Aggregate-Demand Amplification of Supply Disruptions: the Entry-Exit Multiplier

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The Paper in Brief

Theoretical paper: NK model with Endogenous Net Entry.
Showing:

- Price rigidity amplifies the response of the extensive margin to adverse supply shocks
- Entry-exit Multiplier becomes relevant even in an efficient-entry benchmark
- Above all in presence of BIG shocks such as the Covid-19 shock (proxied by a negative TFP shock)

Main Mechanisms at work

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A negative supply shock increases real marginal costs:

- **Entry and Exit Multiplier:** In ES firms cannot increase prices to keep the quantity constant. $=>$ Demand shortage, lower profits and extra exit wrt. EF model. Firms end up being too large. This distortion increases with θ.

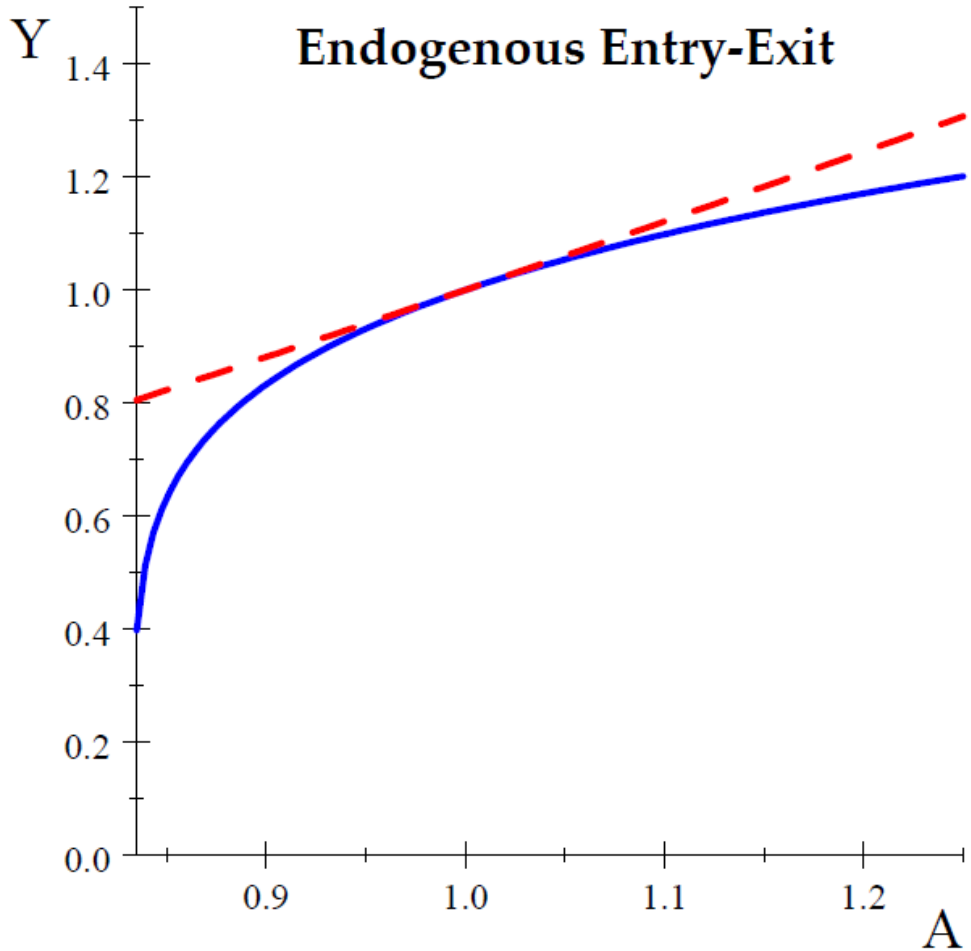
- **Aggregate Demand Amplification:** comes from the concavity of the consumption in the n. of varieties θ that affect the overall activity is a concave function of A:

$$Y = N^{\frac{\theta}{\theta-1}}\left(\frac{AL}{N} - f\right), \text{ with } N = N(A)$$

Non-Linear effect on the Output Gap

Asymmetric Effects: Negative shocks have larger effects than positive shocks

$$y^{GAP} = y^{ES} - y^{EF} = -\frac{1}{2}\theta a^2$$



Paper Pros

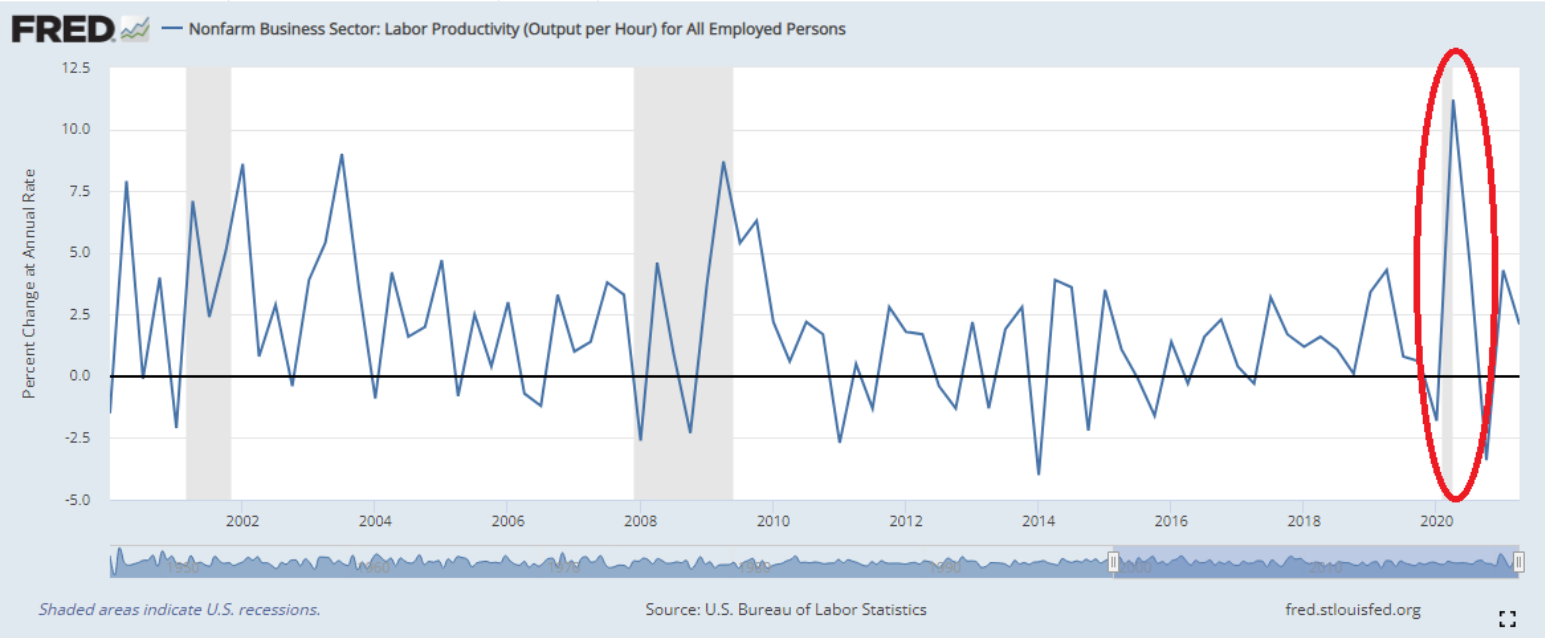
- **Great Analytical Paper:** closed form solution and very sharp explanation of the main mechanisms at work
- Clarifies the mechanism behind amplification due to Net Entry and the interaction with Sticky-price
- Hours worked in line with RBC thanks to the income effect stemming from profits
- Importance of asymmetric effects of non-linear models
- **Results can be generalized:** Not only price stickiness and second order amplification (other frictions, Generalized CES-aggregator)

My Four Comments: Outline

- Opportunity to relate the model to a COVID-19 shock
- Measurability of TFP and Price Index
- Disentangling Entry and Exit
- Introducing Firm Heterogeneity

Comment I

- **COVID-19 shock** Is a negative TFP shock a good proxy of a Covid Shock? Supply + Preference Shock, SIR model (the paper should related to this literature)
- In the model, with $f = 0$, $\frac{Y}{L} = N^{\frac{1}{(\theta-1)}} A = TFP$

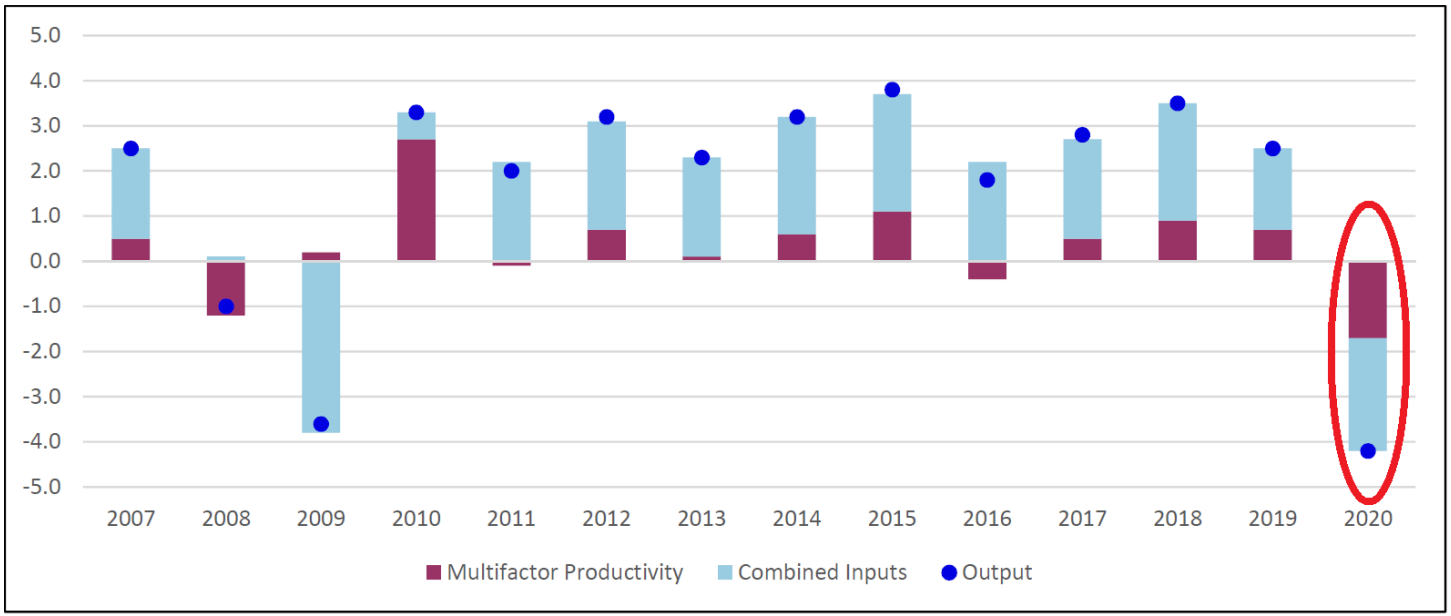


Comment I

- Output decreased 4.2 percent in 2020 (blu dot)
- P-NFBS TFP decreased 1.7 percent in 2020 (Red)
- Combined Inputs decreased 2.5 percent in 2020 (Light blu)

Chart 1. Multifactor productivity, combined inputs, and output in the private nonfarm business sector, 2007-20

Annual percent change



Comment II

- The results depend on the definition of the Price Index
- Production function: $Y = N^{\frac{1}{(\theta-1)}} AL$
- From the equation above: $TFP = N^{\frac{1}{(\theta-1)}} A$
- Measurement problem for both Price Index and TFP

Comment III

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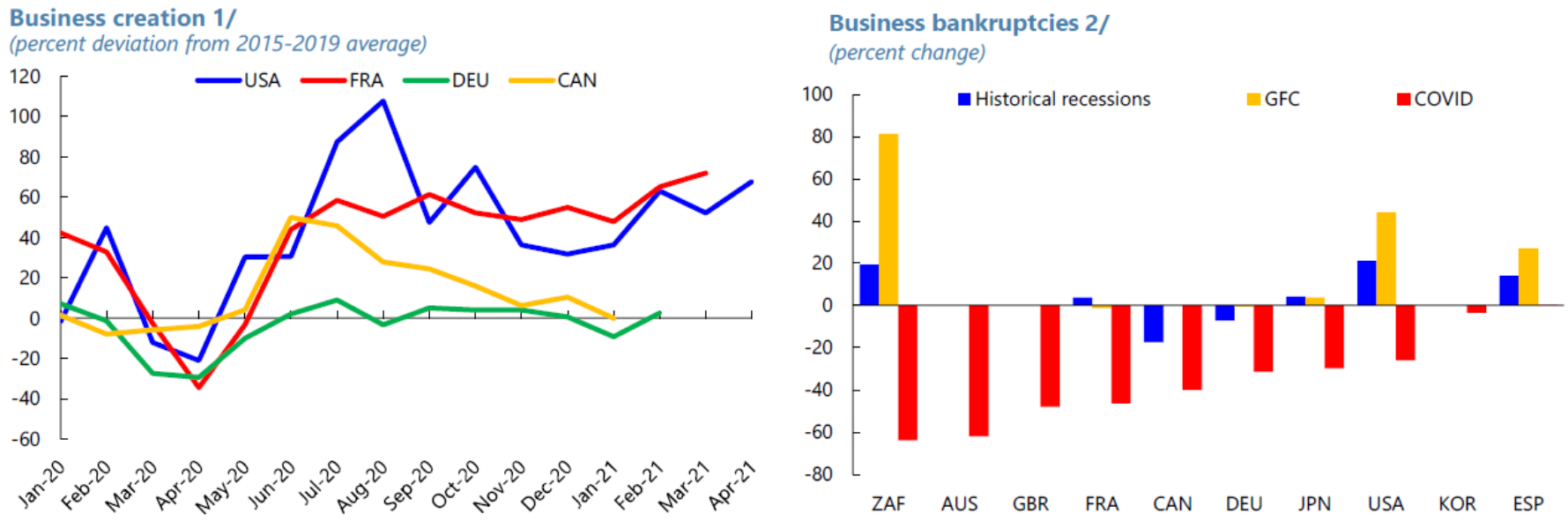
Figure 11. COVID-19 Business Churn



Sources: CEIC; Haver analytics; National statistics Institute; IMF, World Economic Outlook; and IMF staff calculations.

Comment III

- **The model is a net-entry model**, it is not possible to disentangle the effect of NE from those of NX.
  - Important for policy analysis:
  - In presence of BIG negative shocks
- **Exit and TFP shocks:**
  - **Exogenous Exit:** BGM(2012) exit is pro-cyclical (or almost a-cyclical), it decreases in downturn and increases in boom.
  - **Endogenous exit:** exit is counter-cyclical and with firm heterogeneity => Schumpeterian effect of a negative TFP shock (for example in Hamano and Zanetti 2018RED, Rossi 2019EER, among others)

Comment IV

Firm Heterogeneity

- **Shumpeterian Effect:** in response to a negative supply shock firms with lower productivity exit.
  - The average productivity Z_{mean} increases and the aggregate TFP is a function of Z_{mean}.
  - TFP increases with Z_{mean} partially offsetting the effects of a negative shock on A.
- **Importance of firm ex-ante and ex-post heterogeneity** in response to a COVID-19 shock (for example Ascari, Colciago and Silvestrini 2021)

Conclusion

- **Great and ambitious analytical paper with fundamental research question on the amplification role of firm dynamics!**
- The analytical result itself is important regardless of whether the TFP shock is a COVID-19 shock or not
- If aimed at being a COVID-19 paper:
  - relate the paper with current literature on COVID-19
  - Explore or at least discuss the role of Heterogeneity and the importance of disentangling the dynamics of Entry and Exit
- Discuss the role of the price index and how to tackle the measurement problem