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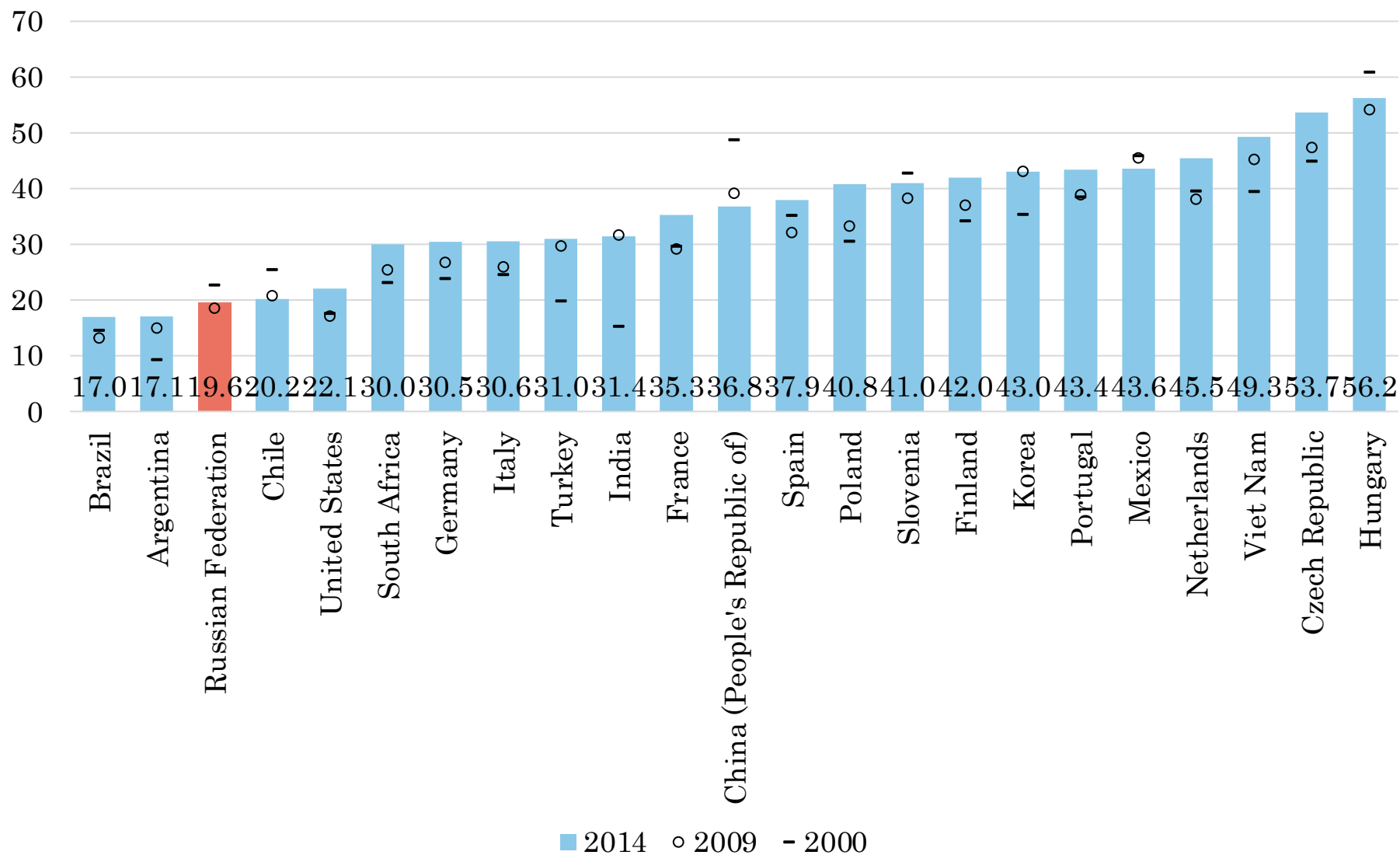
How Import Affects Firm's Competitiveness in Export Markets

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Share of foreign value added in export by country 2000-2014, %



Motivation

- imported goods and imported equipment are the important sources of foreign knowledge and the greater the import, the greater the benefit from the stock of foreign knowledge (Coe and Helpman, 1995; Engelbrecht, 1997);
- consumer goods, intermediate inputs, and equipment are likely to convey different kinds of spillovers. And these different spillovers require different policy measures.

Motivation -2

- Import of components provides higher cost competitiveness (and in some cases, higher quality) of national production and exports in the short run, no effects (?) in the long run;
- Import of means of production (vs domestic production) may significantly limit the knowledge production and limit adaptive R&D (installation support, quality control software, and services of trained engineers and supervisors).
- However, because imported machinery forms a more comprehensive package, it can potentially lead to greater efficiency in the short run and stronger absorptive capacity in the long run.
- Imported machinery will also be more efficient because it is typically of newer vintage than domestically produced machinery.

Our research question:

- Are import of intermediate inputs and import of means of production (machinery & equipment) important for competitiveness of export-oriented firms?
 - And if so, is this especially critical for high-tech firms?

Data

- database RUFIGE based on survey of Russian manufacturing firms 2014
- total sample – 2092
- assumption #1: export oriented firm has more than 5% export revenue
- assumption #2: certain concentration of exporting firms is important, we choose the criteria of at least 10% export-oriented firms in high-tech industries to create the study sample
- our sample is 895 firms located in 60 Russian regions

Industry	Number of firms	Share from all sample
Chemical production, production of coke and petroleum products, rubber and plastic products	193	21,56%
Metallurgical production and production of metal products	228	25,47%
Manufacture of machinery and equipment	251	28,04%
Manufacture of electrical, electronic and optical equipment	117	13,07%
Manufacture of vehicles and equipment	106	11,84%
Overall	895	

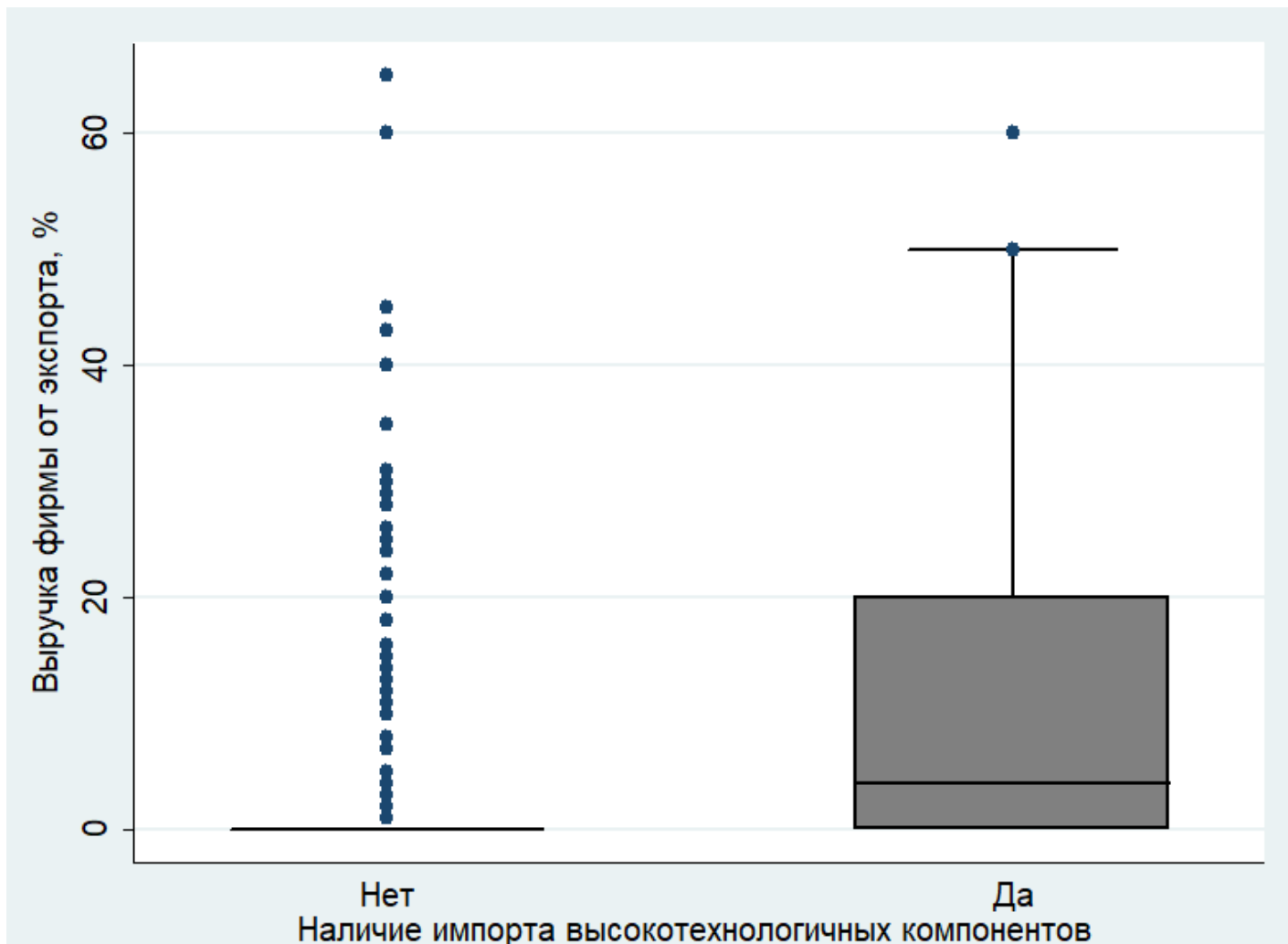
*Share of exporters in the industry >10%

Econometric models

<i>Dependent variable</i>	<i>1) Share of export revenue >5% (dummy)</i>					
	<i>2) Export of high-tech products (dummy)</i>					
Specification	(1)	(2)	(3)	(4)	(5)	(6)
Imported machinery and equipment in foreign capital investments	+	+		+	+	
Import of raw materials	+		+	+		+
Import of low-tech components	+		+	+		+
Import of high-tech components	+		+	+		+
Control variables: size (Micro, Small, Medium, Large, Extra large), age (established before and after 1998) and innovations (availability of resource planning and management system, website in national and foreign language, e-commerce, sales management system), certificates (current or obtained earlier)						
Region FE	+	+	+	-	-	-
Industry FE	+	+	+	+	+	+

Descriptive stats

Variable	Number of obs.	Average	St. dev.	Min	Max
Share of export revenue >5% (dummy)	895	0.193	0.395	0	1
Export of high-tech products	895	0.199	0.399	0	1
Import of machinery and equipment	895	0.491	0.500	0	1
Share of costs from investments in capital on machinery and equipment	895	15.436	27.871	0	100
Import of raw materials	895	0.116	0.321	0	1
Import of low-tech components	895	0.141	0.348	0	1
Import of high-tech components	895	0.083	0.276	0	1
Availability of quality certificates for goods received in the last 12 months	895	0.332	0.471	0	1
Availability of quality certificates for business processes received in the last 12 months	895	0.032	895	0	1
Availability of quality certificates for goods and business processes received in the last 12 months	895	0.102	0.302	0	1
Availability of quality certificates obtained earlier	895	0.356	0.479	0	1
Availability of international quality certificates	895	0.296	0.457	0	1
Revenue per employee	837	128.189	3 462.951	0	100,000
Availability of resource planning and management system	895	0.278	0.448	0	1
Availability of website on native language	895	0.878	0.327	0	1
Availability of website on foreign language	895	0.160	0.367	0	1
Availability of e-commerce	895	0.328	0.470	0	1
Availability of a sales management system	895	0.242	0.429	0	1
Exports in 2013	895	0.291	0.454	0	1
Exports before 2013	895	0.340	0.474	0	1



Share of revenue from export (%) by y axis,
Import of high-tech components (Yes/No) by x axis

Dependent – Share of export revenue >5% (Dummy)

	(1)	(2)	(3)	(4)	(5)	(6)
Imported machinery and equipment in capital investments	0.00207 (1.08)	0.00310* (1.68)		0.006*** (3.53)	0.006*** (4.16)	
Import of raw materials	0.256 (1.33)		0.279 (1.45)	0.171 (1.01)		0.252 (1.48)
Import of low-tech components	0.141 (0.77)		0.165 (0.91)	0.126 (0.74)		0.198 (1.18)
Import of high-tech components	0.445** (2.09)		0.453** (2.13)	0.336* (1.82)		0.355* (1.90)
Revenue per employee	-0.000*** (-5.66)	-0.000*** (-5.95)	-0.000*** (-5.85)	-0.000*** (-5.33)	-0.000*** (-5.40)	-0.000*** (-5.62)
Fixed effects by industry	+	+	+	+	+	+
Fixed effects by region	+	+	+	-	-	-
Const.	-2.659*** (-5.91)	-2.659*** (-5.94)	-2.665*** (-5.88)	-2.767*** (-7.05)	-2.760*** (-7.15)	-2.674*** (-6.92)
Number of obs.	810	810	810	895	895	895
pseudo R-sq	0.355	0.343	0.354	0.274	0.265	0.260

Control variables (coefficients are not reported): size (Micro, Small, Medium, Large, Extra large), age (established before and after 1998) and innovations (availability of resource planning and management system, website in national and foreign language, e-commerce, sales management system), certificates

Dependent – Export of high-tech products (dummy)

	(1)	(2)	(3)	(4)	(5)	(6)
Imported machinery and equipment in foreign capital investments	0.002 (1.07)	0.002 (1.54)		-0.000 (-0.01)	0.001 (0.51)	
Import of raw materials	0.0335 (0.19)		0.0589 (0.34)	0.140 (0.70)		0.139 (0.70)
Import of low-tech components	0.0160 (0.09)		0.0414 (0.23)	0.0410 (0.22)		0.0409 (0.22)
Import of high-tech components	0.527*** (2.80)		0.536*** (2.83)	0.566*** (2.76)		0.566*** (2.77)
Revenue per employee	0.000*** (3.23)	0.000*** (2.90)	0.000*** (3.18)	0.000*** (3.02)	0.000*** (3.01)	0.000*** (3.02)
Fixed effects by industry	+	+	+	+	+	+
Fixed effects by region	+	+	+	-	-	-
Const.	-2.484*** (-6.05)	-2.513*** (-6.03)	-2.465*** (-6.00)	-1.958*** (-2.72)	-1.774** (-2.33)	-1.958*** (-2.72)
Number of obs.	895	895	895	839	839	839
pseudo R-sq	0.281	0.271	0.280	0.357	0.346	0.357

Control variables (coefficients are not reported): size (Micro, Small, Medium, Large, Extra large), age (established before and after 1998) and innovations (availability of resource planning and management system, website in national and foreign language, e-commerce, sales management system), certificates

Results

- higher share of export in revenue is driven by both import of means of production and import of high-tech components
- only import of high-tech components is significant for higher export of innovative goods

What does it mean?

- Russian economy should not stimulate import substitution across all industries, instead, stimulus should be provided for upgrading machinery and equipment in most of industries
- an additional investigation should be made on the following topic: why imported equipment doesn't matter for high-tech exporters? Either we (potentially) lose source of technological catch up in the long run, or we produce machinery and equipment at the technological frontier (which is rather skeptical).