



# Troops or Tanks?

## Rethinking Mechanization in Iraq



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Are mechanized military units organized to effectively conduct counterinsurgency campaigns?

Does counterinsurgent mechanization lead to increasing violence levels in a local context?

**Galula:** “a revolutionary war is primarily a war of infantry. Paradoxically, the less sophisticated the counterinsurgent forces, the better they are.”

**Leites and Wolf:** “the use of forces trained, commanded, and equipped for major conventional contingencies in unconventional, insurgent conflicts is likely to entail both high costs and low effectiveness.”

“A shared theme in the classic literature is that treating insurgencies as conventional warfare is deeply misguided because it neglects the consequential role that civilians play in sharing information.” (Berman and Matanock, Page 444)

However, mechanized forces proved useful in Iraq’s insurgency. Clearing and *holding* insurgent held cities like

- Tal Afar
- Ramadi
- Sadr City

## Lyall and Wilson (2009)

“The result is often a **mechanized military unable to apply its coercive and noncoercive power** in a selective manner due to information starvation,” (Page 102)

“Fence sitters must weigh the costs and benefits of collaboration and may decide to **forego cooperation if the incumbent cannot credibly protect** these individuals,” (Page 77)

“This measure provides direct battlefield evidence that **higher rates of mechanization are negatively correlated with incumbent victory**,” (Page 91)

## Lee

“protective environment and discriminate nature of firepower from reinforced fighting vehicles allow soldiers to **continue gathering intelligence in a contested environment**” (Page 31)

“Without armored units providing protection and indirect fires, **infantry units are less effective**, less efficient, and far more likely to suffer high levels of casualties.” (Page 32)

“the importance of armored units, indirect fires, and other **‘heavy’ units in gathering intelligence and executing effective counterinsurgency operations** in a contested environment.” (Page 32)

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# Lyall and Wilson (2009)

**Outcome:** Win/Draw/Loss

**Conflict Type:** Insurgencies

**Scope:** Macro-Study  
1800-2005, 286 insurgencies

**Mechanization:** 4 ordinal categories  
(Troops/Armored Vehicle)  
1: (>834), 2: (288-833), 3: (109-287), 4: (11-108)

**Models:** Logit and country fixed effects

# Lee

**Outcome:** Iraq District Level Violence

**Conflict Type:** Iraq's Civil Conflict

**Scope:** Micro-Study in Iraq  
2004-2008, 2,060 district-quarters

**Mechanization:** Addressed via case study  
and qualitative analysis.

**Models:** First differences with SIGACTs lag  
and time controls.

# Two Competing Hypotheses

## Tactical Superiority Hypothesis

Mechanized units, dominating local tactical engagements, will be associated with lower levels of insurgent violence, relative to dismounted units.

## Mechanization Hypothesis

Dismounted units, leveraging local intelligence and more effectively targeting insurgent cells, will be associated with lower levels of insurgent violence, relative to mechanized units.

# Data Overview

- District Violence
- Dismount Ratio (Mechanization)
- Troop Density
- Control Variables

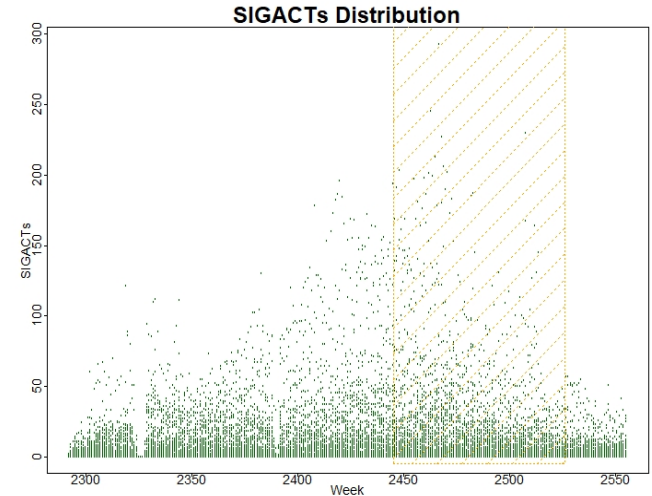
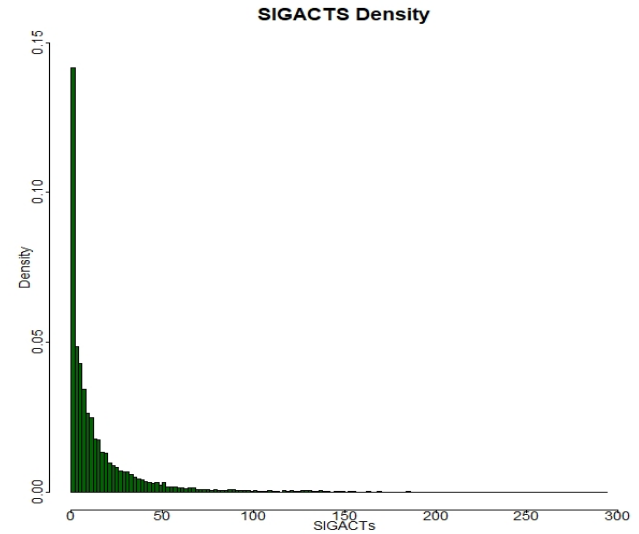


# District Violence

## *Dependent Variable*

SIGACT (Significant Action) Database Empirical Studies of Conflict

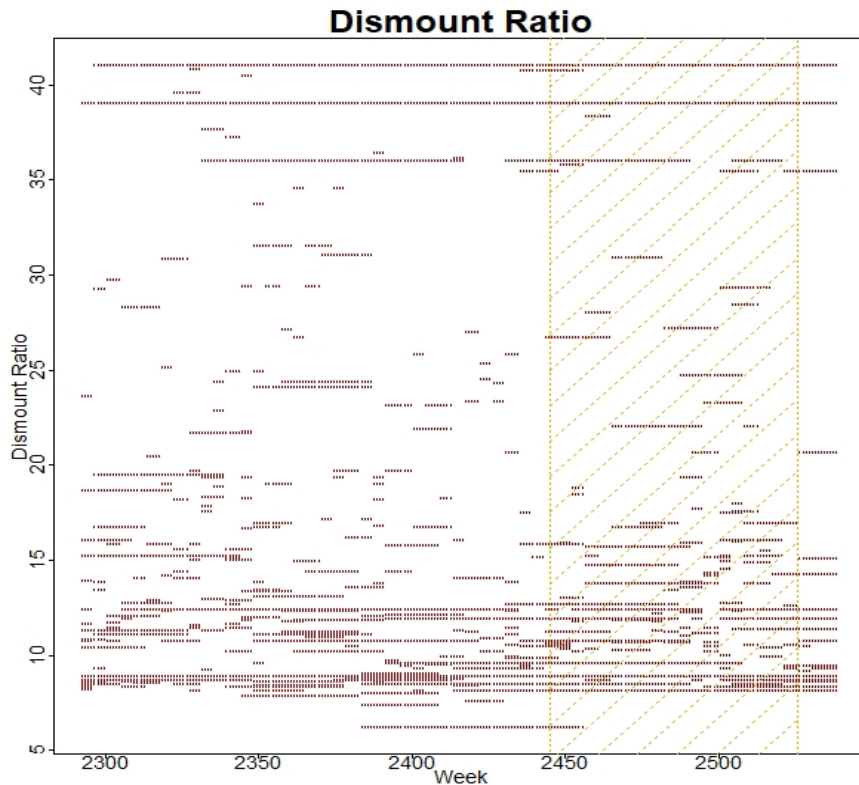
- Summed in 9,222 district-weeks
- Mean: 16.59 SIGACTs/district-week
- Median: 7 SIGACTs/district-week
- Range
  - Most Violent: 293
  - Least Violent: 0 (15% of districts)
    - Long right tail
- Weighted by 1,000 Iraqi residents
- Filtering rules: limited to attacks on Coalition units in U.S./U.K. districts
  - Reduces data to 56 districts



# Dismount Ratio

## *Variable of Interest #1*

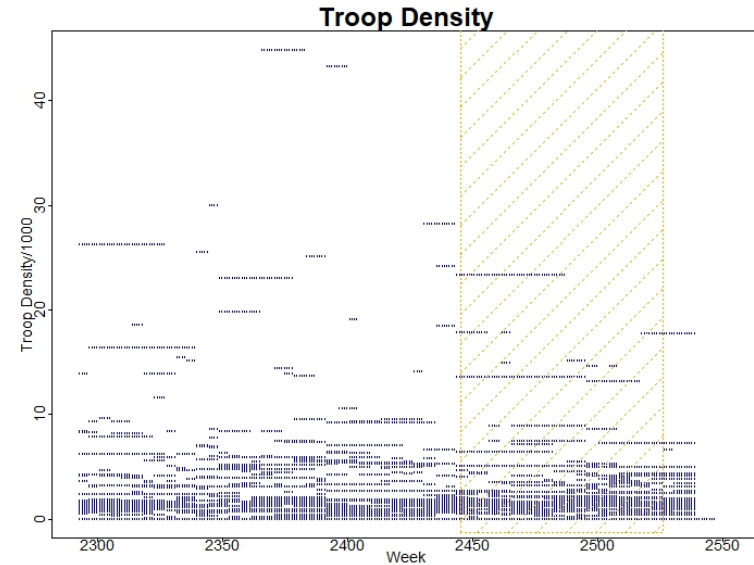
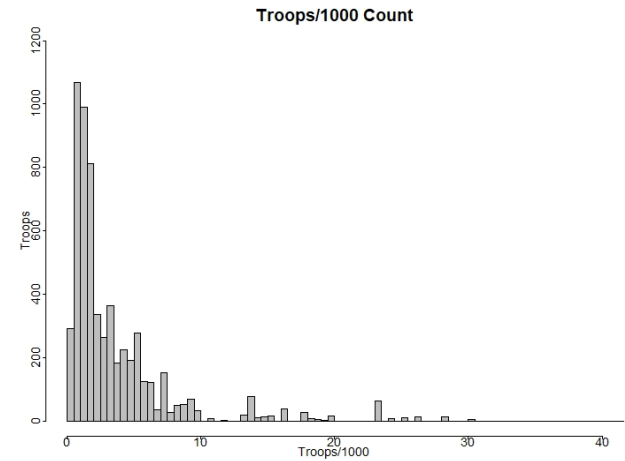
- Derived from Carrie Lee working paper and Institute for the Study of War
- Limited to combat units
  - No support units
- Unit Distribution Weighting
  - Adjusting for cross district boundaries
- Mean: 19.38
- Median: 12.39
- Range
  - Largest: 41 (U.S. Marine Rifle Platoon)
  - Smallest: 6 (Tank Platoon)
- Endogeneity concerns



# Troop Density Ratio

## *Variable of Interest #2*

- Friedman (2011) “Manpower and Counterinsurgency”  
“The causal logic of force employment involves an interaction between quality and quantity...without data on the size of counterinsurgent forces, it is difficult to examine the quality of counterinsurgent forces.”
- Same weighting scheme as dismount ratio
- Weighted by 1,000 Iraqis
- Mean: 5.8
- Median: 2.32
- Range
  - Largest: 75.85
  - Smallest: 0.09
- Endogeneity concerns



# Models

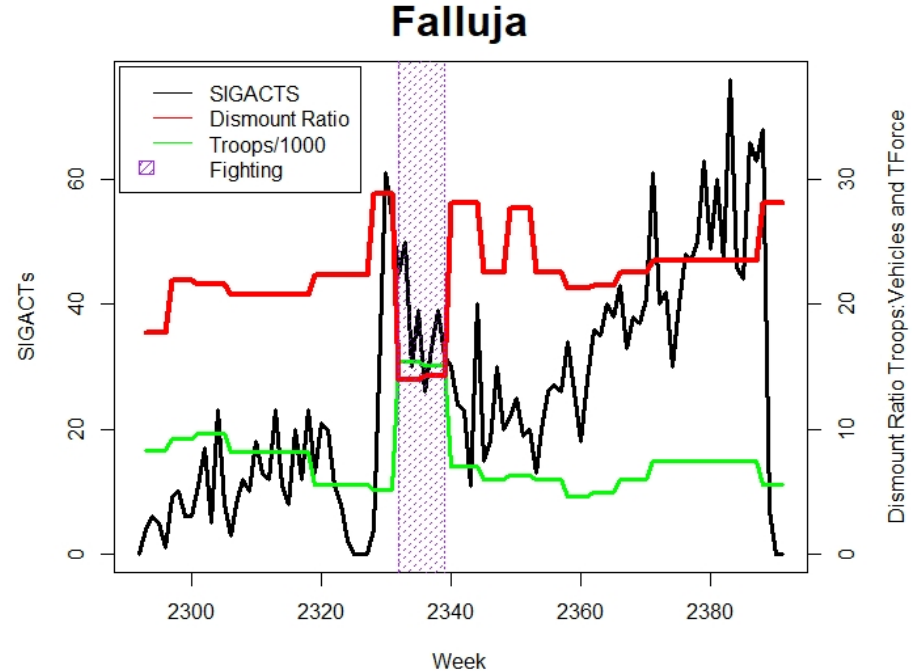
- Ordinary Least Squares and Fixed Effects
- Dependent Variable: SIGACTs/1,000 residents
- Independent Variables:
  - Dismount Ratio
  - Troop Density
  - District population density
  - District unemployment
  - 6 month SIGACTs lag
    - Proxies for long term insurgent capability
    - Nickell Bias test for serial correlation
- Notes:
  - Errors clustered by district
  - Alternate specifications:
    - Zero-Inflated Negative Binomial
    - Log(SIGACTs)

# Results

DV	SIGACTS/1,000 Residents					Log(SIGACTS)	SIGACTS Count	
MODEL	Fixed Effects OLS						N. Binomial Base	N. Binomial Zero-Inflated
Dismount Ratio	0.0000193	0.0000726	0.0000529	-0.0000759	0.0000621	0.00279	-0.00***	0
Troop Density		0.00311	0.00312	0.00314	0.00321	0.0159	-0.01***	-0.02*
<i>CONTROLS Included</i>								
Pop. Density		Yes	Yes	Yes	Yes	Yes		
Unemployment		Yes	Yes	Yes	Yes	Yes		
Year Fixed Effects			Yes	Yes	Yes	Yes	Yes	Yes
6 Month SIGACT Lag				Yes	Yes	Yes	Yes	Yes

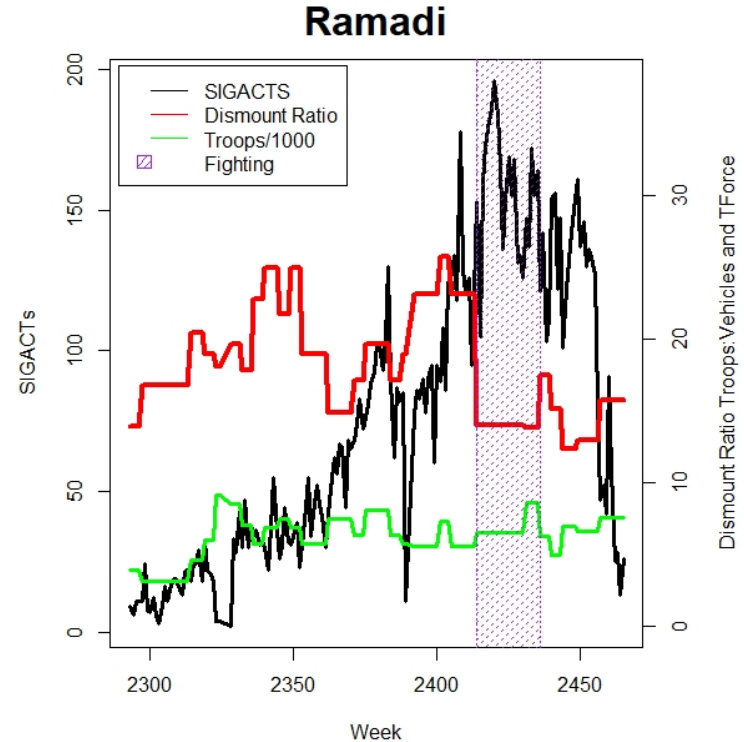
# Case Studies: Fallujah

- First battle in April 2004
  - Almost no armored vehicles
  - Insufficient troops- one regiment
  - Aborted after local political pressure
- Second battle in November 2004
  - Marine Division plus Armored Brigade
  - 2,000 insurgents killed, 2,000 captured
  - Fallujah successfully cleared
- Post Battle
  - Reinforcements redistributed in Iraq
  - Single regiment remains in city
  - Troop density drops to 7 per 1,000 residents
  - Insurgents reclaim city, violence surges
- Takeaways
  - Mechanized units needed to initially clear Fallujah
  - Follow on units lacked resources to hold and build



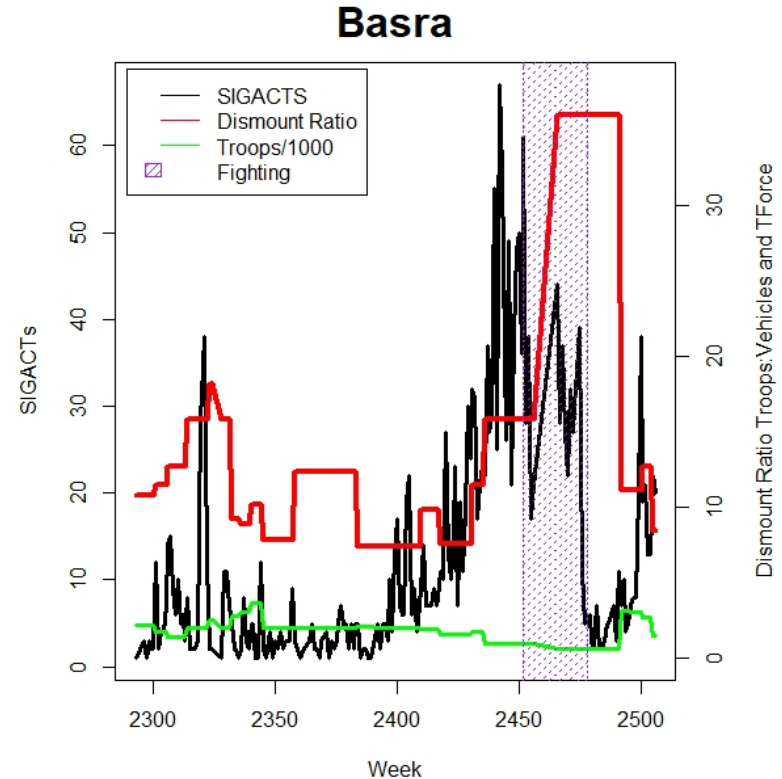
# Case Studies: Ramadi

- Background
  - By 2005, over 5,000 insurgents massed in city
  - 2/28 Infantry Brigade Combat Team based on outskirts unable to stem violence
- 1/1 Armored Brigade Arrives
  - 1/1 armored brigade begins block by block clearance
  - Implements clear-hold-build strategy
  - Establishes 12 outposts throughout city
  - Actively recruits/trains locals for security forces
- Takeaways
  - Armored unit successfully executes clear-hold-build strategy
  - To compensate for low troop density ratio, actively develops local security forces.



# Case Studies: Basra

- Background
  - Operation Zenith begins withdrawal from Basra Center in 2006
  - Population-centric approach without security provision exacerbates power vacuum
  - Troop density very low and declining
- Increase in British, American Units
  - British MiTTs (military transition teams) embed with ISF (Iraqi Security Forces)
  - Troop density increased, more ISF units introduced
  - Actively recruited/trained locals for security forces
- Takeaways
  - Troop Density Increased
  - To compensate for low troop density ratio, embedded with and developed local security forces
  - Security provision with an “Iraqi face” needed to turn support from Shia militias





# Conclusion

- Mechanization alone does not systematically impact local violence.
- Empirical results did not support either hypothesis.
- Context matters when assessing mechanization in counterinsurgency:
  - High intensity or low intensity fighting?
    - Mech units *needed* to clear insurgent held towns.
  - Employment strategy?
    - Clear-Hold-Build like Ramadi or just Clear like Fallujah, Basra?
  - Troop density matters for counterinsurgent security provision.
    - Premature withdrawal from Basra and Fallujah
- Policymakers need to consider this context when making force structure decisions during insurgency conflicts.

# Questions