

# Remittances and Democratization

## Online Appendix\*

Abel Escribà-Folch, Covadonga Meseguer, and Joseph Wright

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### **Abstract**

Do remittances stabilize autocracies? We argue that remittances increase the likelihood of democratic transition by undermining electoral support for autocratic incumbents in party-based regimes. Remittances, or money sent by foreign workers to individuals their home country, differ from other sources of external non-tax revenue such as foreign aid because they accrue directly to individuals and thus raise the incomes of households. Remittances therefore make voters less dependent on state transfers in autocracies. As a result, autocracies that rely heavily on the broad-based distribution of spoils for their survival, namely party-based regimes, should be especially vulnerable to increases in remittances. We find that remittances increase the likelihood of democratization in party-based dictatorships, and explore a potential causal mechanism by showing that remittances are associated with a decline in electoral support for incumbents in party-based autocracies.

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Table 1: Summary statistics

<b>Variable</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min.</b>	<b>Max.</b>	<b>N</b>
Democratic transition	0.03	0.17	0	1	1567
Duration time	21.77	18.19	1	91	1567
Remittances per capita (lag, logged)	2.47	1.55	0.01	6.98	1567
Party regime	0.42	0.49	0	1	1567
Calendar time	17.4	9.70	0	34	1567
GDP per capita (lag, logged)	6.62	1.03	4.63	9.23	1530
Population (lag, logged)	16.21	1.47	13.13	21	1567
Civil war (lag)	0.28	0.58	0	2	1567
Neighbor democratization (lag)	0.43	0.68	0	2	1564
Net migration (lag, log)	-0.01	0.03	-0.25	0.26	1522
Economic growth (lag)	1.81	4.63	-23.54	29.07	1500
Protest (lag, logged)	0.37	0.70	0	3.91	1564
Aid per capita (lag, logged)	6.29	3.44	1.04	34.43	1496
Oil rents per capita (lag, logged)	1.96	2.62	0	9.12	1521
Capital account openness (lag)	-0.55	1.26	-1.86	2.46	1496

Table S-2: Sample regimes

Autocratic Regime	Democ.			Democ.			Democ.				
	in sample	Party Reg.	Years in sample	Autocratic Regime	in sample	Party Reg.	Years in sample	Autocratic Regime	in sample	Party Reg.	Years in sample
Algeria 62-92	0	1	1975 - 1992	Guatemala 70-85	0	0	1978 - 1985	Nigeria 83-93	0	0	1984 - 1993
Algeria 92-NA	0	0	1993 - 2009	Guatemala 85-95	1	0	1986 - 1995	Nigeria 93-99	1	0	1994 - 1999
Angola 75-NA	0	1	1997 - 2009	Guinea 08-10	0	0	2009 - 2009	Oman 1741-NA	0	0	1979 - 2009
Argentina 76-83	1	0	1979 - 1983	Guinea 84-08	0	0	1987 - 2008	Pakistan 75-77	0	0	1977 - 1977
Armenia 94-98	0	0	1996 - 1998	Guinea Biss. 80-99	1	0	1989 - 1999	Pakistan 77-88	1	0	1978 - 1988
Armenia 98-NA	0	0	1999 - 2009	Haiti 57-86	0	0	1975 - 1986	Pakistan 99-08	1	0	2000 - 2008
Azerbaijan 93-NA	0	0	1996 - 2009	Haiti 86-88	0	0	1987 - 1988	Panama 68-82	0	0	1978 - 1982
Bangladesh 07-08	1	0	2008 - 2008	Haiti 88-90	1	0	1989 - 1990	Panama 82-89	1	0	1983 - 1989
Bangladesh 75-82	0	0	1977 - 1982	Haiti 91-94	1	0	1992 - 1994	Paraguay 54-93	1	1	1976 - 1993
Bangladesh 82-90	1	0	1983 - 1990	Haiti 99-04	1	0	2000 - 2004	Peru 92-00	1	0	1993 - 2000
Belarus 91-94	0	1	1994 - 1994	Honduras 72-81	1	0	1975 - 1981	Philippines 72-86	1	0	1978 - 1986
Belarus 94-NA	0	0	1995 - 2009	Indonesia 66-99	1	1	1984 - 1999	Russia 93-NA	0	0	1995 - 2009
Benin 72-90	1	0	1975 - 1990	Iran 79-NA	0	1	1992 - 2009	Rwanda 73-94	0	0	1977 - 1994
Bolivia 71-79	0	0	1977 - 1979	Ivory Coast 00-NA	0	0	2001 - 2009	Rwanda 94-NA	0	1	1995 - 2009
Bolivia 80-82	1	0	1981 - 1982	Ivory Coast 60-99	0	1	1976 - 1999	S. Arabia 27-NA	0	0	2006 - 2009
Botswana 66-NA	0	1	1976 - 2009	Ivory Coast 99-00	0	0	2000 - 2000	Senegal 60-00	1	1	1975 - 2000
Brazil 64-85	1	0	1976 - 1985	Jordan 46-NA	0	0	1975 - 2009	Serbia 91-00	1	1	1997 - 2000
Burkina Faso 66-80	0	0	1975 - 1980	Kazakhstan 91-NA	0	0	1996 - 2009	Sierra Leone 68-92	0	1	1981 - 1992
Burkina Faso 80-82	0	0	1981 - 1982	Kenya 63-02	1	1	1975 - 2002	Sierra Leone 92-96	1	0	1993 - 1996
Burkina Faso 82-87	0	0	1983 - 1987	Korea South 61-87	1	0	1977 - 1987	Sierra Leone 97-98	1	0	1998 - 1998
Burkina Faso 87-NA	0	0	1988 - 2009	Kyrgyzstan 05-10	0	0	2006 - 2009	Somalia 69-91	0	0	1980 - 1984
Cambodia 79-NA	0	1	1993 - 2009	Kyrgyzstan 91-05	0	0	1994 - 2005	South Africa 10-94	1	1	1975 - 1994
Cameroon 60-83	0	1	1980 - 1983	Laos 75-NA	0	1	1985 - 2009	Spain 39-76	1	0	1976 - 1976
Cameroon 83-NA	0	0	1984 - 2009	Lesotho 70-86	0	1	1976 - 1986	Sri Lanka 78-94	1	1	1979 - 1994
Cen Afr Rep 66-79	0	0	1978 - 1979	Lesotho 86-93	1	0	1987 - 1993	Sudan 69-85	0	0	1978 - 1985
Cen Afr Rep 79-81	0	0	1981 - 1981	Libya 69-NA	0	0	2001 - 2009	Sudan 85-86	1	0	1986 - 1986
Cen Afr Rep 81-93	0	0	1982 - 1992	Madagascar 72-75	0	0	1975 - 1975	Sudan 89-NA	0	0	1990 - 2009
Chad 82-90	0	0	1986 - 1990	Madagascar 75-93	1	0	1976 - 1993	Swaziland 68-NA	0	0	1975 - 2009
Chad 90-NA	0	0	1993 - 1995	Malaysia 57-NA	0	1	1975 - 2009	Syria 63-NA	0	1	1978 - 2009
Chile 73-89	1	0	1984 - 1989	Mali 68-91	1	0	1976 - 1991	Tajikistan 91-NA	0	0	2003 - 2009
China 49-NA	0	1	1979 - 2009	Mauritania 05-07	1	0	2006 - 2007	Tanzania 64-NA	0	1	1979 - 2009
Congo-Brz 97-NA	0	0	1998 - 2009	Mauritania 08-NA	0	0	2009 - 2009	Thailand 06-07	1	0	2007 - 2007
Congo-Brz 68-91	0	1	1979 - 1989	Mauritania 60-78	0	0	1976 - 1978	Thailand 76-88	1	0	1977 - 1988
Dom. Rep 66-78	1	0	1975 - 1978	Mauritania 78-05	0	0	1979 - 2005	Thailand 91-92	1	0	1992 - 1992
Ecuador 72-79	1	0	1977 - 1979	Mexico 15-00	1	1	1980 - 2000	Togo 67-NA	0	0	1975 - 2009
Egypt 52-NA	0	0	1978 - 2009	Morocco 56-NA	0	0	1976 - 2009	Tunisia 56-NA	0	1	1977 - 2009
El Salvador 48-82	0	1	1977 - 1982	Mozamb. 75-NA	0	1	1981 - 2009	Turkey 80-83	0	0	1981 - 1983
El Salvador 82-94	1	0	1983 - 1994	Myanmar 62-88	0	0	1988 - 1988	Turkmen. 91-NA	0	1	1997 - 1997
Eritrea 93-NA	0	1	1999 - 2001	Myanmar 88-NA	0	0	1989 - 2009	Uganda 86-NA	0	0	2000 - 2009
Ethiopia 74-91	0	0	1978 - 1991	Namibia 90-NA	0	1	1991 - 2009	Uruguay 73-84	0	0	1980 - 1980
Ethiopia 91-NA	0	1	1992 - 2009	Nepal 02-06	1	0	2003 - 2006	Venezuela 05-NA	0	0	2007 - 2009
Gabon 60-NA	0	0	1979 - 2009	Nicaragua 36-79	0	0	1978 - 1979	Vietnam 54-NA	0	1	2002 - 2009
Gambia 65-94	0	1	1976 - 1994	Nicaragua 79-90	0	1	1980 - 1980	Yemen 78-NA	0	0	1991 - 2009
Gambia 94-NA	0	0	1995 - 2009	Niger 74-91	1	0	1975 - 1991	Zambia 96-NA	0	1	2004 - 2009
Georgia 92-03	1	0	1998 - 2003	Niger 96-99	1	0	1997 - 1999	Zimbabwe 80-NA	0	1	1981 - 1995
Ghana 81-00	1	0	1982 - 2000	Nigeria 66-79	1	0	1978 - 1979				

Years listed next to *autocratic regime* are the calendar years the regime held power on January 1. NA  $\equiv$  Right censored. The sample covered the period from 1975-2009, with non-missing data on remittances. *Democratic transition* is a binary indicator of whether the regime transitioned to democracy **during the sample period**. *Party* is a binary indicator of whether the dictatorship is a party regime. Years in sample listed in separate column.

Table S-3: Democratic transitions  
(31 of 49 are elections)

Autocratic regime	Year	Election
Argentina 76-83	1983	1
Bangladesh 07-08	2008	1
Bangladesh 82-90	1990	0
Benin 72-90	1990	0
Bolivia 80-82	1982	0
Brazil 64-85	1985	1
Chile 73-89	1989	1
Dominican Rep 66-78	1978	1
Ecuador 72-79	1979	1
El Salvador 82-94	1994	1
Georgia 92-03	2003	0
Ghana 81-00	2000	1
Guatemala 85-95	1995	1
Guinea Bissau 80-99	1999	0
Haiti 88-90	1990	1
Haiti 91-94	1994	0
Haiti 99-04	2004	0
Honduras 72-81	1981	1
Indonesia 66-99	1999	1
Kenya 63-02	2002	1
Korea South 61-87	1987	0
Lesotho 86-93	1993	1
Madagascar 75-93	1993	1
Mali 68-91	1991	0
Mauritania 05-07	2007	1
Mexico 15-00	2000	1
Nepal 02-06	2006	0
Niger 74-91	1991	0
Niger 96-99	1999	1
Nigeria 66-79	1979	1
Nigeria 93-99	1999	1
Pakistan 77-88	1988	1
Pakistan 99-08	2008	0
Panama 82-89	1989	0
Paraguay 54-93	1993	1
Peru 92-00	2000	0
Philippines 72-86	1986	0
Senegal 60-00	2000	1
Serbia 91-00	2000	0
Sierra Leone 92-96	1996	1
Sierra Leone 97-98	1998	0
South Africa 10-94	1994	1
Spain 39-76	1976	1
Sri Lanka 78-94	1994	1
Sudan 85-86	1986	1
Thailand 06-07	2007	1
Thailand 76-88	1988	1
Thailand 91-92	1992	0
Turkey 80-83	1983	1

Table S-4: Autocratic transitions  
(3 of 34 are elections)

Autocratic regime	Year	Election
Algeria 62-92	1992	0
Armenia 94-98	1998	0
Bangladesh 75-82	1982	0
Belarus 91-94	1994	1
Bolivia 71-79	1979	1
Burkina Faso 66-80	1980	0
Burkina Faso 80-82	1982	0
Burkina Faso 82-87	1987	0
Cameroon 60-83	1983	0
Cen African Rep 66-79	1979	0
Cen African Rep 79-81	1981	0
Chad 82-90	1990	0
El Salvador 48-82	1982	0
Ethiopia 74-91	1991	0
Gambia 65-94	1994	0
Guatemala 70-85	1985	1
Guinea 84-08	2008	0
Haiti 57-86	1986	0
Haiti 86-88	1988	0
Ivory Coast 60-99	1999	0
Ivory Coast 99-00	2000	0
Kyrgyzstan 91-05	2005	0
Lesotho 70-86	1986	0
Madagascar 72-75	1975	0
Mauritania 60-78	1978	0
Mauritania 78-05	2005	0
Myanmar 62-88	1988	0
Nicaragua 36-79	1979	0
Nigeria 83-93	1993	0
Pakistan 75-77	1977	0
Panama 68-82	1982	0
Rwanda 73-94	1994	0
Sierra Leone 68-92	1992	0
Sudan 69-85	1985	0

## Appendix A: robustness tests

### Chamberlain’s random effects probit

Wooldridge (2002, 487) calls the approach that we employ in this paper *Chamberlain’s random effects probit*. Sometimes, researchers refer to this estimator as a “correlated random effects” model. The original citations for this approach, to our knowledge, are Mundlak (1978) and Chamberlain (1982). The main equation we estimate is the following:

$$Pr(Y_t = 1|Y_{t-1} = 0) = \alpha_{j[i]} + \beta_1 X_{i,t-1} + \gamma_1 \bar{X}_i + \varepsilon_{i,t} \quad (1)$$

where  $\alpha_{j[i]}$  are the random effects and  $\beta_1$  is the vector of coefficients for the time-varying variables of interest. An alternative is to specify the time-varying information as centered variables:

$$Pr(Y_t = 1|Y_{t-1} = 0) = \alpha_{j[i]} + \beta_2(X_{i,t-1} - \bar{X}_i) + \gamma_2 \bar{X}_i + \mu_{i,t} \quad (2)$$

Note that the estimates of  $\beta_1$  and  $\beta_2$  are the same but the estimates of  $\gamma_1$  and  $\gamma_2$  are different. We treat the  $\bar{X}_i$ ’s as control variables (i.e. unit effects) and do not interpret the  $\gamma$ ’s. For our purposes, (1) and (2) are the same. Others have used a similar approach, for example Zorn (2001), but he interprets the  $\gamma$ ’s and therefore must use equation (2).

### Additional results

This appendix reports the results of a series of robustness tests of the findings reported in Table 1. All the specifications in Tables A1-A2 use the same set of controls as those reported in columns (3) and (4) of Table 1. Table A-1 reports models that: (1) control for state capacity; (2) control for repression; (3) control for protest interacted with remittances; (4) use a remittance variable without population in the denominator; and (5) use the lagged two-year moving average for remittances instead of the one-year lag. Table A-2 reports specifications that: (1) include the year means of the explanatory variables as controls instead of a time trend<sup>1</sup>; (2) employ a linear probability model with country- and year-fixed effects; (3) employ a conditional logit; and drop Latin American countries from the sample. Figure A-1 shows that the main result from Table 1 is robust to dropping each party regime from the sample, one-at-a-time. Figure A-2 shows the substantive result from the linear probability models (with country- and year-fixed effects).

Table A-3 reports findings using the Cheibub, Gandhi and Vreeland (2010) data on transition from non-democracy to democracy, employing both probit (with unit means) and linear probability (with country fixed effects) estimators. Table A-4 reports the same models as those in Table 1,

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<sup>1</sup>This is similar to including year fixed effects using the mean value approach.

except with a binary indicator for *Personalist* dictatorship and the interaction between this variable and *Remit*. These specifications do not change the main result but show that remittances are not correlated with the risk of democratic transition in personalist dictatorships. Table A-5 employs the model specification from Table 1, columns 3 and 4, but separates pure party-based regimes from hybrid-party regimes (party-military, party-personalist, and party-personalist-military). The main result for the interaction terms and for the linear combinations are positive and stastically different from zero.

Table A-6 reports results from specification with a different dependent variable: *Autocratic transition*. These are political events of autocratic regime collapse where the subsequent regime is *not a democracy* but rather a *new autocratic regime*. The results indicate that there is no empirical relationship between remittances and the likelihood of autocratic transitions. Figure 3 in the main text shows the substantive result from the Autocratic transitions model, using the observed values approach; and contrasts this substantive result with the finding for *Democratic transition*, again using the mean value approach suggested by Hanmer and Kalkan (2013).

Finally, Table A-7 examines the plausibility of the hypothesized causal mechanism in more detail by incorporating information from election years into the analysis in two ways.

First, we include a dummy variable for election year<sup>2</sup> And we then interact this variable with remittances. We stress that this strategy is *not* a good one for assessing how *elections* influence democratic transitions because the information used to code election year is the exact same political event as the information used to code democratic transition (i.e. the election event when the incumbent loses). Thus, the *exact* same political event is the information for coding variables included on both sides of the model, making the interpretation of the *election* variable somewhat nonsensical. However, this can be a useful empirical exercise to examine whether the cases in which there is the expected correlation between remittances and democratic transition occur in election years or non-election years.

The first three columns of Table A-7 use the correlated random effects approach employed in the models in Table 1. The first column reports a model that adds *Election* to the specification. The second column adds both *Election* and *Election*  $\times$  *Remit*. While election years are correlated with democratic transition in both models,<sup>3</sup> the estimate for *Election*  $\times$  *Remit* is not statistically different from zero, suggesting that remittances are not increasing the risk of transition during election years (on average, across all autocratic regime types). The model in the third column includes three two-way interaction terms and a three-way interaction term: *Election*  $\times$  *Remit*, *Election*  $\times$  *Party*, *Remit*  $\times$  *Party*, and *Election*  $\times$  *Remit*  $\times$  *Party*. Interpretation of this model can

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<sup>2</sup>Data on election year comes from the NELDA data set (Hyde and Marinov 2012). The variable we employ marks the calendar year of the final round of an election in which the seat of the incumbent is contested.

<sup>3</sup>Again, we stress that this result is nonsensical because the political event in the dependent variable is often the same event as the event used to code the election year variable.

be difficult so we report the linear combination of the coefficients for four quantities of interest for the marginal effect of remittances:

- No Election year, No Party regime:  $\beta_{Remit}$
- Yes Election year, No Party regime:  $\beta_{Remit} + \beta_{Election \times Remit}$
- No Election year, Yes Party regime:  $\beta_{Remit} + \beta_{Remit \times Party}$
- Yes Election year, Yes Party regime:  $\beta_{Remit} + \beta_{Election \times Remit} + \beta_{Remit \times Party} + \beta_{Election \times Remit \times Party}$

The only estimate of interest that is statistically different from zero (in the linear combination of coefficients) is the last: the marginal effect of remittances *in election years* in party regimes. This indicates that positive correlation between remittances and democratic transition in party regimes is concentrated in election years, as would be expected if the proximate causal mechanism linking remittances to democratic transition is the loss of electoral support for incumbents in party regimes. The next three columns repeat this set of specifications using a linear probability model with country-fixed effects. This approach yields similar results.

The last two columns of Table A-7 only examine election years, dropping all non-election year observations from the sample. This substantially reduces the sample size and means that there are only a few observations per country. In keeping with the spirit of the correlated random effects model, we use the full-sample means of the covariates to model unit fixed effects, and continue to employ a random effects probit with standard errors clustered on country. Thus the interpretation of the reported estimates for *Remit* can be interpreted as the deviation from the unit mean (calculated using the full sample, and not just election years). These models again indicate that remittances are correlated with the likelihood of democratic transition in party regimes.



Table A-1: Remittances and democratic transition

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Remit	0.054 (0.15)	-0.001 (0.16)	0.052 (0.12)	0.001 (0.12)	0.127 (0.13)	0.086 (0.12)	0.055 (0.09)	0.014 (0.08)	0.169 (0.12)	0.133 (0.13)
Remit $\times$ Party		0.461+ (0.25)		0.353* (0.14)		0.345* (0.16)		0.388* (0.15)		0.338* (0.16)
Party regime	-0.527 (0.58)	-1.341+ (0.77)	-0.612+ (0.36)	-1.428** (0.41)	-0.775* (0.39)	-1.582** (0.46)	-0.458 (0.39)	-1.446** (0.42)	-0.404 (0.38)	-1.212** (0.43)
Log GDP pc	-2.361* (0.99)	-2.501* (1.05)	-1.230+ (0.66)	-1.246+ (0.66)	-0.915 (0.62)	-0.981 (0.64)	-1.180+ (0.61)	-1.211* (0.61)	-1.257* (0.64)	-1.193+ (0.63)
Log population	-8.445** (2.67)	-7.933** (2.60)	-4.934* (2.00)	-5.085** (1.85)	-5.491** (1.90)	-5.592** (1.77)	-5.245** (1.74)	-5.405** (1.61)	-5.082** (1.78)	-5.048** (1.63)
Civil conflict	0.319 (0.27)	0.277 (0.28)	-0.093 (0.18)	-0.164 (0.20)	-0.042 (0.17)	-0.096 (0.18)	-0.035 (0.16)	-0.099 (0.18)	-0.015 (0.16)	-0.071 (0.18)
Nbr democratization	0.222 (0.14)	0.229 (0.14)	0.081 (0.10)	0.090 (0.11)	0.061 (0.11)	0.074 (0.11)	0.095 (0.11)	0.107 (0.11)	0.080 (0.11)	0.101 (0.11)
State capacity 1	1.196* (0.48)	1.289* (0.51)								
State capacity 2	0.665 (0.44)	0.823+ (0.46)								
State capacity 3	-0.190 (0.12)	-0.183 (0.13)								
Regression			0.140 (0.16)	0.133 (0.16)						
Protest					0.297 (0.23)	0.306 (0.24)				
Remit $\times$ Protest					-0.044 (0.07)	-0.049 (0.07)				
(Intercept)	-4.927+ (2.73)	-4.750+ (2.77)	-2.302 (1.48)	-2.031 (1.46)	-1.250 (1.33)	-1.061 (1.27)	-3.604** (1.15)	-3.419** (1.11)	-3.469** (1.13)	-3.347** (1.13)
$\beta_{Remit} + \beta_{Remit \times Party}$		0.460+ (0.27)		0.353* (0.18)		0.431* (0.21)		0.402* (0.18)		0.472* (0.19)
N $\times$ T	1035 51	1035 51	1476 87	1476 87	1524 88	1524 88	1527 88	1527 88	1527 88	1527 88
Countries										

+ p<0.10; \* p<0.05; \*\* p<0.01. Dependent variable is democratic transition. Regime duration polynomials and time trends not reported. All models include the unit mean of explanatory variables, not reported. T  $\equiv$  1975-2009.

Table A-2: Remittances and democratic transition, additional models

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Country, Year means		Linear Probability Country, Year FE		Conditional Logit		Drop Latin America	
Remit	0.339** (0.12)	0.285* (0.11)	0.014+ (0.01)	0.010 (0.01)	-0.173 (0.61)	-0.370 (0.61)	0.373* (0.16)	0.334* (0.15)
Remit $\times$ Party		0.359+ (0.19)		0.010 (0.01)		5.883* (2.45)		0.332+ (0.18)
Party regime	-0.580 (0.53)	-1.544* (0.74)	-0.006 (0.04)	-0.025 (0.05)	-13.080** (2.79)	-45.165** (13.95)	-0.839 (0.51)	-1.705* (0.71)
Log GDP pc	0.075 (0.60)	0.098 (0.59)	-0.059 (0.04)	-0.059 (0.04)	-2.403 (4.53)	-2.405 (4.50)	-0.016 (0.73)	0.025 (0.73)
Population	3.590** (0.91)	3.819** (0.94)	-0.384** (0.13)	-0.387** (0.13)	-39.765 (25.07)	-40.333 (25.27)	2.826** (0.97)	3.047** (1.03)
Civil conflict	0.028 (0.17)	-0.038 (0.17)	-0.011 (0.01)	-0.011 (0.01)	0.219 (0.67)	0.215 (0.72)	0.086 (0.19)	0.009 (0.20)
Neighbor democratization	0.188 (0.15)	0.198 (0.15)	0.012 (0.01)	0.012 (0.01)	0.343 (0.27)	0.410 (0.27)	0.320+ (0.18)	0.337+ (0.18)
(Intercept)	33.204** (12.61)	34.438** (13.35)	6.334** (2.19)	6.387** (2.15)	746.160 (478.31)	779.366 (481.45)	43.869** (15.87)	44.960* (17.87)
$\beta_{Remit} + \beta_{Remit \times Party}$		0.644** (0.23)		0.020+ (0.01)		5.513* (2.41)		0.666* (0.27)
N $\times$ T	1527	1527	1527	1527	575	575	1361	1361
Countries	88	88	88	88	64	64	71	71

+  $p < 0.10$ ; \*  $p < 0.05$ ; \*\*  $p < 0.01$ . Dependent variable is democratic transition. Constant, regime duration polynomials, time trends, unit means or fixed effects not reported. GDP per capita, population, civil war and neighbor democratization lagged one year. All models include the unit mean of all explanatory variables (not reported).  $T \equiv 1975-2009$ .

Table A-3: Remittances and CGV democratic transition

	(1)	(2)	(3)	(4)
Remit	0.218+ (0.12)	0.138 (0.13)	0.019* (0.01)	0.013 (0.01)
Remit $\times$ Party		0.507** (0.19)		0.013 (0.01)
Party-based regime	-0.264 (0.39)	-1.277* (0.56)	0.000 (0.02)	-0.026 (0.03)
$\beta_{Remit} + \beta_{Remit \times Party}$		0.645** (0.20)		0.026** (0.01)
Model		Probit		LPM
Unit		Means		FE
Calendar Time		Trend		FE

+  $p < 0.10$ ; \*  $p < 0.05$ ; \*\*  $p < 0.01$ . Dependent variable is democratic transition from Cheibub, Gandhi and Vreeland (2010). Constant, regime duration polynomials, time trends, GDP per capita, population, civil war, and neighbor democracy not reported. GDP per capita, population, civil war and neighbor democratization lagged one year. Columns (1) and (2) include the unit mean of all explanatory variables (not reported).  $T \equiv 1574$ . 1975-2009.

Table A-4: Remittances and democratic transition

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Remit	0.320** (0.11)	0.328+ (0.18)	0.149 (0.11)	0.207 (0.18)	0.130 (0.11)	0.198 (0.17)	0.220 (0.14)	0.272 (0.20)	0.164 (0.18)	0.273 (0.23)
Remit $\times$ Party		0.420** (0.13)		0.371** (0.14)		0.406* (0.16)		0.410** (0.15)		0.323* (0.16)
Remit $\times$ Personal		-0.240 (0.24)		-0.435 (0.29)		-0.403 (0.29)		-0.321 (0.30)		-0.521+ (0.30)
Party regime	-0.645+ (0.38)	-2.028** (0.42)	-0.863* (0.42)	-2.068** (0.41)	-0.907+ (0.48)	-2.281** (0.55)	-1.490** (0.57)	-2.718** (0.58)	-1.447** (0.47)	-2.272** (0.53)
Personal regime	-1.131* (0.50)	-0.746 (0.84)	-1.561* (0.70)	-0.839 (1.05)	-1.758* (0.75)	-1.065 (1.09)	-1.728* (0.87)	-1.167 (1.27)	-1.869* (0.95)	-0.907 (1.27)
$\beta_{Remit+}$		0.749** (0.22)		0.578** (0.21)		0.604** (0.23)		0.682** (0.26)		0.600* (0.28)
$\beta_{Remit \times Party}$										
$\beta_{Remit+}$		0.088 (0.22)		-0.229 (0.22)		-0.205 (0.22)		-0.049 (0.24)		-0.249 (0.27)
$\beta_{Remit \times Personal}$										
N $\times$ T	1567	1567	1527	1527	1485	1485	1470	1470	1381	1381
Countries	91	91	88	88	88	88	88	88	85	85

+  $p < 0.10$ ; \*  $p < 0.05$ ; \*\*  $p < 0.01$ . Dependent variable is democratic transition. Regime duration polynomials and time trend not reported. All models include the unit mean of all explanatory variables (not reported). T  $\equiv$  1975-2009.

Table A-5: Separate pure party regimes and hybrid-party regimes

	(1)	(2)
Remit	0.139 (0.12)	0.068 (0.12)
Pure party	-0.870+ (0.49)	-1.521** (0.56)
Hybrid party	-0.089 (0.54)	-2.399** (0.64)
Remit $\times$ pure party		0.285* (0.13)
Remit $\times$ hybrid party		1.027** (0.26)
$\beta_{Remit} + \beta_{Remit \times pureparty}$		0.352* (0.12)
$\beta_{Remit} + \beta_{Remit \times hybridparty}$		1.094** (0.27)

+  $p < 0.10$ ; \*  $p < 0.05$ ; \*\*  $p < 0.01$ . Random effects probit with clustered standard errors in parentheses. Dependent variable is democratic transition. Unit means, constant, regime duration polynomials, time trends, GDP per capita, population, civil war, and neighbor democracy not reported. GDP per capita, population, civil war and neighbor democratization lagged one year.  $N \times T \equiv 1527$ . 88 countries from 1975-2009. Hybrid-party regimes are those coded as party-personalist, party-military, or party-military-personalist.

Table A-6: Remittances and autocratic transition

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Remit	0.034 (0.19)	0.046 (0.20)	0.092 (0.18)	0.100 (0.18)	0.103 (0.18)	0.112 (0.19)	0.048 (0.20)	0.054 (0.20)	0.054 (0.19)	0.045 (0.20)
Remit $\times$ Party		-0.066 (0.20)		-0.050 (0.18)		-0.052 (0.18)		-0.036 (0.18)		0.169 (0.18)
Party	-0.228 (0.39)	-0.156 (0.59)	-0.066 (0.41)	-0.010 (0.61)	0.042 (0.45)	0.098 (0.64)	-0.001 (0.48)	0.013 (0.71)	-0.256 (0.46)	-0.592 (0.71)
Log GDP pc			-0.185 (0.64)	-0.200 (0.64)	-0.198 (0.63)	-0.215 (0.64)	-0.477 (0.66)	-0.501 (0.66)	-0.390 (0.82)	-0.542 (0.86)
Log population			2.878 (2.92)	2.931 (2.99)	3.006 (2.75)	3.090 (2.80)	3.477 (3.01)	3.570 (3.05)	4.036 (3.99)	4.143 (4.10)
Civil conflict			0.666** (0.20)	0.663** (0.19)	0.582** (0.21)	0.579** (0.21)	0.635** (0.23)	0.629** (0.22)	0.630* (0.27)	0.622* (0.27)
Nbr democracy			0.191 (0.13)	0.193 (0.13)	0.167 (0.12)	0.169 (0.12)	0.141 (0.12)	0.144 (0.12)	0.184 (0.13)	0.191 (0.14)
Net migration					-3.271+ (1.77)	-3.350+ (1.76)	-4.097+ (2.09)	-4.255* (2.14)	-4.212 (2.61)	-4.802+ (2.62)
Growth							0.011 (0.02)	0.011 (0.02)	0.013 (0.03)	0.015 (0.02)
Protest							0.101 (0.21)	0.100 (0.21)	0.091 (0.19)	0.075 (0.19)
Aid									0.048 (0.05)	0.040 (0.05)
Oil									-0.127 (0.15)	-0.150 (0.15)
KA open									-0.429* (0.19)	-0.433* (0.18)
(Intercept)	-1.261** (0.47)	-1.227* (0.48)	1.333 (1.25)	1.325 (1.26)	1.217 (1.21)	1.179 (1.18)	1.506 (1.34)	1.333 (1.28)	-1.167 (2.56)	-2.431 (2.59)
$\beta_{Remit+}$		-0.019 (0.25)		0.050 (0.23)		0.060 (0.23)		0.018 (0.24)		0.214 (0.25)
$\beta_{Remit \times Party}$										
N $\times$ T	1567	1567	1527	1527	1485	1485	1470	1470	1381	1381
Countries	91	91	88	88	88	88	88	88	85	85

+ p<0.10; \* p<0.05; \*\* p<0.01. Dependent variable is democratic transition. Regime duration polynomials and time trend not reported. All models include the unit mean of all explanatory variables (not reported). T  $\equiv$  1975-2009.

Table A-7: Remittances, elections, and democratic transitions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		Correlated RE probit		Linear probability with Country, Year FE			Election year only	
Remit	0.017 (0.13)	0.090 (0.13)	0.100 (0.13)	0.009 (0.01)	0.012 (0.01)	0.006 (0.01)	0.054 (0.22)	-0.111 (0.29)
Remit $\times$ Party	0.443* (0.19)		0.087 (0.17)	0.012 (0.01)		0.009 (0.01)		0.810* (0.37)
Remit $\times$ Election		-0.011 (0.12)	-0.144 (0.15)		0.013 (0.02)	0.006 (0.03)		
Party $\times$ Election			-1.659+ (0.88)			-0.176* (0.08)		
Remit $\times$ Party $\times$ Election			0.823** (0.30)			0.028 (0.03)		
Party	-1.446** (0.42)	-0.445 (0.43)	-0.925* (0.42)	-0.029 (0.04)	-0.005 (0.04)	-0.005 (0.04)	-1.265 (0.79)	-3.546** (1.30)
Election	1.235** (0.18)	1.248** (0.34)	1.500** (0.42)	0.118** (0.02)	0.087+ (0.05)	0.151* (0.07)		
Log GDP pc	-1.418* (0.60)	-1.395* (0.59)	-1.254* (0.62)	-0.074+ (0.04)	-0.074+ (0.04)	-0.072+ (0.04)	-0.365 (0.92)	-0.139 (1.08)
Population	-6.219** (1.57)	-6.043** (1.74)	-5.889** (1.59)	-0.396** (0.12)	-0.386** (0.12)	-0.384** (0.12)	-5.107 (3.17)	-4.097 (3.43)
Civil conflict	0.058 (0.19)	0.107 (0.18)	0.092 (0.18)	-0.010 (0.01)	-0.009 (0.01)	-0.007 (0.01)	-0.786* (0.36)	-0.919** (0.34)
Nbr democratization	0.142 (0.11)	0.127 (0.11)	0.139 (0.11)	0.011 (0.01)	0.011 (0.01)	0.011 (0.01)	0.110 (0.22)	0.072 (0.24)
(Intercept)	-3.228* (1.42)	-3.508* (1.41)	-3.160* (1.51)	6.623** (2.00)	6.453** (2.04)	6.424** (2.02)	-4.146+ (2.29)	-4.392+ (2.45)
$\beta_{Remit}$	0.017 (0.13)	0.090 (0.13)	0.100 (0.13)	0.009 (0.01)	0.012 (0.01)	0.006 (0.01)	0.054 (0.22)	-0.111 (0.29)
$\beta_{Remit} + \beta_{Remit \times Party}$	0.461* (0.22)		0.187 (0.21)	0.020* (0.01)		0.016 (0.01)		0.700+ (0.39)
$\beta_{Remit} + \beta_{Remit \times Election}$		0.079 (0.15)	-0.044 (0.17)		0.024 (0.02)	0.011 (0.03)		
$\beta_{Remit} + \beta_{Remit \times Election} +$ $\beta_{Remit \times Party} +$ $\beta_{Remit \times Election \times Party}$			0.866** (0.30)			0.050* (0.02)		
N $\times$ T	1527	1527	1527	1527	1527	1527	215	215
Countries	88	88	88	88	88	88	67	67

+ p<0.10; \* p<0.05; \*\* p<0.01. Dependent variable is democratic transition. Constant, regime duration polynomials, time trends, unit means or fixed effects not reported. GDP per capita, population, civil war and neighbor democratization lagged one year. T  $\equiv$  1975-2009.

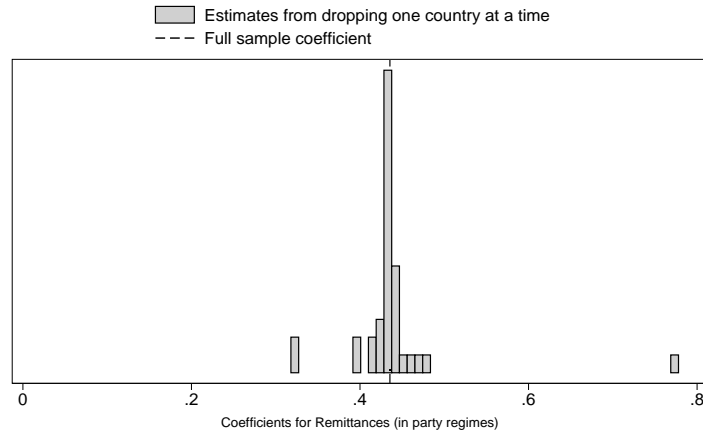


Figure A-1: *Coefficients for Remittances (party regimes only)*. The vertical bars show the estimated coefficients for  $\beta_{Remittances} + \beta_{Remit \times Party}$  for the model in column 4, Table 1 when each party regime is excluded from the sample. Vertical dotted line shows the estimated coefficient reported in column 4, Table 1.



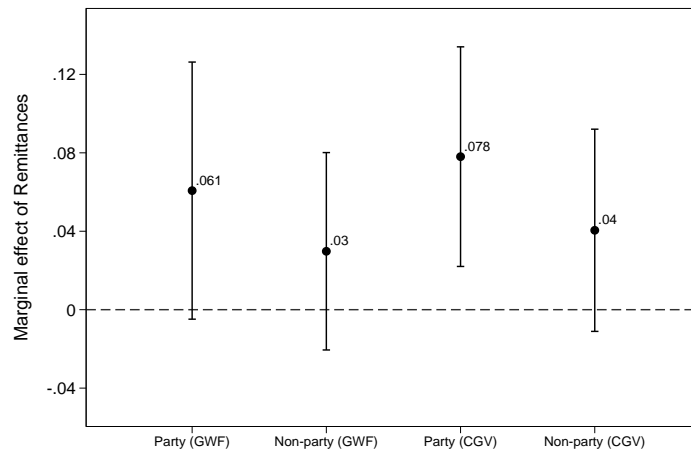


Figure A-2: *Remittances and democratization, linear probability models.* The horizontal axis depicts the marginal effect of a two-standard deviation increase in remittances (3 log units). The left two estimates are from a linear probability model in Table A-1, column 10. The right two estimates from Table A-2, column 4. Point estimates and 95 percent confidence intervals depicted.

## Appendix B: Two-stage model

The excluded instrument,  $WRemitDistance$ , is constructed as follows:

- calculate the constant dollar value sum of all remittances received in High Income OECD countries (World Bank classification)<sup>4</sup> in year  $t$
- lag this variable one year because the endogenous remittance variable is lagged one year
- log this variable to ensure extreme values in the skewed distribution do not influence the first stage estimates
- multiply this variable by the share of the land area in country  $i$  that lies within 100km of an ice-free coast  $\times$  the share of land area in country  $i$  that has fertile soil

This variable contains both cross-sectional (geographic features) and time-varying (yearly sum of high income country remittances) information. The share of the land area that lies near the coast is a proxy for the ease of migration from the remittance-receiving country. According to this logic, remittance flows to countries such as Cote d'Ivoire, El Salvador, Gambia, Indonesia, Malaysia, and Tunisia should be more closely tied to remittance-receiving patterns in high income countries than landlocked countries such as Bolivia, Chad, and Nepal where the land area is further from the coast. Fertile soil is a proxy for population density. Mountains, jungles, and deserts – where there is less fertile land – typically have lower population densities. While these geographic features are not endogenously determined by the time-varying likelihood of democratic transition, there are certainly other causal pathways through which they could influence transitions. However, we directly control for these time-invariant factors, such as geographic position and factor endowments, with country fixed effects. And because we include country fixed effects in all two-stage models, we cannot include coastal land or fertile soil directly as an instrument. That is, we only *weight* the rich-world remittance trend by coastal population.

To examine whether the excluded instrument influences observed remittances in both party regimes and non-party regimes, we test the first stage equation for each sub-sample. In the group of party regimes, the first stage F-statistic is 16.2; in the sub-sample of other regimes, it is 10.4. This suggests that the excluded instrument strongly correlates with remittances in both sub-samples. That is, the identification strategy is not vulnerable to criticism about heterogeneous treatment effects, at least along the key unit of theoretical interest – namely whether the dictatorship is coded as a party regime.

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<sup>4</sup>These countries are: Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Israel, Japan, South Korea, Luxembourg, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, United Kingdom, United States.

When we examine the partial regression plots from the first stage equation where the endogenous interaction term is the dependent variable, we find that Lesotho is an outlier that is not well explained by the excluded instrument. This makes sense because although it is a high-remittance receiving country (Crush et al. 2010, 4), it is landlocked within South Africa and thus the instrument weights the OECD remittance trend by zero under the assumption that ease of migration is low. However, Lesotho is an anomalous landlocked country because ease of migration is not particularly low given its geographic position in Southern Africa. Nearly one-eighth of its population lived in another country in 2006. In the analysis reported in the main text, we drop Lesotho. This does not change the coefficient estimates substantially but (unsurprisingly) decreases the standard error estimates. In the last two columns of Table B-2, we show that the main point estimate of interest remains the same if we assign Lesotho the geographic weight applied to South Africa; and if we include Lesotho with its implausible geographic weight. The F-tests for instrument strength, however, are no longer larger than conventional cut-points.

Table B-1 reports the results from the (two) first stage equations for the model with two endogenous variables ( $Remit$  and  $Remit \times Party$ ), reported in the final column of Table 2 in the main text.  $WRemitDist$  is positively correlated with each endogenous variable and  $WRemitDist \times Party$  is positively correlated with  $Remit \times Party$ .

Table B-2 reports robustness tests for the two-stage IV model. The specification in (1) contains no control variables, save  $Party$ , regime duration polynomials, country-fixed effects, and time period effects. The specification in (2) contains the base controls from the specification reported in the main text, except dropping  $migration$ . The next four specifications add more control variables: trade; growth; growth + protest; and growth + protest + aid + oil + kaopoen. The specification in (7) is the base model with year fixed effects instead of time period fixed effects. Point estimates on the main variable of interest are similar, but the F-statistic is smaller because year fixed effects pick up much of the variation in the OECD remittance trend (which only varies by year). The base line specification reported in (8) uses a sample that excludes all observations from the year 1975 because they are potential outliers in the first stage equation. The results in (9) and (10) add Lesotho to the sample, with (9) using S. Africa's geographic weight to construct the excluded instruments and (10) using the original geographic weight for Lesotho (which is zero) to construct the excluded instruments. Again, point estimates for the variable of interest are similar to the result reported in the main text. However, the F-statistic from the first-stage is much smaller than 10, reflecting the presence of the Lesotho outliers in the first stage equations.

Table B-3 reports two-stage models where the dependent variable is *Autocratic transition*, not *Democratic transition*. Again the sample is countries that are autocracies on January 1 of the observation calendar year. The dependent variable captures transitions from one autocratic regime to another, such as the Iranian Revolution of 1979, the ouster of the Mobutu regime in the former Zaire in 1997 by rebel insurgents, and the military coup by a junior officer in Guinea in 2008. The first stage equations for these models are *exactly* the same as those for the models reported

in the main text (Table 2, columns 2 and 3). In the outcome equation, the estimates for *Remit*,  $Remit \times Party$ , and  $Remit + (Remit \times Party)$  are not different from zero, suggesting that similar to the results for *Autocratic transition* reported in Table A-6, there is no empirical relationship between remittances and autocratic transitions.

Table B-1: First stage results for IV model  
(Table 2, column 3)

	Remit	Remit $\times$ Party
W Remit Distance	2.122** (0.47)	1.334** (0.46)
W Remit Distance $\times$ Party	0.024 (0.25)	0.806* (0.34)
Party regime	-0.153 (0.15)	1.306** (0.37)
GDP per capita	0.122 (0.35)	0.034 (0.31)
Population	-1.507** (0.54)	-0.751 (0.46)
Civil war	-0.041 (0.06)	-0.031 (0.08)
Neighbor democratization	0.027 (0.03)	-0.004 (0.02)
Net migration	-0.814 (0.83)	-1.569+ (0.85)
(Intercept)	-10.547 (11.74)	-12.516 (11.66)
$R^2$	0.870	0.933

+  $p < 0.10$ ; \*  $p < 0.05$ ; \*\*  $p < 0.01$ . OLS with clustered standard errors in parentheses. Country fixed effects, regime duration polynomials, and time trend not reported.  $T \equiv 1975-2009$ . 1464 observations in 83 countries.

Table B-2: Additional 2-stage models

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Remit	0.063 (0.06)	0.076 (0.06)	0.067 (0.06)	0.078 (0.06)	0.066 (0.05)	0.053 (0.08)	0.058 (0.06)	0.064 (0.06)	0.038 (0.07)	0.018 (0.10)
Remit $\times$ Party	0.089* (0.04)	0.074+ (0.04)	0.064 (0.05)	0.070 (0.05)	0.082+ (0.05)	0.101 (0.07)	0.075 (0.05)	0.082+ (0.05)	0.114 (0.08)	0.141 (0.13)
Party	-0.119 (0.08)	-0.104 (0.08)	-0.099 (0.07)	-0.089 (0.09)	-0.107 (0.09)	-0.146 (0.12)	-0.098 (0.09)	-0.107 (0.09)	-0.207 (0.19)	-0.260 (0.29)
GDP per capita		-0.048 (0.06)	-0.031 (0.06)	-0.010 (0.06)	-0.041 (0.06)	-0.019 (0.06)	-0.061 (0.06)	-0.041 (0.06)	-0.027 (0.07)	-0.024 (0.07)
Population		-0.057 (0.13)	-0.058 (0.13)	-0.056 (0.15)	-0.034 (0.14)	-0.140 (0.12)	-0.212 (0.24)	-0.040 (0.15)	-0.072 (0.15)	-0.081 (0.15)
Civiil war		-0.002 (0.01)	-0.008 (0.01)	-0.008 (0.01)	-0.002 (0.01)	0.007 (0.02)	-0.005 (0.01)	-0.002 (0.01)	-0.007 (0.01)	-0.009 (0.02)
Neighbor democratization		0.013 (0.01)	0.016 (0.01)	0.013 (0.01)	0.013 (0.01)	0.008 (0.01)	0.021 (0.02)	0.013 (0.01)	0.013 (0.01)	0.014 (0.01)
Net migration			0.048 (0.16)	0.175 (0.16)	0.113 (0.14)	0.206 (0.16)	0.057 (0.17)	0.111 (0.14)	0.150 (0.16)	0.175 (0.20)
Trade			-0.013 (0.04)							
Economic growth				-0.007** (0.00)		-0.006* (0.00)				
Protest					0.002 (0.01)	0.002 (0.01)				
Aid						-0.007 (0.01)				
Oil						0.011 (0.01)				
KA open						0.019+ (0.01)				
$\beta_{Remit} + \beta_{Remit \times Party}$	0.151+ (0.08)	0.150* (0.07)	0.130+ (0.08)	0.147* (0.07)	0.147+ (0.08)	0.154+ (0.09)	0.132 (0.09)	0.145+ (0.08)	0.152+ (0.08)	0.159+ (0.09)
Countries	86	84	83	83	83	81	83	83	84	84
N $\times$ T	1543	1506	1436	1451	1461	1361	1450	1450	1482	1482
F-statistic	7.2	6.0	9.6	9.8	12.0	10.2	6.1	8.8	1.1	0.6
Time trend	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
Year FE	N	N	N	N	N	N	Y	N	N	N
Drop 1975	N	N	N	N	N	N	N	Y	N	N
Lesotho w. SA weight	N	N	N	N	N	N	N	N	Y	N
Lesotho w. Les weight	N	N	N	N	N	N	N	N	N	Y

+ p<0.10; \* p<0.05; \*\* p<0.01. Two-stage IV with clustered standard errors in parentheses. Country-fixed effects, regime duration polynomials, time trend (or year-effects) not reported. Kleibergen-Paap rk Wald F statistic reported. Stock-Yogo weak ID test critical value (10%) is 7.0. T $\equiv$  1975-2009.

Table B-3: Remittances and Autocratic transition  
(2SLS-IV with FE)

	(1)	(2)
Remit	-0.024 (0.05)	-0.010 (0.05)
Remit $\times$ Party		-0.032 (0.06)
Party	-0.010 (0.04)	0.040 (0.11)
Log GDP pc	-0.046+ (0.03)	-0.047+ (0.03)
Population	-0.058 (0.11)	-0.068 (0.12)
Civil war	0.032** (0.01)	0.031** (0.01)
Neighbor democratization	0.016 (0.01)	0.016 (0.01)
Net migration	-0.422** (0.12)	-0.461** (0.15)
$\beta_{Remit} + \beta_{Remit \times Party}$		-0.043 (0.06)

+  $p < 0.10$ ; \*  $p < 0.05$ ; \*\*  $p < 0.01$ . 2SLS-IV FE with clustered standard errors in parentheses. Country fixed effects, regime duration polynomials, and time trend not reported. T  $\equiv$  1975-2009. 1464 observations in 83 countries.

## Appendix C: Incumbent vote share in autocratic elections

The sample contains 83 autocratic elections with non-missing data on worker remittances, 1975-2009. To be included the election must: (1) occur during the lifetime of an autocratic regime; (2) be a multicandidate direct election; and (3) be preceded by a multicandidate direct election under the same regime. The first criterion means that even if an election occurs during the same calendar year in which an autocratic regime ruled, it must take place during its rule. The 2005 presidential election in Kyrgyzstan, for example, took place after the Akayev regime fell. This election is therefore excluded from the sample. Elections in which the incumbents lose may end the regime, however, as was the case in Ghana (2000), Mexico (2000) and Senegal (2000) – but only if there was a prior multicandidate executive election. If the incumbent party loses the first multicandidate election and the regime ends (e.g. Malawi 1994), this election is not included in the sample. The third criterion also means that first multiparty elections (e.g. Kenya 1992 or Tanzania 1995) are not included in the sample because there is no prior election result to use as a comparison for calculating the change in incumbent vote share. The direct election criterion means that an indirect election (e.g. Guatemala’s legislature elected a new president after the constitutional crisis in 1993) is not considered part of the sample or as a prior election result.<sup>5</sup> Table C-1 contains information on all the elections in the sample, including the year of the election, the election result, the year of the prior election and the vote outcome from the prior election. The data sources are: African Elections Database (2012), Center on Democratic Performance (2012), Election Watch (2009), Furlong (1992), Hersch (1986), Nohlen et al. (2002, 2005), Princeton’s Iran Data Portal, Radnitz (2006), and Sekelj (2000).

Table C-2 reports robustness tests for the incumbent vote share models. The first four columns report results from error-correction models (ECM), using a different lag for each specification (1-4). The reported estimates are the long-run multiplier calculated using a Bewley transformation. Elections are not evenly spaced in all countries and the ECM framework assuming a common lag structure for all units (countries). Therefore we tested ECMs for multiple lags. The next three columns reported additional tests. The model in (5) contains no control variables, except *Party* and *Prior vote*. In (6), the sample excluded one observations flagged as a multivariate Hadi outlier. Finally, a robust regression is reported in (7). The coefficient estimates in (7) are *not* comparable to estimates in (5) and (6) because the dependent variable has not been logit transformed to account for bounded nature of incumbent vote share data.

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<sup>5</sup>Serbia is a particularly difficult case to code. Direct executive elections for Serbia were held in 1990, 1992, and 1997 (and 2002, after the regime falls in 2000). Milošević won the Serbian elections in 1990 and 1992 and his party’s candidate won in 1997 (first and last round, though there were different candidates). The Federal Republic of Yugoslavia (FRY) is parliamentary but also has a President, who was selected by legislature in 1992 (Cosić) and 1997 (Milošević). In 2000, the FRY had its first direct Presidential election, which Milošević lost. This event, and the uprisings in its aftermath, ended the regime. We have remittance data for 1992, 1997, and 2000 but can only compare the 1992 and 1997 Serbian Presidential elections as equivalent contests.



Table C-1: Incumbent vote share sample

Country	Year	Vote	Prior Vote	Country	Year	Vote	Prior Vote
Algeria	1999	73.8	61.0 (1995)	Kyrgyzstan	2009	76.1	89.5 (2005)
Algeria	2004	85.0	73.8 (1999)	Madagascar	1989	63.0	80.2 (1982)
Algeria	2009	90.2	85.0 (2004)	Madagascar	1992	29.2	63.0 (1989)
Armenia	1996	51.3	83.0 (1991)	Mauritania	1997	90.9	62.9 (1992)
Armenia	2003	49.5	38.5 (1998)	Mauritania	2003	67.4	90.9 (1997)
Armenia	2008	52.8	49.5 (2003)	Mexico	1982	74.4	94.4 (1976)
Azerbaijan	1998	77.6	99.0 (1993)	Mexico	1988	50.7	74.4 (1982)
Azerbaijan	2003	76.8	77.6 (1998)	Mexico	1994	48.8	50.7 (1988)
Azerbaijan	2008	88.7	76.8 (2003)	Mexico	2000	36.9	48.8 (1994)
Belarus	2001	77.4	45.8 (1994)	Mozambique	1999	52.3	53.3 (1994)
Belarus	2006	84.4	77.4 (2001)	Mozambique	2004	63.7	52.3 (1999)
Cameroon	1997	92.6	40.0 (1992)	Mozambique	2009	75.0	63.7 (2004)
Cameroon	2004	70.9	92.6 (1997)	Namibia	1999	76.8	76.3 (1994)
Dominican Rep	1974	84.7	57.2 (1970)	Namibia	2004	76.4	76.8 (1999)
Dominican Rep	1978	43.0	84.7 (1974)	Namibia	2009	76.4	76.4 (2004)
El Salvador	1989	36.5	43.4 (1984)	Panama	1989	25.8	46.7 (1984)
El Salvador	1994	49.3	53.8 (1989)	Paraguay	1978	90.8	84.7 (1973)
Gabon	1998	66.9	51.2 (1993)	Paraguay	1983	91.0	90.8 (1978)
Gabon	2005	79.2	66.9 (1998)	Paraguay	1988	89.6	91.0 (1983)
Gabon	2009	41.7	79.2 (2005)	Paraguay	1989	75.9	89.6 (1988)
Gambia	1987	59.2	72.4 (1982)	Paraguay	1993	41.6	75.9 (1989)
Gambia	1992	58.5	59.2 (1987)	Peru	1995	64.4	24.6 (1990)
Gambia	2001	52.8	55.8 (1996)	Peru	2000	50.3	64.4 (1995)
Gambia	2006	67.3	52.8 (2001)	Russia	1996	54.4	58.6 (1991)
Georgia	2000	82.0	77.0 (1995)	Russia	2000	53.4	54.5 (1996)
Ghana	1996	57.4	58.4 (1992)	Russia	2004	71.9	53.4 (2000)
Ghana	2000	44.8	57.4 (1996)	Russia	2008	71.2	71.9 (2004)
Guatemala	1978	40.3	44.6 (1974)	Senegal	1983	83.5	82.2 (1978)
Guatemala	1982	38.9	40.3 (1978)	Senegal	1988	73.2	83.5 (1983)
Guatemala	1990	17.5	38.7 (1985)	Senegal	1993	58.4	73.2 (1988)
Guatemala	1995	12.9	25.7 (1990)	Senegal	2000	41.5	58.4 (1993)
Guinea	1998	56.1	51.7 (1993)	Serbia	1997	35.7	56.0 (1992)
Guinea	2003	95.3	56.1 (1998)	Sri Lanka	1988	50.4	52.9 (1982)
Haiti	2000	91.2	87.9 (1995)	Sri Lanka	1994	35.9	50.4 (1988)
Iran*	1993	63.0	94.0 (1989)	Tanzania	2000	71.7	61.8 (1995)
Iran*	1997	24.9	63.0 (1993)	Tanzania	2005	80.3	71.7 (2000)
Iran*	2001	77.0	69.1 (1997)	Togo	1998	52.1	96.4 (1993)
Iran*	2005	17.2	77.0 (2001)	Togo	2003	57.8	52.1 (1998)
Ivory Coast	1995	96.2	81.7 (1990)	Togo	2005	60.2	57.8 (2003)
Kenya	1997	40.1	36.3 (1992)	Uganda	2001	69.3	74.3 (1996)
Kenya	2002	31.3	40.1 (1997)	Uganda	2006	59.3	69.3 (2001)
Kyrgyzstan	2000	74.5	71.6 (1995)				

\* ≡ Iranian incumbent coded according to faction of the incumbent president (e.g. Rafsanjani's Combatant Clergy and Khatami's Association of Clerics, Reform).

Table C-2: Remittances and incumbent vote share

	Long-run multipliers from ECM				No control variables	Exclude Hadi outlier	Robust regression
	lag 1	lag 2	lag 3	lag 4			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<u>LRM coefficients</u>							
Remit	-0.030 (0.05)	-0.018 (0.06)	-0.020 (0.06)	-0.027 (0.06)			
Remit $\times$ Party	-0.157+ (0.09)	-0.197+ (0.10)	-0.174+ (0.09)	-0.172+ (0.10)			
Party	0.346 (0.26)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)			
Growth	0.021* (0.01)	0.014 (0.01)	0.018 (0.01)	0.015 (0.01)			
					<u>Levels coefficients</u>		
Remit					0.003 (0.09)	-0.022 (0.10)	0.008 (0.02)
Remit $\times$ Party					-0.381** (0.11)	-0.357** (0.11)	-0.092** (0.03)
Party regime					0.831** (0.32)	0.749* (0.30)	0.227* (0.09)
Growth						0.031 (0.02)	0.009* (0.00)
Prior vote					2.220** (0.70)	2.421** (0.66)	0.659** (0.10)
(Intercept)	0.596** (0.17)	0.627** (0.17)	0.615** (0.16)	0.657** (0.16)	-0.883 (0.62)	-1.039+ (0.59)	0.142+ (0.08)
$\beta_{Remit} + \beta_{Remit \times Party}$	-0.187* (0.07)	-0.215** (0.08)	-0.194** (0.07)	-0.200** (0.07)	-0.379** (0.06)	-0.379** (0.06)	-0.084* (0.03)
N $\times$ T	76	74	71	67	85	82	83

+ p<0.10; \* p<0.05; \*\* p<0.01. Dependent variable is the change in incumbent vote share from the last election. Unit of observation is an election year. Constant not reported. First four columns only report the long-run multiplier from a Bewley transformation of the error-correction specification (De Boef and Keele, 2008). Each column reports a different time lag for calculating the difference and lag explanatory variables. The lagged DV is fixed at the level of incumbent vote share in the prior election. Explanatory variables in columns (5) to (7) are levels. Coefficient in (7) is *not* comparable to estimates in (5) and (6) because the dependent variable has not been logit transformed to account for bounded nature of incumbent vote share data. Years: 1975-2009.

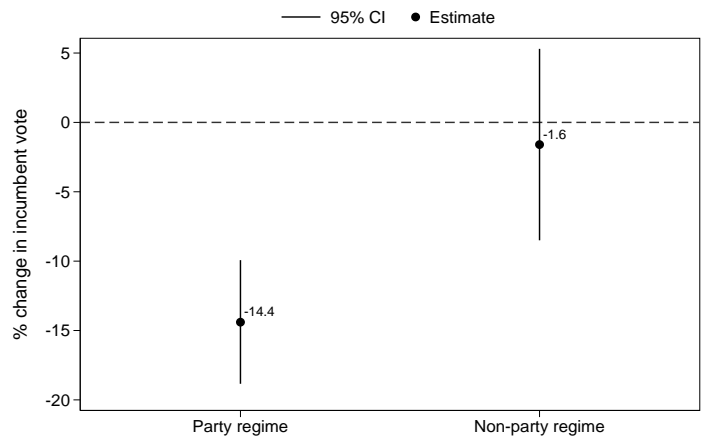


Figure C-1: *Marginal effect of remittances on incumbent vote share.* Estimates obtained from model reported in column 2, Table 3 (main text). The marginal effect is calculated for a one standard deviation increase in remittances (1.54 log units).

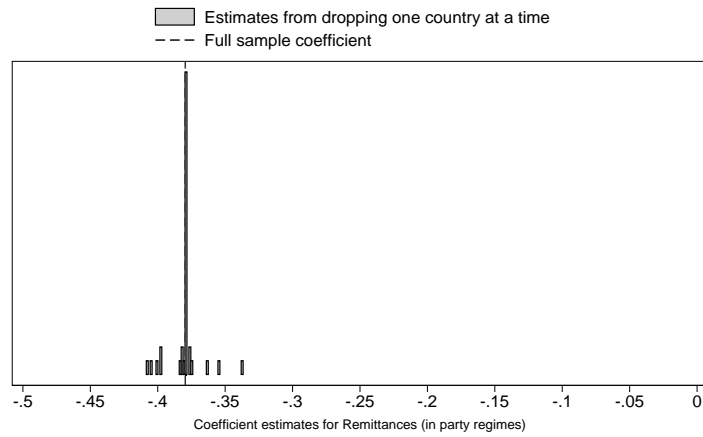


Figure C-2: *Coefficients for Remittances (party regimes only)*. The vertical bars show the estimated coefficients for remittances in party regimes when we exclude one regime at a time from the sample. The vertical dotted line shows the coefficient estimate for the sample that includes all party regimes.

## Appendix D: Remittances and protest

In this Appendix, we examine the statistical correlation between remittances and anti-regime protest in autocratic regimes from 1975-2009. We use two sources to measure the dependent variable, anti-regime dissent. The first is a count of the number of anti-regime protests and riots from the Banks Cross-National Times Series Data. There is no publicly available codebook which lists the events recorded in this data set and thus we cannot verify the dates of the events. This means that some of the events that occur during transition years may occur after (and thus as a consequence of) the regime transition event. Further, the stated source of information for this data is the print edition of the *New York Times*, which means that events which occur during times of breaking news in the U.S. may be less likely to appear in the data.

The second data set we use is the Social Conflict in Africa Dataset (SCAD), which documents organized and spontaneous riots and demonstrations against the government from news wire sources. These data contain the start and end dates of the protest event so we can exclude protest events that occur during the same calendar year as the regime transition but after the regime collapse event. Further, this data set records the target and the issue of the mobilization event so we can exclude events that are ‘pro-government’ as well as events where the target was not the government. This data set only covers the post-1989 period in Africa, including North African countries.

We employ a negative binomial regression model because the protest variables are count data; we test a fixed effects estimator by including dummy variables for each unit (Allison and Waterman 2002).<sup>6</sup> In the baseline specification, we include year fixed effects, the log of regime duration, and indicator variable for *Party* dictatorship. In the control variable specification, we add *Urbanization*, *Growth*, *Population*, *Civil war*, and *Military size*.<sup>7</sup>

The evidence from these models generally suggests that remittances are associated with a higher incidence of protest, and that the statistical relationship, particularly using SCAD, is larger in party regimes. There is little evidence from these models consistent with the contention that remittances ease dissatisfaction with the regime. This finding linking remittances and protest in party regimes, while positive, is not robust to all specifications – particularly when using SCAD. Nonetheless, the positive association is consistent with our interpretation of the main result in the paper that remittances increase the risk of democratic transition in party regimes and that they lower the incumbent vote share.

Anti-regime protest and electoral rejection of the incumbent may be intertwined in party regimes and constitute two forms of dissent. For example, while Kenya transitioned in 2002 after the electoral defeat of the ruling KANU, protests surged during earlier election years. Klopp and Zuern (2007, 132), for instance, note that “in Kenya in 1997 the National Convention Executive Council (NCEC), an umbrella organization of church groups, human rights associations, and opposition politicians, organized a mass action campaign to force reforms and level the playing field before the next election.” A more level electoral playing field likely contributed to KANU’s defeat in the 2002

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<sup>6</sup>This is not the canned FE negative binomial estimator in Stata, which fixes the dispersion parameter for each unit.

<sup>7</sup>Urbanization is the two-year differenced variable, from the WDI (2010). Military size is the log of the number of military personnel from the Correlates of War project. See Albertus and Menaldo (2012) for evidence that military size lowers the risk of anti-regime collective action and democratic transition, and Svobik (2011) for an informal treatment of why autocratic militaries (as opposed to security services) may deter anti-regime protest.

election. Indeed, the Banks data record 15 protest events in Kenya in 1997, while SCAD records 10 mobilizations targeting the government.

Mass anti-regime protests also helped oust Suharto in 1998 and precipitated the electoral defeat of Golkar the following year. Even prior to the financial crisis, the leading opposition party, the Democratic Party of Indonesia (PDI), mobilized against the Suharto regime. In 1996 when Suharto attempted to replace the PDI leader (Megawati) with a regime loyalist, PDI supporters protested for three weeks in July 1996. The protests prompted regime reprisal and escalated into a fatal conflict between regime opponents and the police (Liddle and Mallarangeng 1997, 170). This example illustrates that in party regimes, the opposition may not only help mobilize citizens to vote against the regime but may also lead anti-regime protests as a precursor to incumbent electoral defeat. Megawati and the PDI won the June 1999 elections, gaining 34 percent of the vote to Golkar's 22 percent.

Finally, we note that we do not have data to test the mechanisms by which remittances increase protest, such as: lowering barriers to contentious collective action; or diaspora politics financing opposition civil society groups and opposition parties. Further, we have not addressed endogeneity issues in these models. Therefore these results should be interpreted as preliminary, suggestive evidence and not as a final test.

Table D-1: Remittances and anti-regime protest

Protest Data	Banks (1-4)				SCAD (5-8)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Remit	0.239*	0.183	0.407**	0.401**	0.070	0.046	0.072	0.026
	(0.10)	(0.11)	(0.11)	(0.12)	(0.11)	(0.11)	(0.11)	(0.12)
Remit $\times$ Party		0.152		0.015		0.133		0.221
		(0.15)		(0.17)		(0.20)		(0.21)
Party regime	0.294	-0.010	-0.078	-0.107	-0.117	-0.357	-0.517	-0.906+
	(0.34)	(0.45)	(0.38)	(0.50)	(0.32)	(0.48)	(0.34)	(0.49)
$\beta_{Remit} + \beta_{Remit \times Party}$		0.335*		0.416**		0.179		0.248
		(0.14)		(0.15)		(0.20)		(0.20)
Controls	No	No	Yes	Yes	No	No	Yes	Yes
Time	FE	FE	FE	FE	FE	FE	FE	FE
N $\times$ T	1585	1585	1435	1435	514	514	477	477

+  $p < 0.10$ ; \*  $p < 0.05$ ; \*\*  $p < 0.01$ . Dependent variable is the count of anti-regime protests and riots. Negative binomial regression unit FE. Constant, regime duration time, calendar time in all models but not reported. Additional control variables in (3), (4), (7) and (8): GDP per capita, population, civil war, economic growth, urbanization, and military personnel. T  $\equiv$  1975-2009.

## Appendix E: Remittances and tax revenue in autocracies

In this section, we examine the statistical correlation between remittances and tax revenue in autocracies between 1975 and 2008 for which there is non-missing data. The main explanatory variable of interest is remittances per capita (logged, lagged) and the dependent variable is the constant dollar value of logged tax revenue. We use this dependent variable instead of  $\frac{TaxRevenue}{GDP}$  so we can purge the revenue measure of information on changes in GDP. If a negative economic shock occurs, GDP decreases causing  $\frac{TaxRevenue}{GDP}$  to increase by reducing the denominator. Because remittances likely follow a countercyclical pattern, their flow increases when the recipient country is undergoing an economic downturn. This means that during economic crises, the measure of remittances increases while the GDP denominator in  $\frac{TaxRevenue}{GDP}$  decreases. As a result, one might observe a spurious (positive) correlation between tax revenue and remittances when examining the correlation between  $\frac{TaxRevenue}{GDP}$  and remittances – one driven entirely by changes in the denominator of  $\frac{TaxRevenue}{GDP}$ .

We include the following control variables: GDP pc (log), Trade (%GDP), capital openness, and the Polity score. Further, we condition the estimates on country- and year-fixed effects to control for unmodeled spatial and time heterogeneity. Finally, we test an error-correction model and report the long-run multiplier (LRM) calculated via a Bewely transformation.

Table E-1: Remittances and tax revenue

	(1)	(2)	Exclude China (3)	(4)	Exclude China (5)
Remittances pc (log)	0.175 (0.11)	0.156 (0.10)	0.034 (0.05)	0.168 (0.14)	-0.003 (0.07)
GDP pc (log)		0.000 (0.00)	0.000* (0.00)	0.000 (0.00)	0.000+ (0.00)
Trade (%GDP)				0.001 (0.00)	0.001 (0.00)
Capital openness				0.055 (0.06)	0.016 (0.04)
Polity score				-0.006 (0.02)	0.008 (0.02)
Constant	29.253** (0.22)	28.764** (0.33)	28.893** (0.21)	28.484** (0.69)	28.798** (0.44)
R <sup>2</sup>	0.943	0.949	0.980	0.941	0.979
Observations	310	310	294	284	268
Countries	46	46	45	45	44

Long-run multiplier reported, calculated via a Bewely transformation. Clustered standard errors in parantheses. Country and year fixed-effects included but not reported.

The first column of Table E-1 reports the LRM for a model with no control variables (save the country- and year-fixed effects). There is a positive estimate for remittances but it is not stastically different from zero. The second column adds GDP per capita as a control variable, with similar results. The third column re-estimates this model but drops observations from China because visual

inspection of the partial regression plot shows that it may be an outlier. Dropping China from the sample, the estimate for remittances, while positive, approaches zero. Next we add all the control variables in the preferred specification in Singer's (2012) analysis: trade, capital openness and the Polity score. In column four the positive estimate for remittances is again not statistically different from zero, while dropping China from the sample again drives the estimate close to zero.

This analysis focuses only on autocracies and thus tests a fraction of the sample in Singer's analysis. We therefore cannot take the largely null findings as evidence that remittances do not influence tax revenue in a larger sample that includes democracies. However, these findings do not provide strong evidence that remittances increase tax revenue for autocratic governments. Finally, we urge caution in interpreting these results broadly because the sample size is generally less than 300 country-year observations, roughly 20% of the sample size used in the tests of remittances and democratic transition.



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