

Domino Secessions: Evidence from the U.S

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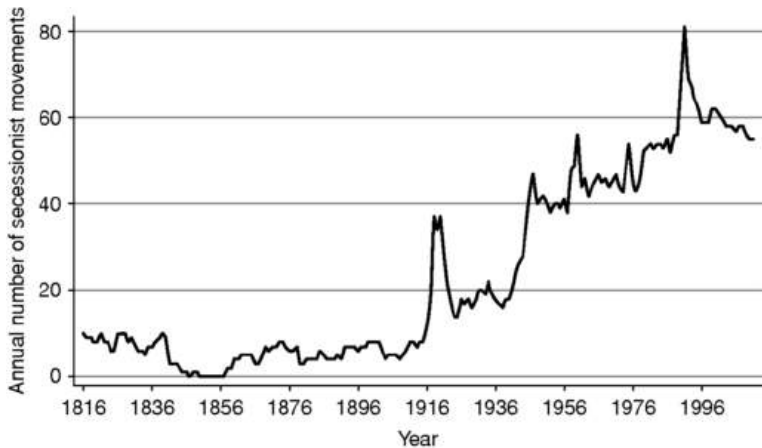
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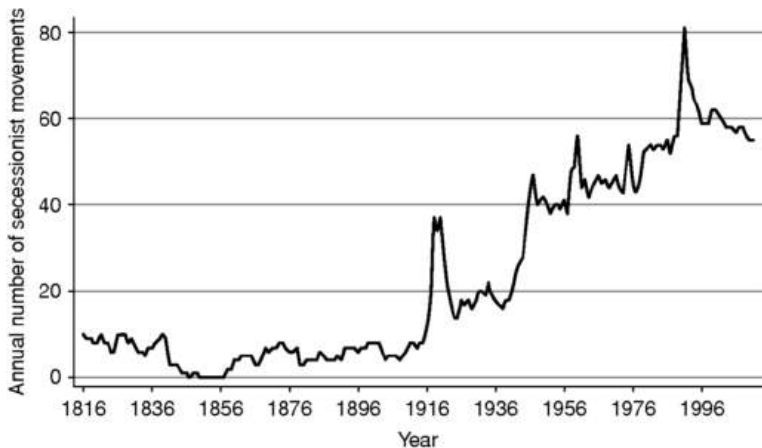
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Today: Between 60 and 100 movements depending on the definition.

Secessions in History and Today

Secessions in History



(a) Uruguay (1825)



(b) Bangladesh (1971)



(c) South Sudan (2011)

Recent movements: Catalonia, Scotland, Kurdistan, Somaliland

What propels secession?

Long-term determinants vs a process in time

↗ Secession: Heterogeneity between regions (Alesina & Spolaore, 1997)

- Cultural Differences (Desmet et al., 2011; Desmet et al., 2022)
Cost of losing political control (Bolton & Roland, 1997)
- Resources booms / Resources (Gehring & Schneider, 2020; Hierro & Queralt, 2021).

↘ Secession

- Economies of scale (Alesina & Spolaore, 1997)
- Trade between regions (Friedman, 1977) vs. Trade with other countries (Alesina et al., 2000)

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- Economies of scale (Alesina & Spolaore, 1997)
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BUT secessions are dynamic: bargaining (Esteban et al., 2022) and secessions' contagion (Walter, 2021).

The **previous empirical literature compresses time** :

- Look at the results of secession ex post (once equilibrium is settled)
- Look at preferences for secession ex ante (before anybody secedes)

They do not observe how the game is played : **uncertainty during** secessions

For this paper – Secessions in real time

Theoretical Framework – Sequential model of secession

- **Uncertainty** → Information updating on preferences and costs.
- **Economies of scale**



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Empirics – US secessions and market data on **state bonds** :

- Sovereign bonds used to assess the impact of
 - military news (Waldenstrom, 2003, Jha et al., 2023)
 - state legitimacy (Oosterlinck, 2003)
- Spatially heterogeneous
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Results

- Secessions are dynamic and uncertain :
 - Major events on diverging preferences ↗ risk of potential seceders
 - Secessions as informational shocks
- Economies of scale
 - “Secession risk” ↘ if nb of seceders ↗
 - Federal debt risk ↗ if nb of seceders ↗
 - “Secession risk” ↗ if within-states divergence ↗

Framework

Domino secessions (staggered secessions – secessions beget secessions) may occur iff :

- **Uncertainty** regarding the decision of others to secede.
 - Then the secession of a region is an informational shock.

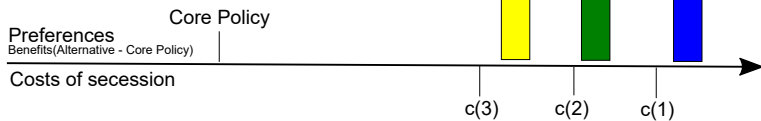
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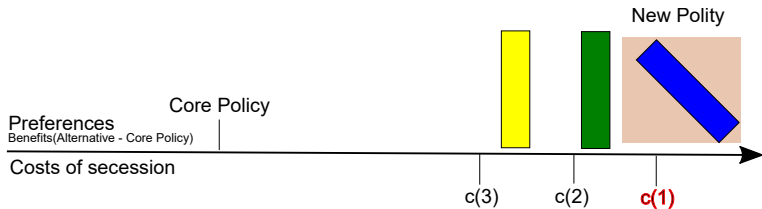
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 - Then the secession of a region is an informational shock.

- (Expected) **decreasing costs** of secession.
 - Decreasing economies of scale in the core.
 - Potential economies of scale in a new polity.

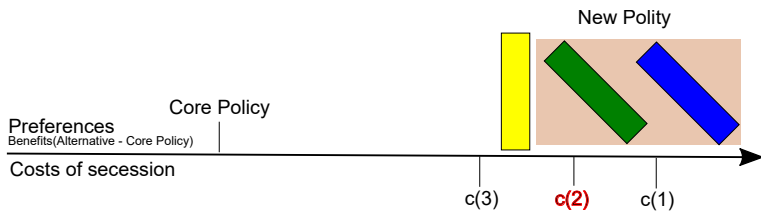
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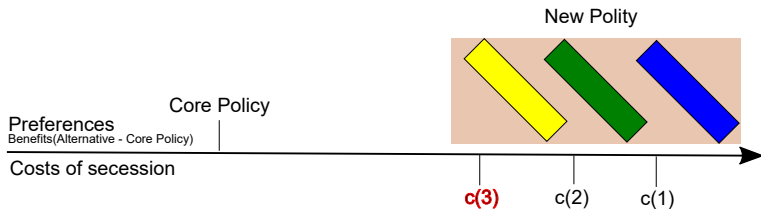
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Other Secessions

Self-determination



To Empirics – Subsovereign bonds as measure

Rational investors take into account **information** on the market and assess the viability of polities. [Test – Details](#)

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Looking at sub-sovereign bond prices, we can determine how they price :

- the probability of secession (uncertainty – $P(\textit{secession})$)
 - Before any secession, $c(n)$ is constant, investors update $P(\textit{secession})$
- the costs of this secession (costs – $c(n)$ with n the number of seceders)
 - After secession, $P(\textit{secession}) = 1$ and investors update $c(n)$

These two elements : “Secession risk” = $P(\textit{secession}) \times c(n)$

History of secessions in the US

Late 1830's : Tensions rose between the South and the North on slavery. Southern States (mainly South-Carolina) often threaten secession.

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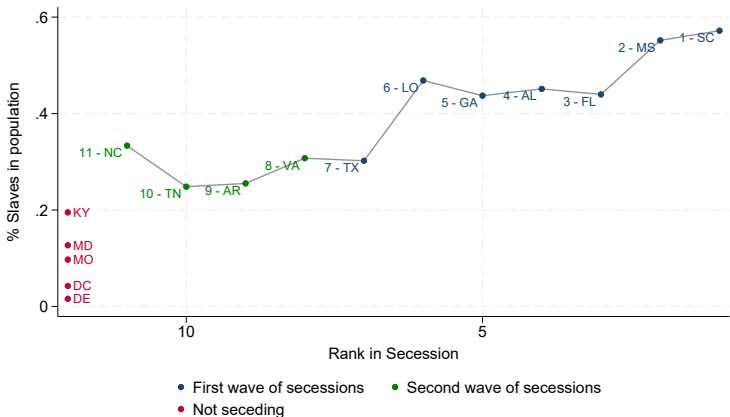
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December, 20, 1860 : South-Carolina seceded.

US Secessions – Slaveholding and rank in Domino



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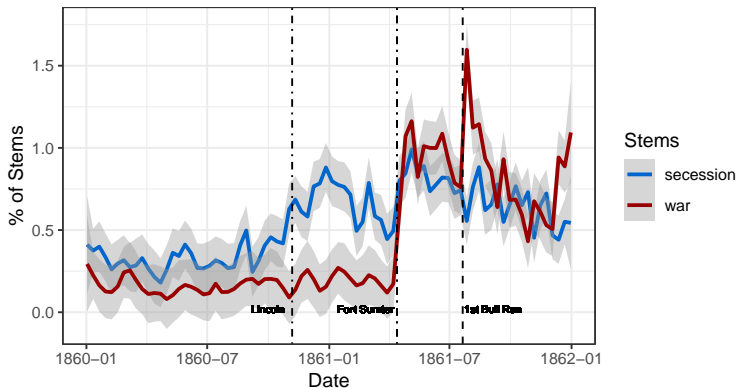
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The process of secession in Louisiana illustrates this uncertainty :

- In October, the governor is against secession.
- Secession gained traction in December.
- After, there is a debate on if, when and how to secede (Dew, 1970).

1. US Secessions – Information – *New York Times*

Figure: News indices (Secession vs War – *New York Times*)



"Slavery" Index

"Destructive Conflict" Index

2. US Secessions – Economies of scale

Four days after its secession, SC published “To the People of the Slave-holding States of the United States”:

“We would have preferred that other States should have assumed the position we now occupy...United together, we must be the most independent as we are the most important of the nations of the world... We ask you to join in forming a Confederacy of Slave-holding States.”

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“the Secessionist sentiment in most parts of the state grew measurable after South Carolina left the Union” (Drew, p.21, 1970 – About Louisiana):

- In Mobile, AL a big parade and 100-gun salute in response to S.C.’s secession ordinance.
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“Cooperationists”: in favor of a collective approach to secession.

Several delegates of secession conventions went to assist to the conventions of other states (e.g South Carolina delegates went to several other states secession conventions).

Archival data from the New York Stock Exchange on the price of 11 sub-sovereign bonds (the universe of state bonds) from 01/01/1857 to 12/31/1861 :

- 4 non-slaveholding states (New York, Michigan, Ohio, Indiana).
- 7 Slaveholding states :
 - 5 seceders (Georgia, Virginia, Louisiana, North-Carolina and Tennessee).
 - 2 Never seceders and neutral in the civil War (Kentucky, Missouri).

From prices, we have built yields to maturity to grasp better the price fluctuations of these several bonds (net of bonds characteristics).

- Higher yields to maturity = Higher risk.

These assets capture the capacity to repay of each state (a part of it is the viability of the secession). History – Intuition on the measure

Specification – Information

We determine if our propositions on the conditions of domino secessions can be found in the data. To do so we estimate the following equation :

$$YTM_{i,t} = \alpha + \beta_1 \text{SecessionNews}_t \times \text{Slaveholding}_i + \beta_2 \text{WarNews} \times \text{Slaveholding}_i \\ + \beta_3 \text{Secession}_{i,t} + \eta_i + \nu_t + \epsilon_{i,t}(1)$$

Where

- β_1 assesses markets' response to heightened secession risk for slaveholding states.
- β_2 assesses markets' response to heightened war risk for slaveholding states.
- β_3 assesses markets' response to an actual secession.

We have two approaches to measure variations in Secession news and War News :

- Event-based: investigate variation around Lincoln election (secession), Ft. Sumter (secession and war) and Bull-Run (war).
- Directly use news indices built from the NYT.

As an alternative, we estimate the discontinuity when a state secedes (from $P(\text{Secession}) < 1$ to $P(\text{Secession}) = 1$).

Specification – Economies of scale

To capture economies of scale, we interact the secession dummy variable with measures of the size of the pool of seceders.

$$YTM_{i,t} = \alpha + \beta_1 Secession_{i,t} + \beta_2 Secession_{i,t} \times Scale_t + \eta_i + \nu_t + \epsilon_{i,t} \quad (2)$$

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How the size of the pool of seceders impact:

- Risk for seceders on markets (if economies of scale : ↘).
- Risk for the federal state (if economies of scale : ↗).

Differences in the size of the pool of seceders may come from :

- Secessions (more seceders).
- Subsecessions (a region seceding from a seceder – example : West-Virginia).

Time evolution of yields

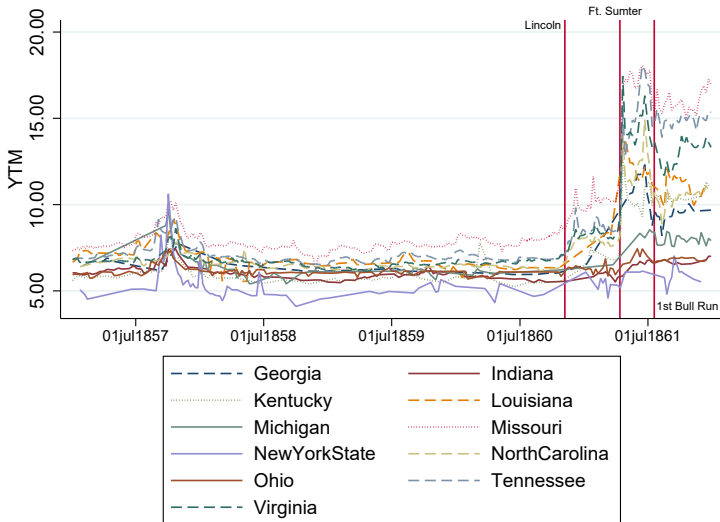


Figure: Yields to Maturity (States)

P1: Secession – Information and Uncertainty

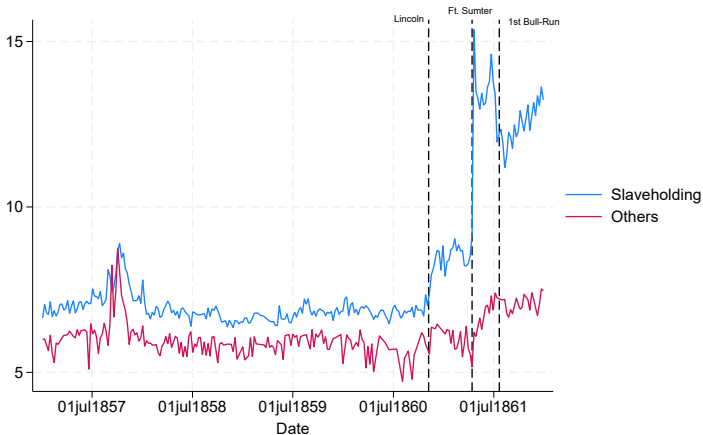
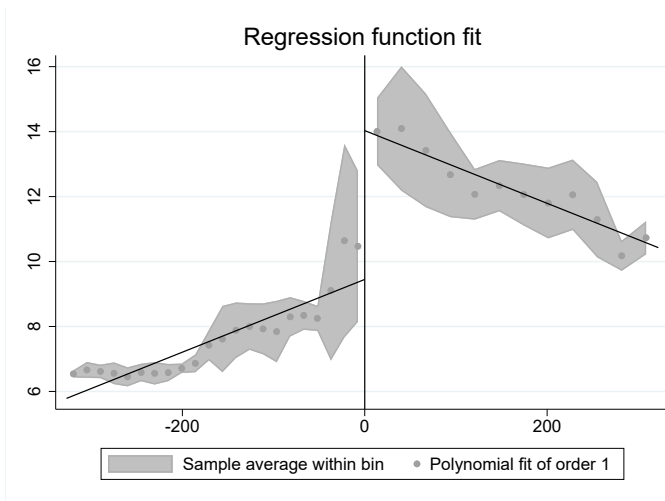


Figure: Yields to Maturity (Slaveholding vs no Slaveholding)

[More Regions](#)[Bonds Decorrelation](#)[Regressions - Results](#)

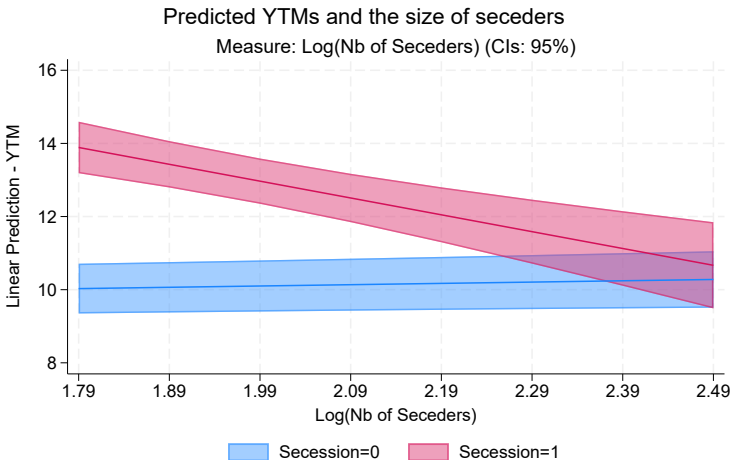
P1: Secessions as Informational shocks

Figure: Yields to maturity around secessions



y-axis: Yields to Maturity / x-axis: Days around secession

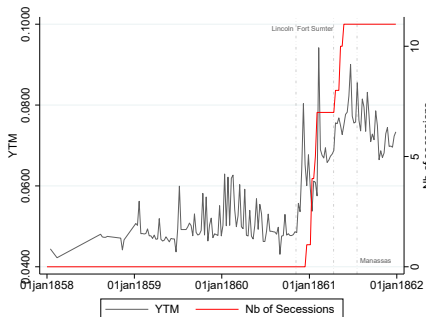
P2: Domino Secessions – Economies of scale (Seceders)



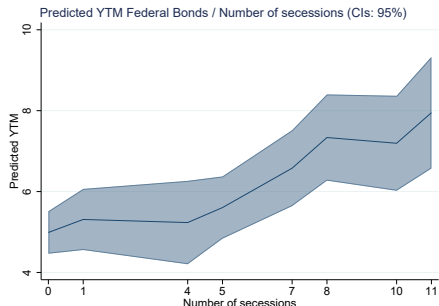
Secession Premium ↘ with Population, Area, Taxes, Rail.
 Secession Premium ↗ with Urban Density. Table

P2: Domino Secessions – Economies of scale (Federal)

Figure: Time evolution of Federal debt



(a) YTM + Nb of secessions



(b) YTM predicted by Nb of secessions

P2: Domino Secessions – Economies of Scale (Federal)

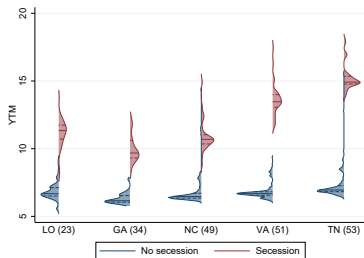
Table: Yields to Maturity of the Federal Debt – Measures of Economies of Scale

	(1.1)	(1.2)	(1.3)	(1.4)	(1.5)	(1.6)
Log(Secession _t)	0.845** (0.396)	0.676 (1.283)	2.276 (4.934)	-1.491 (0.986)	1.770 (3.088)	0.638** (0.259)
Log(Area _t)		-0.0173 (0.746)				
Log(Pop _t)			-1.149 (3.528)			
Log(Tax _t)				1.363** (0.581)		
Log(Rail _t)					-0.920 (2.573)	
Urb Rate _t						14.37 (11.47)
NYT _{War,t}	67.14*** (20.24)	69.29*** (22.49)	72.28*** (25.19)	62.27*** (20.08)	73.17*** (25.92)	70.79*** (20.76)
Observations	52	52	52	52	52	52
R-squared	0.390	0.381	0.382	0.420	0.383	0.406

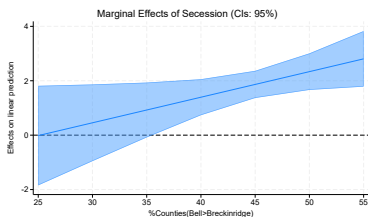
P2: Domino Secessions – Economies of Scale (Within-state)

Secession premium depending on opposition to secession. The measure we propose :

- % of counties in which John Bell (Constitutional Unionist) got more votes than John Breckinridge (Southern Democrat) Robustness – Majority



(a) Secession premium by state % Counties in favor of Bell



(b) Predicted YTM values

Consistent with studies on border states Border States

Consistent with the secession of West-Virginia from Virginia West Virginia Robustness

Ruling out other potential explanations

Slavery?

- Secessions ↗ Yields yet ↗ self-determination on slavery.
- News content on slavery almost does not vary during the study period. "Slavery" Index
- Federal debt is affected by the first secessions but → no effect policies towards slavery at the federal level/war expectations.

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War?

- Secession risk ↗ after Lincoln while war is not mentioned in the NYT.
- War Risk ↗ at the end of the sample when YTM of seceders ↘.
- Our estimators compare Seceders to non-seceders. Hence any differential in yields represent the difference in expected damages of the war – which at that moment were not clear (the first major battle of Bull Run is won by the South).

Conclusions

Domino Secessions”– Add the time dimension to a question usually studied in its spatial dimension.

- Importance of information/time during secessions
- Domino Secessions characterized
 - Uncertainty
 - Decreasing costs
- Heterogeneity and state-devolution (risk)

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Use data on sub-sovereign bonds to assess these characteristics :

- “Secession risk” on markets
- We observe :
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- Markets also consider the stability of the the new polity

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Contributions :

- Secessions are “uncertain” movements (historical processes in time)
- The resolution of this uncertainty determines who secede and when they do so (informational updating and interdependence).
- Dynamics within and between seceders should be considered to assess the probability of a “successful secession” (subsovereign data as a tool to investigate this question)

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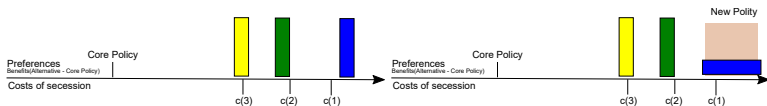
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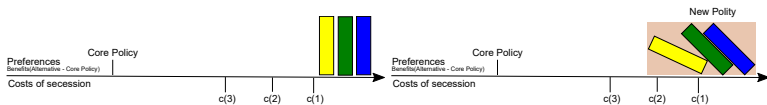
Thank you

Other secessions

Solo Secessions



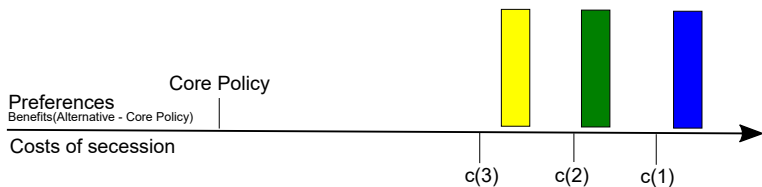
Synchronous Secessions



Back

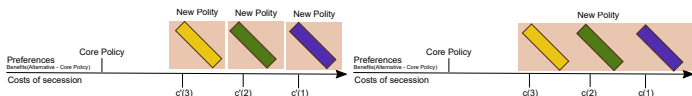
Self-determination of policies

With the possibility to determine its own policy



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With the possibility to determine its own policy



(c) If between seceders
 $\Delta Pref \geq \Delta Cost_{Outside}$

(d) If between seceders
 $\Delta Pref < \Delta Cost_{Outside}$

Back

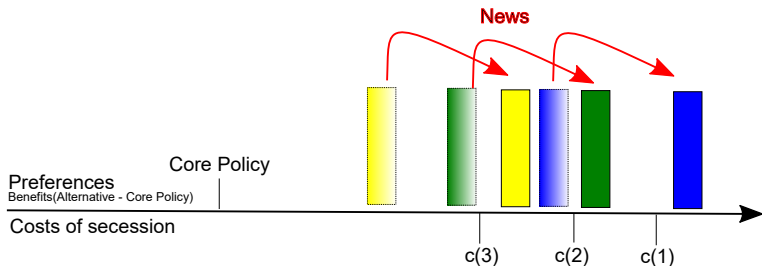
Secession heterogeneity

Type of secession	Motive(s) for secession	Definition	Examples
Solo secessions	Heterogeneity	A single region leaves the pre-existing entity	South Sudan (2011) / Bangladesh (1971)
Synchronous secessions	Heterogeneity	Several regions break-up from the pre-existing entity at the same time	Austro-Hungarian Empire (1920's) / Ottoman Empire (1920's)
Domino secessions	Heterogeneity + Uncertainty	Secessions are endogenous and occur sequentially	USSR (1991) / Yugoslavia (1990's) / USA (1960's)

To Empirics – Proposition 1

P1 : “Secession market” – Expectations regarding preferences

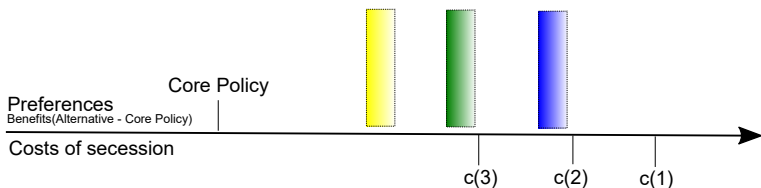
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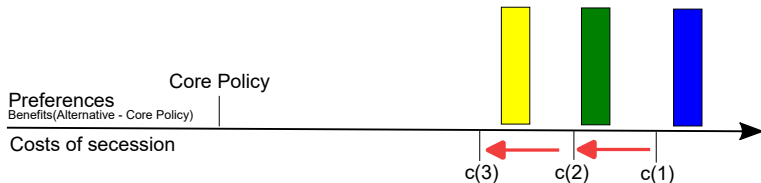
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To Empirics – Proposition 2

P2 : “Domino Secessions” – Expectations regarding costs

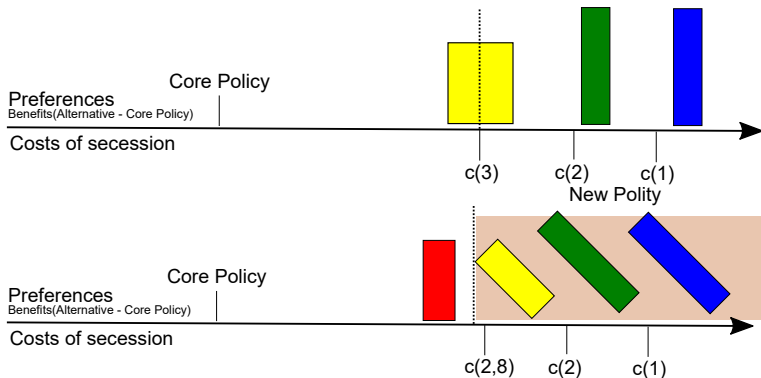
- Does the premium of southern states vary with the number of States seceding ?
- Theory : Once a region has seceded $P(\text{secession}) = 1$, others secessions $\rightarrow c(n)$.

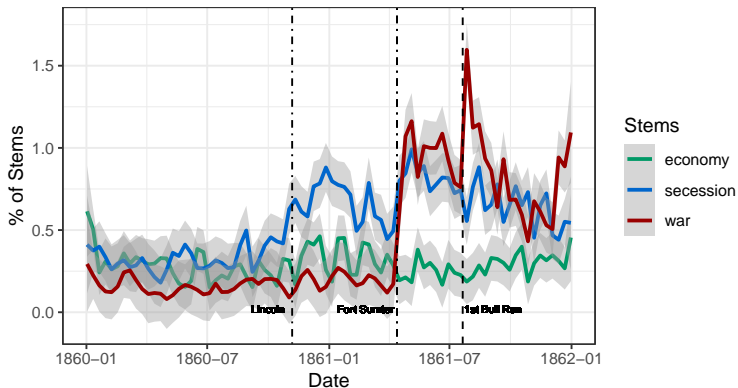


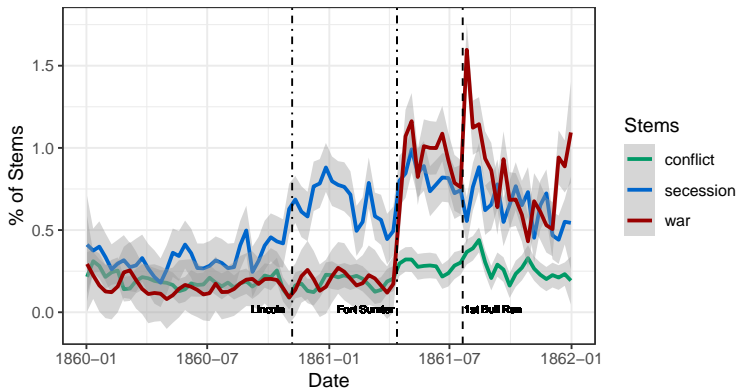
To Empirics – Proposition 3

P3 : “Subsecession risk” – Preferences heterogeneity and further costs

- Within-state heterogeneity
- Theory : Once a region has seceded $P(\text{secession}) = 1$, the risk of subsecession $\rightarrow c(n)$.



Information – *New York Times***Figure:** News indices (Secession vs War vs Slavery – *New York Times*)

Information – *New York Times***Figure:** News indices (Secession vs War vs Destruction – *New York Times*)

History – Intuition on the measure

“The stock exchange goes more feverish with the angry political discussions from the South”

New York Times, “*Monetary Affairs*”, November 10, 1860.

“News from South Carolina affects the prices of Georgia bonds”

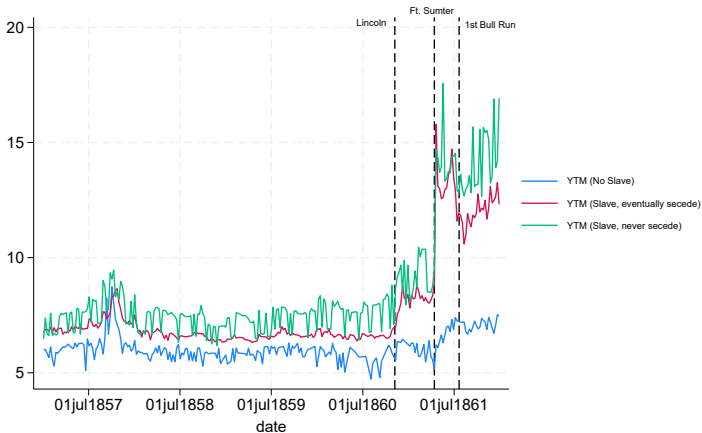
New York Times, “*Monetary Affairs*”, November 9, 1860. (Right after SC calls its secession convention)

“The stock exchange was already experiencing “political anxiety” and the “Southern Border State bonds” were “as active and as subject to ups and downs as the railway fancies.”

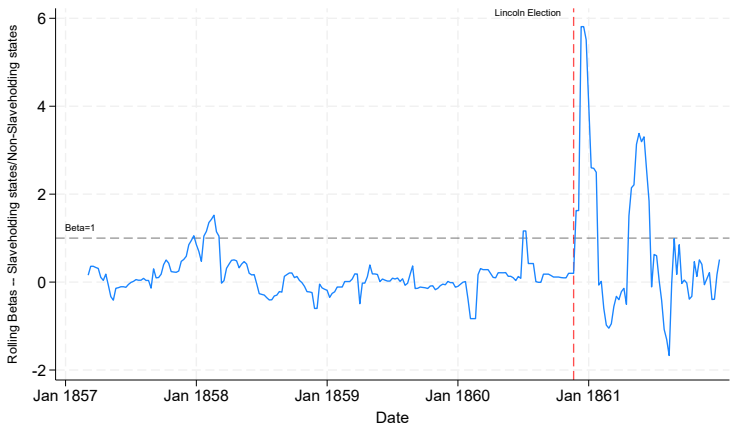
New York Times, “*Monetary Affairs*,” April 11, 1861

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P1: Secession – Information and Uncertainty



P1: Secession – Information and Uncertainty



Estimation of $YTM_{Slaveholding} = \alpha + \beta MeanYTM_{Non-Slaveholding} + \epsilon_t$ on 10 weeks rolling windows. [Back](#)

P1: Secession – Information and Uncertainty

Table: Pricing in the Risk of Secession: Divergence in Slaveholding states’ YTM

	(2.1)	(2.2)	(2.3)	(2.4)	(2.5)	(2.6)	(2.7)
Lincoln _t × Slaveholding _i	1.083*** (0.323)						
Ft Sumter _t × Slaveholding _i		4.227*** (0.441)					
1 st Bull Run _t × Slaveholding _i			-1.047** (0.430)				
Secession _{i,t}				3.743* (1.511)			
NYT _{Secession,t} × Slaveholding _i					320.1*** (74.59)		178.4*** (41.46)
NYT _{War,t} × Slaveholding _i						423.0*** (72.38)	385.7*** (62.25)
Controls							
Post-treatment FE	YES	YES	YES	YES	NO	NO	NO
Slaveholding FE	YES	YES	YES	NO	YES	YES	YES
Time FE	NO	NO	NO	NO	YES	YES	YES
Window	4 weeks	4 weeks	4 weeks	4 weeks	1860-61	1860-61	1860-61
Observations	53	71	96	31	692	607	593
R-squared	0.374	0.694	0.549	0.436	0.867	0.904	0.909

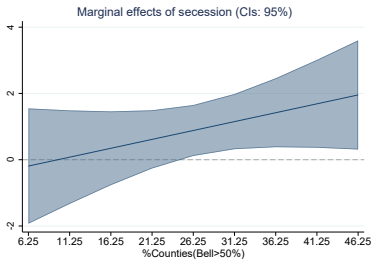
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P2: Domino Secessions – Economies of scale (Seceders)

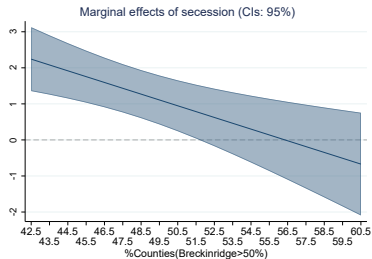
Table: YTM and Coordination: the building of the Confederacy

Interaction	(3.1) NO	(3.2) # States in $Conf_t$	(3.3) Pop $Conf_t$	(3.4) Area $Conf_t$	(3.5) Tax p.c. $Conf_t$	(3.6) Rail $Conf_t$	(3.7) Urb Rate $Conf_t$	(3.8) % Border $Conf_t$
Secession $_{i,t}$	1.518 (1.103)	12.54** (4.359)	60.25** (22.30)	90.88** (36.50)	68.21** (23.62)	37.01** (12.96)	-7.375 (4.691)	2.534* (1.140)
Log(Days secession $_{i,t}$)	-0.330 (0.197)	-0.0389 (0.196)	-0.0533 (0.190)	-0.0402 (0.195)	-0.113 (0.180)	-0.0641 (0.187)	-0.0446 (0.201)	-0.236 (0.207)
Secession $_{i,t}$ × Interaction		-5.118** (2.144)	-3.768** (1.454)	-6.715** (2.766)	-4.276** (1.539)	-4.077** (1.533)	106.7* (53.90)	-2.129 (1.669)
Secession $_{i,t}$ × NYTW ar,t	36.08 (40.65)	56.46 (31.31)	59.62* (30.43)	57.18* (31.10)	61.83* (30.02)	50.41 (34.03)	59.62* (30.43)	39.07 (41.48)
State FE	YES	YES	YES	YES	YES	YES	YES	YES
Weel FE	YES	YES	YES	YES	YES	YES	YES	YES
Nationwide events	YES	YES	YES	YES	YES	YES	YES	YES
Observations	417	417	417	417	417	417	417	417
Number of states	11	11	11	11	11	11	11	11
R-squared	0.954	0.956	0.956	0.956	0.955	0.955	0.956	0.958

P2: Economies of Scale Within-state



(a) Predicted YTM – Counties with a Bell Majority

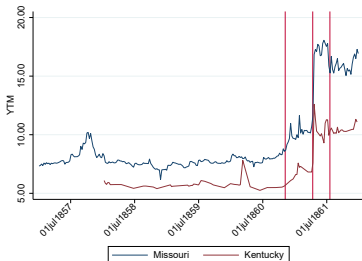


(b) Predicted YTM – Counties with a Breckinridge Majority

P2: Economies of Scale Within-state

Comparison between neutral states: Missouri and Kentucky (secession risk \neq war risk)

- Both were slave states.
- Both declared themselves neutral prior to hostilities.
- Differences between governors' views
 - In Missouri: "Ordinance of secession"
 - Not in Kentucky
- Yields significantly higher in Missouri
- Important movements towards the "secession" of Missouri

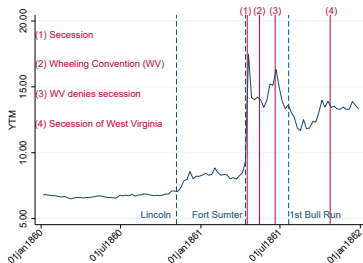


P2: Economies of Scale Within-state – West-Virginia

A case of within-state secession : Creation of West-Virginia

Events leading to the creation of West-Virginia :

- (2) Wheeling Convention (leading unionists in WV meet)
- (3) Representatives of West-Virginia publicly oppose secession
- (4) West-Virginia secedes from Virginia



P2: Economies of Scale Within-state – West-Virginia

Specification :

- Bai-Perron estimates reach the same results (=let the data speak without imposing a structure for the breaks)
- Lagged and differences in YTM as dependent variable
- Different clustering of standard errors (month, state, low n-large t, autocorrelation)

Distinguishing war risk from secession risk (as much as war risk is not a part of the cost of secession)

- The market experiences many price movements before the war outbreak (end March - early April)
- As the war unfolds over time, the risk associated to Southern bonds decreases, at odds with the pricing of a specific war risk for southern states.
- The risk associated with the less risky of the neutral state (Kentucky) is always higher than the most risky Northern Bond (Michigan)