Comments on Crucini and Smith, "How Wide was the Ocean?"

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The Set-Up

Paper assesses the performance of intra- and inter-national commodity markets in Sweden and the United States from 1732 to 1860.

Goal: answer the titular question; that is, estimate the distance-equivalent of the Atlantic Ocean a la Engel and Rogers (1996).

Also provide insight into present-day border effects as the product of “a more rapid retreat of natural and official barriers to trade within countries than across them over long historical periods.”

Context

1.) long-standing literature in open economy macroeconomics on documenting violations of the LOP.

Dates from at least Isard (1977); at the heart of it, attempts to resolve issues related to PPP, RER dynamics, and ultimately, welfare (?).

2.) an even longer standing literature in economic history on documenting the process of market integration.

Dates from at least Achilles (1959); at the heart of it, attempts to trace the role of markets in economic growth.

Results

1.) they “find substantially more geographic price dispersion attributable to time series variation around the long-run average LOP deviations than in the variance of long-run average LOP deviations themselves.”

That time-series variation dominates cross-sectional variation is probably not surprising (and perhaps reassuring), given the span of 130 years considered.

1732-1860: fairly spectacular changes in commercial policy, diplomatic environment, and transport technology which did not symmetrically affect market integration.

2.) they “find commodity markets are segmented by geography [distance], but not necessarily more so across countries relative to across locations within countries.”

On this basis, they argue that the Border/Ocean was not that much of a barrier.

A result which “is not puzzling if you think overland and ocean transport of the same distance involve the same trade costs” but which, unfortunately, is:

a.) not corroborated by historical evidence (partially).

b.) generated from a lack of identification (partially).

The Data

Price data drawn from Cole (1938) and Jörberg (1972) to form a panel on cross-city/county prices for 14 goods.

A few issues to consider:

1.) The mixing of monthly spot versus annual prices.

Typically, the fear is that improvement in record keeping will lead to better measures of annual prices over time, that is, a diminishment in time aggregation bias.

However, Swedish prices offer a way out.

2.) The same kind of argument could be made for differences in quality which are sizeable but diminish with standardization; estimates of bias as large as 30%.

Not much to be done—just alert readers.

3.) The sources of the underlying data should be scrutinized a little more: Swedish prices “were agreed upon and recorded at an annual meeting in each county.”

Prices by committees inspires little confidence; possible to move beyond Jörberg’s assessment and provide evidence of correspondence with market prices?

4.) Lack of information on the structure of markets, intra- and inter-nationally; in particular, what is the evidence of trade within and between Sweden and the US.

For instance, for the period from 1790 to 1860, on average only 0.9% of US trade took place with Sweden (0.2% if we exclude the years from 1809 to 1814).

Composition of US trade also needs to be considered:

a.) in 1720, 0.01% of US exports to England correspond to commodities considered; 6% for imports.
b.) in 1880, 24% of US exports to England correspond to commodities considered; 36% for imports.

The Methods

1.) Cross-sectional versus time-series variation

$$q_{ijk,t} = \log(P_{i,j,t}) - \log(P_{i,k,t})$$

$$Var_{jk,t}(q_{ijk,t} \mid i) = Var_{jk}(E_t[q_{ijk,t} \mid ijk]) + E_{jk}[Var_t(q_{ijk,t} \mid ijk)]$$

$$V_i = T_i + F_i \, .$$

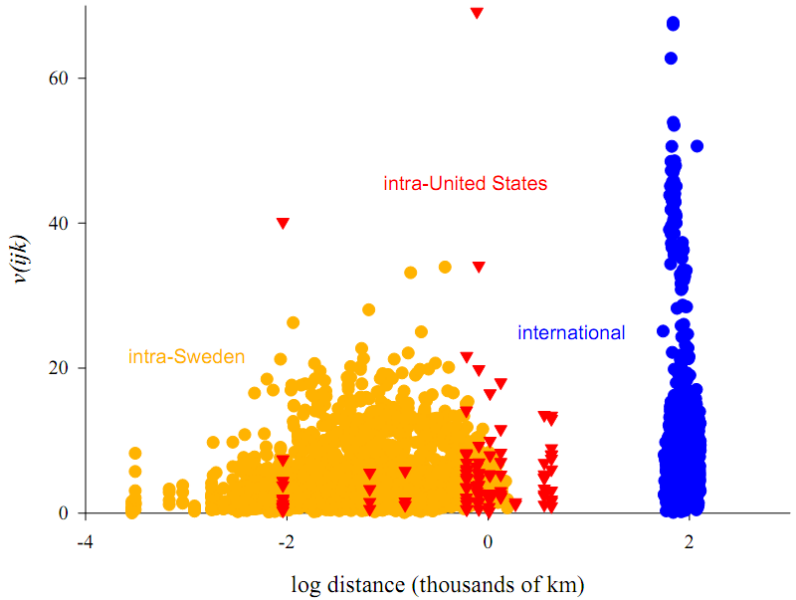
Again, they find more action in F than T; is naturally a product of common shocks (but with differential effects) over time?

Curious whether sub-periods could help endogenously identify breaks.

2.) Border regressions

$$Var_t(q_{ijk,t}) = v_{ijk} = \sum_{t=1}^{T} \frac{1}{T-1}(q_{ijkt} - q_{ijk})^2$$

$$v_{ijk} = \alpha_i + \beta_d \ln(\text{distance})_{jk} + \beta_o do_{jk} + \epsilon_{ijk}$$



Thus, the border/ocean is highly correlated with distance.

Enough about you, let's talk about me…

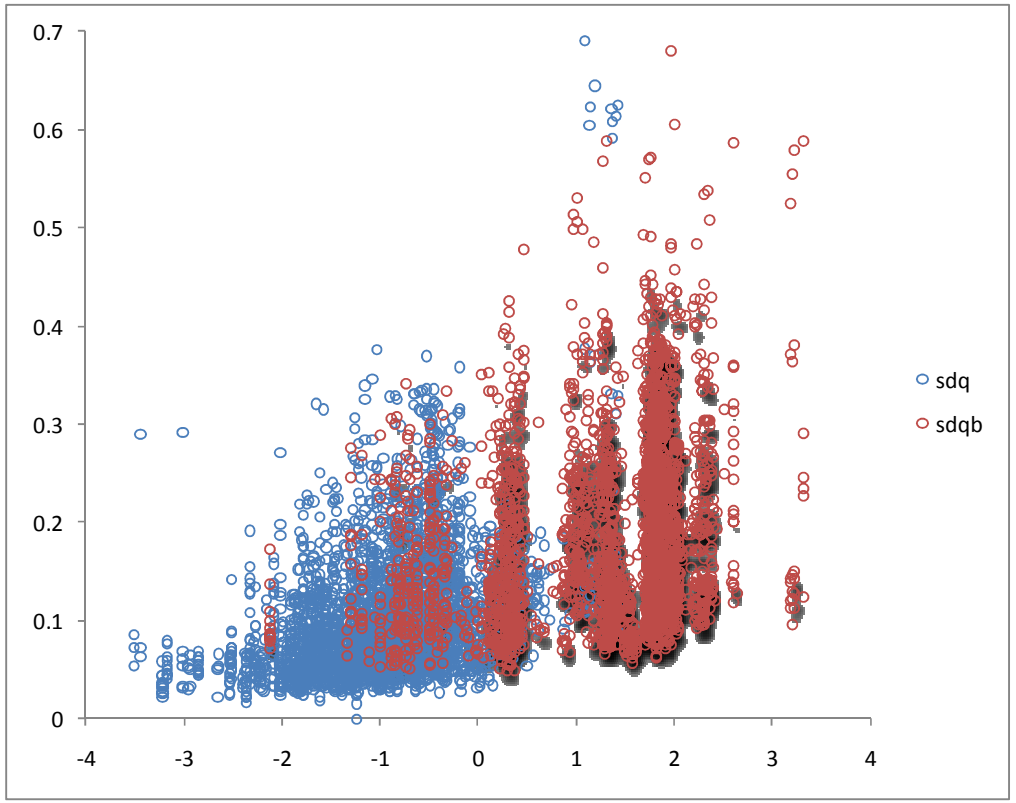
In Jacks (2009), I investigate time-dependent border and distance effects in the nineteenth century and document clear declines in these variables over time.

Sample is similar: 104 cities in 10 "Atlantic" countries.

Timing is similar: 1800-1913, but on a decadal basis.

Dependent variable is similar:

$$V_{jkT}^{wheat} = St.Dev.\left[ln\left(\frac{P_{jt}^{wheat}}{P_{kt}^{wheat}}\right)\right]$$



There, I find average border effects of about 7,700 km.; I am also able to distinguish between overland and maritime distances (with latter about ½ of former).

Are there any implications for C&S?

I ran a border regression only for Norway and the US…

Linear regression

Number of obs	309
F(2, 306)	31.01
Prob > F	0.0000
R-squared	0.2150
Root MSE	.09515

sdq	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
ldist	.0525503	.0090241	5.82	0.000	.034793	.0703075
border	-.0672004	.0287487	-2.34	0.020	-.1237706	-.0106302
_cons	-.220779	.0553252	-3.99	0.000	-.329645	-.1119131

In this instance, the border/ocean is estimated to be 278 km.

However, due to data constraints, the sample only really begins in 1830…is something happening earlier on?

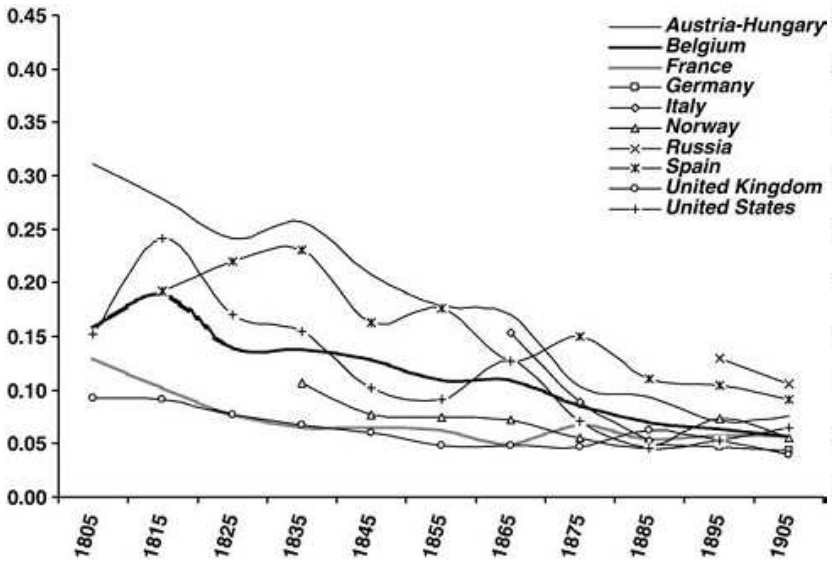


Fig. 1. Relative price volatility (domestic city-pairs).

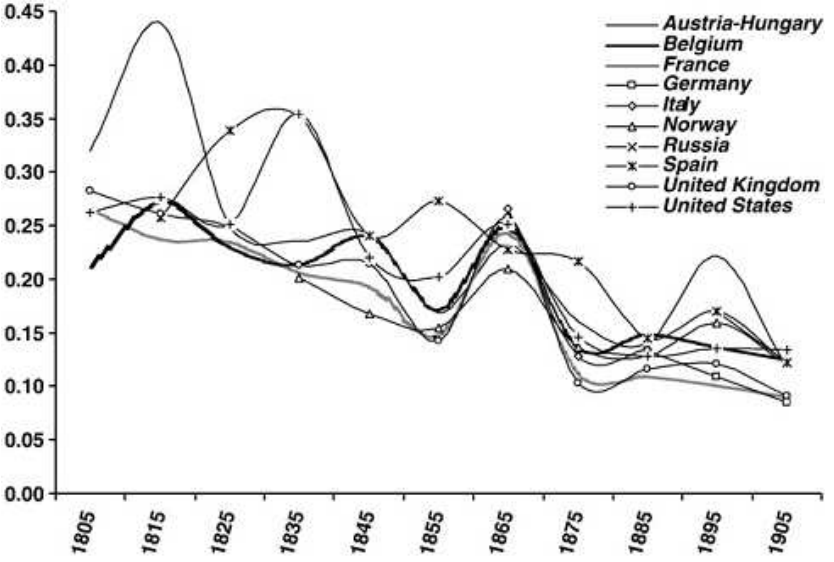


Fig. 2. Relative price volatility (international city-pairs).

Previously, it was assumed that the eighteenth century saw a permanently high plateau for these figures.

However, some have suggested an inverted-U for Fig. 2.

Ways forward?

Exploit the geography of Sweden and US: coastal trade in both countries; this could resolve some of the reversals documented in Table 2.

Exploit the price histories of other countries: limits the commodity range, but alleviates the collinearity problem.

Exploit the trade records: “traded-ness” should matter.

Exploit diplomatic and political shocks: most obvious candidate, the French Wars; but Farley (2010) also points towards a role for the US Constitution.