

## Supplement

### The Long-run Impact of Bombing Vietnam

This supplement serves as a supplement to the published paper The Long-run Impact of Bombing Vietnam Edward Miguel, Gérard Roland (2011). It outlines minor discrepancies found in data replication which do not, as a whole, affect the reported data analysis published in the paper.

The data replication generated minor discrepancies in **Table 1: Summary Statistics- U.S. ordnance data, 1965-75**. The discrepancies are highlighted in Table 1 (Original), below, and the numbers generated from the bomb\_viet\_do.do file are listed in Table 1 (Adjusted) underneath. These discrepancies do not impact the reported data analysis in the paper.

<b>Table 1 (Original): Summary Statistics - U.S. ordnance data, 1965-75</b>					
	Mean	S.D.	Max.	Obs.	Corr. w/ gen. purp. bombs
<i>Panel A: district-level data</i>					
Total U.S. bombs, missiles, and rockets per km2	32.3	68.5	561.5	584	
Total U.S. bombs, missiles, and rockets	14,692	37,349	365,449	584	
General purpose bombs	11,124	30,779	322,111	584	1
Cluster bombs	706	2268	32,403	584	0.59***
Missiles	24.7	121.7	1600	584	0.27***
Rockets	2828	7208	106,445	584	0.64***
Cannon artillery	8.6	51.9	772	584	0.37***
Incendiaries	795	16,431	11,667	584	0.65***
White phosphorus	70.7	306.6	3580	584	0.27***
Ammunition (000's of rounds)	5677	11,061	136,416	584	0.54*
<i>Panel B: province level data</i>					
Total U.S. bombs, missiles, and rockets per km2	30.6	51.7	335.5	55	

<b>Table 1 (Adjusted): Summary Statistics - U.S. ordnance data, 1965-75</b>					
	Mean	S.D.	Max.	Obs.	Corr. w/ gen. purp. bombs
<i>Panel A: district-level data</i>					
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Rockets	2828	7208	106,445	584	0.64***
Cannon artillery	8.6	51.9	772	584	0.37***
Incendiaries	795	1642.6	11,667	584	0.65***
White phosphorus	70.7	306.6	3580	584	0.27***
Ammunition (000's of rounds)	5677	11,061	136,416	584	0.54*

*Panel B: province level data*

Total U.S. bombs, missiles, and rockets per km2	30.6	51.7	335.5	55
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The data replication generated minor discrepancies in **Table 2: Summary statistics – economic, demographic, climatic, and geographic data**. The discrepancies are highlighted in Table 2 (Original), below, and the numbers generated from the bomb\_viet\_do.do file are listed in Table 2 (Adjusted) underneath. These discrepancies do not impact the reported data analysis in the paper.

<b>Table 2 (Original)</b>					
<i>Summary statistics – economic, demographic, climatic, and geographic data.</i>					
	Mean	S.D.	Min.	Max.	Obs.
<i>Panel A: district-level data</i>					
Estimated district poverty rate, 1999	0.41	0.2	0.03	0.94	584
Population density, 1999	1659	5846	10	2332	584
Proportion of households with access to electricity, 1999	0.71	0.27	0.08	1	584
Literacy rate, 1999	0.88	0.11	0.24	0.99	584
Proportion of land area 250–500 m	0.11	0.19	0	1	584
Proportion of land area 500–1000 m	0.11	0.21	0	1	584
Proportion of land area over 1000 m	0.03	0.11	0	1	584
Total district land area (km2)	529	513	4	3230	584
Average precipitation (cm)	154.6	30.1	84.2	282	584
Average temperature (Celsius)	24.3	1.9	19.4	27.3	584
Former South Vietnam	0.49	0.5	0	1	584
Latitude (°N)	18	5.2	9.7	25.4	584
Latitude -17°N	4.9	2	0	8.4	584

*Panel B: province level data*

Population density (province), 1960–61	244	437	12	2868	55
Population density, 1985	401	533	34	3196	53
Population density, 1999	465	540	62	2908	55
Change in population density, 1985–2000	77.7	154.5	-439.4	745.1	53
Proportion not born in current village, 1997/98	0.26	0.23	0	1	55
Per capita consumption expenditures, 1992/93 (in 1998 Dong)	1831	591	997	3546	55
Per capita consumption expenditures, 2002 (in 1998 Dong)	3084	1007	2040	7505	55
Growth in per capita consumption expenditures 1992/93–2002	0.74	0.38	-0.08	1.67	55
Latitude (°N)	17.6	5.4	10	25.2	55
Latitude -17°N	5	2	0.3	8.1	55

Table 2 (Adjusted)					
<i>Summary statistics – economic, demographic, climatic, and geographic data.</i>					
	Mean	S.D.	Min.	Max.	Obs.
Panel A: district-level data					
Estimated district poverty rate, 1999	0.41	0.2	0.03	0.94	584
Population density, 1999	1659	5846	10	52382	584
Proportion of households with access to electricity, 1999	0.71	0.27	0.08	1	584
Literacy rate, 1999	0.88	0.11	0.24	0.99	584
Proportion of land area 250–500 m	0.11	0.19	0	1	584
Proportion of land area 500–1000 m	0.11	0.21	0	1	584
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Per capita consumption expenditures, 2002 (in 1998 Dong)	3084	1007	2040	7505	55
Growth in per capita consumption expenditures 1992/93–2002 Latitude (°N)	0.74	0.38	-0.08	1.67	55
Latitude (°N)	17.6	5.4	10	25.2	55
Latitude -17°N	5	2	0.3	8.1	55

The data replication generated minor discrepancies in **Table 3: Political Determinants of Ethnic Identification**. The discrepancies are highlighted in Table 3 (Original), below, and the numbers generated from the bomb\_viet\_do.do file are listed in Table 3 (Adjusted) underneath. This typo does not impact the reported data analysis in the paper.

<b>Table 3 (Original): Political Determinants of Ethnic Identification</b>			
	Dependent variable: Total U.S. bombs, missiles, and rockets per km <sup>2</sup>		
	OLS	OLS	OLS
	(1)	(2)	(3)
Latitude -17°N	-14.8 (5.3)	-17 (6.0)	-10.2 (2.2)
Population density (province), 1960–61	0.0050 (0.0043)	-0.0035 (0.0016)	-0.0034 (0.0014)
Former South Vietnam	-138.5* (74.9)	-134.5 (87.2)	-37.1 (27.7)
Proportion of land area 250–500 m	89.5* (47.1)	-27.6 (20.5)	-26.6 (14.2)
Proportion of land area 500–1000 m	-49.6 (65.3)	-17.7 (18.9)	-10.5 (16.8)
Proportion of land area over 1000 m	156.3* (81.4)	-6.0 (30.4)	- 6.0 (19.1)
Average precipitation (cm)	0.26 (0.17)	0.22 (0.18)	0.15 (0.08)
Average temperature (Celsius)	15.2 (0.8)	-0.2 (4.4)	-0.6 (3.6)
Latitude (°N)	-8.7 (6.3)	-10.0 (7.1)	-2.3 (2.6)
District soil controls	No	Yes	Yes

Exclude Quang Tri province	No	No	Yes
Observations	55	584	576
R <sup>2</sup>	0.54	0.33	0.25
Mean (S.D.) dependent variable	30.6 (51.7)	32.3 (68.5)	27.1 (50.6)

**Table 3 (Adjusted): Political Determinants of Ethnic Identification**

	Dependent variable: Total U.S. bombs, missiles, and rockets per km <sup>2</sup>		
	OLS	OLS	OLS
	(1)	(2)	(3)
Latitude -17°N	-14.8 (5.3)	-17 (6.0)	-10.2 (2.2)
Population density (province), 1960–61	0.0050 (0.0043)	-0.0035 (0.0016)	-0.0034 (0.0014)
Former South Vietnam	-138.5* (74.9)	-134.5 (87.2)	-37.1 (27.7)
Proportion of land area 250–500 m	89.5* (47.1)	-27.6 (20.5)	-26.6 (14.2)
Proportion of land area 500–1000 m	-49.6 (65.3)	-17.7 (18.9)	-10.5 (16.8)
Proportion of land area over 1000 m	156.3* (81.4)	-6.0 (30.4)	- 6.0 (19.1)
Average precipitation (cm)	0.26 (0.17)	0.22 (0.18)	0.15 (0.08)
Average temperature (Celsius)	15.2 (9.8)	-0.2 (4.4)	-0.6 (3.6)
Latitude (°N)	-8.7 (6.3)	-10.0 (7.1)	-2.3 (2.6)
District soil controls	No	Yes	Yes
Exclude Quang Tri province	No	No	Yes
Observations	55	584	576
R <sup>2</sup>	0.54	0.33	0.25
Mean (S.D.) dependent variable	30.6 (51.7)	32.3 (68.5)	27.1 (50.6)

The data replication generated minor discrepancies in **Table 4: Local Bombing impacts on estimated 1999 poverty rate**. The discrepancies are highlighted in Table 4 (Original), below, and the numbers generated from the bomb\_viet\_do.do file are listed in Table 4 (Adjusted) underneath. These discrepancies do not impact the reported data analysis in the paper.

**Table 4 (Original): Local Bombing impacts on estimated 1999 poverty rate.**

	Dependent variable: estimated poverty rate, 1999					
	OLS	OLS	OLS	OLS	OLS	IV-2SLS
	(1)	(2)	(3)	(4)	(5)	(6)
Total U.S. bombs, missiles, and rockets per km2	-0.00087 (0.00048)	-0.0004 (0.00022)	-0.00065 (0.00012)	-0.00079 (0.00016)		0.00026 (0.00042)
Population density (province), 1960–61 (÷100)	-0.0089 (0.0016)	-0.0021 (0.0009)		-0.0023 (0.0010)	-0.0021 (0.0010)	-0.002 (0.0010)
Former South Vietnam	- 0.317 (0.087)	- 0.174 (0.071)		- 0.122 (0.071)	- 0.139 (0.058)	- 0.104 (0.082)
Proportion of land area 250–500 m	0.341 (0.096)	0.339 (0.070)	0.182 (0.067)	0.325 (0.069)	0.342 (0.070)	0.349 (0.073)
Proportion of land area 500–1000 m	0.386 (0.172)	0.261 (0.052)	0.157 (0.062)	0.261 (0.053)	0.253 (0.054)	0.257 (0.055)
Proportion of land area over 1000 m	0.571 (0.231)	-0.048 (0.113)	-0.001 (0.159)	-0.066 (0.111)	-0.044 (0.112)	-0.043 (0.116)
Average precipitation (cm)	0.00027 (0.00044)	0.00111 (0.00035)	0.00060 (0.00046)	0.00110 (0.00033)	0.00068 (0.00038)	0.00063 (0.00044)
Average temperature (Celsius)	0.033 (0.029)	-0.012 (0.019)	-0.034 (0.022)	-0.013 (0.020)	-0.0143 (0.0196)	-0.0143 (0.0199)
Latitude (°N)   Latitude -17°N	-0.0127 (0.0108)	-0.0088 (0.0088)	0.038 (0.026)	-0.0044 (0.0088)	-0.0051 (0.0081)	-0.0025 (0.0100)
					-0.0044 (0.0069)	
District soil controls	NO	Yes	Yes	Yes	Yes	Yes
Province fixed effects	NO	NO	Yes	NO	NO	NO
Exclude Quang Tri province	NO	NO	NO	Yes	NO	NO
Observations	55	584	585	576	584	584
R <sup>2</sup>	0.75	0.61	0.79	0.63	0.60	0.61
Mean (S.D.) dependent variable	0.39 (0.16)	0.41 (0.20)	0.41 (0.20)	0.41 (0.20)	0.41 (0.20)	0.41 (0.20)

**Table 4 (Adjusted): Local Bombing impacts on estimated 1999 poverty rate.**

	Dependent variable: estimated poverty rate, 1999					
	OLS	OLS	OLS	OLS	OLS	IV-2SLS
	(1)	(2)	(3)	(4)	(5)	(6)
Total U.S. bombs, missiles, and rockets per	-0.0009 (0.00049)	-0.0004 (0.00022)	-0.00065 (0.00012)	-0.00079 (0.00016)		0.00026 (0.00042)

km2						
Population density (province), 1960–61	-0.0088 (0.0016)	-0.0021 (0.0009)		-0.0023 (0.0010)	-0.0021 (0.0010)	-0.002 (0.0010)
Former South Vietnam	-0.319 (0.087)	- 0.174 (0.071)		- 0.122 (0.071)	- 0.139 (0.058)	- 0.104 (0.082)
Proportion of land area 250–500 m	0.353 (0.099)	0.339 (0.070)	0.182 (0.067)	0.325 (0.069)	0.342 (0.070)	0.349 (0.073)
Proportion of land area 500–1000 m	0.336 (0.170)	0.261 (0.052)	0.157 (0.062)	0.261 (0.053)	0.253 (0.054)	0.257 (0.055)
Proportion of land area over 1000 m	0.644 (0.257)	-0.048 (0.113)	-0.001 (0.159)	-0.066 (0.111)	-0.044 (0.112)	-0.043 (0.116)
Average precipitation (cm)	0.00046 (0.00047)	0.00111 (0.00035)	0.00060 (0.00046)	0.00110 (0.00033)	0.00068 (0.00038)	0.00063 (0.00044)
Average temperature (Celsius)	0.034 (0.028)	-0.012 (0.019)	-0.034 (0.022)	-0.013 (0.020)	-0.0143 (0.0196)	-0.0143 (0.0199)
Latitude (°N)   Latitude -17°N	-0.0130 (0.0108)	-0.0088 (0.0088)	0.038 (0.026)	-0.0044 (0.0088)	-0.0051 (0.0081)	-0.0025 (0.0100)
					-0.0044 (0.0069)	
District soil controls	NO	Yes	Yes	Yes	Yes	Yes
Province fixed effects	NO	NO	Yes	NO	NO	NO
Exclude Quang Tri province	NO	NO	NO	Yes	NO	NO
Observations	55	584	585	576	584	584
R <sup>2</sup>	0.75	0.61	0.79	0.63	0.60	0.61
Mean (S.D.) dependent variable	0.39 (0.16)	0.41 (0.20)	0.41 (0.20)	0.41 (0.20)	0.41 (0.20)	0.41 (0.20)

The data replication generated discrepancies in **Table 9: Local war impacts on other population characteristics**. The discrepancies are highlighted in Table 9 (Original), below, and the numbers generated from the bomb\_viet\_do.do file are listed in Table 9 (Adjusted) underneath. First of all, we note that the last column of panel B and panel C have been shifted. This typo has been corrected in the adjusted table. In addition the original dependent variable in panel C (1997/98 proportion not born in current village) was reconstructed as the original regression was lost. This limitation might explain why the numbers do not match exactly. These discrepancies do not impact the reported data analysis in the paper.

**Table 9 (Original): Local war impacts on other population characteristics.**

OLS	OLS	OLS
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	(1)	(2)	(3)
<i>Panel A: Dependent variable: population density, 1985</i>			
Total U.S. bombs, missiles, and rockets per km2	-0.18 (0.58)	-0.99 (1.15)	
Latitude -17°N			-2.3 (10.4)
Exclude Quang Tri province	No	Yes	No
Observations	53	52	53
R2	0.73	0.73	0.73
Mean (S.D.) dependent variable	401 (533)	401 (533)	401 (533)
<i>Panel B: dependent variable: growth in population density, 1985 to 2000</i>			
Total U.S. bombs, missiles, and rockets per km2	-0.008 (0.164)	0.09 (0.362)	
Latitude -17°N			7.5 (6.5)
Exclude Quang Tri province	NO	YES	NO
Observations	53	52	53
R2	0.24	0.24	0.24
Mean (S.D.) dependent variable	77.7 (154.5)	78.7 (155.8)	77.7 (154.5)
<i>Panel C: dependent variable: 1997/98 proportion not born in current village</i>			
Total U.S. bombs, missiles, and rockets per km2	0.00037 (0.00041)	0.00127 (0.00069)	
Latitude -17°N			0.006 (0.016)
Exclude Quang Tri province	NO	YES	NO
Observations	55	54	55
R2	0.52	0.43	0.51
Mean (S.D.) dependent variable	0.27 (0.23)	0.27 (0.23)	0.27 (0.23)

**Table 9 (Adjusted): Local war impacts on other population characteristics.**

	OLS	OLS	OLS
	(1)	(2)	(3)
<i>Panel A: Dependent variable: population density, 1985</i>			
Total U.S. bombs, missiles, and rockets per km2	-0.18 (0.58)	-0.99 (1.15)	
Latitude -17°N			-2.3 (10.4)
Exclude Quang Tri province	No	Yes	No
Observations	53	52	53
R2	0.73	0.73	0.73
Mean (S.D.) dependent	401 (533)	401 (533)	401 (533)



variable

*Panel B: dependent variable: growth in population density, 1985 to 2000*

Total U.S. bombs, missiles, and rockets per km2	-0.008 (0.164)	0.09 (0.362)	
Latitude -17°N			7.5 (6.5)
Exclude Quang Tri province	NO	YES	NO
Observations	53	52	53
R2	0.24	0.24	0.24
Mean (S.D.) dependent variable	77.7 (154.5)	78.7 (155.8)	77.7 (154.5)

*Panel C: dependent variable: 1997/98 proportion not born in current village*

Total U.S. bombs, missiles, and rockets per km2	0.00052 (0.00055)	0.00178 (.00093)	
Latitude -17°N			0.007 (.017)
Exclude Quang Tri province	NO	YES	NO
Observations	55	54	55
R2	0.42	0.43	0.41
Mean (S.D.) dependent variable	0.26 (0.23)	0.27 (0.23)	0.26 (0.23)