TABLE 16. -- CROSS-COUNTRY CORRELATIONS OF DETRENDED GNP

	JA	FR	UK	IT	CA
(a)	Cross-country	Correlations of	f Quarterly Gr	owth Rates of	GNP.
US	.44	.29 { .01 .53}	.16 (02 .33)	.24 ( .01 .45)	.47 { .21 .67}
JA		.37 ( .21 .50)	.28 {04 .55}	.04 {18 .25}	.29 { .17 .40}
FR			.24 { .00 .45}	.56 { .33 .73}	.22 {04 .44}
UK				.03 {18 .24}	.18 {14 .47}
IT					.15 (10 .39)

## (b) Cross-country Correlations of Linearly Detrended Logs of Quarterly GNP.

.54	.25 (23 .64)	.71 { .58 .81}	.29 { .01 .53}	.60 ( .22 .83)
	.14 {07 .33}	.36 ( .07 .59)	.15 {14 .42}	.07 {22 .35}
	·	.21 {27 .61}	.83 ( .73 .89)	.61 { .12 .86}
			.13 {20 .44}	.55 { .28 .74}
				.56 { .32 .73}
	.54 ( .28 .72)	( .28 .72) (23 .64)	( .28 .72) (23 .64) { .58 .81}  .14 .36 {07 .33} ( .07 .59)	.54

NOTE: The figures in parentheses are 95% confidence intervals (based on estimates of the standard errors of the sample correlation coefficients which were obtained using the method of Newey & West (1987), allowing for 10 autocorrelations). Sample period is 1971:I-1988:I (1971:II-1988:I for statistics based on growth rates).

TABLE 17.-- CROSS-COUNTRY CORRELATIONS OF DETRENDED GROSS FIXED CAPITAL FORMATION

<del></del>	JА	FR	UK	IT	CA
(a) Capi	Cross-country	Correlations	of Quarterly	Growth Rates	of Gross Fixed
US	.27 (.05 .47)	.16 {12 .43}	.12 {06 .31}	03 (28 .21)	.12 (25 .47)
JA			.42 {.21 .60}	.49 (.31 .63)	.15 {03 .33}
FR			.39 {.05 .65}	.31 {.19 .42}	.35 {.18 .50}
UK				.09 (11 .28)	.11 (09 .32)
IT					.29 {.05 .49}

(b) Cross-country Correlations of Linearly Detrended Logs of Quarterly Gross Fixed Capital Formation.

US	.43 (.09 .68)	.26 (20 .63)	.41 (.00 .70)	.64 (.38 .80)	00 {49 .48}
JA		.57 {.13 .82}	.72 {.48 .86}	.45 (.03 .74)	.07 {31 .45}
FR			.74 {.46 .88}	.37 {08 .70}	.67 (.43 .82)
UK				.39 {09 .73}	.33 (.00 .60)
ΙΤ					.25 {32 .70}

NOTE: The figures in parentheses are 95% confidence intervals (based on estimates of the standard errors of the sample correlation coefficients which were obtained using the method of Newey & West (1987), allowing for 10 autocorrelations). Sample period is 1971:I-1988:I (1971:II-1988:I for statistics based on growth rates).

TABLE 18.-- WITHIN-COUNTRY CORRELATIONS OF DETRENDED TOTAL PRIVATE CONSUMPTION AND EMPLOYMENT

			TTO House Magazina
/ \	Within-country Correlations Bet	ween Detrended	Citibase/ILU Hours Measure
(a)	MIGHTH-Commert Conference page		
	and Total Private Consumption.		
	arid 10001 111		

arly detrended logs { :47

(b) Within-country Correlations Between Employment Measure from International Financial Statistics (IFS) and Total Private Consumption.

growth rates     linearly detrended logs       US     .38 ( .19 .55)     .56 ( .21 .78)       JA     .01 {23 .25}    45 (79 .08)       FR     .03 (20 .25)     .28 (07 .57)       IT     .12 (02 .27)     .70 ( .42 .86)       CA     .20 (05 .43)     .70 ( .54 .82)

NOTE: The figures in parentheses are 95% confidence intervals (based on estimates of the standard errors of the sample correlation coefficients which were obtained using the method of Newey & West (1987), allowing for 10 autocorrelations). Sample period is 1971:I-1988:I (1971:II-1988:I for statistics based on growth rates).

(a) Cross-country	Correlations	of	Growth	Rates	of	Solow	Residuals,
Constructed Using	Citibase/ILO Ho	urs	Data.				

TTC	JA 35	FR .08 (.16)	
US	.35 (.00)	(.16)	
JA		.19 (.00)	

(b) Cross-country Correlations of Linearly Detrended Log Solow Residuals, Constructed Using Citibase/ILO Hours Data.

JA .19 (.00)  JA FR  US .54 (.00) (.79)  JA12 (.86)				
JA12 (.86)	JA		.19 (.00)	
JA12 (.86)	US	JA .54 (.00)	FR 18 (.79)	
	JА		12 (.86)	

(c) Cross-country Correlations of Growth Rates of Solow Residuals, Constructed Using IFS Employment Measure.

US	JA .30 (.00)	FR .30 (.00)	IT .21 (.01)	CA .11 (.13)
JA		.32 (.00)	01 (.57)	02 (.60)
FR			.48 (.00)	.04 (.32)
IT				.26 (.05)

(d) Cross-country Correlations of Linearly Detrended Log Solow Residuals, Constructed Using IFS Employment Measure.

US	JA .16 (.24)	FR .26 (.02)	IT .45 (.00)	CA .60 (.00)
JA		.52 (.00)	.18 (.06)	20 (.88)
FR			.56 (.00)	13 (.88)
IT				.17 (.14)

NOTE: The figures in parentheses are p-value for one-sided test of null hypothesis that cross-country correlation is zero (the p-values are based on estimates of the standard errors of the sample correlation coefficients which were obtained using the method of Newey & West (1987), allowing for 10 autocorrelations). Sample period is 1971:I-1988:I (1971:II-1988:I for statistics based on growth rates).

Solow residual (S):  $\ln(S)=\ln(GNP)-\eta*\ln(K)-(1-\eta)*\ln(L)$ . K: capital stock. L: hours.  $\eta=0.35$  used in this table.

TABLE 20. TRIVARIATE AR(1) MODELS FITTED TO DETRENDED SOLOW RESIDUALS IN THE US, JAPAN AND FRANCE

(a) Trivariate AR(1) Models Fitted to Growth Rates of Solow Residuals.

RHO=
$$\begin{bmatrix}
0.04 & 0.13 & -0.17 \\
(0.47) & (1.87) & (-1.35)
\end{bmatrix}$$

$$0.08 & 0.26 & -0.14 \\
(0.60) & (1.44) & (-0.56)
\end{bmatrix}$$

$$-0.05 & 0.06 & -0.01 \\
(-0.47) & (0.75) & (-0.11)
\end{bmatrix}$$

$$\begin{bmatrix}
5.07*10^{-5} & 2.13*10^{-5} & 0.34*10^{-5} \\
(6.56) & (1.83) & (0.74)
\end{bmatrix}$$

$$8.29*10^{-5} & 1.19*10^{-5} \\
(2.40) & (3.04)
\end{bmatrix}$$

$$4.40*10^{-5} \\
(9.67)$$

(b) Trivariate AR(1) Models Fitted to Linearly Detrended Logs of Solow Residuals.

RHO=
$$\begin{bmatrix}
0.85 & 0.04 & -0.11 \\
(13.15) & (0.53) & (-1.98)
\end{bmatrix}$$

$$0.03 & 0.83 & -0.16 \\
(0.58) & (9.06) & (-3.02)
\end{bmatrix}$$

$$0.04 & 0.01 & 0.90 \\
(0.82) & (0.36) & (20.52)
\end{bmatrix}$$

$$\begin{bmatrix}
4.74*10^{-5} & 2.03*10^{-5} & 0.30*10^{-5} \\
(6.59) & (1.67) & (0.71)
\end{bmatrix}$$

$$7.72*10^{-5} & 0.95*10^{-5} \\
(2.05) & (2.13)
\end{bmatrix}$$

$$4.00*10^{-5} \\
(11.06)$$

Sample period is 1971:II-1988:I (1971:III-1988:I for statistics based on growth rates).

The Solow residuals used for this table were constructed using the hours Citibase/ILO hours data, assuming an elasticity of output with respect to capital of  $\eta=0.35$ .

 $X_r = (x_t^r, x_t^r, x_t^{FR})'$  be the vector of detrended Solow residuals in the US, Japan and France.

The following model is estimated:

$$X_{t}$$
-RHO\* $X_{t-1}$ + $\epsilon_{t}$ , (A.2)

where RHO is a 3x3 matrix and  $\epsilon_{_{\rm P}}$  is a random variable of dimension 3x1 with covariance matrix  $V=E\eta*\eta'$ .

The tables report estimates of RHO (obtained using OLS for each equation in (A.2)) and of the covariance matrix of  $\epsilon_{\rm t}$ . t-statistics for these estimates are in parentheses.

As first differences of log Solow residuals have non-zero means in the data, (A.2) was estimated using deviations of the first differences from their respective sample means.

The adjusted  $R^2$  coefficients for the AR(1) model fitted to growth rates of Solow residuals are 0.01, 0.05 and -0.02 in the first through third equations of the model and the Box-Pierce Q statistics (with 25 degrees of freedom) for these equations have the following p-values: 0.99, 0.98 and 0.84.

For the AR(1) model fitted to linearly detrended log Solow residuals, the corresponding  $R^2$  statistics are 0.79, 0.73 and 0.82 respectively and the Box-Pierce Q statistics have the following p-values: 0.99, 0.94 and 0.79.

```
q \stackrel{\mathbf{i}}{=} \theta \stackrel{\mathbf{i}}{+} * (K_{+}^{\mathbf{i}})^{\eta} * (L_{+}^{\mathbf{i}})^{1-\eta};
g_: additive shock;
y_{t}^{i} = q_{t}^{i} - g_{t}^{i};
c_{\perp}^{i}: consumption of country 'i' with incomplete asset markets;
V_{\perp}^{i}: expected life-time utility of country i;
i: gross investment in country 'i';
TB_{r}^{i}: trade balance of country i (incomplete asset markets).
\beta(u): \beta evaluated at steady state value of period utility function.
 (\partial \beta/\partial u)*(u/\beta) : elasticity of \beta with respect to instantaneous utility,
                         evaluated at the steady state;
 d : depreciation rate of captal stock;
 \gamma : g/y (g: steady state value of additive shock);
 \mathsf{RHO}_{\theta} \colon \text{ autocorrelation matrix of multiplicative technology shocks};
 RHO_g: autocorrelation matrix of additive shocks;
 V_{\theta}: covariance matrix of innovations to multiplicative technology shocks;
 V_{\sigma}: covariance matrix of innovations to additive shocks.
```

TABLE 22. -- SIMULATION RESULTS: FIXED LABOR SUPPLIES, MULTIPLICATIVE TECHNOLOGY SHOCKS. VARIATIONS IN THE INTERTEMPORAL ELASTICITY OF SUBSTITUTION  $\begin{array}{cc}
\sigma=2\\
\text{std}(c_t^i) & 0.37
\end{array}$ σ=3 0.22 σ≕5 **σ≖**7 0.19 0.19  $\operatorname{std}(\tilde{c}_{\tau}^{i})$  0.29 0.17 0.13 0.14  $\operatorname{std}(I_{t}^{i})$  2.42 2.67 2.73 2.74  $corr(c_t^i, c_t^j)$  0.21 0.20 0.03 -0.07  $corr(V_t^i, V_t^j)$  -0.66 -0.72 -0.77 -0.80  $corr(y_{t}^{i}, y_{t}^{j})$  0.00 0.00 0.21 0.01  $corr(I_t^{i}, I_t^{j})$  1.00 1.00 1.00 1.00  $corr(TB_t^i, y_t^i) = 0.68$ 0.69 0.69 0.69

$$RHO_{\theta} = \begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}; V_{\theta} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}; (\partial \beta / \partial u) * (u/\beta) = -0.1; \beta(u^{1}) = 0.99; \eta = 0.35; \\ \gamma = 0.0; d = 0.025.$$

Standard deviations are relative to standard deviation of output (y). Corr: correlation.

TABLE 23.-- SIMULATION RESULTS: FIXED LABOR SUPPLIES, MULTIPLICATIVE TECHNOLOGY SHOCKS. VARIATIONS IN THE STEADY STATE RATE OF TIME PREFERENCE

FR	EFERENCE		
std(c <sup>i</sup> t)	β=0.93 0.41	β=0.95 0.37	β=0.97 0.34
std(c <sup>i</sup> t)	0.29	0.27	0.25
$std(I_t^i)$	6.65	5.30	3.91
$corr(c_t^i, c_t^j)$	0.05	0.09	0.13
corr(V <sup>i</sup> ,V <sup>j</sup> )	-0.69	-0.68	-0.68
corr(y <sup>i</sup> ,y <sup>j</sup> )	0.01	0.00	0.00
corr(I <sup>i</sup> t,I <sup>j</sup> t)	1.00	1.00	1.00
corr(TB <sup>i</sup> ,y <sup>i</sup> t	) 0.65	0.66	0.67

$$\text{RHO}_{\theta} = \begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}; \ \forall_{\theta} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}; \ (\partial \beta/\partial \mathbf{u}) \star (\mathbf{u}/\beta) = -0.10; \ \sigma = 2; \ \eta = 0.35; \ d = 0.025.$$

Standard deviations are relative to standard dev. of y. Corr: correlation.

TABLE 24.-- SIMULATION RESULTS: FIXED LABOR SUPPLIES, MULTIPLICATIVE TECHNOLOGY SHOCKS. VARIATIONS IN SERIAL CORRELATION OF SHOCKS

std(c <sup>i</sup> t)	p <sub>g</sub> =0.25 0.45	p <sub>θ</sub> =0.50 0.55	p <sub>g</sub> -0.90 0.94
std(c <sup>i</sup> t)	0.34	0.41	0.60
std(I <sup>i</sup> <sub>t</sub> )	13.03	19.72	13.40
corr(c <sup>i</sup> t,c <sup>j</sup> t)	0.16	0.11	-0.17
$corr(V_t^i, V_t^j)$	-0.55	-0.23	0.83
corr(y <sub>t</sub> ,y <sub>t</sub> )	-0.02	-0.11	-0.24
$corr(I_t^i, I_t^j)$	-0.93	-0.97	-0.97
$corr(TB_t^i, y_t^i)$	-0.26	-0.14	-0.04

$$RHO_{\theta} = \begin{bmatrix} p_{\theta} & 0 \\ 0 & p_{\theta} \end{bmatrix}; V_{\theta} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}; (\partial \beta / \partial u) * (u/\beta) = -0.10; \beta(u) = .99; \sigma = 2; \eta = 0.35.$$

Standard deviations are relative to standard deviation of output (y). Corr: correlation.

TABLE 25.-- SIMULATION RESULTS: FIXED LABOR SUPPLIES, ADDITIVE SHOCKS. VARIATIONS IN THE INTERTEMPORAL ELASTICITY OF SUBSTITUTION

SHOCKS. VARIATIONS IN	THE IN	ERIENFORAL	ELASTICIT	
	σ=2	<i>σ</i> =3	σ <b>=</b> 5	$\sigma$ =7
std(c <sup>i</sup> t)	0.30	0.22	0.19	0.19
std(c <sup>i</sup> t)	0.29	0.17	0.14	0.13
$\operatorname{std}(I_{t}^{i})$	2.42	2.67	2.73	2.74
$corr(c_t^i, c_t^j)$	0.21	0.20	0.03	-0.07
corr(V <sub>t</sub> ,V <sub>t</sub> )	-0.66	-0.72	-0.77	-0.80
corr(y <sup>i</sup> t,y <sup>j</sup> t)	0.51	0.60	0.01	0.02
$corr(q_t^i, q_t^j)$	1.00	1.00	1.00	1.00
corr(I <sup>i</sup> t,I <sup>j</sup> t)	1.00	1.00	1.00	1.00
corr(TB <sup>i</sup> ,y <sup>i</sup> )	0.68	0.69	0.69	0.69

$$RHO_{g} = \begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}; V_{g} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}; (\partial \beta / \partial u) * (u/\beta) = -0.10; \beta(u) = 0.99; \eta = 0.35; \gamma = 0.0; d = 0.025.$$

Standard deviations are relative to standard dev. of y. Corr: Correlation.

TABLE 26.-- SIMULATION RESULTS: FIXED LABOR SUPPLIES, ADDITIVE SHOCKS. VARIATIONS IN THE STEADY STATE RATE OF TIME PREFERENCE

			· · · · · · · · · · · · · · · · · · ·	
	β=0.93	β=0.95	β=0.97	
std(c <sup>i</sup> <sub>t</sub> )	0.41	0.37	0.34	
std(c <sup>i</sup> t)	0.29	0.27	0.28	
std(I <sup>i</sup> )	6.65	5.30	3.91	
corr(c <sup>i</sup> t,c <sup>j</sup> t)	0.05	0.09	0.13	
$corr(V_t^i, V_t^j)$	-0.69	-0.68	-0.68	
corr(y <sup>i</sup> ,y <sup>j</sup> )	0.01	0.00	0.00	
$corr(q_t^i, q_t^j)$	1.00	1.00	1.00	
$corr(I_t^i, I_t^j)$	1.00	1.00	1.00	
corr(TB <sup>i</sup> ,y <sup>i</sup>	0.65	0.66	0.67	

RHO<sub>g</sub> = 
$$\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$$
;  $V_g = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ ;  $(\partial \beta/\partial u)*(u/\beta)=-0.10$ ;  $\sigma=2$ ;  $\eta=0.35$ ;  $d=0.025$ .

Standard deviations are relative to standard dev. of y. Corr: Correlation.

TABLE 27.-- SIMULATION RESULTS: FIXED LABOR SUPPLIES, ADDITIVE SHOCKS. VARIATIONS IN SERIAL CORRELATION OF SHOCKS

$std(c_t^i)$	p <sub>g</sub> =0.25 0.47	p =0.50 0.62	p_=0.90 1.32	
std( $ar{c}^{\dot{1}}_{t}$ )	0.37	0.48	0.94	
$\operatorname{std}(I_{t}^{i})$	2.19	1.86	0.00	
corr(c <sup>i</sup> t,c <sup>j</sup> t)	0.20	0.19	0.00	
corr(V <sup>i</sup> <sub>t</sub> ,V <sup>j</sup> <sub>t</sub> )	-0.66	-0.64	-0.56	
corr(y <sup>i</sup> t,y <sup>j</sup> t)	0.01	0.02	0.00	
$corr(q_t^i, q_t^j)$	1.00	1.00	1.00	
corr(I <sup>i</sup> <sub>t</sub> ,I <sup>j</sup> <sub>t</sub> )	1.00	1.00	1.00	
$corr(TB_t^i, y_t^i)$	0.66	0.63	0.45	

RHO 
$$_{g} = \begin{bmatrix} p_{g} & 0 \\ 0g & p_{g} \end{bmatrix}; v_{g} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}; (\partial \beta/\partial u)*(u/\beta)=-0.10; \beta(u)=0.99; \sigma=2; \gamma=0.0; \eta=0.35; d=0.025.$$

Standard deviations are relative to standard dev. of y. Corr: Correlation.

TABLE 28. -- SIMULATION RESULTS: VARIABLE LABOR SUPPLIES

	els=0.1	<b>els=</b> 0.5	els=1	els=2
$\sigma$ =1.1	.30	.36	.40	.43
	[.99]	[.97]	[.92]	[.82]
<i>σ</i> =2	.27	.24	.18	.02
	[.98]	[.81]	[.52]	[.07]
<i>σ</i> =3	.23	.19	.10	09
	[.98]	[.73]	[.35]	[13]
<i>σ</i> =5	.21 [.98]	.16 [.67]	.05 [.23]	
σ <b>=</b> 7	.20	.14	.02	20
	[.97]	[.64]	[.18]	[33]
(ii) C	orrelation of (	Consumption Country	and Hour	s Within
σ <b>=</b> 1.1	els=0.1	els=0.5	els=1	els=2
	.11	.14	.17	.23
	[.18]	[.22]	[.26]	[.32]
<b>σ=</b> 2	.36	.46	.55	.67
	[.26]	[.47]	[.62]	[.77]
σ <b>=</b> 3	.42	.53	.63	.75
	[.29]	[.54]	[.71]	[.85]
<i>σ</i> =5	.46	.58	.69	.80
	[.31]	[.58]	[.76]	[.89]
σ <b>=</b> 7	.47	.60	.71	.82
	- [.32]	[.60]	[.78]	[.90]

 $\beta(u)=0.99$ ;  $(\partial \beta/\partial u)*(u/\beta)=-0.1$ ;  $\gamma=0.0$ ;  $\eta=0.35$ ; d=0.025.

els= $\sigma/(\sigma*\nu_2+(\sigma-1)*\nu_1)$  (elasticity of labor supply).

Numbers not in brackets: correlations in economy with incomplete asset markets.

Numbers in brackets: correlations in economy with complete asset markets.

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