

TECHNICAL APPENDIX FOR BLOG ON “FIRMS’ PROFITS: CURE OR CURSE?”

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We used Bayesian techniques to estimate a Structural Vector Autoregression (SVAR) with uninformative priors implemented with dummy observations.¹

DATA

The SVAR includes 7 variables: GDP growth, core inflation (HICP excluding excl. Energy, Food, Alcohol, Tobacco), real wages (compensation per employee deflated by the GDP deflator), global export deflator, import deflator, world market price (proxied by US export prices), unit profits (gross operating surplus divided by real GDP). All variables enter in year-on-year growth rates except for GDP which is in quarter-on-quarter growth rates.

The sample used for the estimation runs from 2001Q1 to 2019Q4 and does not include the pandemic period in the estimation.

SHOCK IDENTIFICATION

To identify structural shocks in a VAR, further restrictions are needed. In this exercise, we use a combination of sign and zero restrictions (See Table 1). Zero restrictions are indicated with a 0 and apply for the first period when the shock hits. Sign restrictions give the direction of the change in the variable when the shock hits.² Empty cells indicate that no restriction is imposed. The identification scheme builds on the original literature on exchange rate passthrough, changing the focus on profits and prices by integrating elements from the literature on labour markets.³

A domestic demand shock has a negative impact on activity, prices and unit profits but has no impact on global export prices. The domestic supply shock hits activity negatively and real wages but increases prices and has no effect on global export prices. Global demand and supply shocks are similar to domestic shocks but do impact global export prices. Furthermore, they have an impact on import prices. A labour market shock reduces output but increases prices and real wages and therefore reflects a cost-push shock from wages without having an impact on foreign variables. A domestic markup shock affects only core inflation and unit profits while having no impact on activity, and domestic and global export prices. This shock captures the idea that changes in unit profits and inflation are linked without affecting economic activity in the same period. An export mark-up shock reflects similar arguments and has therefore no impact on activity or global export prices and import prices but domestic export prices and unit profits are positively correlated.

¹ See Bańbura, M., G., D., and L. Reichlin L. (2010), Large Bayesian vector auto regressions, *Journal of Applied Econometrics* 25, 71-92.

² All signs for one specific shock can be multiplied by -1 and the economic interpretation remains the same.

³ See Comunale, M. and D. Kunovac (2017), Exchange rate pass-through in the euro area, European Central Bank Working Paper Series, No 2003. and Foroni, C., Furlanetto, F., and A. Lepetit A. (2018), Labour supply factors and economic fluctuations, *International Economic Review*, 59.

Table 1. Identifying restrictions

	Domestic demand	Domestic supply	Global demand	Global supply	Labour market	Domestic Markup	Export Markup
GDP	-	-	-	-	-	0	0
Core inflation	-	+	-	+	+	+	
Real wages		-			+		
Domestic export prices			-			0	+
Global export prices	0	0	-	+	0	0	0
Import prices	-		-	+			0
Unit profits	-		-			+	+