Table 1: Calibration

| | | |
|---|---|---|
| | DSGE Model | |
| Calibrated Parameters | | |
| $\rho$ | 2. | Coefficient of Relative Risk Aversion |
| $\daleth$ | $0.94^{1/4}$ | Quarterly Depreciation Factor |
| $K/K^{\varepsilon}$ | 12 | Perf Foresight SS Capital/Output Ratio |
| $\sigma^2_{\Theta}$ | 0.00001 | Variance Qtrly Tran Agg Pty Shocks |
| $\sigma^2_{\Psi}$ | 0.00004 | Variance Qtrly Perm Agg Pty Shocks |
| Steady State Solution of Model With $\sigma_{\Psi} = \sigma_{\Theta} = 0$ | | |
| $K = 12^{1/(1-\varepsilon)}$ | $\approx 48.55$ | Steady State Quarterly $\mathbf{K}/\mathbf{P}$ Ratio |
| $M = K + K^{\varepsilon}$ | $\approx 52.6$ | Steady State Quarterly $\mathbf{M}/\mathbf{P}$ Ratio |
| $\mathcal{W} = (1-\varepsilon)K^{\epsilon}$ | $\approx 2.59$ | Quarterly Wage Rate |
| $\mathcal{R} = 1 + \varepsilon K^{\varepsilon - 1}$ | $= 1.03$ | Quarterly Gross Capital Income Factor |
| $\mathbf{R} = \mathcal{R}\daleth$ | $\approx 1.014$ | Quarterly Between-Period Interest Factor |
| $\beta = \mathbf{R}^{-1}$ | $\approx 0.986$ | Quarterly Time Preference Factor |
| | Partial Equilibrium/Small Open Economy (PE/SOE) Model Parameters | |
| Calibrated Parameters | | |
| $\sigma^2_{\vec{\psi}}$ | 0.011 | Variance Annual Perm Idiosyncratic Shocks (PSID) |
| $\sigma^2_{\vec{\theta}}$ | 0.03 | Variance Annual Tran Idiosyncratic Shocks (PSID) |
| $\wp$ | 0.05 | Quarterly Probability of Unemployment Spell |
| $\Pi$ | 0.25 | Quarterly Probability of Updating Expectations |
| $(1-\Omega)$ | 0.005 | Quarterly Probability of Mortality |
| Calculated Parameters | | |
| $\beta = 0.99\Omega/E[(\boldsymbol{\psi})^{-\rho}]\mathbf{R}$ | 0.969 | Satisfies Impatience Condition: $\beta < \Omega/E[(\Psi\psi)^{-\rho}]\mathbf{R}$ |
| $\sigma^2_{\psi}$ | 0.004 | Variance Qtrly Perm Idiosyncratic Shocks ($=\frac{4}{11}\sigma_{\vec{\psi}}$) |
| $\sigma^2_{\theta}$ | 0.12 | Variance Qtrly Tran Idiosyncratic Shocks ($=4\sigma_{\vec{\theta}}$) |

Table 2: Equilibrium Statistics

| | PE/SOE Economy | | DSGE Economy | |
|---|---|---|---|---|
| | Frictionless | Sticky | Frictionless | Sticky |
| Means | | | | |
| $A$ | 7.73 | 7.67 | 27.31 | 27.22 |
| $C$ | 2.71 | 2.71 | 2.88 | 2.88 |
| Standard Deviations | | | | |
| Aggregate Time Series ('Macro') | | | | |
| $\log A$ | 0.342 | 0.332 | 0.213 | 0.210 |
| $\Delta \log C$ | 0.010 | 0.006 | 0.007 | 0.005 |
| $\Delta \log Y$ | 0.010 | 0.010 | 0.008 | 0.008 |
| Individual Cross Sectional ('Micro') | | | | |
| $\log a$ | 1.031 | 1.032 | 0.931 | 0.931 |
| $\log c$ | 0.929 | 0.929 | 0.705 | 0.705 |
| $\log p$ | 0.940 | 0.940 | 0.940 | 0.940 |
| $\log y \mid y > 0$ | 1.256 | 1.256 | 0.832 | 0.832 |
| $\Delta \log c$ | 0.099 | 0.100 | 0.058 | 0.058 |
| Cost Of Stickiness | 999999 | | 9999999 | |

Notes: The cost of stickiness is calculated as the proportion by which the permanent income of a frictionless consumer would need to be reduced in order to achieve the same reduction of expected value associated with forcing them to become a sticky expectations consumer.

Table 3: Placeholder for Empirical US table

Table 4: Typical Micro Consumption Estimation on Simulated Data

$$\Delta \log \mathbf{c}_{t+1,i} \quad = \quad \varsigma + \chi \Delta \log \mathbf{c}_{t,i} + \eta \mathbb{E}_{t,i}[\Delta \log \mathbf{y}_{t+1,i}] + \alpha \underline{a}_{t,i}$$

| Model of Expectations | $\chi$ | $\eta$ | $\alpha$ | $\bar{R}^2$ | nobs |
|---|---|---|---|---|---|
| Frictionless | | | | | |
| | 0.016 | | | 0.000 | 67830 |
| | (0.004) | | | | |
| | | 0.013 | | 0.004 | 67830 |
| | | (0.001) | | | |
| | | | $-0.001$ | -0.000 | 67830 |
| | | | (0.002) | | |
| | 0.057 | 0.018 | $-0.000$ | 0.007 | 67830 |
| | (0.004) | (0.001) | (0.002) | | |
| Sticky | | | | | |
| | 0.011 | | | 0.000 | 67830 |
| | (0.004) | | | | |
| | | 0.013 | | 0.004 | 67830 |
| | | (0.001) | | | |
| | | | $-0.001$ | -0.000 | 67830 |
| | | | (0.002) | | |
| | 0.049 | 0.017 | $-0.000$ | 0.006 | 67830 |
| | (0.004) | (0.001) | (0.002) | | |

Notes: $\mathbf{E}_{t,i}$ is the expectation from the perspective of person $i$ in period $t$; $\underline{a}$ is a dummy variable indicating that agent $i$ is in the top 99 percent of the $a$ distribution. Heteroskedasticity-robust standard errors are in parentheses. Standard tests detect no serial correlation in the residuals. Sample is restricted to households with positive income in period $t$.

Table 5: Aggregate Consumption Dynamics in PE/SOE Markov Economy (11 states)

$$\Delta \log \mathbf{C}_{t+1} = \varsigma + \chi \Delta \log \mathbf{C}_t + \eta \mathbb{E}_t[\Delta \log \mathbf{Y}_{t+1}] + \alpha A_t + \epsilon_{t+1}$$

| Expectations : Dep Var<br>Independent Variables | | | OLS<br>or IV | $2^{\text{nd}}$ Stage<br>$\bar{R}^2$ | KP $p$-val<br>Hansen J $p$-val |
|---|---|---|---|---|---|
| Frictionless : $\Delta \log \mathbf{C}_{t+1}$ | | | | | |
| $\Delta \log \mathbf{C}_t$ | $\Delta \log \mathbf{Y}_{t+1}$ | $A_t$ | | | |
| $0.358^{\bullet\bullet\bullet}$ | | | OLS | 0.129 | |
| (0.064) | | | | | |
| | $0.475^{\bullet\bullet}$ | | IV | 0.039 | 0.069 |
| | (0.214) | | | | 0.445 |
| | | $-6.38$e-4 | IV | 0.030 | 0.000 |
| | | (5.24e-4) | | | 0.363 |
| 0.389 | 0.285 | 0.69e-4 | IV | 0.034 | 0.555 |
| (0.428) | (0.376) | (9.05e-4) | | | |
| Memo: For instruments $\mathbf{Z}_t$, $\Delta \log \mathbf{C}_{t+1} = \mathbf{Z}_t \zeta$, $\bar{R}^2$ =0.043 | | | | | |
| Sticky : $\Delta \log \mathbf{C}_{t+1}$ (no measurement error) | | | | | |
| $\Delta \log \mathbf{C}_t$ | $\Delta \log \mathbf{Y}_{t+1}$ | $A_t$ | | | |
| $0.862^{\bullet\bullet\bullet}$ | | | OLS | 0.743 | |
| (0.035) | | | | | |
| Sticky : $\Delta \log \mathbf{C}^*_{t+1}$ (with measurement error); $\mathbf{C}^*_t = \mathbf{C}_t \times \xi_t$ | | | | | |
| $\Delta \log \mathbf{C}^*_t$ | $\Delta \log \mathbf{Y}_{t+1}$ | $A_t$ | | | |
| $0.497^{\bullet\bullet\bullet}$ | | | OLS | 0.253 | |
| (0.059) | | | | | |
| $0.802^{\bullet\bullet\bullet}$ | | | IV | 0.251 | 0.000 |
| (0.106) | | | | | 0.559 |
| | $0.859^{\bullet\bullet\bullet}$ | | IV | 0.185 | 0.066 |
| | (0.189) | | | | 0.226 |
| | | $-7.68$e-$4^{\bullet\bullet}$ | IV | 0.066 | 0.000 |
| | | (3.67e-4) | | | 0.004 |
| $0.661^{\bullet\bullet\bullet}$ | 0.199 | 0.62e-4 | IV | 0.230 | 0.381 |
| (0.189) | (0.287) | (4.84e-4) | | | |
| Memo: For instruments $\mathbf{Z}_t$, $\Delta \log \mathbf{C}^*_{t+1} = \mathbf{Z}_t \zeta$, $\bar{R}^2$ =0.252, var($\xi_t$) =0.06e-4 | | | | | |

**Notes:** Reported statistics are the average values for 100 subsamples of 200 simulated quarters each. Bullets indicate that the average subsample coefficient divided by average subsample standard error is outside of the inner 90%, 95%, and 99% of the standard normal distribution. Instruments $\mathbf{Z}_t = \{\Delta \log \mathbf{C}_{t-2}, \Delta \log \mathbf{C}_{t-3}, \Delta \log \mathbf{Y}_{t-2}, \Delta \log \mathbf{Y}_{t-3}, A_{t-2}, A_{t-3}, \Delta_8 \log \mathbf{C}_{t-2}, \Delta_8 \log \mathbf{Y}_{t-2}\}$.

Table 6: Aggregate Consumption Dynamics in HA-DSGE Markov Economy (11 states)

$$\Delta \log \mathbf{C}_{t+1} = \varsigma + \chi \Delta \log \mathbf{C}_t + \eta \mathbb{E}_t[\Delta \log \mathbf{Y}_{t+1}] + \alpha A_t + \epsilon_{t+1}$$

| Expectations : Dep Var<br>Independent Variables | | | OLS<br>or IV | 2$^{\text{nd}}$ Stage<br>$\bar{R}^2$ | KP $p$-val<br>Hansen J $p$-val |
|---|---|---|---|---|---|
| Frictionless : $\Delta \log \mathbf{C}_{t+1}$ | | | | | |
| $\Delta \log \mathbf{C}_t$ | $\Delta \log \mathbf{Y}_{t+1}$ | $A_t$ | | | |
| 0.344$^{\bullet\bullet\bullet}$ | | | OLS | 0.121 | |
| (0.064) | | | | | |
| | 0.472$^{\bullet\bullet\bullet}$ | | IV | 0.063 | 0.053 |
| | (0.178) | | | | 0.400 |
| | | $-$3.40e-4$^{\bullet\bullet}$ | IV | 0.065 | 0.000 |
| | | (1.52e-4) | | | 0.423 |
| 0.328 | 0.165 | $-$1.36e-4 | IV | 0.067 | 0.551 |
| (0.460) | (0.352) | (3.46e-4) | | | |
| Memo: For instruments $\mathbf{Z}_t$, $\Delta \log \mathbf{C}_{t+1} = \mathbf{Z}_t \zeta$, $\bar{R}^2$ =0.072 | | | | | |
| Sticky : $\Delta \log \mathbf{C}_{t+1}$ (no measurement error) | | | | | |
| $\Delta \log \mathbf{C}_t$ | $\Delta \log \mathbf{Y}_{t+1}$ | $A_t$ | | | |
| 0.859$^{\bullet\bullet\bullet}$ | | | OLS | 0.739 | |
| (0.036) | | | | | |
| Sticky : $\Delta \log \mathbf{C}^*_{t+1}$ (with measurement error); $\mathbf{C}^*_t = \mathbf{C}_t \times \xi_t$ | | | | | |
| $\Delta \log \mathbf{C}^*_t$ | $\Delta \log \mathbf{Y}_{t+1}$ | $A_t$ | | | |
| 0.438$^{\bullet\bullet\bullet}$ | | | OLS | 0.199 | |
| (0.061) | | | | | |
| 0.810$^{\bullet\bullet\bullet}$ | | | IV | 0.270 | 0.000 |
| (0.110) | | | | | 0.558 |
| | 0.786$^{\bullet\bullet\bullet}$ | | IV | 0.215 | 0.052 |
| | (0.167) | | | | 0.287 |
| | | $-$4.37e-4$^{\bullet\bullet\bullet}$ | IV | 0.137 | 0.000 |
| | | (1.06e-4) | | | 0.004 |
| 0.641$^{\bullet\bullet\bullet}$ | 0.158 | $-$0.44e-4 | IV | 0.260 | 0.381 |
| (0.209) | (0.279) | (1.73e-4) | | | |
| Memo: For instruments $\mathbf{Z}_t$, $\Delta \log \mathbf{C}^*_{t+1} = \mathbf{Z}_t \zeta$, $\bar{R}^2$ =0.274, var($\xi_t$) =0.03e-4 | | | | | |

**Notes:** Reported statistics are the average values for 100 subsamples of 200 simulated quarters each. Bullets indicate that the average subsample coefficient divided by average subsample standard error is outside of the inner 90%, 95%, and 99% of the standard normal distribution. Instruments $\mathbf{Z}_t = \{\Delta \log \mathbf{C}_{t-2}, \Delta \log \mathbf{C}_{t-3}, \Delta \log \mathbf{Y}_{t-2}, \Delta \log \mathbf{Y}_{t-3}, A_{t-2}, A_{t-3}, \Delta_8 \log \mathbf{C}_{t-2}, \Delta_8 \log \mathbf{Y}_{t-2}\}$.

Table 7: Aggregate Consumption Dynamics in Rep Agent Markov Economy (11 states)

$$\Delta \log \mathbf{C}_{t+1} = \varsigma + \chi \Delta \log \mathbf{C}_t + \eta \mathbb{E}_t[\Delta \log \mathbf{Y}_{t+1}] + \alpha A_t + \epsilon_{t+1}$$

| Expectations : Dep Var<br>Independent Variables | | | OLS<br>or IV | 2<sup>nd</sup> Stage<br>$\bar{R}^2$ | KP $p$-val<br>Hansen J $p$-val |
|---|---|---|---|---|---|
| Frictionless : $\Delta \log \mathbf{C}_{t+1}$ | | | | | |
| $\Delta \log \mathbf{C}_t$ | $\Delta \log \mathbf{Y}_{t+1}$ | $A_t$ | | | |
| 0.019 | | | OLS | 0.003 | |
| (0.078) | | | | | |
| | 0.386 | | IV | 0.020 | 0.077 |
| | (0.285) | | | | 0.447 |
| | | −0.35e-4 | IV | 0.019 | 0.000 |
| | | (1.05e-4) | | | 0.471 |
| 0.122 | 0.203 | 0.15e-4 | IV | 0.020 | 0.532 |
| (0.527) | (0.544) | (2.06e-4) | | | |
| Memo: For instruments $\mathbf{Z}_t$, $\Delta \log \mathbf{C}_{t+1} = \mathbf{Z}_t \zeta$, $\bar{R}^2$ =0.022 | | | | | |
| Sticky : $\Delta \log \mathbf{C}_{t+1}$ (no measurement error) | | | | | |
| $\Delta \log \mathbf{C}_t$ | $\Delta \log \mathbf{Y}_{t+1}$ | $A_t$ | | | |
| 0.801$^{\bullet\bullet\bullet}$ | | | OLS | 0.642 | |
| (0.043) | | | | | |
| Sticky : $\Delta \log \mathbf{C}^*_{t+1}$ (with measurement error); $\mathbf{C}^*_t = \mathbf{C}_t \times \xi_t$ | | | | | |
| $\Delta \log \mathbf{C}^*_t$ | $\Delta \log \mathbf{Y}_{t+1}$ | $A_t$ | | | |
| 0.414$^{\bullet\bullet\bullet}$ | | | OLS | 0.182 | |
| (0.063) | | | | | |
| 0.793$^{\bullet\bullet\bullet}$ | | | IV | 0.192 | 0.001 |
| (0.134) | | | | | 0.546 |
| | 0.650$^{\bullet\bullet\bullet}$ | | IV | 0.137 | 0.077 |
| | (0.162) | | | | 0.196 |
| | | −0.58e-4 | IV | 0.081 | 0.000 |
| | | (0.50e-4) | | | 0.023 |
| 0.642$^{\bullet\bullet\bullet}$ | 0.106 | 0.08e-4 | IV | 0.179 | 0.325 |
| (0.227) | (0.289) | (0.79e-4) | | | |
| Memo: For instruments $\mathbf{Z}_t$, $\Delta \log \mathbf{C}^*_{t+1} = \mathbf{Z}_t \zeta$, $\bar{R}^2$ =0.195, var($\xi_t$) =0.03e-4 | | | | | |

**Notes:** Reported statistics are the average values for 100 subsamples of 200 simulated quarters each. Bullets indicate that the average subsample coefficient divided by average subsample standard error is outside of the inner 90%, 95%, and 99% of the standard normal distribution. Instruments $\mathbf{Z}_t = \{\Delta \log \mathbf{C}_{t-2}, \Delta \log \mathbf{C}_{t-3}, \Delta \log \mathbf{Y}_{t-2}, \Delta \log \mathbf{Y}_{t-3}, A_{t-2}, A_{t-3}, \Delta_8 \log \mathbf{C}_{t-2}, \Delta_8 \log \mathbf{Y}_{t-2}\}$.