Inequality, Stock Market Participation, and the Equity Premium
by Jack Favilukis

Discussed by Urban Jermann
Contribution

- Build a model that matches mean and std of returns on stocks and risk free bonds, limited stock market participation and some features of the wealth distribution
- An explanation for some changes seen in the last 25 years:
  - Changes explained:
    - Increased wage inequality
    - Moderate increase in wealth and consumption inequality
    - Increased stock market participation
    - Decreased equity premium
  - Drivers of change:
    - Increased wage inequality
    - Decreased stock market participation cost

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Main point of the paper:
Need both, increase in wage inequality and decreased stock market participation cost

Increased wage inequality alone
- Counterfactually large increase in wealth and consumption inequality
- Counterfactual decrease in stock market participation

Decreased participation costs alone
- Participation increases and equity premium declines
- Counterfactual decrease in wealth and consumption inequality
Firms’ problem

\[
\max_{L_t, K_t} E_t \left[ \Phi_{t+1} \cdot \left( Z_{t+1}^S f(K_t, L_t) + (1 - \delta_{t+1}) - L_t w_t - R_{t+1} K_t \right) \right]
\]

with

\[
\Phi_{t+1} = \int \left( \frac{C(W^i_{t+1}, S_{t+1})}{C(W^i_t, S_t)} \right)^{-\theta} 1_{\alpha \neq 1} \, di
\]
Depreciation shocks

- Without leverage, the stock return is given by

\[ 1 + r_t = \psi Y_t / K_t + (1 - \delta) \]

with \( \psi Y_t / K_t = 18\% \) and \( \text{Std}_{t-1} (\ln Y_t) = 2\% \)

\[ \text{Std}_{t-1} (1 + r_t) = 0.4\% \quad \text{Data: 16\%} \]
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Paper here: Depreciation, \( \delta_t \), "varies between 15\% and 5\%": \( \text{Std}(1 + r_t) \approx 5\% \)
Depreciation shocks

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\[ \text{Std}(1 + r_t) \approx 5\% \]

- What are these shocks? Physical depreciation? Investment specific technology shocks (Std \( \approx 2\% \))

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Table 3
Aggregate properties of the economy

<table>
<thead>
<tr>
<th></th>
<th>Std. Dev.</th>
<th>Autocorrelation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A: Population moments of HP-filtered data, theoretical economy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output</td>
<td>0.037</td>
<td>0.84</td>
</tr>
<tr>
<td>Investment</td>
<td>0.056</td>
<td>0.69</td>
</tr>
<tr>
<td>Consumption</td>
<td>$\frac{\sigma_I}{\sigma_C} = 1.5$</td>
<td>0.64</td>
</tr>
<tr>
<td><strong>B: Sample moments of HP-filtered data, US economy, 1929–2005</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output</td>
<td>0.073</td>
<td>0.616</td>
</tr>
<tr>
<td>Investment</td>
<td>0.298</td>
<td>0.451</td>
</tr>
<tr>
<td>Consumption</td>
<td>$\frac{\sigma_I}{\sigma_C} = 8.3$</td>
<td>0.697</td>
</tr>
</tbody>
</table>

Notes. US sample moments are based on annual NIPA data, 1929–2005. Theoretical moments (Storesletten, Telmer and Yaron, 2007, RED)
Transition from 1983 to 2004

- Paper: steady-state comparisons and transition
  (low vol, high cost) $\rightarrow$ (high vol, low cost)
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- Paper: "Average of simulated transitions"; Why not a single simulated path?
  - Regime$_t$: $Z_t$ (productivity), $\delta_t$ (depreciation)
- Realized equity premium from 1982-1999 is 10.2% (1952-2006: 7.2%)
Figure 9: Behavior around the structural break

These figures show the model’s behavior around the time of the structural break, as well as U.S. data between 1983 and 2004. The initial distribution is a typical distribution in the low wage volatility, high participation cost world. The change to a high wage volatility, low participation cost is in 1982. Stock market participation is in Panel A, change in Gini Coefficients are in Panel B, and the expected equity premium is in Panel C.
### Gini coefficients for wealth

Wolff (2002)

<table>
<thead>
<tr>
<th>Description</th>
<th>1983</th>
<th>1998</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Worth (with DC retirement plans)</td>
<td>.799</td>
<td>.822</td>
<td>+.024</td>
</tr>
<tr>
<td>Net Worth without DC</td>
<td>.802</td>
<td>.842</td>
<td>+.04</td>
</tr>
<tr>
<td>Net Worth with DC and DB</td>
<td>.746</td>
<td>.791</td>
<td>+.045</td>
</tr>
</tbody>
</table>

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