Discussion of
“Markups and Inequality”

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This Paper

- Important, very careful paper!
- What are the welfare, distributional effects of mark-ups?
  - Edmond, Midrigan, & Xu (2019)
- Evaluate an exhaustive set of policies, e.g., proposal by E. Warren
  - uniform subsidy: good for agg., bad for distr. of welfare
  - size-dependent subsidy: bad for agg., great dist. of welfare
  - profit taxes: terrible!
This Discussion

1. Analyze planner’s problem, fixed labor supply

2. Is the entrepreneurial vs. corporate dichotomy useful?
   - Corporate firms had entrepreneurial origin,
   - Many corporate firms have concentrated ownership
   - Modeling these connections may be critical for policies

3. Compare benchmark results w/ pure entrepreneurial model
Planner’s Problem

\[ V(K, N) = \max_{C, N'} \frac{C^{1-\theta}}{1-\theta} + \beta V(K', N') \]

s.t.

\[ C + K' + FN' = Y(K, L, N) + (1 - \delta) K + F(1 - \delta_c) N \]

- **K**: physical capital
- **N**: stock of corporate firms
- **Y(K, L, N)**: aggregate production function
Planner’s Problem (cont’d)

Aggregate Production Function

\[
Y(K, L, N) = Z(N) K^\alpha L^{1-\alpha} = \max_{k(z), l(z)} Y
\]

s.t.

\[
\int \gamma \left( \frac{zk(z)^\alpha l(z)^{1-\alpha}}{Y} \right) dG(z) + N \int \gamma \left( \frac{zk(z)^\alpha l(z)^{1-\alpha}}{Y} \right) dG^c(z) = 1
\]

\[
\int k(z) dG(z) + N \int k(z) dG^c(z) = K
\]

and

\[
\int l(z) dG(z) + N \int l(z) dG^c(z) = L.
\]
Planner’s Problem (cont’d)

Simple Characterization

\[
\frac{k(z)}{l(z)} = \frac{K}{L}
\]

and

\[
\gamma' \left( \frac{zk(z)^\alpha l(z)^{1-\alpha}}{Y} \right) = e^{\left( \frac{Z}{Z} \frac{l(z)}{L} \right)^\frac{\sigma}{\varepsilon}} = \frac{z}{Z}
\]

or

\[
\frac{l(z)}{L} = \frac{Z}{z} \left[ \varepsilon \log \left( \frac{z}{Z} \right) \right]^\frac{\sigma}{\varepsilon}
\]

where \( z : y(z) = 0 \).
Planner’s Problem (cont’d)

Simple Characterization

\[ \int_{z}^{\infty} \gamma \left( \left[ \varepsilon \log \left( \frac{z}{\bar{z}} \right) \right] \frac{\sigma}{\varepsilon} \right) dG(z) + N \int_{z}^{\infty} \gamma \left( \left[ \varepsilon \log \left( \frac{z}{\bar{z}} \right) \right] \frac{\sigma}{\varepsilon} \right) d^c G(z) = 1 \]

and

\[ Z \int_{z}^{\infty} \left[ \varepsilon \log \left( \frac{z}{\bar{z}} \right) \right] \frac{\sigma}{\varepsilon} \frac{1}{Z} dG(z) + NZ \int_{z}^{\infty} \left[ \varepsilon \log \left( \frac{z}{\bar{z}} \right) \right] \frac{\sigma}{\varepsilon} \frac{1}{Z} dgc(z) = 1. \]

where

- \( G(z) \): distribution of entrepreneurs
- \( G^c(z) \): distribution of corporations
Planner’s Problem (cont’d)

Simple Characterization

\[ z(N) \]

\[ Z(N) \]
Planner’s Problem (cont’d)

Steady State

\[ \alpha Z(N) K^{\alpha-1} L^{1-\alpha} = \delta + \frac{1}{\beta} - 1 \]

and

\[ \frac{\partial Z(N)}{\partial N} K^{\alpha} L^{1-\alpha} = \mathcal{F} \left( \delta_c + \frac{1}{\beta} - 1 \right) \]
Size Distribution of Firms, log scale

fraction of firm above $l$

employment ($l$)

- entrepreneurs
- corporations
Size Distribution of Firms, model vs. data, log scale?

US, BDS, 2000, Rossi-Hansberg & Wright (2007)
Size Distribution of Firms, Kimball vs. CES, log scale
Equilibrium
Simple Characterization

\[
\frac{k(z)}{l(z)} = \frac{K}{L}
\]

and

\[
\gamma' \left( \frac{zk(z)^\alpha l(z)^{1-\alpha}}{Y} \right) = e \left( \frac{z}{Z} \frac{l(z)}{L} \right)^{\frac{\varepsilon}{\sigma}} = \frac{\sigma - \left( \frac{z' l(z')}{Z} \right)^{\frac{\varepsilon}{\sigma}}}{\sigma} \frac{z}{Z}
\]

where \( z : y(z) = 0 \).
Size Distribution of Firms, Planner vs. Eq., log scale

![Graph showing the size distribution of firms with two lines representing different models.

- Blue line: entrep. planner
- Red line: corp. planner

The x-axis represents employment (l) on a log scale, ranging from 10^0 to 10^6.

The y-axis represents the fraction of firms above l on a log scale, ranging from 10^-4 to 10^0.}
Is the entrepreneurial vs. corporate dichotomy useful?

- Corporate firms had entrepreneurial origin
- Many corporate firms have concentrated ownership
- Modeling these connections may be critical for policies
## Top US Corporations

<table>
<thead>
<tr>
<th>Corporation</th>
<th>Revenue ($Bn)</th>
<th>Empl. (000s)</th>
<th>Ownership</th>
<th>Founder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walmart</td>
<td>514</td>
<td>2200</td>
<td>Walton family, 51%</td>
<td>Walton, 1962</td>
</tr>
<tr>
<td>ExxonMobil</td>
<td>290</td>
<td>71</td>
<td>Vanguard, 8%</td>
<td>Rockefeller, 1870</td>
</tr>
<tr>
<td>Apple</td>
<td>266</td>
<td>132</td>
<td>Vanguard, 7%</td>
<td>Jobs et al., 1976</td>
</tr>
<tr>
<td>Amazon</td>
<td>233</td>
<td>647</td>
<td>Bezos, 16%</td>
<td>Bezos, 1994</td>
</tr>
</tbody>
</table>

Source: Fortune 550, proxy reports
## Uniform vs. Size-dependent Subsidies

<table>
<thead>
<tr>
<th></th>
<th>Benchmark</th>
<th>No corporate firms</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline</td>
<td>Uniform</td>
</tr>
<tr>
<td>Δ output, %</td>
<td>1.8</td>
<td>-0.9</td>
</tr>
<tr>
<td>Δ wage, %</td>
<td>-1</td>
<td>0</td>
</tr>
<tr>
<td>Δ i-rate, pp.</td>
<td>0.2</td>
<td>0.1</td>
</tr>
<tr>
<td>misalloc., %</td>
<td>6.1</td>
<td>6.2</td>
</tr>
<tr>
<td>top 0.1% firm share</td>
<td>0.3</td>
<td>0.31</td>
</tr>
<tr>
<td>top 0.1% wealth share</td>
<td>0.31</td>
<td>0.28</td>
</tr>
<tr>
<td>% better off</td>
<td>28.9</td>
<td>96.3</td>
</tr>
<tr>
<td>median gain</td>
<td>-1.4</td>
<td>1.7</td>
</tr>
</tbody>
</table>
## Profit Taxes

<table>
<thead>
<tr>
<th></th>
<th>Benchmark</th>
<th>No corporate firms</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td></td>
<td>all profits</td>
<td>25%</td>
</tr>
<tr>
<td>Δ output, %</td>
<td>-4.6</td>
<td>-1.8</td>
</tr>
<tr>
<td>Δ tfp, %</td>
<td>-3.6</td>
<td>-2.0</td>
</tr>
<tr>
<td>Δ wage, %</td>
<td>-4.0</td>
<td>-1.8</td>
</tr>
<tr>
<td>Δ i-rate, pp.</td>
<td>1.6</td>
<td>1.5</td>
</tr>
<tr>
<td>% better off</td>
<td>29.4</td>
<td>5.0</td>
</tr>
<tr>
<td>median gain</td>
<td>-0.5</td>
<td>-0.2</td>
</tr>
</tbody>
</table>
How should we model the corporate sector?

- Fixed cost technology to access complete markets?
  - policies affect selection, return to entrepreneurship, e.g., value at IPO?

- A technology combining many complementary managerial inputs?
  - might be more externally finance dependent