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

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CEPR, CESifo, IZA and NBER

What this paper does

- For each good, $g$, and each pair of governates, $i,j$: Analyze $|\log p_{ig}^t - \log p_{jg}^t|$ 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: $I(\text{governate} = i \text{ or governate} = j)$

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

- Blomberg 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:
     - “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 ≈ 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

Price Dispersion = 0.237 - 0.015*Surge - 0.001*Post

\( R^2 = 0.14 \)
Findings by Region

Figure 3: Price Dispersion Within Quasi Countries Over Time

Justin Wolfers, Comments on “Lines in the Sand”
Outline

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Width of the Border, Redux

\[ |\log p_{i,g,t} - \log p_{j,g,t}| = \alpha \ast \text{Governate fixed effects} + \beta \ast \ln(\text{Distance between } i \text{ and } j, \text{ measured in miles}) + \gamma \ast \text{Border: } I(\text{quasi-country}^i = \text{quasi-country}^j) \]

“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?

- \(\beta = \) 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 $18 \times \frac{19}{2} = 171$ 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
  - Yielding 18*19/2=171 governate pairs
  - Across 3 quasi-countries
- Across 145 weeks (June 2005-May 2008)

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?

Justin Wolfers, *Comments on Lines in the Sand*
Missing observations

Distribution of Missing Observations Across Space

Proportion of observations missing

Average Price Dispersion

Proportion of observations missing

Distribution of Missing Observations Across Space

Justin Wolfers, Comments on Marriage and Divorce
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“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

<table>
<thead>
<tr>
<th></th>
<th>1 all</th>
<th>2 Fuel</th>
<th>3 Lentils</th>
<th>4 Maize</th>
<th>5 Milk</th>
<th>6 Mutton</th>
<th>7 Rice</th>
<th>8 Sugar</th>
<th>9 Tomato Paste</th>
<th>10 Wheat</th>
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<td>-0.111***</td>
<td>-0.357***</td>
<td>0.198***</td>
<td>-0.356***</td>
<td>-0.036</td>
<td>0.042**</td>
<td>0.021</td>
<td>-0.045</td>
<td>-0.496***</td>
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<td>[0.019]</td>
<td>[0.019]</td>
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<tr>
<td>POSTSURGE</td>
<td>-0.085***</td>
<td>-0.139***</td>
<td>0.147**</td>
<td>-0.449***</td>
<td>-0.017</td>
<td>0.024</td>
<td>0.035*</td>
<td>-0.089</td>
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<td>[0.029]</td>
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<td>[0.064]</td>
<td>[0.132]</td>
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<td>[0.018]</td>
<td>[0.055]</td>
<td>[0.163]</td>
<td>[0.094]</td>
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</tbody>
</table>

SURGE*SHIA 0.033*** 0.016  -0.022  0.080** 0.085**  0.008  0.056***  -0.018  0.016  0.023
|       | [0.005] | [0.026] | [0.030]   | [0.031]  | [0.042] | [0.012]  | [0.018] | [0.015] | [0.017]     | [0.019]  |

SURGE*SUNNI -0.029*** 0.163***  -0.061***  0.068  -0.033  -0.034*** -0.084*** -0.007 -0.041*** -0.023
|       | [0.006] | [0.023] | [0.019]   | [0.01]   | [0.013] | [0.021]  | [0.020] | [0.013] | [0.016]     | [0.016]  |

SURGE*KURDISH -0.024** 0.146*** 0.219***  -0.033  0.092 -0.018  -0.098*** -0.009 -0.063 -0.050**
|       | [0.008] | [0.016] | [0.002]   | [0.003]  | [0.005] | [0.005]  | [0.005] | [0.005] | [0.005]     | [0.005]  |

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

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 in 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 Sulaymasyarakat. Shia includes: Basra, 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.

“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).”

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Industrial Organization of Extraction

Route #1

Route #2

Peace agreement in Acheh (↓ #bribes)

Effects in N.Sumatra (↑ #bribes)
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”