Fiscal Stimulus with Supply Constraints

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Overview

Overall, I enjoyed reading the paper and learned a lot

- Does fiscal stimulus affect inflation (π) in context of supply constraints?
 - Relevant to assess inflationary effects of pandemic-era US fiscal packages

New theoretical framework with occasionally binding supply constraints

- Competitive firms produce final good with labor allocated to tasks A and B
- Technological constraint limits amount of labor allocated to task B
- Slack constraint $\Rightarrow MC =$ because wage fully rigid $\Rightarrow P =$
- Binding constraint $\Rightarrow MC \uparrow$ in quantity produced $\Rightarrow P \uparrow$

- 1. Supply constraints make PC nonlinear [Boehm and Pandalai-Nayar 2022]
 - Supply chain disruptions shift kink leftward [Balleer and Noeller 2023]



- 2. Impact of $G \uparrow$ non-linear and state-dependent:
 - Significant when supply constraints bind [left]
 - More pronounced during supply disruption [right]



- 3. Larger impact on π if $G \uparrow$ targeted on a few sectors:
 - Kink of PC shifts leftward [left]
 - More likely to be inflationary during sectoral reallocation [right]



- 4. $G \uparrow$ leads firms to invest and creates intertemporal trade-off:
 - Short-run: investment amplifies inflationary pressures caused by $G \uparrow$
 - Medium-run: kink of PC shifts rightward $\Rightarrow \pi \downarrow$



Contributions [1/2]

- Nonlinear $PC \rightarrow$ different sources of nonlinearity:
 - 1. Quasi-kinked demand curve [Harding et al. 2023]
 - Wage rigidities + labor shortages [Schmitt-Grohé and Uribe 2022, Benigno and Eggertsson 2023, Gitti 2023]
 - Large shock + state-dependent pricing [Cavallo et al. 2023, Blanco et al. 2024, Gagliardone et al. 2024]
 - 4. Supply constraints [Comin et al. 2023, Bohr 2023, Fornaro 2024]

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- ▶ Nonlinear PC → different sources of nonlinearity:
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 - 4. Supply constraints [Comin et al. 2023, Bohr 2023, Fornaro 2024]
- Contribution: nonlinear PC consistent with empirical evidences
 - Convex sectoral supply curves [Boehm and Pandalai-Nayar 2022]
 - Supply curves steepen during supply chain disruptions [Balleer and Noeller 2023]
 - Production technologies endogenous to macro environment [Ilzetzki 2023]

Contributions [2/2]

Mixed evidence on inflationary effects of pandemic-era US fiscal packages

- Significant contribution of fiscal stimulus to 2021-2022 inflation surge [Di Giovanni et al. 2023, De Soyres et al. 2023, Bianchi et al. 2023]
- Fiscal stimulus prevented deflation in 2020 but did not drive inflation surge [Comin et al. 2023]

Contributions [2/2]

Mixed evidence on inflationary effects of pandemic-era US fiscal packages

- Significant contribution of fiscal stimulus to 2021-2022 inflation surge [Di Giovanni et al. 2023, De Soyres et al. 2023, Bianchi et al. 2023]
- Fiscal stimulus prevented deflation in 2020 but did not drive inflation surge [Comin et al. 2023]
- Contribution: theoretical channel via supply constraints instead of wages
 - Future research: quantification of the contribution of this channel?

Comments

- 1. Labor shortages in post-COVID period
- 2. Role of monetary policy
- 3. Increase in productive investments?

Comment 1: Labor Shortages in Post-COVID Period

- > Ass: due to wage rigidities, labor supplied determined by labor demand
 - Allows transmission of $G\uparrow$ to π without going through wages
- Post-COVID period characterized by severe labour shortages [Crump et al. 2024, Michaillat and Saez 2022]
 - Driven by decline in desired hours worked [Faberman et al. 2022]
- What are the implications of allowing labor supply shocks?
 - Nonlinear effect depending on binding supply constraint? [Benigno and Eggertsson 2023]
 - Reinforcement of transmission mechanism in multi-sectoral economy? [Comin et al. 2023]

Comment 2: Role of Monetary Policy

- Ass: monetary policy keeps rate constant at steady-state value
 - Fixed consumption allows to isolate how $G \uparrow$ affects relation b/w Y and π
- Loose monetary policy significantly contributed to inflation surge [Comin et al. 2023, Giannone and Primiceri 2024]
 - How does loose monetary policy interact with fiscal stimulus?



Impact of shocks to CPI inflation over 2020-2024. Figure from Comin et al. (2023).

Comment 3: Increase in Productive Investments?

- Interesting medium-term implications of fiscal stimulus
 - If firms invest in more efficient technologies, PC shifts to the right
- Evidence of investments aimed at expanding production capacity
 - Will such investments increase productivity?



Real private fixed investments in structures (manufacturing sector) and R&D. Data from BEA.

Conclusion

I very much enjoyed reading this paper

- ▶ I appreciated set up of analytical framework in line with empirical evidence
 - Outlines main mechanism in a simple and clear way
 - Discuss implications of relaxing some strong assumptions
- Important implications for policy and future research
 - How much this channel contributed to post-COVID inflation dynamics?
 - How should monetary policy behave?

References I

- Balleer, A., Noeller, M., 2023. Monetary Policy in the Presence of Supply Constraints: Evidence from German firm-level data. Technical Report. CESifo Working Paper.
- Benigno, P., Eggertsson, G.B., 2023. It's Baaack: The Surge in Inflation in the 2020s and the Return of the Non-Linear Phillips Curve. Working Paper 31197. NBER.
- Bianchi, F., Faccini, R., Melosi, L., 2023. A fiscal theory of persistent inflation. The Quarterly Journal of Economics 138, 2127–2179.
- Blanco, A., Boar, C., Jones, C.J., Midrigan, V., 2024. Non-linear Inflation Dynamics in Menu Cost Economies. Working Paper. NBER.
- Boehm, C.E., Pandalai-Nayar, N., 2022. Convex supply curves. American Economic Review 112, 3941–69.
- Bohr, C.E., 2023. Capacity Buffers: Explaining the Retreat and Return of the Phillips Curve. Job Market Paper.

References II

- Cavallo, A., Lippi, F., Miyahara, K., 2023. Large Shocks Travel Fast. Working Paper. NBER.
- Comin, D.A., Johnson, R.C., Jones, C.J., 2023. Supply Chain Constraints and Inflation. Working Paper. NBER.
- Crump, R.K., Eusepi, S., Giannoni, M., Şahin, A., 2024. The unemployment–inflation trade-off revisited: The phillips curve in covid times. Journal of Monetary Economics , 1035–80.
- De Soyres, F., Santacreu, A.M., Young, H.L., 2023. Demand-supply imbalance during the covid-19 pandemic: The role of fiscal policy. Federal Reserve Bank of St. Louis Review .
- Di Giovanni, J., Kalemli-Özcan, Ş., Silva, A., Yıldırım, M.A., 2023. Quantifying the inflationary impact of fiscal stimulus under supply constraints, in: AEA Papers and Proceedings, pp. 76–80.

References III

- Faberman, R.J., Mueller, A.I., Şahin, A., 2022. Has the willingness to work fallen during the covid pandemic? Labour Economics 79, 1022–75.
- Gagliardone, L., Gertler, M., Lenzu, S., Tielens, J., 2024. Nonlinear Cost-Price Dynamics: Micro Evidence and Macro Consequences. Working Paper.
- Giannone, D., Primiceri, G.E., 2024. The Drivers of Post-pandemic Inflation. Working Paper.
- Gitti, G., 2023. Nonlinearities in the Regional Phillips Curve with Labor Market Tightness. Job Market Paper.
- Harding, M., Lindé, J., Trabandt, M., 2023. Understanding post-covid inflation dynamics. Journal of Monetary Economics 140, S101–S118.
- Ilzetzki, E., 2023. Learning by necessity: Government demand, capacity constraints, and productivity growth. London School of Economics and Political Science.

Michaillat, P., Saez, E., 2022. $u^* = \sqrt{uv}$. Working Paper 30211. NBER.

References IV

Schmitt-Grohé, S., Uribe, M., 2022. Heterogeneous Downward Nominal Wage Rigidity: Foundations of a Nonlinear Phillips Curve. Working Paper. NBER.