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Reanalyzing The Political Stability of Britain's Democratization

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REANALYZING THE POLITICAL STABILITY OF

BRITAIN'S DEMOCRATIZATION

by

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Approved:

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Abstract

Reanalyzing the Political Stability

of Britain's Democratization

by

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Utah State University, 2016

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A recent article in *Journal of Economic History* by Dasgupta and Ziblatt uses bond yields to analyze the political risk of the 19th century democratization legislation of Britain known as the Reform Acts. Dasgupta and Ziblatt find that the volatility of yields is relatively high during periods of legislation, and model the yields via GAM method, concluding that the political risk associated with the Reform Acts was high. I reproduce the study and comparing those times of 'high' volatility to all periods and find nothing to compare high-volatility periods to, suggesting that it is inconclusive whether the Reform Acts were truly politically risky. I also find that the data and study are less than satisfactory use of the GAM to model bond yields.

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Introduction

Britain's becoming a modern 'democracy' largely occurred during the 19th century in the form of the Reform Acts. A wide range of arguments (often intense) describe Britain's democratization as anything from effortless and smooth, to a nation on the brink of bloody revolution. A recent study by Dasgupta and Ziblatt (2015) uses British bond yields to analyze relative political risk during the Reform Acts. DZ claim that the relatively high volatility around the time of the Reform Acts is a strong indicator of political instability. In my study, I replicate DZ's statistics and analyze other periods of high volatility to determine whether the volatility in DZ's study is sufficiently high to suggest strong political risk.

The Road to Democracy

As much as we like to point to the United Kingdom's legislative bodies, especially the introduction of the House of Commons, as a typical example of democracy (in the modern sense of the term), UK's parliament trudged along a very long and complex path to democratization that began nearly a millennium ago. In brief, the feudal system was implemented around the time of William the Conqueror (AD 1066) in keeping with much of continental Europe (*Norman Conquest* 2015). Feudal decentralization of power, specifically the increased prominence of lords, gave rise to 'Great Councils' as advisory committees to the king. A Great Council demanded the passing of the Magna Carta (AD 1215) which provided for increased power of the Council, eventually evolving into a parliament (*Magna Carta* 2015). Lesser members of the Council (the community, i.e. Commons) eventually met separately, giving an upper House of Lords and a lower House of Commons (AD 1300's). By the 15th century, Parliament had become quite powerful and the modern organization of Parliament largely took form under the Tudors.

Tumult and uncertainty befell Britain and its Parliament in the 17th century with wars, invasions, and revolutions (including the Glorious one) (*Factsheet* 2010). The power of Parliament, even during these times, is replete in the execution of King Charles I (Stoyle 2011). Following the Glorious Revolution, election was a fundamental characteristic of Parliament, although the mode was very corrupt and exclusionary. Finally, the Reform Acts of 1832, 1867, and 1884 completed the modern democratization of the UK (*Factsheet* 2010). The nature of these Reform Acts, as investigated though British bond yields, is the focus of this study.

Benevolence or Bulwark?

Less than 20 years before the first of the Reform Acts, Napoleon Bonaparte supposedly stated "History is the version of past events that people have decided to agree upon." Interestingly, this suggests that our documentation of history may or may not indicate reality. The traditional and popularized history of Britain's road to democracy portrays a unified people who, despite a few squabbles and disagreements, generally agreed upon the democratic path the nation should take. One of the most notable implications of this consensus-oriented version of history is that parliamentary members were simply benevolent enough to concede a sharing of power with the masses.

Another school of thought suggests that the traditional version of history is grossly inaccurate (Morrison 2011). These conflict-perspective scholars point to riots in the streets, heated political speeches, and seemingly terrified politicians. Undoubtedly, many suggesting a conflict are saying to themselves, deep down, "Politicians can't be THAT charitable – and certainly not collectively." Both consensus and conflict arguments cite seemingly limitless sources of support in traditional history – journals, newspapers, speeches, political documents, etc. What are we to do in order find out what REALLY happened?! In walks financial analysis.

Both theoretically and empirically, bond yields have a strong positive correlation with political risk (or reversely, yields have a negative correlation with political stability) as determined by the market. Simply stated, money talks – often much more accurately than words. It isn't a surprise that when governmental financial stability, and by implication political stability, decreases, bond purchasers require a higher yield to account for increased risk, while when stability increases those traders are willing to accept a lower yield for reduced risk. Fisman (2001) and Ferguson (2006) find this empirically, setting a strong foundation for DZ's ingenious use of bond yields to add to the academic debate.

The Data and Initial Study

DZ test the traditional, perspective by analyzing yields of sovereign bonds during these transitional periods to those throughout the 1800's. Data used by DZ, as well as myself, is a collection of the monthly average yields of British 3% Consol bonds from January 1826 to December 1891.[1] The 3% Consol was a very widely traded security in the 19th century. Given the association of bond volatility with political risk and the relatively large trading volume of 3% Consols, the volatility of 3% Consols should give insightful information into the political implications of the Reform Acts.

Table 1: Summary Statistics, Monthly 3% Consol Yields

Variable	Min	Max	Mean	σ
Observation	1	792	-	-
Year	1826	1891	-	-
Month	1	12	-	-

[1] Bond data for Dasgupta and Ziblatt's study was originally sourced from Global Financial Database (www.globalfinancialdata.com/Databases/UKDatabase.html) and Brown and Easton (1989). For this study, the data was retrieved from Harvard Dataverse (http://dx.doi.org/10.7910/DVN/Q2YFVH).

Variable	Min	Max	Mean	σ
Yield (Close)	2.7865	3.8961	3.2110	0.1914

In order to ensure proper analysis of reform events, two bills known as the Chartist votes are also included as episodes in the study. The Chartist episodes were proposed legislation to increase democratization that failed.

The method of testing uses the volatility of yields immediately around both the successful and unsuccessful legislative episodes of interest. The month of an episode i (either the Reform Act or Chartist vote) is t_i, and volatility of yields is measured by the standard deviation σ_i of the 49-observation period from t_{i-24} to t_{i+24}. For example, $t_1 832$ would be the month of the 1832 Reform Act (June 1832), σ_{1832} would be the standard deviation of the yields of the 49 monthly observations beginning with June 1830 and ending with June 1834. Our σ_i is then compared to a bootstrapped compilation of volatilities σ_r of random 49 month periods from the dataset in order to determine what percentile rank σ_i has in the set σ_r. DZ's σ_r is composed of standard deviations from 1000 random periods.

By comparing yields around transitional periods, both successful and failed, DZ come to the conclusion that yield spikes resulting in high volatility indicate that the political risk associated with democratization was actually quite high. The percentile rankings for each episode are in Table 1.

Table 2: Volatility Percentiles for Reform Episodes

Act	σ quantile
1832 Reform Act	88
1842 Chartist	70

Act	σ quantile
1848 Chartist	84
1867 Reform Act	57
1884 Reform Act	25

The results demonstrate that the earlier episodes indeed have high volatility percentile rankings, while the 1867 and 1884 Reform Acts have much lower rankings. DZ's conclusion is that the volatility percentiles indicate high or very high political risk for at least the 1832 Reform Act and both Chartist votes. DZ's interpretation favors the view that the final steps to democratization of Britain were times of social tumult and governmental instability, disagreeing with the traditional view.

DZ also reference that volatility during the Reforms Acts and related episodes are similar to the volatility of other European nations that experienced revolutions and political restructuring during the 19th century. There is little treatment of this cross-national comparison, and an in depth analysis is beyond this study. Another technique pursued by DZ is a semi-parametric model for the periods immediately before and after one of the democratization episodes. I will briefly treat this analysis later in this paper.

Furthering the Study

DZ's findings are very intriguing, but I suggest that in order to determine whether the study's volatility is actually indicative of high political risk as concluded, it is necessary to compare other events of high volatility to that during the democratization process. DZ report that volatility around the 1832 Reform is greater than 88% of other, randomly drawn, periods within the data set which I have confirmed to be 88%

– but what about the other 12% of observations? Or whatever percent of volatility observations are higher than that of any of the episodes? If it is assumed that volatility periods at the 88th, 84th, and 70th percentiles are, in fact, indicative of high political risk then we can only assume that periods with volatility above those percentile rankings would have high political risk also. If we were to find that some periods above 88th percentile volatility have no relationship to periods of high political risk, we could not assume that the periods in question by DZ must indeed be politically risky.

My study simply calculates yield volatility as measured by standard deviation for all possible 49-month periods within the time frame of interest. I then select the periods in which volatility is higher than each episode period calculated by DZ. I anticipate that those periods with higher volatility will correlate with historical events reasonably associated with high political risk, confirming DZ's conjecture.

Results

Interestingly, all periods of higher volatility than the episode periods are immediately surrounding the episode periods. Figure 1 illustrates the distribution of high volatility periods as compared to the episode periods. Note that although there were specific reference years (the 25th month in 49-month periods) for which the volatility was lower, the fact that each period is 49 months creates a high degree of overlap which is demonstrated in Figure 1.

My interpretation of these statistics is not that the top 12% volatility periods are associated with other events indicating high political risk, but rather that those high volatility periods should be associated with the same episodes, suggesting that all periods of high volatility in the study could reasonably be associated with the democratization episodes. In this case, I do not reject DZ's conclusion. It could be construed
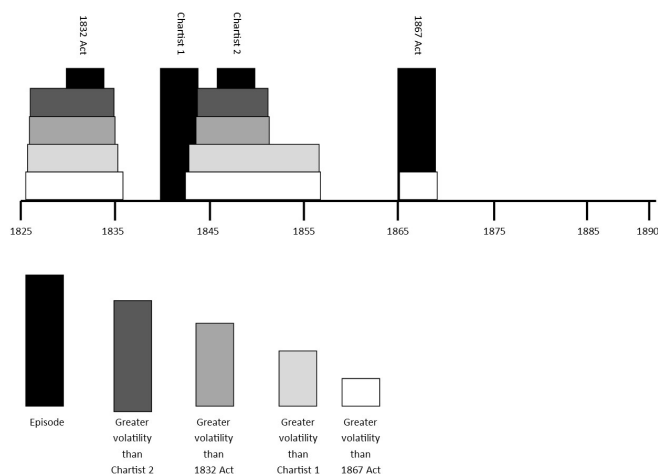
Figure 1: Distribution of Volatilities

as support for DZ, but objectively I only conclude that the volatility associated with democratization is the highest in the time frame and so is the most politically risky, but perhaps still should not be associated with instability in government.

A possible implication is that the political risk associated with the democratization episodes should be seen as having temporally further reaching shocks than two years in either direction, as is assumed by design of the study to be a sufficient study period. Further investigation into this possibility could yield valuable information into the relationships between social change, governmental stability, and market instruments.

Additional Analysis

As mentioned earlier, DZ model the yields themselves as a function of time from a Reform Act. They do this with a Generalized Additive Model (GAM) spline. The GAM is assembled using a smoothed spline of curve segments for semi-parametric

estimation (Hastie). The form used by DZ is:

$$Y_{it} = \tau_i + f(TIME_{it}) + \varepsilon_{it}$$

"where $TIME_{it}$ represents time in months (from –24 to 24) from the passage of Reform i (which occurs in month zero) and at time t. Bond yields are represented by Y_{it} for episode i at time t. Month zero is coded as the month in which reform took place in the House of Commons (June 1832; July 1867; December 1884)." The model is created using the aggregation of data from each of the three Reform Acts, with each episode's data adjusted for concurrent yields, giving a model approximating the variation from a given period rate level. Figure 2 shows a recreation of DZ's model (although a bit less dramatic because the temporal axis is stretched more than the original graph).

The use of the model is very interesting, although its actual utility as a model for democratization may be limited by the very different nature of the data and model shapes for each of the three Reforms individually. As a pool of demeaned data, the calculated GAM is indeed very appealing with a nice fit for the observations. Consideration of what the three sets of time series data look like individually, however, present some possible concern.

The data and GAM-estimated time trend for the 1832 Act (Figure 3) suggest a strong increase in yields at the beginning of the episode, a peak 16 months prior to the legislation, and a consistent decrease in yield at least until the end of the episode. It seems plausible that this set of data could fit into the GAM predictions as simply a more extreme set of observations.

The 1867 data and GAM (Figure 4) could also be seen as a more moderate set of observations fitting into the GAM prediction with peak at -16 months (similar to 1832) but leveling off very soon after the passage of the bill.
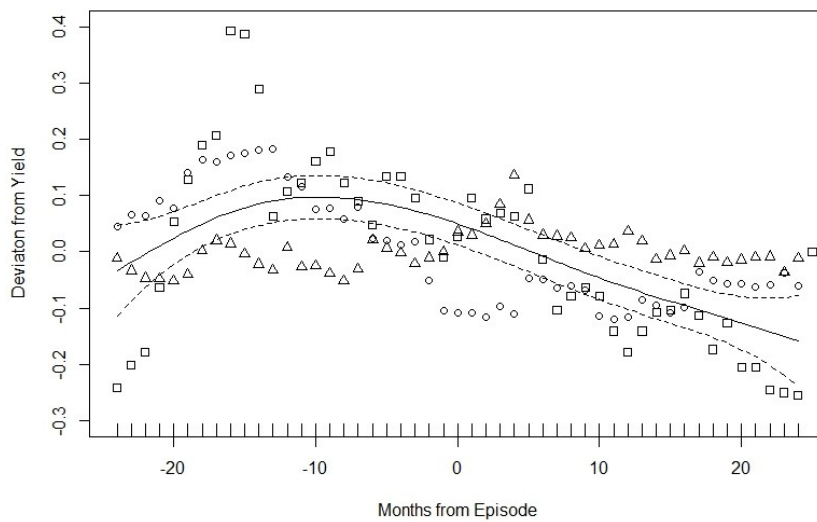
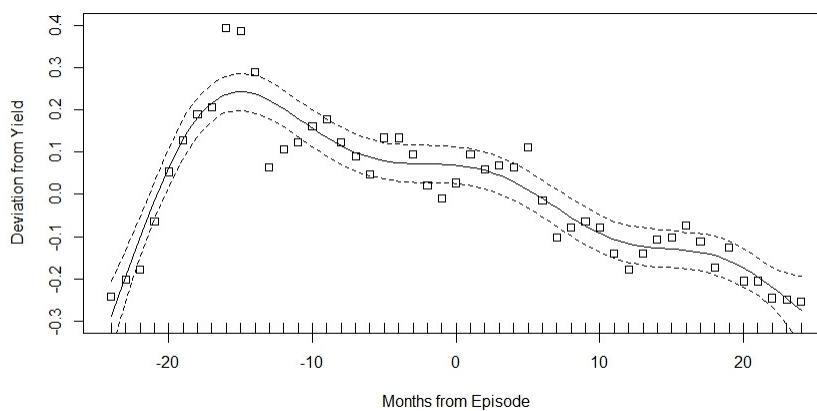Figure 2: GAM for all Episodes
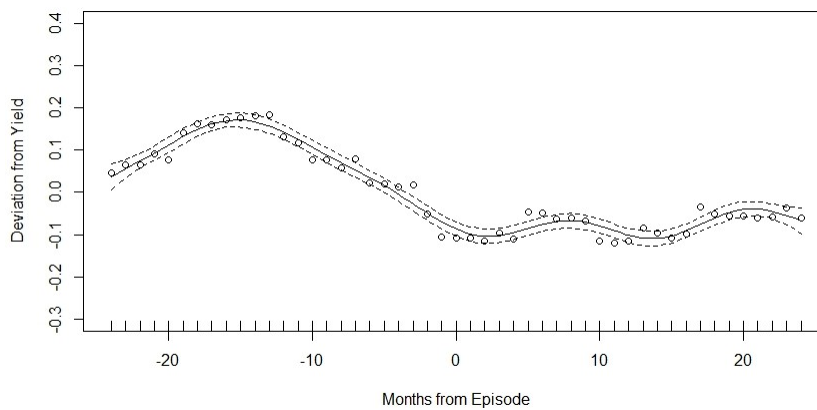

Figure 3: GAM for 1832 Episode

Figure 4: GAM for 1867 Episode

For the 1884 data (Figure 5), the pooled GAM is far less convincing as any sort of predictor whatsoever. The chronological path of observations is nearly flat, and if one were very hard-pressed to define a "peak", that peak would be about 5 months after the passage of the legislation, although the magnitude of the peak is so insignificant it's hardly worth mentioning.
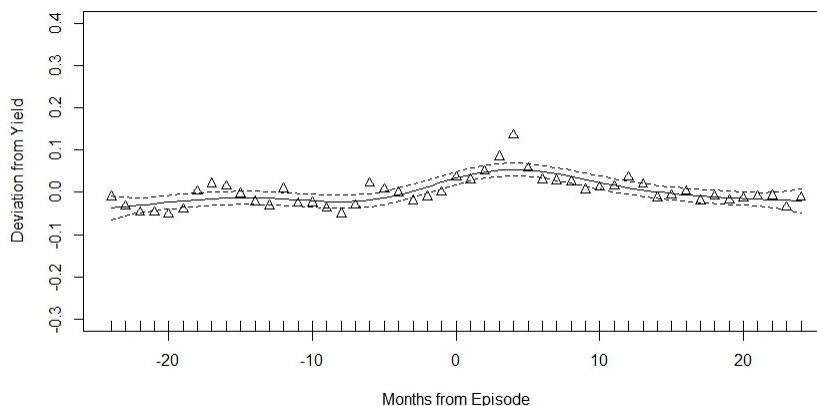

Figure 5: GAM for 1884 Episode

As is seen from viewing each Act and the corresponding observations separately, it is difficult to claim that a generalized model for bond yields i.e. political risk for British reforms should even be attempted. Though the pooled data was initially thought of as a 'large' (147) set of observations appropriate to create a single model, when the data is thought of as three observations sets, only two of which are plausible realizations of the data, we might conclude that an observed confidence interval of 67% is very poor indeed.

Conclusion

The relationship between bond yields and political risk is a tool of analysis that can be effective and helpful in understanding government and social conditions, and should perhaps be used more often. There are limitations though, in trying to compare

relative yields, volatility, and patterns. First, assumptions that higher volatility should be associated with high volatility and hence high political risk could be an unfounded assumption. Certainly it is obvious that analysis of Consol bonds suggest *more* risk during some democratization episodes than during other the 19the century at large. All periods of highest volatility during the 19th century are reasonably associated with periods of democratization (with both passing and failing legislation) and so could be reasonably associated with the *highest* political risk, but without some threshold for comparison it cannot be said whether that highest volatility is sufficiently high to suggest *high* political risk, i.e. another Glorious Revolution or the like. A simple statement that the peaks of risk during a century of low political risk is highly inconclusive for the fundamental question of whether Downing Street was on the brink of collapse.

Additionally, a closer look at time-dependent models of markets around events of social and political importance should be considered carefully, especially when there are few events to compare. In the democratization examples of this study, the variability within the three episodes is so apparent that a time-dependent model cannot be created with sufficient accuracy to warrant the use of such a model for anything other than to demonstrate the model.

Despite the introduction of previously unused statistical and econometric methods, our understanding of the transition of Britain into a modern democracy must necessarily still be considered extremely lacking. A differing approach to the question and the model may yield more satisfactory evidence for defining the nature of democratization in Britain, but the debate must currently go on.

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