DISCUSSION OF
Credit Shocks and Equilibrium Dynamics in Consumer Durable Goods Markets
BY GAVAZZA AND LANTERI

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MODEL RECAP

PREFERENCES

Period utility flow

\[ u(c_{it}, d_{it}) = \frac{(c_{it}^\alpha d_{it}^{1-\alpha})^{1-\gamma}}{1-\gamma} \]

with

\[ d_{it} = d(n, \theta_i) = \begin{cases} 
q_n & \text{if car of quality } q_n \\
\theta_i & \text{if no car}
\end{cases} \]
MODEL RECAP
TECHNOLOGY (US CALIBRATION)

- Endowment income of $w_{it}$ c-goods every period

- Can turn $p_1 = 0.45$ of c-goods into 1 new d-good with $q_1 = 1$

- Quality of d-good evolves stochastically:
  - with probability $\pi_1 = \frac{1}{3}$ becomes quality $q_2 = 0.3$
  - afterwards, with $\pi_2 = \frac{1}{10}$ becomes quality $q_3 = 0.1$
  - afterwards, with $\pi_3 = \frac{1}{2}$ becomes quality $q_4$

- When d-good reaches $q_4$, receive $p_4 = 0.036$ units of c-good
MODEL RECAP

TECHNOLOGY (US CALIBRATION)

owning a car:

- $q_1 = 1$
- $q_2 = 0.3$
- $q_3 = 0.1$
- $p_1 = 0.45$ consumption units
- $p_4 = 0.036$ consumption units

- $\pi_1 = \frac{1}{3}$
- $\pi_2 = \frac{1}{10}$
- $\pi_3 = \frac{1}{2}$

scrap (exogenously)
MODEL RECAP

TECHNOLOGY (US CALIBRATION)

owning a car:

$q_1 = 1$

$\pi_1 = 1/3$

$q_2 = 0.3$

$\pi_2 = 1/10$

$q_3 = 0.1$

$\pi_3 = 1/2$

not owning a car:

$\theta_i$

$p_1 = 0.45$

consumption units

$p_4 = 0.036$

consumption units

(exogenously)
MODEL RECAP

USED CAR MARKET

owning a car:

\[ q_1 = 1 \]

\[ \pi_1 = \frac{1}{3} \]

\[ q_2 = 0.3 \]

\[ \pi_2 = \frac{1}{10} \]

\[ q_3 = 0.1 \]

\[ \pi_3 = \frac{1}{2} \]

\[ p_1 = 0.45 \]

\[ p_2 \]

\[ p_3 = p_4 = 0.036 \]

used car market

not owning a car:

\[ \theta_i \]
MODEL RECAP

USED CAR MARKET

The presence of the used car market and the ability to scrap cars allows the following actions:

- Owner of $q_2$ cars can sell car and buy $q_1$ car
- Owner of $q_3$ cars can scrap car and buy $q_1$ car
- Owner of $q_3$ cars can scrap car and buy $q_2$ car
MODEL RECAP
ASSET MARKET AND DYNAMICS

Income risk is not insurable, agent $i$ faces:

$$b_{i,t+1} \geq \phi$$

Incomplete markets in combination with variation in $p_2$ generate endogenous illiquidity

- A used car becomes a less valuable asset in downturn
- This makes it more difficult to move up the quality ladder
MODEL RECAP

ANALYSIS

In the stationary equilibrium of this economy, study macroeconomic dynamics:

- Credit shock
- Income shock
- Policy intervention
COMMENT 1/4

ISN’T THE STABILITY OF NEW CAR PRICES PUZZLING/INTERESTING?

- In the model, $p_1$ constant and pinned down directly by technology

- This is well in line with data

- But: isn’t this fact is actually quite interesting?

- In some sense the mechanism relies on a “price rigidity”

- Worth making this more explicit in the paper?

- Could even carry out a counterfactual simulation:
  - Drop marginal costs alongside the shock to the credit limit to generate a fall in the price of new cars
Extremely interesting result that “cash for clunkers” program is dampened by general equilibrium effects

Could model be missing something important? A quick anecdote from Germany

12 Jan 2009: German government introduces comprehensive stimulus program

Included an “Abwrackprämie” – Word of the year 2009 by the Society of the German language

Why is Germany an interesting case?
COMMENT 2/4
CASH FOR CLUNKERS

![Graph showing new-car sales over time with a peak in the middle]

[Photo of a man giving a thumbs-up]

- New-Car Sales
- Time t
Car industry hugely important for the economy as a whole: 7.7% of value added originate in automotive manufacturing, substantial links to rest of the economy.

In the paper: stimulus program dampened because of secondary market.

However, stimulus could transmit with additional kick via:
  - Labor markets
  - Intermediate inputs

I am sure this is the argument Dieter Zetsche (pictured above) would make in today’s seminar.

It would be interesting to think through such channels.
Amplification via collateral constraints small in quantitative DSGE models (see chart from Cordoba and Ripoll, 2004)

Standard tricks: e.g. working capital

Secondary market gives big amplification and is very much in the spirit of a traditional collateral constraint. Personally, I would make this a bigger deal in the paper!
CONSUMER DURABLES VS. FIRM EQUIPMENT

- Lanteri (2018) studies the market for used firm capital
- Gavazza and Lanteri (2018) study the market for used consumer durables
Lanteri (2020) studies their important interactions?!
TAKEN TOGETHER

- Amazing paper: grabs a key feature of reality, embeds it skillfully in a general equilibrium framework and characterizes consequences in a very transparent way.

- Strongly policy-relevant implications.

- Inspires to ponder about further questions, such as the ones raised above.
BIBLIOGRAPHY
