

Web Appendix for
U.S. FOOD AID AND CIVIL CONFLICT

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(NOT FOR PUBLICATION)

August 2013

1. Introduction

This appendix accompanies “U.S. Food Aid and Civil Conflict” by Nathan Nunn and Nancy Qian. Section 2 provides a detailed explanation of the data and their sources. Section 3 reports additional tables and figures mentioned in the paper, but not reported explicitly.

2. Data and Their Sources

Conflict. Our baseline measure of the existence of conflict is constructed using data from the UCDP/PRIO Armed Conflict Dataset, where a conflict is defined as the use of armed force between two parties that results in at least 25 battle deaths in a year. Although we focus on intra-state conflicts (i.e. civil conflicts), we also consider inter-state conflicts and conflicts of all types. An intra-state conflict is defined as a conflict between a government and one or more internal opposition groups, without intervention from other states. An inter-state conflict is defined as a conflict occurring between two or more states. The measure of all conflicts includes intra- and inter-state conflicts, as well as a small number of conflicts labelled by UCDP/PRIO as “extra-systemic” or “internationalized” conflicts. Extra-systemic conflicts are conflicts between a state and non-state group that occur outside of the government’s territory. Internationalized conflicts are conflicts between a state and a non-state group with intervention from another state. In auxiliary regressions, we also use conflict incidence data from the Correlates of War Database. This uses a 1000 death threshold.

U.S. wheat production. Annual U.S. wheat production is taken from the United States Department of Agriculture. It is originally reported in metric tons. In the analysis, we measure production in thousands of metric tons.

U.S. wheat aid. Wheat aid data are from the FAO’s FAOSTAT Database, accessed in August 2008. The database is located at <http://faostat.fao.org>. The figures are measured in metric tons, and include wheat and wheat flour. The FAO item code is 1945. In the analysis, we measure U.S. wheat aid in thousands of tonnes.

Monthly country-average temperature and precipitation. The measures are constructed using country boundaries and monthly weather data measured across grid-cells from the Terrestrial Air Temperature and Precipitation: 1900-2006 Gridded Monthly Time Series, Version 1.10. The

data report daily mean temperature (measured in degrees Celsius) and daily mean precipitation (measured in millimeters) with 0.5 degree by 0.5 degree (approximately 56 km by 56 km) grid-cells globally for each month from 1900 to 2006. For documentation see Kenji Matsuura and Cort Willmott (2007). We construct area-weighted country averages of the monthly temperature and precipitation variables.

Region fixed effects. Our region-fixed effects are constructed using the World Bank region classification. Within our sample, which excludes high-income OECD countries, the regions are: East Asia and Pacific, Europe and Central Asia, Latin America and Caribbean, Middle East and North Africa, South Asia, and sub-Saharan Africa.

3. Additional Tables

Table A1: Part 1: Countries and their propensity to receive U.S. food aid.

Recipient iso code	Recipient country name	Fraction of years a country received any U.S. wheat aid, 1971- 2006
RUS	Russia	0.000
SAU	Saudi Arabia	0.000
QAT	Qatar	0.000
COM	Comoros	0.000
BWA	Botswana	0.000
BHS	Bahamas	0.000
OMN	Oman	0.000
VEN	Venezuela, RB	0.000
KWT	Kuwait	0.000
PNG	Papua New Guinea	0.000
LBY	Libya	0.000
ZAF	South Africa	0.000
ARG	Argentina	0.000
CUB	Cuba	0.000
TLS	Timor-Leste	0.000
BRN	Brunei Darussalam	0.000
ARE	United Arab Emirates	0.000
TTO	Trinidad and Tobago	0.028
THA	Thailand	0.028
FJI	Fiji	0.028
CMR	Cameroon	0.028
NAM	Namibia	0.028
ROU	Romania	0.028
IRN	Iran, Islamic Rep.	0.056
SEN	Senegal	0.056
URY	Uruguay	0.056
NGA	Nigeria	0.056
SLB	Solomon Islands	0.056
LVA	Latvia	0.067
BLZ	Belize	0.083
TUR	Turkey	0.111
BTN	Bhutan	0.111
BGR	Bulgaria	0.111
MYS	Malaysia	0.111
LAO	Lao PDR	0.111
MEX	Mexico	0.111
UZB	Uzbekistan	0.133
LTU	Lithuania	0.133
KAZ	Kazakhstan	0.133
CHN	China	0.139
GAB	Gabon	0.139
ZWE	Zimbabwe	0.139
TZA	Tanzania	0.167
CIV	Cote d'Ivoire	0.167
CYP	Cyprus	0.194
TGO	Togo	0.194
SYR	Syrian Arab Republic	0.222
GMB	Gambia	0.222
AGO	Angola	0.222
KHM	Cambodia	0.222
SUR	Suriname	0.222
GNB	Guinea-Bissau	0.222
CPV	Cape Verde	0.250
DZA	Algeria	0.250
MNG	Mongolia	0.250
IRQ	Iraq	0.250
UKR	Ukraine	0.267
BLR	Belarus	0.267
PAN	Panama	0.278
CAF	Central African Republic	0.306
DJI	Djibouti	0.306
BEN	Benin	0.306
PRY	Paraguay	0.306

Table A1: Part 2: Countries and their propensity to receive U.S. food aid.

Recipient iso code	Recipient country name	Fraction of years a country received any U.S. wheat aid, 1971- 2006
NER	Niger	0.306
MDG	Madagascar	0.333
ALB	Albania	0.333
ERI	Eritrea	0.333
SWZ	Swaziland	0.333
UGA	Uganda	0.333
NPL	Nepal	0.333
MLI	Mali	0.361
GIN	Guinea	0.361
MWI	Malawi	0.389
ZMB	Zambia	0.389
BDI	Burundi	0.389
CHL	Chile	0.389
COG	Congo, Rep.	0.389
LBR	Liberia	0.389
BRA	Brazil	0.417
COL	Colombia	0.417
MUS	Mauritius	0.444
LBN	Lebanon	0.444
TKM	Turkmenistan	0.467
IND	India	0.472
TCD	Chad	0.500
COD	Congo, Dem. Rep.	0.500
ETH	Ethiopia	0.528
SLE	Sierra Leone	0.556
SOM	Somalia	0.556
LSO	Lesotho	0.556
DOM	Dominican Republic	0.583
CRI	Costa Rica	0.611
BFA	Burkina Faso	0.639
PHL	Philippines	0.639
ECU	Ecuador	0.639
TUN	Tunisia	0.639
RWA	Rwanda	0.667
MDA	Moldova	0.667
JAM	Jamaica	0.694
AFG	Afghanistan	0.694
GHA	Ghana	0.722
MAR	Morocco	0.750
KEN	Kenya	0.750
MOZ	Mozambique	0.750
EGY	Egypt, Arab Rep.	0.778
NIC	Nicaragua	0.778
MRT	Mauritania	0.806
SLV	El Salvador	0.806
GUY	Guyana	0.833
SDN	Sudan	0.861
KGZ	Kyrgyz Republic	0.867
JOR	Jordan	0.889
GTM	Guatemala	0.889
PAK	Pakistan	0.917
ARM	Armenia	0.933
AZE	Azerbaijan	0.933
LKA	Sri Lanka	0.944
IDN	Indonesia	0.944
PER	Peru	0.944
BOL	Bolivia	1.000
TJK	Tajikistan	1.000
HND	Honduras	1.000
HTI	Haiti	1.000
GEO	Georgia	1.000
BGD	Bangladesh	1.000

Table A2: Pairwise correlations between country characteristics and the average propensity of a country to receive food aid from 1971-2006.

	Correlate of interest:										
	Military aid	Economic aid	Cereal imports	Cereal production	Per capita income	Polity2	Ethnic diversity	Ethnic polarization	Resource share of GDP	Alignment with U.S.	Roads per capita
Avg propensity to receive U.S. wheat aid, 1971-2006	0.137 (0.128)	0.256 (0.004)	-0.182 (0.042)	-0.155 (0.084)	-0.317 (0.000)	0.010 (0.913)	-0.061 (0.503)	-0.166 (0.082)	-0.243 (0.006)	0.082 (0.364)	-0.304 (0.001)
Obs	125	125	125	125	125	120	123	111	125	124	124

Notes: The table reports pairwise correlation coefficients between the reported variable and the average propensity of a country to receive food aid from the United States. P-values are reported in parenthesis.

Table A3: Pairwise correlations between time-varying characteristics and lagged U.S. wheat production.

	Correlate of interest:			
	U.S. real per capita GDP	Oil price (2011 USD)	Indicator: US Democratic President	Indicator: Cold War
Lagged U.S. wheat production	0.298 (0.078)	0.198 (0.247)	0.198 (0.247)	-0.246 (0.149)
Obs	36	36	36	36

Notes: The table reports pairwise correlation coefficients between the reported variable and one-year lagged U.S. wheat production. P-values are reported in parenthesis.

Table A4: First-stage placebo regressions.

	Dependent Variable:		
	U.S. Wheat Aid (1000 MT)	U.S. Wheat Aid (1000 MT), Period t-2	U.S. Wheat Aid (1000 MT), Period t-3
	(1)	(2)	(3)
Lag U.S. Wheat Production (1000 MT) x Avg Prob of Any U.S. Food Aid	0.00358 (0.00103)	0.00052 (0.00109)	0.00008 (0.00120)
Observations	4,089	3,870	3,759
R-squared	0.545	0.558	0.569

Notes: OLS estimates are reported. The unit of observation is a country in a year. The sample includes 125 non-OECD countries for the years 1971-2006. All regressions include the full set of baseline controls (see Table 2 columns (5)-(7) for a full list). Coefficients are reported, with standard errors clustered at the country level.

Table A5: First-stage estimates for other donor countries.

	Dependent Variable: Donor Wheat Aid (1000 MT)					
	USA	Canada	European Union	Australia	Japan	Sweden
	(1)	(2)	(3)	(4)	(5)	(6)
Lagged Donor Wheat Production (1000 MT) x Avg Prob of Donor Food Aid	0.00358 (0.00103)	0.00199 (0.00092)	0.00000 (0.00000)	0.00021 (0.00034)	0.06242 (0.02707)	-0.00180 (0.00231)
Observations	4,089	4,089	4,089	4,089	4,089	4,089
R-squared	0.545	0.619	0.529	0.745	0.486	0.340

Notes: OLS estimates are reported. The unit of observation is a country in a year. The sample includes 125 non-OECD countries for the years 1971-2006. All regressions include the full set of baseline controls (see Table 2 columns (5)-(7) for a full list) except that for non-US countries: (i) average probability of donor food aid interacted with a US Democratic president indicator is omitted, and (ii) the control for U.S. real per capita GDP interacted with average food aid probability is replaced with donor country real per capita GDP interacted with average food aid probability. Coefficients are reported, with standard errors clustered at the country level.

Table A6: Total wheat aid shipments over the sample period 1971–2006.

Donor name	Donor's total wheat aid shipments, 1971-2006	Donor's share of global wheat aid shipments, 1971-2006
New Zealand	2,210	0.0000
Libya	31,757	0.0002
China	128,333	0.0007
Greece	163,599	0.0009
Austria	223,954	0.0013
Turkey	250,077	0.0014
Argentina	402,304	0.0023
Spain	414,761	0.0024
Norway	443,504	0.0025
Switzerland	467,210	0.0027
Finland	535,626	0.0030
India	692,449	0.0039
Sweden	2,165,683	0.0123
Japan	3,238,729	0.0184
Australia	7,773,528	0.0442
EU	17,006,556	0.0968
Canada	22,521,286	0.1281
USA	119,290,064	0.6787
TOTAL	175,751,632	1.0000

Notes: The EU includes Belgium, Denmark, France, Germany, Ireland, Italy, Netherlands, and Great Britain. We report separately wheat aid shipments of countries that joined the EU after Jan 1, 1973. These countries include: Austria (joined in 1995), Finland (1995), Greece (1981), Spain (1986), and Sweden (joined in 1995). Wheat aid shipments are measured in thousands of metric tons, and are from the FAO.

Table A7: Relationship between U.S. wheat aid shipped in different periods and civil conflict in year t .

	Dependent Variable: Incidence of Civil Conflict in year t								
	U.S. Wheat Aid ($t-4$)	U.S. Wheat Aid ($t-3$)	U.S. Wheat Aid ($t-2$)	U.S. Wheat Aid ($t-1$)	U.S. Wheat Aid (t)	U.S. Wheat Aid ($t+1$)	U.S. Wheat Aid ($t+2$)	U.S. Wheat Aid ($t+3$)	U.S. Wheat Aid ($t+4$)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
U.S. Wheat Aid (1,000 MT)	0.00033 (0.00110)	0.00091 (0.00097)	0.00184 (0.00107)	0.00250 (0.00117)	0.00254 (0.00088)	0.00151 (0.00113)	0.00102 (0.00183)	0.00063 (0.00417)	-0.00024 (0.00280)
Observations	3,647	3,759	3,870	3,980	4,089	3,964	3,839	3,714	3,589

Notes: 2SLS estimates are reported. The sample includes 125 non-OECD countries for the years 1971-2006. In all columns, U.S. Wheat Aid is instrumented by U.S. wheat production in the previous year x the frequency of receiving any U.S. food aid during 1971-2006. The regressions include the full set of baseline controls. See Table 2, columns (5)-(7) for a list. Coefficients are reported with standard errors clustered at the country level in parentheses.

Table A8: Duration estimates. Heterogeneous effects I.

	Logistic Discrete Time Hazard Model. Dep var: Offset of civil conflict				
	Income	Natural resources	Polity	Ethnic polarization	Ethnic diversity
	(1)	(2)	(3)	(4)	(5)
Panel A. High value subsample					
U.S. Wheat Aid (1000 MT):					
Coefficient	-0.00026	-0.00130	-0.00029	-0.00107	-0.00059
Standard error	(0.00033)	(0.00036)	(0.00035)	(0.00040)	(0.00035)
Observations	277	388	370	384	342
First-stage F -stat	15.46	36.66	29.88	37.03	31.97
Panel B. Low value subsample					
U.S. Wheat Aid (1000 MT):					
Coefficient	-0.00070	-0.00004	-0.00062	-0.00009	-0.00016
Standard error	(0.00032)	(0.00028)	(0.00029)	(0.00023)	(0.00025)
Observations	432	316	338	317	333
First-stage F -stat	9.22	8.79	8.20	7.90	7.23

Notes: In all specifications, U.S. Wheat Aid in year t is instrumented by U.S. wheat production in year $t-1$ x the probability of receiving any U.S. food aid between 1971 and 2006. The table reports estimates of a discrete time hazard model for the incidence of civil war offset. In this setting, survival is continued conflict. The coefficients reported are marginal effects evaluated at means. The control function approach is used to generate IV estimates for the hazard models. Panel A reports estimates for observations above the median value of the characteristic reported in the column heading. Panel B reports estimates for observations below the median value of the characteristic reported in the column heading.

Table A9: Duration estimates. Heterogeneous effects II.

Logistic Discrete Time Hazard Model. Dep var: Offset of civil conflict					
	Average per capita cereal production, 1971-2006	Per capita cereal production relative to historical average	Road density	Cold War	Alignment with the US
	(1)	(2)	(3)	(4)	(5)
High value subsample					
U.S. Wheat Aid (1000 MT):					
Coefficient	-0.00026	-0.00071	-0.00020	-0.00054	-0.00018
Standard error	(0.00020)	(0.00031)	(0.00094)	(0.00018)	(0.00110)
Observations	408	339	148	337	244
First-stage F-stat	11.83	11.06	4.62	12.44	7.45
Low value subsample					
U.S. Wheat Aid (1000 MT):					
Coefficient	-0.00105	0.00018	-0.00036	-0.00007	-0.00043
Standard error	(0.00069)	(0.00044)	(0.00023)	0.00060	(0.00019)
Observations	301	322	498	372	461
First-stage F-stat	16.62	25.71	12.62	27.85	12.95

Notes: In all specifications, U.S. Wheat Aid in year t is instrumented by U.S. wheat production in year $t-1$ x the probability of receiving any U.S. food aid between 1971 and 2006. The table reports estimates of a discrete time hazard model for the incidence of civil war offset. In this setting, survival is continued conflict. The coefficients reported are marginal effects evaluated at means. The control function approach is used to generate IV estimates for the hazard models. Panel A reports estimates for observations above the median value of the characteristic reported in the column heading. Panel B reports estimates for observations below the median value of the characteristic reported in the column heading. In column (4), Panel A reports estimates for Cold War years, while Panel B reports estimates for years after the Cold War.

4. Additional Figures

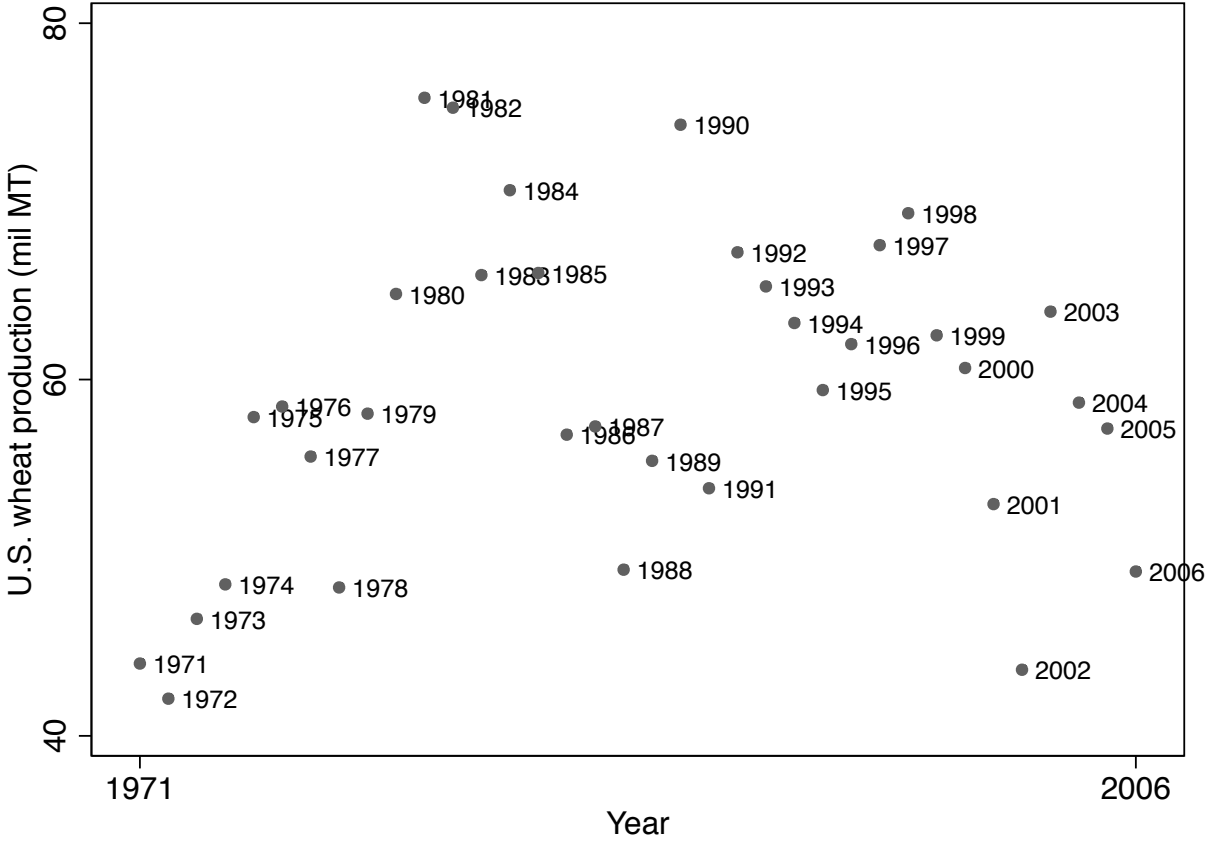


Figure A1: Aggregate U.S. wheat production over time, 1971–2006.

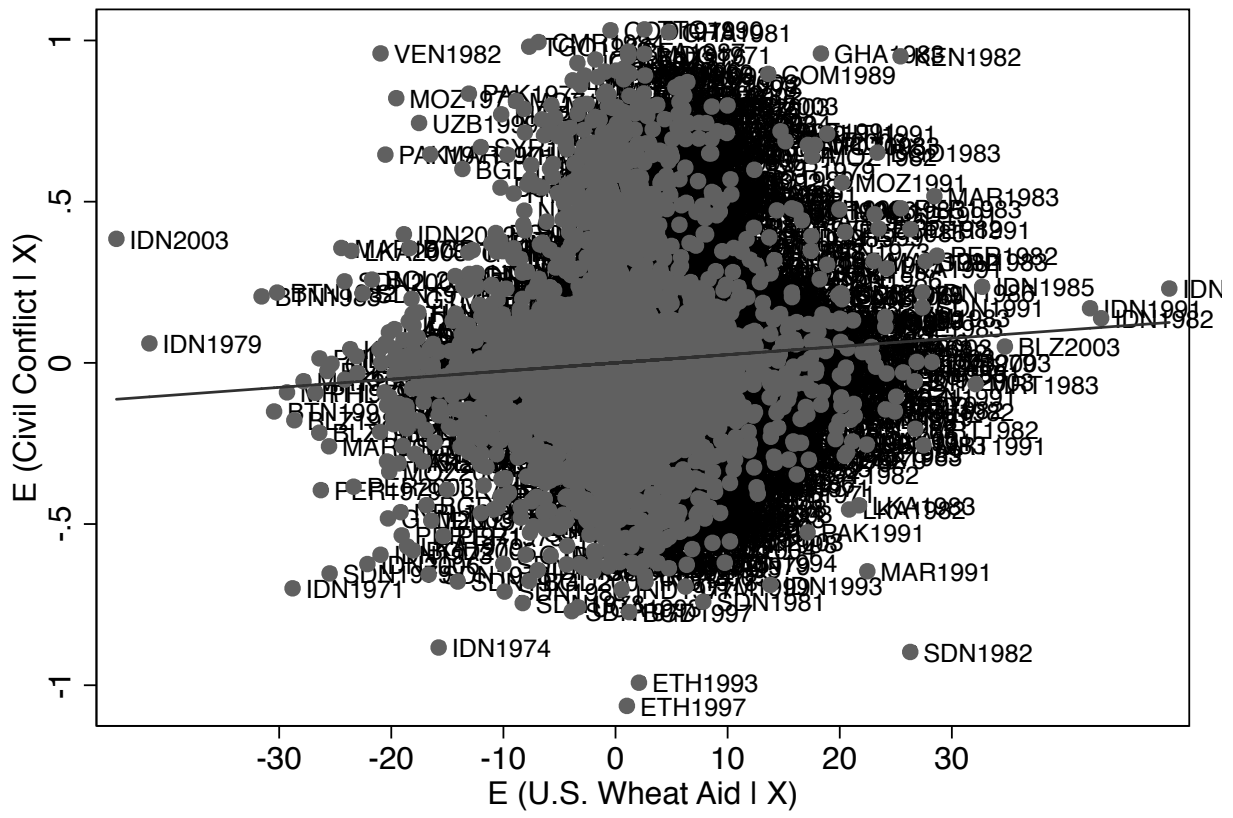


Figure A2: Partial correlate plot: Baseline estimate.

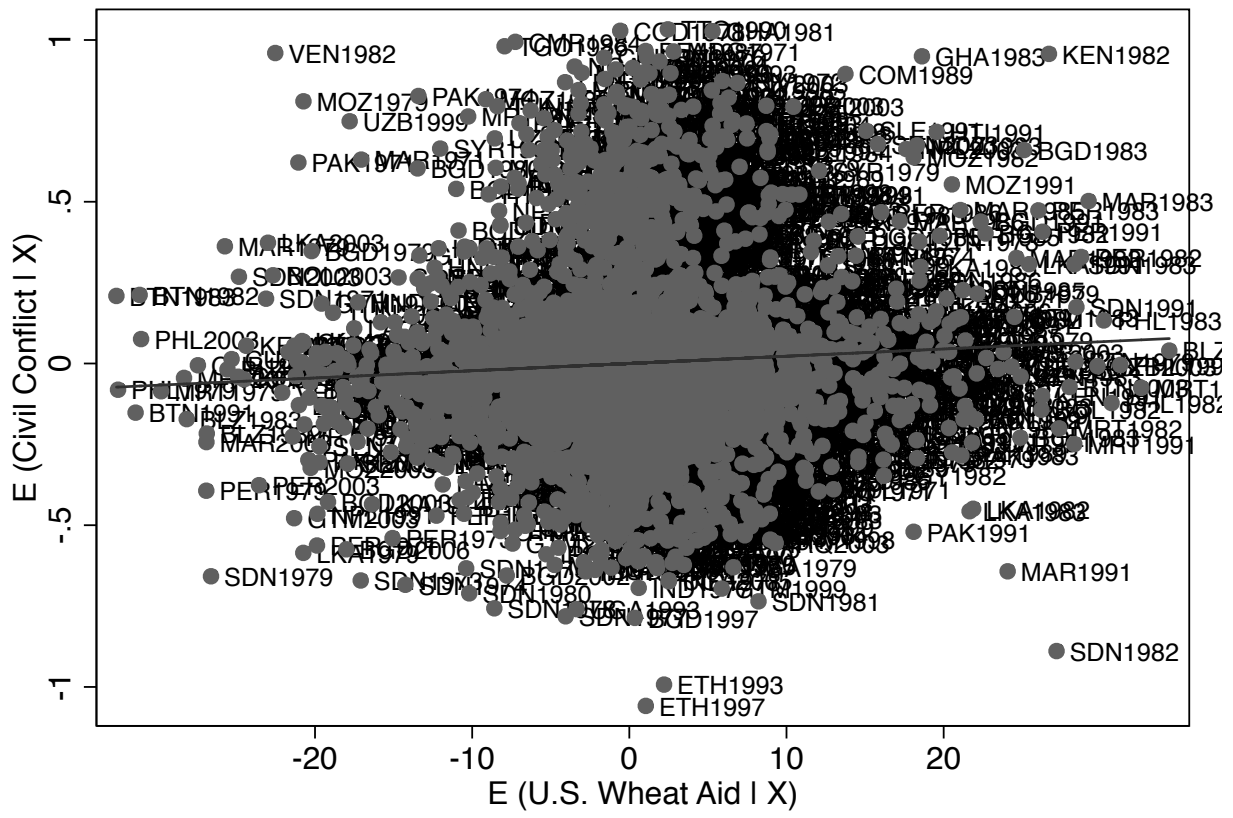


Figure A3: Partial correlate plot: Omitting Indonesia (IDN).

References

Matsuura, Kenji, and Cort Willmott. 2007. "Terrestrial Air Temperature and Precipitation: 1900-2006 Gridded Monthly Time Series, Version 1.01." University of Delaware. <http://climate.geog.udel.edu/climate/>.