Table 1

U.S. Data vs. The Standard Kydland-Prescott Model and Hansen's Extension

Statistic	U.S. Data* 1947:1–1987:4	Model	
		Standard†	Hansen**
Standard Deviation of			
Output	1.81	1.83 (.20)	2.27 (.24)
Consumption	.91	.67 (.09)	.77 (.10)
Investment	5.11	5.69 (.72)	7.33 (.96)
Capital Stock	.45	.45 (.08)	.57 (.11)
Hours Worked	1.52	.89 (.09)	1.57 (.16)
Productivity	1.32	.97 (.11)	.78 (.10)
Correlation Between Hours Worked and Productivity	–.195	.94 (.01)	.84 (.03)

*The data sources are listed in Appendix B. The series are logged and detrended.

†The standard deviations are sample means of statistics computed for each of 100 simulations. Standard deviations are reported in parentheses. Parameters used for the simulation are $\theta = 0.355$, $\gamma = 2.36$, $\bar{\lambda} = 1$, $\rho_\lambda = 0.974$, $\sigma_\lambda = 0.0096$, $\beta = 0.99$, and $\delta = 0.023$. Each simulation consists of 164 periods. Before the standard deviations were computed, the simulated time series were logged and detrended using the same procedure used for the U.S. data. See Prescott 1986 for details about the detrending procedure.

**Parameters used for this simulation are the same as in the standard model, except that $\gamma = 3.18$.

Tables 2–3

U.S. Data vs. More Extensions of the Standard Kydland-Prescott Model

Table 2

Models With Variable Tax Rates and Government Consumption

Statistic	U.S. Data* 1947:1–1987:4	Model: Divisible Labor†	Model: Indivisible Labor**
Standard Deviation of			
Output	1.81	1.83 (.21)	2.23 (.26)
Consumption	.91	.98 (.12)	1.03 (.13)
Investment	5.11	5.53 (.77)	7.24 (1.10)
Capital Stock	.45	.44 (.09)	.57 (.12)
Hours Worked	1.52	1.31 (.15)	2.03 (.23)
Productivity	1.32	1.11 (.13)	1.10 (.14)
Correlation Between Hours Worked and Productivity	–.195	.14 (.13)	–.08 (.12)

*The data sources are listed in Appendix B. The series are logged and detrended.

†See the second footnote in Table 1 for a description of the simulation. Parameters used for this simulation are $\theta = 0.359$, $\gamma = 2.33$, $\bar{\lambda} = 1$, $\bar{g} = 0.195$, $\bar{\tau} = 0.5$, $\bar{\varphi} = 0.23$, $\rho_{\lambda} = 0.974$, $\rho_{g} = 0.969$, $\rho_{\tau} = 0.976$, $\rho_{\varphi} = 0.970$, $\sigma_{1,1} = 0.0096$, $\sigma_{2,1} = 0.0033$, $\sigma_{2,2} = 0.0061$, $\sigma_{3,1} = 0.0012$, $\sigma_{3,2} = 0.0003$, $\sigma_{3,3} = 0.0108$, $\sigma_{4,1} = 0.0005$, $\sigma_{4,2} = 0.0018$, $\sigma_{4,3} = 0.0035$, $\sigma_{4,4} = 0.0034$, $\beta = 0.99$, and $\delta = 0.023$. Note that $\Sigma = B \cdot B'$ and $\sigma_{i,j}$ is the i,jth element of B.

**Parameters used for this simulation are the same as in the divisible-labor model, except that $\gamma = 3.22$.

Table 3

Models With Constant Tax Rates and Government Consumption

Statistic	U.S. Data* 1947:1–1987:4	Model: Divisible Labor†	Model: Indivisible Labor**
Standard Deviation of			
Output	1.81	1.49 (.16)	1.65(.18)
Consumption	.91	1.01 (.11)	1.05(.12)
Investment	5.11	4.86 (.64)	5.65(.76)
Capital Stock	.45	.39 (.07)	.45(.08)
Hours Worked	1.52	.37 (.04)	.63(.07)
Productivity	1.32	1.14 (.13)	1.06(.12)
Correlation Between Hours Worked and Productivity	–.195	.93 (.02)	.91(.02)

*The data sources are listed in Appendix B. The series are logged and detrended.

†See the second footnote in Table 1 for a description of the simulation. Parameters used for this simulation are the same as those in the second footnote of Table 2, except that $\rho_{g} = \rho_{\tau} = \rho_{\varphi} = 0$ and $\sigma_{i,j} = 0$ for $(i,j) \neq (1,1)$.

**Parameters used for this simulation are the same as in the divisible-labor model, except that $\gamma = 3.22$.

(Appendix A) Table

Investment and Hours Worked Functions

Investment Function: $\tilde{\imath}_t = a_0 + a_1\tilde{k}_t + a_2\tilde{\lambda}_t + a_3\tilde{g}_t + a_4\tilde{\tau}_t + a_5\tilde{\varphi}_t$

Hours Worked Function: $\tilde{n}_t = b_0 + b_1\tilde{k}_t + b_2\tilde{\lambda}_t + b_3\tilde{g}_t + b_4\tilde{\tau}_t + b_5\tilde{\varphi}_t$

Coefficients and Their Corresponding Expressions

$a_1 = (\zeta - 1 + \delta)/\delta$

$a_2 = \zeta\bar{r}\{1 - \rho_\lambda + \rho_\lambda\beta\bar{r}(1-\bar{\tau})[1 - \delta\bar{k}/\bar{y} - (1-\pi)\bar{g}/\bar{y}]\}/[\delta\theta^2(\psi - \rho_\lambda)]$

$a_3 = -\bar{g}\bar{r}(\zeta - \rho_g)(1-\pi)/[\bar{y}\delta\theta(\psi - \rho_g)]$

$a_4 = -\bar{\tau}\rho_\tau\zeta\bar{r}\phi(1-\beta)/[\delta\theta^2(1-\bar{\tau})(\psi - \rho_\tau)]$

$a_5 = -[\bar{\varphi}(1-\theta)/(1-\bar{\varphi})]\{\zeta\bar{r}\{1 - \rho_\varphi + \rho_\varphi\beta\bar{r}(1-\bar{\tau})[1 - \delta\bar{k}/\bar{y} - (1-\pi)\bar{g}/\bar{y}]\}/[\delta\theta^2(\psi - \rho_\varphi)]\}$

$b_1 = 1 - \theta(\psi - \zeta)/\bar{r}\phi$

$b_2 = \{\theta(\psi - \rho_\lambda) + \zeta\rho_\lambda[1 - \beta(1 - \delta + \delta\bar{\tau})] - \theta\phi^{-1}(\psi - \zeta)\}/[\theta^2(\psi - \rho_\lambda)]$

$b_3 = \bar{g}(\psi - \zeta)(1-\pi)/[\bar{y}\phi(\psi - \rho_g)]$

$b_4 = -\bar{\tau}\rho_\tau\zeta(1-\beta)/[\theta(1-\bar{\tau})(\psi - \rho_\tau)]$

$b_5 = -\{\bar{\varphi}(1-\theta)/(1-\bar{\varphi})\}\{\theta(\psi - \rho_\varphi) + \zeta\rho_\varphi[1 - \beta(1 - \delta + \delta\bar{\tau})] - \theta\phi^{-1}(\psi - \zeta)\}/[\theta^2(\psi - \rho_\varphi)] - \bar{\varphi}/(1-\bar{\varphi})$

Intermediate Expressions

$\bar{k} = \theta[(1-\bar{\varphi})(1-\theta)\bar{\lambda}^{1/(1-\theta)}(\bar{r}/\theta)^{-\theta/(1-\theta)} + \gamma\bar{g}(1-\pi)]/[\gamma(\bar{r} - \delta\theta)]$

$\bar{n} = (\bar{r}/\bar{\lambda}\theta)^{1/(1-\theta)}\bar{k}$

$\bar{r} = [1 - \beta(1 - \delta + \delta\bar{\tau})]/[\beta(1-\bar{\tau})]$

$\bar{y} = \bar{\lambda}\bar{k}^\theta\bar{n}^{1-\theta}$

$\zeta = [1 + \beta(1-\bar{\tau})\bar{r}(1-\theta)/\theta]^{-1} < 1$

$\phi = 1 - \theta + \theta[1 - \delta\bar{k}/\bar{y} - (1-\pi)\bar{g}/\bar{y}] > 0$

$\psi = \bar{y}/\bar{k} + 1 - \delta > 1$