

Cyclical Drivers of Euro Area Consumption: What Can We Learn from Durable Goods?

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Introduction

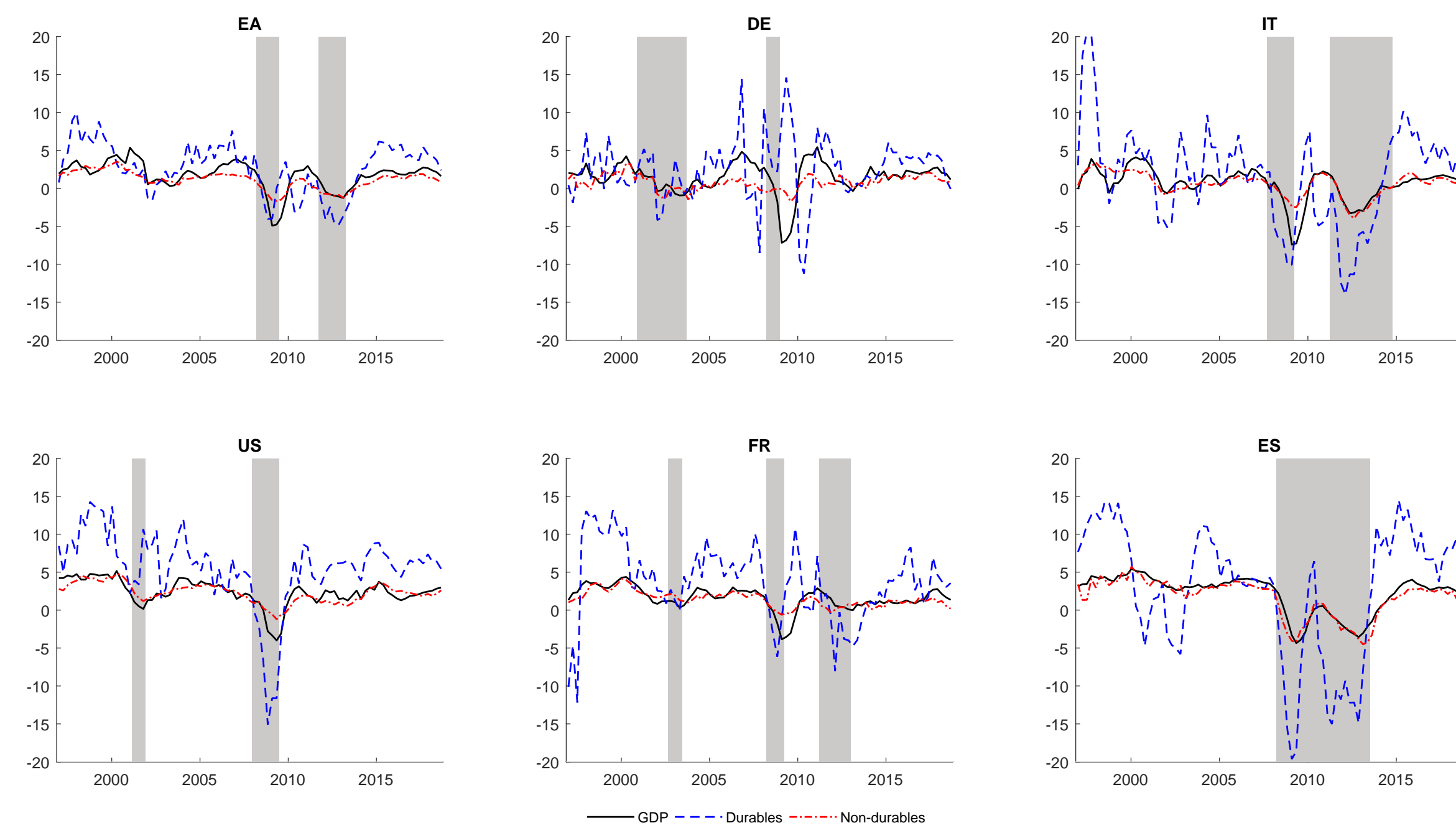
Why single out durable goods?

- Specific characteristics: Utility over multiple periods & subject to depreciation
- Often financed with credit & may serve as collateral
⇒ exposed to credit conditions & lending rates
- Relevant but under-explored, especially in the euro area (data only recently available)
⇒ bulk of research is on US data: no empirical studies on the euro area

Stylized facts

Durables are volatile & procyclical.

Annual growth rates of GDP, durables and non-durables.



Note: Annual growth rate of GDP, durables and nondurables with shaded recessions, sample from 1997Q1 to 2018Q3

Durables tend to rise more during expansions and contract more during recessions: this makes them relevant for the business cycle. Although they make up a small share of total consumption (about 10%), they account for a disproportionately large fraction of its overall fluctuations (contrary to services consumption).

Our research aim

Understand drivers of consumption in the euro area by separating durables from nondurables

- Theoretical framework with durables featuring occasionally binding liquidity constraints
⇒ gain intuition about channels & motivate identification strategy
- Empirical model: a TVP-SVAR
⇒ distinguish durable-specific shocks; take into account monetary conditions

Theoretical framework

As in Chah, Ramey and Starr (1995) and José Luengo-Prado (2006), facing a deterministic income stream $\{Y_t\}_{t=0}^{\infty}$, the consumer solves the problem:

$$\max_{\{C, D, A\}} E_0 \sum_{t=0}^{\infty} \frac{1}{(1+\rho)^t} U(C_t, D_t)$$

subject to

$$A_t = RA_{t-1} + Y_t - C_t - P^d d_t$$

$$D_t = d_t + (1-\delta)D_{t-1}$$

$$A_t + \varphi P^d D_t \geq 0$$

$$A_{-1}, D_{-1} \text{ given;}$$

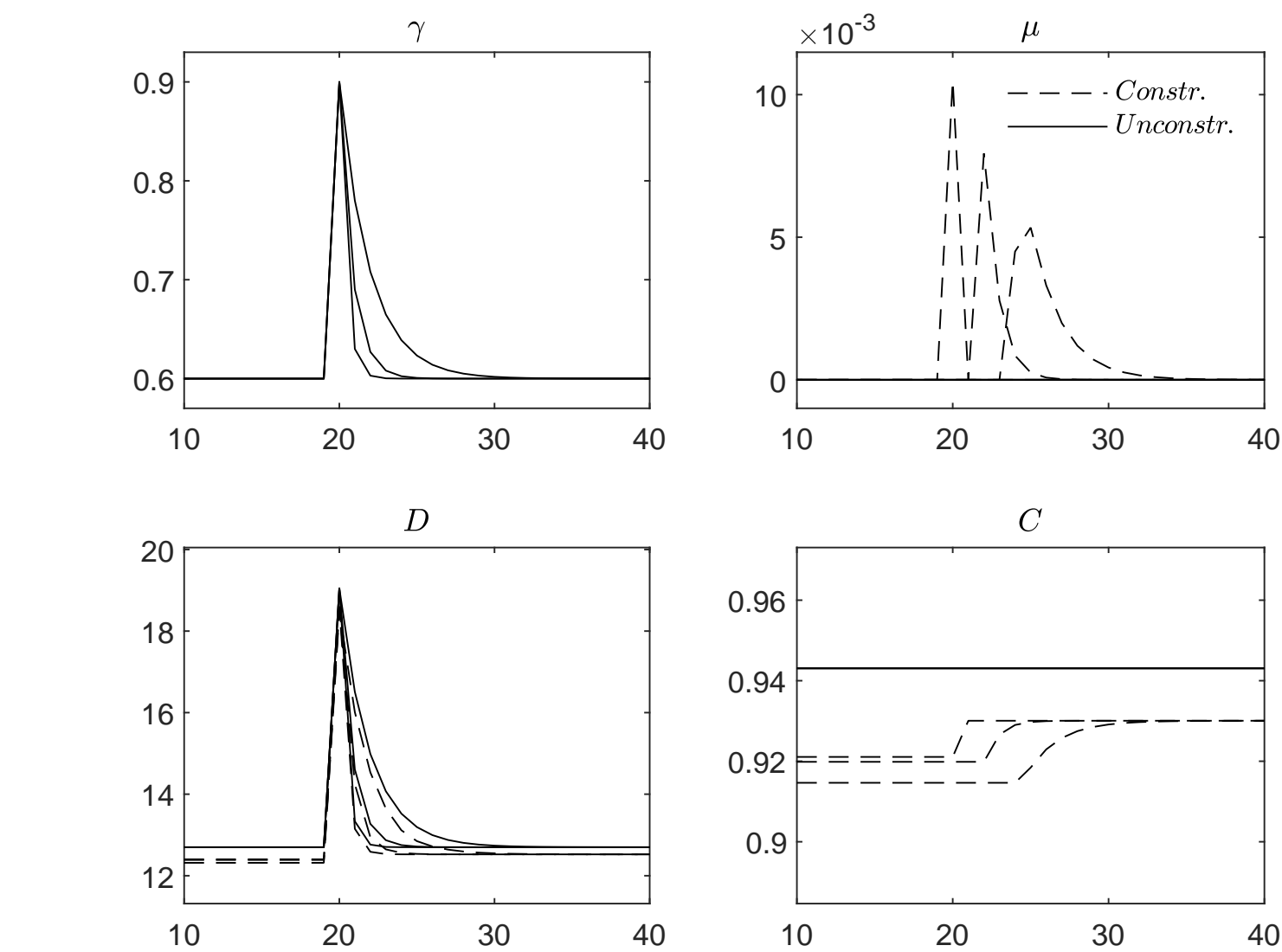
$$t = 0, 1, \dots, \infty.$$

Assume utility function form: $U(C_t, D_t) := \log(C_t) + \gamma \log(D_t)$

Simulation exercise

Simulation exercise: shock to durable preferences γ

Effects from a temporary increase of γ with different persistence



Note: The figures display a temporary increase in the preference parameter γ with shock persistence based on an AR(1) process with autoregressive parameter taking values 0.1, 0.3 and 0.6.

Empirical

Time Varying Parameters SVAR: model description

Specification:

$$X_t = \mathbf{A}_{i,t}(L)X_{t-1} + \varepsilon_t \quad (1)$$

With:

- $\mathbf{A}_{i,t}(L)$: matrix polynomial in the lag operator L .
- $\varepsilon_t \sim \mathcal{N}(0, \Sigma_t)$
- Σ_t and \mathbf{A}_t time variant.
- Model estimated on quarterly data from 1996Q1 to 2018Q3.

$$X_t = \begin{pmatrix} D_t \\ P_t^D \\ C_t \\ P_t \\ R_t \end{pmatrix} \quad \text{Notation: } \begin{bmatrix} \text{Durable consumption} \\ \text{Price of durables} \\ \text{Nondurable consumption} \\ \text{Price of nondurables} \\ \text{Interest rate on consumer credit} \end{bmatrix}$$

Identification strategy

Combination of sign and zero restrictions à la Arias et al. (2018).

Sign restrictions					
Var\Shock	Dur Demand	Dur Supply	Aggr Demand	Aggr Supply	Monetary
D	+	+			+
P^D	+	-			
C	0	0	+	+	+
P	0	0	+	-	+
R			+		-

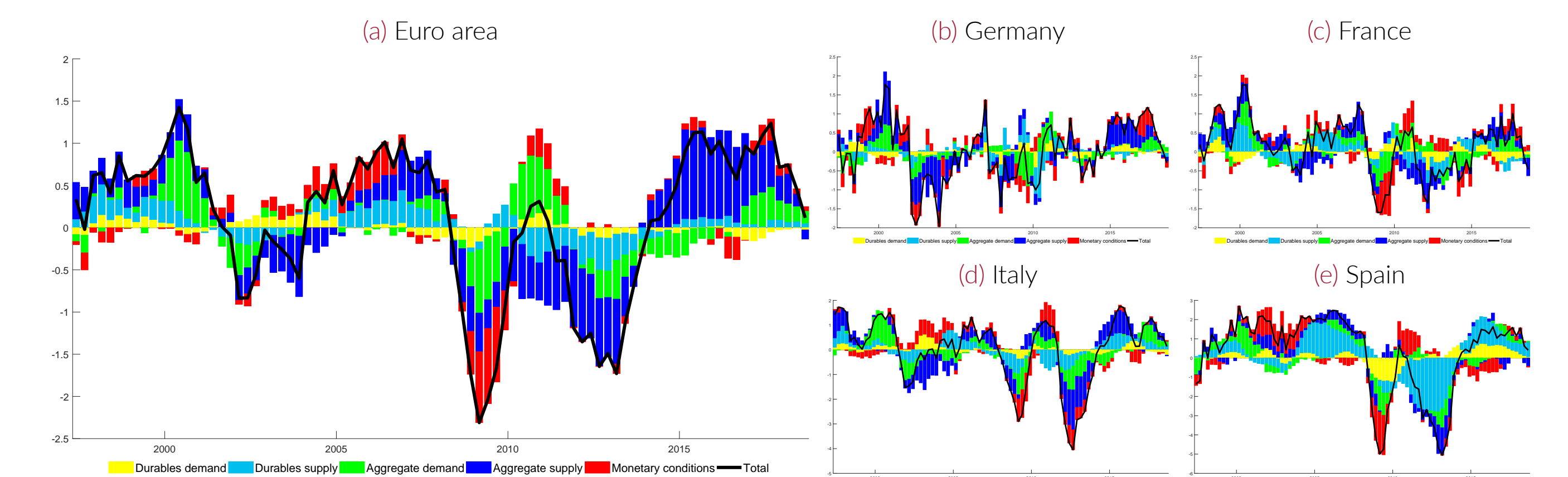
Results

Take-aways from (time-varying) IRFs

- Some regularities confirmed for the euro area as for the US:
⇒ The reaction of durables to a monetary condition shock is larger than the one of nondurable consumption, confirming the common wisdom from the literature on US data.
- Looking at the evolution of IRFs over time:
⇒ The response of nondurable prices to a durable-specific demand and supply shocks appears to be weaker in the post crisis period for both the US and the euro area.
- Heterogeneity in spillovers from durable-specific shocks to nondurable consumption:
⇒ Countries with a larger share of liquidity constrained households (Italy, Spain) show larger spillover magnitudes from durable-specific shocks to nondurable consumption (in line with theory).

Historical decomposition for total consumption

- Recovery in euro area starting in 2014 boosted by supply-side factors.
- Recessions and subsequent recoveries in Italy and Spain animated by durable-specific factors.



Note: Historical decomposition of the year-on-year total consumption growth. Total consumption is an aggregate of durables and nondurables consumption. Data for (a) euro area, (b) Germany, (c) France, (d) Italy, (e) Spain.

References

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