

**Comments on Brock Blomberg and Rozlyn Engel's
“Lines in the Sand:
Economic Integration and Disintegration
of Post-War Iraq”**

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What this paper does

- For each good, g , and each pair of governates, i, j :
Analyze $|\log p^{i,g}_t - \log p^{j,g}_t|$ as a function of:
 - ▶ $\ln(\text{Distance}^{ij})$
 - ▶ Border: $I(\text{quasi-country}^i = \text{quasi-country}^j)$ “Lines in the sand”
 - ▶ Governate fixed effects: $I(\text{governate} = i \text{ or } \text{governate} = j)$

What's new here?

- ▶ Violence measures:
 - Pre-Surge: January 2005-January 2007
 - Surge: January 2007-November 2007
 - Post-surge: December 2007 – May 2008
- ▶ Alternative violence measures:
 - Fatalities of U.S. troops or Iraqi security forces
 - **What about violence between i and j ?**

① Assume: Price differentials reflect violence
Ask: Did violence fall?

② Assume: Shifts in violence are observable / exogenous
Ask: Does violence affect price dispersion?

My comments

- ❑ Two views of the research question
- ❑ First-order facts
 - ▶ Price dispersion in Iraq is worryingly high
 - ▶ Price dispersion in Iraq is stunningly low
 - ▶ The surge “worked”
 - ▶ ...until it ended
- ❑ Border effects
 - ▶ Interpreting the border effect
 - ▶ Why this is the right dataset for the job
 - ▶ Why this is the wrong dataset for the job
- ❑ Econometric complaints
- ❑ How do we interpret changes in prices?

Average Price Dispersion: Interpreting the Means

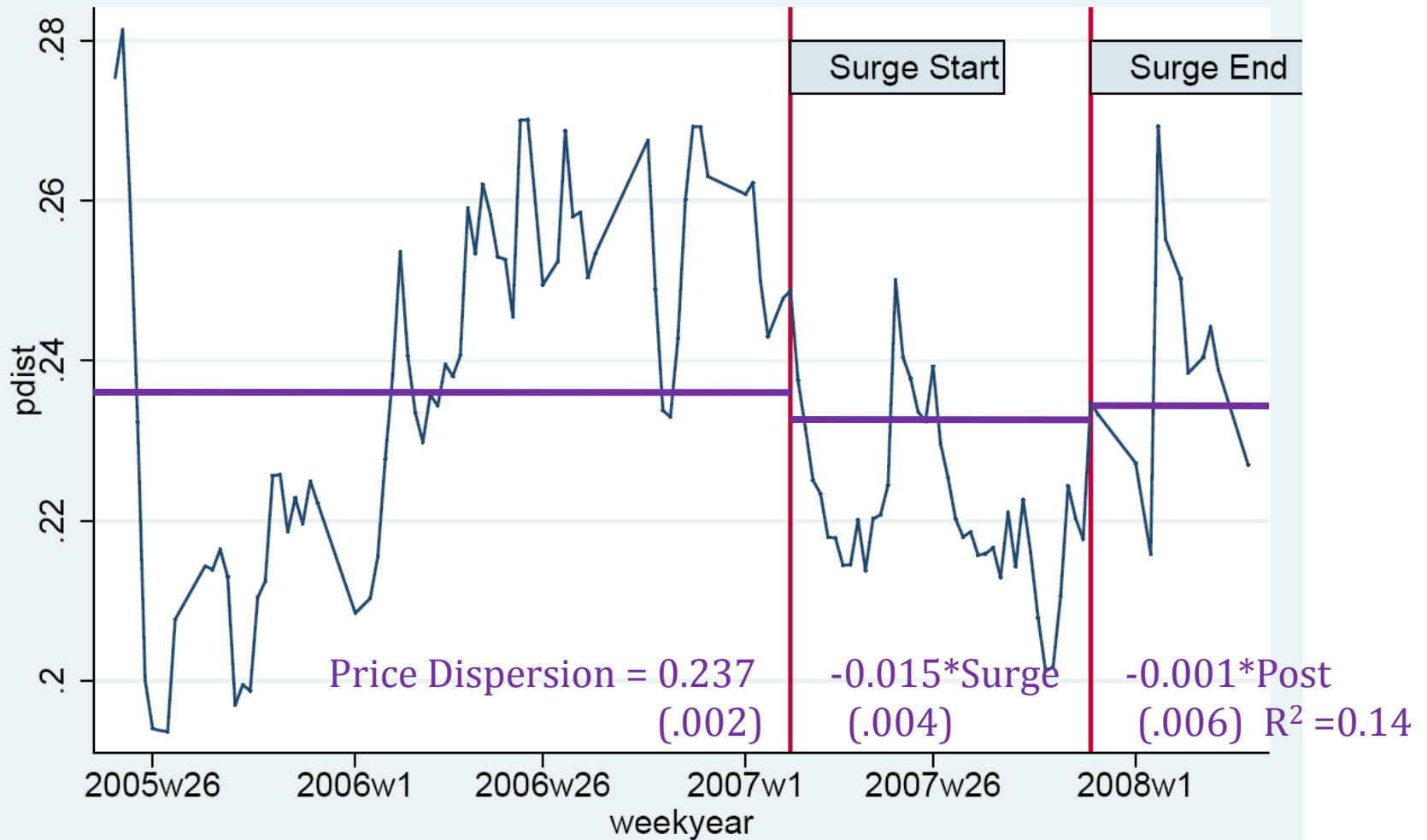
- ❑ Bloomberg and Engel: Iraq
 - ▶ Average = 0.234
 - ▶ Median = 0.167

Two interpretations

1. **Things are terrible in Iraq**
Price dispersion between Iraqi states > dispersion between countries:
 - ▶ Froot, Kim and Rogoff (1995): International comparisons
 - “the volatility of law of one price deviations is both remarkably high (typically on the order of 20% or more per year for most commodities in most centuries) and remarkably stable over time.”
 2. **Things are wonderful in Iraq**
Price dispersion between Iraqi states \approx between U.S. cities
 - ▶ Broda and Weinstein (2007)
 - U.S.: 0.22
 - Canada: 0.19
- ❑ Problem with using price dispersion to diagnose economic integration
 - ▶ *“The important fact to bear in mind is that the LOP deviations that these authors found internationally are approximately the same magnitude as those we observe within countries.”* – Broda and Weinstein

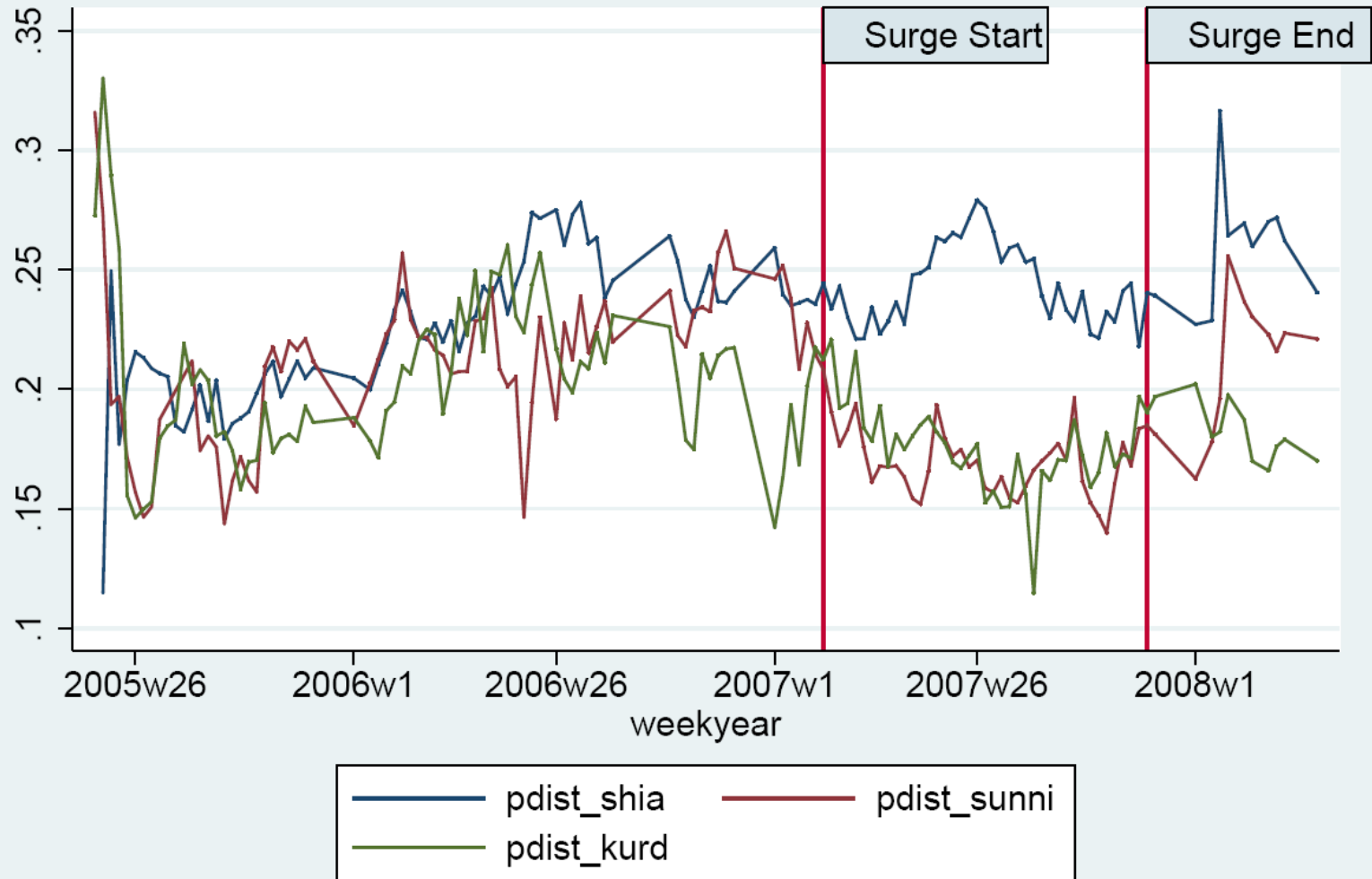
Aggregate Findings

Figure 1: Price Dispersion Across Governorates Over Time



Findings by Region

Figure 3: Price Dispersion Within Quasi Countries Over Time



Outline

□ First-order facts

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Width of the Border, Redux

- $|\log p^{i,g}_t - \log p^{j,g}_t| =$
 - α *Governorate fixed effects +
 - β * $\ln(\text{Distance between } i \text{ and } j, \text{ measured in miles}) +$
 - γ *Border: $I(\text{quasi-country}^i = \text{quasi-country}^j)$

- “Width of the border” = $\exp(\gamma/\beta)$
 - ▶ Engel and Rogers (1996): “crossing the border adds as much to the volatility of prices as adding 2500 miles between cities.”
 - ▶ This paper: “we estimate the border to be as wide as... about 1 mile. This is what we refer to as a ‘line in the sand’”.

- The metric system as a solution to trade frictions:
What if you measure distance in meters?
 - ▶ β = the coefficient on $\ln(\text{distance})$ is unchanged
 - ▶ Thus $\exp(\gamma/\beta)$ is unchanged
 - ▶ Thus: You have reduced the width of the border from 1 mile to 1 meter

An incredible dataset

- ❑ Prices of 255 very specific products
- ❑ In 18 governates
 - ▶ Yielding $18*19/2=171$ governate pairs
 - ▶ Across 3 quasi-countries
- ❑ Across 145 weeks (June 2005-May 2008)

An incredible dataset: **Best dataset for the job**

- ❑ Prices of 255 very specific products
- ❑ In 18 governates
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Border effects literature

- ❑ Engel and Rogers (1996) “How wide is the border?” [Very]
 - ▶ Analyze volatility of relative price indices across US and Canadian cities. Find large border effects.
- ❑ Broda and Weinstein (2007) [Not as much as you thought]
 - ▶ Analyze specific product prices: Find small border effects
 - ▶ Intuition: Price indices “average out” a lot of price dispersion

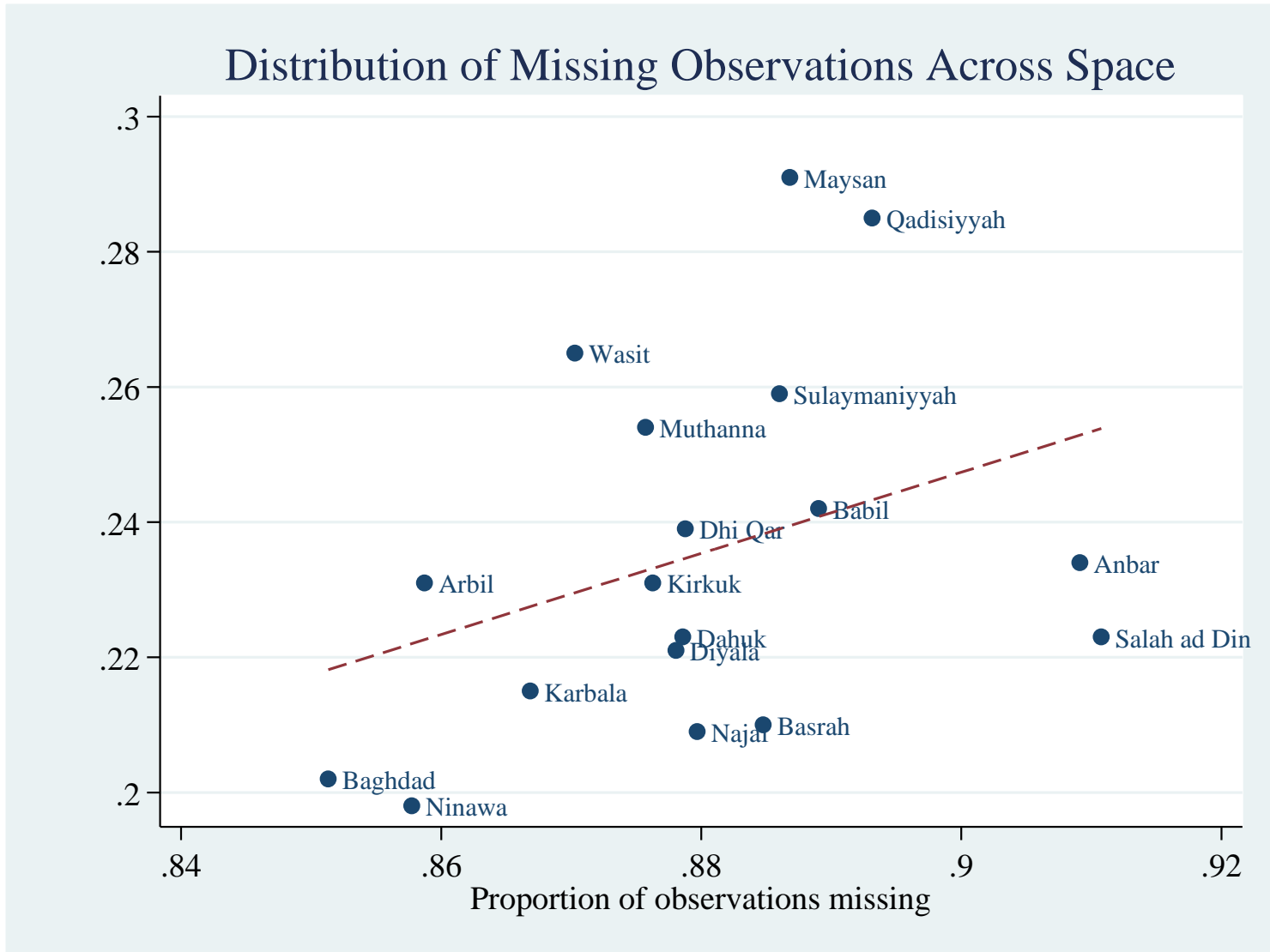
An incredible dataset: **But problems remain**

- ❑ Prices of 255 very specific products
- ❑ In 18 governates
 - ▶ Yielding $18*19/2=171$ governate pairs
 - ▶ Across 3 quasi-countries
- ❑ Across 145 weeks (June 2005-May 2008)

Missing observations

- ❑ Should yield: $171*145*255 = 6,322,725$ observations
- ❑ Dataset contains: 681,465 *relative price_t* observations
 - ▶ 89% of relative-price observations are missing!
 - ▶ “On average, each product has approximately a little more than one year of data and is compared across 1/3 of the governates.”
- ❑ **Related to violence? Are prices allocative?**

Missing observations



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What is identified?



Table 9: Gravity Model for Price Dispersion: 2005:1 - 2008:5 Full Country Sample

	1	2	3	4	5	6	7	8
	Basic	Borders	Indiv Borders	Indiv Borders	G.F.E.	T.F.E.	D.F.E.	D.T.F.E.
SURGE	-0.021*** [0.001]	-0.020*** [0.001]	-0.021*** [0.001]	-0.023*** [0.001]	-0.020*** [0.001]	-0.072*** [0.019]	-0.022*** [0.002]	-0.111*** [0.020]
POSTSURGE	-0.005*** [0.001]	-0.007*** [0.001]	-0.007*** [0.001]	-0.013*** [0.001]	-0.008*** [0.001]	-0.026 [0.019]	-0.029*** [0.003]	-0.085*** [0.020]
LN(DISTANCE)		0.020*** [0.001]	0.021*** [0.001]	0.021*** [0.001]	0.039*** [0.001]	0.020*** [0.001]		
BORDER		0.007*** [0.001]						
ETHNOFRAC		0.074*** [0.002]						
SHIA			0.009*** [0.001]	-0.007*** [0.001]	-0.016*** [0.002]	-0.009*** [0.001]		
SUNNI			-0.028*** [0.001]	-0.014*** [0.001]	0.010*** [0.002]	-0.016*** [0.001]		
KURDISH			-0.035*** [0.001]	-0.031*** [0.002]	-0.009*** [0.002]	-0.028*** [0.002]		
SURGE*SHIA				0.033*** [0.002]	0.036*** [0.002]	0.034*** [0.002]	0.032*** [0.005]	0.033*** [0.005]
SURGE*SUNNI				-0.031*** [0.002]	-0.036*** [0.002]	-0.028*** [0.002]	-0.031*** [0.006]	-0.029*** [0.006]
SURGE*KURDISH				-0.013*** [0.003]	-0.014*** [0.003]	-0.017*** [0.003]	-0.021** [0.009]	-0.024** [0.009]
POST*SHIA				0.033*** [0.002]	0.031*** [0.002]	0.034*** [0.002]	0.024*** [0.006]	0.025*** [0.006]
POST*SUNNI				-0.001 [0.003]	0.002 [0.003]	0.002 [0.003]	0.003 [0.007]	0.004 [0.007]
POST*KURDISH				-0.009** [0.004]	-0.009** [0.004]	-0.013*** [0.004]	-0.009 [0.011]	-0.011 [0.011]
FATALITES(US)		-0.001*** [0.000]	-0.001*** [0.000]	-0.001*** [0.000]	0.001*** [0.000]	-0.001*** [0.000]	0.001*** [0.000]	0.001** [0.000]
FATALITES(ISF)		-0.001*** [0.000]	-0.001*** [0.000]	-0.001*** [0.000]	0 [0.000]	-0.001*** [0.000]	0 [0.000]	0 [0.000]
IMPORTS		0.008*** [0.001]	0.008*** [0.001]	0.008*** [0.001]	0.010*** [0.001]	0.008*** [0.001]		
MIDEAST IMPORTS		-0.040*** [0.001]	-0.040*** [0.001]	-0.040*** [0.001]	-0.037*** [0.001]	-0.039*** [0.001]		
OBSERVATIONS	681465	681465	681465	681465	681465	681465	681465	681465

“Column 8 shows that once we control for all these factors, average price dispersion falls by 11 percentage points during the surge and 8.5 percentage points afterward.”

Results by Product: Same Problem

Table 10B: Gravity Model for Price Dispersion by Product: 2005:1-2008:5 Full Country Sample

	1	2	3	4	5	6	7	8	9	10
	all	Fuel	Lentils	Maize	Milk	Mutton	Rice	Sugar	Tomato Paste	Wheat
SURGE	-0.111*** [0.020]	-0.357*** [0.033]	0.198*** [0.062]	-0.356*** [0.132]	-0.036 [0.059]	0.042** [0.019]	0.021 [0.019]	-0.045 [0.056]	-0.496*** [0.163]	-0.220** [0.094]
POSTSURGE	-0.085*** [0.020]	-0.139*** [0.054]	0.147** [0.064]	-0.442*** [0.132]	-0.017 [0.060]	0.024 [0.018]	0.035* [0.018]	-0.089 [0.055]	-0.451*** [0.163]	-0.205** [0.094]
SURGE*SHIA	0.033*** [0.005]	0.016 [0.026]	-0.022 [0.030]	0.080** [0.031]	0.085** [0.042]	0.008 [0.012]	0.056*** [0.018]	-0.018 [0.015]	0.016 [0.017]	0.023 [0.019]
SURGE*SUNNI	-0.029*** [0.006]	0.163*** [0.023]	-0.061*** [0.019]	0.029*** [0.006]	0.033 [0.011]	-0.034*** [0.013]	-0.084*** [0.021]	-0.007 [0.020]	-0.041*** [0.013]	-0.023 [0.016]
SURGE*KURDISH	-0.024** [0.009]	0.146*** [0.012]	0.219*** [0.008]	-0.033 [0.008]	0.002 [0.008]	-0.018 [0.011]	-0.098*** [0.012]	-0.009 [0.008]	-0.063 [0.008]	-0.050** [0.008]
OBSERVATIONS	681465	35747	24839	13221	34786	15176	89006	29764	45771	42120
R-Squared	0.01	0.09	0.05	0.09	0.04	0.06	0.06	0.19	0.06	0.07

“For the most part, the results shown in Table 9 are seen in Tables 10A-10B. There are some notable results. In column 2, we consider the impact of FUEL which is a non-tradeable and may be therefore sensitive to enhanced security measures. In this case, we notice that the degree of price dispersion falls by a remarkable 35 percentage points during the surge and sees a persistent decline of 13 percentage points afterward. However, other products also see remarkable declines that have little to do with transportation costs (such as Maize, Tomato Paste, and Fish).”

Notes: clustered standard errors by good governorate dyad are presented in parentheses. ***, ** and * represent statistical significance at the .01, .05 and .10 levels, respectively. Each column is the basic gravity model estimated over full country sample 2005-2008:5. Columns 1-10 were estimated using OLS and include dyad good governorate and time fixed effects (D.T.F.E.) though not reported. Included in the regression are: log physical distance LN(DISTANCE), log physical area (area), dummy variable for language (Comlang), dummy variable for border (BORDER), dummy variable for quasi-countries (KURDISH, SHIA, SUNNI), dummy variable if goods are imported (IMPORTS) or imported from Middle Eastern countries (MIDEAST IMPORTS), the number of US fatalities in governorate year (FATALITIES(US)) and the number of ISF fatalities in governorate year (FATALITIES(ISF)). SURGE refers to the time period 2007:3 to 2007:11 and POSTSURGE refers to the time period 2007:12 to 2008:5. Quasi-countries were denoted by the major ethno/religious group in each governorate. Kurdish includes: Arbil, Dahuk, Kirkuk, and Sulaymayyah. Shia includes: Basrah, Dhi Qar, Karbala, Maysan, Muthana, Najaf, Qadisiyyah, and Wasit. Sunni includes: Anbar, Babil, Baghdad, Diyala, Ninawa, and Salah ad Din. SURGE*Country and POST*Country are dummy variables interacted between Quasi-Country and SURGE, POSTSURGE.

Results by Region: Same Problem

Table 11A: Gravity Model for Price Dispersion by Governorate: 2005:1-2008:5 Full Country Sample

	1	2	3	4	5	6	7	8	9	10
	all	Anbar	Arbil	Babil	Baghdad	Basrah	Dahuk	Dhi Qar	Diyala	Karbala
SURGE	-0.111*** [0.020]	-0.086*** [0.018]	-0.063** [0.031]	-0.011 [0.012]	-0.025* [0.015]	-0.044*** [0.012]	-0.073** [0.035]	-0.043 [0.033]	-0.092*** [0.011]	0.025** [0.011]
POSTSURGE	-0.085*** [0.020]	0.024 [0.020]	-0.081*** [0.031]	-0.018 [0.014]	-0.016 [0.019]	-0.018 [0.016]	-0.096*** [0.035]	-0.048 [0.032]	-0.096*** [0.014]	0.016 [0.011]
SURGE*SHIA	0.033*** [0.005]					0.056*** [0.009]		0.046*** [0.011]		0.031*** [0.010]
SURGE*SUNNI	-0.029*** [0.006]	-0.001 [0.015]		-0.027** [0.012]	-0.021** [0.009]				0.004 [0.011]	
SURGE*KURDISH	-0.024** [0.009]		-0.028** [0.012]				-0.035*** [0.013]			
POST*SHIA	0.025*** [0.006]					0.052*** [0.011]		0.038*** [0.013]	0 [0.000]	0.027** [0.012]
POST*SUNNI	0.004 [0.007]	0.024 [0.018]		-0.014 [0.015]	0.001 [0.011]			0 [0.000]	0.027* [0.014]	
POST*KURDISH	-0.011 [0.011]		0.001 [0.014]				-0.006 [0.014]			
FATALITES(US)	0.000** [0.000]	0 [0.001]	0 [0.001]	0.001 [0.001]	0.001 [0.001]	0.001** [0.001]	0 [0.001]	0.001 [0.001]	0.001** [0.001]	0.001 [0.001]
FATALITES(ISF)	0 [0.000]	0 [0.000]	0.000** [0.000]	-0.001*** [0.000]	0 [0.000]	0 [0.000]	0.000*** [0.000]	0 [0.000]	0 [0.000]	0 [0.000]
OBSERVATIONS	681465	57124	88802	69752	93459	72433	76323	76193	76649	83688
R-Squared	0.01	0.05	0.01	0.03	0.02	0.03	0.01	0.02	0.07	0.01

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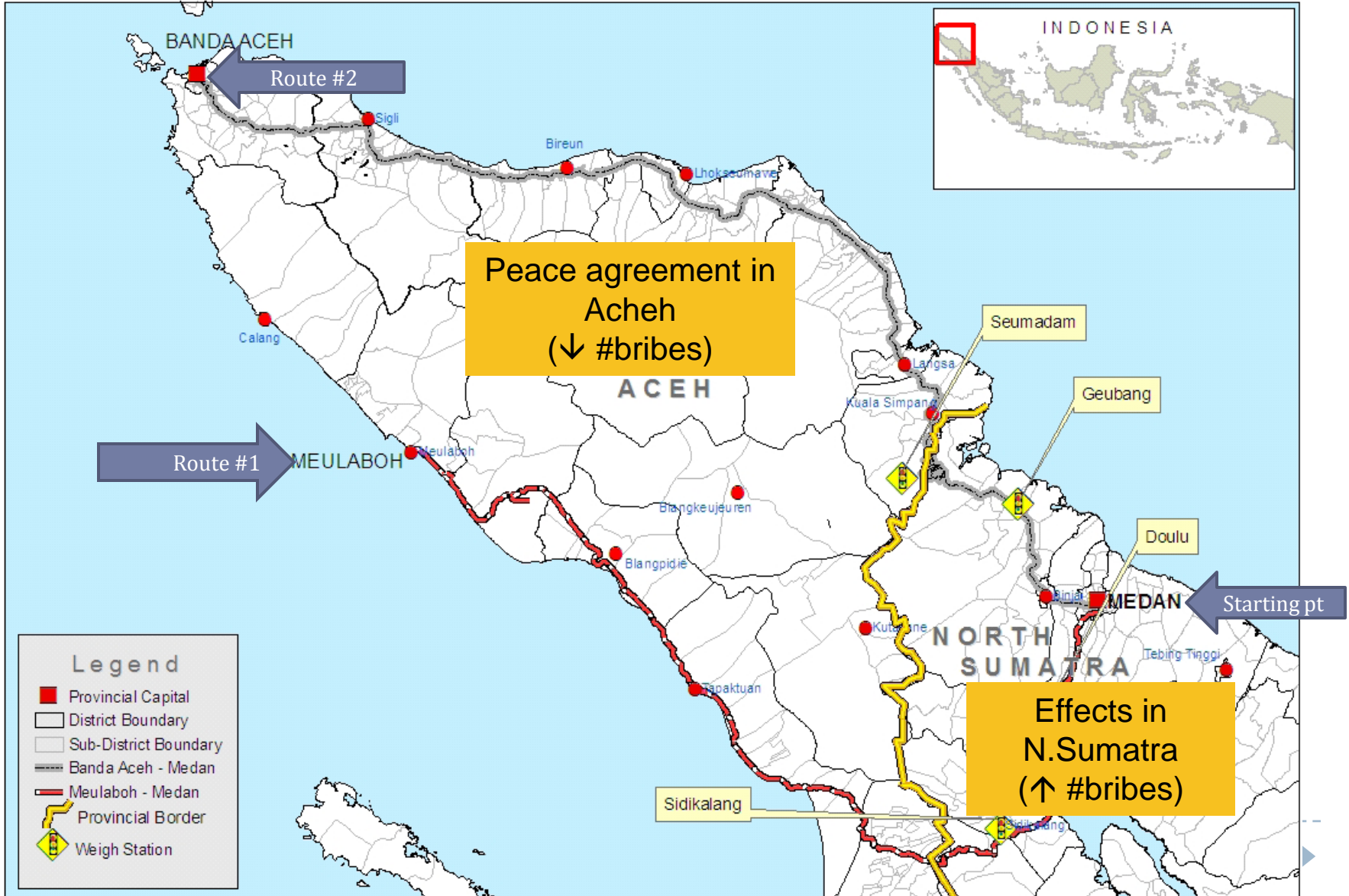
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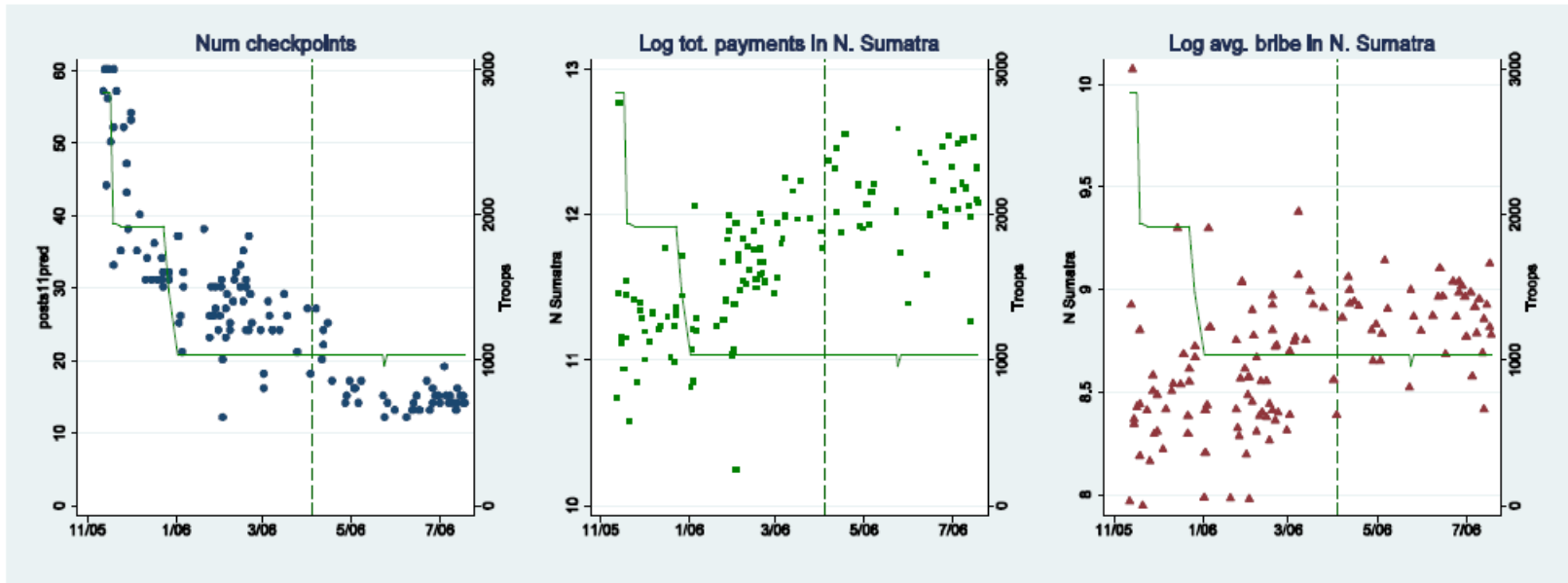
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Industrial Organization of Extraction



Impact of Military Withdrawal in Aceh on Bribes in North Sumatra



Green line = #troops in Aceh: Declining due to peace agreement

Source: Patrick Barron and Ben Olken, “The Simple Economics of Extortion: Evidence from Trucking in Aceh”



