

Bearing the cost of politics: Consumer prices in Russia

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- In August 2014 Russia introduced embargo on agricultural import from EU, U.S., Australia, Canada and Norway as an answer to sanctions
 - ▶ Targeted goods: meat and sausages, fish, milk and dairy products, vegetables, fruits and nuts
 - ▶ Russian government claimed that it should not influence consumer prices, but stimulate import substitution; some effort to support national agricultural producers
- Kind of “trade war” declared by rather small economy (3% of World GDP)
 - ▶ EU immediately reacted by supporting agricultural producers
 - ▶ Embargo was extended twice: (1) from August 2015 to August 2016; (2) from August 2016 to December 2017
- Self-imposed embargo on international trade in 1807-1809 cost U.S. around 5 percent of GNP (Irwin, 2005)
 - ▶ Domestic prices of exported goods declined, ones of imported goods grew up

Key related literature

- Food prices in Russia
 - ▶ Gardner and Brooks (1994) revealed significant persistent differences in prices between regions
 - ▶ Berkowitz et al. (1998) found that market-to-state price ratios in different cities are converging
 - ▶ Goodwin et al. (1999) revealed (a) long-run spatial integration even if prices are not co-integrated nor perfectly correlated; (b) transportation lags between regions delay prices responses to exogenous shocks
- Sanctions
 - ▶ Haidar (2014) analyzed the impact of Western sanctions on Iranian firms
 - ▶ Dreger et al. (2015) disentangle the effects of oil prices and sanctions on Russian economy
 - ▶ Heilmann (2016) estimated the effect of consumer boycotts on trade using synthetic control group methodology
 - ▶ Boulanger et al. (2016) employed a CGE model and predicted (a) loss in real Russia's income; (b) rise in prices of banned products
 - ▶ Crozet and Hinz (2016) estimated the effect of sanctions on sanctioning countries

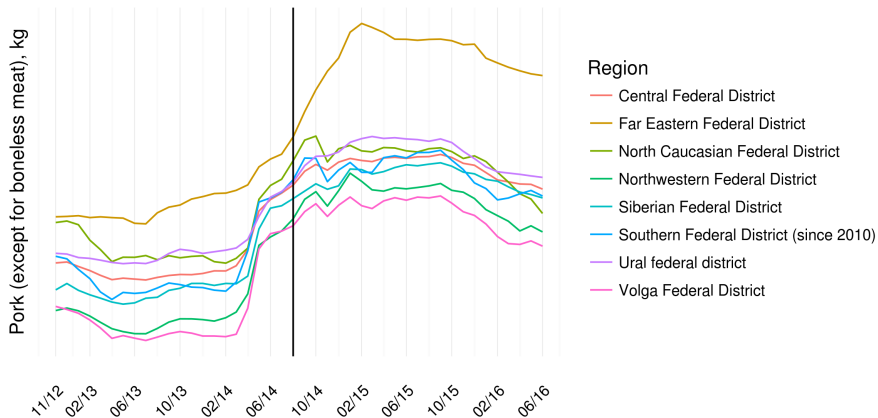
Preview of results

- The ban on agricultural import from Western countries resulted in the rise in consumer prices by at least 2.6%
- The effect was strongest in January 2015
 - ▶ 8.9% comparing to non-banned food
 - ▶ 12.6% comparing to all products
- In the medium run (January 2016) the impact of embargo faded
 - ▶ 1.2% comparing to non-banned food
 - ▶ 6.3% comparing to all products

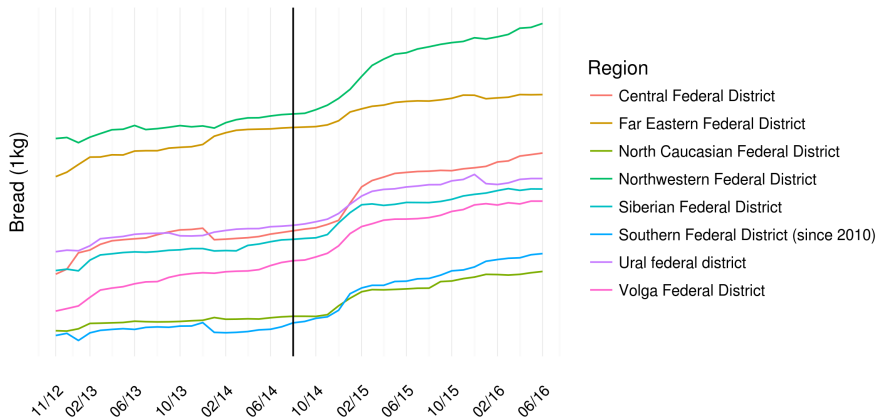
Data: prices

- Two datasets on average consumer prices in Russia (Federal State Statistics Service)
- Principal dataset:
 - ▶ Monthly, November 2011-May 2016
diff-in-diff: 22 months before and after; November 2011-May 2016
 - ▶ 586 goods and services: 48 targeted, 127 services
 - ▶ Coverage: 8 federal districts, 87 subjects of federation, 279 cities, N=3,547,171
- Secondary dataset:
 - ▶ Weekly, January 2011-December 2015
 - ▶ 73 goods and services: 21 targeted, 13 services
 - ▶ Coverage: 9 federal districts, 87 subjects of federation, N=1,545,628

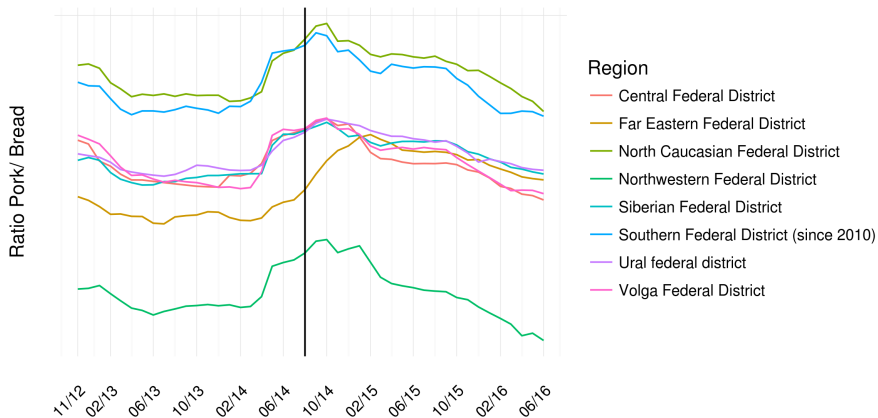
Prices of concerned product: pork



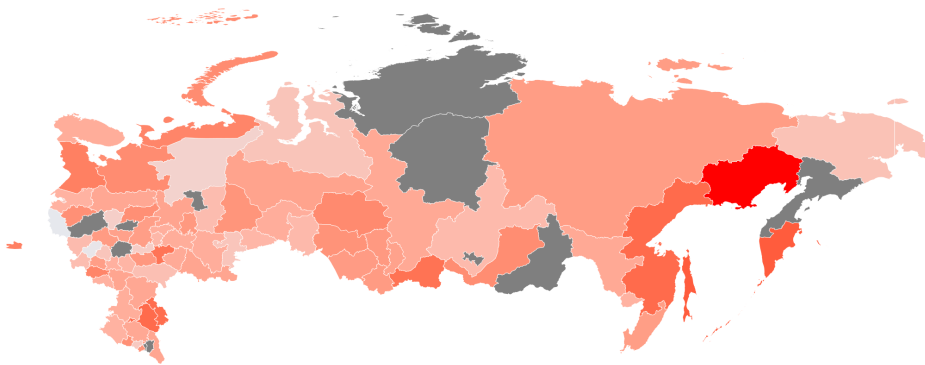
Prices of not concerned product: bread



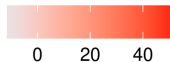
Prices of meat / prices of bread



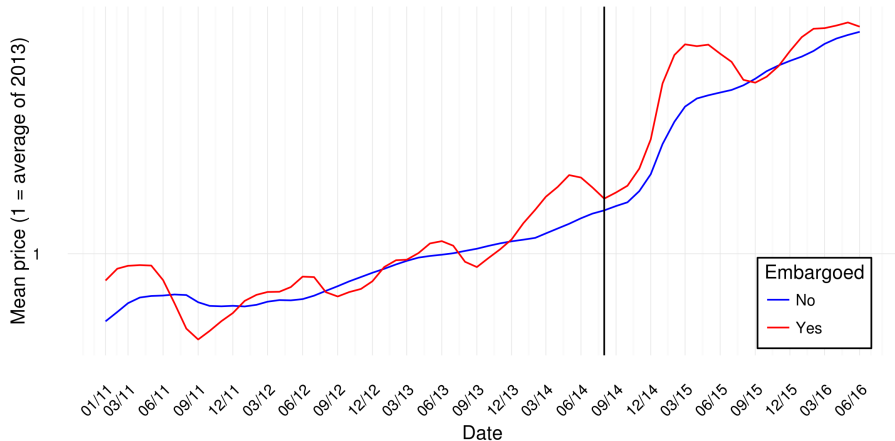
Change of ratio of meat / bread prices



Change of ratio of pork / bread prices in percent



Prices of targeted vs non-targeted food products



Benchmark regression: Diff-in-diff of prices by spatial aggregation and control group

	<i>Dependent variable:</i>					
	log(prices)					
	(1)	(2)	(3)	(4)	(5)	(6)
Sanction period \times Embargoed product	0.027*** (0.004)	0.065*** (0.007)	0.030*** (0.002)	0.067*** (0.003)	0.028*** (0.002)	0.069*** (0.002)
Spatial agg.	district	district	subject	subject	city	city
Control group	F	F+NF	F	F+NF	F	F+NF
Number treated	16572	16572	174611	174611	456446	456446
Observations	42,884	140,670	453,164	1,477,892	1,117,395	3,460,386
Adjusted R ²	0.991	0.998	0.988	0.997	0.987	0.995

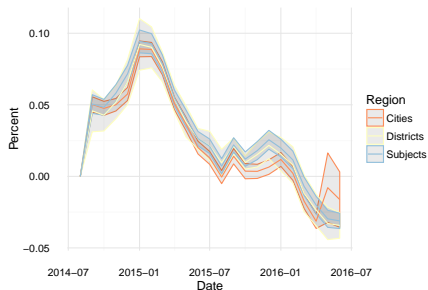
Notes: F stands for non-targeted food products and NF stands for non-food items. All regression include region \times date and region \times product \times month fixed effects. Robust standard errors in parentheses are clustered by region. Significance levels: *: $p < 0.1$, **: $p < 0.05$, ***: $p < 0.01$.

Diff-in-diff of prices interacted with share of sanctioning countries in imports

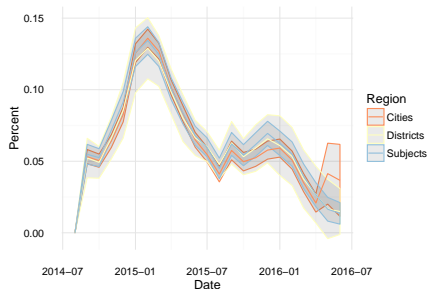
	<i>Dependent variable:</i>			
	log(prices)			
	(1)	(2)	(3)	(4)
Sanction period \times Embargoed product	0.014 (0.014)	0.015 (0.026)	0.024*** (0.006)	0.058*** (0.007)
Sanction period \times Embargoed product \times Share of sanctioning country in imports	0.024 (0.023)	0.100** (0.044)	0.011 (0.010)	0.020* (0.012)
Spatial agg.	district	district	subject	subject
Control group	F	F+NF	F	F+NF
Number treated	14520	14520	155159	155159
Observations	37,582	123,395	402,540	1,313,613
Adjusted R ²	0.991	0.998	0.988	0.997

Notes: F stands for non-targeted food products and NF stands for non-food items. All regression include region \times date and region \times product \times month fixed effects. Robust standard errors in parentheses are clustered by region. Significance levels: *: $p < 0.1$, **: $p < 0.05$, ***: $p < 0.01$.

Monthly coefficients for diff-in-diff



Food items as control group



Food and non-food items
as control group

One more: distances seem to matter

	<i>Dependent variable:</i>			
	log(prices)			
	(1)	(2)	(3)	(4)
Sanction period \times Embargoed product	0.089*** (0.023)	0.114** (0.047)	0.101*** (0.021)	0.140*** (0.028)
Sanction period \times Embargoed product \times distance to Europe	-0.008*** (0.003)	-0.006 (0.006)	-0.009*** (0.003)	-0.009** (0.004)
Spatial agg.	district	district	subject	subject
Control group	F	F+NF	F	F+NF
Number treated	16572	16572	174611	174611
Observations	42,884	140,670	453,164	1,477,892
Adjusted R ²	0.991	0.998	0.988	0.997

Notes: F stands for non-targeted food products and NF stands for non-food items. All regression include region \times date and region \times product \times month fixed effects. Robust standard errors in parentheses are clustered by region. Significance levels: *: $p < 0.1$, **: $p < 0.05$, ***: $p < 0.01$.

- Robustness tested on weekly data (73 goods and services)

Further steps

- Account for distances to other trade partners
- Discriminate between differentiated and non-differentiated goods using Rauch classification
- Demonstrate effects theoretically
- Production data (877,131 obs., district-level, 2,324 goods)
 - ▶ Declared policy to stimulate import substitution => growth in national production should soften rise in targeted goods' prices
- Data on wholesales (253,021 obs., district-level, 98 goods)
 - ▶ Use to control for demand

Conclusion and discussion

- The policy of embargo led to significant rise in consumer prices of banned products
- The effect in the medium and long run was partially compensated due to imports from other countries and domestic production
- Potential concern:
 - ▶ Spatial autocorrelation