

Technical Appendix: The Extension of Social Security Coverage in Developing Countries

Chung Tran* and Juergen Jung†
Indiana University - Bloomington

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Abstract

This is the Technical Appendix of the paper “The Extension of Social Security Coverage in Developing Countries” by the same authors. It contains the description of the calculation of income-age profiles for informal and formal sector workers. We also present detailed results of the sensitivity analysis on the preference weight for leisure (κ) and on the wage/income ratio between informal and formal sector workers.

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*Department of Economics, Indiana University at Bloomington, Indiana, U.S.A, IN 47405. *Email:* chtran@indiana.edu. *Phone:* 1-(812)-855-7093.

†Department of Economics, Indiana University at Bloomington, Indiana, U.S.A, IN 47405. *Email:* juejung@indiana.edu. *Phone:* 1-(812)-855-7715.

1 Solving the Household Problem

The following is the solution method for the household problem. We assume that the children supply labor inelastically, so that the preferences are $U(c^k, l^k) = \frac{(c^k)^{1-\sigma}}{1-\sigma}$ for children and $U(c^p, l^p) = \frac{(c^p)^{1-\sigma}}{1-\sigma} + \kappa^p \frac{(l^p)^{1-\psi}}{1-\psi}$ for parents. That is, there is no labor/leisure choice for children. The household problem can be formulated in terms of a Bellman equation as follows

$$V(a_j, \Phi_j) = \max_{\{c_j^k, c_{J+j}^p, \eta_{J+j}^p a_{j+1}\}} \left\{ \xi_j^k \frac{(c_j^k)^{1-\sigma}}{1-\sigma} + \xi_{J+j}^p \left[\frac{(c_{J+j}^p)^{1-\sigma}}{1-\sigma} + \kappa^p \left(\frac{(l_{J+j}^p)^{1-\psi}}{1-\psi} \right)^{\eta_{J+j}^p} \right] + \beta EV(a_{j+1}, \Phi_{j+1}) \right\}, \quad (1)$$

subject to

$$(1+g)a_{j+1} = Ra_j + \xi_j^k (1 - \tau_L - \tau_{SS}) w_{J+j}^k e_{J+j}^k + \xi_{J+j}^p \eta_{J+j}^p (1 - \tau_L - \tau_{SS}) (1 - l_{J+j}^p) w_{J+j}^p e_{J+j}^p + \xi_{J+j}^p Pen_{J+j}^p - \xi_j^k (1 + \tau_C) c_j^k - \xi_{J+j}^p (1 + \tau_C) c_{J+j}^p,$$

where η_{J+j}^p is an indicator function, $\eta_{J+j}^p = 1$ if working and 0 otherwise. Calculating first order conditions yields

$$\begin{aligned} (c_j^k)^{-\sigma} &= (1 + \tau_C) \lambda_j, \\ (c_{J+j}^p)^{-\sigma} &= (1 + \tau_C) \lambda_j, \\ \kappa^p (l_{J+j}^p)^{-\psi} &= \eta_{J+j}^p \overbrace{(1 - \tau_L - \tau_{SS}) w_{J+j}^p e_{J+j}^p}^{=\varphi_0} \lambda_j, \\ (1+g)\lambda_j &= \beta EV_{a_{j+1}}(a_{j+1}, \Phi_{j+1}), \end{aligned} \quad (2)$$

where λ_j is a Lagrange multiplier (e.g. shadow price).

Decision rules

The optimal choices can be obtained directly from the FOCs. The optimal choices are given

$$\begin{aligned} c_j^k &= [(1 + \tau_C) \lambda_j]^{\frac{1}{-\sigma}}, \\ c_{J+j}^p &= [(1 + \tau_C) \lambda_j]^{\frac{1}{-\sigma}}, \\ l_{J+j}^p &= \eta_{J+j}^p \left[\frac{\varphi_0}{\kappa^p} \lambda_j \right]^{\frac{1}{-\psi}}, \end{aligned} \quad (3)$$

where period j shadow price $\lambda_j = \frac{\beta EV_{a_{j+1}}(a_{j+1}, \Phi_{j+1})}{(1+g)}$.

Links between choices of parent and children

Manipulating FOCs results in the following link between consumption of parents and

children $c_{J+j}^p = c_j^k$ and between leisure of parents and consumption of children

$$\begin{aligned}
l_{J+j}^p &= \eta_{J+j} \left[\frac{\varphi_0}{\kappa^p} \frac{(c_j^k)^{-\sigma}}{1 + \tau_C} \right]^{\frac{1}{-\psi}}, \\
l_{J+j}^p &= \overbrace{\eta_{J+j} \left[\frac{\varphi_0}{\kappa^p} \frac{1}{1 + \tau_C} \right]^{\frac{1}{-\psi}}}^{=\varphi_1} (c_j^k)^{\frac{\sigma}{\psi}}, \\
l_{J+j}^p &= \varphi_1 (c_j^k)^{\frac{\sigma}{\psi}}, \\
&\text{where} \\
\varphi_0 &= (1 - \tau_L - \tau_{SS}) w_{J+j}^p e_{J+j}^p, \\
\varphi_1 &= \eta_{J+j} \left(\frac{\kappa^p (1 + \tau_C)}{\varphi_0} \right)^{\frac{1}{\psi}}.
\end{aligned}$$

Marginal value function

The total current utility of a household can be expressed in terms of child consumption as

$$\begin{aligned}
U(.) &= \xi_j^k \frac{(c_j^k)^{1-\sigma}}{1-\sigma} + \xi_{J+j}^p \frac{(c_{J+j}^p)^{1-\sigma}}{1-\sigma} + \xi_{J+j}^p \kappa^p \left(\frac{(\varphi_1 (c_j^k)^{\frac{\sigma}{\psi}})^{1-\psi}}{1-\psi} \right)^{\eta_{J+j}^p}, \\
&= \xi_j^k \frac{(c_j^k)^{1-\sigma}}{1-\sigma} + \xi_{J+j}^p \frac{(c_{J+j}^p)^{1-\sigma}}{1-\sigma} + \xi_{J+j}^p \kappa^p \left(\varphi_1^{(1-\psi)} \frac{(c_j^k)^{\sigma \frac{(1-\psi)}{\psi}}}{1-\psi} \right)^{\eta_{J+j}^p}.
\end{aligned}$$

Applying the Envelop theorem to the Bellman equation results in $\frac{dV}{da} = \frac{dU}{da}$. Taking the derivative of the total current utility with respect to asset holding yields the marginal utility as

$$\frac{dV}{da} = \left[\xi_j^k (c_j^k)^{-\sigma} + \xi_{J+j}^p (c_{J+j}^p)^{-\sigma} + \xi_{J+j}^p \kappa^p \left(\varphi_1^{(1-\psi)} \left(\frac{\sigma}{\psi} \right) (c_j^k)^{\sigma \frac{(1-\psi)}{\psi} - 1} \right)^{\eta_{J+j}^p} \right] \frac{dc}{da}. \quad (4)$$

The derivative of consumption with respect to asset holding $\frac{dc}{da}$ can be obtained from the household budget constraint. That is, we replace consumption and leisure of parents in terms of consumption of children to get a new expression for the household budget constraint in terms of child consumption

$$\begin{aligned}
a_{j+1} &= \overbrace{Ra_j + \xi_j^k (1 - \tau_L - \tau_{SS}) w_{J+j}^k e_{J+j}^k + \xi_{J+j}^p \eta_{J+j}^p (1 - \tau_L - \tau_{SS}) w_{J+j}^p e_{J+j}^p + \xi_{J+j}^p Pen_{J+j}^p}^{income_j} \\
&\quad - \eta_{J+j}^p \xi_{J+j}^p \overbrace{(1 - \tau_L - \tau_{SS}) w_{J+j}^p e_{J+j}^p}^{\varphi_0} \varphi_1 (c_j^k)^{\frac{\sigma}{\psi}} - \xi_j^k (1 + \tau_C) c_j^k - \xi_{J+j}^p (1 + \tau_C) c_j^k.
\end{aligned}$$

Collecting the terms on the right hand side gives an implicit function of asset holdings and child consumption

$$\begin{aligned} F(a_j, c_j^k) = & Ra_j + \xi_j^k (1 - \tau_L - \tau_{SS}) w_{J+j}^k e_{J+j}^k + \xi_{J+j}^p \eta_{J+j} (1 - \tau_L - \tau_{SS}) w_{J+j}^p e_{J+j}^p + \xi_{J+j}^p Pen_{J+j}^p \\ & - \xi_{J+j}^p \eta_{J+j} \varphi_0 \varphi_1 \left(c_j^k\right)^{\frac{\sigma}{\psi}} - \xi_j^k (1 + \tau_C) c_j^k - \xi_j^p (1 + \tau_C) c_{J+j}^p - (1 + g) a_{j+1}. \end{aligned}$$

Applying the implicit function theorem results in the derivative of children consumption with respect to asset holding

$$\frac{dc}{da} = -\frac{F_{a_j}}{F_{c_j}} = \frac{R}{\left(\xi_j^k + \xi_j^p\right) (1 + \tau_C) + \eta_{J+j} \xi_{J+j}^p \varphi_0 \varphi_1 \left(\frac{\sigma}{\psi}\right) \left(c_j^k\right)^{\frac{\sigma}{\psi}-1}}. \quad (5)$$

Even though there is no closed form solution, the household problem can be solved by numerical methods. Note that since the model combines features of both the infinite horizon model and the overlapping generation model, backward induction and iteration methods are used. Basically, we start with a guess of the value functions and backward solve for decision rules according to equation 3, value functions, and marginal value functions according to equation 4 from period J to 1. Then, we update value functions and repeat the above steps until the value functions converge. The next section will discuss the algorithm.

2 Algorithm for Steady State Equilibrium

Algorithm 1 *General procedure to solve for general equilibrium*

1. Discretize state space of asset $[a_0, a_1, \dots, a_{\max}]$.
2. Guess initial factor prices R , w and endogenous government policy variables.
3. Solve household problem to obtain decision rules of consumption, savings and labor supplies (See algorithm 3 for more details).
4. Obtain a stationary distribution across states (See algorithm 4 for more details).
5. Clear factor markets to get new factor prices and balance government budget to pin down endogenous government variables.
6. Check a relative change in aggregate capital stocks after each iteration and stop algorithm when the change is relatively small (10^{-4} percent). Otherwise, repeat step from 3 to 6.

Algorithm 2 *Solving household problem to obtain decision rules*

1. Guess initial value function and marginal value function of the next household in the dynasty.
2. Use backward induction method to solve for decision rules, value function and marginal value function of the current household from period J back to period 1.
3. Use value function and marginal value function at the first period of the current household to update value function and marginal value function of the next household.
4. Repeat 2 and 3 until value function converges. In other words, if a relative difference between value functions of two consecutive iterations is relatively small, $100 \frac{\|V^{i+1} - V^i\|}{\|V^i\|} \leq \varepsilon = 10^{-4}$, then stop.

Algorithm 3 *Stationary measures*

1. Guess a distribution of bequests or initial asset holdings of households in period 1 (e.g. uniform distribution).
2. Iterate this distribution forward to obtain the distribution of assets from period 2 to J given decision rules and Markov transition probabilities.
3. Use the distribution of savings in the last period J and Markov transition probability of sector mobility to update the distribution of bequests.
4. Keep repeating steps 1 to 3 until the distribution of assets converges. In other words, if the relative difference between the distributions of two consecutive iterations is relatively small, for example $100 \frac{\|\mu^{i+1} - \mu^i\|}{\|\mu^i\|} < \varepsilon = 10^{-8}$, then stop

3 Life-Time Efficiency Unit and Labor Earning Profile

? report labor income of the household head by level of education and age in Brazil. We use their estimates to construct labor income profiles of formal and informal sector workers. We first group the four educational groups (0-4, 5-8, 9-12, and 12+ years of education) into low (0-4, 5-8) and high skilled (9-12, 12+) groups using the appropriate population weights from ? for each of the four groups. This results in a weighted efficiency-age profile for low (e_L) and high (e_H) skilled workers. We then impose that informal sector workers are more likely to be low skilled (e.g. see ?) and form the efficiency profile for informal sector workers and formal sector workers according to

$$\begin{aligned} \text{informal:} \quad e^I &:= 0.9 \times e_L + 0.2 \times e_H, \\ \text{formal:} \quad e^F &:= 0.1 \times e_L + 0.8 \times e_H. \end{aligned}$$

Using the specific weights of 0.9 for low and 0.2 for high skilled workers in the composition of informal sector efficiency profiles we end up with average income ratios between informal and formal sector workers that match the data. The formulation is

$$\frac{w^I H^I}{w^F H^F} = 60\%,$$

where H^I and H^F denote aggregate (average) human capital in the informal and formal sectors. These values are calculated according to

$$\begin{aligned} H^I &= \sum_{j, se^p, se^k, \xi^p, \xi^k} \int_a \mu_j(a_j, \Phi_j) (1 - l_j) e_j^I, \\ H^F &= \sum_{j, se^p, se^k, \xi^p, \xi^k} \int_a \mu_j(a_j, \Phi_j) (1 - l_j) e_j^F. \end{aligned}$$

The resulting efficiency profiles are reported in figure 1. The main paper contains the income profiles and compares them to data.

4 Sensitivity Analysis

In this section we conduct sensitivity analysis on parameters σ and κ in the utility function.¹ First, we shut down labor/leisure choice of the elderly by setting $\kappa = 0$ and keeping the parameter of risk aversion unchanged at $\sigma = 1$. The results are reported in tables 1, 2, and 3. In these policy experiments, welfare gains are still obtained for household types ($G1 : I, I$) and ($G2 : I$). Type ($G1 : I, F$) still exhibits the non-monotonic pattern but the positive welfare effect starts already with smaller sized social assistance programs.

Second, since the magnitude of the risk-sharing effect is sensitive to the parameter of risk-aversion, we consider two cases with more risk averse agents. That is, we set $\kappa = 0$ but increase the level of risk aversion to $\sigma = 2$ and 4. In our policy experiments, welfare gains for all of these recipient households are magnified because the insurance function of the social assistance program becomes more important with increasing risk aversion.

Third, since the welfare effect varies with the preference for leisure of the elderly, we consider an economy in which the elderly value leisure more than in the benchmark

¹The tables for these experiments are available in the Technical Appendix on the authors' website at: <http://mypage.iu.edu/~chtran/Research/sscApp.pdf>

economy, that is $\kappa = 2$. The results are reported in table 4, 5, and 6. In this scenario, our results on the welfare effects become even more pronounced.

Fourth, we are interested in analyzing these effects in an economy with more income inequality. We calibrate efficiency profiles for formal and informal sector workers in such way that results a smaller ratio of average lifetime income between informal and formal sector workers becomes smaller (28%). The positive welfare effect for group $G1 : (I, F)$ —parents in the informal sector, children in the formal sector— becomes more pronounced. Therefore, group $G1 : (I, F)$ experiences a welfare gain. In this case the insurance function and the redistribution function of the social assistance program dominate the negative effects from the distortions for all tax regimes. This implies that for developing countries with a large income gap between formal and informal sector workers we are more likely to observe a positive welfare effect from a social assistance program.

Fifth, we are also concerned that the size of the informal sector or the coverage rate of social security may be important for the magnitude of the distortion effects caused by the social assistance program. To verify whether our results would be different in an economy with either a smaller or a larger informal sector, we calibrate the model to an economy with coverage rates of social security of 25% and 75%, respectively. The results are reported in table 10 to table ?? . Our results indicate that even though the magnitudes of the policy effects on aggregate variables are changing, the general result of the policy experiment does not change.

Finally, we conduct our analysis in an economy with a capital income share of the informal sector $\alpha^I = 0.2$ and $\alpha^I = 0.3$. We also run a smaller social assistance program targeting only to households where both, parents and children are informal sector workers. In all of these experiments our main result, that group $G1 : (I, I)$, $G1 : (I, F)$, and $G2(I)$ experience welfare gains, holds.

	Ψ^I	G
	0.00	100
	0.10	101
Case 1:	0.20	104
I:25%	0.30	104
F:75%	0.40	106
	0.50	106
	0.00	100
	0.10	103
Case 2:	0.20	106
I:50%	0.30	106
F:50%	0.40	105
	0.50	104

Table 20:

Case 1:
I:25%
F:75%

Case 2:
I:50%
F:50%

Table 21:

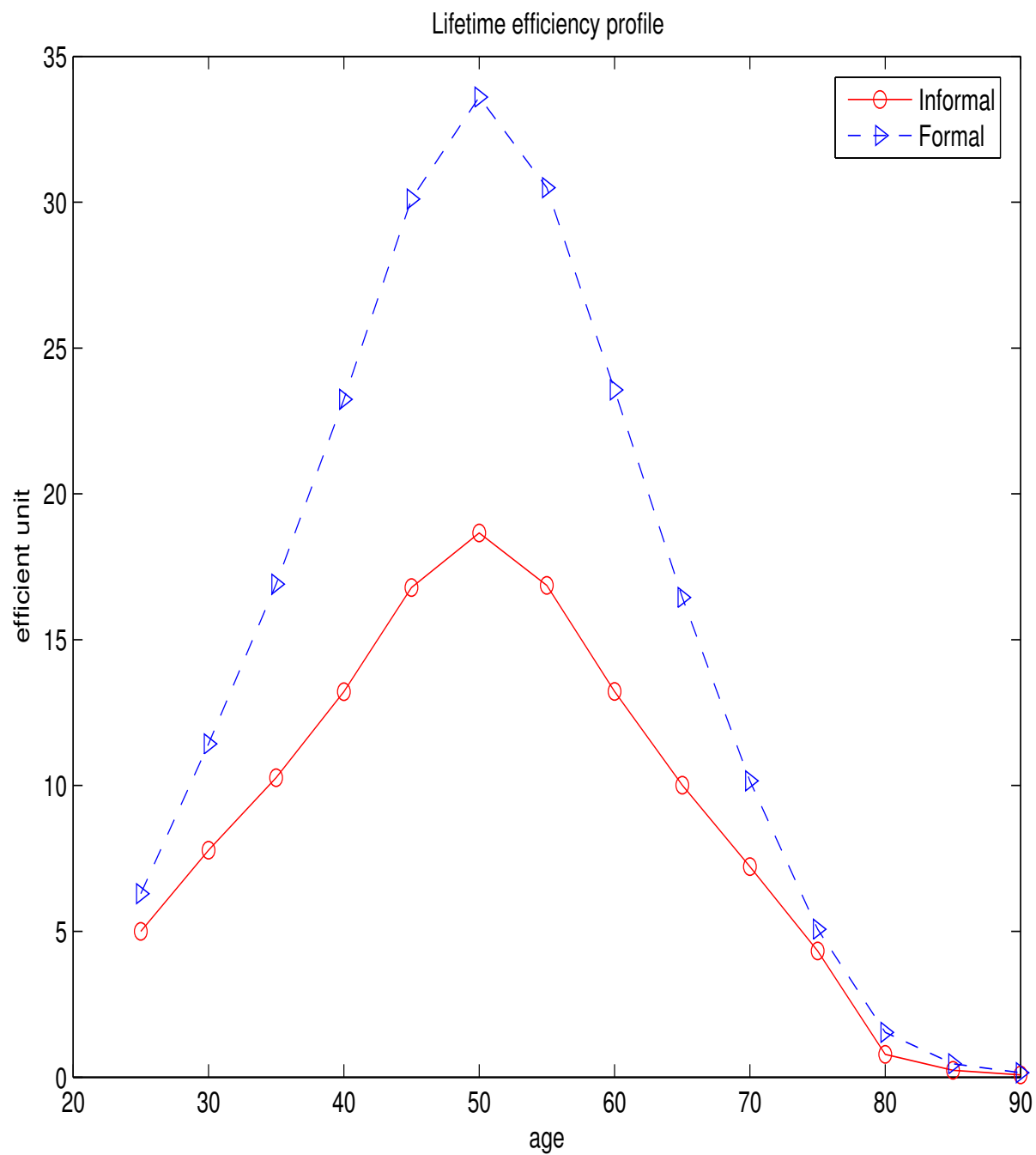


Figure 1: Efficiency Profiles for Informal and Formal Sector Workers

	Ψ^I	Y	K	N	N^I	N^F	Gini	r%	Tax $\tau\%$
τ_C	0.00	100.00	100.00	100.00	100.00	100.00	0.46	6.34	15.00
	0.10	99.93	99.81	100.00	100.00	100.00	0.47	6.35	15.73
	0.20	99.89	99.68	100.00	100.00	100.00	0.48	6.35	16.45
	0.30	99.86	99.60	100.00	100.00	100.00	0.49	6.36	17.16
	0.40	99.84	99.56	100.00	100.00	100.00	0.49	6.36	17.88
	0.50	99.84	99.56	100.00	100.00	100.00	0.49	6.36	18.59
	0.60	99.85	99.57	100.00	100.00	100.00	0.49	6.36	19.30
	0.70	99.85	99.59	100.00	100.00	100.00	0.49	6.36	20.01
	0.80	99.87	99.64	100.00	100.00	100.00	0.49	6.35	20.72
	0.90	99.89	99.70	100.00	100.00	100.00	0.49	6.35	21.42
	1.00	99.92	99.78	100.00	100.00	100.00	0.49	6.35	22.13
τ_{L2}	0.00	100.00	100.00	100.00	100.00	100.00	0.46	6.34	20.00
	0.10	99.90	99.71	100.00	100.00	100.00	0.47	6.35	20.80
	0.20	99.81	99.47	100.00	100.00	100.00	0.48	6.36	21.60
	0.30	99.75	99.29	100.00	100.00	100.00	0.48	6.37	22.39
	0.40	99.70	99.15	100.00	100.00	100.00	0.48	6.38	23.18
	0.50	99.66	99.04	100.00	100.00	100.00	0.48	6.39	23.96
	0.60	99.62	98.95	100.00	100.00	100.00	0.48	6.39	24.74
	0.70	99.60	98.88	100.00	100.00	100.00	0.48	6.40	25.52
	0.80	99.58	98.82	100.00	100.00	100.00	0.47	6.40	26.29
	0.90	99.56	98.78	100.00	100.00	100.00	0.47	6.40	27.06
	1.00	99.55	98.76	100.00	100.00	100.00	0.47	6.40	27.83
τ_K	0.00	100.00	100.00	100.00	100.00	100.00	0.46	6.34	24.72
	0.10	99.30	98.05	100.00	100.00	100.00	0.47	6.34	25.60
	0.20	98.62	96.18	100.00	100.00	100.00	0.48	6.34	26.48
	0.30	97.94	94.35	100.00	100.00	100.00	0.49	6.34	27.36
	0.40	97.29	92.60	100.00	100.00	100.00	0.49	6.34	28.24
	0.50	96.64	90.88	100.00	100.00	100.00	0.50	6.33	29.12
	0.60	95.99	89.17	100.00	100.00	100.00	0.50	6.33	30.00
	0.70	95.34	87.49	100.00	100.00	100.00	0.50	6.32	30.88
	0.80	94.69	85.84	100.00	100.00	100.00	0.50	6.31	31.77
	0.90	94.04	84.20	100.00	100.00	100.00	0.50	6.30	32.66
	1.00	93.39	82.57	100.00	100.00	100.00	0.50	6.29	33.56

Table 1: Aggregate Effects with $w^I H^I / w^F H^F = 0.6$ and no leisure choice $\kappa = 0$

	Ψ^I	G1:I,I	G1:I,F	G1:F,I	G1:F,F	Average
τ_C	0.00	100.00	100.00	100.00	100.00	100.00
	0.10	100.35	104.57	99.62	101.09	100.83
	0.20	102.29	109.16	98.99	101.86	101.57
	0.30	105.68	114.27	98.13	102.34	102.30
	0.40	110.32	119.97	97.05	102.56	103.03
	0.50	115.85	126.01	95.85	102.60	103.76
	0.60	121.96	132.49	94.58	102.56	104.52
	0.70	128.49	139.28	93.26	102.44	105.29
	0.80	135.30	146.15	91.83	102.18	106.01
	0.90	142.40	153.07	90.40	101.87	106.72
	1.00	150.06	159.98	88.93	101.46	107.42
τ_L2	0.00	100.00	100.00	100.00	100.00	100.00
	0.10	100.89	103.13	99.61	100.87	100.37
	0.20	103.37	106.24	99.00	101.42	100.66
	0.30	107.31	110.19	98.17	101.67	100.98
	0.40	112.45	114.65	97.17	101.68	101.32
	0.50	118.58	119.53	96.06	101.53	101.66
	0.60	125.30	124.95	94.87	101.27	102.05
	0.70	132.50	130.75	93.64	100.93	102.46
	0.80	140.06	136.65	92.33	100.48	102.83
	0.90	147.94	142.60	90.98	99.95	103.19
	1.00	156.93	148.52	89.50	99.27	103.53
τ_K	0.00	100.00	100.00	100.00	100.00	100.00
	0.10	99.71	103.30	98.17	99.67	99.61
	0.20	100.96	106.64	96.07	99.00	99.12
	0.30	103.63	110.38	93.76	98.04	98.62
	0.40	107.57	114.47	91.26	96.85	98.10
	0.50	112.31	118.88	88.62	95.46	97.56
	0.60	117.56	123.53	85.95	93.97	97.03
	0.70	123.14	128.35	83.27	92.38	96.50
	0.80	128.95	133.30	80.56	90.66	95.93
	0.90	134.94	138.27	77.87	88.86	95.35
	1.00	141.11	143.18	75.22	87.01	94.75

Table 2: Bequests to Next Households with $w^I H^I / w^F H^F = 0.6$ and no leisure choice $\kappa = 0$

	Ψ^I	G1:I,I	G1:I,F	G1:F,I	G1:F,F	G2:I	G2:F	G3:I	G3:F
τ_C	0.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	0.10	100.42	99.91	99.80	99.76	102.80	99.88	99.59	99.75
	0.20	100.85	99.96	99.57	99.51	105.53	99.73	99.23	99.49
	0.30	101.28	100.04	99.34	99.26	108.18	99.56	98.90	99.24
	0.40	101.70	100.12	99.09	99.00	110.73	99.38	98.59	98.99
	0.50	102.12	100.21	98.83	98.74	113.18	99.18	98.31	98.74
	0.60	102.53	100.29	98.58	98.48	115.54	98.98	98.04	98.49
	0.70	102.92	100.38	98.32	98.22	117.80	98.78	97.77	98.25
	0.80	103.30	100.47	98.05	97.96	119.95	98.57	97.51	98.00
	0.90	103.67	100.56	97.78	97.70	122.00	98.35	97.26	97.75
	1.00	104.03	100.65	97.51	97.44	123.98	98.13	97.02	97.50
τ_L2	0.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	0.10	100.80	99.80	99.94	99.62	103.26	99.91	99.94	99.57
	0.20	101.61	99.76	99.85	99.24	106.43	99.78	99.91	99.14
	0.30	102.41	99.74	99.76	98.85	109.50	99.64	99.91	98.71
	0.40	103.20	99.72	99.65	98.45	112.46	99.49	99.93	98.27
	0.50	103.98	99.71	99.52	98.03	115.33	99.31	99.97	97.82
	0.60	104.75	99.72	99.40	97.63	118.09	99.14	100.03	97.39
	0.70	105.50	99.72	99.27	97.22	120.74	98.96	100.09	96.94
	0.80	106.24	99.72	99.13	96.80	123.29	98.76	100.15	96.49
	0.90	106.96	99.73	98.99	96.37	125.73	98.56	100.21	96.03
	1.00	107.69	99.75	98.83	95.93	128.12	98.34	100.29	95.56
τ_K	0.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	0.10	100.54	99.87	99.77	99.67	102.86	99.77	99.68	99.66
	0.20	101.08	99.90	99.52	99.33	105.64	99.51	99.38	99.30
	0.30	101.61	99.92	99.24	98.98	108.35	99.22	99.12	98.94
	0.40	102.13	99.96	98.95	98.61	110.97	98.91	98.88	98.58
	0.50	102.64	99.99	98.64	98.24	113.49	98.57	98.65	98.21
	0.60	103.13	100.02	98.32	97.85	115.91	98.23	98.42	97.82
	0.70	103.60	100.05	97.99	97.46	118.23	97.87	98.20	97.44
	0.80	104.06	100.07	97.64	97.06	120.45	97.50	97.97	97.04
	0.90	104.49	100.07	97.29	96.65	122.57	97.11	97.74	96.63
	1.00	104.90	100.08	96.93	96.23	124.59	96.72	97.51	96.21

Table 3: Welfare of Household Age 1 with $w^I H^I / w^F H^F = 0.6$ and no leisure choice $\kappa = 0$

	Ψ^I	Y	K	N	N^I	N^F	Gini	r%	Tax $\tau\%$
τ_C	0.00	100.00	100.00	100.00	100.00	100.00	0.56	6.64	15.00
	0.10	99.82	99.61	99.49	98.98	100.01	0.57	6.66	15.68
	0.20	99.67	99.31	99.21	98.43	100.00	0.57	6.67	16.37
	0.30	99.57	99.14	99.01	98.04	99.99	0.58	6.68	17.05
	0.40	99.52	99.06	98.89	97.81	99.98	0.58	6.68	17.73
	0.50	99.51	99.07	98.86	97.76	99.97	0.58	6.68	18.40
	0.60	99.52	99.11	98.84	97.73	99.96	0.58	6.68	19.08
	0.70	99.53	99.16	98.82	97.69	99.95	0.58	6.68	19.76
	0.80	99.55	99.23	98.80	97.66	99.94	0.58	6.67	20.43
	0.90	99.58	99.33	98.78	97.63	99.93	0.58	6.67	21.11
	1.00	99.63	99.47	98.76	97.60	99.93	0.58	6.66	21.78
τ_L^F	0.00	100.00	100.00	100.00	100.00	100.00	0.56	6.65	19.99
	0.10	99.72	99.38	99.45	98.91	99.99	0.57	6.68	20.70
	0.20	99.49	98.87	99.13	98.30	99.97	0.57	6.70	21.42
	0.30	99.31	98.50	98.93	97.91	99.95	0.57	6.72	22.13
	0.40	99.20	98.25	98.83	97.72	99.94	0.57	6.73	22.83
	0.50	99.13	98.08	98.81	97.70	99.94	0.57	6.74	23.53
	0.60	99.08	97.94	98.81	97.69	99.93	0.57	6.75	24.24
	0.70	99.03	97.81	98.81	97.69	99.93	0.57	6.76	24.94
	0.80	99.01	97.74	98.81	97.69	99.93	0.57	6.76	25.64
	0.90	98.99	97.69	98.81	97.69	99.93	0.56	6.76	26.34
	1.00	98.98	97.66	98.81	97.69	99.93	0.56	6.77	27.03
τ_K	0.00	100.00	100.00	100.00	100.00	100.00	0.56	6.64	21.84
	0.10	99.30	98.21	99.50	99.00	100.01	0.57	6.65	22.65
	0.20	98.63	96.49	99.23	98.46	100.00	0.58	6.65	23.47
	0.30	98.01	94.93	99.03	98.08	99.99	0.58	6.64	24.28
	0.40	97.44	93.49	98.91	97.86	99.97	0.59	6.63	25.09
	0.50	96.92	92.14	98.89	97.83	99.96	0.59	6.61	25.90
	0.60	96.41	90.83	98.87	97.80	99.95	0.59	6.59	26.71
	0.70	95.90	89.53	98.86	97.78	99.94	0.59	6.57	27.53
	0.80	95.40	88.25	98.85	97.77	99.93	0.59	6.55	28.35
	0.90	94.89	86.98	98.84	97.76	99.92	0.59	6.53	29.16
	1.00	94.38	85.71	98.83	97.75	99.92	0.59	6.51	29.99

Table 4: Aggregate Effects with $w^I H^I / w^F H^F = 0.6$ and $\kappa = 2$

	Ψ^I	G1:I,I	G1:I,F	G1:F,I	G1:F,F	Average
τ_C	0.00	100.00	100.00	100.00	100.00	100.00
	0.10	101.60	97.63	99.45	100.54	99.75
	0.20	101.71	99.39	98.87	100.93	100.18
	0.30	102.83	101.82	97.92	101.13	100.66
	0.40	104.83	104.47	96.72	101.19	101.13
	0.50	107.10	107.25	95.26	101.14	101.53
	0.60	109.50	110.08	93.76	101.05	101.93
	0.70	111.97	112.97	92.27	100.95	102.33
	0.80	114.50	115.87	90.77	100.82	102.72
	0.90	117.29	118.73	89.20	100.63	103.09
	1.00	120.38	121.56	87.62	100.40	103.46
τ_L^F	0.00	100.00	100.00	100.00	100.00	100.00
	0.10	101.95	96.66	99.81	99.99	99.40
	0.20	102.41	97.67	99.71	99.81	99.54
	0.30	103.75	99.35	99.34	99.44	99.73
	0.40	106.00	101.23	98.63	98.92	99.89
	0.50	108.62	103.23	97.77	98.31	100.03
	0.60	111.40	105.32	96.84	97.64	100.16
	0.70	114.32	107.48	95.89	96.95	100.29
	0.80	117.74	109.60	94.80	96.20	100.41
	0.90	121.30	111.74	93.67	95.42	100.52
	1.00	125.04	113.87	92.51	94.61	100.61
τ_K	0.00	100.00	100.00	100.00	100.00	100.00
	0.10	101.05	96.70	97.94	99.44	98.69
	0.20	100.61	97.41	95.80	98.73	98.02
	0.30	101.29	98.39	93.33	97.83	97.36
	0.40	102.80	99.53	90.60	96.77	96.67
	0.50	104.51	100.75	87.67	95.57	95.91
	0.60	106.28	102.06	84.76	94.31	95.15
	0.70	108.07	103.41	81.97	92.97	94.40
	0.80	109.88	104.73	79.49	91.54	93.65
	0.90	111.70	106.04	77.43	90.09	92.95
	1.00	113.54	107.34	75.76	88.62	92.27

Table 5: Requests to Next Households with $w^I H^I / w^F H^F = 0.6$ and $\kappa = 2$

	Ψ^I	G1:I,I	G1:I,F	G1:F,I	G1:F,F	G2:I	G2:F	G3:I	G3:F	Average
τ_C	0.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	0.10	99.82	100.57	99.69	99.68	114.45	99.74	99.72	99.73	99.83
	0.20	100.52	100.65	99.44	99.41	126.62	99.59	99.38	99.47	99.87
	0.30	101.17	100.73	99.18	99.14	138.22	99.41	99.06	99.22	99.91
	0.40	101.81	100.83	98.91	98.87	149.20	99.21	98.76	98.98	99.94
	0.50	102.38	100.92	98.63	98.60	159.20	98.97	98.46	98.73	99.95
	0.60	102.91	101.01	98.35	98.33	168.38	98.73	98.15	98.48	99.94
	0.70	103.40	101.08	98.06	98.05	176.88	98.49	97.85	98.23	99.93
	0.80	103.86	101.15	97.77	97.78	184.76	98.23	97.55	97.98	99.90
	0.90	104.30	101.23	97.48	97.51	192.17	97.97	97.25	97.73	99.87
	1.00	104.73	101.31	97.19	97.24	199.17	97.70	96.97	97.49	99.83
τ_L^F	0.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	0.10	100.30	100.46	99.90	99.55	116.12	99.83	100.07	99.59	99.91
	0.20	101.49	100.42	99.87	99.15	129.86	99.77	100.08	99.20	100.04
	0.30	102.61	100.40	99.82	98.74	142.86	99.68	100.10	98.81	100.16
	0.40	103.71	100.41	99.75	98.33	155.14	99.55	100.14	98.42	100.26
	0.50	104.77	100.41	99.67	97.92	166.48	99.40	100.18	98.02	100.35
	0.60	105.78	100.41	99.58	97.49	176.93	99.24	100.22	97.61	100.42
	0.70	106.75	100.41	99.49	97.07	186.67	99.07	100.26	97.20	100.47
	0.80	107.71	100.42	99.39	96.63	195.88	98.88	100.32	96.79	100.53
	0.90	108.64	100.43	99.29	96.20	204.53	98.68	100.37	96.38	100.56
	1.00	109.55	100.44	99.18	95.76	212.69	98.47	100.43	95.96	100.59
τ_K	0.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	0.10	99.91	100.53	99.70	99.62	113.89	99.58	99.80	99.67	99.82
	0.20	100.71	100.55	99.45	99.27	125.63	99.26	99.52	99.35	99.85
	0.30	101.46	100.59	99.18	98.92	137.00	98.90	99.26	99.03	99.87
	0.40	102.19	100.63	98.89	98.57	147.84	98.50	99.03	98.71	99.87
	0.50	102.86	100.67	98.58	98.20	157.80	98.05	98.78	98.38	99.85
	0.60	103.48	100.70	98.26	97.82	167.01	97.59	98.53	98.04	99.82
	0.70	104.06	100.71	97.93	97.44	175.62	97.10	98.28	97.69	99.76
	0.80	104.61	100.73	97.58	97.04	183.68	96.58	98.03	97.34	99.68
	0.90	105.13	100.73	97.22	96.63	191.28	96.04	97.78	96.98	99.59
	1.00	105.63	100.73	96.85	96.21	198.33	95.46	97.54	96.61	99.48

Table 6: Welfare of Household Age 1 with $w^I H^I / w^F H^F = 0.6$ and $\kappa = 2$

	Ψ^I	Y	K	N	N^I	N^F	Gini	r%	Tax $\tau\%$
τ_C	0.00	100.00	100.00	100.00	100.00	100.00	0.62	5.97	15.00
	0.10	99.85	99.67	99.41	98.77	100.00	0.62	5.98	15.40
	0.20	99.78	99.52	99.15	98.26	99.98	0.62	5.99	15.80
	0.30	99.72	99.41	98.96	97.87	99.98	0.62	5.99	16.19
	0.40	99.68	99.35	98.84	97.63	99.97	0.62	5.99	16.58
	0.50	99.66	99.31	98.79	97.53	99.96	0.62	6.00	16.97
	0.60	99.65	99.29	98.77	97.51	99.96	0.62	6.00	17.36
	0.70	99.64	99.28	98.76	97.49	99.95	0.62	6.00	17.76
	0.80	99.64	99.28	98.75	97.47	99.95	0.62	6.00	18.15
	0.90	99.64	99.29	98.73	97.45	99.94	0.62	6.00	18.54
	1.00	99.65	99.32	98.72	97.43	99.94	0.62	5.99	18.92
τ_L^F	0.00	100.00	100.00	100.00	100.00	100.00	0.62	5.98	19.98
	0.10	99.75	99.47	99.39	98.80	99.93	0.62	6.00	20.32
	0.20	99.56	99.10	99.10	98.28	99.86	0.62	6.02	20.66
	0.30	99.41	98.82	98.87	97.89	99.79	0.62	6.03	21.00
	0.40	99.28	98.57	98.73	97.66	99.73	0.62	6.04	21.33
	0.50	99.17	98.35	98.66	97.58	99.68	0.62	6.05	21.67
	0.60	99.06	98.13	98.63	97.57	99.62	0.62	6.06	22.00
	0.70	98.97	97.95	98.60	97.57	99.56	0.62	6.07	22.34
	0.80	98.88	97.79	98.57	97.56	99.51	0.62	6.07	22.67
	0.90	98.80	97.63	98.54	97.56	99.46	0.62	6.08	23.00
	1.00	98.72	97.48	98.52	97.56	99.41	0.62	6.09	23.34
τ_K	0.00	100.00	100.00	100.00	100.00	100.00	0.62	5.96	19.12
	0.10	99.60	98.99	99.41	98.77	100.00	0.62	5.97	19.53
	0.20	99.26	98.16	99.16	98.27	100.00	0.62	5.97	19.95
	0.30	98.95	97.38	98.98	97.89	100.00	0.62	5.97	20.36
	0.40	98.66	96.65	98.86	97.65	100.00	0.63	5.96	20.77
	0.50	98.38	95.95	98.82	97.56	100.00	0.63	5.96	21.18
	0.60	98.12	95.27	98.81	97.54	100.00	0.63	5.95	21.59
	0.70	97.85	94.60	98.80	97.52	100.00	0.63	5.94	22.00
	0.80	97.60	93.95	98.79	97.50	100.01	0.63	5.93	22.41
	0.90	97.35	93.31	98.79	97.48	100.01	0.63	5.93	22.82
	1.00	97.10	92.68	98.78	97.47	100.02	0.63	5.92	23.23

Table 7: Aggregate Effects with $w^I H^I / w^F H^F = 0.2$ and $\kappa = 1$

	Ψ^I	G1:I,I	G1:I,F	G1:F,I	G1:F,F	Average
τ_C	0.00	100.00	100.00	100.00	100.00	100.00
	0.10	100.99	97.48	100.00	100.42	99.60
	0.20	101.55	98.06	99.62	100.59	99.73
	0.30	102.70	98.76	99.13	100.71	99.88
	0.40	104.55	99.51	98.54	100.76	100.02
	0.50	106.59	100.33	97.92	100.80	100.16
	0.60	108.83	101.20	97.27	100.81	100.31
	0.70	111.34	102.12	96.59	100.80	100.46
	0.80	114.22	103.02	95.90	100.78	100.62
	0.90	117.26	103.95	95.20	100.76	100.78
	1.00	120.79	104.87	94.43	100.69	100.93
τ_L^F	0.00	100.00	100.00	100.00	100.00	100.00
	0.10	101.24	97.33	99.94	100.19	99.41
	0.20	101.94	97.43	99.55	100.16	99.32
	0.30	103.23	97.63	99.21	100.03	99.24
	0.40	105.28	97.89	98.74	99.85	99.16
	0.50	107.55	98.23	98.22	99.65	99.09
	0.60	110.01	98.64	97.65	99.43	99.02
	0.70	112.64	99.08	97.16	99.18	98.96
	0.80	115.50	99.56	96.69	98.91	98.92
	0.90	119.00	100.08	96.04	98.63	98.87
	1.00	122.68	100.61	95.37	98.34	98.82
τ_K	0.00	100.00	100.00	100.00	100.00	100.00
	0.10	100.65	97.03	99.15	99.88	99.04
	0.20	100.92	97.15	97.90	99.50	98.63
	0.30	101.77	97.39	96.55	99.07	98.22
	0.40	103.31	97.66	95.11	98.59	97.80
	0.50	105.03	98.02	93.62	98.07	97.39
	0.60	106.95	98.42	92.10	97.53	96.98
	0.70	109.29	98.84	90.56	96.97	96.58
	0.80	111.95	99.28	88.99	96.39	96.17
	0.90	114.72	99.73	87.41	95.80	95.77
	1.00	117.63	100.16	85.82	95.20	95.36

Table 8: Requests to Next Households with $w^I H^I / w^F H^F = 0.2$ and $\kappa = 1$

	Ψ^I	G1:I,I	G1:I,F	G1:F,I	G1:F,F	G2:I	G2:F	G3:I	G3:F
τ_C	0.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	0.10	99.83	100.39	99.83	99.81	-34.95	99.84	99.74	99.83
	0.20	101.05	100.39	99.66	99.64	-140.57	99.72	99.42	99.67
	0.30	102.21	100.40	99.49	99.48	-248.26	99.59	99.13	99.51
	0.40	103.31	100.42	99.31	99.32	-349.99	99.46	98.86	99.36
	0.50	104.34	100.43	99.13	99.16	-442.50	99.32	98.60	99.21
	0.60	105.31	100.45	98.94	98.99	-526.88	99.18	98.34	99.06
	0.70	106.22	100.46	98.76	98.83	-604.34	99.04	98.09	98.91
	0.80	107.10	100.48	98.57	98.67	-673.95	98.90	97.85	98.76
	0.90	107.95	100.50	98.38	98.51	-736.21	98.75	97.61	98.61
	1.00	108.79	100.52	98.18	98.35	-793.45	98.60	97.39	98.47
τ_L^F	0.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	0.10	100.22	100.33	99.97	99.78	-40.64	99.92	100.00	99.79
	0.20	101.87	100.28	99.94	99.58	-150.72	99.87	99.95	99.59
	0.30	103.44	100.24	99.90	99.38	-262.89	99.82	99.91	99.39
	0.40	104.95	100.21	99.85	99.18	-369.05	99.75	99.91	99.19
	0.50	106.39	100.18	99.80	98.98	-465.80	99.68	99.91	98.99
	0.60	107.76	100.15	99.74	98.78	-554.21	99.60	99.91	98.80
	0.70	109.08	100.12	99.68	98.58	-635.80	99.53	99.91	98.60
	0.80	110.36	100.10	99.61	98.38	-710.07	99.44	99.93	98.40
	0.90	111.62	100.08	99.55	98.17	-777.81	99.36	99.95	98.20
	1.00	112.86	100.06	99.48	97.97	-839.72	99.27	99.98	98.00
τ_K	0.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	0.10	99.98	100.41	99.84	99.81	-32.75	99.79	99.83	99.83
	0.20	101.33	100.41	99.68	99.64	-136.86	99.63	99.60	99.67
	0.30	102.63	100.43	99.51	99.47	-243.69	99.46	99.40	99.51
	0.40	103.88	100.45	99.34	99.30	-344.98	99.27	99.22	99.35
	0.50	105.05	100.47	99.16	99.13	-437.36	99.09	99.04	99.19
	0.60	106.15	100.49	98.97	98.96	-521.98	98.89	98.87	99.03
	0.70	107.21	100.51	98.78	98.79	-599.58	98.69	98.70	98.87
	0.80	108.23	100.53	98.59	98.62	-669.38	98.49	98.54	98.71
	0.90	109.21	100.55	98.39	98.44	-731.82	98.29	98.38	98.55
	1.00	110.16	100.57	98.19	98.27	-788.47	98.08	98.22	98.39

Table 9: Welfare of Household Age 1 with $w^I H^I / w^F H^F = 0.2$ and $\kappa = 1$

	Ψ^I	Gini	Y^I/Y	y^I/y^F	K^I/Y^I	K^F/Y^F	K/Y	R	τ_C
Case 1: I:25% F:75%	0.000	0.358	0.192	0.523	2.078	3.740	3.420	1.031	0.059
	0.100	0.365	0.192	0.523	2.074	3.733	3.414	1.031	0.061
	0.200	0.371	0.193	0.523	2.071	3.728	3.409	1.031	0.064
	0.300	0.376	0.193	0.524	2.068	3.722	3.404	1.031	0.066
	0.400	0.379	0.193	0.524	2.066	3.718	3.400	1.031	0.069
	0.500	0.381	0.193	0.524	2.063	3.714	3.396	1.031	0.072
Case 2: I:50% F:50%	0.000	0.437	0.311	0.524	2.064	3.716	3.203	1.030	0.059
	0.100	0.452	0.311	0.524	2.059	3.706	3.194	1.030	0.064
	0.200	0.464	0.311	0.525	2.054	3.697	3.186	1.030	0.069
	0.300	0.467	0.311	0.525	2.050	3.691	3.180	1.031	0.073
	0.400	0.464	0.311	0.525	2.047	3.685	3.176	1.031	0.078
	0.500	0.459	0.311	0.525	2.045	3.681	3.172	1.031	0.083

Table 10: Aggregate Effects with Endogenous Consumption Income Tax.

	Ψ^I	Gini	Y	K	Y^I	K^I	Y^F	K^F	w^I	w^F
Case 1: I:25% F:75%	0.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	0.10	101.83	99.91	99.74	99.96	99.78	99.90	99.73	99.96	99.90
	0.20	103.52	99.83	99.50	99.92	99.59	99.82	99.49	99.92	99.82
	0.30	104.87	99.77	99.29	99.88	99.42	99.74	99.27	99.88	99.74
	0.40	105.78	99.71	99.11	99.85	99.27	99.67	99.09	99.85	99.67
	0.50	106.32	99.66	98.96	99.83	99.14	99.61	98.93	99.83	99.61
Case 2: I:50% F:50%	0.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	0.10	103.45	99.88	99.60	99.93	99.67	99.85	99.59	99.93	99.85
	0.20	106.16	99.77	99.26	99.88	99.39	99.72	99.23	99.88	99.72
	0.30	106.80	99.69	98.99	99.83	99.16	99.62	98.95	99.83	99.62
	0.40	106.10	99.62	98.78	99.80	98.99	99.54	98.73	99.80	99.54
	0.50	105.02	99.56	98.60	99.76	98.83	99.47	98.54	99.76	99.47

Table 11: Aggregate Variables with Endogenous Consumption Income Tax.

	Ψ^I	G1:I,I	G1:I,F	G1:F,I	G1:F,F	G2:I	G2:F	G3:I	G3:F	Average
	0.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	0.10	101.19	100.55	100.40	99.96	103.14	100.19	99.80	99.91	100.35
Case 1:	0.20	102.34	101.10	100.79	99.91	106.13	100.39	99.62	99.83	100.69
I:25%	0.30	103.49	101.67	101.16	99.87	109.09	100.57	99.49	99.76	101.03
F:75%	0.40	104.67	102.30	101.50	99.81	112.17	100.72	99.45	99.72	101.38
	0.50	105.85	102.95	101.83	99.75	115.16	100.85	99.44	99.69	101.72
Measure		0.13	0.17	0.17	0.53	0.00	0.00	0.00	0.01	
	0.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	0.10	101.47	100.67	100.45	99.85	104.66	100.27	99.60	99.92	100.78
Case 2:	0.20	102.91	101.32	100.85	99.67	108.99	100.45	99.28	99.82	101.53
I:50%	0.30	104.39	102.07	101.15	99.43	113.53	100.46	99.35	99.70	102.29
F:50%	0.40	105.99	102.96	101.37	99.14	118.20	100.34	99.75	99.58	103.09
	0.50	107.56	103.86	101.57	98.85	122.41	100.20	100.06	99.44	103.87
Measure		0.40	0.10	0.10	0.40	0.00	0.00	0.00	0.00	

Table 12: Welfare of Household Age 1 with Consumption Income Tax.

	Ψ^I	I,I	I,F	F,I	F,F	Average
	0.00	100.00	100.00	100.00	100.00	100.00
	0.10	99.04	115.01	97.84	102.15	99.04
Case 1:	0.20	98.68	131.00	95.68	104.17	98.68
I:25%	0.30	99.62	147.72	93.54	106.01	99.62
F:75%	0.40	102.93	164.78	91.34	107.58	102.93
	0.50	107.84	182.47	89.12	108.90	107.84
	0.00	100.00	100.00	100.00	100.00	100.00
	0.10	101.66	125.31	98.57	104.95	101.66
Case 2:	0.20	103.99	151.82	96.93	109.18	103.99
I:50%	0.30	109.05	176.59	94.82	112.13	109.05
F:50%	0.40	117.98	199.77	92.35	114.04	117.98
	0.50	128.19	224.54	89.85	115.67	128.19

Table 13: Bequests to Next Households with Consumption Income Tax.

	Ψ^I	Gini	Y^I/Y	y^I/y^F	K^I/Y^I	K^F/Y^F	K/Y	R	τ_{L2}
	0.00	0.36	0.19	0.52	2.08	3.74	3.42	1.03	0.15
	0.10	0.36	0.19	0.52	2.07	3.73	3.41	1.03	0.15
Case 1:	0.20	0.37	0.19	0.52	2.07	3.72	3.40	1.03	0.16
I:25%	0.30	0.37	0.19	0.52	2.06	3.72	3.40	1.03	0.16
F:75%	0.40	0.37	0.19	0.52	2.06	3.71	3.39	1.03	0.17
	0.50	0.37	0.19	0.52	2.06	3.70	3.39	1.03	0.17
	0.00	0.44	0.31	0.52	2.06	3.72	3.20	1.03	0.15
	0.10	0.45	0.31	0.52	2.06	3.70	3.19	1.03	0.16
Case 2:	0.20	0.46	0.31	0.53	2.05	3.68	3.17	1.03	0.17
I:50%	0.30	0.45	0.31	0.53	2.04	3.67	3.16	1.03	0.19
F:50%	0.40	0.44	0.31	0.53	2.03	3.66	3.15	1.03	0.20
	0.50	0.43	0.31	0.53	2.03	3.65	3.14	1.03	0.21

Table 14: Aggregate Effects with Labor Income Tax.

	Ψ^I	Gini	Y	K	Y^I	K^I	Y^F	K^F	w^I	w^F
	0.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	0.10	101.47	99.88	99.63	99.94	99.70	99.86	99.62	99.94	99.86
Case 1:	0.20	102.70	99.77	99.29	99.88	99.42	99.74	99.27	99.88	99.74
I:25%	0.30	103.50	99.66	98.98	99.83	99.17	99.62	98.96	99.83	99.62
F:75%	0.40	103.80	99.58	98.71	99.79	98.95	99.52	98.68	99.79	99.52
	0.50	103.68	99.50	98.48	99.75	98.75	99.44	98.44	99.75	99.44
	0.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	0.10	102.42	99.79	99.31	99.89	99.43	99.74	99.28	99.89	99.74
Case 2:	0.20	103.97	99.59	98.70	99.78	98.91	99.51	98.64	99.78	99.51
I:50%	0.30	103.22	99.43	98.17	99.69	98.47	99.31	98.09	99.69	99.31
F:50%	0.40	101.11	99.28	97.70	99.61	98.08	99.13	97.60	99.61	99.13
	0.50	98.77	99.15	97.27	99.54	97.72	98.97	97.16	99.54	98.97

Table 15: Aggregate Variables with Labor Income Tax.

	Ψ^I	G1:I,I	G1:I,F	G1:F,I	G1:F,F	G2:I	G2:F	G3:I	G3:F	Average
	0.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	0.10	101.42	100.44	100.36	99.66	103.71	100.02	99.96	99.62	100.22
Case 1:	0.20	102.79	100.89	100.71	99.33	107.21	100.04	99.96	99.26	100.44
I:25%	0.30	104.16	101.36	101.05	98.99	110.63	100.06	100.00	98.92	100.65
F:75%	0.40	105.53	101.88	101.35	98.63	114.06	100.04	100.11	98.59	100.86
	0.50	106.90	102.44	101.65	98.28	117.34	100.05	100.26	98.29	101.08
Measure		0.13	0.17	0.17	0.53	0.00	0.00	0.00	0.01	
	0.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	0.10	101.94	100.14	100.32	98.94	105.63	99.57	100.09	98.95	100.66
Case 2:	0.20	103.83	100.27	100.56	97.82	110.80	99.03	100.27	97.85	101.27
I:50%	0.30	105.78	100.55	100.70	96.61	116.17	98.32	100.90	96.72	101.89
F:50%	0.40	107.80	100.99	100.78	95.33	121.40	97.50	101.73	95.57	102.52
	0.50	109.73	101.40	100.83	94.01	125.96	96.66	102.41	94.36	103.10
Measure		0.40	0.10	0.10	0.40	0.00	0.00	0.00	0.00	

Table 16: Welfare of Household Age 1 with Labor Income Tax.

	Ψ^I	I,I	I,F	F,I	F,F	Average
	0.00	100.00	100.00	100.00	100.00	100.00
	0.10	101.07	118.13	97.84	101.87	101.07
Case 1:	0.20	102.86	137.96	95.72	103.62	102.86
I:25%	0.30	106.02	159.24	93.61	105.16	106.02
F:75%	0.40	111.35	181.28	91.41	106.34	111.35
	0.50	118.08	205.43	89.28	107.43	118.08
	0.00	100.00	100.00	100.00	100.00	100.00
	0.10	104.79	131.43	97.58	103.95	104.79
Case 2:	0.20	110.50	166.58	94.92	107.01	110.50
I:50%	0.30	119.84	203.45	91.85	108.79	119.84
F:50%	0.40	132.64	243.87	88.52	109.72	132.64
	0.50	146.03	291.23	85.16	110.29	146.03

Table 17: Bequests to Next Households with Labor Income Tax.