Online Supporting Evidence for "Who Takes the Blame"

This Supporting Evidence provides additional information and a series of robustness checks as follows:

1A & 1B: Shows that measurement error in IBC-based civilian casualty data is unlikely to be non-random with respect to levels of insurgent violence.

1C: Provides descriptive statistics for the full country and Sunni, mixed, and Shiite areas.

2A: Shows core results are robust to controlling for pre-existing trends in attacks and district FE to pick up predictable heterogeneity in trends.

2B: Shows core results robust to dropping Baghdad.

2C: Shows placebo test on core results.

2D: Shows results of trying to predict civilian casualties with leads of SIGACTs.

2E: Shows core results are not present if difference between lagged attacks and average over t to t+3 is placed on LHS.

2F: Shows core results are stronger in areas with more than the median proportion of their population (48.5%) living in urban areas.

2G: Shows core results for different kinds of insurgent attacks.

2H: Shows core results on insurgent killings are robust to population weighting districts. Coalition results become statistically weaker.

2I: Shows core results on insurgent killings are robust to using the log of casualties on the RHS. Coalition results become statistically weaker.

2J: Shows core results in the full regression (column 5) are robust to including the count of incidents by each party on the RHS.

2K: Shows core results in the full regression (column 5) are robust to allowing a mean shift for district-weeks in which civilians are killed.

2L: Shows core results are robust to allowing mean shift for any week that includes the first day of the month (to which we attribute killings identified through morgue reports).

2M: Shows core results on insurgent killings are robust to including spatial lag of incidents on the RHS. Coalition results become statistically weaker.

2N: Shows core results on Coalition killings are robust to dropping the 7.6% of incidents involving both Coalition and insurgent killings. Insurgent results become statistically weaker in full sample but all results become stronger in mixed areas.

2N: Shows core results by sect dropping the 7.6% of incidents involving both Coalition and insurgent killings.

2P: Shows core results with Coalition and insurgent killings per 100,000 on RHS.

2Q: Shows core results run only on matched sample, weighting by size of matched strata.

3: Shows the impact of population density and urbanity on civilian casualty ratios.

4: Shows the impact of CERP projects and spending on civilian casualty ratios.

5: Shows effects of a one-SD increase in civilian casualties on rate of insurgent attacks in different periods.

Figure 5A shows an alternative matching solution to that described in the text.

SE Table 1A: Proportion Events Attributed to Unknown Perpetrator as Function of Violence (*Linear Regression*)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Events	Events Sect FE	Events Time FE	Events District FE	Events Time & District FE	Killings	Killings Sect FE	Killings Time FE	Killings District FE	Killings Time & District FE
SIGACTs†	0.000410*	0.000295	0.000352	0.000161	.000023	0.000457*	0.000347	0.000393	0.000195	0.000044
	(0.00025)	(0.00019)	(0.00024)	(0.00016)	(0.00013)	(0.00028)	(0.00022)	(0.00027)	(0.00020)	(0.00016)
Mixed		0.0236***					0.0245***			
		(0.0036)					(0.0041)			
Shiite		0.00556***					0.00577***			
		(0.0018)					(0.0019)			
Sunni		0.00549*					0.00508*			
		(0.0030)					(0.0029)			
Constant	0.0080***	0.000900	0.00810***	0.00859***	0.00874***	0.00801***	0.000759	0.0082***	0.0087***	0.0085***
	(0.0013)	(0.00076)	(0.0013)	(0.00042)	(0.0028)	(0.0013)	(0.00074)	(0.0014)	(0.000501)	(0.00289)
N	27,456	27,456	27,456	27,456	27,456	27,456	27,456	27,456	27,456	27,456
R^2	0.002	0.013	0.007	0.034	0.039	0.002	0.013	0.007	0.035	0.040

Note: Models with time fixed effects include half-year fixed effects. Kurdish is omitted category. Robust standard errors clustered by district in parentheses.
† SIGACTs/100,000 people. *** p<0.01, ** p<0.05, * p<0.1.

SE Table 1B: Proportion of Events at Governorate-Week Not Attributed to District as Function of Violence

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
DV		All Events			Coalition Events			Insurgent Events	
Controls	No Controls	Sect FE	Sect*Time FE	No Controls	Sect FE	Sect*Time FE	No Controls	Sect FE	Sect*Time FE
SIGACTs[†]	-0.00394**	-0.00169	0.0007	0.00347	0.00164	0.00193	0.00452	0.00232	0.00366*
	(0.00181)	(0.0022)	(0.0028)	(0.0026)	(0.0017)	(0.0017)	(0.0032)	(0.0027)	(0.0021)
Mixed		-0.156*			0.0506			0.0604*	
		(0.078)			(0.030)			(0.033)	
Shiite		-0.179**			0.00138			0.00644**	
		(0.069)			(0.0028)			(0.0024)	
Sunni		-0.203***			0.00426			0.0106	
		(0.069)			(0.0092)			(0.0161)	
Constant	0.112***	0.275***	0.0978*	0.0129*	0.00372*	0.0156**	0.0152*	0.00117	0.0166*
	(0.019)	(0.067)	(0.018)	(0.0064)	(0.0019)	(0.0064)	(0.0072)	(0.0011)	(0.0080)
N	2,554	2,554	2,554	4,752	4,752	4,752	4,752	4,752	4,752
R^2	0.0054	0.029	0.095	0.0087	0.035	0.054	0.014	0.047	0.062

Note: Models with time fixed effects include sect*half-year fixed effects. Kurdish is omitted category. Robust standard errors clustered by governorate in parentheses.
[†] SIGACTs/100,000 people. *** p<0.01, ** p<0.05, * p<0.1.

SE Table 1C. Descriptive Statistics, District-Week Variables

	Full Country (n=27456)			Sunni (n= 4,224)			Mixed (n= 5,016)			Shiite (n= 10,824)		
	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
SIGACTs	7.10 (20.67)	0	354	9.27 (13.45)	0	97	24.37 (39.9)	0	354	1.86 (7.10)	0	231
SIGACTs (filtered)	6.20 (17.00)	0	293	8.87 (12.78)	0	93	20.79 (31.6)	0	293	1.55 (6.22)	0	230
Total Events	0.64 (2.43)	0	61	0.39 (0.89)	0	9	2.39 (4.95)	0	61	0.33 (1.21)	0	19
Civilians Killed	1.96 (11.82)	0	972	1.12 (3.98)	0	99	7.34 (24.2)	0	972	0.97 (5.63)	0	244
Coalition Events	0.05 (0.29)	0	8	0.068 (0.28)	0	3	.157 (0.48)	0	6	0.034 (0.26)	0	8
Coalition Killings	0.20 (5.48)	0	655	0.194 (1.71)	0	56	0.68 (12.5)	0	655	0.12 (1.51)	0	89
Insurgent Events	0.11 (0.46)	0	11	0.10 (0.37)	0	5	0.42 (0.88)	0	11	0.04 (0.126)	0	5
Insurgent Killings	0.36 (2.25)	0	74	0.38 (2.18)	0	48	1.29 (4)	0	71	0.15 (1.67)	0	74
Sectarian Events	0.46 (2.00)	0	54	0.21 (0.62)	0	7	1.74 (4.18)	0	54	0.25 (0.96)	0	16
Sectarian Killings	1.37 (9.68)	0	972	0.59 (2.89)	0	99	5.14 (19.40)	0	972	0.572 (4.85)	0	233
Unknown Events	0.04 (0.30)	0	15	0.02 (0.13)	0	2	0.138 (0.629)	0	15	0.017 (0.17)	0	7
Unknown Killings	0.10 (1.27)	0	80	0.03 (0.34)	0	8	0.43 (2.62)	0	80	0.04 (0.74)	0	60

Note: 104 districts * 264 weeks = 27,456 observations. Standard deviation in parentheses.

SE Table 2A: Core Results Controlling for Pre-Existing Trend and District FE

	(1)	(2)	(3)
	Coalition and Insurgent Killings	Coalition and Insurgent Killings with pre-existing trend	Coalition and Insurgent Killings with pre-existing trend and District FE
Coalition Killings	0.00270**	0.00248**	0.00248**
(*lagged difference)*	(0.0013)	(0.0010)	(0.0010)
Insurgent Killings	-0.0167**	-0.0133**	-0.0133**
(lagged difference)	(0.0081)	(0.0061)	(0.0061)
Pre-existing trend in SIGACTs†		-0.379***	-0.379***
(lagged difference)		(0.0145)	(0.0145)
Constant	0.00897	0.0115	0.0822**
	(0.0070)	(0.0087)	(0.036)
N	26,416	26,416	26,416
R^2	0.0018	0.14	0.14

Note: All models include sect*half-year fixed effects. Population density and unemployment rate variables not shown; coefficients are statistically and substantively insignificant. Robust standard errors clustered by district in parentheses.

†SIGACTs/100,000 people.

‡Population per 1000 square kilometers.

*** p<0.01, ** p<0.05, * p<0.1

SE Table 2B: Core Regressions Dropping Baghdad

	(1)	(2)	(3)	(4)
DV:	SIGACTs/100000 population	SIGACTs/100000 population	SIGACTs/100000 population	SIGACTs/100000 population
Coalition Killings (*lagged difference*)	0.00273**			0.00298***
	(0.0012)			(0.0010)
Insurgent Killings (*lagged difference*)		-0.0222*		-0.0225*
		(0.012)		(0.012)
Sectarian Killings (*lagged difference*)			-0.00200	
			(0.0027)	
Constant	0.00918	0.00920	0.00916	0.00920
	(0.0073)	(0.0073)	(0.0073)	(0.0073)
N	24,130	24,130	24,130	24,130
R^2	0.002	0.002	0.001	0.002

Note: All models include sect*half-year fixed effects. Population density and unemployment rate variables not shown, coefficients are statistically and substantively insignificant. Robust standard errors clustered by district in parentheses.
‡Population per 1000 square kilometers.
*** p<0.01, ** p<0.05, * p<0.1

SE Table 2C. Predict First Difference of SIGACTs per Week as Function of Civilian Casualties (*Linear Regression*)

DV: SIGACTs/100000 population (*first difference*)	(1) Entire Country	(2) Sunni	(3) Mixed	(4) Shiite	(5) Kurdish
Coalition Killings	0.000202	0.0234	-0.000565	0.0138	-0.246
(*lead first difference*)	(0.00085)	(0.029)	(0.00034)	(0.016)	(0.21)
Insurgent Killings	-0.000605	0.0133	-0.00338	-0.00416	-0.105
(*lead first difference*)	(0.012)	(0.058)	(0.010)	(0.0063)	(0.10)
Constant	0.00991	0.0369	0.000553	0.00103	0.00358
	(0.0070)	(0.046)	(0.011)	(0.0015)	(0.0040)
N	26,520	4,080	4,845	10,455	7,140
R^2	0.002	0.002	0.002	0.001	0.001

Note: All models include sect*half-year fixed effects. Population density and unemployment rate variables not shown, coefficients are statistically and substantively insignificant. Robust standard errors clustered by district in parentheses.
*** p<0.01, ** p<0.05, * p<0.10

SE Table 2D. Predict Civilian Casualties with Leads of SIGACTs/100000 per Week (*Linear Regression*)

	(1)	(2)	(3)	(4)	(5)	(6)
DV:	Coalition Killings	*First Differences* Coalition Killings	Insurgent Killings	*First Differences* Insurgent Killings	Sectarian Killings	*First Differences* Sectarian Killings
SIGACT/week (*lead of*)[†]	0.0176* (0.0096)	0.0147 (0.022)	0.0217** (0.010)	-0.0150 (0.0099)	0.0585* (0.035)	-0.00962 (0.014)
Constant	0.151** (0.068)	-0.00115 (0.0011)	0.139** (0.066)	-0.000587 (0.0017)	0.902*** (0.31)	-0.0105 (0.0082)
N	26,624	26,520	26,624	26,520	26,624	26,520
R^2	0.005	0.000	0.072	0.000	0.094	0.000

Note: All models include sect*half-year fixed effects. First differences where indicated. Population density and unemployment rate variables not shown, coefficients are statistically and substantively insignificant except for positive coefficients on population density in models (3) and (5). Robust standard errors clustered by district in parentheses.

[†] SIGACTs/100,000 people. [‡]Population per 1000 square kilometers. *** p<0.01, ** p<0.05, * p<0.10

SE Table 2E. Effect of Civilian Casualties on Average Levels of Violence over Next Month

DV: Monthly SIGACTs/100000 population (*first difference*)	(1) Entire Country	(2) Sunni	(3) Mixed	(4) Shiite	(5) Kurdish
Coalition Killings	0.000937	-0.0877	0.00100	-0.0124***	0.0154
(*lagged first difference*)	(0.00091)	(0.054)	(0.00077)	(0.0042)	(0.036)
Insurgent Killings	-0.00769	-0.114**	-0.0122*	-0.00501*	0.00863
(*lagged first difference*)	(0.0066)	(0.050)	(0.0065)	(0.0028)	(0.036)
Constant	0.00495**	0.00471	0.0113	0.000328	0.00976
	(0.0021)	(0.0036)	(0.0090)	(0.00027)	(0.0069)
N	27,248	7,336	4,978	10,742	4,192
R^2	0.005	0.002	0.008	0.003	0.006

Note: All models include sect*half-year fixed effects. Population density and unemployment rate variables not shown, coefficients are statistically and substantively insignificant. Robust standard errors clustered by district in parentheses.
*** p<0.01, ** p<0.05, * p<0.10

SE Table 2F. Effect of Civilian Casualties by Urbanity

DV: Monthly SIGACTs/100000 population (*first difference*)	(1) Areas w/ Percent Urban Over 48.85%	(2) Areas w/ Percent Urban Under 48.85%	(3) Regression w/ urbanity interaction terms (*first differenced*)
Coalition Killings (Urban > 48.5%)	0.00351***		0.0508**
(*lagged difference*) †	(0.00066)		(0.024)
Insurgent Killings (Urban > 48.5%)	-0.0216**		-0.0153
(*lagged difference*) †	(0.0094)		(0.021)
Coalition Killings (Urban < 48.5%)		-0.0462*	-0.0472**
(*lagged difference*)		(0.024)	(0.024)
Insurgent Killings (Urban < 48.5%)		-0.00439	-0.00543
(*lagged difference*)		(0.019)	(0.019)
Constant	0.00288*	0.00155	0.00227**
	(0.0015)	(0.0030)	(0.0010)
N	14,664	12,584	27,248
R^2	0.002	0.002	0.002

Note: All models include sect*half-year fixed effects. Robust standard errors clustered by district in parentheses. Population density and unemployment rate variables not shown, coefficients are statistically and substantively insignificant.

† Coefficient on Coalition and Insurgent killings in urban areas in full model is coefficient on interaction of Coalition/Insurgent killings with urban dummy.

*** p<0.01, ** p<0.05, * p<0.1

F-Test statistics (all variables are first differenced):

H_0: β_Coaltion|Urban = β _Coalition|Rural: F-Statistic = 0.042

H_0: β_Insurgent|Urban = β _Insurgent|Rural: F-Statistic= 0.80

H_0: β_Insurgent|Urban + β _Insurgent|Rural = 0: F-Statistic= 0.060

H_0: β_Insurgent|Urban + β_Coaltion|Urban = 0.085

SE Table 2G. Regressing Attacks by Type on Casualties

DV: Monthly incidents/100000 population (*first difference*)	(1) All SIGACTs	(2) Direct Fire	(3) Indirect Fire	(4) IEDs	(5) Suicide Attacks
Coalition Killings (*lagged first difference*)	0.00270**	0.00202**	-0.00027***	0.00208***	-.00003
	(0.0013)	(0.00086)	(0.00007)	(0.00065)	(0.00003)
Insurgent Killings (*lagged first difference*)	-0.0170**	-0.00617*	0.00087	-0.00652	-0.00157**
	(0.0082)	(0.0035)	(0.0017)	(0.0062)	(0.0006)
Constant	0.00228**	0.000233	-0.00012	0.000916*	-0.00009
	(0.0010)	(0.00014)	(0.000049)	(0.00051)	(0.00008)
N	27,248	27,248	27,248	27,248	27,248
R^2	0.002	0.001	0.000	0.001	0.001

Note: All models include sect*half-year fixed effects. Robust standard errors clustered by district in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

SE Table 2H: Core Regressions Weighted by District Population

	(1)	(2)	(3)	(4)	(5)
DV:	SIGACTs/100000 population	SIGACTs/100000 population	SIGACTs/100000 population	SIGACTs/100000 population	SIGACTs/100000 population
Coalition Killings	0.00202				0.00214
(*lagged difference*)	(0.0018)				(0.0017)
Insurgent Killings		-0.00978***			-0.00988***
(*lagged difference*)		(0.0032)			(0.0032)
Sectarian Killings			-0.000691		
(*lagged difference*)			(0.00091)		
Unknown Killings				-0.0101*	
(*lagged difference*)				(0.0055)	
Constant	0.00312	0.00296	0.00307	0.00304	0.00298
	(0.0035)	(0.0036)	(0.0035)	(0.0035)	(0.0036)
N	26,416	26,416	26,416	26,416	26,416
R^2	0.002	0.002	0.002	0.002	0.002

Note: All models include sect*half-year fixed effects. Population density and unemployment rate variables not shown, coefficients are statistically and substantively insignificant. Robust standard errors clustered by district in parentheses.

‡Population per 1000 square kilometers.

*** p<0.01, ** p<0.05, * p<0.1

SE Table 2I: Core Regressions with Log of Civilian Casualties on RHS

	(1)	(2)	(3)	(4)	(5)
DV:	SIGACTs/100000 population	SIGACTs/100000 population	SIGACTs/100000 population	SIGACTs/100000 population	SIGACTs/100000 population
Coalition Killings					
(*lagged difference*) †	0.0311				0.0505
	(0.069)				(0.074)
Insurgent Killings					
(*lagged difference*) †		-0.0954*			-0.101*
		(0.049)			(0.053)
Sectarian Killings					
(*lagged difference*) †			-0.0286		
			(0.027)		
Unknown Killings					
(*lagged difference*) †				-0.000483	
				(0.031)	
Constant	0.00901	0.00895	0.00897	0.00901	0.00894
	(0.0070)	(0.0070)	(0.0069)	(0.0070)	(0.0070)
N	26,416	26,416	26,416	26,416	26,416
R^2	0.002	0.002	0.002	0.002	0.002

Note: All models include sect*half-year fixed effects. Population density and unemployment rate variables not shown, coefficients are statistically and substantively insignificant. Robust standard errors clustered by district in parentheses.

†Casualties are logged.

‡Population per 1000 square kilometers.

*** p<0.01, ** p<0.05, * p<0.1

SE Table 2J: Core Regressions with Count of Incidents on RHS

	(1)	(2)	(3)	(4)	(5)
DV:	SIGACTs/100000 population	SIGACTs/100000 population	SIGACTs/100000 population	SIGACTs/100000 population	SIGACTs/100000 population
Coalition Killings	0.00274**				0.00253**
(*lagged difference*)	(0.0012)				(0.0012)
Coalition Incidents	-0.0300				0.0174
(lagged difference)	(0.10)				(0.10)
Insurgent Killings		-0.00192			-0.00209
(*lagged difference*)		(0.013)			(0.013)
Insurgent Incidents		-0.176*			-0.178**
(*lagged difference)*		(0.089)			(0.086)
Sectarian Killings			-0.000354		
(*lagged difference*)			(0.00087)		
Sectarian Incidents			-0.0127		
(*lagged difference*)			(0.014)		
Unknown Killings				-0.0201**	
(*lagged difference*)				(0.0092)	
Unknown Incidents				0.0593	
(*lagged difference*)				(0.071)	
Constant	0.00901	0.00890	0.00897	0.00902	0.00890
	(0.0070)	(0.0069)	(0.0069)	(0.0070)	(0.0069)
N	26,416	26,416	26,416	26,416	26,416
R^2R-squared	0.002	0.002	0.002	0.002	0.002

Note: All models include sect*half-year fixed effects. Population density and unemployment rate variables not shown, coefficients are statistically and substantively insignificant. Robust standard errors clustered by district in parentheses.
‡Population per 1000 square kilometers.
*** p<0.01, ** p<0.05, * p<0.1

SE Table 2K: Core Regression with Indicator Variable for >0 Civilian Casualties on RHS

	(1)	(2)	(3)	(4)	(5)
DV:	SIGACTs/100000 population	SIGACTs/100000 population	SIGACTs/100000 population	SIGACTs/100000 population	SIGACTs/100000 population
Coalition Killings	0.00233				0.00243*
(*lagged difference*)	(0.0015)				(0.0013)
Coalition Indicator	0.0698				0.112
(lagged)	(0.13)				(0.15)
Insurgent Killings		-0.0147*			-0.0146*
(*lagged difference*)		(0.0078)			(0.0077)
Insurgent Indicator		-0.0807			-0.104
(*lagged)*		(0.11)			(0.13)
Sectarian Killings			-0.000491		
(*lagged difference*)			(0.00097)		
Sectarian Indicator			-0.0704		
(*lagged*)			(0.052)		
Unknown Killings				-0.0209***	
(*lagged difference*)				(0.0068)	
Unknown Indicator				0.289*	
(*lagged*)				(0.17)	
Constant	0.00626	0.0136*	0.0193	0.00188	0.0105
	(0.0098)	(0.0075)	(0.013)	(0.0056)	(0.0087)
N	26,416	26,416	26,416	26,416	26,416
R^2	0.002	0.002	0.002	0.002	0.002

Note: All models include sect*half-year fixed effects. Population density and unemployment rate variables not shown, coefficients are statistically and substantively insignificant. Robust standard errors clustered by district in parentheses.
‡Population per 1000 square kilometers. *** p<0.01, ** p<0.05, * p<0.10.

SE Table 2L: Core Regressions with Dummy for Weeks Including First Day of Month

	(1)	(2)	(3)	(4)	(5)
DV:	SIGACTs/100000 population	SIGACTs/100000 population	SIGACTs/100000 population	SIGACTs/100000 population	SIGACTs/100000 population
Coalition Killings	0.00248*				0.00270**
(*lagged difference*)	(0.0014)				(0.0013)
Insurgent Killings		-0.0165**			-0.0167**
(*lagged difference*)		(0.0081)			(0.0081)
Sectarian Killings			-0.000672		
(*lagged difference*)			(0.0010)		
Unknown Killings				-0.0133***	
(*lagged difference*)				(0.0043)	
1st of the Month Dummy	0.0142	0.0140	0.0145	0.0143	0.0139
	(0.053)	(0.053)	(0.053)	(0.053)	(0.053)
Constant	0.00576	0.00577	0.00569	0.00571	0.00580
	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
N	26,416	26,416	26,416	26,416	26,416
R^2	0.002	0.002	0.002	0.002	0.002

Note: All models include sect*half-year fixed effects. Population density and unemployment rate variables not shown, coefficients are statistically and substantively insignificant. Robust standard errors clustered by district in parentheses.
‡Population per 1000 square kilometers.
*** p<0.01, ** p<0.05, * p<0.1

SE Table 2M: Core Regressions with Spatial Lag of SIGACTs on RHS

	(1)	(2)	(3)	(4)	(5)
DV:	SIGACTs/100000 population	SIGACTs/100000 population	SIGACTs/100000 population	SIGACTs/100000 population	SIGACTs/100000 population
Coalition Killings					
(*lagged difference*)	0.00106				0.00128
	(0.0012)				(0.0011)
Insurgent Killings					
(*lagged difference*)		-0.0168**			-0.0169**
		(0.0080)			(0.0081)
Sectarian Killings					
(*lagged difference*)			-0.000301		
			(0.00093)		
Unknown Killings					
(*lagged difference*)				-0.0145***	
				(0.0041)	
SIGACTs					
(*spatial lag, differenced*)	0.0220***	0.0221***	0.0220***	0.0221***	0.0220***
	(0.0041)	(0.0041)	(0.0041)	(0.0041)	(0.0041)
Constant	0.00781	0.00777	0.00780	0.00778	0.00777
	(0.0068)	(0.0068)	(0.0068)	(0.0068)	(0.0068)
N	26,416	26,416	26,416	26,416	26,416
R^2	0.015	0.016	0.015	0.015	0.016

Note: All models include sect*half-year fixed effects. Population density and unemployment rate variables not shown, coefficients are statistically and substantively insignificant. Robust standard errors clustered by district in parentheses.

‡Population per 1000 square kilometers.

*** p<0.01, ** p<0.05, * p<0.1

SE Table 2N Core Regressions Dropping 7.6% (N=397) of IBC Incidents Involving Both Coalition and Insurgent Responsibility

	(1)	(2)	(3)	(4)	(5)
DV:	SIGACTs/100000 population	SIGACTs/100000 population	SIGACTs/100000 population	SIGACTs/100000 population	SIGACTs/100000 population
Coalition Killings (*lagged difference*)	0.00379***				0.00380***
	(0.0007)				(0.00070)
Insurgent Killings (*lagged difference*)		-0.00898			-0.00899
		(0.011)			(0.011)
Sectarian Killings (*lagged difference*)			-0.000678		
			(0.00102)		
Unknown Killings (*lagged difference*)				-0.0133**	
				(0.0043)	
Constant	0.009	0.009	0.009	0.009	0.009
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
N	26,416	26,416	26,416	26,416	26,416
R^2	0.016	0.016	0.015	0.016	0.002

Note: All models include sect*half-year fixed effects. Population density and unemployment rate variables not shown, coefficients are statistically and substantively insignificant. Robust standard errors clustered by district in parentheses.
‡Population per 1000 square kilometers.
*** p<0.01, ** p<0.05, * p<0.1

SE Table 2O: Core Regressions Dropping 7.6% (N=397) of IBC Incidents Involving Both Coalition and Insurgent Responsibility
Sect Breakdown

	(1)	(2)	(3)	(4)	(5)
	Full Sample	Sunni Districts	Mixed Districts	Shiite Districts	Kurdish Districts
Coalition Killings	0.00380***	0.0955**	0.00318***	-0.0106	-0.0249
(*lagged difference*)	(0.00070)	(0.033)	(0.00078)	(0.0087)	(0.086)
Insurgent Killings	-0.00899	0.00402	-0.0131**	-0.00570	-0.0178
(*lagged difference*)	(0.011)	(0.074)	(0.0053)	(0.0040)	(0.056)
Constant	0.00899	0.0289	-0.00102	0.000899	0.00308
	(0.0070)	(0.045)	(0.011)	(0.0015)	(0.0038)
N	2,6416	4,064	4,826	1,0414	7,112
R^2	0.002	0.002	0.004	0.000	0.000

Note: All models include sect*half-year fixed effects. Population density and unemployment rate variables not shown, coefficients are statistically and substantively insignificant. Robust standard errors clustered by district in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

SE Table 2P: Core Regressions with Population Weighted Civilian Casualties on RHS

	(1)	(2)	(3)	(4)	(5)
	Full Sample	Sunni Districts	Mixed Districts	Shiite Districts	Kurdish Districts
Coalition Killings/100,000	0.00838	-0.00877	0.0139***	-0.0499*	0.104
(*lagged difference*)	(0.0215)	-0.0781	(0.00415)	(0.0277)	(0.136)
Insurgent Killings/100,000	-0.0210	-0.00303	-0.0981***	-0.0349	-0.0297
(*lagged difference*)	(0.0425)	-0.0663	(0.0218)	(0.0270)	(0.055)
Constant	0.00901	0.0288	-0.0010	0.0009	-0.00308
	(0.00695)	-0.0451	(0.0107)	(0.0015)	(0.0039)
N	26,416	4,064	4,826	10,414	7,112
R^2	0.002	0.002	0.006	0.001	0.006

Note: All models include sect*half-year fixed effects. Population density and unemployment rate variables not shown, coefficients are statistically and substantively insignificant. Robust standard errors clustered by district in parentheses.
*** p<0.01, ** p<0.05, * p<0.10.

SE Table 2Q: Core Regressions for Matched Sample

	(1)	(2)	(3)	(4)	(5)
	Full Sample	Sunni Districts	Mixed Districts	Shiite Districts	Kurdish Districts
Coalition Killings/100,000	0.00264*	0.0270	0.00274**	-0.0109	-0.0850
(*lagged difference*)	(0.0013)	(0.059)	(0.0012)	(0.0076)	(0.074)
Insurgent Killings/100,000	-0.0171**	-0.0334	-0.0182**	-0.00586	-0.0130
(*lagged difference*)	(0.0081)	(0.057)	(0.0064)	(0.0035)	(0.061)
Constant	0.0128	-0.0237	0.0125	0.00969**	0.00340
	(0.0100)	(0.063)	(0.023)	(0.0037)	(0.0047)
N	25,353	3,837	4,552	10,012	6,952
R^2	0.0019	0.020	0.0046	0.0009	0.0003

Note: All models include sect*half-year fixed effects. Population density and unemployment rate variables not shown, coefficients are statistically and substantively insignificant. Excludes district weeks not matched on history of violence. Robust standard errors clustered by district in parentheses.
*** p<0.01, ** p<0.05, * p<0.10.

Ruling out alternative explanations for the link between civilian casualties and insurgent violence.

Two alternative theories prevalent in the literature on counterinsurgency are consistent with our findings. Both predict a positive correlation between incidents of insurgent violence and civilian casualties as a consequence of Coalition unit organization and tactics. Fortunately, our data allow us to rule them out.

The first theory is based on individual Coalition unit tactical decisions, particularly how a unit patrols – whether on foot or mounted in vehicles – and it implies that we should see a positive correlation between Coalition-caused civilian casualties and subsequent insurgent violence. Lyall and Wilson reason that the way in which a unit patrols has an impact on the quantity and quality of information that is gathered (Lyall and Wilson 2009). Mounted patrols, as opposed to foot patrols, are less able to foster relationships with the local population and gather valuable intelligence information about local activity that can be used to make COIN operations more effective.[1] Furthermore, these units are more likely to breed enmity among civilians because of the inconvenience posed to civilians and the disruption of their daily lives by mechanized patrols.[2]

Lyall and Wilson test their theory with cross-national regressions and a paired comparison of U.S. Army divisions operating in Iraq. It is worth pointing out two important weaknesses of their study, which help explain why we find little support for their theory in Iraq. First, while their cross-national results are supportive of their general theory, it is easy to imagine how the results from the paired comparison would be tainted by omitted variable bias. The most obvious potential problem is that two different commanders were in charge of operations in the two towns under study, two commanders with notoriously divergent philosophies on how such operations ought to be conducted on the ground. Our data allow us essentially to perform such tests many times over, across the entire country, over many different military units, and weekly over a period of five years. Second, there is good anecdotal evidence to suggest that what is critical is *how* mechanized units use

[1] One commander in the western Baghdad suburb of Ghazaliya clearly believes this logic. "At J.S.S. [Joint Security Station] Thrasher, [station's commander Captain Jon] Brooks and his men conducted raids several times a week, usually after dark. The raids were generally the result of tips from residents who called in to a hot line manned twenty-four hours a day by Iraqi interpreters, known as Terps; during daily patrols, Brooks's men passed out flyers with the phone number. 'We say, "If anyone threatens you, give a call." The foot patrols are key: when you see someone walking down your street, when you see a face—it's different,…' Brooks said. 'As a tank commander, I found it funny—the first thing I had to do was tell my tankers to get out and walk.'" Jon Lee Anderson, "Inside the Surge," *The New Yorker* (November 19, 2007).

[2] See, for example, Carl E. Mundy, III, "Spare the Rod, Save the Nation", *The New York Times* (December 30, 2003). Another example, again from Ghazaliya: "That evening, units from [JSS] Maverick went on a 'census mission'—part of a program aimed at creating a central register with the biometric profile of every military-age man living within its area, to help identify infiltrators. Iraqi police closed off either end of the street, as Americans and Terps [Iraqi interpreters] searched each house…..In theory, operations like this represent the advantage of moving U.S. soldiers into neighborhoods like Ghazaliya, where they can build relationships and glean intelligence…. But the constant raids and patrols can also alienate local residents, and reinforce the impression of the Americans as a coercive force with the overweening power to invade the homes of Iraqis, and detain them at will. The Army's tactics can become the catalyst that leads Iraqis to the insurgency." Anderson (2007).

their vehicles in terms of how patrols affect civilian behavior and insurgent violence (e.g., Anderson 2007). Mechanized units need not necessarily antagonize and incite civilians to violence more than foot patrols, as Lyall and Wilson (2009) found the 4th Infantry Division did in their study.

We can extend Lyall and Wilson's theoretical logic to identify two additional dynamics by which civilian casualties would increase in areas with more mounted patrols. First, in response to mounted patrols, insurgents could substitute into larger explosives, meaning that insurgent-caused civilian casualties would increase. Second, mounted patrols have access to heavier weaponry, which are more likely to cause civilian casualties even if aimed accurately. Suppose Lyall and Wilson are correct that more mechanized units tend to get attacked more because they have less information. The first dynamic would create a spurious positive correlation between killings by the insurgents and attacks because the kinds of units that were being attacked more would also be the units being attacked with weapons most likely to lead to insurgent-caused casualties. The second dynamic would create a similar spurious correlation between killings by the Coalition and attacks because the kinds of units that were being attacked more would also be the units equipped with weapons most likely to lead to Coalition-caused casualties.

One might worry that ruling out this possibility is a fool's errand on the grounds that the placement of mechanized units across space and time is not random. If we find that areas with more mechanized units indeed see more violence it could be because more mechanized units are more likely to be sent to areas experiencing high levels of violence in the first place, and not because of anything to do with information sharing. This form of reverse causality is unlikely because of how units were assigned in Iraq. First, there was no deliberate effort to strategically position Brigade Combat Teams (BCT) across Iraq by matching more mechanized BCTs to more violent areas. Second, battalions were deliberately scrambled within BCTs in many areas. For example, 2nd Brigade, 1st Infantry Division, a 'heavy' BCT, deployed to Iraq with none of its own maneuver units assigned to it, but instead included two cavalry battalions from different brigades, an artillery battalion from 4th Brigade, 1st Infantry Division, and a battalion from 2nd Brigade, 82nd Airborne, a 'light' BCT.[3] In two years of research involving repeated conversations about unit rotations and potential challenges to regression analysis of data from Iraq with people who served in senior roles on the MNF-I staff we have never been told that there was a conscious effort to match 'heavier' units to more violent areas.

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[3] As noted several times, much of Iraq suffers from very little violence. As such, ratios using the number of attacks in the denominator must have a rule for dealing with zeros. We address this two ways. First, we estimate effects at the district-quarter level, unlike all other models where the level of aggregation is the district-week. We do so because there are so many district-weeks with no insurgent violence that results at the district-week level would be driven by the way we dealt with the zeros in the denominator of the casualty ratios. Moving up to the district-quarter sacrifices precision in exchange for results not being driven by decisions on how to handle non-violent areas. For the remaining zeros we use a simple rule. If there are no attacks and no killings by a party in a given district week, we take that as being very precise and so set the ratio to zero. If there are no attacks recorded but positive killings by a party, we take that as the party killing civilians in the course of an attack so inconsequential that the Coalition unit attacked did not see fit to report it. That is very imprecise and so we set the ratio for that district/week to its maximum value in the entire dataset. The results in appendix table 36 are not sensitive to an alternative rule that sets the ratio for all places with no attacks to zero. The results in table 57 become weaker when we do not employ the rule that codes killing civilians in the absence of a recorded attack being maximally imprecise.

As we do not have high quality data on unit patrols or ammunition expenditures, we have to consider a different way to test this alternative theory. Simple physics dictate that the dynamics above would operate most strongly in areas of higher population density where the consequences of an errant .50 caliber round or over-sized IED are more likely to kill civilians. Thus, if there is a spurious positive correlation between killings and violence driven by mechanization—which we cannot directly test—we should also find support for the following hypothesis—which we can directly test.

H1: The ratio of civilian casualties to insurgent attacks should be higher in more urban and more densely populated districts.

We test this hypothesis by regressing ratios of different types of casualties to SIGACTs on the percent of the district that is urbanized and on the district's population density. These ratios are intended to capture how precise the different parties are. [4] We find no evidence that these ratios are higher in areas of denser population or with a higher percentage of urban populations (SE Table 3). We take this as evidence against *H6* which makes us less concerned that unit characteristics are creating a positive correlation between Coalition killing of civilians and attacks. The link between unit characteristics and casualties required to create the spurious correlation is simply unlikely to be a strong one.

The second alternative explanation also posits a relationship between unit interaction with the community and the degree to which civilians share information with Coalition forces. Similar to the first alternative explanation, this explanation predicts that civilian killings by Coalition forces would correlate positively with attacks because units that engage less with the community kill more civilians and suffer more insurgent attacks, but killings by insurgents would have no such correlation. This and the former alternate explanation differ from our argument in an important respect. While all explanations emphasize the sharing of information, our argument discounts the role that soldier engagement with the community plays in eliciting valuable information.

One proxy for community engagement by U.S. forces is the initiation of small-scale reconstruction projects by military units under the Commander's Emergency Response Program (CERP).[5] If better information flowing from engagement with communities allows units to be more discriminate, we should see that the ratio of civilians killed by the Coalition per attack should decrease. If better information makes it harder for insurgents to operate, we should see the ratio of civilians killed by insurgents per attack should increase. Stated formally we have the following.

H2: The ratio of Coalition-caused civilian casualties per attack should be negatively correlated with the number of CERP projects initiated. The ratio of insurgent-caused civilian casualties per attack should be positively correlated with the number of CERP projects initiated. [6]

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[4] This is a noisy proxy given variation in CERP allocation practices at the division, brigade, and battalion levels, but based on numerous interviews we believe the overall correlation between CERP activity and community engagement is positive.

[5] This hypothesis rests on the assumption that variation in CERP projects and spending is due largely to idiosyncratic differences between commanders, rather than conditions on the ground. Author provides evidence against this claim of reverse causality by showing that levels of insurgent violence are an excellent predictor of CERP projects and spending.

[6] See Berman, Shapiro, and Felter (Forthcoming) for complete discussion of these data.

If we take the count of CERP projects initiated in a given time period as a measure of the Coalition's engagement with the local community in a district, control for the amount spent which may simply be buying good will, and see that it fails to predict a higher ratio of insurgent-caused collateral damage to incidents of insurgent violence, then we should be less worried about unit practices creating a spurious positive correlation between Coalition killings and attacks.

We test *H2* using two proxies for engagement, the number of CERP projects started in a given district-quarter and the total value of those projects in millions of dollars. We want to see if these measures – which are proxies for Coalition engagement with a community in any given area – help predict the ratio of killings to attacks. If we see that these measures fail to predict a higher ratio of insurgent-caused casualties to SIGACTs, then we are less worried about this type of organizational dynamic creating spurious positive correlation in our results.

We find that that both the number of projects and levels of spending are unassociated with overall casualty ratios, or casualty ratios for any specific actor (SE Table 4). We thus have evidence against *H6*. This increases our confidence that the positive relationship we observe between Coalition killings and subsequent insurgent violence is not driven by the fact that units which do not engage with their communities kill more civilians and suffer more attacks.

SE Table 3. Impact of Population Density and Urbanity on Civilian Casualty Ratios (*Linear Regression*)

	(1) Civ Casualties / SIGACTs	(2) Coalition Killings / SIGACTs	(3) Insurgent Killings / SIGACTs	(4) Sectarian Killings / SIGACTs	(5) Unknown Killings / SIGACTs
Percent Urban	0.0418	0.123	-0.128*	0.0667	0.0238
	(0.347)	(0.133)	(0.0720)	(0.270)	(0.0519)
Pop. Density†	-0.170	0.0147	-0.0708	-0.106	-0.0144
	(0.276)	(0.0372)	(0.0800)	(0.164)	(0.0385)
Constant	0.204	-0.0675	0.111**	0.143	-0.00291
	(0.182)	(0.0670)	(0.0552)	(0.127)	(0.0266)
N	25336	25336	25336	25336	25336
R^2	0.01	0.01	0.03	0.01	0.01

Note: District and quarter fixed effects included. Without district FE results are null for all except for *Percent Urban* for the Coalition/SIGACTS ratio. Robust standard errors clustered by district in parentheses. Percent Urban and Population Density are jointly insignificant in model (3), $F_{(2,103)}=1.90$, $p=.15$ †Population per 1000 square kilometers. *** p<0.01, ** p<0.05, * p<0.10.

SE Table 4. Impact of CERP Projects and Spending on Civilian Casualty Ratios (*Linear Regression*)

	(1) Civ Casualties / SIGACTs	(2) Coalition Killings / SIGACTs	(3) Insurgent Killings / SIGACTs	(4) Sectarian Killings / SIGACTs	(5) Unknown Killings / SIGACTs
CERP Projects†	-285.77	-62.831	-3.0162	-273.54	11.003
	(492.3)	(49.75)	(33.85)	(480.1)	(16.50)
CERP Dollars†	1.1670	-0.1206	-0.1948	1.7341	-0.1728
	(1.311)	(0.363)	(0.260)	(1.449)	(0.190)
Constant	0.878	0.0609***	0.124**	0.699***	0.00263
	(0.555)	(0.0173)	(0.0509)	(0.561)	(0.0107)
N	2,080	2,080	2,080	2,080	2,080
R^2	0.185	0.111	0.080	0.163	0.069

Note: District and quarter fixed effects included. Without district FE results are null for all ratios once quarter FE are included. Robust standard errors clustered by district in parentheses. †Count of projects per capita initiated in district-quarter. Spending is thousands of dollars per capita.
*** p<0.01, ** p<0.05, * p<0.10.

SE Table 5. Estimated Change in SIGACTs (per 100,000 people) from Increasing Civilian Casualties by 1 SD

	(1)	(2)	(3)	(4)	(5)
Sample	Full Sample	2004-2005	2005-2006	2006-2007	2007-2008
(average weekly change in SIGACTs/100,000)	(.003)	(-.000)	(.018)	(.026)	(-.035)
Coalition Killings	0.0136	**.0183**	0.0781	-0.0509	-0.135
	(-0.0018, 0.029)	(0.0088, 0.028)	(-0.12, 0.28)	(-0.19, 0.093)	(-0.31, 0.035)
Insurgent Killings	**-0.0373**	**-.0563**	**-0.0706**	-0.0137	0.00631
	(-0.073, -0.0014)	(-0.092, -0.0020)	(-0.12, -0.018)	(-0.081, 0.053)	(-0.098, 0.11)
Sectarian Killings	-0.00646	-.0120	-0.00361	-0.00617	-0.00793
	(-0.026, 0.013)	(-0.031, 0.0070)	(-0.024, 0.017)	(-0.048, 0.036)	(-0.053, 0.037)

Note: All models include sect*half-year fixed effects. 95% confidence interval for marginal effect in parentheses, calculated based on robust standard errors clustered at the district. Change bolded if 95% confidence interval on marginal effects of 1SD change in DV covers zero.

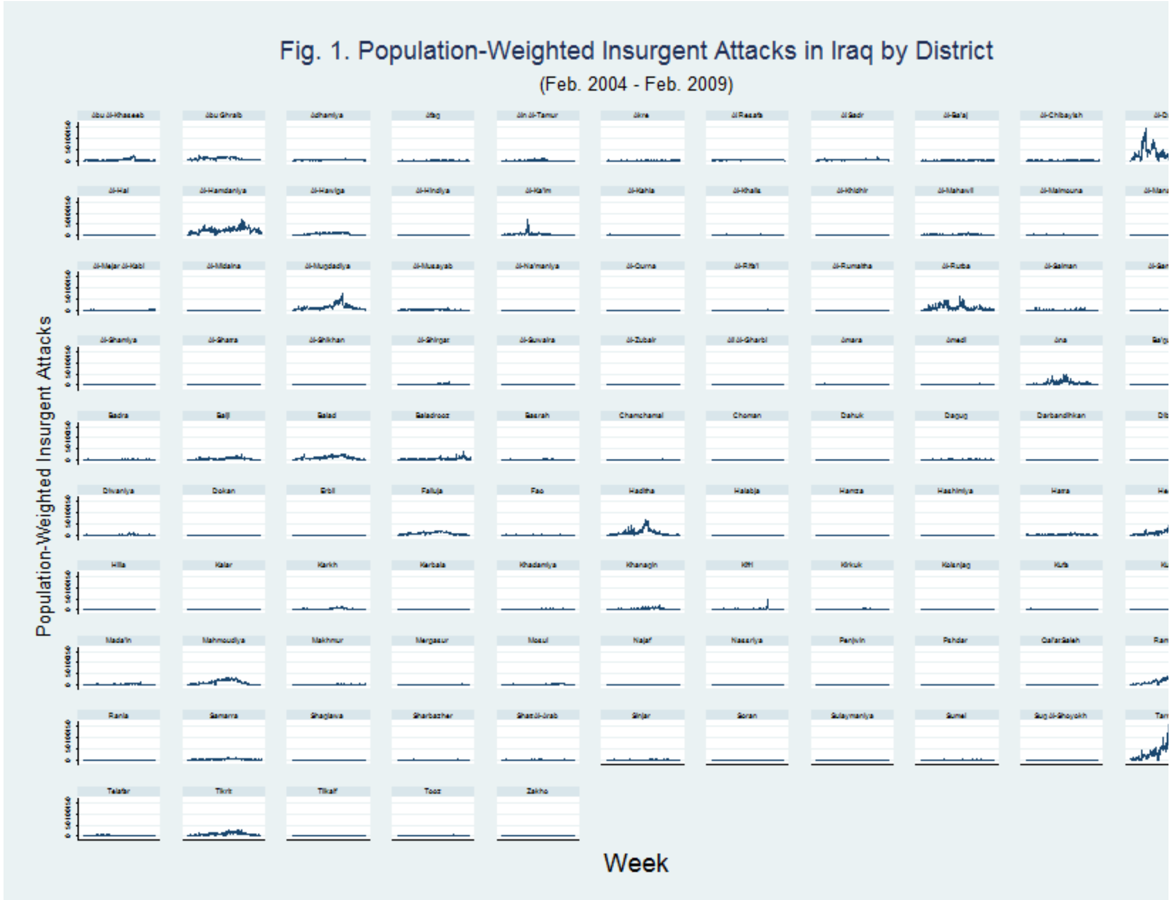


Fig. 1. Population-Weighted Insurgent Attacks in Iraq by District
(Feb. 2004 - Feb. 2009)
Population-Weighted Insurgent Attacks
Week

Fig. 2. Civilian Casualties (per 100,000) in Iraq by District

(Feb. 2004 - Feb. 2009)

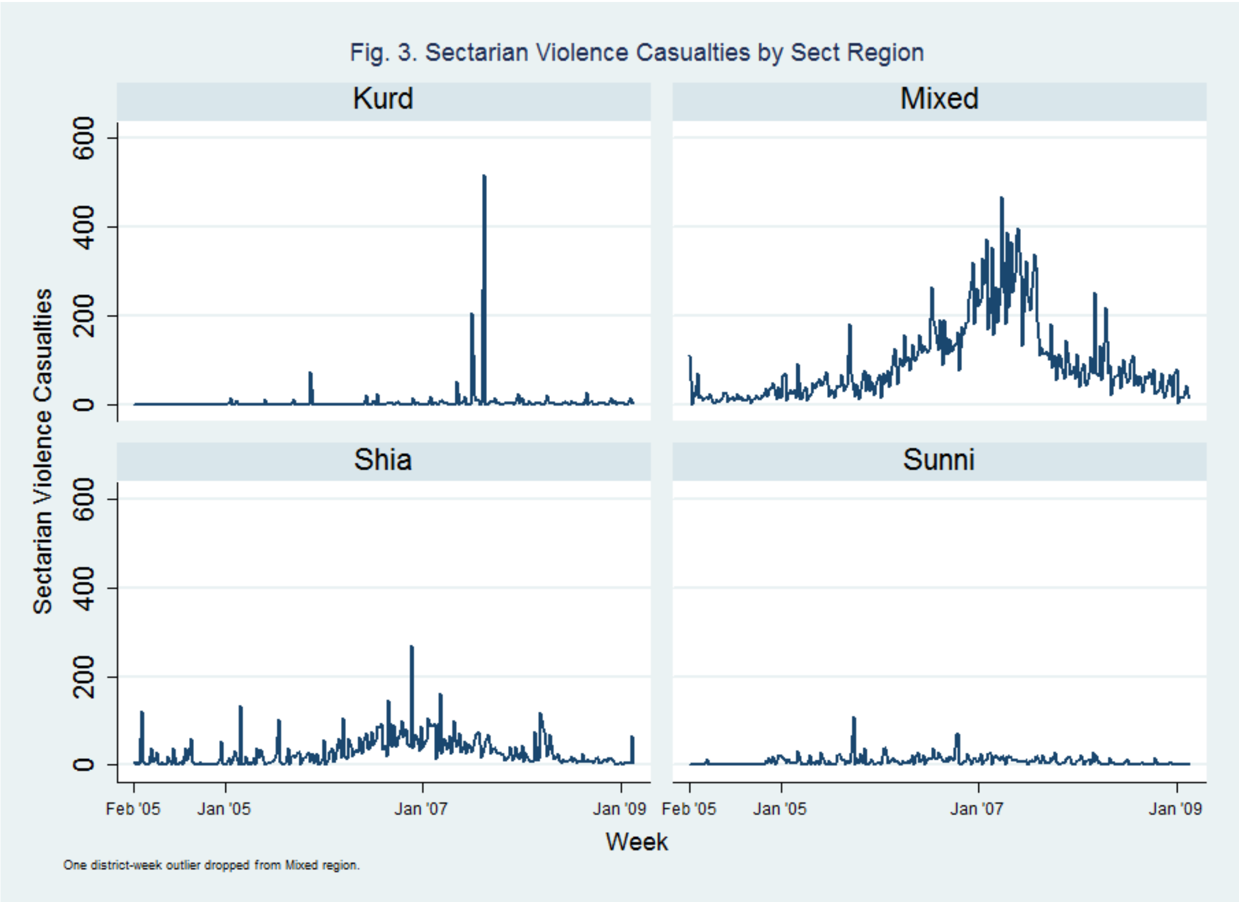
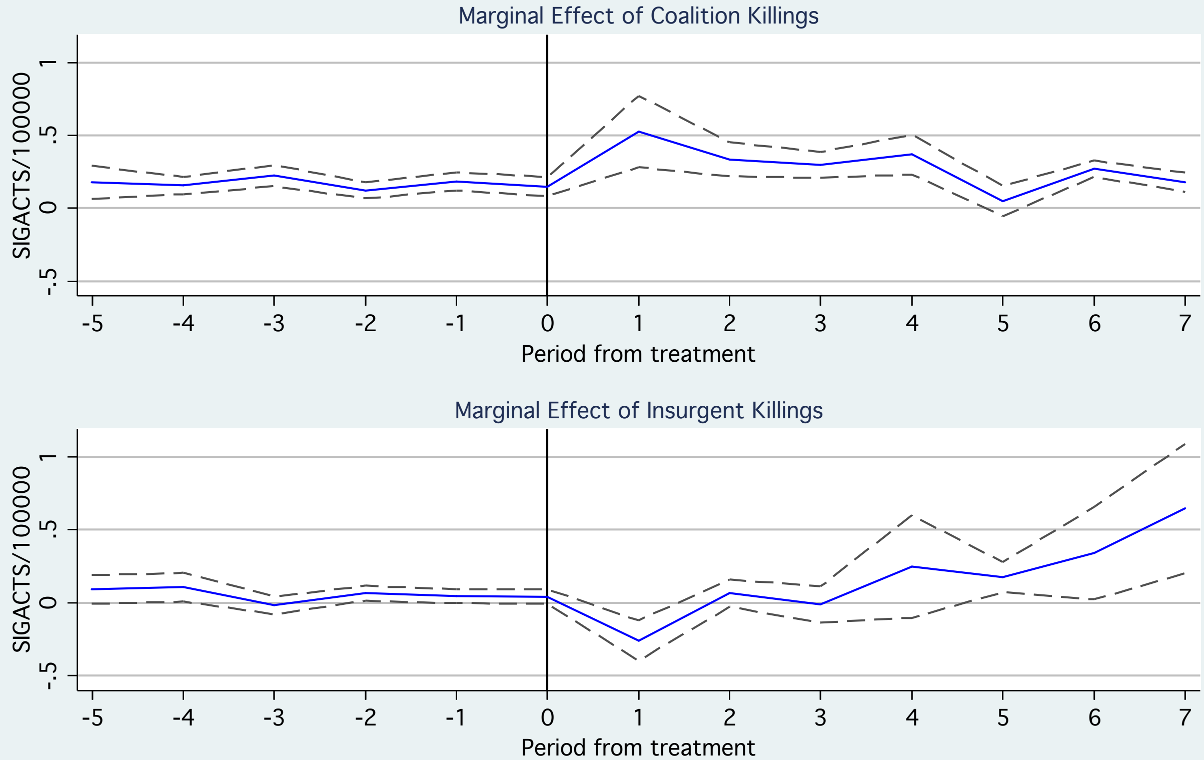


Fig. 3. Sectarian Violence Casualties by Sect Region
Kurd
Mixed
Shia
Sunni
Sectarian Violence Casualties
0
200
400
600
Feb '05
Jan '05
Jan '07
Jan '09
Week
One district-week outlier dropped from Mixed region.

SE Fig. 5A. Effect of Civilian Killings on Insurgent Violence in Matched Strata
(Matching on 4-period history of SIGACTS/100000, and average insurgent attacks)



Note: Figure 5A shows marginal effects of civilian casualties in time t=0 on previous or subsequent insurgent attacks. Marginal effects for period k estimated by regressing insurgent attacks in period $t+k$ on Coalition-caused civilian casualties in period t, insurgent-caused civilian casualties in period t, and a cubic time-trend at the quarter level within matched strata. Figure shows mean and 95% CI for within/strata estimates weighted by stratum size. District-weeks were matched on average SIGACTs/100,000 population in periods t, t-1, t-2, t-3, t-4, and trends over previous 4-weeks. Trends are history of changes in rate of SIGACTs/100,000 codes as 1 if rate increase by more than .5, 0 if it stayed about the same, and -1 if it dropped by more than .5. There are 243 possible histories of which 241 are found in the data. This match created 854 strata of which 546 had three or more district-weeks. Multivariate L1 distance for match = 0.419, pre-match L1 distance was 0.670. Results do not include the one extremely large stratum with more than 800 district/weeks, all of which had very little violence.