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Visa cost of exporting

Natalya Volchkova, Natalia Kapelko

New Economic School

CEFIR

Motivation - 1

- One of the most important ingredients of heterogeneous firms' model – costs of exporting - but so far very little is known about it
- Partitioning condition in Melitz, 2003, defines selection into exporters:

$$\frac{f_d}{f_x \tau^{(\sigma-1)}} < 1$$

where

f_d -fixed (overhead) production costs

f_x - fixed costs of exporting

τ - iceberg transportation costs of exporting (>1)

- Application to trade policy
 - liberalization of variable costs can have very limited effect on export
 - export diversification policy should primarily deal with fixed costs of exporting

Case: direct costs of starting exporting for small-medium enterprise in Russia (March, 2012)

- Study of foreign markets (marketing person — 40.000 Rub/month)
- Study of foreign country legislation (lawyer — 50.000 Rub/month)
- Logistic and customs clearance specialist (logistic specialist — 40.000 Rub/month)
- Financial and insurance guarantee (financial specialist - 60.000 Rub/month)
- Trade representative abroad (60.000 Rub/month)
- Customer support abroad (60.000 Rub/month)
- **Business trips etc (150.000 Rub/month)**
- Translator (30.000)

Total per month- 500.000 Rub/month per one destination

3 countries (economy of scale) — 1 030 000 Rub/month

Time to become profitable — 9 months

Total direct costs: 9 270 000 Rubles

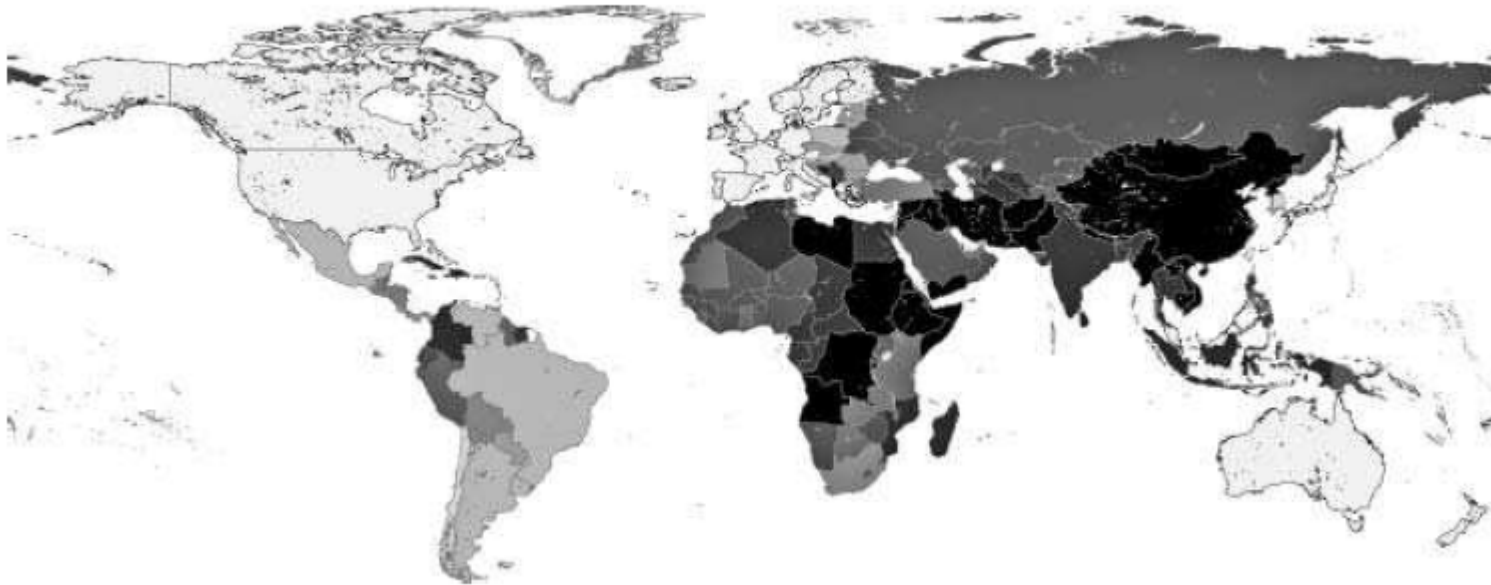
- Turnover per year — 50 000 000 Rub
- Profitability – 20% of turnover
- Profit from exporting -100 000 Rub/month

Motivation - 2

- Visa restrictions might be one of the costs of exporting
- We work in two directions:
 - There is no database on dynamics of visa restrictions – we are working on it now.
 - Firm-level data: exploit variation of firms' export across destinations over time – Russian firms
- Research questions:
 - What is export costs of visa restrictions?
 - Fixed or variable costs?
 - Mechanism behind visa costs of export?

Visa restriction across the world

- Eric Neumayer, 2010,2011
 - The effect of visa on travels, bilateral trade flows and FDI is found to be significantly negative
 - Cross-country study, gravity analysis, usual problems: omitted variable, endogeneity



Visa restrictions imposed by country on nationals of other countries (darker shades mean more restrictions). Source: Neumayer, 2010

Framework: Helpman, Melitz, Rubinstein (2008)

- J countries ($j=1,2,\dots,J$), N_j – mass of firms in country j .
Representative consumer in country j :

$$u_j = \left[\int_{l \in B_j} x_j(l)^\alpha dl \right]^{1/\alpha}, \quad 0 < \alpha < 1 \quad \varepsilon = 1/(1 - \alpha).$$

- Elasticity of substitution is the same in all countries
- Y_j – revenue of country j is equal to expenditures
- Demand for good l by country j :

$$x_j(l) = \frac{\hat{p}_j(l)^{-\varepsilon} Y_j}{P_j^{1-\varepsilon}}$$

where $\hat{p}_j(l)$ – price of good l in country j .

- Price index in j :

$$P_j = \left[\int_{l \in B_j} \hat{p}_j(l)^{1-\varepsilon} dl \right]^{1/(1-\varepsilon)}$$

Firms in HMR

- $a=1/\varphi$ – costs per unit of production (in terms of bundle of factors).
- Price of bundle of factors– c_j .
- a : distributed over a_L, a_H ($a_H > a_L > 0$), $G(a)$ – distribution function, the same in all countries
- Export: fixed costs of servicing market of country i $c_j f_{ij}, f_{jj}=0$ for any j , $f_{ij} > 0, i \neq j$ and iceberg variable costs τ_{ij} , $\tau_{jj}=1$ for any j , $\tau_{ij} > 1, i \neq j$
- Each firm produces one type of differentiated good, monopolistic competition

$\hat{p}_j(l) = c_j a / \alpha$ - price of good l on domestic market

$\hat{p}_i(l) = \tau_{ij} c_j a / \alpha$ - price of good l on market i

- Operating profit from market i sales :

$$\pi_{ij}(a) = (1 - \alpha) \left(\frac{\tau_{ij} c_j a}{\alpha P_i} \right)^{1-\varepsilon} Y_i - c_j f_{ij}$$

- $i=j$: operating profit > 0 , all firms serve domestic markets.
- $i \neq j$ - only firms with $a \leq a_{ij}$ serve market i where $a_{ij} : \pi_{ij}(a_{ij}) = 0$

$$(1 - \alpha) \left(\frac{\tau_{ij} c_j a_{ij}}{\alpha P_i} \right)^{1-\varepsilon} Y_i = c_j f_{ij}$$

Applying HMR framework to firm's export

- To study the effects of fixed and variable costs on:
 - Firms' selection into exporters
 - Volume of export
- Firm h exports good l to destination d at year t

if $a_{lt}^h > a_{ldt}$, where

$$(1 - \alpha) \left(\frac{\tau_{ldt} c_{lt} a_{ldt}}{\alpha P_{ldt}} \right)^{1-\epsilon} Y_{ldt} = c_{lt} f_{ldt}$$

Fixed costs of exporting good l to destination d

- and the volume of export then is

$$Export_{ldt}^h = (1 - \alpha) \left(\frac{\tau_{ldt} c_{lt} a_{lt}^h}{\alpha P_{ldt}} \right)^{1-\epsilon} Y_{ldt}$$

Variable costs of exporting good l to destination d

Model specification

Extensive margins of trade

$$\begin{aligned} \text{Probability of export}_{l dt}^h \\ = \alpha + \beta_1 * \underset{-}{VCE}_{l dt} + \beta_2 * \underset{-}{FCE}_{l dt} + \underset{+}{\gamma GDP}_{l dt} + v_d + \lambda_{lt}^h + \epsilon_{l dt}^h \end{aligned}$$

Intensive margins of trade

$$\text{Volume of Export}_{l dt}^h = \alpha + \beta * \underset{-}{VCE}_{l dt} + \underset{+}{\gamma GDP}_{l dt} + v_d + \lambda_{lt}^h + u_{l dt}^h$$

- Apply those equations
 - to test the validity of model assumptions
 - to identify fixed and variable costs of exporting
- Costs might also be firm-specific (e.g., transportation)

Data

- Russian customs exporter invoices. For each individual package exported through customs we know
 - firm- sender, good's code and description, country-recipient, firm-recipient , statistical value (and many more details) (Russian FCS)
- VCE
 - tariff rates imposed by destination country on Russian export of particular goods (WITS)
- FCE
 - visa restriction by destination country on Russian citizens (MIA, tourist agencies)
- Destination control
 - GDP PPP (WDI)
- Time
 - 2003-2009

Some description of data

- We define

- No visa restrictions

- No visa required for 30 (90, 21, ...) days visit

- Visa required

- Can buy visa at airport

- No visa required for diplomats/officials

NO VISA

YES VISA

- 24 visa regimes changed over 2003-2004

- AG AR BB BW CR DM GD GU HK HT IL JO LA MA
MP MV MY PH RS SV SZ TH VE VN

- both directions

Too much data...

- For selection equation:
 - 68 000+ firms
 - that were exporters at least once over those years
 - 5 000+ 6-digit HS goods
 - do not know the firms' pattern of production, for each firm define the set of potential exporting goods to those that appears at least once in firms' export
 - 207 destinations
 - uniform across firms and goods
- 110 000 000+ observations
 - face computational constraints
- Aggregate at firms' level across goods
 - VCE (weighted tariffs) – became firm-destination-year specific

Model specification at firm-destination level

- Extensive margin

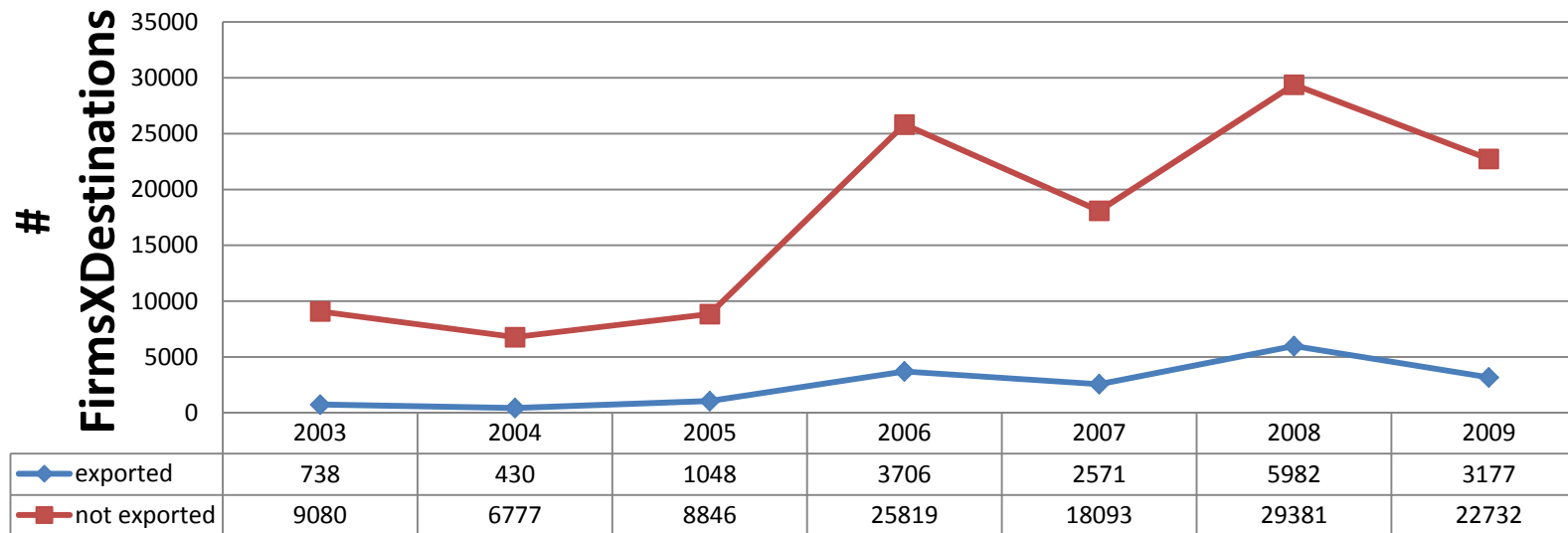
$$\begin{aligned} \text{Probability of export}_{dt}^h &= \alpha + \beta_1 * VCE_{dt}^h + \beta_2 * FCE_{dt} + \gamma GDP_{dt} + v_d + \lambda_t^h + \epsilon_{dt}^h \end{aligned}$$

- Intensive margin

$$\begin{aligned} \text{Volume of Export}_{dt}^h &= \alpha + \beta * VCE_{dt}^h + \gamma GDP_{dt} + v_d + \lambda_t^h + u_{dt}^h \end{aligned}$$

Some description of data

Established exporters (exported all 7 years)



- # obs 138,380
- # Firms – 3 784
- # Destinations per Firm:
 - Average: 5.5
 - Min: 1
 - Max: 17

Very preliminary results

VARIABLES	SELECTION	EXPORT VALUE
GDP PPP (log)	0.124*** (0.009)	1.044** (0.510)
Tariff	-0.001*** (0.000)	-0.065* (0.035)
Visa restriction	-0.258*** (0.043)	-1.284 (1.119)
Constant	-0.999*** (0.079)	1.347 (4.372)
Observations	733,812	49,797
R-squared	0.301	0.813
Firm-Year FE	YES	YES

Robust standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Further steps

- Back to good's level
- Why visa matters?
 - Pure financial costs irrespective of type of good? Or depends on traded goods?
- Control for type of goods based on contractibility properties:
 - relation specific vs. non-relation specific (Rauch'2000) classification
- If costs of contract enforcement contribute to costs of export then
 - differentiated effect across goods with different contractibility nature : expect more pronounced effect for relation-specific goods with visa restrictions being part of costs of export
 - Differentiated effect of visa restriction changes across destinations with different level of costs of contract enforcement