The Effect of Migration on Terror: Made at Home or Imported from Abroad?

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Motivation

- Migration is identified as a key driver of transnational terrorism, by several political parties across the OECD.
  - Academic evidence is primarily suggestive, not conclusive, and lacks identification. (Bandyopadhyay & Sandler 2014, Bove & Böhmelt

Contributions

Estimate the causal effect of migration stocks on terror within the OECD countries.

Compare the stock effects on terror from natives and foreigners (provide a proper reference group).

Estimate how different confounders affect the relationship between migration and terrorism.

- Political and economic situation
- Origin country characteristics
- Composition of migrant stocks

Terrorism and Migration Data:

ITERATE provides data on terror incidents and fatalities, differentiating between:

- Nationality of the perpetrator
- Location of the incidents
- Nationality of the victims

IAB-Database (Brücker et al. 2013) provides bilateral data on foreign born populations from 187 origin countries in 20 OECD host countries:

- Every 5 years (harmonized census data)
- Provides information on composition of migrant stocks

Migration Policy Data

Migration Policy restrictiveness indicators over several dimensions (based on DEMIG Policy Database of IMI):

- DEMIG lists around 4000 policies during our time period, and codes if they make migration more or less restrictive
- Construct indicator that equals 0 in the initial dyad year (mostly 1980). Follow Mayda 2010, Ortega and Peri 2013:
  - Add 1 for each policy passed that makes migration more restrictive.
  - Subtract 1 for each policy that makes migration less restrictive (Mayda 2010, Ortega and Peri 2013).
  - We use the 5 year moving average of that indicator.

Empirical Strategy & Identification (1)

First stage:

- Use gravity equation of structural variables between origin and host countries and interact them with natural disasters in host and origin countries (Artuc et al. 2015, Alesina et al. 2016, Docquier et al. 2016):

$$FOREIGNERS_{hot} = \alpha + \Big(-\frac{0.0320^{***}}{(0.0118)} COLONY_{ho} + \frac{0.0116}{(0.0116)} LANGUAGE_{ho} - \frac{0.0293^{**}}{(\ldots)} BORDER_{ho} + \frac{0.0051}{(\ldots)} DISTANCE_{ho} - \frac{0.0045^{***}}{(\ldots)} FOREIGNERS1960_{ho}\Big) *$$

[illegible]

Diff in Diff like approach (Interactions are excludable instruments)

Empirical Strategy & Identification (2)

Second stage:

$$TERROR_{hot} = \alpha + \beta FOREIGNERS_{hot} + \theta\left(FOREIGNERS_{hot} * INT_{ho,t-1}\right) + \delta INT_{ho,t-1} + \boldsymbol{X}'_{hot}\psi + \eta_{ho} + \gamma_t + \epsilon_{hot},$$

- LHS:
  - Terror Dummy (ITERATE)
- RHS:
  - Log of migrant stock (IAB) and interaction variable
  - Log GDP host & origin (World Bank 2016)
  - Log population host & origin (World Bank 2016)
  - Natural Disasters in Origin & Host countries
  - Host-Origin & Year FE

Results (1): Descriptive Evidence

	(1) Terror indicator	(2) Terror indicator	(3) Terror count	(4) Severe terror indicator	(5) Severe terror count	(6) Terror Fatalities count
Log GDP host	0.0032	0.0062**	0.0926**	0.0028***	0.0034**	-0.0393
	(0.0040)	(0.0029)	(0.0464)	(0.0010)	(0.0017)	(0.0623)
Log stock foreigners	0.0013***	0.0036***	0.0120***	0.0014***	0.0024***	0.0275*
	(0.0003)	(0.0008)	(0.0033)	(0.0005)	(0.0009)	(0.0162)
Log GDP origin	-0.0021***					
	(0.0007)					
Log population host	0.0125					
	(0.0093)					
Log population origin	0.0077***					
	(0.0026)					
		Citizen interaction				
Log GDP host		-0.4291**	-10.943**	0.0103	0.0648	-10.092
		(0.1863)	(5.0809)	(0.0168)	(0.0463)	(10.892)
Log stock		0.1823	19.117	0.0889	0.1927	142.62
		(0.9179)	(19.501)	(0.0983)	(0.3089)	(138.89)
R-squared	0.0035	0.0216	0.0401	0.0019	0.0023	0.0025
Fixed effects	HO,Y	HO,Y	HO,Y	HO,Y	HO,Y	HO,Y
Observations	102,760	123,380	123,380	123,380	123,380	123,380

Results (2): 2SLS Second Stage

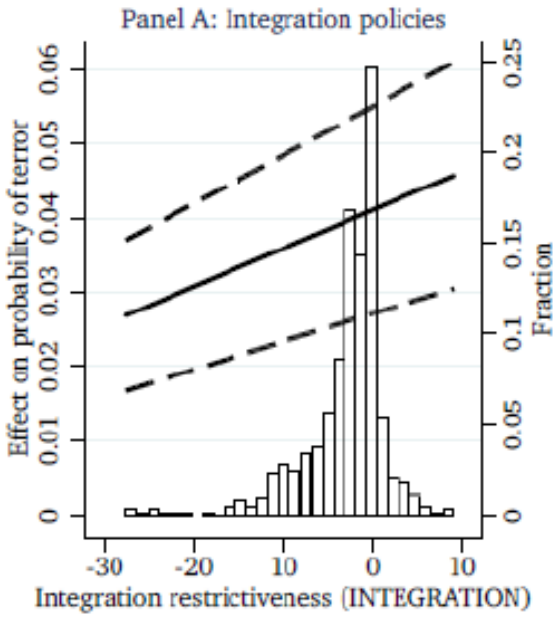
	(1) Terror count	(2) Severe terror indicator	(3) Severe terror count	(4) Terror fatalities count
Log GDP host	-0.1488***	-0.0226**	-0.0341**	0.0197
	(0.0520)	(0.0094)	(0.0144)	(0.0439)
Log GDP origin	0.0180**	0.0028*	0.0040*	-0.0046
	(0.0085)	(0.0015)	(0.0022)	(0.0081)
Log population host	0.2079***	0.0372***	0.0547***	-0.1689
	(0.0676)	(0.0134)	(0.0210)	(0.1843)
Log population origin	-0.0569**	-0.0107**	-0.0158**	-0.0331
	(0.0231)	(0.0048)	(0.0073)	(0.0276)
Natural disaster host	-0.0009	-0.0001	-0.0002	0.0004
	(0.0007)	(0.0001)	(0.0001)	(0.0004)
Natural disaster origin	-0.0027***	-0.0005**	-0.0008***	-0.0020
	(0.0008)	(0.0002)	(0.0003)	(0.0021)
Log stock foreigners	0.1009***	0.0172***	0.0261***	0.0424
	(0.0313)	(0.0059)	(0.0091)	(0.0427)
R-squared	0.00419	0.00251	0.00190	0.00001
Kleibergen-Paap F-stat. IV	15.91	15.91	15.91	15.91
Fixed effects	HO,Y	HO,Y	HO,Y	HO,Y
Observations	102,760	102,760	102,760	102,760

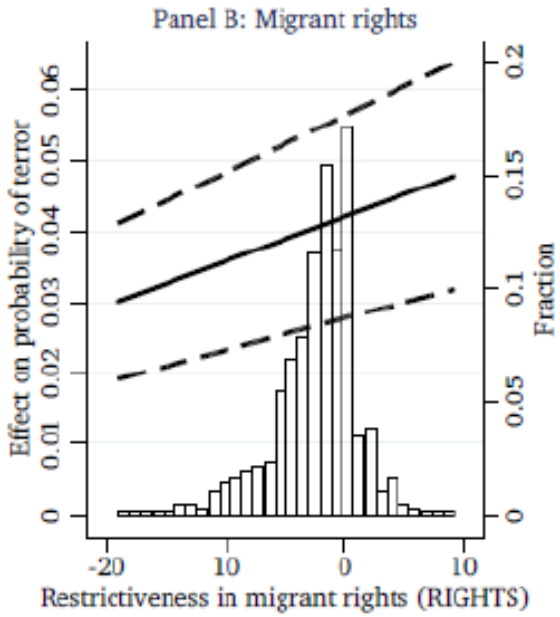
Results (3): 2SLS Interactions Second Stage

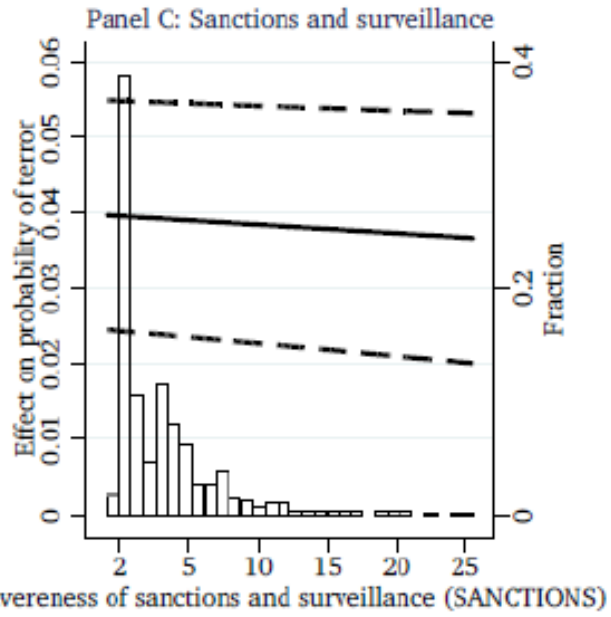
	(1)	(2)	(3)	(4)
Natural disaster host	-0.0002	-0.0002	-0.0001	-0.0001
	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Natural disaster origin	-0.0010***	-0.0010***	-0.0012***	-0.0013***
	(0.0003)	(0.0003)	(0.0003)	(0.0003)
Log stock foreigners	0.0425***	0.0435***	0.0395***	0.0421***
	(0.0086)	(0.0088)	(0.0093)	(0.0092)
Additional variable	Integration	Migrant rights	Migrant sanctions	Immigration
Variable coefficient	-0.0030***	-0.0038***	0.0001	0.0001
	(0.0005)	(0.0007)	(0.0005)	(0.0004)
Interaction coefficient	0.0005***	0.0006***	-0.0001*	0.0001
	(0.0001)	(0.0001)	(0.0001)	(0.0000)
R-squared	0.00612	0.00637	0.00712	0.00723
Kleibergen-Paap F-stat. IV	16.23	15.27	13.18	13.70
Fixed effects	HO,Y	HO,Y	HO,Y	HO,Y
Observations	102,760	102,760	102,760	102,760

All specifications include the log of GDP and the log of population and the number of natural disasters from both the host and origin country.

Results (4) Economic Significance







Robustness

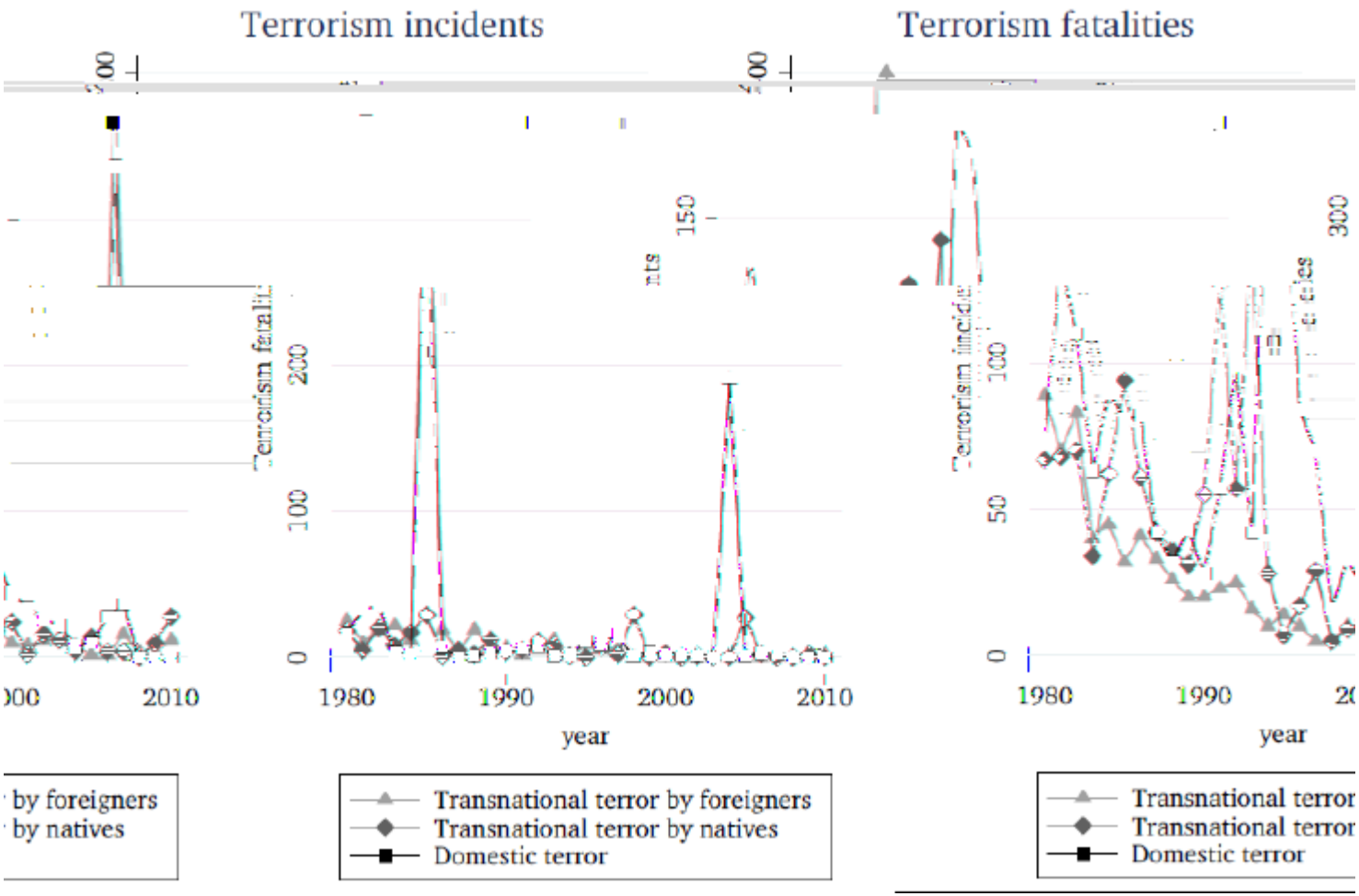
- Results are robust to:
  - Using yearly interaction variables.
  - Using raw migrant data (no interpolation).
  - Excluding dyads with 5% biggest changes in migration stock.
  - Adding climate and rainfall deviations in origin countries to get more identifying variation.
  - Focussing only on severe terror attacks.
  - Controlling for factors that vary yearly on the host and origin level, such as Economic Freedom, Ethnic Tensions, Democracy.
  - Including all terror events (terrorism committed by natives and foreigners).

Conclusions

- The stock of migration does exhibit a scale effect on terror, seems to be comparable to the one of natives.
- Restricting migration or asylum policies is a two edged sword if one wants to combat transnational terrorism.
  - Does not imply that good intelligence is counter productive, but can have unintended consequences (e.g. stigmatization).
- No evidence that foreigners from Muslim and terror rich countries are in general more prone to commit terror than others (few exceptions, conflicts abroad).
- No relevant differences between genders.
- High skilled migrant stocks are less associated with terrorism than low skilled ones.

Appendix

Terror in the OECD over Time:



Composition of Terrorism

Host countries	Sum of terror incidents (total)	Average amount of terror incidents (total)	Percentage committed by native born	Percentage committed by foreign born	Terror committed per million native born	Terror committed per million foreign born
Australia	24	0.774	0.75	0.25	0.039	0.061
Austria	63	2.032	0.71	0.29	0.197	1.070
Canada	32	1.044	0.54	0.46	0.023	0.109
Chile	67	2.170	0.96	0.04	0.153	0.157
Denmark	31	1.009	0.62	0.38	0.123	1.890
Finland	0	0.000	-	-	0	0
France	471	15.183	0.67	0.33	0.182	1.360
Germany	753	24.295	0.87	0.13	0.276	0.773
Greece	319	10.291	0.88	0.12	0.915	2.280
Ireland	31	1.000	0.26	0.74	0.073	3.290
Luxembourg	3	0.112	0.43	0.57	0.149	0.676
Netherlands	75	2.419	0.63	0.37	0.105	0.901
New Zealand	5	0.161	1.00	0.00	0.051	0.000
Norway	13	0.419	0.69	0.31	0.069	0.672
Portugal	68	2.198	0.90	0.10	0.201	0.595
Spain	412	13.305	0.92	0.08	0.313	0.680
Sweden	29	0.935	0.69	0.31	0.081	0.391
Switzerland	70	2.260	0.59	0.41	0.223	0.884
United Kingdom	748	24.133	0.92	0.08	0.401	0.619
United States	305	9.830	0.60	0.40	0.024	0.206
0.1180	0.8331	Average	1.76	5.6629	0.172	0.723

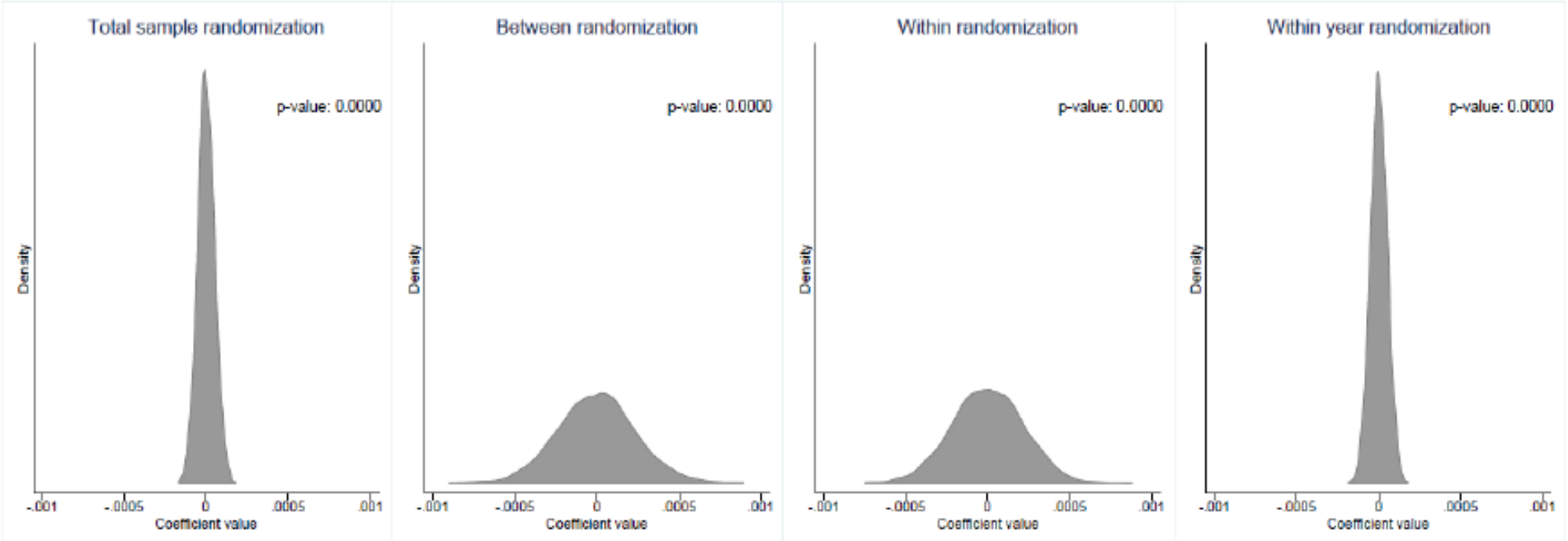
Generated Instrument vs. Regular 2SLS

Table A-4b: Second Stages (generated instruments vs. interactions)

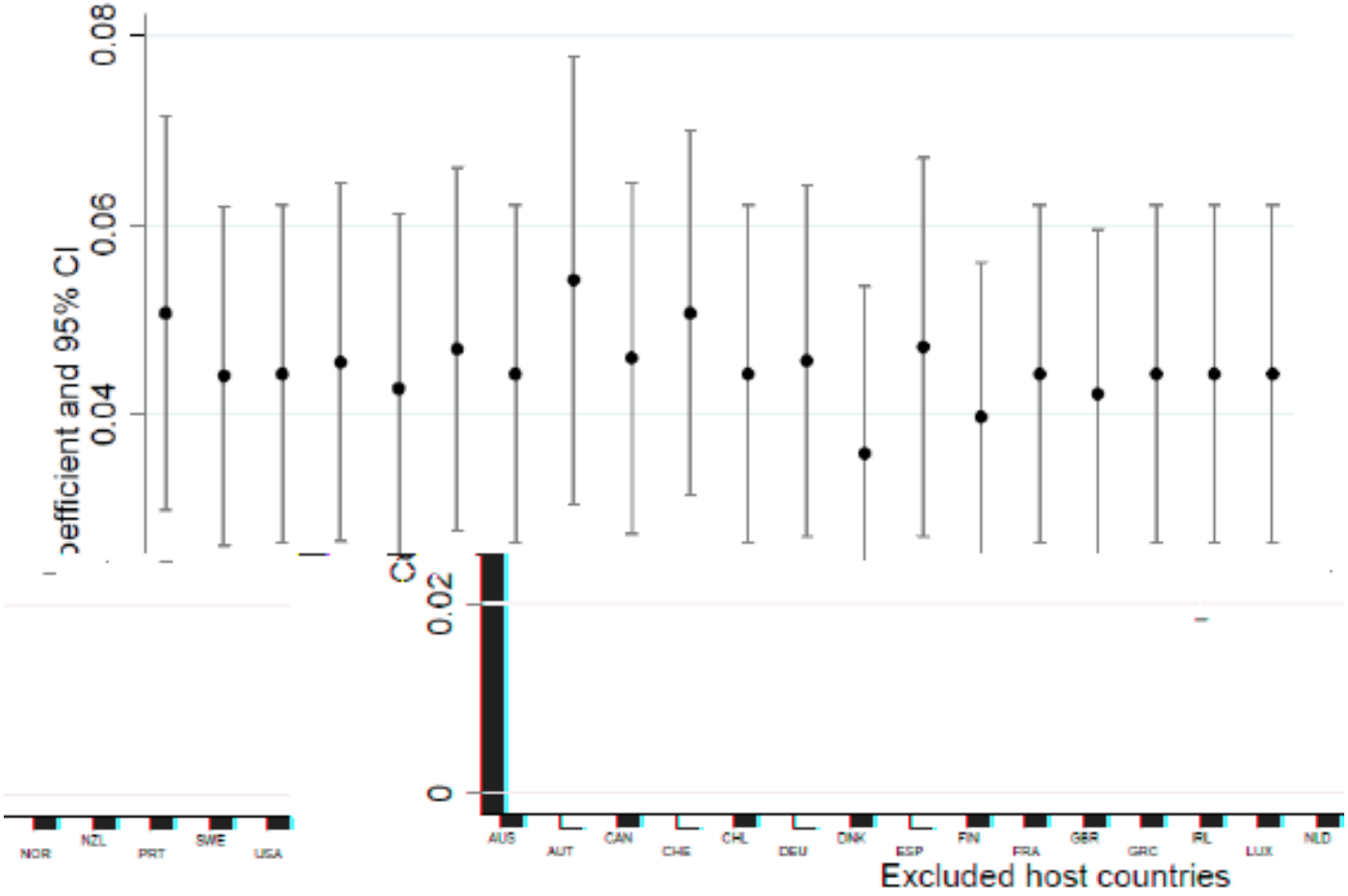
	Terror		Terror	Terror	Terro
		Log GDP host	-0.0644***	-0.0644***	
			(0.0167)	(0.0167)	
		Log GDP origin	0.0073**	0.0073**	
			(0.0030)	(0.0030)	
		Log population host	0.0986***	0.0986***	
			(0.0263)	(0.0263)	
		Log population origin	-0.0247***	-0.0247***	
			(0.0084)	(0.0084)	
		Natural disaster host	-0.0002	-0.0002	
			(0.0002)	(0.0002)	
		Natural disaster origin	-0.0013***	-0.0013***	
			(0.0003)	(0.0003)	
**	0.0246***	Log Migrants	0.0443***	0.0443***	0.0246*
5)	(0.0086)		(0.0091)	(0.0091)	(0.008
7	0.1477	R-squared	0.0074	0.0074	0.147
	-	Year	Yes	Yes	-
	Yes	Host-Origin	Yes	Yes	Yes
	Yes	Host-Year	-	-	Yes
	Yes	Origin-Year	-	-	Yes
0	115320	Obs.	102760	102760	11532
	111.7	F-stat IV	117.8	102.9	100.7

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

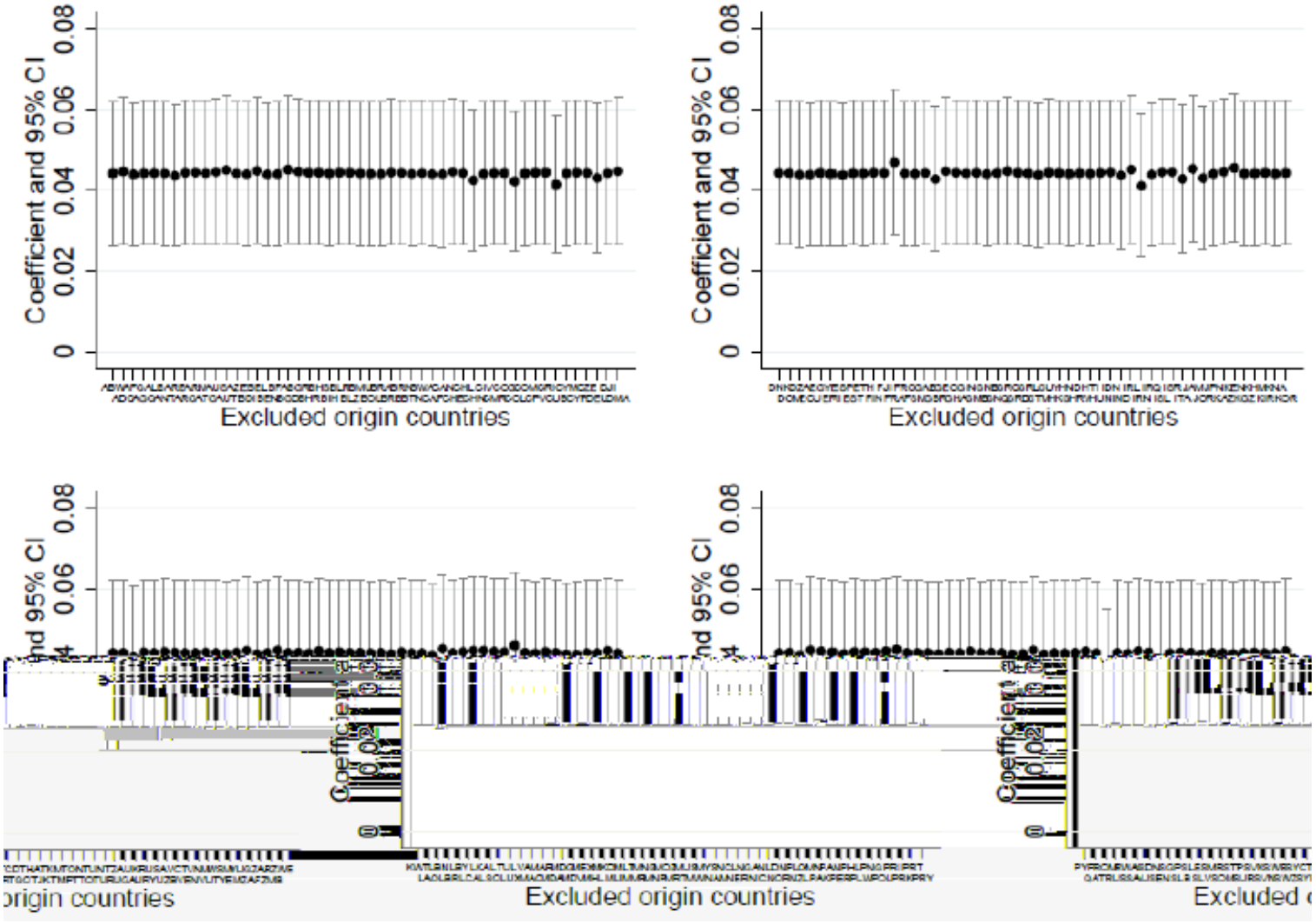
Randomization (Placebo Test)



Leave One Out (Host)



Leave One Out (Origin)



Lagged Migrant Stocks (Baselevel Change)

VARIABLES	(1) Terror	(2) Terror	(3) Terror	(4) Terror
	5 year lag	10 year lag	15 year lag	20 year lag
Log stock foreigners	0.0053** (0.0021)	0.0003 (0.0014)	-0.0010 (0.0017)	-0.0361 (0.0372)
R-squared	0.0056	0.0028	0.0011	0.0000
Kleibergen-Paap F-stat. IV	291.7	246.7	100.6	1.998
Fixed effects	HO,Y	HO,Y	HO,Y	HO,Y
Observations	84560	66340	48580	31600

Period Interactions (Baselevel)

	Terror indicator	Terror count	Severe terror indicator	Severe terror count	Terror fatalities
	(1)	(2)	(3)	(4)	(5)
Log stock foreigners	0.0282***	0.0686***	0.0105**	0.0161**	0.0074
	(0.0072)	(0.0246)	(0.0049)	(0.0077)	(0.0113)
Period Interactions					
Log stock foreigners in 1990s	-0.0024***	-0.0050***	-0.0010***	-0.0016***	-0.0085
	(0.0004)	(0.0014)	(0.0003)	(0.0005)	(0.0072)
Log stock foreigners in 2000s	-0.0034***	-0.0068***	-0.0014***	-0.0021***	-0.0058
	(0.0005)	(0.0016)	(0.0003)	(0.0005)	(0.0081)
R-squared	0.00584	0.00363	0.00186	0.00142	0.000008
Kleibergen-Paap F-stat. IV	58.47	58.47	58.47	58.47	58.47
Fixed effects	HQ Y	HQ Y	HQ Y	HQ Y	HQ Y

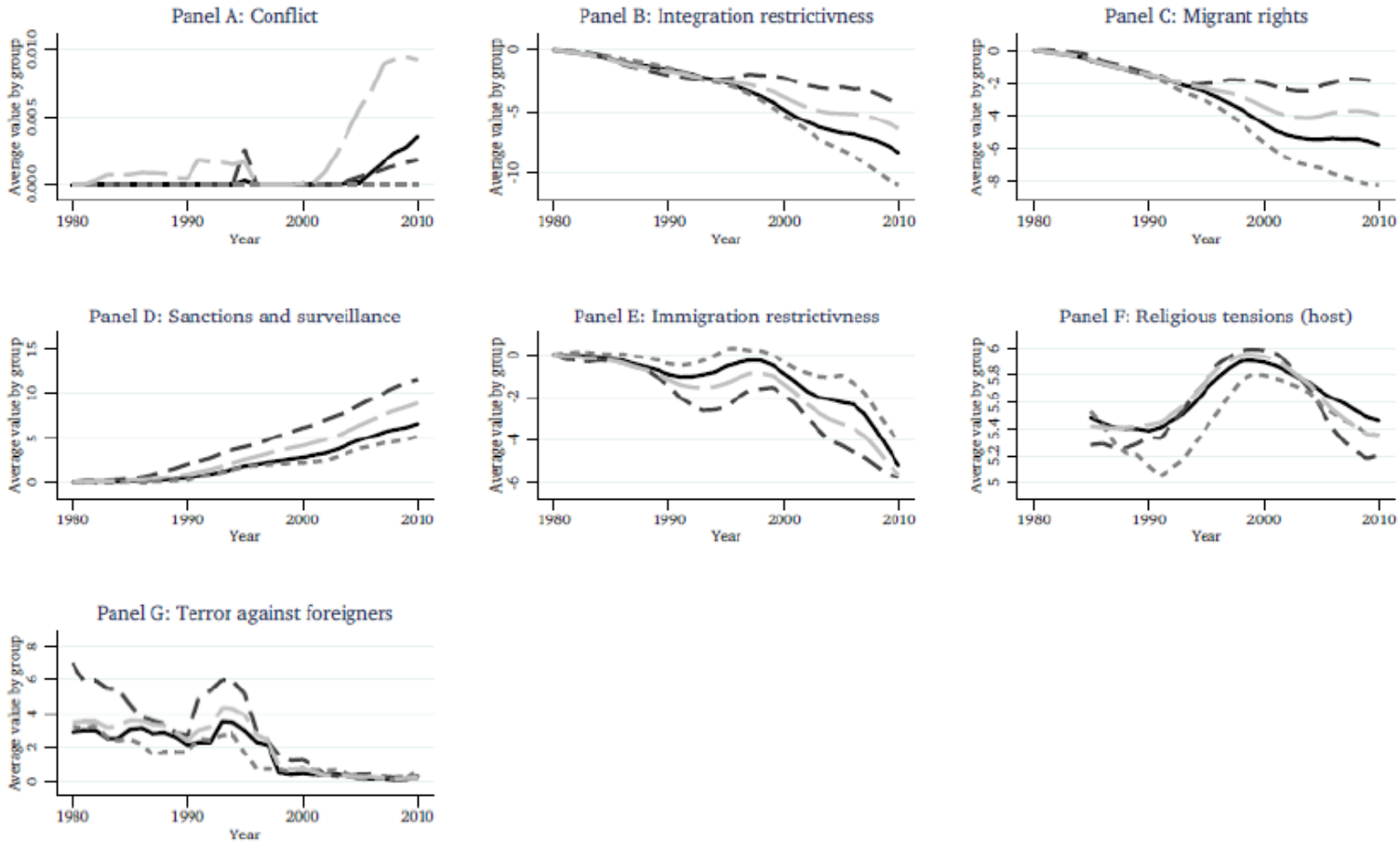
Gravity Results FE Comparison

	First Stages	
VARIABLES	(1) Log migrants	(2) Log migrants
Interactions with Natural Disasters in Host countries		
Colony host	0.0072	-0.0211*
	(0.0067)	(0.0118)

	First Stages	
VARIABLES	(1) Log migrants	(2) Log migrants
Interactions with Natural Disasters in Origin countries		
Colony host	-0.0320***	-0.0447***
	(0.0118)	(0.0122)
Common border	-0.0293**	-0.0047
	(0.0147)	(0.0173)
Common language	0.0116	0.0319***
	(0.0116)	(0.0109)
Log distance	0.0051	-0.0101*
	(0.0041)	(0.0055)
Migrant stock 1960	-0.0045***	-0.0053***
	(0.0012)	(0.0013)

All specifications include the log of GDP and the log of population and the number of natural disasters from both the host and origin country. Base levels are not presented. Column 2 includes donor-year and recipient-year FE.

Parallel Trends

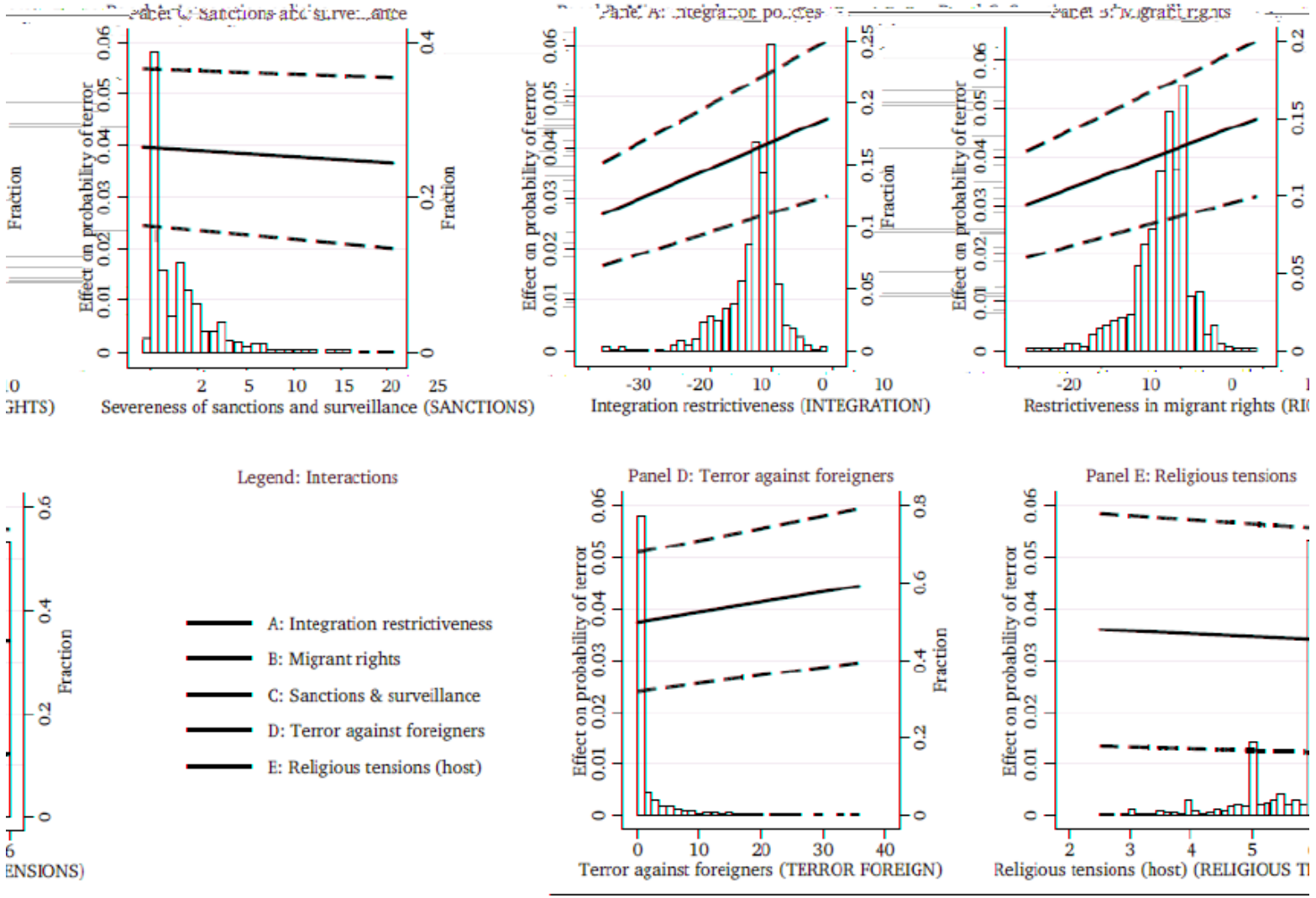


Interaction Models 2SLS: Second Stage

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Log stock foreigners	0.0442***	0.0411***	0.0421***	0.0397***	0.0422***	0.0375***	0.0373***
	(0.0091)	(0.0085)	(0.0087)	(0.0093)	(0.0092)	(0.0082)	(0.0140)
Additional variable	Conflict	Integration	Migrant rights	Migrant sanctions	Immigration	Terror vs. foreigners	Religious tensions
Variable coefficient	-0.0048	-0.0029***	-0.0037***	0.0001	0.0001	-0.0014***	0.0015
	(0.0161)	(0.0005)	(0.0007)	(0.0005)	(0.0004)	(0.0003)	(0.0017)
Interaction coefficient	-0.0015	0.0005***	0.0006***	-0.0001*	0.0001	0.0002***	-0.0006*
	(0.0026)	(0.0001)	(0.0001)	(0.0001)	(0.0000)	(0.0000)	(0.0003)
R-squared	0.00737	0.00613	0.00639	0.00713	0.00723	0.00731	0.00514
Kleibergen-Paap F-stat.	68.48	76.61	71.02	59.95	63.35	75.25	55.33
Fixed effects	HO,Y	HO,Y	HO,Y	HO,Y	HO,Y	HO,Y	HO,Y
Observations	102,760	102,760	102,760	102,760	102,760	102,760	89,020

All specifications include the log of GDP and the log of population and the number of natural disasters from both the host and origin country.

Interaction Models: Economic Significance Full



Robustness Interactions

	Interaction of foreigners with:					
	None	Integration	Migrant rights	Migrant sanctions	Terror vs. foreigners	Religious tensions
All moving averages	0.0337***	0.0004***	0.0005***	-0.0001*	0.0001***	0.0012
(five years)	(0.0061)	(0.0001)	(0.0001)	(0.0000)	(0.0000)	(0.0007)
No moving averages	0.0443***	0.0004***	0.0005***	-0.0001**	0.0001**	-0.0002
	(0.0091)	(0.0001)	(0.0001)	(0.0001)	(0.0000)	(0.0003)
Period averages	0.0415***	0.0005***	0.0006***	-0.0001*	0.0002***	-0.0007**
(five years)	(0.0078)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0003)
Exclude outliers	0.0391***	0.0005***	0.0006***	-0.0000	0.0001***	-0.0003
	(0.0084)	(0.0001)	(0.0001)	(0.0001)	(0.0000)	(0.0004)
Additional instruments	0.0397***	0.0004***	0.0005***	-0.0000	0.0002***	-0.0004
	(0.0087)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0003)
High dimensional FE	0.0246***	0.0001***	0.0002**	-0.0001	0.0002***	-0.0008
	(0.0086)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0006)
Severe terror incidents	0.0172***	0.0002***	0.0003***	-0.0000	0.0001***	-0.0001
	(0.0059)	(0.0001)	(0.0001)	(0.0000)	(0.0000)	(0.0002)
Total terror	3.2599***	0.0388***	0.0476***	0.0058	-0.0042***	0.0543**
(domestic & transn.)	(0.5514)	(0.0060)	(0.0076)	(0.0043)	(0.0016)	(0.0229)

Results: Muslim countries

Table 4: Terror and Migrants from Muslim Countries, 2SLS, 1980-2010

p-value		Marginal Effect	SE	p-value		Marginal Effect	SE
	Ref. Group	-0.001	0.002				
0.232	Afghanistan	0.005	0.003	0.080	Libya	-0.002	0.003
0.047	Albania	0.000	0.002	0.637	Morocco	0.002	0.003
0.842	U. A. Emirates	-0.001	0.002	0.518	Mali	-0.001	0.002
0.630	Azerbaijan	-0.001	0.002	0.303	Mauritania	-0.001	0.002
0.946	Burkina Faso	-0.001	0.002	0.701	Malaysia	-0.001	0.002
0.401	Bangladesh	-0.001	0.002	0.665	Niger	-0.001	0.002
0.251	Bahrain	-0.001	0.002	0.430	Nigeria	-0.002	0.003
0.359	Bosnia	0.000	0.003	0.598	Oman	0.000	0.003
0.841	Brunei	-0.001	0.002	0.502	Pakistan	-0.001	0.003
0.515	Ivory Coast	-0.001	0.002	0.511	Qatar	-0.001	0.002
0.784	Comoros	-0.001	0.002	0.248	Saudi Arabia	-0.001	0.002
0.198	Djibouti	-0.001	0.002	0.425	Sudan	0.001	0.003
0.351	Algeria	0.021***	0.008	0.001	Senegal	-0.001	0.002
0.272	Egypt	0.003	0.004	0.272	Sierra Leone	-0.001	0.002
0.915	Eritrea	-0.001	0.002	0.913	Chad	-0.001	0.002
0.921	Guinea	-0.003	0.003	0.211	Tajikistan	-0.001	0.002
0.895	Gambia	-0.001	0.002	0.469	Turkmenistan	-0.001	0.002
0.670	Guinea-Bissau	-0.001	0.002	0.922	Tunisia	0.000	0.002
0.272	Indonesia	0.000	0.002	0.071	Sierra Leone	-0.001	0.002
0.915	Iran	0.015**	0.007	0.028	Chad	-0.001	0.002
0.921	Iraq	0.002	0.003	0.312	Tajikistan	-0.001	0.002
0.895	Jordan	0.007	0.005	0.034	Turkmenistan	-0.001	0.002
0.670	Kazakhstan	-0.002	0.003	0.367	Tunisia	0.000	0.002
0.257	Kyrgyz Republic	-0.001	0.002	0.786	Turkey	0.005	0.006
0.162	Kuwait	-0.001	0.002	0.397	Uzbekistan	-0.001	0.002
0.286	Lebanon	0.001	0.003	0.340	Yemen	-0.001	0.002
	Observations				102,760		

Results: Terrorrich countries

Table 5: Terror and Migrants from Terror-Rich Countries, 2SLS, 1980-2010

	Marginal Effect	SE	p-value		Marginal Effect	SE	p-value
Reference Group	0.007*	0.004		Israel	0.008	0.006	0.787
Afghanistan	0.009**	0.004	0.541	Italy	0.008*	0.004	0.543
Angola	0.005*	0.003	0.062	Cambodia	0.004*	0.002	0.042
Belgium	0.008	0.006	0.794	Libya	0.010**	0.005	0.131
Brazil	0.009**	0.004	0.273	Sri Lanka	0.005*	0.003	0.066
Chile	0.009*	0.005	0.282	Mexico	0.006	0.004	0.666
Colombia	0.008**	0.004	0.335	Nigeria	0.008*	0.005	0.404
Germany	0.011	0.007	0.340	Nicaragua	0.006*	0.003	0.069
Algeria	0.030***	0.008	0.001	Pakistan	0.008*	0.005	0.467
Spain	0.020**	0.009	0.055	Peru	0.007*	0.004	0.431
France	0.011*	0.006	0.151	Philippines	0.008*	0.004	0.273
United Kingdom	0.017**	0.008	0.125	Russia	0.017	0.016	0.503
Greece	0.008**	0.004	0.278	El Salvador	0.007**	0.003	0.903
Guatemala	0.007**	0.003	0.793	Somalia	0.013**	0.006	0.283
Honduras	0.007**	0.003	0.726	Turkey	0.017**	0.008	0.047
India	0.019***	0.005	0.000	United States	0.007*	0.004	0.959
Iran	0.022***	0.008	0.032	Venezuela	0.006*	0.003	0.181
Iraq	0.009**	0.004	0.411	Yemen	0.009**	0.004	0.541
Observations				102,760			

Results: Gender and Skill Level

VARIABLES	(1) Terror	(2) Terror
Log stock (male)	0.0160***	
	(0.0054)	
Log stock (female)	0.0093	
	(0.0071)	
Log stock (low skilled)		0.0459***
		(0.0122)
Log stock (medium skilled)		0.0161
		(0.0136)
Log stock (high skilled)		-0.0506**
		(0.0237)
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

Robustness Gender and Skill Level

	Gender Specification			Skill Specification			
	Male	Female	p-value Male/Female	Low	Medium	High	p-value Low/High
All moving averages	0.0071*	0.0137***		0.0480***	0.0234**	-0.0724***	
(five years)	(0.0037)	(0.0052)	0.3989	(0.0125)	(0.0117)	(0.0216)	0.0002
Period averages	0.0109**	0.0128*		0.0567***	0.0200	-0.0695***	
(five years)	(0.0048)	(0.0066)	0.8537	(0.0145)	(0.0123)	(0.0197)	0.0001
Exclude outliers	0.0116**	0.0092		0.0296***	0.0144	-0.0344*	
	(0.0045)	(0.0060)	0.7924	(0.0095)	(0.0112)	(0.0188)	0.0144
Additional instruments	0.0180***	0.0047		0.0497***	0.0102	-0.0451**	
	(0.0055)	(0.0060)	0.1838	(0.0135)	(0.0135)	(0.0213)	0.0019
Severe terror incidents	0.0056*	0.0057		0.0180**	0.0083	-0.0220	
	(0.0032)	(0.0038)	0.9873	(0.0085)	(0.0080)	(0.0146)	0.0624
Total terror	-0.5439	2.0214***		5.3212***	-4.9390***	1.3295	
(domestic & transnational)	(0.4055)	(0.4958)	0.0022	(0.8441)	(1.1882)	(1.8291)	0.1023

Migration Policies: Further information

Divide DEMIG policies by area:

- Integration: policies that target access to citizenship, social security and labor market access
- Immigration: Issues regarding legal entry and stay, Border and land control

Divide DEMIG policies by policy tool:

- Migrant rights: language programs, resettlement programs, access to social benefits
- Sanctions: introduction of fingerprinting, rules on documentation, registers (e.g. of Muslim citizens US)

Previous Literature

- Migration may:
  - Spread conflict (Salehyan & Gleditsch 2006, Miltion et al. 2013) or reduce the pool of combatants (Preotu 2015)
  - Lead to lower terror in the host but more in neighboring countries (Bove & Böhmelt 2016)
- Transnational terrorism:
  - Is affected by migration in OECD countries (Leiken 2004, Kephart 2005, Leiken and Brooke 2006)
  - Leads to backlash against migrants (Gould and Klor 2015)