Discussion of "Markups and Inequality"

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This Paper

- Important, very careful paper!
- What are the welfare, distributional effects of mark-ups?

  Aiyagari (1994), Quadrini (2000), Cagetti & DeNardi (2006)

  +

  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

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

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.

$$\int \Upsilon \left(\frac{z k(z)^{\alpha} l(z)^{1-\alpha}}{Y} \right) dG(z) + N \int \Upsilon \left(\frac{z k(z)^{\alpha} l(z)^{1-\alpha}}{Y} \right) dG^{c}(z) = 1$$

$$\int k(z) \, dG(z) + N \int k(z) \, dG^{c}(z) = K$$

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

$$\frac{\Upsilon'\left(\frac{\underline{z}k(\underline{z})^{\alpha}l(\underline{z})^{1-\alpha}}{Y}\right)}{\Upsilon'\left(\frac{zk(z)^{\alpha}l(z)^{1-\alpha}}{Y}\right)} = e^{\frac{\left(\frac{z}{Z}\frac{l(z)}{L}\right)^{\frac{\varepsilon}{\sigma}}}{\varepsilon}} = \frac{z}{\underline{z}}$$

or

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

where $\underline{z} : y(\underline{z}) = 0$.

Planner's Problem (cont'd)

Simple Characterization

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

and

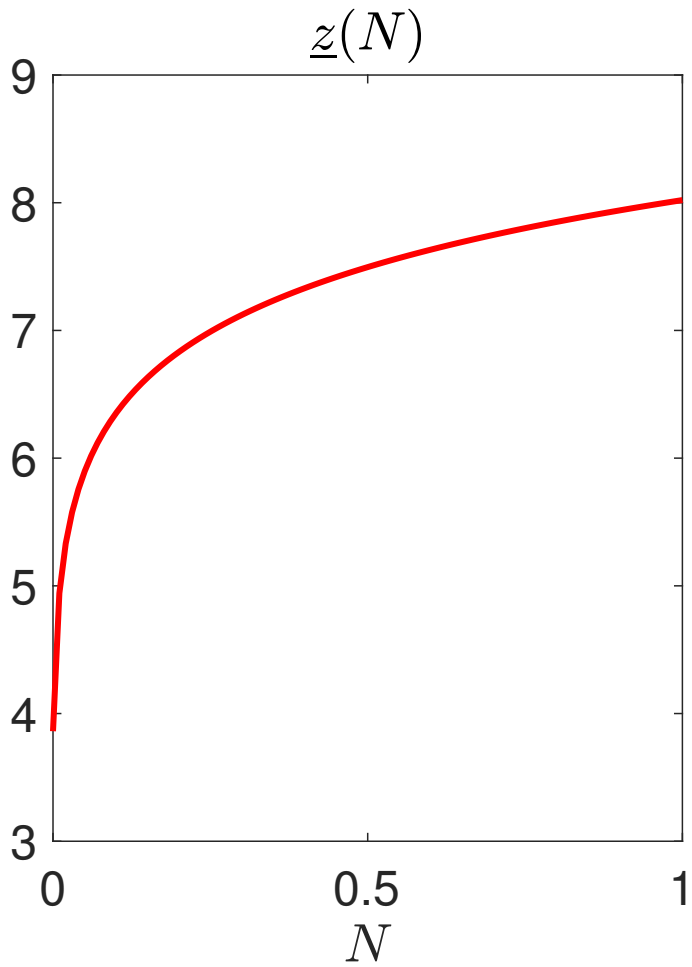
$$Z\int_{\underline{z}}^{\infty} \left[\varepsilon \log\left(\frac{z}{\underline{z}}\right)\right]^{\frac{\sigma}{\varepsilon}} \frac{1}{z} dG(z) + NZ\int_{\underline{z}}^{\infty} \left[\varepsilon \log\left(\frac{z}{\underline{z}}\right)\right]^{\frac{\sigma}{\varepsilon}} \frac{1}{z'} dgc(z) = 1.$$

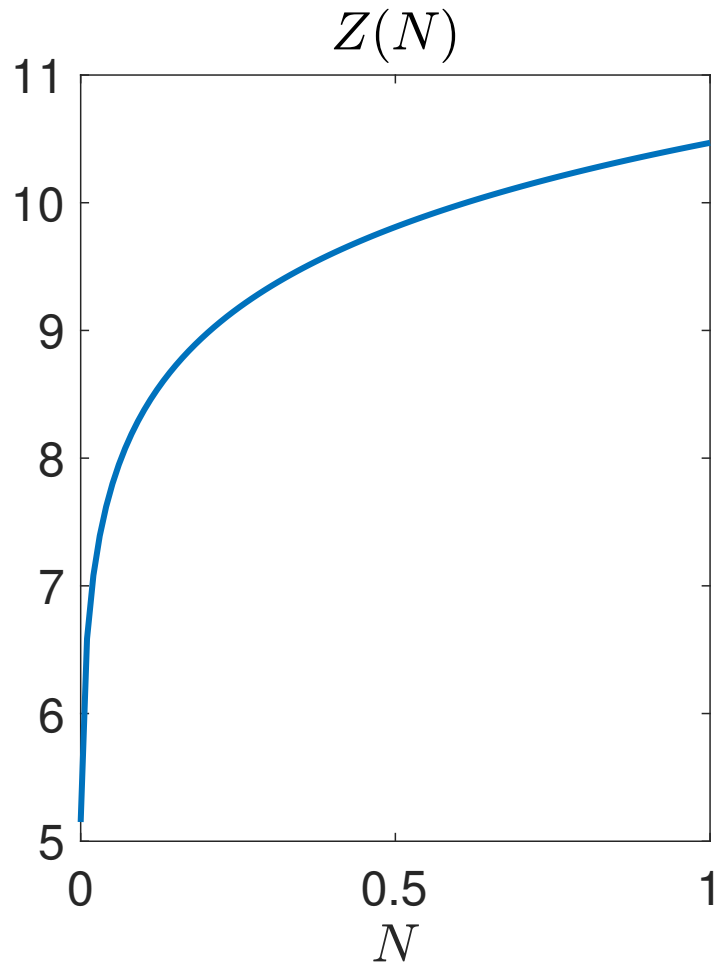
where

- $G(z)$: distribution of entrepreneurs
- $G^{c}(z)$: distribution of corporations

Planner's Problem (cont'd)

Simple Characterization





Planner's Problem (cont'd)

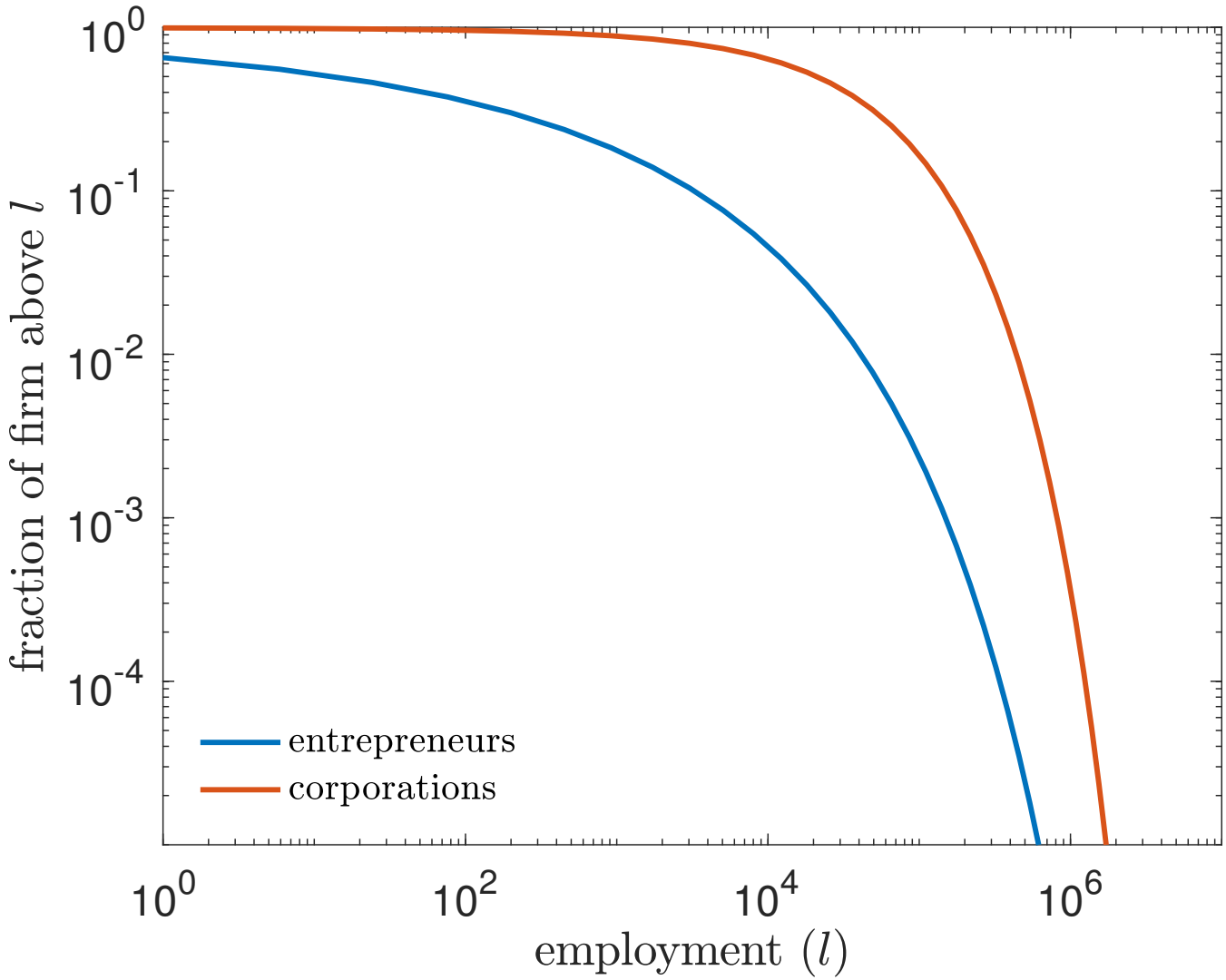
Steady State

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

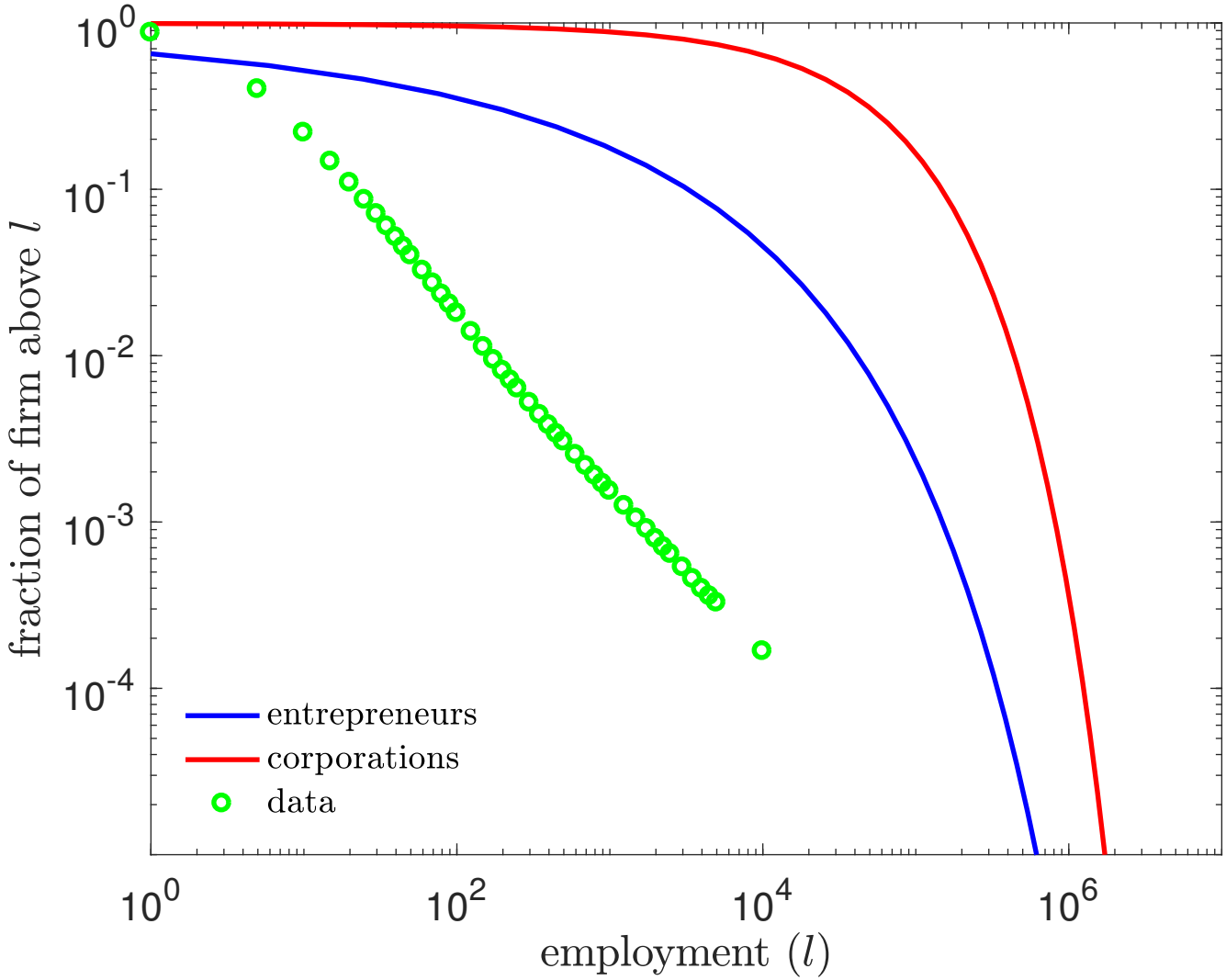
and

$$\frac{\partial Z(N)}{\partial N} K^{\alpha} L^{1-\alpha} = F\left(\delta_c + \frac{1}{\beta} - 1\right)$$

Size Distribution of Firms, log scale

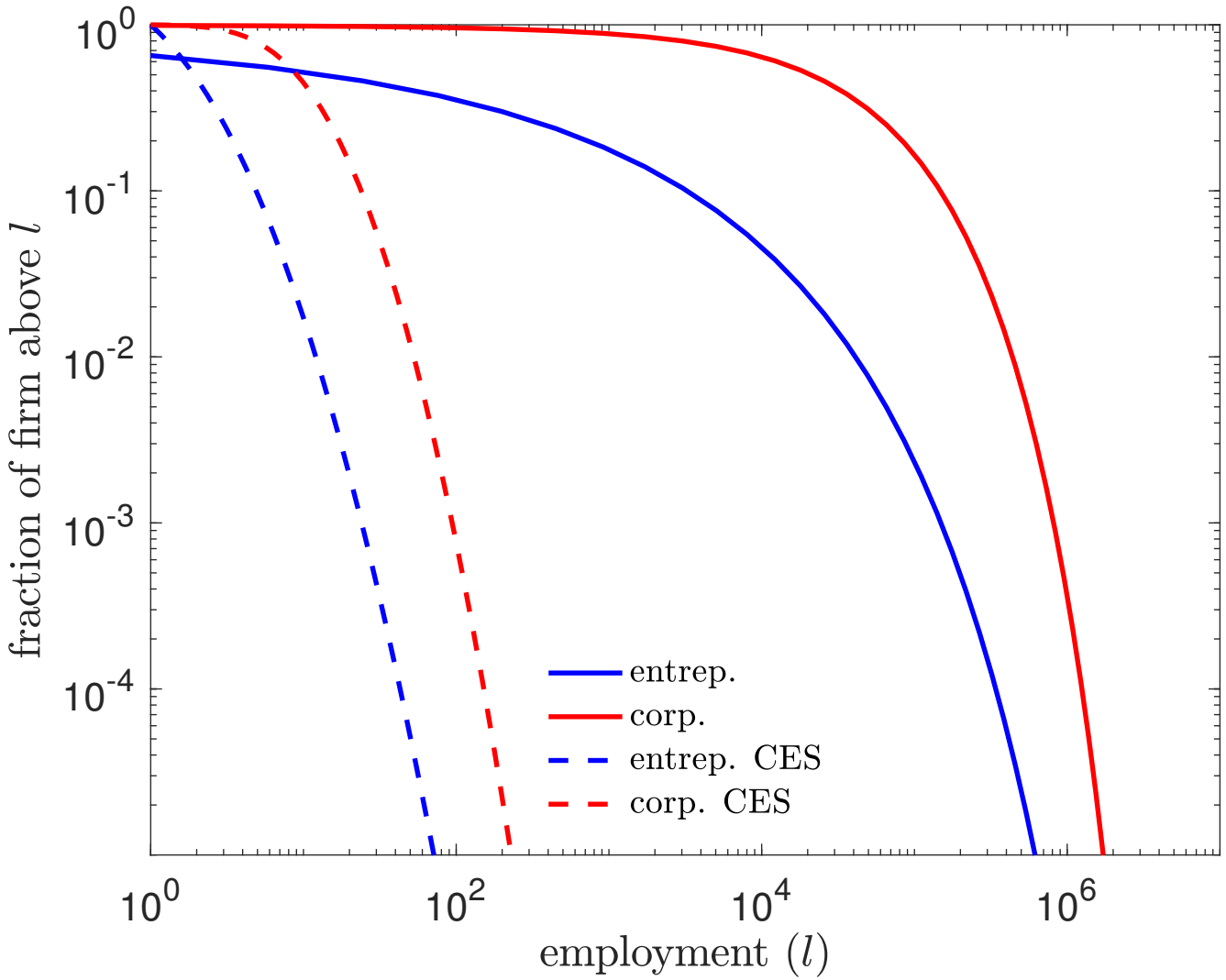


Size Distribution of Firms, model vs. data, log scale?



US, BDS, 2000, Rossi-Hansberg & Wright (2007)

Size Distribution of Firms, Kimball vs. CES, log scale



Equilibrium

Simple Characterization

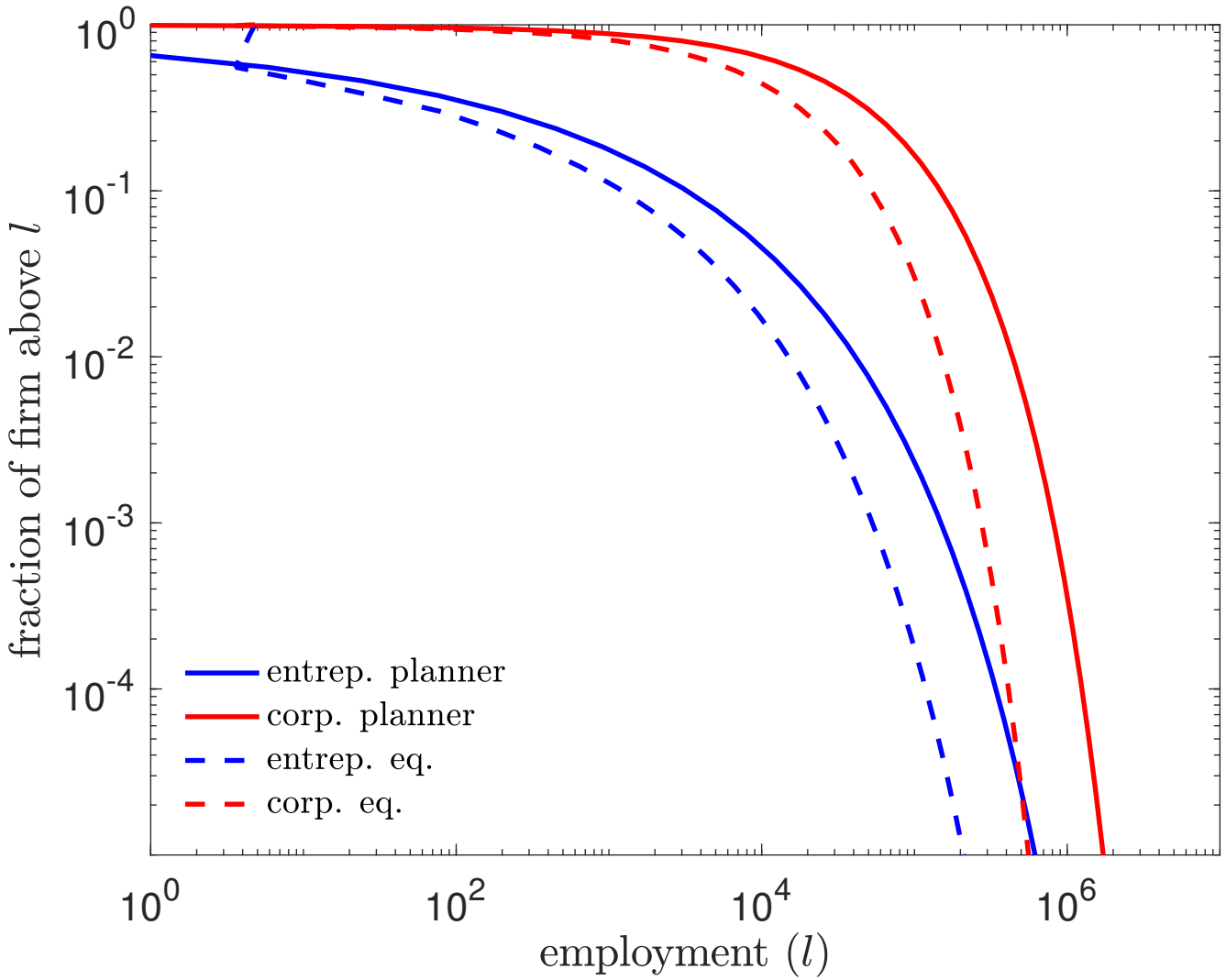
$$\frac{k(z)}{l(z)} = \frac{K}{L}$$

and

$$\frac{\Upsilon'\left(\frac{\underline{z}k(\underline{z})^{\alpha}l(\underline{z})^{1-\alpha}}{Y}\right)}{\Upsilon'\left(\frac{zk(z)^{\alpha}l(z)^{1-\alpha}}{Y}\right)} = e^{\frac{\left(\frac{\underline{z}}{z}\frac{l(\underline{z})}{L}\right)^{\frac{\varepsilon}{\sigma}}}{\varepsilon}} = \frac{\sigma - \left(\frac{z'l(z')}{Z}\right)^{\frac{\varepsilon}{\sigma}}}{\sigma}\frac{\underline{z}}{z}$$

where $\underline{z} : y(\underline{z}) = 0$.

Size Distribution of Firms, Planner vs. Eq., log scale



Is the entrepreneurial vs. corporate dichotomy useful?

- Corporate firms had entrepreneurial origin
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- Modeling these connections may be critical for policies

Top US Corporations

	Revenue ($Bn)	Empl. (000s)	Ownership	Founder
Walmart	514	2200	Walton family, 51%	Walton, 1962
ExxonMobil	290	71	Vanguard, 8%	Rockefeller, 1870
Apple	266	132	Vanguard, 7%	Jobs et al., 1976
Berk. Hath.	248	389	Buffet, 17%	Buffett, 1962
Amazon	233	647	Bezos, 16%	Bezos, 1994

Source: Fortune 550, proxy reports

Uniform vs. Size-dependent Subsidies

	Benchmark			No corporate firms		
	Baseline	Uniform	Size dependent	Baseline	Uniform	Size dependent
Δ output, %		1.8	-0.9		0.5	-1.5
Δ wage, %		-1	0		-1.8	0.0
Δ i-rate, pp.		0.2	0.1		0.1	0.0
misalloc., %	6.1	6.2	6.3	16.9	18.0	17.0
top 0.1% firm share	0.3	0.31	0.31	30.5	32.5	34.8
top 0.1% wealth share	0.31	0.28	0.27	0.50	0.49	0.51
% better off		28.9	96.3		16.7	81.2
median gain		-1.4	1.7		-1.8	1.6

Profit Taxes

	Benchmark		No corporate firms	
	25% all profits	25% above cutoff	25% all profits	25% above cutoff
Δ output, %	-4.6	-1.8	-8.3	-3.5
Δ tfp, %	-3.6	-2.0	1.3	-0.2
Δ wage, %	-4.0	-1.8	-9.1	-3.7
Δ i-rate, pp.	1.6	1.5	0.5	0.2
% better off	29.4	5.0	50.1	51.6
median gain	-0.5	-0.2	0.0	0.2

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