

Supplementary Materials for: Remittances, Terrorism, and Democracy (Not for publication)

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A Countries in the data

In this section, we list the countries used in the main sample and how many observations we have for each country in the sample.

Table A.1: Countries included in the data

Country	Number of years
United States of America	36
Canada	18
Haiti	29
Dominican Republic	43
Jamaica	37
Mexico	34
Guatemala	36
Honduras	39
El Salvador	37
Nicaragua	24
Costa Rica	34
Panama	34
Colombia	43
Venezuela	28
Suriname	36
Ecuador	28
Peru	23
Brazil	38
Bolivia	37
Paraguay	38
Chile	18
Argentina	35
United Kingdom	26
Ireland	23
Netherlands	43
Belgium	38
France	38
Switzerland	36
Spain	38
Portugal	38
Germany	23
Austria	43
Italy	43
Macedonia	17
Kosovo	5
Greece	37
Cyprus	37

Table A.1: Countries included in the data

Country	Number of years
Russia	19
Estonia	17
Latvia	17
Armenia	18
Georgia	16
Azerbaijan	18
Sweden	43
Mali	38
Senegal	39
Niger	39
Ivory Coast	21
Guinea	26
Sierra Leone	33
Ghana	34
Togo	39
Nigeria	36
Gabon	34
Central African Republic	16
Chad	8
Congo	35
Democratic Republic of the Congo	8
Uganda	14
Kenya	43
Tanzania	18
Burundi	9
Rwanda	37
Ethiopia	31
Angola	6
Mozambique	32
Zimbabwe	22
South Africa	43
Lesotho	38
Swaziland	26
Madagascar	32
Morocco	38
Algeria	43
Tunisia	37
Sudan	36
Iran	22
Turkey	39
Iraq	3
Egypt	36

Table A.1: Countries included in the data

Country	Number of years
Lebanon	8
Jordan	37
Israel	43
Saudi Arabia	8
Yemen	22
Tajikistan	11
Uzbekistan	7
Kazakhstan	18
China	31
South Korea	37
Japan	30
India	38
Pakistan	37
Bangladesh	34
Myanmar	26
Sri Lanka	38
Nepal	20
Thailand	38
Cambodia	19
Laos	28
Malaysia	31
Philippines	36
Indonesia	30
Australia	43
Papua New Guinea	34
New Zealand	41
Solomon Islands	13

B Robustness checks

We now consider several robustness checks. Unless noted, all models use the same controls as Model 1 with country fixed effects. Across every model we find that remittances have a pacifying effect on domestic terrorism within democracies, and this effect is statistically significant in all but one specification. In most models, we also find support for our finding that remittances lead to an increase in domestic terrorism with autocracies, although this result is statistically significant in fewer models. In two models do find that the direction

of the autocratic relationship is negative. In both models, however, the relationship is insignificant and AIC measures suggest that the main model (Model 1) is preferred.

B.1 Alternative measures of remittances

The first set of robustness checks considers alternative ways to measure or transform remittances. In the main text, we used remittances per capita measured in constant USD/person. In Table B.1, we consider a log transformation, a square root transformation, a time detrended measure, a measure of remittances as a percentage of GDP, and a measure of remittances per capita from the IMF. The detrending model uses a regression of remittances per capita on a quadratic B-spline of the current year interacted with the country fixed effects to remove any time trend within remittances country-by-country. The quadratic specification was chosen based on the AICs of various polynomials. In every model the combined coefficients $\hat{\beta}_{\text{remittances}} + \hat{\beta}_{\text{remittances} \times \text{Dem.}}$ are negative and statistically significant at a conventional level. Likewise, while we do not find a significant relationship between remittances within autocracies, the coefficients are mostly large and positive. Only in Model 9 do we find a negative relationship for remittances within autocracies, but the value is very close to zero with a relatively large standard error. The main model presented in the paper is preferred to all of these alternatives in terms of AIC.¹

¹For models with differing samples we refit both Model 1 and the candidate model with the overlapping sample before comparing the AIC.

Table B.1: Negative binomials regressions with different measures and transformations of remittances

	<i>Dependent variable:</i>				
	Domestic terrorist attacks				
	(9)	(10)	(11)	(12)	(13)
Log(Remittances per capita)	-0.06 (0.09)				
Log(Remittances per capita) × Dem.	-0.25** (0.12)				
Log(Remittances per capita) × Ano.	0.09 (0.09)				
Sqrt(Remittances per capita)		0.54 (0.36)			
Sqrt(Remittances per capita) × Dem.		-1.38** (0.42)			
Sqrt(Remittances per capita) × Ano.		-0.27 (0.29)			
Remittances per capita, detrended			0.20 (0.29)		
Remittances per capita, detrended × Dem.			-0.42 (0.33)		
Remittances per capita, detrended × Ano.			0.26 (0.42)		
Remittances/GDP				-0.03 (0.11)	
Remittances/GDP × Dem.				-0.24* (0.13)	
Remittances/GDP × Ano.				0.01 (0.11)	
IMF personal transfers					0.20 (0.15)
IMF personal transfers × Dem.					-0.67** (0.25)
IMF personal transfers × Ano.					-0.11 (0.15)
Democracy	-0.81* (0.45)	0.31 (0.42)	-0.51 (0.37)	-0.52 (0.36)	-0.12 (0.36)
Anocracy	1.08** (0.37)	0.97** (0.34)	0.92** (0.27)	0.87** (0.28)	0.95** (0.26)
Military personnel	3.46** (0.65)	3.27** (0.66)	3.19** (0.64)	3.67** (0.66)	2.41** (0.51)
Population	1.47** (0.49)	1.41** (0.48)	1.39** (0.52)	1.55** (0.50)	1.09** (0.46)
GDP Growth	-0.04** (0.01)	-0.04** (0.01)	-0.04** (0.01)	-0.04** (0.01)	-0.05** (0.01)
GDP per capita	-0.20 (0.40)	-0.28 (0.40)	-0.38 (0.38)	-0.27 (0.41)	0.10 (0.44)
Free Press	0.30 (0.22)	0.39* (0.21)	0.55** (0.21)	0.35 (0.21)	0.63** (0.16)
$\hat{\beta}_{\text{Remittances}} + \hat{\beta}_{\text{Remittances} \times \text{Dem.}}$	-0.31** (0.10)	-0.84** (0.35)	-0.22* (0.13)	-0.27** (0.10)	-0.47** (0.24)
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	3,127	3,127	3,127	3,109	2,196
Log Likelihood	-6,046.55	-6,045.90	-6,055.66	-6,001.10	-4,561.21
θ	0.39	0.39	0.39	0.39	0.45

* $p < 0.1$, ** $p < 0.05$. Coefficients from negative binomial models. Standard errors in parentheses clustered on country.

B.2 Alternative measures of democracy

In this section, we consider alternatives to the democracy/anocracy/autocracy dummies presented in the main text. Specifically, we consider a specification that uses each observation’s polity score and polity score squared and one based on V-DEM where we define democracy using the top two categories from their levels measure: “Electoral democracy” and “liberal democracy.” We use “electoral autocracy” to denote an anocracy and “closed autocracy” to denote an autocracy. These results are presented in Table B.2.

For the quadratic polity score we see that a positive and significant effect in the strongest autocracies (polity scores -9 and -10) and for polity scores greater than 3 (a mix of anocracies and democracies) we find the pacifying effect of remittances. In the V-DEM model, the main results hold, although we note that the coefficient for remittances to autocracies is positive, but not significant. However, we do see a strong, negative effect of remittances on terrorism within democracies. Additionally, model fit comparisons between these models and Model 1 continue to support the main specification.

B.3 Alternative samples and dependent variables

In this section, we consider robustness checks based on changes to the sample and to how the dependent variable is measured. The results are reported in Table B.3. Regarding the former, we first check whether the results hold when we restrict our sample to non-OECD countries. The reason for this check is that OECD countries receive roughly twice as many remittance per capita per year as non-OECD countries. While country-fixed effects control for some of the differences between the OECD and non-OECD countries, we want to be sure that these rich states are not driving the main result

Regarding the latter, we use the domestic terrorist attack data from [Enders, Sandler and Gaibullov \(2011\)](#), referred to as ESG hereafter) to code the dependent variable. As mentioned in the main text, we code attacks where the perpetrator nationality matches the attack location using the INT_LOG indicator within the GTD. Our approach correlates highly

Table B.2: Negative binomials with different measures of democracy

	<i>Dependent variable:</i>	
	Domestic terrorist attacks	
	(14)	(15)
Remittances per capita	-0.26 (0.17)	0.08 (0.08)
Remittances per capita \times polity	-0.02** (0.01)	
Remittances per capita \times polity sq.	0.003* (0.002)	
Remittances per capita \times V-DEM anoc.		-0.42** (0.13)
Remittances per capita \times V-DEM demo.		-0.31** (0.13)
Polity	0.01 (0.02)	
Polity sq.	-0.02** (0.004)	
V-DEM anoc.		-0.11 (0.28)
V-DEM demo.		-0.50 (0.33)
Military personnel	3.36** (0.62)	3.12** (0.60)
Population	1.40** (0.47)	1.92** (0.50)
GDP Growth	-0.04** (0.01)	-0.03** (0.01)
GDP per capita	-0.22 (0.38)	-0.29 (0.38)
Free Press	0.42** (0.21)	0.39* (0.21)
Country Fixed Effects	Yes	Yes
Observations	3,127	3,171
Log Likelihood	-6,071.96	-6,121.32
θ	0.38	0.37

* $p < 0.1$, ** $p < 0.05$. Coefficients from negative binomial models. Standard errors in parentheses clustered on country.

with the ESG approach, while allowing for the inclusion of more recent data. However, it is important to make sure that the use of one or the other aggregation method does not drive the main results. The main results hold with the ESG coding of domestic terrorism.

Table B.3: Alternative dependent variables and samples

	<i>Dependent variable:</i>	
	Domestic Attacks (main) <i>Non-OECD sample</i> (16)	Domestic Attacks (ESG) <i>Full sample</i> (17)
Remittances per capita	0.15** (0.08)	0.11** (0.04)
Remittances per capita \times dem.	-1.10** (0.23)	-0.31** (0.08)
Remittances per capita \times ano.	-0.22** (0.11)	-0.21** (0.06)
Democracy	0.26 (0.34)	0.43 (0.29)
Anocracy	0.94** (0.27)	0.59** (0.18)
Military personnel	3.22** (0.85)	1.43** (0.63)
Population	1.30** (0.51)	0.28 (0.44)
GDP Growth	-0.05** (0.01)	-0.02** (0.01)
GDP per capita	0.24 (0.38)	-0.20 (0.47)
Free Press	0.33 (0.24)	0.10 (0.17)
$\hat{\beta}_{\text{Remittances}} + \hat{\beta}_{\text{Remittances} \times \text{Dem.}}$	-0.94** (0.24)	-0.20** (0.08)
Country Fixed Effects	Yes	Yes
Observations	2,451	1,287
Log Likelihood	-4,536.08	-4,417.35
θ	0.34	1.20

* $p < 0.1$, ** $p < 0.05$. Coefficients from negative binomial models. Standard errors in parentheses clustered on country.

B.4 Alternative modeling choices

In this section, we consider several alternative modeling choices. The first one we consider is a zero-inflated negative binomial. To specify the binomial component we follow advice from [Drakos and Gofas \(2006\)](#) and focus on the regime and media aspects by using democracy,

Table B.4: Alternative dependent variable and specifications

	<i>Dependent variable:</i>				
	Domestic Attacks				
	<i>Zero-inflated</i> <i>neg. bin.</i> (18)	<i>Pooled</i> <i>neg. bin.</i> (19)	<i>Random effects</i> <i>neg. bin.</i> (20)	<i>CRE</i> <i>Poisson</i> (21)	<i>QMLE</i> <i>Poisson</i> (22)
Remittances per capita	0.21** (0.10)	0.05 (0.16)	0.23** (0.08)	0.14** (0.05)	0.13 (0.27)
Remittances per capita × dem.	-0.38** (0.14)	-0.44* (0.23)	-0.51** (0.10)	-0.50** (0.05)	-0.49 (0.34)
Remittances per capita × ano.	-0.08 (0.14)	-0.15 (0.16)	-0.15 (0.10)	0.05 (0.05)	0.05 (0.30)
Democracy	-0.10 (0.39)	1.25 (0.88)	-0.09 (0.21)	-0.16** (0.05)	-0.17 (0.54)
Anocracy	0.49 (0.31)	1.67** (0.76)	1.01** (0.17)	0.62** (0.04)	0.61* (0.35)
Military personnel	2.18** (0.73)	2.66** (0.49)	2.79** (0.36)	1.08** (0.05)	1.09 (0.88)
Population	1.58** (0.69)	1.01** (0.12)	1.33** (0.14)	2.51** (0.05)	2.51** (0.74)
GDP Growth	-0.03** (0.01)	-0.10** (0.02)	-0.04** (0.01)	-0.03** (0.001)	-0.03* (0.02)
GDP per capita	-0.43 (0.52)	-0.18 (0.16)	-0.26** (0.12)	-0.71** (0.03)	-0.71 (0.77)
Free Press	0.57** (0.22)	-0.39 (0.34)	0.50** (0.15)	0.23** (0.02)	0.23 (0.29)
Constant		-15.06** (1.79)	-21.97** (2.31)	-23.91** (3.08)	
$\hat{\beta}_{\text{Remittances} \times \text{Dem.}}$	-0.17 (0.12)	-0.38** (0.17)	-0.28** (0.07)	-0.36** (0.01)	-0.36* (0.20)
Country fixed effect	Yes	No	No	Mundlak	Yes
Observations	3,127	4,032	4,032	4,032	3,127
Log Likelihood	-5,772.86	-7,221.62	-6,327.96	-29,176.73	-28,797.73
θ	0.72	0.12	0.37		

* $p < 0.1$, ** $p < 0.05$. Regression coefficients. Ordinary (Models 17-18) or clustered standard errors in parentheses.

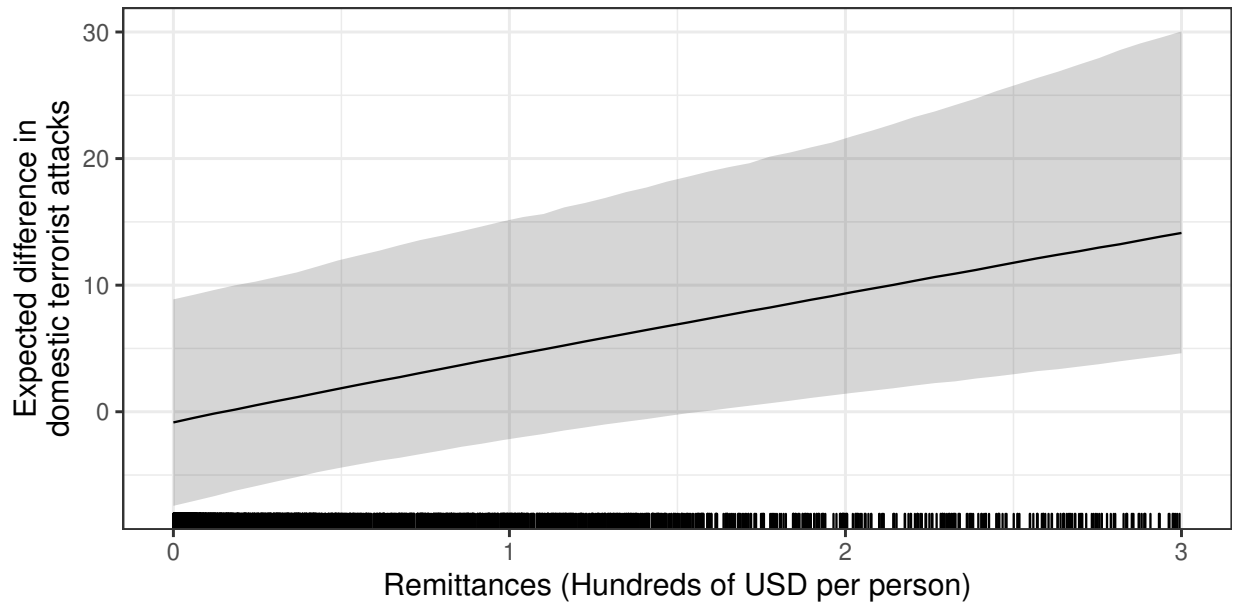
anocracy, free press, and the lagged number of attacks along with a Mundlak-specification (i.e., group-level means in the binomial stage). The count specification uses the variables from Model 1 including country fixed effects and is reported in Table B.4. Here we see that the within-autocracy effect is positive and significant. A linear hypothesis test reveals that the within-democracy effect is negative but estimated imprecisely, and as such not significant at conventional levels, although it is close $p < 0.16$. Likewise, the marginal effect estimates are very similar to those presented in the main text but with a larger variance.

In the remaining models, we try alternatives to main modeling choice of a negative binomial regression with country dummies. To this end, we consider pooled and country random effects specifications. The main results hold, although the within-autocracy effect is not significant in the pooled model. We also use a correlated random effects Poisson model (see Crisman-Cox 2021) to make sure that the results are robust to the distributional assumption (Wooldridge 2010, 648). The Poisson distribution will produce consistent estimates even when the constant variance assumption is wrong, although the standard errors may be incorrect. As such we are primarily interested in the sign and relative magnitude of the estimates; they are roughly inline with the negative binomial estimates. Finally, we consider a Poisson specification with country dummies. Like the CRE estimator, this approach helps us verify that the main results are not driven by negative binomial distributional assumption. The estimates here should be very similar to the CRE with large differences would suggest numeric or specification concerns. The main results persist; the within-autocracy result is positive (although not significant at conventional levels), while the within-democracy effect is negative and significant at $p < 0.10$.

C Differences in terrorism by regime type

In this section, we further consider the results from Figure 1, by presenting the difference in expected terrorism between democracies or autocracies, rather than separating the estimated

Figure C.1: Expected differences in domestic terrorist attacks by remittances and regime (Model 2)



Caption: Shaded areas represent 95% confidence intervals from a parametric bootstrap.

levels by regime type While the difference does not directly speak to our hypotheses or research question it is separately interesting from the perspective of how vulnerable regimes are to terrorism at different values of remittances. At low levels of remittances there are not strong differences in the amount of domestic terrorism in democracies and autocracies. However, at values of about 150 USD/person and greater we see a significant difference where democracies experience less domestic terrorism. As remittances increase, the democratic advantage increases.

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