

Comments on Jianwei Xu's paper

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Summary of this paper

- The authors used highly disaggregated firm-product level of Chinese trade data during 2000-2006 to analyze pass-through effects of exchange rate on export prices.
- They found on average a low response of export prices to exchange rate change.
- On one hand, they took into account quality of export products to analyze how the quality has effects on the elasticity of export price to exchange rate. An increase in the quality increases the elasticity of export price to exchange rate. Moreover, compared with productivity and import intensity, product quality explains a larger proportion of the total variations of the elasticity.

How to estimate “quality” of products

- Regression equation:

$$\Delta \ln x_{fpct} = \sigma \ln p_{fct} + \phi_P + \phi_{ct} + \varepsilon_{fpct}$$

x_{fpct} : the quantity of product p which firm f exports to destination country c , p_{fpct} : the unit price, ϕ_p : the product fixed effect, ϕ_{ct} : the country-year fixed effect.

- The estimated quality is the residual of regression, ε_{fpct} . Given the value of the elasticity of substitution σ , they estimated quality from the above equation.

⇒ In the regression equation, the author should take into account aggregate demand as well as price and quality in a situation where both demand and supply determine quantity of products. The aggregate demand may be represented by total GDP of China's exporting destination countries.

Econometric specification (1)

- The quality heterogeneity are taken into the estimation as the following regression equation (2)

$$\Delta \ln p_{fpct} = \alpha + \beta \Delta \ln NER_{ct} + \gamma \Delta \ln NER_{ct} * Q_{ft} + \theta Z_{ft} + \mu_{pc} + \varphi_t + \varepsilon_{fpct} \quad (2)$$

- The product quality Q_{ft} is used as a cross term with $\ln NER_{ct}$
⇒ What does a coefficient γ on the cross term $\Delta \ln NER_{ct} * Q_{ft}$ mean?

Econometric specification (2)

- Regression equation (1)

$$\Delta \ln p_{fpct} = \alpha + \beta \Delta \ln NER_{ct} + \mu_{pc} + \varphi_t + \varepsilon_{fpct} \quad (1)$$

- Assume that relationship between the elasticity of export price to exchange rate β_{ft} and product quality Q_{ft}

$$\beta_{ft} = a + bQ_{ft} + \varepsilon_{ft}$$

where a : constant term for the elasticity of export price to exchange rate, b : responsiveness of the elasticity to the product quality

- Substituting $\beta_{ft} = a + bQ_{ft} + \varepsilon_{ft}$ for β in regression equation (1)

$$\begin{aligned} \Delta \ln p_{fpct} &= \alpha + (a + bQ_{ft} + \varepsilon_{ft}) * \Delta \ln NER_{ct} + \mu_{pc} + \varphi_t + \varepsilon_{fpct} \\ &= \alpha + a\Delta \ln NER_{ct} + b\Delta \ln NER_{ct} * Q_{ft} + \Delta \ln NER_{ct} \varepsilon_{ft} + \mu_{pc} + \varphi_t + \varepsilon_{fpct} \end{aligned}$$

Econometric specification (3)

- Comparing this equation with regression equation (2):

$$\Delta \ln p_{fpct} = \alpha + \beta \Delta \ln NER_{ct} + \gamma \Delta \ln NER_{ct} * Q_{ft} + \theta Z_{ft} + \mu_{pc} + \varphi_t + \varepsilon_{fpct} \quad (2)$$

$$\Delta \ln p_{fpct} = \alpha + a \Delta \ln NER_{ct} + b \Delta \ln NER_{ct} * Q_{ft} + \Delta \ln NER_{ct} \varepsilon_{ft} + \mu_{pc} + \varphi_t + \varepsilon_{fpct}$$

- The comparison between the two regression equations obtains these equations: $\beta = a$, $\gamma = b$, $\theta Z_{ft} = \Delta NER_{ct} \varepsilon_{ft}$?

$\Rightarrow \beta$ in regression equation (2) is the constant term for the elasticity of export price to exchange rate.

$\Rightarrow \gamma$ in regression equation (2) is the responsiveness of the elasticity to the product quality.

$\Rightarrow Z_{ft}$ is a series of firm characteristics, which influence the elasticity, might be a combination between ΔNER_{ct} and ε_{ft} ?

If it is right, $Z_{ft} \Delta \ln NER_{ct}$ instead of Z_{ft} should be estimated.