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Two Engines, One Boom: Disentangling Credit's Real Effects

A Discussion of “Quantifying the Macroeconomic Impact of Credit Expansions”

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1 | Introduction

The paper, “Quantifying the Macroeconomic Impact of Credit Expansions,” tackles a central question in macroeconomics: are households or firms more important when credit conditions transmit to the real economy? The authors address this question with both empirical clarity and theoretical discipline. The work combines causal estimates from a quasi-natural experiment (US bank deregulation in the 1980s) with a rich heterogeneous-agent New Keynesian (HANK) model that incorporates both household- and firm-heterogeneity in a small open economy framework.

The household-side channel, one of the two engines for the boom after deregulation, operates through consumer demand following improved credit access. This channel plays a dominant role in the rise of consumption and an important role in the output boom in the first 5 years after deregulation. Firm-side effects dominate investment dynamics, and the effects from this second engine can explain around 71% of the cumulative effects on most variables in the 10-year horizon. The structure and calibration of the model are disciplined by local projections of empirical impulse responses to banking deregulation, and the quantitative match is strong. In sum, the paper offers important food for thought for macroeconomists working at the intersection of financial frictions and the real economy.

Notably, the paper leverages banking deregulation as a quasi-experimental setting to trace the behavioral responses of households and firms. The local-projection method provides an effective

way to identify interest rate shocks and yields estimated impulse responses of macro variables. These responses are then used to discipline the model parameters, enabling the analysis to disentangle household- and firm-side effects through the structural framework. By observing which agents respond more strongly to changes in borrowing costs, the model provides insight into the relative *elasticities* across sectors or agents under varying financial conditions. In this light, the paper's framework goes beyond macrofinancial transmission and has implications for optimal stabilization policy and tax design. For example, in recent work of Bassetto and Cui (2024), we show (in a Ramsey taxation setting with financial frictions) that comparing input elasticities is key to deciding whether optimal policy should rely on capital subsidies that can ease financial frictions on investment, or capital taxation that can reduce quasi-rents arising from financial frictions. From this perspective, I find the paper's approach particularly appealing.

2 | The Essential Identification

The paper presents a compelling argument that the prominence of the firm channel reflects the gradual adjustment of labor and output observed in the data. This reasoning is sound. However, households and firms may not experience changes in interest rates at the same pace, and unfortunately, we lack detailed data to capture these differences. Fortunately, the paper offers a deeper distinction between the household and firm channels—one that lies in their effects on tradable output. The contrast is striking. While household-driven demand tends to suppress domestic

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tradable production, firm-driven investment boosts it. This opposing behavior provides a valuable lens for distinguishing the two channels and may offer one of the clearest signals available.

In the household channel, lower borrowing costs encourage unconstrained households to front-load consumption, especially of nontradable goods that must be produced locally. The increased demand stimulates employment and output in the nontradable sector, with a particularly strong effect due to the high marginal propensity to consume among hand-to-mouth households. However, the resulting rise in domestic wages and prices, most notably for nontradables, increases marginal costs for firms, including those producing tradable goods. Since tradables are priced in competitive “global” markets, these cost pressures reduce profitability and foreign demand, ultimately leading to a decline in tradable output.¹

In contrast, the firm-side channel operates through cheaper borrowing costs that boost investment and capital accumulation. This firm channel expands productive capacity in *both* sectors and supports output growth, including for tradables. Unlike household-driven demand, which shifts resources toward the nontradable sector, firm-driven investment increases overall supply, helping to lower prices and reduce cost pressures. Of course, in response to the same exogenous interest-rate shock, the channel takes longer time for output boom to materialize.

Using the County Business Patterns (CBP) classification from Mian and Sufi (2014), the study finds positive point estimates for output impulse responses in both tradable output and nontradable output following interest-rate shocks. Although the 90% confidence intervals include zero, likely reflecting the interplay of household- and firm-side effects, the overall evidence aligns with the model’s prediction that the firm-side channel weakly dominates, at least in the medium term. Importantly, the model replicates the magnitude of point estimates for the impulse responses, even though these particular response functions were not directly used in model estimation.

3 | More on Tradable and Nontradable Sectors

A promising direction for further identification is to assess whether the strength of the firm channel varies systematically across states, particularly those with a larger share of tradable output. Given that isolating the dominant transmission channel is central to the design of targeted policy interventions, heterogeneity in tradable-output responses across states might provide a further empirical metric for distinguishing between household- and firm-driven effects. This consideration highlights an important avenue for future research.

Another natural next step for understanding the two engines is to examine relative price movements—specifically, the behavior of tradable versus nontradable inflation—in a state that experienced banking deregulation compared to a nearby control state without deregulation. Such a comparison would offer empirical insight into real exchange rate dynamics, as implied by the model, and provide a valuable consistency check between theory and data.

In addition, the firm-side credit shock in the model, implemented as a reduction in the borrowing wedge ψ_t^f faced by capital goods producers, operates primarily through the valuation channel. For example, the relevant discount factor used for capital goods producers

$$M_t = \frac{P_{t+1}}{P_t (1 + r_t^F)} = \frac{P_{t+1}}{P_t (1 + r + \psi_t^F)}$$

goes up with a fall in the interest rate r_t^F because of falling ψ_t^f . This effect results in higher firm valuations and stimulates an increase in next-period capital K_{t+1} , boosting investment. The real effects of this shock are likely gradual. Over time output and employment rise as the capital stock builds, rather than jumping immediately following demand-driven shocks. Moreover, this interpretation helps clarify why the firm-side effect increases output across both tradable and nontradable sectors—capital is a shared input, and the relative price of capital falls for all producers. Empirically validating this mechanism would involve examining how capital usage evolves in both sectors after deregulation. For instance, if both tradable and nontradable sectors exhibit rising capital intensity post-deregulation, it would further support the view that the firm-side channel operates differently from the household-side transmission, highlighting the supply-side nature of this shock and its more long-lasting impact on production.

4 | Further Comments

The paper presents a compelling argument for modeling the aftermath of banking deregulation through interest-rate shocks as financial shocks. In contrast to shocks that relax quantity-based borrowing constraints, such as reductions in collateral requirements that directly influence credit demand, interest-rate shocks sidestep some of the difficulties of credit demand shocks in matching stylized facts in housing booms, as emphasized by Justiniano et al. (2019). Their analysis suggests that credit supply shocks align more closely with observed housing market dynamics, thereby reinforcing the appeal of using interest-rate shocks as a more tractable and empirically grounded approach.

While the primary transmission mechanism on the firm side operates through the valuation effect of lower interest rates, the short-run response of firms may appear more muted relative to that in the household sector. Nevertheless, interest-rate shocks may strongly influence capital utilization and firm investment dynamics.

4.1 | Firm Investment, Debt Costs, and Variable Capital Utilization

If falling rates also facilitate real resource flows, for example, through reduced debt servicing burdens, then the firm-side credit easing may resemble an investment-specific technology (IST) shock, as conceptualized in the neoclassical growth and real business cycle (RBC) literatures (e.g., Greenwood et al. 1988, 1997; Fisher 2006). One can posit that capital goods producers

require working capital to initiate investment projects, meaning they must prefinance a portion of the capital outlay through credit markets. Lower borrowing spreads, in this context, effectively reduce the marginal cost of capital formation, thereby incentivizing more investment.

Specifically, this debt-service-driven mechanism amplifies the immediate effects of an interest rate decline on output and investment—going beyond the dynamics captured by standard convex adjustment cost frameworks. In such a setting, a lower firm-specific interest rate r^f reduces both the discount rate applied by capital goods producers and the effective cost of acquiring new capital. The result is a reallocation of resources toward investment, functionally equivalent to an IST shock that improves the efficiency of converting final goods into productive capital—provided the decline in financing costs outweighs adjustment frictions.

Interpreting firm-side credit easing through the lens of an IST shock can bring variable capital utilization, not modeled in the current framework, into sharper focus. In modified RBC models with capital utilization, the utilization serves as an intensive margin of adjustment, allowing firms to raise output not just by expanding capital stocks but also by deploying existing capital more intensively. When combined with IST shocks, endogenous utilization further amplifies the short-run demand for labor and investment goods. In the current framework, capital accumulation is modeled with convex adjustment costs, but utilization is held fixed. If instead utilization were endogenous, the firm-side transmission channel could exhibit stronger short-run effects, particularly in tradable sectors. Empirical analysis of capacity utilization trends following banking deregulation could illuminate this margin. If empirically utilization indeed responds elastically to changes in interest-rate costs, it would be informative to revisit the model's decomposition by incorporating explicitly this additional margin of firm response.

4.2 | Permanent Interest Rate Shocks and Long-Term Technological Investment

A further implication of persistent shocks arises when the interest-rate shock is modeled as truly permanent. Permanent shocks may alter firms' intertemporal investment decisions, particularly by encouraging commitment to long-horizon, productivity-enhancing, and risky technologies. Firms are likely to differentiate their responses to transitory versus permanent changes in borrowing conditions. While transitory shocks may prompt increases in marginal investments, a permanent reduction in financing costs may or may not shift portfolios toward riskier or more transformative investments, such as R&D, automation, or frontier technologies.

Although the present model focuses primarily on physical capital accumulation, extending the framework to incorporate endogenous productivity growth or potentially risky technology adoption would allow a richer firm-side transmission channel. In this light, the long-run growth implications of firm credit—particularly in the presence of permanent financial shocks—warrant further attention. Capturing these dynamics would also help clarify the extent to which financial conditions shape the

trajectory of technological advancement in the supply channel, besides influencing the level (and potentially the utilization) of capital stock.

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Endnotes

¹Note that the above effects do not depend on domestic price stickiness. The reason is that the demand channel is different from the usual demand channel in a New Keynesian model. The price of tradable goods is always normalized at the value of 1. After the interest-rate shock, final goods prices are also less responsive to the shock, since these partly depend on the price of imports. As such, rising nominal wages after the shock translate into rising real wages. Therefore, labor supply, employment, and output increase, even in the absence of nominal rigidities.

References

- Bassetto, M., and W. Cui. 2024. "A Ramsey Theory of Financial Distortions." *Journal of Political Economy* 132: 2612–2654.
- Fisher, J. D. 2006. "The Dynamic Effects of Neutral and Investment-Specific Technology Shocks." *Journal of Political Economy* 114: 413–451.
- Greenwood, J., Z. Hercowitz, and G. W. Huffman. 1988. "Investment, Capacity Utilization, and the Real Business Cycle." *American Economic Review* 78: 402–417.
- Greenwood, J., Z. Hercowitz, and P. Krusell. 1997. "Long-Run Implications of Investment-Specific Technological Change." *American Economic Review* 87: 342–362.
- Justiniano, A., G. E. Primiceri, and A. Tambalotti. 2019. "Credit Supply and the Housing Boom." *Journal of Political Economy* 127: 1317–1350.
- Mian, A., and A. Sufi. 2014. "What Explains the 2007–2009 Drop in Employment?" *Econometrica* 82: 2197–2223.