How labor market frictions affect capital structure

Yasser Boualam, Marco Brianti, Tzuo Hann Law

UNC, BC, BC

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How does labor market frictions affect capital structure?

- Modigliani Miller 1958

  Why does capital structure matter at all?

  Bankruptcy costs can be high(er) after accounting for stakeholders who might not be (fully) represented at the bargaining table.
- A firm's labor force is one such under-represented entity.
- **This paper:** How does adding capital structure to a workhorse labor market search model affect capital structure decisions?

What we do

- Highlight empirical findings in the literature that call for the models we present.
- Present a simple three period model to highlight the channels.
- Present a fully dynamic model and do something...

Main channels

- Absent any search frictions, owners of production utilize optimal quantities of debt.
- With labor market frictions, the firm partners with a risk averse worker who potentially has the option to quit the partnership.
- While this quitting in a partial equilibrium setting benefits workers ex-post, it leads to less entry, less-than-optimal debt use, lower equilibrium wages and ex-ante lower value to workers.

Literature

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Empirical observations

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Model without Labor Market Frictions

- Debt is riskless. Borrows pay interest rate r and return all borrowed capital.
- A single agent with initial wealth chooses debt to maximize payoffs in two periods. The output in the first period must be weakly positive.

$$\max_D \mathbb{E}u(c_1) + \beta \mathbb{E}u(c_2)$$

- where

$$c_t(\phi_t) = \phi_t(W + D)^\gamma - rD$$

is some decreasing returns production function with period productivity realization $\phi \in U[0, 1]$ and $c_2 = 0$ if $c_1 < 0$.

Model without Labor Market Frictions: Solution

- In this setup the optimal choice for debt D is

$$ads$$

  where we how the incompleteness of markets drives a wedge in the typical solution for equation the expected return of capital to the interest rate r.
- Finally, note here that the owner of the firm can be the worker or the firm in a setting with both agents.

Labor Market Frictions with Capital Structure

- Mortensen and Pissarides style search frictions.
- Entrepreneurs own initial wealth W and borrow at rate r. Debt is riskless.
- Debt choice is made before entry. No new debt or equity.
- Wage contracts are specified by *unconstrained wages*, $\tilde{w}$.
- $\tilde{w}$ is restricted to be identical in both periods.
- Perfect commitment assumed.
- No storage technology.

Timing

1. **Period 0.** Firms with wealth, W choose debt D and enter.
   - All workers are unemployed.
   - Firm's post wage contracts, matching occurs.
   - Unmatched firms exit immediately.
2. **Period 1.** Draw roductivity ϕ.
   - If output is weakly negative, match is broken. Firm exits.
   - Production + consumption occurs.
   - Unmatched workers consume b.
3. **Period 2.** Draw roductivity ϕ.
   - Separation if output is below b.
   - Production + consumption occurs.
   - Unmatched workers consume b.

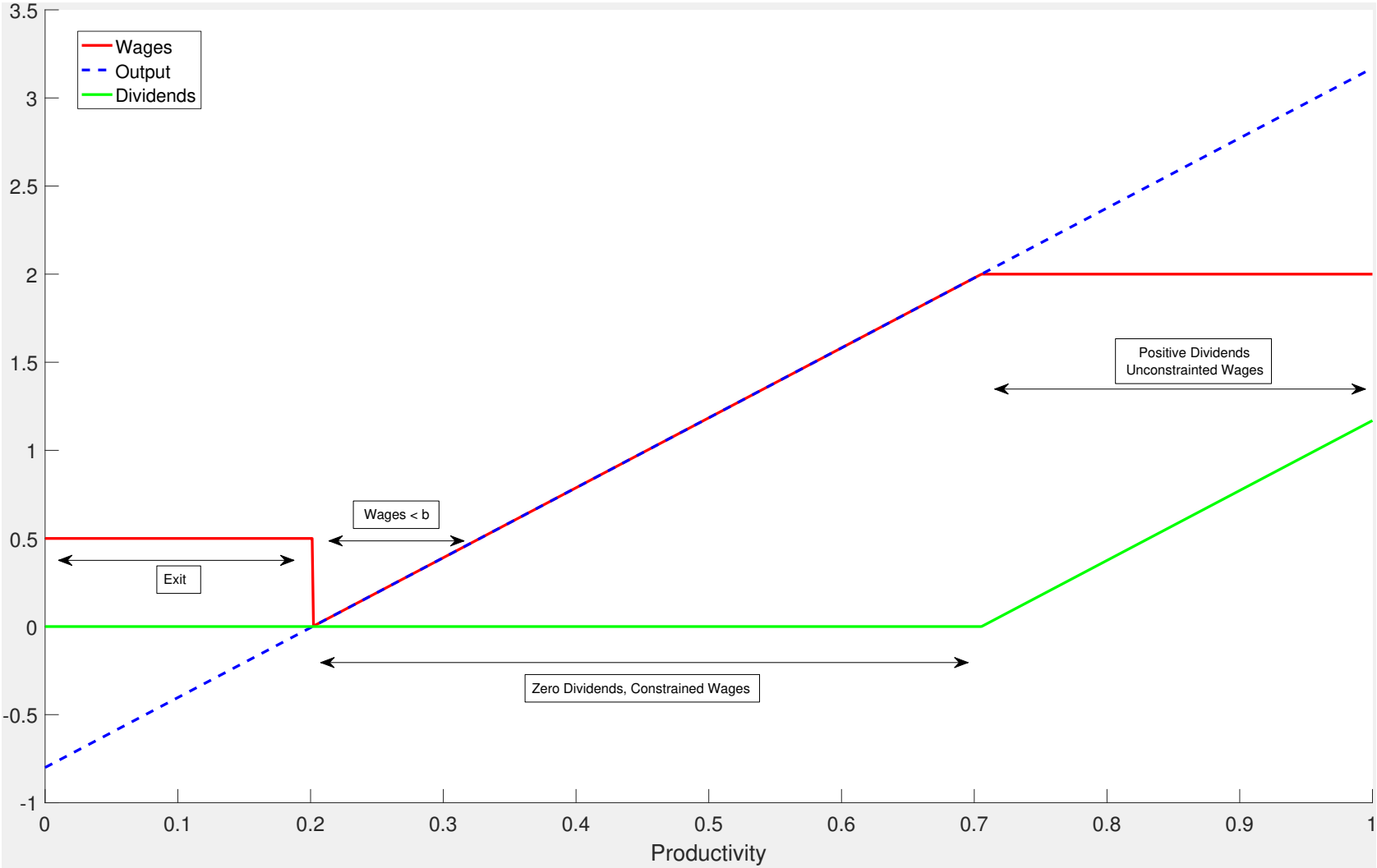
Period production

- Period output is given by

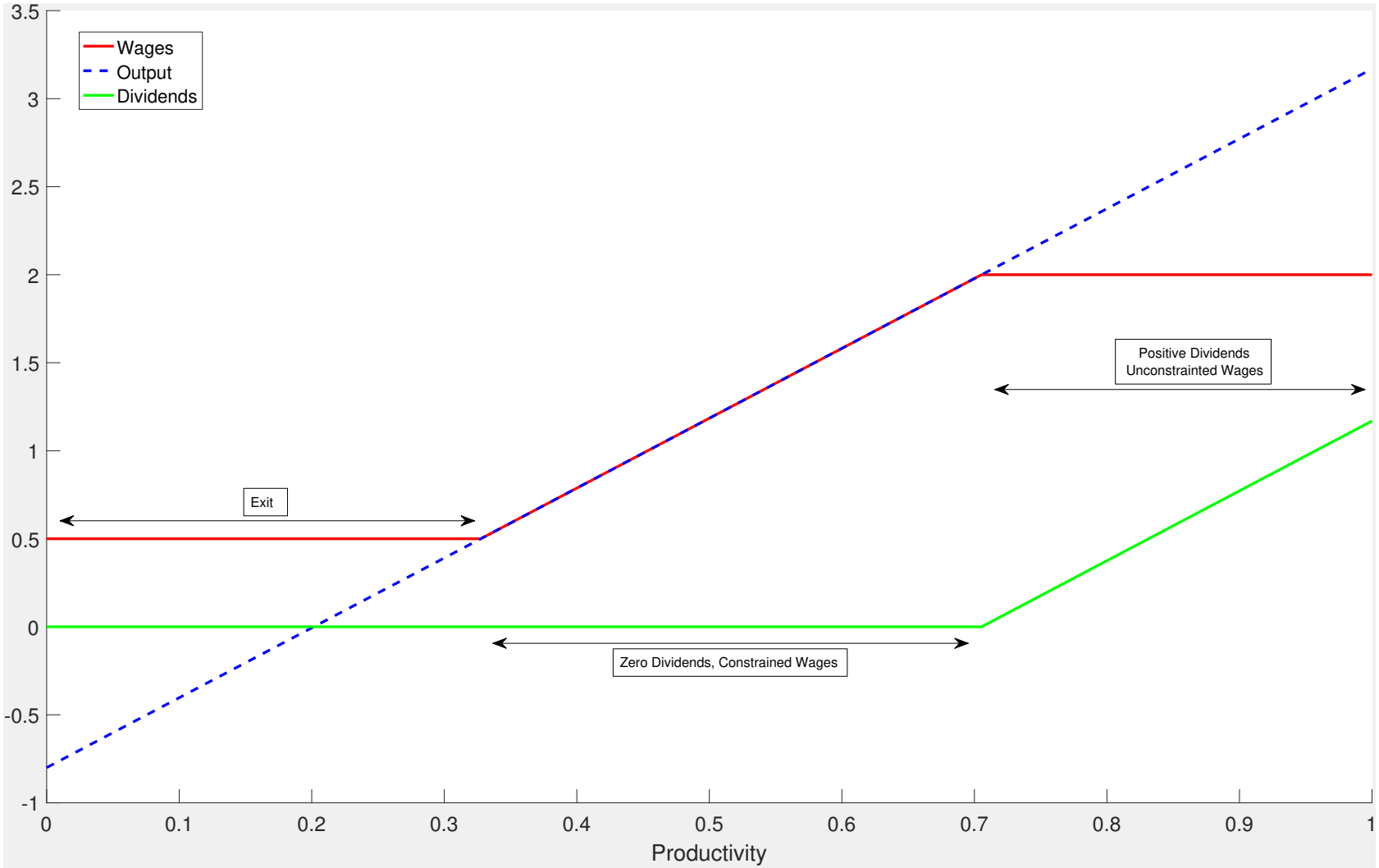
$$\phi_t(W - COE - D)^\gamma - Dr$$

- If period output is negative, exit occurs.
- If output exceeds $\tilde{w}$, workers are paid $\tilde{w}$.
- Dividends are positive iff $(W - COE - D)^\gamma - Dr \geq w^*$
- Don't worry, we have pictures.

Period 1 Wages



Period 2 Wages



Worker's Problem

- Firm's post *unconstrained wage* contracts, $\tilde{w}$
- $$U = \max_{\tilde{w}} p(\theta(\tilde{w}))\mathbb{E}\left(u_1(\tilde{w}) + \beta u_2(\tilde{w})\right)$$
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Dynamic Model with Labor Market Frictions

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Conclusion

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