

# Opposing firm-level responses to the China shock: Output competition versus input supply

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Online Appendix

## A Controlling for the common component of firms' export/import flows

In this Appendix we split our output and input shocks between: (i) a net export shock on exports which are not imported; (ii) a net import shock on imports which are not exported; (iii) a common export/import shock. More formally:

- let  $\tilde{x}_{f,i,t_0}$  denote firm  $f$ 's **net exports** of product  $i$  in base year  $t_0$  :

$$\tilde{x}_{f,i,t_0} = \max(x_{f,i,t_0} - m_{f,i,t_0}, 0)$$

- let  $\tilde{m}_{f,i,t_0}$  denote firm  $f$ 's **net imports** of product  $i$  in base year  $t_0$  :

$$\tilde{m}_{f,i,t_0} = \max(m_{f,i,t_0} - x_{f,i,t_0}, 0)$$

- let  $\tilde{c}_{f,i,t_0}$  denote firm  $f$ 's **import/export intersection** of product  $i$  in base year  $t_0$  :

$$\tilde{c}_{f,i,t_0} = \min(m_{f,i,t_0}, x_{f,i,t_0}).$$

We shall then define firm  $f$ 's output, input, and common Chinese shift-share shocks, respectively, by:

$$\Delta\tilde{H}_f = \sum_i \frac{\tilde{x}_{f,i,t_0}}{\sum_j \tilde{x}_{f,j,t_0}} \Delta S_i, \quad \Delta\tilde{V}_f = \sum_i \frac{\tilde{m}_{f,i,t_0}}{\sum_j \tilde{m}_{f,j,t_0}} \Delta S_i \quad \text{and} \quad \Delta\tilde{C}_f = \sum_i \frac{\tilde{c}_{f,i,t_0}}{\sum_j \tilde{c}_{f,j,t_0}} \Delta S_i.$$

Our extended specification which splits our output and input shocks between a net export shock on exports which are not imported, a net import shock on imports

which are not exported, and a common export/import shock, is summarized by the regression equation:

$$\Delta_{t-k}^t Y_f = \alpha + \beta_O \Delta_{t-k}^t \tilde{H}_f + \beta_I \Delta_{t-k}^t \tilde{V}_f + \beta_C \Delta_{t-k}^t \tilde{C}_f + \gamma' X_{f,t_0} + \eta_{s(f)} + \varepsilon_f. \quad (1)$$

Table A1 reports the results of this exercise and confirms the main messages conveyed in Table 3.

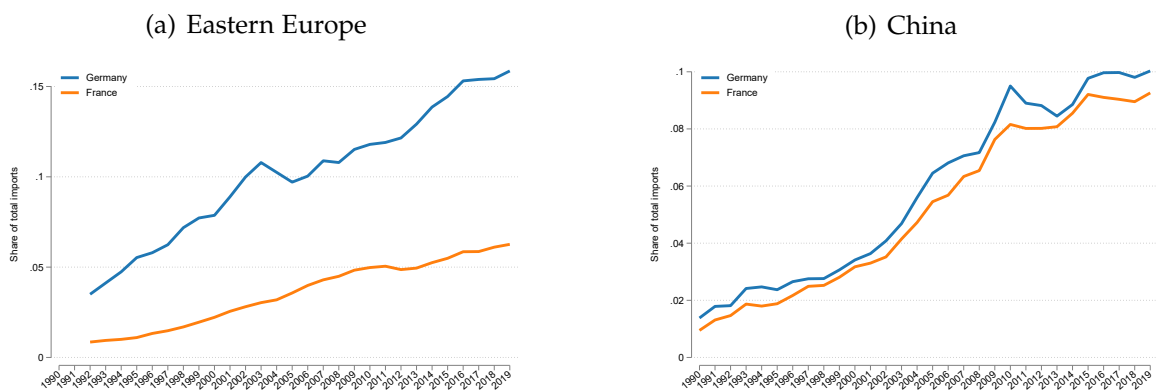
Table A1: MAIN OUTCOMES CONTROLLING FOR THE COMMON EXPORT/IMPORT COMPONENT

	Main outcomes					Patents		Products		
	(1) Sales	(2) Employment	(3) Labor share	(4) Exit mfg	(5) Death	(6) Triadic	(7) Appln	(8) Discontinued	(9) New	(10) Comp Adv
Output	-0.403** (0.195)	-0.374** (0.175)	-0.336*** (0.108)	0.0385 (0.0710)	0.0512 (0.0890)	-1.240** (0.553)	-1.967* (1.029)	0.279*** (0.102)	0.243 (0.164)	0.462*** (0.167)
Input	0.205 (0.202)	0.322* (0.191)	0.0808 (0.119)	0.269*** (0.0828)	0.0159 (0.0929)	-0.560 (0.457)	-1.040 (0.799)	0.0297 (0.0736)	-0.225* (0.129)	-0.00775 (0.141)
Common	-0.215 (0.222)	-0.215 (0.186)	0.140 (0.134)	0.0113 (0.0968)	-0.0563 (0.112)	-0.0744 (0.420)	1.104 (0.935)	-0.278*** (0.0714)	-0.288** (0.131)	-0.0332 (0.168)
F	88.05	88.05	79.67	88.05	118.6	71.79	71.79	105.4	123.2	125.9
Mean outcome	0.0704	-0.108	-0.0236	0.0745	0.160	0.100	0.289	0.815	0.472	0.00161
N	27883	27883	24999	27883	33203	4710	4710	24232	17307	16090

**Notes:** This table reproduces the results of Table 3 but adds the common shock to the original specification. Because we add the common component of the output and input shocks, all results contained in this table control for a dummy indicating whether the firm both exported and imported in at least one HS6 product category. The definition of dependent variables and the exact specifications are otherwise unchanged. All models control for 2-digits industry fixed effects. Standard errors are clustered at the 2-digit industry-level. Standard errors clustered at the 4 digit industry-level are in parentheses. \*\*\*, \*\* and \* indicate p-value of the Student test of null coefficient below 0.01, 0.05 and 0.1 respectively.

## A Additional Tables and Figures

Figure B1: IMPORTS FROM CHINA AND FROM EASTERN EUROPE



**Notes:** This figure provides the share in total imports in France and Germany coming from Eastern European countries (left-hand side) and China (right-hand side). Eastern European countries include BGR, CZE, EST, HUN, LTU, LVA, POL, ROU and SVK. Source: OECD, STAN database.

Table B1: EVIDENCE OF HETEROGENEOUS RESPONSE BY TOTAL SALES

	Main outcomes					Patents		Products		
	(1) Sales	(2) Employment	(3) Labor share	(4) Exit mfg	(5) Death	(6) Triadic	(7) Appln	(8) Discontinued	(9) New	(10) Comp Adv
Horizontal (q=1)	-0.409* (0.247)	-0.489** (0.206)	-0.244* (0.127)	-0.0326 (0.0648)	0.0349 (0.116)	-1.259** (0.516)	-1.888* (1.058)	0.0189 (0.0926)	-0.0368 (0.192)	0.578*** (0.208)
Horizontal (q=2)	-0.403 (0.264)	-0.0778 (0.204)	-0.263 (0.168)	0.117 (0.127)	0.0442 (0.0888)	-1.159 (0.838)	-0.904 (1.372)	0.411** (0.184)	0.377** (0.178)	0.694*** (0.178)
Vertical (q=1)	0.0185 (0.204)	-0.207 (0.200)	-0.0181 (0.128)	0.220*** (0.0740)	0.126 (0.110)	-0.0668 (0.481)	0.255 (1.139)	-0.0925 (0.0853)	-0.415** (0.172)	-0.327 (0.213)
Vertical (q=2)	0.117 (0.328)	0.488* (0.282)	0.348* (0.188)	0.371** (0.162)	-0.322** (0.143)	-0.341 (0.901)	0.428 (1.622)	-0.224* (0.120)	-0.577*** (0.156)	-0.264 (0.194)
F-Stat	70.32	70.32	66.66	70.32	83.93	32.23	32.30	65.32	51.80	49.59
Mean outcome	0.0704	-0.108	-0.0236	0.0745	0.160	0.100	0.289	0.815	0.472	0.00161
Observations	27,883	27,883	24,999	27,883	33,203	4,710	4,710	24,232	17,307	16,090

**Notes:** This table reproduces the exact specifications described in Table 3 but interacts the output and input shocks with below ( $q = 1$ ) and above ( $q = 2$ ) median dummies of total sales as measured in 1999. In addition to the controls described in Table 3 all models also control for the direct effects of the above/below median dummies. All models control for pre-1999 5-years trends and level of sales and employment, export/import dummies as well as 2-digit industry fixed effects (NAF rev. 1 classification). On the patent side we further add the initial stock of patents, the pre-1999 average patenting rate in the relevant patent category. Standard errors clustered at the 4 digit industry-level are in parentheses. \*\*\*, \*\* and \* indicate p-value of the Student test of null coefficient below 0.01, 0.05 and 0.1 respectively.