Discussion of
What Can Stockouts Tell US About Inflation? Evidence from Online Micro Data

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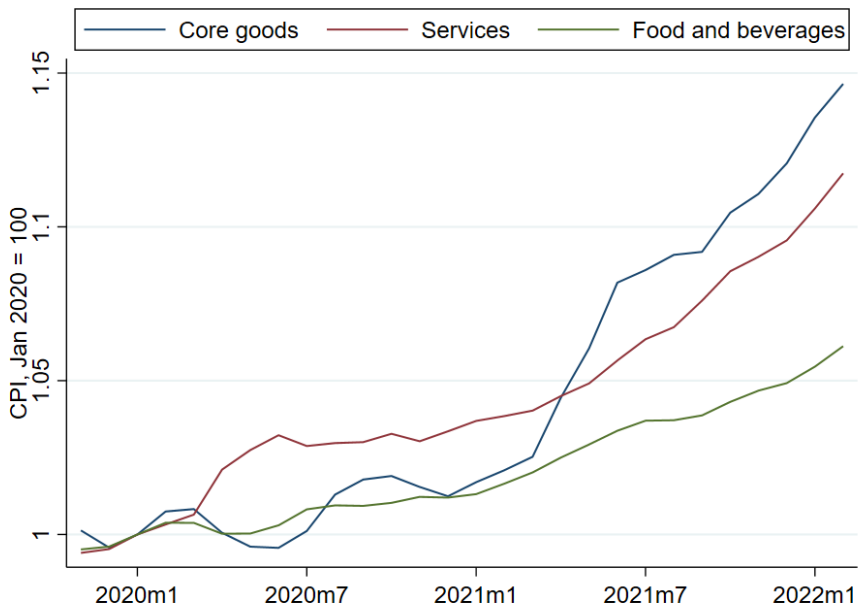
[1]The views expressed are those of the author's and do not necessarily represent those of the Federal Reserve Bank of New York or the Federal Reserve System.

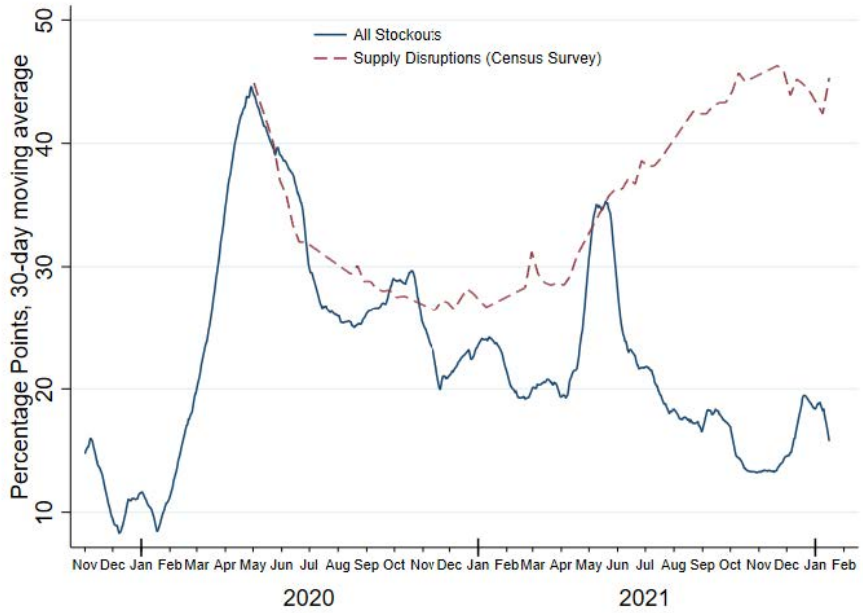
Big picture

- Understanding drivers of inflation is important
  - Goods price inflation is highest it has been in decades.
- This paper brings new micro, real-time, data on stockouts to shed light on inflation dynamics: The paper finds:
  - that unexpected product shortages have significant inflationary effects within 3 months.
  - the effects are larger and more persistent for imported goods and import-intensive sectors.
  - the effects are associated with elevated cost of replenishing inventories and higher exposure to trade
- General Comments
  - Do stockouts help explain inflation?
    - And how important is this quantitatively?
  - What are the mechansims?
    - Important for policy implications

Do stockouts explain inflation?



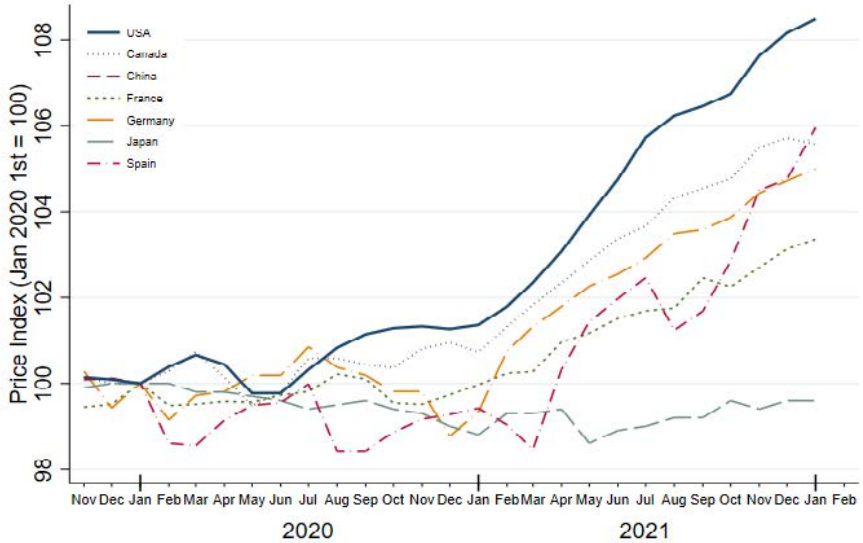
(a) CPI



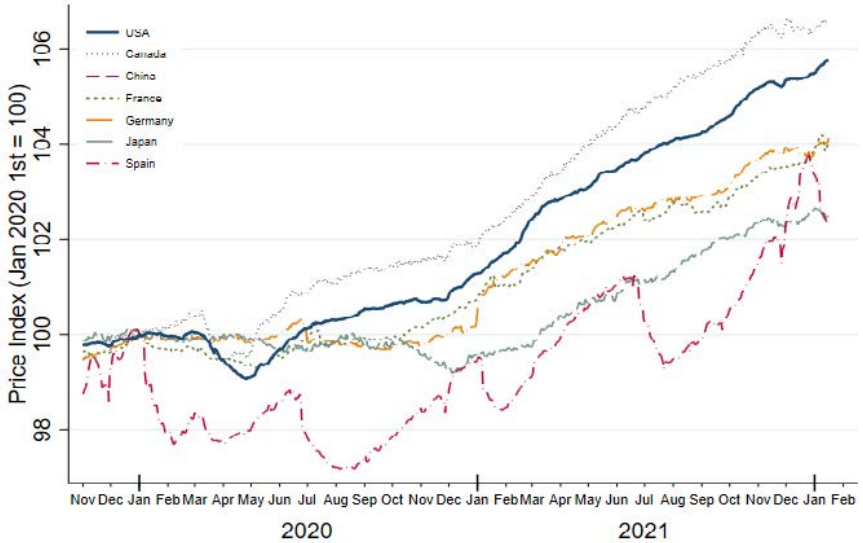
(b) Cavallo and Kryvtsov (2022) Figure A1

- No aggregate relationship, yet micro data regression analysis of stockouts shows significant effects.
- Once they take account of endogeneity, the model delivers an increasing replacement cost, starting in April 2021, consistent with increasing inflation and supply disruption.
  - Because of heterogeneous sector effects, different dynamics, and endogeneity, you don't see a simple correlation.

How representative is the data?



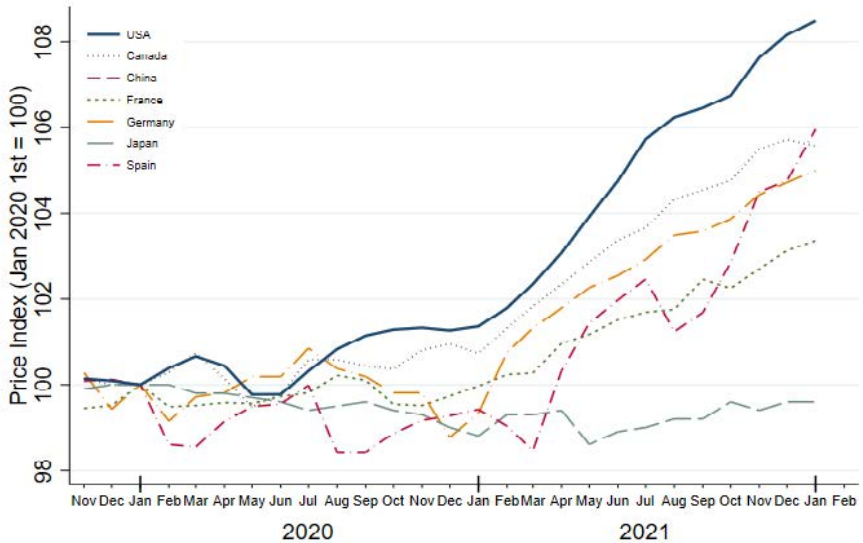
(5a) Official CPIs



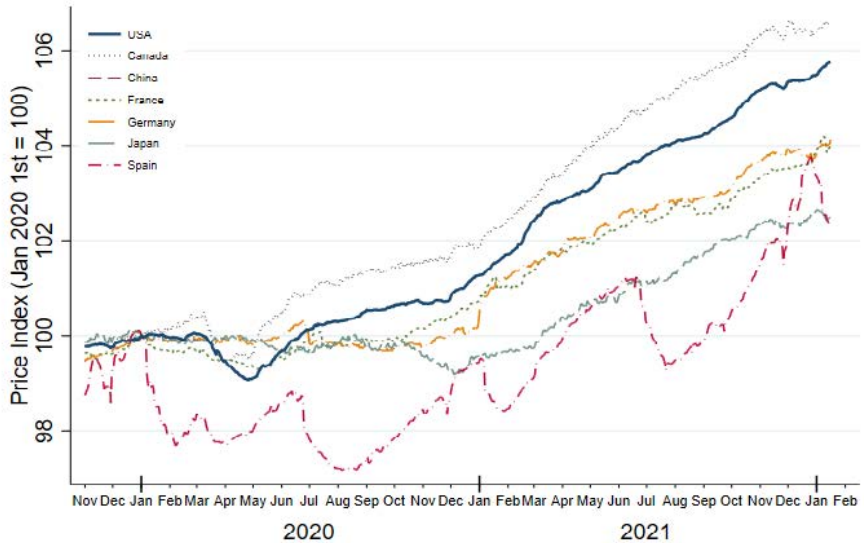
(5b) Online Price Indices

- Sample of retailers surveyed may not be representative
  - online prices may not be representative eg Japan has high online inflation and flat CPI
  - sample includes, around, 10 retailers per countries, which are likely to be larger and in different product spaces than others
  - prices differ significantly across stores.
- The example of the single U.S. retailer raises some concerns
  - negative inflation for domestic goods and positive for imports
  - 75% of products at this retailer are imports. In the aggregate we import around 30% of consumption in manufacturing

How similar are experiences across countries?



(5a) Official CPIs



(5b) Online Price Indices

- Inflation experiences seem to differ across countries.
- There may be heterogeneity in coefficients across countries

Mechanisms

1. Supply vs demand
   - The paper leans towards a supply side bottleneck story
     * can we rule out excess demand story?

2. Import prices drive the results.
   - Why don't we see much of an effect on domestic prices?
     * Strategic complementarities in pricing.
     * Bottlenecks should also affect domestic prices through shortages in labor, truck drivers, imported inputs.
   - Effects could be due to shortages in supply of inputs or longer shipping times
     * Could use data on source countries to see if larger effects for more distant countries or countries with more shutdowns.
     * Could use information on air vs shipping transport to tease out some of the mechanisms

Substitution effects

1. How much of the result is driven by demand system properties?
   - In their model, stockouts are negatively associated with price increases, because high prices lower the probability of stockouts
   - In CES monopolistic competition models, the price of other firms depends only on their marginal cost, so is unaffected by stockouts
   - If there are strategic complementarities, the price of other firms will rise with stockouts
   - Could use the product id dimension in the data to identify if within product change or substitution.
     * No change in varieties will have different implications if there is no gross change; or if one variety is replaced with a close substitute compared with if it is replaced with an imperfect substitute.
   - The length of the stockout should matter
     * Could use product id's to test this. eg the share of stockouts may remain unchanged but in one scenario it might be the same product missing for a long time and in another a different product missing each day.

Model

- Endogenising stockouts turns out to be important
  - conditional on cost shocks, prices and stockouts are negatively correlated.
  - inflation is more volatile relative to stockouts: while stockout response is smaller, inflation response is 6 times larger, but less persistent.
- How important are assumptions for the result?
  - Convex costs of replenishing supplies
  - prices can adjust every week
- Does consumers behavior matter?
  - Consumers can substitute within stores, across stores, and build inventories.
- Could try to match other moments in the data eg quantities

Concluding Remarks

- Great paper!
- Has explored new data on stockouts to help explain rising inflation.
- Provides convincing evidence that stockouts leads to inflation.
- More work is needed on:
  - identifying mechanisms, which is important for policy implications
  - aggregate implications.