $\sigma(r/w)(t)=\Delta(r/w)(t)/(r/w)(t)$ Δ(r/w)(t)/(r/w)(t)	σ(t)=(A)/(B)	Y=wL+rK is confirmed Y=wL+rK	$p_w(t)=1/\sigma y(t)$ $p_w=(w/MPL)/(1-\alpha)$	$p_r(t)=\sigma_\Omega(t)$ $p_r=(r/MPK)/\alpha$	Δγ(t)	σγ(t)=Δγ(t)/γ(t)	Δθ(t)	σθ(t)=Δθ(t)/θ(t)	$\zeta=C_D/S=\gamma/\theta$	Δζ(t)	σζ(t)=Δζ(t)/ζ(t)
5.1021	58.52	0.004612	0.007581	0.608416	8.385846	289.631	0.19600	1.00000	-1.000000	-1.713306	1.000000	1.000000	0.583667	-0.182002	-0.311826
5.3695	64.40	0.004380	0.007250	0.604230	8.886490	305.893	0.18624	1.00000	-1.000000	-1.980980	1.000000	1.000000	0.504801	-0.202516	-0.401179
5.6509	71.09	0.004150	0.006912	0.600325	9.413060	324.022	0.17696	1.00000	-1.000000	-2.326328	1.000000	1.000000	0.429862	-0.223022	-0.518821
5.9471	78.71	0.003921	0.006570	0.596692	9.966714	344.295	0.16815	1.00000	-1.000000	-2.788193	1.000000	1.000000	0.358655	-0.243493	-0.678907
6.2587	87.43	0.003693	0.006225	0.593321	10.548656	367.039	0.15978	1.00000	-1.000000	-3.436492	1.000000	1.000000	0.290994	-0.263904	-0.906905
6.5868	97.46	0.003469	0.005877	0.590205	11.160131	392.646	0.15182	1.00000	-1.000000	-4.411054	1.000000	1.000000	0.226703	-0.284229	-1.253747
6.9320	109.03	0.003247	0.005529	0.587334	11.802426	421.580	0.14426	1.00000	-1.000000	-6.038150	1.000000	1.000000	0.165614	-0.304440	-1.838254
7.2953	122.45	0.003029	0.005181	0.584704	12.476873	454.402	0.13708	1.00000	-1.000000	-9.296588	1.000000	1.000000	0.107566	-0.324514	-3.016868
7.6776	138.09	0.002815	0.004835	0.582306	13.184847	491.786	0.13025	1.00000	-1.000000	#########	1.000000	1.000000	0.052410	-0.344425	-6.571764
8.0800	**156.40**	**0.002606**	**0.004492**	**0.580136**	**13.927765**	**534.550**	**0.12376**	**1.00000**	**-1.000000**	**#########**	**1.000000**	**1.000000**	**0.000000**	**-0.364150**	**#########**
8.5035	177.95	0.002402	0.004155	0.578189	14.707087	583.692	0.11760	1.00000	-1.000000	20.080409	1.000000	1.000000	-0.049800	-0.383666	7.704173
8.9491	203.45	0.002205	0.003825	0.576460	15.524310	640.438	0.11174	1.00000	-1.000000	10.296588	1.000000	1.000000	-0.097120	-0.402952	4.149030
9.4182	233.80	0.002014	0.003503	0.574945	16.380973	706.300	0.10618	1.00000	-1.000000	7.038150	1.000000	1.000000	-0.142083	-0.421987	2.970005
9.9118	270.12	0.001830	0.003191	0.573642	17.278649	783.156	0.10089	1.00000	-1.000000	5.411054	1.000000	1.000000	-0.184807	-0.440751	2.384925
10.4312	313.88	0.001655	0.002890	0.572549	18.218946	873.356	0.09587	1.00000	-1.000000	4.436492	1.000000	1.000000	-0.225403	-0.459226	2.037351
10.9779	366.95	0.001487	0.002601	0.571663	19.203501	979.859	0.09109	1.00000	-1.000000	3.788193	1.000000	1.000000	-0.263978	-0.477395	1.808465
11.5533	431.74	0.001329	0.002327	0.570984	20.233977	1106.422	0.08656	1.00000	-1.000000	3.326328	1.000000	1.000000	-0.300632	-0.495243	1.647342
12.1588	511.44	0.001179	0.002067	0.570512	21.312056	1257.847	0.08225	1.00000	-1.000000	2.980980	1.000000	1.000000	-0.335460	-0.512756	1.528515
12.7960	610.23	0.001040	0.001823	0.570247	22.439435	1440.326	0.07815	1.00000	-1.000000	2.713306	1.000000	1.000000	-0.368554	-0.529920	1.437835
13.4667	733.67	0.000910	0.001596	0.570191	23.617819	1661.915	0.07426	1.00000	-1.000000	2.500000	1.000000	1.000000	-0.400000	-0.546725	1.366812
14.1725	889.26	0.000790	0.001386	0.570345	24.848911	1933.182	0.07056	1.00000	-1.000000	2.326231	1.000000	1.000000	-0.429880	-0.563159	1.310039
14.9152	1087.14	0.000681	0.001193	0.570712	26.134400	2268.129	0.06705	1.00000	-1.000000	2.182111	1.000000	1.000000	-0.458272	-0.579216	1.263913
15.6969	1341.24	0.000581	0.001018	0.571297	27.475956	2685.495	0.06371	1.00000	-1.000000	2.060795	1.000000	1.000000	-0.485250	-0.594886	1.225938
16.5196	1670.85	0.000492	0.000860	0.572103	28.875210	3210.627	0.06053	1.00000	-1.000000	1.957391	1.000000	1.000000	-0.510884	-0.610165	1.194331
17.3854	2103.00	0.000412	0.000719	0.573137	30.333742	3878.190	0.05752	1.00000	-1.000000	1.868314	1.000000	1.000000	-0.535242	-0.625047	1.167784
18.2966	2676.09	0.000341	0.000595	0.574405	31.853063	4736.165	0.05466	1.00000	-1.000000	1.790873	1.000000	1.000000	-0.558387	-0.639530	1.145317
19.2555	3445.30	0.000280	0.000486	0.575915	33.434594	5851.801	0.05193	1.00000	-1.000000	1.723012	1.000000	1.000000	-0.580379	-0.653610	1.126178

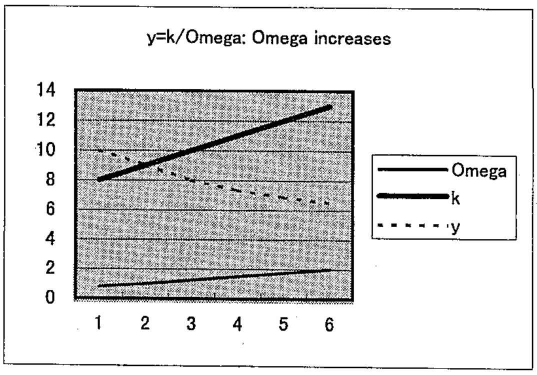
Figures1 and 2 WPC99

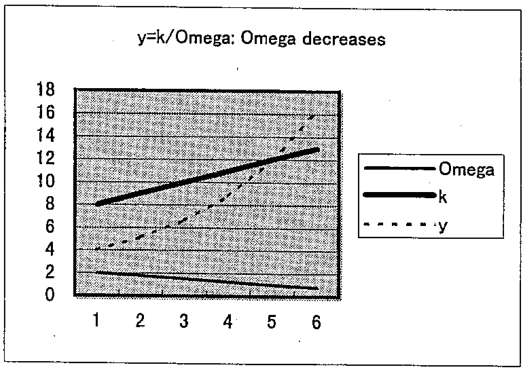
Figure 1 Efficiency y=Y/L and Equity alfa=P/Y common to priovate and public sectors

y=k/Ω	k	8	9	10	11	12	13
1	Omega=1	8	9	10	11	12	13
1.25	Omega=1.2	6.40	7.20	8.00	8.80	9.60	10.40
1.50	Omega=1.5	5.33	6.00	6.67	7.33	8.00	8.67
1.75	Omega=1.7	4.57	5.14	5.71	6.29	6.86	7.43
2.00	Omega=2	4.00	4.50	5.00	5.50	6.00	6.50
constant	Omega	1.5	1.5	1.5	1.5	1.5	1.5
	k	8	9	10	11	12	13
	y: Ome con	5.3333	6.0000	6.6667	7.3333	8.0000	8.6667
increasing	Omega	0.80	1.00	1.25	1.50	1.75	2.00
	k	8	9	10	11	12	13
	y	10.0000	9.0000	8.0000	7.3333	6.8571	6.5000
decreasing	Omega	2.00	1.75	1.50	1.25	1.00	0.80
	k	8	9	10	11	12	13
	y	4.0000	5.1429	6.6667	8.8000	12.0000	16.2500
r=α/Ω	alfa	0.06	0.08	0.10	0.12	0.14	0.16
1	Omega=1	0.0600	0.0800	0.1000	0.1200	0.1400	0.1600
1.25	Omega=1.2	0.0480	0.0640	0.0800	0.0960	0.1120	0.1280
1.50	Omega=1.5	0.0400	0.0533	0.0667	0.0800	0.0933	0.1067
1.75	Omega=1.7	0.0343	0.0457	0.0571	0.0686	0.0800	0.0914
2.00	Omega=2	0.0300	0.0400	0.0500	0.0600	0.0700	0.0800









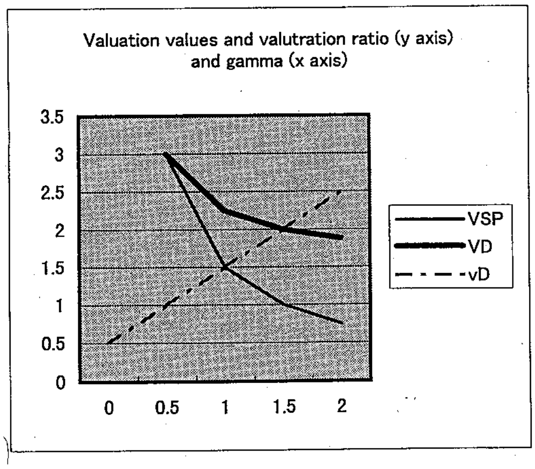
Hideyuki Kamiryo: Relationship between Efficiency and Equity in the Public and Private Sectors: Its Structure and Measurement (XIth World Productivity Congress, Edinburgh, UK, on 4th of October 1999)

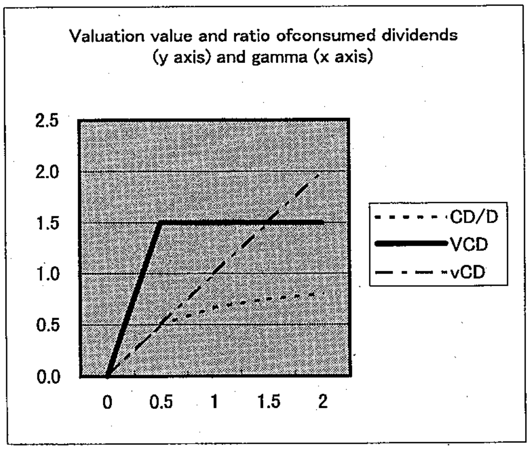
Figures1 and 2 WPC99

Figure 2 Structure of valuation values and the valuation ratio

Ω	α	$r=\alpha/\Omega$	Assume that $Y^0=1$.
1.50	0.08	0.053333	Then, K^0 is shown as Ω if $\gamma=1$.

Coefficient of time preference γ		0	0.5	1	1.5	2
$s_{SP/Y}=\alpha/(\Omega+\gamma)$		0.053333	0.040000	0.032000	0.026667	0.022857
$r^{\#}=r-s_{SP/Y}$		0.000000	0.013333	0.021333	0.026667	0.030476
$\Omega+\gamma-1$		0.50	1.00	1.50	2.00	2.50
$\alpha-s_{SP/Y}$		0.026667	0.040000	0.048000	0.053333	0.057143
Ω/γ		#DIV/0!	3	1.5	1	0.75
Coefficient of time preference γ		0	0.5	1	1.5	2
$V^0_{SP}=s_{SP/Y}/r^{\#}=\alpha/r^{\#}*\gamma$	VSP		3	1.5	1	0.75
$K^0=\Omega$ if $Y^0=1$	K^0	1.5	1.5	1.5	1.5	1.5
$v^0_{VSP/K}=V^0_{SP}/K^0=1/\gamma$	vVSP/K	0	2	1	0.666667	0.5
$V^0_D=(\alpha-s_{SP/Y})/r^{\#}=(\Omega/\gamma)*(\Omega+\gamma$	VD	#DIV/0!	3	2.25	2	1.875
$v^0_D=V^0_D/V^0_{SP}=\Omega+\gamma-1$	vD	0.50	1.00	1.50	2.00	2.50
$=(\alpha-s_{SP/Y})/s_{SP/Y}$		0.50	1.00	1.50	2.00	2.50
		0	0.5	1	1.5	2
$C_D/D=\gamma*s_{SP/Y}/(\alpha-s_{SP/Y})$	CD/D	0.000000	0.500000	0.666667	0.750000	0.800000
$V^0_{CD}=V^0_D*(C_D/D)$	VCD	#DIV/0!	1.5	1.5	1.5	1.5 $=\Omega=K$ if Y=1.
$v^0_{CD}=v^0_D*(C_D/D)$	vCD	0	0.5	1	1.5	2





In: Kamiryo [1999, Figure 6-4] "Furthering the role of corporate finance," University of Auckland

Canon 1982-1996

Canon 7751, JAPAN (1)		Dec-82	Dec-83	Dec-84	Dec-85	Dec-86	Dec-87	Dec-88	Dec-89	Dec-90	Dec-91	Dec-92	Dec-93	Dec-94	Dec-95	Dec-96
Initial data and ratios		$\theta^0=S^0/S^0_P$		$\Omega^0=K^0/Y^0$		$\Psi^0=\Omega^0/\theta^0$		$\mu^0=S^0/P^0=s^0p*\theta^0=s/\alpha$			$\gamma=(1-s_p*\Omega)/s_p=(\theta-\mu*\Omega)/\mu$			$s_p=1/(\Omega+\gamma)$		
Dividends paid: $\mathbf{D^0}$		4589	5603	6001	7001	7165	5908	7586	8487	9301	9366	9530	9828	10214	11007	12893
Undistributed profit: S		12057	11876	14972	16944	3863	2867	14604	18402	29178	33096	30788	10349	16394	33207	46119
Profit: $P^0=$	$\mathbf{P^0}$	16646	17479	20973	23945	11028	8775	22190	26889	38479	42462	40318	20177	26608	44214	59012
Labour expenses: $\mathbf{W^0}$		47816	54226	59823	68248	73088	68751	74063	81454	90985	99840	102400	99536	100922	106795	111582
Output: $Y^0=P^0+W^0$		64462	71705	80796	92193	84116	77526	96253	108343	129464	142302	142718	119713	127530	151009	170594
Capital stock: $\mathbf{K^0}$		153891	173783	204542	252501	275581	281424	309339	377291	459000	496169	530812	564080	570354	578430	622535
Net investment:$\Delta K=K(t)-K(t-$		-----	19892	30759	47959	23080	5843	27915	67952	81709	37169	34643	33268	6274	8076	44105
Number of workers: $\mathbf{L^0}$		11174	11792	12959	14230	15423	15572	15438	15932	16802	17377	17917	18264	18272	18216	18047
Growth rate of worker:		----	0.0553	0.0990	0.0981	0.0838	0.0097	-0.0086	0.0320	0.0546	0.0342	0.0311	0.0194	0.0004	-0.0031	-0.0093
Accounting Depreciation:		18670	20574	28001	34348	40798	39017	36755	40270	44238	47847	52776	53934	55374	57097	59047
$d^A_{EP}=D^A_{EP}/K^0$		0.1213	0.1184	0.1369	0.1360	0.1480	0.1386	0.1188	0.1067	0.0964	0.0964	0.0994	0.0956	0.0971	0.0987	0.0948
Stock price P_S		969	1425	1370	1190	1045	1046	1297.5	1700	1580	1430	1335	1415	1675	1585	2205
Number of shares: N		417.209	471.864	481.71	563.859	577.102	598.24	612.5	730.88	746.71	750.46	773.14	797	830.1	836.24	853.61
M.valuation ratio:$v^0_{MD}=(P_S*N$		2.6270	3.8692	3.2264	2.6574	2.1884	2.2235	2.5691	3.2932	2.5704	2.1629	1.9445	1.9993	2.4378	2.2914	3.0235
$\alpha^0=P^0/Y^0$	Alfa	0.2582	0.2438	0.2596	0.2597	0.1311	0.1132	0.2305	0.2482	0.2972	0.2984	0.2825	0.1685	0.2086	0.2928	0.3459
$\Omega^0=K^0/Y^0$	Omega	2.3873	2.4236	2.5316	2.7388	3.2762	3.6301	3.2138	3.4824	3.5454	3.4867	3.7193	4.7119	4.4723	3.8304	3.6492
$r^0=P^0/K^0_P$	r	0.1082	0.1006	0.1025	0.0948	0.0400	0.0312	0.0717	0.0713	0.0838	0.0856	0.0760	0.0358	0.0467	0.0764	0.0948
$k^0=K^0/L^0$	k	13.7722	14.7374	15.7838	17.7443	17.8682	18.0724	20.0375	23.6813	27.3182	28.5532	29.6262	30.8848	31.2146	31.7540	34.4952
$y^0=Y^0/L^0$	y	5.7689	6.0808	6.2347	6.4788	5.4539	4.9786	6.2348	6.8003	7.7053	8.1891	7.9655	6.5546	6.9795	8.2899	9.4528
Growth rate of output	g^a_Y		0.1124	0.1268	0.1411	(0.0876)	(0.0783)	0.2416	0.1256	0.1949	0.0992	0.0029	(0.1612)	0.0653	0.1841	0.1297
Growth rate of capital	g^a_K		0.1293	0.1770	0.2345	0.0914	0.0212	0.0992	0.2197	0.2166	0.0810	0.0698	0.0627	0.0111	0.0142	0.0762
$s^0_p=S^0_P/P^0$	S_P/P		0.6794	0.7139	0.7076	0.3503	0.3267	0.6581	0.6844	0.7583	0.7794	0.7636	0.5129	0.6161	0.7511	0.7815
$s^0_{Sp/Y}=S^0_P/Y^0$	S_P/Y		0.1656	0.1853	0.1838	0.0459	0.0370	0.1517	0.1698	0.2254	0.2326	0.2157	0.0864	0.1286	0.2199	0.2703
$s^0=s^0_{S/Y}=S^0/Y^0$	S/Y		0.2774	0.3807	0.5202	0.2744	0.0754	0.2900	0.6272	0.6311	0.2612	0.2427	0.2779	0.0492	0.0535	0.2585
$\theta^0=S^0/S^0_P$	S/S_P		1.6750	2.0544	2.8304	5.9746	2.0380	1.9115	3.6926	2.8004	1.1231	1.1252	3.2146	0.3827	0.2432	0.9563
$\Omega^0=K^0/Y^0$	K/Y		2.4236	2.5316	2.7388	3.2762	3.6301	3.2138	3.4824	3.5454	3.4867	3.7193	4.7119	4.4723	3.8304	3.6492
$\Psi^0=\Omega^0/\theta^0$	Psi		1.4469	1.2323	0.9676	0.5484	1.7812	1.6813	0.9431	1.2660	3.1047	3.3054	1.4658	11.6862	15.7500	3.8159
$\mu^0=S^0/P^0=s^0p*\theta^0$	S/P		1.1381	1.4666	2.0029	2.0929	0.6659	1.2580	2.5271	2.1235	0.8753	0.8592	1.6488	0.2358	0.1827	0.7474
$\gamma=(1-s_p*\Omega)/s_p$	gamma, γ		(0.9518)	(1.1308)	(1.3256)	(0.4214)	(0.5694)	(1.6944)	(2.0212)	(2.2266)	(2.2037)	(2.4098)	(2.7623)	(2.8493)	(2.4990)	(2.3697)
$\Omega+\gamma$: under modified gold	Ome+gam		1.4718	1.4008	1.4132	2.8548	3.0607	1.5194	1.4612	1.3188	1.2830	1.3095	1.9497	1.6230	1.3315	1.2796
$s_p=1/(\Omega+\gamma)$	S_P/P		0.2567	0.2543	0.2408	0.1631	0.1495	0.2113	0.2023	0.2056	0.2097	0.1989	0.1501	0.1641	0.1937	0.2029

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Canon 7751, JAPAN (2)	D/S_P	0.4718	0.4008	0.4132	1.8548	2.0607	0.5194	0.4612	0.3188	0.2830	0.3095	0.9497	0.6230	0.3315	0.2796
$1/\mu=\alpha/s=$	P/S	0.8787	0.6818	0.4993	0.4778	1.5018	0.7949	0.3957	0.4709	1.1424	1.1638	0.6065	4.2410	5.4747	1.3380
$(1-s_P)P/S=$	D/S	0.2817	0.1951	0.1460	0.3104	1.0111	0.2718	0.1249	0.1138	0.2520	0.2751	0.2954	1.6280	1.3629	0.2923
$\Delta\Omega(2)=(\Omega(2)(1+g_Y(2))-\Omega(1))/g_Y(2)$		2.7464	3.3835	4.2080	(2.8575)	(0.8866)	1.4906	5.6205	3.8686	2.8952	83.2764	(1.4461)	0.8026	0.3440	2.2520
$\sigma_\Omega=\Delta\Omega/\Omega$		1.1332	1.3365	1.5364	(0.8722)	(0.2443)	0.4638	1.6140	1.0912	0.8304	22.3903	(0.3069)	0.1795	0.0898	0.6171
$I/Y^0(2)=s_{S/Y}(2)(1+g_Y(2))$		0.3086	0.4290	0.5936	0.2503	0.0695	0.3601	0.7060	0.7542	0.2871	0.2434	0.2331	0.0524	0.0633	0.2921
$g_y(2)=(g_Y(2)-n)/(1+n)$		0.0541	0.0253	0.0391	(0.1582)	(0.0872)	0.2523	0.0907	0.1331	0.0628	(0.0273)	(0.1771)	0.0648	0.1877	0.1403
$A(2)=g_y(2)/(I/Y^0)(2)$		0.1752	0.0590	0.0659	(0.6319)	(1.2548)	0.7008	0.1285	0.1764	0.2187	(0.1122)	(0.7599)	1.2370	2.9647	0.4803
$MPK=\Delta Y/ =1/\Delta\Omega$		0.3641	0.2956	0.2376	(0.3500)	(1.1278)	0.6709	0.1779	0.2585	0.3454	0.0120	(0.6915)	1.2459	2.9073	0.4441
Per capita $=Y/L$	5.7689	6.0808	6.2347	6.4788	5.4539	4.9786	6.2348	6.8003	7.7053	8.1891	7.9655	6.5546	6.9795	8.2899	9.4528
$MPL=\Delta Y/ =((y(2)(1+n)-y(1))/n$		11.7201	7.7901	8.9670	(6.7703)	(44.2282)	(139.7537)	24.4737	24.2770	22.3270	0.7704	(66.2968)	977.1250	(419.2679)	(115.8876)
$\sigma_y=\Delta y/y$		1.9274	1.2495	1.3841	(1.2414)	(8.8837)	(22.4151)	3.5989	3.1507	2.7264	0.0967	(10.1146)	139.9987	(50.5757)	(12.2597)
$\sigma_k=\sigma_\Omega*\sigma_y$		2.1841	1.6699	2.1265	1.0827	2.1699	(10.3965)	5.8086	3.4379	2.2639	2.1654	3.1042	25.1244	(4.5416)	(7.5656)
Ratios under the balanced growth-state that follows the modified golden rule, where γ is given as 1.0															
Coefficient of time pr gamma, γ		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
$s^*_{SP/P}$ $=1/(\Omega+\gamma)$		0.2921	0.2832	0.2675	0.2339	0.2160	0.2373	0.2231	0.2200	0.2229	0.2119	0.1751	0.1827	0.2070	0.2151
$s^*_{SP/Y}=\alpha*s^*$ $=\alpha/(\Omega+\gamma)$		0.0712	0.0735	0.0695	0.0307	0.0244	0.0547	0.0554	0.0654	0.0665	0.0599	0.0295	0.0381	0.0606	0.0744
$s^*_{S/Y}$ $=\alpha\Omega/(\Omega+\gamma)$		0.1726	0.1861	0.1903	0.1004	0.0887	0.1758	0.1928	0.2318	0.2319	0.2226	0.1390	0.1705	0.2322	0.2715
$g^*_Y=g^*_K=s^*_{SP/Y}/(1-s^*_{SP/Y})$		0.0767	0.0793	0.0747	0.0316	0.0251	0.0579	0.0586	0.0700	0.0712	0.0637	0.0304	0.0396	0.0645	0.0804
$g^*_y=g^*_k=(g^*_Y-n)/(1+n)$		0.0202	(0.0179)	(0.0213)	(0.0482)	0.0153	0.0671	0.0258	0.0146	0.0358	0.0316	0.0108	0.0392	0.0678	0.0905
$\theta^*=\Omega^*=\Delta\Omega^*$ $=s^*_{S/Y}/s^*_{SP/Y}$ $\sigma_\Omega=\Delta^*\Omega/\Omega^*=1$		2.4236	2.5316	2.7388	3.2762	3.6301	3.2138	3.4824	3.5454	3.4867	3.7193	4.7119	4.4723	3.8304	3.6492
Ψ^* $=\Omega^*/\theta^*$		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
$I/Y^*=s^*_{S/Y}(1+g^*_Y)$		0.1858	0.2008	0.2045	0.1036	0.0910	0.1860	0.2041	0.2480	0.2484	0.2368	0.1433	0.1773	0.2472	0.2933
Technolog $=g^*_y/(I/Y^*)$		0.1089	(0.0889)	(0.1043)	(0.4649)	0.1677	0.3605	0.1263	0.0587	0.1441	0.1335	0.0756	0.2210	0.2743	0.3085
λ^* A* is constant		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
$s^*_{SP/Y}=s^*_{S/Y}/\Omega^*$		0.0712	0.0735	0.0695	0.0307	0.0244	0.0547	0.0554	0.0654	0.0665	0.0599	0.0295	0.0381	0.0606	0.0744
$r^*=\alpha/\Omega^*$		0.1006	0.1025	0.0948	0.0400	0.0312	0.0717	0.0713	0.0838	0.0856	0.0760	0.0358	0.0467	0.0764	0.0948
Discount rate $r^\#=r^*-s^*_{SP/Y}$		0.0294	0.0290	0.0254	0.0094	0.0067	0.0170	0.0159	0.0184	0.0191	0.0161	0.0063	0.0085	0.0158	0.0204
$V^0_{SP}=s^*_{SP/Y}$ $=\Omega$ if $\gamma=1$ Set Y=1		2.4236	2.5316	2.7388	3.2762	3.6301	3.2138	3.4824	3.5454	3.4867	3.7193	4.7119	4.4723	3.8304	3.6492
$V^0_D=(\alpha-s^*$ $=(\Omega/\gamma)(\Omega+\gamma-1)$ Set Y=1		5.8738	6.4089	7.5012	10.7335	13.1773	10.3286	12.1269	12.5698	12.1573	13.8332	22.2023	20.0016	14.6722	13.3168
$v^0_D=V^0_D/V^0$ $=\Omega+\gamma-1$		2.4236	2.5316	2.7388	3.2762	3.6301	3.2138	3.4824	3.5454	3.4867	3.7193	4.7119	4.4723	3.8304	3.6492
$C_D/D=\gamma*s^*_{SP/Y}/(\alpha-s^*_{SP/Y})$		0.4126	0.3950	0.3651	0.3052	0.2755	0.3112	0.2872	0.2821	0.2868	0.2689	0.2122	0.2236	0.2611	0.2740
$V^0_{CD}=V^0_D*$ $=\Omega$ if $Y=1$ Set Y=1		2.4236	2.5316	2.7388	3.2762	3.6301	3.2138	3.4824	3.5454	3.4867	3.7193	4.7119	4.4723	3.8304	3.6492
$v^0_{CD}=v^0_D*($ $=\gamma$		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

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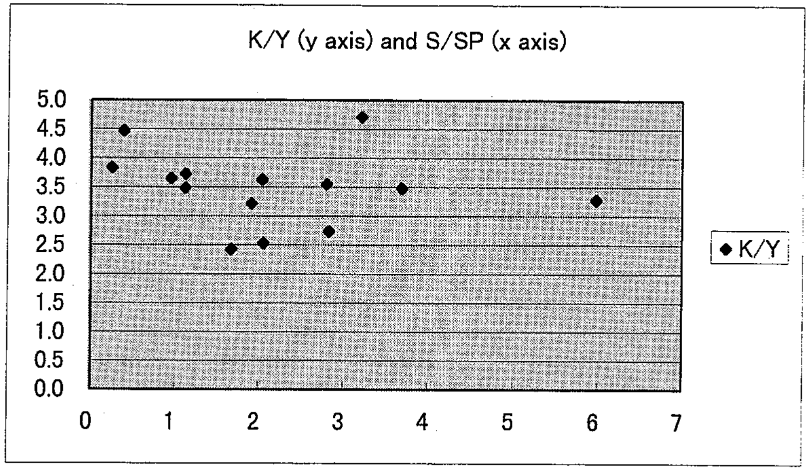
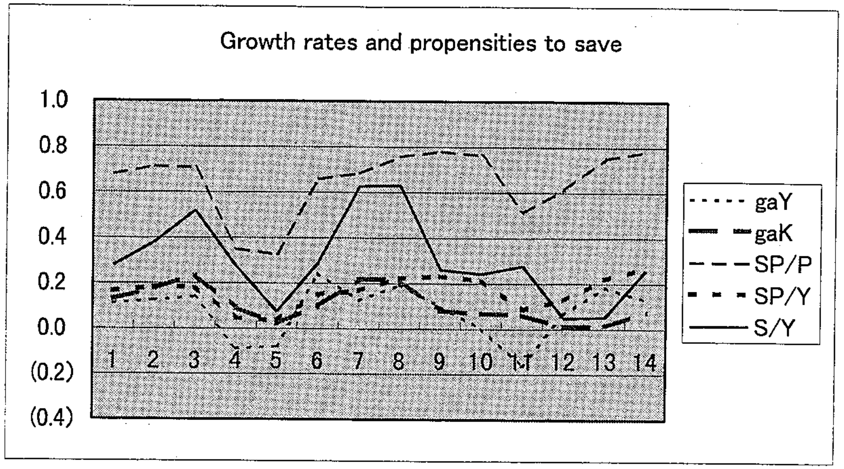
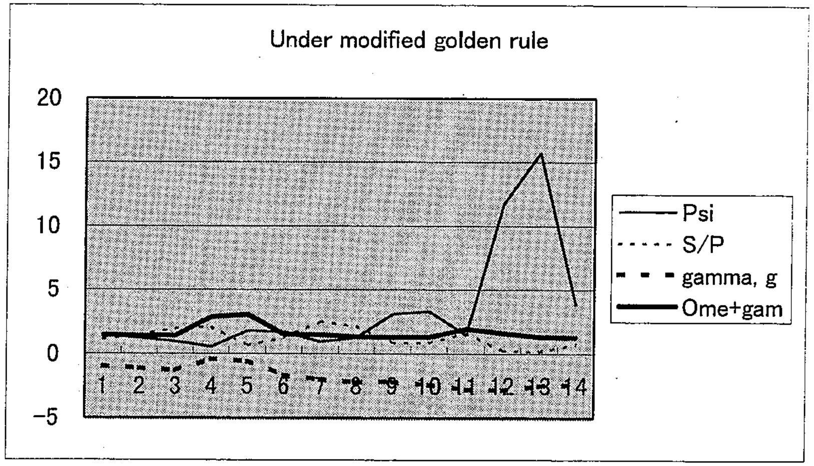
Canon 7751, JAPAN (3) v^0_{MD}/v^0_D	1.5965	1.2745	0.9703	0.6680	0.6125	0.7994	0.9457	0.7250	0.6203	0.5228	0.4243	0.5451	0.5982	0.8285



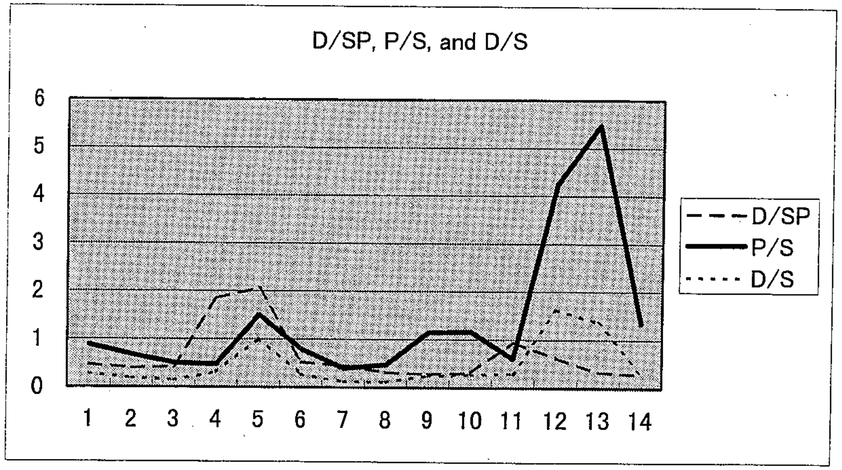
K/Y (y axis) and S/SP (x axis)



Growth rates and propensities to save



Under modified golden rule



D/SP, P/S, and D/S

Canon 1995 Type 2

Appendix 7-2-3 Canon, 1995 in Type 2, $Y=S_P+S_D+S_W+C_D+C_W$: both $s_{S/Y}$ and $s_{SP/Y}$ are variables **(1)**

$g_Y(t)=s_{SP/Y}(t)/(1-s_{SP/Y}(t))$ $I/Y^0(t)=s_{S/Y}(t)(1+g_Y(t))$ $g_K(t)=(I/Y^0)(t)/\Omega(t-1)$

1 Balanced growth-state: $g^*_Y=g^*_{KP}=g_Y=g_{KP}$

Starting with a given capital-output ratio Ω^0: $s_P=s_{SP/P}$ is derived using Ω^0

gamma		L^0=	n	Ω^0	α	k^0	$s^*_{SP/P}$	$s^*_{SP/Y}$	$s^*_{SP/P}$ $s^*_{SWD/WD}$	$s^*_{SWD/Y}$	$s^*_{S/Y}=s^*_{SP/Y}\Omega^0$		variables	y^0	r^0
(1.00000)		18.216	(0.00310)	3.83040	0.29280	31.75	0.35331	0.10345	0.32658	0.29280	0.40			8.29000	0.07644
$\theta=S/S_P=\Omega=K/Y$		time	$g^*_Y(t)$	$g^*_K(t)$	$g^*_k(t)$	$g^*_y(t)$	$g^*_\Omega(t)$	$\Omega^*(t)$	$c^*_{D/Y}=\alpha-s^*_{S/}$	$r^*(t)$	$k^*(t)$	$y^*(t)$	**$I/Y^{0*}(t)$**	$A^*(t)$	$\lambda^*(t)$
3.83040		1	0.11538	0.11538	0.11885	0.11885	0.00000	3.83040	(0.10345)	0.07644	35.53	9.28	0.44197	0.26892	-----
		2	0.11538	0.11538	0.11885	0.11885	0.00000	3.83040	(0.10345)	0.07644	39.75	10.38	0.44197	0.26892	0.00000
		3	0.11538	0.11538	0.11885	0.11885	0.00000	3.83040	(0.10345)	0.07644	44.48	11.61	0.44197	0.26892	0.00000
gamma										$a=s^*_{S/Y}/s^0_{S/Y}$	$g_{sS/Y}=a^{\wedge}(1/10)-1$	$\theta^*=s^*_{S/Y}/s^*_{SP/Y}$	$\Psi^*=\Omega^0/\theta^*$	$A(t)=g_y(t)/(I/Y^0)$	
(2.49902)	**2 Unbalanced growth-state**									7.40651	0.22	3.83	1.00000	$\lambda=(A(t)-A(t-1))/A(t-1)$	
$b=s^*_{SP/Y}/s^0_{SP/Y}$	$g_{sSP/Y}=b^{\wedge}(1/10)-1$	L^0=	n	Ω^0	α	k^0	$s^0_{SP/P}$	$s^0_{SP/Y}$	$s^0_{SWD/WD}$	$s^0_{SWD/Y}$	$s^0_{S/Y}$	$\theta^0=s^0_{S/Y}/s^0_{SP/}$	$\Psi^0=\Omega^0/\theta^0$	y^0	r^0
0.47039	(0.07265)	18.216	(0.00310)	3.83040	0.29280	31.75	**0.75110**	0.21992	(0.21334)	(0.16642)	**0.05350**	0.24	15.74560	8.29000	0.07644
$\theta(t)=s_{S/Y}(t)/s_{SP/Y}(t)$	$\Psi(t)=\Omega^0/\theta(t)$	time	$g_Y(t)=s_{SP/Y}(t)/(1-s_{SP/}$	$g_K(t)$	$g_k(t)$	$g_y(t)$	$g_\Omega(t)$	$\Omega(t)$	$s_{S/Y}(t)$	r(t)	k(t)	y(t)	$I/Y^0(t)$	A(t)	$\lambda(t)$
0.32048	11.95207	1	0.25620	0.02144	0.02461	0.26010	(0.18688)	3.11457	0.06536	0.09401	32.54	10.45	0.08211	3.16790	-----
0.42220	9.07251	2	0.23324	0.03162	0.03483	0.23708	(0.16349)	2.60536	0.07985	0.11238	33.67	12.92	0.09847	2.40750	(0.24003)
0.55620	6.88670	3	0.21269	0.04541	0.04866	0.21647	(0.13795)	2.24596	0.09755	0.13037	35.31	15.72	0.11830	1.82978	(0.23996)
0.73274	5.22752	4	0.19424	0.06337	0.06668	0.19796	(0.10959)	1.99983	0.11918	0.14641	37.66	18.83	0.14233	1.39084	(0.23989)
0.96530	3.96807	5	0.17762	0.08574	0.08911	0.18129	(0.07803)	1.84379	0.14560	0.15880	41.02	22.25	0.17146	1.05730	(0.23981)
1.27169	3.01206	6	0.16262	0.11216	0.11562	0.16624	(0.04340)	1.76377	0.17788	0.16601	45.76	25.94	0.20680	0.80384	(0.23972)
1.67531	2.28638	7	0.14905	0.14157	0.14512	0.15262	(0.00651)	1.75230	0.21731	0.16710	52.40	29.90	0.24970	0.61121	(0.23963)
2.20705	1.73553	8	0.13674	0.17223	0.17587	0.14027	0.03122	1.80700	0.26549	0.16204	61.62	34.10	0.30179	0.46481	(0.23953)
2.90756	1.31739	9	0.12556	0.20203	0.20577	0.12906	0.06794	1.92977	0.32434	0.15173	74.29	38.50	0.36507	0.35352	(0.23943)
3.83040	**1.00000**	**10**	**0.11538**	**0.22903**	**0.23285**	**0.11885**	**0.10189**	**2.12639**	**0.39625**	**0.13770**	**91.59**	**43.07**	**0.44197**	**0.26892**	**(0.2393)**
5.04615	0.75907	11	0.10611	0.25182	0.25571	0.10955	0.13173	2.40649	0.48409	0.12167	115.02	47.79	0.53546	0.20459	(0.23919)
6.64777	0.57619	12	0.09765	0.26976	0.27370	0.10106	0.15679	2.78381	0.59141	0.10518	146.50	52.62	0.64916	0.15568	(0.23906)
8.75774	0.43737	13	0.08992	0.28288	0.28687	0.09331	0.17704	3.27666	0.72252	0.08936	188.52	57.53	0.78749	0.11849	(0.23892)
11.53740	0.33200	14	0.08285	0.29171	0.29572	0.08621	0.19288	3.90867	0.88270	0.07491	244.27	62.49	0.95583	0.09020	(0.23877)
15.19930	0.25201	15	0.07637	0.29697	0.30100	0.07972	0.20495	4.70974	1.07839	0.06217	317.80	67.48	1.16074	0.06868	(0.23860)
20.02348	0.19130	16	0.07043	0.29943	0.30347	0.07376	0.21393	5.71732	1.31745	0.05121	414.24	72.45	1.41024	0.05230	(0.23843)
26.37883	0.14521	17	0.06498	0.29981	0.30385	0.06829	0.22050	6.97799	1.60952	0.04196	540.11	77.40	1.71411	0.03984	(0.23824)
34.75133	0.11022	18	0.05998	0.29869	0.30273	0.06327	0.22521	8.54949	1.96634	0.03425	703.61	82.30	2.08427	0.03036	(0.23804)
45.78122	0.08367	19	0.05538	0.29654	0.30057	0.05866	0.22851	10.50314	2.40226	0.02788	915.10	87.13	2.53529	0.02314	(0.23783)
60.31194	0.06351	20	0.05115	0.29372	0.29774	0.05442	0.23076	12.92687	2.93482	0.02265	1187.56	91.87	3.08493	0.01764	(0.23760)
79.45463	0.04821	21	0.04726	0.29047	0.29448	0.05051	0.23224	15.92897	3.58544	0.01838	1537.28	96.51	3.75488	0.01345	(0.23735)
104.67311	0.03659	22	0.04368	0.28700	0.29100	0.04692	0.23314	19.64268	4.38030	0.01491	1984.63	101.04	4.57161	0.01026	(0.23709)
137.89581	0.02778	23	0.04037	0.28344	0.28743	0.04361	0.23363	24.23177	5.35137	0.01208	2555.07	105.44	5.56743	0.00783	(0.23681)

Canon 1995 Type 2

A7-2-3 (2) Relationships among saving, profit, undistributed profit, dividends, saved dividends, consumed dividends, saved wages, and consumed wages: using ratios

Starting with a given retention ratio: $s_P=s_{SP/P}$									$\gamma(t)=(1/s_P)(t)-\Omega(t)$		$c_{D/Y}(t)=\gamma(t)*s_{SP/Y}(t)$	$s_{WD/WD}(t)=s_{WD/Y}(t)/(1-s_{SP/Y}(t))$			
gamma given			s^0	c^0	Ω^0	θ^0				γ^0	$c_{D/Y}{}^0$	$c_{W/Y}{}^0$			
(1.00000)			0.40	0.60375	3.83040	3.83040				-1	-0.10345	0.70720			
$s_{SP/Y}{}^*(t)$	$s^*{}_P(t)=s^*{}_{SP/P}($	$1-s^*{}_P(t)$	$s^*(t)=s^*{}_{S/Y}(t)$	$c^*(t)=1-s^*(t$	$\Omega^*(t)$	$\theta^*(t)$	$\Psi^*(t)$	$\mu^*(t)=(S/P)^*(t)$	$(1/s_P)^*(t)=\Omega+\gamma$	$\gamma^*(t)=(1/s_P)(t)-\Omega(t)$	$c^*{}_{D/Y}(t)=\gamma(t)*s$	$c^*{}_{W/Y}(t)$	$s^*{}_{WD/Y}(t)$	$s^*{}_{WD/WD}(t)$	$(\Omega+\gamma)/\Omega$
0.10345	0.35331	0.64669	0.39625	0.60375	3.83040	3.83040	1.00000	1.35331	2.83040	-1.00000	-0.10345	0.70720	0.29280	0.32658	0.73893
0.10345	0.35331	0.64669	0.39625	0.60375	3.83040	3.83040	1.00000	1.35331	2.83040	-1.00000	-0.10345	0.70720	0.29280	0.32658	0.73893
0.10345	0.35331	0.64669	0.39625	0.60375	3.83040	3.83040	1.00000	1.35331	2.83040	-1.00000	-0.10345	0.70720	0.29280	0.32658	0.73893
$c^*{}_{D/D}=c^*{}_{D/Y}/-(\alpha-s^*{}_{SP/Y})$															
(0.02701) : Dividends are all saved.										$\gamma(t)=(1/s_P)(t)-\Omega(t)$	$c_{D/Y}(t)=\gamma(t)*s_{SP/Y}(t)$				
(0.02701)	$s_P{}^0$		s^0	c^0	Ω^0	θ^0			$1/s_P{}^0$	γ^0	$c_{D/Y}{}^0$	$c_{W/Y}{}^0$			
(0.02701)	0.75110		0.05	0.94650	3.83040	0.24327			1.33138	-2.49902	-0.54959	1.49609			
$s_{SP/Y}(t)$	$s_P(t)=s_{SP/P}(t)$	$1-s_P(t)$	$s(t)=s_{S/Y}(t)$	$c(t)=1-s(t)$	$\Omega(t)$	$\theta(t)$	$\Psi(t)$	$\mu(t)=(S/P)(t)$	$(1/s_P)(t)=\Omega(t)+\gamma(t)$	**gamma (t)**	$\mathbf{c_{D/Y}(t)}$	$c_{W/Y}(t)$	$s_{WD/Y}(t)$	$s_{WD/WD}(t)$	$(\Omega+\gamma)/\Omega$
0.20395	0.69654	0.30346	0.06536	0.93464	3.11457	0.32048	9.71845	0.22323	1.43568	-1.67889	-0.34240	1.27704	-0.13859	-0.17409	0.46096
0.18913	0.64593	0.35407	0.07985	0.92015	2.60536	0.42220	6.17094	0.27271	1.54814	-1.05722	-0.19995	1.12010	-0.10928	-0.13477	0.59421
0.17539	0.59901	0.40099	0.09755	0.90245	2.24596	0.55620	4.03802	0.33317	1.66942	-0.57654	-0.10112	1.00357	-0.07784	-0.09439	0.74330
0.16265	0.55549	0.44451	0.11918	0.88082	1.99983	0.73274	2.72926	0.40703	1.80020	-0.19964	-0.03247	0.91329	-0.04347	-0.05191	0.90017
0.15083	0.51514	0.48486	0.14560	0.85440	1.84379	0.96530	1.91006	0.49727	1.94122	0.09743	0.01470	0.83971	-0.00523	-0.00616	1.05284
0.13988	0.47772	0.52228	0.17788	0.82212	1.76377	1.27169	1.38695	0.60751	2.09329	0.32952	0.04609	0.77603	0.03800	0.04418	1.18683
0.12971	0.44301	0.55699	0.21731	0.78269	1.75230	1.67531	1.04595	0.74219	2.25727	0.50498	0.06550	0.71719	0.08760	0.10065	1.28818
0.12029	0.41083	0.58917	0.26549	0.73451	1.80700	2.20705	0.81874	0.90672	2.43410	0.62710	0.07543	0.65908	0.14520	0.16505	1.34704
0.11155	0.38098	0.61902	0.32434	0.67566	1.92977	2.90756	0.66371	1.10773	2.62478	0.69501	0.07753	0.59813	0.21279	0.23951	1.36015
0.10345	**0.35331**	**0.64669**	**0.39625**	**0.60375**	**2.12639**	**3.83040**	**0.55513**	**1.35331**	**2.83040**	**0.70401**	**0.07283**	**0.53092**	**0.29280**	**0.32658**	**1.33108**
0.09593	0.32764	0.67236	0.48409	0.51591	2.40649	5.04615	0.47690	1.65332	3.05213	0.64564	0.06194	0.45397	0.38816	0.42935	1.26829
0.08896	0.30384	0.69616	0.59141	0.40859	2.78381	6.64777	0.41876	2.01985	3.29122	0.50741	0.04514	0.36345	0.50245	0.55151	1.18227
0.08250	0.28177	0.71823	0.72252	0.27748	3.27666	8.75774	0.37415	2.46763	3.54904	0.27238	0.02247	0.25501	0.64002	0.69757	1.08313
0.07651	0.26130	0.73870	0.88270	0.11730	3.90867	11.53740	0.33878	3.01468	3.82707	-0.08161	-0.00624	0.12354	0.80619	0.87298	0.97912
0.07095	0.24231	0.75769	1.07839	-0.07839	4.70974	15.19930	0.30987	3.68301	4.12687	-0.58287	-0.04135	-0.03703	1.00744	1.08437	0.87624
0.06580	0.22471	0.77529	1.31745	-0.31745	5.71732	20.02348	0.28553	4.49950	4.45016	-1.26716	-0.08337	-0.23408	1.25166	1.33981	0.77836
0.06102	0.20839	0.79161	1.60952	-0.60952	6.97799	26.37883	0.26453	5.49700	4.79877	-2.17922	-0.13297	-0.47656	1.54851	1.64913	0.68770
0.05658	0.19325	0.80675	1.96634	-0.96634	8.54949	34.75133	0.24602	6.71564	5.17469	-3.37480	-0.19096	-0.77538	1.90976	2.02430	0.60526
0.05247	0.17921	0.82079	2.40226	-1.40226	10.50314	45.78122	0.22942	8.20443	5.58006	-4.92308	-0.25833	-1.14393	2.34979	2.47991	0.53128
0.04866	0.16619	0.83381	2.93482	-1.93482	12.92687	60.31194	0.21433	10.02328	6.01719	-6.90968	-0.33623	-1.59859	2.88616	3.03378	0.46548
0.04513	0.15412	0.84588	3.58544	-2.58544	15.92897	79.45463	0.20048	12.24535	6.48855	-9.44042	-0.42600	-2.15943	3.54031	3.70762	0.40734
0.04185	0.14292	0.85708	4.38030	-3.38030	19.64268	104.67311	0.18766	14.96004	6.99685	-12.64583	-0.52920	-2.85110	4.33845	4.52793	0.35621
0.03881	0.13254	0.86746	5.35137	-4.35137	24.23177	137.89581	0.17573	18.27654	7.54496	-16.68681	-0.64757	-3.70380	5.31256	5.52705	0.31137

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A7-2-3 (3) Structure of the elasticity of substitution

					$S_D^{*0}=D^{*0}-C_D^{*0}$	$S_W^{*0}=S_{WD}^{*0}-S$	$S_w^{*0}=W^{*0}-C_w^{*0}$	$A^{*0}=C_D^{*0}+S_W$	$S_W^{*0}=A^{*0}-D^{*0}$						
					44.22	0.00	0.00	28.59	0.00						
L^0	Y^0	W^0	S^0	S_{WD}^0	P^0	S_P^0	D^0	C_D^0	$C_D^0+S_{WD}^0$	$C_W^0=C^0-C_D^0$	C^0	$c_{C/L}^0=C^0/L^0$	$\Delta c_{C/L}^0$	$\sigma c_{C/L}^0=\Delta c_{C/L}^0/c_{C/L}^0$	$c_{C/Y}^0=C^0/Y^0$
18.216	151.01	106.79	59.838	44.216	44.22	15.62	28.59	(15.62)	28.59	106.795	91.173	5.005	-----	-----	0.6038
$L^*(t)$	$Y^*(t)$	$W^*(t)$	$S^*(t)$	$S^*_{WD}(t)$	$P^*(t)$	$S_P^*(t)$	$D^*(t)$	$C_D^*(t)$	$C_{D(t)}+S_{WD(t)}$	$C_w(t)=C(t)-C$	$C^*(t)=c^*(t)*Y^*(t)$	$c_{C/L}^*(t)=C^*(t)/L^*(t)$	$\Delta c_{C/L}^*(t)$	$\sigma c_{C/L}^*(t)=\Delta c^*(t)/$	$c_{C/Y}^*(t)=C^*(t)/Y^*(t)$
18.160	168.43	119.12	66.742	49.318	49.32	17.42	31.89	(17.42)	31.89	119.117	101.693	5.600	-186.2940	(33.267)	0.6038
18.103	187.87	132.86	74.443	55.008	55.01	19.43	35.57	(19.43)	35.57	132.861	113.427	6.266	-208.4356	(33.267)	0.6038
18.047	209.55	148.19	83.033	61.355	61.36	21.68	39.68	(21.68)	39.68	148.192	126.514	7.010	-233.2088	(33.267)	0.6038
					$S_D^0=D^0-C_D^0$	$S_W^0=S_{WD}^0-S_D^0$	$S_W^0=W^0-C_W^0$	$A=C_D^0+S_{WD}^0$	$S_W^0=A^0-D^0$	Marginal rate of per capita consumption: $\Delta c_{C/L}(2)=((c_{C/L}(2)(1+n)-c_{C/L}(1))/n$					
					94.00	(119.13)	(119.13)	(108.13)	(119.13)			$c_{C/L}(t)=C(t)/L(t)=c_{C/Y}(t)*y(t)$		$\sigma c_{C/L}^0=\Delta c_{C/L}^0/c_{C/L}^0$	
L^0	Y^0	W^0	S^0	S_{WD}^0	P^0	S_P^0	D^0	C_D^0	$C_D^0+S_{WD}^0$	$C_W^0=C^0-C_D^0$	$C^0=c_{C/D}^0*Y$	$c_{C/L}^0=C^0/L^0$	$\Delta c_{C/L}^0$		$c_{C/Y}^0=C^0/Y^0$
18.216	151.01	106.79	8.079	-25.131	44.216	33.211	11.005	-82.994	-108.125	225.925	142.931	7.846	-----	-----	0.9465
$L(t)$	$Y(t)$	$W(t)$	$S(t)=s_{S/Y}(t)*Y$	$S_{WD}(t)=S(t)-S_P$	$P(t)$	$S_P(t)$	$D(t)$	$C_D(t)=S_P(t)*\gamma$	$C_{D(t)}+S_{WD(t)}$	$C_w(t)=C(t)-C$	$C(t)=c(t)*Y(t)$	$c_{C/L}(t)=C(t)/L(t)$	$\Delta c_{C/L}(t)$	$\sigma c_{C/L}(t)=\Delta c(t)/c(t$	$c_{C/Y}(t)=C(t)/Y(t)$
18.160	189.70	134.15	12.40	-26.29	55.54	38.69	16.86	-64.95	-91.24	242.25	177.30	9.7635	-608.62	(62.336)	0.9346
18.103	233.94	165.45	18.68	-25.57	68.50	44.25	24.25	-46.78	-72.34	262.04	215.26	11.8909	-674.38	(56.714)	0.9201
18.047	283.70	200.64	27.68	-22.08	83.07	49.76	33.31	-28.69	-50.77	284.72	256.03	14.1866	-726.36	(51.200)	0.9024
17.991	338.81	239.61	40.38	-14.73	99.20	55.11	44.10	-11.00	-25.73	309.43	298.43	16.5877	-757.94	(45.693)	0.8808
17.935	398.99	282.17	58.09	-2.09	116.82	60.18	56.64	5.86	3.78	335.04	340.90	19.0070	-761.43	(40.061)	0.8544
17.880	463.88	328.05	82.51	17.63	135.82	64.88	70.94	21.38	39.01	359.98	381.36	21.3293	-727.78	(34.121)	0.8221
17.824	533.02	376.95	115.83	46.69	156.07	69.14	86.93	34.91	81.60	382.27	417.19	23.4053	-646.29	(27.613)	0.7827
17.769	605.90	428.49	160.86	87.97	177.41	72.88	104.52	45.71	133.68	399.34	445.04	25.0458	-504.13	(20.128)	0.7345
17.714	681.98	482.29	221.20	145.12	199.68	76.08	123.61	52.87	197.99	407.91	460.78	26.0122	-285.75	(10.985)	0.6757
17.659	**760.67**	**537.94**	**301.41**	**222.72**	**222.72**	**78.69**	**144.03**	**55.40**	**278.12**	**403.85**	**459.25**	**26.0066**	**27.82**	**1.070**	**0.6038**
17.604	841.38	595.03	407.31	326.59	246.36	80.72	165.64	52.11	378.70	381.96	434.08	24.6572	459.93	18.653	0.5159
17.550	923.54	653.13	546.20	464.03	270.41	82.16	188.25	41.69	505.72	335.66	377.35	21.5016	1039.44	48.342	0.4086
17.495	1006.59	711.86	727.28	644.24	294.73	83.04	211.68	22.62	666.86	256.69	279.31	15.9645	1802.13	112.883	0.2775
17.441	1089.98	770.83	962.13	878.73	319.15	83.39	235.75	-6.81	871.93	134.66	127.86	7.3307	2792.44	380.926	0.1173
17.387	1173.22	829.70	1265.18	1181.95	343.52	83.24	260.28	-48.52	1133.43	-43.45	-91.96	-5.2892	4065.64	(768.667)	-0.0784
17.333	1255.85	888.14	1654.53	1571.90	367.71	82.63	285.08	-104.70	1467.19	-293.97	-398.67	-23.0007	5690.37	(247.400)	-0.3175
17.279	1337.46	945.85	2152.66	2071.06	391.61	81.61	310.00	-177.84	1893.22	-637.37	-815.21	-47.1779	7751.93	(164.313)	-0.6095
17.226	1417.67	1002.58	2787.62	2707.41	415.09	80.22	334.88	-270.71	2436.69	-1099.24	-1369.95	-79.5286	10356.18	(130.220)	-0.9663
17.172	1496.18	1058.10	3594.21	3515.70	438.08	78.51	359.57	-386.50	3129.20	-1711.53	-2098.03	-122.1739	13634.39	(111.598)	-1.4023
17.119	1572.71	1112.22	4615.61	4539.09	460.49	76.53	383.96	-528.79	4010.29	-2514.11	-3042.91	-177.7475	17749.20	(99.856)	-1.9348
17.066	1647.03	1164.78	5905.34	5831.01	482.25	74.32	407.93	-701.64	5129.37	-3556.66	-4258.30	-249.5170	22901.93	(91.785)	-2.5854
17.013	1718.97	1215.65	7529.59	7457.66	503.31	71.93	431.38	-909.67	6547.99	-4900.95	-5810.62	-341.5345	29341.54	(85.911)	-3.3803
16.961	1788.37	1264.73	9570.23	9500.83	523.63	69.40	454.23	-1158.10	8342.73	-6623.76	-7781.86	-458.8213	37375.64	(81.460)	-4.3514

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A7-2-3 (4) Marginal rate is measured using the growth rate of the denominator

Marginal rate of profit to capital: $\Delta r(2)=((r(2)(1+g_K(2)-r(1))/g_K(2)$

$\Delta\Omega(2)=((\Omega(2)(1+g_Y(2)-\Omega(1))/g_Y(2)$

$\Delta y(2)=((y(2)(1+n)-y(1))/n$

$\Delta k(2)=((k(2)(1+n)-k(1))/n$

$\Delta c_{C/Y}{}^0$	$\sigma c_{C/Y}{}^0=\Delta c_{C/Y}{}^0/c_{C/Y}{}^0$	K^0	ΔK^0	Δr^0	ΔW^0	w^0	Δw^0	$\Delta r^0/\Delta w^0$	$(W*K)^0$		1/MPK		MPK	MPL	
-----	-----	578.43	-----	$=\Delta P/\Delta K$	-----	5.8627	$=\Delta W/\Delta L$	-----	61773		$=\Delta K/\Delta Y$		$=\Delta Y/\Delta K$	$=\Delta Y/\Delta L$	
$\Delta c_{C/Y}(t)$	$\sigma c_{C/Y}(t)=\Delta c(t)/c(t$	K(t)	ΔK(t)	Δr(t)	ΔW(t)	w(t)	Δw(t)	$(\Delta r^0/\Delta w^0)(t)$	(W*K)(t)	$g_{WK}(t)$	ΔΩ(t)	$\sigma_\Omega=\Delta\Omega/\Omega$	$=1/\Delta\Omega(t)$	Δy	$\sigma_y=\Delta y/y$
0.6038	1.0000	645.17	66.7420	0.0764	12.3225	6.5595	(218.2141)	(0.00035)	76851	0.24408	3.83040	1.00000	0.26107	(308.56)	(33.2670)
0.6038	1.0000	719.62	74.4430	0.0764	13.7443	7.3391	(244.1495)	(0.00031)	95609	0.24408	3.83040	1.00000	0.26107	(345.23)	(33.2670)
0.6038	1.0000	802.65	83.0326	0.0764	15.3302	8.2114	(273.1674)	(0.00028)	118946	0.24408	3.83040	1.00000	0.26107	(386.27)	(33.2670)

$\sigma c_{C/L}(t)=\sigma c_{C/Y}(t)*\sigma_y(t)$

$\Delta c_{C/Y}{}^0$	$\sigma c_{C/Y}{}^0=\Delta c_{C/Y}{}^0/c_{C/Y}{}^0$	K^0	ΔK^0	Δr^0	ΔW^0	w^0	Δw^0	$\Delta r^0/\Delta w^0$	$(W*K)^0$		1/MPK		MPK	MPL	
-----	-----	578.43	-----	$=\Delta P/\Delta K$	-----	5.8627	$=\Delta W/\Delta L$	-----	61773		$=\Delta K/\Delta Y$		$=\Delta Y/\Delta K$	$=\Delta Y/\Delta L$	
$\Delta c_{C/Y}(t)$	$\sigma c_{C/Y}(t)=\Delta c(t)/c(t$	K(t)	ΔK(t)	Δr(t)	ΔW(t)	w(t)	Δw(t)	$(\Delta r^0/\Delta w^0)(t)$	(W*K)(t)	$g_{WK}(t)$	ΔΩ(t)	$\sigma_\Omega=\Delta\Omega/\Omega$	$=1/\Delta\Omega(t)$	Δy	$\sigma_y=\Delta y/y$
0.8883	0.9505	590.83	12.40	0.9136	27.36	7.388	(484.514)	(0.00189)	79263	0.28312	0.32048	0.10290	3.12032	(685.12)	(65.5849)
0.8580	0.9325	609.51	18.68	0.6935	31.29	9.139	(555.839)	(0.00125)	100841	0.27223	0.42220	0.16205	2.36855	(785.97)	(60.8204)
0.8192	0.9078	637.19	27.68	0.5264	35.19	11.117	(627.038)	(0.00084)	127842	0.26776	0.55620	0.24765	1.79791	(886.65)	(56.4021)
0.7695	0.8736	677.57	40.38	0.3996	38.97	13.318	(696.595)	(0.00057)	162349	0.26992	0.73274	0.36640	1.36474	(985.00)	(52.3047)
0.7057	0.8259	735.66	58.09	0.3033	42.56	15.732	(763.099)	(0.00040)	207578	0.27859	0.96530	0.52354	1.03594	(1079.04)	(48.5049)
0.6236	0.7586	818.17	82.51	0.2302	45.89	18.348	(825.303)	(0.00028)	268404	0.29303	1.27169	0.72101	0.78636	(1167.00)	(44.9812)
0.5181	0.6620	934.00	115.83	0.1748	48.90	21.148	(882.156)	(0.00020)	352071	0.31172	1.67531	0.95607	0.59690	(1247.39)	(41.7135)
0.3822	0.5203	1094.86	160.86	0.1327	51.54	24.114	(932.825)	(0.00014)	469140	0.33251	2.20705	1.22139	0.45309	(1319.04)	(38.6832)
0.2069	0.3062	1316.06	221.20	0.1007	53.80	27.227	(976.702)	(0.00010)	634726	0.35296	2.90756	1.50669	0.34393	(1381.08)	(35.8730)
-0.0194	**-0.0322**	**1617.5**	**301.41**	**0.0764**	**55.65**	**30.463**	**(1013.399)**	**(0.00008)**	**870106**	**0.37084**	**3.83040**	**1.80137**	**0.26107**	**(1432.97)**	**(33.2670)**
-0.3119	-0.6046	2024.78	407.31	0.0580	57.08	33.800	(1042.734)	(0.00006)	1204794	0.38465	5.04615	2.09689	0.19817	(1474.45)	(30.8502)
-0.6904	-1.6898	2570.97	546.20	0.0440	58.11	37.216	(1064.712)	(0.00004)	1679181	0.39375	6.64777	2.38801	0.15043	(1505.53)	(28.6091)
-1.1806	-4.2548	3298.26	727.28	0.0334	58.73	40.688	(1079.494)	(0.00003)	2347896	0.39824	8.75774	2.67276	0.11418	(1526.43)	(26.5307)
-1.8161	-15.4827	4260.38	962.13	0.0254	58.97	44.196	(1087.379)	(0.00002)	3284050	0.39872	11.53740	2.95174	0.08667	(1537.58)	(24.6034)
-2.6408	33.6898	5525.57	1265.18	0.0193	58.87	47.719	(1088.768)	(0.00002)	4584573	0.39601	15.19930	3.22721	0.06579	(1539.55)	(22.8160)
-3.7119	11.6927	7180.09	1654.53	0.0146	58.44	51.239	(1084.145)	(0.00001)	6376907	0.39095	20.02348	3.50225	0.04994	(1533.01)	(21.1585)
-5.1042	8.3741	9332.76	2152.66	0.0111	57.71	54.738	(1074.046)	(0.00001)	8827377	0.38427	26.37883	3.78029	0.03791	(1518.73)	(19.6215)
-6.9156	7.1565	12120.38	2787.62	0.0084	56.73	58.202	(1059.042)	(0.00001)	12151624	0.37658	34.75133	4.06472	0.02878	(1497.51)	(18.1960)
-9.2739	6.6136	15714.59	3594.21	0.0064	55.52	61.616	(1039.717)	(0.00001)	16627593	0.36834	45.78122	4.35881	0.02184	(1470.19)	(16.8742)
-12.3466	6.3813	20330.21	4615.61	0.0049	54.12	64.969	(1016.655)	(0.00000)	22611669	0.35989	60.31194	4.66563	0.01658	(1437.58)	(15.6483)
-16.3528	6.3250	26235.54	5905.34	0.0037	52.56	68.251	(990.424)	(0.00000)	30558684	0.35146	79.45463	4.98806	0.01259	(1400.49)	(14.5115)
-21.5797	6.3840	33765.13	7529.59	0.0028	50.87	71.453	(961.569)	(0.00000)	41046712	0.34321	104.67311	5.32886	0.00955	(1359.68)	(13.4573)
-28.4032	6.5274	43335.36	9570.23	0.0021	49.08	74.569	(930.601)	(0.00000)	54807739	0.33525	137.89581	5.69070	0.00725	(1315.90)	(12.4797)

Canon 1995 Type 2

A7-2-3 (5) Δ(r/w)(2)=((r/w)(2)(1+g_{WK}(2)-(r/w)(1))/g_{WK}(2) where, g_{WK}(2)=((W*K)(2)-(W*K)(1))/(W*K)(1)

Elasticity of substitution, σ(t): σ(t)=(Δk/k)/(Δ(r/w)(t)/(r/w)(t))

$\sigma_{C/Y}^*(t)=\sigma_{C/L}^*(t)/\sigma_y^*(t)$ = 1.000000; $\sigma_\Omega^*(t)=\sigma_k^*(t)/\sigma_y^*(t)$ = 1.000; $\sigma r^*(t)=\Delta r^*(t)/r^*(t)$ = 1.000; $\sigma_\alpha^*(t)=\sigma_\Omega^*(t)*\sigma_r^*(t)$ = 1.000

(r/w)⁰ = 0.01304

(A): $\sigma_k=\sigma_\Omega*\sigma_y$ =Δk/k	Marginal rate =ΔK/ΔL Δk	Δ(r/w)(t)	r/w(t)	**(B): σ(r/w)(t)=Δ(r/w)(t)/(r/w)(t)** Δ(r/w)(t)/(r/w)(t)	Y=wL+rK is confirmed σ(t)=(A)/(B)	Y=wL+rK	$p_w^*(t)=1/\sigma_y^*(t)$ p_w=(w/MPL)/(1-α)	$p_r^*(t)=\sigma_\Omega^*(t)$ p_r=(r/MPK)/α	$\Delta\gamma^*(t)$	$\sigma^*\gamma(t)=\Delta\gamma^*(t)/\gamma^*(t)$	$\Delta\theta^*(t)$	$\sigma\theta^*(t)=\Delta\theta^*(t)/\theta^*(t)$	$\zeta^*=C_D^*/S^*=\gamma^*/\theta^*$	$\Delta\zeta^*(t)$	$\sigma\zeta^*(t)=\Delta\zeta^*(t)/\zeta^*(t)$
(33.2670)	#########	0.00598	0.01165	0.51306	(64.840)	168.43	-0.03006	1.00000	(1.000)	1.000	3.83	1.000	(0.261)	(0.261)	1.000
(33.2670)	#########	0.00534	0.01042	0.51306	(64.840)	187.87	-0.03006	1.00000	(1.000)	1.000	3.83	1.000	(0.261)	(0.261)	1.000
(33.2670)	#########	0.00478	0.00931	0.51306	(64.840)	209.55	-0.03006	1.00000	(1.000)	1.000	3.83	1.000	(0.261)	(0.261)	1.000

(r/w)⁰ = 0.01304

(A): $\sigma_k=\sigma_\Omega*\sigma_y$ =Δk/k	Marginal rate =ΔK/ΔL Δk	Δ(r/w)(t)	r/w(t)	**(B): σ(r/w)(t)=Δ(r/w)(t)/(r/w)(t)** Δ(r/w)(t)/(r/w)(t)	Y=wL+rK is confirmed σ(t)=(A)/(B)	Y=wL+rK	$p_w(t)=1/\sigma y(t)$ p_w=(w/MPL)/(1-α)	$p_r(t)=\sigma_\Omega(t)$ p_r=(r/MPK)/α	Δγ(t)	σγ(t)=Δγ(t)/γ(t)	Δθ(t)	σθ(t)=Δθ(t)/θ(t)	$\zeta=C_D/S=\gamma/\theta$	Δζ(t)	σζ(t)=Δζ(t)/ζ(t)
(6.7485)	(219.57)	0.01162	0.01273	0.91307	(7.391)	189.70	-0.01525	0.10290	(12.968)	7.724	(0.74)	(2.316)	(5.239)	4.176	(0.797)
(9.8560)	(331.84)	0.01072	0.01230	0.87208	(11.302)	233.94	-0.01644	0.16205	(9.615)	9.094	(0.98)	(2.316)	(2.504)	2.893	(1.155)
(13.9677)	(493.16)	0.00960	0.01173	0.81828	(17.070)	283.70	-0.01773	0.24765	(7.193)	12.477	(1.29)	(2.316)	(1.037)	2.011	(1.940)
(19.1644)	(721.75)	0.00828	0.01099	0.75297	(25.452)	338.81	-0.01912	0.36640	(5.388)	26.988	(1.70)	(2.316)	(0.272)	1.392	(5.110)
(25.3944)	(1041.61)	0.00687	0.01009	0.68013	(37.338)	398.99	-0.02062	0.52354	(3.992)	(40.972)	(2.24)	(2.316)	0.101	0.952	9.433
(32.4317)	(1484.06)	0.00548	0.00905	0.60542	(53.569)	463.88	-0.02223	0.72101	(2.865)	(8.695)	(2.95)	(2.316)	0.259	0.635	2.452
(39.8810)	(2089.77)	0.00422	0.00790	0.53445	(74.621)	533.02	-0.02397	0.95607	(1.910)	(3.783)	(3.88)	(2.316)	0.301	0.406	1.348
(47.2473)	(2911.19)	0.00317	0.00672	0.47109	(100.294)	605.90	-0.02585	1.22139	(1.054)	(1.681)	(5.11)	(2.316)	0.284	0.240	0.844
(54.0494)	(4015.58)	0.00232	0.00557	0.41701	(129.611)	681.98	-0.02788	1.50669	(0.240)	(0.345)	(6.74)	(2.316)	0.239	0.119	0.497
(59.9260)	**(5488.86)**	**0.00168**	**0.00452**	**0.37210**	**(161.048)**	**760.67**	**-0.03006**	**1.80137**	**0.580**	**0.824**	**(8.87)**	**(2.316)**	**0.184**	**0.031**	**0.171**
(64.6897)	(7440.32)	0.00121	0.00360	0.33522	(192.979)	841.38	-0.03241	2.09689	1.449	2.245	(11.69)	(2.316)	0.128	(0.031)	(0.242)
(68.3189)	(10008.43)	0.00086	0.00283	0.30488	(224.087)	923.54	-0.03495	2.38801	2.410	4.750	(15.40)	(2.316)	0.076	(0.075)	(0.983)
(70.9103)	(13368.11)	0.00061	0.00220	0.27965	(253.569)	1006.59	-0.03769	2.67276	3.508	12.878	(20.29)	(2.316)	0.031	(0.105)	(3.386)
(72.6229)	(17739.71)	0.00044	0.00169	0.25832	(281.139)	1089.98	-0.04064	2.95174	4.791	(58.710)	(26.73)	(2.316)	(0.007)	(0.125)	17.714
(73.6321)	(23400.06)	0.00031	0.00130	0.23993	(306.895)	1173.22	-0.04383	3.22721	6.317	(10.838)	(35.21)	(2.316)	(0.038)	(0.138)	3.589
(74.1026)	(30696.21)	0.00022	0.00100	0.22376	(331.175)	1255.85	-0.04726	3.50225	8.152	(6.434)	(46.38)	(2.316)	(0.063)	(0.144)	2.280
(74.1748)	(40062.33)	0.00016	0.00077	0.20928	(354.429)	1337.46	-0.05096	3.78029	10.376	(4.761)	(61.10)	(2.316)	(0.083)	(0.147)	1.777
(73.9619)	(52040.60)	0.00012	0.00059	0.19611	(377.139)	1417.67	-0.05496	4.06472	13.083	(3.877)	(80.50)	(2.316)	(0.097)	(0.146)	1.506
(73.5513)	(67307.00)	0.00008	0.00045	0.18398	(399.774)	1496.18	-0.05926	4.35881	16.389	(3.329)	(106.05)	(2.316)	(0.108)	(0.144)	1.335
(73.0092)	(86703.08)	0.00006	0.00035	0.17269	(422.770)	1572.71	-0.06390	4.66563	20.437	(2.958)	(139.71)	(2.316)	(0.115)	(0.139)	1.216
(72.3843)	#########	0.00004	0.00027	0.16210	(446.531)	1647.03	-0.06891	4.98806	25.396	(2.690)	(184.05)	(2.316)	(0.119)	(0.134)	1.128
(71.7122)	#########	0.00003	0.00021	0.15212	(471.430)	1718.97	-0.07431	5.32886	31.478	(2.489)	(242.47)	(2.316)	(0.121)	(0.128)	1.060
(71.0182)	#########	0.00002	0.00016	0.14266	(497.820)	1788.37	-0.08013	5.69070	38.939	(2.333)	(319.43)	(2.316)	(0.121)	(0.122)	1.006

Eastman Kodak 1982–1995

Eastman Kodak USA(1)		1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	
Initial data and ratios		$\theta^0=S^0/S^0_P$		$\Omega^0=K^0/Y^0$		$\Psi^0=\Omega^0/\theta^0$		$\mu^0=S^0/P^0={}_sp*\theta^0=s/\alpha$			$\gamma=(1-s_p*\Omega)/s_p=(\theta-\mu*\Omega)/\mu$			$s_p=1/(\Omega+\gamma)$		
Dividends paid: $\mathbf{D^0}$		581	587	578	553	551	572	616	649	649	649	650	657	537	547	
Undistributed profit: S		581	-22	345	-221	-177	606	781	-120	54	-632	344	-182	17	705	
Profit: P^0=	$\mathbf{P^0}$	1162	565	923	332	374	1178	1397	529	703	17	994	475	554	1252	
Labour expenses: $\mathbf{W^0}$		4632	4472	4266	4586	5008	4550	5371	5771	5692	6097	6349	5417	4823	5025	
Output: $Y^0=P^0+W^0$		5794	5037	5189	4918	5382	5728	6768	6300	6395	6114	7343	5892	5377	6277	
Capital stock: $\mathbf{K^0}$		5058	5248	5389	5977	6276	6663	8013	8628	8978	9602	9835	6366	5292	5377	
Net investment: $\Delta K=K(t)-K(t-$		-----	190	141	588	299	387	1350	615	350	624	233	-3469	-1074	85	
Number of workers: $\mathbf{L^0}$		136.5	125.5	123.9	128.9	121.45	124.4	145.3	137.75	134.45	133.2	132.6	110.4	96.3	96.6	
Growth rate of worker:		----	-0.0806	-0.0127	0.0404	-0.0578	0.0243	0.1680	-0.0520	-0.0240	-0.0093	-0.0045	-0.1674	-0.1277	0.0031	
Accounting Depreciation:		575	652	758	831	975	995	1183	1326	1309	1477	1539	1111	883	916	
$d^A_{EP}=D^A_{EP}/K^0$		0.1137	0.1242	0.1407	0.1390	0.1554	0.1493	0.1476	0.1537	0.1458	0.1538	0.1565	0.1745	0.1669	0.1704	
Stock price $\mathbf{P_S}$		81.75	77.94	69.125	47.19	57.94	56.3	46.19	46.19	38.83	43.68	44.3	52.6	48.6	49.88	
Number of shares: N		165.5	165.6	155.7	225.9	226.1	324.37	324.41	324.58	324.64	324.93	325.92	330.57	339.76	345.9	**Average**
M.valuation ratio: $v^0_{MD}=(P_S*N$		2.6749	2.4594	1.9972	1.7835	2.0874	2.7408	1.8700	1.7376	1.4041	1.4781	1.4680	2.7314	3.1202	3.2088	2.1356
$\alpha^0=P^0/Y^0$	Alfa	0.2006	0.1122	0.1779	0.0675	0.0695	0.2057	0.2064	0.0840	0.1099	0.0028	0.1354	0.0806	0.1030	0.1995	0.1196
$\Omega^0=K^0/Y^0$	Omega	0.8730	1.0419	1.0385	1.2153	1.1661	1.1632	1.1840	1.3695	1.4039	1.5705	1.3394	1.0804	0.9842	0.8566	1.1857
$r^0=P^0/K^0_P$	r	0.2297	0.1077	0.1713	0.0555	0.0596	0.1768	0.1743	0.0613	0.0783	0.0018	0.1011	0.0746	0.1047	0.2328	0.1077
$k^0=K^0/L^0$	k	37.0549	41.8167	43.4948	46.3693	51.6756	53.5611	55.1480	62.6352	66.7758	72.0871	74.1704	57.6630	54.9533	55.6625	56.6164
$y^0=Y^0/L^0$	y	42.4469	40.1355	41.8805	38.1536	44.3145	46.0450	46.5795	45.7350	47.5642	45.9009	55.3771	53.3696	55.8359	64.9793	48.1439
Growth rate of output	g^a_Y	(0.1307)	0.0302	(0.0522)	0.0943	0.0643	0.1816	(0.0691)	0.0151	(0.0439)	0.2010	(0.1976)	(0.0874)	0.1674	0.0133	
Growth rate of capital	g^a_K	0.0376	0.0269	0.1091	0.0500	0.0617	0.2026	0.0768	0.0406	0.0695	0.0243	(0.3527)	(0.1687)	0.0161	0.0149	
$s^0_p=S^0_P/P^0$	S_P/P	(0.0389)	0.3738	(0.6657)	(0.4733)	0.5144	0.5591	(0.2268)	0.0768	(37.1765)	0.3461	(0.3832)	0.0307	0.5631	-2.8077	
$s^0_{Sp/Y}=S^0_P/Y^0$	S_P/Y	(0.0044)	0.0665	(0.0449)	(0.0329)	0.1058	0.1154	(0.0190)	0.0084	(0.1034)	0.0468	(0.0309)	0.0032	0.1123	0.0171	
$s^0=s^0_{S/Y}=S^0/Y^0$	S/Y	0.0377	0.0272	0.1196	0.0556	0.0676	0.1995	0.0976	0.0547	0.1021	0.0317	(0.5888)	(0.1997)	0.0135	0.0014	
$\theta^0=S^0/S^0_P$	S/S_P	(8.6364)	0.4087	(2.6606)	(1.6893)	0.6386	1.7286	(5.1250)	6.4815	(0.9873)	0.6773	19.0604	(63.1765)	0.1206	-4.0892	
$\Omega^0=K^0/Y^0$	K/Y	1.0419	1.0385	1.2153	1.1661	1.1632	1.1840	1.3695	1.4039	1.5705	1.3394	1.0804	0.9842	0.8566	1.1857	
$\Psi^0=\Omega^0/\theta^0$	Psi	(0.1206)	2.5411	(0.4568)	(0.6903)	1.8215	0.6849	(0.2672)	0.2166	(1.5906)	1.9774	0.0567	(0.0156)	7.1049	0.8663	
$\mu^0=S^0/P^0={}_sp*\theta^0$	S/P	0.3363	0.1528	1.7711	0.7995	0.3285	0.9664	1.1626	0.4979	36.7059	0.2344	(7.3032)	(1.9386)	0.0679	2.5986	
$\gamma=(1-s_p*\Omega)/s_p$	gamma, γ	(26.7237)	1.6368	(2.7176)	(3.2791)	0.7807	0.6048	(5.7779)	11.6146	(1.5974)	1.5502	(3.6903)	31.6040	0.9193	**0.3788**	
$\Omega+\gamma$: under modified gold	Ome+gam	(25.6818)	2.6754	(1.5023)	(2.1130)	1.9439	1.7887	(4.4083)	13.0185	(0.0269)	2.8895	(2.6099)	32.5882	1.7759	1.5645	
$s_p=1/(\Omega+\gamma)$	S_P/P	(0.0406)	0.2693	(3.4852)	(1.0561)	0.3218	0.3364	(0.3291)	0.0693	0.6478	0.2365	(0.6538)	0.0298	0.3799	-0.2518	

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Eastman Kodak USA(2)	D/S_P	-----	1.6754	(2.5023)	(3.1130)	0.9439	0.7887	(5.4083)	12.0185	(1.0269)	1.8895	(3.6099)	31.5882	0.7759	2.8350
$1/\mu=\alpha/s=$	P/S	2.9737	6.5461	0.5646	1.2508	3.0439	1.0348	0.8602	2.0086	0.0272	4.2661	(0.1369)	(0.5158)	14.7294	2.8194
$(1-s_P)P/S=$	D/S	3.0895	4.0993	0.9405	1.8428	1.4780	0.4563	1.0553	1.8543	1.0401	2.7897	(0.1894)	(0.5000)	6.4353	1.8763
$\Delta\Omega(2)=(\Omega(2)(1+g_Y(2))-\Omega(1))/g_Y(2)$		(0.2510)	0.9276	(2.1697)	0.6444	1.1185	1.2981	(1.3141)	3.6842	(2.2206)	0.1896	2.3908	2.0854	0.0944	0.4983
$\sigma_\Omega=\Delta\Omega/\Omega$		(0.2409)	0.8932	(1.7853)	0.5526	0.9615	1.0964	(0.9595)	2.6243	(1.4140)	0.1415	2.2128	2.1189	0.1103	0.4855
$I/Y^0(2)=s_{S/Y}(2)(1+g_Y(2))$		0.0328	0.0280	0.1133	0.0608	0.0719	0.2357	0.0909	0.0556	0.0976	0.0381	(0.4724)	(0.1823)	0.0158	0.0143
$g_y(2)=(g_Y(2)-n)/(1+n)$		(0.0545)	0.0435	(0.0890)	0.1615	0.0391	0.0116	(0.0181)	0.0400	(0.0350)	0.2064	(0.0363)	0.0462	0.1638	0.0369
$A(2)=g_y(2)/(I/Y^0)(2)$		(1.6606)	1.5533	(0.7853)	2.6560	0.5431	0.0493	(0.1995)	0.7199	(0.3584)	5.4173	0.0767	(0.2535)	10.3589	1.3936
$MPK=\Delta Y/\ =1/\Delta\Omega$		(3.9842)	1.0780	(0.4609)	1.5518	0.8941	0.7704	(0.7610)	0.2714	(0.4503)	5.2747	0.4183	0.4795	10.5882	1.2054
Per capita =Y/L	42.4469	40.1355	41.8805	38.1536	44.3145	46.0450	46.5795	45.7350	47.5642	45.9009	55.3771	53.3696	55.8359	64.9793	48.1439
$MPL=\Delta Y/\ =((y(2)(1+n)-y(1))/n$		68.8182	(95.0000)	(54.2000)	(62.2819)	117.2881	49.7608	61.9868	(28.7879)	224.8000	#########	65.3604	36.5248	3000.0000	102.7643
$\sigma_y=\Delta y/y$		1.7146	(2.2684)	(1.4206)	(1.4055)	2.5472	1.0683	1.3553	(0.6052)	4.8975	(36.9888)	1.2247	0.6541	46.1686	1.3032
$\sigma_k=\sigma_\Omega*\sigma_y$		(0.4131)	(2.0261)	2.5362	(0.7767)	2.4493	1.1713	(1.3005)	(1.5883)	(6.9250)	(5.2357)	2.7099	1.3861	5.0902	-0.2248
Ratios under the balanced growth-state that follows the modified golden rule, where γ is given as 1.0															
Coefficient of time pr	gamma, γ	1.5000	1.5000	1.5000	1.5000	1.5000	1.5000	1.5000	1.5000	1.5000	1.5000	1.5000	1.5000	1.5000	**1.5000**
$s^*_{SP/P}$ $=1/(\Omega+\gamma)$		0.3934	0.3939	0.3683	0.3751	0.3755	0.3726	0.3485	0.3444	0.3257	0.3522	0.3875	0.4025	0.4243	0.3741
$s^*_{SP/Y}=\alpha*s^*$ $=\alpha/(\Omega+\gamma)$		0.0441	0.0701	0.0249	0.0261	0.0772	0.0769	0.0293	0.0379	0.0009	0.0477	0.0312	0.0415	0.0846	0.0456
$s^*_{S/Y}$ $=\alpha\Omega/(\Omega+\gamma)$		0.0460	0.0728	0.0302	0.0304	0.0898	0.0911	0.0401	0.0531	0.0014	0.0639	0.0338	0.0408	0.0725	0.0512
$g^*_Y=g^*_K=s^*_{SP/Y}/(1-s^*_{SP/Y})$		0.0462	0.0754	0.0255	0.0268	0.0837	0.0833	0.0301	0.0393	0.0009	0.0501	0.0322	0.0433	0.0925	0.0484
$g^*_y=g^*_k=(g^*_Y-n)/(1+n)$		0.1379	0.0892	(0.0143)	0.0897	0.0580	(0.0725)	0.0866	0.0649	0.0103	0.0548	0.2398	0.1960	0.0891	0.0792
$\theta^*=\Omega^*=\Delta\Omega^*$ $=s^*_{S/Y}/s^*_{SP/Y}$	$\sigma_\Omega=\Delta^*\Omega/\Omega^*=1$	1.0419	1.0385	1.2153	1.1661	1.1632	1.1840	1.3695	1.4039	1.5705	1.3394	1.0804	0.9842	0.8566	1.1857
Ψ^* $=\Omega^*/\theta^*$		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
$I/Y^*=s^*_{S/Y}(1+g^*_Y)$		0.0481	0.0783	0.0310	0.0312	0.0973	0.0986	0.0413	0.0552	0.0014	0.0671	0.0348	0.0426	0.0792	0.0543
Technolog $=g^*_y/(I/Y^*)$		2.8662	1.1403	(0.4610)	2.8758	0.5957	(0.7351)	2.0978	1.1741	7.2354	0.8175	6.8828	4.6030	1.1245	2.3244
λ^* A^* is constant		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
$s^*_{SP/Y}=s^*_{S/Y}/\Omega^*$		0.0441	0.0701	0.0249	0.0261	0.0772	0.0769	0.0293	0.0379	0.0009	0.0477	0.0312	0.0415	0.0846	0.0456
$r*=\alpha/\Omega^*$		0.1077	0.1713	0.0555	0.0596	0.1768	0.1743	0.0613	0.0783	0.0018	0.1011	0.0746	0.1047	0.2328	0.1077
Discount rate $r^\#=r^*-s^*_{SP/Y}$		0.0635	0.1012	0.0307	0.0335	0.0996	0.0974	0.0320	0.0404	0.0009	0.0534	0.0434	0.0632	0.1482	0.0621
$V^0_{SP}=s^*_{SP/Y}$ $=\Omega$ if $\gamma=1$	Set Y=1	0.6946	0.6924	0.8102	0.7774	0.7755	0.7893	0.9130	0.9359	1.0470	0.8929	0.7203	0.6561	0.5711	0.7904
$V^0_D=(\alpha-s^*$ $=(\Omega/\gamma)(\Omega+\gamma-1)$	Set Y=1	1.0710	1.0652	1.3898	1.2952	1.2898	1.3291	1.7069	1.7819	2.1678	1.6424	1.1384	0.9738	0.7747	1.3559
$v^0_D=V^0_D/V^0$ $=\Omega+\gamma-1$		1.5419	1.5385	1.7153	1.6661	1.6632	1.6840	1.8695	1.9039	2.0705	1.8394	1.5804	1.4842	1.3566	1.6857
$C_D/D=\gamma*s^*_{SP/Y}/(\alpha-s^*_{SP/Y})$		0.9728	0.9749	0.8745	0.9003	0.9019	0.8908	0.8023	0.7879	0.7245	0.8155	0.9491	1.0107	1.1057	0.9008
$V^0_{CD}=V^0_D*($ $=\Omega$ if Y=1	Set Y=1	1.0419	1.0385	1.2153	1.1661	1.1632	1.1840	1.3695	1.4039	1.5705	1.3394	1.0804	0.9842	0.8566	1.1857
$v^0_{CD}=v^0_D*($ $=\gamma$		1.5000	1.5000	1.5000	1.5000	1.5000	1.5000	1.5000	1.5000	1.5000	1.5000	1.5000	1.5000	1.5000	1.5000

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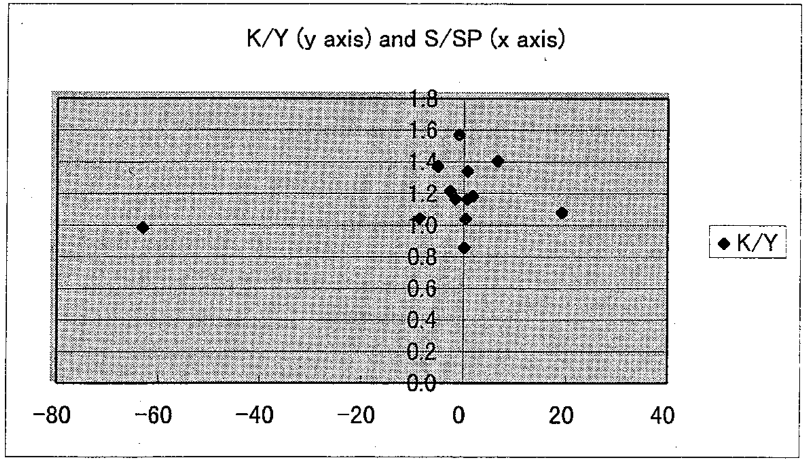
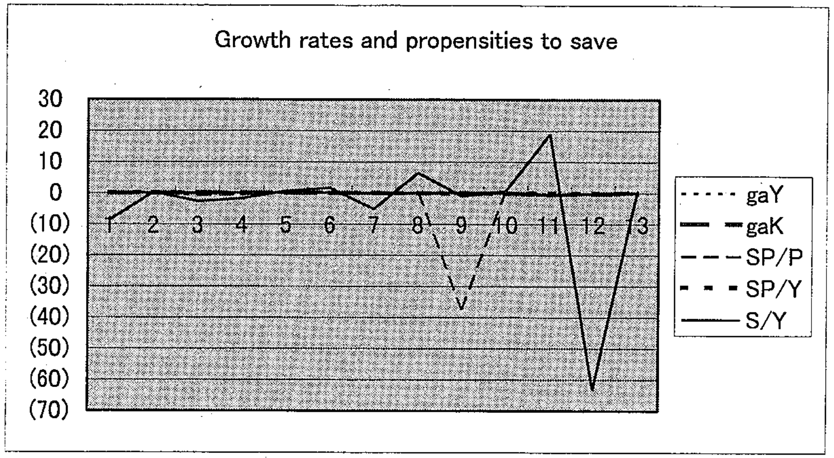
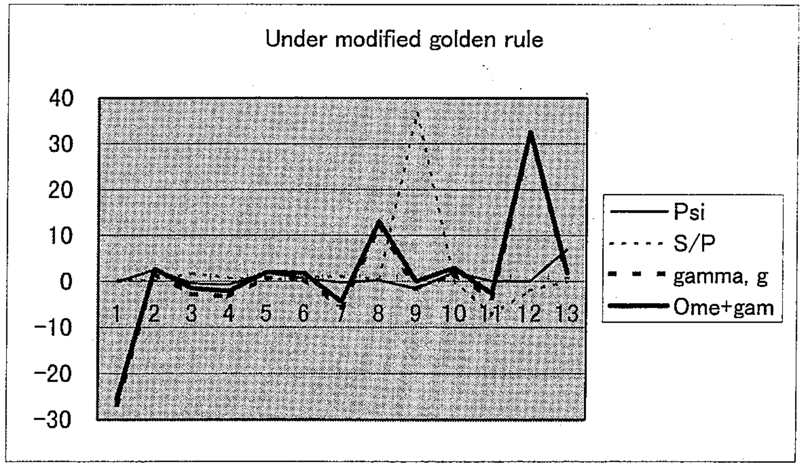
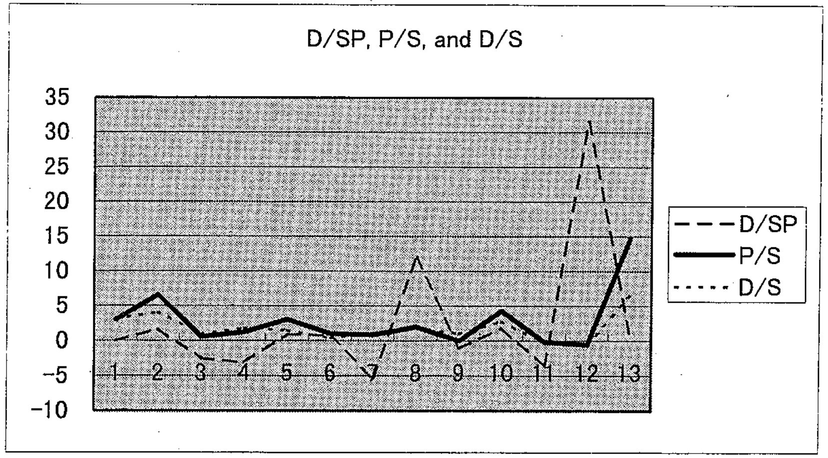
Eastman Kodak USA(3)	V^0_{MD}/V^0_D	1.5950	1.2981	1.0398	1.2528	1.6479	1.1105	0.9295	0.7375	0.7139	0.7981	1.7282	2.1023	2.3653	1.3322









Eastman Kodak 1995 Type 2

Appendix 7-2-6 Eastman Kodak, 1995 in Type 2, $Y=S_P+S_D+S_W+C_D+C_W$: both $s_{S/Y}$ and $s_{SP/Y}$ are variables **(1)**

$g_Y(t)=s_{SP/Y}(t)/(1-s_{SP/Y}(t))$ $I/Y^0(t)=s_{S/Y}(t)(1+g_Y(t))$ $g_K(t)=(I/Y^0)(t)/\Omega(t-1)$

1 Balanced growth-state: $g^*_Y=g^*_{KP}=g_Y=g_{KP}$

Starting with a given capital-output ratio Ω^0: $s_P=s_{SP/P}$ is derived using Ω^0

gamma		$L^0=$		n	Ω^0	α	k^0	$s^*_{SP/P}$	$s^*_{SP/Y}$	$s^*_{SP/P}$ $s^*_{SWD/WD}$	$s^*_{SWD/Y}$	$s^*_{S/Y}=s^*_{SP/Y}\Omega^0$		variables	y^0	r^0
1.00000		96.6		0.00310	0.85660	0.19950	55.66	0.53862	0.10745	(0.01726)	(0.01541)	0.09			64.98074	0.23290
$\theta=S/S_P=\Omega=K/Y$		time		$g^*_Y(t)$	$g^*_K(t)$	$g^*_k(t)$	$g^*_y(t)$	$g^*_\Omega(t)$	$\Omega^*(t)$	$c^*_{D/Y}=\alpha-s^*_{S/}$	$r^*(t)$	$k^*(t)$	$y^*(t)$	**$I/Y^{0*}(t)$**	$A^*(t)$	$\lambda^*(t)$
0.85660			1	0.12039	0.12039	0.11693	0.11693	(0.00000)	0.85660	0.10745	0.23290	62.17	72.58	0.10313	1.13383	-----
			2	0.12039	0.12039	0.11693	0.11693	(0.00000)	0.85660	0.10745	0.23290	69.44	81.07	0.10313	1.13383	0.00000
			3	0.12039	0.12039	0.11693	0.11693	(0.00000)	0.85660	0.10745	0.23290	77.56	90.54	0.10313	1.13383	0.00000
											$a=s^*_{S/Y}/s^0_{S/Y}$	$g_{sS/Y}=a^{\wedge}(1/10)-1$	$\theta^*=s^*_{S/Y}/s^*_{SP/Y}$	$\Psi^*=\Omega^0/\theta^*$	$A(t)=g_y(t)/(I/Y^0)$	
gamma																
0.91928	**2 Unbalanced growth-state**										6.81819	0.21	0.86	1.00000	$\lambda=(A(t)-A(t-1))/A(t-1)$	
$b=s^*_{SP/Y}/s^0_{SP/Y}$	$g_{sSP/Y}=b^{\wedge}(1/10)-1$	$L^0=$		n	Ω^0	α	k^0	$s^0_{SP/P}$	$s^0_{SP/Y}$	$s^0_{SWD/WD}$	$s^0_{SWD/Y}$	$s^0_{S/Y}$	$\theta^0=s^0_{S/Y}/s^0_{SP/}$	$\Psi^0=\Omega^0/\theta^0$	y^0	r^0
0.95652	(0.00444)	96.6		0.00310	0.85660	0.19950	55.66	**0.56310**	0.11234	(0.11135)	(0.09884)	**0.01350**	0.12	7.12808	64.98074	0.23290
$\theta(t)=s_{S/Y}(t)/s_{SP/Y}(t)$	$\Psi(t)=\Omega^0/\theta(t)$	time		$g_Y(t)=s_{SP/Y}(t)/(1-s_{SP/}$	$g_K(t)$	$g_k(t)$	$g_y(t)$	$g_\Omega(t)$	$\Omega(t)$	$s_{S/Y}(t)$	r(t)	k(t)	y(t)	$I/Y^0(t)$	A(t)	$\lambda(t)$
0.14625	5.85700		1	0.12592	0.02150	0.01834	0.12244	(0.09275)	0.77715	0.01636	0.25671	56.68	72.94	0.01842	6.64856	-----
0.17799	4.81258		2	0.12530	0.02870	0.02552	0.12182	(0.08584)	0.71044	0.01982	0.28081	58.13	81.82	0.02230	5.46230	(0.17842)
0.21662	3.95440		3	0.12467	0.03801	0.03481	0.12119	(0.07705)	0.65570	0.02401	0.30425	60.15	91.74	0.02701	4.48769	(0.17842)
0.26363	3.24925		4	0.12405	0.04987	0.04663	0.12057	(0.06599)	0.61243	0.02909	0.32575	62.96	102.80	0.03270	3.68698	(0.17842)
0.32084	2.66985		5	0.12343	0.06466	0.06137	0.11996	(0.05231)	0.58040	.0.03525	0.34373	66.82	115.13	0.03960	3.02913	(0.17843)
0.39047	2.19376		6	0.12282	0.08263	0.07928	0.11935	(0.03579)	0.55962	0.04271	0.35649	72.12	128.87	0.04796	2.48865	(0.17843)
0.47521	1.80257		7	0.12220	0.10377	0.10036	0.11874	(0.01643)	0.55043	0.05175	0.36244	79.36	144.17	0.05807	2.04461	(0.17843)
0.57834	1.48113		8	0.12160	0.12776	0.12428	0.11813	0.00550	0.55346	0.06270	0.36046	89.22	161.21	0.07032	1.67980	(0.17843)
0.70385	1.21702		9	0.12099	0.15387	0.15030	0.11753	0.02933	0.56969	0.07597	0.35019	102.63	180.15	0.08516	1.38007	(0.17843)
0.85660	**1.00000**		**10**	**0.12039**	**0.18102**	**0.17737**	**0.11693**	**0.05412**	**0.60052**	**0.09205**	**0.33221**	**120.83**	**201.22**	**0.10313**	**1.13383**	**(0.1784)**
1.04250	0.82168		11	0.11979	0.20796	0.20423	0.11633	0.07874	0.64780	0.11152	0.30797	145.51	224.62	0.12488	0.93152	(0.17843)
1.26874	0.67516		12	0.11920	0.23345	0.22964	0.11574	0.10209	0.71393	0.13513	0.27944	178.93	250.62	0.15123	0.76531	(0.17843)
1.54408	0.55476		13	0.11861	0.25652	0.25264	0.11515	0.12329	0.80195	0.16372	0.24877	224.13	279.48	0.18314	0.62876	(0.17843)
1.87917	0.45584		14	0.11802	0.27655	0.27260	0.11456	0.14179	0.91567	0.19837	0.21787	285.23	311.50	0.22178	0.51657	(0.17843)
2.28699	0.37455		15	0.11743	0.29331	0.28931	0.11398	0.15739	1.05978	0.24035	0.18825	367.75	347.01	0.26857	0.42440	(0.17843)
2.78331	0.30776		16	0.11685	0.30689	0.30285	0.11340	0.17015	1.24011	0.29121	0.16087	479.12	386.36	0.32524	0.34867	(0.17843)
3.38734	0.25288		17	0.11627	0.31760	0.31353	0.11282	0.18036	1.46377	0.35283	0.13629	629.34	429.95	0.39386	0.28646	(0.17843)
4.12246	0.20779		18	0.11570	0.32585	0.32175	0.11225	0.18835	1.73948	0.42750	0.11469	831.83	478.21	0.47696	0.23534	(0.17843)
5.01711	0.17074		19	0.11513	0.33205	0.32794	0.11168	0.19453	2.07786	0.51797	0.09601	1104.62	531.61	0.57760	0.19335	(0.17843)
6.10592	0.14029		20	0.11456	0.33663	0.33250	0.11111	0.19925	2.49188	0.62758	0.08006	1471.91	590.68	0.69948	0.15885	(0.17843)
7.43101	0.11527		21	0.11399	0.33993	0.33579	0.11055	0.20282	2.99729	0.76039	0.06656	1966.17	655.98	0.84707	0.13051	(0.17843)
9.04368	0.09472		22	0.11343	0.34225	0.33810	0.10999	0.20551	3.61325	0.92131	0.05521	2630.93	728.13	1.02581	0.10722	(0.17843)
11.00633	0.07783		23	0.11287	0.34381	0.33966	0.10943	0.20752	4.36307	1.11628	0.04572	3524.54	807.81	1.24227	0.08809	(0.17843)

Eastman Kodak 1995 Type 2

A7-2-6 (2) Relationships among saving, profit, undistributed profit, dividends, saved dividends, consumed dividends, saved wages, and consumed wages: using ratios

Starting with a given retention ratio: $s_P = s_{SP/P}$

$\gamma(t)=(1/s_P)(t)-\Omega(t)$ $c_{D/Y}(t)=\gamma(t)*s_{SP/Y}(t)$ $s_{WD/WD}(t)=s_{WD/Y}(t)/(1-s_{SP/Y}(t))$

gamma given			s^0	c^0	Ω^0	θ^0				γ^0	$c_{D/Y}{}^0$	$c_{W/Y}{}^0$			
1.00000			0.09	0.90795	0.85660	0.85660				1	0.10745	0.80050			
$s^*_{SP/Y}(t)$	$s^*_P(t)=s^*_{SP/P}($	$1-s^*_P(t)$	$s^*(t)=s^*_{S/Y}(t)$	$c^*(t)=1-s^*(t$	$\Omega^*(t)$	$\theta^*(t)$	$\Psi^*(t)$	$\mu^*(t)=(S/P)^*(t)$	$(1/s_P)^*(t)=\Omega+\gamma$	$\gamma^*(t)=(1/s_P)(t)-\Omega(t)$	$c^*_{D/Y}(t)=\gamma(t)*s$	$c^*_{W/Y}(t)$	$s^*_{WD/Y}(t)$	$s^*_{WD/WD}(t)$	$(\Omega+\gamma)/\Omega$
0.10745	0.53862	0.46138	0.09205	0.90795	0.85660	0.85660	1.00000	0.46138	1.85660	1.00000	0.10745	0.80050	-0.01541	-0.01726	2.16741
0.10745	0.53862	0.46138	0.09205	0.90795	0.85660	0.85660	1.00000	0.46138	1.85660	1.00000	0.10745	0.80050	-0.01541	-0.01726	2.16741
0.10745	0.53862	0.46138	0.09205	0.90795	0.85660	0.85660	1.00000	0.46138	1.85660	1.00000	0.10745	0.80050	-0.01541	-0.01726	2.16741

$c^*_{D/D}=c^*_{D/Y}/-(\alpha-s^*_{SP/Y})$

0.12544 : Dividends are all saved.

$\gamma(t)=(1/s_P)(t)-\Omega(t)$ $c_{D/Y}(t)=\gamma(t)*s_{SP/Y}(t)$

0.12544	$s_P{}^0$		s^0	c^0	Ω^0	θ^0			$1/s_P{}^0$	γ^0	$c_{D/Y}{}^0$	$c_{W/Y}{}^0$			
0.12544	0.56310		0.01	0.98650	0.85660	0.12017			1.77588	0.91928	0.1032709	0.88323			
$s_{SP/Y}(t)$	$s_P(t)=s_{SP/P}(t)$	$1-s_P(t)$	$s(t)=s_{S/Y}(t)$	$c(t)=1-s(t)$	$\Omega(t)$	$\theta(t)$	$\Psi(t)$	$\mu(t)=(S/P)(t)$	$(1/s_P)(t)=\Omega(t)+\gamma(t)$	**gamma (t)**	$c_{D/Y}(t)$	$c_{W/Y}(t)$	$s_{WD/Y}(t)$	$s_{WD/WD}(t)$	$(\Omega+\gamma)/\Omega$
0.11184	0.56060	0.43940	0.01636	0.98364	0.77715	0.14625	5.31379	0.08199	1.78379	1.00664	0.11258	0.87106	-0.09548	-0.10751	2.29529
0.11134	0.55812	0.44188	0.01982	0.98018	0.71044	0.17799	3.99143	0.09934	1.79174	1.08130	0.12040	0.85979	-0.09153	-0.10299	2.52201
0.11085	0.55564	0.44436	0.02401	0.97599	0.65570	0.21662	3.02697	0.12036	1.79972	1.14402	0.12682	0.84917	-0.08684	-0.09766	2.74473
0.11036	0.55318	0.44682	0.02909	0.97091	0.61243	0.26363	2.32308	0.14583	1.80774	1.19531	0.13191	0.83899	-0.08126	-0.09135	2.95174
0.10987	0.55072	0.44928	0.03525	0.96475	0.58040	0.32084	1.80897	0.17670	1.81579	1.23540	0.13573	0.82902	-0.07462	-0.08383	3.12854
0.10938	0.54828	0.45172	0.04271	0.95729	0.55962	0.39047	1.43319	0.21409	1.82388	1.26426	0.13829	0.81900	-0.06667	-0.07486	3.25914
0.10890	0.54585	0.45415	0.05175	0.94825	0.55043	0.47521	1.15828	0.25939	1.83201	1.28158	0.13956	0.80869	-0.05715	-0.06413	3.32832
0.10841	0.54343	0.45657	0.06270	0.93730	0.55346	0.57834	0.95697	0.31429	1.84017	1.28671	0.13950	0.79780	-0.04571	-0.05127	3.32487
0.10793	0.54102	0.45898	0.07597	0.92403	0.56969	0.70385	0.80939	0.38080	1.84837	1.27868	0.13801	0.78602	-0.03196	-0.03583	3.24452
0.10745	**0.53862**	**0.46138**	**0.09205**	**0.90795**	**0.60052**	**0.85660**	**0.70105**	**0.46138**	**1.85660**	**1.25608**	**0.13497**	**0.77298**	**-0.01541**	**-0.01726**	**3.09166**
0.10698	0.53623	0.46377	0.11152	0.88848	0.64780	1.04250	0.62139	0.55902	1.86487	1.21707	0.13020	0.75828	0.00455	0.00509	2.87878
0.10650	0.53385	0.46615	0.13513	0.86487	0.71393	1.26874	0.56271	0.67732	1.87318	1.15925	0.12346	0.74141	0.02862	0.03203	2.62375
0.10603	0.53148	0.46852	0.16372	0.83628	0.80195	1.54408	0.51937	0.82065	1.88152	1.07957	0.11447	0.72181	0.05769	0.06453	2.34617
0.10556	0.52913	0.47087	0.19837	0.80163	0.91567	1.87917	0.48727	0.99432	1.88990	0.97424	0.10284	0.69879	0.09281	0.10376	2.06397
0.10509	0.52678	0.47322	0.24035	0.75965	1.05978	2.28699	0.46340	1.20474	1.89832	0.83854	0.08812	0.67153	0.13525	0.15114	1.79124
0.10463	0.52444	0.47556	0.29121	0.70879	1.24011	2.78331	0.44555	1.45969	1.90678	0.66667	0.06975	0.63904	0.18658	0.20838	1.53759
0.10416	0.52212	0.47788	0.35283	0.64717	1.46377	3.38734	0.43213	1.76859	1.91527	0.45150	0.04703	0.60014	0.24867	0.27759	1.30845
0.10370	0.51980	0.48020	0.42750	0.57250	1.73948	4.12246	0.42195	2.14286	1.92381	0.18433	0.01911	0.55338	0.32380	0.36126	1.10597
0.10324	0.51750	0.48250	0.51797	0.48203	2.07786	5.01711	0.41416	2.59634	1.93238	-0.14549	-0.01502	0.49705	0.41473	0.46248	0.92998
0.10278	0.51520	0.48480	0.62758	0.37242	2.49188	6.10592	0.40811	3.14578	1.94099	-0.55089	-0.05662	0.42904	0.52480	0.58492	0.77892
0.10233	0.51292	0.48708	0.76039	0.23961	2.99729	7.43101	0.40335	3.81150	1.94963	-1.04765	-0.10720	0.34681	0.65807	0.73308	0.65047
0.10187	0.51064	0.48936	0.92131	0.07869	3.61325	9.04368	0.39953	4.61809	1.95832	-1.65493	-0.16859	0.24728	0.81944	0.91238	0.54198
0.10142	0.50838	0.49162	1.11628	-0.11628	4.36307	11.00633	0.39641	5.59538	1.96704	-2.39603	-0.24301	0.12673	1.01486	1.12940	0.45084

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A7-2-6 (3) Structure of the elasticity of substitution

					$S_D^{*0}=D^{*0}-C_D^{*0}$	$S_W^{*0}=S_{WD}^{*0}-S$	$S_W^{*0}=W^{*0}-C_W^{*0}$	$A^{*0}=C_D^{*0}+S_W$	$S_W^{*0}=A^{*0}-D^{*0}$						
					(96.72)	0.00	0.00	577.78	0.00						
L^0	Y^0	W^0	S^0	S_{WD}^0	P^0	S_P^0	D^0	C_D^0	$C_D^0+S_{WD}^0$	$C_W^0=C^0-C_D^0$	C^0	$c_{C/L}^0=C^0/L^0$	$\Delta c_{C/L}^0$	$\sigma c_{C/L}^0=\Delta c_{C/L}^0/c_{C/L}^0$	$c_{C/Y}^0=C^0/Y^0$
96.600	6277.14	5024.85	577.783	(96.724)	1252.29	674.51	577.78	674.51	577.78	5024.850	5699.357	59.000	-----	-----	0.9080
$L^*(t)$	$Y^*(t)$	$W^*(t)$	$S^*(t)$	$S^*_{WD}(t)$	$P^*(t)$	$S_P^*(t)$	$D^*(t)$	$C_D^*(t)$	$C_{D(t)}+S_{WD(t)}$	$C_W(t)=C(t)-C$	$C^*(t)=c^*(t)^*Y^*(t)$	$c_{C/L}^*(t)=C^*(t)/L^*(t)$	$\Delta c_{C/L}^*(t)$	$\sigma c_{C/L}^*(t)=\Delta c^*(t)/$	$c_{C/Y}^*(t)=C^*(t)/Y^*(t)$
96.899	7032.85	5629.80	647.342	(108.369)	1403.05	755.71	647.34	755.71	647.34	5629.797	6385.508	65.898	2291.30	34.770	0.9080
97.200	7879.54	6307.57	725.277	(121.416)	1571.97	846.69	725.28	846.69	725.28	6307.574	7154.266	73.604	2559.21	34.770	0.9080
97.501	8828.17	7066.95	812.593	(136.033)	1761.22	948.63	812.59	948.63	812.59	7066.949	8015.576	82.210	2858.46	34.770	0.9080
					$S_D^0=D^0-C_D^0$	$S_W^0=S_{WD}^0-S_D^0$	$S_W^0=W^0-C_W^0$	$A=C_D^0+S_{WD}^0$	$S_W^0=A^0-D^0$	Marginal rate of per capita consumption: $\Delta c_{C/L}(2)=((c_{C/L}(2)(1+n)-c_{C/L}(1))/n$					
					(101.12)	(519.30)	(519.30)	27.82	(519.30)			$c_{C/L}(t)=C(t)/L(t)=c_{C/Y}(t)^*y(t)$		$\sigma c_{C/L}^0=\Delta c_{C/L}^0/c_{C/L}^0$	
L^0	Y^0	W^0	S^0	S_{WD}^0	P^0	S_P^0	D^0	C_D^0	$C_D^0+S_{WD}^0$	$C_W^0=C^0-C_D^0$	$C^0=c_{C/D}^0{}^*Y$	$c_{C/L}^0=C^0/L^0$	$\Delta c_{C/L}^0$		$c_{C/Y}^0=C^0/Y^0$
96.600	6277.14	5024.85	84.741	-620.423	1252.289	705.164	547.125	648.246	27.823	5544.152	6192.398	64.103	-----	-----	0.9865
L(t)	Y(t)	W(t)	$S(t)=s_{S/Y}(t)^*Y$	$S_{WD}(t)=S(t)-S_P$	P(t)	$S_P(t)$	D(t)	$C_D(t)=S_P(t)^*\gamma$	$C_{D(t)}+S_{WD(t)}$	$C_W(t)=C(t)-C$	$C(t)=c(t)^*Y(t)$	$c_{C/L}(t)=C(t)/L(t)$	$\Delta c_{C/L}(t)$	$\sigma c_{C/L}(t)=\Delta c(t)/c(t)$	$c_{C/Y}(t)=C(t)/Y(t)$
96.899	7067.58	5657.60	115.60	-674.84	1409.98	790.44	619.54	795.69	120.85	6156.29	6951.98	71.7442	2536.49	35.355	0.9836
97.200	7953.11	6366.47	157.62	-727.92	1586.65	885.53	701.11	957.53	229.61	6837.97	7795.49	80.2007	2808.10	35.013	0.9802
97.501	8944.63	7160.17	214.78	-776.73	1784.45	991.52	792.94	1134.32	357.58	7595.53	8729.85	89.5358	3100.87	34.633	0.9760
97.803	10054.20	8048.38	292.52	-817.05	2005.81	1109.57	896.24	1326.28	509.22	8435.40	9761.68	99.8092	3413.80	34.203	0.9709
98.107	11295.19	9041.80	398.16	-842.83	2253.39	1241.00	1012.40	1533.12	690.29	9363.90	10897.03	111.0733	3744.66	33.713	0.9647
98.411	12682.42	10152.28	541.67	-845.56	2530.14	1387.23	1142.91	1753.82	908.26	10386.93	12140.75	123.3681	4089.43	33.148	0.9573
98.716	14232.27	11392.93	736.51	-813.35	2839.34	1549.85	1289.49	1986.25	1172.91	11509.51	13495.77	136.7133	4441.62	32.489	0.9483
99.022	15962.87	12778.28	1000.87	-729.72	3184.59	1730.60	1453.99	2226.78	1497.06	12735.21	14962.00	151.0979	4791.30	31.710	0.9373
99.329	17894.25	14324.35	1359.41	-571.98	3569.90	1931.38	1638.52	2469.62	1897.64	14065.23	16534.85	166.4658	5123.84	30.780	0.9240
99.637	**20048.56**	**16048.87**	**1845.38**	**-308.93**	**3999.69**	**2154.31**	**1845.38**	**2705.99**	**2397.06**	**15497.2**	**18203.2**	**182.696**	**5418.09**	**29.656**	**0.9080**
99.946	22450.24	17971.42	2503.75	102.07	4478.82	2401.68	2077.14	2923.01	3025.08	17023.48	19946.49	199.5735	5644.09	28.281	0.8885
100.255	25126.28	20113.59	3395.19	719.16	5012.69	2676.04	2336.66	3102.18	3821.34	18628.90	21731.08	216.7572	5759.87	26.573	0.8649
100.566	28106.43	22499.20	4601.60	1621.44	5607.23	2980.16	2627.08	3217.29	4838.73	20287.55	23504.83	233.7249	5707.19	24.418	0.8363
100.878	31423.53	25154.54	6233.40	2916.31	6268.99	3317.10	2951.90	3231.64	6147.95	21958.49	25190.13	249.7089	5405.83	21.649	0.8016
101.191	35113.73	28108.54	8439.45	4749.25	7005.19	3690.20	3314.99	3094.38	7843.63	23579.90	26674.28	263.6041	4745.92	18.004	0.7597
101.504	39216.85	31393.09	11420.28	7317.15	7823.76	4103.13	3720.64	2735.44	10052.59	25061.14	27796.58	273.8461	3577.71	13.065	0.7088
101.819	43776.76	35043.29	15445.94	10886.04	8733.46	4559.90	4173.56	2058.81	12944.85	26272.00	28330.81	278.2467	1697.81	6.102	0.6472
102.135	48841.67	39097.76	20879.89	15814.98	9743.91	5064.91	4679.00	933.61	16748.58	27028.17	27961.78	273.7736	-1169.17	(4.271)	0.5725
102.451	54464.64	43598.94	28211.05	22588.08	10865.70	5622.97	5242.73	-818.07	21770.01	27071.66	26253.59	256.2543	-5395.12	(21.054)	0.4820
102.769	60703.96	48593.52	38096.80	31857.48	12110.44	6239.33	5871.11	-3437.20	28420.28	26044.36	22607.16	219.9806	-11481.23	(52.192)	0.3724
103.087	67623.69	54132.77	51420.61	44500.88	13490.93	6919.73	6571.20	-7249.48	37251.41	23452.56	16203.08	157.1779	-20101.73	(127.892)	0.2396
103.407	75294.15	60272.97	69369.17	61698.71	15021.18	7670.46	7350.73	-12694.10	49004.62	18619.08	5924.98	57.2977	-32162.15	(561.317)	0.0787
103.728	83792.50	67075.90	93535.68	85037.32	16716.60	8498.35	8218.25	-20362.27	64675.05	10619.10	-9743.17	-93.9304	-48877.17	520.355	-0.1163

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A7-2-6 (4) Marginal rate is measured using the growth rate of the denominator

Marginal rate of profit to capital: $\Delta r(2)=((r(2)(1+g_K(2)-r(1))/g_K(2)$

$\Delta\Omega(2)=((\Omega(2)(1+g_Y(2)-\Omega(1))/g_Y(2)$

$\Delta y(2)=((y(2)(1+n)-y(1))/n$

$\Delta k(2)=((k(2)(1+n)-k(1))/n$

$\Delta c_{C/Y}{}^0$	$\sigma c_{C/Y}{}^0=\Delta c_{C/Y}{}^0/c_{C/Y}{}^0$	K^0	ΔK^0	Δr^0	ΔW^0	w^0	Δw^0	$\Delta r^0/\Delta w^0$	$(W*K)^0$		1/MPK		MPK	MPL	
-----	-----	5377.00	-----	$=\Delta P/\Delta K$	-----	52.0171	$=\Delta W/\Delta L$	-----	27018606		$=\Delta K/\Delta Y$		$=\Delta Y/\Delta K$	$=\Delta Y/\Delta L$	
$\Delta c_{C/Y}(t)$	$\sigma c_{C/Y}(t)=\Delta c(t)/c(t)$	K(t)	ΔK(t)	Δr(t)	ΔW(t)	w(t)	Δw(t)	$(\Delta r^0/\Delta w^0)(t)$	(W*K)(t)	$g_{WK}(t)$	ΔΩ(t)	$\sigma_\Omega=\Delta\Omega/\Omega$	$=1/\Delta\Omega(t)$	Δy	$\sigma_y=\Delta y/y$
0.9080	1.0000	6024.34	647.3423	0.2329	604.9469	58.0994	2020.1260	0.00012	33915810	0.25528	0.85660	1.00000	1.16741	2523.58	34.7702
0.9080	1.0000	6749.62	725.2766	0.2329	677.7771	64.8928	2256.3365	0.00010	42573705	0.25528	0.85660	1.00000	1.16741	2818.66	34.7702
0.9080	1.0000	7562.21	812.5934	0.2329	759.3754	72.4807	2520.1666	0.00009	53441755	0.25528	0.85660	1.00000	1.16741	3148.24	34.7702

$\sigma c_{C/L}(t)=\sigma c_{C/Y}(t)*\sigma_y(t)$

$\Delta c_{C/Y}{}^0$	$\sigma c_{C/Y}{}^0=\Delta c_{C/Y}{}^0/c_{C/Y}{}^0$	K^0	ΔK^0	Δr^0	ΔW^0	w^0	Δw^0	$\Delta r^0/\Delta w^0$	$(W*K)^0$		1/MPK		MPK	MPL	
-----	-----	5377.00	-----	$=\Delta P/\Delta K$	-----	52.0171	$=\Delta W/\Delta L$	-----	27018606		$=\Delta K/\Delta Y$		$=\Delta Y/\Delta K$	$=\Delta Y/\Delta L$	
$\Delta c_{C/Y}(t)$	$\sigma c_{C/Y}(t)=\Delta c(t)/c(t)$	K(t)	ΔK(t)	Δr(t)	ΔW(t)	w(t)	Δw(t)	$(\Delta r^0/\Delta w^0)(t)$	(W*K)(t)	$g_{WK}(t)$	ΔΩ(t)	$\sigma_\Omega=\Delta\Omega/\Omega$	$=1/\Delta\Omega(t)$	Δy	$\sigma_y=\Delta y/y$
0.9610	0.9769	5492.60	115.60	1.3641	632.75	58.386	2112.960	0.00065	31074923	0.15013	0.14625	0.18819	6.83750	2639.55	36.1893
0.9526	0.9718	5650.22	157.62	1.1208	708.87	65.499	2359.843	0.00047	35971925	0.15759	0.17799	0.25054	5.61824	2947.96	36.0288
0.9423	0.9655	5865.00	214.78	0.9210	793.71	73.437	2634.108	0.00035	41994422	0.16742	0.21662	0.33036	4.61639	3290.58	35.8690
0.9299	0.9578	6157.52	292.52	0.7567	888.21	82.291	2938.624	0.00026	49558049	0.18011	0.26363	0.43046	3.79320	3670.99	35.7100
0.9149	0.9483	6555.68	398.16	0.6218	993.42	92.163	3276.542	0.00019	59275145	0.19608	0.32084	0.55280	3.11680	4093.12	35.5516
0.8965	0.9366	7097.35	541.67	0.5109	1110.48	103.162	3651.318	0.00014	72054292	0.21559	0.39047	0.69774	2.56101	4561.30	35.3939
0.8743	0.9220	7833.86	736.51	0.4198	1240.66	115.411	4066.746	0.00010	89250624	0.23866	0.47521	0.86335	2.10433	5080.26	35.2369
0.8472	0.9039	8834.73	1000.87	0.3450	1385.34	129.045	4526.987	0.00008	#########	0.26490	0.57834	1.04496	1.72909	5655.20	35.0807
0.8144	0.8813	10194.14	1359.41	0.2834	1546.07	144.211	5036.597	0.00006	#########	0.29348	0.70385	1.23550	1.42076	6291.81	34.9251
0.7744	**0.8529**	**12039.5**	**1845.38**	**0.2329**	**1724.52**	**161.074**	**5600.57**	**0.00004**	**#########**	**0.32321**	**0.85660**	**1.42644**	**1.16741**	**6996.34**	**34.7702**
0.7259	0.8170	14543.27	2503.75	0.1914	1922.55	179.812	6224.370	0.00003	#########	0.35267	1.04250	1.60929	0.95923	7775.60	34.6160
0.6669	0.7711	17938.46	3395.19	0.1572	2142.17	200.623	6913.977	0.00002	#########	0.38048	1.26874	1.77712	0.78818	8637.07	34.4625
0.5952	0.7117	22540.06	4601.60	0.1292	2385.62	223.725	7675.928	0.00002	#########	0.40555	1.54408	1.92540	0.64763	9588.92	34.3096
0.5081	0.6338	28773.46	6233.40	0.1062	2655.33	249.356	8517.370	0.00001	#########	0.42720	1.87917	2.05225	0.53215	10640.06	34.1575
0.4022	0.5294	37212.91	8439.45	0.0872	2954.00	277.778	9446.107	0.00001	#########	0.44519	2.28699	2.15798	0.43726	11800.26	34.0060
0.2735	0.3859	48633.19	11420.28	0.0717	3284.55	309.278	10470.660	0.00001	#########	0.45960	2.78331	2.24441	0.35928	13080.15	33.8552
0.1172	0.1810	64079.13	15445.94	0.0589	3650.20	344.172	11600.327	0.00001	#########	0.47080	3.38734	2.31412	0.29522	14491.35	33.7050
-0.0729	-0.1273	84959.02	20879.89	0.0484	4054.46	382.806	12845.249	0.00000	#########	0.47924	4.12246	2.36994	0.24257	16046.53	33.5555
-0.3038	-0.6302	113170.07	28211.05	0.0398	4501.19	425.558	14216.479	0.00000	#########	0.48541	5.01711	2.41455	0.19932	17759.50	33.4067
-0.5844	-1.5693	151266.87	38096.80	0.0327	4994.58	472.843	15726.058	0.00000	#########	0.48975	6.10592	2.45033	0.16378	19645.29	33.2585
-0.9255	-3.8625	202687.48	51420.61	0.0268	5539.24	525.115	17387.098	0.00000	#########	0.49267	7.43101	2.47925	0.13457	21720.30	33.1110
-1.3400	-17.0281	272056.65	69369.17	0.0221	6140.20	582.871	19213.869	0.00000	#########	0.49450	9.04368	2.50292	0.11057	24002.33	32.9642
-1.8437	15.8558	365592.33	93535.68	0.0181	6802.93	646.654	21221.893	0.00000	#########	0.49548	11.00633	2.52261	0.09086	26510.80	32.8180

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A7-2-6 (5) $\Delta(r/w)(2)=((r/w)(2)(1+g_{WK}(2)-(r/w)(1))/g_{WK}(2)$ where, $g_{WK}(2)=((W*K)(2)-(W*K)(1))/(W*K)(1)$

Elasticity of substitution, $\sigma(t)$: $\sigma(t)=(\Delta k/k)/(\Delta(r/w)(t)/(r/w)(t))$

$\sigma_{C/Y}^*(t)=\sigma_{C/L}^*(t)/\sigma_y^*(t)$ = 1.000000

$\sigma_\Omega^*(t)=\sigma_k^*(t)/\sigma_y^*(t)$ = 1.000

$\sigma r^*(t)=\Delta r^*(t)/r^*(t)$ = 1.000

$\sigma_\alpha^*(t)=\sigma_\Omega^*(t)*\sigma_r^*(t)$ = 1.000

(A): Marginal rate $=\Delta K/\Delta L$; $(r/w)^0$ = 0.00448; (B): $\sigma(r/w)(t)=\Delta(r/w)(t)/(r/w)(t)$; Y=wL+rK is confirmed

$\sigma_k=\sigma_\Omega*\sigma_y$ $=\Delta k/k$	Δk	$\Delta(r/w)(t)$	r/w(t)	$\Delta(r/w)(t)/(r/w)(t)$	$\sigma(t)$=(A)/(B)	Y=wL+rK	$p_w^*(t)=1/\sigma_y^*(t)$ $p_w=(w/MPL)/(1-\alpha)$	$p_r^*(t)=\sigma_\Omega^*(t)$ $p_r=(r/MPK)/\alpha$	$\Delta\gamma^*(t)$	$\sigma^*\gamma(t)=\Delta\gamma^*(t)/\gamma^*(t)$	$\Delta\theta^*(t)$	$\sigma\theta^*(t)=\Delta\theta^*(t)/\theta^*(t)$	$\zeta^*=C_D^*/S^*=\gamma^*/\theta^*$	$\Delta\zeta^*(t)$	$\sigma\zeta^*(t)=\Delta\zeta^*(t)/\zeta^*(t)$
34.7702	2161.6989	0.00217	0.00401	0.54195	64.157	7033	0.02876	1.00000	1.000	1.000	0.86	1.000	1.167	1.167	1.000
34.7702	2414.4632	0.00195	0.00359	0.54195	64.157	7880	0.02876	1.00000	1.000	1.000	0.86	1.000	1.167	1.167	1.000
34.7702	2696.7830	0.00174	0.00321	0.54195	64.157	8828	0.02876	1.00000	1.000	1.000	0.86	1.000	1.167	1.167	1.000

(A): Marginal rate $=\Delta K/\Delta L$; $(r/w)^0$ = 0.00448; (B): $\sigma(r/w)(t)=\Delta(r/w)(t)/(r/w)(t)$; Y=wL+rK is confirmed

$\sigma_k=\sigma_\Omega*\sigma_y$ $=\Delta k/k$	Δk	$\Delta(r/w)(t)$	r/w(t)	$\Delta(r/w)(t)/(r/w)(t)$	$\sigma(t)$=(A)/(B)	Y=wL+rK	$p_w(t)=1/\sigma y(t)$ $p_w=(w/MPL)/(1-\alpha)$	$p_r(t)=\sigma_\Omega(t)$ $p_r=(r/MPK)/\alpha$	$\Delta\gamma(t)$	$\sigma\gamma(t)=\Delta\gamma(t)/\gamma(t)$	$\Delta\theta(t)$	$\sigma\theta(t)=\Delta\theta(t)/\theta(t)$	$\zeta=C_D/S=\gamma/\theta$	$\Delta\zeta(t)$	$\sigma\zeta(t)=\Delta\zeta(t)/\zeta(t)$
6.8104	386.04	0.00386	0.00440	0.87782	7.758	7068	0.02763	0.18819	(18.690)	(18.567)	(5.73)	(39.207)	6.883	4.777	0.694
9.0266	524.71	0.00359	0.00429	0.83808	10.771	7953	0.02776	0.25054	(15.753)	(14.568)	(6.98)	(39.207)	6.075	3.852	0.634
11.8498	712.80	0.00328	0.00414	0.79211	14.960	8945	0.02788	0.33036	(12.998)	(11.362)	(8.49)	(39.207)	5.281	3.093	0.586
15.3718	967.78	0.00293	0.00396	0.74110	20.742	10054	0.02800	0.43046	(10.369)	(8.674)	(10.34)	(39.207)	4.534	2.469	0.545
19.6529	1313.25	0.00256	0.00373	0.68699	28.607	11295	0.02813	0.55280	(7.804)	(6.317)	(12.58)	(39.207)	3.850	1.958	0.508
24.6958	1781.05	0.00218	0.00346	0.63226	39.059	12682	0.02825	0.69774	(5.244)	(4.148)	(15.31)	(39.207)	3.238	1.538	0.475
30.4217	2414.19	0.00182	0.00314	0.57948	52.498	14232	0.02838	0.86335	(2.623)	(2.047)	(18.63)	(39.207)	2.697	1.193	0.442
36.6580	3270.63	0.00148	0.00279	0.53084	69.056	15963	0.02851	1.04496	0.129	0.100	(22.68)	(39.207)	2.225	0.910	0.409
43.1500	4428.50	0.00118	0.00243	0.48785	88.449	17894	0.02863	1.23550	3.090	2.417	(27.60)	(39.207)	1.817	0.677	0.373
49.5974	**5993.06**	**0.00093**	**0.00206**	**0.45121**	**109.921**	**20049**	**0.02876**	**1.42644**	**6.351**	**5.056**	**(33.58)**	**(39.207)**	**1.466**	**0.486**	**0.332**
55.7072	8106.05	0.00072	0.00171	0.42090	132.351	22450	0.02889	1.60929	10.013	8.227	(40.87)	(39.207)	1.167	0.330	0.282
61.2438	10958.20	0.00055	0.00139	0.39644	154.484	25126	0.02902	1.77712	14.197	12.247	(49.74)	(39.207)	0.914	0.201	0.220
66.0597	14806.06	0.00042	0.00111	0.37705	175.200	28106	0.02915	1.92540	19.045	17.641	(60.54)	(39.207)	0.699	0.095	0.136
70.0996	19994.54	0.00032	0.00087	0.36189	193.703	31424	0.02928	2.05225	24.724	25.378	(73.68)	(39.207)	0.518	0.009	0.017
73.3843	26987.08	0.00024	0.00068	0.35014	209.588	35114	0.02941	2.15798	31.435	37.488	(89.67)	(39.207)	0.367	(0.062)	(0.170)
75.9848	36406.12	0.00018	0.00052	0.34106	222.790	39217	0.02954	2.24441	39.420	59.129	(109.13)	(39.207)	0.240	(0.120)	(0.503)
77.9974	49087.16	0.00013	0.00040	0.33406	233.486	43777	0.02967	2.31412	48.967	108.453	(132.81)	(39.207)	0.133	(0.168)	(1.261)
79.5246	66151.16	0.00010	0.00030	0.32863	241.985	48842	0.02980	2.36994	60.427	327.820	(161.63)	(39.207)	0.045	(0.207)	(4.631)
80.6622	89101.34	0.00007	0.00023	0.32441	248.643	54465	0.02993	2.41455	74.221	(510.155)	(196.71)	(39.207)	(0.029)	(0.239)	8.240
81.4943	119952.51	0.00005	0.00017	0.32108	253.810	60704	0.03007	2.45033	90.859	(164.931)	(239.40)	(39.207)	(0.090)	(0.265)	2.937
82.0905	161403.83	0.00004	0.00013	0.31843	257.798	67624	0.03020	2.47925	110.961	(105.914)	(291.35)	(39.207)	(0.141)	(0.286)	2.029
82.5068	217069.51	0.00003	0.00009	0.31628	260.870	75294	0.03034	2.50292	135.274	(81.740)	(354.58)	(39.207)	(0.183)	(0.303)	1.658
82.7871	291786.64	0.00002	0.00007	0.31449	263.239	83793	0.03047	2.52261	164.704	(68.741)	(431.53)	(39.207)	(0.218)	(0.317)	1.458