# Table 1: VAT export tax and firm's quality upgrading, Robustness checks

| | Dependent variable: Product quality (city/product/trade regime/year) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Shocks | | Balance | | Eligible to non eligible | | Non eligible to eligible | | Only 17% | | No zero rebate | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Ln VAT export $\text{tax}_{k,t-1}$ | | | −0.521*** | | −0.508*** | | −0.524*** | | −0.552*** | | −0.450*** | |
| | | | (0.097) | | (0.091) | | (0.097) | | (0.104) | | (0.087) | |
| Ln VAT import $\text{tax}_{k,t-1}$ | | | 0.413*** | | 0.387*** | | 0.408*** | | 0.410*** | | 0.392*** | |
| | | | (0.135) | | (0.140) | | (0.138) | | (0.136) | | (0.135) | |
| lag foreign export $\text{share}^R_{ckjr}$ | 0.117*** | 0.117*** | 0.117*** | 0.372*** | 0.118*** | 0.374*** | 0.118*** | 0.373*** | 0.119*** | 0.376*** | 0.117*** | 0.373*** |
| | (0.011) | (0.011) | (0.011) | (0.031) | (0.011) | (0.031) | (0.011) | (0.031) | (0.011) | (0.032) | (0.011) | (0.031) |
| lag SOE export $\text{share}^R_{ckjr}$ | 0.465*** | 0.465*** | 0.453*** | 0.585*** | 0.454*** | 0.586*** | 0.454*** | 0.585*** | 0.459*** | 0.590*** | 0.454*** | 0.586*** |
| | (0.022) | (0.022) | (0.019) | (0.024) | (0.019) | (0.024) | (0.019) | (0.024) | (0.020) | (0.024) | (0.019) | (0.024) |
| Ln VAT export $\text{tax}_{k,t-1} \times \text{Density}_{ck}$ | 1.013*** | 1.013*** | 0.991*** | 0.856*** | 0.917*** | 0.873*** | 1.005*** | 0.845*** | 1.078*** | 0.946*** | 0.738** | 0.782*** |
| | (0.312) | (0.312) | (0.323) | (0.267) | (0.311) | (0.269) | (0.323) | (0.270) | (0.342) | (0.277) | (0.300) | (0.274) |
| Ln VAT export $\text{tax}_{k,t-1} \times \text{Eligible}^R$ | 0.200*** | 0.200*** | 0.213*** | 0.237*** | 0.215*** | 0.245*** | 0.213*** | 0.238*** | 0.211*** | 0.238*** | 0.216*** | 0.240*** |
| | (0.034) | (0.034) | (0.033) | (0.034) | (0.034) | (0.035) | (0.034) | (0.034) | (0.034) | (0.034) | (0.034) | (0.034) |
| Ln VAT import $\text{tax}_{k,t-1} \times \text{Density}_{ck}$ | −0.211 | −0.211 | −0.359 | −0.077 | −0.179 | 0.196 | −0.355 | −0.077 | −0.358 | −0.086 | −0.286 | −0.025 |
| | (0.667) | (0.667) | (0.715) | (0.700) | (0.730) | (0.706) | (0.729) | (0.715) | (0.716) | (0.701) | (0.716) | (0.703) |
| Ln VAT import $\text{tax}_{k,t-1} \times \text{Eligible}^R$ | −0.527*** | −0.527*** | −0.576*** | −0.475*** | −0.557*** | −0.442*** | −0.572*** | −0.467*** | −0.580*** | −0.478*** | −0.570*** | −0.467*** |
| | (0.113) | (0.113) | (0.119) | (0.106) | (0.124) | (0.113) | (0.120) | (0.108) | (0.119) | (0.106) | (0.119) | (0.106) |
| Ln VAT export $\text{tax}_{k,t-1} \times \text{Density}_{ck} \times \text{Eligible}^R$ | −0.625*** | −0.625*** | −0.637*** | −0.621*** | −0.643*** | −0.651*** | −0.640*** | −0.624*** | −0.627*** | −0.617*** | −0.656*** | −0.642*** |
| | (0.159) | (0.159) | (0.159) | (0.154) | (0.161) | (0.158) | (0.160) | (0.155) | (0.160) | (0.155) | (0.161) | (0.156) |
| Ln VAT import $\text{tax}_{k,t-1} \times \text{Density}_{ck} \times \text{Eligible}^R$ | 0.579 | 0.579 | 1.019 | 0.480 | 0.857 | 0.200 | 1.014 | 0.449 | 1.043 | 0.507 | 0.990 | 0.436 |
| | (0.671) | (0.671) | (0.687) | (0.665) | (0.700) | (0.670) | (0.696) | (0.674) | (0.687) | (0.664) | (0.690) | (0.668) |
| City-product-regime fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| City-sector-year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Product-destination fixed effect | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No |
| product-year fixed effects | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes |
| Observations | 4,744,218 | 4,744,218 | 4,737,048 | 4,737,048 | 4,659,037 | 4,659,037 | 4,725,009 | 4,725,009 | 4,561,160 | 4,561,160 | 4,675,720 | 4,675,720 |
| $R^2$ | 0.537 | 0.537 | 0.406 | 0.268 | 0.405 | 0.267 | 0.406 | 0.268 | 0.405 | 0.267 | 0.405 | 0.266 |

This table estimates eq(3). Note that 'Eligible' refers to the regime entitle to VAT refund, our treatment group. Our control group is processing trade with supplied input, 'Non-Eligible' to VAT refund. Sectors are defined following the Chinese 4-digit GB/T industry classification and regroup several products. Heteroskedasticity-robust standard errors clustered at the product level appear in-parentheses. * Significance at the 10%, ** Significance at the 5%, *** Significance at the 1%.