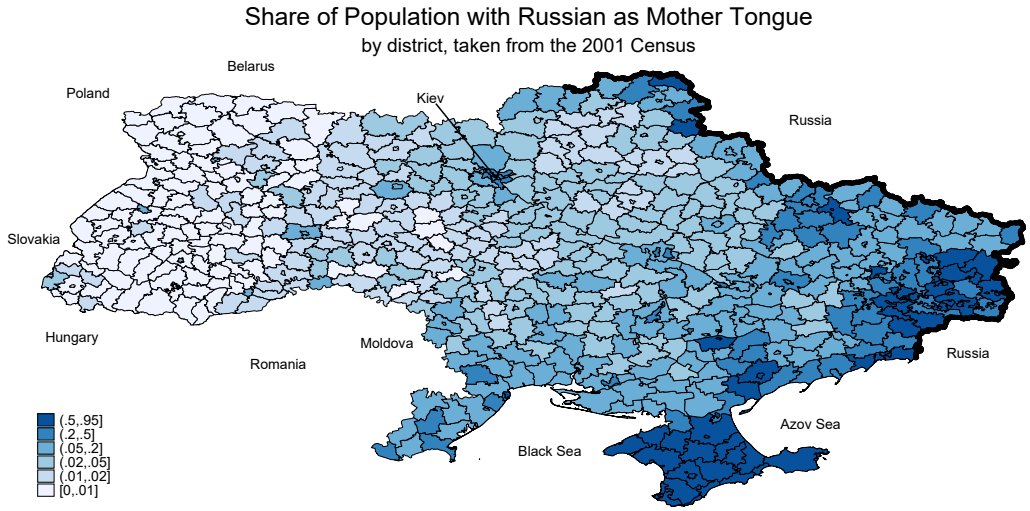
ONLINE APPENDIX to 'Conflict and Inter-Group Trade: Evidence from the 2014 Russia-Ukraine Crisis' By Vasily Korovkin and Alexey Makarin

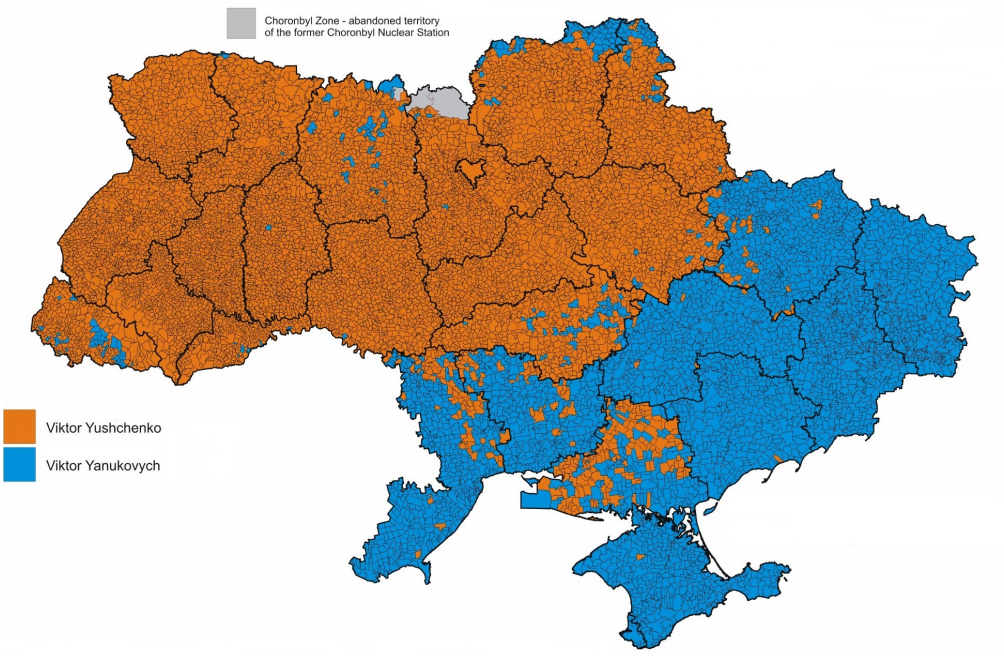
Appendix A: Additional Figures

Figure A1: Shares of Native Russian Speakers



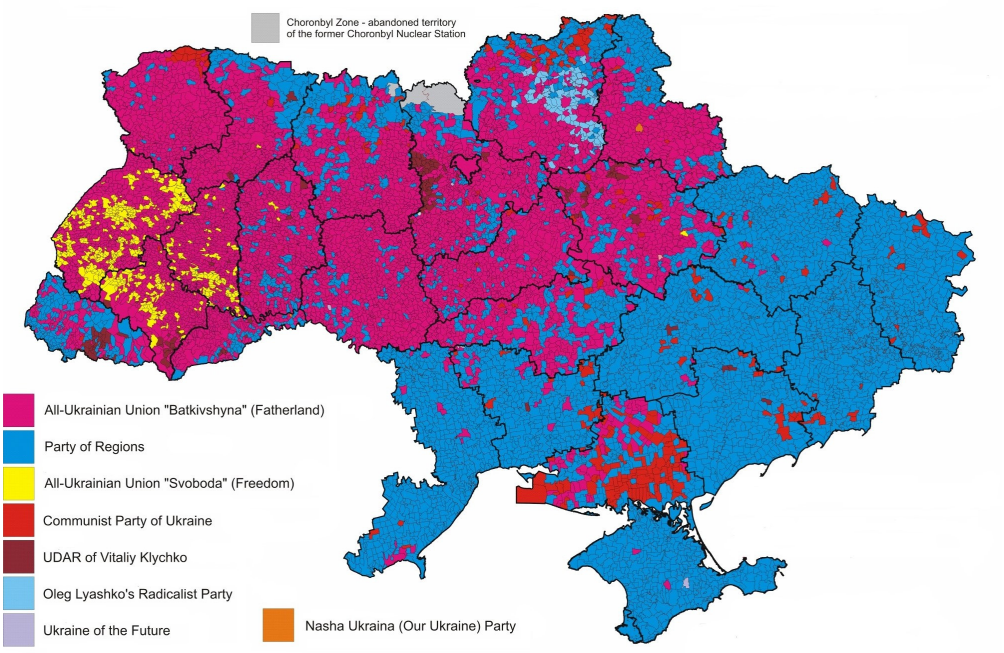
Notes: This figure maps the distribution of the share of native Russian speakers across Ukrainian districts (raions). Data come from the 2001 Ukrainian Census. The thick black line represents the border between Ukraine and Russia.

Figure A2: Results of the 2004 Presidential Elections (Second Round) at the Polling-Station Level



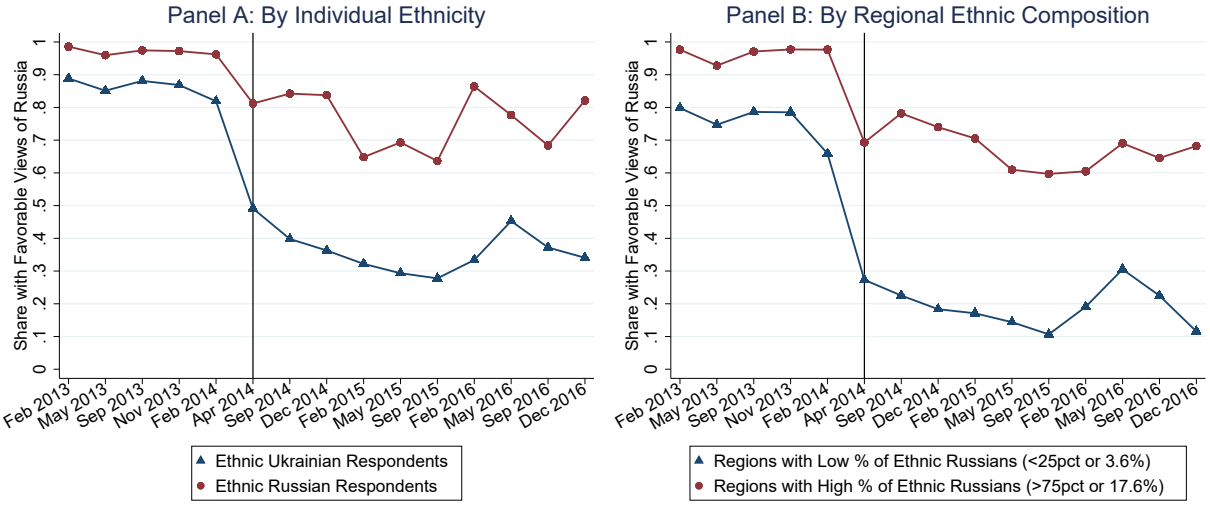
Source: This electoral map is the intellectual property of Serhij Vasylchenko.

Figure A3: Results of the 2012 Parliamentary Elections at the Polling-Station Level



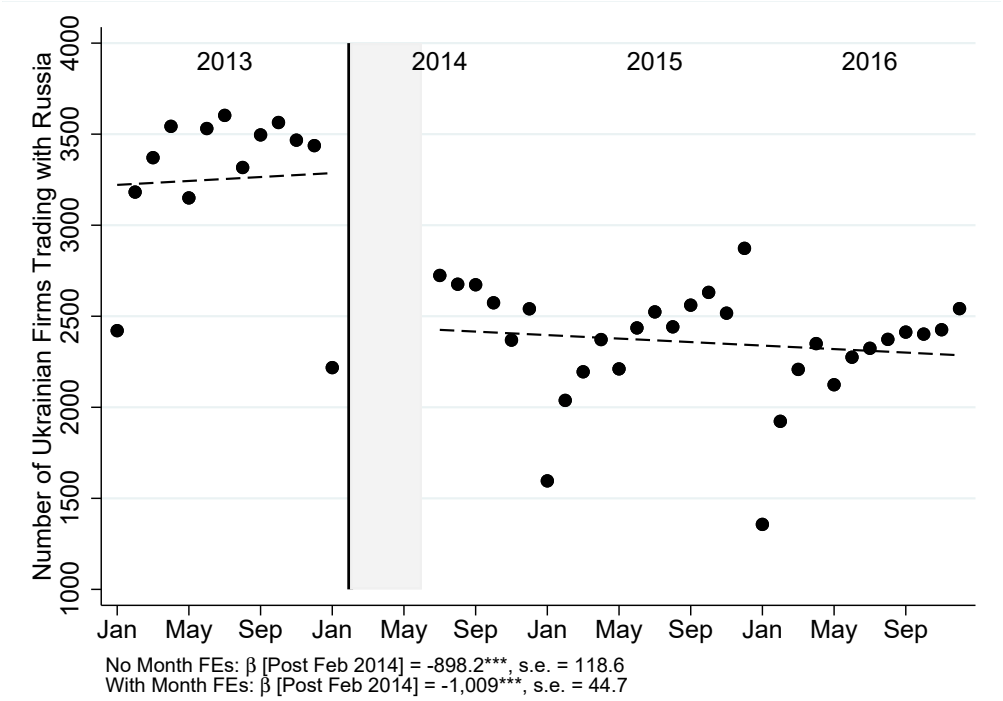
Source: This electoral map is the intellectual property of Serhij Vasylchenko.

Figure A4: Dynamics of Ukrainians' Favorable Attitudes Toward Russia



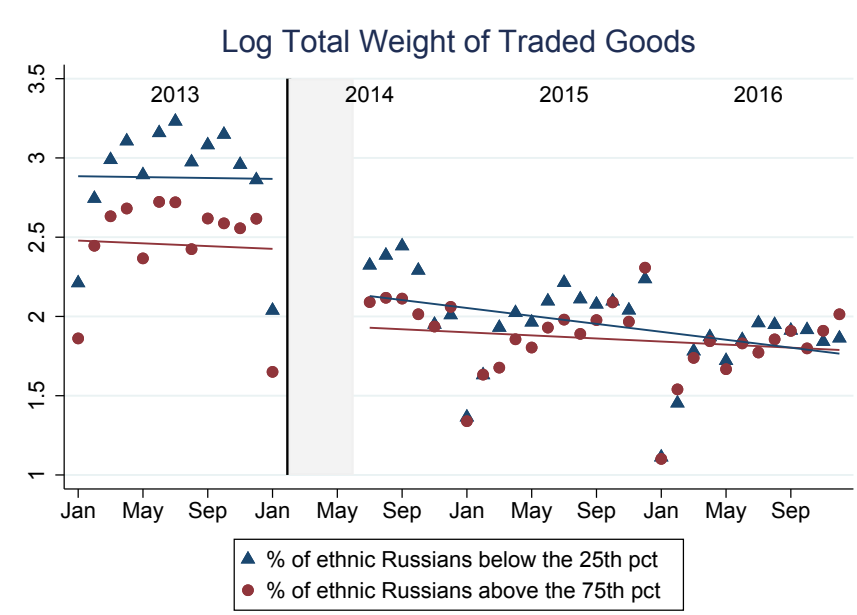
Notes: This figure illustrates the effect of the Russia-Ukraine conflict on attitudes of Ukrainian citizens toward Russia. The Y-axis displays the share of respondents who answer the question "What is your overall attitude toward Russia?" as "good" or "very good." Panel A breaks down the responses by respondent ethnicity, i.e., whether an individual is ethnic Russian or ethnic Ukrainian. Panel B breaks down the responses by the ethnic composition of respondent's provinces, i.e., whether a province is below the 25th percentile (3.6%) or above the 75th percentile (17.6%) in the share of ethnic Russians. Data come from 15 nationally representative surveys conducted by Kyiv International Institute of Sociology between 2013 and 2016. The February 2014 survey was conducted February 7 to 17, 2014, i.e., before the occupation of Crimea and the start of the conflict. The December 2015 survey did not contain the survey question of interest and, as a result, is omitted from the figures. Respondents in conflict provinces are excluded from the analysis.

Figure A5: Number of Ukrainian Firms Trading with Russia



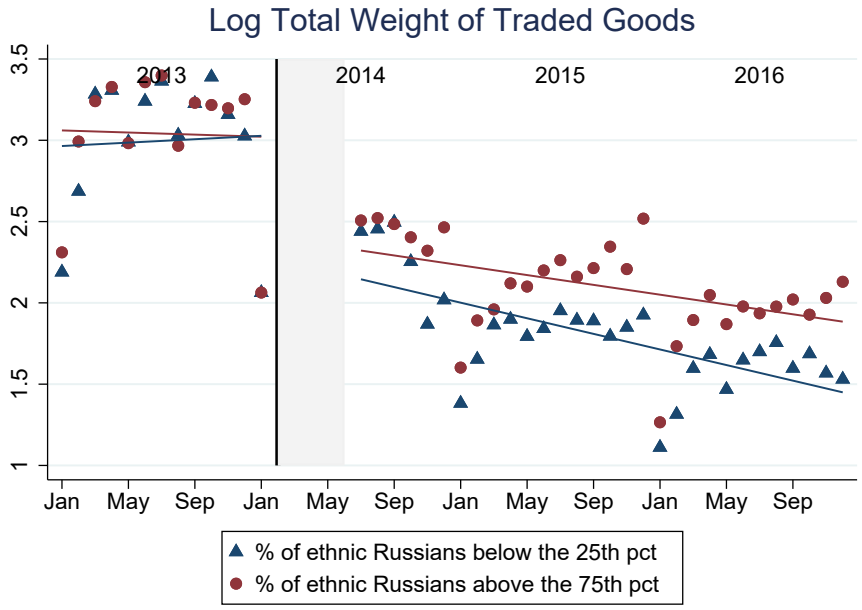
Notes: This figure displays the number of Ukrainian firms trading with Russia in a given month, including both exporters and importers. Firms located in the areas of conflict are excluded. Dashed lines represent the linear fit for the scattered data before and after the start of the conflict. Export data are missing for February through June 2014 (colored in gray). These five months are removed for the aggregate comparisons. January is a short business month in Russia because of a full holiday week, January 1 to 7. Similarly, Ukraine has two official holidays in January — New Year's Eve (January 1) and Orthodox Christmas (January 7). As such, January data are seasonal outliers. As suggested by the coefficients below the graph, the inclusion of monthly fixed effects deepens the conflict-induced drop in the monthly number of firms trading with Russia from about 900 to about 1,000.

Figure A6: Firm-Level Trade with Russia by Ethnic Composition of Firms' Districts (Raw Data)



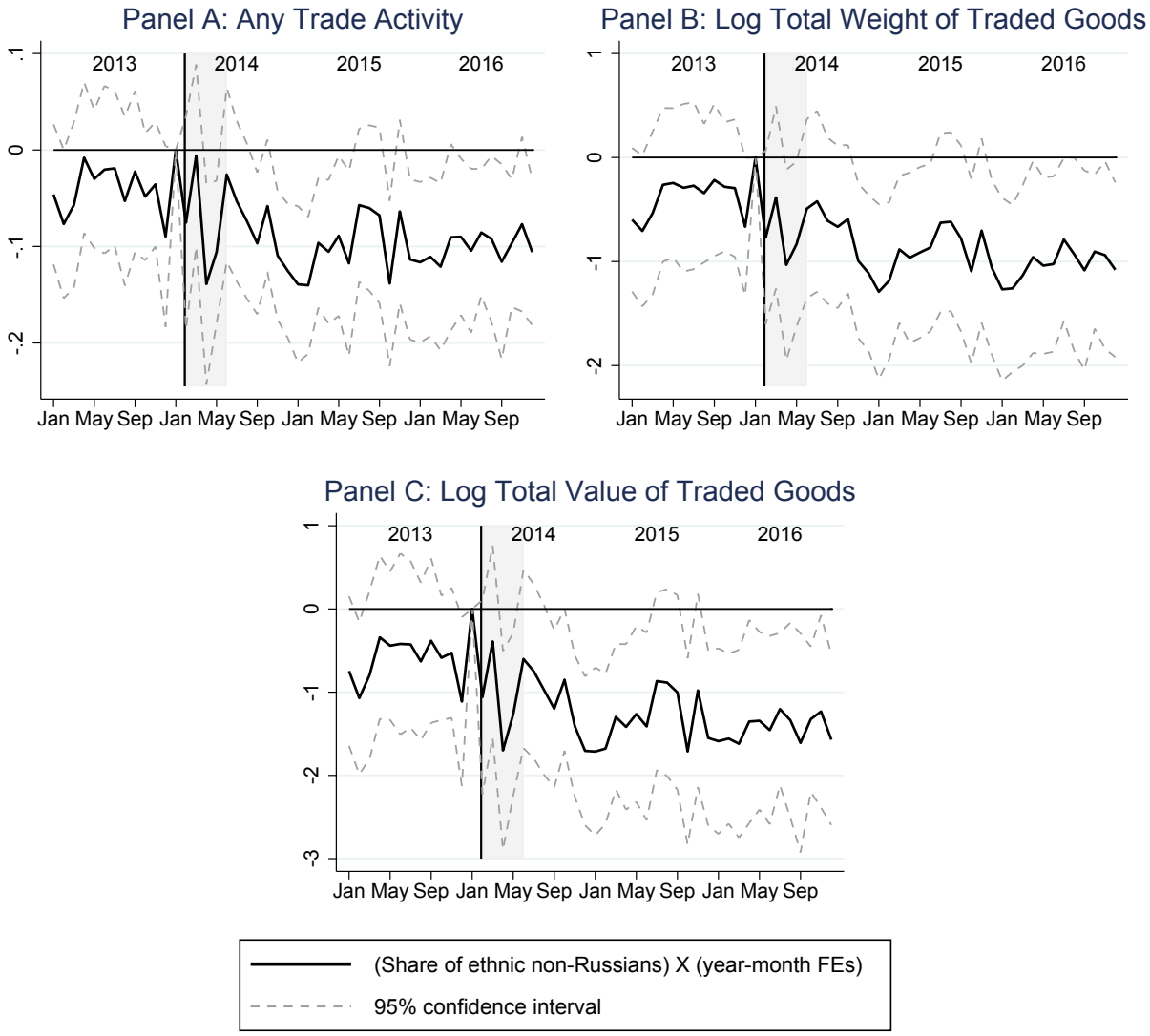
Notes: The data plotted are the monthly average logarithm of the total weight traded (export+import) broken down by the share of Russian population in firms' districts. January is a short business month in Russia, with a full holiday week from January 1 to 7. Export data are missing for February to June 2014 (colored in gray). These months are removed for the purpose of this graph. All calculations exclude firms located in the areas affected by the conflict (see Figure 2). Lines represent the linear fit to the scatter plots with the corresponding color separately before and after the start of the conflict in February 2014.

Figure A7: Firm-Level Trade with Russia by Ethnic Composition of Firms' Districts (Matched Sample)



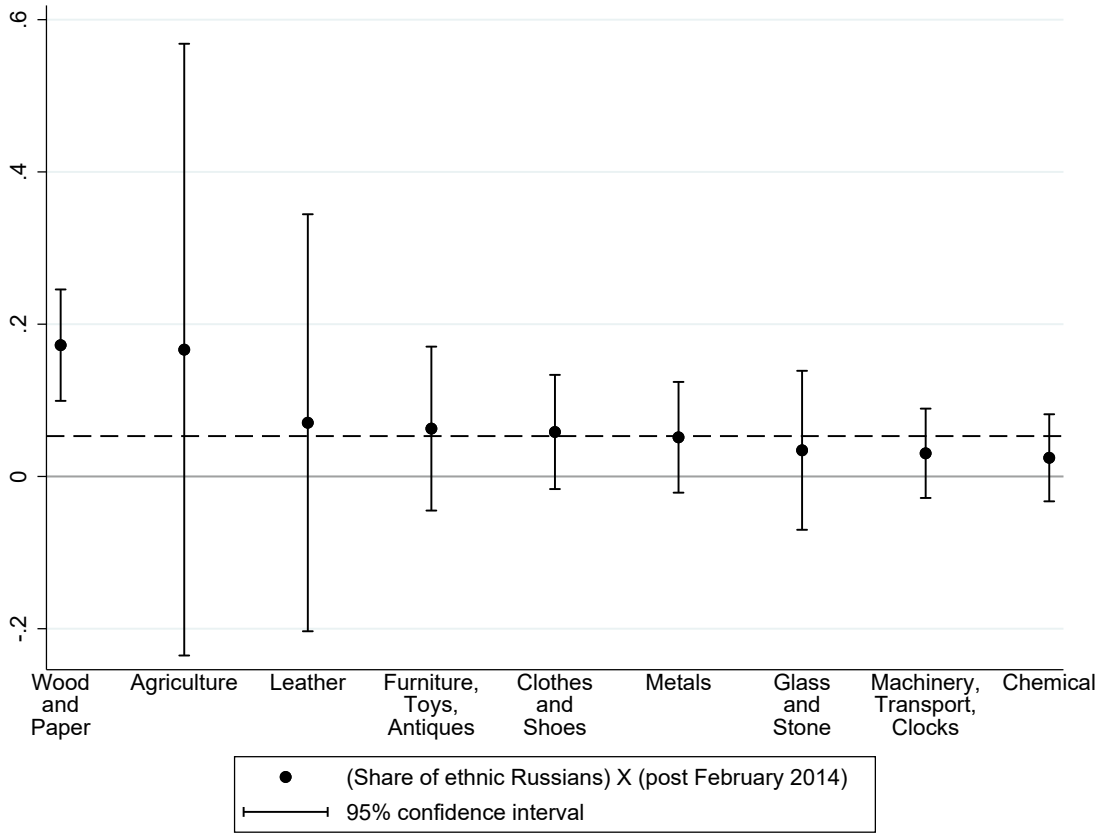
Notes: The data plotted are the monthly weighted average logarithm of the total weight traded (export+import) broken down by the share of Russian population in firms' districts, calculated on a pre-conflict matched sample of firms. The figure is constructed as follows. First, we run the propensity score matching algorithm to match firms in the top and the bottom quartiles of the share of ethnic Russians based on the following firm-level covariates: 2013 revenue, 2013 number of employees, 2013 total assets (all in logs), an indicator for whether a firm is state-owned, and firms' two-digit NAICS indicators. We then use the weights produced by the propensity score matching algorithm to calculate the matching-sample weighted average of log total weight traded by a firm with Russia. We then plot the resulting weighted averages for the top and the bottom quartiles of the local share of ethnic Russians. January is a short business month in Russia, with a full holiday week from January 1 to 7. Export data are missing for February to June 2014 (colored in gray). These months are removed for the purpose of this graph. All calculations exclude firms located in the areas affected by the conflict (see Figure 2). Lines represent the linear fit to the scatter plots with the corresponding color separately before and after the start of the conflict in February 2014.

Figure A8: Month-by-Month Analysis at the Firm-Product Level with Product-Post FEs



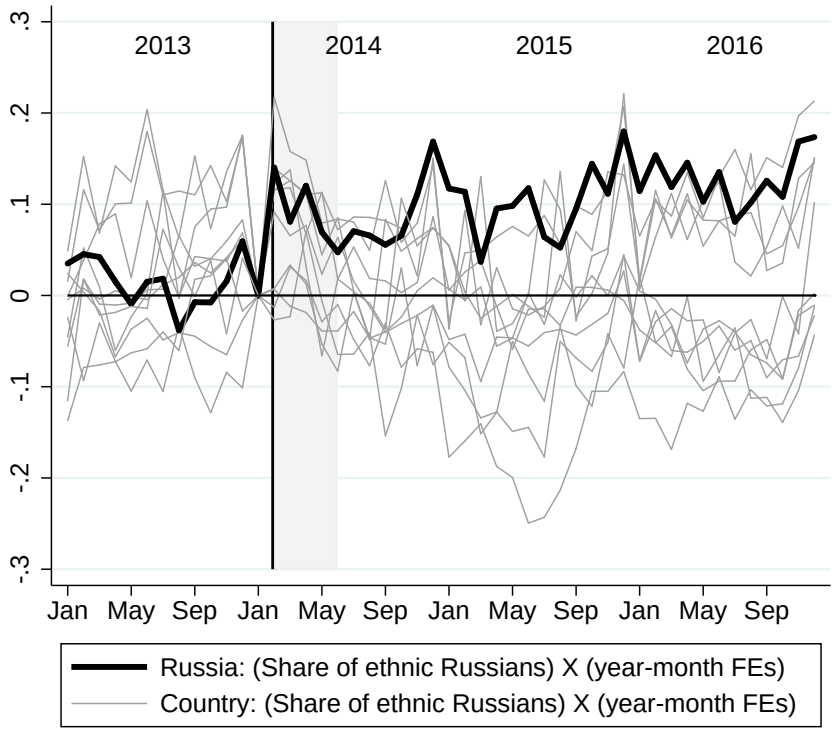
Notes: This figure displays the results of a month-by-month product-firm specification that modifies the baseline equation (4) by interacting year-month fixed effects with the ethnic composition of the firms' districts. For illustration purposes, this specification uses share of ethnic non-Russians in the interaction term. The unit of observation is firm's trade of a given product (HS4) with Russia. For February through June 2014, only import data are present (colored in gray). Removing these five months from our analysis or imputing them in various ways does not change the results. Panel A displays the results for any trade activity with Russia by a firm with a given product in a given month (export+import) as the dependent variable, Panel B displays the results for the logarithm of total weight of the goods traded with Russia (export+import), and Panel C displays the results for the log of total value traded (export+import). Share of ethnic non-Russians is calculated as 1 − share of ethnic Russians. 95% confidence intervals are constructed for standard errors clustered at the district level.

Figure A9: Difference-in-Differences Coefficients for Various Types of Products



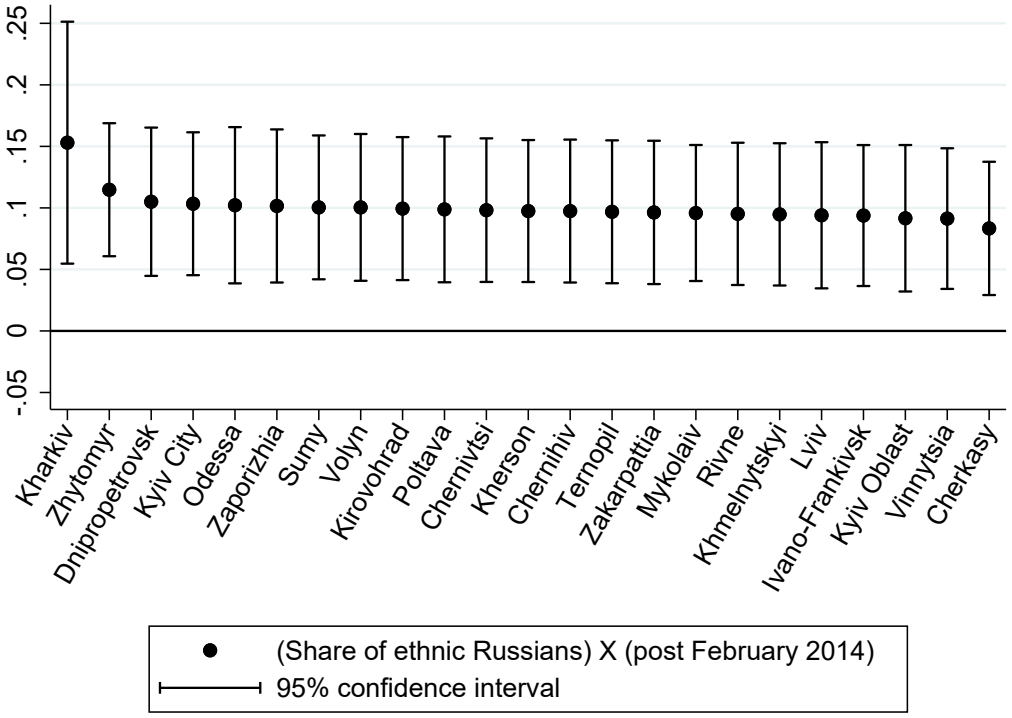
Notes: This figure presents the estimation results of equation (4) for firm-product-level trade for different types of products. The dependent variable is an indicator of any trade activity by a firm in a given month with a given HS2 product-type (export+import). The horizontal dashed line represents the baseline coefficient for trade with Russia at a firm-product level taken from column (1) of Table A4. The correspondence between product types and HS2 codes is as follows: "agriculture" refers to HS2 01–24 codes, "chemical" to HS2 25–40, "leather" to HS2 41–43, "wood and paper" to HS2 44–49, "clothes and shoes" to HS2 50–67, "glass and stone" to HS2 68–71, "metals" to HS2 72–83, "machinery, transport, and clocks" to HS2 84–92, and "furniture, toys, and antiques" to HS2 94–97. 95% confidence intervals are constructed for the standard errors clustered at the district level.

Figure A10: Baseline Month-by-Month Coefficients for Russia Compared to Other Countries



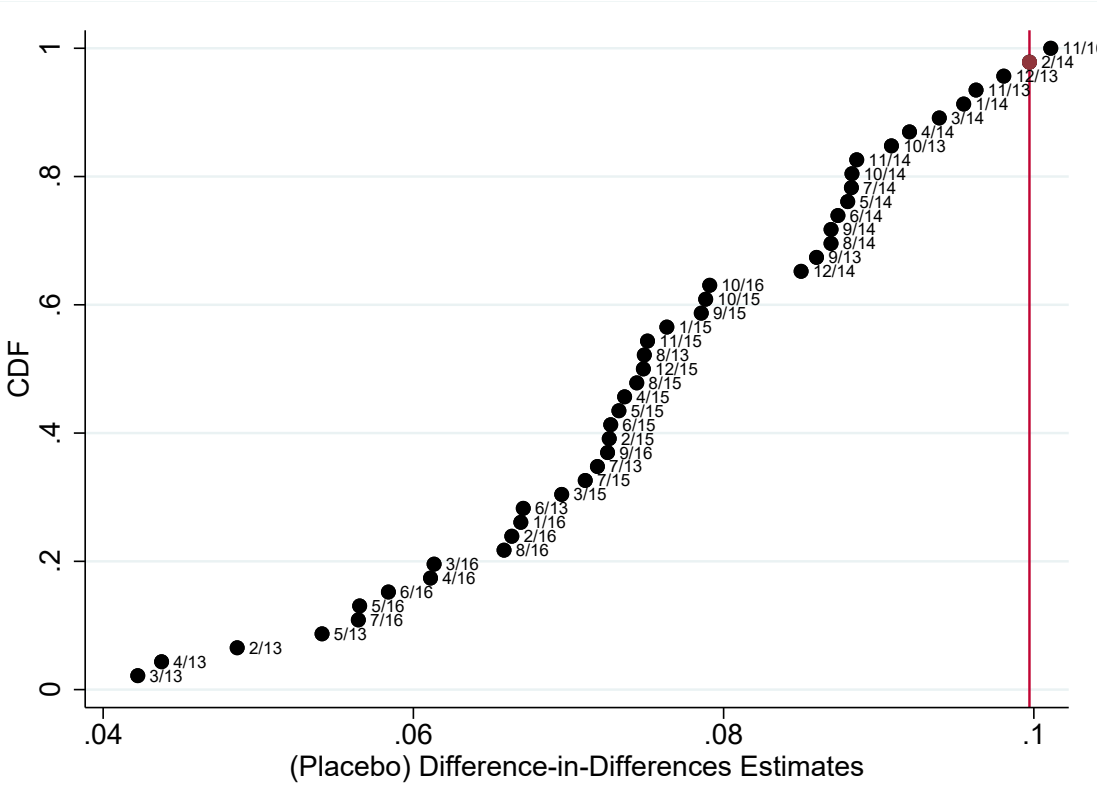
Notes: This figure presents the estimation results of the month-by-month equation (3) for firm-level trade with the top-10 trading partners of Ukraine and all other countries pooled together. The dependent variable is an indicator of any trade activity by a firm in a given month (export+import).

Figure A11: Baseline Results Excluding Ukrainian Provinces One at a Time



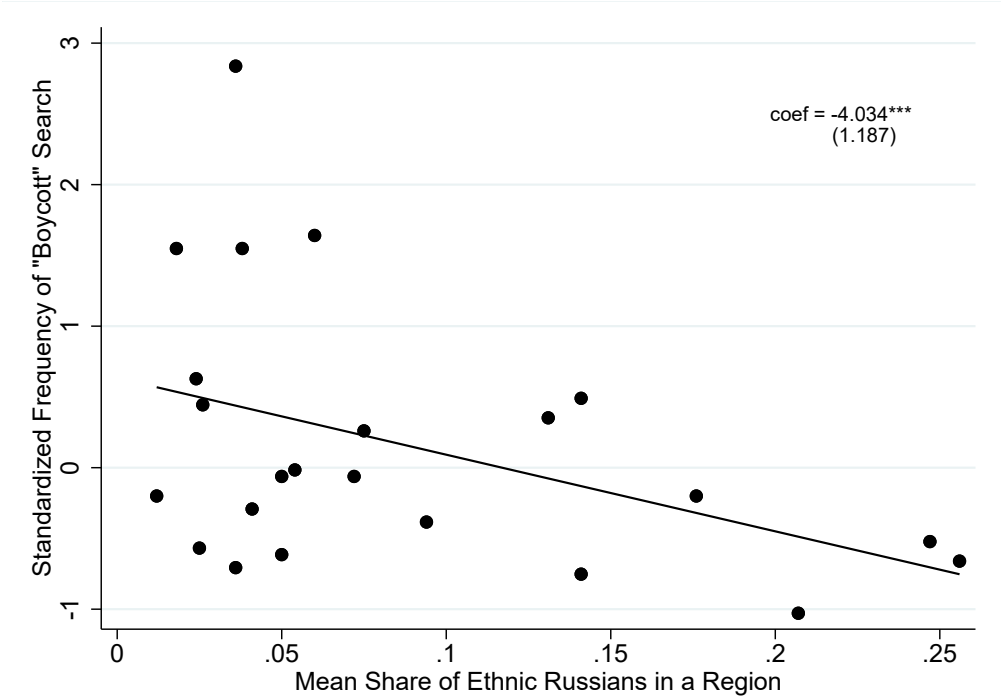
Notes: This figure presents the baseline results in column (1) of Table 2 for 23 different subsamples, excluding Ukrainian provinces one at a time. The dependent variable is an indicator of any trade activity by a firm in a given month (export+import). 95% confidence intervals are constructed for standard errors clustered at the district level.

Figure A12: Placebo Conflict Starting Times



Notes: This figure presents the baseline difference-in-differences estimates from column (1) in Table 2 for the true starting month of the conflict, February 2014 (red dot), and for 45 placebo conflict starting months (black dots). Month and year of the (placebo) starting month is displayed next to the value of the coefficient. The dependent variable is an indicator for whether a firm traded with Russia in a given month (export+import).

Figure A13: Frequency of Online Search for "Boycott" and Regional Ethnic Composition



Notes: This figure displays the association between the standardized frequency of online searches for the word "boycott" from February 1 to May 1, 2014, obtained from Google Trends, and the average share of ethnic Russians in Ukrainian provinces. The results of a corresponding regression are displayed in the top-right corner.

Figure A14: Location of Ukraine, Kazakhstan, and Russia on the World Map

Appendix A: Additional Tables

Table A1: Summary Statistics

	Observations	Mean	SD	Min	Max
	Panel A: Trade Transaction Data				
Any Trade Activity	579;445	0.205	0.404	0	1
Log of Total Weight Traded	579,445	2.01	4.17	0	21
Log of Total Value Traded	579,445	2.78	5.55	0	23
Number of Trade Transactions	579,445	3.23	32.6	0	5,420
Total Net Weight Traded in a Given Month, in Tons	579,445	235	6,888	0	1,709,763
Total Value Traded in a Given Month, in UAH '000	579,445	1,309	31,791	0	8,045,764
	Panel B: Types of Goods Traded				
Share of Intermediate Goods Traded by a Firm, 2013–2016	12,601	0.768	0.363	0	1
Share of Consumer Goods Traded by a Firm, 2013–2016	12,601	0.171	0.334	0	1
Share of Homogeneous Goods Traded by a Firm, 2013–2016	12,596	0.223	0.39	0	1
	Panel C: Ethnic Composition of Districts				
Share of Russian Speakers, 2001 Census	12,601	0.26	0.2	0.001	0.75
Share of Ethnic Russians, 2001 Census	12,601	0.15	0.097	0.002	0.53
	Panel D: Ethnic Composition of Management				
Share of Managers with Russian Last Names, Endings	10,791	0.3	0.45	0	1
Share of Managers with Russian Last Names, Forebears	10,791	0.34	0.19	0	0.91
	Panel E: Distance to the Border				
Shortest Path to Russian Border, Roads, Pre-Conflict, km	12,589	312	209	5.0	1,034
Shortest Path to Russian Border, Roads, Post-Conflict, km	12,589	320	211	5.0	1,034
Shortest Path to Russian Border, Railroads, Pre-Conflict, km	12,589	503	287	19.6	1,464
Shortest Path to Russian Border, Railroads, Post-Conflict, km	12,589	507	287	19.6	1,464
	Panel F: Accounting Data				
IHS Transformation of Sales, Traders, 2013–2016	36,560	16.83	3.07	0	26.50
IHS Transformation of Profits, Traders, 2013–2016	36,560	15.04	4.63	-19.41	25.25
Total Factor Productivity, Traders, 2013–2016	36,560	15.68	2.14	8.88	27.16

Notes: Data on trade include export and import transactions. Homogeneous goods are defined as in Rauch (1999). The standardized BEC classification specifies intermediate goods. An individual is considered a native Russian speaker if Russian is his or her mother tongue. Endings method of calculating the share of managers with Russian last names treats a last name as traditionally Russian if it ends in "ov," "ova," "ev," "eva," "in," "ina," "yov," or "yova" (Zhuravlev, 2005). Forbears method of calculating the share of managers with Russian last names uses the probability that a randomly drawn firm's manager has a Russian last name as identified using Forebears, the largest geospatial genealogical service available. The shortest path to the Russian border for the periods after the conflict began excludes parts of the border that are located in conflict regions. IHS stands for inverse hyperbolic sine transformation $L(X) = \log(X + \text{sqrt}(X^2 + 1))$, as in MacKinnon and Magee (1990). Total factor productivity is derived from a Cobb-Douglas specification regressing turnover on capital and labor (all in logs) with two-digit industry fixed effects.

Table A2: Differential Effect of Conflict on Attitudes of Ukrainian Citizens Toward Russia

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)
	Share of Respondents with:					
	Extreme Negative Views Toward Russia	Positive Attitudes Toward Russia	YES to Closed Borders and Visas with Russia	Low Satisfaction with Economic Situation in Ukraine	Low Satisfaction with National Security of Ukraine	Low Satisfaction with the Degree of Confidence in the Future
Post Conflict × Share of Russian Ethnicity	-1.093***	1.263***	-1.192***	1.067**	0.624	0.578
	(0.176)	(0.167)	(0.175)	(0.455)	(0.552)	(0.400)
Post Conflict	0.357***	-0.604***	0.489***	-0.048	0.215**	0.013
	(0.028)	(0.027)	(0.027)	(0.061)	(0.103)	(0.070)
Share of Russian Ethnicity	-0.158**	0.724***	-0.779***	-1.029**	-0.808*	-0.391
	(0.057)	(0.176)	(0.199)	(0.420)	(0.448)	(0.245)
Dep. Var. Mean	0.189	0.554	0.400	0.740	0.625	0.607
Dep. Var. SD	0.392	0.497	0.490	0.439	0.484	0.488
R^2	0.13	0.27	0.20	0.02	0.09	0.01
Observations	23,304	23,304	23,897	3,270	3,245	3,082
Provinces	23	23	23	23	23	23

Notes: This table explores the heterogeneity of the effect of the Russia-Ukraine conflict on attitudes of Ukrainian citizens toward Russia depending on the share of ethnic Russians in the province of a respondent. In column (2), the outcome is the share of respondents who answered the question "What is your overall attitude toward Russia?" as "very bad." In column (1), the outcome is the share of respondents who answered the same question as "very good" or "good." In column (3), the outcome is the share of respondents who answered the question "How would you like to see Ukraine's relations with Russia?" as "They should be the same as with other states—with closed borders, visas, customs." In columns (4) through (6), the outcomes are the shares of respondents who answered the question "To what extent are you satified with the economic situation in Ukraine" (column 4), "with the national security in Ukraine" (column 5) or "with the degree of confidence in the future" (column 6) as less than or equal to 2 on a scale from 0 to 7. Data are from 15 nationally representative surveys conducted by Kyiv International Institute of Sociology from 2013 to 2016. Months of the surveys for columns (1) through (3) can be viewed on Figure 3. Months of the surveys for columns (4) through (6) are February 2013 and October 2014. The three conflict provinces—Crimea, Donetsk, and Luhansk provinces—are excluded from the analysis. The province-level data on ethnolinguistic composition come from the 2001 Ukrainian Census. Standard errors in parentheses are clustered at the province level. * p<0.1, ** p<0.05, *** p<0.01.

Table A3: Baseline Results for Exports and Imports Separately

Dependent Variable:	(1) Any Export Activity	(2) Log Total Weight Exported	(3) Log Total Value Exported	(4) Any Import Activity	(5) Log Total Weight Imported	(6) Log Total Value Imported
	Exports to Russia			*Imports from Russia*		
Post Feb 2014 × Share of Ethnic Russians	0.146***	1.828***	2.062***	0.053**	0.522**	0.659**
	(0.044)	(0.498)	(0.569)	(0.021)	(0.235)	(0.312)
Firms FE	✓	✓	✓	✓	✓	✓
Month FE	✓	✓	✓	✓	✓	✓
Dep. Var. Mean	0.200	1.942	2.714	0.191	1.878	2.590
Dep. Var. SD	0.400	4.073	5.480	0.393	4.077	5.397
R^2	0.41	0.48	0.46	0.41	0.49	0.45
Observations	297,603	297,603	297,603	363,456	363,456	363,456
Firms	6,921	6,921	6,921	7,572	7,572	7,572
Districts	342	342	342	313	313	313

Notes: This table presents the baseline results estimated separately for exports to and imports from Russia. Columns (1) through (3) focus on export transactions only, while columns (4) through (6) focus on import transactions. Columns (1) and (4) use an indicator for a firm exporting to or importing from Russia in a given month. The logs of total value and net weight of exported or imported goods are calculated by transforming the initial variable X with $L(X) = \log(X + 1)$. Data on ethnic composition are at the district level and come from the 2001 Ukrainian Census. Standard errors in parentheses are clustered at the district level. * p<0.1, ** p<0.05, *** p<0.01.

Table A4: Results with Firm, Year-Month, and Four-Digit Product-Code Fixed Effects

Dependent Variable:	(1) Any Trade Activity	(2) Log Total Weight Traded	(3) Log Total Value Traded
Post Feb 2014 × Share of Ethnic Russians	0.055***	0.526***	0.712***
	(0.018)	(0.154)	(0.201)
Firm FE	✓	✓	✓
Year-Month FE	✓	✓	✓
4-Digit Product Code FE	✓	✓	✓
4-Digit Product Code-Post Fixed Effects	✓	✓	✓
Dep. Var. Mean	0.136	1.013	1.598
Dep. Var. SD	0.343	2.876	4.143
Observations	2,248,417	2,248,417	2,248,417
Firms	12,601	12,601	12,601
4-Digit Product Codes	1,066	1,066	1,066
Districts	386	386	386

Notes: This table presents the firm-product-level analog of the baseline results with product-post fixed effects. The product codes used in this specification are the first four digits of the harmonized system code (HS4). The outcome variable in columns (1) is an indicator for a firm trading a given 4-digit product code with Russia in a given month (export+import). The outcome variables in columns (2) and (3) are the logs of total value and net weight of shipped goods (export+import), respectively, calculated by transforming the initial variable X with $L(X) = \log(X+1)$. Data on ethnic composition are at the district level and come from the 2001 Ukrainian Census. Standard errors in parentheses are clustered at the district level. * p<0.1, ** p<0.05, *** p<0.01.

Table A5: Baseline Results Controlling for Industry Codes

Dependent variable:	(1) Any Trade Activity	(2) Log Total Weight Traded	(3) Log Total Value Traded
Post Feb 2014 × Share of Ethnic Russians	0.079**	0.792**	1.112**
	(0.035)	(0.378)	(0.476)
Firm FE	✓	✓	✓
Year and Month FE	✓	✓	✓
Post Feb 2014 × NAICS FE	✓	✓	✓
Dep. Var. Mean	0.233	2.302	3.188
Dep. Var. SD	0.423	4.405	5.850
R^2	0.44	0.52	0.49
Observations	452,478	452,478	452,478
Firms	9,821	9,821	9,821
Districts	365	365	365

Notes: This table replicates the baseline results from Table 2 controlling for the interaction between the industry-code (NAICS) fixed effects and the post-February 2014 indicator. NAICS industry codes for each Ukrainian firm come from the ORBIS/AMADEUS dataset. The logs of total value and net weight of shipped goods (export+import) are calculated by transforming the initial variable X with $L(X) = \log(X + 1)$. In column (1), the outcome is an indicator for a firm trading with Russia in a given month (export+import). Data on ethnic composition are at the district level and come from the 2001 Ukrainian Census. Standard errors in parentheses are clustered at the district level. * p<0.1, ** p<0.05, *** p<0.01.

Table A6: Multicountry Triple-Difference Specification

Dependent Variable:	(1) Any Trade Activity	(2) Log Total Weight Traded	(3) Log Total Value Traded
Post Feb 2014 × Share of Ethnic Russians × Russia	0.122***	1.460***	1.637***
	(0.038)	(0.457)	(0.500)
Share of Ethnic Russians × Russia	0.240**	1.675*	3.228**
	(0.100)	(1.012)	(1.359)
Firm FE	✓	✓	✓
Year and Month FE	✓	✓	✓
District-Post FE	✓	✓	✓
Country FE	✓	✓	✓
Country-Post FE	✓	✓	✓
Dep. Var. Mean	0.178	1.494	2.247
Dep. Var. SD	0.382	3.533	4.933
Observations	7,400,463	7,400,463	7,400,463
Firms	65,866	65,866	65,866
Districts	473	473	473
Months	48	48	48
Countries	11	11	11

Notes: This table presents the results of the triple-difference specification (5) comparing trade before and after the start of the conflict, for firms in areas with more versus fewer ethnic Russians, with Russia as opposed to other countries. The set of comparison countries consists of the 10 nations with which Ukraine had the most transactions from 2013 to 2016, including Russia. Trade with the rest of the world comprises the eleventh nation in this exercise. Column (1) uses an indicator for a firm trading with a given country in a given month (export+import) as the outcome variable. The logs of total value and net weight of shipped goods to a given country in a given month (export+import) are calculated by transforming the initial variable X with $L(X) = \log(X + 1)$. Data on ethnic composition are at the district level and come from the 2001 Ukrainian Census. One observation is a firm-country-month. Standard errors in parentheses are clustered at the district level. * p<0.1, ** p<0.05, *** p<0.01.

Table A7: Multicountry Triple-Difference Specification with Partner Countries' Ethnicities

Dependent Variable:	(1) Any Trade Activity	(2) Log Total Weight Traded	(3) Log Total Value Traded
Post Feb 2014 × Share of Country's Ethnicity × Russia	0.102	1.624**	1.812**
	(0.065)	(0.773)	(0.873)
Post Feb 2014 × Share of Country's Ethnicity	0.001	-0.299	-0.394
	(0.052)	(0.592)	(0.689)
Firm FE	✓	✓	✓
Year and Month FE	✓	✓	✓
District-Post FE	✓	✓	✓
Country FE	✓	✓	✓
Country-Post FE	✓	✓	✓
Dep. Var. Mean	0.163	1.507	2.101
Dep. Var. SD	0.369	3.639	4.839
Observations	1,484,549	1,484,549	1,484,549
Firms	22,727	22,727	22,727
Districts	435	435	435
Months	48	48	48
Countries	5	5	5

Notes: This table presents the results of the triple-difference specification (5) comparing trade before and after the start of the conflict, for firms in areas with lower and higher share of people with a country's ethnicity, with Russia as opposed to other countries. The set of comparison countries consists of five nations with the biggest ethnic minorities in Ukraine (as of 2001): Russia, Belarus, Moldova, Bulgaria, and Hungary. Column (1) uses an indicator for a firm trading with a given country in a given month (export+import) as the outcome variable. The logs of total value and net weight of shipped goods to a given country in a given month (export+import) are calculated by transforming the initial variable X with $L(X) = \log(X + 1)$. Data on ethnic composition are at the district level and come from the 2001 Ukrainian Census. One observation is a firm-country-month. Standard errors in parentheses are clustered at the district level. * p<0.1, ** p<0.05, *** p<0.01.

Table A8: Placebo Estimates with Shares of Non-Russian and Non-Ukrainian Ethnicity

Dependent Variable:	(1) Any Trade Activity	(2) Log Total Weight Traded	(3) Log Total Value Traded
Post Feb 2014 × Share of Other Ethnicities	0.017	0.564	0.380
	(0.083)	(0.951)	(1.094)
Firm FE	✓	✓	✓
Year-Month FE	✓	✓	✓
Dep. Var. Mean	0.205	2.012	2.783
Dep. Var. SD	0.404	4.175	5.549
R^2	0.41	0.49	0.46
Observations	579,445	579,445	579,445
Firms	12,601	12,601	12,601
Districts	392	392	392

Notes: This table presents the placebo baseline difference-in-differences estimates with the share of people of non-Russian and non-Ukrainian ethnicity. Column (1) uses an indicator for a firm trading with Russia in a given month (export+import). The logs of total value and net weight of shipped goods (export+import) are calculated by transforming the initial variable X with $L(X) = \log(X + 1)$. Data on ethnic composition are at the district level and come from the 2001 Ukrainian Census. Standard errors in parentheses are clustered at the district level. * p<0.1, ** p<0.05, *** p<0.01.

Table A9: Conflict and Local Economic Shocks to Firms in Noncombat Areas

	(1)	(2)	(3)
Dependent Variable:	Log Profit	Log Sales	TFP
Share of Ethnic Russians × (Year == 2011)	-0.338	0.171	-0.138***
	(0.287)	(0.121)	(0.053)
Share of Ethnic Russians × (Year == 2012)	-0.313	0.102	-0.028
	(0.319)	(0.083)	(0.023)
Share of Ethnic Russians × (Year == 2014)	-1.086***	-0.693***	-0.103***
	(0.240)	(0.104)	(0.026)
Share of Ethnic Russians × (Year == 2015)	-2.188***	-1.432***	-0.245***
	(0.356)	(0.290)	(0.055)
Share of Ethnic Russians × (Year == 2016)	-2.549***	-1.496***	-0.274***
	(0.444)	(0.280)	(0.070)
Firm FE	✓	✓	✓
Year FE	✓	✓	✓
Dep. Var. Mean	10.761	13.169	13.560
Dep. Var. SD	6.673	4.216	1.870
R^2	0.51	0.75	0.93
Observations	1,107,215	1,107,520	1,026,585
Firms	176,352	176,352	176,352
Districts	491	491	495

Notes: This table documents the differential drop in firm performance across areas with different ethnic composition. The sample includes all Ukrainian firms, not only those trading with Russia, but excludes firms from the conflict areas. Data on firms come from the AMADEUS/ORBIS database. District-level data on ethnic composition come from the 2001 Ukrainian Census. In columns (1) and (2), the dependent variables are gross profit and total sales, transformed using the inverse hyperbolic sine function $L(X)$, such that $L(X) = \log(X + \text{sqrt}(X^2 + 1))$, as in MacKinnon and Magee (1990). In column (3), the outcome is the total factor productivity of a firm, derived from a Cobb-Douglas specification regressing turnover on capital and labor (all in logs) with two-digit industry fixed effects. Standard errors in parentheses are clustered at the district level. * p<0.1, ** p<0.05, *** p<0.01.

Table A10: Difference-in-Differences Results Accounting for Firm Sales

Dependent Variable:	(1) Log Total Weight Traded	(2) Log Total Value Added	(3) Log Total Weight Traded	(4) Log Total Value Added
Post Feb 2014 × Share of Ethnic Russians	3.943***	4.569***		
	(0.700)	(0.725)		
Post Feb 2014 × Share of Native Russian Speakers			1.847***	2.093***
			(0.307)	(0.356)
Firm-Level Yearly Revenue	✓	✓	✓	✓
Firm FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
Dep. Var. Mean	5.788	8.126	5.788	8.126
Dep. Var. SD	5.651	7.314	5.651	7.314
R^2	0.60	0.54	0.60	0.54
Observations	31,076	31,076	31,076	31,076
Firms	7,769	7,769	7,769	7,769
Districts	345	345	345	345

Notes: This table presents the firm-year-level version of the baseline results with yearly log-sales as a covariate. The logs of total value, of net weight of shipped goods, and of sales are calculated by transforming the initial variable X with $L(X) = \log(X + 1)$. District-level data on ethnolinguistic composition come from the 2001 Ukrainian Census. Russian language is measured as the percentage of people who named Russian as their mother tongue ("rodnoi yazik"). Standard errors in parentheses are clustered at the district level. * p<0.1, ** p<0.05, *** p<0.01.

Table A11: Baseline Results Controlling for Change in Firm's Standing

Dependent Variable:	(1) Any Trade Activity	(2) Log Total Weight Traded	(3) Log Total Value Traded	(4) Any Trade Activity	(5) Log Total Weight Traded	(6) Log Total Value Traded	(7) Any Trade Activity	(8) Log Total Weight Traded	(9) Log Total Value Traded
Post Feb 2014 × Share of Ethnic Russians	0.145***	1.858***	2.026***	0.138***	1.776***	1.926***	0.151***	1.898***	2.094***
	(0.039)	(0.474)	(0.525)	(0.037)	(0.450)	(0.495)	(0.037)	(0.446)	(0.492)
Post Feb 2014 × Δ Sales, 2013–2014	0.008***	0.077***	0.102***						
	(0.001)	(0.010)	(0.013)						
Post Feb 2014 × Δ # of Employees, 2013–2014				0.014***	0.148***	0.193***			
				(0.003)	(0.029)	(0.038)			
Post Feb 2014 × Δ Total Assets, 2013–2014							0.008***	0.081***	0.111***
							(0.001)	(0.010)	(0.014)
Firm FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dep. Var. Mean	0.244	2.411	3.341	0.244	2.410	3.338	0.239	2.356	3.264
Dep. Var. SD	0.430	4.483	5.949	0.429	4.483	5.949	0.426	4.443	5.899
R^2	0.45	0.53	0.49	0.44	0.53	0.49	0.44	0.52	0.49
Observations	413,597	413,597	413,597	414,213	414,213	414,213	432,814	432,814	432,814
Firms	8,981	8,981	8,981	8,993	8,993	8,993	9,395	9,395	9,395
Districts	362	362	362	364	364	364	365	365	365

Notes: This table tests whether our baseline results can be explained by the change in firms' economic conditions. The logs of total value and net weight of shipped goods are calculated by transforming the initial variable X with $L(X) = \log(X + 1)$. District-level data on ethnic composition come from the 2001 Ukrainian Census. Standard errors in parentheses are clustered at the district level. * p<0.1, ** p<0.05, *** p<0.01.

Table A12: Ukrainian State-Owned Firms

Dependent Variable:	(1) Any Trade Activity	(2) Log Total Weight Traded	(3) Log Total Value Traded	(4) Any Trade Activity	(5) Log Total Weight Traded	(6) Log Total Value Traded
	State-Owned			*Not State-Owned*		
Post Feb 2014 × Share of Ethnic Russians	0.161	1.422	1.132	0.135***	1.672***	1.871***
	(0.136)	(1.785)	(1.920)	(0.035)	(0.448)	(0.486)
Firm FE	✓	✓	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓	✓	✓
Dep. Var. Mean	0.207	1.608	2.956	0.214	2.117	2.919
Dep. Var. SD	0.405	3.586	5.866	0.410	4.269	5.658
R^2	0.47	0.52	0.54	0.42	0.49	0.46
Observations	9,322	9,322	9,322	524,672	524,672	524,672
Firms	204	204	204	11,378	11,378	11,378
Districts	75	75	75	370	370	370

Notes: This table tests whether state-owned Ukrainian firms are responsible for our baseline results. We consider a firm state-owned if it is indicated so by its legal organizational form. Data on the organizational form of firms come from the SPARK dataset. Columns (1) and (4) use an indicator for a firm trading with Russia in a given month (export+import). The logs of total value and net weight of shipped goods (export+import) are calculated by transforming the initial variable X with $L(X) = \log(X+1)$. District-level data on ethnolinguistic composition come from the 2001 Ukrainian Census. Standard errors in parentheses are clustered at the district level. * p<0.1, ** p<0.05, *** p<0.01.

Table A13: Baseline Results Without 2016 Data

Dependent Variable:	(1) Any Trade Activity	(2) Log Total Weight Traded	(3) Log Total Value Traded	(4) Any Trade Activity	(5) Log Total Weight Traded	(6) Log Total Value Traded
Post Feb 2014 × Share of Ethnic Russians	0.085***	1.050***	1.166***			
	(0.024)	(0.292)	(0.331)			
Post Feb 2014 × Share of Russian Speakers				0.040***	0.509***	0.547***
				(0.012)	(0.141)	(0.162)
Firm FE	✓	✓	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓	✓	✓
Dep. Var. Mean	0.215	2.122	2.915	0.215	2.122	2.915
Dep. Var. SD	0.411	4.268	5.628	0.411	4.268	5.628
R^2	0.44	0.52	0.49	0.44	0.52	0.49
Observations	428,305	428,305	428,305	428,305	428,305	428,305
Firms	12,601	12,601	12,601	12,601	12,601	12,601
Districts	392	392	392	392	392	392

Notes: This table replicates Table 2 but excludes data for 2016, after Russia and Ukraine imposed tariffs on each other's products. Columns (1) and (4) use an indicator for a firm trading with Russia in a given month (export+import). The logs of total value and net weight of shipped goods (export+import) are calculated by transforming the initial variable X with $L(X) = \log(X + 1)$. District-level data on ethnolinguistic composition come from the 2001 Ukrainian Census. The share of Russian speakers is measured as the percentage of people who named Russian as their mother tongue ("rodnoi yazik"). Standard errors in parentheses are clustered at the district level. * p<0.1, ** p<0.05, *** p<0.01.

Table A14: Heterogeneity Across Regions

Dependent Variable:	(1) Any Trade Activity	(2) Log Total Weight Traded	(3) Log Total Value Traded	(4) Any Trade Activity	(5) Log Total Weight Traded	(6) Log Total Value Traded	(7) Any Trade Activity	(8) Log Total Weight Traded	(9) Log Total Value Traded
	Without Kyiv			*No Provinces Close to Conflict*			*No Western Ukraine*		
Post Feb 2014 × Share of Ethnic Russians	0.104***	1.320***	1.437***	0.194***	2.523***	2.580***	0.079**	1.067***	1.165***
	(0.030)	(0.338)	(0.397)	(0.068)	(0.879)	(0.937)	(0.031)	(0.384)	(0.422)
Firm FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dep. Var. Mean	0.212	2.123	2.882	0.198	1.942	2.679	0.205	2.008	2.786
Dep. Var. SD	0.409	4.287	5.622	0.398	4.128	5.462	0.404	4.167	5.552
R^2	0.41	0.49	0.46	0.41	0.48	0.45	0.41	0.49	0.46
Observations	415,078	415,078	415,078	390,908	390,908	390,908	527,106	527,106	527,106
Firms	9,078	9,078	9,078	8,515	8,515	8,515	11,449	11,449	11,449
Districts	388	388	388	332	332	332	293	293	293

Notes: This table tests whether our results are robust to potential region-outliers. In columns (1) through (3), firms located in Kyiv, the capital of Ukraine, are omitted from the sample. In columns (4) through (6), provinces close to Donetsk and Luhansk are omitted—the Dnipropetrovskaya, Zaporozhskaya, and Kharkovskaya oblasts. In columns (7) through (9), Western Ukraine—the Chernivtsi, Ivano-Frankivsk, Lviv, Rivne, Ternopil, Volyn, and Zakarpattia oblasts—is omitted from the sample. The logs of total value and net weight of shipped goods are calculated by transforming the initial variable X with $L(X) = \log(X + 1)$. District-level data on ethnic composition come from the 2001 Ukrainian Census. Standard errors in parentheses are clustered at the district level. * p<0.1, ** p<0.05, *** p<0.01.

Table A15: Decline in Trust and Reallocation of Trade, No Firm Fixed Effects

Dependent Variable:	(1) High Predicted OA Usage	(2) High Predicted CIA Usage	(3) High Predicted OA Usage	(4) High Predicted CIA Usage
Subsample:	*Exports*		*Imports*	
Post Feb 2014 × Share of Ethnic Non-Russians	-0.157*	0.207**	0.159***	-0.193***
	(0.089)	(0.091)	(0.045)	(0.048)
Share of Ethnic Non-Russians	-0.106	0.116	-0.131	0.071
	(0.100)	(0.097)	(0.126)	(0.072)
Year FE	✓	✓	✓	✓
Firm FE				
Dep. Var. Mean	0.612	0.373	0.636	0.329
Dep. Var. SD	0.487	0.484	0.481	0.470
Observations	13,352	13,352	14,855	14,855
Firms	4,544	4,544	4,471	4,471
Districts	341	341	312	312

Notes: This table replicates Table 4 without firm-level fixed effects so that the coefficient on the share of ethnic Russians is not omitted. OA refers to an open account contract, in which a good is delivered before the payment is due. CIA refers to a cash-in-advance contract, in which an importer pays before the good is shipped. As such, OA contracts require exporters to trust importers more, while CIA contracts require importers to trust exporters. Predicted contract usage is calculated based on the types of products traded by a firm weighted by the amount of trade (in kg). We consider contract usage high (low) if the predicted share is above (below) the mean among the firms in the sample, separately for exporters and importers. For each HS4 product code, we use data from Demir et al. (2017) and Demir and Javorcik (2018) on average contract types used in trade between Ukraine, Russia, and Turkey from 2004 to 2011. Standard errors in parentheses are clustered at the district level. * $p<0.1$, ** $p<0.05$, *** $p<0.01$.

Table A16: Baseline Results Depending on Frequency of Google Search for "Boycott"

	(1)	(2)	(3)	(4)
Dependent Variable:	Any Trade Activity with Russia			
Specification:	Baseline Results	Provinces with $>$ 75pct Frequency of Google Search "Boycott"	Provinces with $<$ 25pct Frequency of Google Search "Boycott"	Baseline with Google Trends Data Instead
		Diff p-value: 0.173		
Post Feb 2014 $\times$ Share of Ethnic Russians	0.100***	0.184**	0.053	
	(0.030)	(0.087)	(0.044)	
Post Feb 2014 $\times$ Search				-0.010***
				(0.002)
Firm FE	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓
Dep. Var. Mean	0.205	0.207	0.209	0.205
Dep. Var. SD	0.404	0.405	0.407	0.404
R^2	0.41	0.43	0.41	0.41
Observations	579,445	90,979	122,972	579,445
Firms	12,601	1,995	2,681	12,601
Districts	392	131	79	392

Notes: Column (1) shows the baseline results. Columns (2) and (3) present the baseline results for firms in provinces with, respectively, very high (above 75th percentile) and very low (below 25th percentile) frequency of Google searches for "boycott" from February 1 to May 1, 2014. Column (4) displays the baseline results where share of ethnic Russians is replaced by the frequency of Google searches for "boycott" from February 1 to May 1, 2014, across Ukrainian provinces. The dependent variable is an indicator for a firm trading with Russia in a given month (export+import). Standard errors in parentheses are clustered at the district level. * p<0.1, ** p<0.05, *** p<0.01.

Table A17: Consumer-Goods and Intermediate-Goods Traders

Specification:	(1) Firms with $> 50\%$ of Transactions in Consumer Goods	(2) Firms with $> 50\%$ of Transactions in Intermediate Goods	(3) Import by Firms with $> 50\%$ of Transactions in Consumer Goods	(4) Import by Firms with $> 50\%$ of Transactions in Intermediate Goods	(5) Export by Firms with $> 50\%$ of Transactions in Consumer Goods	(6) Export by Firms with $> 50\%$ of Transactions in Intermediate Goods
	Diff p-value: 0.008		*Diff p-value: 0.008*		*Diff p-value: 0.079*	
Post Feb 2014 × Share of Ethnic Russians, Province-Level	0.408***	0.102**	0.324**	0.009	0.498***	0.182*
	(0.140)	(0.045)	(0.120)	(0.036)	(0.154)	(0.088)
Firm FE	✓	✓	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓	✓	✓
Dep. Var. Mean	0.188	0.208	0.191	0.190	0.185	0.204
Dep. Var. SD	0.390	0.406	0.393	0.393	0.389	0.403
Observations	86,241	443,482	40,704	278,448	54,481	231,598
Firms	1,932	9,752	848	5,801	1,267	5,386
Provinces	23	23	23	23	23	23

Notes: This table presents the robustness of Table 6 to using province-level ethnicity, thus allowing for a larger market size for the imported products. Intermediate goods and consumer goods are identified by the transaction's HS6 product code using the BEC classification. The dependent variables are the indicator of any trade activity (export+import) with Russia by a firm in a given month in columns (1) and (2), the indicator of any imports from Russia by a firm in a given month in columns (3) and (4), and the indicator of any exports to Russia by a firm in a given month in columns (5) and (6). Inference across regression models is conducted using a similarly unrelated regressions framework. Standard errors are clustered at the province level. * p<0.1, ** p<0.05, *** p<0.01.

Table A18: Heterogeneity Analysis by the Size of the Trading Firm

Specification:	(1) Baseline	(2) Large Firms with $> 50\%$ of Transactions in Intermediate Goods	(3) Small Firms with $> 50\%$ of Transactions in Intermediate Goods	(4) Import by Large Firms with $> 50\%$ of Transactions in Intermediate Goods	(5) Import by Small Firms with $> 50\%$ of Transactions in Intermediate Goods	(6) Export by Large Firms with $> 50\%$ of Transactions in Intermediate Goods	(7) Export by Small Firms with $> 50\%$ of Transactions in Intermediate Goods
		Diff p-value: 0.004		*Diff p-value: 0.025*		*Diff p-value: 0.003*	
Post Feb 2014 $\times$ Share of Ethnic Russians	0.100***	0.159***	-0.030	0.094**	-0.075	0.211***	0.064*
	(0.030)	(0.044)	(0.044)	(0.039)	(0.058)	(0.047)	(0.037)
Firm FE	✓	✓	✓	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓	✓	✓	✓
Dep. Var. Mean	0.205	0.321	0.158	0.259	0.170	0.315	0.109
Dep. Var. SD	0.404	0.467	0.364	0.438	0.376	0.464	0.311
Observations	579,445	167,140	167,363	104,016	109,872	108,704	71,767
Firms	12,601	3,724	3,640	2,167	2,289	2,528	1,669
Districts	392	303	228	233	154	260	175

Notes: This table presents the heterogeneity analysis of the baseline results by the size of a firm. Large firms are defined as having more than the median number of employees in our sample, i.e., 19 employees or more, as of 2013. Data on the number of employees are from the ORBIS/AMADEUS dataset. The dependent variables are the indicator of any trade activity (export+import) by a firm in a given month in columns (1) through (3), the indicator of any import activity by a firm in a given month in columns (4) and (5), and the indicator of any export activity by a firm in a given month in columns (6) and (7). Intermediate goods are identified by the HS6 product code using the standardized BEC classification. Inference across regression models is conducted using a similarly unrelated regressions framework. Standard errors are clustered at the district level. * p<0.1, ** p<0.05, *** p<0.01.

Table A19: Baseline Results for Ukrainian Trade with Kazakhstan

Dependent Variable:	(1) Any Trade Activity	(2) Log Total Weight Traded	(3) Log Total Value Traded	(4) Any Export Activity	(5) Log Total Weight Exported	(6) Log Total Value Exported
	Total Trade with Kazakhstan			*Exports to Kazakhstan*		
Post Feb 2014 × Share of Ethnic Russians	-0.039	-0.201	-0.478	-0.007	0.161	-0.030
	(0.037)	(0.413)	(0.514)	(0.038)	(0.408)	(0.505)
Firm FE	✓	✓	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓	✓	✓
Dep. Var. Mean	0.144	1.374	1.959	0.143	1.328	1.934
Dep. Var. SD	0.351	3.518	4.828	0.350	3.406	4.782
R^2	0.33	0.41	0.37	0.33	0.41	0.37
Observations	110,448	110,448	110,448	97,954	97,954	97,954
Firms	2,531	2,531	2,531	2,278	2,278	2,278
Districts	240	240	240	227	227	227

Notes: This table presents the baseline difference-in-differences estimates but for Ukrainian trade with Kazakhstan. Columns (1) through (3) display the results for all trade with Kazakhstan, while columns (4) through (6) focus on Ukrainian exports to Kazakhstan. Columns (1) and (4) use an indicator for a firm trading with or exporting to Russia in a given month. The logs of total value and net weight of shipped goods (export+import) are calculated by transforming the initial variable X with $L(X) = \log(X + 1)$. Data on ethnic composition are at the district level and come from the 2001 Ukrainian Census. Standard errors in parentheses are clustered at the district level. * p<0.1, ** p<0.05, *** p<0.01.

Appendix B: Distance to the Russian Border and Spatial Robustness Checks

B1 Computing Firms' Distances to the Russian Border

This section documents the calculation of firm-level distances to the Russia-Ukraine border.

We start by identifying the precise coordinates of each firm. We take all Ukrainian firms' addresses from Ukraine's customs transactions with Russia from 2013 through 2016. We then use an Excel macro to correct these addresses using Yandex Maps and produce the coordinates of the corrected addresses.[75] Here, several issues arise. First, an algorithm may be wrong, e.g., due to poor spelling in the original dataset. Second, a firm may have multiple addresses due to relocation or due to having multiple locations. We fix these issues by manually cleaning the output of the algorithm. We do this separately for export and import transactions and then reconcile the two datasets. While this procedure was labor-intensive and required help of multiple research assistants, by the end of it, we had identified the precise coordinates of each Ukrainian firm in our dataset. For 108 firms with multiple addresses (less than 1% of all firms in our sample), we take the earliest address available. As shown in Table B7, our baseline results are robust to excluding these firms altogether.

Next, we identify the set of checkpoints used in the Russia-Ukraine trade. According to our data, 95% of all trade transactions between Russia and Ukraine relied on either road or railway transportation. Thus, we are interested only in road and railway checkpoints. Following the official Ukrainian legal documents before and after the conflict, we have identified 17 road and six railway checkpoints used for Russia-Ukraine trade before the conflict, seven and two of which, respectively, have been closed since the start of the conflict.[76]

To calculate road distances from each firm to the closest checkpoint, we rely on three network shapefiles: major highways, a combination of major highways and regional roads, and the railway network of Ukraine. The shapefiles of regional roads and railways were obtained from https://www.diva-gis.org/gdata. The shapefiles of major highways are from https://www.arcgis.com/home/item.html?id=83535020ce154bd5a498957c159e3a99. The combined road network is constructed by

[75] Available at: https://excelstore.pro/examples-of-work/internet/get-the-address-and-coordinates-of-yandex-and-google

[76] According to Ukrainian law, as of 2013, the set of road checkpoints available for international trade with Russia consists of Chervonopartizans'k, Krasna Talivka, Novoazovs'k, Uspenka, Marinivka, Dolzhans'kij, Izvarine, Prosjane, Tanjushivka, Pletinivka, Goptivka, Velika Pisarivka, Junakivka, Katerinivka, Bachivs'k, Grem'jach, and Sen'kivka. The set of railway checkpoints consists of Kvashine, Chervona Mogila, Lantrativka, Topoli, Kozacha Lopan', and Zernove. See the law here: https://zakon.rada.gov.ua/laws/show/435-2012-%D0%BF/ed20120521#Text.

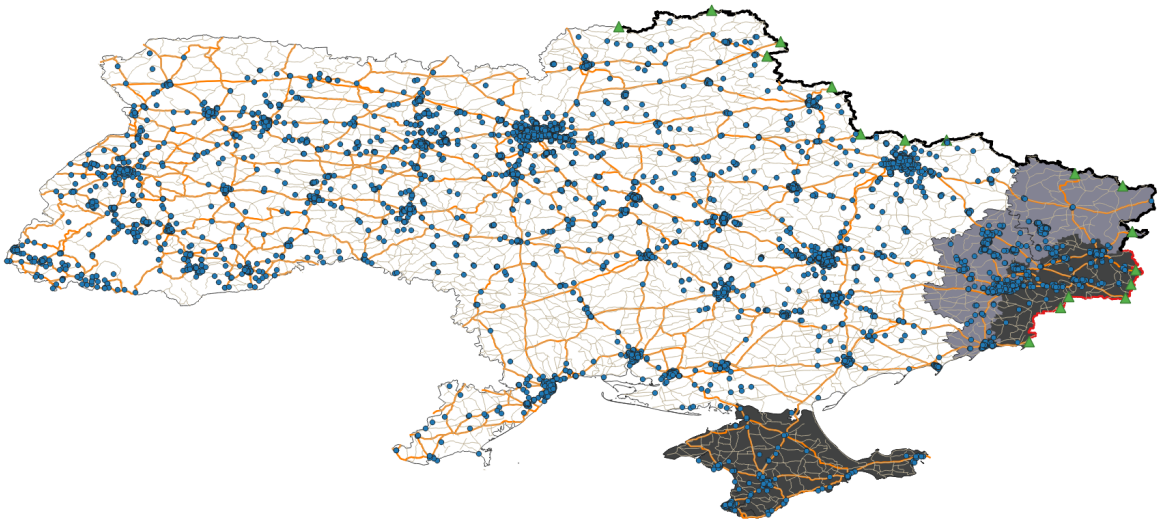
After the start of the conflict, some of these checkpoints were part of occupied territory and were no longer used for Russia-Ukraine trade. The following road checkpoints ceased to exist: Chervonopartizans'k, Krasna Talivka, Novoazovs'k, Uspenka, Marinivka, Dolzhans'kij, and Izvarine. The following railway checkpoints have been suspended: Kvashine and Chervona Mogila. See the law here: https://zakon.rada.gov.ua/laws/show/20-2016-%D0%BF#n9.

overlaying the shapefiles of the regional and major roads.

Figures B1 and B2 present the resulting maps, combining all the data collected above. Specifically, these figures illustrate the location of the Ukrainian firms that engaged in trade with Russia at any point from 2013 through 2016 (blue dots), the networks of major highways (thick orange lines in Figure B1), regional roads (thin grey lines in Figure B1), and railways (thin maroon lines in Figure B2), as well as road checkpoints (green triangles in Figure B1) and railway checkpoints (green rectangles in Figure B2). The occupied part of the Russia-Ukraine border is highlighted in red—all checkpoints on this part of the border are excluded from distance calculations after the start of the conflict. Finally, Crimea and the DPR/LPR areas are highlighted in black, while the rest of the Donbas region is highlighted in grey.

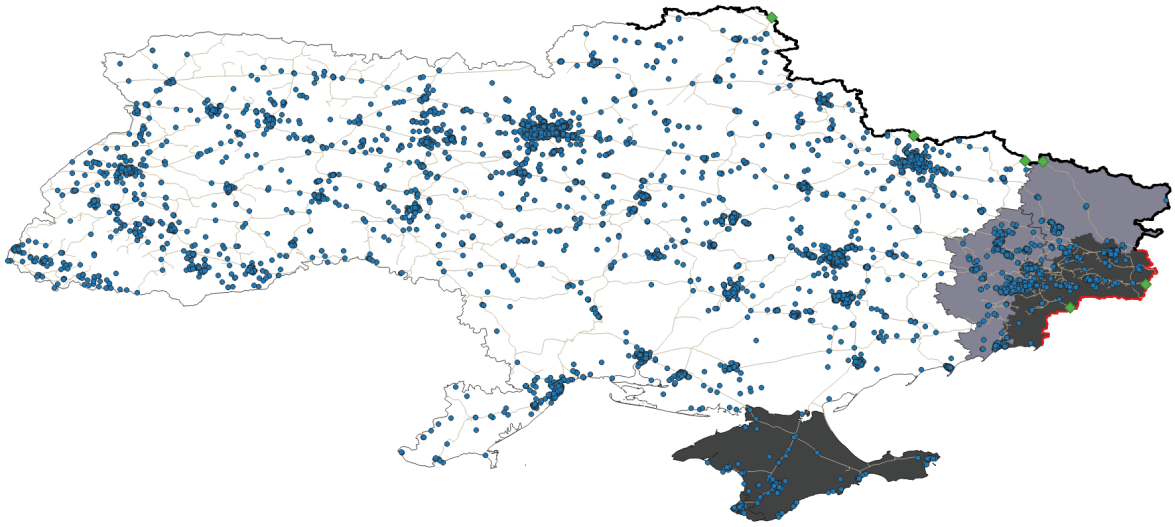
Finally, we use QGIS software to compute the network route-based distance from each Ukrainian firm to the closest checkpoint before and after the conflict. In particular, we calculate the distance to each road checkpoint via the major highway and combined roads network, and the distance to each railway checkpoint via the railway network. The distances were computed using the Distance Matrices tools of the QNEAT3 (QGIS Network Analysis Toolbox) plugin in QGIS. The tool uses a Dijkstra-Search algorithm to return the shortest path between two points on a given network dataset. It accounts for points outside of the network and, in addition to the network cost, calculates separate entry and exit costs as well.

Figure B1: Firm Location, Road Network, and Road Trade Checkpoints



Notes: The map displays the location of Ukrainian firms that engaged in trade with Russia at any point from 2013 through 2016 (blue dots), the network of major highways (thick orange lines) and regional roads (thin grey lines), as well as road checkpoints (green triangles). The occupied part of the Russia-Ukraine border is highlighted in red—all checkpoints on this part of the border are excluded from distance calculations after the start of the conflict. Crimea, DPR, and LPR are highlighted in black. The rest of the Donbas region is in grey.

Figure B2: Firm Location, Railway Network, and Railway Trade Checkpoints



Notes: The map displays the location of the Ukrainian firms that engaged in trade with Russia at any point from 2013 through 2016 (blue dots), the network of railways (thin maroon lines), as well as railway checkpoints (green rectangles). The occupied part of the Russia-Ukraine border is highlighted in red—all checkpoints on this part of the border are excluded from distance calculations after the start of the conflict. Crimea, DPR, and LPR are highlighted in black. The rest of the Donbas region is in grey.

Table B1: Baseline Results with Flexible Distance Controls

Distance Controls:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Distance Through Roads				*Distance Through Railroads*			
	Distance to the Border with Russia	Fifth Polynomial of Distance	Post Feb 2014 × Distance	Post Feb 2014 × Fifth Polynomial of Distance	Distance to the Border with Russia	Fifth Polynomial of Distance	Post Feb 2014 × Distance	Post Feb 2014 × Fifth Polynomial of Distance
	Panel A: Any Trade Activity as Dependent Variable							
Post Feb 2014 × Share of Ethnic Russians	0.099***	0.099***	0.072**	0.097**	0.099***	0.099***	0.072**	0.096**
	(0.030)	(0.031)	(0.036)	(0.043)	(0.030)	(0.029)	(0.032)	(0.040)
	Panel B: Log Total Weight Traded as Dependent Variable							
Post Feb 2014 × Share of Ethnic Russians	1.250***	1.254***	1.046**	1.450***	1.248***	1.248***	1.153***	1.511***
	(0.366)	(0.379)	(0.408)	(0.487)	(0.363)	(0.358)	(0.370)	(0.485)
	Panel C: Log Total Value Traded as Dependent Variable							
Post Feb 2014 × Share of Ethnic Russians	1.377***	1.376***	1.071**	1.308**	1.381***	1.386***	1.083**	1.405**
	(0.393)	(0.406)	(0.460)	(0.569)	(0.393)	(0.391)	(0.427)	(0.548)
Firm FE	✓	✓	✓	✓	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓	✓	✓	✓	✓
Dep. Var. Mean	2.784	2.784	2.784	2.784	2.784	2.784	2.784	2.784
Dep. Var. SD	5.549	5.549	5.549	5.549	5.550	5.550	5.550	5.550
R^2	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
Observations	579,349	579,349	579,349	579,349	579,162	579,162	579,162	579,162
Firms	12,599	12,599	12,599	12,599	12,595	12,595	12,595	12,595
Districts	392	392	392	392	391	391	391	391

Notes: This table documents the baseline results' robustness to various controls for firms' distance to Russia. Specific distance controls used in each column are listed in column headers. Columns (1) through (4) in various ways control for firm-level road distance to the closest road checkpoint at the Russia-Ukraine border. Columns (5) through (8) control for firm-level railroad distance to the closest railway checkpoint at the Russia-Ukraine border. These distances are different before and after the start of the conflict, as several road and railway checkpoints were closed due to the conflict. As a result, distance measures in columns (1)–(2) and (5)–(6) are not absorbed by firm fixed effects. For further details on distance calculation, see Section B1. The dependent variable in Panel A is the indicator of any trade activity (export+import) by a firm in a given month. The dependent variables in Panels B and C, the logs of total value and net weight of shipped goods (export+import), respectively, are calculated by transforming the initial variable X with $L(X) = \log(X + 1)$. District-level data on ethnic composition come from the 2001 Ukrainian Census. Standard errors in parentheses are clustered at the district level. * p<0.1, ** p<0.05, *** p<0.01

Table B2: Baseline Results with Flexible Latitude and Longitude Controls

Dependent Variable:	(1) Any Trade Activity	(2) Log Total Weight Traded	(3) Log Total Value Traded	(4) Any Trade Activity	(5) Log Total Weight Traded	(6) Log Total Value Traded
Post Feb 2014 × Share of Ethnic Russians	0.064*	1.160***	0.953*	0.068*	1.230***	0.949*
	(0.037)	(0.443)	(0.491)	(0.036)	(0.431)	(0.491)
Post Feb 2014 × Latitude	0.002	0.023	0.023	-0.232	-1.983	-3.542
	(0.002)	(0.027)	(0.028)	(0.182)	(2.195)	(2.518)
Post Feb 2014 × Longitude	0.002**	0.007	0.023*	0.051	0.476	0.645
	(0.001)	(0.010)	(0.012)	(0.043)	(0.506)	(0.592)
Post Feb 2014 × Latitude × Longitude				-0.001	-0.007	-0.012
				(0.001)	(0.009)	(0.011)
Post Feb 2014 × Latitude^2				0.003	0.023	0.040
				(0.002)	(0.022)	(0.025)
Post Feb 2014 × Longitude^2				-0.000	-0.002	-0.001
				(0.000)	(0.003)	(0.003)
Firm FE	✓	✓	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓	✓	✓
Dep. Var. Mean	0.205	2.013	2.784	0.205	2.013	2.784
Dep. Var. SD	0.404	4.175	5.549	0.404	4.175	5.549
R^2	0.41	0.49	0.46	0.41	0.49	0.46
Observations	579,349	579,349	579,349	579,349	579,349	579,349
Firms	12,599	12,599	12,599	12,599	12,599	12,599
Districts	392	392	392	392	392	392

Notes: This table presents the baseline results with flexible controls for firms' latitude and longitude. For details on recovering firm coordinates, see Section B1. Columns (1) and (4) use an indicator for a firm trading a given 4-digit product code with Russia in a given month (export+import). The logs of total value and net weight of shipped goods (export+import) are calculated by transforming the initial variable X with $L(X) = \log(X + 1)$. Data on ethnic composition are at the district level and come from the 2001 Ukrainian Census. Standard errors in parentheses are clustered at the district level. * p<0.1, ** p<0.05, *** p<0.01.

Table B3: Heterogeneity Analysis by Types of Trade Contracts, with Distance Controls

Panel A: Exports (Any Export Activity as Dependent Variable)

Subsample:	(1) High Predicted OA Usage	(2) Low Predicted OA Usage	(3) High Predicted CIA Usage	(4) Low Predicted CIA Usage
	Difference p-value: 0.074		*Difference p-value: 0.048*	
Post Feb 2014 × Share of Ethnic Russians	0.163***	-0.039	-0.054	0.171***
	(0.061)	(0.100)	(0.100)	(0.062)
Firm FE	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓
Dep. Var. Mean	0.218	0.189	0.187	0.219
Dep. Var. SD	0.413	0.392	0.390	0.413
R^2	0.44	0.38	0.39	0.44
Observations	156,971	109,095	106,592	159,474
Firms	3,972	2,785	2,724	4,033
Districts	276	271	272	273

Panel B: Imports (Any Import Activity as Dependent Variable)

Subsample:	(1) High Predicted OA Usage	(2) Low Predicted OA Usage	(3) High Predicted CIA Usage	(4) Low Predicted CIA Usage
	Difference p-value: 0.004		*Difference p-value: 0.035*	
Post Feb 2014 × Share of Ethnic Russians	0.022	0.153***	0.135***	0.032
	(0.030)	(0.042)	(0.042)	(0.031)
Firm FE	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓
Dep. Var. Mean	0.193	0.191	0.188	0.195
Dep. Var. SD	0.395	0.393	0.390	0.396
R^2	0.40	0.42	0.41	0.41
Observations	221,232	136,464	131,568	226,128
Firms	4,609	2,843	2,741	4,711
Districts	260	222	217	263

Notes: This table explores the robustness of Table 3 to controlling for firm distance to the Russia-Ukraine border interacted with the postconflict indicator. For brevity, we present only the results for distance through roads, but the results controlling for distance through railroads are nearly identical. OA refers to an open account contract, in which a good is delivered before the payment is due. CIA refers to a cash-in-advance contract, in which an importer pays before the good is shipped. Predicted contract usage is calculated based on the types of products traded by a firm, weighted by the amount of trade (in kg). We consider contract usage high (low) if the predicted share is above (below) the mean among the firms in the sample, separately for exporters and importers. For each HS4 product code, we use data from Demir et al. (2017) and Demir and Javorcik (2018) on average contract types used in trade between Ukraine, Russia, and Turkey from 2004 to 2011. The dependent variable in Panel A (Panel B) is an indicator of any exports to (imports from) Russia by a firm in a given month. Inference across regression models is conducted using a similarly unrelated regressions framework. Standard errors are clustered at the district level. * p<0.1, ** p<0.05, *** p<0.01.

Table B4: Decline in Trust and Reallocation of Trade, with Distance Controls

Dependent Variable:	(1) High Predicted OA Usage	(2) High Predicted CIA Usage	(3) High Predicted OA Usage	(4) High Predicted CIA Usage
Subsample:	*Exports*		*Imports*	
Post Feb 2014 × Share of Ethnic Non-Russians	-0.077	0.100*	0.114**	-0.176***
	(0.057)	(0.057)	(0.049)	(0.056)
Year FE	✓	✓	✓	✓
Firm FE	✓	✓	✓	✓
Dep. Var. Mean	0.624	0.360	0.645	0.322
Dep. Var. SD	0.484	0.480	0.479	0.467
R^2	0.88	0.88	0.83	0.81
Observations	9,953	9,953	11,271	11,271
Firms	3,358	3,358	3,870	3,870
Districts	275	275	236	236

Notes: This table explores the robustness of Table 4 to controlling for firm road distance to the Russia-Ukraine border interacted with the postconflict indicator. For brevity, we present only the results for distance through roads, but the results controlling for distance through railroads are nearly identical. OA refers to an open account contract in which a good is delivered before the payment is due. CIA refers to a cash-in-advance contract in which an importer pays before the good is shipped. As such, OA contracts require exporters to trust importers more, while CIA contracts require importers to trust exporters. Predicted contract usage is calculated based on the types of products traded by a firm, weighted by the amount of trade (in kg). We consider contract usage high (low) if the predicted share is above (below) the mean among the firms in the sample, separately for exporters and importers. For each HS4 product code, we use data from Demir et al. (2017) and Demir and Javorcik (2018) on average contract types used in trade between Ukraine, Russia, and Turkey from 2004 to 2011. Standard errors in parentheses are clustered at the district level. * p<0.1, ** p<0.05, *** p<0.01.

Table B5: Heterogeneity of Baseline Results By Firm Manager Ethnicity, with Distance Controls

Subsample:	(1) Firms with 100% of Russian Managers (Endings)	(2) Firms with 0% of Russian Managers (Endings)	(3) Firms with Above 75th pct of Russian Managers (Forebears)	(4) Firms with Below 25th pct of Russian Managers (Forebears)
	Diff p-value: 0.000		*Diff p-value: 0.004*	
Post Feb 2014 × Share of Ethnic Russians	-0.006	0.169***	-0.031	0.130**
	(0.040)	(0.041)	(0.049)	(0.052)
Firm FE	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓
Dep. Var. Mean	0.207	0.223	0.210	0.225
Dep. Var. SD	0.405	0.417	0.407	0.418
R^2	0.40	0.42	0.41	0.42
Observations	142,321	345,158	124,419	124,389
Firms	3,084	7,489	2,700	2,700
Districts	202	355	190	257

Notes: This table explores the robustness of Table 5 to controlling for firm road distance to the Russia-Ukraine border interacted with the postconflict indicator. For brevity, we present only the results for distance through roads, but the results controlling for distance through railroads are nearly identical. In columns (1) and (2), managers' last names are treated as Russian if they end in "ov," "ova," "ev," "eva," "in," or "ina" (for a detailed discussion of this approach, see Zhuravlev (2005) (in Russian)). In columns (3) and (4), we use the probability that a randomly drawn firm's manager has a Russian last name as identified using Forebears, the largest geospatial genealogical service available. The dependent variable in all columns is an indicator for a firm trading with Russia in a given month (export+import). Standard errors in parentheses are clustered at the district level. * p<0.1, ** p<0.05, *** p<0.01.

Table B6: Consumer-Goods and Intermediate-Goods Traders, with Distance Controls

Specification:	(1) Firms with $> 50\%$ of Transactions in Consumer Goods	(2) Firms with $> 50\%$ of Transactions in Intermediate Goods	(3) Import by Firms with $> 50\%$ of Transactions in Consumer Goods	(4) Import by Firms with $> 50\%$ of Transactions in Intermediate Goods	(5) Export by Firms with $> 50\%$ of Transactions in Consumer Goods	(6) Export by Firms with $> 50\%$ of Transactions in Intermediate Goods
	Diff p-value: 0.009		*Diff p-value: 0.151*		*Diff p-value: 0.065*	
Post Feb 2014 $\times$ Share of Ethnic Russians	0.278^{***}	0.032	0.221^{**}	0.064^{**}	0.271^{**}	0.013
	(0.091)	(0.044)	(0.101)	(0.027)	(0.123)	(0.056)
Firm FE	✓	✓	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓	✓	✓
Dep. Var. Mean	0.187	0.208	0.190	0.191	0.185	0.204
Dep. Var. SD	0.390	0.406	0.393	0.393	0.388	0.403
Observations	86,049	442,964	40,512	278,016	54,438	231,426
Firms	1,928	9,741	844	5,792	1,266	5,382
Districts	215	365	90	288	202	309

Notes: This table explores the robustness of Table 6 to controlling for firm road distance to the Russia-Ukraine border interacted with the postconflict indicator. For brevity, we present only the results for distance through roads, but the results controlling for distance through railroads are nearly identical. Intermediate goods and consumer goods are identified by the transaction's HS6 product code using the BEC classification. The dependent variables are the indicator of any trade activity (export+import) with Russia by a firm in a given month in columns (1) and (2), the indicator of any imports from Russia by a firm in a given month in columns (3) and (4), and the indicator of any exports to Russia by a firm in a given month in columns (5) and (6). Inference across regression models is conducted using a similarly unrelated regressions framework. Standard errors are clustered at the district level. * p<0.1, ** p<0.05, *** p<0.01.

Table B7: Baseline Results Without Multilocation Firms

Dependent Variable:	(1) Any Trade Activity	(2) Log Total Weight Traded	(3) Log Total Value Traded	(4) Any Trade Activity	(5) Log Total Weight Traded	(6) Log Total Value Traded
Post Feb 2014 × Share of Ethnic Russians	0.099***	1.245***	1.384***			
	(0.030)	(0.366)	(0.402)			
Post Feb 2014 × Share of Russian Speakers				0.047***	0.606***	0.653***
				(0.014)	(0.170)	(0.188)
Firm FE	✓	✓	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓	✓	✓
Dep. Var. Mean	0.203	1.993	2.760	0.203	1.993	2.760
Dep. Var. SD	0.402	4.153	5.528	0.402	4.153	5.528
R^2	0.41	0.49	0.46	0.41	0.49	0.46
Observations	574,583	574,583	574,583	574,583	574,583	574,583
Firms	12,493	12,493	12,493	12,493	12,493	12,493
Districts	386	386	386	386	386	386

Notes: This table presents the baseline results estimated without the multilocation firms. Columns (1) and (4) use an indicator for a firm trading with Russia in a given month (export+import). The logs of total value and net weight of shipped goods (export+import) are calculated by transforming the initial variable X with $L(X) = \log(X + 1)$. Data on ethnolinguistic composition are at the district level and come from the 2001 Ukrainian Census. The share of native Russian speakers is the percentage of people who named Russian as their mother tongue ("rodnoi yazik"). Standard errors in parentheses are clustered at the district level. * p<0.1, ** p<0.05, *** p<0.01.

Appendix C: Robustness to Preexisting Differences in Firm Characteristics

Our trade data display some differences in raw pre-conflict trade volume between more and less Russian areas of Ukraine (e.g., see Figure A6). One may worry that these differences are caused by the disparities in certain crucial firm characteristics, which may themselves drive the heterogeneous response to the conflict in more versus less Russian areas of Ukraine.

We address this concern in two steps.[77] First, we show that the pre-conflict cross-sectional discrepancies in trade volume across areas with high and low shares of ethnic Russians can be explained by differences in firm size and industry. Specifically, Table C1 indicates that controlling for a firm's baseline size (via total sales and number of employees)[78] and industry (via the two-digit NAICS indicators) eliminates the association between the pre-conflict trade levels and the share of ethnic Russians. These patterns hold for both the share of ethnic Russians in a district (odd columns) and the interquartile indicator of Russian ethnicity used to construct Figure A6 (even columns).

Second, we show that controlling for the above firm characteristics interacted with the year fixed effects does not affect our baseline estimates. Indeed, the estimates presented in Table C2 remain very similar to the baseline results in Table 2, both in terms of magnitude and statistical significance.

Overall, these results suggest that our baseline results are unlikely to be due to differences in preexisting firm characteristics that drive the wedge in pre-conflict trade. This evidence is in line with our other robustness checks that rule out many additional confounders, such as firm-level distance to Russia, product composition of trade, locality-based shocks, as well as the change in a firm's financial standing immediately after the conflict.

[77] Also, see our discussion in footnote 32 regarding Figure A7 that regenerates the patterns in Figure 4 using a sample of firms matched on pre-war characteristics, such as size and industry.

[78] Controlling for a firm's total assets yields identical results. We omit this evidence for brevity.

Table C1: Trade Differences Controlling for Baseline Firm Characteristics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent Variable:	Log Total Weight Traded							
Share of Ethnic Russians	-1.286**		-0.570		0.060		-0.246	
	(0.640)		(0.893)		(0.622)		(0.540)	
1 = Share of Ethnic Russians Above 75th Percentile;		-0.425***		-0.267		0.015		-0.141
0 = Share of Ethnic Russians Below 25th Percentile		(0.147)		(0.179)		(0.178)		(0.148)
Log Sales 2013			✓	✓				
Log # of Employees 2013					✓	✓		
Two-Digit NAICS FE							✓	✓
Dep. Var. Mean	2.525	2.660	3.109	3.272	3.125	3.284	3.026	3.192
Dep. Var. SD	4.564	4.674	4.898	5.005	4.905	5.011	4.856	4.969
R^2	0.00	0.00	0.10	0.10	0.10	0.11	0.04	0.05
Observations	163,735	82,472	123,630	61,763	122,447	61,269	127,608	63,479
Firms	12,595	6,342	9,510	4,749	5,419	4,711	9,816	4,881
Districts	388	345	366	324	366	324	367	325

Notes: This table tests whether trade differences across more and less Russian areas of Ukraine can be explained by certain firm characteristics, such as firm size and industry. Columns (3)–(4) include controls for the logarithm of a firm's 2013 sales, columns (5)–(6) include controls for the logarithm of a firm's 2013 number of employees, and columns (7)–(8) include controls for the two-digit NAICS fixed effects. The log of total net weight of shipped goods is calculated by transforming the initial variable X with $L(X) = \log(X + 1)$. Only pre-conflict months are considered. District-level data on ethnic composition come from the 2001 Ukrainian Census. Standard errors in parentheses are clustered at the district level. * p<0.1, ** p<0.05, *** p<0.01.

Table C2: Baseline Results Controlling for Baseline Firm Characteristics Interacted with Year FE

Dependent Variable:	(1) Any Trade Activity	(2) Log Total Weight Traded	(3) Log Total Value Traded	(4) Any Trade Activity	(5) Log Total Weight Traded	(6) Log Total Value Traded	(7) Any Trade Activity	(8) Log Total Weight Traded	(9) Log Total Value Traded
Post Feb 2014 × Share of Ethnic Russians	0.097**	1.254***	1.305**	0.091***	1.143***	1.196***	0.103***	1.144***	1.419***
	(0.039)	(0.463)	(0.521)	(0.030)	(0.349)	(0.400)	(0.034)	(0.366)	(0.467)
Firm FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Log Sales 2013 × Year FE	✓	✓	✓						
Log # of Employees 2013 × Year FE				✓	✓	✓			
Two-Digit NAICS FE × Year FE							✓	✓	✓
Dep. Var. Mean	0.237	2.338	3.238	0.237	2.341	3.242	0.233	2.302	3.188
Dep. Var. SD	0.425	4.433	5.884	0.425	4.434	5.886	0.423	4.405	5.850
R^2	0.44	0.52	0.49	0.44	0.52	0.49	0.44	0.52	0.49
Observations	438,195	438,195	438,195	433,992	433,992	433,992	452,478	452,478	452,478
Firms	9,515	9,515	9,515	9,424	9,424	9,424	9,821	9,821	9,821
Districts	370	370	370	370	370	370	371	371	371

Notes: This table tests whether our baseline results hold after accounting for baseline firm characteristics interacted with time fixed effects. Columns (1) through (3) include controls for the logarithm of a firm's 2013 sales interacted with the year fixed effects. Columns (4) through (6) include controls for the logarithm of a firm's 2013 number of employees interacted with the year fixed effects. Columns (7) through (9) include controls for the two-digit NAICS fixed effects interacted with the year fixed effects. The logs of total value and net weight of shipped goods are calculated by transforming the initial variable X with $L(X) = \log(X + 1)$. District-level data on ethnic composition come from the 2001 Ukrainian Census. Standard errors in parentheses are clustered at the district level. * p<0.1, ** p<0.05, *** p<0.01.

Appendix D: Disputes and Arbitration Between Russian and Ukrainian Firms

Contract enforcement in our setting is feasible only through an arbitration process. While companies sometimes sign formal contracts, they could be incomplete. More importantly, the outcome of the arbitration process is uncertain, and it can take relatively long to resolve the issue, even if the plaintiff firm gets the resolution it wants. This appendix discusses the qualitative evidence and the summary statistics for the arbitration decisions and their enforcement. It also illustrates, with a short empirical exercise, the heterogeneous dynamics of the number of cases for Ukraine and other countries.

The vast majority of disputes and, hence, cases arise when one of the partners fails to pay for the delivered goods, fails to deliver them on time, or fails to return an advance payment for an undelivered good. Firms can use formal channels to enforce the contract and extract the missing funds from their trading partner. In the Russia-Ukraine trade, the relevant arbitrators are the International Commercial Arbitration Court (ICAC) of Ukraine or the International Commercial Arbitration Court of Russia. Once the arbitrator makes the decision, a local court in the defendant country needs to confirm it. This step is critical for our data collection effort, since it allows us to construct a dataset of enforcement decisions.

Below are some examples of the arbitration cases behind these enforcement decisions:

1. Cases processed by the International Commercial Arbitration Court (ICAC) of Ukraine in 2007-2016: #11, #19, #24, #30, #38, #39, #49, #55, #64, #68, #72, #78, #83, #84, #90, #95, #101, #105, #119, #124. Below, we show two examples of a typical decision from the ICAC Ukraine website (https://icac.org.ua/ru/statystyka-ta-praktyka/).

   Case #30 (April 9, 2009). On October 3, 2008, ICAC Ukraine received a claim from a Ukrainian private limited company to collect the payment for the goods delivered in August and September 2008, prescribed under a contract from April 22, 2008. The total value of goods was US$5,250,440.12, a penalty of US$253,702.90, and 3% interest on the value, US$9,575.36 and US$29,607.48 in arbitration expenses, for a total of US$5,543,325.86.

   or

   Case #124 (October 6, 2016).
   On December 24, 2015, ICAC Ukraine received a claim from a Russian private limited company ... (the plaintiff) to collect from a Ukrainian airline company (the de-

fendant) a total debt of US$42,814.89 for a failure to deliver on the contract signed on August 20, 2013.

....

As follows from the claim, plaintiff A delivered the devices to service and to repair the airplanes for a total of US$42,814.89, which the defendant accepted. However, the defendant failed to pay upon the receipt.

2. Similar cases are processed by the International Commercial Arbitration Court of Russia in 2003-2012: 120/2003,155/2003, 42/2005, 49/2005, 82/2005, 71/2007, 139/2007, 252/2010, 110/2011, 6/2013, 236/2000, 48/2002, 4/2004, 189/2003, 69/2004, 71/2005, 37/2006, 60/2004, 126/2007, 196/2011 (http://www.cisg.ru/sudebnaya-praktika-po-venskoj-konvencii.php).

While most of the arbitration decisions are confidential and not published online, some are available in public sources. At the same time, the arbitration enforcement results by the local courts of the defendant's country are reported quite often. We use SPARK-INTERFAX data on Russian courts' enforcement decisions for foreign arbitration cases to complement our incomplete data on arbitration decisions.

From these enforcement decisions, we processed 1,447 cases over the 15 years from 2005 to 2019 (the data from 2011 to 2018 is of higher quality, so we focus only on this subset for our empirical exercise). Thus, we observe an average of 96.5 arbitration decisions per year. Specifically, for Ukraine, there were 334 decisions, of which 250 were in 2014 or later.

Our calculations for the local Russian courts show that it takes, on average, 180 days to go through all rounds of enforcement, with a median of 103 days—and this is not counting the ICAC arbitration decisions themselves, so combined it can take up to a year or longer. For Ukrainian plaintiffs, the median rose from 86 to 107 days in and after 2014.

As mentioned before, we do not have the data on ICAC of Russia and Ukraine per se. Still, we can use the Russian enforcement decisions for international arbitration as a proxy. We focus on the number of cases by country over time. We construct a panel of countries for 2011 through 2018, and for each of them, we record the number of cases where firms from those countries were plaintiffs arbitrating with Russian defendants. Next, we pool these countries into four groups: Ukraine, Commonwealth of Independent States (CIS), offshore, and all others.[79] Finally, we use claim dates

[79] We define offshores as countries featured in the top 20 offshore jurisdictions according to the Corporate Tax Haven Index (https://cthi.taxjustice.net/en/) and that are not one of the large European countries, such as the United Kingdom, Netherlands, Switzerland, or Belgium. The final list is the British Virgin Islands, the Bahamas, Belize, Gibraltar, Cayman Islands, Cyprus, Luxembourg, Panama, and Seychelles Islands.

and final resolution dates to assign a year to each observation. Panel A of Figure D1 explores the dynamics of the total cases (triangles) and the share of cases for the main groups. One can see that the total number of cases grows drastically from around 50 to more than 150 per year in the study period. Simultaneously, the share of cases from Ukraine grows after the start of the conflict, with a change of average share after 2014 of $0.3 - 0.17 = 0.13$. Panel B of Figure D1 switches to the claim date and displays similar patterns that are potentially even more pronounced than for the share of cases by resolution date.

Next, we switch to regressions to explore these patterns in greater detail. We regress the logarithm of the total number of cases in the Russian ICAC court for country i and year t on year and country fixed effects and the set of interaction terms for each of the country groups (Ukraine, CIS, and Offshore). Given the low number of countries, we cluster the standard errors two-way by year and country, as in Cameron, Gelbach, and Miller (2012).

$$log(1 + \text{Number of Cases}_{it}) = \mu_t + \nu_i + \beta \cdot \text{Post-2014} \times \text{Plaintiff from Ukraine} +$$
$$+\gamma \cdot \text{Post-2014} \times \text{Plaintiff from CIS} + \delta \cdot \text{Post-2014} \times \text{Plaintiff from Offshore} + \epsilon_{it}.$$

Table D1 reports $\hat{\beta}, \hat{\gamma}, \hat{\delta}$. We explore several specifications above, pooling other categories and keeping or dropping conflict areas. Furthermore, for a subsample of cases (about 45% of our data), we do not observe whether the final decision was made, and hence we are not sure whether the case was ever concluded. We also observe fewer complementary variables for those cases. Although one could make a strong argument for removing these cases altogether, for transparency, we present the results separately with and without this "nonconclusive" subsample.

Overall the regression results in Table D1 confirm the raw-data findings. Compared to other countries, we observe a clear jump in the number of cases from Ukraine after 2014, indicating that the conflict led to a rise in trade disputes between Russian and Ukrainian firms.[80]

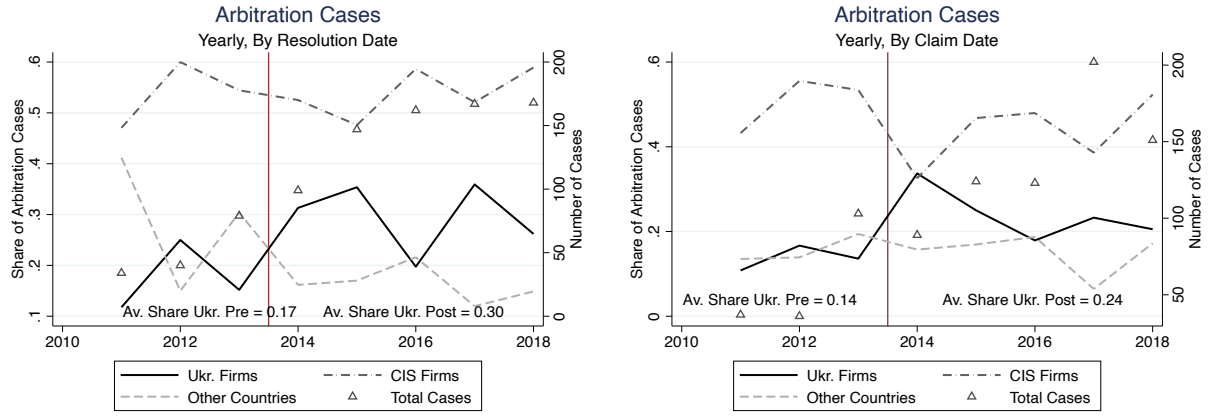
Table D2 further explores the disputes data using variation in firm location within Ukraine and focusing on the share of ethnic Russian variables as in our baseline results. The results suggest that, for the "conclusive" subsample, an increase in the number of cases is much smaller for firms from more ethnically Russian cities. The interaction is large and statistically significant. This result is highly consistent with the trust channel explored in Section 5.1, suggesting that the conflict

[80]Based on public sources, we noticed that the success rates differed for Ukrainian and non-Ukrainian firms: in 2018, the overall success rate was 61%, but without Ukrainian firms, it was much higher—at 77% (https://hsfnotes.com/arbitration/2019/04/09/enforcing-foreign-arbitral-awards-in-russia-survey-from-the-russian-arbitration-association/).

caused a spike in inter-group trade disputes, which could in turn cause a decline in inter-group trust. However, the interaction coefficient becomes much smaller and turns statistically insignificant in the full sample. Thus, we remain careful in treating these estimates as conclusive.

Overall, the qualitative and quantitative evidence in this Appendix leads us to conclude that (i) Russia-Ukraine trade occurs in an environment of weak institutions and lengthy and costly enforcement, (ii) trade disputes between Russian and Ukrainian firms increased substantially after the start of the conflict, and disproportionately so relative to disputes between Russian firms and firms from other countries, (iii) in a subsample with more complete data, the number of disputes with Russia has increased more for Ukrainian firms from less-Russian areas than Ukrainian firms from more-Russian areas.

Figure D1: Annual Shares and Number of Arbitration Cases by Country Group



Panel A: Dates of Case Resolutions

Panel B: Dates of Claims

Notes: This figure illustrates the dynamics of the number and share of cases by a country group from 2011 through 2018. We aggregate the data at the year level. The number of cases increases over time, while the shares fluctuate, with a slight shift in the share of the Ukrainian arbitration cases around 2014.

Table D1: Dynamics of Arbitration Cases by Country Group

Dependent Variable: $log(1 + \text{Number of Cases})$

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	With Conflict		No Conflict		With Conflict		No Conflict	
	W/o Nonconclusive Subsample				With Nonconclusive Subsample			
Post × Ukraine	0.981***	0.998***	1.001***	1.019***	1.424***	1.474***	1.453***	1.503***
	(0.089)	(0.129)	(0.088)	(0.119)	(0.060)	(0.141)	(0.057)	(0.132)
Post × CIS		0.112		0.112		0.240		0.240
		(0.176)		(0.176)		(0.214)		(0.213)
Post × Offshores		-0.023		-0.023		0.066		0.066
		(0.038)		(0.039)		(0.049)		(0.049)
Year and Country FEs	✓	✓	✓	✓	✓	✓	✓	✓
Mean Dep. Var.	0.294	0.294	0.293	0.293	0.420	0.420	0.419	0.419
Observations	384	384	384	384	488	488	488	488

Notes: The dependent variable is $log(1 + \text{Number of Cases}_{it})$ in year t and country i from 2011 through 2018. Columns (1), (2), (5), and (6) keep the areas in the East that become conflict areas after 2014. Columns (3), (4), (7), and (8) drop these areas. Cases from firms in Crimea are dropped for all specifications. Columns (1) through (4) report the regressions only for the data where we know the outcome of a hearing; that is, the less-noisy part of the dataset that includes only finalized trials. Standard errors in parentheses are clustered in a two-way fashion by country and year, per Cameron et al. (2012). * p<0.1, ** p<0.05, *** p<0.01.

Table D2: Dynamics of Arbitration Cases by Share of Ethnic Russians in a City

Dependent Variable: $log(1 + \text{Number of Cases})$

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	With Conflict		No Conflict		With Conflict		No Conflict	
	W/o Nonconclusive Subsample				With Nonconclusive Subsample			
Post × Share	-0.423**	-0.423**	-0.485**	-0.485**	-0.088	-0.088	0.018	0.018
	(0.122)	(0.131)	(0.179)	(0.173)	(0.284)	(0.235)	(0.425)	(0.379)
Post-2014	0.173**		0.177**		0.181***		0.174***	
	(0.067)		(0.064)		(0.039)		(0.044)	
Share of Ethnic Russians	0.273***		0.400***		0.349***		0.435***	
	(0.069)		(0.106)		(0.118)		(0.142)	
Year and City FEs		✓		✓		✓		✓
Mean Dep. Var.	0.150	0.150	0.157	0.157	0.170	0.170	0.172	0.172
Observations	248	248	224	224	656	656	624	624

Notes: The dependent variable is $log(1 + \text{Number of Cases}_{it})$ in year t and city i from 2011 through 2018. This table focuses only on cases from within Ukraine, and cases from Crimean firms are dropped for all specifications. Columns (1), (2), (5), and (6) keep the cities in the East that become conflict areas after 2014. Columns (3), (4), (7), and (8) drop these cities. Columns (1) through (4) report the regressions only for the data where we know the outcome of a hearing; that is, the less noisy part of the dataset that includes only finalized trials. Standard errors in parentheses are clustered in a two-way fashion by city and year, per Cameron et al. (2012). * p<0.1, ** p<0.05, *** p<0.01.

Appendix E: Russian Attitudes Toward Ukraine

In this section, we explore whether the attitudes of Russian citizens toward Ukraine evolved differently depending on the ethnic composition of the respondent's location within Russia. We do so using a series of nationally representative surveys of Russian citizens conducted by Levada Center. These data span 25 survey waves from 2013 through 2016 with around 40,000 respondents in total. We then estimate a difference-in-differences specification by regressing individual attitudes toward Ukraine on the postconflict indicator and its interaction with the presence of ethnic Ukrainians in the province of the respondent.

Table E1 presents the results. First, in columns (1) and (3), we explore the dynamics of Russian attitudes toward Ukraine depending on whether a respondent lives in a province with the share of ethnic Ukrainians above or below the median. Second, columns (2) and (4) explore how attitudes change along a continuous measure of the share of ethnic Ukrainians. Across all these specifications, we find that the interaction coefficients are small and not statistically significant. The magnitudes of the standardized effects are smaller than 0.03 standard deviations. These results stand in stark contrast to the large differential changes in Ukrainian attitudes toward Russia documented in Table A2.

From these estimates, it appears that ethnic distance from Russian regions to Ukraine as a whole did not matter as strongly for the anti-Ukrainian attitudes. As a result, since divisions between ethnic Russians and ethnic Ukrainians appear to be less salient within Russia, it is also unlikely that Russian consumers were buying products or that Russian firms were discriminating based on the ethnicity of Ukrainian firms' provinces.

Table E1: Differential Effect of Conflict on Attitudes of Russian Citizens Toward Ukraine

	(1)	(2)	(3)	(4)
Dependent Variable:	Share with Extreme Negative Views Toward Ukraine		Share with Positive Attitudes Toward Ukraine	
Post Conflict	0.159***	0.151***	-0.395***	-0.385***
	(0.017)	(0.017)	(0.024)	(0.028)
Share of Ukrainians Above Median	-0.011*		0.027	
	(0.006)		(0.024)	
Post Conflict × Share of Ukrainians Above Median	-0.012		0.025	
	(0.022)		(0.034)	
Share of Ukrainian Ethnicity		-0.310		0.478
		(0.219)		(0.976)
Post Conflict × Share of Ukrainian Ethnicity		0.134		0.208
		(0.803)		(1.602)
Dep. Var. Mean	0.142	0.142	0.417	0.417
Dep. Var. SD	0.349	0.349	0.493	0.493
R^2	0.04	0.04	0.11	0.11
Observations	39,721	39,721	39,721	39,721
Provinces	54	54	54	54

Notes: This table explores the heterogeneity of the effect of the Russia-Ukraine conflict on attitudes of Russian citizens toward Ukraine depending on the share of ethnic Ukrainians in the province of a respondent. In columns (1) and (2), the outcome is the share of respondents who answered the question "What is your overall attitude toward Ukraine?" as "very good" or "good." In columns (3) and (4), the outcome is the share of respondents who answered the same question as "very bad." Data are from 25 nationally representative surveys conducted by Levada Center from 2013 to 2016. The province-level data on ethnolinguistic composition come from the 2010 Russian Census. Standard errors in parentheses are clustered at the province level. * p<0.1, ** p<0.05, *** p<0.01.

Appendix F: Main Text Tables with the Conley HAC Correction

Table F1: Baseline Results, with Conley Spatial HAC Standard Errors

Dependent Variable:	(1) Any Trade Activity	(2) Log Total Weight Traded	(3) Log Total Value Traded
Post Feb 2014×Share of Ethnic Russians	0.101***	1.258***	1.411***
S.E. Clustered at District Level	(0.030)	(0.365)	(0.404)
S.E. Conley HAC, 150km radius & 24 months lag	(0.020)	(0.210)	(0.264)
S.E. Conley HAC, 150km radius & 48 months lag	(0.022)	(0.233)	(0.294)
S.E. Conley HAC, 250km radius & 24 months lag	(0.020)	(0.211)	(0.265)
S.E. Conley HAC, 250km radius & 48 months lag	(0.022)	(0.234)	(0.295)
S.E. Conley HAC, 500km radius & 24 months lag	(0.019)	(0.212)	(0.264)
S.E. Conley HAC, 500km radius & 48 months lag	(0.022)	(0.235)	(0.293)
Firm FE	✓	✓	✓
Year-Month FE	✓	✓	✓
Dep. Var. Mean	0.205	2.012	2.783
Dep. Var. SD	0.404	4.174	5.549
R^2	0.412	0.487	0.460
Observations	579,349	579,349	579,349
Firms	12,599	12,599	12,599
Districts	392	392	392

Notes: This table examines the robustness of the baseline results to allowing spatial correlation among districts that fall within a certain distance of each other. Conley spatial HAC standard errors are calculated using the STATA routine by Fetzer (2019). Column (1) uses an indicator for a firm trading with Russia in a given month (export+import). The logs of total value and net weight of shipped goods (export+import) are calculated by transforming the initial variable X with $L(X) = \log(X + 1)$. District-level data on ethnolinguistic composition come from the 2001 Ukrainian Census. * p<0.1, ** p<0.05, *** p<0.01.

Table F2: Heterogeneity Analysis by Trade Contracts, with Conley Spatial HAC Standard Errors

Panel A: Exports (Any Export Activity as Dependent Variable)

Subsample:	(1) High Predicted OA Usage	(2) Low Predicted OA Usage	(3) High Predicted CIA Usage	(4) Low Predicted CIA Usage
Post Feb 2014 × Share of Ethnic Russians	0.223***	0.021	0.018	0.221***
S.E. Clustered at District Level	(0.045)	(0.081)	(0.083)	(0.046)
S.E. Conley HAC, 150km radius & 24 months lag	(0.033)	(0.042)	(0.043)	(0.033)
S.E. Conley HAC, 150km radius & 48 months lag	(0.038)	(0.047)	(0.048)	(0.037)
S.E. Conley HAC, 250km radius & 24 months lag	(0.034)	(0.041)	(0.043)	(0.033)
S.E. Conley HAC, 250km radius & 48 months lag	(0.038)	(0.046)	(0.048)	(0.038)
S.E. Conley HAC, 500km radius & 24 months lag	(0.033)	(0.040)	(0.041)	(0.033)
S.E. Conley HAC, 500km radius & 48 months lag	(0.038)	(0.045)	(0.046)	(0.038)
Firm FE	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓
Dep. Var. Mean	0.213	0.186	0.186	0.212
Dep. Var. SD	0.409	0.389	0.389	0.409
R^2	0.44	0.38	0.39	0.43
Observations	172,731	117,820	113,649	176,902
Firms	4,017	2,740	2,643	4,114
Districts	277	271	270	275

Panel B: Imports (Any Import Activity as Dependent Variable)

Post Feb 2014 × Share of Ethnic Russians	0.010	0.146***	0.115***	0.029
S.E. Clustered at District Level	(0.024)	(0.032)	(0.034)	(0.025)
S.E. Conley HAC, 150km radius & 24 months lag	(0.028)	(0.036)	(0.036)	(0.029)
S.E. Conley HAC, 150km radius & 48 months lag	(0.032)	(0.041)	(0.041)	(0.032)
S.E. Conley HAC, 250km radius & 24 months lag	(0.028)	(0.036)	(0.036)	(0.029)
S.E. Conley HAC, 250km radius & 48 months lag	(0.032)	(0.041)	(0.041)	(0.032)
S.E. Conley HAC, 500km radius & 24 months lag	(0.028)	(0.037)	(0.036)	(0.029)
S.E. Conley HAC, 500km radius & 48 months lag	(0.032)	(0.041)	(0.041)	(0.032)
Firm FE	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓
Dep. Var. Mean	0.199	0.198	0.196	0.201
Dep. Var. SD	0.399	0.399	0.397	0.401
R^2	0.40	0.43	0.42	0.40
Observations	222,864	134,832	123,120	234,576
Firms	4,643	2,809	2,565	4887
Districts	262	221	212	267

Notes: This table explores the importance of trust by breaking down the baseline results along the direction of trade (exports to vs. imports from Russia) and along the type of contract a firm is predicted to use. Conley spatial HAC standard errors are calculated using the STATA routine by Fetzer (2019). For the rest of the description, see notes to Table 3. * p<0.1, ** p<0.05, *** p<0.01.

Table F3: Decline in Trust and Reallocation of Trade, with Conley Spatial HAC Standard Errors

Dependent Variable:	(1) High Predicted OA Usage	(2) High Predicted CIA Usage	(3) High Predicted OA Usage	(4) High Predicted CIA Usage
Subsample:	*Exports*		*Imports*	
Post Feb 2014 × Share of Ethnic Non-Russians	-0.078**	0.111***	0.130***	-0.168***
	(0.037)	(0.039)	(0.047)	(0.049)
S.E. Conley HAC, 150km radius & 24 months lag	(0.038)	(0.040)	(0.057)	(0.063)
S.E. Conley HAC, 150km radius & 48 months lag	(0.038)	(0.040)	(0.057)	(0.063)
S.E. Conley HAC, 250km radius & 24 months lag	(0.037)	(0.039)	(0.056)	(0.062)
S.E. Conley HAC, 250km radius & 48 months lag	(0.037)	(0.039)	(0.056)	(0.063)
S.E. Conley HAC, 500km radius & 24 months lag	(0.035)	(0.036)	(0.052)	(0.060)
S.E. Conley HAC, 500km radius & 48 months lag	(0.035)	(0.036)	(0.053)	(0.060)
Year FE	✓	✓	✓	✓
Firm FE	✓	✓	✓	✓
Dep. Var. Mean	0.624	0.360	0.645	0.322
Dep. Var. SD	0.484	0.480	0.479	0.467
R^2	0.88	0.88	0.83	0.81
Observations	9,953	9,953	11,271	11,271
Firms	3,358	3,358	3,870	3,870
Districts	275	275	236	236

Notes: This table tests for the differential decline in trust by observing whether firms in less-Russian areas of Ukraine decrease their relative trade of products that rely on more trust-intensive contracts. Conley spatial HAC standard errors are calculated using the STATA routine by Fetzer (2019). For the rest of the description, see notes to Table 4. * p<0.1, ** p<0.05, *** p<0.01.

Table F4: Heterogeneity of Baseline Results by Firm-Manager Ethnicity, with Conley Spatial HAC

Specification:	(1) Firms with 100% of Russian Managers (Endings)	(2) Firms with 0% of Russian Managers (Endings)	(3) Firms with Above 75th pct of Russian Managers (Forebears)	(4) Firms with Below 25th pct of Russian Managers (Forebears)
Post Feb 2014 × Share of Ethnic Russians	0.016	0.203***	-0.019	0.163***
	(0.035)	(0.036)	(0.042)	(0.041)
S.E. Conley HAC, 150km radius & 24 months lag	(0.038)	(0.026)	(0.039)	(0.044)
S.E. Conley HAC, 150km radius & 48 months lag	(0.043)	(0.030)	(0.044)	(0.050)
S.E. Conley HAC, 250km radius & 24 months lag	(0.038)	(0.027)	(0.039)	(0.044)
S.E. Conley HAC, 250km radius & 48 months lag	(0.043)	(0.030)	(0.044)	(0.050)
S.E. Conley HAC, 500km radius & 24 months lag	(0.039)	(0.027)	(0.040)	(0.044)
S.E. Conley HAC, 500km radius & 48 months lag	(0.043)	(0.030)	(0.045)	(0.050)
Firm FE	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓
Dep. Var. Mean	0.207	0.223	0.210	0.225
Dep. Var. SD	0.405	0.416	0.407	0.418
R^2	0.40	0.42	0.41	0.42
Observations	142,321	345,158	124,419	124,389
Firms	3,084	7,489	2,700	2,700
Districts	202	355	190	257

Notes: This table explores the heterogeneity of the baseline results by whether firm managers are of Russian descent. Conley spatial HAC standard errors are calculated using the STATA routine by Fetzer (2019). For the rest of the description, see notes to Table 5. * p<0.1, ** p<0.05, *** p<0.01.

Table F5: Consumer-Goods and Intermediate-Goods Traders

Specification:	(1) Firms with $> 50\%$ of Transactions in Consumer Goods	(2) Firms with $> 50\%$ of Transactions in Intermediate Goods	(3) Import by Firms with $> 50\%$ of Transactions in Consumer Goods	(4) Import by Firms with $> 50\%$ of Transactions in Intermediate Goods	(5) Export by Firms with $> 50\%$ of Transactions in Consumer Goods	(6) Export by Firms with $> 50\%$ of Transactions in Intermediate Goods
Post Feb 2014 $\times$ Share of Ethnic Russians	0.242***	0.075**	0.227**	0.046*	0.236**	0.100**
	(0.088)	(0.032)	(0.095)	(0.027)	(0.093)	(0.048)
S.E. Conley HAC, 150km radius & 24 months lag	(0.057)	(0.021)	(0.077)	(0.025)	(0.068)	(0.028)
S.E. Conley HAC, 150km radius & 48 months lag	(0.064)	(0.024)	(0.088)	(0.028)	(0.078)	(0.031)
S.E. Conley HAC, 250km radius & 24 months lag	(0.057)	(0.021)	(0.077)	(0.025)	(0.068)	(0.028)
S.E. Conley HAC, 250km radius & 48 months lag	(0.065)	0.0237	(0.087)	(0.028)	(0.078)	(0.031)
S.E. Conley HAC, 500km radius & 24 months lag	(0.056)	0.0213	(0.076)	(0.025)	(0.067)	(0.027)
S.E. Conley HAC, 500km radius & 48 months lag	(0.064)	0.0237	(0.087)	(0.028)	(0.077)	(0.030)
Firm FE	✓	✓	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓	✓	✓
Dep. Var. Mean	0.187	0.208	0.190	0.191	0.194	0.208
Dep. Var. SD	0.390	0.406	0.392	0.393	0.395	0.406
Observations	86,049	442,964	40,512	278,016	54,438	231,426
Firms	1,928	9,741	844	5,792	1,266	5,382
Districts	215	365	90	288	202	309

Notes: This table presents the heterogeneity analysis of the baseline results by the percentage of trade transactions a firm makes in consumer or intermediate goods. Conley spatial HAC standard errors are calculated using the STATA routine by Fetzer (2019). For the rest of the description, see notes to Table 6. * p<0.1, ** p<0.05, *** p<0.01.

Appendix G: Robustness to Missing Data

This appendix explores the robustness of the paper's main results to alternative ways of treating missing data on Ukrainian exports to Russia in February to June 2014.

First, we examine robustness to four simple alternative ways of addressing the missing data that do not require additional information. Specifically, we have attempted to (i) omit the five missing months altogether, including imports; (ii) impute missing trade values as zeroes (as an extreme benchmark); (iii) impute missing trade values as the same as a firm's trade in February to June 2013 for the same month; and (iv) impute missing trade values as a firm's average monthly trade volume in 2013. Table G1 presents the estimates. Despite the conservative nature of some of these imputation methods, our effects remain stable and statistically significant.

To further assuage the concern that missing data may influence our results, we have obtained Russian customs data with the universe of Russian trade transactions with Ukraine during the missing five months (February to June 2014). We then partially recovered the missing data by merging this set of transactions with our baseline dataset.

Since the Russian data contain no unique identifiers of the Ukrainian firms, merging the two datasets was not straightforward. We conducted the process in two steps. First, we used a fuzzy merge algorithm that matches similar names of the Ukrainian firms across the two datasets. Then, we manually searched for erroneous matches. For the rest of the firms, we manually searched for their official tax identifiers online. By the end of this procedure, we successfully merged data for 4,256 of 4,580 (92.9%) Ukrainian firms mentioned in the Russian data for the missing months.

Another issue we deal with is the exchange rate. In the Ukrainian dataset, the value of the products traded is in hryvnias, and in the Russian dataset, it can be in different currencies, including rubles, USD, and hryvnias. To make the values comparable, we first convert the trade flows in the Russian data into rubles using the exchange rates listed in the dataset itself. Then we obtain ruble-to-hryvnia daily exchange rates for February to June 2014 and convert trade flows into hryvnias for each transaction based on the exchange rate for that date.[81]

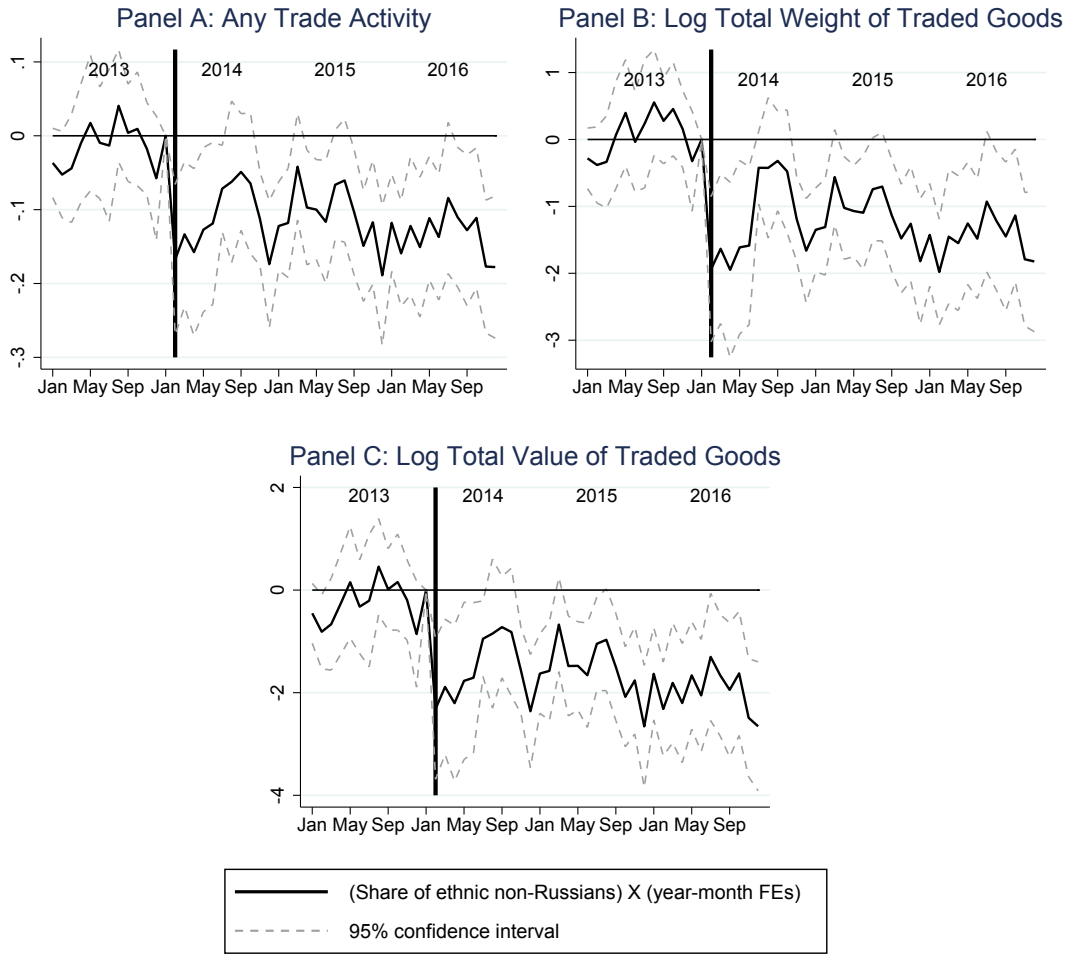
Using the resulting dataset, we replicate our baseline findings in Table G2. The effects remain almost identical and, if anything, become stronger and more precisely estimated. Figure G1 further shows that recovering the missing exports using Russian customs data does not change the effects' dynamics displayed in Figure 5.

We refrain from using the recovered missing data in our main analysis and instead use them as a

[81] Source: https://www.exchangerates.org.uk/RUB-UAH-spot-exchange-rates-history-2014.html.

robustness check, for several reasons. First, for reasons of comparability and transparency, all else equal, we prefer to obtain all results from one dataset. Second, while the match with the Russian data is good, it is still not perfect, and some transactions are lost in the process. Importantly, with the imputed data, it is impossible to conduct some of the most-granular analysis in the paper, e.g., using Ukrainian trade with other countries. Finally, the fact that baseline results remain virtually identical indicates little need for using the recovered data in all of our analyses.

Figure G1: Dynamics of the Importance of Local Ethnic Composition for Firms' Trade with Russia



Notes: This graph replicates the estimates in Figure 5, but with missing Ukrainian exports to Russia in February–June 2014 recovered using Russian customs data. Panel A displays the results for any trade activity with Russia in a given month (export+import) as the dependent variable. Panel B displays the results for the logarithm of total weight of the goods traded with Russia (export+import). Panel C displays the results for the log of total value traded (export+import). Share of ethnic non-Russians is calculated as 1 − share of ethnic Russians. 95% confidence intervals are constructed for standard errors clustered at the district level.

Table G1: Robustness of Baseline Results to Missing Data

Dependent Variable:	(1) Any Trade Activity	(2) Log Total Weight Traded	(3) Log Total Value Traded	(4) Any Trade Activity	(5) Log Total Weight Traded	(6) Log Total Value Traded
	Without Feb–Jun 2014			*Zero Exports in Feb–Jun 2014*		
Post Feb 2014 × Share of Ethnic Russians	0.102***	1.256***	1.421***	0.107***	1.358***	1.483***
	(0.029)	(0.348)	(0.385)	(0.032)	(0.387)	(0.427)
Firm FE	✓	✓	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓	✓	✓
Dep. Var. Mean	0.206	2.029	2.806	0.196	1.929	2.668
Dep. Var. SD	0.405	4.190	5.570	0.397	4.107	5.461
R^2	0.42	0.49	0.47	0.41	0.48	0.45
Observations	541,585	541,585	541,585	604,560	604,560	604,560
Firms	12,595	12,595	12,595	12,595	12,595	12,595
Counties	388	388	388	388	388	388

Dependent Variable:	(7) Any Trade Activity	(8) Log Total Weight Traded	(9) Log Total Value Traded	(10) Any Trade Activity	(11) Log Total Weight Traded	(12) Log Total Value Traded
	Imputed as in Feb–Jun 2013			*Imputed as Average Trade in 2013*		
Post Feb 2014 × Share of Ethnic Russians	0.088***	1.085***	1.234***	0.068***	0.840***	1.029***
	(0.025)	(0.296)	(0.330)	(0.024)	(0.280)	(0.319)
Firm FE	✓	✓	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓	✓	✓
Dep. Var. Mean	0.209	2.061	2.844	0.231	2.202	3.068
Dep. Var. SD	0.407	4.215	5.590	0.422	4.268	5.681
R^2	0.42	0.49	0.47	0.41	0.49	0.46
Observations	604,800	604,800	604,800	604,800	604,800	604,800
Firms	12,600	12,600	12,600	12,600	12,600	12,600
Counties	391	391	391	391	391	391

Notes: This table examines the robustness of the baseline results in Table 2 to four alternative ways of accommodating the missing exports data from February through June 2014. Columns (1) through (3) present the estimates without the February–June 2014 import data. Columns (4) through (6) display the baseline results when firms' export flows from February through June 2014 are assumed to be zero. Columns (7) through (9) assume that firm i's exports at month m from February through June 2014 are the same as firm i's exports at month m from February through June 2013. Finally, columns (10) through (12) assume that firm i's exports at any month from February through June 2014 are the same as firm i's average exports throughout 2013. Columns (1), (4), (7), and (10) use an indicator for a firm trading with Russia in a given month (export+import). The logs of total value and net weight of shipped goods (export+import) are calculated by transforming the initial variable X with $L(X) = \log(X + 1)$. District-level data on ethnolinguistic composition come from the 2001 Ukrainian Census. Standard errors in parentheses are clustered at the district level. * p<0.1, ** p<0.05, *** p<0.01.

Table G2: Baseline Results with Missing Trade Imputed from Russian Customs Data

Dependent variable:	(1) Any Trade Activity	(2) Log Total Weight Traded	(3) Log Total Value Traded	(4) Any Trade Activity	(5) Log Total Weight Traded	(6) Log Total Value Traded
Post Feb 2014 × Share of Ethnic Russians	0.104***	1.326***	1.455***			
	(0.031)	(0.376)	(0.411)			
Post Feb 2014 × Share of Russian Speakers				0.050***	0.648***	0.692***
				(0.014)	(0.174)	(0.190)
Firm FE	✓	✓	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓	✓	✓
Dep. Var. Mean	0.196	1.926	2.663	0.196	1.926	2.663
Dep. Var. SD	0.397	4.104	5.455	0.397	4.104	5.455
R^2	0.41	0.48	0.46	0.41	0.48	0.46
Observations	611,881	611,881	611,881	611,881	611,881	611,881
Firms	12,755	12,755	12,755	12,755	12,755	12,755
Districts	392	392	392	392	392	392

Notes: This table replicates the estimates in Table 2, but with missing Ukrainian exports to Russia from February through June 2014 recovered using Russian customs data. Columns (1) and (4) use an indicator for a firm trading with Russia in a given month (export+import). The logs of total value and net weight of shipped goods (export+import) are calculated by transforming the initial variable X with $L(X) = \log(X + 1)$. Data on ethnolinguistic composition are at the district level and come from the 2001 Ukrainian Census. The share of native Russian speakers is the percentage of people who named Russian as their mother tongue ("rodnoi yazik"). Standard errors in parentheses are clustered at the district level. * p<0.1, ** p<0.05, *** p<0.01.

Appendix H: Determinants of Trade Contract Choice (OA vs. CIA)

This appendix explores the determinants of the OA versus CIA choice. First, we present the findings in the literature, and then we summarize the patterns in our data.

Product-specific predictors of trade credit are one of the three main determinants of contract arrangements. Notably, however, the early literature on trade credits focuses more on country and firm characteristics (Petersen and Rajan, 1997; Fisman and Love, 2003). Important country-specific factors have to do with bank credit accessibility and financial institutions (Fisman and Love, 2003), contract enforcement (Nunn, 2007), and exchange control policies (Ahn, 2014). Firm-level explanations focus on partner size and bargaining power (Klapper, Laeven, and Rajan, 2012; Fabbri and Klapper, 2016), along with the age of the relationship (Antras and Foley, 2015). Finally, industry- and product-level explanations include competitive pressure (Demir and Javorcik, 2018), product complexity (Hoefele, Schmidt-Eisenlohr, and Yu, 2016), and the share of intermediate inputs involved in a good's production (Nunn, 2007).

Taking into account the determinants offered by the literature, we explore which product or industry characteristics predict the OA versus CIA choice in our data. We find that OA contracts are more likely to be chosen for a four-digit (HS4) product category that contains more differentiated (Rauch, 1999) and fewer intermediate products. In addition, we find that good complexity does not matter for the OA/CIA choice in our setting.[82] While it is difficult to provide the precise interpretation for these correlations, these variables explain only 2% of the variation.

Importantly, we find substantial variation in the OA/CIA choice within the two-digit (HS2) product categories. This finding is very much in line with the trade-credit literature (Crozet, Demir, and Javorcik, 2020).[83] Specifically, we decompose the variance by running a regression of OA and CIA shares within HS4 on the HS2 fixed effects and find that the latter explain only less than 30% of the variation. These results suggest that the OA/CIA choice contains a lot of unexplained heterogeneity likely stemming from the specifics of the market for each product.

[82]The data on product complexity come from the Atlas of Economic Complexity, available at https://atlas.cid.harvard.edu/rankings/product.

[83]For example, Crozet et al. (2020) mention several cases for Turkish trade data: "*Silk-worm cocoons suitable for reeling*" (HS5001) are among the products with the highest use of letters of credit (LC), while another product belonging to the same 2-digit HS heading "*Silk waste (including cocoons unsuitable for reeling, yarn waste and gametted stock)*" (HS5003), is among the products with the lowest LC use. Similarly, the index value for "*Live bovine animals*" (HS0102) is in the top decile, while the one for "*Meat of bovine animals; fresh or chilled*" (HS0201) is only in the 3rd decile."

Appendix I: Additional Results for Firms' Key Decision Makers

I1 Validation of the Classification Methods

We validate our classification methods by aggregating the share of Russian managers to the province level and comparing the resulting percentages with the actual share of ethnic Russians from the Ukrainian Census. Figure I1 displays the results. The share of Russian managers calculated with our measures is strongly and positively correlated with the share of ethnic Russians in a province. A 1% increase in the Census share of ethnic Russians is associated with a 1.02% and a 0.38% increase, respectively, in the share of Russian managers measured according to the surname endings and the bank of surnames. Figure I2 displays the relationship between the two measures of manager ethnicity, confirming that they are tightly related and measure the same underlying factor.

I2 Ethnicity of Firm Owners

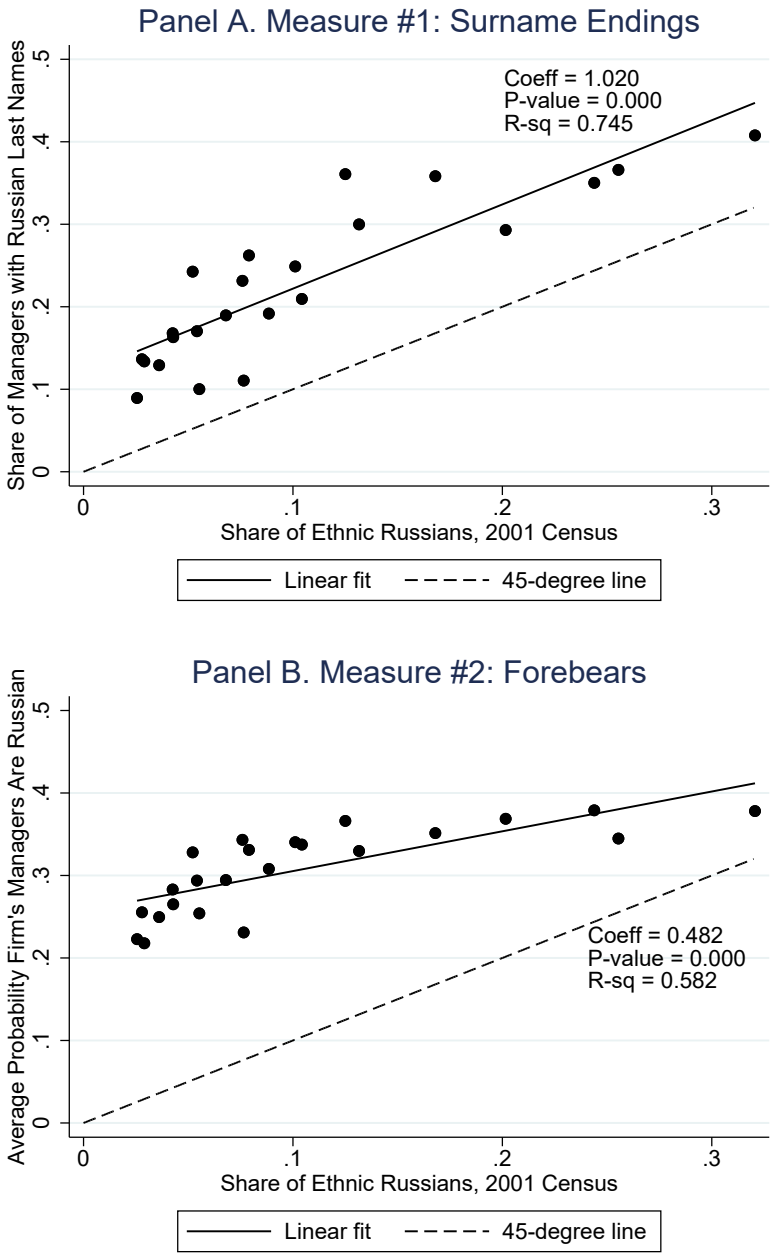
Section 5.2 documents that our baseline results exhibit heterogeneity by firm-manager ethnicity and that the latter does not appear to matter on its own. Nevertheless, one may be concerned that owners, not managers, are the ultimate decision makers in the firm, and that manager ethnicity may not be a good proxy for owner ethnicity. We show that, in this particular context, ethnicity of managers and owners are closely related and produce nearly identical results. First, Figure I3 displays a strong positive relationship between the share of Russian managers and the share of Russian owners, using the same algorithms introduced in Section 5.2. Second, Table I2 and Table I3 closely replicate Table 5 and Table I1, respectively, using the share of Russian owners instead of the share of Russian managers. We conclude that all the results obtained for the identity of firms' managers extend to the identity of firms' owners.

I3 Measurement Error

A possible concern with the results in Table I1 is that measures of ethnicity based on last names are plagued with measurement error that biases the corresponding estimates toward zero. To reduce the potential measurement-error bias, we follow Ashenfelter and Krueger (1994) and use one measure of the share of Russian managers as an instrument for the other. Panel B of Table I4 shows that the association between the two measures is very robust, thus forming a very strong first stage (see Figure I2 for the illustration). Panel A of Table I4 displays the second-stage estimates with measure #2 used as an instrument for measure #1. In Panel A.1., the IV estimates are indeed larger and more precise. However, according to Panel A.2., this correction for measurement error does not change our overall conclusion that it is the ethnic composition of the area, not of the firm that

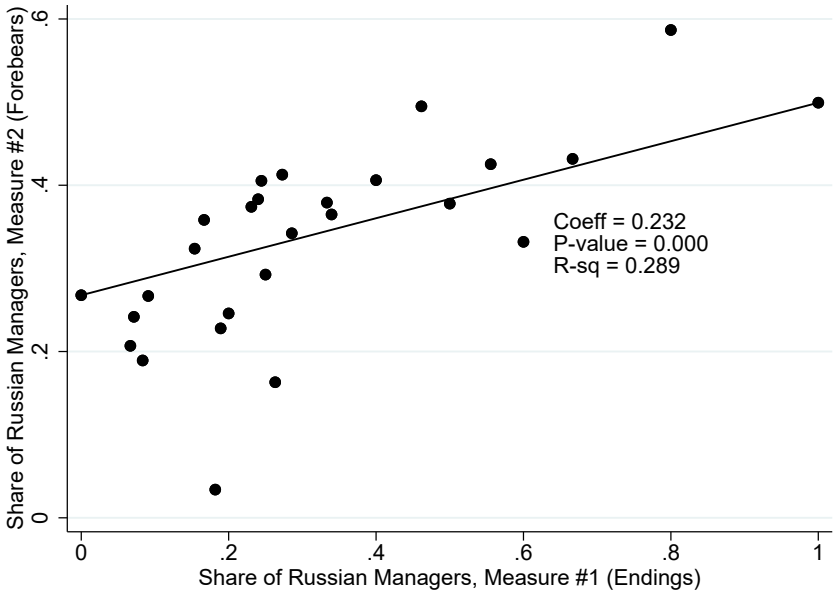
matters. Similar results are obtained when measure #1 is used as an instrument for measure #2.

Figure I1: Surname-Based Measures of Ethnicity Aggregated to the Province Level vs. Census



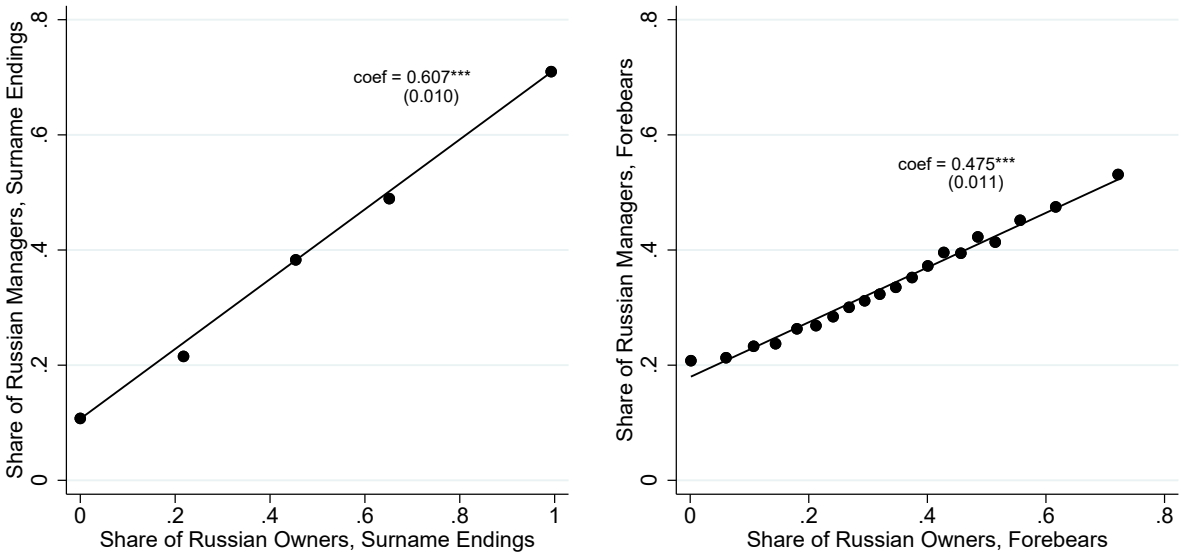
Notes: This figure illustrates the relationship between the share of ethnic Russians as measured by the 2001 Ukrainian Census and the share of firm managers with Russian last names aggregated to the province level (*oblast*). The results of a corresponding regression are displayed in the top-right corner. The three conflict provinces—Crimea, Donetsk, and Luhansk—are excluded from the analysis. Measure #1 classifies last names as Russian if they end in "ov," "ova," "ev," "eva," "in," or "ina" (for a detailed discussion of this approach, see Zhuravlev (2005) (in Russian)). Measure #2 is the probability that a randomly drawn firm's manager has a Russian last name as identified using Forebears, the largest geospatial genealogical service.

Figure I2: Relationship Between the Two Surname-Based Measures of Ethnicity



Notes: This figure is a binned scatter plot of the relationship between the two measures of the share of Russian managers in a firm. Measure #1 classifies last names as Russian if they end in "ov," "ova," "ev," "eva," "in," or "ina" (for a detailed discussion of this approach, see Zhuravlev (2005) (in Russian)). Measure #2 is the probability that a randomly drawn firm's manager has a Russian last name as identified using Forebears, the largest geospatial genealogical service. The results of a corresponding regression are displayed in the top-right corner. The conflict regions (Crimea, Donetsk, and Luhansk provinces) are excluded from this analysis.

Figure I3: Share of Russian Managers vs. Share of Russian Owners



Notes: This figure is a binned scatter plot of the relationship between the share of firm managers and the share of firm owners with Russian last names. The results of a corresponding regression are displayed in the top-right corner. The conflict regions—Crimea, Donetsk oblast, and Luhansk provinces—are excluded from the analysis. The figure on the left relies on an algorithm that classifies last names as Russian if they end in "ov," "ova," "ev," "eva," "in," or "ina" (for a detailed discussion of this approach, see Zhuravlev (2005) (in Russian)). The figure on the right relies on the probability that a person has a Russian last name as identified by Forebears, the largest geospatial genealogical service.

Table I1: Share of Russian Managers vs. Russian Ethnicity in a District

Dependent Variable:	(1) Any Trade Activity	(2) Log Total Weight Traded	(3) Log Total Value Traded	(4) Any Trade Activity	(5) Log Total Weight Traded	(6) Log Total Value Traded
	Panel A: Difference-in-Differences					
	Measure #1: Surname Endings			*Measure #2: Forebears*		
Post Feb 2014 × Share of Russian Managers	0.003	0.065	0.049	0.027**	0.285*	0.326*
	(0.005)	(0.057)	(0.073)	(0.014)	(0.166)	(0.197)
	Panel B: Horse-Race Specification					
	Measure #1: Surname Endings			*Measure #2: Forebears*		
Post Feb 2014 × Share of Russian Managers	-0.001	0.011	-0.012	0.018	0.176	0.204
	(0.006)	(0.067)	(0.082)	(0.016)	(0.195)	(0.228)
Post Feb 2014 × Share of Ethnic Russians	0.139***	1.681***	1.901***	0.132***	1.628***	1.822***
	(0.032)	(0.400)	(0.439)	(0.031)	(0.400)	(0.439)
Firm FE	✓	✓	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓	✓	✓
Dep. Var. Mean	0.223	2.198	3.047	0.223	2.196	3.044
Dep. Var. SD	0.416	4.324	5.752	0.416	4.321	5.750
R^2	0.42	0.50	0.47	0.42	0.50	0.47
Observations	497,772	497,772	497,772	497,628	497,628	497,628
Firms	10,794	10,794	10,794	10,791	10,791	10,791
Districts	375	375	375	375	375	375

Notes: This table explores whether the fact that firm managers are of Russian descent drives the baseline results. In columns (1) through (3), managers' last names are treated as Russian if they end in "ov," "ova," "ev," "eva," "in," or "ina" (for a detailed discussion of this approach, see Zhuravlev (2005) (in Russian)). In columns (4) through (6), we use the average probability that firm managers have a Russian last name as identified using Forebears, the largest geospatial genealogical service. Columns (1) and (4) use an indicator for a firm trading with Russia in a given month (export+import). The logs of total value and net weight of shipped goods are calculated by transforming the initial variable X with $L(X) = \log(X + 1)$. Standard errors in parentheses are clustered at the district level. * p<0.1, ** p<0.05, *** p<0.01.

Table I2: Heterogeneity of Baseline Results By Firm-Owner Ethnicity

Specification:	(1) Firms with 100% of Russian Owners (Endings)	(2) Firms with 0% of Russian Owners (Endings)	(3) Firms with Above 75th pct of Russian Owners (Forebears)	(4) Firms with Below 25th pct of Russian Owners (Forebears)
	Diff p-value: 0.002		*Diff p-value: 0.101*	
Post Feb 2014 × Share of Ethnic Russians	-0.040	0.163***	0.004	0.110**
	(0.036)	(0.038)	(0.049)	(0.043)
Firm FE	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓
Dep. Var. Mean	0.181	0.185	0.179	0.187
Dep. Var. SD	0.385	0.389	0.383	0.390
R^2	0.37	0.37	0.37	0.38
Observations	90,397	218,510	92,610	92,611
Firms	1,960	4,741	2,011	2,013
Districts	144	292	157	223

Notes: This table explores the heterogeneity of the baseline results by whether firm owners are of Russian descent. In columns (1) and (2), owners' last names are treated as Russian if they end in "ov," "ova," "ev," "eva," "in," or "ina" (for a detailed discussion of this approach, see Zhuravlev (2005) (in Russian)). In columns (3) and (4), we use the averagee probability that a firm's owner has a Russian last name as identified using Forebears, the largest geospatial genealogical service. The dependent variable in all columns is an indicator for a firm trading with Russia in a given month (export+import). Standard errors in parentheses are clustered at the district level. * p<0.1, ** p<0.05, *** p<0.01.

Table I3: Share of Russian Owners vs. Russian Ethnicity in a District

Dependent Variable:	(1) Any Trade Activity	(2) Log Total Weight Traded	(3) Log Total Value Traded	(4) Any Trade Activity	(5) Log Total Weight Traded	(6) Log Total Value Traded
	Panel A: Difference-in-Differences					
	Measure #1: Surname Endings			*Measure #2: Forebears*		
Post Feb 2014 × Share of Russian Owners	-0.003	-0.026	-0.053	0.016	0.086	0.145
	(0.006)	(0.059)	(0.072)	(0.012)	(0.132)	(0.161)
	Panel B: Horse-Race Specification					
	Measure #1: Surname Endings			*Measure #2: Forebears*		
Post Feb 2014 × Share of Russian Owners	-0.007	-0.072	-0.105	0.009	0.003	0.052
	(0.006)	(0.066)	(0.076)	(0.012)	(0.136)	(0.168)
Post Feb 2014 × Share of Ethnic Russians	0.107***	1.253***	1.420***	0.100***	1.200***	1.330***
	(0.027)	(0.322)	(0.366)	(0.028)	(0.336)	(0.380)
Firm FE	✓	✓	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓	✓	✓
Dep. Var. Mean	0.189	1.790	2.511	0.189	1.790	2.511
Dep. Var. SD	0.391	3.879	5.254	0.391	3.879	5.254
R^2	0.38	0.43	0.41	0.38	0.43	0.41
Observations	370,434	370,434	370,434	370,434	370,434	370,434
Firms	8,040	8,040	8,040	8,040	8,040	8,040
Districts	327	327	327	327	327	327

Notes: This table explores whether the fact that firm owners are of Russian descent drives the baseline results. In columns (1) through (3), owners' last names are treated as Russian if they end in "ov," "ova," "ev," "eva," "in," or "ina" (for a detailed discussion of this approach, see Zhuravlev (2005) (in Russian)). In columns (4) through (6), we use the average probability that firm managers have a Russian last name as identified using Forebears, the largest geospatial genealogical service. Columns (1) and (4) use an indicator for a firm trading with Russia in a given month (export+import). The logs of total value and net weight of shipped goods are calculated by transforming the initial variable X with $L(X) = \log(X + 1)$. Standard errors in parentheses are clustered at the district level. * p<0.1, ** p<0.05, *** p<0.01.

Table I4: Shares of Russian Managers, IV Results

Panel A: Second-Stage Estimates

Dependent Variable:	(1) Any Trade Activity	(2) Log Total Weight Traded	(3) Log Total Value Traded
	A.1. Difference-in-Differences		
Post Feb 2014 × Share of Russian Managers (Measure #1, Predicted)	0.028***	0.312***	0.358***
	(0.010)	(0.115)	(0.136)
	A.2. Horse-Race Specification		
Post Feb 2014 × Share of Russian Managers (Measure #1, Predicted)	0.015	0.144	0.167
	(0.013)	(0.156)	(0.181)
Post Feb 2014 × Share of Ethnic Russians	0.126***	1.564***	1.747***
	(0.033)	(0.419)	(0.458)
Firm FE	✓	✓	✓
Year and Month FE	✓	✓	✓
Dep. Var. Mean	0.223	2.196	3.044
Dep. Var. SD	0.416	4.321	5.750
R^2	0.42	0.50	0.47
Observations	497,628	497,628	497,628
Firms	10,791	10,791	10,791
Districts	369	369	369

Panel B: First-Stage Estimates

Dependent Variable:	(1)	(2)	(3)
	Share of Russian Managers, Measure #1 (Surname Endings)		
Share of Russian Managers, Measure #2 (Bank of Surnames)	1.222***	1.222***	1.222***
	(0.023)	(0.023)	(0.023)
R^2	0.295	0.295	0.295
Observations	10,786	10,786	10,786
F-statistics	2,924	2,924	2,924

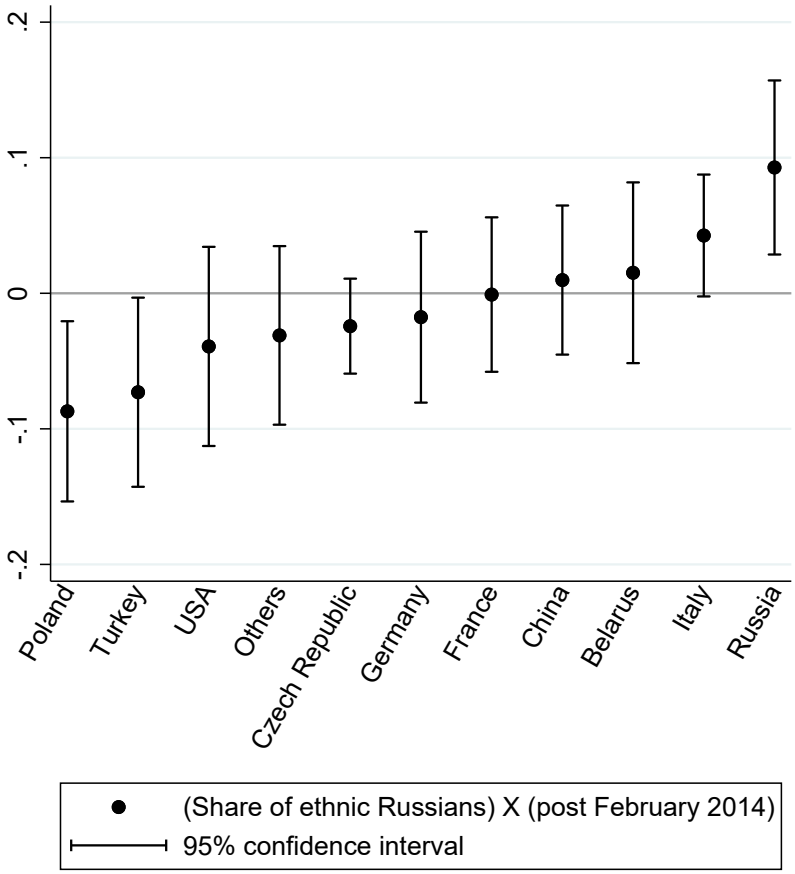
Notes: This table reports the IV estimates for the specifications in Table I1. In this IV specification, following Ashenfelter and Krueger (1994), one of the measures of the share of Russian managers is instrumented with the second one to reduce the measurement error. The instrumented measure (Measure #1) classifies last names as Russian if they end in "ov," "ova," "ev," "eva," "in," or "ina" (for a detailed discussion of this approach, see Zhuravlev (2005) (in Russian)). The second measure that serves as an instrument (Measure #2) is the probability that a randomly drawn firm's manager has a Russian last name as identified using Forebears, the largest geospatial genealogical service. The logs of total value and the net weight of shipped goods are calculated by transforming the initial variable X with $L(X) = \log(X + 1)$. District-level data on ethnic composition come from the 2001 Ukrainian Census. Conflict-affected regions are excluded. Standard errors in parentheses are clustered at the district level. * p<0.1, ** p<0.05, *** p<0.01.

Appendix J: Switching Patterns

This appendix presents evidence that one of the ways in which Ukrainian firms accommodated the trade shock was by switching to trading with other countries. First, according to Figure J1, Ukrainian firms in less-Russian areas increased their trade, relative to their counterparts, with countries such as Poland and Turkey (note that these results include firms that never traded with Russia from 2013 through 2016). This pattern is highly indicative of switching. Second, if switching was indeed one of the primary ways of accommodating the reduction in trade with Russia, one would expect firms with lower costs of switching to be driving our baseline estimates. We find this to be the case: as shown in Table J1, firms with already established connections in other countries before the conflict drive our baseline estimates (columns 1–2). Moreover, this pattern holds for both exporters and importers separately (columns 3–4 and 5–6, respectively), suggesting that the fixed costs of entering a new market are binding for both exporters and importers. Finally, Table J2 shows that the baseline effect is driven by firms that traded homogeneous products, as opposed to differentiated ones, further suggesting that lower switching costs mattered for our results.

Overall, these findings indicate that one of the ways in which Ukrainian firms accommodated the conflict-induced shock to inter-group trade was by shifting their trade away from Russia to other countries.

Figure J1: Difference-in-Differences Coefficients Across Countries



Notes: This figure presents the estimation results of equation (1) for firm-level trade with the top-10 trading partners of Ukraine and all other countries pooled together. The dependent variable is an indicator of any trade activity by a firm in a given month (export+import). 95% confidence intervals are constructed for the standard errors clustered at the district level.

Table J1: Heterogeneity Analysis By Preexisting Trade Ties with Other Countries

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable:	Any Trade with Russia		Any Exports to Russia		Any Imports from Russia	
Subsample:	Traded with Russia and Other Countries	Trade with Russia Only	Traded with Russia and Other Countries	Trade with Russia Only	Traded with Russia and Other Countries	Trade with Russia Only
	Difference p-value: 0.000		*Difference p-value: 0.048*		*Difference p-value: 0.002*	
Post Feb 2014 × Share of Ethnic Russians	0.149***	-0.022	0.191***	0.071	0.110***	-0.047
	(0.037)	(0.048)	(0.053)	(0.057)	(0.036)	(0.037)
Firm FE	✓	✓	✓	✓	✓	✓
Year and Month FE	✓	✓	✓	✓	✓	✓
Dep. Var. Mean	0.301	0.160	0.308	0.152	0.290	0.173
Dep. Var. SD	0.459	0.367	0.462	0.359	0.454	0.379
R^2	0.48	0.36	0.49	0.38	0.48	0.39
Observations	274,485	103,513	124,915	78,432	155,712	66,096
Firms	5,950	2,266	2,905	1,824	3,244	1,377
Districts	321	227	286	210	236	150

Notes: This table tests whether the baseline results are stronger for firms that had preexisting trade connections with other countries. The dependent variables are, respectively, an indicator of any trade activity with Russia by a firm in a given month (columns (1) and (2)), an indicator of any exports to Russia by a firm in a given month (columns (3) and (4)), and an indicator of any imports from Russia by a firms in a given month (columns (5) and (6)). Columns (1), (3), and (5) focus on firms that traded with Russia and at least one other country at any point from January 1, 2013, to January 31, 2014. Columns (2), (4), and (6) focus on firms that traded only with Russia but not other countries from January 1, 2013, to January 31, 2014. Inference across regression models is conducted using a similarly unrelated regressions framework. Standard errors are clustered at the district level. * p<0.1, ** p<0.05, *** p<0.01.

Table J2: Homogeneous and Differentiated Goods

Dependent Variable:	(1) Any Trade Activity	(2) Log Total Weight Traded	(3) Log Total Value Traded	(4) Any Trade Activity	(5) Log Total Weight Traded	(6) Log Total Value Traded
	Differentiated-Goods Traders			*Homogeneous-Goods Traders*		
Post Feb 2014 × Share of Ethnic Russians	0.047	0.529	0.533	0.380***	5.004***	5.341***
	(0.036)	(0.432)	(0.501)	(0.081)	(1.216)	(1.211)
Firm FE	✓	✓	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓	✓	✓
Dep. Var. Mean	0.160	1.389	2.086	0.168	1.985	2.370
Dep. Var. SD	0.366	3.371	4.834	0.373	4.574	5.337
R^2	0.35	0.41	0.39	0.31	0.36	0.34
Observations	284,335	284,335	284,335	65,643	65,643	65,643
Firms	6,091	6,091	6,091	1,399	1,399	1,399
Districts	318	318	318	193	193	193

Notes: This table tests whether the baseline results are stronger for firms trading homogeneous or differentiated products. Rauch (1999) defines homogeneous goods as those either traded on the organized exchange or having reference prices. We define homogeneous-goods traders as firms that have traded only homogeneous goods with Russia under the classification of Rauch (1999) from 2013 to 2016. We define differentiated-goods traders as firms that have not traded homogeneous goods under the Rauch (1999) classification. Columns (1) and (4) use an indicator for a firm trading with Russia in a given month (export+import). The logs of total value and net weight of shipped goods are calculated by transforming the initial variable X with $L(X) = \log(X + 1)$. Standard errors in parentheses are clustered at the district level. * p<0.1, ** p<0.05, *** p<0.01.

Appendix K: Implications for Firms' Sales, Profits, and Productivity

In this appendix, we explore whether the negative shock to inter-group trade documented in the paper had any implications for the trading firms' sales, profits, and productivity.

A simple difference-in-differences framework with firm performance on the left-hand side of the equation may conflate the effect of a trade shock with the negative effects of being close to the conflict zone. This may lead to a puzzling result in which firms from more Russian areas lost *more* sales after the start of the conflict, despite being less affected by the disruption of trade.

To isolate the consequences of a trade shock from other contemporaneous shocks, we compare firms from more-Russian areas *trading* with Russia not only to their counterparts in less-Russian areas but also to all other firms in the economy that *did not trade* with Russia. We do this in a triple-difference specification, with the outcome varying across time, ethnic composition, and an indicator for whether a firm traded with Russia or not. For illustration purposes, we use the share of ethnic non-Russians as the ethnic-dimension variable. Specifically, we estimate:

$$Y_{isdt} = \alpha_i + \gamma_t + [\mu + \beta \text{Post}_t] \times \text{NonRus}_d \times \text{Traded}_s + \text{Post}_t \times [\delta \text{NonRus}_d + \kappa \text{Traded}_s] + \varepsilon_{isdt},$$

where Y_{isdt} is a balance-sheet variable (sales, profits, and so on) of firm i in district d at year t of status s, where $s = 1$ if a firm traded with Russia in 2013; Post_t is an indicator for whether time period t is after the start of the conflict in February 2014; Traded_s is an indicator for whether a firm traded with Russia in 2013; NonRus_d is the share of ethnic non-Russians in a district d of firm i; and α_i and γ_t are firm and year fixed effects, respectively.

Under the standard triple-difference assumptions of parallel trends across multiple groups, and assuming that nontrade shocks that are correlated with the local ethnic composition affect traders and nontraders in the same way, the triple-interaction coefficient identifies the negative consequences of conflict on a firm's overall performance via the shock to trade with Russia. This effect is net of the broad shocks that vary with the local ethnic composition but affect both trading and nontrading firms in the same way, and net of the shocks that affect trading and nontrading firms differently but are uncorrelated with ethnicity.

Figure K1 illustrates this strategy. A simple difference-in-differences exercise among the firms trading with Russia (solid line) suggests that, if anything, firms from more-Russian areas suffered a *bigger* loss of sales, which is indicated on this graph by a relative increase in sales in less-Russian areas. However, this is not true in comparison with all firms in Ukrainian economy, as the relative increase in sales in less-Russian areas was larger for firms not trading with Russia (dashed line).

Thus, the former result likely combines both trade and broad economic shocks, which the latter helps to disentangle. Also important: there were no pretrends in firms' sales before the start of the conflict, neither across ethnicity nor across the status of firms' trade activity with Russia. Thus, the identifying assumption of the triple-difference specification likely holds.

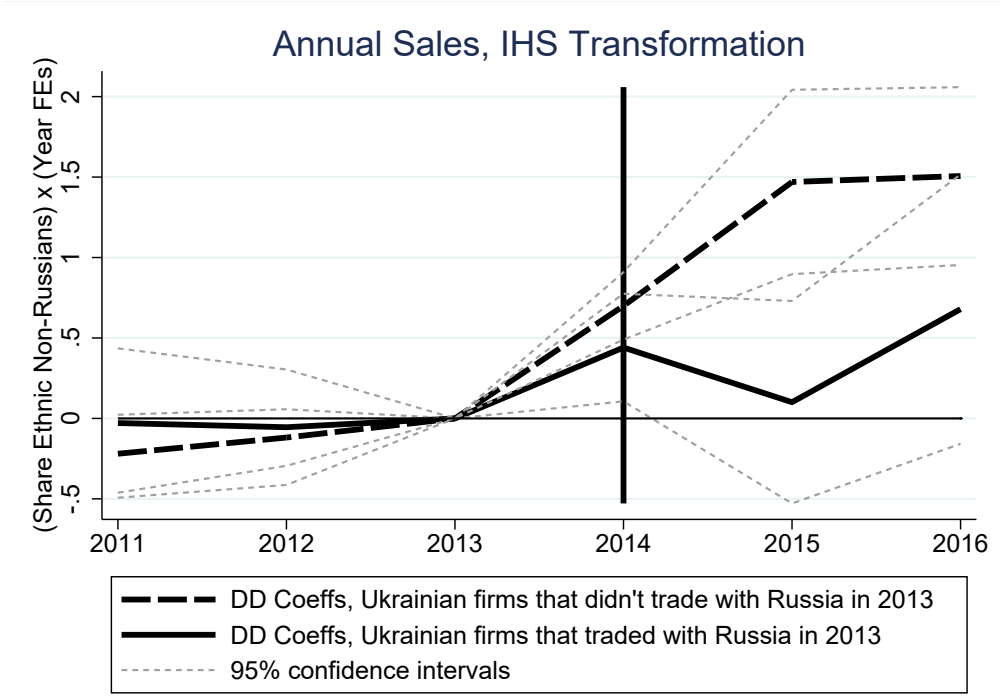
Table K1 presents the triple-difference estimates. Across all three measures of firm performance—sales, profits, and productivity,—the coefficient on the triple interaction is negative and highly statistically significant. Therefore, net of broad economic shocks, firms from less-Russian areas that traded with Russia before the conflict suffered a larger decline in sales, profits, and productivity relative to their counterparts. This indicates that a negative trade shock across ethnicity indeed led to worse firm performance. The magnitude of this differential decline is economically meaningful. For instance, according to column (1) of Table K1, moving a firm that traded with Russia before the conflict from a district with 17.7% ethnic Russians (75th percentile) to a district with 9.6% ethnic Russians (25th percentile) would have decreased its sales by 7.2% relative to other firms in the area after the start of the conflict.

One may worry that, summing up the coefficients for a hypothetical area without any ethnic Russians, our estimates suggest no differential decline in sales for firms that traded with Russia in 2013 relative to firms that did not trade with Russia. This fact should not be viewed as suggesting no pass-through. The reason is that the positive coefficient on *Post* $\times$ *Traded with Russia* can appear due to a variety of differences between trading and nontrading firms.[84] Nevertheless, insofar as conflict did not induce any shocks that vary across districts' ethnicity and correlate with these differences (which is one of the assumptions we stated earlier in this appendix), the triple-difference coefficient still identifies the pass-through of the differential shock to trade documented in the paper.

Overall, this appendix suggests that the differential effect of conflict on inter-group trade adversely affects firms, not only via decreased sales but also via decreased profits and productivity. Thus, the baseline results of this study have far-reaching implications for individual firms.

[84] For instance, trade literature typically finds that exporters and importers are larger and more productive than other firms in the economy. Such firms may react to the crisis differently from their counterparts. However, note that our results in Table K1 are also robust to explicitly controlling for firm size and productivity at baseline interacted with the year fixed effects—see Table K2.

Figure K1: Differential Decline in Sales: Triple-Difference Specification



Notes: This figure presents an illustration of the triple-difference estimation results in Table K1. The solid black line represents the difference-in-differences coefficients coming from regressing the yearly sales of the firms that *did not* trade with Russia on the interaction between the yearly fixed effects and the share of ethnic Russians. The long-dash black line represents the difference-in-differences coefficients coming from regressing the yearly sales of the firms that *traded* with Russia before the start of the conflict on the interaction between the yearly fixed effects and the share of ethnic Russians in the home district of a given firm. As such, the triple-difference specification (I1) estimates the divergence between these two sets of coefficients after the start of the conflict in 2014. The analysis excludes firms from the conflict areas and firms with missing accounting data for more than one year from 2011 through 2016. Data on ethnic composition are at the district level and come from the 2001 Ukrainian Census. The dependent variable is a firm's total yearly sales transformed using the inverse hyperbolic sine function $L(X)$, such that $L(X) = \log(X + \text{sqrt}(X^2 + 1))$, as in MacKinnon and Magee (1990). 95% confidence intervals are constructed for standard errors clustered at the district level.

Table K1: Consequences for Firms: Sales, Profits, and TFP

	(1)	(2)	(3)
Dependent Variable:	Log Sales	Log Profit	Log TFP
Post Feb 2014 × Traded with Russia × Ethnic Non-Russians	-0.893***	-1.037**	-0.190**
	(0.285)	(0.494)	(0.074)
Post Feb 2014 × Share of Ethnic Non-Russians	1.323***	1.757***	0.168***
	(0.256)	(0.341)	(0.054)
Post Feb 2014 × Traded with Russia	0.847***	0.975**	0.228***
	(0.256)	(0.444)	(0.060)
Firm FE	✓	✓	✓
Year FE	✓	✓	✓
Dep. Var. Mean	13.169	10.761	13.560
Dep. Var. SD	4.216	6.673	1.870
R^2	0.75	0.51	0.93
Observations	1,107,520	1,107,215	1,026,585
Firms	190,515	190,470	176,352
Districts	491	491	495

Notes: This table estimates the consequences of the differential shock to trade in a triple-difference specification comparing firm performance before and after the start of the conflict, for firms in areas with more versus fewer ethnic Russians, and for firms that traded with Russia at least once in 2013 and not. The analysis includes all Ukrainian firms, not only those that traded with Russia, but excludes firms from conflict areas and firms with missing accounting data for more than one year from 2011 to 2016. Dependent variables in columns (1) and (2) are total sales and gross profit, respectively, transformed using the inverse hyperbolic sine function $L(X)$, such that $L(X) = \log(X + \text{sqrt}(X^2 + 1))$, as in MacKinnon and Magee (1990). Total factor productivity in column (3) is derived from a Cobb-Douglas specification regressing turnover on capital and labor (all in logs) with two-digit industry fixed effects. Data on ethnic composition are at the district level and come from the 2001 Ukrainian Census. Standard errors in parentheses are clustered at the district level. * p<0.1, ** p<0.05, *** p<0.01.

Table K2: Consequences for Firms Controlling for Pre-Conflict Firm Size and Productivity

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable:	Log Sales	Log Profit	Log TFP	Log Sales	Log Profit	Log TFP
Post Feb 2014 × Traded with Russia ×	-0.955***	-1.112**	-0.163**	-0.889***	-1.064**	-0.181**
× Ethnic Non-Russians	(0.270)	(0.498)	(0.073)	(0.273)	(0.490)	(0.073)
Post Feb 2014 × Share of Ethnic Non-Russians	1.224***	1.680***	0.177***	1.216***	1.664***	0.173***
	(0.241)	(0.323)	(0.055)	(0.250)	(0.327)	(0.054)
Post Feb 2014 × Traded with Russia	0.736***	0.921**	0.244***	0.719***	0.901**	0.244***
	(0.248)	(0.432)	(0.059)	(0.251)	(0.431)	(0.059)
Firm FE	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓
Log # of Employees 2013 × Year FE	✓	✓	✓			
Log TFP 2013 × Year FE				✓	✓	✓
Dep. Var. Mean	13.311	10.890	13.573	13.342	10.935	13.574
Dep. Var. SD	4.124	6.655	1.870	4.117	6.646	1.869
R^2	0.75	0.50	0.94	0.74	0.50	0.94
Observations	1,064,226	1,063,924	1,015,680	1,053,184	1,052,882	1,015,260
Firms	182,747	182,702	174,171	180,766	180,721	174,087
Districts	491	491	495	491	491	495

Notes: This table estimates the consequences of the differential shock to trade in a triple-difference specification comparing firm performance before and after the start of the conflict, for firms in areas with more versus fewer ethnic Russians, and for firms that traded with Russia at least once in 2013 and not. This table differs from Table K1 in that it explicitly controls for firm size and productivity at baseline interacted with the year fixed effects: columns (1) through (3) include controls for the logarithm of a firm's 2013 number of employees interacted with the year fixed effects and columns (4) through (6) include controls for the logarithm of a firm's 2013 TFP interacted with the year fixed effects. The analysis includes all Ukrainian firms, not only those that traded with Russia, but excludes firms from conflict areas and firms with missing accounting data for more than one year from 2011 to 2016. The dependent variable in columns (1) and (4) is total sales, the dependent variable in columns (2) and (5) is gross profit; both variables are transformed using the inverse hyperbolic sine function $L(X)$, such that $L(X) = \log(X + \text{sqrt}(X^2 + 1))$, as in MacKinnon and Magee (1990). Total factor productivity is derived from a Cobb-Douglas specification regressing turnover on capital and labor (all in logs) with two-digit industry fixed effects. Data on ethnic composition are at the district level and come from the 2001 Ukrainian Census. Standard errors in parentheses are clustered at the district level. * p<0.1, ** p<0.05, *** p<0.01.