Sales and Markup Dispersion: Theory and Empirics

Quantifying Misallocation with CREMR Demands

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January 17, 2024

Section 4 proposes to characterize misallocation by comparing the distribution of firms' output in the market equilibrium with that of a social planner. The social planner takes as given the number of entrants N_e and the productivity of the cutoff firm $\underline{\varphi}$.

Subsection 4.1. shows how to derive the distribution of optimal output across firms and subsection 4.2. illustrates this methodology under additively-separable CREMR preferences. The application to CREMR conducted in subsection 4.2 however assumes further that the planner allocates the same output to the marginal firm $\underline{x}$ as the market. This additional constraint need not hold in general in a single-sector economy with a fixed labor supply.[1] Absent any fixed cost of production ($f = 0$), it holds exactly when CREMR preferences are embedded in a quasi-linear setting e.g. when preferences are given by $x_0 + \int_{i \in X} u(x(i))di \equiv x_0 + N_e \int_{\underline{\varphi}}^{\infty} u(x(\varphi))\breve{g}(\varphi)d\varphi$ where $u(.)$ is given p. 1766 and x_0 is the usual Hicksian-composite good produced under pure and perfect competition.

The quantitative analysis conducted in 6.3. should be interpreted under these assumptions. The theoretical minimum mark-up then becomes $\underline{m} = 1$ and the CREMR markup distributions need to be estimated under this constraint. As shown in Table 1 below, the implications of this constraint are insignificant and our result is unchanged: the market equilibrium has over 5.2 times as many firms that are "too small" relative to the optimum.

Table 1: Estimated Markup Densities Given Assumptions about Productivity (Pareto ($\mathcal{P}$) or truncated Lognormal ($t\mathcal{LN}$)) and CREMR Demands with $\underline{m} = 1$

Model	Markup PDF $b(m)$	Estimated Parameters	x_c	$J(x_c)/J^*(x_c)$
CREMR $+\mathcal{P}$	$\frac{k((\sigma-1))^{\frac{k}{\sigma}}}{(\sigma-1)m^2}\left(\frac{(\sigma-1)m}{m+\sigma-m\sigma}\right)^{\frac{\sigma-k}{\sigma}}$	$\sigma = 1.111$ $k = 1.231$	1.465γ	5.256
CREMR $+$ $t\mathcal{LN}$	$\frac{\frac{e^{-\frac{\left(\log\left(\frac{\sigma}{m+\sigma-m\sigma}-1\right)-\tilde{\mu}\right)^2}{2(\sigma s)^2}}}{\sqrt{2\pi}ms(m+\sigma-m\sigma)}}{1-\Phi\left(\frac{\log(\sigma-1)-\tilde{\mu}}{\sigma s}\right)}$	$\tilde{\mu} = -49.760$ $s = 6.008$ $\sigma = 1.110$	1.469γ	5.253

[1] Note that the methodology detailed in 4.1. holds generally even in a single-sector economy with fixed and binding labor supply.