Domino Secessions: Evidence from the U.S.

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July 31, 2024

Abstract

A secession movement is an uncertain process that evolves over time. We develop a simple theoretical framework in which regions use news to update their decisions to secede. Uncertainty and economies of scale are necessary conditions to observe "domino secessions" – sequential interdependent secessions. Empirically, we use geographically-specific assets (state bonds) to assess how uncertainty and economies of scale influenced some slaveholding states' decisions to secede from the U.S. in the 1860s. Uncertainty prevailed over the outcome of the secession movement with financial markets updating their priors on potential seceders at the election of Abraham Lincoln, but also every time a state seceded. We further document that financial markets priced in economies of scale to both state and federal debt.

Keywords: Secession, state debt, interdependence, U.S. Civil War, uncertainty

JEL Codes: H77, N21, G12

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Acknowledgements: This work has been supported as part of France 2030 programme "ANR-11-IDEX-0003". We thank seminar and conference participants at EHESS, the Paris School of Economics, Université Paris Pantheon-Assas (Paris 2), the Cambridge Political Economy Reading Group, the Econometrics Society Australasian Meetings 2023 (UNSW), the 10th CEPR Economic History Symposium, the Financial and History Workshop at the University of Antwerp (2023), the MYPEERS Workshop (2023), the King's College Workshop in Comparative politics and Political Economy (2023), the Virtual Workshop in Historical Political Economy (2023), the EPCS 2023 (Hanover), and the Universite de Picardie Conference on Public Debt (Amiens), the Economic History Seminar at Universidad Carlos III de Madrid (2023), the EP@B Workshop (2023), the LIEN Seminar Universite Paris Nanterre (2024), the NICEP Conference (2024) for helpful comments and suggestions. We also thank Richard Burdekin, David Chilosi, Elias Dinas, Jeffrey Jensen, Tommy Krieger, Gabriel Leon, Cathrin Mohr, Didac Queralt, Stephan Schneider, and Ariane Szafarz for their helpful feedback on earlier versions.

1 Introduction

By their very nature, secession movements are highly uncertain, often unfolding over months or even years. Potential seceding regions use the arrival of information to reassess the prospect of a movement's success and to update their decisions on whether to participate. This reassessment may include news linked to the probability that other regions choose to secede. However, secession is often modeled *ex ante* – before any actual secession has occurred (Gehring and Schneider, 2020; Hierro and Queralt, 2021; Walter, 2021) or *ex post* – once all information has been assessed and coordination on this information has taken place (Alesina and Spolaore, 1997; Suesse, 2019; Desmet et al., 2022). Because these approaches compress time, they fail to capture the uncertainty over the decision on whether a region chooses to secede and how that decision might depend on the decision of other regions to participate.

In this paper, we examine how interdependence and uncertainty influence the size and shape of secession movements. Because there is uncertainty about whether a secession movement will emerge and who will participate, the arrival of information or news about other regions' preferences to secede can change the costs and benefits of secession for all potential seceding regions, making the size (number of regions participating) and shape of the movement (whether they secede alone, all at the same time, or sequentially) endogenous.

Interdependence between seceders may foster secession by raising the viability of the outside option or by strengthening the bargaining position of seceders (Esteban et al., 2022). It could also increase the support for secession within regions that are considering secession but have yet to do so (Walter, 2021). As a result, interdependence between seceders affect the expected costs of secession. These costs of secession include the difference in economies of scale, the relative viability of the newly created polity versus the existing polity, and/or potential retaliation from the existing polity. All these components are expected to decline with the number of regions seceding. So, the overall expected costs of secession potentially decrease as the number of participating regions increases. Under uncertainty, the secession of a region is an informative signal used by other potential seceders to update the expected costs of secession. We employ a simple theoretical framework to illustrate how "news" about the distribution of preferences between and within regions shape secession movements if decreasing costs of secession are expected.

Ex ante, regions do not know with certainty how many and which other regions will secede. Rather, they use all available information throughout the secession process to update their priors. Expectations then drive whether regions secede. As emphasized in Meadwell and Anderson (2008), some regions then condition their decision to secede on the actions of others. The size and shape of the seceding polity are thus endogenous and can vary over time. In our theoretical framework, secessions can occur all at once, in a limited fashion (e.g., with only one region defecting), or in an interdependent manner, where a secession leads to further regions seceding – what we call "domino secessions."

Domino secessions are quite common in history, leaving an imprint on the modern world.[1] For example, the progressive dissolution of the USSR generated fractionalized polities (Suesse, 2018). The strategic interactions between regions and their representatives led to many proclamations of independence that were followed by the merger of several seceding polities to eventually create larger ones. Analyzing this case in a domino secession framework allows thinking about the drivers which eventually led to the creation of polities as we now them today, realizing however that they could have been different if some initial conditions had been slightly different. Current events also illustrate how preferences about secession are updated in response to decisions of other regions and polities. For example, the decision of the United Kingdom to leave the European Union increased support for other countries to exit the EU (Walter, 2021). This decision also led to a re-assessment of the viability of the UK by some of its regions, most notably Scotland.

If secession movements are not instantaneous, how can we empirically examine the dynamic properties emphasized in our modeling framework? Doing so requires data that allow for the updating of beliefs and measures that are directly tied to the viability of specific regions. Bonds issued by regions, provinces, and states (often, though not always called "sub-sovereign debt") are particularly useful for understanding the dynamics of secessions since (1) they mirror real-time information and (2) financial market participants use this information to assess the riskiness of assets that are directly associated with seceding entities. When it comes to empirically modeling the realization of beliefs that get updated over time, the high-frequency nature of financial market data (such as sub-sovereign debt) is hard to match using other types of region-specific economic data. And since regions and polities often issue debt, bond market data, in particular, provide a way of capturing a real-time assessment of the costs and benefits of secession, at least from the asset-holders' perspective. Geographically-specific bonds are of particular value for exploring secession since, per our model, they allow us to examine whether markets perceive any differences in risk if regions are threatening to secede and when such risks get priced into their bonds. Further, they allow us to examine whether those risks change as other regions secede. Despite their desirable properties, to the best of our knowledge, such bonds have thus far not been utilized to study the dynamics of secession movements.

We therefore assemble new, hand-collected weekly data on bonds issued by U.S. states from the New York Stock Exchange's archives, and use these to consider the canonical case of the secession of many slaveholding states from the U.S. in the 1860s. We then empirically document the existence of the two conditions emphasized in our model that can lead to domino secessions: uncertainty and economies of scale. First, we assess whether bond yields of potential seceders –

[1]The break-up of Gran Colombia provides an example of secession with these features. The Federal Republic of Central America represents another example. It was created in the wake of the wars of independence from Spain and entered into a civil war in 1838. Nicaragua, Costa Rica, Honduras, and eventually El Salvador declared their independence, leaving Guatemala and Los Altos in a union. Los Altos was eventually partitioned between Guatemala and Mexico. During the following decades several attempts were made to reconstruct a union. The third attempt united Honduras, Nicaragua, and El Salvador in a state named the Greater Republic of Central America which lasted from 1896 to 1898.

slaveholding states – diverged from other bonds, and if so, when. The timing of divergence indicates when markets priced in secession risk and how news impacted uncertainty regarding the existence and participants of a potential secession movement. We find no evidence that events between 1857 and the summer of 1860 led to a divergence. Rather, our results suggest that Lincoln's election in the fall of 1860 signaled to markets that secession was a strong possibility. Our empirical analysis show that yields to maturity on slaveholding state's bonds increased by between 100 and 400 basis points after Lincoln's election but *prior to* his taking office. In other words, bond markets were forward looking and began to price in secession risk well before Lincoln announced any policies that might have altered the future of slavery in the U.S. Yields also diverged far in advance of any "shots being fired" – that is, prior to military actions such as the bombing of Fort Sumter (April 1861), an event indicating that southern states were willing to use any means necessary for securing a new polity. This event further increased the divergence between slaveholding and non-slaveholding states' bond yields. We also show that financial markets did not perfectly anticipate secession. A state's secession represented an informational shock: yields rose by an additional 400 basis points (on average) at the time a state passed an *ordinance of secession.*

Second, we document economies of scale of secessions at three jurisdictional levels: for states, for the existing polity, and within a state. Regression estimates imply that the yields on bonds for states that had already seceded decreased as the number of states seceding increased. Financial markets appear to have interpreted increased state participation in the secession movement as increasing the likelihood that it would be successful. It may also have reflected the belief in financial markets that increased participation would strengthen the viability of the seceding entity by decreasing the costs of secession. By contrast, as states exited the union, yields on *U.S. government debt* rose by 30 to 100 basis points: the tax base for paying off existing debts of the federal government decreased as the size of the union shrunk.

Finally, the future size of any seceder was also determined by within-state levels of support for secession. Election results provided a signal to markets on the share of the population favoring secession, a proxy for the risk of further splintering. Our results show that slaveholding states with more opposition to secession faced higher yields to maturity on their state bonds. We validate that further dissolution is always a possible outcome when within-region preferences are heterogeneous by examining the case of Virginia. It took less than a year for the northern and western counties of the state to secede from Virginia and form West-Virginia – a result that raised the risk premium on Virginia's state bonds.

Our research contributes to the existing literature in several ways. Theoretical models have explored a variety of determinants of secession, including cultural or ethnic differences (Desmet et al., 2011, 2022; Müller-Crepon et al., 2023), differences in income distributions (Bolton and Roland, 1997), resource booms (Gehring and Schneider, 2020), and trade (Alesina and Spolaore, 2005; Friedman, 1977). Alesina and Spolaore (1997) provide a general cost-benefit framework for understanding why two regions might split and where the size distributions of jurisdictions is

endogenized. A larger polity lowers the per capita cost of providing public goods and provides for more efficient taxation, larger internal markets, and greater diversification against shocks, but these benefits from economies of scale must be weighed against the costs of divergent preferences over culture, policy, or some other factor, which can also scale with size.[2] We build on this framework using a model and empirical setting that allows for the secession of multiple regions, and thus explore the possibility that regions take into account the decision of other regions when considering secession. Ultimately, uncertainty and information play a crucial role in the process of secession. Because our framework considers the role of information in secession it also presents a new take on the role of information cascade in political movements (Lohmann, 1993; Ellis and Fender, 2011) and revolutionary bandwagon (Kuran, 1989, 1991).

Another recent strand of the literature on secession emphasizes the bargaining between the state and the seceding region (Esteban et al., 2022). We contribute to this branch by examining whether strategic interactions affect the gains of secession dynamically. In our framework, regions can update their beliefs about the benefits of the outside option relative to staying in a union, and do so in reference to other regions' choices. We focus on heterogeneity within seceding regions and between seceding regions and time-varying gains from secession, and we pioneer the use of state bonds to test whether financial markets incorporate these strategic considerations into the risk of secession.

Finally, our paper relates to a literature that utilizes asset prices to shed light on key historical periods. For example, financial assets are known to aggregate opinions and have been used in the context of the U.S. Civil War to assess the outcomes of wars and pivotal events during them. As in our paper, one branch utilizes data from bond markets. Federal bonds and Confederate bonds are used to assess what financial markets deemed as "turning points" and key battles during the Civil War (Burdekin and Weidenmier, 2001; Weidenmier, 2002; McCandless, 1996; Willard et al., 1996; Davis and Pecquet, 1990; Brown and Burdekin, 2000). Our paper complements these studies by drawing attention to the events *prior* to the outbreak of war and by focusing explicitly on the secession process. Another branch of the U.S. Civil War literature has relied on data from slave market transactions from southern cities. Using this approach, Calomiris and Pritchett (2016) argue that Lincoln's nomination, Lincoln's election, and the Battle of Bull Run had an adverse effect on slave prices in the New Orleans slave market.[3] Using sub-sovereign or state bonds traded in a *northern* financial market, we affirm their findings that Lincoln's election and the Battle of Bull Run affected southern assets prices. However, the focus of our research differs in that we analyze whether markets perceived slaveholding states as having different secession probabilities and model the evolution of secession movements. In doing so, we draw attention to the sequential

[2]Related research examines what happens to secession risk when states offer "carrots" or accommodation to remain within a union (Anesi, 2012; Anesi and De Donder, 2013). Bolton and Roland (1997) suggest that fiscal accommodation may not be sufficient to prevent secession and that federal constitutions may reduce secession risk in instances where fiscal competition between two autonomous regions is relatively small.

[3]See Hallwood (2017) for a critique of their use of slave prices to make such inferences.

nature of secession, a feature of the American Civil War that has not yet been analyzed using asset prices of any type.

2 Framing Domino Secessions

Our framework draws on two of the main determinants of secession in the literature: economies of scale and heterogeneity in preferences (Alesina and Spolaore, 1997; Bolton and Roland, 1997; Desmet et al., 2022; Esteban et al., 2022). We add a third element, uncertainty, which drives the dynamics of secession movements. Because information is imperfect, whether a secession movement takes place and who participates is unknown ex ante, as is the size and shape of the final seceding entity. Hence, news impacts the decision of a region to secede. During the secession process, the number of participating regions can change as a result of the arrival of new information which, in turn, influences the pool of seceders. Secessions are then shaped as new information reveals the preferences of regions and resolves part of this uncertainty and interdependence between seceders. We describe how changes in geographically-specific asset prices can reflect those same dynamics.

2.1 Theoretical Insights

We use a simple, sequential game to define secession movements and relate them to the pricing of region-specific assets. Our framework consists of two parts: (1) regions represented by an agent deciding whether to secede and (2) financial markets assessing "secession risk."

2.1.1 Definition of the New Polity – Regions' Decision to Secede

Regions form polities based on opposing forces. Economies of scale bind regions while preferences heterogeneity push existing polities apart. In each region, a representative agent considers these two forces and decides whether to secede.[4] To fix ideas, we define n regions which have preferences that differ from the policies decided in the existing polity or "the core." We denote the distance in preferences between a region j and the core as ω_j with $\omega_j \in \mathbb{R}_+$. We rank the regions such that $\omega_1 \geq \omega_2 \geq ... \geq \omega_n$.

Seceding regions expect costs associated with secession that are represented by the discrete function $c(s)$ known to all actors, where s is the number of seceders. This function encompasses all expected costs related to secession and reduced realized economies of scale if a region decides to leave the core. These costs can either relate to (1) the strength of the new polity depending on the number of regions seceding or (2) the shrinking of the core as regions exit. The breakaway polity is defined as the "outside option," with preferences set to k and $k > 0$. In other words, the breakaway polity defines itself in some fundamental, programmatic way that is distinct from the

[4]We model regions' decisions in line with the literature (See Esteban et al. (2022)).

core. Regions then decide whether to subscribe to the alternative program offered by the outside option. The benefits of seceding equal the difference between the distance to the core and the distance to the potential new polity (for region j, $g_j = \omega_j - |\omega_j - k|$ so $g_j \in (-k; \omega_1)$). The benefits of secession follow the ranking of ω:

$$g_1 \geq g_2 \geq g_3 \geq ... \geq g_n. \tag{1}$$

Representative agents of each region use all available information and decide to secede iff:

$$c(s) < g_j. \tag{2}$$

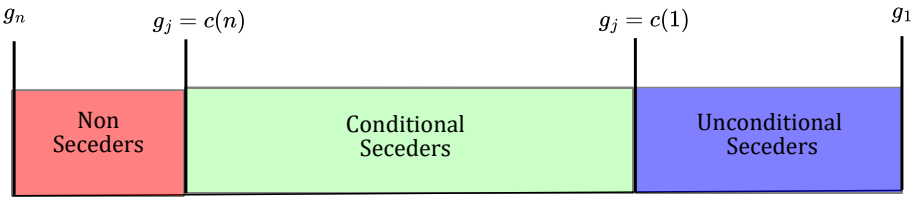
During each sequence of the game, the following steps occur: First, some information is revealed on the number of regions that have seceded previously, s. Then, $c(s)$ is updated. Second, regions decide whether to secede. The sequence ends and the information on s is then updated in the first step of the next sequence. The game ends when there is no more secession.

Proposition 1 (**Uncertainty and Secession**). *News on the divergence in preferences between the core and potential seceders increases the probability of secession for all potential seceders.*

Proof. For all values of $c(s)$, $Prob(c(s) < g_j)$ increases if g_j increases. □

Given the structure of the game, each region belongs to one of the three distinct groups presented in Figure 1 : (1) *Unconditional Seceders*, whose expected benefits of seceding are greater than $c(1)$; (2) *Conditional Seceders*, or regions that secede depending on the actions of other regions and whose expected benefits of seceding are between $c(n)$ and $c(1)$; and (3) *Non Seceders*, whose expected benefits are smaller than $c(n)$. Before a secession movement starts, all regions belong either to the group of *Conditional Seceders* or group of *Non Seceders*. News on diverging preferences will increase the probability that $c(s) < g_j$ for all regions. Consequently, the risk of secession increases for all regions and some of them may change category.

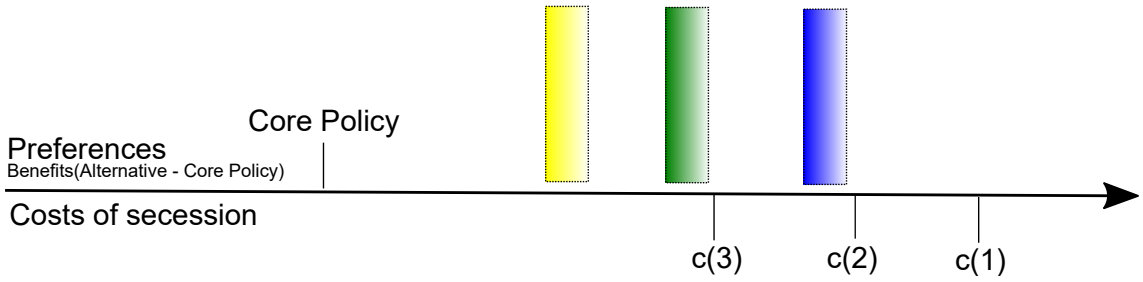
Figure 1: Regions, Preferences and Secession



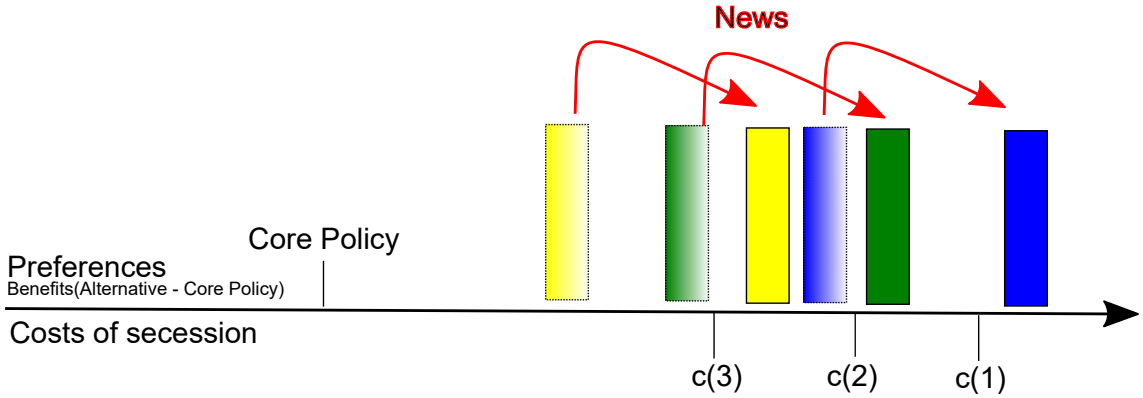
The top panel in Figure 2 depicts our setting prior to the start of a secession movement. Each domino is a region. The regions may be positioned on an axis representing their preferences, defined as the expected benefits they will realize under the policies designed by a secessionist polity compared to the policies of the core. The expected benefits of seceding may then be compared to

the values of the series $c(s)$. Hence, the axis may be read as: "given its preferences, region j would secede iff there are x regions in the new polity" with x being the value associated with the first "$c(x)$" tick to the left of region j. The bottom panel of Figure 2 shows how news on differing preferences between potential seceders and the core can alter the baseline. As expectations regarding the divergence in preferences increase, the probability of secession increases for all regions. In the example depicted, under the new information set, the blue region, which was a conditional seceder becomes an unconditional seceder. Similarly, the yellow and green regions, which were initially non seceders, with $c(3) > g_j$, become conditional seceders after the arrival of secession news, i.e., now $c(3) < g_j$.

Figure 2: News and the Onset of a Secession Movement



(a) No Secession risk



(b) Secession risk

Note: The top panel depicts a setting prior to the start of a secession movement. Blue, green and yellow represent potentially seceding regions 1, 2, and 3, respectively. The arrival of news driving a wedge between potential seceders and the core is depicted in the bottom panel. As the distance between regions' preferences and the core's (existing polity) increases, the benefits from secession rise: the costs from the difference in preferences outweighs the benefits from economies of scale. The new positioning of the blue domino as an always seceder, to the right of $c(1)$, indicates the onset of a secession movement.

In our framework, as soon as one region becomes an *Always Seceder*, (e.g., as depicted by the blue domino in the bottom panel of the figure), then a secession movement begins. The final participants of a secession movement are ex ante unknown to regions as they only have information on their own preferences and their perception of costs given by the series $c(s)$. Depending on the structure of the costs, the secession movement can take different forms.

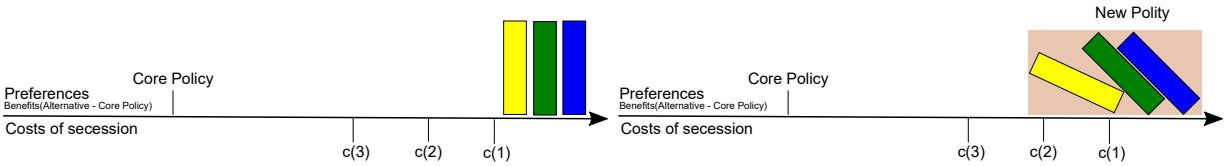
Proposition 2 (**Domino Secessions**). *With large economies of scale, domino secessions occur. Region j secedes iff region $j-1$ secedes as it reduces the costs of secession.*

Proof. See Appendix A.1 □

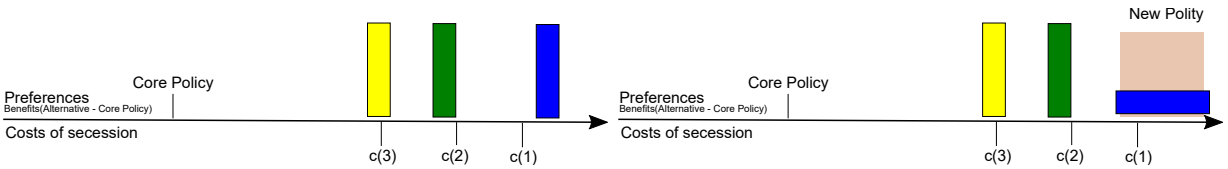
Secession dynamics are determined by the updating of information, with the exact pattern of the secession movement (which regions participate) depending on how information changes the perception of costs $c(s)$ and benefits (the distribution of g_j). Secession movements can take different forms: (1) *solo secessions*, when a region's secession is not followed by additional regions seceding; (2) *synchronous secessions*, when multiple regions secede simultaneously; and (3) *domino secessions*, when differences in preferences are large enough that all regions do not secede at the same time but also small enough so that the update in cost is sufficient to trigger further secessions.[5]

We represent these different forms of secession movements in Figures 3 and 4. In Figure 3a, regions that are initially conditional seceders have roughly similar preferences. As a consequence, when news drives a wedge between potential seceders and the core, potential seceders exit the existing policy simultaneously without having to observe if they could form a larger breakaway state with another region, and resulting in *synchronous secessions*. In Figure 3b, regions differ substantially in terms of inital preferences, so that when news triggers the secession of the blue region, it does not trigger further secessions by green and yellow, and a *solo secession* occurs.

Figure 3: Synchronous and Solo Secession Movements – Secession in One Step



(a) *Synchronous Secessions* - The left figure shows a hypothetical situation during a secession movement. After the arrival of news, the three regions are always seceders. The right figure shows the outcome of the secession movement: all regions secede at the same time. The game ends after one sequence.



(b) *Solo Secession* - The left figure shows the situation before the game is played, where the blue region is an always seceder and yellow and green are non seceders. The right figure shows the outcome of the secession movement after the arrival of news on secession: only the blue region secedes. The game ends after one sequence.

Note: Blue, green, and yellow represent potentially seceding regions 1, 2, and 3, respectively. The x-axis represents the costs for $s=1$, $s=2$ and $s=3$ and compares it to the value of g_1, g_2, g_3. Depending on how close potentially seceding regions are, different patterns of secessions may occur for the same value of g_1.

[5]See Appendix C.1 for a simplified exposition and examples. As discussed in section 2, the time dimension allows one to distinguish between synchronous and domino secessions.

Figure 4 illustrates domino secessions. Given the positioning of dominoes: $g_1 > c(1)$, then in the first sequence of the game, region 1 (blue domino) secedes. We highlight that for region 1, the cost of seceding alone (indicated in red) is smaller than the benefits of seceding, so it secedes. This region's secession induces other regions to update their beliefs about whether to join region 1 and exit the core. If region 1 (blue domino) and region 2 (green domino) are sufficiently similar, then region 2 updates its expectations and joins region 1 even if it would never have seceded by itself. In that case, region 2 (green domino) secedes only because it benefits from lower costs than in an individual secession (because in the second sequence of the game c(2) (indicated in red) is smaller than c(1)). Later in the game, other regions who have yet to secede will consider similar trade-offs (with the figure depicting the yellow domino joining the two previously seceding regions). As a result, a domino pattern to a secession movement occurs.

Domino secessions occur even if regions have agency over policy k_j.[6] Seceders then choose between adopting policy k or forming their own polity, and then implement policies reflecting these preferences ($k_j = \omega_j$). Imagine $c'(s)$ being an alternative discrete cost function only accounting for the shrinkage of the core. In this case, a region secedes if $\omega_j > c'(s)$ and then forms its own polity. However, this region would prefer to join the programmatic seceding polity if the economies of scale realized by joining the new seceding polity outweigh the costs from heterogeneous policy preferences ($g_j - c(s) > \omega - c'(s)$. Appendix A.4 develops this intuition. These dynamics of the model would also be reinforced if we consider that regions also update the gains from remaining as their ideological distance to the core increases with the secession of other regions. In this case, secessions affect both economies of scale and the policy in the core. This mechanism would create a backward feeding loop increasing $Prob(c(s) < g_j)$ and would have the consequences described in Proposition 1.[7]

As a secession movement unfolds, some members of a seceding region may also challenge the decision to secede.[8] An extension of our model in Appendix A.3 shows that such tensions within regions may lead to sub-secession risk if economies of scale exist. If a sub-secession occurs, a region leaves the pool of seceders. Consequently, $c(s)$ increases if there are economies of scale.

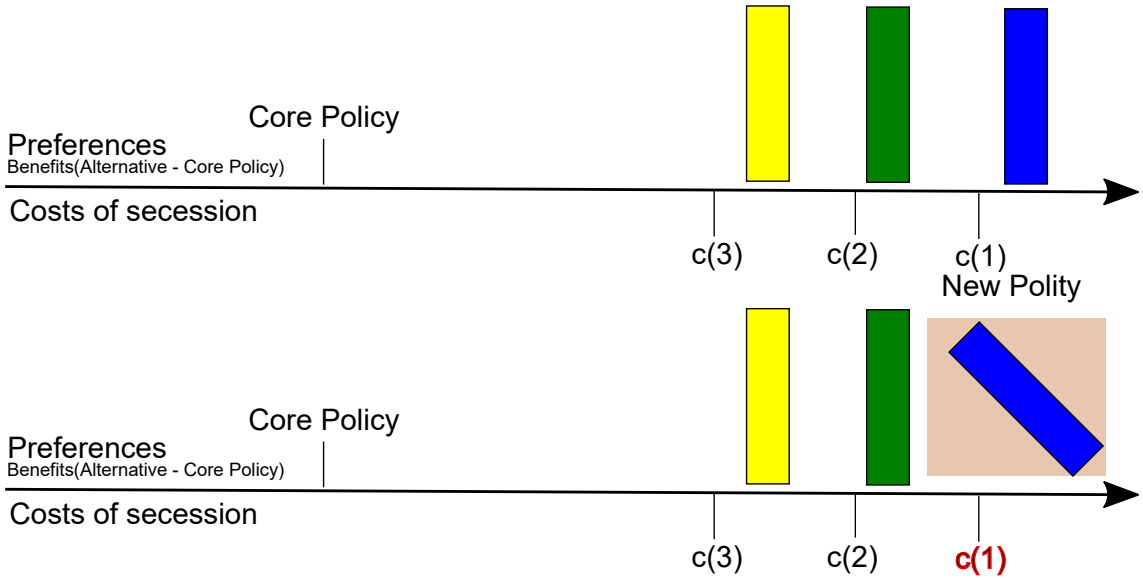
Proposition 1 and 2 respectively investigate how the arrival of information generates and sustains secession movements and how the cost structure of secession shapes them. Both information on other regions' secessions and on the distribution of preferences within seceders directly impacts the decision of representative agents to secede.

[6]The dissolution of the USSR is an example illustrating such dynamics. Independent Republics did not "stick together." Yet the secessions of some Republics created momentum for other secessions as the USSR became weaker.

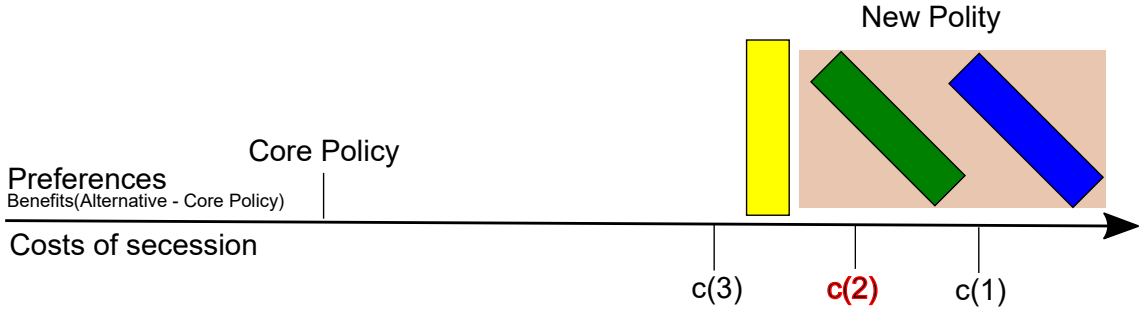
[7]A possibility is to define preferences as a weighted average of the regions that are either in the breakaway polity or in the core. In this case, our model leads to two types of Bayesian updating: one concerning the costs and one concerning the preferences. Then, the dynamics arise from updating both the changing preferences of the polities (as regions secede) as well as the updating regarding the costs of seceding.

[8]Scotland's position after Brexit nicely illustrates that dynamic (Walter, 2021).

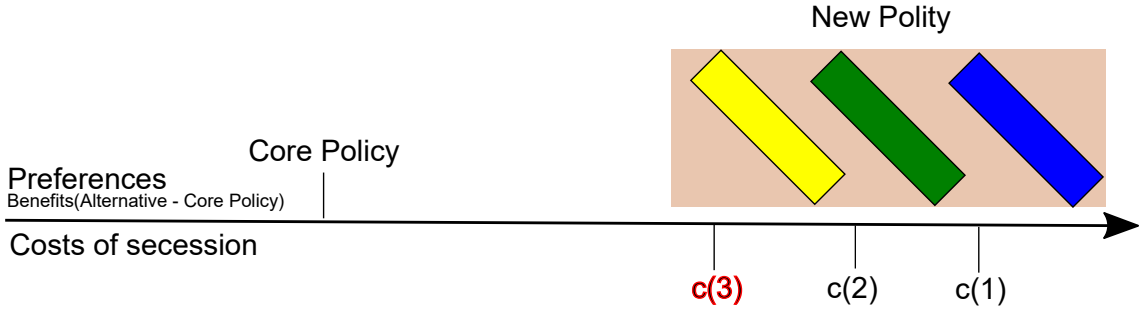
Figure 4: Domino Secession Movements – Secession in Several Steps



(a) Sequence 1: The blue region secedes as it gets information on its distance to the core.



(b) Sequence 2: The green region joins the blue region and secedes.



(c) Sequence 3: The yellow region joins the two other regions and secedes.

Note: Blue, green, and yellow represent potentially seceding regions 1, 2, and 3, respectively. The x-axis represents the values of the costs for $s = 1$, $s = 2$ and $s = 3$ and the values of $\omega 1$, $\omega 2$, $\omega 3$ to facilitate their comparison. In red, we emphasize the different values of the cost function faced by each seceder at the time of secession.

2.1.2 Financial Markets – Secession Risk

Financial markets provide a real-time assessment of risk, incorporating uncertainty (and the arrival of information resolving it) as well as the cost structure of secession into asset prices linked to regions – the building blocks of our model. After each sequence, financial markets assess the

likelihood that each region will secede and the costs of secession. Financial markets then price these two components into assets, such as state bonds or any other region-specific asset. Financial markets lack perfect information on the distribution of g_j but form expectations to determine the probability that a region secedes $Prob(c(s) < E(g_j))$. Financial markets then price the risk of secession as the probability of seceding (as defined in Equation 2) multiplied by the expected costs of secession:

$$SecessionRisk = Prob(c(s) < E(g_j)) \times c(s). \tag{3}$$

Once the probability of secession is positive, the expected costs of secession will influence the decisions of regions to secede. Simultaneously, markets will price the costs of secession. Information on the preferences of regions affects the probability of secession and is translated into $Prob(c(s) < E(g_j))$. Equation 3 assumes that market prices and yields incorporate all relevant publicly available information such that, at any point in time, they reflect the expected distribution of regional preferences and costs of secession. Proposition 3 assesses how financial markets behave when the probability of secession is positive.

Proposition 3 (**Financial Markets: Secession Risk**). *When financial markets perceive a higher probability of secession for the n regions ($Prob(c(s) < E(g_j))$ increases for all j), then secession risk increases iff economies of scale are low compared to the increased probability of seceding. Conversely, secession risk reflects movements in $c(s)$ when the probability of secession is constant.*

Proof. See Appendix A.2 □

Following Proposition 1, financial markets reassess secession risk if they observe that the distance between the core and seceders changes. This may arise from policies perceived as more harmful to potential seceders, to new information regarding potential seceders' opposition to policies enacted by the core, or events strengthening ethnic identities (Berman et al., 2023). This information on the distance between potential seceders and the core influences financial markets' assessment of secession risk in two ways. First, information increases the probability assigned to the secession of each region. Second, it also decreases the expected costs of secession as other regions are also more likely to secede.

Once the probability of secession becomes positive, market participants start to price in the risk of secession. Mirroring regions' decisions, financial markets will price in secession if the distance between potential seceders and the core increases. As a result, the probability that some regions belong to the group of *always seceders* increases. The probability of a secession consequently increases for all potential seceders.

Before a secession movement starts, $c(s)$ is constant ($= c(1)$). Region-specific asset prices (hereafter "bonds") then capture variations in $Prob(c(1) < E(g_j))$. Once a region decides to secede, the model predicts several changes to a region's bonds. For the seceding region, the decision to

secede will induce a discrete jump in the riskiness of its bonds. For this region, the probability to secede is equal to one after it secedes; however, this does not mean that it is no longer affected by the actions of others. Indeed, markets will capture variations in $c(s)$ according to Equation 3. If there are economies of scale, the costs of secession decrease as more regions join the breakaway polity. In other words, the costs of secession, $c(s)$, decrease as s increases and $Prob(c(s) < E(g_j))$ stays equal to one. Secession risk then only varies as a result of changes in the expected size of the new polity. It decreases as more regions join the polity, but increases if markets expect regions to splinter, i.e., sub-secession. As a consequence, the risk of sub-secession is also priced into a region's bonds (see Appendix A.3). The decision made by the first region to secede will impact other regions in two ways: it will lead financial market participants to reassess the probability of secession for some regions and to revise downwards the cost of secession for would-be seceders.

2.2 Connecting the Model to an Empirical Setting

The secession of slaveholding states in the American south in the 1860s is a particularly useful empirical setting for studying domino secessions. First, slavery was the defining political issue of the day. Categorizing states based on their slaveholding provides an observable measure of state preferences relative to the existing polity. Second, there was considerable uncertainty regarding states' behavior should the future of slavery be put into question. Moreover, the size and shape of any newly formed polity that opposed the program of the United States was unknown ex ante. Third, the secession movement took a significant amount of time to materialize allowing us to observe how the arrival of information on secession affected risk. Even more important, during this long period of uncertainty, war was thought to be highly unlikely. Last, but certainly not least, state-specific assets traded regularly and their prices reflected the impact of news on secession expectations. The three first points are developed in this subsection, with the data then described in the section that follows.

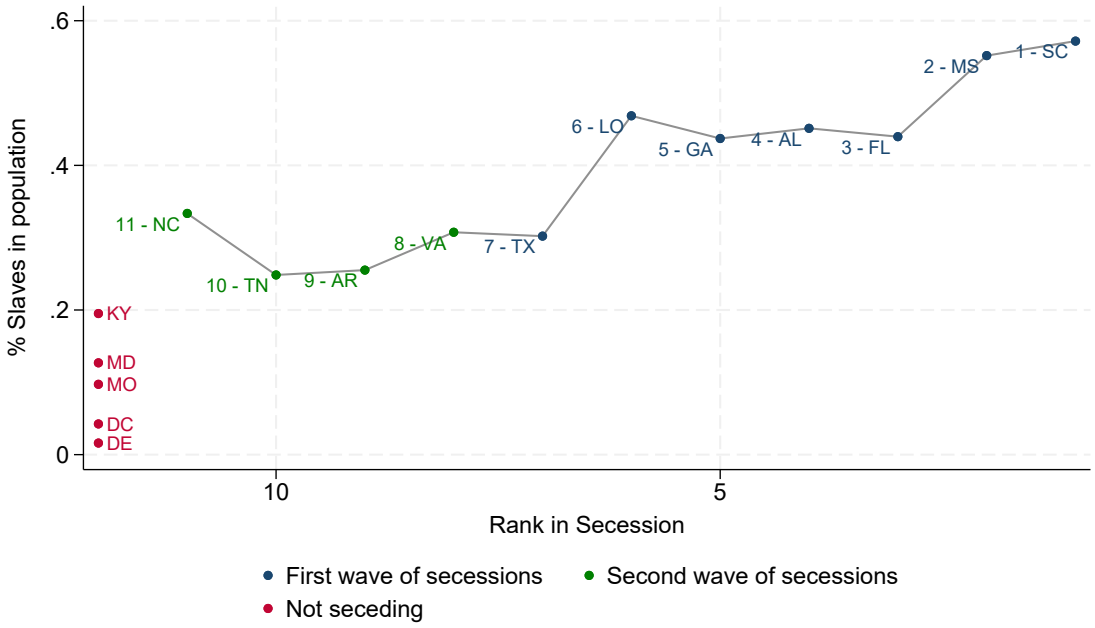
2.2.1 Slaveholding and Secession in the U.S.

Our framework implies that secession movements start with the most extreme regions (defined as having the largest ω) and then have the potential to diffuse to other regions. To define a state's preferences relative to the core, we focus on slaveholding since historians have discussed how the maintenance of an economic system based on slavery was a clear and known policy difference that varied across U.S. states. In the framework of our model, slaveholding states form a group of potential seceders. Figure 5 displays the proportion of slaves in a state's population on the y-axis. The x-axis ranks the order of secession based on the dates of the official acts of secession.[9] Each dot is labeled with the slaveholding state's two letter abbreviation as well as its ordinal rank in the secession process, i.e., South Carolina (1-SC) is the first state to secede and North Carolina

[9]The dates for the 11 seceding states are shown in Appendix Table B.1.

(11-NC) is the last to do so. Time on the x-axis is inverted so as to reproduce the logic of the figures in our theoretical framework. Dominoes further away from the core are the first ones to secede – and appear on the right-side of the Figure.[10]

Figure 5: Preference Heterogeneity and Domino Secessions in the U.S.



Note: Each dot depicts the position of a state along two dimensions: % slaves in the population (1860) (y-axis) and the inverse date ordering of state secession ordinances (x-axis). States that do not secede but have slave populations are ranked 12 in secession. Early seceders are shown in blue – those that occurred before Fort Sumter, between January and February 1861. Later seceders are shown in green – these occurred after Fort Sumter, between April-June, 1861. "Never seceders" are indicated in red; they are states with slave populations that ultimately chose not to secede. The line retraces the sequence of secessions linking the first secession to the second, the second to the third and so on until the last secession. Source: IPUMS NHGIS data (Manson, 2023)

Figure 5 echoes our framework in several ways. First, early seceders are positioned further away from the core than late movers. All states belonging to the first wave of secessions are part of the "Deep South," and had a higher proportion of slaves than those in the second wave. Second, Figure 5 nicely illustrates how dispersed preferences influence the types of secessions that occur. The percentage of slaves in the population ranges from close to 60% to less than 5%. Consistent with the model's predictions, the case of the American South includes *unconditional seceders*, *conditional seceders*, and *never seceders*. Third, the precise timing of secession occurred over months, not days, suggesting that secession in the American south was sequential and not synchronous. Figures F.4 to F.7 show that the sequence of secessions moreover cannot be explained by other variables capturing heterogeneity between states in population density, manufacturing, farming and rail development.

[10]This figure looks quite similar if we instead define the y-axis as the percentage of slaveowners in the overall population (See Appendix F.1 to F.3

2.2.2 Uncertainty Regarding the Size and Shape of a new Entity

Our framework also implies that the number of regions seceding is unknown ex ante. Because it affects the costs of secession, information on the secession decisions of individual regions (or states) is a key signal that can potentially trigger a sequence of secessions. In the months leading up to the November 1860 Presidential election, it was widely reported in the press that many Southerners were staunchly opposed to the Republican candidate, Abraham Lincoln, and might favor secession if he were elected. However, which, if any states would choose to secede was unknown. This uncertainty was reflected in newspapers, such as the *New York Times*, which speculated on October 22$^{\text{nd}}$ 1860, that only six southern states (South Carolina, Georgia, Alabama, Mississippi, Florida and Texas) would secede if Lincoln were elected, the other southern states having too much to lose to do so unless there was "an overt act of breaking southern rights" by a Republican president.[11]

According to our model, for some states, the decision to secede may depend on the actions of others. In our setting, the historical record provides considerable evidence on this point, suggesting that dynamics of secession were sequential and not synchronous. As early as October 1860, South Carolina's governor William Gist sent top-secret letters, hand delivered by his cousin Nathaniel "States Rights" Gist, to the governors of Georgia, Alabama, Florida, North Carolina, Louisiana, and Mississippi, encouraging other states to consider secession if Lincoln were elected (Nicolay and Hay, 1917). South Carolina was trying to find the support of others in making its own decision about secession.

The election of Lincoln raised the likelihood of a secession movement, but uncertainty over who would participate was not resolved quickly. As historians have pointed out, Lincoln took no official position on the question of secession in the weeks immediately following his election, and it took until late December for the first state, South Carolina, to secede. What, if any actions slaveholding states would take to further the movement was far from clear in the wake of the election. Despite its governor's attempt to persuade other states to join, South Carolina had moved on its own, and even after doing so, implored other states to join, again pointing to both uncertainty and the sequential nature of secession in our context.[12] To further elucidate how secession depended on the actions of other states and the sequential nature of secession, Appendix C.2 briefly discusses how Louisiana's decision to secede from the Union was uncertain at the outset and depended on the decision of other states' decisions to secede.

[11] *New York Times*, "Disunion: How it will work," October 22, 1860.

[12] *To the People of the Slave-holding Sates of the United States* by Robert Barnwell Rhett, December 1860: "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."

2.2.3 Information on financial markets

We hypothesize that part of the uncertainty pertaining to secession was resolved by the arrival of information. Information affecting the decision to secede could take many forms. The decision of another state to secede might clearly matter as it affects economies of scale but, more generally, any information leading to a reassessment of the costs and benefits of secession would be relevant.

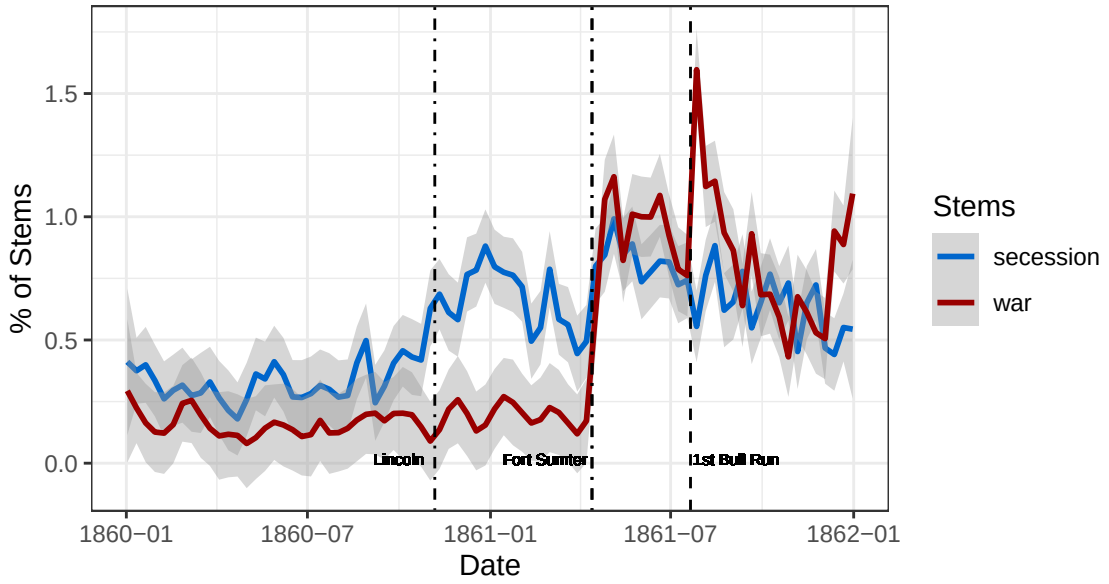
It is important to ensure that, during our sample period, the signals to financial markets from the arrival of new information pertain to secession. For example, did the election of Abraham Lincoln convey to financial markets that secession was more likely or that the prospects of war were more likely? The historical record is very clear on this point: Lincoln did not run on a platform aimed at eliminating slavery. The Republican Party's platform affirmed the status quo on this issue and reaffirmed the party's commitment to "state sovereignty" – "the right of each state to order and control its own domestic institutions according to its own judgment exclusively."[13]

We can further confirm whether signals are related to secession news versus alternative hypotheses (such as the prospect of war) with a data driven approach. To do so, we focus on news reported in the *New York Times* because it regularly reported on financial markets as well as national events and because it is published in the same city as the NYSE, where sub-sovereign debt was traded by market participants – the asset we use to understand secession movements (and described in detail in the next section). We use the *New York Times* API to categorize the content of this newspaper's articles from January 1860 to December 1861 and construct a dynamic measure of secession news. In particular, we use all articles in the *New York Times* to build two indices measuring the intensity of news related to (1) secession and (2) war. Following an approach similar to Baker et al. (2016) and Verdickt (2020), we compute the number of stems related to secession or to war and then measure the frequency of these stems relative to all articles. We picked the five most frequent words stems in the corpus for war and secession.[14]

[13]Quoted directly from the National Republican Platform Adopted by the National Republican Convention, held in Chicago, May 17, 1860.

[14]We first pre-processed the text to obtain word stems and to delete the most frequent stopwords from the corpus. The stems related to war are: army, troops, war, officers, regiment. The stems related to secession are: union, unit, convention, secess, and secession. The only difference with the approach of Baker et al. (2016) and Verdickt (2020) is that we count the number of words and not the number of articles to capture the news content within articles mentioning both war and secession.

Figure 6: News Indices on Secession and War – Evidence from the *New York Times*



Notes: The figure graphs the share of total word stems relating to "war" and "secession," respectively, using articles from the *New York Times*. See the text for a description of the methodology.

Figure 6 shows how detailed information on news can be used to aid our understanding of this secession movement. For example, returning to the Lincoln's election, we can see that the data-driven approach confirms the historical record. After the presidential election of Abraham Lincoln, the proportion of word stems associated with secession rises and then remains higher through the early spring of 1861, fluctuating between 0.5% and 0.75% of all words in the articles. Our news index for secession captures this increased focus on secession after the election date (first vertical line in Figure 6).

By contrast, in the weeks around the election and in the four months thereafter, there is no noticeable increase in content about war in the *New York Times*. It was not until the bombing of Fort Sumter by South Carolina secessionists, beginning on April 12$^{\text{th}}$, 1861, that the *New York Times* started to report relatively more news on war. It marked the first large-scale attempt by secessionists to enforce their claims using military force, and on April 15$^{\text{th}}$, Lincoln responded by ordering state militias to provide 75,000 troops to suppress the rebellion. After the attack and occupation of the Federal fort by secessionists, the number of stems related to war jumped to 1% of words. It then fluctuated between 0.5% and 1.5%. Unsurprisingly, during our sample period, war-related news peaked right after the first battle of Bull Run, the first important battle of the Civil War. Figures F.8 and F.9 show two other news indices for our sample period, one capturing destructive conflict (stems: conflict, battle, soldier, die, attack) and the other capturing stem related to the slave economy (stems: slave, cotton, trade, emancip, labor). The former index captures the potential destruction generated by the conflict beyond the most frequent stems on conflict. The latter index, "Economy", disentangles news related to secession from news linked to

emancipation and the economics of slavery. Indeed, we observe discrete jumps in the news indices related to war and secession at the election of President Lincoln, the bombing of Fort Sumter and the 1st Battle of Bull Run. By contrast, the alternative indices capturing destructive conflict and the slave economy remain stable.

In summary, mentions of secession rose first and were considerably higher than mentions of war until Fort Sumter. From an identification perspective, fluctuations in war risk after Fort Sumter provide useful variation for disentangling the dynamics of secession from the dynamics of a potential conflict. After the election of Lincoln, news on secession updated the information regarding the secession movements and shaped the uncertainty actors were facing.

3 Data and Methods

State-specific assets, in particular state bonds, are well suited for understanding the dynamics of secession movements for three reasons. First, financial markets use information to price sub-sovereign or "state" risk. State bonds thus enable the researcher to observe how beliefs are updated by seeing how financial market participants price "news" into asset prices. Second, state bonds are linked to the geographic unit at which secession decisions occurred. State bond yields will thus capture the market's assessment of any news related to a state's decision to secede. Third, changes in valuation of state bonds (i.e., empirical data that captures beliefs being updated) are particularly useful for analyzing the interdependence of states, such as what can occur in domino secessions. Contemporaneous accounts show that financial assets reflected secession dynamics. For example, the *New York Times* mentioned that "the stock exchange goes more feverish with the angry political discussions from the South" (*New York Times*, "Monetary Affairs," November 10, 1860.).[15] Financial news from the early 1860s also discussed how state bond prices reflected interdependence in secession.[16]

3.1 State Bonds

Using original records from the the New York Stock Exchange (NYSE) archives, we hand collected prices of all U.S. state bonds for the period 1857-61, allowing us to observe the universe of state debt that traded during the period of southern secession.

In the mid-19th century, each stock or bond's name listed on the NYSE was called out twice per day (what were called the first and second "boards"), at which point transactions for that issue took place. We collected all sales transactions for state bonds reported in both the first and second

[15]The *New York Times* also discussed secession in April 1861 when it described how the market 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).

[16]"News from South Carolina affects the prices of Georgia bonds." (*New York Times*, "Monetary Affairs," November 9, 1860.)

boards for each day between January 1, 1857 and December 31, 1861. In most instances, the data provide successive trades for state bonds, including the sales volume and price.[17]

The NYSE archives show that 85 bonds issued by states were trading during our sample period, covering 20 states in total. Many of these bonds traded infrequently. For example, 14 of them appear only once in the data between 1857 and 1861, including the Virginia sterling 5%, the Illinois coupon bond, and the Arkansas State bond. In order to have meaningful data for statistical purposes, we only consider bonds for which at least 20 daily observations are present between 1857-61. We also exclude three bonds for which no interest rate is mentioned as well as five of California's state bonds, which still traded at extremely high yields following the panic of 1857.[18] Of the 85 bonds that had at least one trade during our sample period, 53 bonds had less than 20 trades. Three others bonds had no information on interest rates and four additional bonds were issued by California, a state recently hit by a panic. We excluded all these bonds, leading to a final sample comprising 25 state bonds.

Many American states also had little debt outstanding (e.g., Delaware and New Jersey) and no recent issuance (*Samuel Hallett and Company's American Circular*, September 18, 1861 and Porter (1880, p.537)), so the 11 states' that actively traded bonds on the NYSE represent a subset of the 33 American states that existed in the 1850s and 1860s. The 11 states in our sample are five slaveholding states that eventually seceded (Georgia, Louisiana, Virginia, Tennessee, North-Carolina), two slaveholding states that chose not to secede (Missouri and Kentucky), and four non-slaveholding states (Indiana, Michigan, New York State and Ohio).

Appendix B.2 lists the individual state bonds regularly traded on the NYSE and that we use in our analysis, their coupon dates, and their maturities. Since volumes are reported for each date, we compute the volume-weighted price for a given bond. When multiple state bonds for the same state are sold on the same day, we use this procedure across all bonds to construct a synthetic measure. Since in most instances maturities are quite distant, this should not generate significant bias.

We use yields to maturity (YTM) since these are a standard way for measuring the rates of return of fixed-income securities as well as a measure of the risk faced by investors engaging in a buy-and-hold strategy (Bodie et al., 2013).[19] YTM have several interesting features relevant to our analysis. First, they represent the market's assessment of the probability to be reimbursed. Since

[17]In some cases, prices are preceded by one or more letters. We were able only to discern the meaning of two of these letters (with the help of Cathrin Mohr). It seems that s, represents a sell order followed by the number of days, and b a buy order (*New York Times*, "Monetary Affairs," April, 1861, p 8). The other letters we have encountered remain hard to interpret. In order not to bias our results, we have excluded all sales preceded by a letter from our analysis, as in all likelihood, they represent derivative contracts.

[18]In September 1860, the *Bankers Magazine*, September 1860, vol.15, pp.237-8, commented: "This state is gradually recovering from the effects of bad credit and bad management. It is a singular commentary, however, that her seven per cents sell to day no higher than the five per cents of Indiana."

[19]In the context of wars, for example, the impact of military news (see Waldenström and Frey (2008) for WWII), of perceived legitimacy (Oosterlinck, 2003) and of civil-war related repudiation (Oosterlinck, 2016) has been tested using yields to maturity.

we focus on a relatively short time-span, and in view of the limited debt levels prevailing for states during our sample period, it is reasonable to assume that most movements in yields will reflect secession what in the model we refer to as "secession risk," which broadly speaking, could be related to events (e.g., secession ordinances, destruction of property or rebellion) as well as institutional or economic factors (e.g., changes in the legal environment, trade sanctions) affecting the likelihood of default. Many states had indeed passed legislation creating debt ceilings (Porter, 1880, pp.649-72). In other words, major movements in yields are most likely to be driven by secession risk, broadly defined, and not by changes in economic fundamentals.[20] Second, since they have "skin in the game," investors are more likely to base their trades on rational expectations and less likely to engage in "cheap talk," i.e., their actions represent their underlying beliefs about future states of the world because money is at stake. Third, since the state bonds in our sample traded on a regular basis, the updating of financial markets' beliefs can be observed. Appendix B.1 displays the yields to maturity for states whose bonds regularly traded on the NYSE from January 1, 1857 through December 31, 1861.

3.2 Decoupling of Slaveholding States' Bond Yields

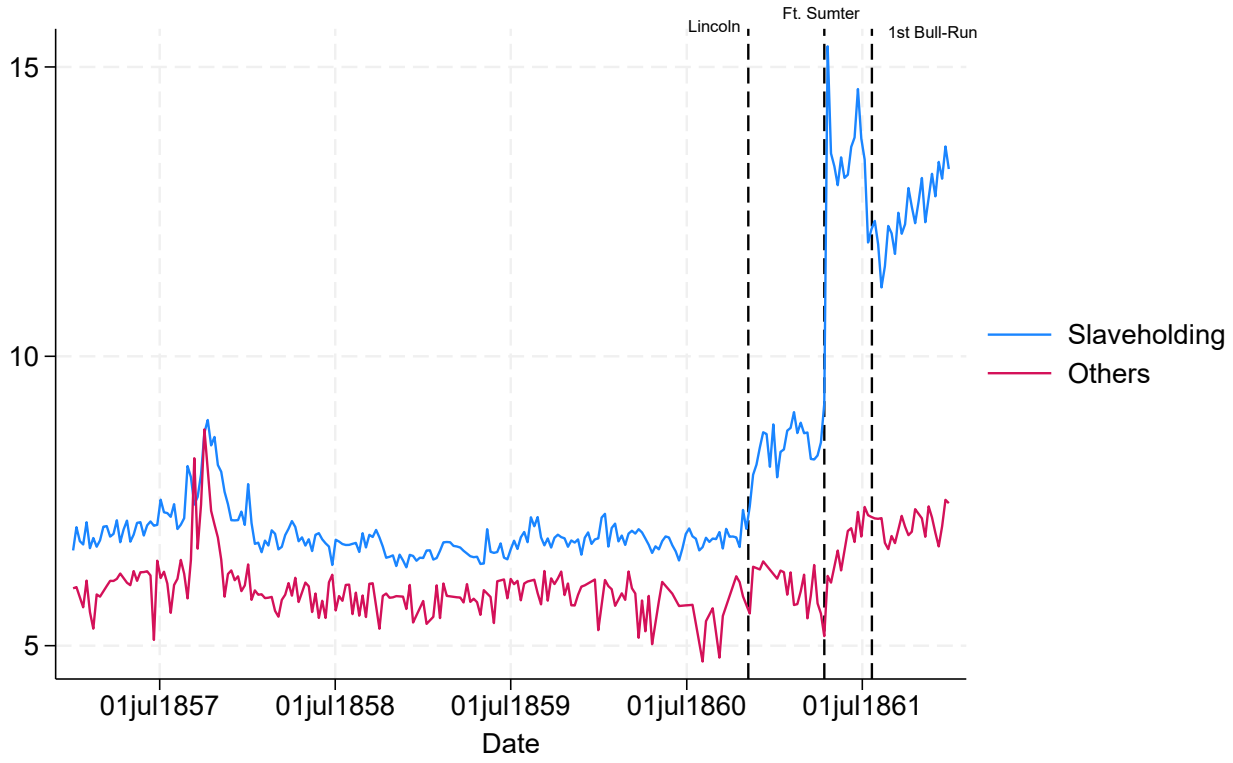
Figure 7 plots average yields to maturity (ytm) for slaveholding states and non-slaveholding states (labeled "others") at weekly frequency. The yields for each state's bonds are plotted in Appexdix Figure B.1. Unsurprisingly, the levels in yields to maturity are not the same across the two groups, reflecting differences in default risk. In the years prior to 1860, slaveholding states' bonds trade at slightly lower prices and higher yields than other bonds. Although ytms on the bonds fluctuated, they generally moved together in the years prior to 1860. For example, when the U.S. experienced a financial panic in 1857, bond yields rose for both groups, reflecting higher credit risk during this period. The bonds reverted to their pre-crisis yields after the crisis subsided.

According to our model, if the risk of secession was not priced into state bond yields, then there should have been no decoupling between slaveholding and non-slaveholding states' bond yields. It is thus interesting to observe in Figure 7 that a number of important political events related to states' rights and the issue of slavery took place between 1857-1860, but these did not result in the bond yields of the two groups moving differentially.[21] Divergence in YTM did not occur until the

[20]The outstanding debts of the states of New England remained more or less constant between 1840 and 1860 (Porter, 1880, p.530). On the other hand, some non-slaveholding states (e.g., New York) and slaveholding states (e.g., Tennessee and Virginia) increased their stock of outstanding debt. Others reduced their debt obligations (Louisiana, Alabama, Mississippi – See Porter (1880, pp.537-554)). Contemporary business publications suggest that most slaveholding states' public finances were in good order prior to the Civil War (Hallett, 1864). For example, Porter (1880, p.568) mentions the good state of affairs for South Carolina. Missouri increased its borrowing, but 'Figure B.1 shows a 'the credit of the state has not been in the least impaired among those who have examined the subject." In the same issue Tennessee was praised for its productive investment in railroads. Many slaveholding states' bonds (Missouri, Tennessee, North Carolina and Virginia) were also in high demand for banking purposes, i.e., they were used as collateral to back commercial bank note issuance). *The Bankers' Magazine*, 1861, vol.15, p.516

[21]These events include the US Supreme Court decision regarding the Dredd Scott case in 1857, John Brown's

Figure 7: Average Yields to Maturity in Slaveholding and other states



Slaveholding: Slaveholding States. Others: Non-Slaveholding states

election of Abraham Lincoln for U.S. president in November 1860, suggesting that the outcome of the election remained uncertain until it occurred. Slaveholding state bond yields jumped by 100 to basis points on average in the weeks following the announcement that an "anti-slavery" Republican had won the Presidential election. By contrast, the fact that bond markets did not price Lincoln's election into non-slaveholding states' bond yields is notable since it indicates that markets did not view secession as synonymous with war.

In the months following Lincoln's election the divergence between the two groups bond yields persisted, with slaveholding state bond yields increasing further while those on non-slaveholding states bonds remaining more or less constant (Figure 7).[22]

A second jump in slaveholding states' bond yields occurred when Fort Sumter was first bombed. A day before the attack, 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

raid on Harper Ferry in October 1859 and his execution in December of that year, and the various events known under the name of "Bleeding Kansas" that occurred between 1854 and 1861.

[22]Appendix Figure F.10 shows that the increase in risk is similar for slaveholding states that ultimately seceded and for non-seceder slaveholding states.The fact that the yields on bonds for both eventual seceders and non-seceders state bonds rose suggests that ex ante market participants did not know (1) which states would secede, (2) when states would secede, and (3) what response the union would have to secession, e.g., allowing states to secede without intervention or blocking it with force.

the railway fancies."[23] The intensity of bond sales increased once the bombing commenced and Lincoln responded, as described in the financial press: "The first effect of the President's Proclamation of rebellion and call for military support, in the morning papers, was to increase, of course, for the moment, the feverish anxiety of the Stock Exchange, and prices were seriously depressed on the Stocks [bonds] of the Border States of the South."[24] As shown in Figure 7, on average, bond yields rose for slaveholding states by 600 to 700 basis points, suggesting that markets viewed the risks of secession much greater after these events. Interestingly, Figure 7 shows little upward movement for non-slaveholding bonds at this time: markets, like many in the financial press, still believed that a prolonged war was not a forgone conclusion and did not price in war risk to non-slaveholding state bonds.

3.3 Empirical Methods

To test our model, we now turn to presenting econometric estimates using the state bond yields described in the previous section. To investigate Proposition 1, we leverage the fact that before any state seceded, the expected cost of secession is constant ($= c(1)$). We then identify news that led to a divergence in the yields of slaveholding states (potentially seceders). The arrival of new information about secession preferences of states led to the repricing of state bonds to include secession risk.

To test Proposition 2, we investigate the evolution of yields for states that seceded. We then use bonds issued by the United States (the "core" in our model) and analyze how reduced economies of scale affected federal debt yields. The final test of this proposition is dedicated to within-state divergence in preferences. We analyze whether bond markets priced in potential sub-secessions by considering the specific case of Virginia – a state that eventually splintered in two.

Empirically, we rely on two econometric specifications to identify the determinants of secession risk while controlling for the presence of the risk of war. The first specification tests the logic of Propositions 1 and 3 and assesses when there is an increase in risk specific to the group of potential seceders: slaveholding states. We estimate the following equation:

$$YTM_{i,t} = \alpha + \beta_1 News_t \times Slaveholdingstate_i + \eta_i + \nu_t + \epsilon_{i,t} \quad (4)$$

$News_t$ captures several factors affecting yields: secession-related news the could have driven a wedge between slaveholding states and others; war-related news that could have affected slaveholding states differentially; and the secession of states that could have acted as an informational shock prompting investors to reassess risk. We capture the impact of secession-related and war news in two ways. First, we consider the discrete jumps created by the events identified in Figure

[23] *New York Times*, "Monetary Affairs," April 11, 1861.

[24] *New York Times*, "Monetary Affairs," April 16, 1861. Note that the financial press referred to government bonds as "stocks" during this era.

6: the election of Lincoln for secession news, Fort Sumter's bombing for both secession news and war news, and the Battle of Bull-Run for war news. Second, we directly assess how yields varied with the measures of the intensity of secession news and the intensity of war news from the *New York Times*.[25] Third we measure the informational content of states' actual secessions. To do so we create a dummy variable, $Secession_{i,t}$, equal to 1 if state i has declared that it seceded.[26] $Slaveholdingstate_i$ is a dummy variable which takes on a value of 1 if the state permits slavery. $\eta_i, \nu_t, \epsilon_{i,t}$ are respectively state-level fixed effects, week fixed effects and an error term. Equation 4 assesses if/when the risk of slaveholding states diverged from non-slaveholding states and how different types of news affected the divergence in yields. Estimates of Equation 4 are presented in Section 4.

To complement our investigation, we further add an interaction term to the secession dummy variable to test for economies of scale. Indeed, Proposition 2 suggests that the risk of secession is a function of other states' decisions to secede while Proposition 3 asserts that financial markets price this risk. We measure the evolution of secession risk when the probability of secession is constant (= 1), that is when a state has seceded. We then test if the risk of a seceder changed as other states seceded by estimating:

$$YTM_{i,t} = \alpha + \beta_1 Secession_{i,t} \times Scale_t + \beta_2 WarNews_t \times Slaveholdingstate_i + \beta_3 Secession_{i,t} + \eta_i + \nu_t + \epsilon_{i,t} \tag{5}$$

In addition to the variables already defined in Equation 4, we define $Scale_t$ as a proxy for (expected) economies of scale. We use this specification to test for the effects of economies of scale by considering movements in the yields of Federal debt and sub-secession, when a region within a seceding state breaks away to form a new region or state. Estimates of Equation 5 are presented in Section 5.1. We cluster standard errors at the state-level when estimating Equations 4 and 5.

4 Results – Domino Secessions and Information

4.1 When Did the NYSE Price in Secession Risk?

Our empirical analysis first examines panel data evidence on whether financial markets priced in secession and, if so, when. We test whether the movements of slaveholding bonds and other bonds decoupled, and what factors led to their divergence in yields.

Table 1 estimates Equation 4. The first four columns report the estimates using four-weeks

[25] The share of total news associated with secession/war using the methodology and data from the *New York Times* as described in subsection 2.2.3.

[26] In some cases, state officials declared independence before the decision was approved by a statewide referendum or ordinance of secession. In this case, we consider the earlier date as informational shock, as was the case for Tennessee.

time windows centered around the three events of interest (Lincoln's election, the bombing of Fort Sumter and the battle of Bull Run), and additionally around the dates that some slaveholding states decided to secede. As is standard in finance, the use of short-time windows allows us to test the reaction of asset prices to specific events. The interaction terms reveal that financial markets priced slaveholding bonds specifically after all events except for the Battle of Bull Run. The yields of slaveholding states jumped by 108 basis points following Lincoln's election and by 423 basis points after Fort Sumter. The yields to maturity of seceding states' bonds were on average 374 basis points higher in the weeks after a state announced its secession than in the weeks before.[27]

The last three columns of Table 1 display results using our alternative measure for secession news and war news based on the *New York Times*. Using the frequency of specific types of news reveals that when the *New York Times* mentioned secession more, the yields of slaveholding states were higher in comparison to non-slaveholding states' bonds (Column 1.5). War risk also had a specific effect on slaveholding states' bonds (Column 1.6). The effects of war and secession news remain when both are included in the same regression (Column 1.7), suggesting that both variables indeed capture different phenomena. The magnitude of the coefficient implies that a one-standard-deviation increase in secession news increased the yields of slaveholding bonds by 62 to 112 basis points. We provide additional evidence on this issue by analyzing the case of two slave-holding border states, Kentucky and Missouri. (See Appendix D.) Additional robustness checks confirm that the election of Lincoln triggered the divergence between slaveholding states' bonds and other states' bonds. For example, Appendix Figure E.1 shows the discontinuity in the beta between slaveholding and other states with Lincoln's election.

Our results thus show that yields from slaveholding states started to diverge when Lincoln was elected, thus well before anybody anticipated war. Yields reacted to both war and secession news. States' secession led to a jump in yields which reverted in the weeks after. In the next section, we thus investigate the dynamics of changes in yields.

[27] Appendix E.1 shows that results are robust to the use of a slightly larger time window of 8 weeks, the only major difference being that, in this specification, the battle of Bull Run is statistically significant and negative. For longer time horizons, secession is statistically insignificant, suggesting a reversal which we investigate in the next section.

Table 1: Pricing in the Risk of Secession: Divergence in Slaveholding states' YTM

	(1.1)	(1.2)	(1.3)	(1.4)	(1.5)	(1.6)	(1.7)
$\text{Lincoln}_t \times \text{Slaveholding}_i$	1.083***						
	(0.323)						
$\text{Ft Sumter}_t \times \text{Slaveholding}_i$		4.227***					
		(0.441)					
$1^{\text{st}}\ \text{Bull Run}_t \times \text{Slaveholding}_i$			-1.047**				
			(0.430)				
$\text{Secession}_{i,t}$				3.743*			
				(1.511)			
$\text{NYT}_{Secession,t} \times \text{Slaveholding}_i$					320.1***		178.4***
					(74.59)		(41.46)
$\text{NYT}_{War,t} \times \text{Slaveholding}_i$						423.0***	385.7***
						(72.38)	(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

Dependent variable: $YTM_{i,t}$. Standard errors clustered at the state-level in parentheses: *** p<0.01, ** p<0.05, * p<0.1. Data at the state/week-level. Each model includes both after events dummy variable as well as a dummy variable for southern and border states (excepts models in Column 4 whose sample is selected as states experiencing secession). Coefficients are to be interpreted as the difference in average yields immediately before and immediately after an event. Models in Columns 1,2,3,5,6,7 use non-slaveholding bonds as control group. Lincoln is a dummy variable equal to one after the election of President Lincoln. Fort Sumter is a dummy variable equal to one after the battle of Fort Sumter. 1st Bull Run is a dummy variable equal to one after the 1st battle of Bull Run. Secession is a dummy variable equal to one after a state has seceded. Slaveholding_i is a dummy variable equal to one for southern and border states.

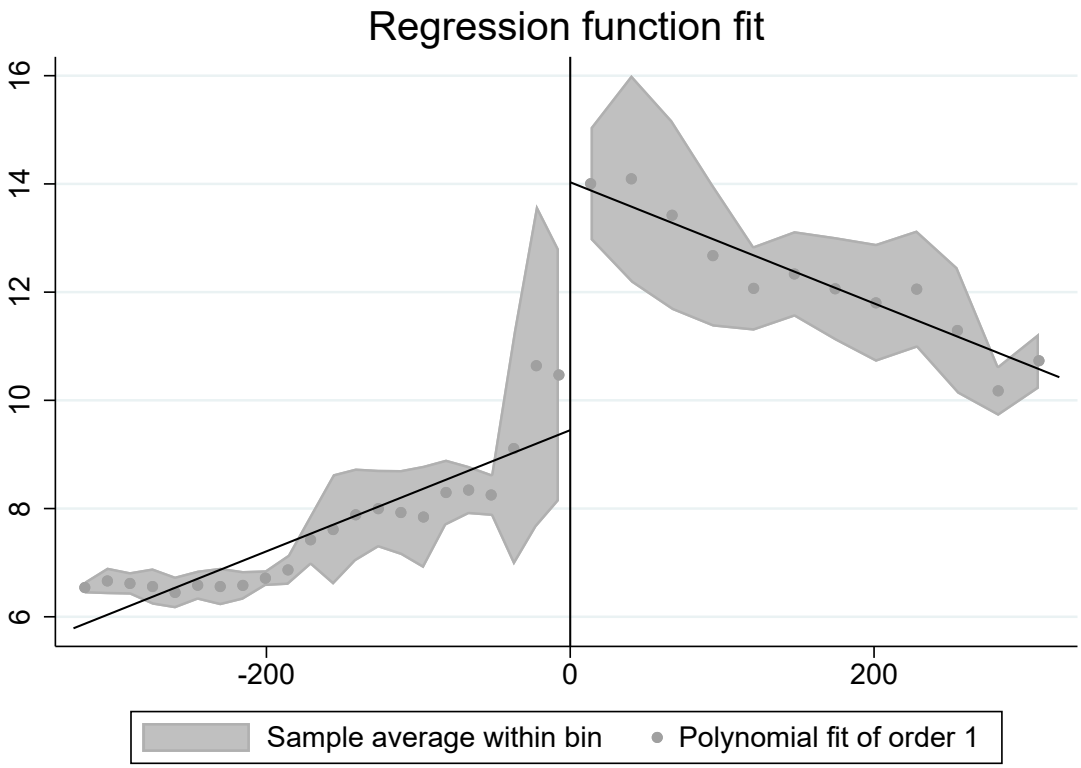
4.2 Secessions as Informational Shocks

According to our model, after a secession financial market participants update the risk of secession upward as the probability of secession increases to one for the seceding state. Our framework also implies that, after secession, variation in bond yields would reveal the expected costs of seceding. Our data set allows us to investigate the direct effect of secession, but also how the expected costs of secession vary following other states' decision to secede. Figure 8 presents a RDD plot centered around the day on which a state declared secession.[28]

Figure 8 shows three important features of our framework. First, financial market participants began pricing in secession risk before secession happened. We observe a gradual increase in the yields to maturity of seceders before the secession happened. While yields increase, the standard errors around the estimate also increase before the secession. Hence, secession-related news opened an era of uncertainty. Investors, before a secession occurred, used information to update their

[28]Appendix Table E.5 presents estimations of the discontinuity generated by secession.

Figure 8: The secession discontinuity on Yields



Y-axis: Yield to Maturity. X-axis: 0 indicates date of Secession Ordinance; negative indicates days before secession; positive indicates days after act of secession. Each point represents the average yield to maturity for a bin defined using optimal bandwidth (Calonico et al., 2014). All eventually seceding states are pooled together in these estimations.

priors. Second, the ytm jumps at the time of secession. The jump in the ytm at the date of the declaration of secession indicates that financial markets did not have perfect foresight. The figure shows that markets reacted significantly to declarations of secession. Further, the overt political act of voting and approving an *ordinance of secessions* sent a clear signal about the state's commitment to joining the outside option.[29] Third, as we move further from the date of a state's secession, the ytm declines. The RDD plots' declining trend after the announcement of secession is consistent with our model, which predicts that secession movements benefit from economies of scale, i.e. the average cost of running a new polity declines as more regions join the outside option. Figure 8 hence encapsulates both elements of a "domino secession": uncertainty and economies of scale.

[29]Dates of secession are available in Appendix B.1

5 Results – Domino Secessions and Economies of Scale

5.1 Economies of scale at the state-level

To explore how financial market perceptions of secession changed over time, we estimate models where we interact the secession dummy variable with measures capturing potential economies of scale from joining a new polity (as in Equation 5). The interaction term considers that secession risk is a function of the decision of other states to secede. We focus on the size of the pool of seceders (their number, the total population, the total area, the amount of state tax collected in 1860, and total rail mileage in 1860), the economic structure of the pool of seceders (urbanization rate), and on the geographic location of states affecting their exposure to a potential conflict (the percentage of land borders a state shares with seceders). Our model does not assume that economies of scale were a linear function of the number of seceders. These economies of scale, and hence the cost of secession, may, for example, be driven by market size, capacity to tax, or population size. In each estimation, we control for the interaction between the secession indicator variable and the index of war news to ensure that no estimator captures a specific war risk.

Column 2.1 of Table 2 provides baseline results, which can be used to compare results shown in subsequent columns, where proxies for economies of scale are also included. This baseline regression estimate includes the number of days after secession and the secession dummy variable to capture the dynamic nature of secessions' impact on yields. The coefficient of secession is positive but non-significant. Even after controlling for the number of days since secession, the effect of secession remain imprecise and volatile.

In subsequent columns of Table 2, we estimate equation 5 by interacting the different measures proxying for economies of scale (mentioned above) with the secession dummy while controlling for the number of days since secession. In this specification, it is possible to determine which elements mattered when markets assessed the perceived costs of secession while controlling for the uncertainty related to secession. Columns 2.2 to 2.6 add the interaction of secession with the different measures of the size of the pool of seceders (number of seceders, population, area, tax, rail). These interactions are all negative in sign and statistically significant. In all these models, the secession dummy variable bears a positive and significant coefficient. Secession, hence, increases the risk of seceders when no (or negligible) economies of scale are realized. As more and larger states seceded, markets lowered secession risk consistent with our model (i.e., the start-up costs of forming a new polity fall as more states abandon the existing one). The decrease in risk reflects two elements: states that had already seceded saw a reduction in their risk when new states joined them; states that seceded, later on, were less penalized by the markets because the markets knew they would join other seceding states. Beyond economies of scale, we observe that a large share of the population in cities, a proxy for market integration with other urban centers in the Union, logically increases the costs of secession (Column 2.7). Column 2.8 shows that the percentage of

borders a state shares with other seceders is not statistically significant – accordingly the costs of secession were not a function of proximity to a potential conflict. The results shown in Table 2 are similar when we control for war risk by including the interaction between the indicator of war risk from the *New York Times* and a dummy variable for slaveholding states (Table E.2).

Table 2: YTM and Coordination: the building of the Confederacy

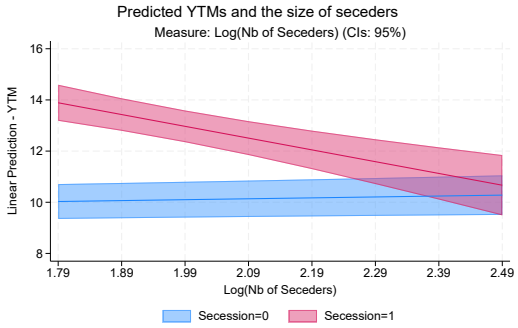
Interaction	(2.1) NO	(2.2) # States in Conf_t	(2.3) Pop Conf_t	(2.4) Area Conf_t	(2.5) Tax p.c. Conf_t	(2.6) Rail Conf_t	(2.7) Urb Rate Conf_t	(2.8) % Border Conf_t
$\text{Secession}_{i,t}$	1.518	12.54**	60.25**	90.88**	68.21**	37.01**	-7.375	2.534*
	(1.103)	(4.359)	(22.30)	(36.50)	(23.62)	(12.96)	(4.691)	(1.140)
$\text{Log(Days secession}_{i,t})$	-0.330	-0.0389	-0.0533	-0.0402	-0.113	-0.0641	-0.0446	-0.236
	(0.197)	(0.196)	(0.190)	(0.195)	(0.180)	(0.187)	(0.201)	(0.207)
$\text{Secession}_{i,t} \times \text{Interaction}$		-5.118**	-3.768**	-6.715**	-4.276**	-4.077**	106.7*	-2.129
		(2.144)	(1.454)	(2.766)	(1.539)	(1.533)	(53.90)	(1.669)
$\text{Secession}_{i,t} \times \text{NYT}_{War,t}$	36.08	56.46	59.62*	57.18*	61.83*	50.41	59.62*	39.07
	(40.65)	(31.31)	(30.43)	(31.10)	(30.02)	(34.03)	(30.43)	(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

Dependent variable: $YTM_{i,t}$. Standard errors clustered at the state-level in parentheses: *** p<0.01, ** p<0.05, * p<0.1. Data at the state/week-level. Each model includes state fixed effects and time fixed effects. Secession is a dummy variable equal to one after a country has seceded. Nationwide events include Lincoln, Fort Sumter and 1st Bull-Run and their interaction with the Slaveholding_i dummy variable. $\text{Log(Days secession}_{i,t})$: the log-transformed number of days after a state has seceded. # States Conf_t is the log-transformed number of states having seceded. Pop Conf_t is the log(Population) of the pool of seceders. Area Conf_t is the geographic area of the pool of seceders. Tax Conf_t is the Log of State Tax raised in 1860 in the territory of seceders. Urb rate Conf_t is the urban rate in the overal territory of seceders. Rail Conf_t is the Log(Rail Mileage) of the pool of seceders. % Border Conf_t is the percentage of a state borders shared with seceders.

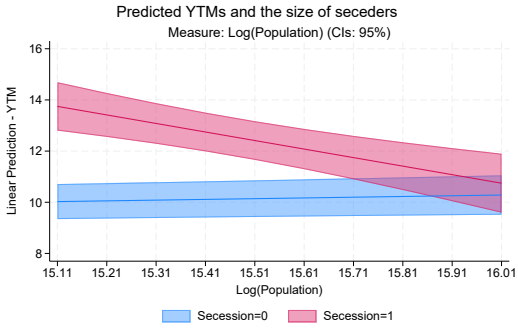
To visualize the effects of changing participation in the secession movement, Figure 9 plots the marginal effect of the size and structure of the pool of seceders on the ytm of seceding states' bonds and on the ytm on non-seceding states' bonds.[30] Seceding states bonds were less risky when the number of seceders increased and when the seceding entity grew in terms of both area and population. They were also less risky if the tax base of these seceders was larger. To the contrary, urbanization and states bordering seceders did not reduce the yields of seceders (Figures 9a to 9d). However, the risk attached to non-seceding states' bonds increased more for states sharing longer borders with seceders – a result again pointing to war risk being specific to border states (and not to seceders – Figure 9g).

[30]To construct these figures, we have deleted time fixed effects and added a time trend.

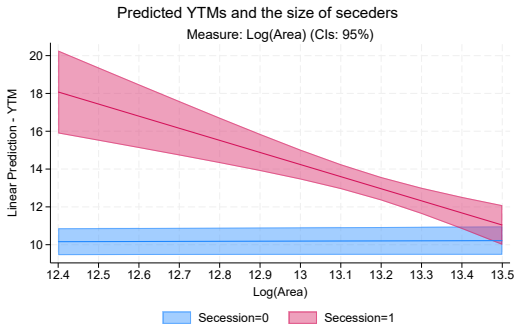
Figure 9: Secession premium on markets as a function of economies of scale.



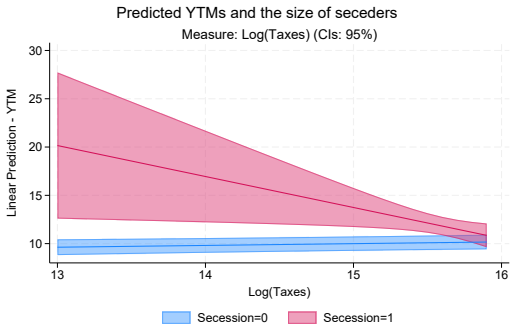
(a) Marginal effects - Log(Nb of Seceders)



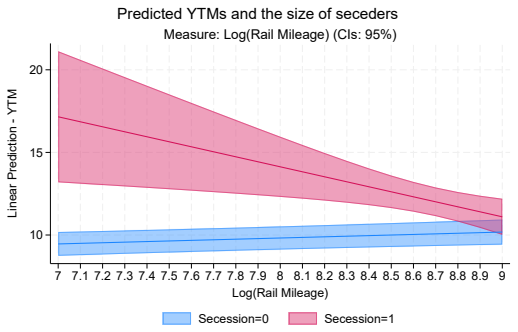
(b) Marginal effects - Log(Population Seceders)



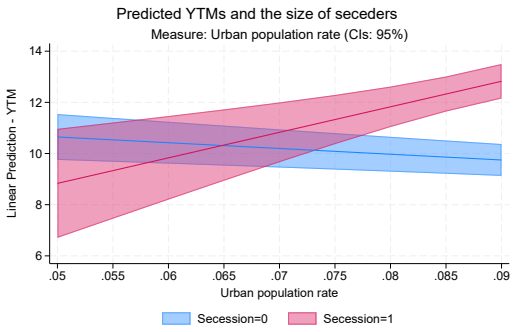
(c) Marginal effects - Log(Areas Seceders)



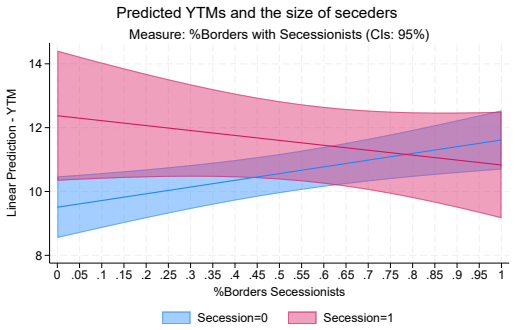
(d) Marginal effects - Log(Taxes seceders)



(e) Marginal effects - Rail Seceders



(f) Marginal effects - Urbanization rate Seceders



(g) Marginal effects -% of Borders with Seceders

5.2 Reduced Economies of scale at the Federal level

If economies of scale are a key determinant of secession, then the riskiness of the federal debt may have risen in response to states departing the Union. The reduction in the number of states in the Union should then translate in higher risk on federal bonds.[31]

Figure 10 shows the movement in the average yield to maturity of the U.S. federal debt. The yield on the federal debt jumped when Lincoln was elected, with markets pricing the risk of secession. Yields show a rising trend thereafter. The highest point in the series occurs after Lincoln was elected but before any shot was fired at Fort Sumter. It suggests that markets priced secessions before any war broke out. In times of tension, markets may have priced in the challenge of raising government revenues among the remaining states to pay for federal debt. Consistent with our model's inclusion of economies of scale, the potential exit of several states may have raised the riskiness of federal debt.

[31]The yields on the federal debt are computed on the basis of the prices and volumes of the following bonds: US6s 1862, US6s 1865, US6s 1867, US6s 1868, US5s 1871, US5s 1874 and US6s 1881.

Figure 10: Average Yields to Maturity of the Federal bonds

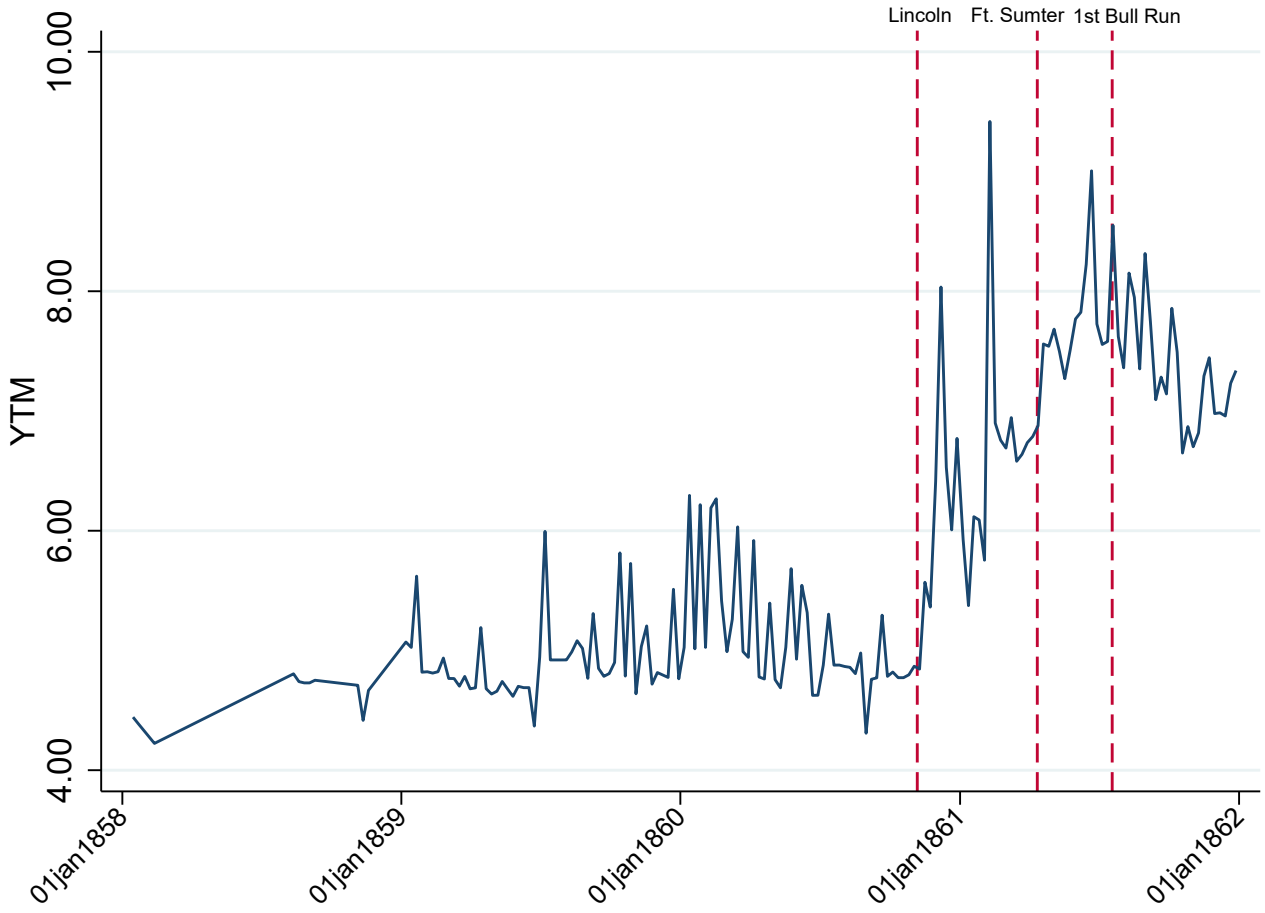
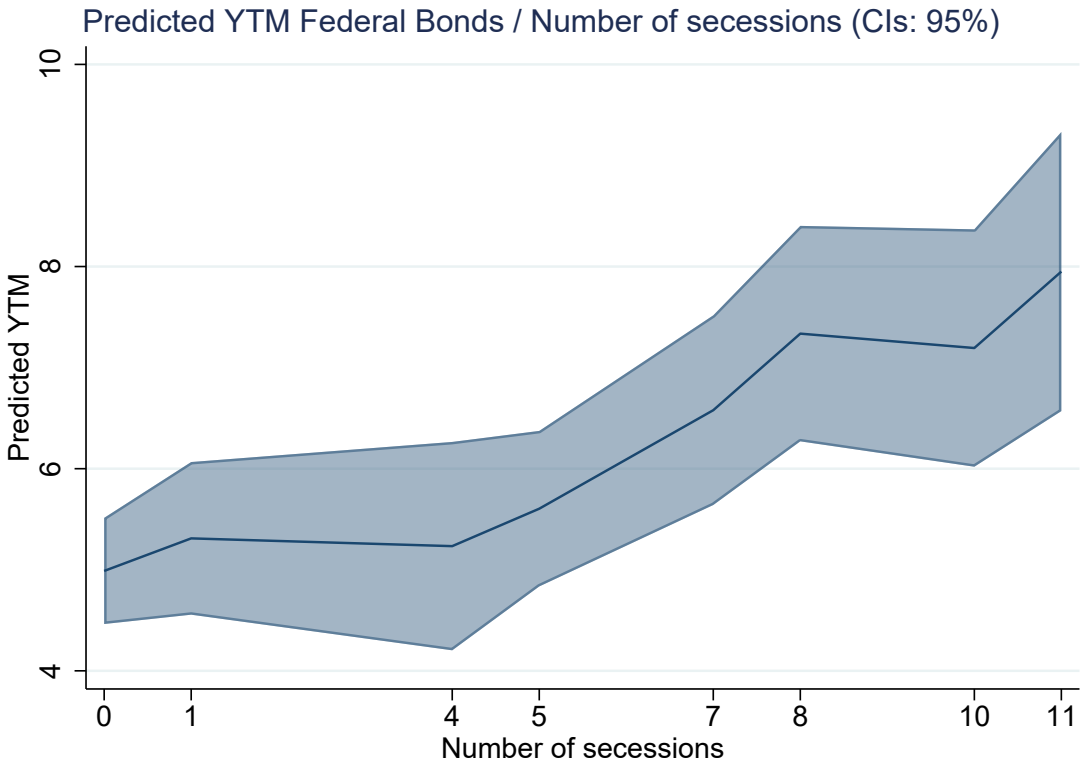


Figure 11 plots the impact of an additional state seceding on federal debt yields. It illustrates non-linearities in economies of scale. Most of the increase in the ytm of the federal debt materialized between the fifth secession and the eighth secession.[32] Georgia, the fifth state to secede had a very close vote on its secession ordinance. In this case, it is thus not surprising that yields rose in response to its decision. Then, when Louisiana and Texas exited from the Union (the sixth and seventh states to join the Confederacy), the ytm on federal debt further increased. These three secessions provided important momentum for the creation of a new polity as they preceded the official proclamation of the Confederate States of America. In summary, bond traders priced in the fact that the union's fiscal picture was directly impacted by growth in the Confederacy and the decline in the size of the union.

[32]In Appendix E.6, we allow for non-linearities and estimate a specific premium for different numbers of seceders.

Figure 11: The Impact of Secession on Federal Debt Yields to Maturity



To further investigate the impact of secessions on the federal debt, Table 3 tests the correlation between measures of the size and structure of seceders and the yield of the Federal debt after the first secession – once diseconomies of scale started realizing at the Federal level. In Panel A, we examine how different measures of diseconomies of scale (because of the departure of slaveholding states) affect the yield of federal debt. All coefficients are positive and significant. Accordingly, the size of seceders increased the risk of the Federal debt, no matter how we measure it. These results mirror the results of Table 2 except for Urbanization. As the future confederacy increased in size, markets revised downwards the risk of each seceding state, but simultaneously penalized the Union. The secession of urban centers, however, was detrimental to these centers, likely connected to other centers still in the Union and to the Union. To determine which dimensions define economies of scale the most, Panel B performs a horse race between the number of seceders and these other dimensions of economies of scale. In this horse race, the only regressor maintaining a statistically significant positive sign are the amount of state taxes raised by seceders in 1860.

Our interpretation of the positive sign on seceders' tax base is that the capacity to raise taxes mattered in ensuring repayment of the federal debt. This effect was more important than the number of seceding states, their population or their areas. These results are robust to clustering the standard errors at the month-level or to dropping the control variable for war risk (see Appendices E.3 and E.4).

Table 3: Yields to Maturity of the Federal Debt – Measures of Economies of Scale

	(3.1)	(3.2)	(3.3)	(3.4)	(3.5)	(3.6)
	Panel A: Different measures of economies of scale					
$\text{Log(Secession}_t\text{)}$	0.845**					
	(0.396)					
$\text{Log(Area}_t\text{)}$		0.383*				
		(0.201)				
$\text{Log(Pop}_t\text{)}$			0.591**			
			(0.276)			
$\text{Log(Tax}_t\text{)}$				0.578**		
				(0.238)		
$\text{Log(Rail}_t\text{)}$					0.694**	
					(0.320)	
Urb Rate_t						19.86*
						(10.66)
$\text{NYT}_{War,t}$	67.14***	74.53***	65.93***	62.10***	64.67***	88.60***
	(20.24)	(20.13)	(20.53)	(20.00)	(20.87)	(21.20)
Observations	52	52	52	52	52	52
Control						
Time trend		YES	YES	YES	YES	YES
R-squared	0.390	0.375	0.388	0.413	0.387	0.354
	Panel B: Horse race with respect to number of secessions					
$\text{Log(Secession}_t\text{)}$		0.676	2.276	-1.491	1.770	0.638**
		(1.283)	(4.934)	(0.986)	(3.088)	(0.259)
$\text{Log(Area}_t\text{)}$		-0.0173				
		(0.746)				
$\text{Log(Pop}_t\text{)}$			-1.149			
			(3.528)			
$\text{Log(Tax}_t\text{)}$				1.363**		
				(0.581)		
$\text{Log(Rail}_t\text{)}$					-0.920	
					(2.573)	
Urb Rate _t						14.37
						(11.47)
$\text{NYT}_{War,t}$		69.29***	72.28***	62.27***	73.17***	70.79***
		(22.49)	(25.19)	(20.08)	(25.92)	(20.76)
Observations		52	52	52	52	52
R-squared		0.381	0.382	0.420	0.383	0.406

Dependent variable: $YTM_{i,t}$. Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1. Frequency: Weekly. Estimates from an autocorrelated model with White standard errors in parentheses.

5.3 Economies of scale: Within-State Variation

We now turn to examining whether financial markets priced sub-secession risk. We first leverage *ex ante* measures of within-state heterogeneity, voting results on the Presidential election of 1860, that markets might have used to price in sub-secession risk (Section 5.3.1). We then directly observe the evolution of yields to maturity in states experiencing internal turmoil during the process of seceding (Section 5.3.2).

5.3.1 Heterogeneity

Differences in preferences also existed within states, often where slaveholding among whites varied across counties. As in our model, heterogeneity is specified as a function of the share of a state's population opposed to the decision to secede. To proxy for the importance of this opposition, we use electoral data and focus on two candidates who ran for president of the U.S. in 1860: John Bell (of the Constitutional Unionist party) whose supporters openly opposed secession and John Breckinridge (a pro-slavery southern Democrat).[33] The percentage of the electorate supporting Bell provides a measure of the size of the group potentially opposing secession. Conversely, a strong turnout for Breckinridge suggests that voters would likely be aligned with any future decision to secede. If a state seceded subsequent to the 1860 election, then the larger the group opposed to secession (i.e., more Bell voters), the greater the likelihood of a future sub-secession.

We estimate yields to maturity on state bonds in the sample of future seceders and include a right-hand-side variable where we interact the secession dummy with the percentage of counties in a state for which the vote share for Bell exceeded the vote share for Breckinridge.[34] Given the stated positions of Bell and Breckinridge, this interaction term is meant to capture the extent that counties from a particular state were aligned with secession. Regression estimates include state and time fixed effects.

Using the regression estimates, we then generate a plot of the marginal effects of the secession dummy variable against the percentage of counties in which Bell received more votes than Breckinridge in the 1860 election. As predicted by the model, Figure 12a shows that the higher the proportion of counties opposing secession, the greater the secession risk. When more than a simple majority of counties favored Bell over Breckinridge (as in Tennessee and Virginia), the premium is sizable – more than 200 basis points and reflecting the market's perception that the heterogeneity within the state regarding secession might lead to sub-secession. As Bell support relative to Breckinridge declined, the premium decreased. It is no longer statistically different from zero when less than 35% of counties voted more for Bell than for Breckinridge. Results are consistent when

[33]The two other candidates who ran for president in 1860 were Abraham Lincoln (Republican Party), who opposed the expansion of slavery in territories, and Stephan Douglas (Democratic Party) who favored popular sovereignty in the territories. Lincoln was not even listed on ballots in the South and therefore his share of the electorate can not be used.

[34]We use county-level data to construct state-level indices of opposition to secession.

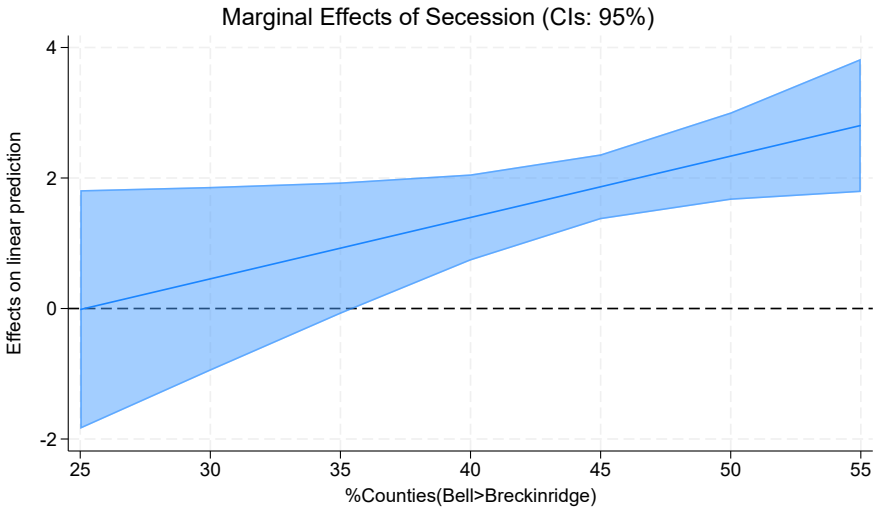
using the share of counties displaying either a strong majority for Bell or a strong majority for Breckinridge. (Appendix E.7 provides regression estimates and F.11 displays the corresponding figures.)[35]

Another way we examine this issue is to focus on seceding states before and after they passed acts of secession, and to assess whether their yields differed based on voter heterogeneity. Figure 12b displays the distribution of yields to maturity before and after secession in seceding states. Seceding states are ordered according to the percentage of counties in which Bell performed better than Breckinridge in November 1860. Before secession, the yields on the bonds of states that eventually seceded are similar. However, after secession, the two states with a clear majority in favor of secession (less than 40% of counties voting more for Bell) experienced a smaller increase in yields than the states with a larger opposition (Tennessee, North Carolina, and Virginia). Even though Virginia was the only state that eventually experienced a sub-secession, our analysis suggests that financial markets did not rule out this possibility for other states. The high yields observed for Tennessee linked to the high proportion of counties preferring Bell over Breckinridge may have led markets to believe that East-Tennessee, the pro-Union part of the state, would secede.[36]

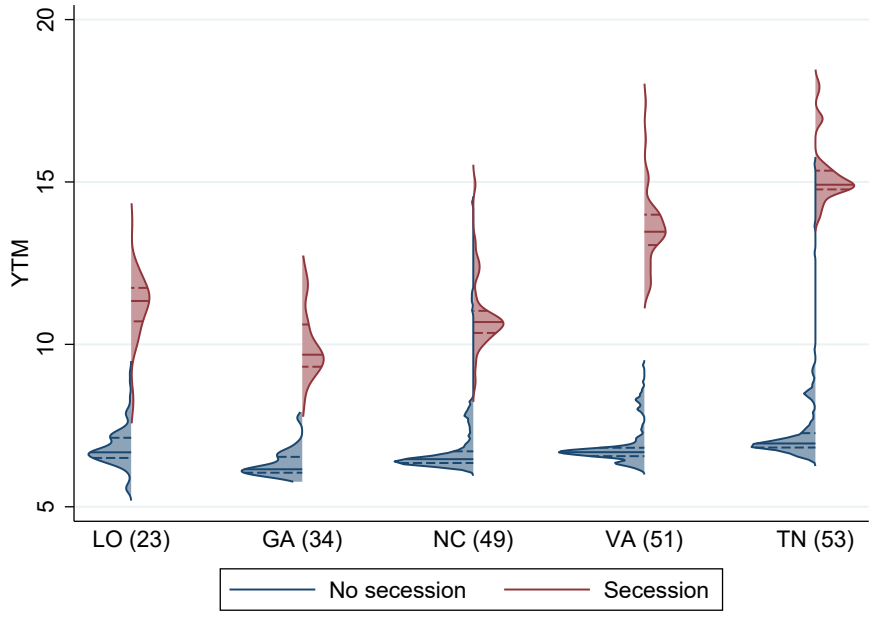
[35]Appendix Table E.8 summarizes the different measures used to assess the heterogeneity.

[36]The possibility of sub-secession in that state was certainly believed to be within the realm of possibility by contemporaries. In its August 21, 1861 edition (p.3), *The New York Times* noted in a piece entitled, "The Eastern Tennessee Unionists," that "the people of that region [East-Tennessee] although two to one for the Union, do not wish to resist the state authorities." The need to mention this fact reflects the previous belief that a sub-secession might occur.

Figure 12: Electoral Results and Within-State Heterogeneity



(a) Marginal Effects: Percent of counties in which the vote share for Bell exceeded the vote share for Breckinridge. The marginal effects result from the following specification: $YTM_{i,t} = \alpha + \beta_1 Secession_{i,t} + \beta_2 Secession_{i,t} \times \%Counties_i + \Gamma X_{i,t} + \epsilon_{i,t}$. Results of the estimation can be found in Appendix E.7



(b) Violin graph of the distribution of yields to maturity before and after the secession in seceding states. Each column represents the distribution of yields for one seceding state; the percentage of counties in that state for which the vote share for Bell exceeded the vote share for Breckinridge is shown in parentheses. The blue line shows the distribution of ytm before secession. The red line displays the distribution of ytm after secession.

5.3.2 Sub-secession

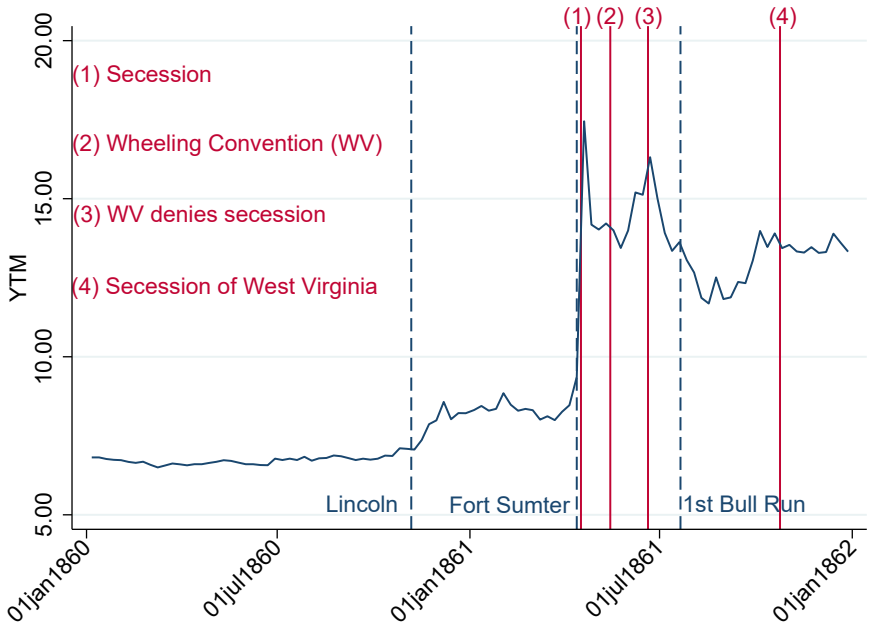
To understand the consequences of a sub-secession, we explore Virginia's experience in the 1860s, and the decision by a subset of voters in the northwestern part of the state to side with the Union

and secede from Virginia.

Virginia made the decision to leave the Union based on a vote by convention delegates that took place just after the bombing of Fort Sumter, on April 17th, 1861, becoming the eighth state to join the Confederacy.[37] As Figure 13 shows, this action led to a dramatic increase in yields. Before a public referendum could be called to ratify the convention delegates' decision, secessionist Virginians began to call for the seizure of Harper Ferry's federal armory and the Gosport Navy Yard at Norfolk, VA, leading unionists in the state to call their own convention in Wheeling on May 13, 1861. They met to repeal Virginia's Ordinance of Secession, which had been initiated and propelled by a subset of political elites in the state. The majority voted to repeal, and to consider forming a new state, but held off on forming a new state until after Virginia's statewide referendum on the question of secession. Virginia's bond yields briefly rose in response to the first Wheeling Convention. Though the statewide popular vote on secession easily passed on May 23, 1861, voters in the western counties largely opposed to it – voting 34,677 against and 19,121 for secession. Leaders from the western counties then reconvened in Wheeling on June 11, 1861. They responded to the referendum by declaring the secession of Virginia illegal and the secession government in Richmond void since it had been initiated by non-representative delegates at the Virginia convention and not by the state's voters. On June 19th, they passed an act to reorganize government, declaring the "restored government" as the legitimate government of Virginia. The state's bond yields continued to rise in response to these events. By October 24th, the western counties had organized a popular referendum on the issue of forming a new state. It passed, with 18,408 voting in favor of breaking away versus 781 against.

[37]Two votes on the question of secession in Virginia occurred at a convention that occurred prior to conflict at Fort Sumter. Both failed to receive a majority by convention delegates.

Figure 13: Weekly Yields to Maturity for Virginia State Bonds in 1861



Dashed grey: National events / Red: State-Specific

From the perspective of the model, the departure of the northwestern counties from the state of Virginia would be treated by financial markets equivalently to a state leaving the Union: it would reduce the capacity of the existing polity to finance its debt, thus raising the risk of default. Table 4 therefore tests whether there is evidence of elevated risk when Virginia splintered in two. When breakaway counties in the western part of the state voted to remain part of the Union by forming the new state of West Virginia, the ytm on Virginia state bonds rose by 76 basis points (using the specification shown in the last column of Table 4 that includes all relevant secession-related events). The case of Virginia nicely illustrates how the risk of secession grew in case of further sub-secession. When West-Virginia seceded from Virginia to protest against the secession of Virginia from the U.S., the risk associated to Virginian bonds increased.

Table 4: Yields to Maturity of Virginia's debt - Within State Secession

	(4.1)	(4.2)
SecessionDeclaration$_t$	5.593	5.312
	(0.738)***	(0.790)***
	[0.622]***	[0.651]***
Convention W-V$_t$	-0.639	-0.649
	(0.802)	(0.838)
	[0.541]	[0.496]
W-V opp secession$_t$	0.0685	0.106
	(0.595)	(0.568)
	[0.621]	[0.548]
W-V Secedes$_t$	0.732	0.758
	(0.221)***	(0.233)***
	[0.354]**	[0.376]*
Lincoln$_t$	1.059	0.939
	(0.168)***	(0.174)***
	[0.262]***	[0.201]***
Ft. Sumter$_t$	0.999	0.771
	(0.0596)***	(0.106)***
	[0.0949]***	[0.105]***
1st Bull Run$_t$	-1.830	-1.701
	(0.546)***	(0.498)***
	[0.819]**	[0.675]**
NYT$_{War,t}$		58.66
		(23.38)**
		[19.88]***
Observations	261	86
R-squared	0.976	0.974
Controls		
Time trend	YES	YES
Year FE	YES	YES

Dependent variable: $YTM_{i,t}$. Robust standard errors in parentheses : *** p<0.01, ** p<0.05, * p<0.1. Estimates are from an autocorrelated model, with White standard errors shown in parentheses or standard errors clustered at the month-level in box brackets.

6 Potential Alternative Explanations

Domino secessions occur under two conditions: uncertainty and economies of scale. Sections 4 and 5 show these conditions existed during the 1860-1961 secessions in the US using state bond prices. Figure 8 nicely illustrates these two components. Before secession, information was used to update the expected probability of secession. Information was used to resolve part of the uncertainty regarding states' willingness to secede. Moreover, acts of secession were informative signals for markets, and hence for other potential seceders. The risk attached to a seceding state then decreased as other states joined the secession movement. This specific pattern was driven by

the dynamics of domino secessions and not by other phenomena. Here, we explain why our results cannot be explained either by the pricing of slave emancipation and/or war.

Slavery and secession: The dynamics of state bonds do not reflect the economic cost of slave emancipation for slaveholding states. First and foremost, the secession of a slaveholding state should increase a state's ability to decide how to deal with emancipation. More autonomy on this issue should reduce the YTM of that state's bonds on financial markets. Yet, we observe the opposite. Second, Appendix F.9 shows almost no movement in the news content regarding slavery during our time window.[38] Third, we observe movements in the Federal debt in line with our framework. These movements between the election of Lincoln and Fort Sumter cannot be explained by expectations regarding slave emancipation.

War and secession: Our results are also not solely explained by war risk. First, the risk on slaveholding states' bonds had already increased at the election of Lincoln, before the war was even mentioned in the *New York Times*. Second, if anything, the war intensifies at the end of our sample- when market participants considered the bonds of seceders less and less risky. War risk, alone, cannot explain this pattern. Third, most of our estimators also compare the yields of seceding slaveholding states with those of non-seceders/non-slaveholding states. To explain the higher yields for the seceding states, perception of war risk should have been extremely unbalanced against the South. Yet, the first Battle of Bull Run was won by the South. Fourth, focusing on the Federal debt shows that it was riskiest (highest ytm) between the election of President Lincoln and Fort Sumter as the secession movement grew in size, but war was not yet anticipated.

Of course, slavery and war mattered in 1860 and 1861. As illustrated in Figure 5, the heterogeneity in preferences between regions was structured around slavery. Similarly, war risk could be considered one of the costs of secession. However, the dynamics we identify empirically do not reflect the pricing of slave emancipation or war detached from the dynamics of secession.

7 Conclusion

By their very nature, secessions are uncertain events, the success of which is unknown at their outset. They often take months, if not years to unfold. As a result, participation can change as groups or regions update their beliefs about the relative benefits of staying in the existing polity.

We build a simple model that accounts for the initial uncertainty as to whether a region participates in a secession movement and that allows for regions to update their decisions as new information about others' participation is revealed over time. This setting generates interdependence and allows for the emergence of several types of secession movements: solo secessions (where only one region leaves an existing polity), synchronous secessions (where several regions leave simultaneously), and domino secessions (where multiple regions depart, but do so in different periods).

[38] Our "Economy" index counts the proportion of stems related to the economic dimension of slave emancipation: slave, cotton, trade, emancip, labor.

The model also speaks to instances of sub-secession, when regions themselves further splinter over the decision to secede.

We illustrate how state bond data is particularly well suited for exploring the implications of models that allow for interdependence and Bayesian updating in secession movements. In particular, we build a new hand-collected data set of daily U.S. state bond yields for the 1850s and early 1860s to test for the existence of the two conditions generating domino secessions in our model: (1) uncertainty and (2) economies of scale.

To document uncertainty, our estimates show how information shaped the divergence in risk on the market between slaveholding states' bonds and others. Event studies and regression estimates show that financial markets began to price in secession risk at the time of Lincoln's election – well prior to the start of the U.S. Civil War. At the movement's outset, it was unknown which states would secede. Similarly, markets also reacted to secessions, showing that these secessions were informational shocks.

To document economies of scale we focus on the evolution of the risk of seceders after they had seceded. As more joined the movement, bond markets responded by reducing the yields on seceding states' bonds. This result is consistent with our model, which shows that the net benefits of secession can change over time, and that the costs of secession decline as more regions breakaway. Conversely, bond yields on existing U.S. federal debt rose as more states seceded. Our estimates suggest that the main components of these economies of scale are the size of regions and their capacity to raise taxes. Economies of scale were also reduced in the case of potential sub-secession.

We contribute to the existing literature on secession by examining how uncertainty can affect the willingness to secede. This uncertainty is crucial since it affects the size, the shape, and the perceived viability of a seceding polity. We document how secession ordinances (acts of secession by states) contained "new information" that bond traders priced into state bond yields. We show that these formal political commitments to join a breakaway polity in turn influenced the willingness of others to secede. Our findings call for a better understanding of coalition-building and coordination among seceders during secession movements.

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Appendix

A Theoretical model: Proofs

A.1 Proofs - Proposition 2

Proof. As $g_1 \geq g_2 \geq g_3 \geq ... \geq g_n$, a region j never secedes if a region $j-1$ has not considered seceding yet. Given the structure of preferences, if region $j-1$ has seceded so have regions with lower j. We also note the difference in the costs of secession is written $\Delta c = c(j-1) - c(j)$.

Synchronous secessions. If $g_j > c(j-1)$, j and $j-1$ secede in the same period. In that case, region j does not require any additional economies of scale before seceding and secedes at the same time as $j-1$.

Solo secession. If $g_{j-1} > c(j-1)$ and $g_j < c(j)$, $j-1$ secedes but this is not followed by the secession of j. Thus, $j-1$ secedes but is not joined by j.

Combining previous inequalities, neither *synchronous secessions* nor *solo secessions* will occur if:

$$g_{j-1} > c(j-1) \geq g_j > c(j-1) - \Delta c. \tag{A.1}$$

In this sequence of inequalities, the first one ($g_{j-1} > c(j-1)$) ensures that region $j-1$ secedes. The second one ($c(j-1) \geq g_j$) ensures that region j does not secede at the same time as region $j-1$. The third inequality ensures that region j secedes after having observed the secession of region $j-1$ and updated its expectations ($g_j > c(j-1) - \Delta c$).

One condition for this inequality to hold is $\Delta c > c(j-1) - g_{j-1}$. Given that for the secession of $j-1$ to occur we have $c(j-1) < g_{j-1}$, Δc has to positive and greater than $c(j-1) < g_{j-1}$. In that case $c(j-1) > c(j)$, so we have economies of scale.

□

A.2 Proofs - Proposition 3

Proof. The informational shock increases the probability $Prob(c(s) < E(g_j))$ for all regions. We can rewrite the secession risk for each region by defining s as the sum of individual properties to secede:

$$Secessionrisk_j = Prob(E(g_j)) > c(s)) \times c\left(\sum_{i=1}^{n} Prob\left(c(s) < E(g_{i,O})\right)\right). \tag{A.2}$$

Intuitively, increasing $Prob(c(s) < E(g_{j,O}))$ for all regions increases the first term of equation A.2 and decreases the second term if there are economies of scale. The evolution of secession risk following an overall shift in the probability to secede for the n regions then depends on whether

the first or the second effect is stronger. The second effect prevails iff economies of scale are large enough. If economies of scale are smaller than the increase in the probability of secession, then secession risk increases when there is news on the difference in preferences between potential seceders and the core. □

A.3 Extension - Sub-secession

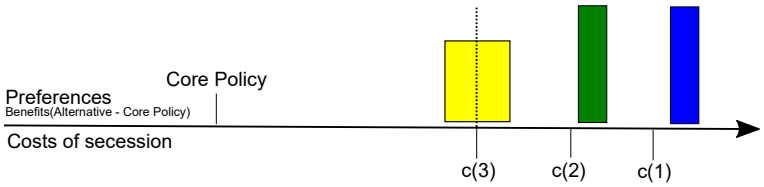
In the main text, we model regions as akin to American states; however, one can imagine a different structure, where regions are "groups." Groups would then consist of factions within a region or some smaller geographical unit. We can therefore extend our model to consider that a group $j-1$ decides on secession according to its preferences for a whole region, R, composed of groups $j-1$ and j. Several regions then follow the decision of a single representative but may organize to reject this change if they do not benefit from it. The stability of the decision based on g_{j-1} depends on the approval of j.

Proposition 4 (**Sub-secession**). *With economies of scale, within-region heterogeneity increases the costs of secession.*

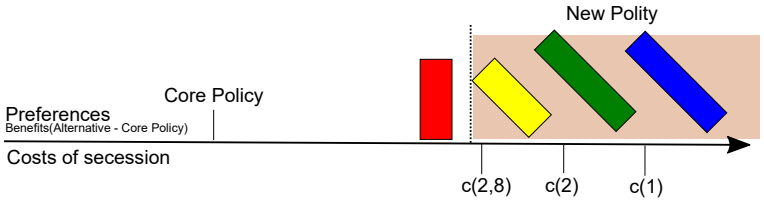
Proof. This proof is a sub-case of the previous one. Depending on the structure of the sequence of g (and expectations on g) and the c function, sub-secessions may occur. These effects are all driven by the extension of our model for which the representative agent does not decide for a single region having homogeneous preferences but for several regions having dissimilar preferences. Groups $j-1$ and j form a region R. The representative agent of $j-1$ decides on the secession of $j-1$ and j. The decision rule of $j-1$ is $E(g_{j-1}) > c(j)$. The decision rule of j is $E(g_j) > c(j)$. By definition, $E(g_j) < Eg_{j-1})$ so potentially $E(g_j) \leq c(j)$. In that case, group j secedes from the seceding region R. This reduces the economies of scales and increases the costs of secession from $c(j)$ to $c(j-1)$. Eventually, this could lead to a domino effect of sub-secessions if $E(g_{j-1}) < c(j-1)$. We see that these patterns are more likely as $E(g_{j-1})$ is further away from $E(g_j)$. By assuming a different structure in the decision making process, we are then able to observe a potential second layer of secessions. □

Heterogeneity within a region makes the gains from secession lower as it increases the difference in preferences within the existing region. In the situation illustrated in Figure A.1, part of the yellow seceding region would be better off staying with the core. This situation could eventually lead to sub-secession (the secession from the seceding polity and a return to the core), resulting in a higher $c(s)$ since part of the region leaves the new polity and returns to the core. Sub-secession would therefore reduce the economies of scale in the new polity.

Figure A.1: Secession and Within-Region Heterogeneity.



(a) Secession: In the yellow domino part of the domino would benefit from secession and the other part not.



(b) Sub-secession: The dissenting group within the yellow region (in red) may want to splinter off from yellow if yellow secedes. It thereby increases the costs of seceding for other seceders.

Note: The green and the blue regions have homogeneous preferences and secede. The yellow region has more heterogeneous preferences (thicker domino).

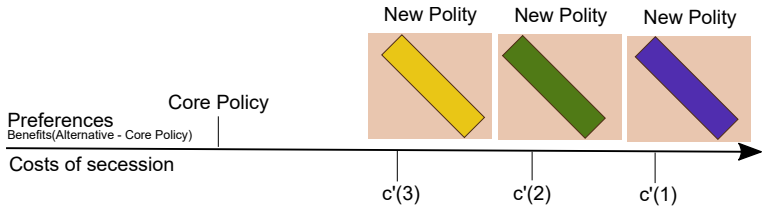
A.4 Extension - Regions' Policy Choices

If regions decides of their own policy, then they can choose between:

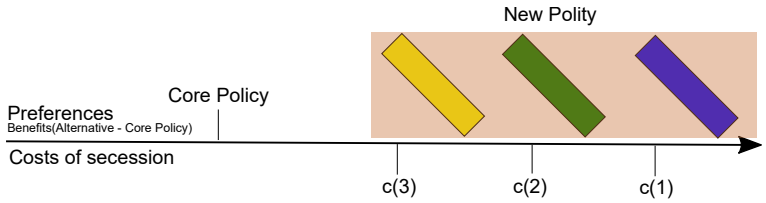
- facing the cost function $c'(s)$ that only represents the shrinkage of the core and then align policies to their preferences ω_j.
- facing the cost function $c(s)$ that represents both the shrinkage of the core and the increase in size of the outside policy. Then they align their policies on and then align policies to k.

A region chooses the first alternative iff $c'(s) - c(s) < k - \omega_j$. Figure A.2a represents the first scenario. Figure A.2b represents the second scenario. In both cases, a domino secession occurs as the secession of a region determines further secessions.

Figure A.2: Secession and Within-Region Heterogeneity.



(a) Domino Solo Secessions: Regions decide their own policy and form their own polity



(b) Domino Secessions: Even if each region could form its own polity, regions prefer to join the outside options if economies of scale are large – the benefits of being part of the new polity are more important than the differences in preferences between seceders

Note: The green and the blue regions have homogeneous preferences and secede. The yellow region has more heterogeneous preferences (thicker domino).

B Data Appendix

B.1 State Bonds Trading on the NYSE

Using data from the New York Exchange's archives, we identified all bonds trading during our sample period. There is surprisingly little information regarding the terms of US state bonds just before and during the Civil War. For example, determining the maturity and the date of coupon payments is not straightforward. Our main sources for doing so are Porter (1880) and *Hallett and Company's American Circular* (18 September 1861). These sources proved crucial for understanding some apparent inconsistencies. For example, in one case, the Ohio 6s 1860 still traded in 1861. Porter (1880, 617) mentions that these bonds were "payable at the pleasure of the state after 1860." The *Banker's Magazine* confirms this, stating "the state did not consider itself bound to come into the market, at such an unfavorable time, for a new loan, and consequently the interest only was paid. The date should thus be viewed as the first date after which the state could call back the bond rather than the date of maturity."[39] Hallett (1861) lists other bonds as having a variable payment date (Georgia coupon bonds, Louisiana coupon bonds). In some instances, the maturity is given as a range. For example, this is the case for Kentucky's 6 per cent bonds (maturity 1868-1872), Missouri 6s (1872-1886), and Virginia 6s (1885-1893). For some states, the maturity is not mentioned in Hallett (1861), as in the case of the Tennessee coupon bonds and Indiana's bonds (listed with a maturity given as "18."). However, for the former, our original source provides a maturity date. In practice, when the maturity was absent, and when bonds were

[39] *Banker's Magazine*, February 1861, vol.15, pp.670-1.

callable after a given date, we treated the bonds as perpetuities to compute the yields to maturity. When the maturity was given as a range, we considered the mid-range as the maturity date. In view of the long-term maturities expressed, when there is a range, this should limit any bias. While Porter (1880) proved helpful in understanding the maturity of particular bonds, it provided little guidance for coupon dates. Hallett (1861) proved to be a better source as it provided dates of coupons payments for most of our bonds. In instances where it did not provide this information, we relied on prices listed as ex-dividend or ex-interest. For the remainder, we first consider the coupon dates of the closest bond from the same issuer for which we know the date. If there is no such bond, we assume that the bond pays coupons on the most frequent dates encountered (1st of January and 1st July).

The following provides a listing of all bonds that traded on the NYSE. As noted in the data section, some of these bonds traded too infrequently to be used in our analysis:

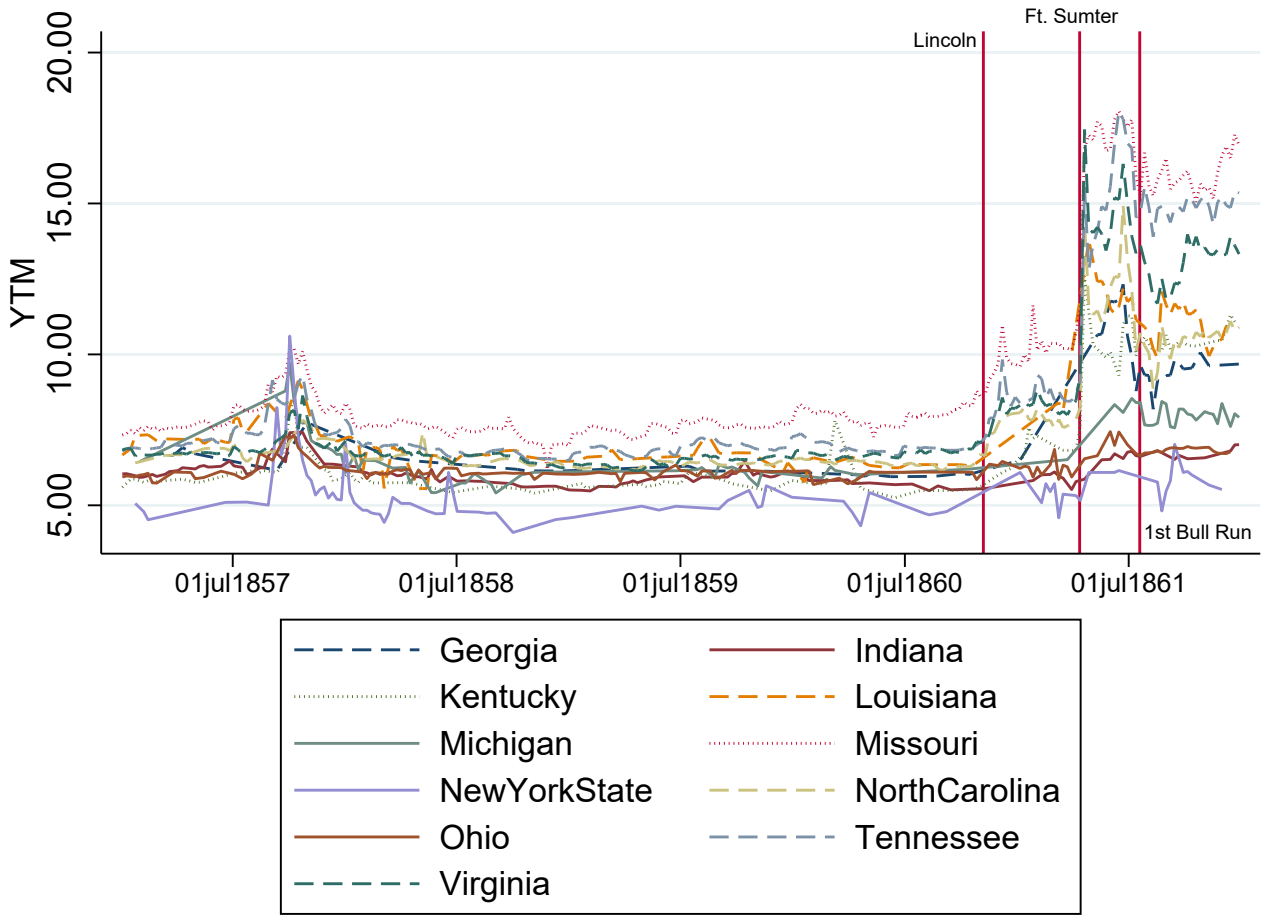
Kentucky 6s and 6s large ,Kentucky 6s 15 years, Ohio 6s 1860, Ohio 6s 1862, Ohio 6s 1865, Ohio 6s 1870, Ohio 6s 1875, Ohio 6s 1886, Ohio 6s war loan, Indiana 2.5, Indiana 5, Pennsylvania 5s (coupon), Tennessee 1890, Tennessee 1871, Tennessee 1868, Virginia 6s, Virginia 6s new, Virginia 6s transferable, Virginia 6s large bond, North Carolina 6s, South Carolina 6s, Missouri 6s, Missouri 6s sterling, California 7s 1870, California 7s 1875, California 7s 1877, California 7s large bonds, California State 7s, California State 7s New bond, Louisiana 5s, Louisiana 6s, Georgia 6s, Georgia 6s payable in Georgia, Michigan 6s 1878, Michigan 6s, Michigan 6s 1863, Michigan State 7s, Michigan State 7s 1878, Michigan 7s war loan, Michigan State 8 weeks loan, Oregon war loan, Arkansas States 6s, NY State 5s 1858, NY State 5s 1859, NY State 4-1/2s 1859, NY State 5s 1860, NY State 5-1/2s 1860, NY State 5-1/2s 1861, NY State 5s 1862, NY State 6s 1860, NY State 6s 1861, NY State 6s 1862, NY State 6s 1864 NY State 6s 1865, NY State 6s 1866, NY State 6s 1867, NY State 6s 1868, NY State 7s 1870, NY State 6s 1871, NY State 6s 1872, NY State 6s 1873, NY State 6s 1874, NY State 6s 1875, NY State 5s 1874, NY State 5s 1875, NY State 6s 1878 NY State 6s 1887, Illinois interest 1847, Illinois interest 1860, Illinois internal improvement 1847, Illinois coupon bond 1860, Illinois coupon bond 1862 Illinois coupon bond 1863, Illinois coupon bond 1869, Illinois coupon bond 1870, Illinois coupon bond 1875, Illinois coupon bond 1876, Illinois coupon bond 1877, Illinois coupon bond 1879, Illinois registered bonds, Illinois sterling bonds, Illinois unregistered bonds, Illinois freeland bonds, Minnesota State 8 per cent, Virginia sterling 5 per cent, Iowa state 7s 1868. The next section of our appendix lists only the bonds used in our data analysis.

B.2 State bonds Traded on the NYSE and used in the Analysis

Description	Maturity	Maturity Used	Coupon dates
Kentucky 6s and 6s large	Unknown	Perpetuity	1st January and 1st July
Ohio 6s 1860	callable from 1860 on	Perpetuity	1st January and 1st July
Ohio 6s 1865	callable from 1865 on	Perpetuity	1st January and 1st July
Ohio 6s 1870	callable from 1870 on	Perpetuity	1st January and 1st July
Ohio 6s 1875	callable from 1875 on	Perpetuity	1st January and 1st July
Ohio 6s 1886	callable from 1886 on	Perpetuity	15 December and 15 June
Indiana 2.5	callable from 1873 on	Perpetuity	1st January and 1st July
Indiana 5	Unknown	Perpetuity	1st January and 1st July
Tennessee 1890	1890	1890	1st January and 1st July
Virginia 6s	Unknown	Perpetuity	1st January and 1st July
North Carolina 6s	Unknown	Perpetuity	1st January and 1st July
Missouri 6s	Unknown	Perpetuity	1st January and 1st July
Louisiana 5s	Unknown	Perpetuity	1st January and 1st July
Louisiana 6s	Unknown	Perpetuity	1st January and 1st July
Georgia 6s	Unknown	Perpetuity	1st January and 1st July
Michigan 6s 1878	1878	1878	1st January and 1st July
Michigan 6s	Unknown	Perpetuity	1st January and 1st July
NY State 5s 1858	1858	1858	1st June and 1st December
NY State 5s 1860	1860	1860	1st June and 1st December
NY State 6s 1862	1862	1862	1st June and 1st December
NY State 6s 1864	1864	1864	1st June and 1st December
NY State 6s 1872	1872	1872	1st June and 1st December
NY State 6s 1873	1873	1873	15 March and 15 September
NY State 5s 1874	1874	1874	16 march and 15 September

B.3 Descriptive Figure

Figure B.1: Yields to Maturity for State Bonds



Dotted lines: Slaveholding (eventually seceding) / Dashed lines: Slaveholding (eventually seceding) / Full line: Other states

B.4 Dates of Secessions

Table B.1: Dates of State Secession Ordinance from the U.S., 1860-1

State	**Secession dates**
South Carolina	December 20, 1860
Mississipi	January 9, 1861
Florida	January 10, 1861
Alabama	January 11, 1861
Georgia	January 19, 1861
Louisiana	January 26, 1861
Texas	February 1, 1861
Virginia	April 17,1861
Arkansas	May 6, 1861
Tennessee	May 6, 1861
North Carolina	May 20, 1861

Note: States in bold are included in our data analysis.

C Historical evidence

C.1 Typology and Secessions in History

Table C.1: Illustration : Typology of secessions.

Type of secession	**Motives for secession**		**Definition**	**Examples**
	Preferences heterogeneity	Information on other secessions		
Solo Secession	Yes	No	A single region leaves the pre-existing entity	South Soudan (2011) Bangladesh (1971)
Synchronous Secessions	Yes (large shocks)	No	Several regions break-up from the pre-existing entity at the same time	Austro-Hungarian Empire (1920's) Ottoman Empire(1920's)
Domino Secessions	Yes	Yes	Secessions are endogenous and occur sequentially	USSR(1991) Yugoslavia(1990's) USA(1860's)

C.2 Louisiana: Illustrating the Process of a Domino Secession

The secession of Louisiana in 1860 from the United States illustrates the particularities of *domino secessions* presented in Propositions 1 to 3. As noted by Dew (1970), Louisiana's Governor,

Thomas O. Moore told South Carolina's governor in October 1860: "I shall not advise the secession of my state." However, secessionists in Louisiana gained traction after the election of Abraham Lincoln to the U.S. presidency in November 1860: Louisiana's preferences diverged from those of the Union. Dew (1970, p.21) notes that "the Secessionist sentiment in most parts of the state grew measurable after South Carolina left the Union on December 20." Indeed, secession became more attractive once other regions made the first move. Regions (states) whose preferences differed from the core's were more likely secede if the new polity they entered was larger. In Louisiana, the citizens desiring a collective approach to secession via a "Union of southern States" organized as the "Cooperationists" at the secession convention elections of January 7$^{\text{th}}$. "Immediate Secessionists" preferred going it alone. These factions nicely illustrate that, even within a seceding region, preferences may not be uniform.

D Using Border States to Disentangle Secession risk from War Risk

Missouri held a convention in the late winter of 1861 on the issue of secession, and on March 4$^{\text{th}}$, voted 89-1 against, resolving that "at present there is no adequate cause to impel Missouri to dissolve her connection with the Federal Union, but on the contrary she will labor for such an adjustment of existing troubles as will secure the peace, as well as the rights of quality of all the States."[40] Even if Missouri officially stayed neutral, its governor Jackson was advocating in favor of secession and preparing a coup. On July 22, 1861, new elections were held for governor and the state once again called for a convention to vote on secession. The convention reaffirmed its earlier "no" vote on the secession question, a decision which only seemed to embolden the exiled Governor Jackson (and who had fled to the southern part of the state at that time). Despite union forces controlling almost the entire state, on October 28, 1861, Jackson along with some sympathetic members of the Missouri General Assembly passed an ordinance of secession. The act was formally recognized by the Confederacy on November 28, 1861, when it declared Missouri its twelfth member state.

Kentucky also had slaveholders. Roughly 23 percent of the state's total population in 1860 was slave-owners (ranking it 10$^{\text{th}}$). Kentucky relied on both northern railways and southern ports along the Mississippi River and its tributaries to transport its grains and other tradables. Like Missouri, Kentucky had a governor, Beriah Magoffin, who had strong beliefs about states' rights and who also believed that states had the right to secede. Despite his desire and effort to secure more rights for southern states, he ultimately acceded to the parliamentary process and called a special session of the Kentucky General Assembly on December 27, 1860 to decide the question of secession. In contrast to Governor Magoffin's views, most members of the general assembly

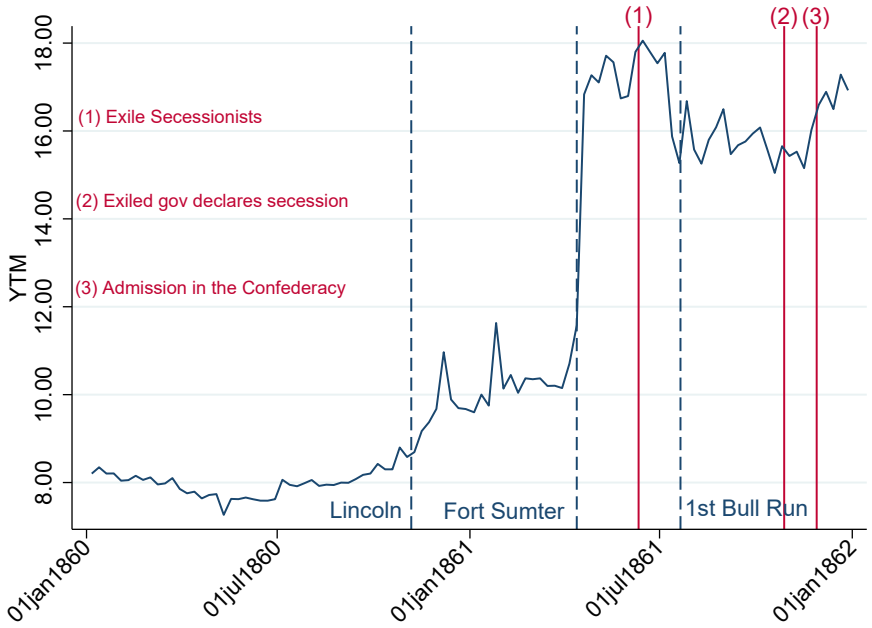
[40] *New York Times*, "Missouri State Convention," March 11, 1861, p.8.

were sympathetic to remaining part of the union. After the bombing of Ft. Sumter and Lincoln's request for troops from Kentucky to help extinguish the rebellion, Magoffin replied, "I will send not a man nor a dollar for the wicked purpose of subduing my sister Southern states"(Powell, 1976, 52). However, unlike Missouri, he did not go rogue. Instead, on May 20, 1861, both houses of the General Assembly passed a declaration of neutrality, a position endorsed by the Governor.

Kentucky and Missouri are of particular interest because they declared their neutrality early on, leaving open the prospect that they could join the Confederacy at a later date. However, as neutral states, markets were probably not inclined to consider they would enter a war, if one were to begin. Their yields should therefore not reflect war risk. By contrast, movements in the yields could be affected when new information regarding their status as members of the union was revealed.

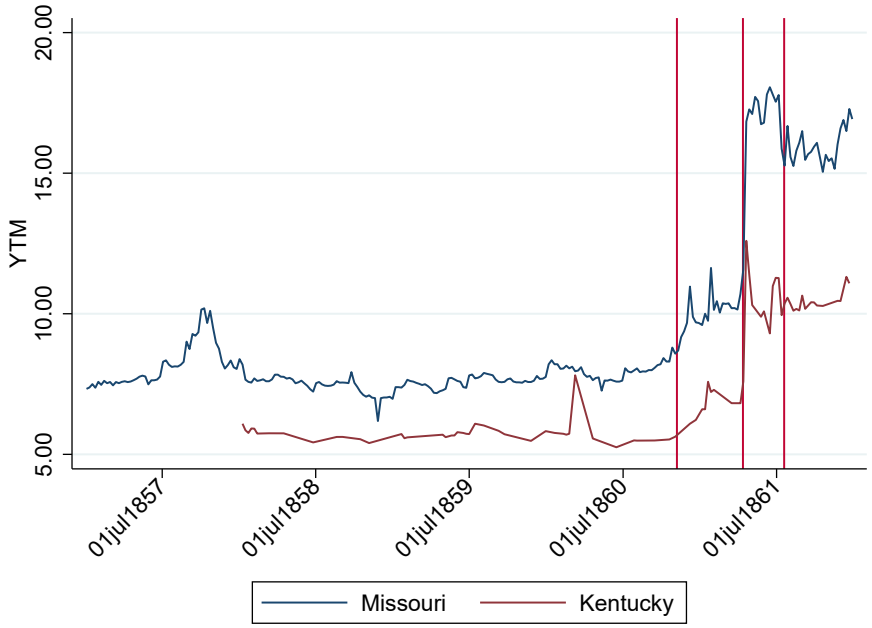
Both Missouri and Kentucky's bond yields increased around the bombing of Fort Sumter and around the election of Lincoln, though Kentucky's rose by considerably less in response to both events (Figure D.2). The latter result may reflect the fact that, even though Lincoln had a very poor showing in his birth state of Kentucky, receiving less than 1 percent of the popular vote, the candidate garnering the most votes for president in the 1860 election was John C. Bell (45 percent) of the anti-secessionist Constitutional Union party. Markets in late 1860 perhaps viewed secession risk as lower in Kentucky in comparison to Missouri where the two Democrats running for president, Breckinridge and Douglas, received the most votes (around 35 percent), but who publicly differed on the right of a state to secede from the union. In addition, Missouri's bond yield remained considerably higher than Kentucky's after Fort Sumter. Bond markets also appear to have priced in the fact that Missouri's population was electorally divided at the time of Lincoln's election and because of the subsequent actions by the governor (Figure D.1). Tables D.2 and D.3 examine the weekly data for both Missouri and Kentucky's bonds. Our results imply that when Missouri was "admitted" to the Confederacy without the support of its elected legislature, its bond yields rose by around 130 to 250 basis points. Given that unionists controlled the state at that time – markets simply priced this as additional secession risk, given the actions by the governor and the Confederacy lacked the legitimacy of even the state's legislature.

Figure D.1: Weekly Yields to Maturity in Missouri and key events



Dashed grey: National events / Red: State-Specific

Figure D.2: Weekly Yields to Maturity for Kentucky and Missouri



In Table D.3, we consider how two actions affected the yields of Kentucky's bonds: its decision not to send troops on April 15th 1861 in support of the union and its declaration of neutrality on May 20th 1861.[41] When the state declared that it would not send troops to the Union, its debt

[41]Contrary to Missouri and the Federal debt, we do not estimate à Newey-West model for Kentucky as some weeks have missing data in 1861.

yields increased. Neutrality sent two signals: (1) that the state would try to avoid war and (2) that its place in the Union was not as certain as one could have expected since the state was not willing to risk the lives of its citizen for the Union. More generally, Kentucky's bonds were perceived as more risky than non-slaveholding states' bonds, given it was a border state with slaveholders, but as long as its official position was to remain part of the union, bond markets perceived it as less risky to secede than Missouri. The evolution of the yields confirm the importance of secession risk as opposed to war risk. Following Lincoln's election, yields on these two border states bonds rose, a movement one could attribute to the position of both state governors who had expressed favorable views on seceding. But afterwards, the yields reflected new information regarding the position of the two states.

Table D.2: Testing Within-State Secession: Evidence from Missouri State Debt

	(D.2.1)	(D.2.2)	(D.2.3)	(D.2.4)	(D.2.5)	(D.2.6)
Exile Seceders	2.929			2.988	0.393	0.275
	(0.731)***			(0.741)***	(0.761)	(0.670)
	[1.205]**			[1.199]**	[0.718]	[0.631]
Missouri "secedes"		1.062		-0.875	-0.329	-0.198
		(0.433)**		(0.271)***	(0.200)	(0.139)
		[0.824]		[0.371]**	[0.116]***	[0.117]
In Confederacy			1.529	1.214	1.268	1.151
			(0.345)***	(0.196)***	(0.202)***	(0.183)***
			[0.647]***	[0.0672]***	[0.0706]***	[0.109]***
Lincoln					1.457	1.232
					(0.233)***	(0.176)***
					[0.339]***	[0.244]***
Ft. Sumter					6.227	5.424
					(0.633)***	(0.926)***
					[0.608]***	[1.001]***
1st Bull Run					-1.339	-0.973
					(0.470)***	(0.452)**
					[0.612]**	[0.298]***
$NYT_{War,t}$						108.0
						(44.22)**
						[39.53]**
Observations	261	261	261	261	261	86
R-squared	0.871	0.835	0.836	0.872	0.965	0.970

Dependent variable: $YTM_{i,t}$. Robust standard errors in parentheses : *** p<0.01, ** p<0.05, * p<0.1. Estimates from an autocorrelated model with White standard errors in parentheses and standards errors clustered at the month-level in box brackets.

Table D.3: Testing Within-State Secession: Evidence from Kentucky State Debt

	(D.3.1)	(D.3.2)	(D.3.3)	(D.3.4)	(D.3.5)
No Troops	3.368		4.031	3.507	3.452
	(0.215)***		(0.526)***	(0.519)***	(0.562)***
	[0.219]***		[0.642]***	[0.664]***	[0.708]***
Declare Neutrality		1.913	-0.837	-0.854	-0.776
		(0.575)***	(0.525)	(0.569)	(0.584)
		[0.717]**	[0.649]	[0.636]	0.641]
Lincoln				0.208	1.226
				(0.207)	(0.320)***
				[0.248]	[0.334]***
Ft. Sumter				0.592	0.596
				(0.117)***	(0.179)***
				[0.0979]***	[0.153]***
1st Bull Run				0.0524	0.248
				(0.253)	(0.278)
				[0.156]	[0.245]
$NYT_{War,t}$					17.19
					(24.82)
					[22.42]
Obs	108	108	108	108	46
R-squared	0.931	0.835	0.936	0.937	0.928
Controls					
Time trend	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES

Dependent variable: $YTM_{i,t}$ Robust standard errors in parentheses : *** p<0.01, ** p<0.05, * p<0.1. Estimates from an autocorrelated model with White standard errors in parentheses and standards errors clustered at the month-level in box brackets.

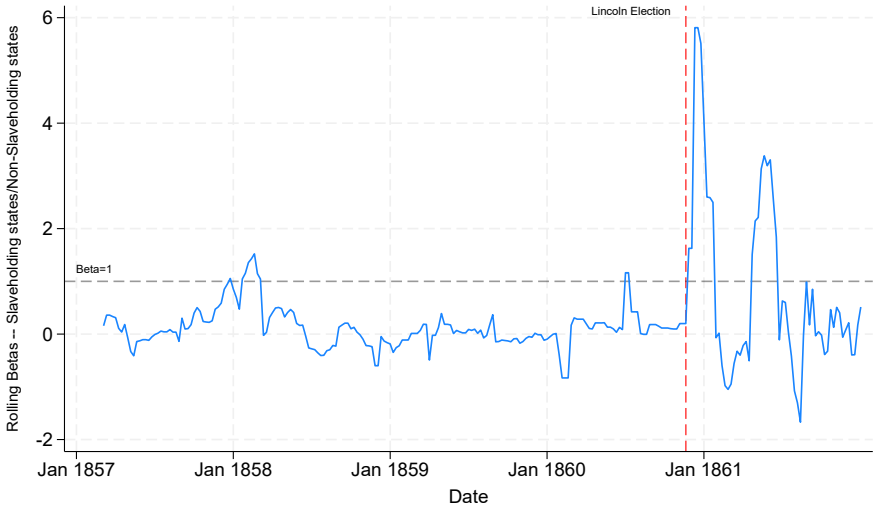
E Supplementary Results

E.1 Robustness checks

To display this divergence, Figure E.1 plots the beta coefficients from a regression of slaveholding yields on non-slaveholding yields: $MeanYTM_{Slaveholding} = \alpha + \beta MeanYTM_{North} + \varepsilon_t$, displayed with 10-week rolling windows. Figure E.1 shows little evidence of dramatic departures away from non-slaveholding bond yields prior to the election of President Lincoln – even during economic shocks, such as the Panic of 1857 or during events related to the status of slavery (such as the Dred Scott v. Sandford, March 1857). The coefficients are always between 0 and 1, implying that the bonds of slaveholding bonds did not over-react to events affecting other bonds before

the election of Lincoln. However, after Lincoln's election (shown by the red vertical line), that relationship changes, with 10-week rolling betas jumping to over 5 at the time of Lincoln's election and to more than 3 after Fort Sumter's bombing.

Figure E.1: Beta coefficients and Secession Risk



(a) Beta correlation Slaveholding/North

Note: Beta coefficient showing how slaveholding bonds react to movements in non-slaveholding bonds (Result of the estimation $MeanYTM_{Slaveholding_i} = \alpha + \beta MeanYTM_{North} + \varepsilon_t$ on 10 weeks rolling windows). The red line here represents the election of President Abraham Lincoln.

Table E.1: When did the Risk of Secession Appear? Different time windows

	(E.1.1)	(E.1.2)	(E.1.3)	(E.1.4)	(E.1.5)	(E.1.6)	(E.1.7)	(E.1.8)	(E.1.9)
$\text{Lincoln}_t \times \text{Slaveholding}_i$	0.819***				4.133***				1.483***
	(0.240)				(0.600)				(0.285)
Ft Sumter $\times$ Slaveholding_i		3.867***				5.064***			4.818***
		(0.505)				(0.815)			(1.115)
1^{st} Bull Run $\times$ Slaveholding_i			-1.157**				4.278***		-0.863**
			(0.387)				(0.783)		(0.310)
$\text{Secession}_{i,t}$				4.400**				2.116	-0.811
				(1.245)				(1.777)	(1.519)
Controls									
Slaveholding FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Week FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
State FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Window	8 weeks	8 weeks	8 weeks	8 weeks	Whole	Whole	Whole	Whole	Whole
Observations	93	131	171	57	1,765	1,765	1,765	1,765	1,765
R-squared	0.433	0.721	0.575	0.459	0.894	0.912	0.854	0.821	0.920
Number of States	11	11	11	11	11	11	11	11	11

Dependent variable: $YTM_{i,t}$. Standard errors clustered at the state-level in parentheses: *** p<0.01, ** p<0.05, * p<0.1. Each model includes state fixed effects and time fixed effects. The dependent variable is the yield to maturity of for the bond in state i at time t. Since our estimations include time and state fixed effects, coefficients are to be interpreted as the time variation of the difference in yields between slaveholding states bonds and non-slaveholding states bonds before and after these key events. Column 9 considers all events at once and hence control for the confounding effects of different events. Lincoln is a dummy variable equal to one after the election of President Lincoln. Fort Sumter is a dummy variable equal to one after the battle of Fort Sumter. 1^{st} Bull Run is a dummy variable equal to one after the 1^{st} battle of Bull Run. Secession is a dummy variable equal to one after a particular state secedes. Slaveholding_i is a dummy variable equal to one for southern and Border States

Table E.2: YTM and Coordination: the building of the Confederacy

Interaction	(E.2.1) NO	(E.2.2) # States in Conf_t	(E.2.3) Pop Conf_t	(E.2.4) Area Conf_t	(E.2.5) Tax p.c. Conf_t	(E.2.6) Rail Conf_t	(E.2.7) Urb Rate Conf_t	(E.2.8) % Border Conf_t
$\text{Secession}_{i,t}$	1.921	11.89**	52.45*	80.56*	56.60*	32.16*	-6.113	2.959**
	(1.060)	(4.569)	(24.94)	(40.21)	(27.26)	(14.58)	(5.369)	(1.211)
$\text{Log(Days secession}_{i,t})$	-0.356*	-0.118	-0.141	-0.122	-0.202	-0.154	-0.107	-0.264
	(0.174)	(0.211)	(0.201)	(0.209)	(0.183)	(0.197)	(0.221)	(0.184)
$\text{Secession}_{i,t} \times$ Interaction		-4.519*	-3.225*	-5.891*	-3.488*	-3.442*	98.41	-2.095
		(2.364)	(1.638)	(3.063)	(1.785)	(1.742)	(58.52)	(1.655)
$\text{Slaveholding}_i \times \text{NYT}_{War,t}$	66.15**	69.56**	69.63**	69.63**	69.04**	69.62**	69.84**	67.47**
	(24.15)	(23.57)	(23.89)	(23.65)	(24.24)	(24.04)	(23.56)	(24.08)
State FE	YES	YES	YES	YES	YES	YES	YES	YES
State group × Year 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

Dependent variable: $YTM_{i,t}$. Standard errors clustered at the state-level in parentheses: *** p<0.01, ** p<0.05, * p<0.1. Data at the state/week-level. Each model includes state fixed effects and time fixed effects. Secession is a dummy variable equal to one after a country has seceded. Nationwide events include Lincoln, Fort Sumter and 1st Bull-Run and their interaction with the Slaveholding_i dummy variable. $\text{Log(Days secession}_{i,t})$: the log-transformed number of days after a state has seceded. # States Conf_t is the log-transformed number of states having seceded. Pop Conf_t is the log(Population) of the pool of seceders. Area Conf_t is the geographic area of the pool of seceders. Tax Conf_t is the Log of State Tax raised in 1860 in the territory of seceders. Urb rate Conf_t is the urban rate in the overal territory of seceders. Rail Conf_t is the Log(Rail Mileage) of the pool of seceders. % Border Conf_t is the percentage of a state borders shared with seceders.

Table E.3: Yields to Maturity of the Federal Debt – Measures of economies of scale (Month cluster)

	(E.3.1)	(E.3.2)	(E.3.3)	(E.3.4)	(E.3.5)	(E.3.6)
	Panel A: Different measures of economies of scale					
$\text{Log(Secession}_t\text{)}$	0.845*					
	(0.399)					
$\text{Log(Area}_t\text{)}$		0.383*				
		(0.198)				
$\text{Log(Pop}_t\text{)}$			0.591*			
			(0.281)			
$\text{Log(Tax}_t\text{)}$				0.578**		
				(0.239)		
$\text{Log(Rail}_t\text{)}$					0.694*	
					(0.329)	
Urb Rate_t						19.86
						(11.81)
$\text{NYT}_{War,t}$	67.14**	74.53***	65.93**	62.10**	64.67**	88.60***
	(24.25)	(23.47)	(24.76)	(23.86)	(25.40)	(24.97)
Observations	52	52	52	52	52	52
Control						
Time trend		YES	YES	YES	YES	YES
R-squared	0.390	0.375	0.388	0.413	0.387	0.354
	Panel B: Horse race with respect to number of secessions					
$\text{Log(Secession}_t\text{)}$		0.676	2.276	-1.491	1.770	0.638*
		(0.928)	(3.960)	(1.019)	(2.306)	(0.293)
$\text{Log(Area}_t\text{)}$		-0.0173				
		(0.546)				
$\text{Log(Pop}_t\text{)}$			-1.149			
			(2.791)			
$\text{Log(Tax}_t\text{)}$				1.363**		
				(0.626)		
$\text{Log(Rail}_t\text{)}$					-0.920	
					(1.861)	
Urb Rate _t						14.37
						(10.38)
$\text{NYT}_{War,t}$		69.29**	72.28**	62.27**	73.17**	70.79**
		(26.88)	(29.23)	(24.71)	(30.08)	(25.42)
Observations		52	52	52	52	52
R-squared		0.381	0.382	0.420	0.383	0.406

Dependent variable: $YTM_{i,t}$. Standard errors clustered at the month-level in parentheses : *** p<0.01, ** p<0.05, * p<0.1. Frequency: Weekly.

Table E.4: Yields to Maturity of the Federal Debt – Measures of economies of scale (Not controlling for war risk)

	(E.4.1)	(E.4.2)	(E.4.3)	(E.4.4)	(E.4.5)	(E.4.6)
	Panel A: Different measures of economies of scale					
Log(Secession$_t$)	0.772**					
	(0.355)					
Log(Area$_t$)		0.362**				
		(0.177)				
Log(Pop$_t$)			0.535**			
			(0.250)			
Log(Tax$_t$)				0.531**		
				(0.235)		
Log(Rail$_t$)					0.624**	
					(0.293)	
Urb rate$_t$						20.51*
						(11.70)
Observations	54	54	54	54	54	54
R-squared	0.424	0.416	0.421	0.441	0.418	0.393
Control						
Time trend		YES	YES	YES	YES	YES
National Events		YES	YES	YES	YES	YES
	Panel B: Horse race w.r to Nb of secession					
Log(Secession$_t$)		1.117	4.188	-1.188	2.566	0.511*
		(1.402)	(3.425)	(0.986)	(2.288)	(0.274)
Log(Area$_t$)		-0.252				
		(0.745)				
Log(Pop$_t$)			-2.540			
			(2.435)			
Log(Tax$_t$)				1.159*		
				(0.677)		
Log(Rail $_t$)					-1.653	
					(1.910)	
Urb rate$_t$						14.23
						(10.88)
Observations		54	54	54	54	54
R-squared		0.411	0.416	0.436	0.416	0.429
Control						
National events		YES	YES	YES	YES	YES

Dependent variable: $YTM_{i,t}$. White Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1. Frequency: Weekly.

E.2 Supporting estimates

Table E.5: RDD Estimates of secession

	(E.5.1)	(E.5.2)	(E.5.3)	(E.5.4)	(E.5.5)	(E.5.6)
RDD Estimate Secession	3.799***	3.316***	2.471**	2.163**	3.303***	2.122**
	(0.978)	(1.133)	(1.082)	(0.934)	(1.049)	(0.919)
Bandwidth	MSERD	CERRD	MSERD	MSERD	MSERD	MSERD
Donut	No	No	No	No	Yes	No
S.e clustered	No	No	No	No	No	Yes
Control variables						
Fort Sumter	No	No	Yes	Yes	Yes	Yes
State FE	No	No	No	Yes	Yes	Yes
Obs	331	331	331	331	316	331

Dependent variable: $YTM_{i,t}$. Standard errors are shown in parentheses. *** indicates p<0.01, ** p<0.05, * p<0.1. MSERD stands for MSE optimal bandwidth selector. CERRD stands for CER-optimal bandwith selected. Donut regression excludes observation within 2 weeks of the secession, both before and after.

Table E.6: Federal Debts, Secessions and non-linearities

	(E.6.1)
1 Secession	0.346
	(0.548)
	[0.604]
4 Secessions	0.218
	(0.621)
	[0.604]
5 Secessions	0.614
	(0.550)
	[0.604]
7 Secessions	1.636**
	(0.668)
	[0.620]
8 Secessions	2.423***
	(0.683)
	[0.625]
10 Secessions	2.298***
	(0.703)
	[0.628]
11 Secessions	3.078***
	(0.762)
	[0.650]
Lincoln	1.525***
	(0.472)
	[0.627]
Ft. Sumter	0.147
	(0.250)
	[0.122]
1st Bull Run	-0.0847
	(0.311)
	[0.202]
Observations	174
R-squared	0.866
Controls	
Time trend	YES
Year FE	YES
Time trend × Year FE	YES

Dependent variable: $YTM_{i,t}$. Robust standard errors in parentheses : *** p<0.01, ** p<0.05, * p<0.1. Frequency: Weekly. Estimates from an autocorrelated model with White standard errors in parentheses and standards errors clustered at the month-level are shown in box brackets.

Table E.7: Within-state heterogeneity and secession premium

	(E.7.1)	(E.7.2)	(E.7.3)	(E.7.4)	(E.7.5)	(E.7.6)	(E.7.7)
Secession$_{i,t} = 1$	-6.080*	-0.527	0.277	17.71***	9.114***	9.324***	2.483***
	(2.813)	(1.109)	(1.180)	(3.892)	(2.545)	(2.157)	(0.575)
$\mathbb{1}(Secession_{i,t} = 1) \times$ %Counties(Bell>40%)	0.121**						
	(0.0471)						
$\mathbb{1}(Secession_{i,t} = 1) \times$ %Counties(Bell>50%)		0.0537					
		(0.0385)					
$\mathbb{1}(Secession_{i,t} = 1) \times$ %Counties(Bell>60%)			0.0613				
			(0.0865)				
$\mathbb{1}(Secession_{i,t} = 1) \times$ %Counties(Breckinridge>40%)				-0.241***			
				(0.0605)			
$\mathbb{1}(Secession_{i,t} = 1) \times$ %Counties(Breckinridge>50%)					-0.162**		
					(0.0523)		
$\mathbb{1}(Secession_{i,t} = 1) \times$ %Counties(Breckinridge>60%)						-0.312***	
						(0.0759)	
$\mathbb{1}(Secession_{i,t} = 1) \times$ %Counties(Bell>Breckinridge%)							0.0946**
							(0.0397)
Constant	7.898***	7.895***	7.893***	7.902***	7.902***	7.915***	7.897***
	(0.146)	(0.158)	(0.170)	(0.149)	(0.144)	(0.164)	(0.146)
Observations	1,765	1,765	1,765	1,765	1,765	1,765	1,765
R-squared	0.923	0.918	0.912	0.936	0.928	0.933	0.931
Number of states	11	11	11	11	11	11	11

Dependent variable: $YTM_{i,t}$. Standard errors clustered at the state-level in parentheses: *** p<0.01, ** p<0.05, * p<0.1. Each model includes state fixed effects and time fixed effects. $Secession_{i,t} = 1$ is a dummy variable equal to 1 if a state has seceded and zero otherwise. %Counties(Breckinridge>50%) is the proportion of counties within a state having a Breckinridge majority. %Counties(Bell>50%) is the proportion of counties within a state having a Bell majority. Median Margin is the difference in vote share between Breckinridge and Bell of the county at the median of the distribution within each state.

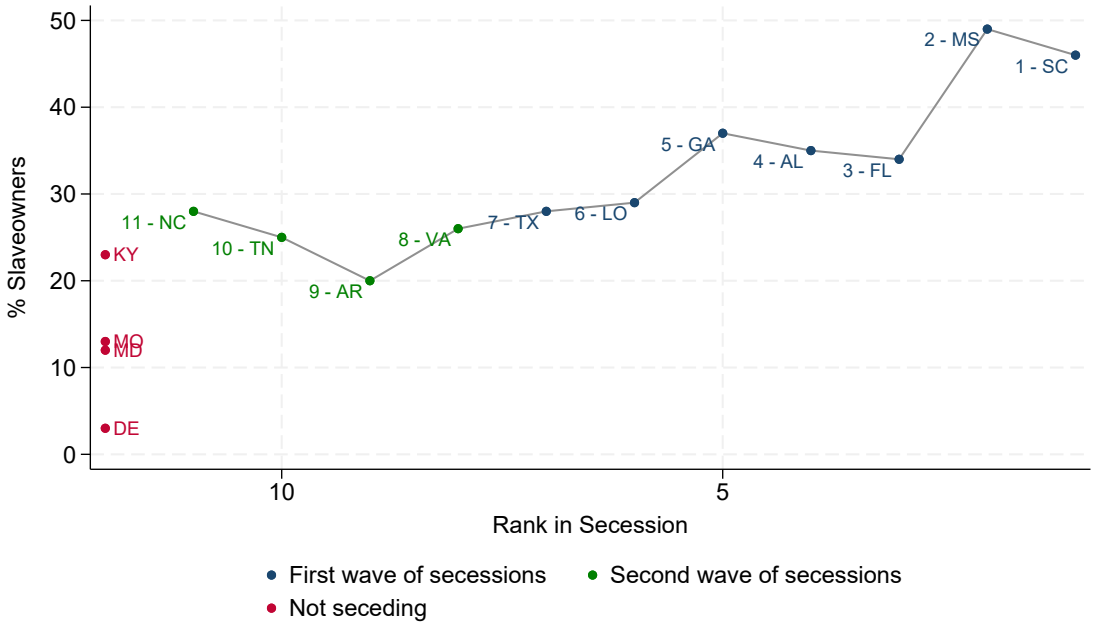
Table E.8: Secession Premium and electoral data – Summary

State	**Premium** Secession	%**Counties** (Bell>50%)	%**Counties** Breck>50%)	%**Counties** (Bell>Breck)
Georgia	0.79	17.56%	58.78%	34%
p-value	0.36			
Louisiana	1.61	6.25%	60.41%	23%
p-value	0.07*			
Virginia	4.76	35.06%	42.86%	51%
p-value	0.00***			
Tennessee	5.72	46.91%	43.21%	53%
p-value	0.00***			
North-Carolina	2.05	48.19%	45.78%	49%
p-value	0.06*			

*** p<0.01, ** p<0.05, * p<0.1. States shown according to their order of secession based on ordinance dates.

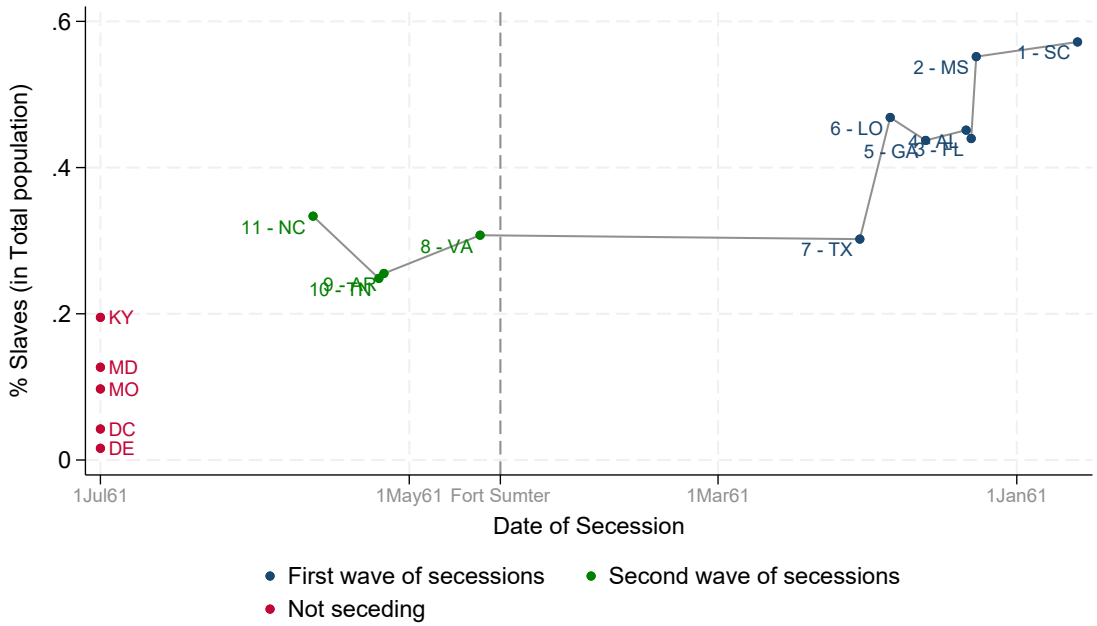
F Additional Figures

Figure F.1: Preference Heterogeneity and domino secessions in the U.S. – Slaveowners



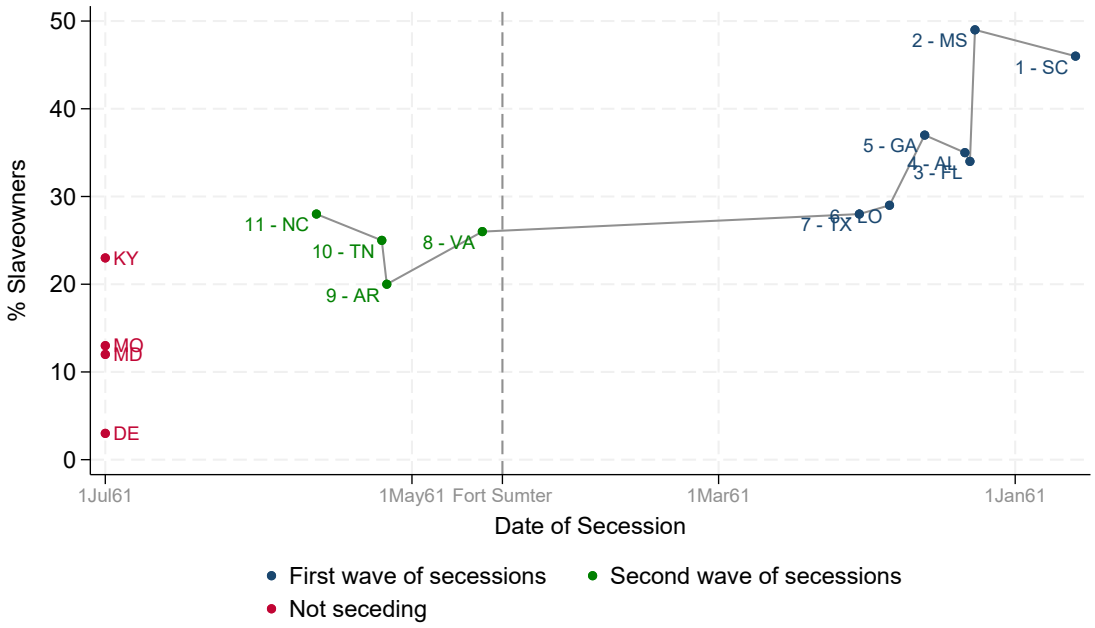
Note: Each dot depicts the position of a state along two dimensions: % slaveowners in the non-slave population (1860) (y-axis) and the inverse date ordering of state secession ordinances (x-xis left panel). States that do not secede but have slave populations are ranked 12 in secession. Early seceders are shown in blue – those that occurred before Fort Sumter, between December 1860 and February 1861. Later seceders are shown in green – these occurred after Fort Sumter, between April-June, 1861. "Never seceders" are indicated in red; they are states with slave populations that ultimately chose not to secede. The line retraces the sequence of secessions linking the first secession to the second, the second to the third and so on until the last secession. Source: K. McKay

Figure F.2: Preference Heterogeneity and domino secessions in the U.S. – Robustness Slave population and date of secession



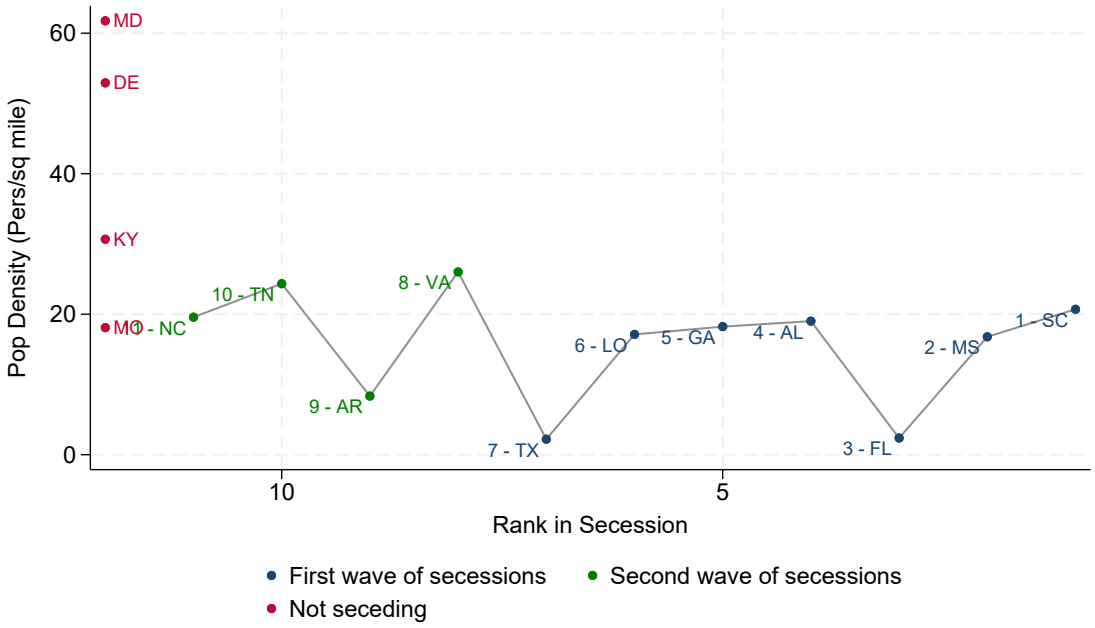
Note: Each dot depicts the position of a state along two dimensions: % slave owners among the non-slave population (1860) (y-axis) and the inversed date of a state's secession ordinance (x-axis right panel). States that do not secede but have slave populations are placed as having seceded on July 1st 1861. Early seceders are shown in blue – those that occurred before Fort Sumter, between December 1860 and February 1861. Later seceders are shown in green – these occurred after Fort Sumter, between April-June, 1861. "Never seceders" are indicated in red; they are states with slave populations that ultimately chose not to secede. The line retraces the sequence of secessions linking the first secession to the second, the second to the third and so on until the last secession. Source: IPUMS NHGIS data (Manson, 2023)

Figure F.3: Preference Heterogeneity and domino secessions in the U.S. – Robustness Slaveowners and date of secession



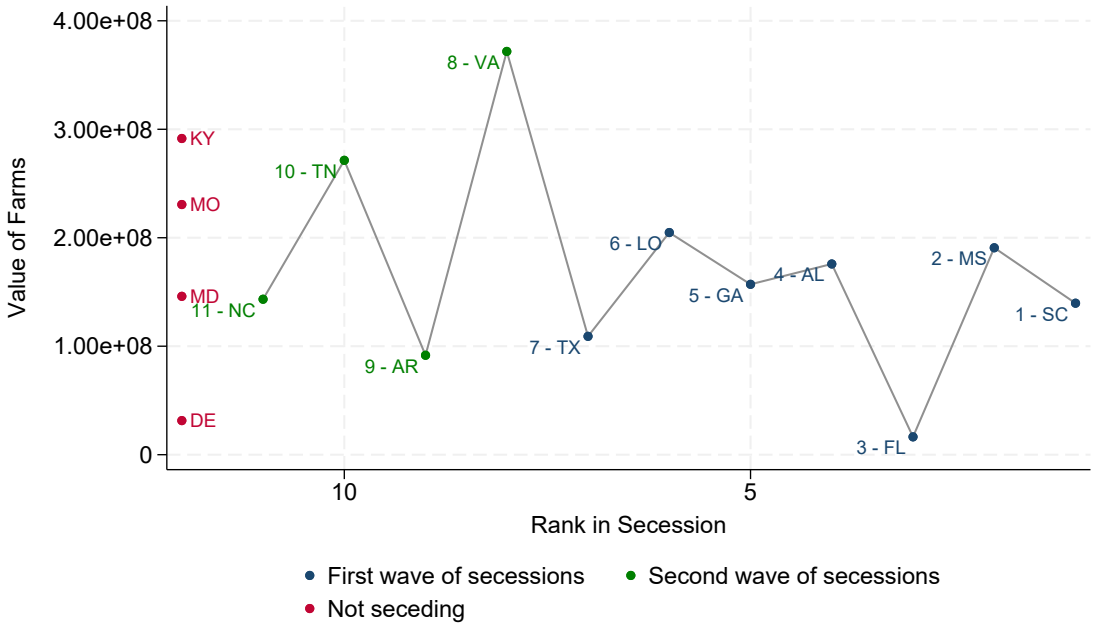
Note: Each dot depicts the position of a state along two dimensions: % slaves in the population (1860) (y-axis) and inversed date of a state's secession ordinance (x-axis right panel). States that do not secede but have slave populations are placed as having seceded on July 1st 1861. Early seceders are shown in blue – those that occurred before Fort Sumter, between December 1860 and February 1861. Later seceders are shown in green – these occurred after Fort Sumter, between April-June, 1861. "Never seceders" are indicated in red; they are states with slave populations that ultimately chose not to secede. The line retraces the sequence of secessions linking the first secession to the second, the second to the third and so on until the last secession. Source: K. McKay

Figure F.4: Preference Heterogeneity and domino secessions in the U.S. – Population density?



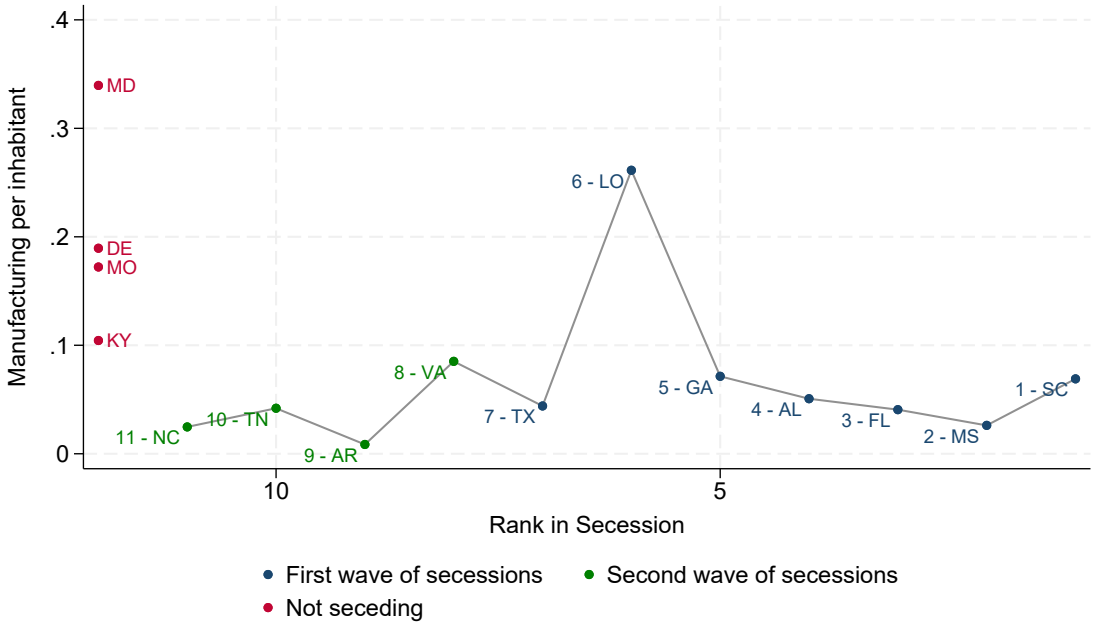
Note: Each dot depicts the position of a state along two dimensions: Population density (1860) (y-axis) and inversed date of a state's secession ordinance (x-axis right panel). States that do not secede but have slave populations are placed as having seceded on July 1st 1861. Early seceders are shown in blue – those that occurred before Fort Sumter, between December 1860 and February 1861. Later seceders are shown in green – these occurred after Fort Sumter, between April-June, 1861. "Never seceders" are indicated in red; they are states with slave populations that ultimately chose not to secede. The line retraces the sequence of secessions linking the first secession to the second, the second to the third and so on until the last secession.

Figure F.5: Preference Heterogeneity and domino secessions in the U.S. – Farming?



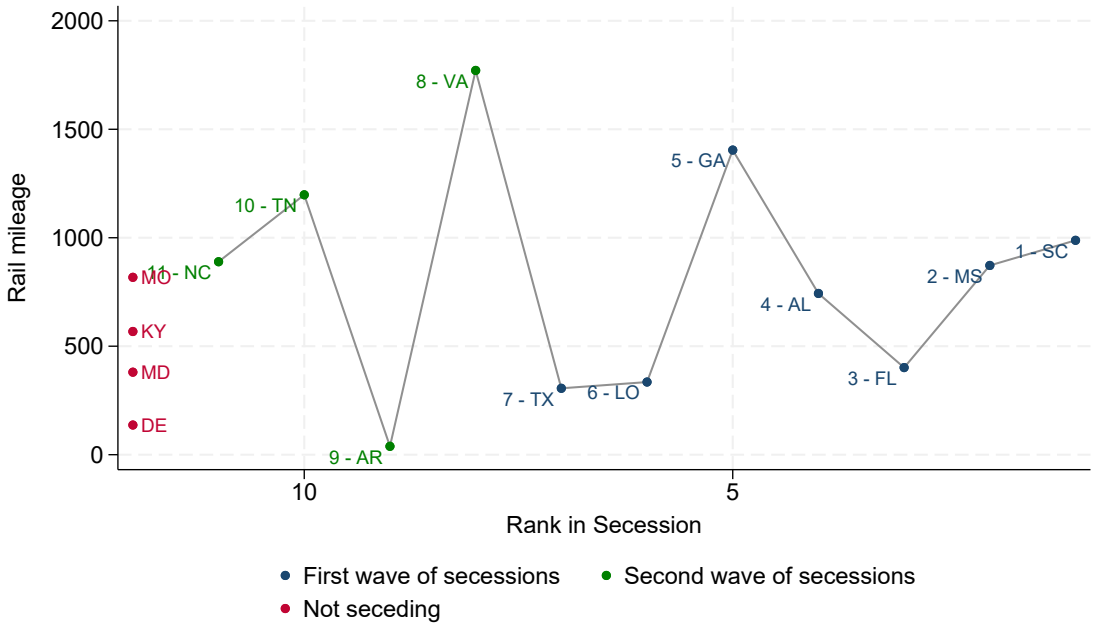
Note: Each dot depicts the position of a state along two dimensions: Overall Farms value in the state (1860) (y-axis) and inversed date of a state's secession ordinance (x-axis right panel). States that do not secede but have slave populations are placed as having seceded on July 1st 1861. Early seceders are shown in blue – those that occurred before Fort Sumter, between December 1860 and February 1861. Later seceders are shown in green – these occurred after Fort Sumter, between April-June, 1861. "Never seceders" are indicated in red; they are states with slave populations that ultimately chose not to secede. The line retraces the sequence of secessions linking the first secession to the second, the second to the third and so on until the last secession. Source: K. McKay

Figure F.6: Preference Heterogeneity and domino secessions in the U.S. – Manufacturing?



Note: Each dot depicts the position of a state along two dimensions: Nb of Manufacturing Establishments per capita (1860) (y-axis) and inversed date of a state's secession ordinance (x-axis right panel). States that do not secede but have slave populations are placed as having seceded on July 1st 1861. Early seceders are shown in blue – those that occurred before Fort Sumter, between December 1860 and February 1861. Later seceders are shown in green – these occurred after Fort Sumter, between April-June, 1861. "Never seceders" are indicated in red; they are states with slave populations that ultimately chose not to secede. The line retraces the sequence of secessions linking the first secession to the second, the second to the third and so on until the last secession. Source: K. McKay

Figure F.7: Preference Heterogeneity and domino secessions in the U.S. – Rail?



Note: Each dot depicts the position of a state along two dimensions: Rail mileage (1860) (y-axis) and the inverse date ordering of state secession ordinances (x-axis right panel). States that did not secede but have slave populations are placed as having seceded on July 1st 1861. Early seceders are shown in blue – those that occurred before Fort Sumter, between December 1860 and February 1861. Later seceders are shown in green – these occurred after Fort Sumter, between April-June, 1861. "Never seceders" are indicated in red; they are states with slave populations that ultimately chose not to secede. The line retraces the sequence of secessions linking the first secession to the second, the second to the third and so on until the last secession. Source: K. McKay

Figure F.8: News Indices on Secession, War and Conflict – Evidence from the *New York Times*

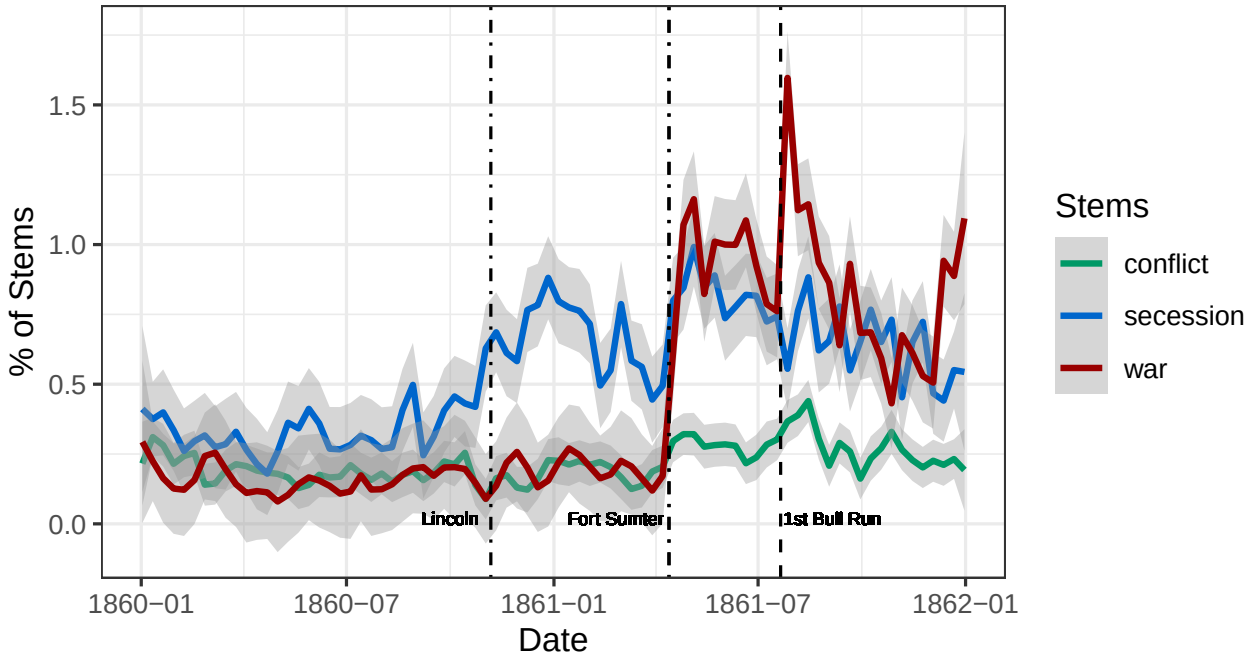


Figure F.9: News Indices on Secession, War and Economy – Evidence from the *New York Times*

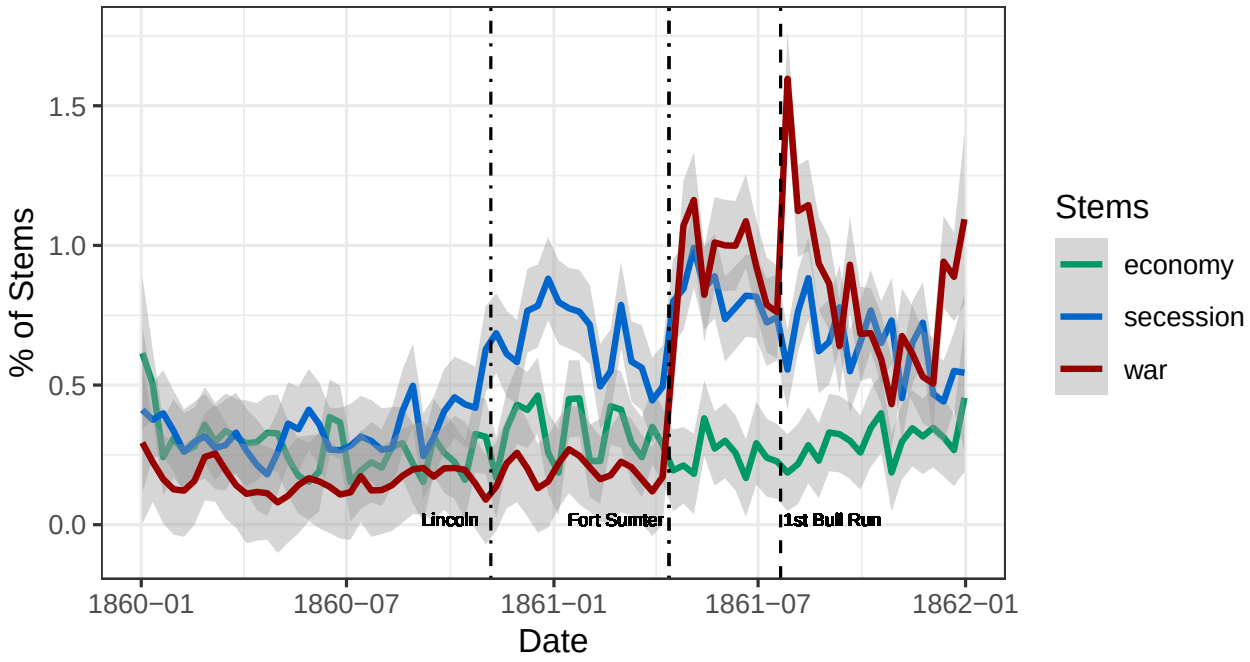
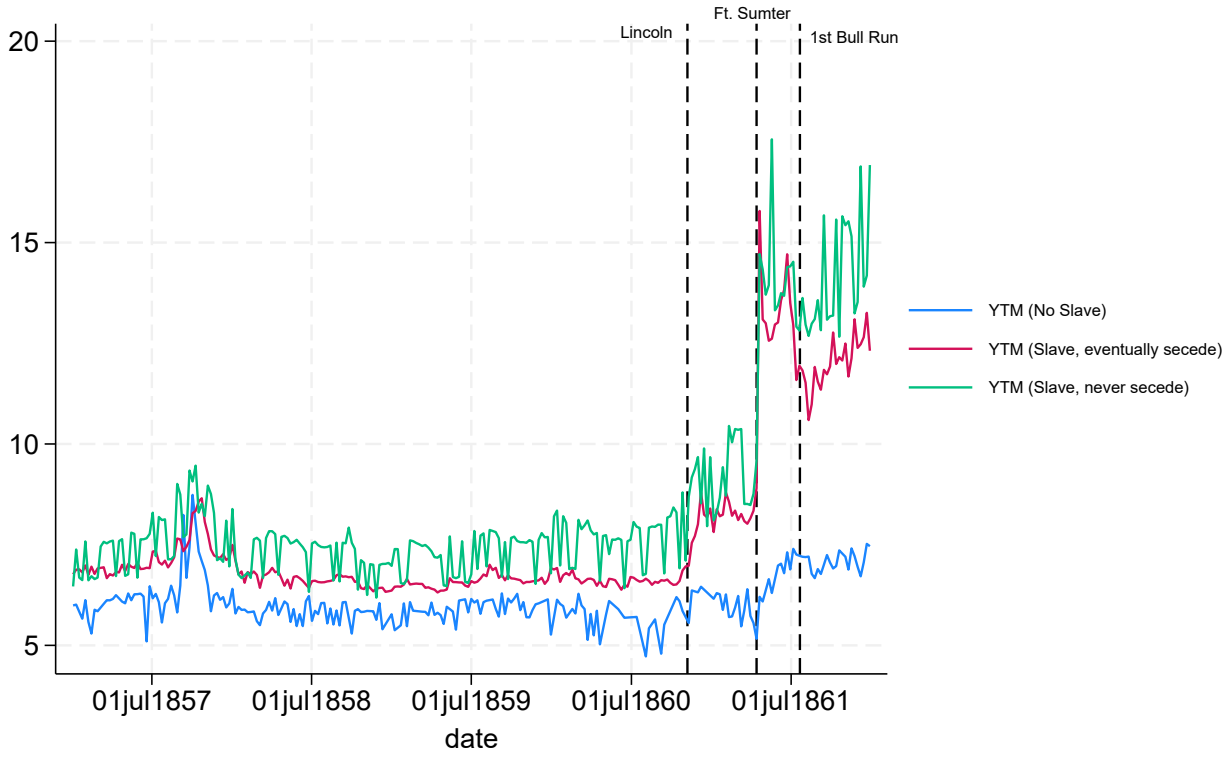
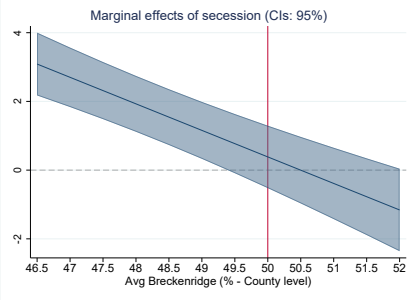


Figure F.10: Average Yields to Maturity in the North, South, and Border States

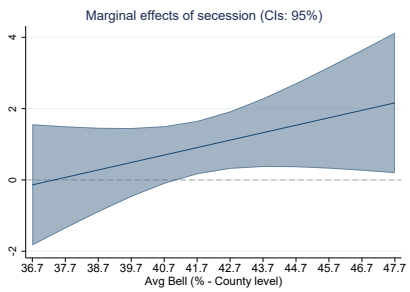


South= Future or Seceders. Border= States having announced neutrality and North= States of the Union

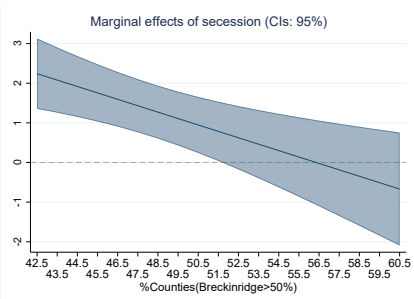
Figure F.11: Electoral Results and Within-State Heterogeneity



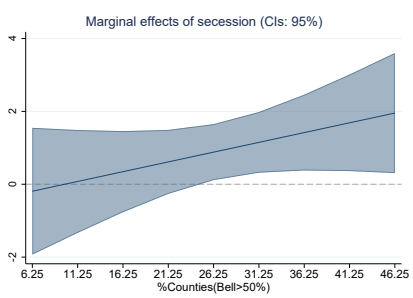
(a) Marginal effects - Vote share for Breckinridge (% average across counties)



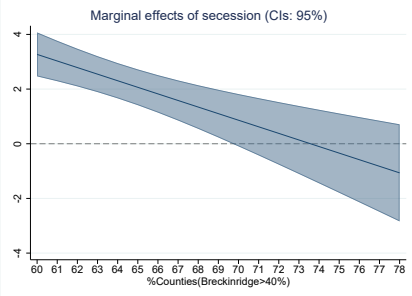
(b) Marginal effects - Vote share for Bell (% average across counties)



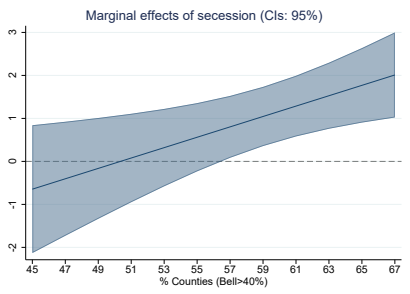
(c) Marginal effects - % of Counties with Breckinridge>50%



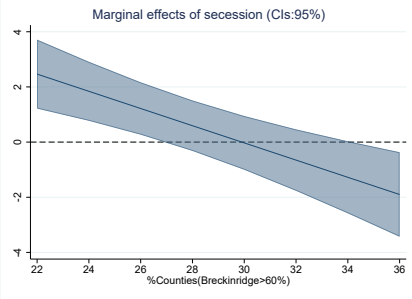
(d) Marginal effects - % of Counties with Bell>50%



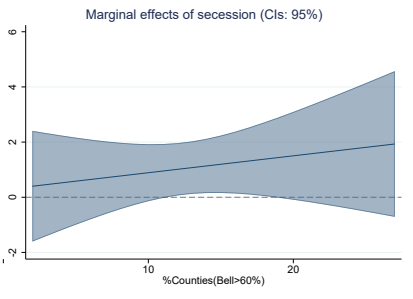
(e) Marginal effects - %Counties(Breckinridge>40%)



(f) Marginal effects - %Counties(Bell>40%)



(g) Marginal effects - %Counties (Breckinridge>60%)



(h) Marginal effects - %Counties (Bell>60%)